1992 Mazda MX-5 Miata Workshop Manual

FOREWORD

This workshop manual is intended for use by service technicians of Authorized Mazda Dealers to help them service Mazda vehicles.

For proper repair and maintenance, a thorough familiarization with this manual is important, and it should always be kept in a handy place for quick and easy reference.

All the contents of this manual, including drawings and specifications, are the latest available at the time of printing. As modifications affecting repair or maintenance occur, relevant information supplementary to this volume will be made available at Authorized Mazda Dealers. This manual should be kept up-to-date.

Mazda Motor Corporation reserves the right to alter the specifications and contents of this manual without obligation or advance notice.

All rights reserved. No part of this book may be reproduced or used in any form or by any means, electronic or mechanical—including photocopying and recording and the use of any kind of information storage and retrieval system—without permission in writing.

Mazda Motor Corporation
HIROSHIMA, JAPAN

APPLICATION:
This manual is applicable to vehicles beginning with the Vehicle Identification Numbers (VIN) shown on the following page.

CONTENTS

Title	Section
General Information	GI
Pre-Delivery Inspection and Scheduled Maintenance Services	A
Engine	B
Lubrication System	D
Cooling System	E
Fuel and Emission Control Systems	F
Engine Electrical System	G
Clutch	H
Manual Transmission	J
Automatic Transmission	K
Propeller Shaft	L
Front and Rear Axles	M
Steering System	N
Braking System	P
Wheels and Tires	Q
Suspension	R
Body	S
Body Electrical System	T
Heater and Air Conditioner Systems	U
Technical Data	TD
Special Tools	ST
Parts Index	PI
Wiring Diagram (Part No. 5200-10-91G) (9999-95-026G-92)	Z

© 1991 Mazda Motor Corporation
PRINTED IN USA, JUL. '91
1271-10-91G
(9999-95-042B-92)

VEHICLE IDENTIFICATION NUMBERS (VIN)

JM1 NA351 * N * 300001 ~

GENERAL INFORMATION

IMPORTANT INFORMATION ..... **GI– 2**
BASIC ASSUMPTIONS ..... **GI– 2**
SAFETY RISK ..... **GI– 2**
POSSIBLE LOSS OF WARRANTY ..... **GI– 2**
WARNING ON LUBRICANTS AND GREASES ..... **GI– 2**
HOW TO USE THIS MANUAL ..... **GI– 3**
PREPARATION ..... **GI– 3**
REPAIR PROCEDURE ..... **GI– 3**
SYMBOLS ..... **GI– 4**
NOTES, CAUTIONS, AND WARNINGS ..... **GI– 4**
FUNDAMENTAL PROCEDURES ..... **GI– 4**
PROTECTION OF VEHICLE ..... **GI– 4**
A WORD ABOUT SAFETY ..... **GI– 5**
PREPARATION OF TOOLS AND MEASURING EQUIPMENT ..... **GI– 5**
SPECIAL TOOLS ..... **GI– 5**
REMOVAL OF PARTS ..... **GI– 5**
DISASSEMBLY ..... **GI– 5**
REASSEMBLY ..... **GI– 6**
ADJUSTMENTS ..... **GI– 7**
RUBBER PARTS AND TUBING ..... **GI– 7**
JACK AND SAFETY STAND POSITIONS ..... **GI– 8**
VEHICLE LIFT (2-SUPPORT TYPE) POSITIONS ..... **GI– 8**
TOWING ..... **GI– 9**
WITH AUTOMATIC TRANSMISSION ..... **GI– 9**
IDENTIFICATION NUMBER LOCATIONS ..... **GI– 9**
UNITS **GI–10**
ABBREVIATIONS **GI–10**
CAUTION **GI–11**
INSTALLATION OF MOBILE TWO-WAY RADIO SYSTEM **GI–11**
REMOVAL OF IGNITION KEY ON AUTOMATIC TRANSMISSION MODEL **GI–11**
SERVICE PRECAUTIONS CONCERNING AIR BAG SYSTEM **GI–12**
BATTERY **GI–13**
POWER CONNECTOR IN ENGINE COMPARTMENT **GI–13**
AUDIO ANTI-THEFT SYSTEM **GI–13**
ELECTRICAL TROUBLESHOOTING TOOLS **GI–14**
CAUTION WITH ELECTRICAL PARTS **GI–15**

25UGIX-001

IMPORTANT INFORMATION

BASIC ASSUMPTIONS

This workshop manual assumes that you have certain special tools that are necessary for the safe and efficient performance of service operations on Mazda vehicles and that you know how to use them properly. It also assumes that you are familiar with automobile systems and basic service and repair procedures. You should not attempt to use this manual unless these assumptions are correct and you understand the consequences described below.

SAFETY RISK

This manual contains certain notes, warnings, and other precautionary information that you should carefully read and follow to reduce the risk of personal injury to yourself or others and the risk of improper service that may damage the vehicle or render it unsafe. If there is no such information in regard to any specific service method, this does not mean there is no possibility that personal safety or vehicle safety will be jeopardized by the use of incorrect methods or tools.

POSSIBLE LOSS OF WARRANTY

The manufacturer's warranty on Mazda vehicles and engines can be voided if improper service or repairs are performed by persons other than those at an Authorized Mazda Dealer.

WARNING ON LUBRICANTS AND GREASES

Avoid all prolonged and repeated contact with mineral oils, especially used oils. Used oils contaminated during service (e.g., engine sump oils) are more irritating and more likely to cause serious effects, including skin cancer, in the event of gross and prolonged skin contact.

Wash skin thoroughly after work involving oil.
Protective hand cleaners may be of value provided they can be removed from the skin with water. Do not use gasoline, paraffin, or other solvents to remove oil from the skin.

Lubricants and greases may be slightly irritating to the eyes.

Repeated or prolonged skin contact should be avoided by wearing protective clothing. Particular care should be taken with used oils and greases containing lead. Do not allow work clothing to be contaminated with oil. Dry clean or launder such clothing at regular intervals.

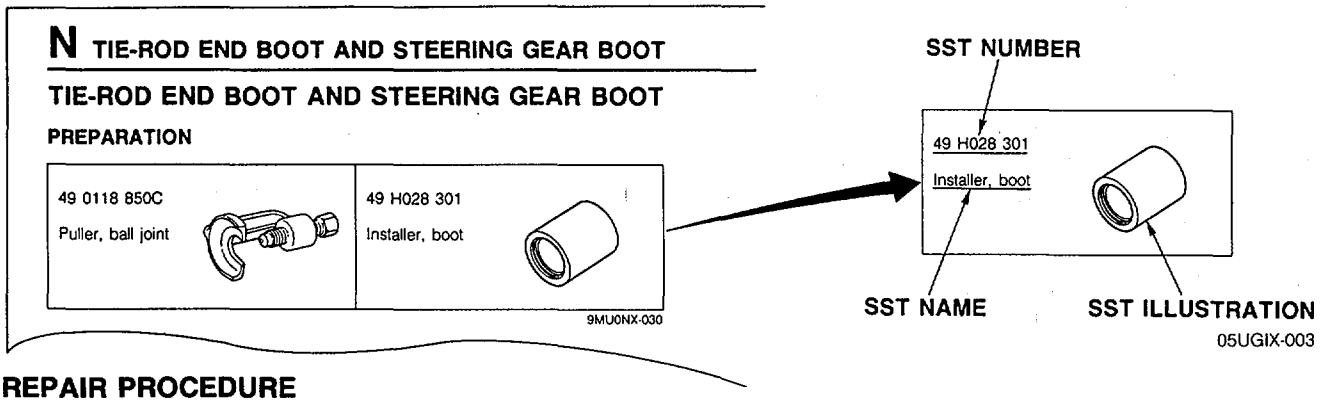
05UGIX-002

HOW TO USE THIS MANUAL

PREPARATION

PREPARATION points out the needed **Special Service Tool (SST)** for the service operation that it proceeds. Gather all necessary **SST** before beginning work.

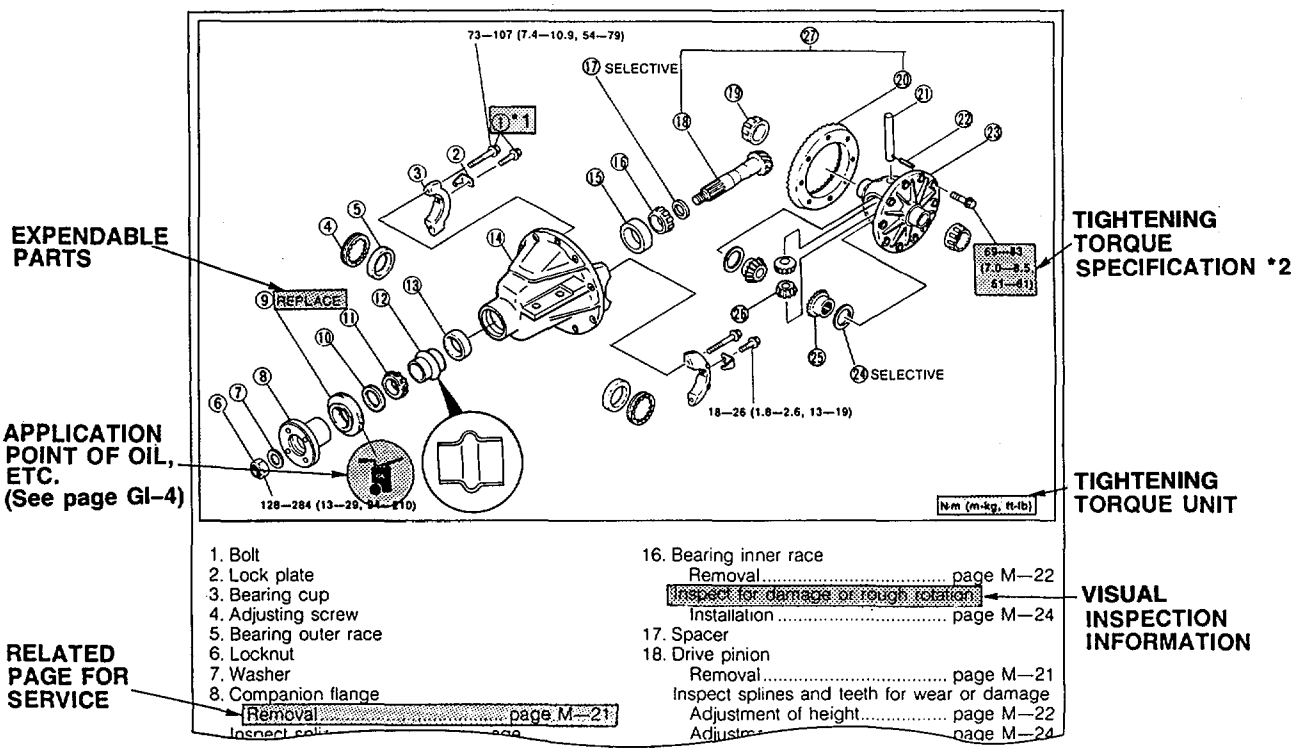
Example:



REPAIR PROCEDURE

1. Most repair operations begin with an overview illustration. It identifies the components, shows how the parts fit together, and describes visual parts inspections. If a damaged or worn part is found, repair or replace it as necessary.
2. Expendable parts, tightening torques, and symbols for oil, grease, and sealant are shown in the overview illustration.
3. Pages related to service procedures are shown under the illustration. Refer to this information when servicing the related part.

Example:



*1: The numbers (① ex.) refer to parts identification and where necessary servicing procedure.
*2: Units are in N·m (m-kg, ft-lb) unless otherwise specified.

SYMBOLS

There are six symbols indicating oil, grease, and sealant. These symbols show the points of applying such materials during service.

Symbol	Meaning	Kind
	Apply oil	New engine oil or gear oil as appropriate
	Apply brake fluid	Only brake fluid
	Apply automatic transmission fluid	Only ATF
	Apply grease	Appropriate grease
	Apply sealant	Appropriate sealant
	Apply petroleum jelly	Appropriate petroleum jelly

05UGIX-005

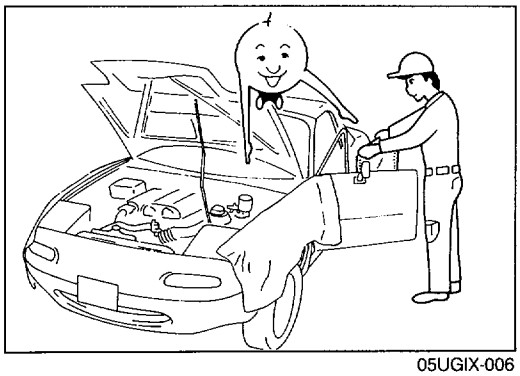
Note

- **When special oil or grease is needed, this is shown in the illustration.**

NOTES, CAUTIONS, AND WARNINGS

As you read through the procedures, you will come across NOTES, CAUTIONS, and WARNINGS. Each one is there for a specific purpose. **NOTES** give you **added information** that will help you to complete a particular procedure. **CAUTIONS** are given to prevent you from making an error that could **damage the vehicle. WARNINGS** remind you to be especially careful in those areas where carelessness can cause **personal injury.** The following list contains some general WARNINGS you should follow when you work on a vehicle.

9MUGIX-036

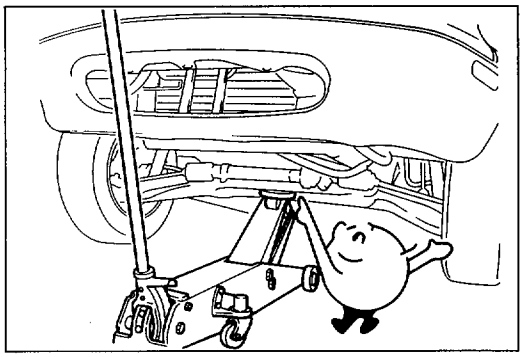


05UGIX-006

FUNDAMENTAL PROCEDURES

PROTECTION OF VEHICLE

Always be sure to cover fenders, seats, and floor areas before starting work.



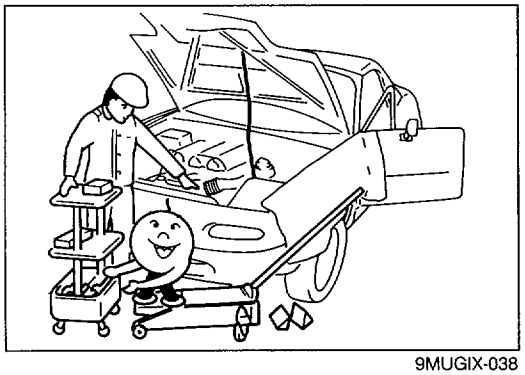
9MUGIX-003

A WORD ABOUT SAFETY

The following precautions must be followed when jacking up the vehicle.

1. Block the wheels.
2. Use only the specified jacking positions.
3. Support the vehicle with safety stands.

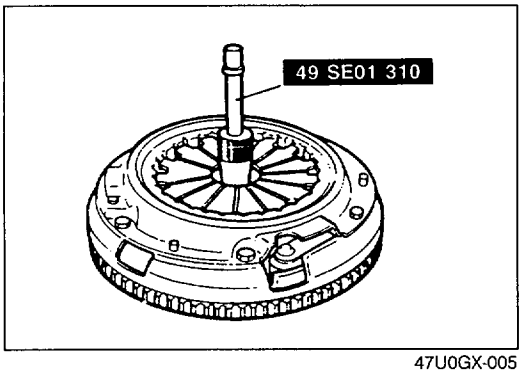
Start the engine only after making certain the engine compartment is clear of tools and people.



9MUGIX-038

PREPARATION OF TOOLS AND MEASURING EQUIPMENT

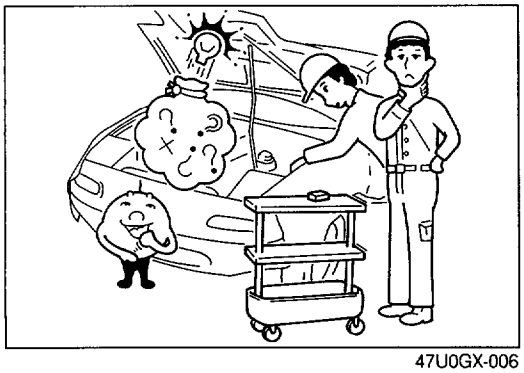
Be sure that all necessary tools and measuring equipment are available before starting any work.



47U0GX-005

SPECIAL TOOLS

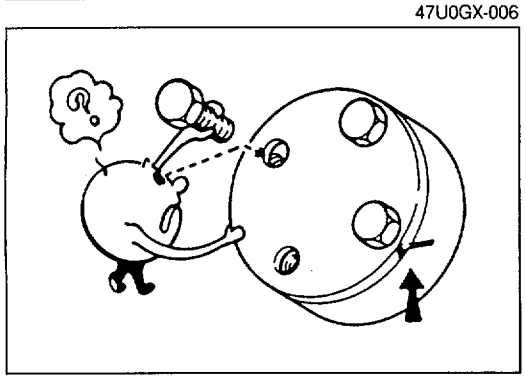
Use special tools when they are required.



47U0GX-006

REMOVAL OF PARTS

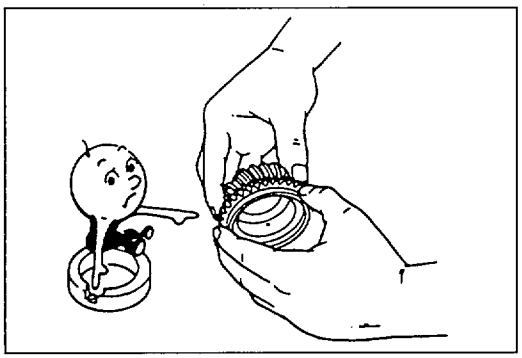
While correcting a problem, try also to determine its cause. Begin work only after first learning which parts and subassemblies must be removed and disassembled for replacement or repair.



9MUGIX-039

DISASSEMBLY

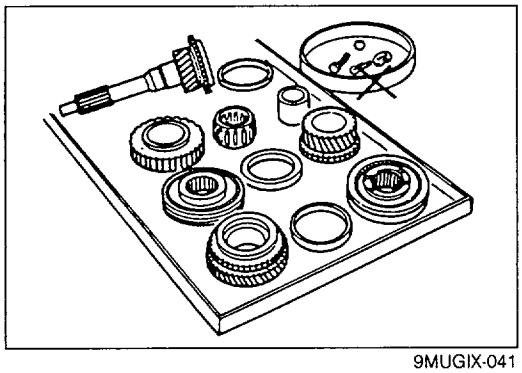
If the disassembly procedure is complex, requiring many parts to be disassembled, all parts should be disassembled in a way that will not affect their performance or external appearance and identified so that reassembly can be performed easily and efficiently.



9MUGIX-040

1. Inspection of parts

When removed, each part should be carefully inspected for malfunctioning, deformation, damage, and other problems.

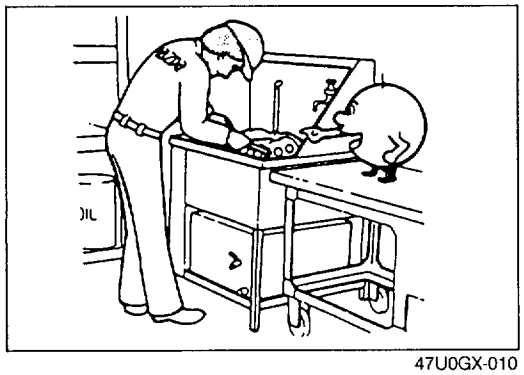


9MUGIX-041

2. Arrangement of parts

All disassembled parts should be carefully arranged for re-assembly.

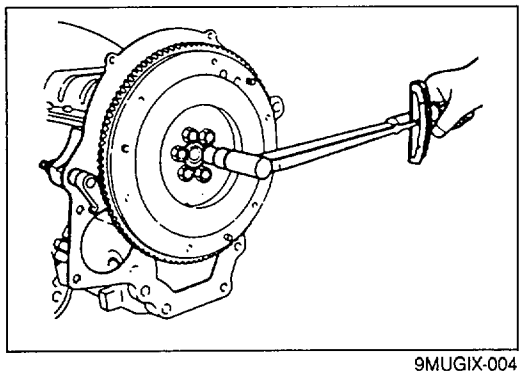
Be sure to separate or otherwise identify the parts to be replaced from those that will be reused.



47U0GX-010

3. Cleaning parts for reuse

All parts to be reused should be carefully and thoroughly cleaned in the appropriate method.



9MUGIX-004

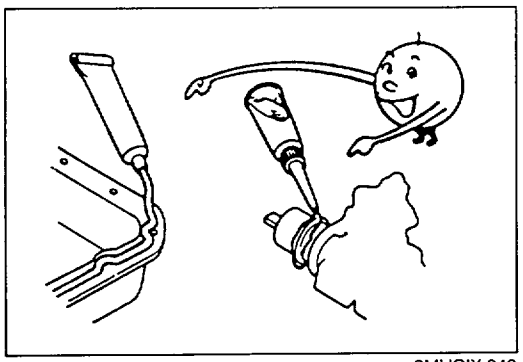
REASSEMBLY

Standard values, such as torques and certain adjustments, must be strictly observed in the reassembly of all parts.

Refer to STANDARD BOLT AND NUT TIGHTENING TORQUE in Section TD for tightening torques not mentioned in the main text.

If removed, these parts should be replaced with new ones:

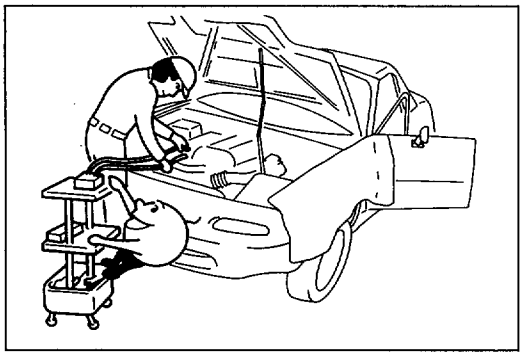
1. Oil seals
2. Gaskets
3. O-rings
4. Lock washers
5. Cotter pins
6. Nylon nuts



9MUGIX-042

Depending on location:

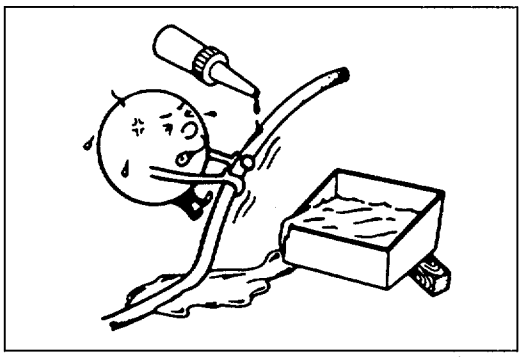
1. Sealant should be applied or new gaskets used.
2. Oil should be applied to the moving components of parts.
3. Specified oil or grease should be applied at the prescribed locations (such as oil seals) before reassembly.



67U0GX-002

ADJUSTMENTS

Use suitable gauges and/or testers when making adjustments.



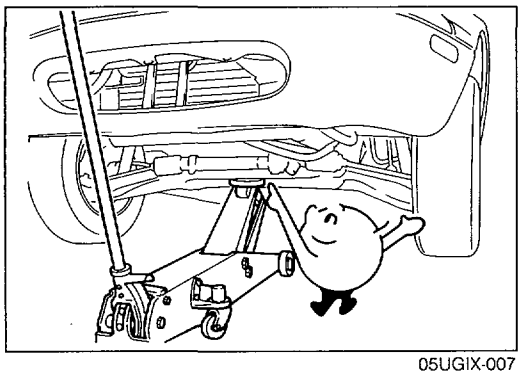
9MUGIX-005

RUBBER PARTS AND TUBING

Prevent gasoline or oil from getting on rubber parts or tubing.

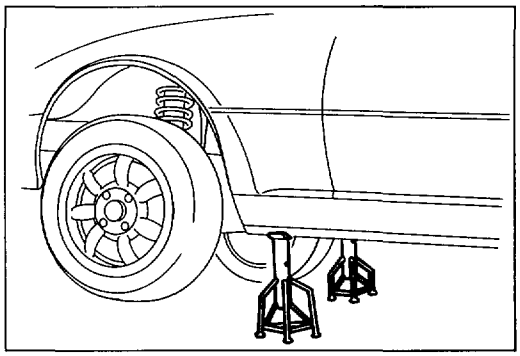
JACK AND SAFETY STAND POSITIONS

FRONT
Jack position:
At center of crossmember



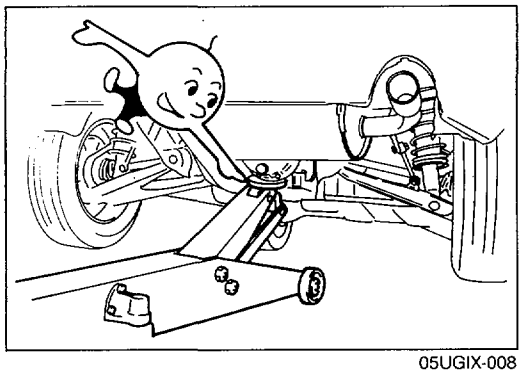
05UGIX-007

Safety stand positions:
Side sills



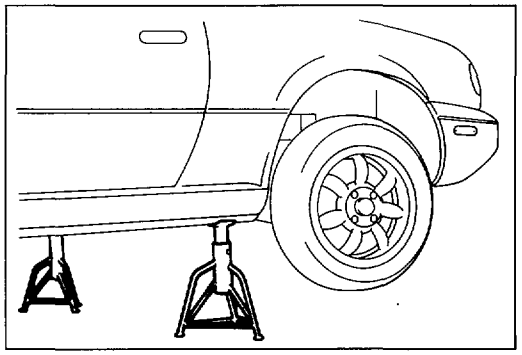
9MUGIX-007

REAR
Jack position:
At center of differential



05UGIX-008

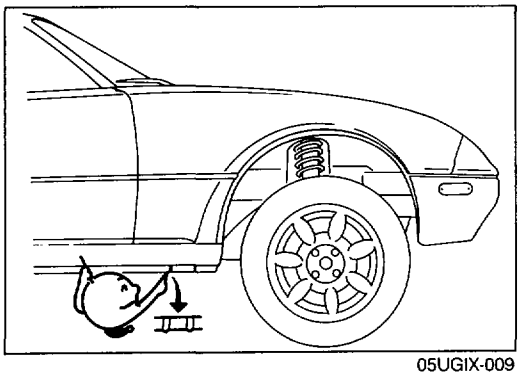
Safety stand positions:
Side sills



9MUGIX-009

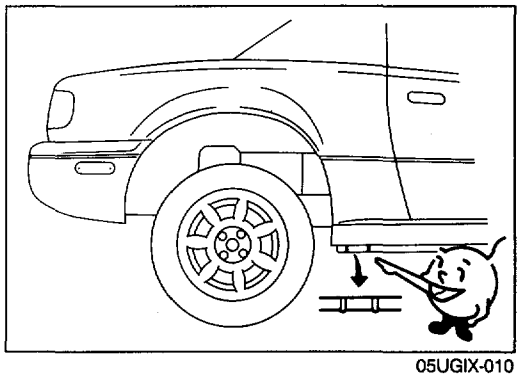
VEHICLE LIFT (2-SUPPORT TYPE) POSITIONS

FRONT
Frame
Side sills

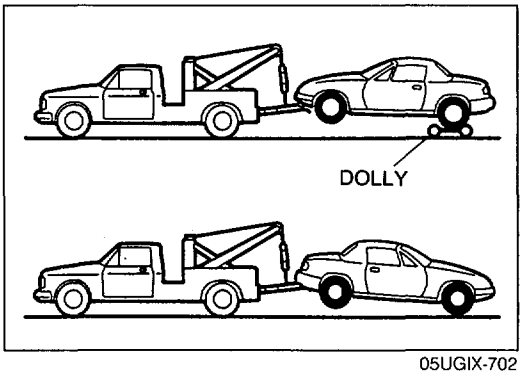


05UGIX-009

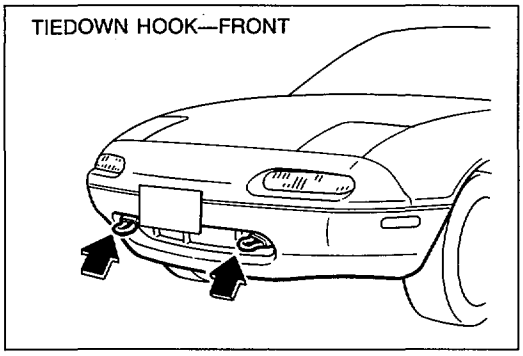
REAR
Frame
Side sills

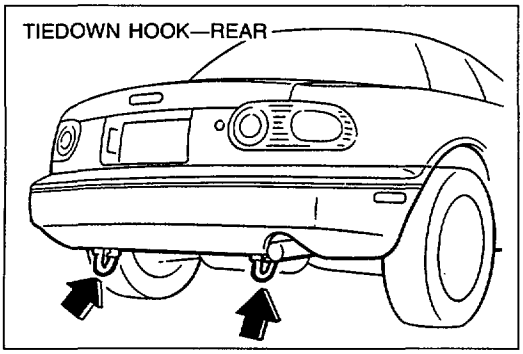


05UGIX-010



05UGIX-702





TOWING

Proper towing equipment is necessary to prevent damage to the vehicle during any towing operation.
Laws and regulations applicable to vehicles in tow must always be observed.
Release the parking brake, place the select lever in N (neutral), and set the ignition switch in the ACC position. As a rule, towed vehicles should be pulled with the driving wheels off the ground.

WITH AUTOMATIC TRANSMISSION

If excessive damage or other conditions prevent towing the vehicle with the driving wheels off the ground, use a towing dolly. With all wheels on the ground, the vehicle may be towed only forward. In this case, do not exceed 56 km/h (35 mph) or a distance of 56 km (35 miles) or transmission damage could result.

If towing speed will exceed 56 km/h (35 mph), or if towing distance will exceed 56 km (35 miles), use one of these methods:
1. Place the rear wheels on a dolly.
2. Tow with the rear wheels off the ground.
3. Disconnect the propeller shaft.

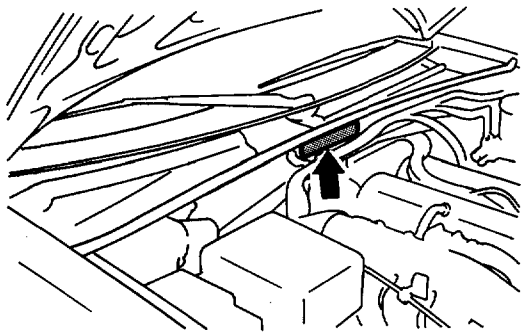
If the transmission or rear axle is inoperative, tow the vehicle with its rear wheels off the ground or disconnect the propeller shaft.

CAUTION

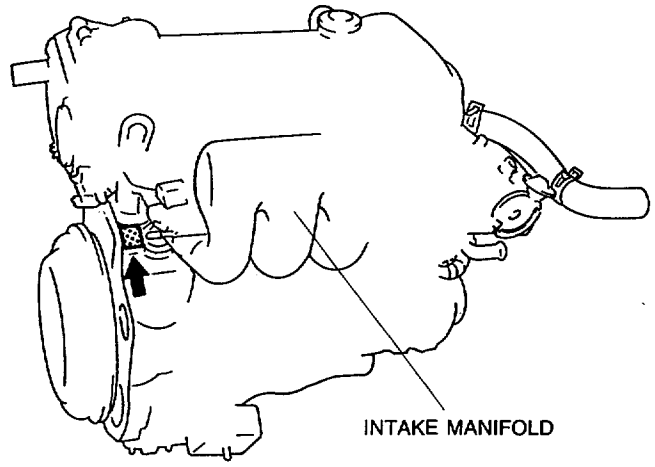
- **The power assists for the brakes and steering are inoperable while the engine is off.**
- **Do not use the tiedown hooks of the vehicle for towing. These hooks are designed ONLY for transport tiedown. If the tiedown hooks are used for towing, the front or rear skirt and bumper will be damaged.**

IDENTIFICATION NUMBER LOCATIONS

VEHICLE IDENTIFICATION NUMBER (VIN)

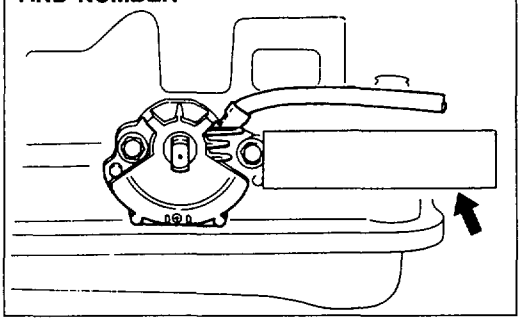


ENGINE MODEL AND NUMBER



9MUGIX-015

AUTOMATIC TRANSMISSION MODEL AND NUMBER



UNITS

N·m (m-kg or cm-kg, ft-lb or in-lb)	Torque
rpm	Revolutions per minute
A	Ampere(s)
V	Volt(s)
Ω	Ohm(s) (resistance)
kPa (kg/cm^2, psi)	Pressure (usually positive)
mmHg (inHg)	Pressure (usually negative)
W	Watt
liters (US qt, Imp qt)	Volume
mm (in)	Length

89U0GX-006

ABBREVIATIONS

ABDC	After bottom dead center
ABS	Anti-lock brake system
A/C	Air conditioner
ACC	Accessories
A/T	Automatic transmission
ATDC	After top dead center
ATF	Automatic transmission fluid
BBDC	Before bottom dead center
BTDC	Before top dead center
CNT	Center
DRL	Daytime running light
ECU	Engine control unit
EGI	Electronic gasoline injection
E/L	Electrical load
EX	Exhaust
GND	Ground
HLA	Hydraulic lash adjuster
IC	Integrated circuit
IDL	Idle
IN	Intake
INT	Intermittent
ISC	Idle-speed control
LH	Left hand
LSD	Limited slip differential
M	Motor, electric
MIL	Malfunction indicator lamp
M/T	Manual transmission
OFF	Switch off
ON	Switch on
PCV	Positive crankcase ventilation
POW	Power
PPF	Power plant frame
PRC	Pressure regulator control
P/S	Power steering
P/W	Power window
RH	Right hand
SST	Special service tool
SW	Switch
TDC	Top dead center
TEN	Terminal
TFA	Transfer
VRIS	Variable resonance induction system

15UGIX-001

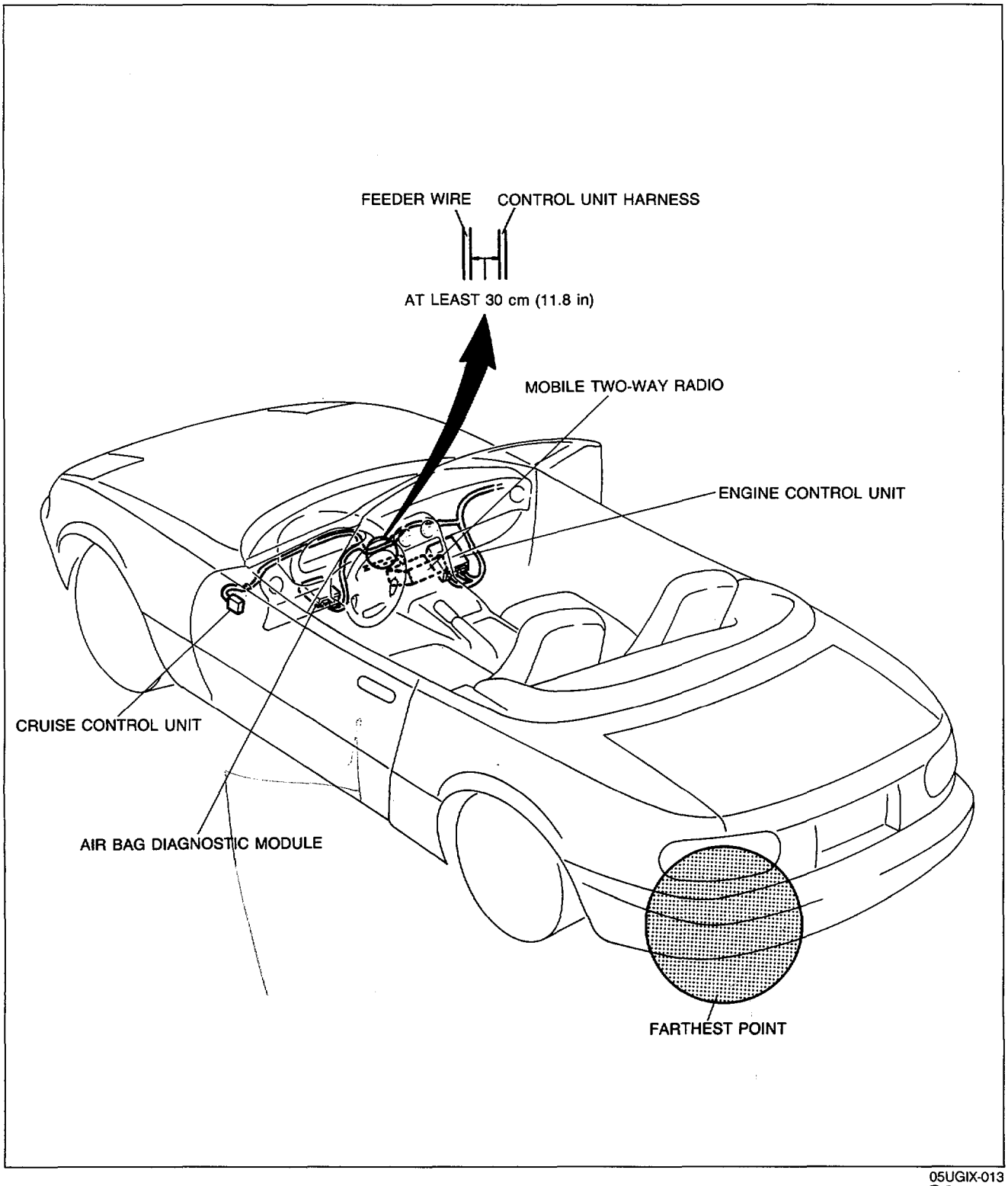
CAUTION

INSTALLATION OF MOBILE TWO-WAY RADIO SYSTEM

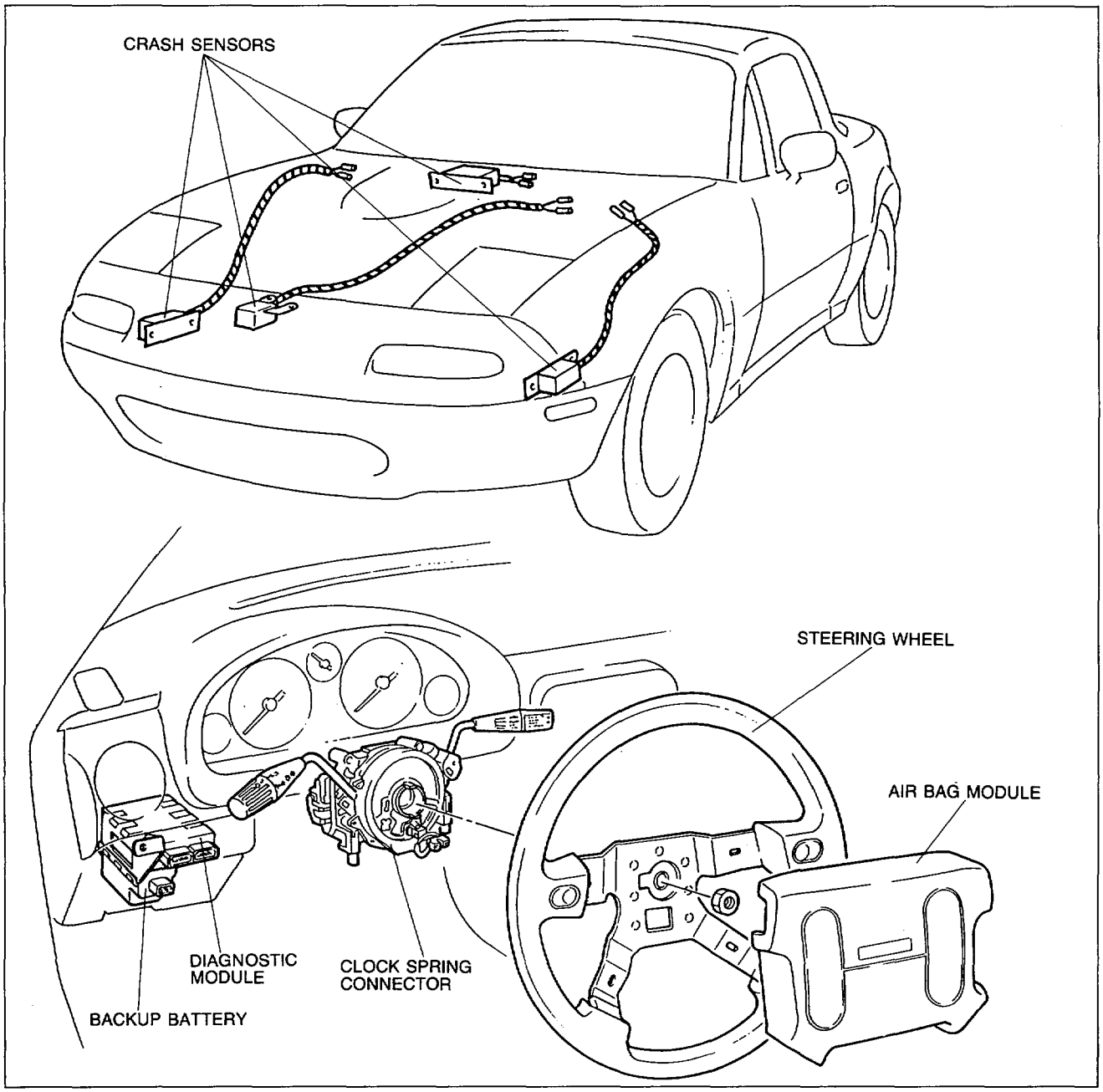
If a mobile two-way radio system is installed improperly or if a high-powered type is used, the EGI system and other systems may be affected.

When the vehicle is to be equipped with a mobile two-way radio, observe the following precautions:

1. Install the antenna at the farthest point from control units.
2. Install the antenna feeder as far as possible from the control unit harnesses **(at least 30 cm [11.8 in])**.
3. Ensure that the antenna and feeder are properly adjusted.
4. Do not install a high-powered mobile two-way radio system.



SERVICE PRECAUTIONS CONCERNING AIR BAG SYSTEM



05UGIX-014

Before Replacing any Components

Before replacing of any air bag system components, or before disconnecting any connectors of the system, first disconnect the negative battery cable. Then remove the air bag module from the vehicle even if it has not failed.

Prohibition of Component Disassembly and Wiring Harness Repair

The components of the air bag system are not intended to be disassembled for service.
If a component failure is indicated by the diagnostic module, replace the suspected component after verifying the condition of the connections and the wire harness. **Do not disassemble any components.**
If an open circuit is found by a continuity test, replace the wire harness. **Do not attempt to repair the wiring.**

Handling of Air Bag Module

1. Do not use an ohmmeter for inspection of the air bag module; it may cause an accidental deployment.
2. When carrying a live air bag module, make sure the trim cover is pointed away from your body to prevent injury in the event of an accidental deployment.

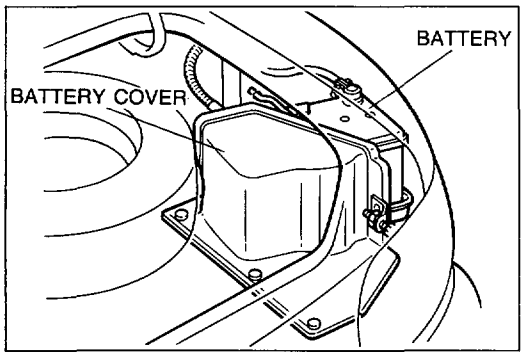
3. When placing a live air bag module on any surface, always face the trim cover upward. This will reduce the motion of the module if it is accidentally deployed.
4. When handling a deployed air bag module, wear gloves and safety glasses because the deployed air bag module may display deposits of sodium hydroxide, a product of the gas generant combustion.
5. An air bag module must be disposed according to the proper procedure recommended for the specific situation. (Refer to Section T.)

Crash Sensor Installation

1. The angle and direction of the sensor is very important for its proper operation. If a vehicle has been involved in a crash where its front sheet metal has been damaged, inspect the body structure at the sensor mounting area for deformation. If damaged, restore it to its original shape.
2. When installing a crash sensor, be sure to tighten the mounting bolts to the specified torque to ensure proper grounding. The ground circuit is made directly through the sensor's mounting plate.

Adjustment of Clock Spring Connector

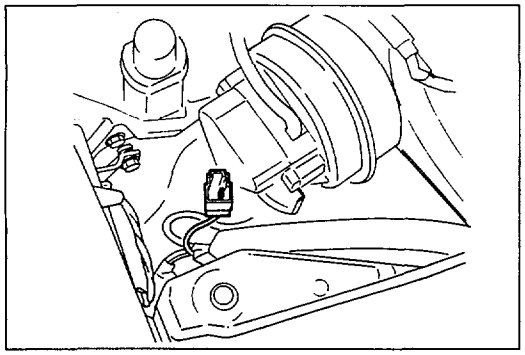
When the steering wheel is removed or the clock spring connector is replaced, the clock spring connector must be properly aligned.
Align the clock spring connector as follows:
(1) Set the front wheels straight ahead.
(2) Turn the clock spring connector clockwise until it stops. Do not force it.
(3) Return it 2.5 turns.
(4) Align (counterclockwise) the mark on the clock spring connector to the outer housing.
(5) Carefully install the steering wheel without disturbing the clock spring connector. 15UGIX-002



15UGIX-003

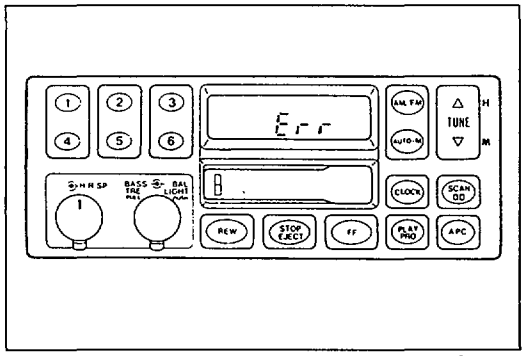
BATTERY

1. The battery is installed in the right rear of the trunk.
2. The battery installed in the MX-5 Miata is unique. When a replacement battery is installed, install it with a Mazda genuine battery replacement kit or equivalent. (Refer to Section G.)


05UGIX-017

POWER CONNECTOR IN ENGINE COMPARTMENT

1. When using externally powered test equipment, connect it to the special power connector (Blue: 1-pin) for battery voltage.
2. Do not ground the power connector terminal; the Wiper 20A fuse will be burned.

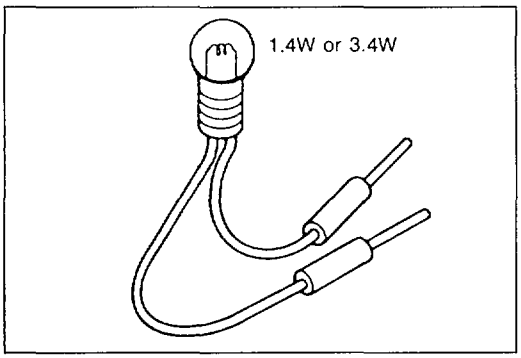


15UGIX-004

AUDIO ANTI-THEFT SYSTEM

An audio with an anti-theft function is optionally available. Before removing the negative battery terminal or disconnecting the audio power source, obtain the code number and deactivate the audio anti-theft system. (Refer to Section T.)

CAUTION



05UGIX-019

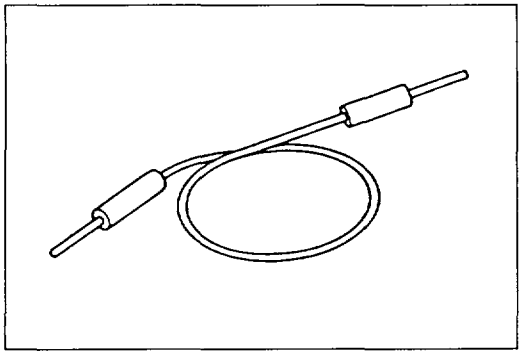
ELECTRICAL TROUBLESHOOTING TOOLS

Test Light

The test light, as shown in the figure, uses a 12V bulb. The two lead wires should be connected to probes.
The test light is used for simple voltage checks and for checking short circuits.

Caution

- **When checking a control unit, never use a bulb over 3.4W.**



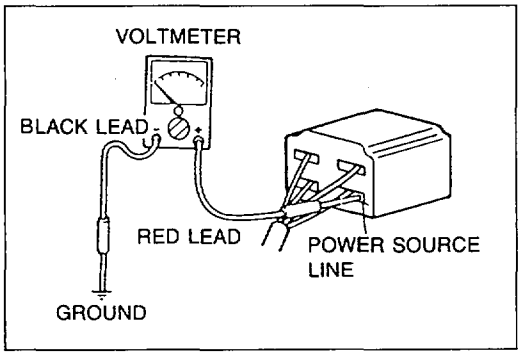
9MUGIX-020

Jumper Wire

The jumper wire is used for testing by shorting across switch terminals and ground connections.

Caution

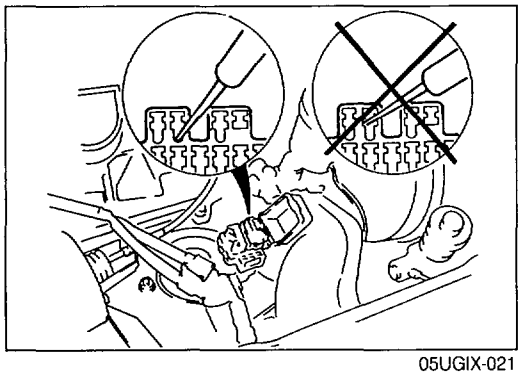
- **Do not connect a jumper wire from the power source line to a body ground; this may cause burning or other damage to harnesses or electronic components.**



05UGIX-020

Voltmeter

The DC voltmeter is used to measure circuit voltage. A voltmeter with a range of 15V or more is used by connecting the positive (+) probe (red lead wire) to the point where voltage is to be measured and the negative (–) probe (black lead wire) to a body ground.



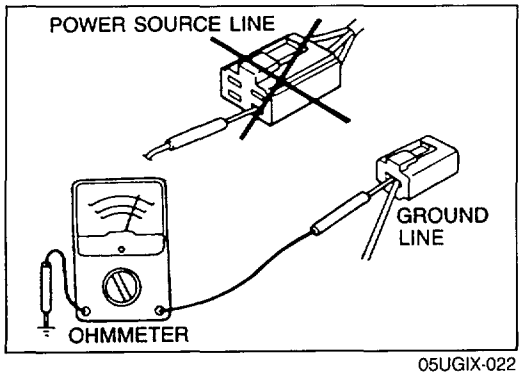
05UGIX-021

Diagnosis Connector

Insert the probe into the service hole when connecting a jumper wire to the diagnosis connector.

Caution

- **Do not insert the jumper wire probe into the diagnosis connector terminal, which may damage the terminal.**



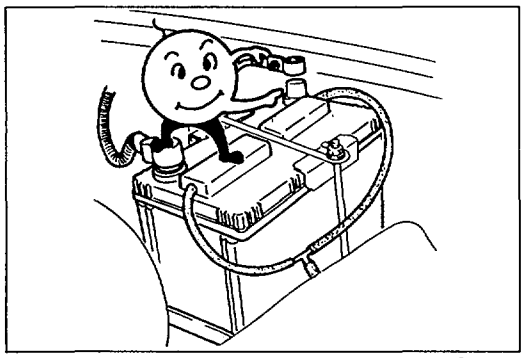
05UGIX-022

Ohmmeter

The ohmmeter is used to measure the resistance between two points in a circuit, and to check for continuity and short circuits.

Caution

- **Do not attempt to connect the ohmmeter to any circuit to which voltage is applied; this may burn or otherwise damage the ohmmeter.**

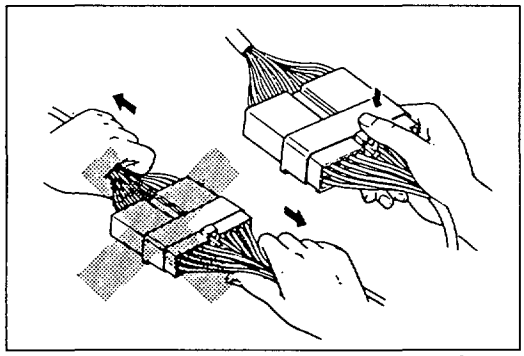


05UGIX-023

CAUTION WITH ELECTRICAL PARTS

Battery Cable

Before disconnecting connectors or removing electrical parts, disconnect the negative battery cable.

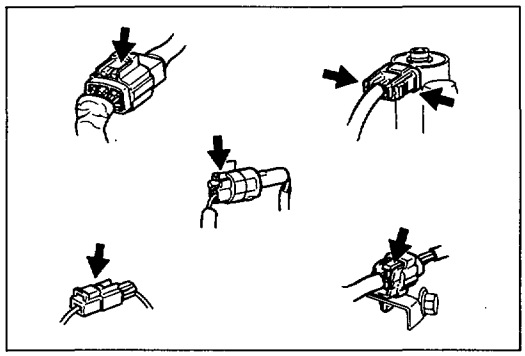


05UGIX-024

Connectors

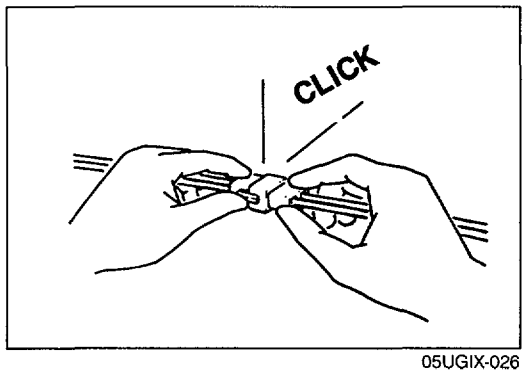
Disconnecting connectors

Never pull on the wire harness when disconnecting connectors.



05UGIX-025

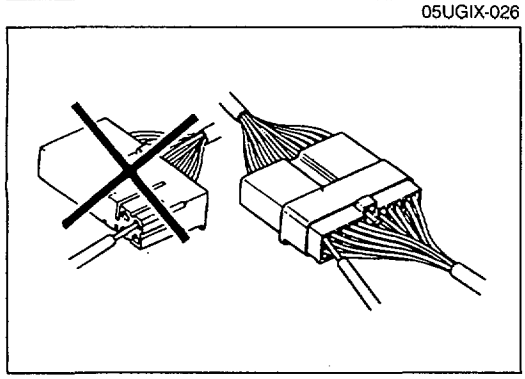
Connectors can be disconnected by pressing or pulling the lock lever as shown.



05UGIX-026

Locking connectors

When locking connectors, listen for a click that will indicate they are securely locked.

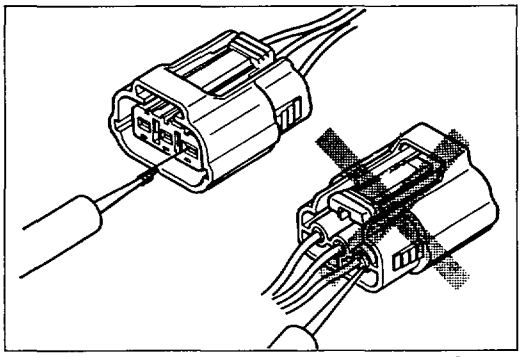


05UGIX-027

Inspection

1. When a tester is used to check for continuity or to measure voltage, insert the tester probe from the wire harness side.

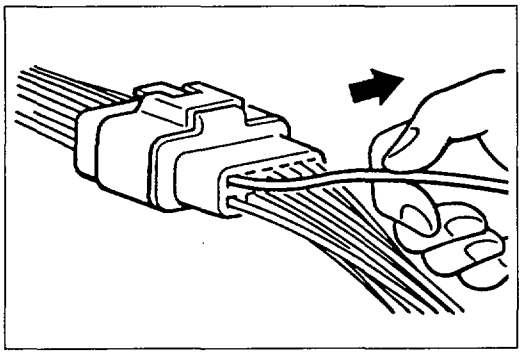
CAUTION



05UGIX-028

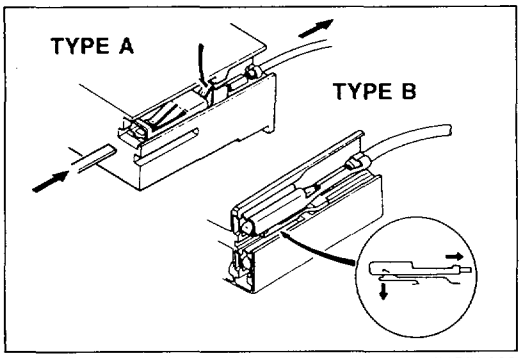
2. Check the terminals of waterproof connectors from the connector side, as they cannot be accessed from the wire harness side.

Caution
- **Use fine wire to prevent damage to the terminal.**
- **Do not damage the terminal when inserting the tester lead.**



9MUGIX-027

Terminals
Inspection
Pull lightly on individual wires to check that they are secured in the terminal.

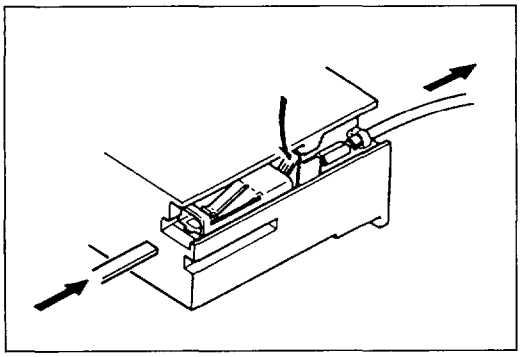


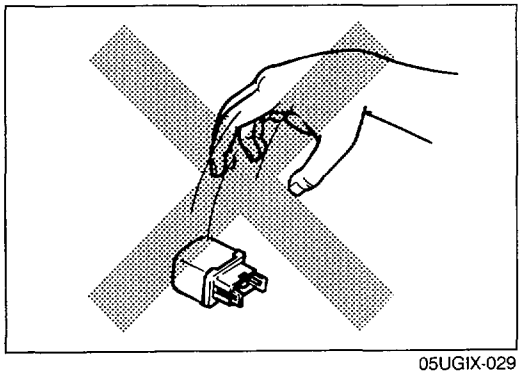
9MUGIX-028

Replacement of terminals
Use the appropriate tools to remove the terminal as shown. When installing the terminal, be sure to insert it until it locks securely.

<Female>
Insert a thin piece of metal from the terminal side of the connector, and then, with the terminal locking tab pressed down, pull the terminal out from the connector.

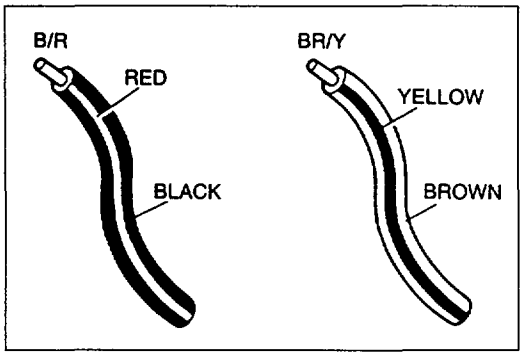
<Male>
Same as the female type.





05UGIX-029

Sensors, Switches, and Relays
Handle sensors, switches, and relays carefully. Do not drop them or strike them against other objects.

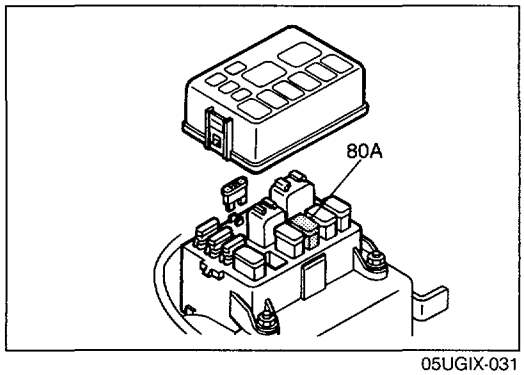


05UGIX-030

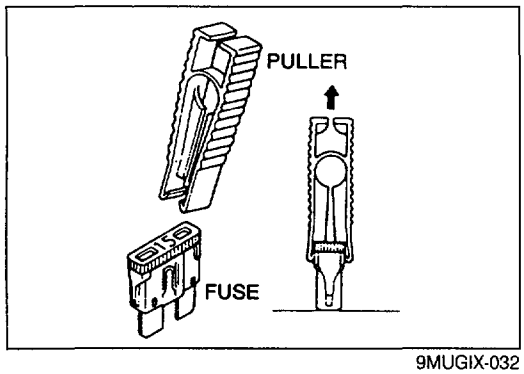
Wire Harness
Wiring color codes

Two-color wires are indicated by a two-color code symbol. The first letter indicates the base color of the wire and the second the color of the stripe.

CODE	COLOR		CODE	COLOR
B	Black		O	Orange
BR	Brown		P	Pink
G	Green		R	Red
GY	Gray		V	Violet
L	Blue		W	White
LB	Light Blue		Y	Yellow
LG	Light Green		—	—



05UGIX-031



9MUGIX-032

Fuse
Replacement

1. When replacing a fuse, be sure to replace it with one of the specified capacity.
   If a fuse again fails after it has been replaced, the circuit probably has a short and the wiring should be checked.
2. Be sure the negative battery terminal is disconnected before replacing a main fuse (80A).
3. When replacing a pullout fuse, use the fuse puller supplied in the fuse box cover.

PRE-DELIVERY INSPECTION AND SCHEDULED MAINTENANCE SERVICES

PRE-DELIVERY INSPECTION ..... A– 2
PRE-DELIVERY INSPECTION TABLE ..... A– 2
SCHEDULED MAINTENANCE SERVICES (EXCEPT CANADA) ..... A– 3
SCHEDULE 1 (NORMAL DRIVING CONDITIONS) ..... A– 3
SCHEDULE 2 (UNIQUE DRIVING CONDITIONS) ..... A– 8
SCHEDULED MAINTENANCE SERVICES (CANADA) A–13
SCHEDULE A–13

25U0AX-001

PRE-DELIVERY INSPECTION

PRE-DELIVERY INSPECTION TABLE

Following items may be done at any time prior to delivery to your customer.

EXTERIOR

INSPECT and **ADJUST**, if necessary, the following items to specification:
- ☐ Glass, exterior bright metal and paint for damage
- ☐ Convertible top and detachable hard top (if equipped) for damage
- ☐ Wheel lug nuts and locks
  88—118 N·m (9—12 m-kg, 65—87 ft-lb)
- ☐ All weatherstrips for damage or detachment
- ☐ Operation of hood release and lock
- ☐ Operation of fuel lid
- ☐ Door operation and alignment
- ☐ Headlight aiming

INSTALL the following parts:
- ☐ Wheel caps or rings (if equipped)
- ☐ Outside rearview mirror(s)
- ☐ Mast antenna

UNDER HOOD—ENGINE OFF

INSPECT and **ADJUST**, if necessary, the following items to specification:
- ☐ Fuel, coolant and hydraulic lines, fittings, connections and components for leaks
- ☐ Engine oil level
- ☐ Power steering fluid level (if equipped)
- ☐ Brake and clutch master cylinder fluid level
- ☐ Windshield washer reservoir fluid level
- ☐ Radiator coolant level and specific gravity
- ☐ Tightness of battery terminals

INTERIOR

INSTALL the following parts:

CHECK operation of the following items:
- ☐ Seat controls (sliding and reclining)
- ☐ Door locks
- ☐ Seat belts and warning system
- ☐ Air bag system using indicator light (if equipped) (Refer to Section T)
- ☐ Ignition switch and steering lock
- ☐ Starter interlock switch (clutch pedal)
- ☐ All lights, including warning and indicator lights
- ☐ Audible warning system
- ☐ Horn, wipers and washer
- ☐ Audio system (if equipped)
- ☐ Cigarette lighter
- ☐ Power windows (if equipped)
- ☐ Heater, defroster and air conditioner at all mode selections (if equipped)

CHECK the following items:
- ☐ Presence of spare fuses
- ☐ Upholstery and interior finish

CHECK and **ADJUST**, if necessary, the following items:
- ☐ Pedal height and free play of brake and clutch pedals

	Pedal height mm (in)	Free play mm (in)
Clutch pedal	175—185 (6.89—7.28) (with carpet)	0.6—3.1 (0.02—0.12)
Brake pedal	171—181 (6.73—7.13) (with carpet)	4—7 (0.16—0.28)

- ☐ Parking brake
  5—7 notches/98 N (10 kg, 22lb)

UNDER HOOD—ENGINE RUNNING AT OPERATING TEMPERATURE

CHECK the following items:

ON HOIST

CHECK the following items:
- ☐ Underside fuel, coolant and hydraulic lines, fittings, connections and components for leaks
- ☐ Tires for cuts or bruises
- ☐ Steering linkage, suspension, exhaust system and all underside hardware for looseness or damage
- ☐ Manual transmission oil level
- ☐ Automatic transmission oil level
- ☐ Rear axle oil level

ROAD TEST

CHECK the following items:
- ☐ Brake operation
- ☐ Clutch operation
- ☐ Steering control
- ☐ Operation of meters and gauges
- ☐ Squeaks, rattles and unusual noise
- ☐ Overall engine performance
- ☐ Seat belt emergency locking retractors
- ☐ Cruise control system (if equipped)

AFTER ROAD TEST

CHECK for necessary owner information materials, tools and spare tire in vehicle

Following items must be done just before the delivery to your customer.

- ☐ Load test battery and charge if necessary — Volts / Load test result
- ☐ Adjust tire pressure to the specification (Refer to Door Label)
- ☐ Clean outside of vehicle
- ☐ Install fuses for accessories
- ☐ Remove seat and floor mat protective covers
- ☐ Vacuum and clean interior of vehicle
- ☐ Inspect installation of option parts with invoice

25U0AX-002

SCHEDULED MAINTENANCE SERVICES (EXCEPT CANADA)

Follow Schedule 1 (Normal Driving Conditions) if the vehicle is mainly operated where none of the following conditions apply.
Follow Schedule 2 (Unique Driving Conditions) if any of the conditions below apply:

- Repeated short-distance driving.
- Driving in dusty conditions.
- Driving with extended use of brakes.
- Driving in areas where road salt or other corrosive materials are used.
- Driving on rough and/or muddy roads.
- Extended periods of idling and/or low-speed operation.
- Driving for prolonged periods in cold temperatures and/or extremely humid climates.

SCHEDULE 1 (NORMAL DRIVING CONDITIONS)

Chart symbols:

I : Inspect, and if necessary correct, clean or replace
R : Replace or change
T : Tighten
L : Lubricate

Remarks:

After 60 months or 60,000 miles (96,000 km), continue to follow the described maintenance at the recommended intervals.
As for * marked items in this maintenance chart, note the following points:
*1 Replacement of the timing belt is required every 60,000 miles (96,000 km). Failure to replace the timing belt may result in damage to the engine.
*2 This maintenance is recommended by Mazda. However, it is not necessary for emission warranty coverage or manufacturer recall liability.
*3 This maintenance is required for all states except California. However, we recommend that it also be performed on California vehicles.

Schedule 1 (Normal Driving Conditions) (MT)

Maintenance operation \ Interval	Number of months or miles (km), whichever comes first								Service data and inspection point	Page
	Months	7.5	15	22.5	30	37.5	45	52.5	60	
	Miles	7,500	15,000	22,500	30,000	37,500	45,000	52,500	60,000	
	Kilometers	12,000	24,000	36,000	48,000	60,000	72,000	84,000	96,000	
ENGINE										
Engine oil		R	R	R	R	R	R	R	R	• Oil pan capacity: 3.2 liters (3.4 US qt, 2.8 Imp qt)	D–5
Engine oil filter		R	R	R	R	R	R	R	R	• Oil filter capacity: 0.17 liter (0.18 US qt, 0.15 Imp qt)	D–5
Drive belts					I				I	• Cracks or damage • Tension	B–5
Air cleaner element					R				R	—	F–75
Engine timing belt *1		Replace every 60,000 miles (96,000 km)								—	B–12
IGNITION SYSTEM										
Spark plugs					R				R	• Plug gap: 1.0—1.1mm (0.039—0.043 in) • Recommended spark plugs: NGK: BKR5E-11, BKR6E-11, BKR7E-11 NIPPONDENSO: K16PR-U11, K20PR-U11, K22PR-U11	G–18
FUEL SYSTEM											
Idle speed					I*3				I	• Idle speed: 800—900	F–76
Fuel filter									R	—	F–106
Fuel lines					I*2				I	• Fittings, connections and components for leaks	F–100
COOLING SYSTEM											
Cooling system					I				I	• Hoses for cracks or wear • Coolant level	E–4
Engine coolant					R				R	—	E–4

Schedule 1 (Normal Driving Conditions) (MT) (Cont'd)

Maintenance operation \ Interval	Number of months or miles (km), whichever comes first								Service data and inspection point	Page
	Months	7.5	15	22.5	30	37.5	45	52.5	60	
	Miles	7,500	15,000	22,500	30,000	37,500	45,000	52,500	60,000	
	Kilometers	12,000	24,000	36,000	48,000	60,000	72,000	84,000	96,000	
CHASSIS AND BODY										
Brake lines, hoses, and connections					I				I	• Proper attachment and connections	P–6
Disc brakes					I				I	• Disc plate thickness: 16.0mm (0.63 in)—Minimum • Pad thickness: 1.0mm (0.04 in)—Minimum	P–20, 24
Steering operation and linkages					I				I	• Free play: 0—30mm (0—1.18 in) • Operation and looseness • Fluid leakage or oozing	N–8
Front suspension ball joints					I				I	• Damage, looseness and grease leakage	R–15, 17
Manual transmission oil									R	• Oil capacity: 2.0 liters (2.1 US qt, 1.8 Imp qt)	J–3
Rear axle oil									R	• Oil capacity: 0.65 liter (0.69 US qt, 0.57 Imp qt)	M–23
Bolts and nuts on chassis and body					T				T	• Retighten all loose bolts and nuts	—
Exhaust system heat shield					I				I	• Insulator clearance between body and exhaust system	F–115
All locks and hinges		L	L	L	L	L	L	L	L	• Lubricate all locks and hinges	—
AIR CONDITIONER SYSTEM										
Refrigerant		Inspect refrigerant amount annually								• Refrigerant pressure Low pressure: 147—294 kPa (1.5—3.0 kg/cm^2, 21—43 psi) High pressure: 1,177—1,619 kPa (12.0—16.5 kg/cm^2, 171—235 psi)	U–33
Compressor		Inspect operation annually								—	—

Schedule 1 (Normal Driving Conditions) (AT)

Interval / Maintenance operation	Number of months or miles (km), whichever comes first								Service data and inspection point	Page
	Months	7.5	15	22.5	30	37.5	45	52.5	60	
	Miles	7,500	15,000	22,500	30,000	37,500	45,000	52,500	60,000	
	Kilometers	12,000	24,000	36,000	48,000	60,000	72,000	84,000	96,000	
ENGINE										
Engine oil		R	R	R	R	R	R	R	R	• Oil pan capacity: 3.2 liters (3.4 US qt, 2.8 Imp qt)	D–5
Engine oil filter		R	R	R	R	R	R	R	R	• Oil filter capacity: 0.17 liter (0.18 US qt, 0.15 Imp qt)	D–5
Drive belts					I				I	• Cracks or damage • Tension	B–5
Air cleaner element					R				R	—	F–75
Engine timing belt *1		Replace every 60,000 miles (96,000 km)								—	B–12
IGNITION SYSTEM											
Spark plugs					R				R	• Plug gap: 1.0—1.1mm (0.039—0.043 in) • Recommended spark plugs: NGK: BKR5E-11, BKR6E-11, BKR7E-11 NIPPONDENSO: K16PR-U11, K20PR-U11, K22PR-U11	G–18
FUEL SYSTEM											
Idle speed					I*3				I	• Idle speed: 800—900 rpm	F–76
Fuel filter									R	—	F–106
Fuel lines					I*2				I	• Fittings, connections and components for leaks	F–100
COOLING SYSTEM											
Cooling system					I				I	• Hoses for cracks or wear • Coolant level	E–4
Engine coolant					R				R	—	E–4

Schedule 1 (Normal Driving Conditions) (AT) (Cont'd)

Maintenance operation \ Interval	Number of months or miles (km), whichever comes first								Service data and inspection point	Page
	Months	7.5	15	22.5	30	37.5	45	52.5	60	
	Miles	7,500	15,000	22,500	30,000	37,500	45,000	52,500	60,000	
	Kilometers	12,000	24,000	36,000	48,000	60,000	72,000	84,000	96,000	
CHASSIS AND BODY										
Brake lines, hoses, and connections					I				I	• Proper attachment and connections	P–6
Disc brakes					I				I	• Disc plate thickness: 16.0mm (0.63 in)—Minimum • Pad thickness: 1.0mm (0.04 in)—Minimum	P–20, 24
Steering operation and linkages					I				I	• Free play: 0—30mm (0—1.18 in) • Operation and looseness • Fluid leakage or oozing	N–8
Front suspension ball joints					I				I	• Damage, looseness and grease leakage	R–15, 17
Rear axle oil									R	• Oil capacity: 0.65 liter (0.69 US qt, 0.57 Imp qt)	M–23
Bolts and nuts on chassis and body					T				T	• Retighten all loose bolts and nuts	—
Exhaust system heat shield					I				I	• Insulator clearance between body and exhaust system	F–115
All locks and hinges		L	L	L	L	L	L	L	L	• Lubricate all locks and hinges	—
AIR CONDITIONER SYSTEM											
Refrigerant		Inspect refrigerant amount annually								• Refrigerant pressure Low pressure: 147—294 kPa (1.5—3.0 kg/cm^2, 21—43 psi) High pressure: 1,177—1,619 kPa (12.0—16.5 kg/cm^2, 171—235 psi)	U–33
Compressor		Inspect operation annually								—	—

SCHEDULE 2 (UNIQUE DRIVING CONDITIONS)

Chart symbols:

I : Inspect, and if necessary correct, clean or replace (Inspect, and if necessary replace..... only for air cleaner element)
R : Replace or change
T : Tighten
L : Lubricate

Remarks:

After 60 months or 60,000 miles (96,000 km), continue to follow the described maintenance at the recommended intervals.
As for * marked items in this maintenance chart note the following points:
*1 Replacement of the timing belt is required every 60,000 miles (96,000 km). Failure to replace the timing belt may result in damage to the engine.
*2 This maintenance is recommended by Mazda. However, it is not necessary for emission warranty coverage or manufacturer recall liability.
*3 This maintenance is required for all states except California. However, we recommend that it also be performed on California vehicles.

Schedule 2 (Unique Driving Conditions) (MT)

Maintenance operation \ Interval	Number of months or miles (km), whichever comes first												Service data and inspection point	Page
	Months	5	10	15	20	25	30	35	40	45	50	55	60	
	Miles (x1,000)	5	10	15	20	25	30	35	40	45	50	55	60	
	Km (x1,000)	8	16	24	32	40	48	56	64	72	80	88	96	
ENGINE														
Engine oil	R	R	R	R	R	R	R	R	R	R	R	R	• Oil pan capacity: 3.2 liters (3.4 US qt, 2.8 Imp qt)	D–5
Engine oil (For Puer·to Ri·co)	Replace every 3,000 miles (4,800 km) or every 3 months													
Engine oil filter	R	R	R	R	R	R	R	R	R	R	R	R	• Oil filter capacity: 0.17 liter (0.18 US qt, 0.15 Imp qt)	D–5
Drive belts						I						I	• Cracks or damage • Tension	B–5
Air cleaner element			I*3			R			I*3			R	—	F–75
Engine timing belt *1	Replace every 60,000 miles (96,000 km)												—	B–12
IGNITION SYSTEM														
Spark plugs						R						R	• Plug gap: 1.0—1.1mm (0.039—0.043 in) • Recommended spark plugs: NGK: BKR5E-11, BKR6E-11, BKR7E-11 NIPPONDENSO: K16PR-U11, K20PR-U11, K22PR-U11	G–18
FUEL SYSTEM														
Idle speed						I*3						I	• Idle speed: 800—900 rpm	F–76
Fuel filter												R	—	F–106
Fuel lines						I*2						I	• Fittings, connections and components for leaks	F–100
COOLING SYSTEM														
Cooling system						I						I	• Hoses for cracks or wear • Coolant level	E–4
Engine coolant						R						R	—	E–4

Schedule 2 (Unique Driving Conditions) (MT) (Cont'd)

Maintenance operation \ Interval	Number of months or miles (km), whichever comes first												Service data and inspection point	Page
	Months	5	10	15	20	25	30	35	40	45	50	55	60	
	Miles (x1,000)	5	10	15	20	25	30	35	40	45	50	55	60	
	Km (x1,000)	8	16	24	32	40	48	56	64	72	80	88	96	
CHASSIS AND BODY														
Brake lines, hoses, and connections							I						I	• Proper attachment and connections	P–6
Disc brakes				I			I			I			I	• Disc plate thickness: 16.0mm (0.63 in)—Minimum • Pad thickness: 1.0mm (0.04 in)—Minimum	P–20, 24
Steering operation and linkages							I						I	• Free play: 0—30mm (0—1.18 in) • Operation and looseness • Fluid leakage or oozing	N–8
Front suspension ball joints							I						I	• Damage, looseness and grease leakage	R–15, 17
Manual transmission oil							R						R	• Oil capacity: 2.0 liters (2.1 US qt, 1.8 Imp qt)	J–3
Rear axle oil							R						R	• Oil capacity: 0.65 liter (0.69 US qt, 0.57 Imp qt)	M–23
Bolts and nuts on chassis and body				T			T			T			T	• Retighten all loose bolts and nuts	—
Exhaust system heat shield							I						I	• Insulator clearance between body and exhaust system	F–115
All locks and hinges		L	L	L	L	L	L	L	L	L	L	L	L	• Lubricate all locks and hinges	—
AIR CONDITIONER SYSTEM														
Refrigerant	Inspect refrigerant amount annually													• Refrigerant pressure Low pressure: 147—294 kPa (1.5—3.0 kg/cm^2, 21—43 psi) High pressure: 1,177—1,619 kPa (12.0—16.5 kg/cm^2, 171—235 psi)	U–31
Compressor	Inspect operation annually													—	—

Schedule 2 (Unique Driving Conditions) (AT)

Maintenance operation \ Interval	Number of months or miles (km), whichever comes first												Service data and inspection point	Page
	Months	5	10	15	20	25	30	35	40	45	50	55	60	
	Miles (x1,000)	5	10	15	20	25	30	35	40	45	50	55	60	
	Km (x1,000)	8	16	24	32	40	48	56	64	72	80	88	96	
ENGINE														
Engine oil		R	R	R	R	R	R	R	R	R	R	R	R	• Oil pan capacity: 3.2 liters (3.4 US qt, 2.8 Imp qt)	D–5
Engine oil (For Puer·to Ri·co)		Replace every 3,000 miles (4,800 km) or every 3 months													
Engine oil filter		R	R	R	R	R	R	R	R	R	R	R	R	• Oil filter capacity: 0.17 liter (0.18 US qt, 0.15 Imp qt)	D–5
Drive belts							I						I	• Cracks or damage • Tension	B–5
Air cleaner element				I *3			R			I *3			R	—	F–75
Engine timing belt *1		Replace every 60,000 miles (96,000 km)												—	B–12
IGNITION SYSTEM															
Spark plugs							R						R	• Plug gap: 1.0—1.1mm (0.039—0.043 in) • Recommended spark plugs: NGK: BKR5E-11, BKR6E-11, BKR7E-11 NIPPONDENSO: K16PR-U11, K20PR-U11, K22PR-U11	G–18
FUEL SYSTEM															
Idle speed							I *3						I	• Idle speed: 800—900 rpm	F–76
Fuel filter													R	—	F–106
Fuel lines							I *2						I	• Fittings, connections and components for leaks	F–100
COOLING SYSTEM															
Cooling system							I						I	• Hoses for cracks or wear • Coolant level	E–4
Engine coolant							R						R	—	E–4

Schedule 2 (Unique Driving Conditions) (AT) (Cont'd)

Maintenance operation \ Interval	Number of months or miles (km), whichever comes first												Service data and inspection point	Page
	Months	5	10	15	20	25	30	35	40	45	50	55	60	
	Miles (x1,000)	5	10	15	20	25	30	35	40	45	50	55	60	
	Km (x1,000)	8	16	24	32	40	48	56	64	72	80	88	96	
CHASSIS AND BODY														
Brake lines, hoses, and connections							I						I	• Proper attachment and connections	P–6
Disc brakes				I			I			I			I	• Disc plate thickness: 16.0mm (0.63 in)—Minimum • Pad thickness: 1.0mm (0.04 in)—Minimum	P–20, 24
Steering operation and linkages							I						I	• Free play: 0—30mm (0—1.18 in) • Operation and looseness • Fluid leakage or oozing	N–8
Front suspension ball joints							I						I	• Damage, looseness and grease leakage	R–15, 17
Rear axle oil							R						R	• Oil capacity: 0.65 liter (0.69 US qt, 0.57 Imp qt)	M–23
Bolts and nuts on chassis and body				T			T			T			T	• Retighten all loose bolts and nuts	—
Exhaust system heat shield							I						I	• Insulator clearance between body and exhaust system	F–115
All locks and hinges	L	L	L	L	L	L	L	L	L	L	L	L	L	• Lubricate all locks and hinges	—
AIR CONDITIONER SYSTEM															
Refrigerant	Inspect refrigerant amount annually													• Refrigerant pressure Low pressure: 147—294 kPa (1.5—3.0 kg/cm^2, 21—43 psi) High pressure: 1,177—1,619 kPa (12.0—16.5 kg/cm^2, 171—235 psi)	U–31
Compressor	Inspect operation annually													—	—

SCHEDULED MAINTENANCE SERVICES (CANADA)

SCHEDULE
Chart symbols:
I : Inspect, and if necessary correct, clean or replace (Inspect, and if necessary replace...Air cleaner element only)
R : Replace or change
T : Tighten
L : Lubricate

Remarks:
After 60 months or 96,000 km (60,000 miles), continue to follow the described maintenance at the recommended intervals.
As for * marked items in this maintenance chart, note the following points:
*1 Replacement of the timing belt is required every 96,000 km, (60,000 miles). Failure to replace the timing belt may result in damage to the engine.
*2 This maintenance is recommended by Mazda. However, it is not necessary for emission warranty coverage or manufacturer recall liability.
*3 This maintenance is recommended by Mazda.

Schedule

Maintenance operation \ Interval	Number of months or km (miles), whichever comes first												Service data and inspection point	Page
	Months	5	10	15	20	25	30	35	40	45	50	55	60	
	Km (x1,000)	8	16	24	32	40	48	56	64	72	80	88	96	
	Miles (x1,000)	5	10	15	20	25	30	35	40	45	50	55	60	
ENGINE														
Engine oil		R	R	R	R	R	R	R	R	R	R	R	R	• Oil pan capacity: 3.2 liters (3.4 US qt, 2.8 Imp qt)	D–5
Engine oil filter		R	R	R	R	R	R	R	R	R	R	R	R	• Oil filter capacity: 0.17 liter (0.18 US qt, 0.15 Imp qt)	D–5
Drive belts		I	I	I	I	I	I	I	I	I	I	I	I	• Cracks or damage • Tension	B–5
Air cleaner element				I			R			I			R	—	F–75
Engine timing belt *1		Replace every 96,000 km (60,000 miles)												—	B–12
IGNITION SYSTEM															
Spark plugs							R						R	• Plug gap: 1.0—1.1mm (0.039—0.043 in) • Recommended spark plugs: NGK: BKR5E-11, BKR6E-11, BKR7E-11 NIPPONDENSO: K16PR-U11, K20PR-U11, K22PR-U11	G–18
FUEL SYSTEM															
Idle speed				A			A			A			A	• Idle speed: 800—900 rpm	F–76
Fuel filter							R						R	—	F–106
Fuel lines							I *2						I	• Fittings, connections and components for leaks	F–100
PCV valve *2													I	• Operation	F–117
Emission hoses and tubes													I	• Fittings and connections	—
COOLING SYSTEM															
Cooling system				I			I			I			I	• Hoses for cracks or wear • Leaks	E–4
Engine coolant							R						R	—	E–4
		I	I	I	I	I	I	I	I	I	I	I	I	• Level and strength	E–4

Schedule (Cont'd)

Maintenance operation \ Interval	Number of months or km (miles), whichever comes first												Service data and inspection point	Page
	Months	5	10	15	20	25	30	35	40	45	50	55	60	
	Km (x1,000)	8	16	24	32	40	48	56	64	72	80	88	96	
	Miles (x1,000)	5	10	15	20	25	30	35	40	45	50	55	60	
CHASSIS AND BODY														
Brake lines, hoses, and connections							I						I	• Proper attachment and connections	P–6
Disc brakes				I			I			I			I	• Disc plate thickness: 16.0mm (0.63 in)—Minimum • Pad thickness: 1.0mm (0.04 in)—Minimum	P–20, 24
Steering operation and linkages (Includes four wheel alignment)							I						I	• Free play: 0—30mm (0—1.18 in) • Operation and looseness • Fluid leakage or oozing • Wheel alignment	N–8, R–6
Front suspension ball joints							I						I	• Damage, looseness and grease leakage	R–15, 17
Automatic transmission fluid (ATF)		I	I	I	I	I	I	I	I	I	I	I	I	• Level and condition	K–31
Transmission oil							R						R	• Oil capacity: M/T 2.0 liters (2.1 US qt, 1.8 Imp qt) A/T 4.0 liters (4.2 US qt, 3.1 Imp qt)	J–8, K–31
Differential oil							R						R	• Oil capacity: 0.65 liter (0.69 US qt, 0.57 Imp qt)	M–25
		I	I	I	I	I	I	I	I	I	I	I	I	• Level and condition	M–25
Drive shaft dust boots							I						I	• Cracking and damage	M–17
Brake fluid, clutch fluid		I	I	I	I	I	I	I	I	I	I	I	I	• Level and condition	H–4, P–8
Brake fluid*3							R						R	• Capacity	—
Bolts and nuts on chassis and body				T			T			T			T	• Retighten all loose bolts and nuts	—
Exhaust system heat shield							I						I	• Insulator clearance between body and exhaust system	F–115
All locks and hinges		L	L	L	L	L	L	L	L	L	L	L	L	• Lubricate all locks and hinges	—

Schedule (Cont'd)

Maintenance operation \ Interval	Number of months or km (miles), whichever comes first												Service data and inspection point	Page
	Months	5	10	15	20	25	30	35	40	45	50	55	60	
	Km (x1,000)	8	16	24	32	40	48	56	64	72	80	88	96	
	Miles (x1,000)	5	10	15	20	25	30	35	40	45	50	55	60	
CHASSIS AND BODY														
Tire inflation pressure and wear		I	I	I	I	I	I	I	I	I		I	I	• Wear and damage • Proper pressure	Q–3
Rotate tires		Rotate every 2,400 km (15,000 miles) or every 15 months												—	—
Power steering fluid level		I	I	I	I	I	I	I	I	I	I	I	I	• Level and condition	N–22
Suspension components (front and rear)							I						I	• Damage	—
Washer fluid level		I	I	I	I	I	I	I	I	I	I	I	I	• Level	—
Function of all lights		I	I	I	I	I	I	I	I	I	I	I	I	• Operation • Dirt and damage	—
AIR CONDITIONER SYSTEM															
Refrigerant		Inspect refrigerant amount annually												• Refrigerant pressure Low pressure: 147—294 kPa (1.5—3.0 kg/cm^2, 21—43 psi) High pressure: 1,177—1,619 kPa (12.0—16.5 kg/cm^2, 171—235 psi)	U–31
Compressor		Inspect operation annually												—	—

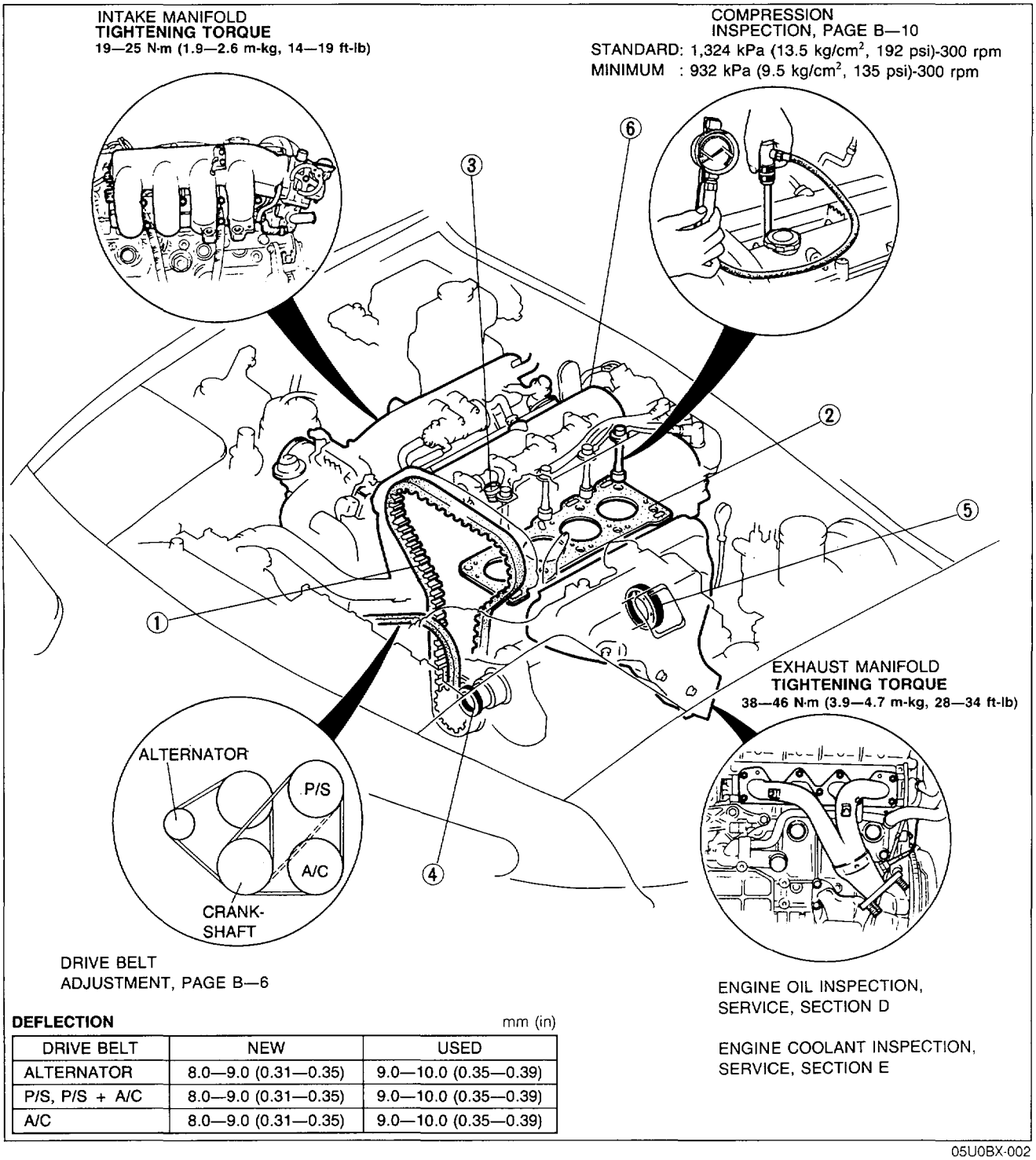
Before beginning any service procedure, refer to Section T of this manual for airbag system warnings and cautions.

ENGINE

INDEX ..... **B– 2**
OUTLINE ..... **B– 3**
SPECIFICATIONS ..... **B– 3**
TROUBLESHOOTING GUIDE ..... **B– 3**
ENGINE TUNE-UP PROCEDURE ..... **B– 5**
PREPARATION ..... **B– 5**
ENGINE OIL ..... **B– 5**
ENGINE COOLANT ..... **B– 5**
DRIVE BELT ..... **B– 5**
HLA ..... **B– 7**
IGNITION TIMING, IDLE SPEED ..... **B– 8**
COMPRESSION **B–10**
INSPECTION **B–10**
ON-VEHICLE MAINTENANCE **B–11**
PREPARATION **B–11**
TIMING BELT **B–12**
CYLINDER HEAD GASKET **B–16**
HLA **B–20**
FRONT OIL SEAL **B–24**
REAR OIL SEAL **B–26**
REMOVAL **B–28**
PROCEDURE **B–28**
ENGINE STAND MOUNTING **B–33**
PREPARATION **B–33**
PROCEDURE **B–34**
DISASSEMBLY **B–36**
PREPARATION **B–36**
AUXILIARY PARTS **B–37**
TIMING BELT **B–38**
CYLINDER HEAD **B–40**
CYLINDER BLOCK (EXTERNAL PARTS) **B–43**
CYLINDER BLOCK (INTERNAL PARTS) **B–45**
INSPECTION / REPAIR **B–48**
PREPARATION **B–48**
CYLINDER HEAD **B–48**
VALVE MECHANISM **B–49**
CAMSHAFT **B–52**
HLA **B–54**
CYLINDER BLOCK **B–54**
OIL JET **B–55**
PISTON, PISTON RING, AND PISTON PIN **B–56**
CONNECTING ROD **B–57**
CRANKSHAFT **B–58**
BEARING **B–58**
TIMING BELT **B–59**
TENSIONER, IDLER **B–59**
TENSIONER SPRING **B–59**
PULLEY **B–59**
ASSEMBLY **B–60**
PREPARATION **B–60**
CYLINDER BLOCK (INTERNAL PARTS) **B–61**
CYLINDER BLOCK (EXTERNAL PARTS) **B–66**
CYLINDER HEAD **B–70**
TIMING BELT **B–74**
AUXILIARY PARTS **B–78**
ENGINE STAND DISMOUNTING **B–82**
PROCEDURE **B–82**
INSTALLATION **B–84**
PROCEDURE **B–84**

25U0BX-052

INDEX



DEFLECTION mm (in)

DRIVE BELT	NEW	USED
ALTERNATOR	8.0—9.0 (0.31—0.35)	9.0—10.0 (0.35—0.39)
P/S, P/S + A/C	8.0—9.0 (0.31—0.35)	9.0—10.0 (0.35—0.39)
A/C	8.0—9.0 (0.31—0.35)	9.0—10.0 (0.35—0.39)

05U0BX-002

1. Timing belt
Removal / Installation ..... page B–12
2. Cylinder head gasket
Replacement ..... page B–16
3. HLA
Removal / Installation ..... page B–20
4. Front oil seal
Replacement ..... page B–24
5. Rear oil seal
Replacement ..... page B–26
6. Engine
Removal ..... page B–28
Engine stand mounting ..... page B–33
Disassembly ..... page B–36
Inspection / Repair ..... page B–48
Assembly ..... page B–60
Engine stand dismounting ..... page B–82
Installation ..... page B–84

OUTLINE

SPECIFICATIONS

Item \ Engine/Transmission				B6 DOHC	
				M/T	A/T
Type				Gasoline, 4-cycle	
Cylinder arrangement and number				In-line, 4-cylinders	
Combustion chamber				Pentroof	
Valve system				DOHC, belt-driven	
Displacement			cc (cu in)	1,597 (97.42)	
Bore and stroke			mm (in)	78.0 × 83.6 (3.07 × 3.29)	
Compression ratio				9.4	9.0
Compression pressure			kPa (kg/cm², psi)-rpm	1,324 (13.5, 192)-300	
Valve timing	IN	Open	BTDC	5°	5°
		Close	ABDC	51°	40°
	EX	Open	BBDC	53°	55°
		Close	ATDC	15°	5°
Valve clearance		IN	mm (in)	0: Maintenance-free	
		EX	mm (in)	0: Maintenance-free	
Idle speed			rpm	800—900 (A/T: P range)	
Ignition timing			BTDC	9°—11°	7°—9°
Firing order				1—3—4—2	

* With System Selector (49 B019 9A0) test switch at SELF TEST.

25U0FX-001

TROUBLESHOOTING GUIDE

Problem	Possible Cause	Remedy	Page
Difficult starting	**Malfunction of engine-related components**		
	Burned valve	Replace	B–49
	Worn piston, piston ring, or cylinder	Replace or repair	B–54, 56
	Failed cylinder head gasket	Replace	B–16
	Malfunction of fuel system	Refer to Section F	
	Malfunction of ignition system	Refer to Section G	
Poor idling	**Malfunction of engine-related components**		
	Malfunction of HLA*	Replace	B–20
	Poor valve-to-valve seat contact	Replace or repair	B–51
	Failed cylinder head gasket	Replace	B–16
	Malfunction of fuel system	Refer to Section F	
	Malfunction of ignition system	Refer to Section G	
Excessive oil consumption	**Oil working up**		
	Worn piston ring groove or sticking piston ring	Replace	B–56
	Worn piston or cylinder	Replace or repair	B–54, 56
	Oil working down		
	Worn valve seal	Replace	B–40, 71
	Worn valve stem or guide	Replace	B–49
	Oil leakage	Refer to Section D	

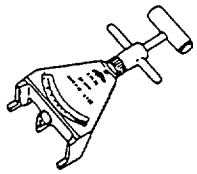
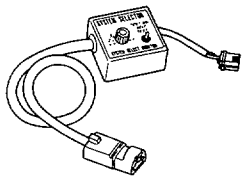
Problem	Possible Cause	Remedy	Page
Insufficient power	**Insufficient compression**		
	Malfunction of HLA*	Replace	B–20
	Compression leakage from valve seat	Repair	B–51
	Seized valve stem	Replace	B–49
	Weak or broken valve spring	Replace	B–52
	Failed cylinder head gasket	Replace	B–16
	Cracked or distorted cylinder head	Replace	B–48
	Sticking, damaged, or worn piston ring	Replace	B–56
	Cracked or worn piston	Replace	B–56
	Malfunction of fuel system	Refer to Section F	
	Malfunction of ignition system	Refer to Section G	
	Others		
	Slipping clutch	Refer to Section H	
	Dragging brakes	Refer to Section P	
	Wrong size tires	Refer to Section Q	
Abnormal combustion	**Malfunction of engine-related components**		
	Malfunction of HLA*	Replace	B–20
	Sticking or burned valve	Replace	B–49
	Weak or broken valve spring	Replace	B–52
	Carbon accumulation in combustion chamber	Eliminate carbon	—
	Malfunction of fuel system	Refer to Section F	
	Malfunction of ignition system	Refer to Section G	
Engine noise	**Crankshaft- or bearing-related parts**		
	Excessive main bearing oil clearance	Replace or repair	B–63
	Main bearing seized or heat-damaged	Replace	B–58
	Excessive crankshaft end play	Replace or repair	B–64
	Excessive connecting rod bearing oil clearance	Replace or repair	B–65
	Connecting rod bearing seized or heat-damaged	Replace	B–58
	Piston-related parts		
	Worn cylinder	Replace or repair	B–54
	Worn piston or piston pin	Replace	B–57
	Seized piston	Replace	B–56
	Damaged piston ring	Replace	B–56
	Bent connecting rod	Replace	B–57
	Valves or timing-related parts		
	Malfunction of HLA*	Replace	B–20
	Broken valve spring	Replace	B–52
	Excessive valve guide clearance	Replace	B–49
	Malfunction of cooling system	Refer to Section E	
	Malfunction of fuel system	Refer to Section F	
	Others		
	Malfunction of water pump bearing	Refer to Section E	
	Improper drive belt tension	Adjust	B– 6
	Malfunction of alternator bearing	Refer to Section G	
	Exhaust gas leakage	Refer to Section F	
	Malfunction of timing belt tensioner	Replace	B–12

05U0BX-004

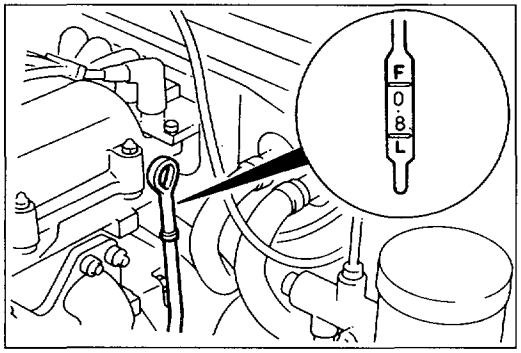
* Tappet noise may occur if the engine has set idle for an extended period. The noise should dissipate after the engine has reached normal operating temperature. (HLA troubleshooting: Refer to page B–7)

ENGINE TUNE-UP PROCEDURE

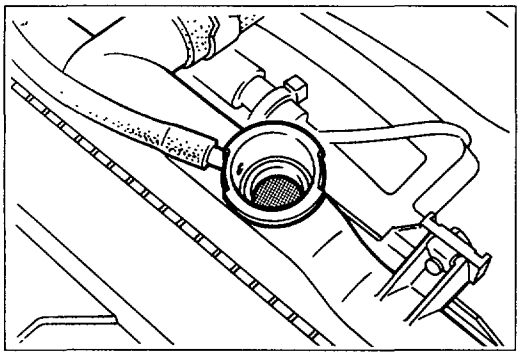
PREPARATION
SST

49 9200 020 Tension gauge, V-ribbed belt 	For inspection of drive belt tension	49 B019 9A0 System selector 	For inspection of ignition timing and idle speed

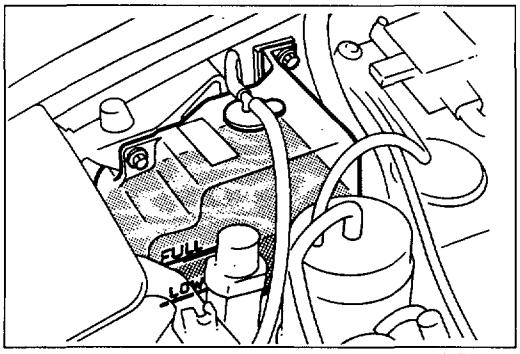
05U0BX-005



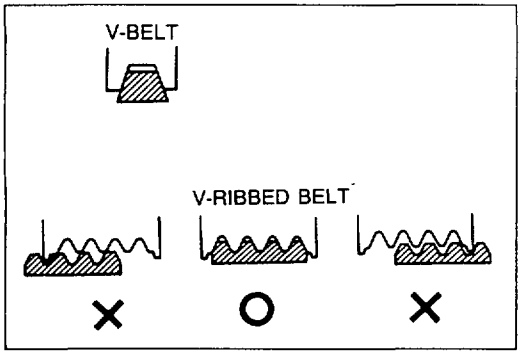
05U0BX-006



05U0BX-007



05U0BX-008



05U0BX-009

ENGINE OIL
Inspection

1. Be sure the vehicle is on level ground.
2. Warm up the engine to normal operating temperature and stop it.
3. Wait for five minutes.
4. Remove the oil level gauge and check the oil level and condition.
5. Add or replace oil if necessary.

Note

- **The distance between the L and F marks on the level gauge represents 0.8 liter (0.85 US qt, 0.70 Imp qt).**

ENGINE COOLANT
Inspection
Coolant level (engine cold)

Warning

- **Never remove the radiator cap while the engine is hot.**
- **Wrap a thick cloth around the cap when removing it.**

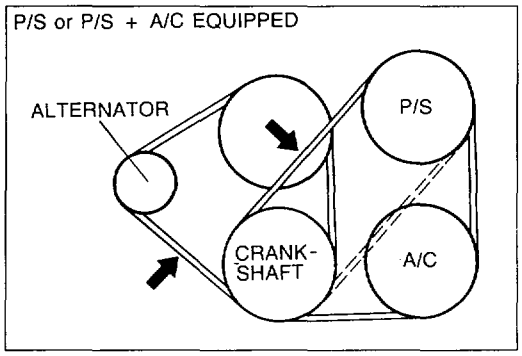
1. Verify that the coolant level is near the radiator filler neck.
2. Verify that the coolant level in the coolant reservoir is between the FULL and LOW marks.
3. Add coolant if necessary.

Coolant quality

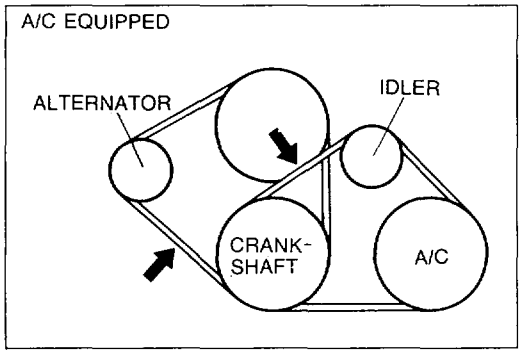
1. Verify that there is no buildup of rust or scale around the radiator cap or radiator filler neck.
2. Verify that the coolant is free of oil.
3. Replace the coolant if necessary.

DRIVE BELT
Inspection

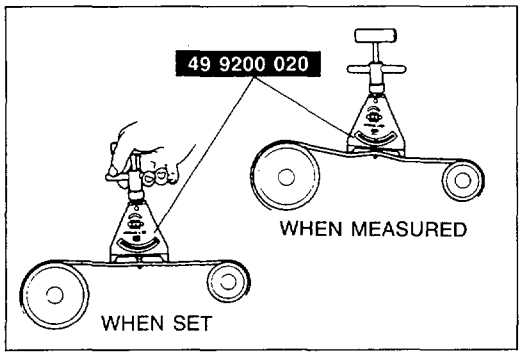
1. Remove the air intake pipe.
2. Check the drive belts for wear, cracks, and fraying. Replace if necessary.
3. Verify that the drive belts are correctly mounted on the pulleys.



25U0BX-002



25U0BX-003



25U0BX-004

4. Check the drive belt deflection by applying moderate pressure **(98 N, 10 kg, 22 lb)** midway between the pulleys.

Note
- **Measure the belt deflection between the specified pulleys.**
- **A belt is considered "New" if it has been used on a running engine for less than five minutes. Set the deflection specified below accordingly.**
- **Check the belt deflection when the engine is cold, or at least 30 minutes after the engine has stopped.**

Deflection

mm (in)

Drive belt	New	Used
Alternator	8.0—9.0 (0.31—0.35)	9.0—10.0 (0.35—0.39)
P/S, P/S + A/C	8.0—9.0 (0.31—0.35)	9.0—10.0 (0.35—0.39)
A/C	8.0—9.0 (0.31—0.35)	9.0—10.0 (0.35—0.39)

5. If the deflection is not within specification, adjust it.
6. Install the air intake pipe.

Drive belt tension check

Note
- **Belt tension can be checked in place of belt deflection.**
- **Belt tension can be measured between any two pulleys.**

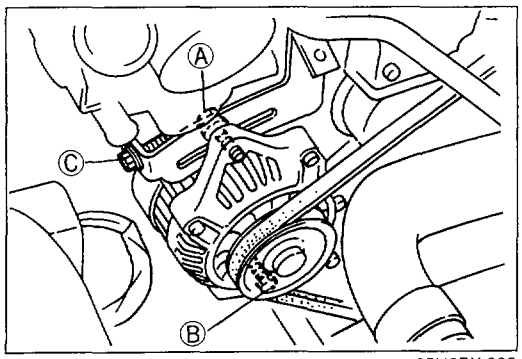
1. Using the **SST**, check the belt tension.

Tension

N (kg, lb)

Drive belt	New	Used
Alternator	491—589 (50—60, 110—132)	422—491 (43—50, 95—110)
P/S, P/S + A/C	491—589 (50—60, 110—132)	422—491 (43—50, 95—110)
A/C	491—589 (50—60, 110—132)	422—491 (43—50, 95—110)

25U0BX-005

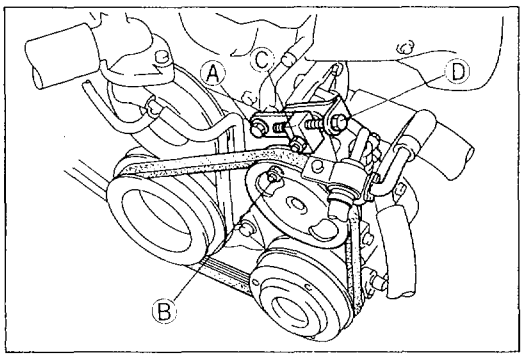


25U0BX-006

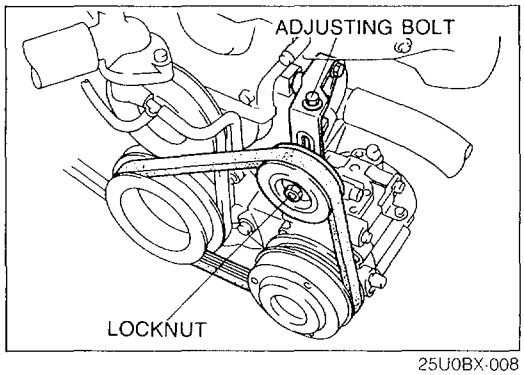
Adjustment

Caution
- **If a new belt is used, adjust the belt deflection at the midpoint of "New" belt specification.**
- **A belt is considered "New" if it has been used on a running engine for less than five minutes.**

(1) Alternator belt
If necessary, loosen the alternator bolts Ⓐ and Ⓑ and adjust the belt deflection by turning the adjusting bolt Ⓒ.



25U0BX-007



25U0BX-008

Tightening torque
Ⓐ : 19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)
Ⓑ : 37—52 N·m (3.8—5.3 m-kg, 27—38 ft-lb)

(2) P/S belt, P/S + A/C belt
If necessary, loosen the P/S oil pump bolt Ⓐ and nuts Ⓑ and Ⓒ and adjust the belt deflection by turning the adjusting bolt Ⓓ.

Tightening torque
Ⓐ : 31—46 N·m (3.2—4.7 m-kg, 23—34 ft-lb)
Ⓑ : 36—54 N·m (3.7—5.5 m-kg, 27—40 ft-lb)
Ⓒ : 19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)

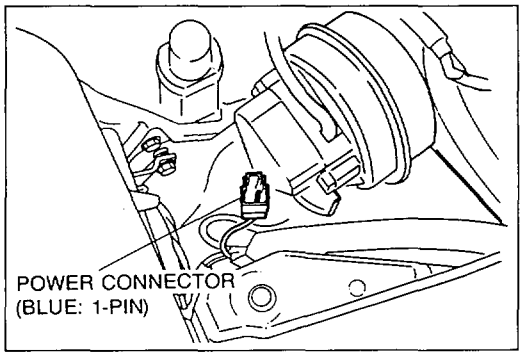
(3) A/C belt
If necessary, loosen the locknut and adjust the belt deflection by turning the adjusting bolt.

Tightening torque:
37—52 N·m (3.8—5.3 m-kg, 27—38 ft-lb)

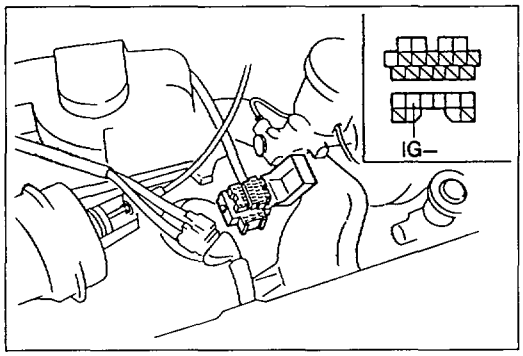
HLA

Problem	Possible Cause	Action
1. Noise when engine is started immediately after oil is changed. 2. Noise when engine is started after setting approx. one day.	Oil leakage in oil passage	Run engine 2000—3000 rpm. If noise stops after 2 second—10 minutes(*), HLA is normal. If not, replace HLA. * Time required for engine oil to circulate within engine, includes tolerance for engine oil condition and ambient temperature.
3. Noise when engine is started after cranking for 3 seconds or more. 4. Noise when engine is started after new HLA is installed.	Oil leakage in HLA	
5. Noise continues more than 10 minutes	Insufficient oil pressure	Check oil pressure. If lower than specification, check for cause. **Oil pressure; 294—392 kPa (3.0—4.0 kg/cm^2, 43—57 psi)-3000 rpm**
	Faulty HLA	(Refer to page B–54) Press down HLA by hand. If it does not move, HLA is normal. If it moves, replace HLA. Measure valve clearance. If more than 0mm (0 in), replace HLA.
6. Noise occurs durning idle after high-speed running	Incorrect oil amount	Check oil level. Drain or add oil as necessary.
	Deteriorated oil	Check oil quality. If deteriorated, replace with specified type and amount of oil.

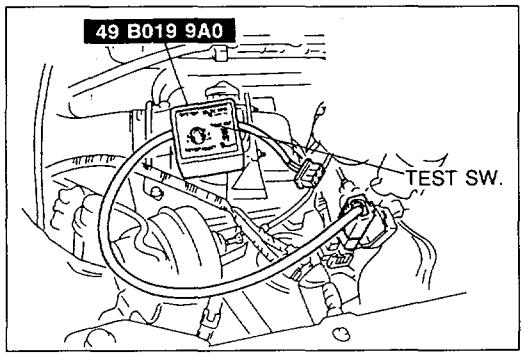
25U0BX-009



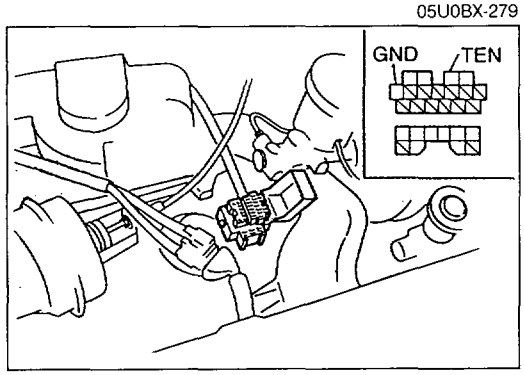
05U0BX-278



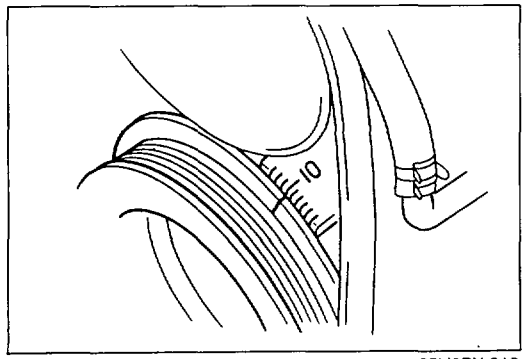
05U0BX-288



05U0BX-279



05U0BX-280



25U0BX-010

IGNITION TIMING, IDLE SPEED

Preparation

1. Check the engine condition (spark plugs, leaks in hoses, etc.).
2. Warm up the engine to normal operating temperature.
3. Make sure all accessories are OFF.

Note

- **When using an externally powered timing light and/or tachometer, connect it to the power connector (Blue: 1-pin).**

Caution

- **Do not ground the power connector terminal (Blue: 1-pin); the wiper 20A fuse will be burned.**

4. Connect a timing light and a tachometer to the diagnosis connector terminal **IG–**.

Caution

- **Be extremely careful when making connections to the diagnosis connector because a mistaken connection will cause a malfunction.**

5. Connect the **SST**.
6. Set the **SST** switch Ⓐ to 1 position and test switch to SELF TEST position.

Note

- **If the SST is not used, jump across the (TEN) terminal and the (GND) terminal of the diagnosis connector.**

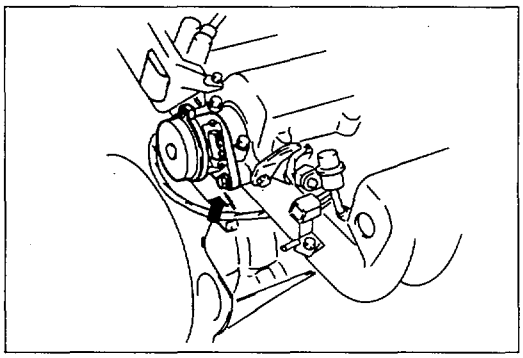
Ignition Timing Inspection / Adjustment

1. Check the idle speed and set it to specification if necessary.

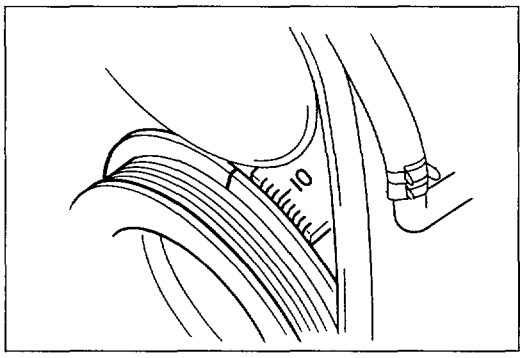
Idle speed: 850 ± 50 rpm (A/T: P range)

2. Verify that the timing mark (Yellow) on the crankshaft pulley is aligned with the timing belt lower cover mark.

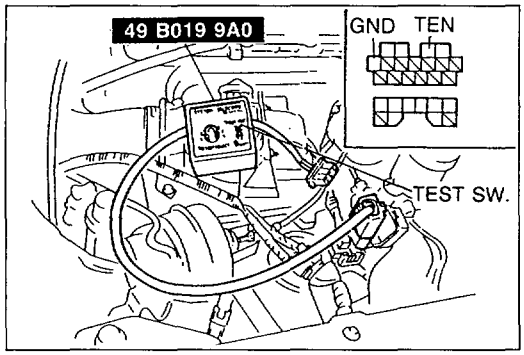
Ignition timing (at idle speed)	M/T	10° ± 1° BTDC
	A/T	8° ± 1° BTDC



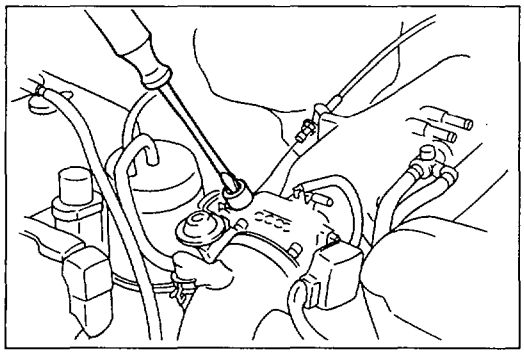
05U0BX-282



05U0BX-283



05U0BX-284



25U0BX-011

3. If the marks are not aligned, loosen the crank angle sensor lock bolt and adjust by turning the crank angle sensor.
4. Tighten the crank angle sensor lock bolt.

Tightening torque:
19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)

5. After adjusting the ignition timing, disconnect the **SST** or jumper wire from the diagnosis connector.

6. Increase the engine speed and verify that the ignition timing advances.

Idle Speed
Inspection / Adjustment

1. Connect the **SST** or jumper wire to the diagnosis connector. (Refer to page B–8.)

2. Verify that the idle speed is within specification.

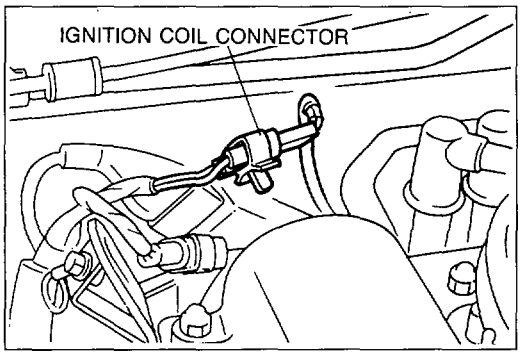
Idle speed: 850 ± 50 rpm (A/T: P range)

3. If the idle speed is not within specification, remove the blind cap from the air adjusting screw and adjust it.
4. After adjusting the idle speed, install the blind cap and disconnect the **SST** or jumper wire from the diagnosis connector.

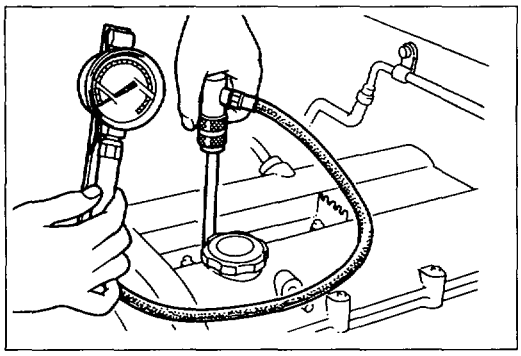
COMPRESSION

If the engine exhibits low power, poor fuel economy, or poor idle, check the following:
1. Ignition system (Refer to Section G.)
2. Compression
3. Fuel system (Refer to Section F.)

15U0BX-002



15U0BX-003



05U0BX-019

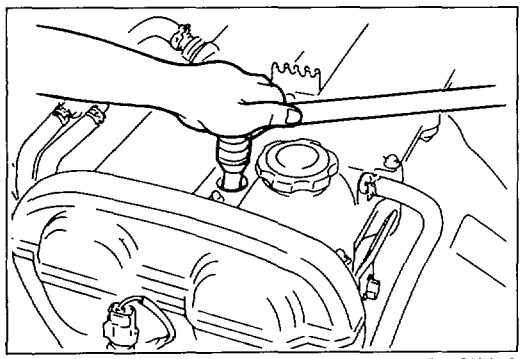
INSPECTION

1. Check that the battery is fully charged. Recharge it if necessary. (Refer to Section G.)
2. Warm up the engine to the normal operating temperature.
3. Turn the engine OFF.
4. Remove all spark plugs.
5. Disconnect the ignition coil connector.
6. Connect a compression gauge to the No.1 spark plug hole.
7. Fully depress the accelerator pedal and crank the engine.
8. Record the maximum gauge reading.
9. Check each cylinder.

Compression:
1,324 kPa (13.5 kg/cm^2, 192 psi)-300 rpm
Minimum:
932 kPa (9.5 kg/cm^2, 135 psi)-300 rpm
Differential limit between cylinders:
196 kPa (2.0 kg/cm^2, 28 psi)

10. If the compression in one or more cylinders is low, pour a small amount of engine oil into the cylinder and recheck the compression.
    (1) If the compression increases, the piston, piston rings, or cylinder wall may be worn.
    (2) If the compression stays low, the valve may be stuck or seating improperly.
    (3) If the compression in adjacent cylinders stays low, the cylinder head gasket may be defective or the cylinder head distorted.
11. Connect the ignition coil connector.

05U0BX-020



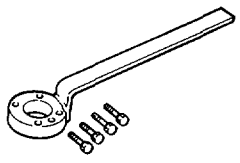
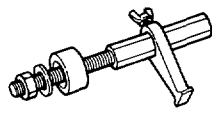
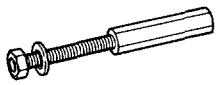
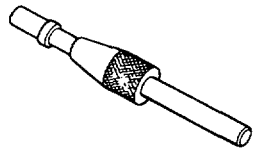
25U0BX-012

12. Install the spark plugs.

Tightening torque:
15—23 N·m (1.5—2.3 m-kg, 11—17 ft-lb)

ON-VEHICLE MAINTENANCE

PREPARATION
SST

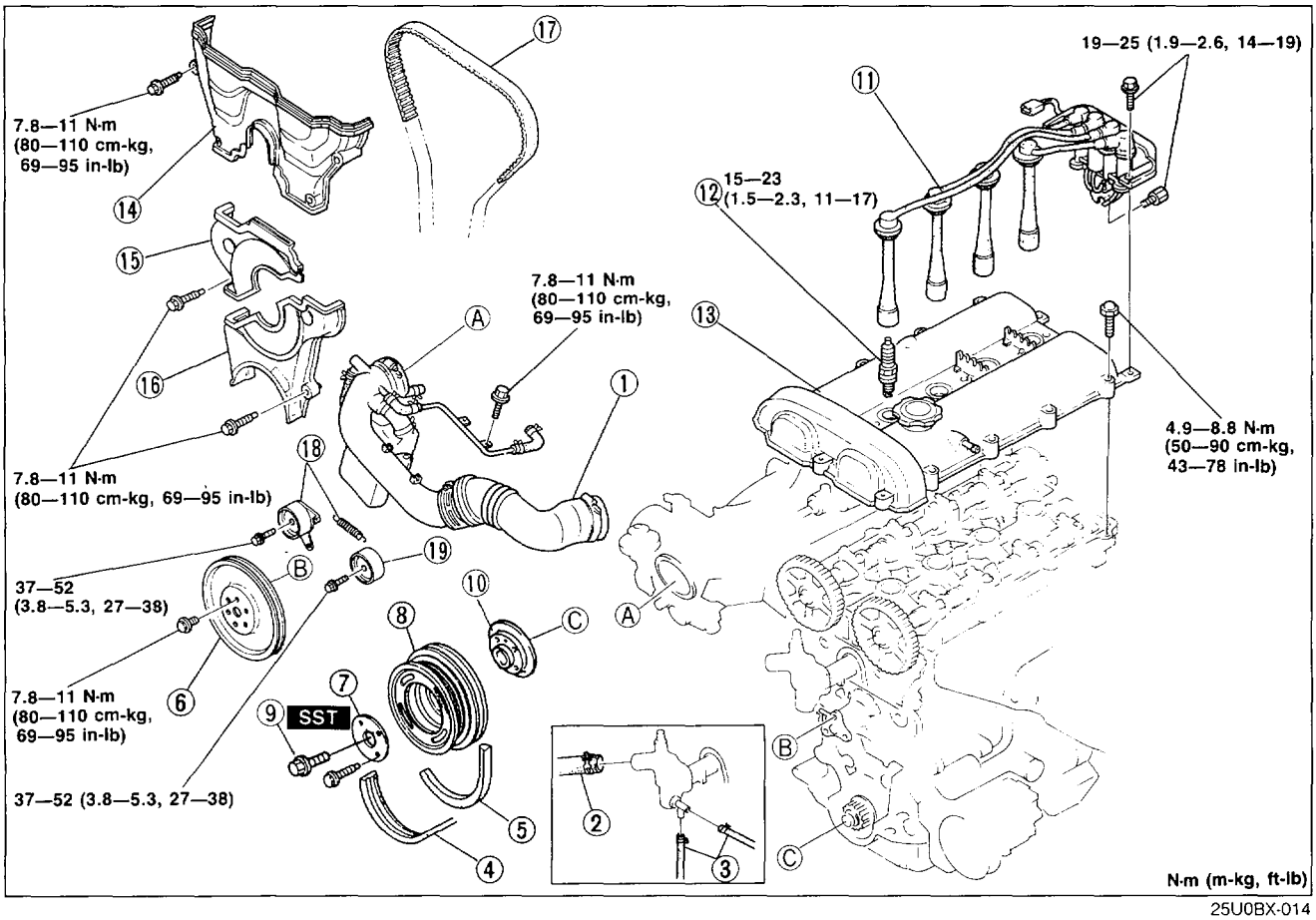
49 D011 102 Lock tool, crankshaft 	For removal/ installation of timing belt pulley	49 E011 1A0 Ring gear brake set 	For prevention of engine rotation
49 E011 103 Shaft (Part of 49 E011 1A0) 	For prevention of engine rotation	49 E011 105 Stopper (Part of 49 E011 1A0)	For prevention of engine rotation
49 E011 104 Collar (Part of 49 E011 1A0)	For prevention of engine rotation	49 SE01 310 Centering tool, clutch disc 	For installation of clutch disc

25U0BX-013

TIMING BELT
Removal / Installation

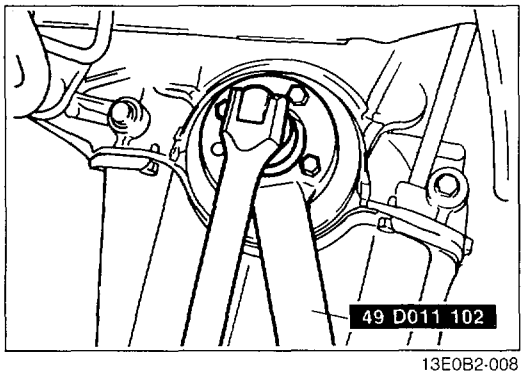
Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to Section T.)**
- **Position the hose clamp in the original location on the hose, and squeeze the clamp lightly with large pliers to ensure a good fit.**

1. Disconnect the negative battery cable.
2. Drain the engine coolant.
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Install in the reverse order of removal, referring to **Installation Note**.



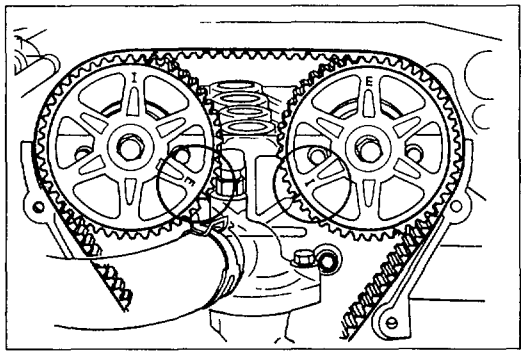
25U0BX-014

1. Air intake pipe
2. Upper radiator hose
3. Water hoses (Connect to thermostat housing)
4. P/S and/or A/C drive belt
   Removal / Installation ..... page B- 6
5. Alternator drive belt
   Removal / Installation ..... page B- 6
6. Water pump pulley
7. Plate
8. Crankshaft pulley
9. Pulley lock bolt
   Removal Note ..... page B–13
   Installation Note ..... page B–15
10. Timing belt pulley boss
11. Ignition coil and high-tension lead
12. Spark plug
13. Cylinder head cover
    Installation Note ..... page B–15
14. Timing belt cover, upper
15. Timing belt cover, middle
16. Timing belt cover, lower
17. Timing belt
    Removal Note ..... page B–13
    Installation Note ..... page B–14
    Inspection ..... page B–59
18. Tensioner, tensioner spring
    Installation Note ..... page B–14
    Inspection ..... page B–59
19. Idler
    Inspection ..... page B–59



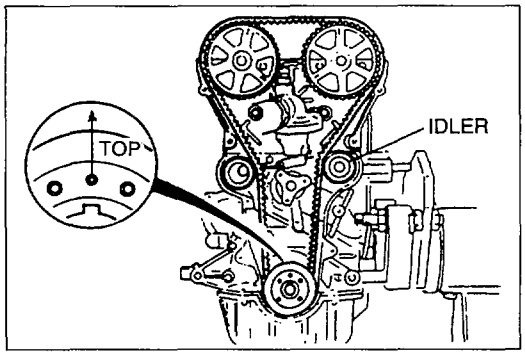
13E0B2-008

Removal Note
Pulley lock bolt
1. Hold the pulley boss with the **SST**.
2. Using the **SST**, loosen the pulley lock bolt.
3. Remove the bolt and the pulley boss.



13E0B2-009

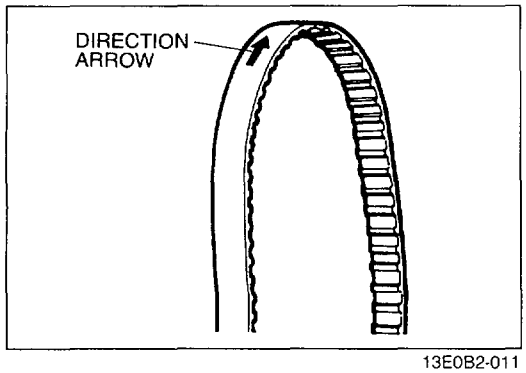
Timing belt
1. Install the pulley boss and pulley lock bolt.
2. Turn the crankshaft to align the timing marks.



13E0B2-010

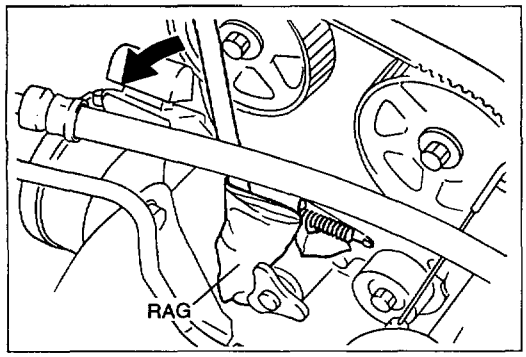
Note
- **The pin on the pulley boss must face upward.**

Caution
- **After setting the marks, do not turn the crankshaft when removing the pulley lock bolt and pulley boss.**



13E0B2-011

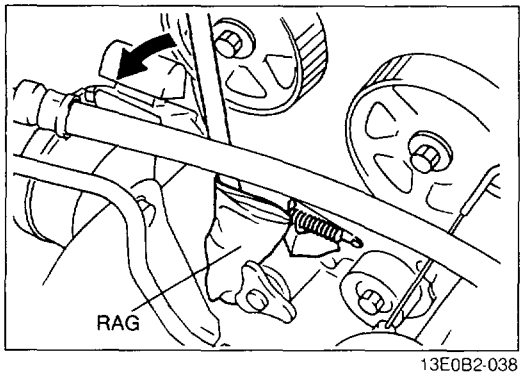
Note
- **Mark the timing belt rotation for proper reinstallation.**



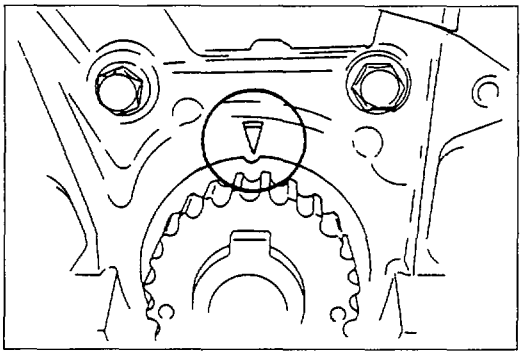
13E0B2-012

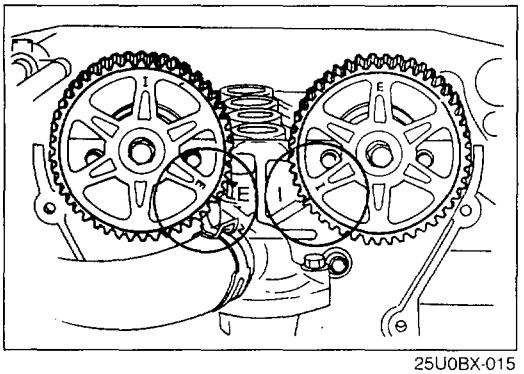
Caution
- **Protect the tensioner with a rag before prying on it.**

3. Loosen the tensioner lock bolt and, using a suitable bar, pry the tensioner outward (arrow).
4. Tighten the lock bolt with the tensioner spring fully extended.
5. Remove the timing belt.

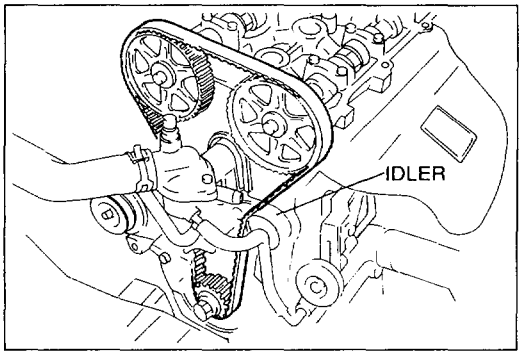


13E0B2-038

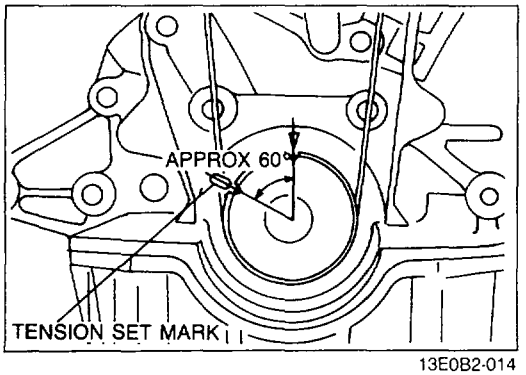

05U0BX-028



25U0BX-015



13E0B2-013



13E0B2-014

Installation Note
Tensioner and tensioner spring
1. Install the tensioner and the tensioner spring.

Caution
- **Protect the tensioner with a rag before prying on it.**

2. Using a suitable bar, pry the tensioner outward (arrow).
3. Temporarily tighten the tensioner lock bolt with the tensioner spring fully extended.

Timing belt
1. Verify that the timing belt pulley mark is aligned with the timing mark.

2. Verify that the camshaft pulley marks are aligned with the seal plate marks.

Caution
- **For intake side, align the E mark.**
- **For exhaust side, align the I mark.**

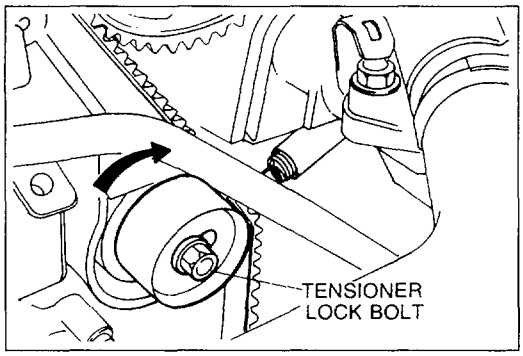
3. Install the timing belt so that there is no looseness at the idler side or between the camshaft pulleys.
4. Install the pulley boss and pulley lock bolt.

Caution
- **Do not turn the crankshaft counterclockwise.**

5. Turn the crankshaft two turns clockwise and face the pin on the pulley boss upright.
6. Verify that the camshaft pulley marks are again aligned with the seal plate marks.
   If not aligned, remove the timing belt and repeat from tensioner installation.
7. Turn the crankshaft 1 and 5/6 turns clockwise and align the timing belt pulley mark with the tension set mark for proper timing belt tension adjustment.
8. Using the **SST (49 D011 102)**, loosen the pulley lock bolt and remove the bolt and pulley boss.

Caution
- **Do not turn the crankshaft.**

9. Verify that the timing belt pulley mark is aligned with the tension set mark.

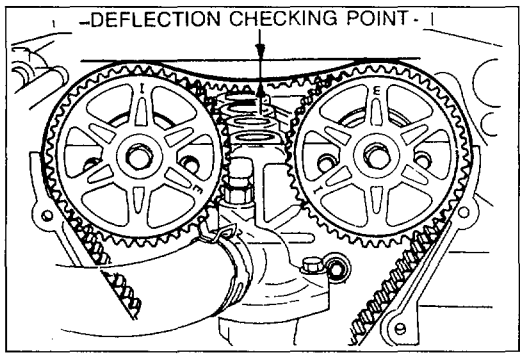


13E0B2-015

10. Loosen the tensioner lock bolt to apply spring tension to the timing belt.
11. Tighten the tensioner lock bolt.

Tightening torque:
37—52 N·m (3.8—5.3 m-kg, 27—38 ft-lb)

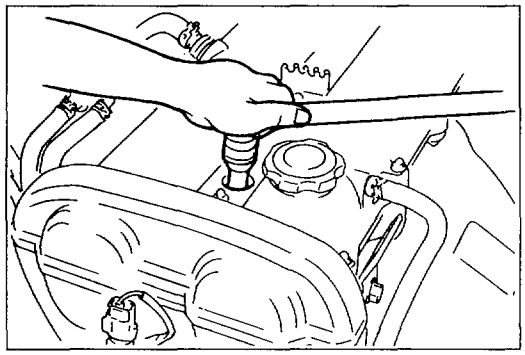
12. Install the pulley boss and pulley lock bolt.
13. Turn the crankshaft 2 and 1/6 turns clockwise and verify that the timing marks are correctly aligned.



13E0B2-016

14. Measure the timing belt deflection by applying moderate pressure **(98 N, 10 kg, 22 lb)** midway between the camshaft pulleys.
If the deflection is not correct, repeat from Step 10 above.

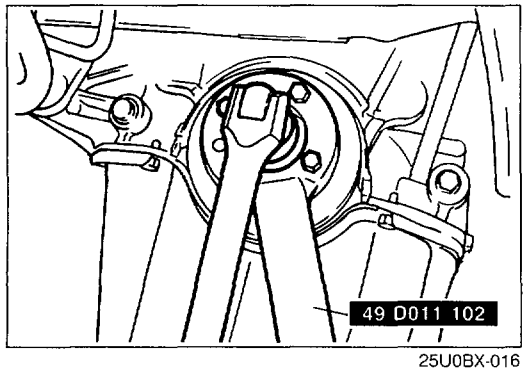
Deflection:
9.0—11.5mm (0.35—0.45 in) at 98 N (10 kg, 22 lb)



13E0B2-017

Spark plug
Install the spark plugs.

Tightening torque:
15—23 N·m (1.5—2.3 m-kg, 11—17 ft-lb)



25U0BX-016

Pulley lock bolt
1. Hold the crankshaft with the **SST** and tighten the pulley lock bolt.

Tightening torque:
157—167 N·m (16—17 m-kg, 116—123 ft-lb)

Steps After Installation
1. Fill the radiator with specified amount and type of enigne coolant. (Refer to Section E.)
2. Connect the negative battery cable.
3. Start the engine and check, and if necessary adjust, the ignition timing.

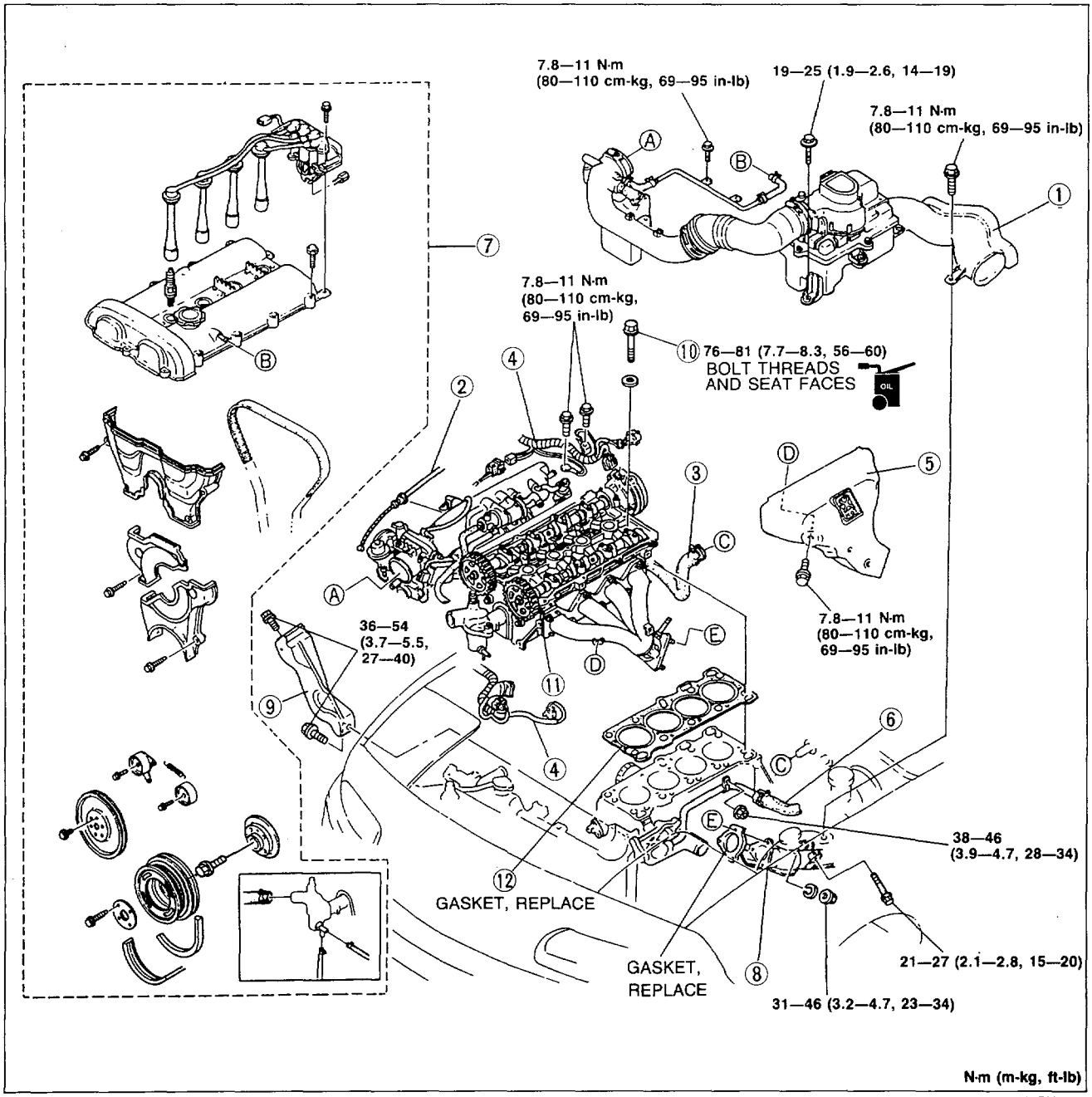
25U0BX-017

CYLINDER HEAD GASKET
Replacement

Warning
- **Release the fuel pressure. (Refer to Section F.)**
- **Keep sparks and open flame away from the fuel area.**

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to Section T.)**
- **Position the hose clamp in the original location on the hose, and squeeze the clamp lightly with large pliers to ensure a good fit.**

1. Disconnect the negative battery cable.
2. Drain the engine coolant.
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Install in the reverse order of removal, referring to **Installation Note**.

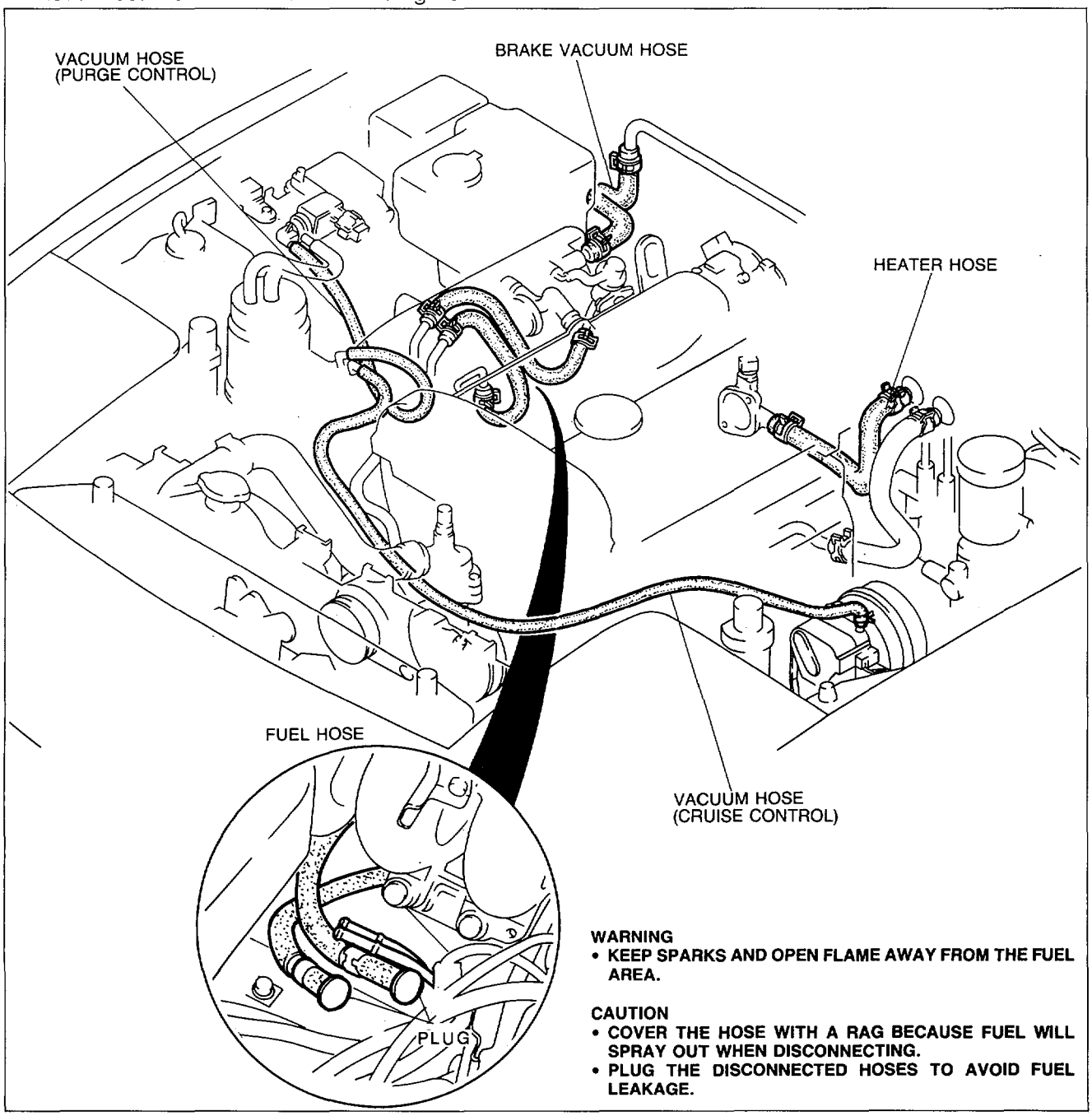


15U0BX-005

1. Air cleaner assembly
2. Accelerator cable
   Installation Note..... page B–19
3. Hoses
   Removal / Installation Note..... page B–17
4. Harnesses
   Removal / Installation Note..... page B–18
5. Exhaust manifold insulator
6. Water bypass pipe
   Removal Note..... page B–18
7. Timing belt
   Removal / Installation..... page B–12
8. Front exhaust pipe
9. Manifold bracket
10. Cylinder head bolt
    Removal Note..... page B–18
    Installation Note..... page B–19
11. Cylinder head
    Disassembly..... page B–40
    Inspection..... page B–48
    Assembly..... page B–70
12. Cylinder head gasket

05U0BX-038

Removal / Installation note
Hoses
1. Disconnect the hoses shown in the figure.



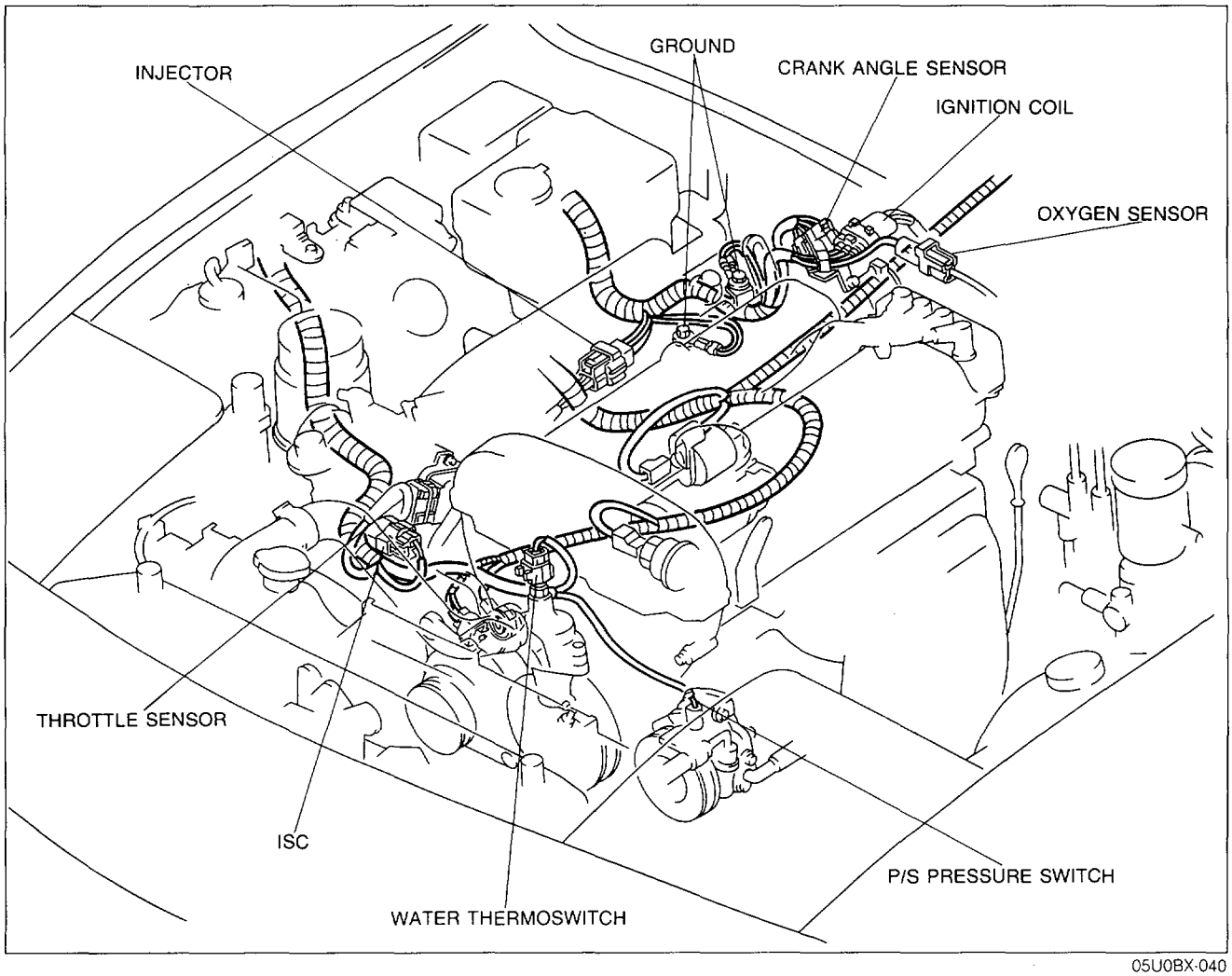
WARNING
- **KEEP SPARKS AND OPEN FLAME AWAY FROM THE FUEL AREA.**

CAUTION
- **COVER THE HOSE WITH A RAG BECAUSE FUEL WILL SPRAY OUT WHEN DISCONNECTING.**
- **PLUG THE DISCONNECTED HOSES TO AVOID FUEL LEAKAGE.**

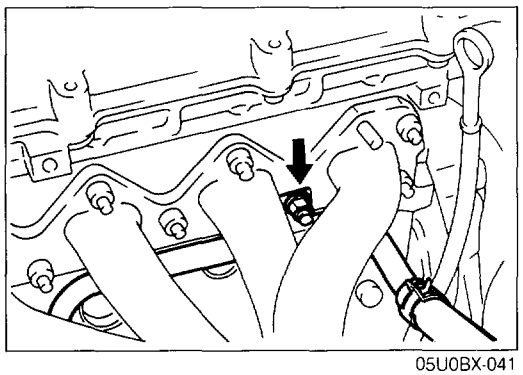
05U0BX-039

Harnesses

1. Disconnect the harness connectors shown in the figure.



05U0BX-040

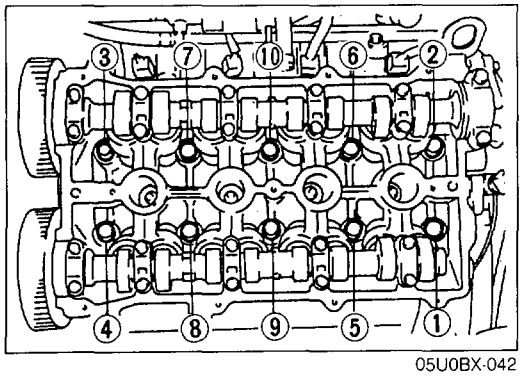


05U0BX-041

Removal note

Water bypass pipe

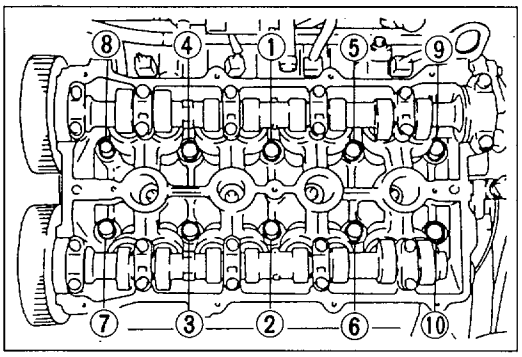
1. Remove the exhaust manifold nut as shown in the figure.
2. Remove the water bypass pipe from the cylinder head assembly.



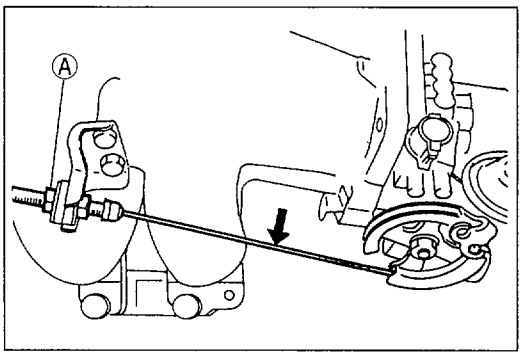
05U0BX-042

Cylinder head bolt

1. Loosen the cylinder head bolts in two or three steps in the order shown in the figure.
2. Remove the cylinder head bolts.



05U0BX-043



05U0BX-045

Installation note
Cylinder head bolt
1. Apply clean engine oil to the bolt threads and seat faces.
2. Install the cylinder head bolts.
3. Tighten the cylinder head bolts in two or three steps in the order shown in the figure.

Tightening torque:
76—81 N·m (7.7—8.3 m-kg, 56—60 ft-lb)

Accelerator cable
1. Install the accelerator cable.
2. Check the accelerator cable deflection.
   If the deflection is not correct, adjust by turning nut Ⓐ.

Deflection: 1—3mm (0.04—0.12 in)

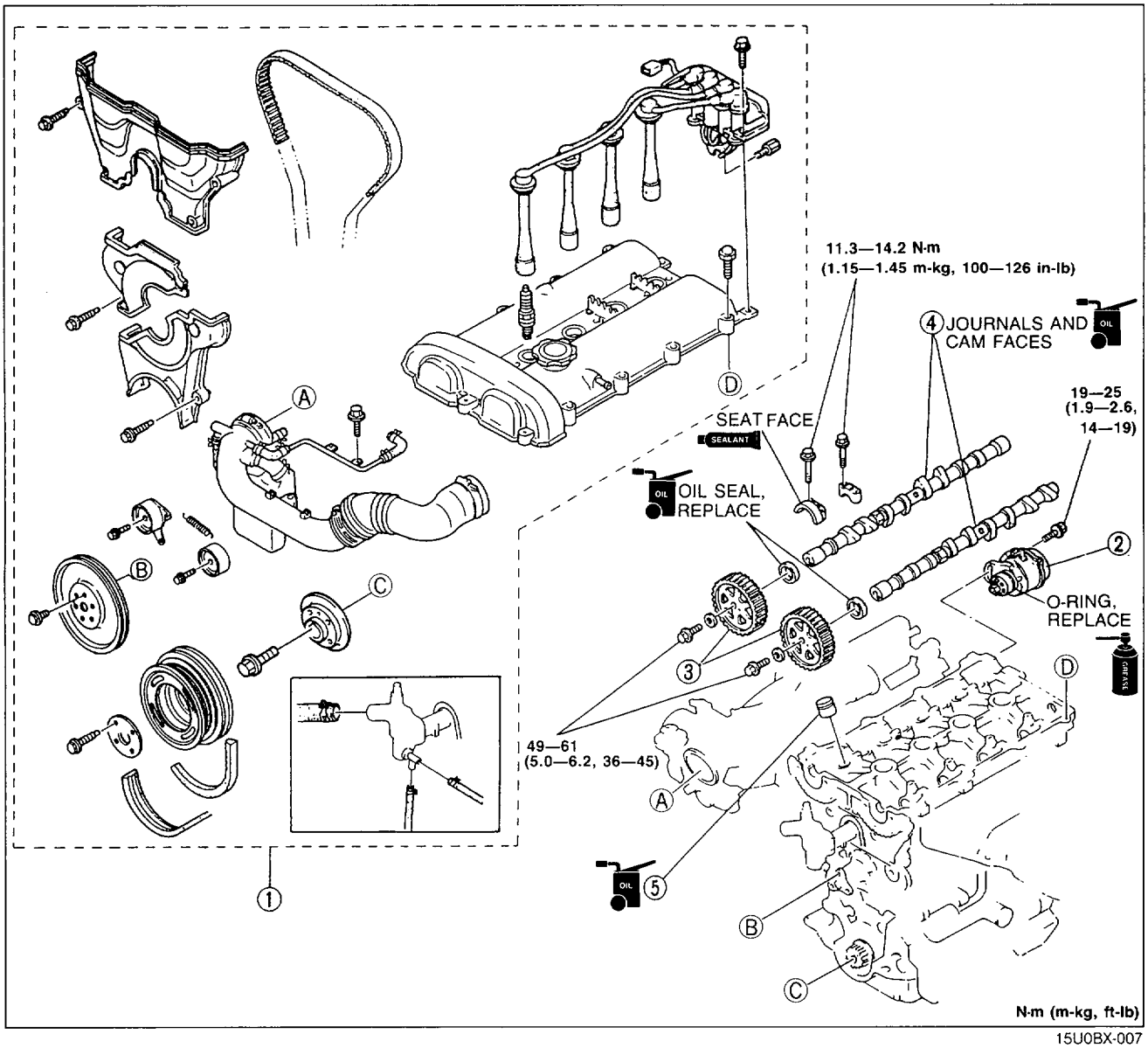
Steps After Installation
1. Fill the radiator with the specified amount and type of engine coolant. (Refer to Section E.)
2. Connect the negative battery cable.
3. Start the engine and check as follows:
   (1) Engine oil and engine coolant leakage.
   (2) Ignition timing, idle speed. (Refer to page B–8.)
   (3) Operation of emission control system.
4. Recheck the engine coolant levels.

15U0BX-006

HLA
Removal / Installation

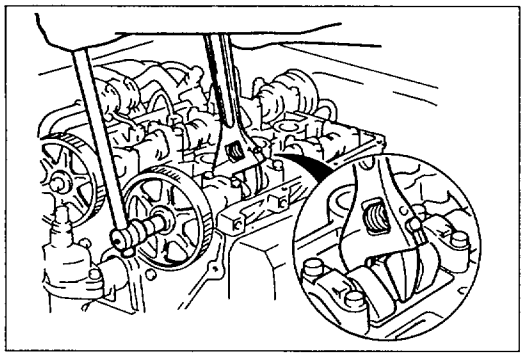
Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to Section T.)**
- **Position the hose clamp in the original location on the hose, and squeeze the clamp lightly with large pliers to ensure a good fit.**

1. Disconnect the negative battery cable.
2. Drain the engine coolant.
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Install in the reverse order of removal, referring to **Installation Note**.



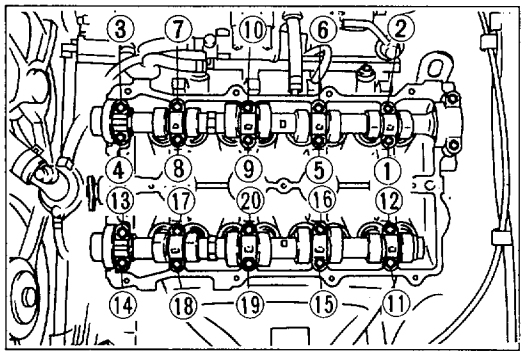
15U0BX-007

1. Timing belt
   Removal / Installation ..... page B–12
2. Crank angle sensor
   Installation Note ..... page B–23
3. Camshaft pulley
   Removal Note ..... page B–21
   Installation Note ..... page B–22
4. Camshaft
   Removal Note ..... page B–21
   Installation Note ..... page B–21
5. HLA
   Removal Note ..... page B–21
   Installation Note ..... page B–21
   Inspection ..... page B–54



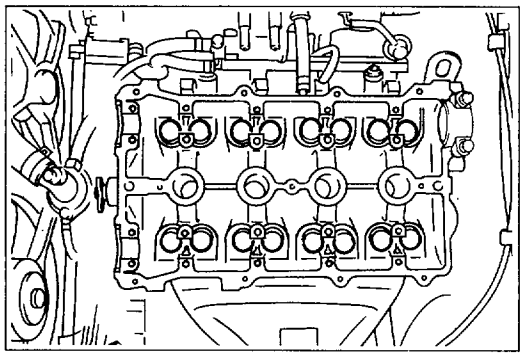
25U0BX-018

Removal note
Camshaft pulley
1. Hold the camshaft with a wrench at hexagonal portion.
2. Remove the camshaft pulley lock bolt.
3. Remove the camshaft pulley.



05U0BX-049

Camshaft
1. Loosen the camshaft cap bolts in two or three steps in the order shown in the figure.
2. Remove the camshaft caps.
3. Remove the camshaft.
4. Remove the camshaft oil seal from the camshaft.

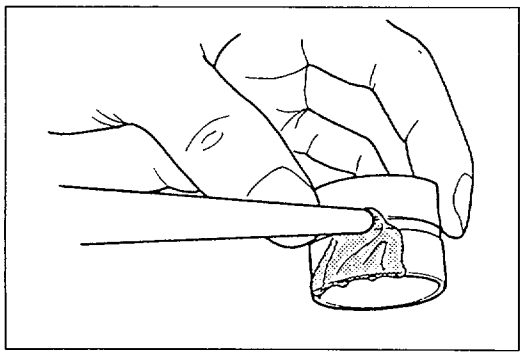


05U0BX-050

HLA

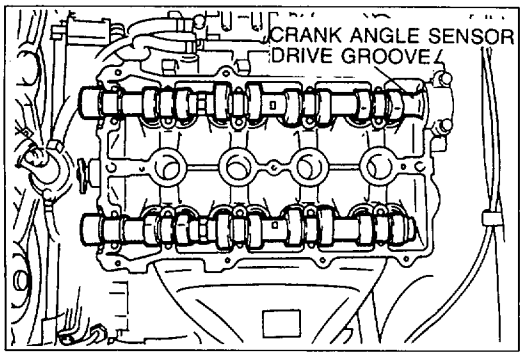
Caution
- **Mark the HLA with a felt pen so that they can be reinstalled in the position from which they were removed.**

1. Remove the HLA from the cylinder head.



05U0BX-051

Installation note
HLA
1. Apply clean engine oil to the friction surfaces.
2. If the HLA are being reused, install them in the position from which they were removed.
3. Verify that the HLA move smoothly in their bores.

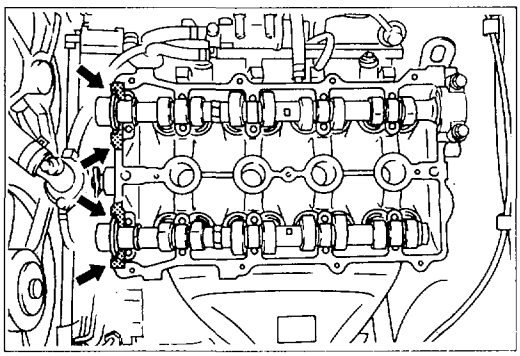


25U0BX-019

Camshaft

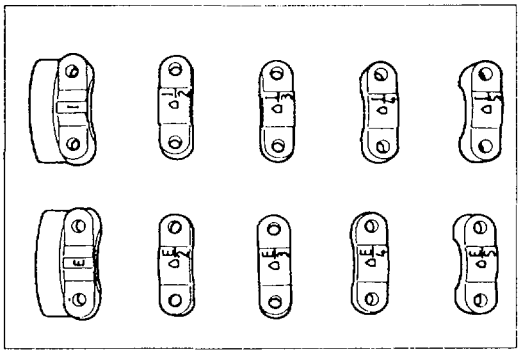
Note
- **The rear end of intake camshaft is grooved for the crank angle sensor drive.**

1. Apply clean engine oil to the camshaft journals and bearings.
2. Install the camshaft in position.

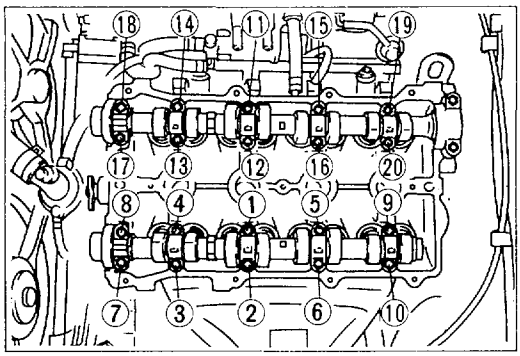

05U0BX-053

Caution
- **Do not allow any sealant on the camshaft journal surfaces.**

3. Apply silicone sealant to the shaded areas shown in the figure.


05U0BX-054

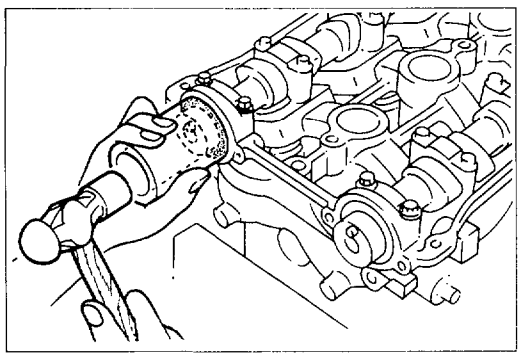
4. Install the camshaft caps according to the cap number and arrow mark.



05U0BX-055

5. Install the camshaft cap bolts and tighten them in two or three steps in the order shown in the figure.

Tightening torque:
11.3—14.2 N·m (1.15—1.45 m-kg, 100—126 in-lb)

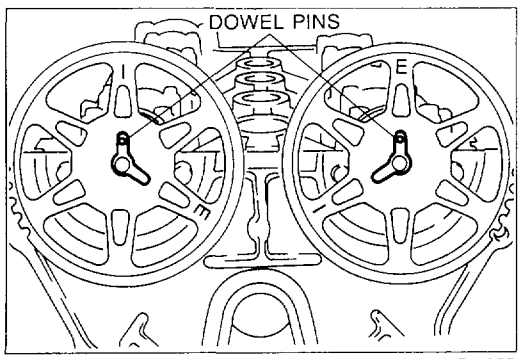

05U0BX-056

6. Apply a small amount of clean engine oil to the lip of a new camshaft oil seal.
7. Push the oil seal slightly in by hand.

Caution
- **The oil seal must be tapped in until it is flush with the edge of the camshaft cap.**

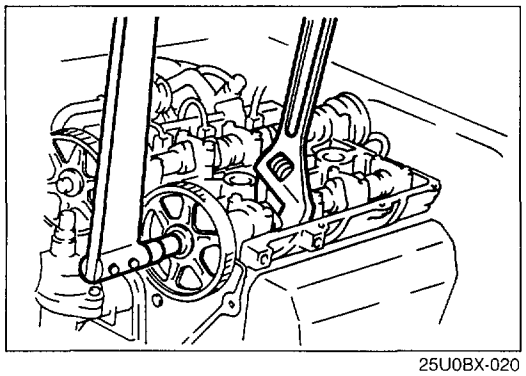
8. Tap the oil seal in evenly with a suitable pipe and a hammer.

Oil seal outer diameter: 48mm (1.89 in)



05U0BX-057

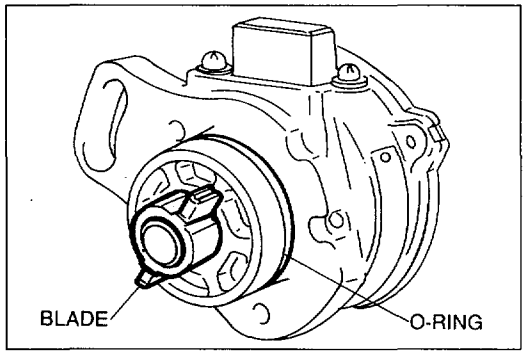
Camshaft pulley
1. Turn the camshafts until the camshaft dowel pins face straight up.
2. Install the camshaft pulleys with the I mark (intake side) or the E mark (exhaust side) straight up.



25U0BX-020

3. Install the camshaft pulley lock bolts.
4. Hold the camshaft with a wrench at hexagonal portion.
5. Tighten the camshaft pulley lock bolt.

Tightening torque:
49—61 N·m (5.0—6.2 m-kg, 36—45 ft-lb)



05U0BX-059

Crank angle sensor
1. Apply grease to a new O-ring and the blade.
2. Install the crank angle sensor and loosely tighten the installation bolt.
3. Connect the crank angle sensor connector.

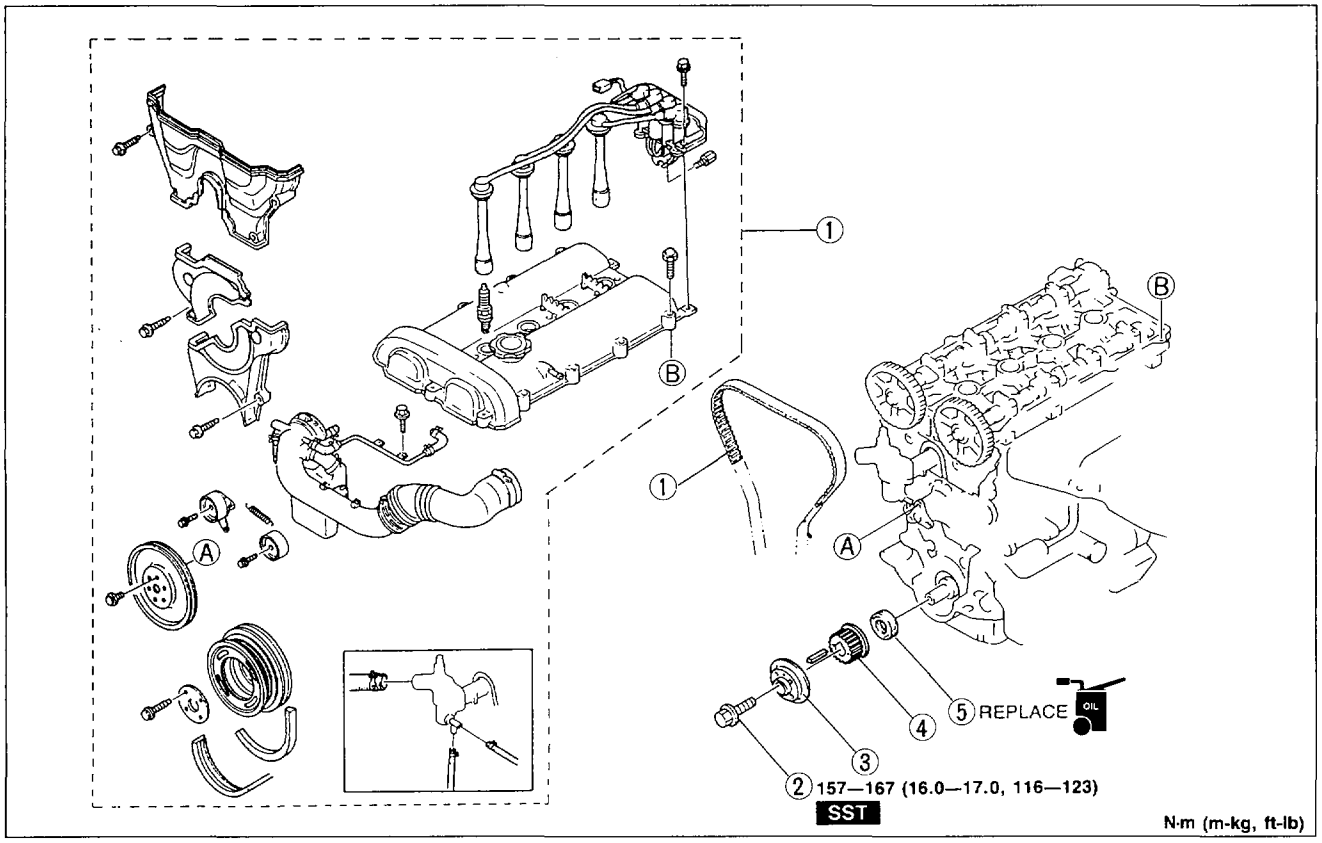
Steps After Installation
1. Fill the radiator with the specified amount and type of engine coolant. (Refer to Section E.)
2. Connect the negative battery cable.
3. Start the engine and check as follows:
   (1) Engine coolant leakage.
   (2) Ignition timing. (Refer to page B–8.)
4. Recheck the engine coolant levels.

15U0BX-008

FRONT OIL SEAL
Replacement

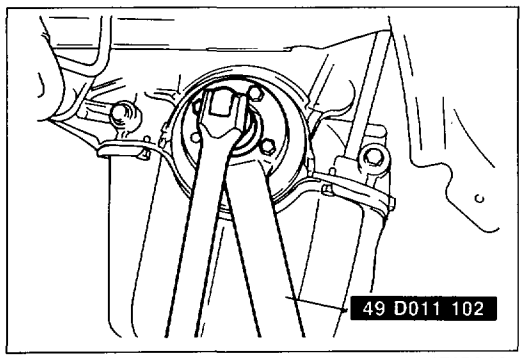
Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to Section T.)**
- **Position the hose clamp in the original location on the hose, and squeeze the clamp lightly with large pliers to ensure a good fit.**

1. Disconnect the negative battery cable.
2. Remove the under cover.
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Install in the reverse order of removal, referring to **Installation Note**.



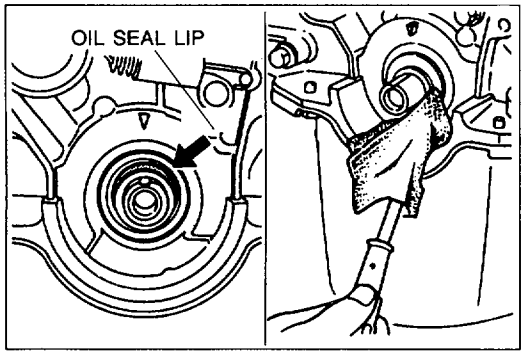
25U0BX-021

1. Timing belt
   Removal / Installation ..... page B–12
2. Pulley lock bolt
   Removal Note ..... page B–24
   Installation Note ..... page B–25
3. Pulley boss
4. Timing belt pulley
   Removal Note ..... page B–25
   Installation Note ..... page B–25
5. Oil seal
   Removal Note ..... page B–25
   Installation Note ..... page B–25



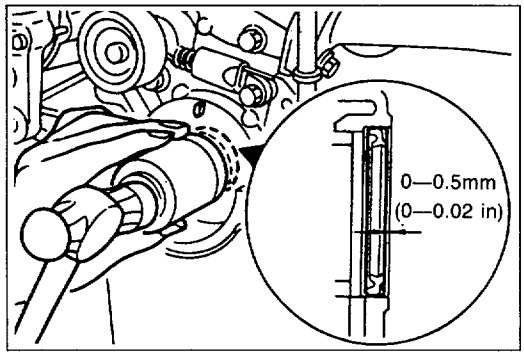
13E0B2-021

Removal Note
Pulley lock bolt
1. Hold the pulley boss with the **SST**.
2. Loosen and remove the pulley lock bolt.



05U0BX-063

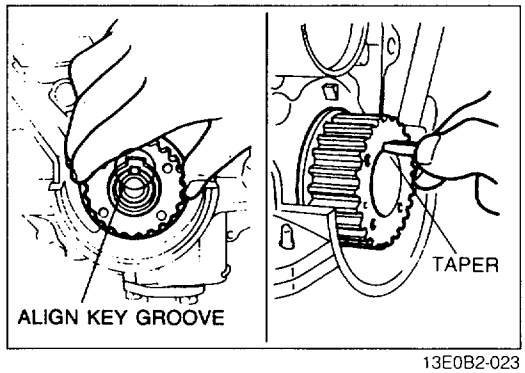
Oil seal
1. Cut the oil seal lip with a razor knife.
2. Remove the oil seal with a screwdriver protected with a rag.



13E0B2-022

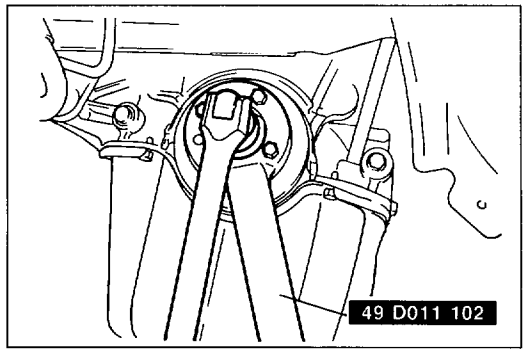
Installation Note
Oil seal
1. Apply a small amount of clean engine oil to the lip of a new oil seal.
2. Push the oil seal slightly in by hand.
3. Tap the oil seal in evenly with a suitable pipe and a hammer until it is about flush with the face of the oil pump body.

Oil seal outer diameter: 50.5mm (1.98 in)



13E0B2-023

Timing belt pulley
1. Install the timing belt pulley.
2. Install the pulley Woodruff key with the tapered side toward the oil pump body.



25U0BX-022

Pulley lock bolt
1. Hold the crankshaft with the **SST** and tighten the pulley lock bolt.

Tightening torque:
157—167 N·m (16—17 m-kg, 116—123 ft-lb)

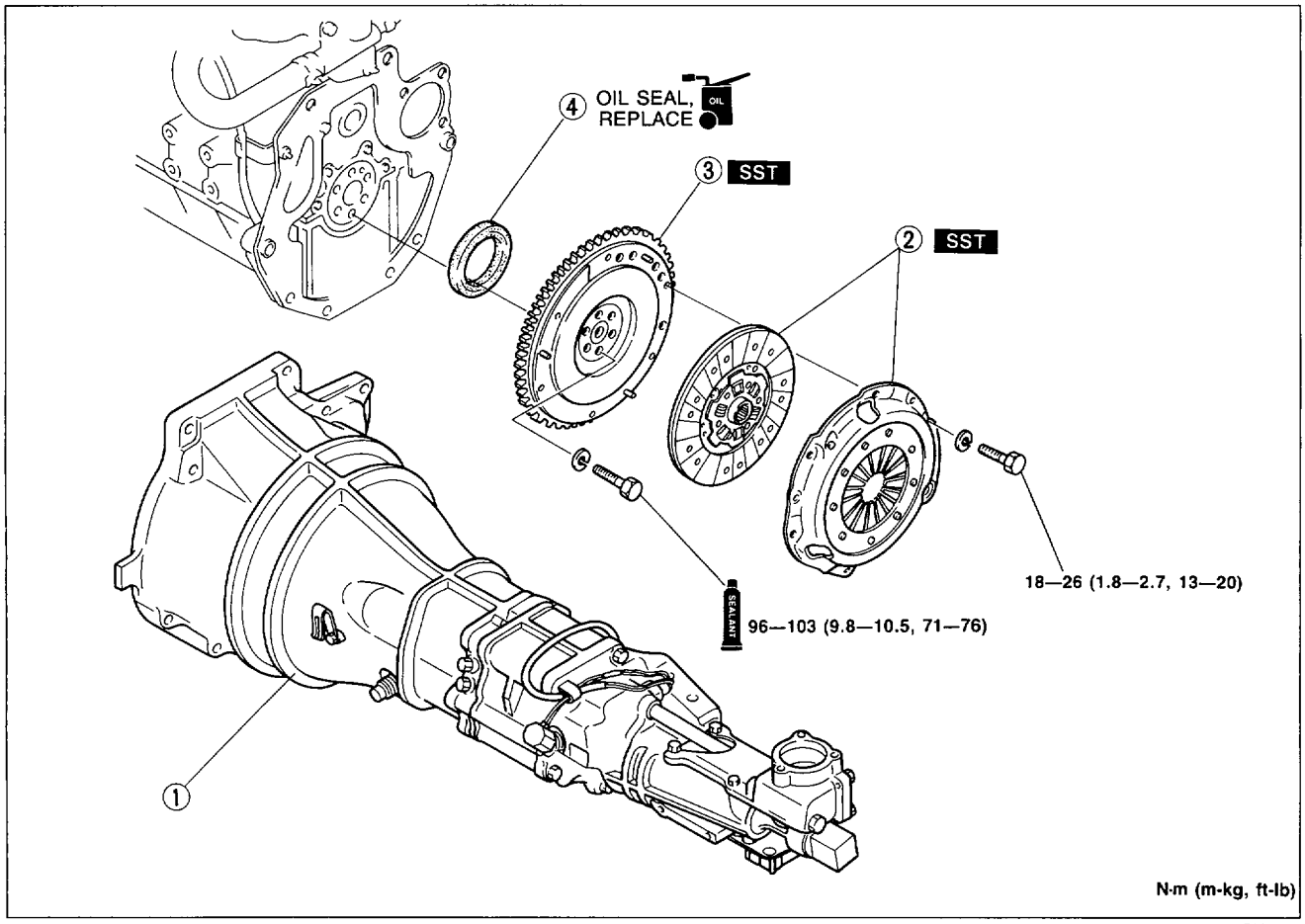
Steps After Installation
1. Connect the negative battery cable.
2. Start the engine and check, and if necessary adjust, the ignition timing.
3. Connect the negative battery cable.
4. Start the engine and check as follows:
   (1) Engine coolant leakage.
   (2) Ignition timing. (Refer to page B–8.)
5. Recheck the engine coolant levels.

25U0BX-023

REAR OIL SEAL
Replacement

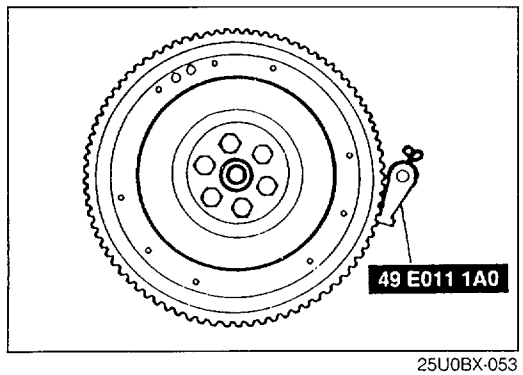
Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to Section T.)**

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Install in the reverse order of removal, referring to **Installation Note**.



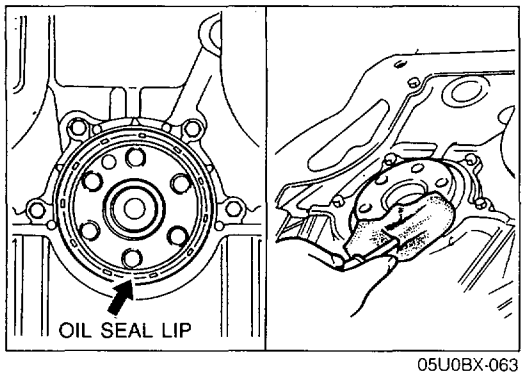
25U0BX-064

1. Transmission
   Service ..... Sections J, K
2. Clutch cover, clutch disc (M/T)
   Service ..... Section H
3. Flywheel (M/T), drive plate (A/T)
   Removal Note..... page B–26
   Installation Note..... page B–27
4. Oil seal
   Removal Note..... page B–27
   Installation Note..... page B–27



25U0BX-053

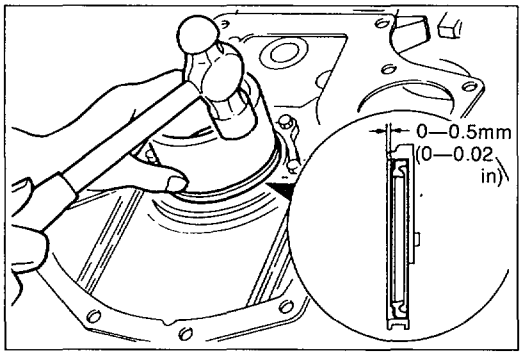
Removal note
Flywheel (M/T) or drive plate (A/T)
1. Hold the flywheel with the **SST** or equivalent.
2. Remove the flywheel lock bolts.
3. Remove the flywheel.



05U0BX-063

Oil seal

1. Cut the oil seal lip with a razor knife.
2. Remove the oil seal with a screwdriver protected with a rag.



05U0BX-069

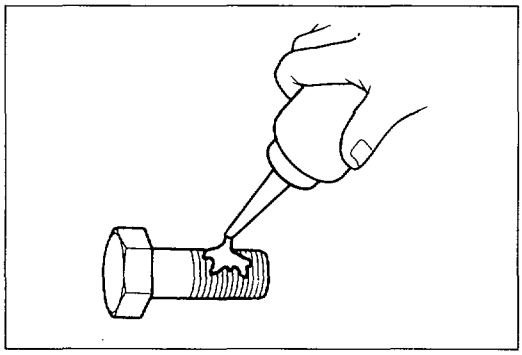
Installation note
Oil seal

1. Apply a small amount of clean engine oil to the lip of a new oil seal.
2. Push the oil seal slightly in by hand.

Caution
- **The oil seal must be tapped in until it is flush with the edge of the rear cover.**

3. Tap the oil seal in evenly with a suitable pipe and a hammer.

Oil seal outer diameter: 100mm (3.94 in)

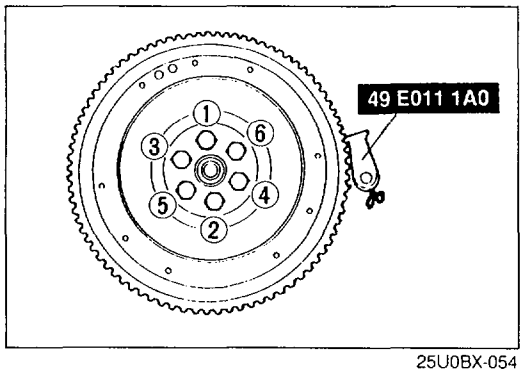


15U0BX-015

Flywheel (M/T) or drive plate (A/T)

1. Remove the sealant from the flywheel bolt holes in the crankshaft and from the flywheel bolts.

Caution
- **If all the previous sealant cannot be removed from a bolt, replace the bolt.**
- **Do not apply sealant if a new bolt is used.**



25U0BX-054

2. Set the flywheel onto the crankshaft.
3. Apply sealant to the flywheel bolts and install them.
4. Hold the flywheel with the **SST** or equivalent.
5. Tighten the bolts in two or three steps in the order shown in the figure.

Tightening torque:
96—103 N·m (9.8—10.5 m-kg, 71—76 ft-lb)

Steps After Installation

1. Connect the negative battery cable.
2. Start the engine and perform engine adjustments as necessary.

05U0BX-072

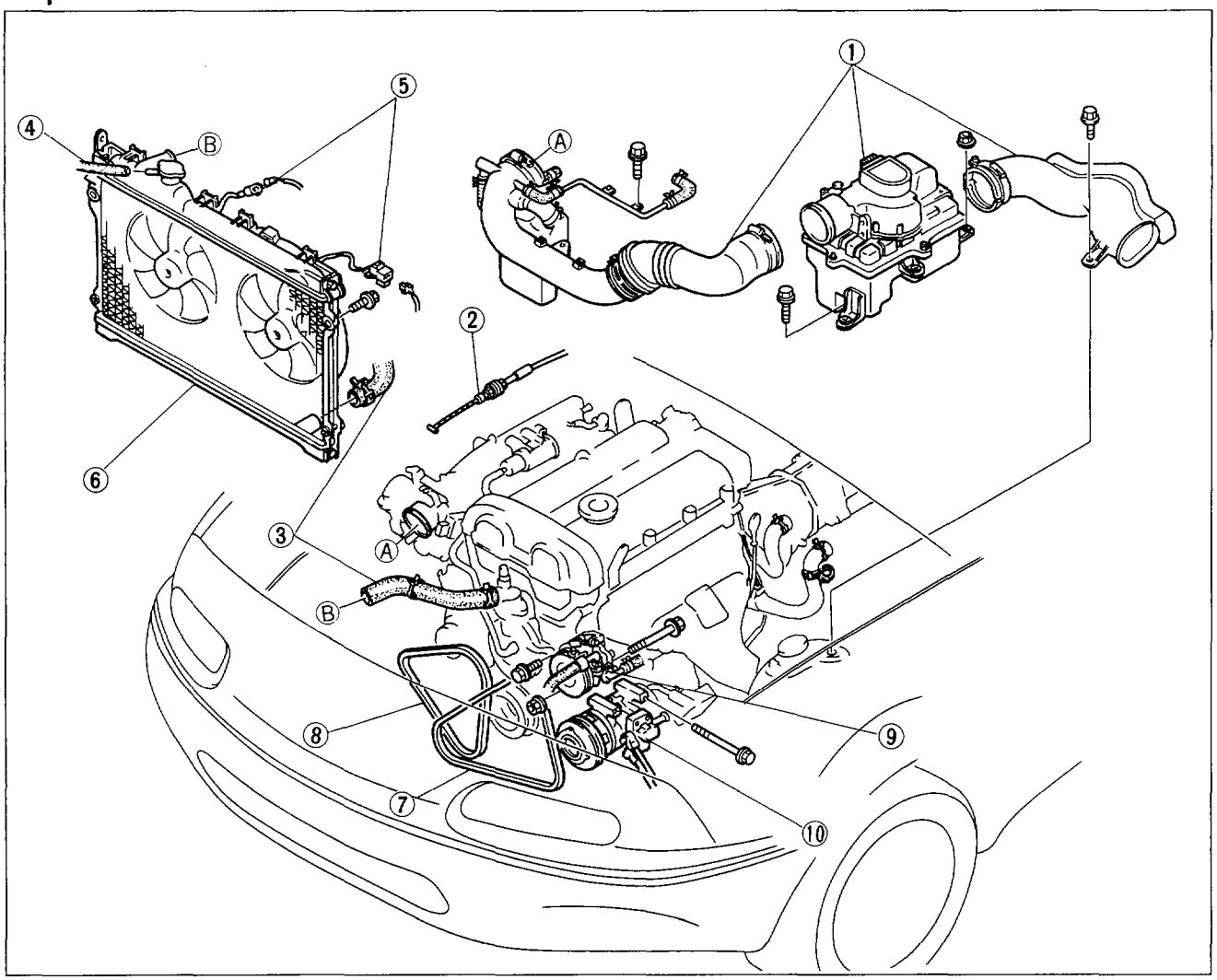
REMOVAL

Warning
- **Release the fuel pressure. (Refer to Section F.)**

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to Section T.)**

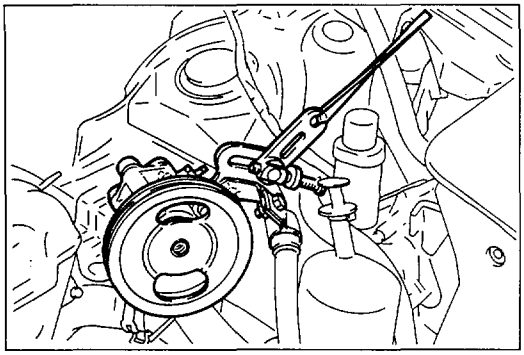
PROCEDURE
1. Disconnect the negative battery cable.
2. Drain the engine coolant.
3. Remove the under cover.
4. Remove in the order shown in the figure, referring to **Removal Note**.

Step 1

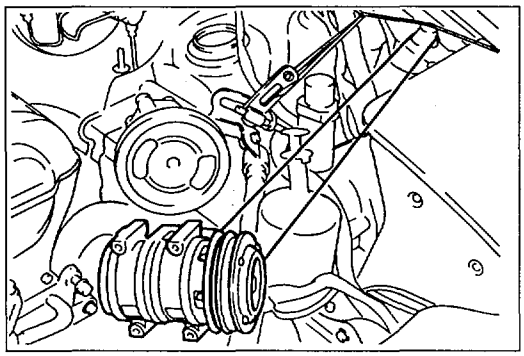


25U0BX-024

1. Air cleaner assembly
2. Accelerator cable
3. Radiator hose
4. Coolant reservoir hose
5. Cooling fan connector
6. Radiator and cooling fan assembly
7. P/S and/or A/C drive belt
   Removal ..... page B– 6
8. Alternator drive belt
   Removal ..... page B– 6
9. P/S oil pump
   Removal Note..... page B–29
10. A/C compressor (If equipped)
    Removal Note..... page B–29



05U0BX-074



25U0BX-025

Removal note
P/S oil pump

Caution
- **Do not damage the hoses.**

1. Remove the P/S oil pump with the hoses still connected.
2. Position the pump away from the engine and affix it with wire.

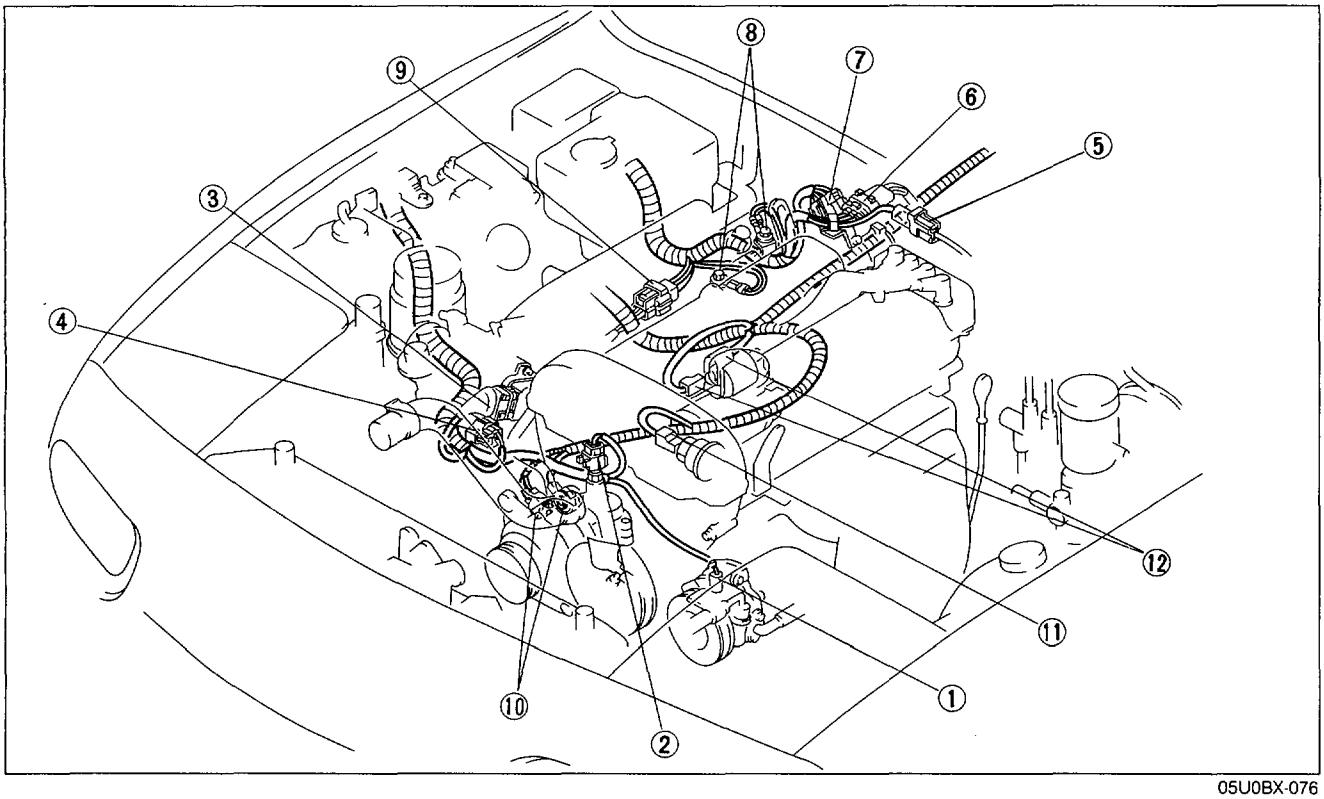
A/C compressor (If equipped)

Caution
- **Do not damage the hoses.**

1. Remove the A/C compressor with the hoses still connected.
2. Position the compressor away from the engine and affix it with wire.

Step 2

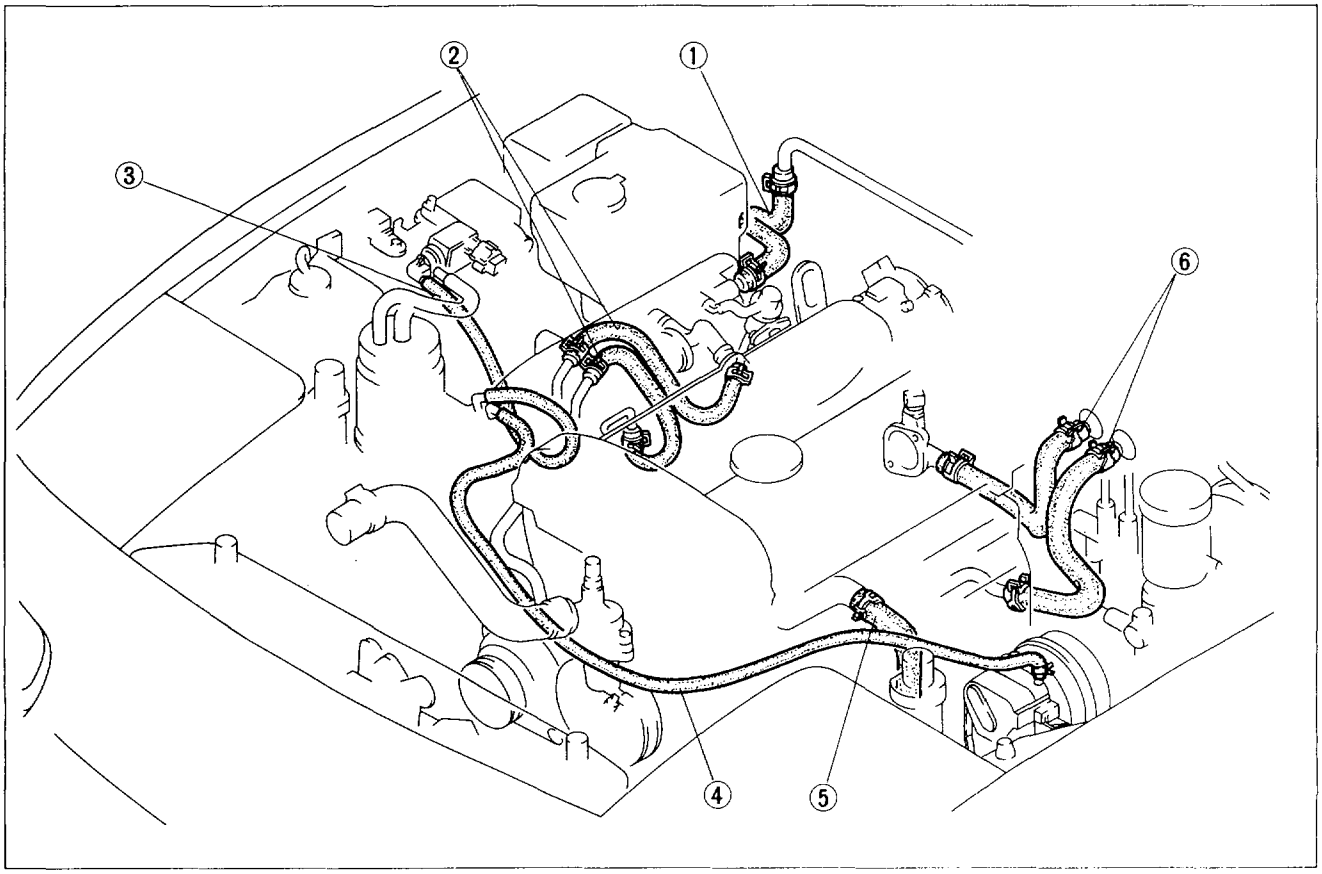
1. Disconnect the harness connectors shown in the figure.



05U0BX-076

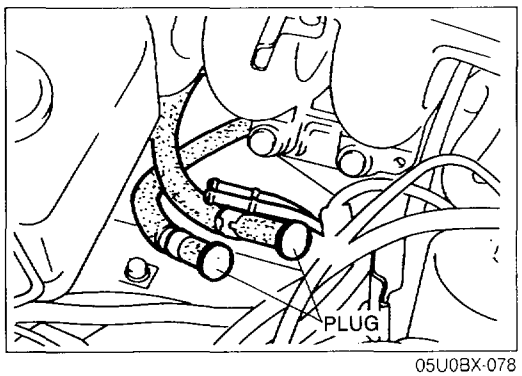
1. P/S pressure switch
2. Water thermoswitch
3. Throttle sensor
4. ISC
5. Oxygen sensor
6. Ignition coil
7. Crank angle sensor
8. Ground
9. Injector
10. Alternator
11. Oil pressure gauge
12. Starter

Step 3
1. Disconnect the hoses shown in the figure.



05U0BX-077

1. Brake vacuum hose
2. Fuel hose
   Removal Note..... page B–30
3. Vacuum hose (Purge control)
4. Vacuum hose (Cruise control)
5. Water inlet hose
6. Heater hose



05U0BX-078

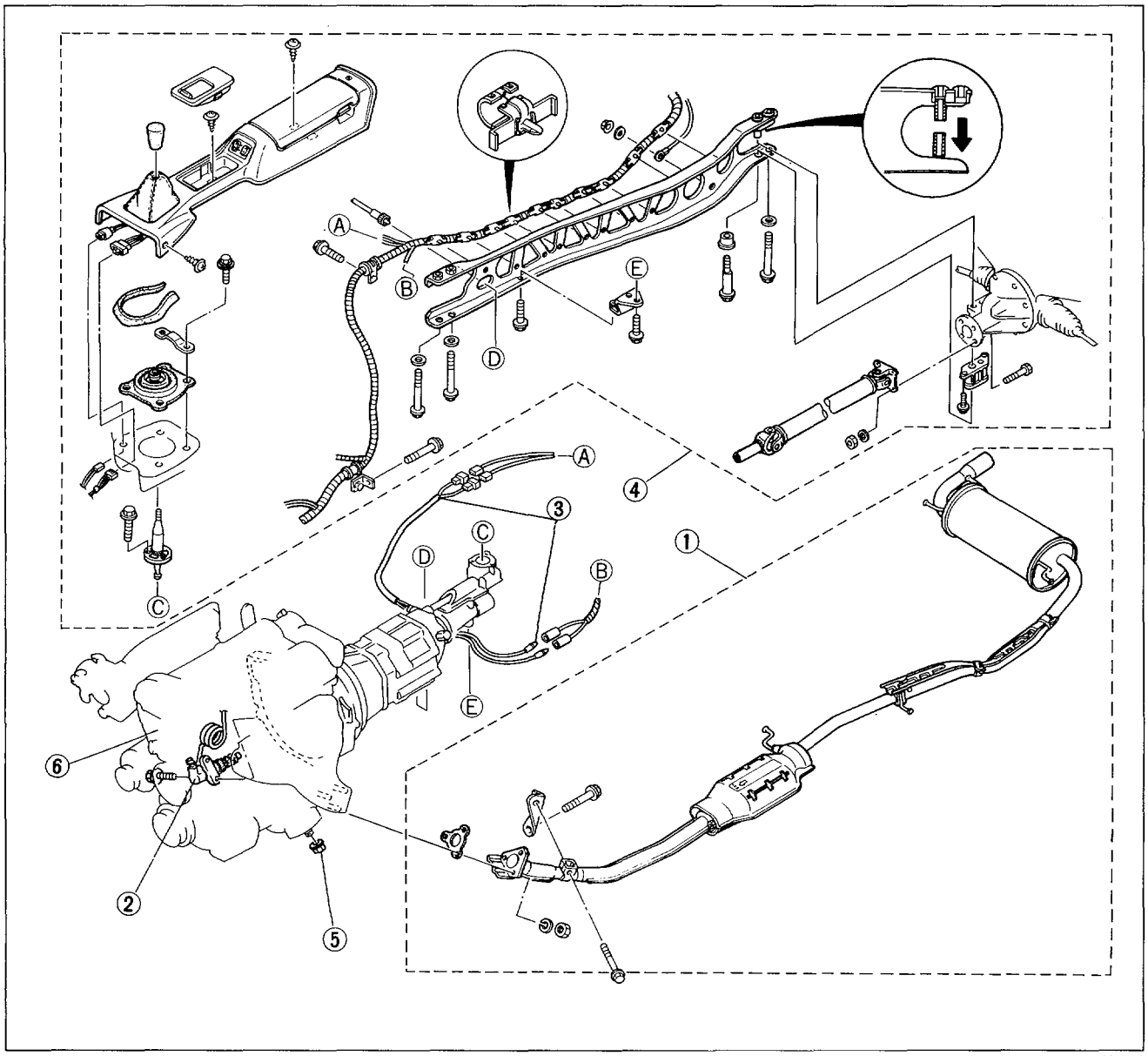
Removal note
Fuel hose

Warning
- **Keep sparks and open flame away from the fuel area.**

Caution
- **Cover the hose with a rag because fuel will spray out when disconnecting.**
- **Plug the disconnected hoses to avoid fuel leakage.**

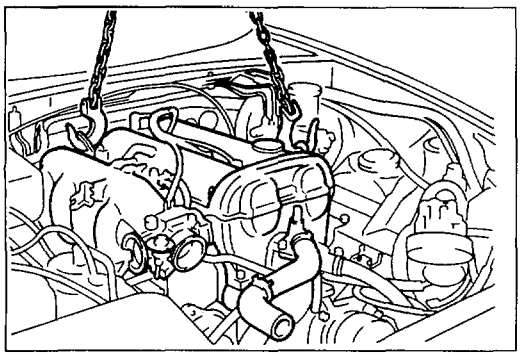
1. Disconnect the fuel hoses.

Step 4



15U0BX-017

1. Exhaust pipe
   Service..... Section F
2. Clutch release cylinder
3. Transmission harness
4. Shift knob, speedometer cable, propeller shaft, and power plant frame
   Service..... Section J
5. Engine mount nut
6. Engine and transmission assembly
   Removal Note..... page B–31



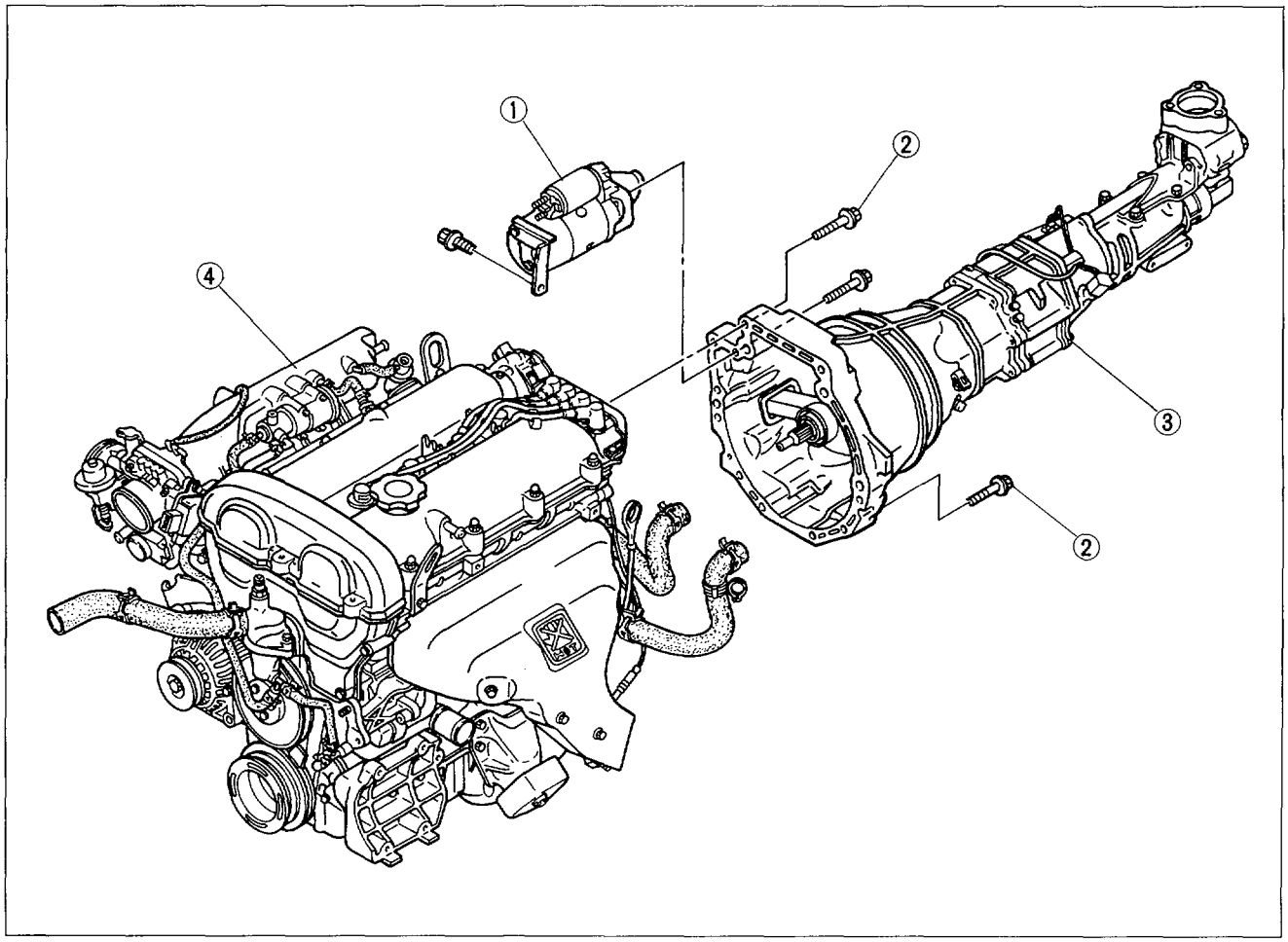
05U0BX-080

Removal note
Engine and transmission assembly

Caution
- **Do not damage any components in the engine compartment.**

1. Lift the engine and transmission assembly out as a unit.

Step 5

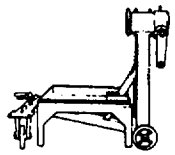
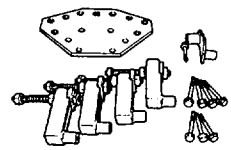
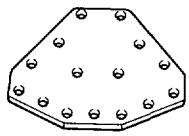
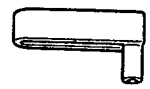
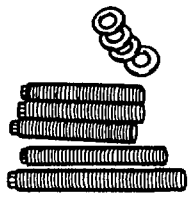


05U0BX-081

1. Starter
2. Transmission mounting bolt
3. Transmission
4. Engine assembly

ENGINE STAND MOUNTING

PREPARATION
SST

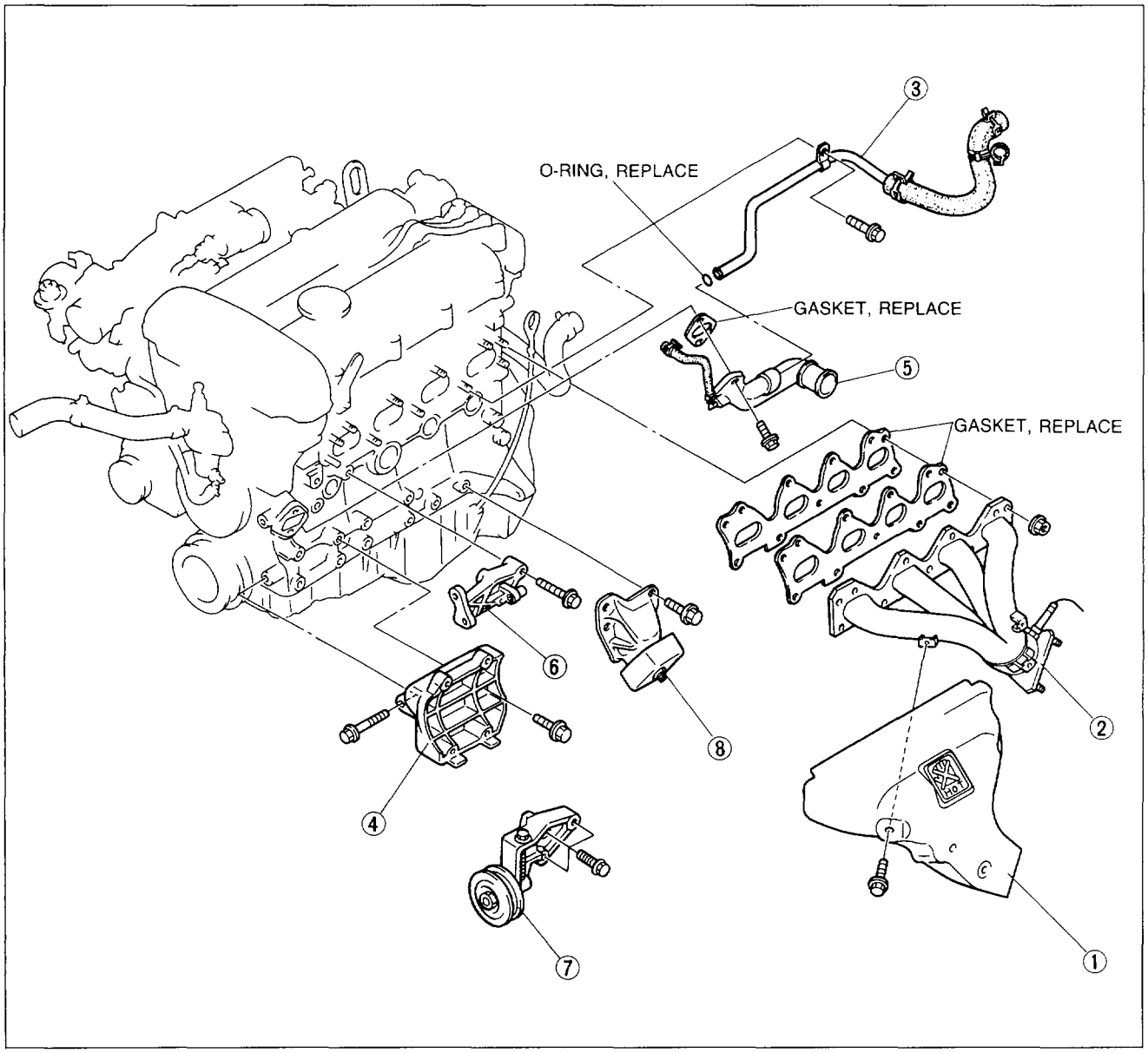
49 0107 680A Engine stand 	For disassembly and assembly of engine	49 L010 1A0 Hanger set, engine stand 	For disassembly and assembly of engine
49 L010 101 Plate (Part of 49 L010 1A0) 	For disassembly and assembly of engine	49 L010 102 Arms (Part of 49 L010 1A0) 	For disassembly and assembly of engine
49 L010 103 Hooks (Part of 49 L010 1A0)	For disassembly and assembly of engine	49 L010 104 Nuts (Part of 49 L010 1A0)	For disassembly and assembly of engine
49 L010 105 Bolts (Part of 49 L010 1A0) 	For disassembly and assembly of engine	49 L010 106 Bolts (Part of 49 L010 1A0)	For disassembly and assembly of engine

05U0BX-082

PROCEDURE

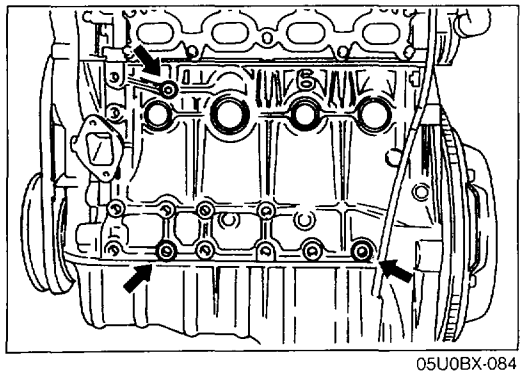
Step 1

1. Remove in the order shown in the figure.



25U0BX-026

1. Exhaust manifold insulator
2. Exhaust manifold
3. Water bypass pipe
4. A/C compressor bracket
5. Water inlet pipe
6. P/S oil pump bracket
7. Idler (A/C) (If equipped)
8. Left engine mount

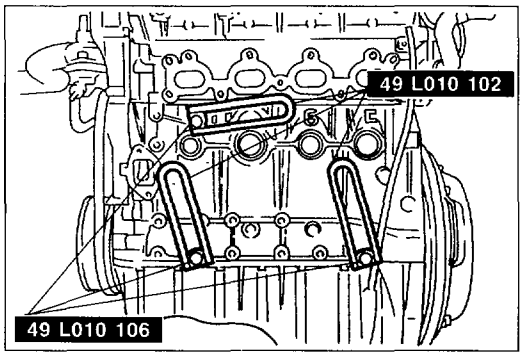


05U0BX-084

Step 2

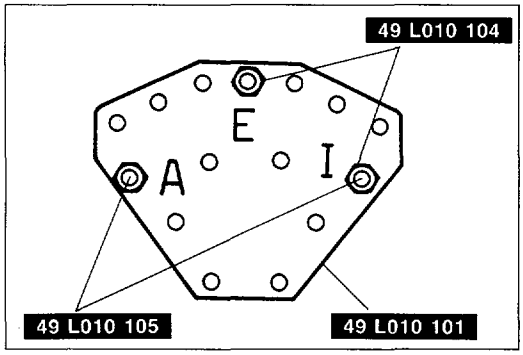
Caution

- **When installing the SST (engine hanger), use the holes shown in the figure.**



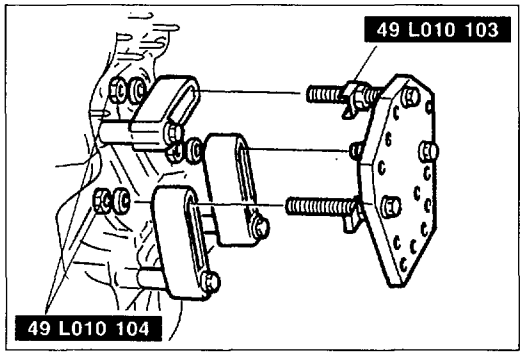
05U0BX-085

1. Install the **SST (arms)** to the holes as shown in the figure, and loosely tighten the **SST (bolts)**.



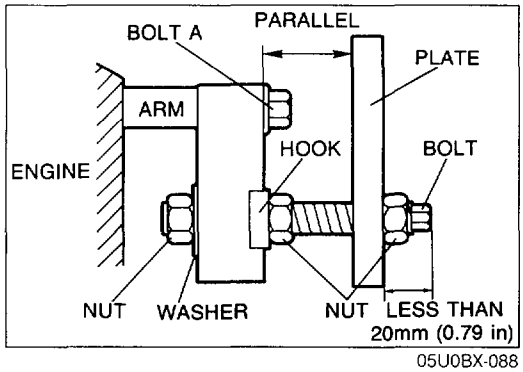
05U0BX-086

2. Assemble the **SST (bolts and plate)** in the specified position.



05U0BX-087

3. Assemble the **SST (nuts, hooks, and bolts)**.
4. Install the **SST** to the respective arms.

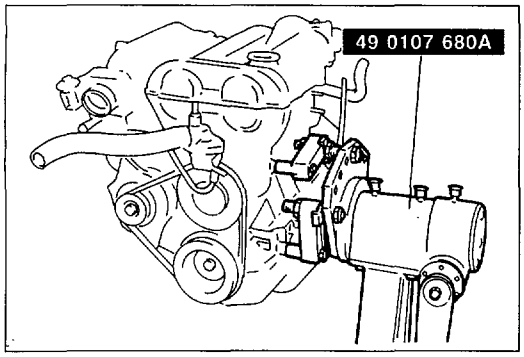


05U0BX-088

Note

- **Adjust the SST (bolts) so that less than 20mm (0.79 in) of thread is exposed.**
- **Make the SST (plate and arms) parallel by adjusting the SST (bolts and nuts).**

5. Tighten the **SST (bolts and nuts)** to affix the **SST** firmly.

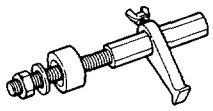
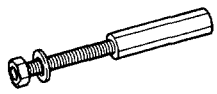
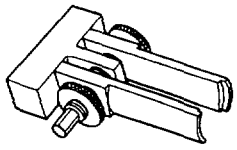
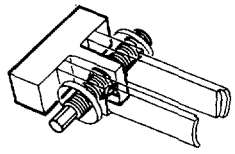
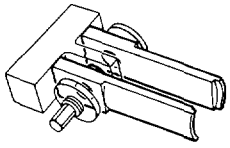
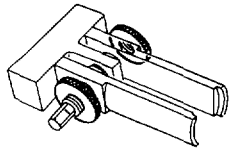
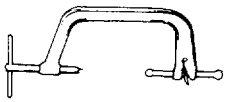
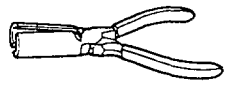
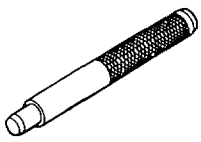


05U0BX-089

6. Mount the engine on the **SST (engine stand)**.

DISASSEMBLY

PREPARATION
SST

49 E011 1A0 Ring gear brake set 	For prevention of engine rotation	49 E011 103 Shaft (Part of 49 E011 1A0) 	For prevention of engine rotation
49 E011 105 Stopper (Part of 49 E011 1A0)	For prevention of engine rotation	49 E011 104 Collar (Part of 49 E011 1A0)	For prevention of engine rotation
49 B012 0A2 Pivot, valve spring lifter 	For removal / installation of valves	49 B012 012 Body (Part of 49 B012 0A2) 	For removal / installation of valves
49 B012 013 Foot (Part of 49 B012 0A2) 	For removal / installation of valves	49 B012 014 Locknut (Part of 49 B012 0A2) 	For removal / installation of valves
49 0636 100A Arm, valve spring lifter 	For removal / installation of valves	49 S120 170 Remover, valve seal 	For removal of valve seals
49 0223 061A Remover & installer, piston pin 	For removal / installation of piston pins		

25U0BX-027

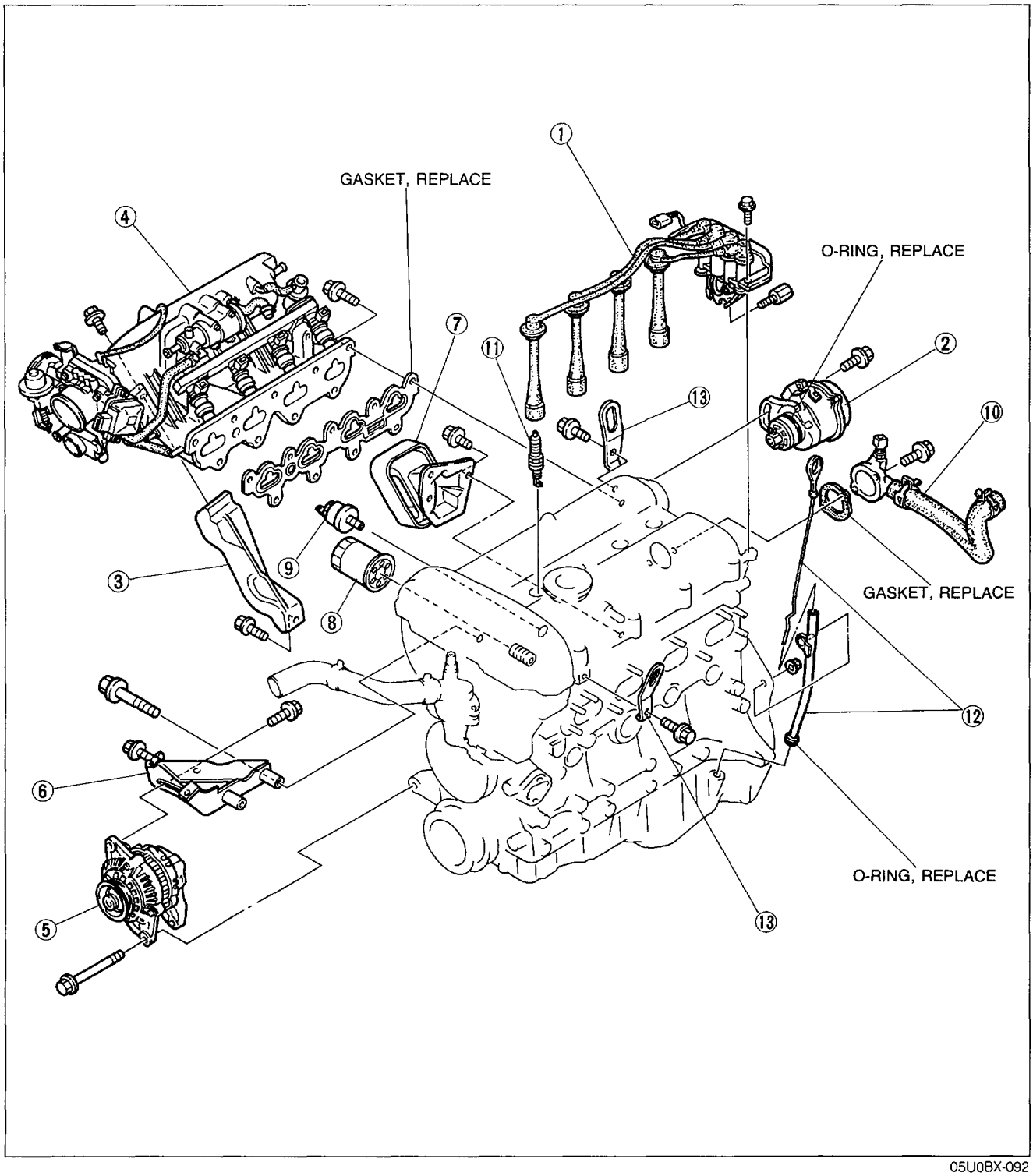
1. Code all identical parts (such as piston, piston rings, connecting rods, and valve springs) so that they can be reinstalled in the cylinder from which they were removed.
2. Clean the parts with a steam cleaner. Blow off any remaining water with compressed air.

Note
- **During disassembly of any part or system, be sure to study its order of assembly. Also, note any deformation, wear, or damage.**

05U0BX-091

AUXILIARY PARTS

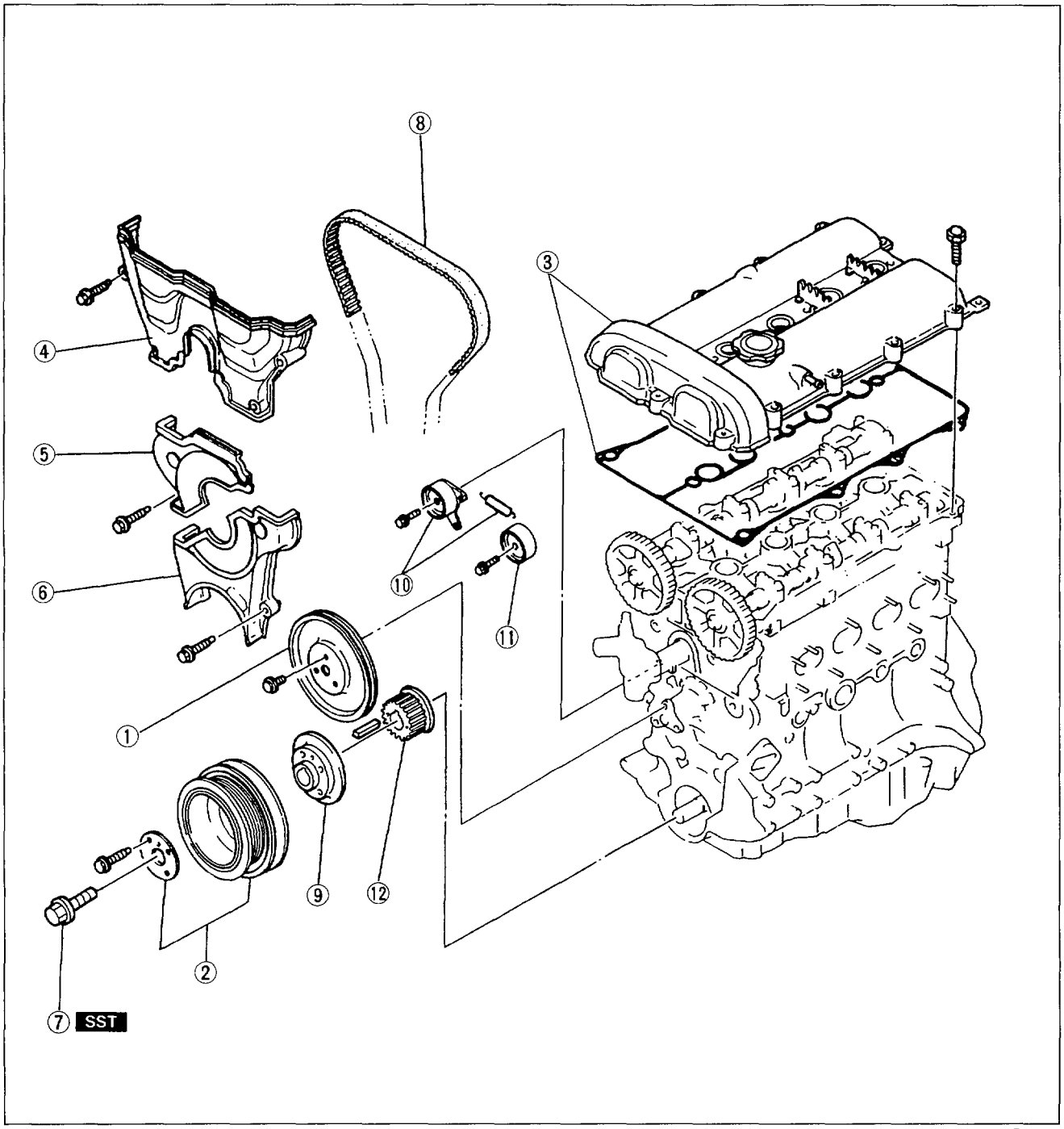
1. Drain the engine oil.
2. Disassemble in the order shown in the figure.



1. Ignition coil and high-tension lead
2. Crank angle sensor
3. Manifold bracket
4. Intake manifold assembly
5. Alternator
6. Alternator bracket
7. Right engine mount
8. Oil filter
9. Oil pressure gauge sender unit
10. Water outlet pipe
11. Spark plug
12. Oil level gauge and pipe
13. Engine hanger

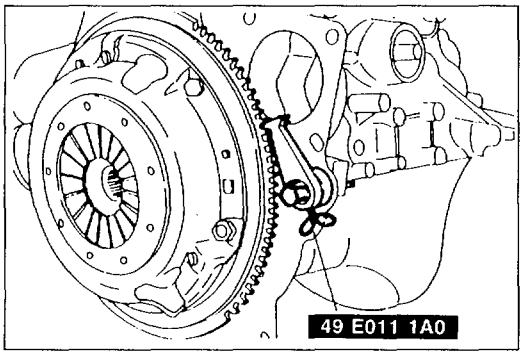
TIMING BELT

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.

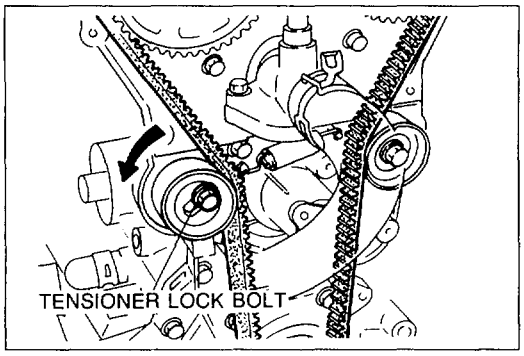


25U0BX-028

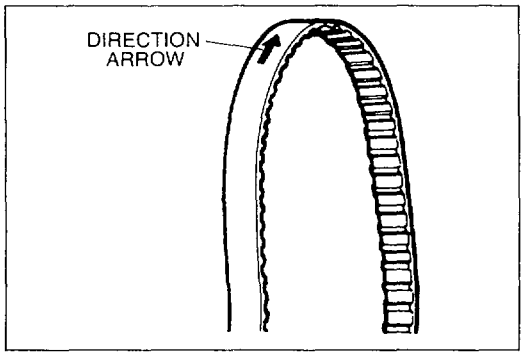
1. Water pump pulley
2. Crankshaft pulley
3. Cylinder head cover
4. Timing belt cover, upper
5. Timing belt cover, middle
6. Timing belt cover, lower
7. Pulley lock bolt
   Disassembly Note ..... page B–39
8. Timing belt
   Disassembly Note ..... page B–39
   Inspection ..... page B–59
9. Pulley boss
10. Tensioner, tensioner spring
    Inspection ..... page B–59
11. Idler
    Inspection ..... page B–59
12. Timing belt pulley
    Inspection ..... page B–59



25U0BX-055



13E0B2-029



13E0B2-030

Disassembly Note
Pulley lock bolt

1. Hold the flywheel (M/T) or drive plate (A/T) with the **SST** or equivalent.
2. Loosen the pulley lock bolt.
3. Remove the pulley lock bolt.

Timing belt

1. Loosen the tensioner lock bolt and using a suitable bar, pry the tensioner outward.

Caution
- **Protect the tensioner with a rag before prying.**

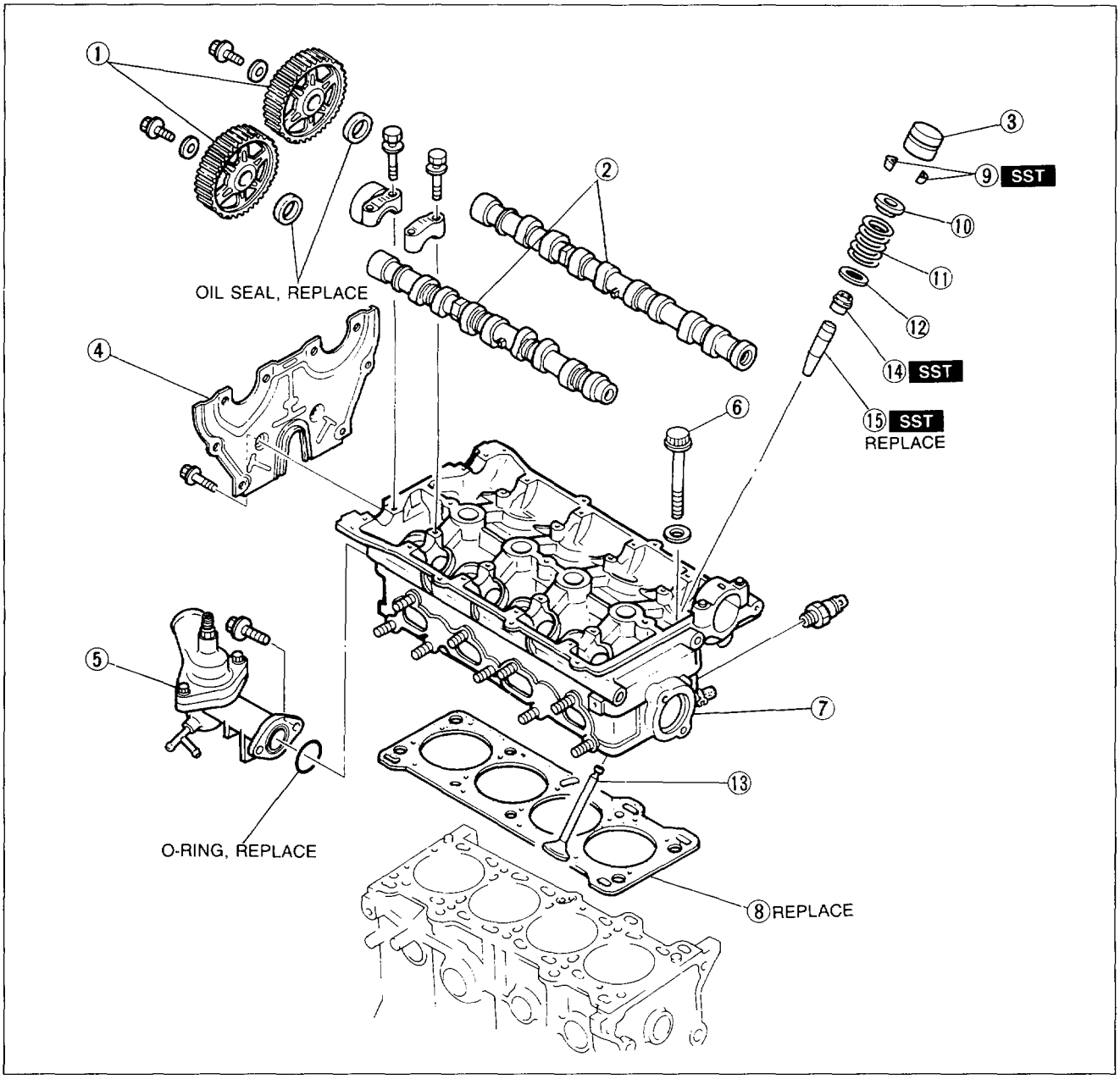
2. Tighten the lock bolt with the tensioner spring fully extended.

Note
- **Mark the timing belt rotation for proper reinstallation.**

3. Remove the timing belt.

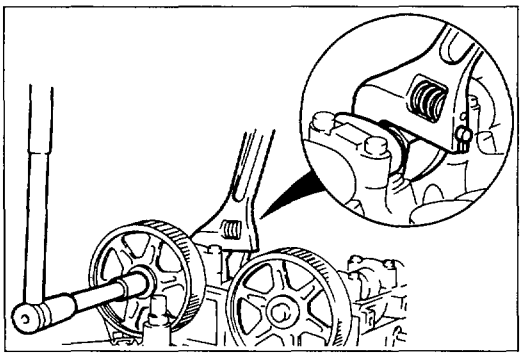
CYLINDER HEAD

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.



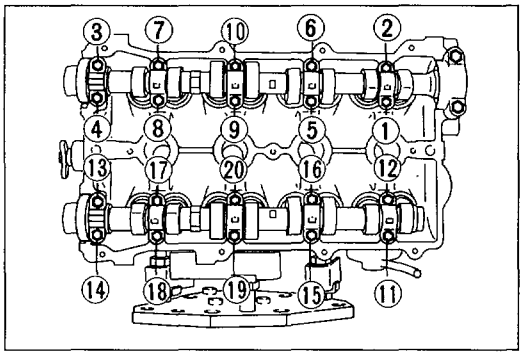
05U0BX-099

1. Camshaft pulley
   - Disassembly Note ..... page B–41
   - Inspection ..... page B–59
2. Camshaft
   - Disassembly Note ..... page B–41
   - Inspection ..... page B–52
3. HLA
   - Disassembly Note ..... page B–41
   - Inspection ..... page B–54
4. Seal plate
5. Thermostat housing
6. Cylinder head bolt
   - Disassembly Note ..... page B–41
7. Cylinder head
   - Inspection ..... page B–48
8. Cylinder head gasket
9. Valve keeper
   - Disassembly Note ..... page B–41
10. Valve spring seat, upper
11. Valve spring
    - Inspection ..... page B–52
12. Valve spring seat, lower
13. Valve
    - Inspection ..... page B–49
14. Valve seal
    - Disassembly Note ..... page B–42
    - Inspect for wear or damage
15. Valve guide
    - Inspection ..... page B–49
    - Replacement ..... page B–50



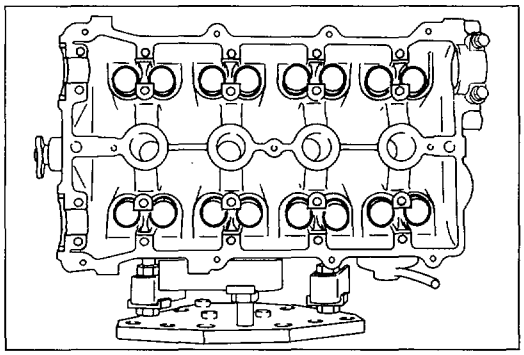
25U0BX-030

Disassembly Note
Camshaft pulley
1. Hold the camshaft with a wrench at hexagonal portion.
2. Remove the camshaft pulley lock bolt.
3. Remove the camshaft pulley.



05U0BX-049

Camshaft
1. Loosen the camshaft cap bolts in two or three steps in the order shown in the figure.
2. Remove the camshaft caps.
3. Remove the camshaft.
4. Remove the camshaft oil seal from the camshaft.

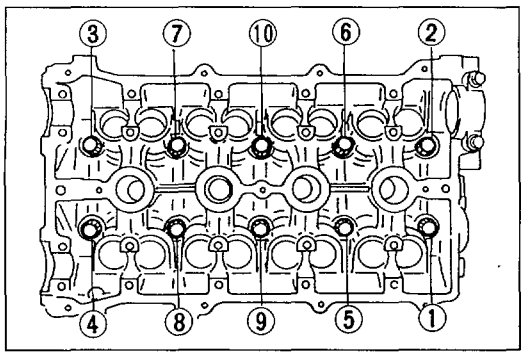


05U0BX-050

HLA

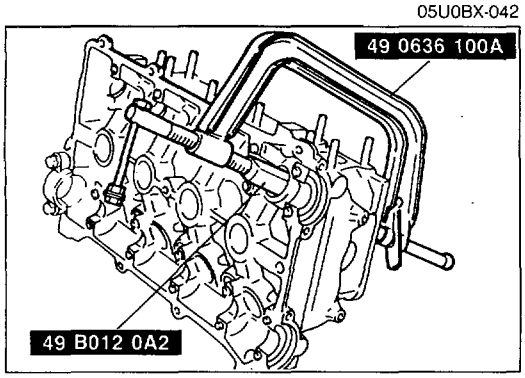
Caution
- **Mark the HLA with a felt pen so that they can be reinstalled in the position from which they were removed.**

1. Remove the HLA from the cylinder head.



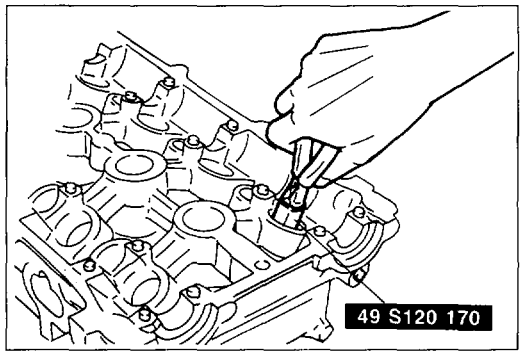
05U0BX-042

Cylinder head bolt
1. Loosen the cylinder head bolts in two or three steps in the order shown in the figure.
2. Remove the cylinder head bolts.



05U0BX-101

Valve keeper
1. Set the **SST** against the upper valve spring seat as shown in the figure.
2. Remove the valve keepers.



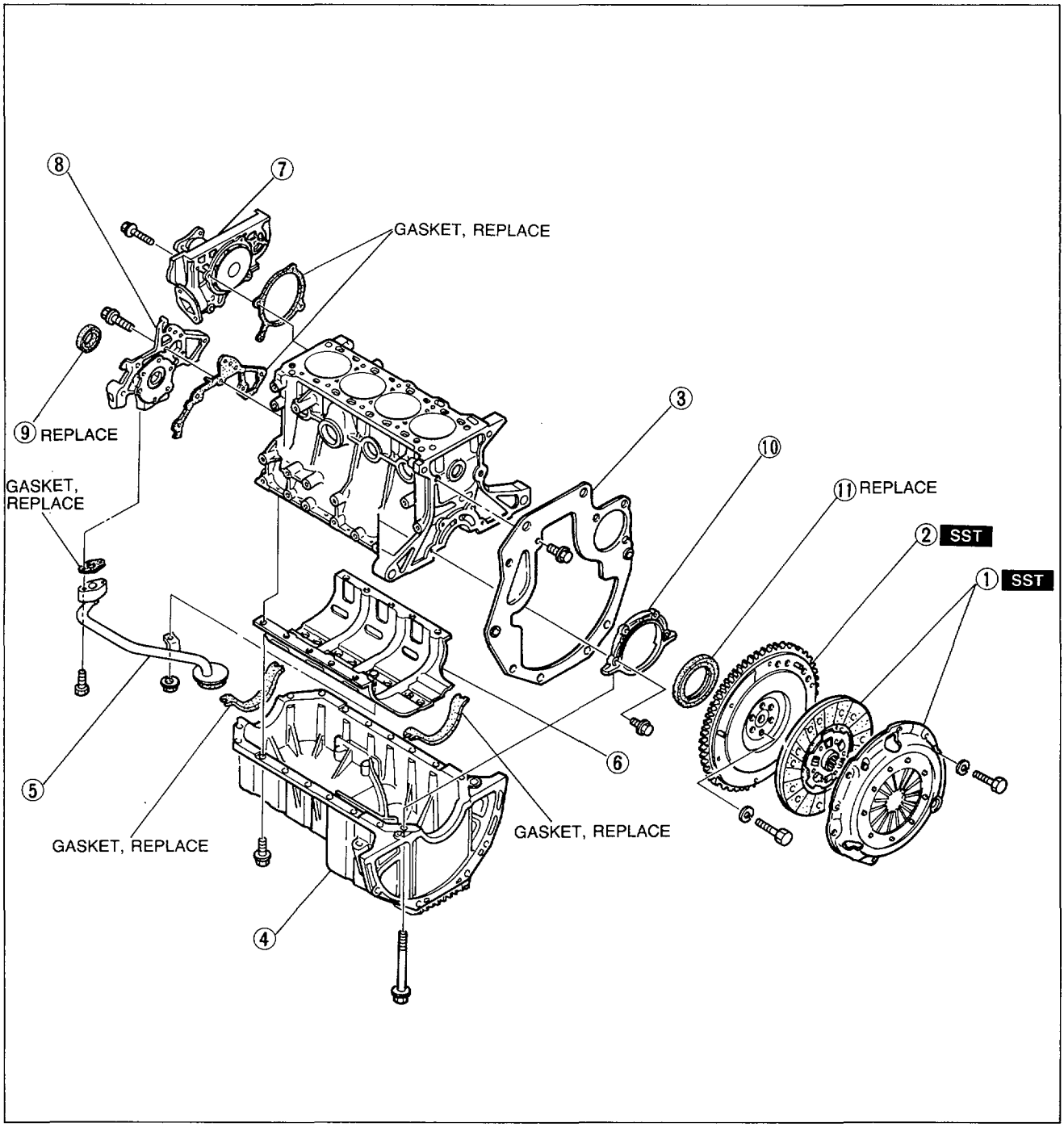
05U0BX-102

Valve seal

1. Remove the valve seal with the **SST**.

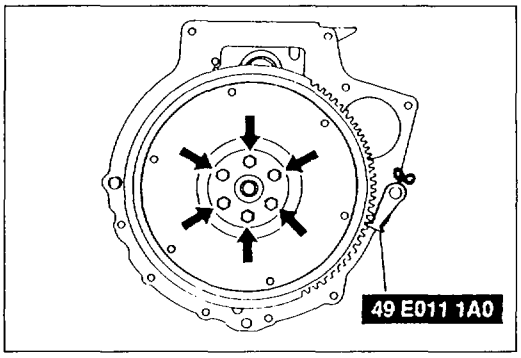
CYLINDER BLOCK (EXTERNAL PARTS)

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.



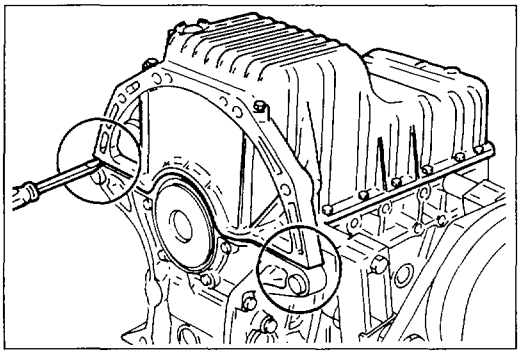
15U0BX-018

1. Clutch cover, clutch disc
   Service ..... Section H
2. Flywheel
   Disassembly Note ..... page B–44
   Inspect for wear or damage
3. End plate
4. Oil pan
   Disassembly Note ..... page B–44
   Inspect for damage
5. Oil strainer
6. Oil pan baffle
   Disassembly Note ..... page B–44
7. Water pump
   Service ..... Section E
8. Oil pump
   Service ..... Section D
9. Front oil seal
   Disassembly Note ..... page B–44
10. Rear cover
11. Rear oil seal
    Disassembly Note ..... page B–44



25U0BX-056

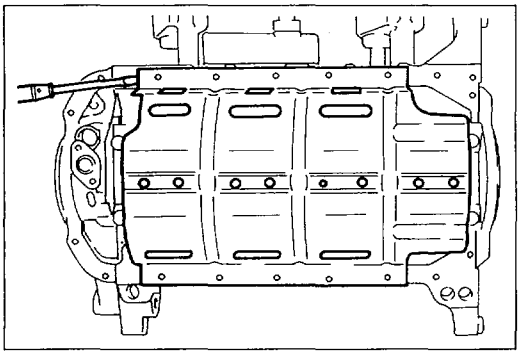
Disassembly Note
Flywheel (M/T) or drive plate (A/T)
1. Hold the flywheel with the **SST** or equivalent.
2. Remove the flywheel lock bolts.
3. Remove the flywheel.


05U0BX-105

Oil pan
1. Remove the oil pan mounting bolts.

Caution
- **Do not force a prying tool between the cylinder block and the oil pan, which may damage the contact surfaces.**
- **Do not damage or scratch the contact surfaces when removing the old sealant.**

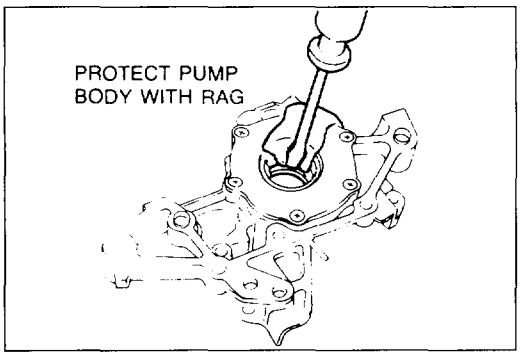
2. Insert a screwdriver or a suitable tool only at the points shown in the figure.
3. Remove the oil pan.


05U0BX-106

Oil pan baffle

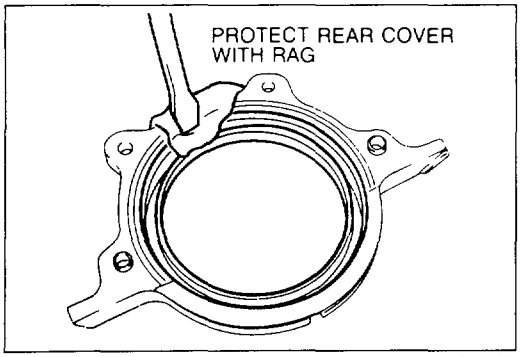
Caution
- **Do not bend the baffle when prying it loose.**

1. Insert a screwdriver or a suitable tool between the cylinder block and the baffle to separate them.
2. Remove the baffle.



05U0BX-107

Front oil seal
1. Remove the oil seal with a screwdriver protected with a rag.

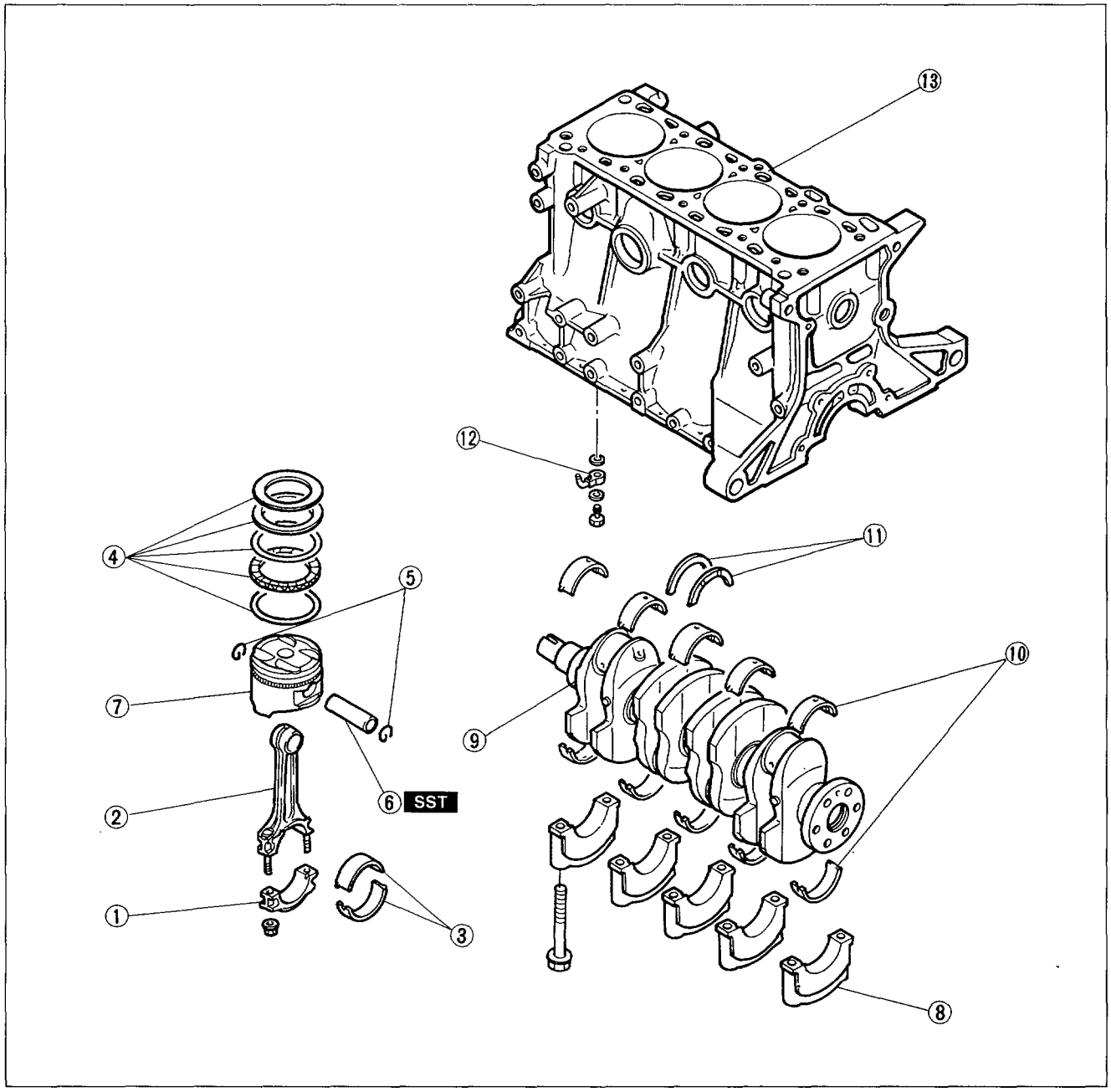


05U0BX-108

Rear oil seal
1. Remove the oil seal with a screwdriver protected with a rag.

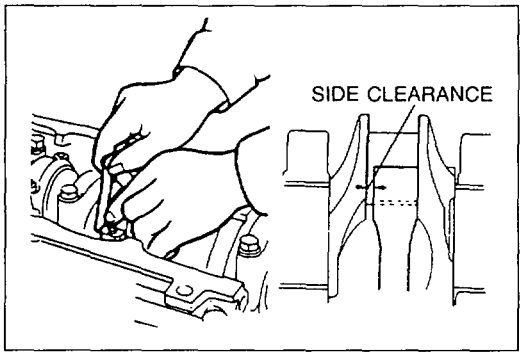
CYLINDER BLOCK (INTERNAL PARTS)

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.



05U0BX-099

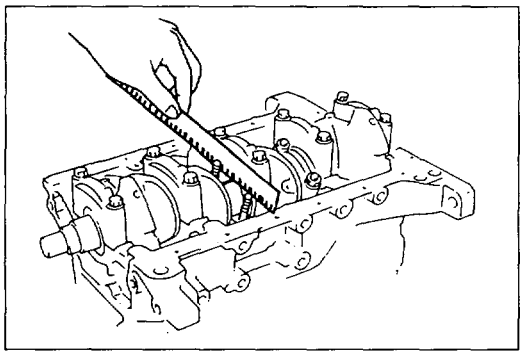
1. Connecting rod cap
   Disassembly Note ..... page B–46
2. Connecting rod
   Disassembly Note ..... page B–46
   Inspection ..... page B–57
3. Connecting rod bearing
   Inspection ..... page B–58
4. Piston ring
   Disassembly Note ..... page B–46
   Inspection ..... page B–56
5. Piston pin clip
6. Piston pin
   Disassembly Note ..... page B–46
   Inspection ..... page B–57
7. Piston
   Inspection ..... page B–56
8. Main bearing cap
   Disassembly Note ..... page B–47
9. Crankshaft
   Disassembly Note ..... page B–47
   Inspection ..... page B–58
10. Main bearing
    Inspection ..... page B–58
11. Thrust bearing
12. Oil jet
    Inspection ..... page B–55
13. Cylinder block
    Inspection ..... page B–54



05U0BX-110

Disassembly Note
Connecting rod cap

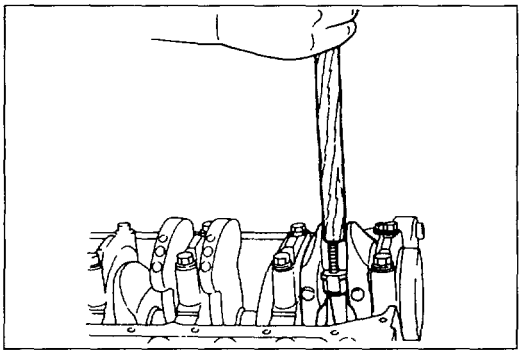
1. Before removing the connecting rod caps, measure the connecting rod side clearance. (Refer to page B–65.)



05U0BX-111

Connecting rod

1. Before removing the connecting rods, measure the connecting rod oil clearance. (Refer to page B–65.)

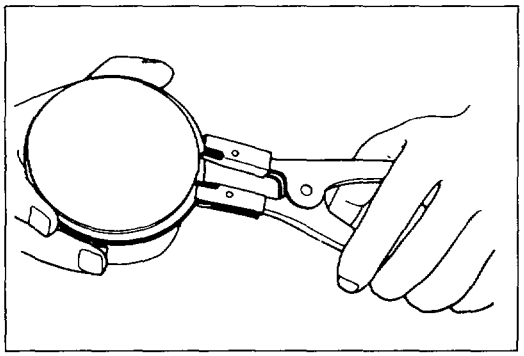


05U0BX-112

2. Remove the Plastigage from the crankpin journals.

Caution
- **Do not scratch the crankshaft journal or the cylinder wall.**

3. Use the handle of a hammer to remove the piston and connecting rod assembly through the top of the cylinder block.

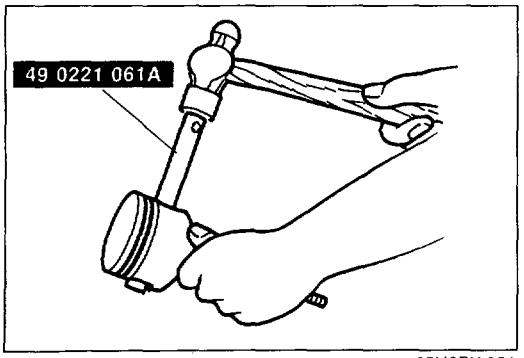


05U0BX-113

Piston ring

Caution
- **Do not apply excessive tension, which may cause the rings to snap out.**

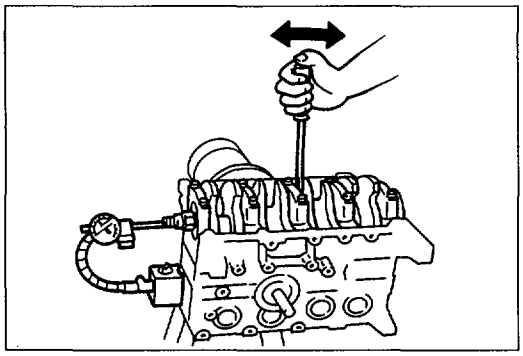
1. Remove the piston rings with a piston ring expander (commercially available).



25U0BX-031

Piston pin

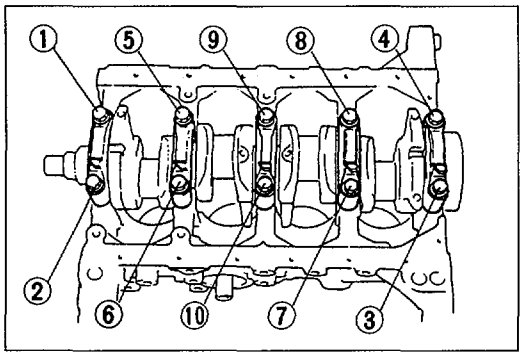
1. Remove the piston pin with the **SST**.



05U0BX-115

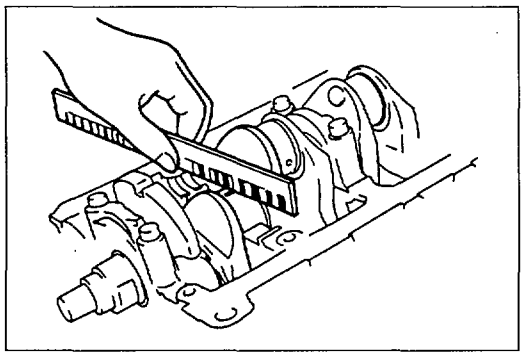
Main bearing cap

1. Before removing the main bearing caps, measure the crankshaft end play. (Refer to page B–64.)



05U0BX-116

2. Loosen the main bearing cap bolts in two or three steps in the order shown in the figure.
3. Remove the main bearing caps.



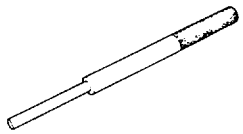
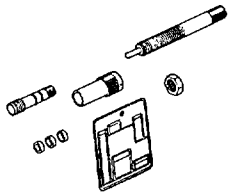
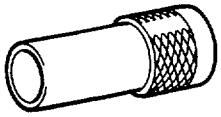
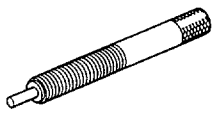
05U0BX-117

Crankshaft

1. Before removing the crankshaft, measure the main bearing oil clearances. (Refer to page B–63.)

INSPECTION / REPAIR

PREPARATION
SST

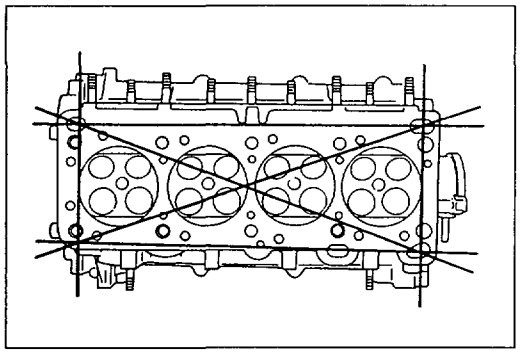
49 B012 005 Remover & installer, valve guide 	For removal of valve guide	49 L012 0A0 Installer set, valve seal & valve guide 	For installation of valve guide
49 L012 002 Body (Part of 49 L012 0A0) 	For installation of valve guide	49 L012 003 Installer (Part of 49 L012 0A0) 	For installation of valve guide
49 L012 004 Nut (Part of 49 L012 0A0)	For installation of valve guide		

05U0BX-118

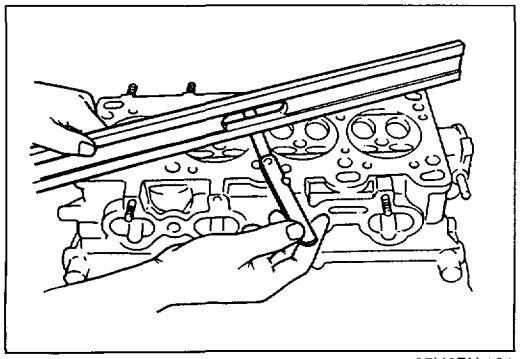
1. Clean all parts, being sure to remove all gasket fragments, dirt, oil or grease, carbon, moisture residue, and other foreign materials.
2. Inspection and repairs must be performed in the order specified.

Caution
- **Do not damage the joints or friction surfaces of aluminum alloy components (such as the cylinder head or pistons).**

05U0BX-119



05U0BX-120



05U0BX-121

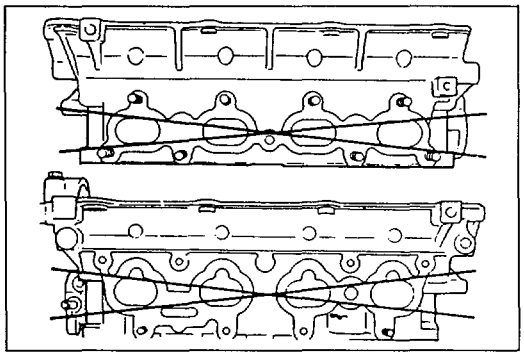
CYLINDER HEAD
1. Inspect the cylinder head for damage, cracks, and leakage of water and oil. Replace the cylinder head if necessary.
2. Measure the cylinder head distortion in the six directions shown in the figure.

Distortion: 0.15mm (0.006 in) max.

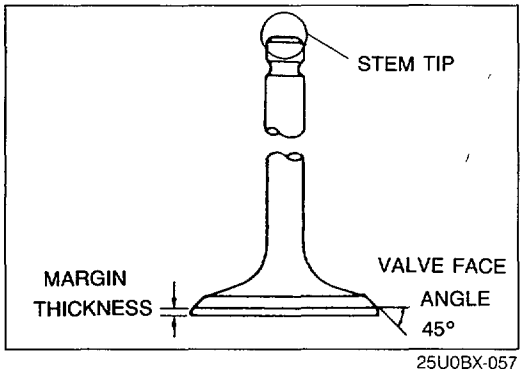
Caution
- **Before grinding the cylinder head, check the following and repair or replace the cylinder head as necessary.**
  Sinking of valve seats
  Damage of manifold contact surface
  Camshaft oil clearances and end play

3. If the cylinder head distortion exceeds specification, grind the cylinder head surface.
   If the cylinder head height is not within specification, replace it.

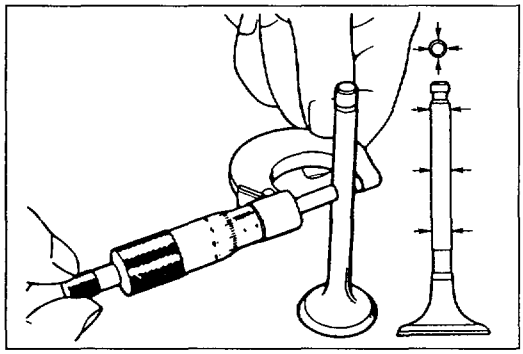
Height: 133.8—134.0mm (5.268—5.276 in)
Grinding: 0.20mm (0.008 in) max.



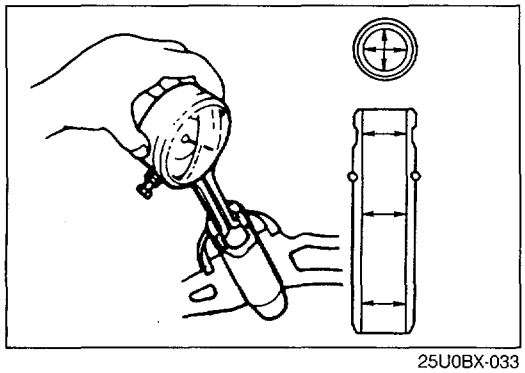
05U0BX-289



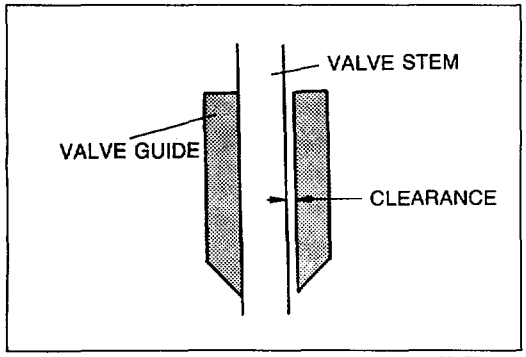
25U0BX-057



25U0BX-032



25U0BX-033



05U0BX-125

4. Measure the manifold contact surface distortion in the four directions shown in the figure.

Distortion: 0.15mm (0.006 in) max.

5. If distortion exceeds specification, grind the surface or replace the cylinder head.

VALVE MECHANISM

Valve and Valve Guide

1. Inspect each valve for the following. Replace or resurface the valve if necessary.
   (1) Damaged or bent stem.
   (2) Rough or damaged face.
   (3) Damaged or unevenly worn stem tip.
2. Measure the valve head margin thickness of each valve. Replace the valve if necessary.

Margin thickness
IN : 0.9mm (0.035 in)
EX: 1.0mm (0.039 in)

3. Measure the length of each valve.

Length
Standard
IN : 105.29mm (4.1452 in)
EX: 105.39mm (4.1492 in)
Minimum
IN : 104.79mm (4.1256 in)
EX: 104.89mm (4.1295 in)

4. Measure the stem diameter of each valve at the points shown.

Diameter
IN : 5.970—5.985mm (0.2350—0.2356 in)
EX: 5.965—5.980mm (0.2348—0.2354 in)

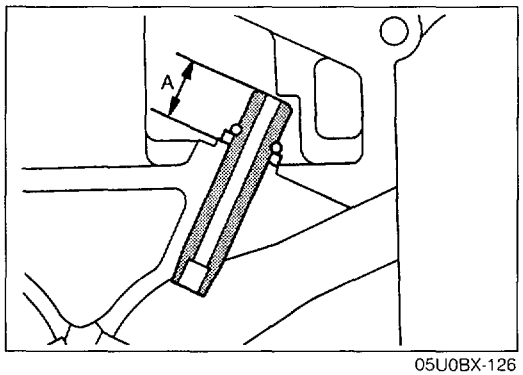
5. Measure the inner diameter of each valve guide at the points shown.

Inner diameter
IN : 6.01—6.03mm (0.2366—0.2374 in)
EX: 6.01—6.03mm (0.2366—0.2374 in)

6. Calculate the valve stem to guide clearance.
   Subtract the outer diameter of the valve stem from the inner diameter of the corresponding valve guide.

Clearance
IN : 0.025—0.060mm (0.0010—0.0024 in)
EX: 0.030—0.065mm (0.0012—0.0026 in)
Maximum: 0.20mm (0.008 in)

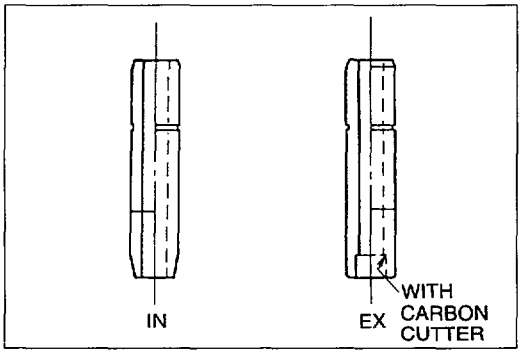
7. If the clearance exceeds specification, replace the valve and/or valve guide.



05U0BX-126

8. Measure the height A of each valve guide. Replace the valve guide if necessary.

Height: 16.8—17.4mm (0.661—0.685 in)



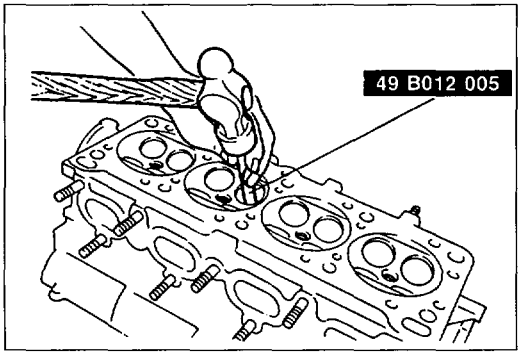
05U0BX-127

Replacement of valve guide

Note
- **Although the shapes of the intake and exhaust valve guides are different, use the exhaust valve guide on both sides as a replacement.**

Removal

1. Remove the valve guide from the side opposite the combustion chamber with the **SST**.



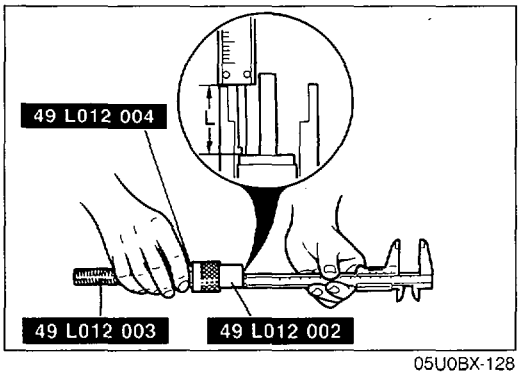
9MU0B2-112

Installation

1. Assemble the **SST** so that depth **L** is as specified.

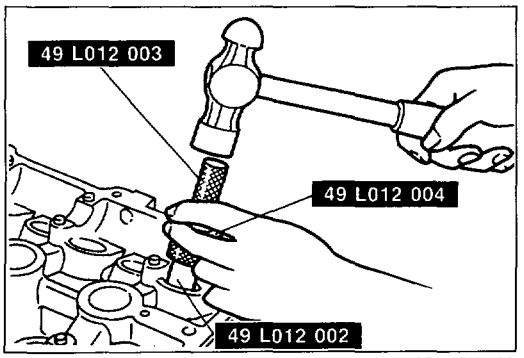
Depth L: 16.8—17.4mm (0.661—0.685 in)

2. Tighten the locknut.

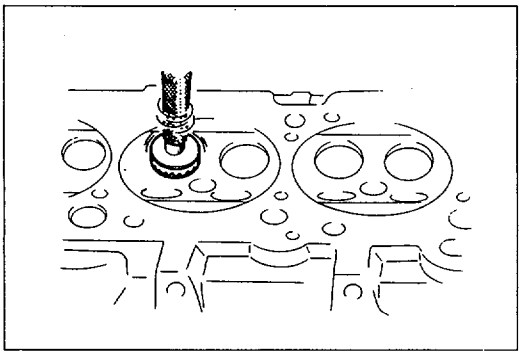


05U0BX-128

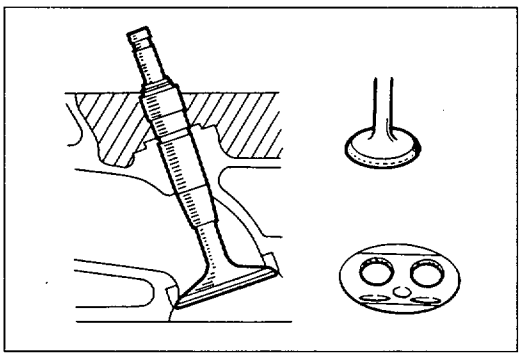
3. Tap the valve guide in from the side opposite the combustion chamber until the **SST** contacts the cylinder head.
4. Verify that the valve guide height is within specification.
5. If not within specification, repeat Steps 1—4.



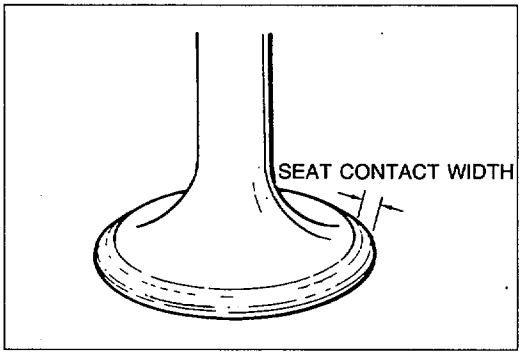
05U0BX-129



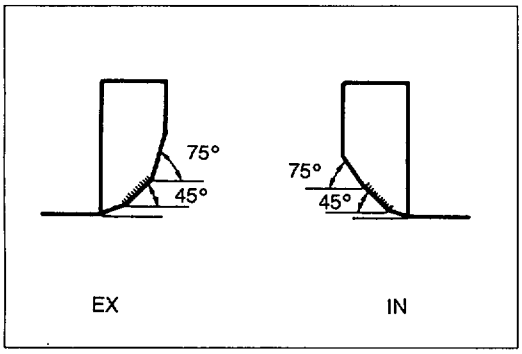
05U0BX-130



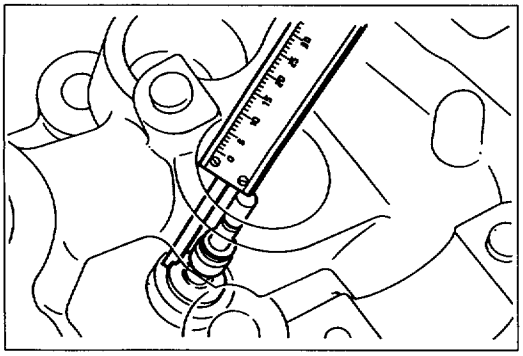
05U0BX-131



05U0BX-132



05U0BX-133

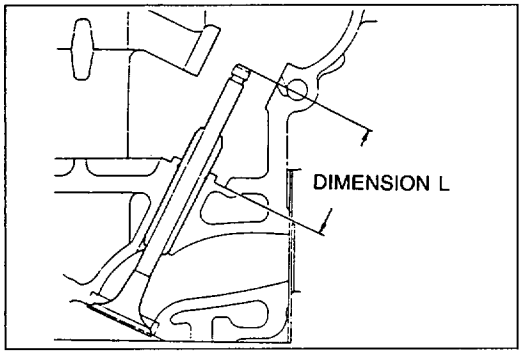


05U0BX-134

Valve Seat

1. Inspect the contact surface of each valve seat and valve face for the following:
   (1) Roughness.
   (2) Damage.
2. If necessary, resurface the valve seat with a **45°** valve seat cutter and/or resurface the valve face.
3. Apply a thin coat of Prussian blue to the valve face.
4. Inspect the valve seating by pressing the valve against the seat.
   (1) If blue does not appear 360° around the valve face, replace the valve.
   (2) If blue does not appear 360° around the valve seat, resurface the seat.
5. Measure the seat contact width.

   Width: 0.8—1.4mm (0.031—0.055 in)
6. Verify that the valve seating position is at the center of the valve face.
   (1) If the seating position is too high, correct the valve seat with a **75°** cutter and a **45°** cutter.
   (2) If the seating position is too low, correct the valve seat with a **35° (IN)** or **15° (EX)** cutter and a **45°** cutter.
7. Seat the valve to the valve seat with lapping compound.
8. Inspect the sinking of the valve seat.

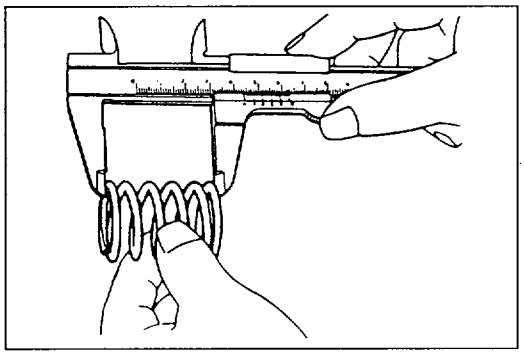


05U0BX-135

9. Measure the protruding length (dimension **L**) of the valve stem.

Dimension L: 43.5mm (1.713 in)

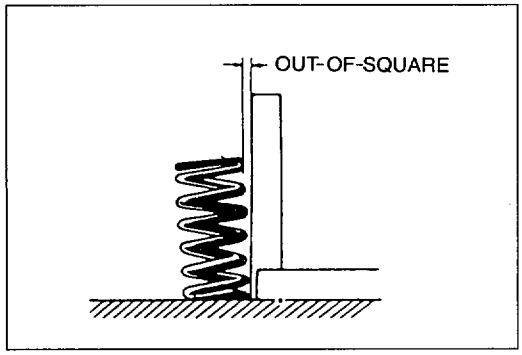
(1) If **L** is **43.5—44.0mm (1.713—1.732 in)**, no correction is needed.
(2) If **L** is **44.1—45.0mm (1.736—1.772 in)**, adjust with washer on spring seat area of cylinder head.
(3) If **L** is **45.1mm (1.776 in) or more**, replace cylinder head.


25U0BX-058

Valve Spring

1. Inspect each valve spring for cracks or damage.
2. Measure the free length and out-of-square. Replace the valve spring if necessary.

Free length
Standard
IN : 48.1mm (1.893 in)
EX: 48.3mm (1.902 in)
Minimum length
IN : 40.0mm (1.575 in) with a set load of $228^{+17.5}_{-11.7}$ N·m ($23.3^{+1.75}_{-1.17}$ m-kg, $168^{+12.4}_{-8.5}$ ft-lb)
EX: 40.0mm (1.575 in) with a set load of $182^{+14}_{-9.1}$ N·m ($18.6^{+1.4}_{-0.93}$ m-kg, $134^{+10.0}_{-6.7}$ ft-lb)



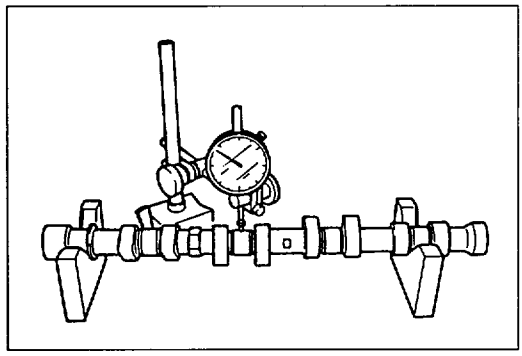
05U0BX-137

Out-of-square
IN : 1.68mm (0.0661 in) max.
EX: 1.69mm (0.0665 in) max.

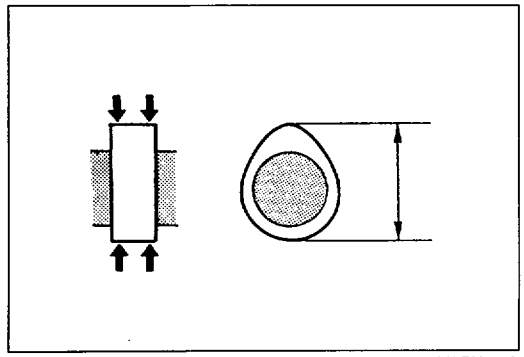
CAMSHAFT

1. Set the front and rear journals on V-blocks.
2. Measure the camshaft runout. Replace the camshaft if necessary.

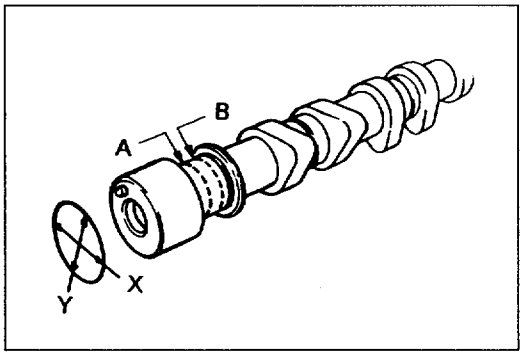
Runout: 0.03mm (0.0012 in) max.


05U0BX-138

3. Inspect the camshaft for wear or damage. Replace the camshaft if necessary.
4. Measure the cam lobe heights at the two points as shown.


05U0BX-139

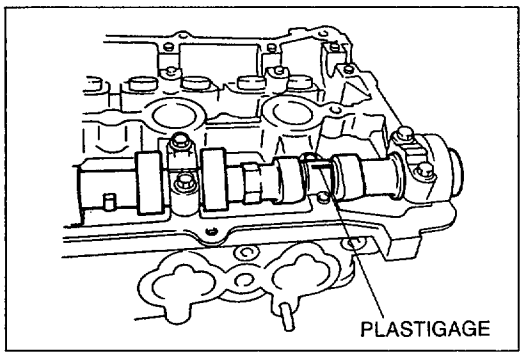
Height
Standard
IN : 40.888mm (1.6098 in)
EX: 40.889mm (1.6098 in)
Minimum
IN : 40.688mm (1.6019 in)
EX: 40.689mm (1.6019 in)



25U0BX-059

5. Measure the journal diameters in X and Y directions at the two points (A and B) shown.

Diameter:
25.940—25.965mm (1.0213—1.0222 in)
Out-of-round: 0.03mm (0.001 in) max.

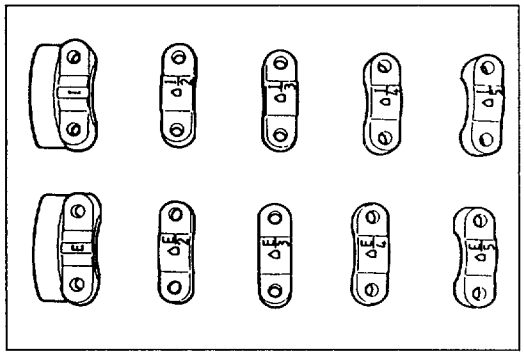


05U0BX-141

6. Measure the camshaft journal oil clearances.

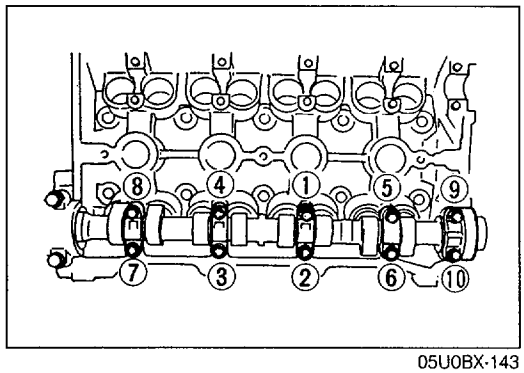
Caution
- **Do not install the HLA when measuring the oil clearance.**

(1) Remove all foreign material and oil from the journals and bearing surface.
(2) Set the camshaft onto the cylinder head.
(3) Position Plastigage atop the journals in the axial direction.



05U0BX-142

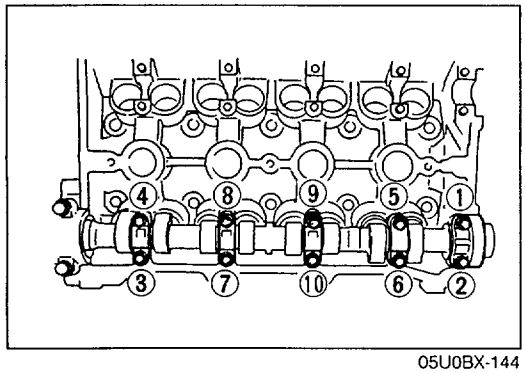
(4) Install the camshaft caps according to the cap number and arrow mark.



05U0BX-143

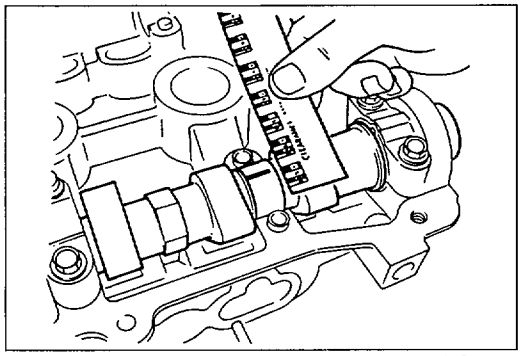
(5) Install the camshaft cap bolts and tighten them in two or three steps in the order shown in the figure.

Tightening torque:
11.3—14.2 N·m (1.15—1.45 m-kg, 100—126 in-lb)



05U0BX-144

(6) Loosen the camshaft cap bolts in two or three steps in the order shown in the figure.
(7) Remove the camshaft caps.

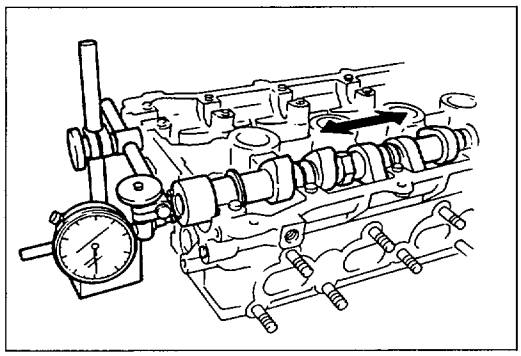


05U0BX-145

(8) Measure the oil clearances.

Oil clearance:
0.035—0.081mm (0.0014—0.0032 in)
Maximum: 0.15mm (0.006 in)

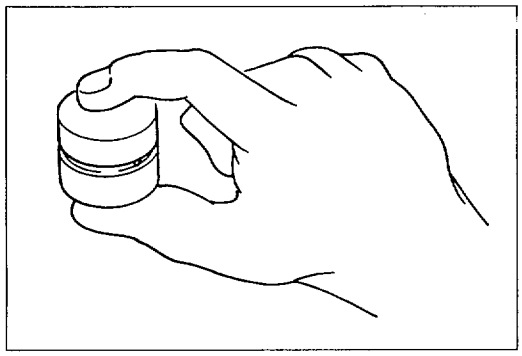
(9) If the oil clearance exceeds specification, replace the cylinder head.



05U0BX-146

7. Measure the camshaft end play. If the end play exceeds specification, replace the camshaft and/or the cylinder head.

End play : 0.07—0.19mm (0.0028—0.0075 in)
Maximum: 0.20mm (0.008 in)

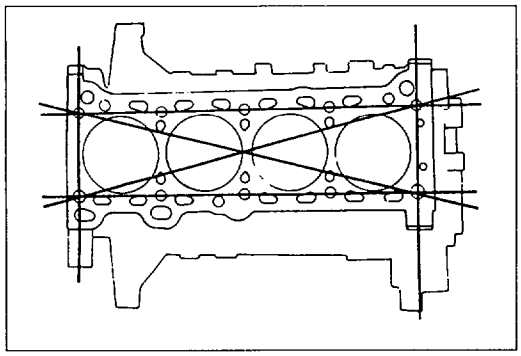


05U0BX-147

HLA

Caution
- **Do not attempt to repair the HLA.**

1. Inspect the HLA friction surfaces for wear or damage. Replace the HLA if necessary.
2. Hold the bucket body and press the plunger by hand. If the plunger moves, replace the HLA.

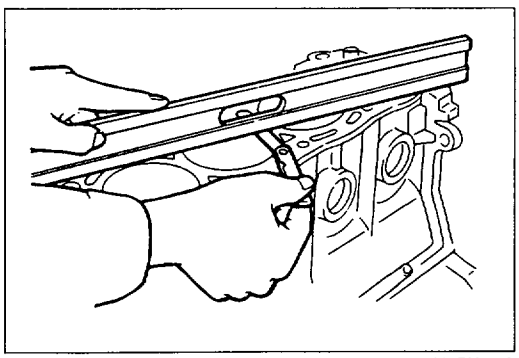


05U0BX-148

CYLINDER BLOCK

1. Inspect the cylinder block for the following. Repair or replace the cylinder block as necessary.
   (1) Leakage damage.
   (2) Cracks.
   (3) Scoring of wall.
2. Measure the distortion of the top surface of the cylinder block in the six directions shown in the figure.

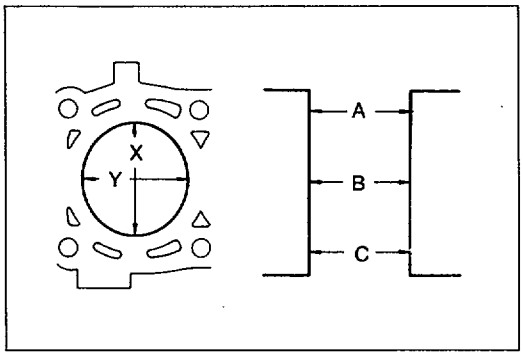
Distortion: 0.15mm (0.006 in) max.



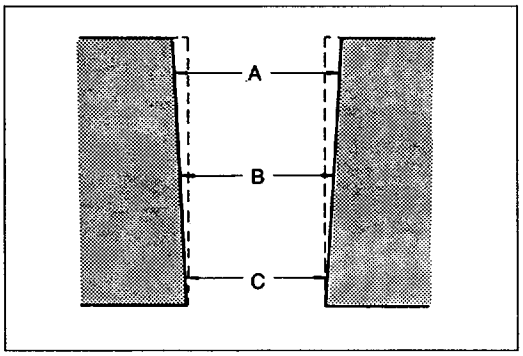
05U0BX-149

3. If the distortion exceeds specification, repair by grinding or replace the cylinder block.

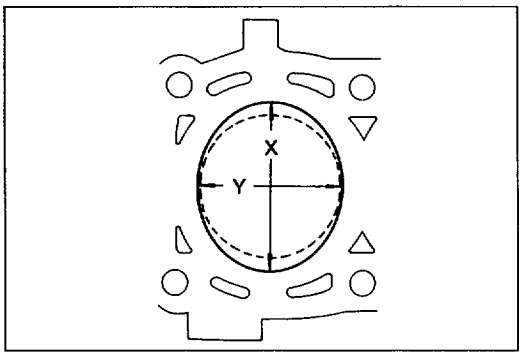
Height : 221.5mm (8.720 in)
Grinding: 0.20mm (0.008 in) max.



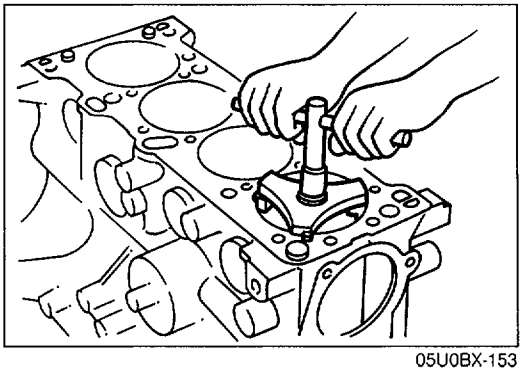
05U0BX-150

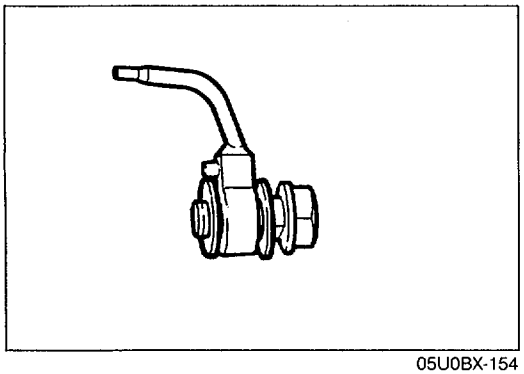


05U0BX-151



05U0BX-152


05U0BX-153


05U0BX-154

4. Measure the cylinder bores in X and Y directions at three levels (A, B, and C) in each cylinder as shown.

Cylinder bore

mm (in)

Bore size	Diameter
Standard	78.006—78.013 (3.0711—3.0714)
0.25 (0.010) oversize	78.256—78.263 (3.0809—3.0812)
0.50 (0.020) oversize	78.506—78.513 (3.0908—3.0911)

Caution
- **The boring size should be based on the size of an oversize piston and be the same for all cylinders.**

(1) If the cylinder bore exceeds the maximum, rebore the cylinder to oversize.
(2) If the difference between measurements A and C exceeds the maximum taper, rebore the cylinder to oversize.

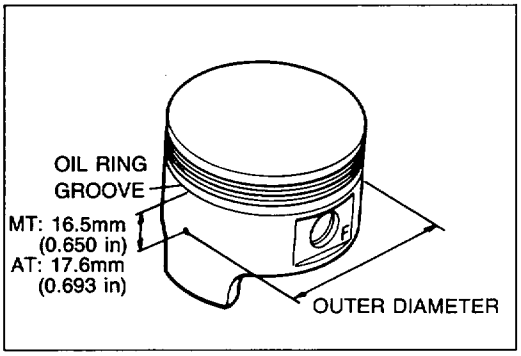
Taper: 0.019mm (0.0007 in) max.

(3) If the difference between measurements X and Y exceeds the maximum out-of-round, rebore the cylinder to oversize.

Out-of-round: 0.019mm (0.0007 in) max.

5. If the upper part of a cylinder wall shows uneven wear, remove the ridge with a ridge reamer.

OIL JET
1. Push the check ball and verify that it moves smoothly.
2. Blow through the oil jet and verify that air flows.



25U0BX-060

PISTON, PISTON RING, AND PISTON PIN

Piston

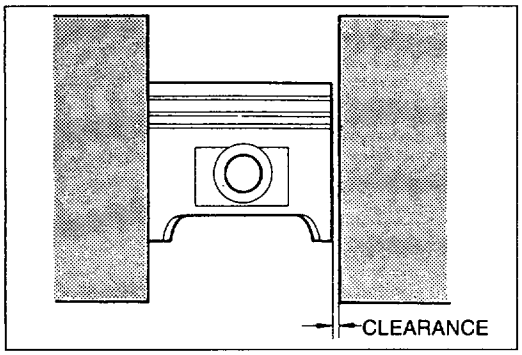
Caution
- **If the piston is replaced, the piston rings must also be replaced.**

1. Inspect the outer circumferences of all pistons for seizure or scoring. Replace the piston if necessary.
2. Measure the outer diameter of each piston at a right angle **(90°)** to the piston pin, **MT: 16.5mm (0.650 in), AT: 17.6mm (0.693 in)** below the oil ring land lower edge.

Piston diameter

mm (in)

Piston size	Diameter
Standard	77.954—77.974 (3.0690—3.0698)
0.25 (0.010) oversize	78.211—78.217 (3.0792—3.0794)
0.50 (0.020) oversize	78.461—78.467 (3.0890—3.0892)

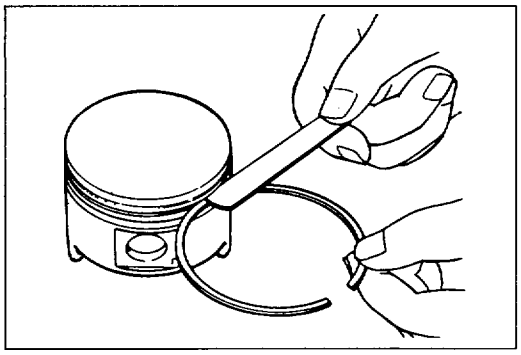


05U0BX-156

3. Measure the piston-to-cylinder clearance.

Clearance: 0.039—0.052mm (0.0015—0.0020 in)
Maximum: 0.15mm (0.006 in)

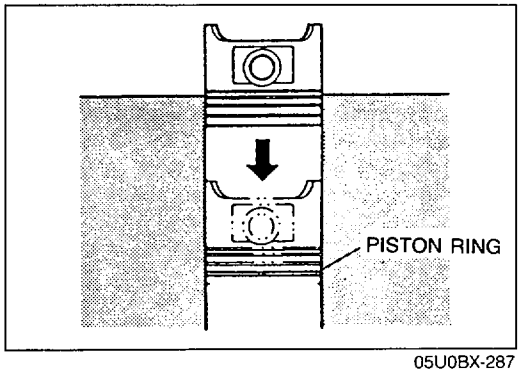
4. If the clearance exceeds the maximum, replace the piston or rebore the cylinders to fit oversize pistons.


05U0BX-157

Piston and Piston Rings

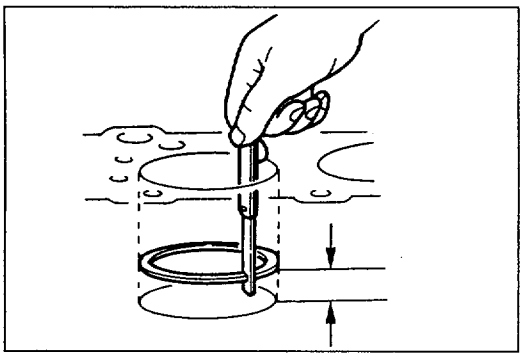
1. Measure the piston ring to ring land clearance around the entire circumference using a new piston ring.

Clearance (Top and Second):
0.03—0.07mm (0.0012—0.0028 in)
Maximum: 0.15mm (0.006 in)



05U0BX-287

2. If the clearance exceeds the maximum, replace the piston.
3. Inspect the piston rings for damage, abnormal wear, or breakage. Replace the piston rings if necessary.
4. Insert the piston ring into the cylinder by hand and use the piston to push it to the bottom of the ring travel.


15U0BX-027

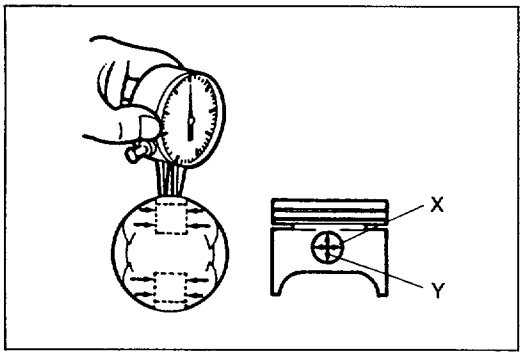
5. Measure each piston ring end gap with a feeler gauge. Replace the piston ring if necessary.

End gap
Top : 0.15—0.30mm (0.006—0.012 in)
Second : 0.3—0.45mm (0.012—0.0177 in)
Oil rail : 0.20—0.70mm (0.008—0.028 in)
Maximum: 1.0mm (0.039 in)

Piston and Piston Pin

1. Measure each piston pin hole diameter in X and Y directions at four points.

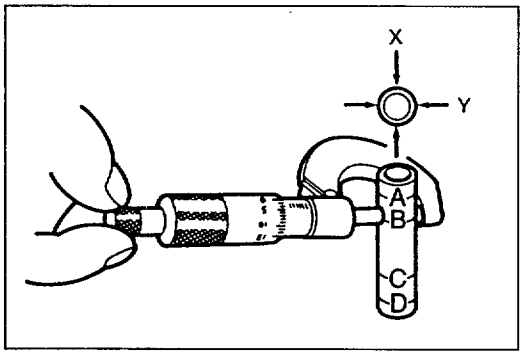
Diameter: 19.988—20.000mm (0.7869—0.7874 in)



05U0BX-159

2. Measure each piston pin diameter in X and Y directions at four points.

Diameter: 19.987—19.993mm (0.7869—0.7871 in)



05U0BX-160

3. Calculate the piston pin-to-piston clearance.

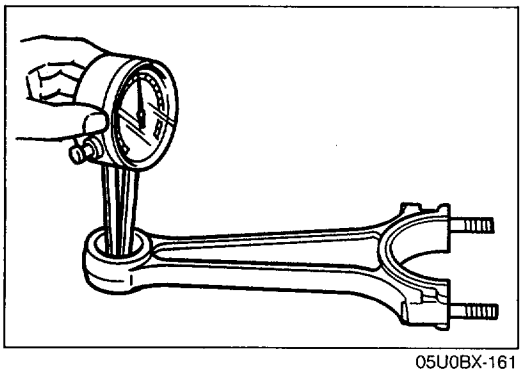
Clearance: -0.005—0.013mm (-0.0002—0.0005 in)

4. If the clearance exceeds specification, replace the piston and/or piston pin.

CONNECTING ROD

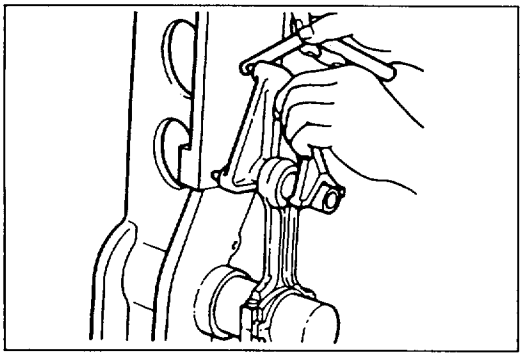
1. Measure each connecting rod bushing inner diameter.

Diameter: 20.003—20.014mm (0.7875—0.7880 in)


05U0BX-161

2. Calculate the clearance between the connecting rod bushing and piston pin.

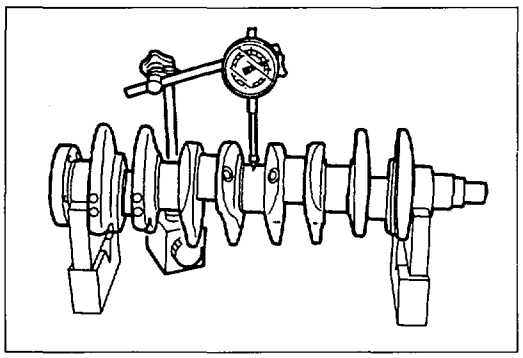
Clearance: 0.010—0.027mm (0.0004—0.0011 in)


15U0BX-020

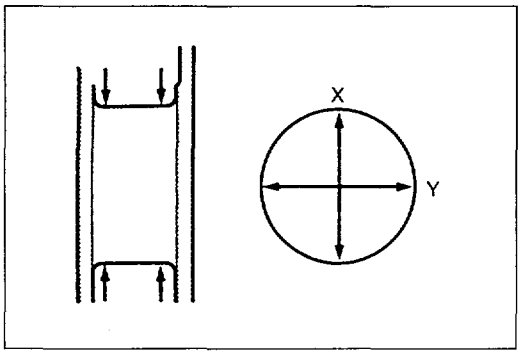
3. Measure each connecting rod for bending. Repair or replace the connecting rod if necessary.

Bending: 0.075mm (0.0030 in) max./50mm (1.97 in)
Length (Center to center):
132.85—132.95mm (5.230—5.234 in)

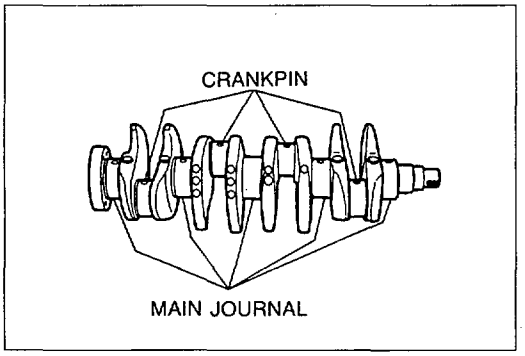
Caution
- **If the connecting rod is replaced, the connecting rod cap and bolts must also be replaced because they are a matched set.**



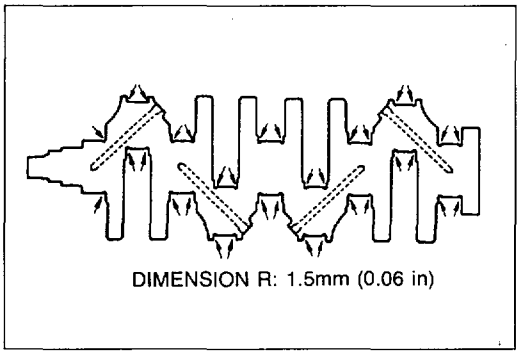
05U0BX-163



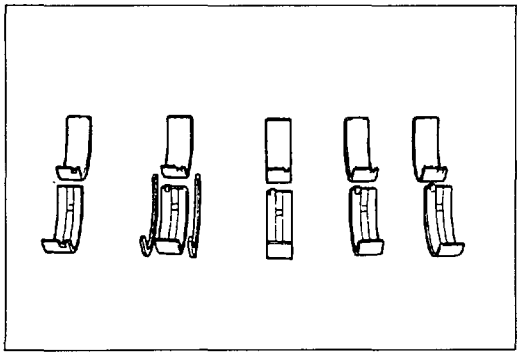
05U0BX-164



05U0BX-165



05U0BX-166



05U0BX-167

CRANKSHAFT

1. Check the journals and pins for damage, scoring, and oil hole clogging.
2. Set the crankshaft on V-blocks.
3. Measure the crankshaft runout at the center journal. Replace the crankshaft if necessary.

Runout: 0.04mm (0.0016 in) max.

4. Measure each journal diameter in X and Y directions at two points.

Main journal
Diameter: 49.938—49.956mm (1.9661—1.9668 in)
Out-of-round: 0.05mm (0.0020 in) max.

Crankpin journal
Diameter: 44.940—44.956mm (1.7693—1.7699 in)
Out-of-round: 0.05mm (0.0020 in) max.

Caution
- **Do not remove the fillet roll area R when grinding.**

5. If the diameter is less than the minimum, grind the journals to match an undersize bearing.

Undersize bearing:
0.25mm (0.010 in), 0.50mm (0.020 in), 0.75mm (0.030 in)

Main journal diameter undersize

mm (in)

Bearing size	Journal diameter
0.25 (0.010) undersize	49.704—49.708 (1.9568—1.9570)
0.50 (0.020) undersize	49.454—49.458 (1.9470—1.9472)
0.75 (0.030) undersize	49.204—49.208 (1.9372—1.9373)

Crankpin journal diameter undersize

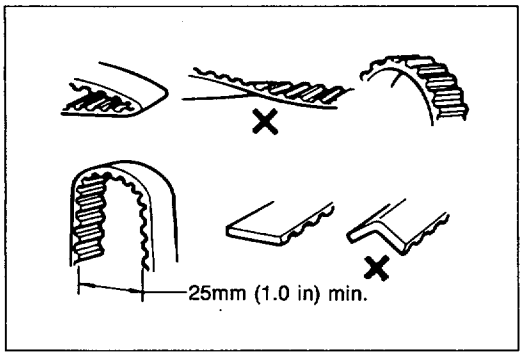
mm (in)

Bearing size	Journal diameter
0.25 (0.010) undersize	44.690—44.706 (1.7594—1.7601)
0.50 (0.020) undersize	44.440—44.456 (1.7496—1.7502)
0.75 (0.030) undersize	44.190—44.206 (1.7398—1.7404)

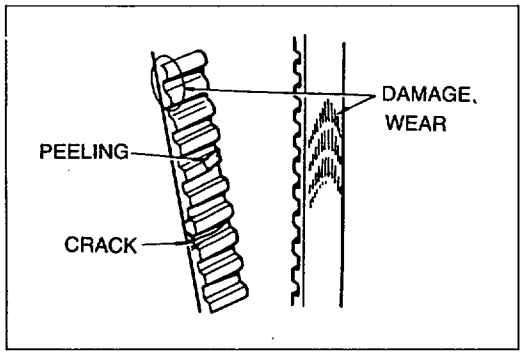
BEARING

Main Bearing and Connecting Rod Bearing

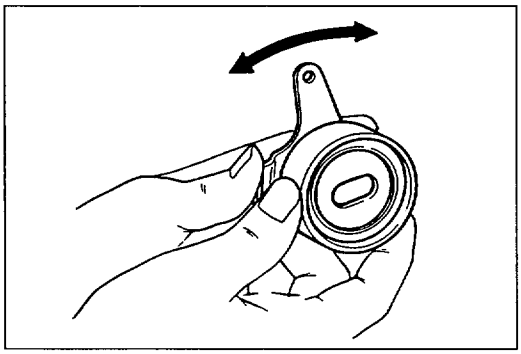
1. Check the main bearings and the connecting rod bearings for peeling, scoring, and other damage.



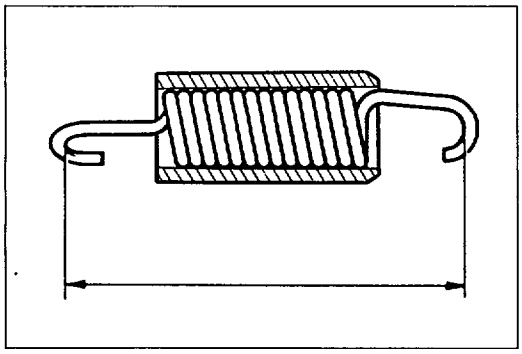
05U0BX-168



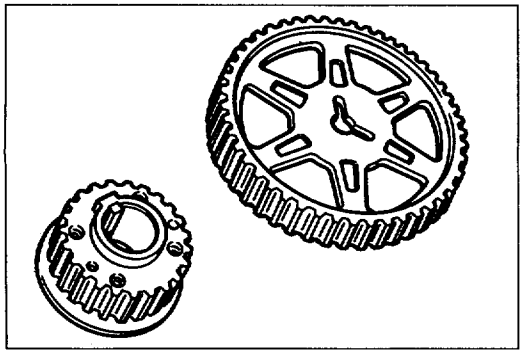
05U0BX-169



05U0BX-170



05U0BX-171



05U0BX-172

TIMING BELT

Caution
- **Never forcefully twist, turn inside out, or bend the timing belt.**
- **Do not allow oil or grease on the belt.**

1. Replace the timing belt if there is any oil or grease on it.
2. Check the timing belt for damage, wear, peeling, cracks, and hardening. Replace the timing belt if necessary.

TENSIONER, IDLER

Caution
- **Do not clean the tensioner or idler with cleaning fluids. If necessary, use a soft rag to wipe them clean, and avoid scratching them.**

1. Check the tensioner and idler for smooth rotation and abnormal noise. Replace the tensioner or idler if necessary.

TENSIONER SPRING

1. Measure the free length of the tensioner spring. Replace the tensioner spring if necessary.

Free length: 58.8mm (2.315 in)

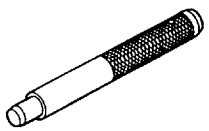
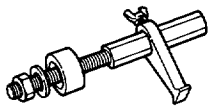
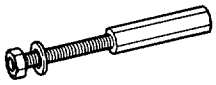
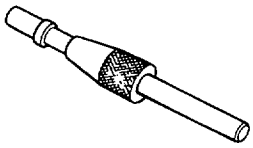
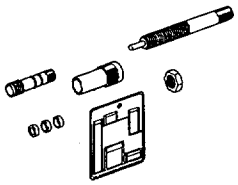
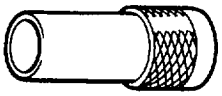
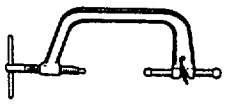
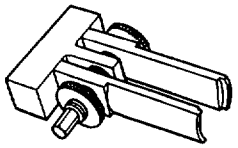
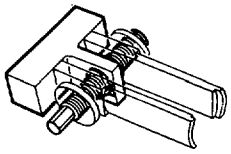
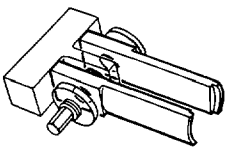
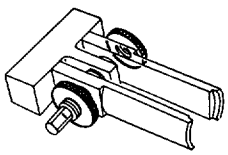
PULLEY
Timing Belt Pulley, Camshaft Pulley

Caution
- **Do not clean the pulleys with cleaning fluids. If necessary, use a soft rag to wipe them clean, and avoid scratching them.**

1. Inspect the pulley teeth for wear, deformation, and other damage. Replace the pulley if necessary.

ASSEMBLY

PREPARATION
SST

49 0221 061A Remover & installer, piston pin 	For removal and installation of piston pin	49 E011 1A0 Ring gear brake set 	For prevention of engine rotation
49 E011 103 Shaft (Part of 49 E011 1A0) 	For prevention of engine rotation	49 E011 105 Stopper (Part of 49 E011 1A0)	For prevention of engine rotation
49 E011 104 Collar (Part of 49 E011 1A0)	For prevention of engine rotation	49 SE01 310A Centering tool, clutch disc 	For installation of clutch disc
49 L012 001 Installer (Part of 49 L012 0A0)	For installation of valve seal	49 L012 0A0 Installer set, valve seal & valve guide 	For installation of valve seal
49 L012 005 Spacer (Part of 49 L012 0A0)	For installation of valve seal	49 L012 002 Body (Part of 49 L012 0A0) 	For installation of valve seal
49 0636 100A Arm, valve spring lifter 	For removal and installation of valve	49 B012 0A2 Pivot, valve spring lifter 	For removal / installation of valves
49 B012 012 Body (Part of 49 B012 0A2) 	For removal / installation of valves	49 B012 013 Foot (Part of 49 B012 0A2) 	For removal / installation of valves
49 B012 014 Locknut (Part of 49 B012 0A2) 	For removal / installation of valves		

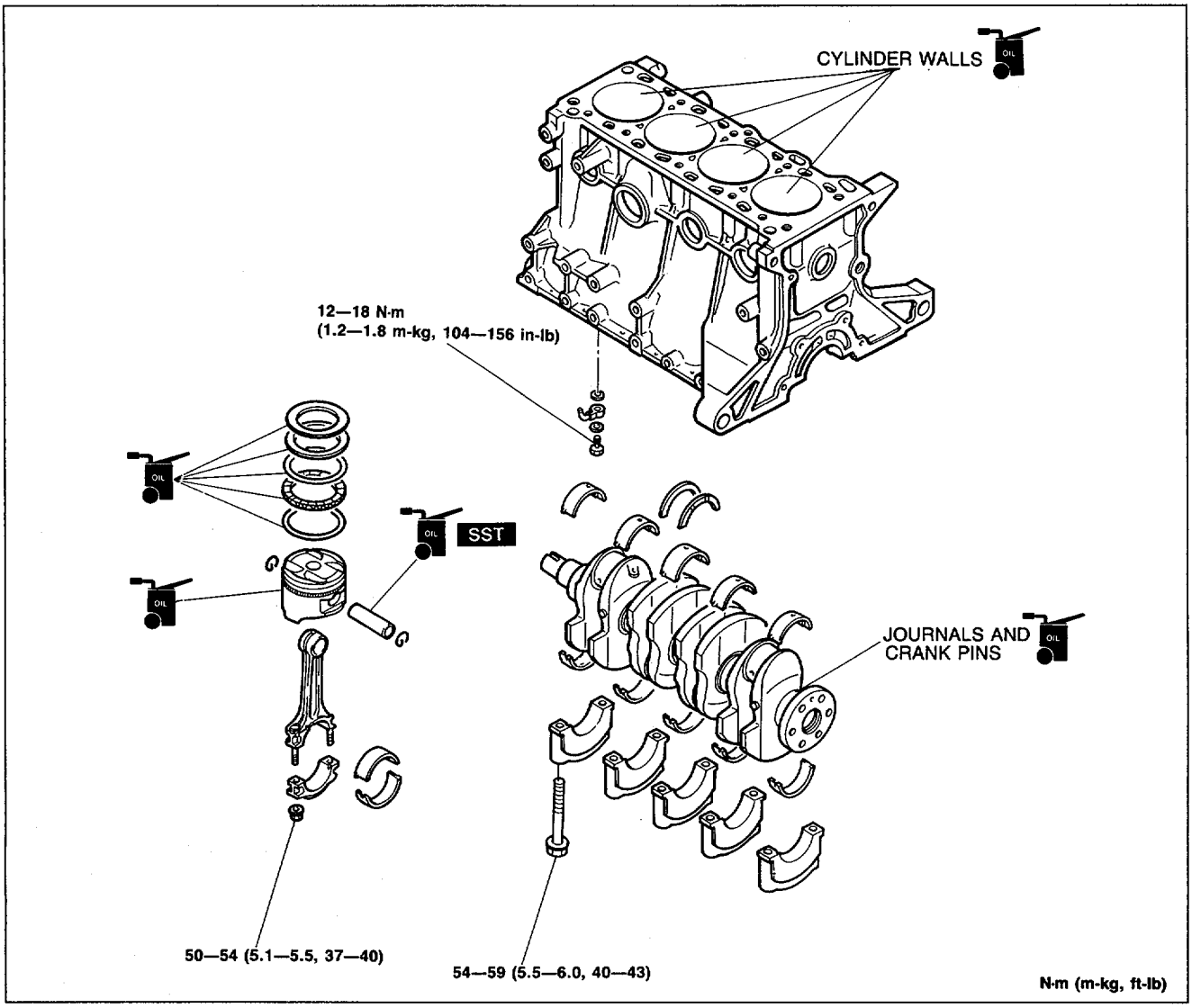
25U0BX-034

1. Clean all parts before reinstallation.
2. Apply new engine oil to all sliding and rotating parts.
3. Replace plain bearings if they are peeling, burned, or otherwise damaged.
4. Tighten all bolts and nuts to the specified torques.

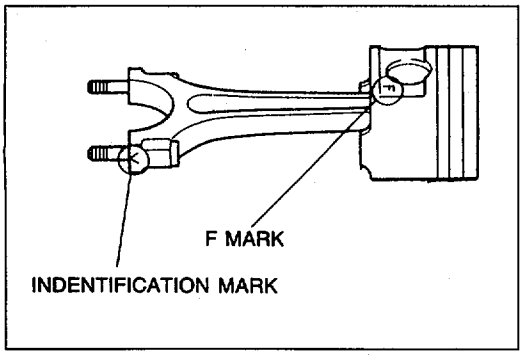
Caution
- **Do not reuse gaskets or oil seals.**

05U0BX-174

CYLINDER BLOCK (INTERNAL PARTS)
Torque Specifications

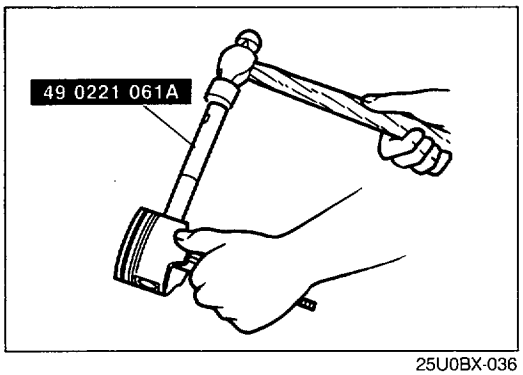


05U0BX-175



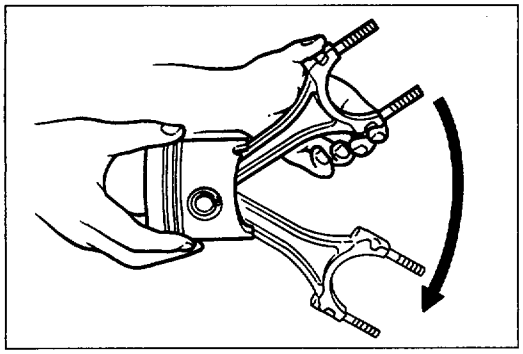
25U0BX-035

Connecting Rod
1. Install one piston pin clip into the clip groove in the piston.
2. Assemble the piston and the connecting rod, aligning the oil groove in the large end of connecting rod opposite the "F" mark on the piston.
3. Apply clean engine oil to the piston pin.
4. Install the piston pin from the side opposite the clip.



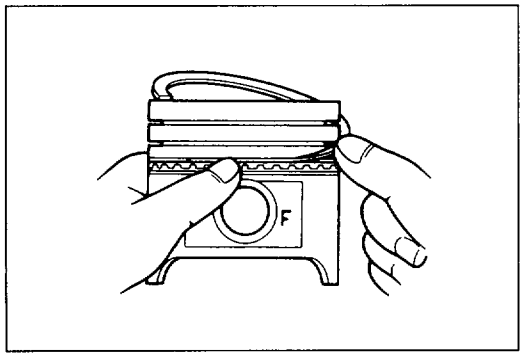
25U0BX-036

5. Tap the piston pin in with the **SST** until the pin contacts the clip.
   If the pin cannot be installed easily, replace the connecting rod.
6. Install the second clip into the clip groove in the piston.



05U0BX-178

7. Check the oscillation torque of the connecting rod. If the large end does not drop by its own weight, replace the piston and/or piston pin.



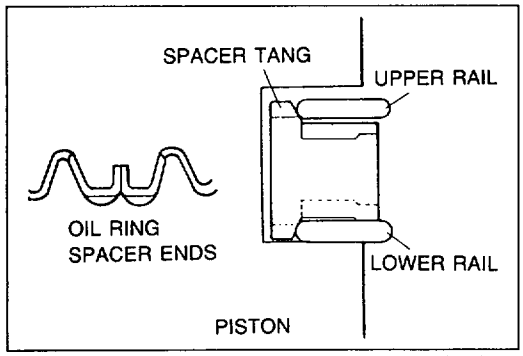
05U0BX-179

Piston Ring

1. Install the three-piece oil rings on the pistons.
   (1) Apply clean engine oil to the oil ring spacer and rails.
   (2) Install the oil ring spacer with the ends upward.

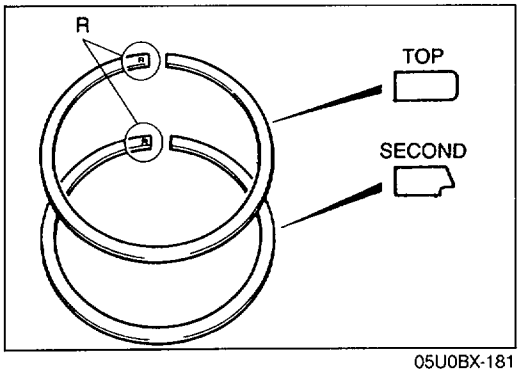
   Note
   - **The upper rail and lower rail are the same.**
   - **The rails may be installed with either face upward.**

   (3) Install the upper rail and lower rail.



05U0BX-180

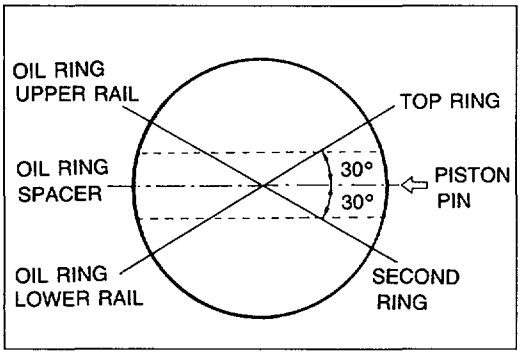
2. Verify that both rails are expanded by the spacer tangs as shown in the figure by making certain the rails turn smoothly in both directions.



05U0BX-181

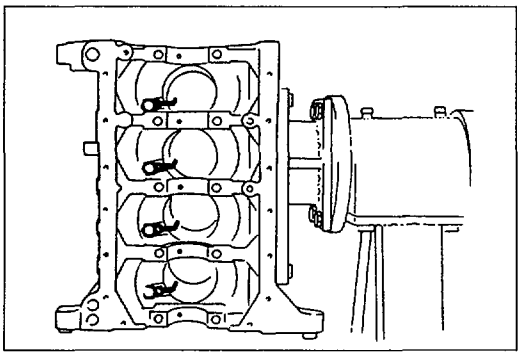
Caution
- **The rings must be installed with the R marks upward.**
- **The second ring must be installed with the scraper face downward.**

3. Apply clean engine oil to the top and second piston rings.
4. Install the second ring to the piston; then install the top ring. Use a piston ring expander (commercially available).



05U0BX-182

5. Position the end gaps of the rings as shown in the figure.

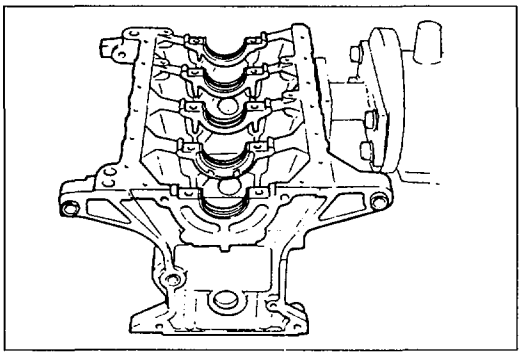


05U0BX-183

Oil Jet

1. Install the oil jets.

Tightening torque:
12—18 N·m (1.2—1.8 m-kg, 104—156 in-lb)



05U0BX-184

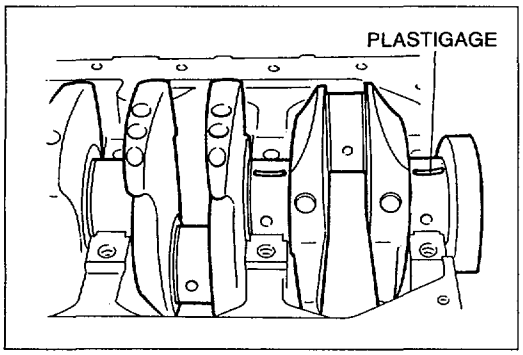
Crankshaft

1. Before installing the crankshaft, inspect the main bearing oil clearances as follows.

Oil clearance inspection

(1) Remove all foreign material and oil from the journals and bearings.

Caution
- **Install the grooved upper main bearings in the cylinder block.**
- **Install the thrust bearings with the oil groove facing the crankshaft.**

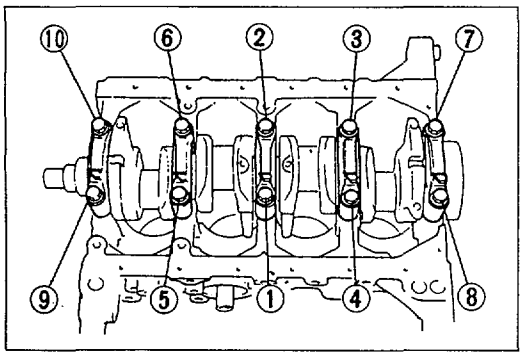


05U0BX-185

(2) Install the upper main bearings and thrust bearings.
(3) Set the crankshaft in the cylinder block.

Caution
- **Do not rotate the crankshaft when measuring the oil clearances.**

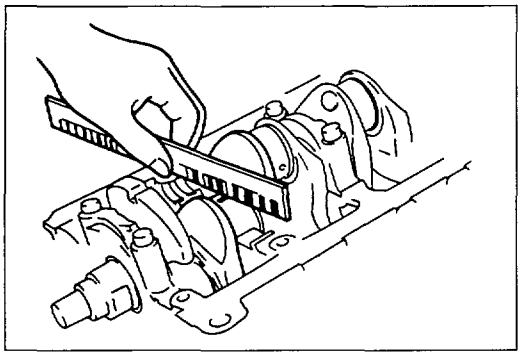
(4) Position Plastigage atop the journals in the axial direction.



05U0BX-186

(5) Install the lower main bearings and the main bearing caps according to the cap number and ⇦ mark.
(6) Tighten the main bearing cap bolts in two or three steps in the order shown in the figure.

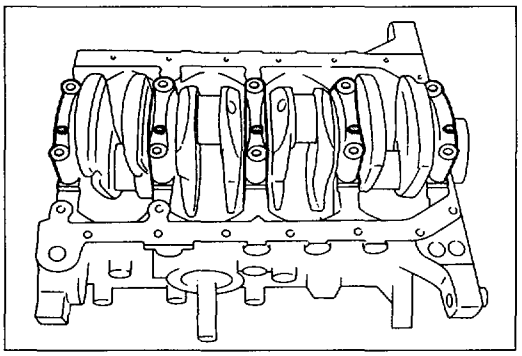
Tightening torque:
54—59 N·m (5.5—6.0 m-kg, 40—43 ft-lb)



05U0BX-187

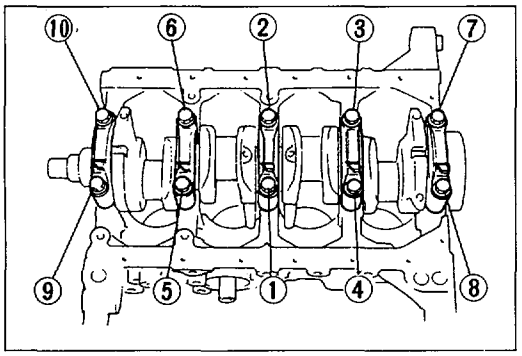
(7) Remove the main bearing caps, and measure the Plastigage at each journal at the widest point for the smallest clearance, and at the narrowest point for the largest clearance.
(8) If the oil clearance exceeds specification, grind the crankshaft and use undersize main bearings. (Refer to page B–58.)

Oil clearance: 0.018—0.036mm (0.0007—0.0014 in)
Maximum: 0.10mm (0.004 in)



05U0BX-188

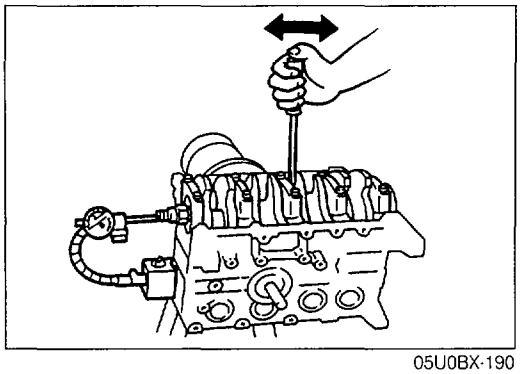
2. Apply a liberal amount of clean engine oil to the main bearings, thrust bearings and main journals.
3. Install the crankshaft and the main bearing caps according to the cap number and ⇦ mark.



05U0BX-189

4. Tighten the main bearing cap bolts in two or three steps in the order shown in the figure.

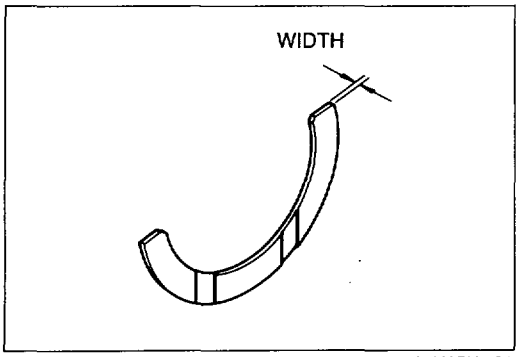
Tightening torque:
54—59 N·m (5.5—6.0 m-kg, 40—43 ft-lb)



05U0BX-190

5. Measure the crankshaft end play.

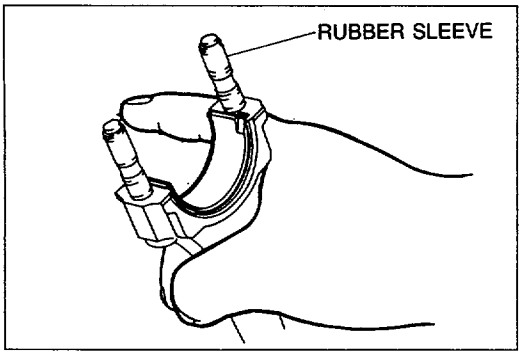
End play : 0.080—0.282mm (0.0031—0.0111 in)
Maximum: 0.30mm (0.012 in)



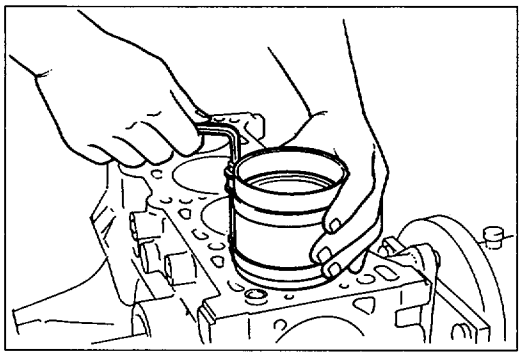
05U0BX-191

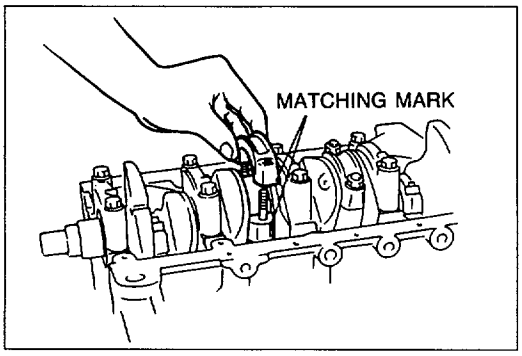
6. If the end play exceeds the maximum, grind the crankshaft and install an oversize thrust bearing or replace the crankshaft and thrust bearing.

Thrust bearing width
Standard:
2.500—2.550mm (0.0984—0.1004 in)
0.25mm (0.010 in) oversize:
2.625—2.675mm (0.1033—0.1053 in)
0.50mm (0.020 in) oversize:
2.750—2.800mm (0.1083—0.1102 in)
0.75mm (0.030 in) oversize:
2.875—2.925mm (0.1132—0.1152 in)

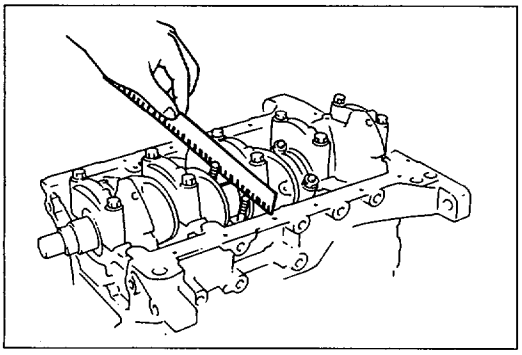


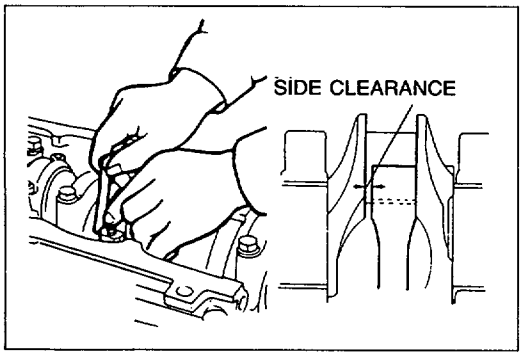
05U0BX-192


05U0BX-193



05U0BX-194


05U0BX-195



05U0BX-196

Piston and Connecting Rod Assembly

Caution
- **Protect the connecting rod bolts with rubber sleeves to prevent damage to the crankpin journals.**

1. Apply a liberal amount of clean engine oil to the cylinder walls, pistons, and piston rings.
2. Check the piston rings for correct end gap alignment.
3. Insert each piston assembly into the cylinder block with the **F** mark facing the front of the engine. Use a piston ring compressor (commercially available).

Connecting Rod Cap

1. Measure the connecting rod bearing oil clearances using the same procedure as for the main bearing oil clearance.

Caution
- **Align the matching marks on the cap and the connecting rod when installing the connecting rod cap.**

Tightening torque:
50—54 N·m (5.1—5.5 m-kg, 37—40 ft-lb)

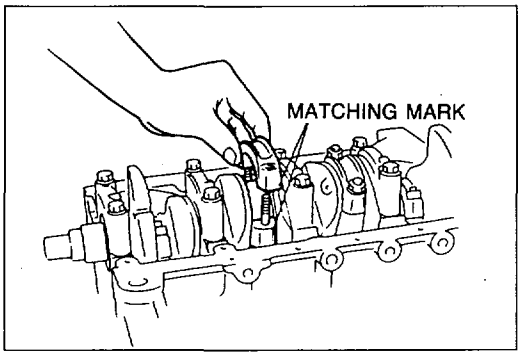
Oil clearance: 0.028—0.068mm (0.0011—0.0027 in)
Maximum: 0.10mm (0.004 in)

2. If the oil clearance exceeds the maximum, grind the crankshaft and use undersize bearings. (Refer to page B–58.)

3. Measure the connecting rod side clearances.

Side clearance: 0.110—0.262mm (0.0043—0.0103 in)
Maximum: 0.30mm (0.012 in)

4. If the clearance exceeds the maximum, replace the connecting rod and cap.

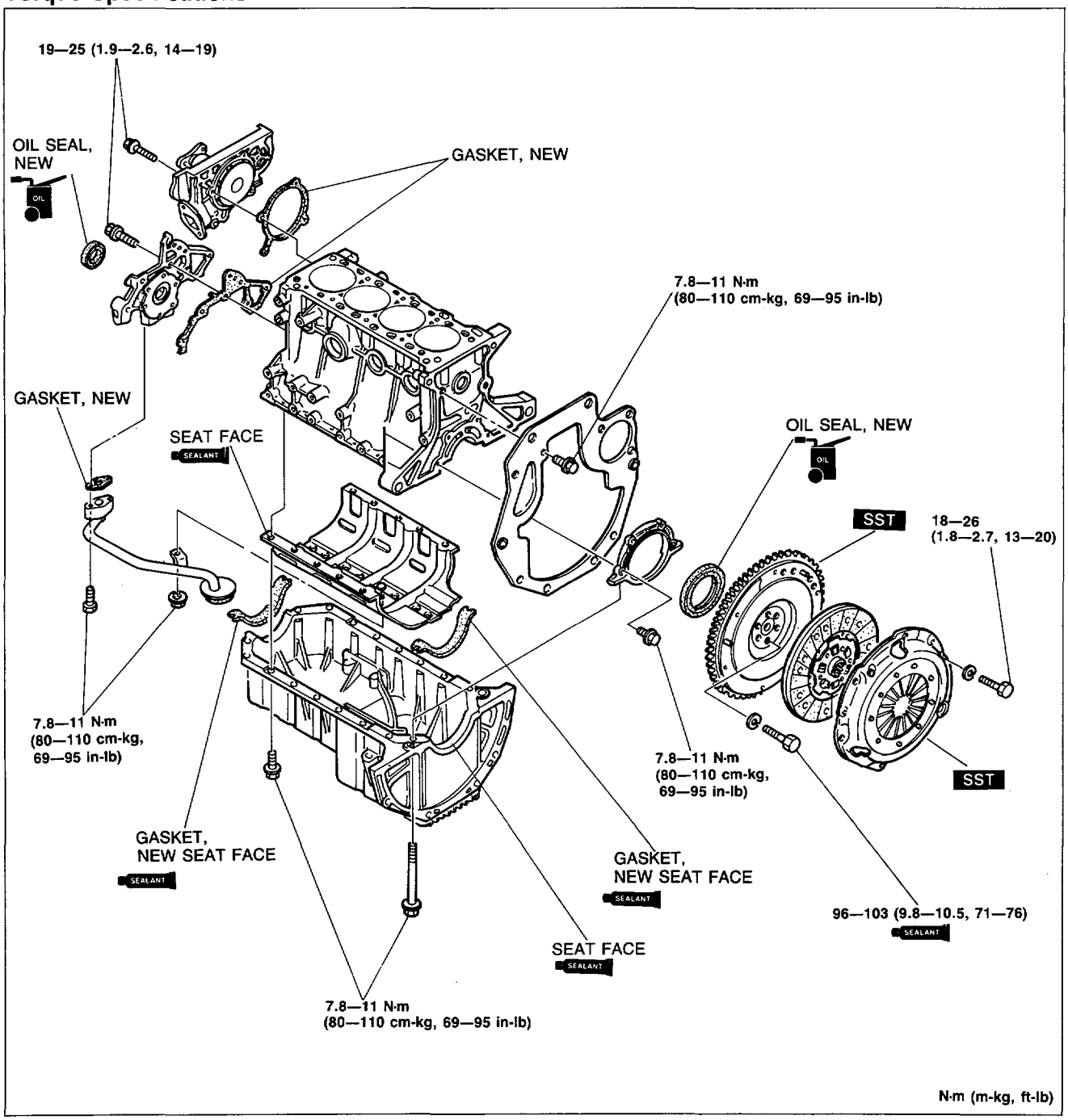


05U0BX-197

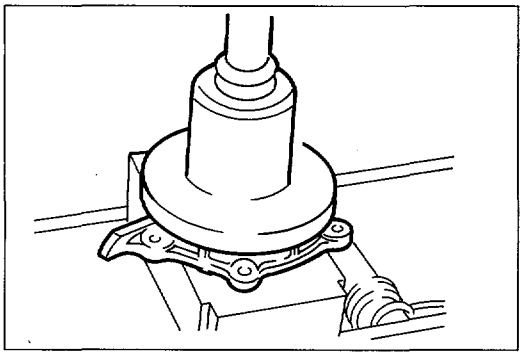
5. Apply a liberal amount of clean engine oil to the crankpin journals and connecting rod bearings.
6. Install the connecting rod caps with the matching marks aligned.
7. Tighten the connecting rod cap nuts in two or three steps.

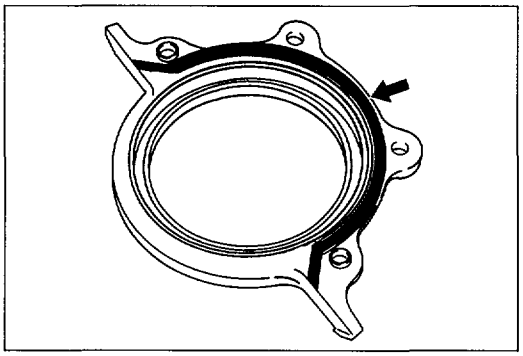
Tightening torque:
50—54 N·m (5.1—5.5 m-kg, 37—40 ft-lb)

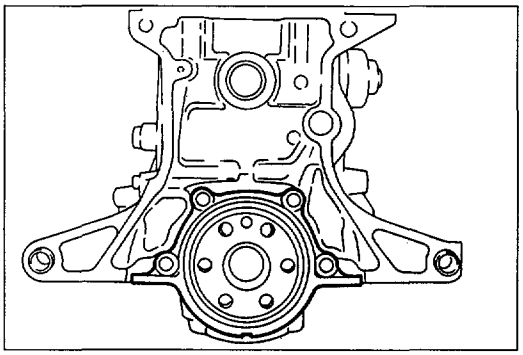
CYLINDER BLOCK (EXTERNAL PARTS)
Torque Specifications

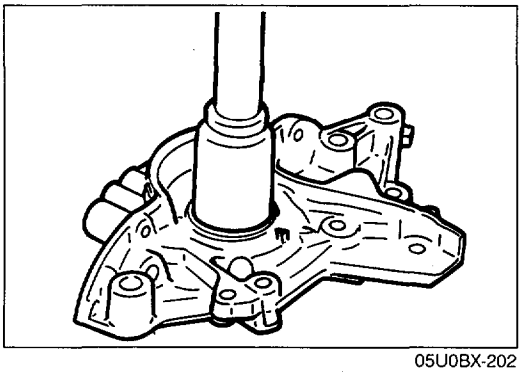


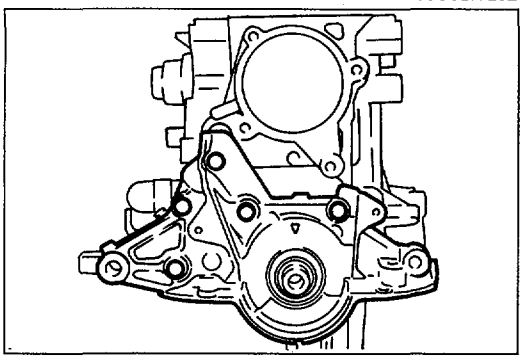
05U0BX-198


05U0BX-199


05U0BX-200


05U0BX-201


05U0BX-202


05U0BX-203

Rear Cover

1. Apply a small amount of clean engine oil to the lip of a new oil seal.
2. Push the oil seal slightly in by hand.

Caution
- **The oil seal must be pressed in until it is flush with the edge of the rear cover.**

3. Press the oil seal in evenly with a suitable pipe.

Oil seal outer diameter: 100mm (3.94 in)

4. Apply silicone sealant to the shaded area shown in the figure.

5. Install the rear cover.

Tightening torque:
7.8—11 N·m (80—110 cm-kg, 69—95 in-lb)

Oil Pump

1. Apply a small amount of clean engine oil to the lip of a new oil seal.
2. Push the oil seal slightly in by hand.

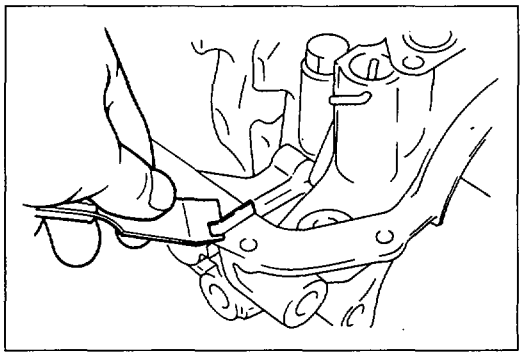
Caution
- **The oil seal must be pressed in until it is flush with the edge of the oil pump body.**

3. Press the oil seal in evenly with a suitable pipe.

Oil seal outer diameter: 44mm (1.73 in)

4. Install the oil pump and a new gasket.

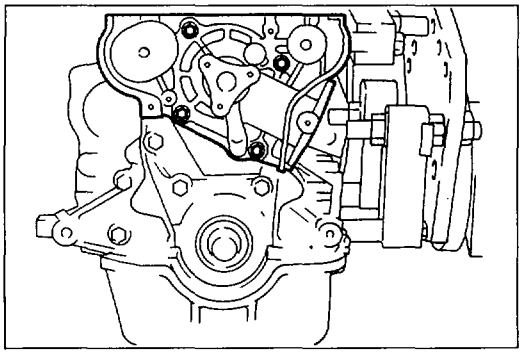
Tightening torque:
19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)



05U0BX-204

Caution
- **Do not scratch the oil pump.**

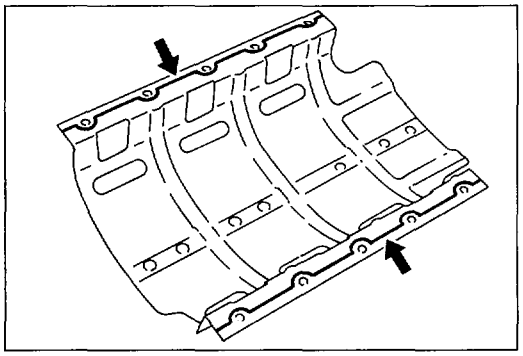
5. Cut away the portion of the gasket that projects from the body toward the oil pan side.



05U0BX-205

Water Pump
1. Remove all foreign material from the water pump mounting surface.
2. Install the water pump and a new gasket.

Tightening torque:
19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)

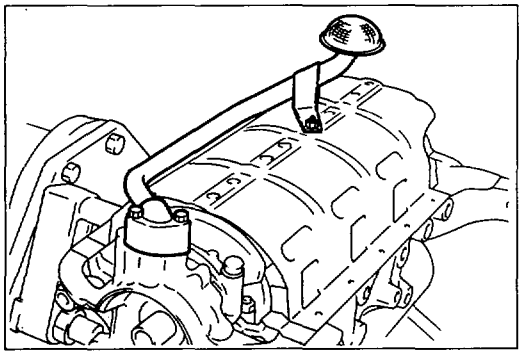


25U0BX-037

Oil Pan Baffle
1. Remove all foreign material from the contact surfaces.

Caution
- **The oil pan must be secured within 5 minutes after the sealant is applied to the baffle.**

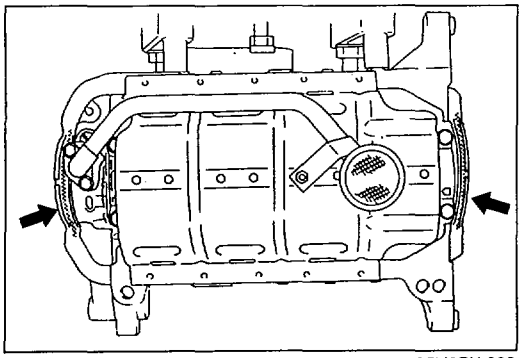
2. Apply a continuous bead of silicone sealant to the baffle along the inside of the bolt holes.
3. Install the baffle.



05U0BX-207

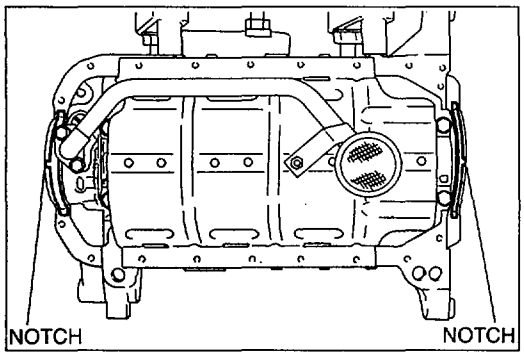
Oil Strainer
1. Install the oil strainer and a new gasket.

Tightening torque:
7.8—11 N·m (80—110 cm-kg, 69—95 in-lb)



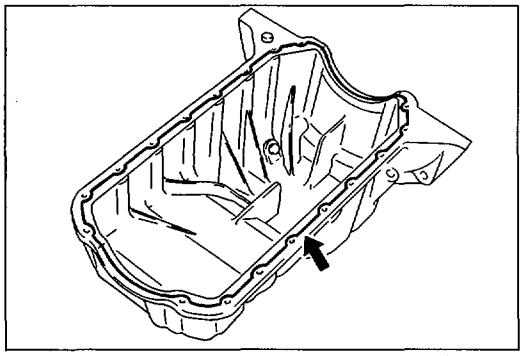
05U0BX-208

Oil Pan
1. Remove all foreign material from the contact surfaces.
2. Apply silicone sealant to the shaded areas shown in the figure.



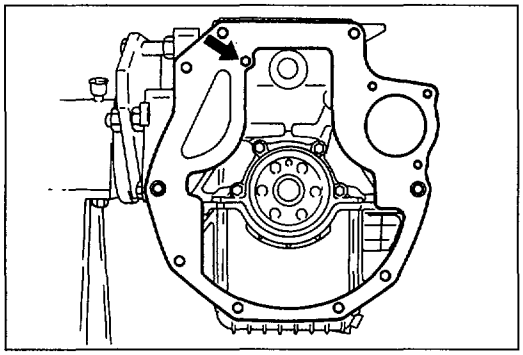
05U0BX-209

3. Install new gaskets onto the oil pump body and the rear cover with the projections in the notches shown in the figure.


05U0BX-210

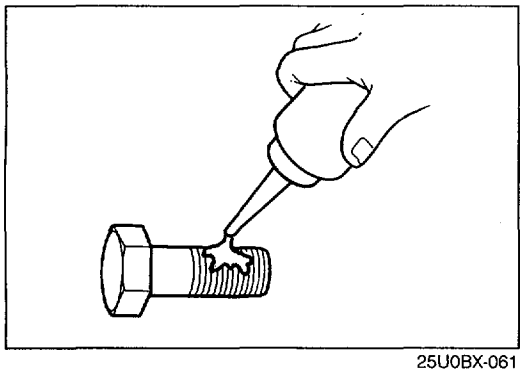
4. Apply a continuous bead of silicone sealant to the oil pan along the inside of the bolt holes and overlap the ends.
5. Install the oil pan.

Tightening torque:
7.8—11 N·m (80—110 cm-kg, 69—95 in-lb)


05U0BX-211

End Plate
1. Install the end plate.

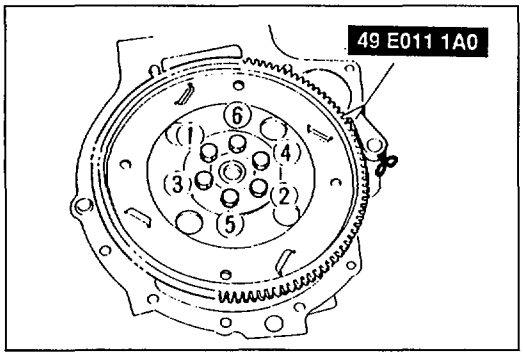
Tightening torque:
7.8—11 N·m (80—110 cm-kg, 69—95 in-lb)


25U0BX-061

Flywheel (M/T) or drive plate (A/T)
1. Remove the sealant from the flywheel bolt holes in the crankshaft and from the flywheel bolts.

Caution
- **If all the previous sealant cannot be removed from a bolt, replace the bolt.**
- **Do not apply sealant if a new bolt is used.**

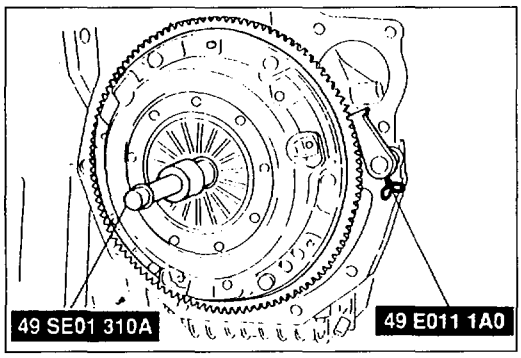
2. Set the flywheel onto the crankshaft.
3. Apply sealant to the flywheel bolts and install them.



25U0BX-062

4. Hold the flywheel with the **SST** or equivalent.
5. Tighten the bolts in two or three steps in the order shown.

Tightening torque:
96—103 N·m (9.8—10.5 m-kg, 71—76 ft-lb)



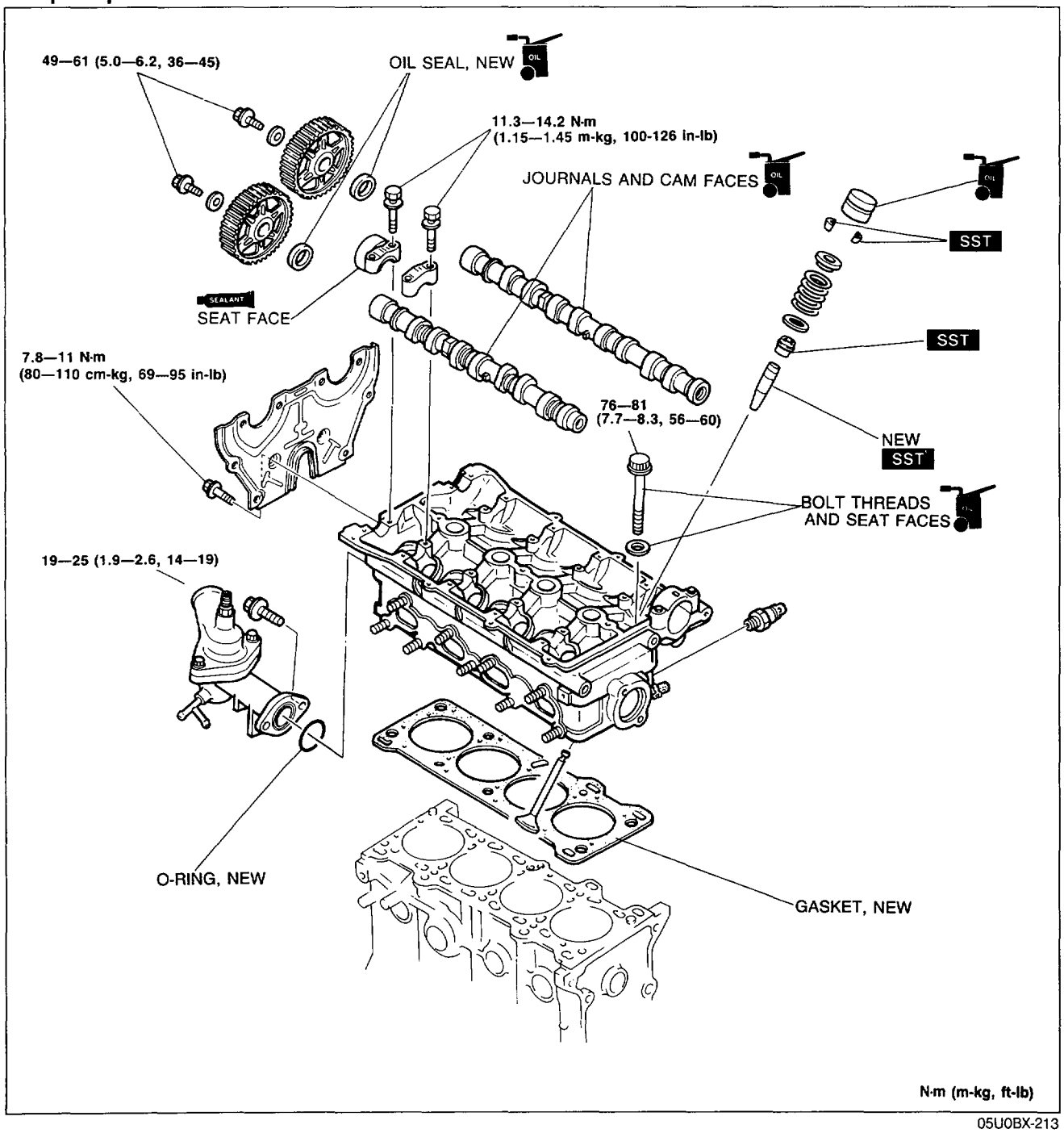
25U0BX-063

Clutch Disc and Clutch Cover

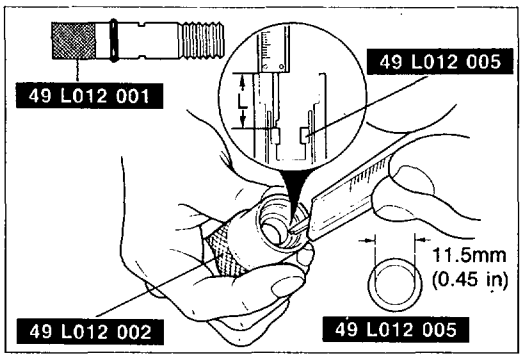
1. Install the clutch disc and clutch cover using the **SST** or equivalent. (Refer to Section H.)

Tightening torque:
18—26 N·m (1.8—2.7 m-kg, 13—20 ft-lb)

CYLINDER HEAD
Torque Specifications



05U0BX-213

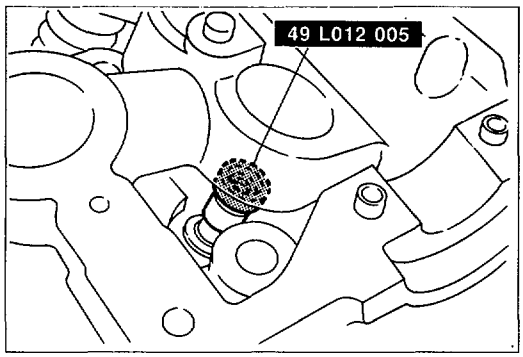


05U0BX-214

Valve Seal

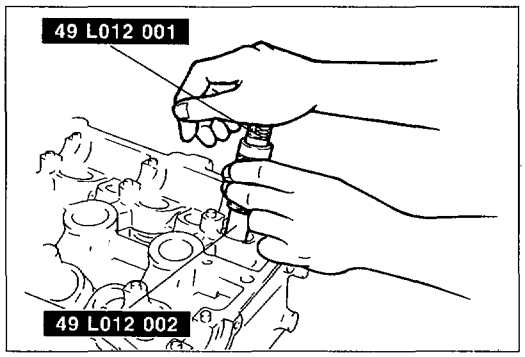
1. Assemble the **SST** so that depth **L** is as specified.

Depth L: 18.3—18.5mm (0.720—0.728 in)



05U0BX-215

2. Slide the valve seal onto the valve guide.
3. Set the **SST** against the valve seal.

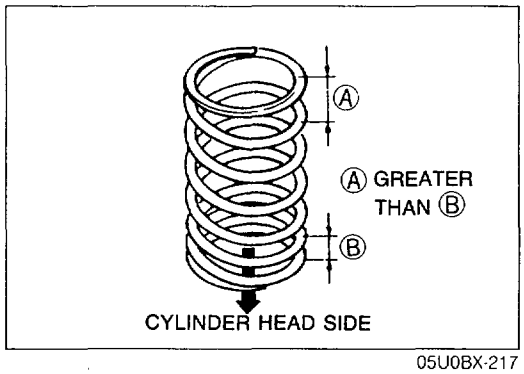


05U0BX-216

Caution

- **Do not use a hammer.**

4. Press the valve seal on until the **SST** contacts the cylinder head.



05U0BX-217

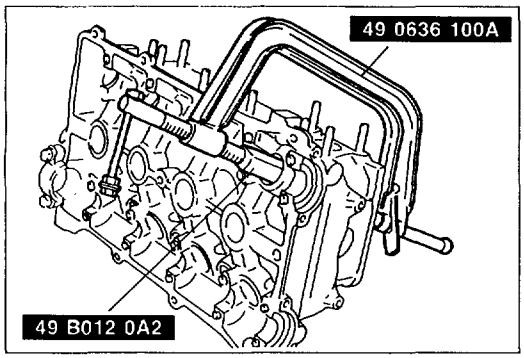
Valve and Valve Spring

1. Install the lower spring seat.
2. Install the valve.

Caution

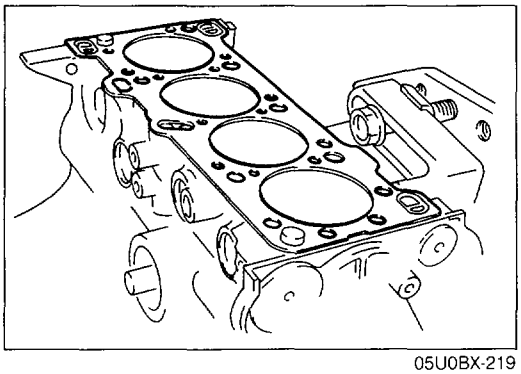
- **Install the spring with the closer pitch toward the cylinder head.**

3. Install the valve spring and the upper spring seat.



05U0BX-218

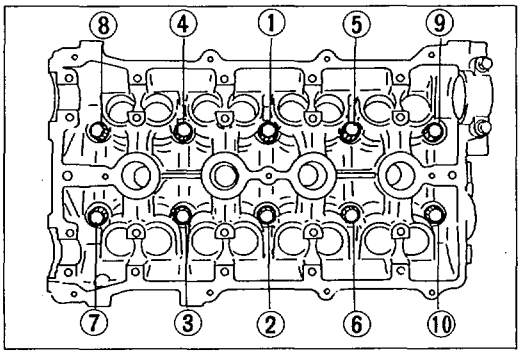
4. Compress the valve spring with the **SST**, and install the valve keepers.
5. Remove the **SST**.
6. Tap the end of the valve stem lightly two or three times with a plastic hammer to verify that the keepers are all fully seated.



05U0BX-219

Cylinder Head Gasket

1. Remove all foreign material from the top of the cylinder block.
2. Place the new cylinder head gasket in position.

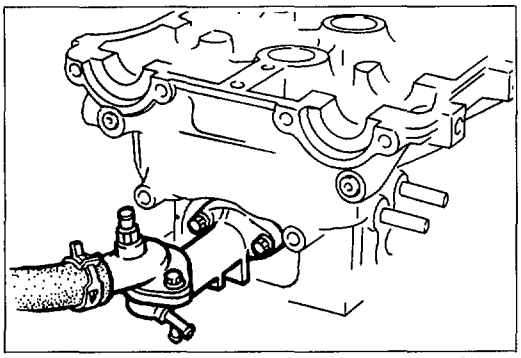


05U0BX-220

Cylinder Head

1. Install the cylinder head.
2. Apply clean engine oil to the bolt threads and seat faces.
3. Tighten the cylinder head bolts in two or three steps in the order shown.

Tightening torque:
76—81 N·m (7.7—8.3 m-kg, 56—60 ft-lb)

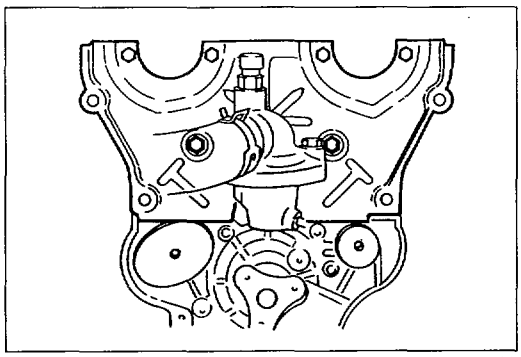


05U0BX-221

Thermostat Housing

1. Remove all foreign material from the thermostat housing mounting surface.
2. Install a new O-ring and the thermostat housing.

Tightening torque:
19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)

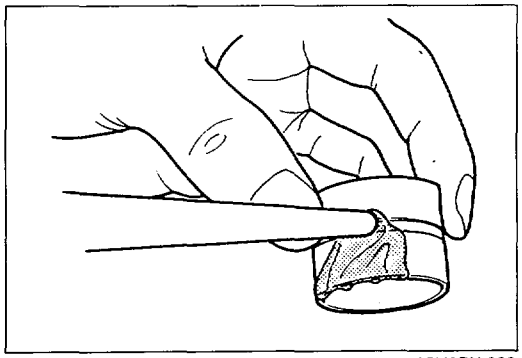


05U0BX-222

Seal Plate

1. Install the seal plate on the cylinder head.

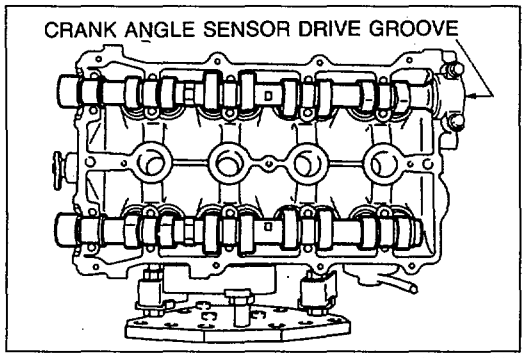
Tightening torque:
7.8—11 N·m (80—110 cm-kg, 69—95 in-lb)



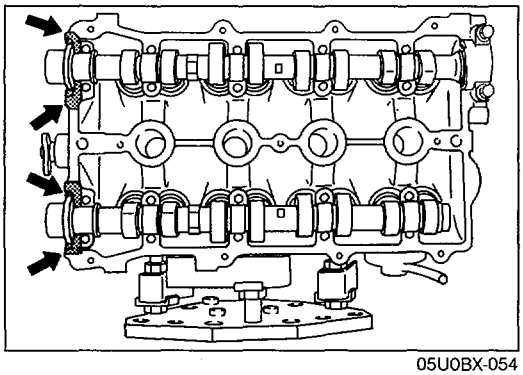
05U0BX-223

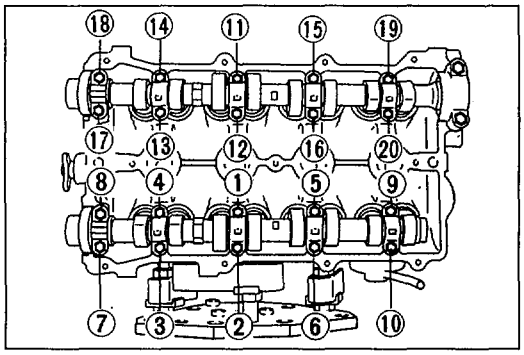
HLA

1. Apply clean engine oil to the friction surfaces.
2. If the HLA are being reused, install them in the position from which they were removed.
3. Verify that the HLA move smoothly in their bores.

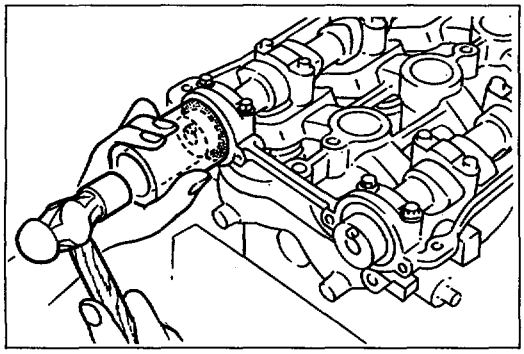


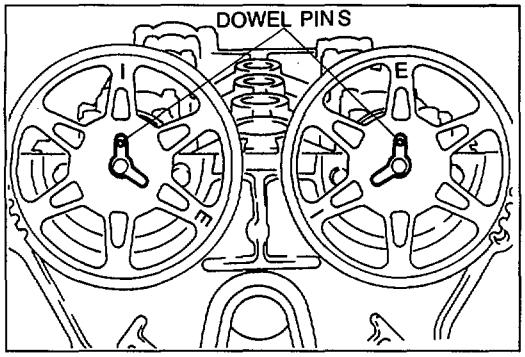
25U0BX-038


05U0BX-054



05U0BX-055


05U0BX-056



05U0BX-225

Camshaft

Note
- **The rear end of intake camshaft is grooved for the crank angle sensor drive.**

1. Apply clean engine oil to the camshaft journals and bearings.
2. Install the camshaft in position.

Caution
- **Do not allow any sealant on the camshaft journal surfaces.**

3. Apply silicone sealant to the shaded areas shown in the figure.
4. Install the camshaft caps according to the cap number and arrow mark.

5. Install the camshaft cap bolts, and tighten them in two or three steps in the order shown.

Tightening torque:
11.3—14.2 N·m (1.15—1.45 m-kg, 100—126 in-lb)

6. Apply a small amount of clean engine oil to the lip of a new camshaft oil seal.
7. Push the oil seal slightly in by hand.

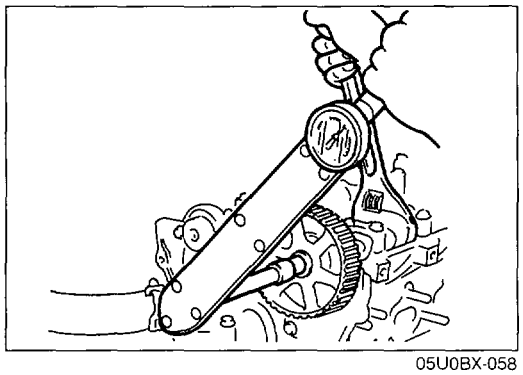
Caution
- **The oil seal must be tapped in until it is flush with the edge of the camshaft cap.**

8. Tap the oil seal in evenly with a suitable pipe and a hammer.

Oil seal outer diameter: 48mm (1.89 in)

Camshaft Pulley

1. Turn the camshafts until the camshaft dowel pins face straight up.
2. Install the camshaft pulleys with the I mark (intake side) or the E mark (exhaust side) straight up.

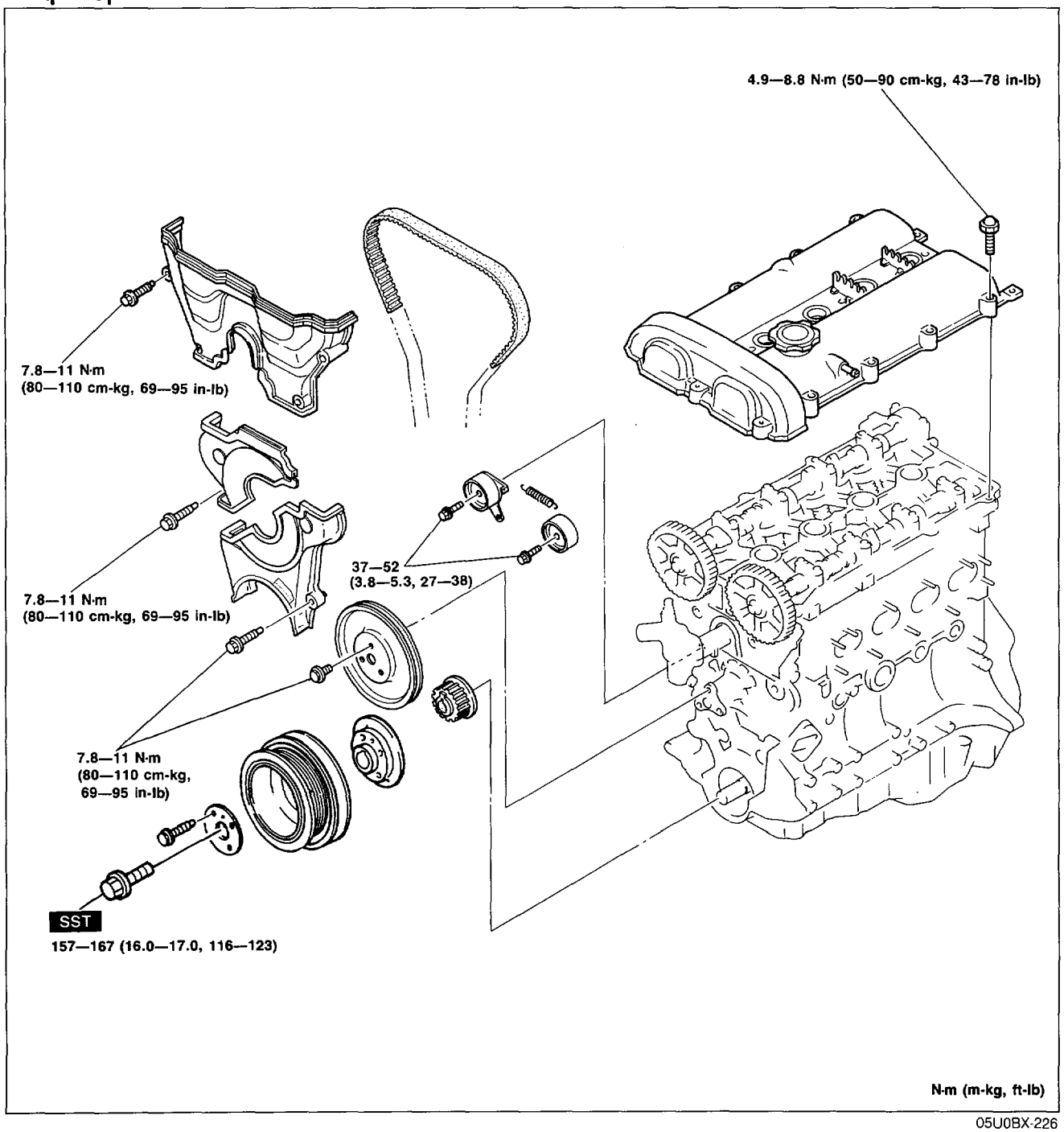


05U0BX-058

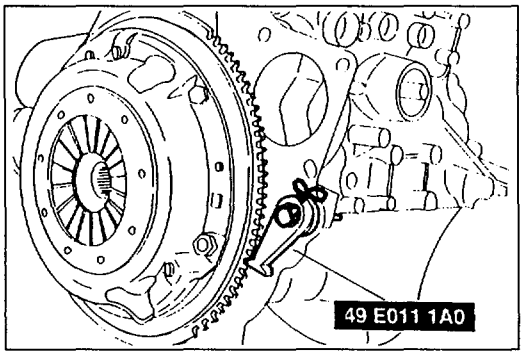
3. Install the camshaft pulley lock bolts.
4. Hold the camshaft with a wrench.
5. Tighten the camshaft pulley lock bolt.

Tightening torque:
49—61 N·m (5.0—6.2 m-kg, 36—45 ft-lb)

TIMING BELT
Torque Specifications



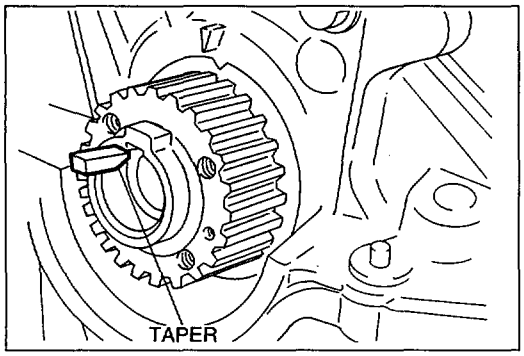
05U0BX-226



25U0BX-039

Timing Belt Pulley

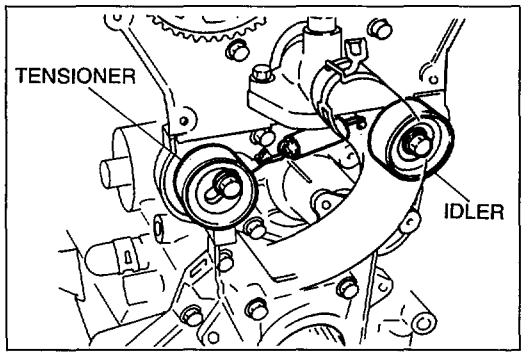
1. Reverse the direction of the **SST** or equivalent on the flywheel (M/T) or drive plate (A/T).



25U0BX-065

2. Install the timing belt pulley.
3. Install the pulley Woodruff key with the tapered side toward the oil pump body.
4. Install the pulley lock bolt.
5. Tighten the pulley lock bolt.

Tightening torque:
157—167 N·m (16—17 m-kg, 116—123 ft-lb)



05U0BX-229

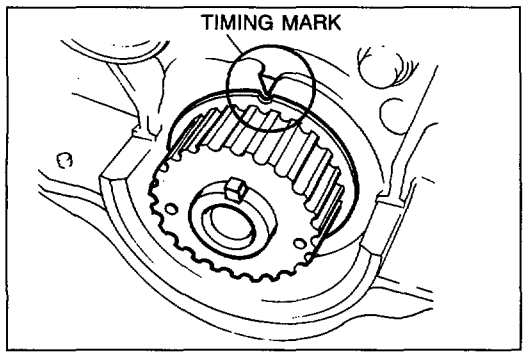
Idler

1. Install the idler.

Tightening torque:
37—52 N·m (3.8—5.3 m-kg, 27—38 ft-lb)

Tensioner and Tensioner Spring

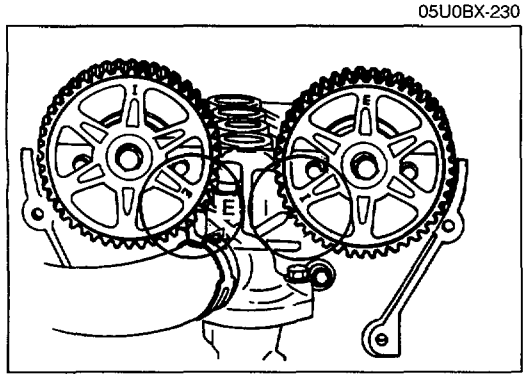
1. Install the tensioner and the tensioner spring.
2. Temporarily secure the tensioner with the spring fully extended.



05U0BX-230

Timing Belt

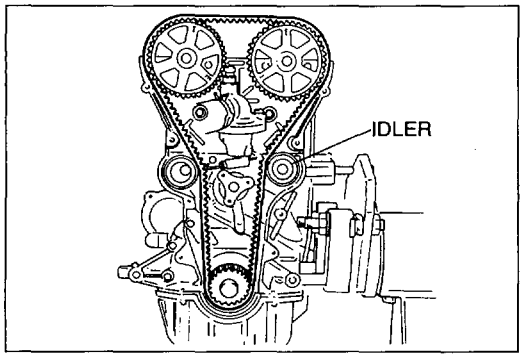
1. Turn the crankshaft and align the timing belt pulley mark with the timing mark.



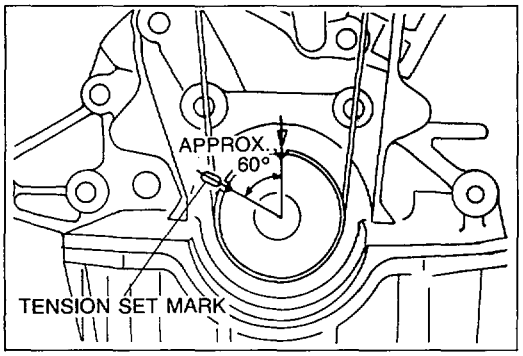
05U0BX-029

2. Verify that the camshaft pulley marks are aligned with the seal plate marks.

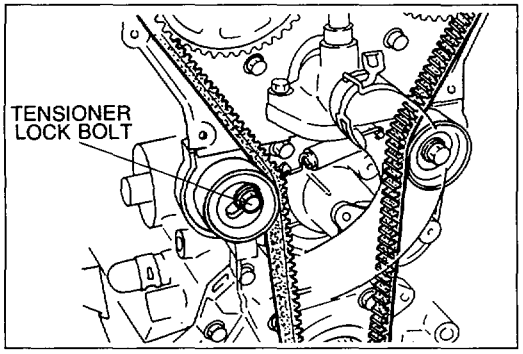
Caution
- **For intake side, align the E mark.**
- **For exhaust side, align the I mark.**



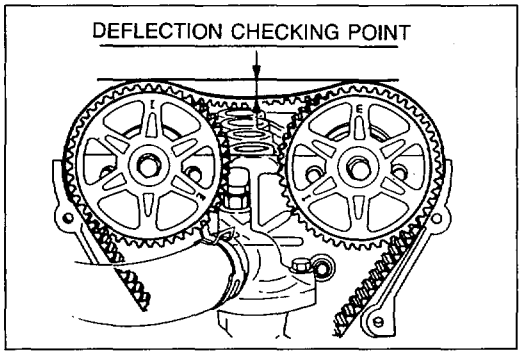
25U0BX-040



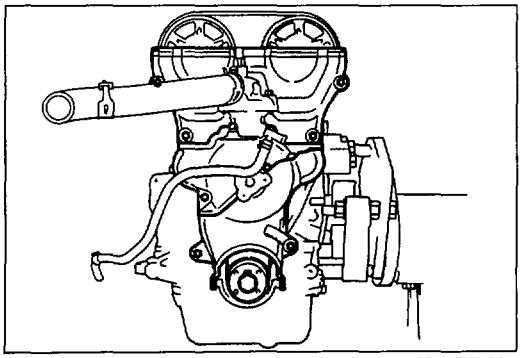
25U0BX-041



25U0BX-042



25U0BX-043



05U0BX-231

3. Install the timing belt so that there is no looseness at the idler side or between the two camshaft pulleys.
4. Install the pulley boss and pulley lock bolt.

Caution
- **Do not turn the crankshaft counterclockwise.**

5. Turn the crankshaft two turns clockwise, and align the timing belt pulley mark with the timing mark.
6. Verify that the camshaft pulley marks are aligned with the seal plate marks.
   If not aligned, remove the timing belt and repeat from tensioner installation.

7. Turn the crankshaft 1 and 5/6 turn clockwise, and align the timing belt pulley mark with the tension set mark.

8. Loosen the tensioner lock bolt to apply tension to the timing belt.
9. Tighten the tensioner lock bolt.

Tightening torque:
37—52 N·m (3.8—5.3 m-kg, 27—38 ft-lb)

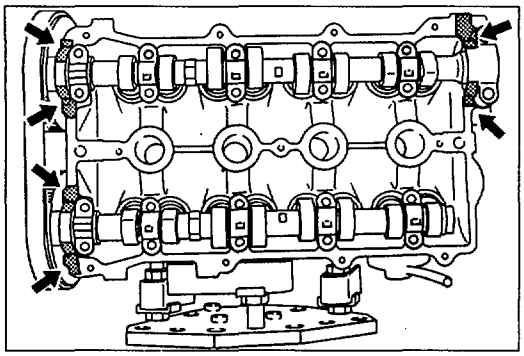
10. Turn the crankshaft 2 and 1/6 turns clockwise and verify that the timing marks are correctly aligned.

11. Measure the timing belt deflection by applying moderate pressure **(98 N, 10 kg, 22 lb)** midway between the two camshaft pulleys.
    If the deflection is not correct, repeat from Step 7 above.

Deflection:
9.0—11.5mm (0.35—0.45 in) at 98 N (10 kg, 22 lb)

Timing Belt Cover
1. Install the lower, middle, and upper covers.

Tightening torque:
7.8—11 N·m (80—110 cm-kg, 69—95 in-lb)

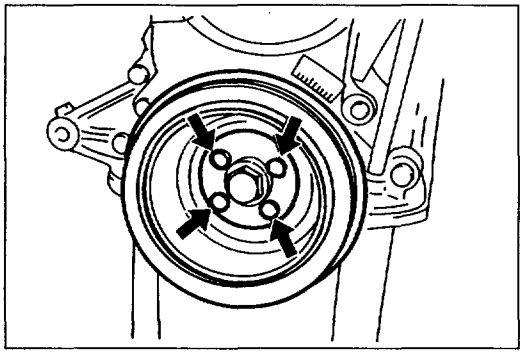


05U0BX-232

Cylinder Head Cover

1. Apply silicone sealant to the shaded areas shown in the figure.
2. Install the cylinder head cover.

Tightening torque:
4.9—8.8 N·m (50—90 cm-kg, 43—78 in-lb)

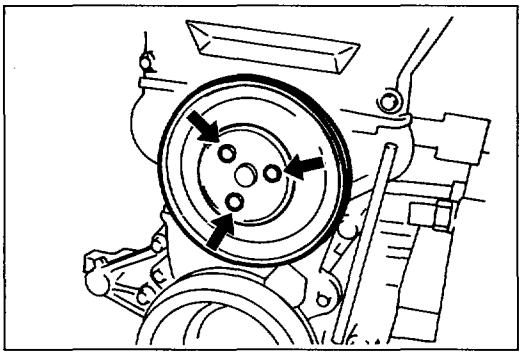


13E0B2-037

Cankshaft pully

1. Install the crankshaft pulley.
2. Install the plate.
3. Tighten the pulley bolts.

Tightening torque:
12—17 N·m (1.25—1.75 m-kg, 9—13 ft-lb)



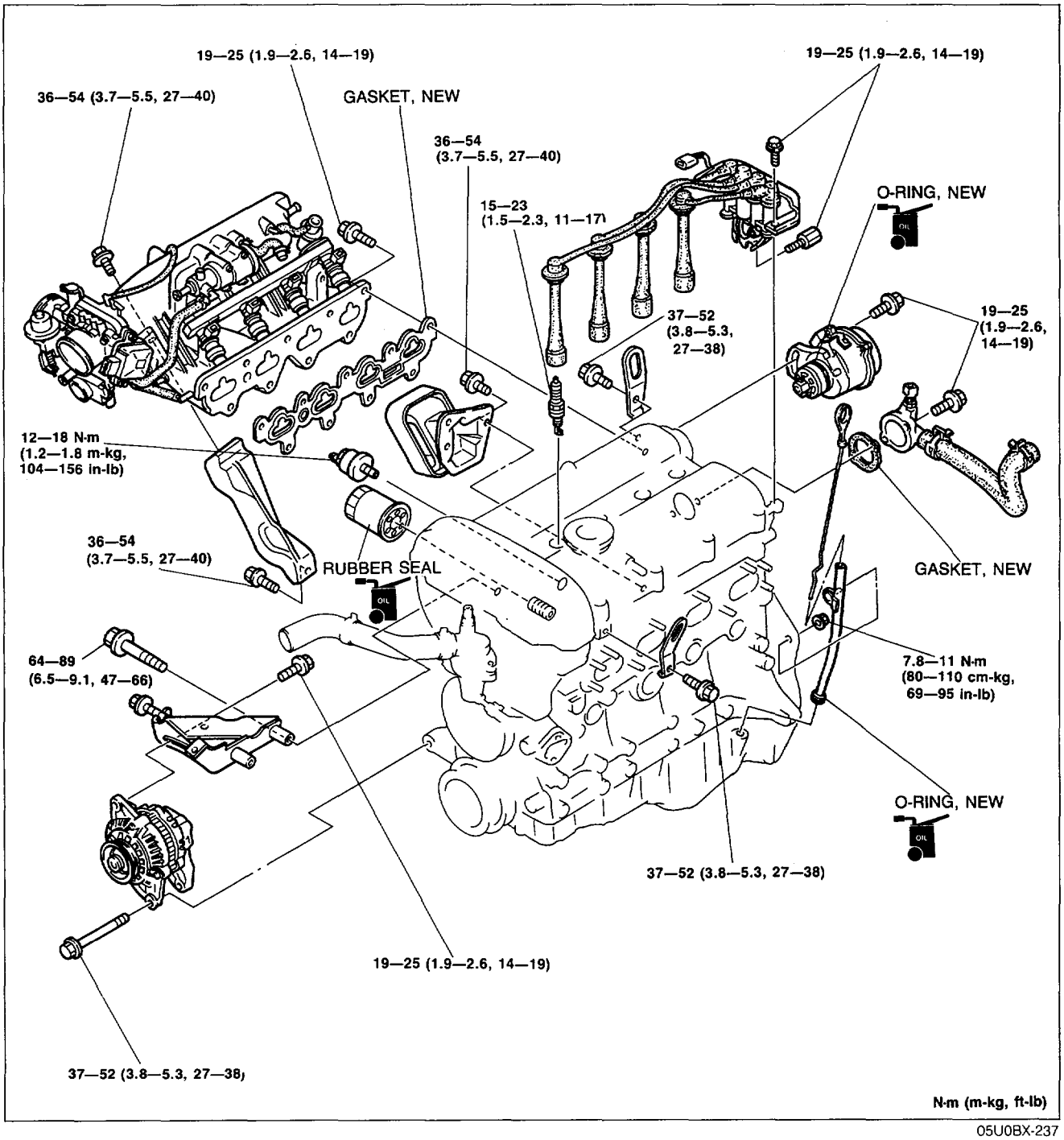
25U0BX-045

Water Pump Pulley

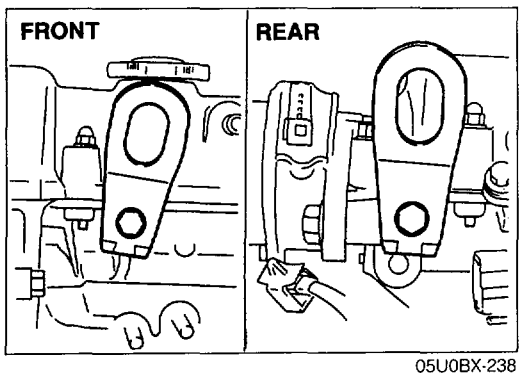
1. Install the water pump pulley and tighten the bolts.

Tightening torque:
7.8—11 N·m (80—110 cm-kg, 69—95 in-lb)

AUXILIARY PARTS
Torque Specifications



05U0BX-237

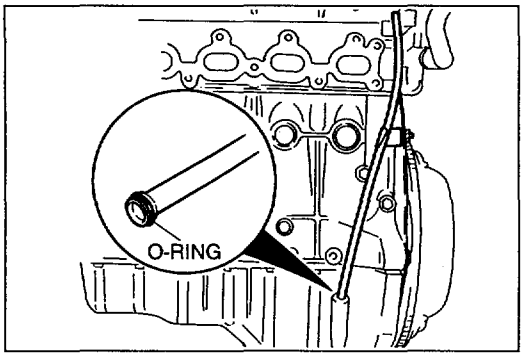


05U0BX-238

Engine Hanger

1. Install the front and rear engine hangers.

Tightening torque:
37—52 N·m (3.8—5.3 m-kg, 27—38 ft-lb)

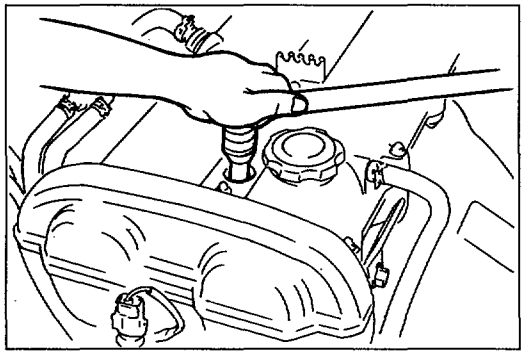


05U0BX-239

Oil Level Gauge Pipe
1. Apply a small amount of clean engine oil to the new O-ring.
2. Push the level gauge pipe into the oil pan.
3. Tighten the level gauge pipe bracket nut.

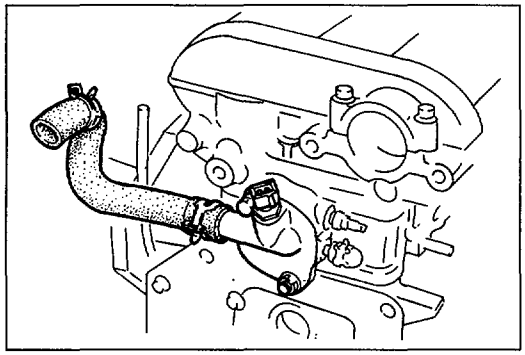
Tightening torque:
7.8—11 N·m (80—110 cm-kg, 69—95 in-lb)

4. Install the level gauge.


25U0BX-046

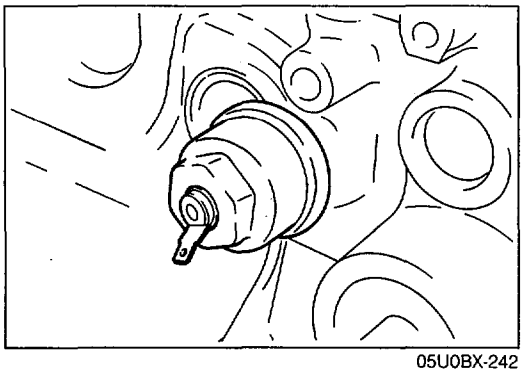
Spark Plug
1. Install the spark plugs.

Tightening torque:
15—23 N·m (1.5—2.3 m-kg, 11—17 ft-lb)


05U0BX-241

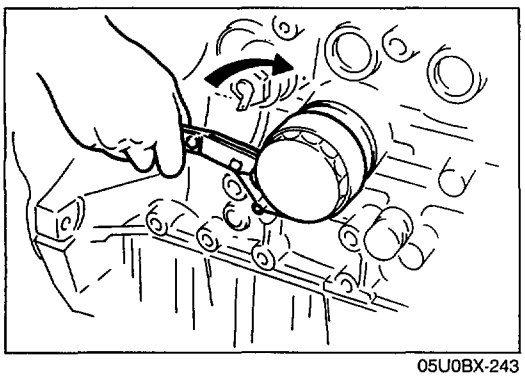
Water Outlet Pipe
1. Remove all foreign material from the water outlet pipe mounting surface.
2. Install a new gasket and the water outlet pipe.

Tightening torque:
19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)

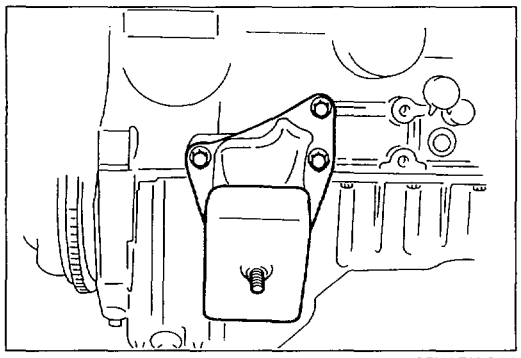

05U0BX-242

Oil Pressure Gauge Sender Unit
1. Install the oil pressure gauge sender unit.

Tightening torque:
12—18 N·m (1.2—1.8 m-kg, 104—156 in-lb)


05U0BX-243

Oil Filter
1. Remove all foreign material from the oil filter mounting surface.
2. Apply a small amount of clean engine oil to the rubber seal of the oil filter.
3. Install the oil filter and tighten it by hand until the rubber seal contacts the base.
4. Tighten the filter 1 and 1/6 turn with a filter wrench.

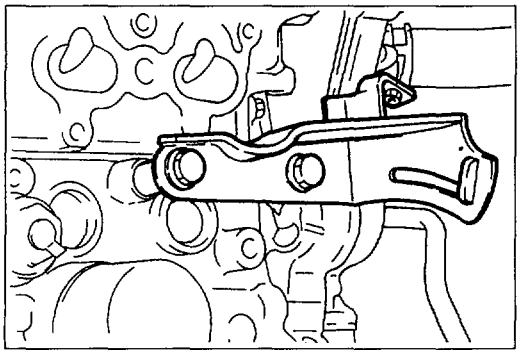


05U0BX-244

Right Engine Mount

1. Install the right engine mount.

Tightening torque:
36—54 N·m (3.7—5.5 m-kg, 27—40 ft-lb)

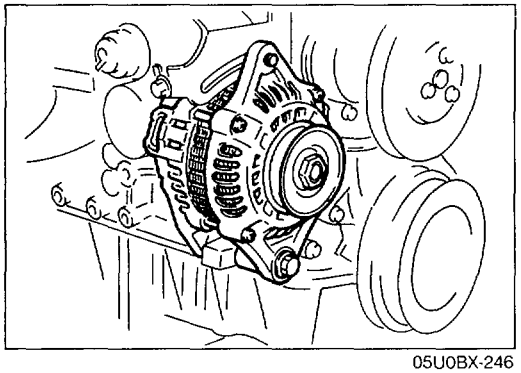


15U0BX-022

Alternator Bracket

1. Install the alternator bracket.

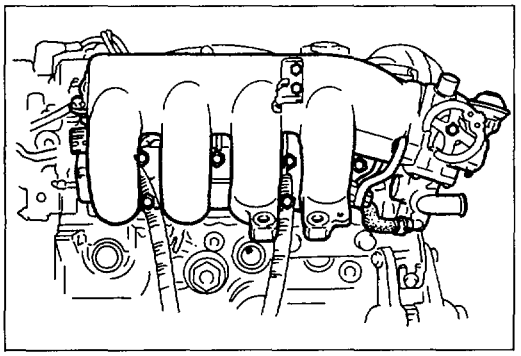
Tightening torque:
64—89 N·m (6.5—9.1 m-kg, 47—66 ft-lb)



05U0BX-246

Alternator

1. Install the alternator and loosely tighten the mounting bolts.

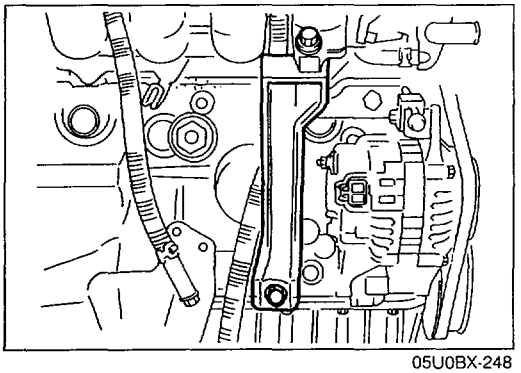


05U0BX-247

Intake Manifold Assembly

1. Remove all foreign material from the intake manifold contact surface.
2. Install a new gasket and the intake manifold assembly.

Tightening torque:
19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)

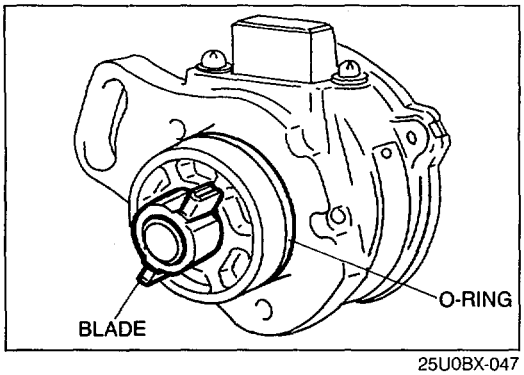


05U0BX-248

Manifold Bracket

1. Install the manifold bracket.

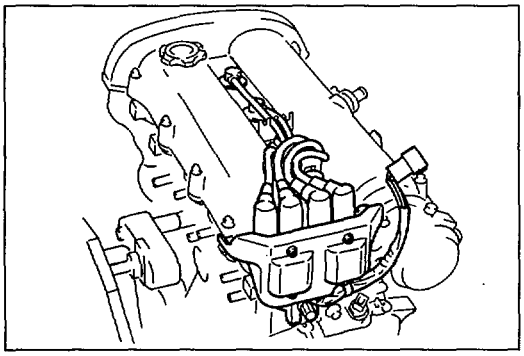
Tightening torque:
36—54 N·m (3.7—5.5 m-kg, 27—40 ft-lb)



25U0BX-047

Crank Angle Sensor

1. Apply grease to a new O-ring and the blade.
2. Install the crank angle sensor to the rear end of intake-side camshaft and loosely tighten the installation bolt.


05U0BX-250

Ignition Coil and High-tension Lead

1. Install the ignition coil.

   Tightening torque:
   19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)

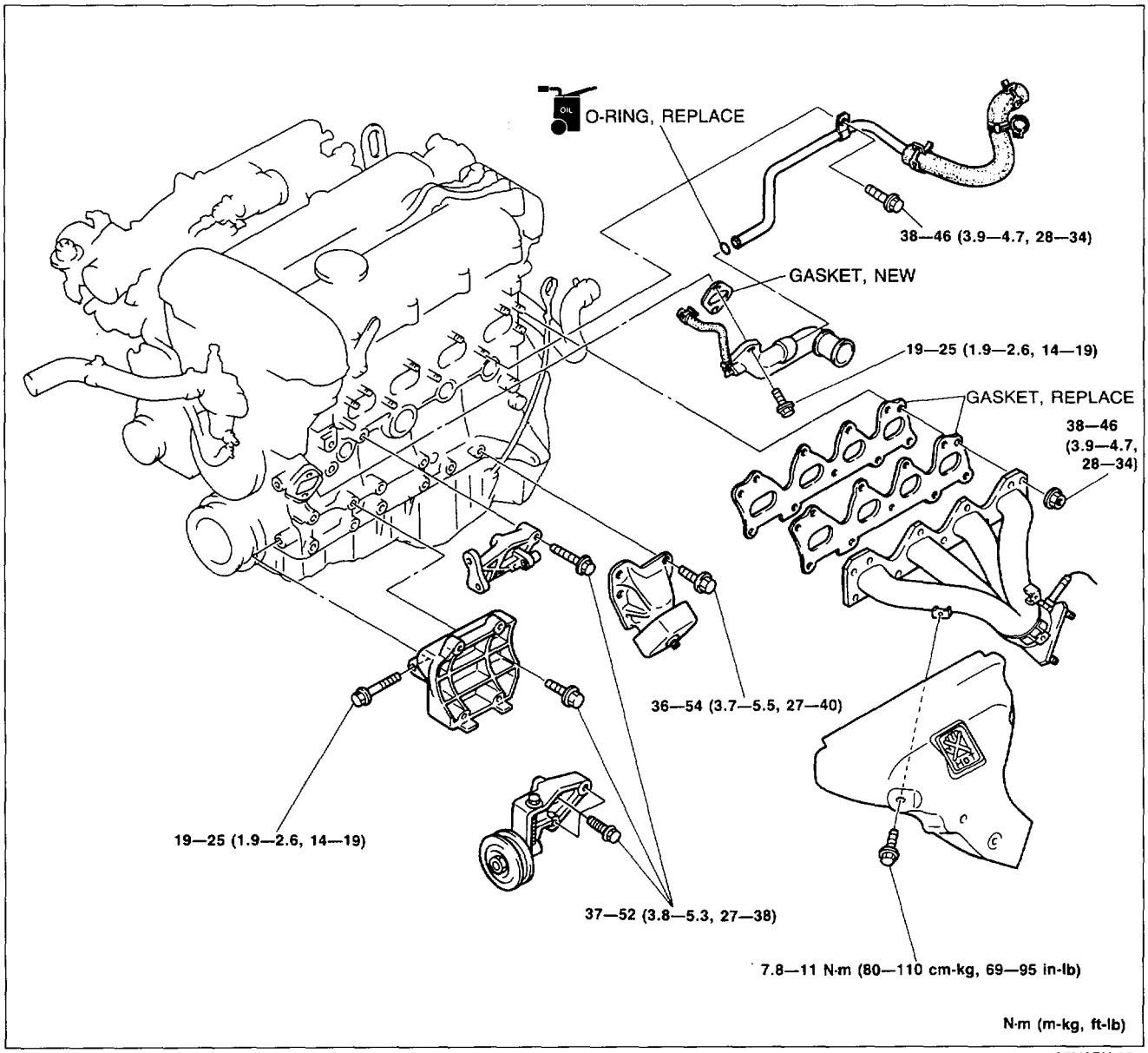
2. Connect the high-tension leads.

ENGINE STAND DISMOUNTING

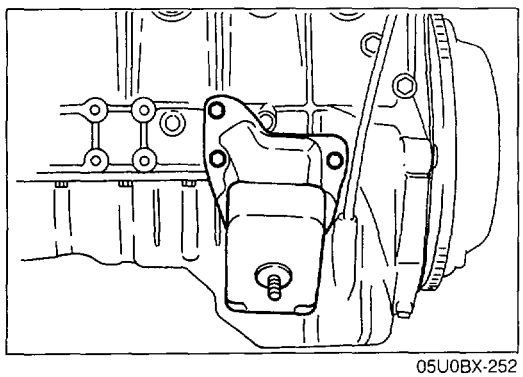
PROCEDURE

1. Remove the engine from the **SST (engine stand)**.
2. Remove the **SST (engine hanger)** from the engine.
3. Install the parts shown in the figure.

Torque Specifications



05U0BX-251

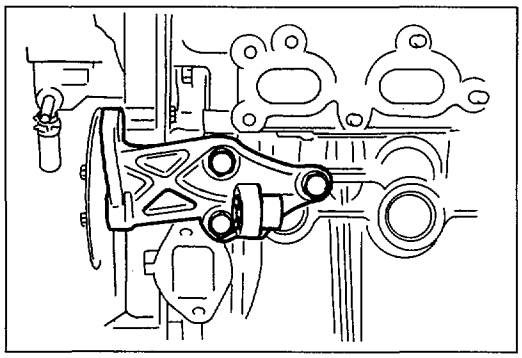


05U0BX-252

Left Engine Mount

1. Install the left engine mount.

Tightening torque:
36—54 N·m (3.7—5.5 m-kg, 27—40 ft-lb)



05U0BX-253

P/S Oil Pump Bracket

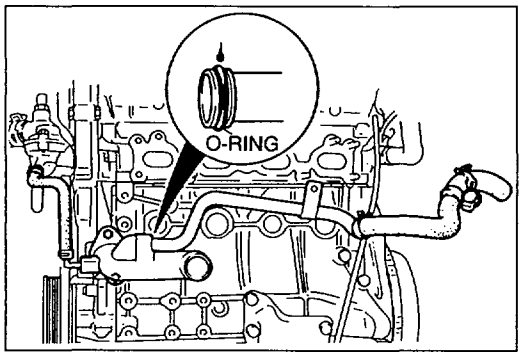
1. Install the P/S oil pump bracket.

Tightening torque:
37—52 N·m (3.8—5.3 m-kg, 27—38 ft-lb)

Idler

1. Install the A/C idler.

Tightening torque:
37—52 N·m (3.8—5.3 m-kg, 27—38 ft-lb)



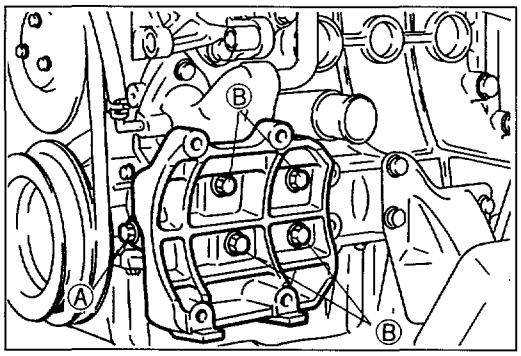
05U0BX-254

Water Inlet Pipe and Bypass Pipe

1. Remove all foreign material from the water inlet pipe mounting surface.
2. Install a new gasket and the water inlet pipe.

Tightening torque:
19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)

3. Apply a small amount of engine coolant to the new O-ring.
4. Install the water bypass pipe.

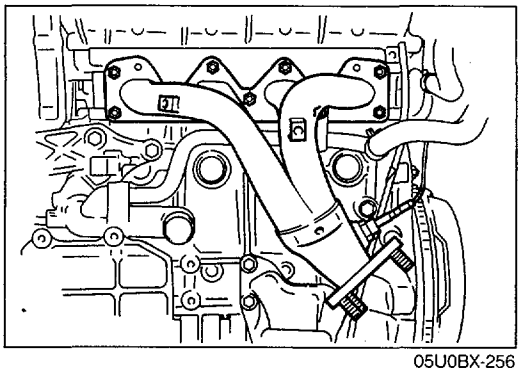


05U0BX-255

A/C Compressor Bracket

1. Install the A/C compressor bracket.

Tightening torque
Ⓐ: 19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)
Ⓑ: 37—52 N·m (3.8—5.3 m-kg, 27—38 ft-lb)

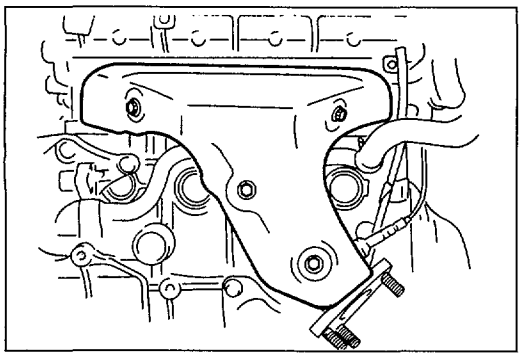


05U0BX-256

Exhaust Manifold

1. Remove all foreign material from the exhaust manifold contact surface.
2. Install a new gasket and the exhaust manifold.

Tightening torque:
38—46 N·m (3.9—4.7 m-kg, 28—34 ft-lb)



05U0BX-257

Exhaust Manifold Insulator

1. Install the exhaust manifold insulator.

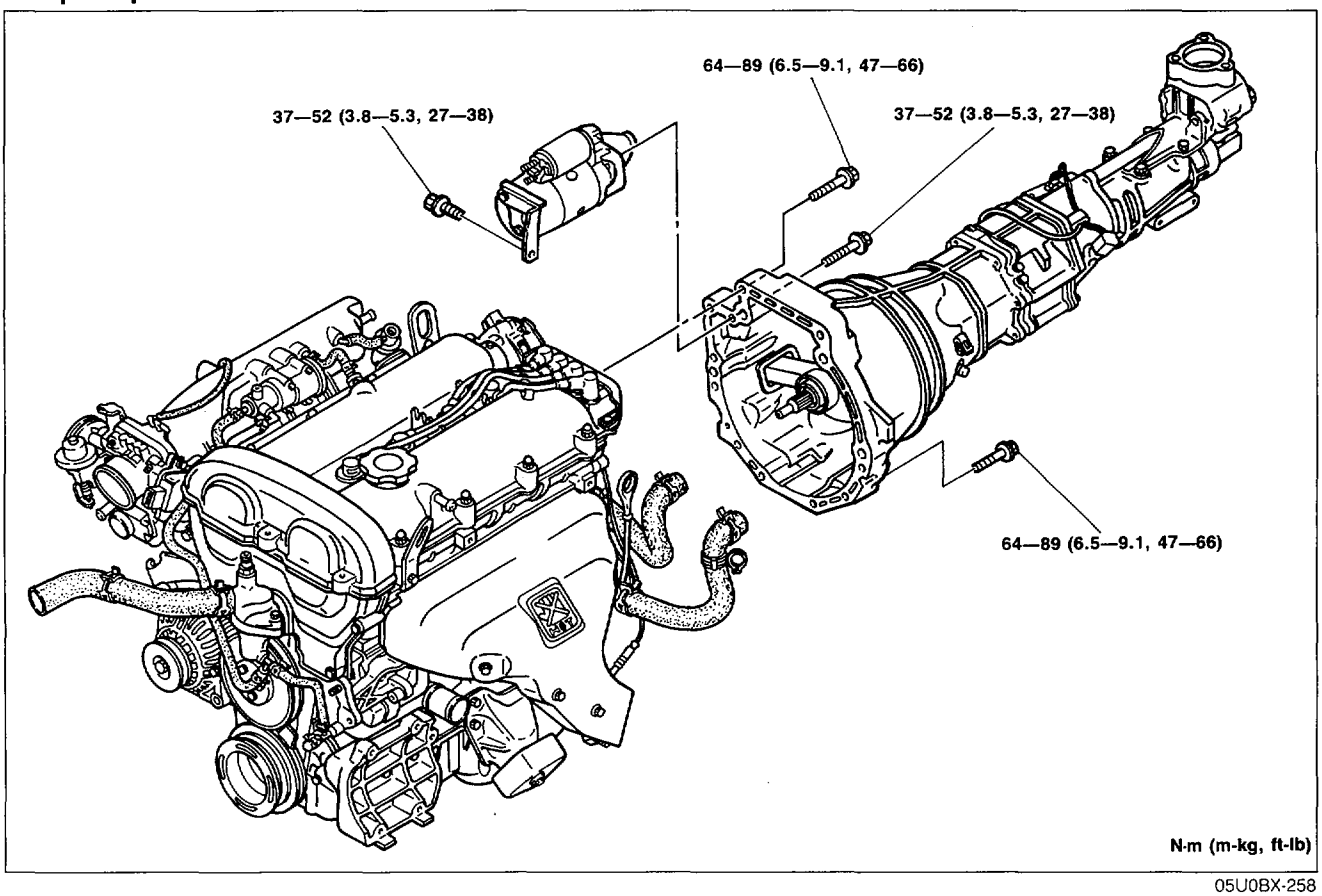
Tightening torque:
7.8—11 N·m (80—110 cm-kg, 69—95 in-lb)

INSTALLATION

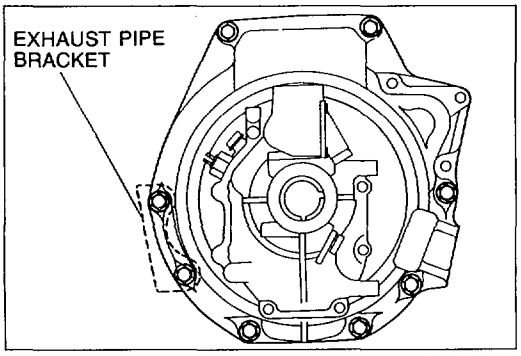
PROCEDURE

1. Tighten all bolts and nuts to the specified torques.

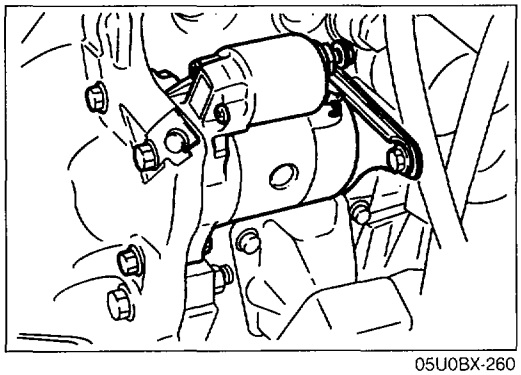
Step 1
Torque Specifications



05U0BX-258



05U0BX-259



05U0BX-260

Transmission

1. Join the engine and transmission.
2. Install the transmission mounting bolts.

Caution

- **Install the exhaust pipe bracket as shown.**

3. Tighten the bolts.

Tightening torque:
64—89 N·m (6.5—9.1 m-kg, 47—66 ft-lb)

Starter

1. Install the starter to the transmission housing.

Tightening torque:
37—52 N·m (3.8—5.3 m-kg, 27—38 ft-lb)

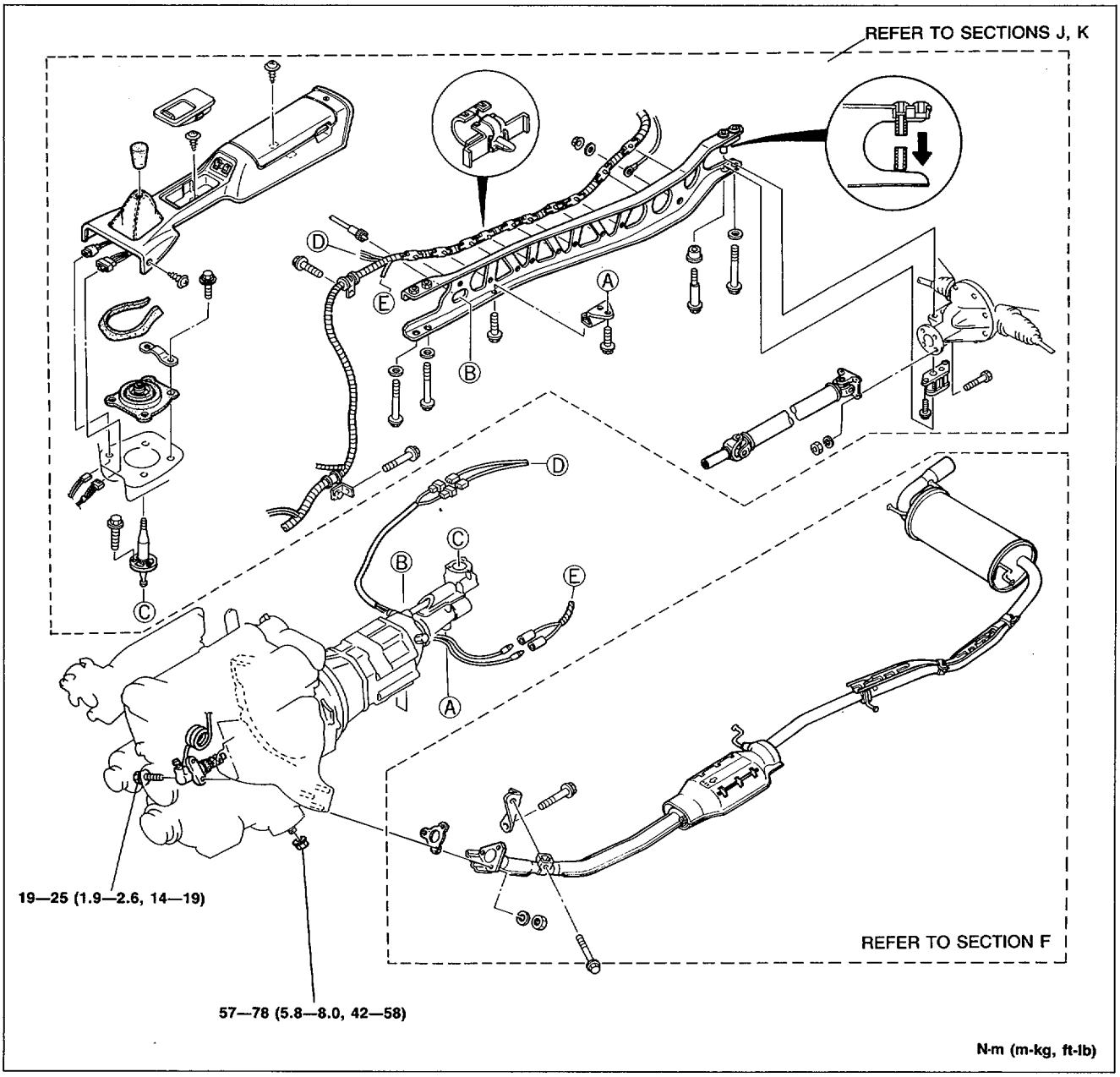
2. Install the starter bracket bolt.

Tightening torque:
37—52 N·m (3.8—5.3 m-kg, 27—38 ft-lb)

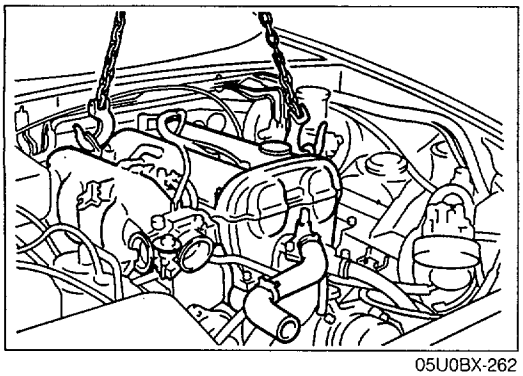
Step 2

Warning
- **Be sure the vehicle is securely supported on safety stands.**

Torque Specifications



05U0BX-261



05U0BX-262

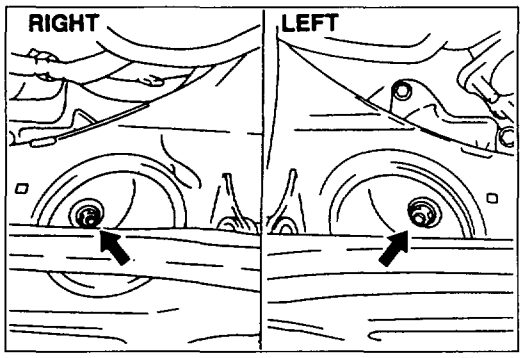
Engine and transmission assembly

1. Suspend the engine and transmission assembly.

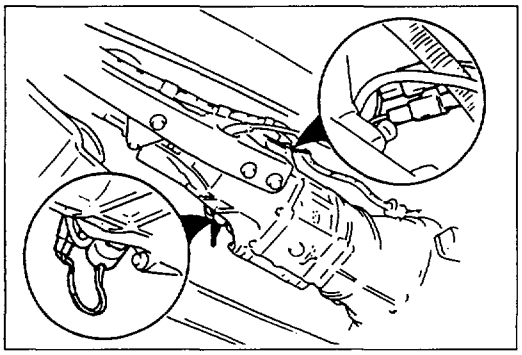
Caution
- **Do not damage any components in the engine compartment.**

2. Install the engine with the transmission tilting downward.
3. Align the engine mounts with the crossmember mounting holes.
4. Support the transmission with a transmission jack.
5. Install the engine mount nuts and loosely tighten them.

INSTALLATION



25U0BX-048


25U0BX-049

Power plant frame
1. Install the power plant frame. (Refer to Sections J, K.)

Engine mount nut
1. Tighten the engine mount nuts.

Tightening torque:
57—78 N·m (5.8—8.0 m-kg, 42—58 ft-lb)

Propeller shaft, speedometer cable, and shift knob
1. Install the propeller shaft, speedometer cable, and shift knob. (Refer to Sections J, K.)

Transmission harness
1. Connect the transmission harness.

Clutch release cylinder
1. Install the clutch release cylinder.

Tightening torque:
19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)

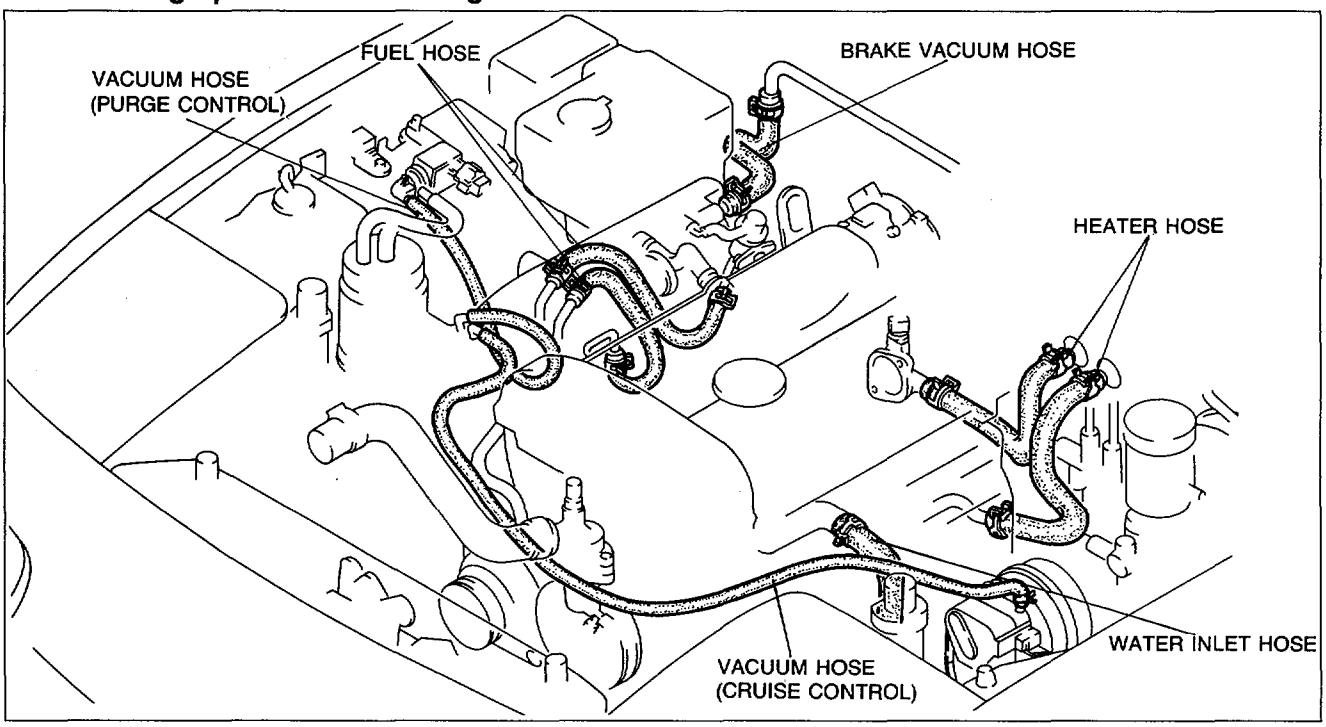
Exhaust pipe
1. Install the exhaust pipe assembly. (Refer to Section F.)

Step 3

1. Connect the hoses shown in the figure.

Caution

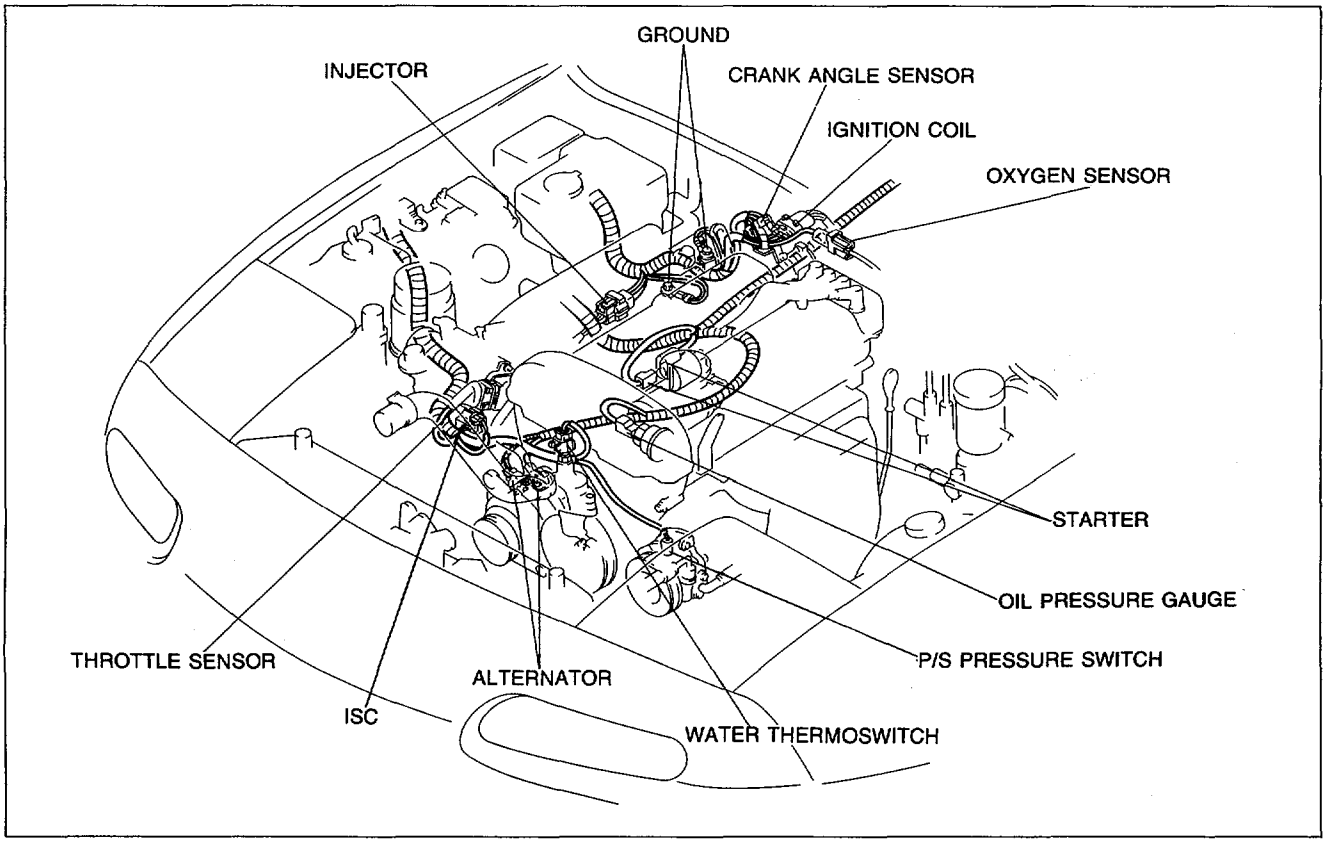
- **Position the hose clamp in the original location on the hose, and squeeze the clamp lightly with large pliers to ensure a good fit.**



05U0BX-267

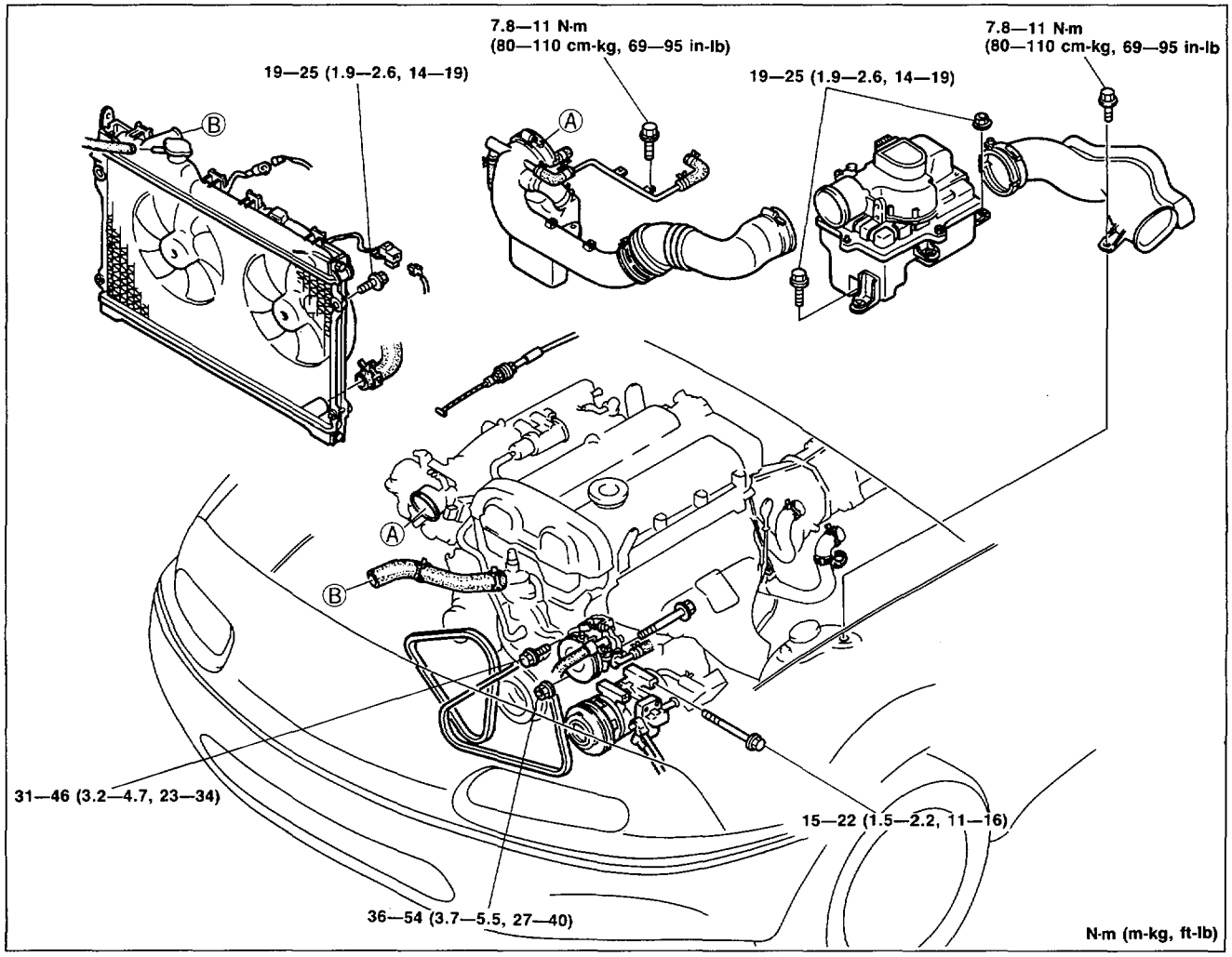
Step 4

1. Connect the harness connectors shown in the figure.

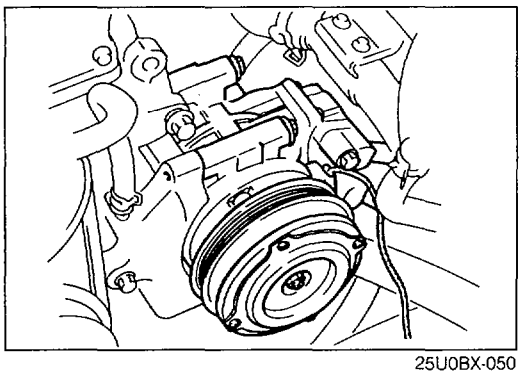


05U0BX-268

Step 5
Torque Specifications



05U0BX-269

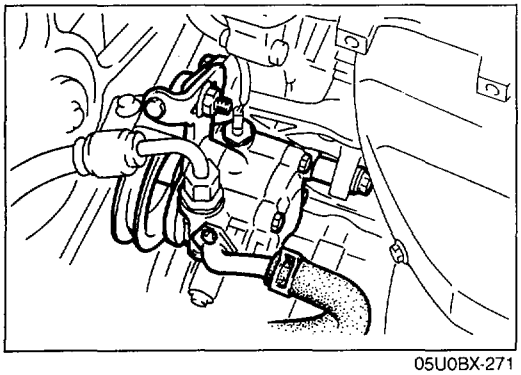


25U0BX-050

A/C compressor (If equipped)

1. Install the A/C compressor.

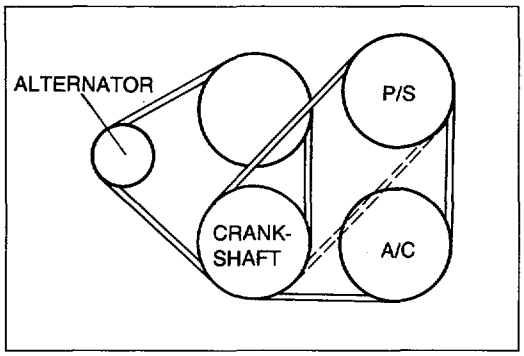
Tightening torque:
15—22 N·m (1.5—2.2 m-kg, 11—16 ft-lb)



05U0BX-271

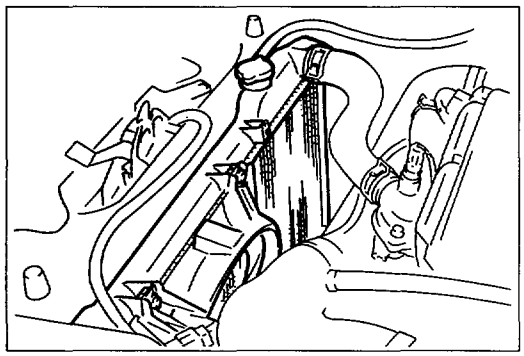
P/S oil pump

1. Install the P/S oil pump and loosely tighten the mounting bolts.



05U0BX-272

Drive belt
1. Install the alternator drive belt.
2. Install the P/S and/or A/C drive belt.
3. Adjust the drive belt deflections, and tighten the alternator and P/S mounting bolts and nuts. (Refer to page B–6.)

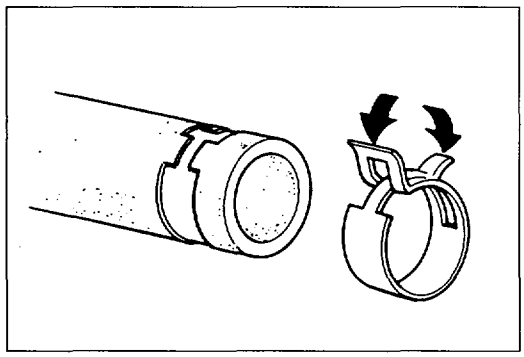

05U0BX-273

Radiator and cooling fan assembly
1. Install the radiator and cooling fan assembly.

Tightening torque:
19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)

2. Tighten the A/C pipe bracket to the radiator.

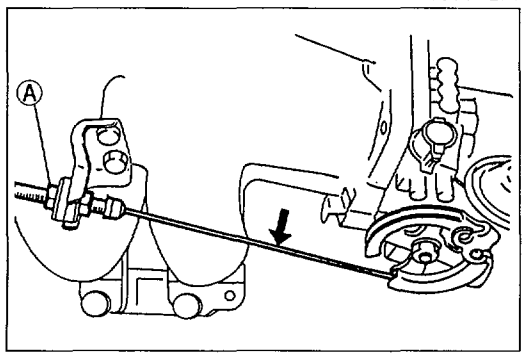
Tightening torque:
7.8—11 N·m (80—110 cm-kg, 69—95 in-lb)


05U0BX-274

3. Connect the upper and lower radiator hoses.

Caution
- **Position the hose clamp in the original location on the hose, and squeeze the clamp lightly with large pliers to ensure a good fit.**

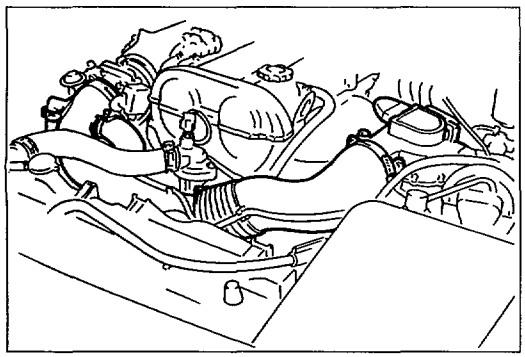
4. Connect the coolant reservoir hose.
5. Connect the cooling fan connector.



05U0BX-275

Accelerator cable
1. Install the accelerator cable.
2. Adjust the cable deflection by turning nut A.

Deflection: 1—3mm (0.04—0.12 in)


05U0BX-276

Air cleaner assembly
1. Install the air cleaner assembly.

Tightening torque
19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)

Steps After Installation

1. Install the under cover.
2. If the engine oil was drained, fill with the specified amount and type of engine oil. (Refer to Section D.)
3. Fill the radiator with the specified amount and type of engine coolant. (Refer to Section E.)
4. If the transmission oil was drained, fill with the specified amount and type of transmission oil. (Refer to Sections J, K.)
5. Connect the negative battery cable.
6. Start the engine and check the following.
   (1) Engine oil, transmission oil, and engine coolant leakage.
   (2) Ignition timing, idle speed. (Refer to page B–8.)
   (3) Operation of emission control system.
7. Perform a road test.
8. Recheck the engine oil and engine coolant levels.

25U0BX-051

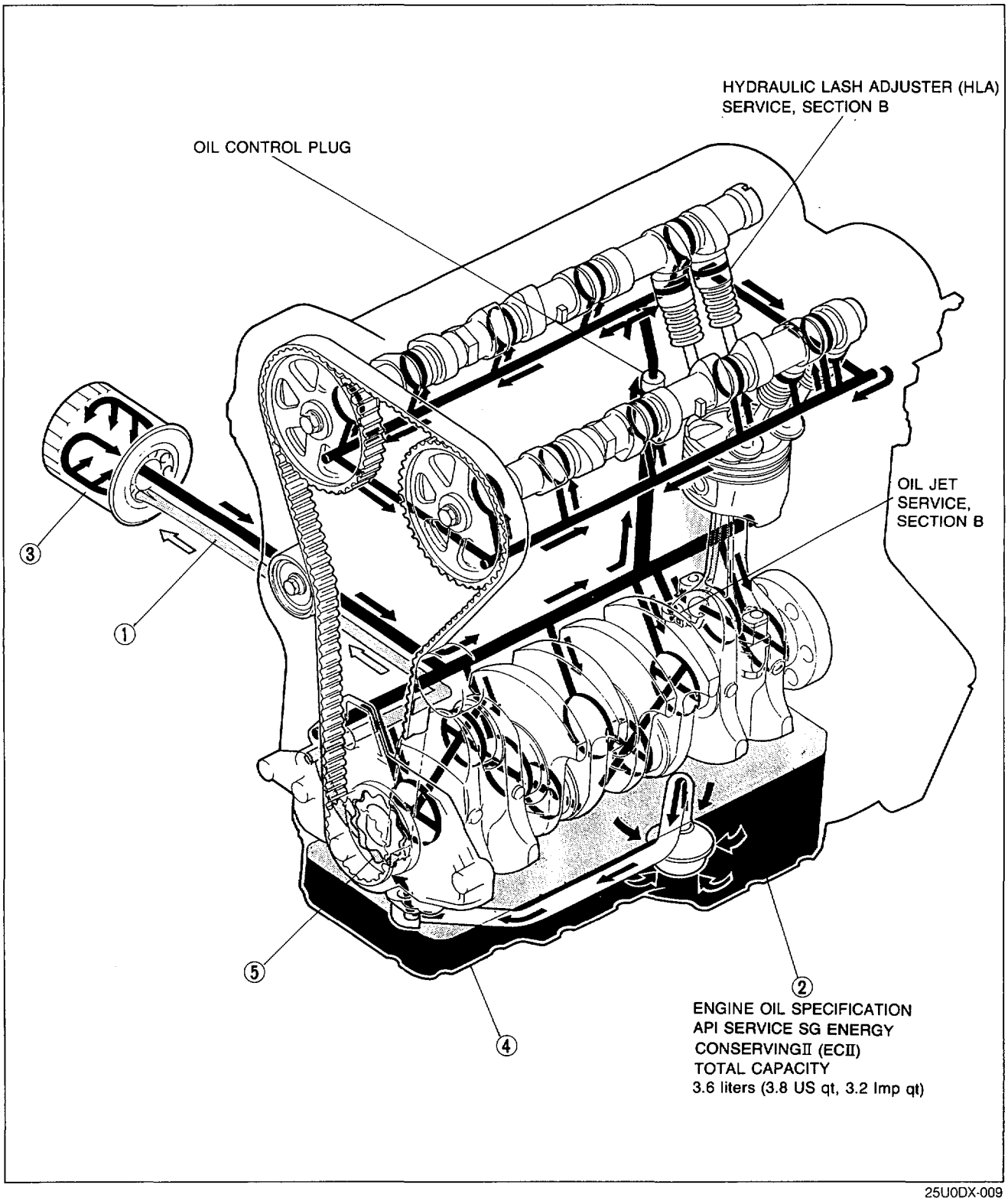
Before beginning any service procedure, refer to Section T of this manual for airbag system warnings and cautions.

LUBRICATION SYSTEM

INDEX ..... **D– 2**
OUTLINE ..... **D– 3**
SPECIFICATIONS ..... **D– 3**
TROUBLESHOOTING GUIDE ..... **D– 3**
OIL PRESSURE ..... **D– 4**
PREPARATION ..... **D– 4**
INSPECTION ..... **D– 4**
ENGINE OIL ..... **D– 5**
INSPECTION ..... **D– 5**
REPLACEMENT ..... **D– 5**
OIL FILTER ..... **D– 5**
REPLACEMENT ..... **D– 5**
OIL PAN ..... **D– 6**
REMOVAL / INSTALLATION ..... **D– 6**
OIL PUMP ..... **D– 9**
DISASSEMBLY / ASSEMBLY ..... **D– 9**
INSPECTION **D–10**

25U0DX-001

INDEX



25U0DX-009

1. Oil pressure
Inspection ..... page D– 4
2. Engine oil
Inspection ..... page D– 5
Replacement ..... page D– 5
3. Oil filter
Replacement ..... page D– 5
4. Oil pan
Removal / Installation ..... page D– 6
5. Oil pump
Disassembly / Assembly ..... page D– 9
Inspection ..... page D–10

OUTLINE

SPECIFICATIONS

Item \ Engine			B6 DOHC
Lubrication system			Force-fed type
Oil pump	Type		Trochoid gear
	Relief pressure	kPa (kg/cm^2, psi)	343—441 (3.5—4.5, 50—64)
Oil filter	Type		Full-flow, paper element
	Relief pressure differential	kPa (kg/cm^2, psi)	78—118 (0.8—1.2, 11—17)
Oil capacity	Total (dry engine)	liters (US qt, Imp qt)	3.6 (3.8, 3.2)
	Oil pan	liters (US qt, Imp qt)	3.2 (3.4, 2.8)
	Oil filter	liter (US qt, Imp qt)	0.17 (0.18, 0.15)
Engine oil			API service SG Energy ConservingII (ECII)
Viscosity number	Above −25°C (−13°F)		SAE 10W-30
	Below 0°C (32°F)		SAE 5W-30

25U0DX-010

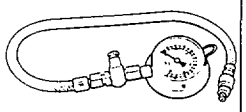
TROUBLESHOOTING GUIDE

Problem	Possible Cause	Remedy	Page
Engine hard starting	Improper engine oil Insufficient engine oil	Replace Add oil	D– 5 D– 5
Excessive oil consumption	Oil working up or down Oil leakage	Refer to Section B Repair	 —
Oil pressure drop	Insufficient oil Oil leakage Worn and/or damaged oil pump gear Worn plunger (inside oil pump) or weak spring Clogged oil strainer Excessive main bearing or connecting rod bearing clearance	Add oil Repair Replace Replace Clean Refer to Section B	D– 5 — D– 9, 10 D– 9, 10 —
Oil pressure gauge (meter) does not operate	Oil pressure drop Malfunction of oil pressure gauge Malfunction of electrical system	As described above Refer to Section T Refer to Section T	—

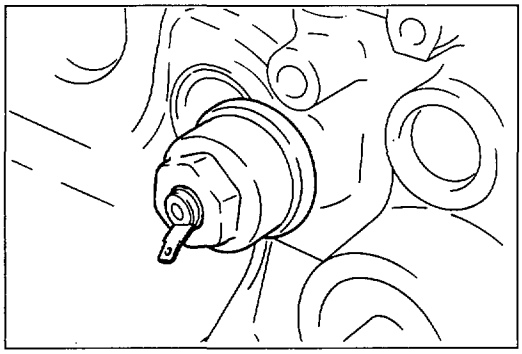
25U0DX-011

OIL PRESSURE

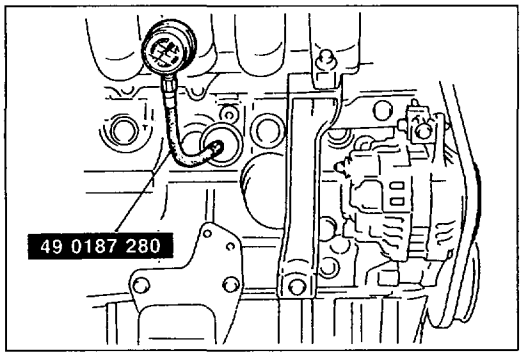
PREPARATION
SST

49 0187 280 Gauge, oil pressure		For inspection of oil pressure

05U0DX-006



05U0DX-007



05U0DX-008

INSPECTION

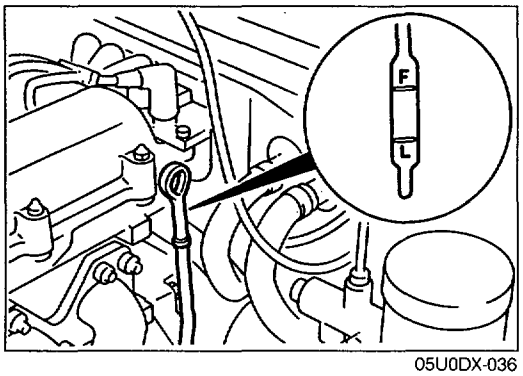
1. Remove the oil pressure gauge sender unit.
2. Screw the **SST** into the oil pressure gauge sender unit installation hole.
3. Warm up the engine to normal operating temperature.
4. Run the engine at 1,000 rpm and 3,000 rpm, and note the gauge reading.

   Oil pressure:
   196—294 kPa (2.0—3.0 kg/cm^2, 28—43 psi)-1,000 rpm
   294—392 kPa (3.0—4.0 kg/cm^2, 43—57 psi)-3,000 rpm

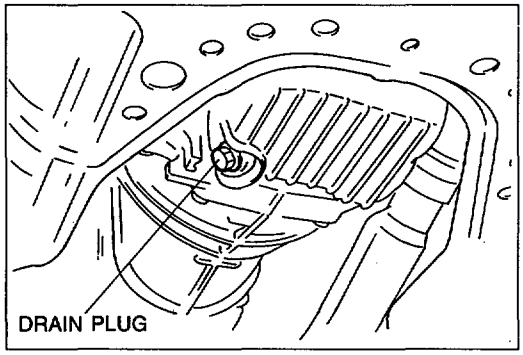
5. If the pressure is not as specified, check for the cause and repair. (Refer to Troubleshooting Guide.)
6. Remove the **SST** and install the oil pressure gauge sender unit.

   Tightening torque:
   12—18 N·m (1.2—1.8 m-kg, 104—156 in-lb)

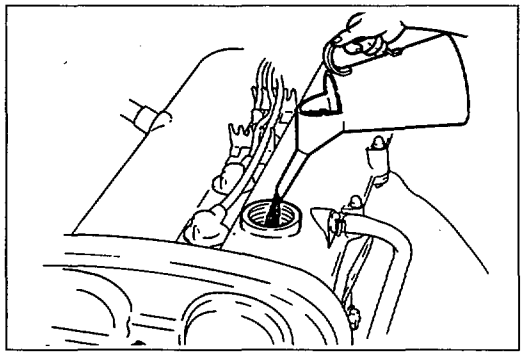
05U0DX-009

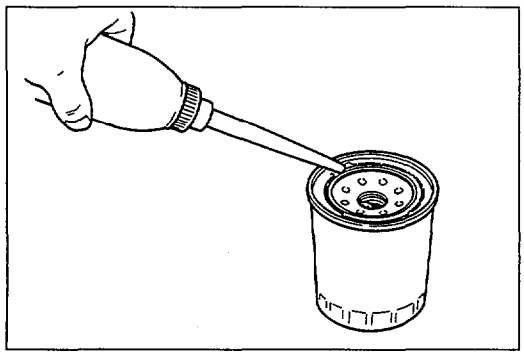


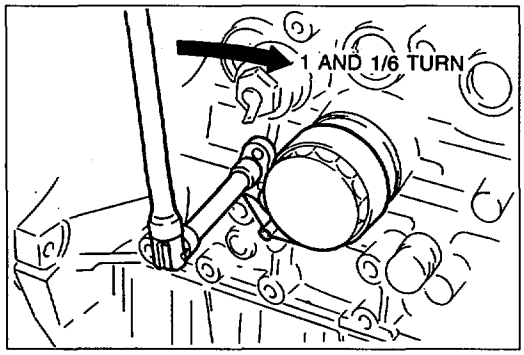
05U0DX-036



05U0DX-011


05U0DX-012


05U0DX-013



05U0DX-014

ENGINE OIL

INSPECTION

1. Be sure the vehicle is on level ground.
2. Warm up the engine to normal operating temperature and stop it.
3. Wait for five minutes.
4. Remove the oil level gauge and check the oil level and condition.
5. Add or replace oil as necessary.

Note
- **The distance between the L and F marks on the level gauge represents 0.8 liter (0.85 US qt, 0.70 Imp qt).**

REPLACEMENT

Warning
- **Be careful when draining; the oil is hot.**

1. Warm up the engine to normal operating temperature and stop it.
2. Remove the oil filler cap and the oil pan drain plug.
3. Drain the oil into a suitable container.
4. Install a new gasket and the drain plug.

Tightening torque:
29—41 N·m (3.0—4.2 m-kg, 22—30 ft-lb)

5. Refill the engine with the specified type and amount of engine oil.
6. Refit the oil filler cap.

Oil pan capacity: 3.2 liters (3.4 US qt, 2.8 Imp qt)

7. Run the engine and check for leaks.
8. Check the oil level and add oil if necessary.

OIL FILTER

REPLACEMENT

1. Remove the oil filter with a suitable wrench.
2. Use a clean rag to wipe off the mounting surface on the engine.
3. Apply a small amount of clean engine oil to the rubber seal of the new filter.
4. Install the oil filter and tighten it by hand until the rubber seal contacts the base.
5. Tighten the filter 1 and 1/6 turn with a filter wrench.
6. Start the engine and check for leaks.
7. Check the oil level and add oil if necessary.

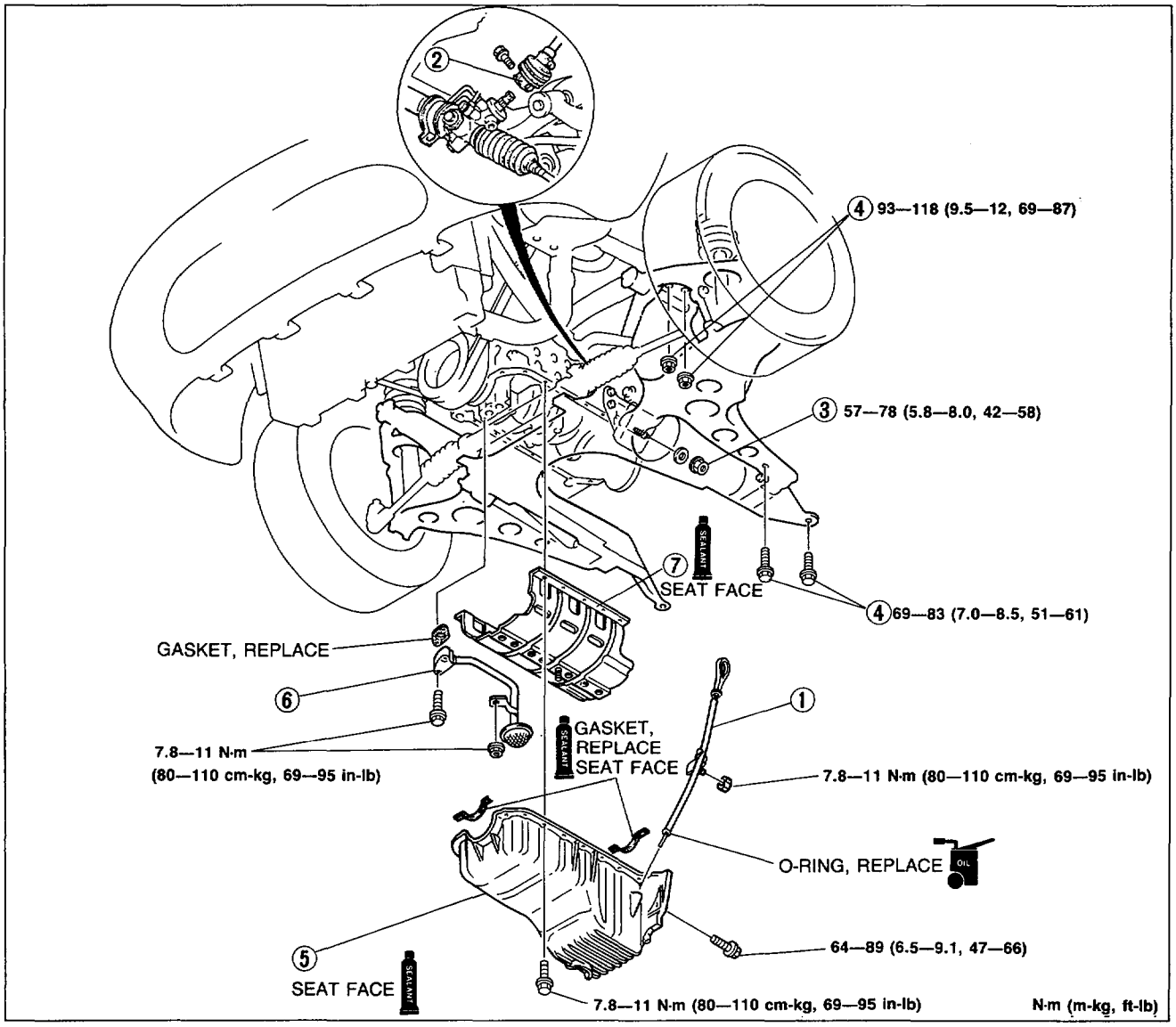
Oil filter capacity: 0.17 liter (0.18 US qt, 0.15 Imp qt)

OIL PAN

REMOVAL / INSTALLATION

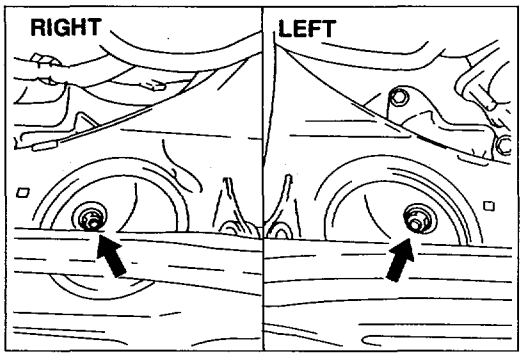
Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to Section T.)**

1. Disconnect the negative battery cable.
2. Drain the engine oil.
3. Remove the under cover.
4. Remove in the order shown in the figure, referring to **Removal Note**.
5. Install in the reverse order of removal, referring to **Installation Note**.

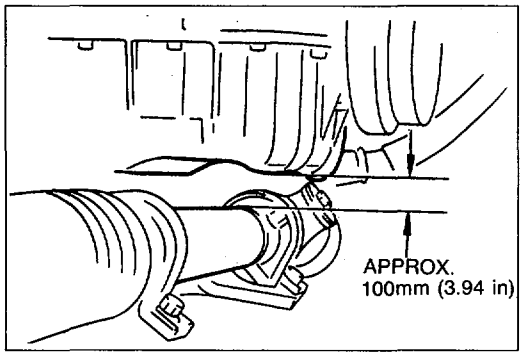


25U0DX-002

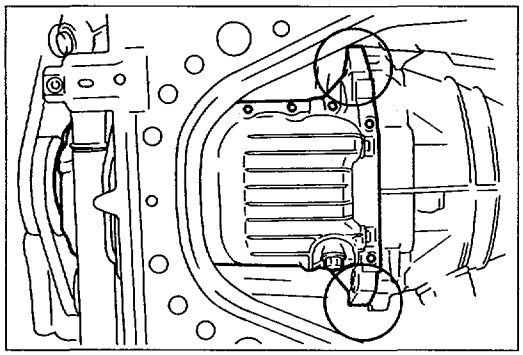
1. Oil level gauge and pipe
2. Intermediate shaft
3. Engine mount nut
   Removal Note ..... page D– 7
4. Crossmember installation bolt and nut
   Removal Note ..... page D– 7
5. Oil pan
   Removal Note ..... page D– 7
   Inspect for cracks, deformation, and damage
   Installation Note..... page D– 8
6. Oil strainer
7. Oil pan baffle
   Removal Note ..... page D– 7
   Installation Note..... page D– 7

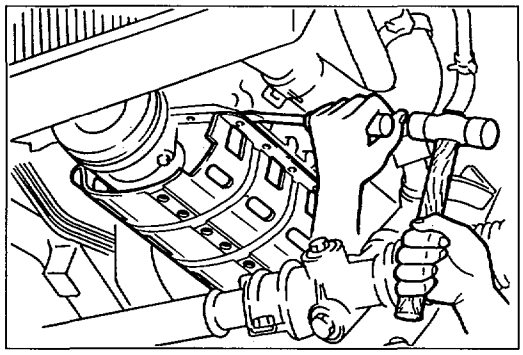


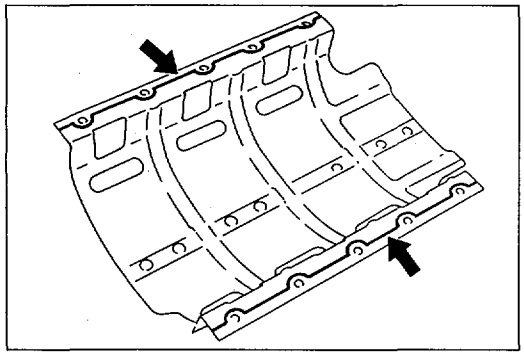
05U0DX-016



05U0DX-017


05U0BX-105


05U0BX-106


25U0DX-003

Removal Note
Engine mount nut
1. Loosen the oil pan mounting bolts.
2. Remove the engine mount nuts.
3. Lift the engine slightly with a hoist.

Crossmember installation bolt and nut
1. Support the crossmember with a transmission jack.
2. Remove the crossmember installation bolts and nuts.

Caution
- **Do not damage the brake hoses, P/S hoses, and A/C hoses when lowering the crossmember.**

Note
- **Lower the crossmember after separating the steering intermediate shaft from the pinion shaft.**

3. Lower the crossmember until the clearance between the oil pan and the steering gear housing exceeds **approx. 100mm (3.94 in)**.

Oil pan
1. Remove the oil pan mounting bolts.

Caution
- **Do not force a prying tool between the cylinder block and the oil pan, which may damage the contact surfaces.**
- **Do not damage or scratch the contact surfaces when removing the old sealant.**

2. Insert a screwdriver or a suitable tool only at the points shown in the figure.
3. Remove the oil pan.

Oil pan baffle

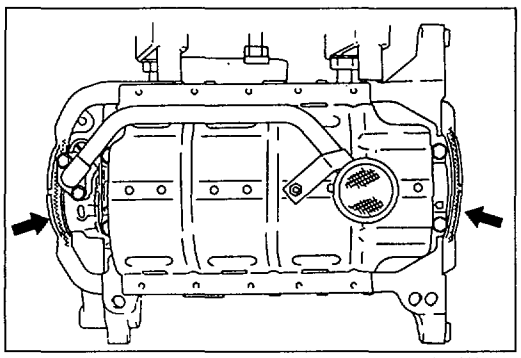
Caution
- **Do not bend the baffle when prying it loose.**

1. Insert a screwdriver or other suitable tool between the cylinder block and the baffle to separate them.
2. Remove the baffle.

Installation Note
Oil pan baffle
1. Remove all foreign material from the contact surfaces.

Caution
- **The oil pan must be secured within 5 minutes after the sealant is applied to the baffle.**

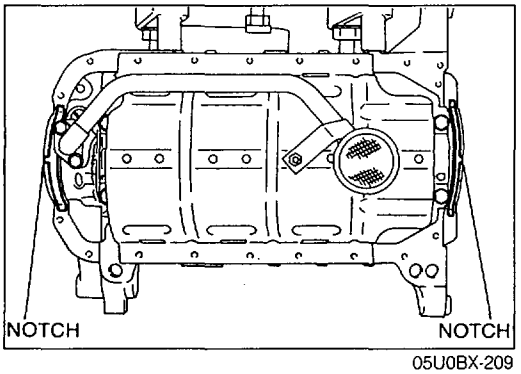
2. Apply a continuous bead of silicone sealant to the baffle along the inside of the bolt holes.
3. Install the baffle.



05U0DX-019

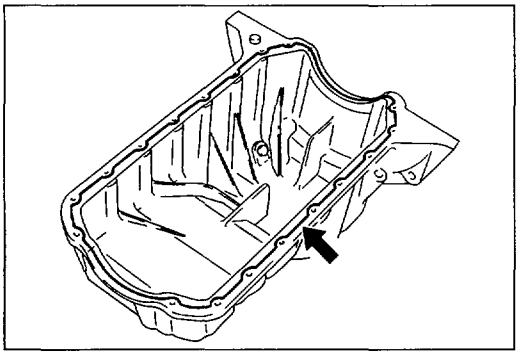
Oil pan

1. Remove all foreign material from the contact surfaces.
2. Apply silicone sealant to the shaded areas shown in the figure.



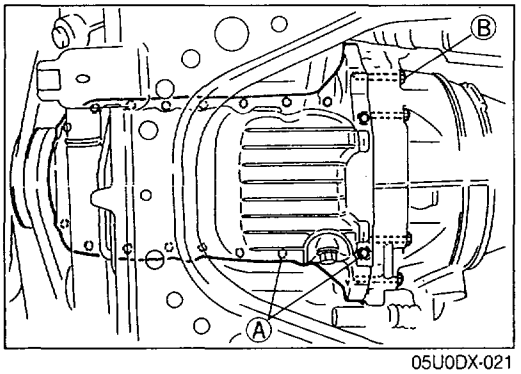
05U0BX-209

3. Install new gaskets onto the oil pump body and the rear cover with the projections in the notches shown in the figure.



05U0DX-020

4. Apply a continuous bead of silicone sealant to the oil pan along the inside of the bolt holes and overlap the ends.



05U0DX-021

5. Install the oil pan.

Tightening torque
Ⓐ: 7.8—11 N·m (80—110 cm-kg, 69—95 in-lb)
Ⓑ: 64—89 N·m (6.5—9.1 m-kg, 47—66 ft-lb)

Steps After Installation

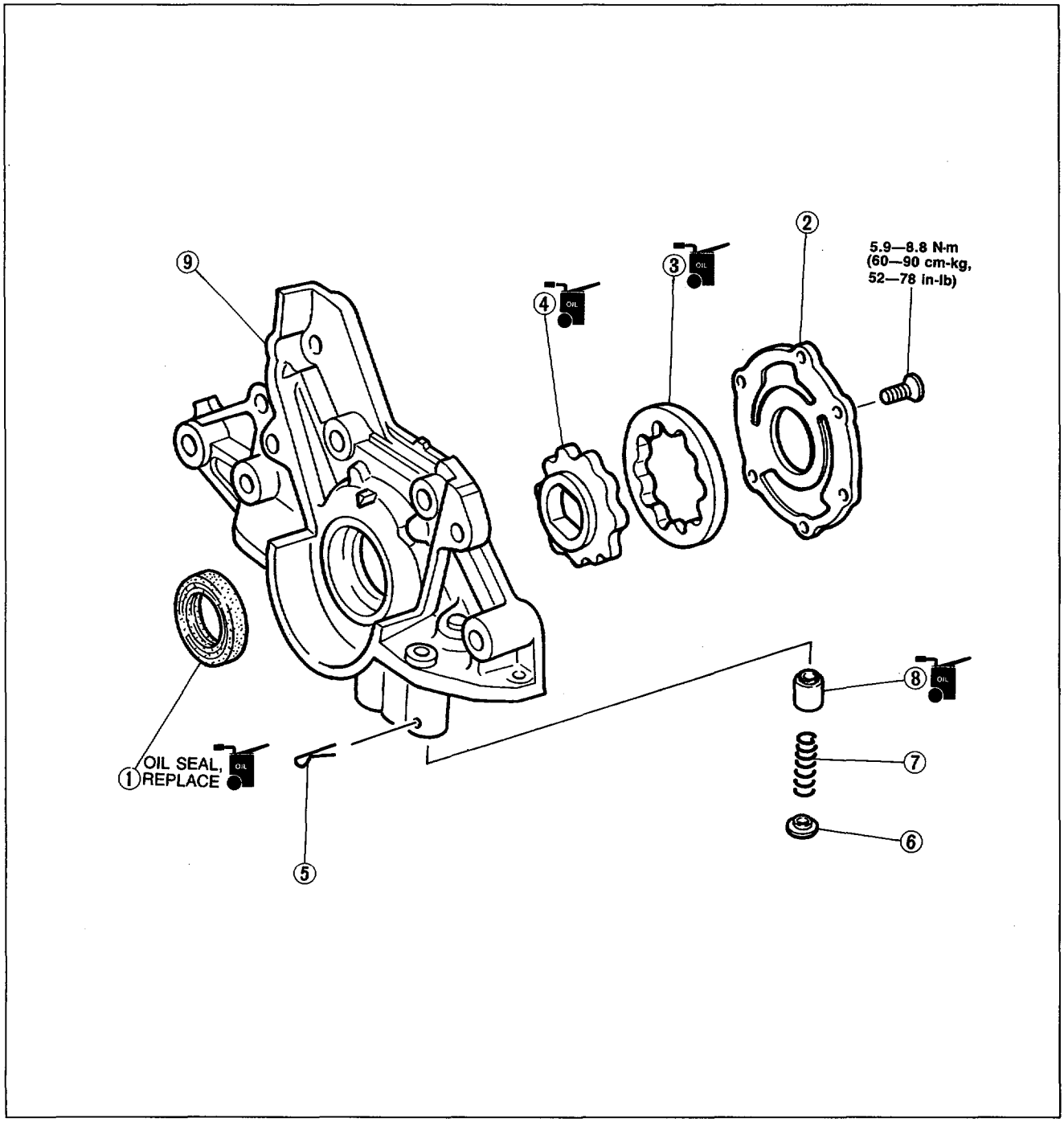
1. Install the under cover.
2. Fill with the specified amount and type of engine oil. (Refer to page D–5.)
3. Connect the negative battery cable.
4. Start the engine and check for leaks.
5. Check the oil level and add oil if necessary.

05U0DX-022

OIL PUMP

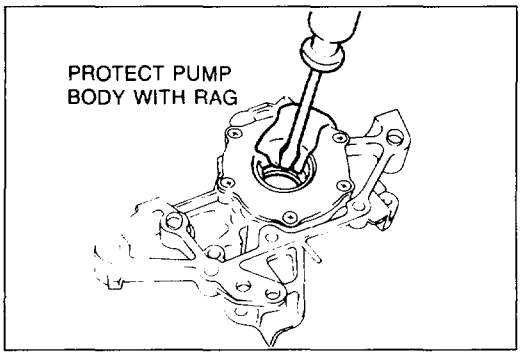
DISASSEMBLY / ASSEMBLY

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



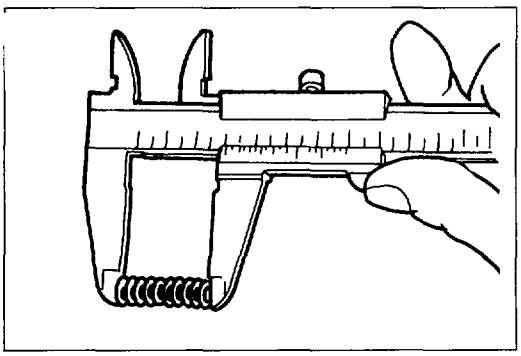
25U0DX-008

1. Oil seal
   Disassembly Note ..... page D–10
   Assembly Note ..... page D–11
2. Pump cover
   Inspect for distortion or damage
3. Outer rotor
4. Inner rotor
5. Roll pin
6. Spring seat
7. Pressure spring
   Inspection ..... page D–10
8. Control plunger
   Inspect for wear or damage
9. Pump body
   Inspect for distortion or damage



05U0DX-030

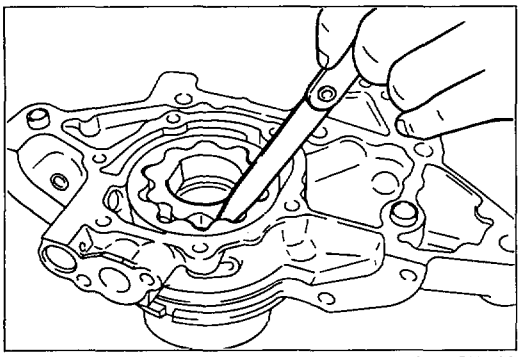
Disassembly Note
Oil seal
1. Remove the oil seal with a screwdriver protected with a rag.



05U0DX-031

INSPECTION
Pressure Spring
1. Inspect the spring for weakness or breakage.
2. Measure the free length. Replace the spring if necessary.

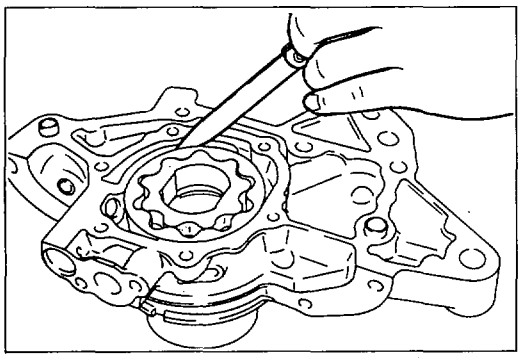
Free length: 45.5mm (1.791 in)



05U0DX-032

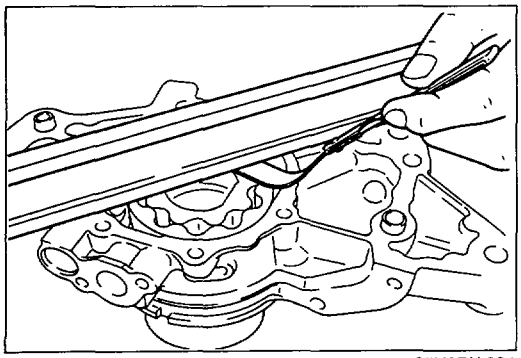
Rotor Clearance
1. Measure the following clearances. Replace the rotor if necessary.

Tooth tip clearance: 0.20mm (0.0079 in) max.



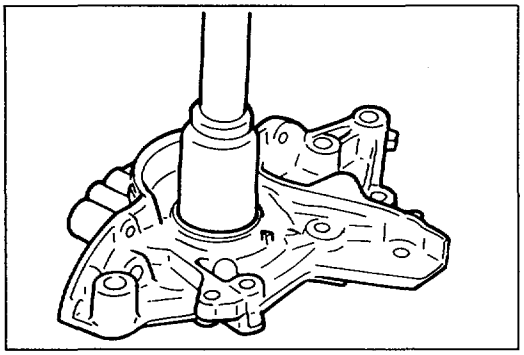
05U0DX-033

Outer rotor to pump body clearance: 0.22mm (0.0087 in) max.



05U0DX-034

Side clearance: 0.14mm (0.0055 in) max.



15U0DX-004

Assembly Note
Oil seal

1. Apply a small amount of clean engine oil to the lip of a new oil seal.
2. Push the oil seal slightly in by hand.

Caution
- **The oil seal must be pressed in until it is flush with the edge of the oil pump body.**

3. Press the oil seal in evenly with a suitable pipe.

Oil seal outer diameter: 44mm (1.73 in)

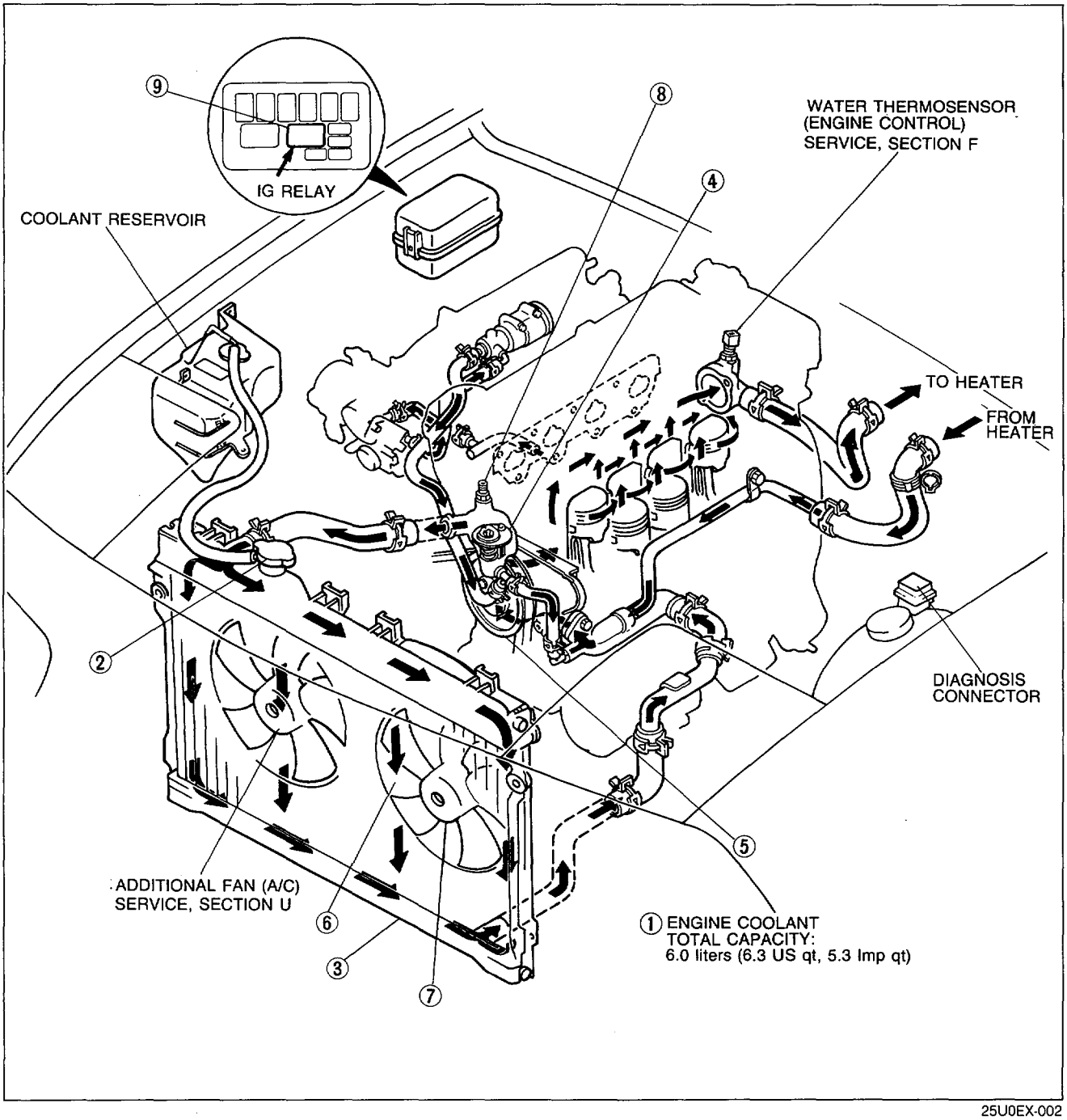
Before beginning any service procedure, refer to Section T of this manual for airbag system warnings and cautions.

COOLING SYSTEM

INDEX ..... **E– 2**
OUTLINE ..... **E– 3**
SPECIFICATIONS ..... **E– 3**
TROUBLESHOOTING GUIDE ..... **E– 3**
ENGINE COOLANT ..... **E– 4**
PREPARATION ..... **E– 4**
INSPECTION ..... **E– 4**
REPLACEMENT ..... **E– 5**
AIR BLEEDING AND REFILLING SYSTEM... **E– 6**
RADIATOR CAP ..... **E– 7**
PREPARATION ..... **E– 7**
INSPECTION ..... **E– 7**
RADIATOR ..... **E– 8**
REMOVAL / INSTALLATION ..... **E– 8**
INSPECTION ..... **E– 8**
THERMOSTAT ..... **E– 9**
REMOVAL / INSTALLATION ..... **E– 9**
INSPECTION ..... **E– 9**
WATER PUMP **E–10**
REMOVAL / INSTALLATION **E–10**
ELECTRIC COOLING FAN SYSTEM **E–12**
SYSTEM CIRCUIT **E–12**
SYSTEM INSPECTION **E–12**
FAN MOTOR **E–13**
INSPECTION **E–13**
REPLACEMENT **E–13**
WATER THERMOSWITCH **E–14**
REMOVAL / INSTALLATION **E–14**
INSPECTION **E–14**
FAN RELAY **E–15**
INSPECTION **E–15**

25U0EX-001

INDEX



25U0EX-002

1. Engine coolant
Inspection ..... page E– 4
Replacement ..... page E– 5
2. Radiator cap
Inspection ..... page E– 7
3. Radiator
Removal / Inspection / Installation ..... page E– 8
4. Thermostat
Removal / Inspection / Installation ..... page E– 9
5. Water pump
Removal / Installation ..... page E–10
6. Electric cooling fan system
System circuit ..... page E–12
System inspection ..... page E–12
7. Fan motor
Inspection ..... page E–13
Replacement ..... page E–13
8. Water thermoswitch
Removal / Inspection / Installation ..... page E–14
9. Fan relay
Inspection ..... page E–15

OUTLINE

SPECIFICATIONS

Item \ Engine			B6 DOHC
Cooling system			Water-cooled, forced circulation
Coolant capacity liters (US qt, Imp qt)			6.0 (6.3, 5.3)
Water pump	Type		Centrifugal
	Water seal		Unified mechanical seal
Thermostat	Type		Wax, two-stage
	Opening temperature °C (°F)		Main: 86.5—89.5 (188—193) Sub : 83.5—86.5 (182—188)
	Full-open temperature °C (°F)		100 (212)
	Full-open lift mm (in)		Main: 8.0 (0.31) min. Sub : 1.5 (0.06) min.
Radiator	Type		Corrugated fin
	Cap valve opening pressure kPa (kg/cm^2, psi)		74—103 (0.75—1.05, 11—15)
Cooling fan	Type		Electric
	Blade	Outer diameter mm (in)	320 (12.6)
		Number	5
	Motor	Capacity W-V	70-12
		Current A	5.3—6.5

05U0EX-003

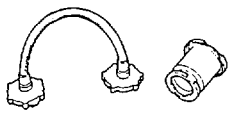
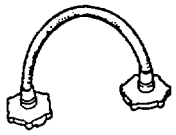
TROUBLESHOOTING GUIDE

Problem	Possible Cause	Remedy	Page
Overheating	Coolant level insufficient	Add	E– 5
	Coolant leakage	Repair	—
	Radiator fins clogged	Clean	E– 8
	Radiator cap malfunction	Replace	E– 7
	Cooling fan malfunction	Replace	E–12
	Thermostat malfunction	Replace	E– 9
	Water passage clogged	Clean	E– 5
	Water pump malfunction	Replace	E–10
Corrosion	Impurities in coolant	Replace	E– 5

25U0EX-003

ENGINE COOLANT

PREPARATION
SST

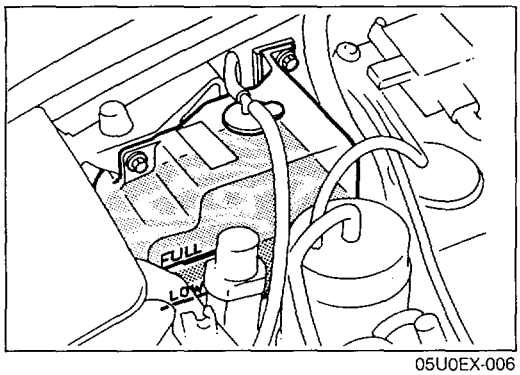
49 9200 145 Adapter set, radiator cap tester 	For inspection of cooling system pressure	49 9200 146 Adapter A (Part of 49 9200 145) 	For inspection of cooling system pressure

05U0EX-005

INSPECTION

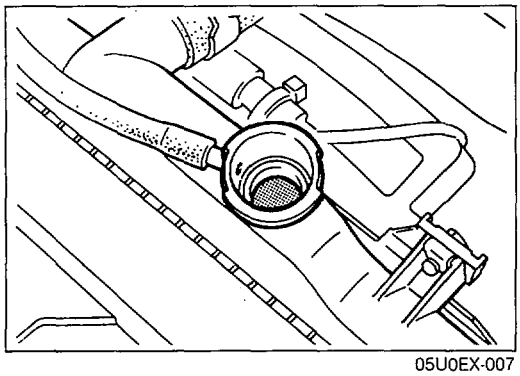
Warning
- **Never remove the radiator cap while the engine is hot.**
- **Wrap a thick cloth around the cap when removing it.**
- **When removing the radiator cap, loosen it slowly to the first stop until the pressure in the radiator is released, and then remove it.**

05U0EX-033



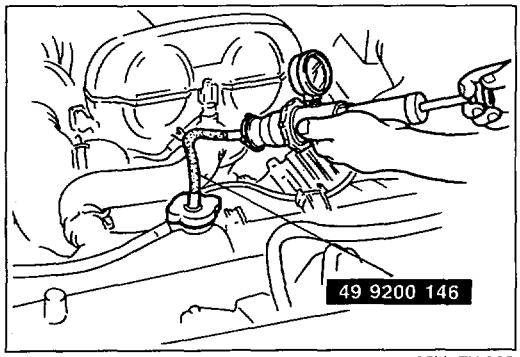
05U0EX-006

Coolant Level (Engine cold)
1. Verify that the coolant level is near the radiator filler neck.
2. Verify that the coolant level in the coolant reservoir is between the FULL and LOW marks. Add coolant if necessary.



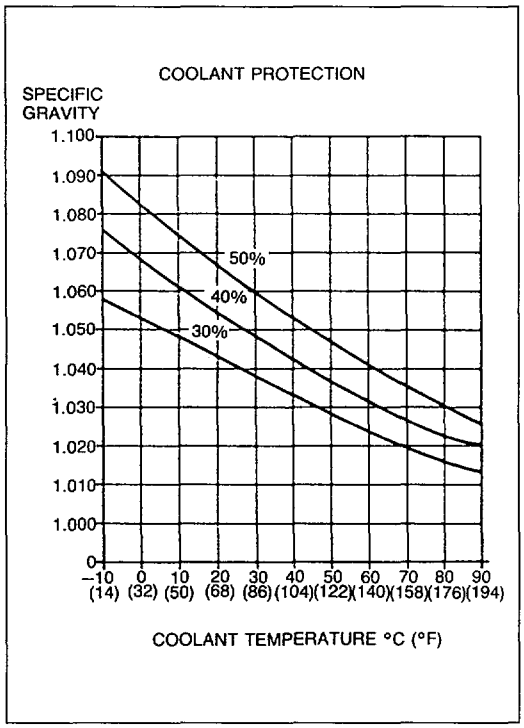
05U0EX-007

Coolant Quality
1. Verify that there is no buildup of rust or scale around the radiator cap or radiator filler neck.
2. Verify that coolant is free of oil.
   Replace the coolant if necessary.

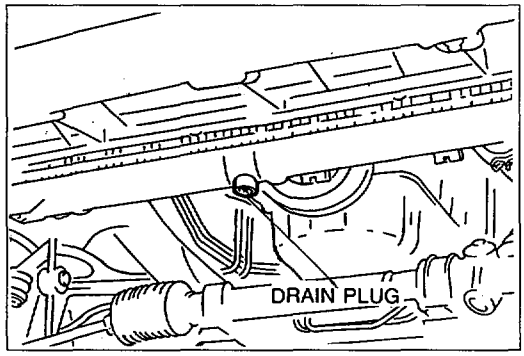


05U0EX-008

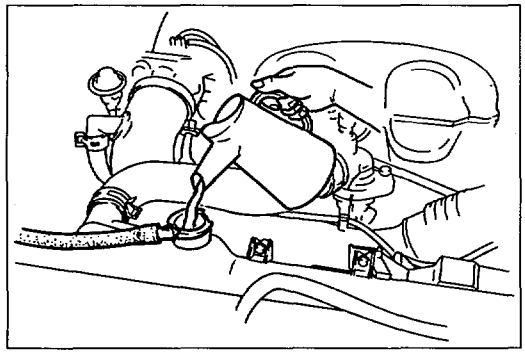
Coolant Leakage
1. Connect a radiator tester (commercially available) and the **SST** to the radiator filler neck.
2. Apply **103 kPa (1.05 kg/cm^2, 15 psi)** pressure to the system.
3. Verify that the pressure is held.
   If not, check for coolant leakage.



05U0EX-009



05U0EX-011



05U0EX-012

Coolant Protection

Caution
- **Do not use alcohol- or methanol-based coolant.**
- **Use only soft (demineralized) water in the coolant mixture.**

1. Measure the coolant temperature and specific gravity with a thermometer and a hydrometer.
2. Determine the coolant protection by referring to the graph shown.
   If the coolant protection is not proper, add water or coolant.

E

Antifreeze solution mixture percentage

Coolant protection	Volume percentage		Gravity at 20°C (68°F)
	Water	Coolant	
Above −16°C (3°F)	65	35	1.054
Above −26°C (−15°F)	55	45	1.066
Above −40°C (−40°F)	45	55	1.078

05U0EX-010

REPLACEMENT

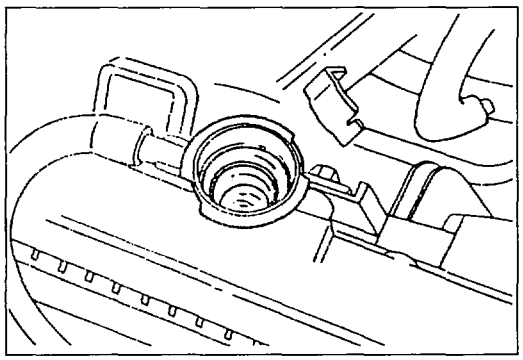
Warning
- **Never open the radiator cap while the engine is hot.**
- **Wrap a thick cloth around the cap when loosening.**
- **Use caution when draining hot coolant.**

Caution
- **Do not use alcohol- or methanol-based coolant.**
- **Use only soft (demineralized) water in the coolant mixture.**

1. Remove the radiator cap and loosen the drain plug.
2. Drain the coolant into a suitable container.
3. Flush the cooling system with water until all traces of color are gone, then let the system drain completely.
4. Install the drain plug.
5. Fill with the proper amount and mixture of ethylene glycol-based coolant by referring to the table above.

Coolant capacity: 6.0 liters (6.3 US qt, 5.3 Imp qt)

6. Run the engine, with the radiator cap removed, until the upper radiator hose is hot.
7. With the engine idling, add coolant to the radiator until it reaches the bottom of the filler neck.
8. Install the radiator cap.


25U0EX-004

AIR BLEEDING AND REFILLING SYSTEM

When the coolant is drained, bleed the cooling system after refilling it.

1. Slowly pour the coolant into the radiator up to the coolant filler port.
2. Fill the coolant reservoir up to the FULL level.
3. Install the radiator cap securely and start the engine.
4. Run the engine at idle speed until it reaches normal operating temperature.

Caution

- **If the temperature increase beyond normal, there is excessive air in the system.**
  Stop the engine, allow the engine to cool, and repeat Steps 1—3.

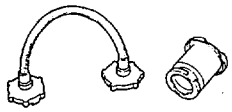
5. Run the engine above idle several times as specified.

   Speed: 2,200—2,800 rpm ×5 sec.

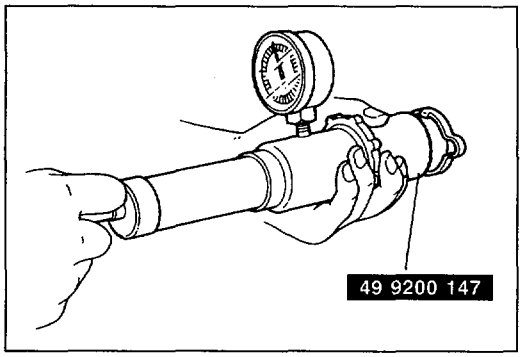
6. Stop the engine and wait till the system is cooled down. Remove the radiator cap and check the coolant level. If the coolant level has dropped, repeat the operation from Step 1.

RADIATOR CAP

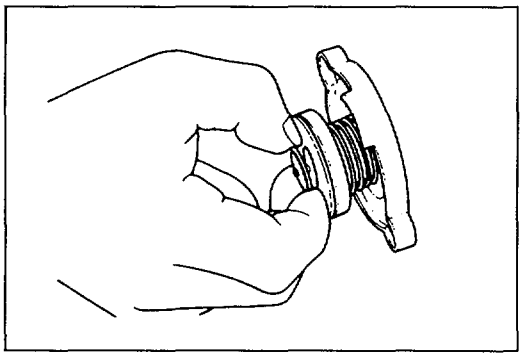
PREPARATION
SST

49 9200 145 Adapter set, radiator cap tester 	For inspection of radiator cap valve	49 9200 147 Adapter B (Part of 49 9200 145)	For inspection of radiator cap valve

05U0EX-014



05U0EX-015



05U0EX-013

INSPECTION
Radiator Cap Valve
1. Remove foreign material (such as water residue) from between the radiator cap valve and the valve seat.
2. Attach the radiator cap to a radiator cap tester (commercially available) with the **SST**. Apply pressure gradually to **74—103 kPa (0.75—1.05 kg/cm^2, 11—15 psi)**.
3. Wait about **10 seconds**. Verify that the pressure has not decreased.

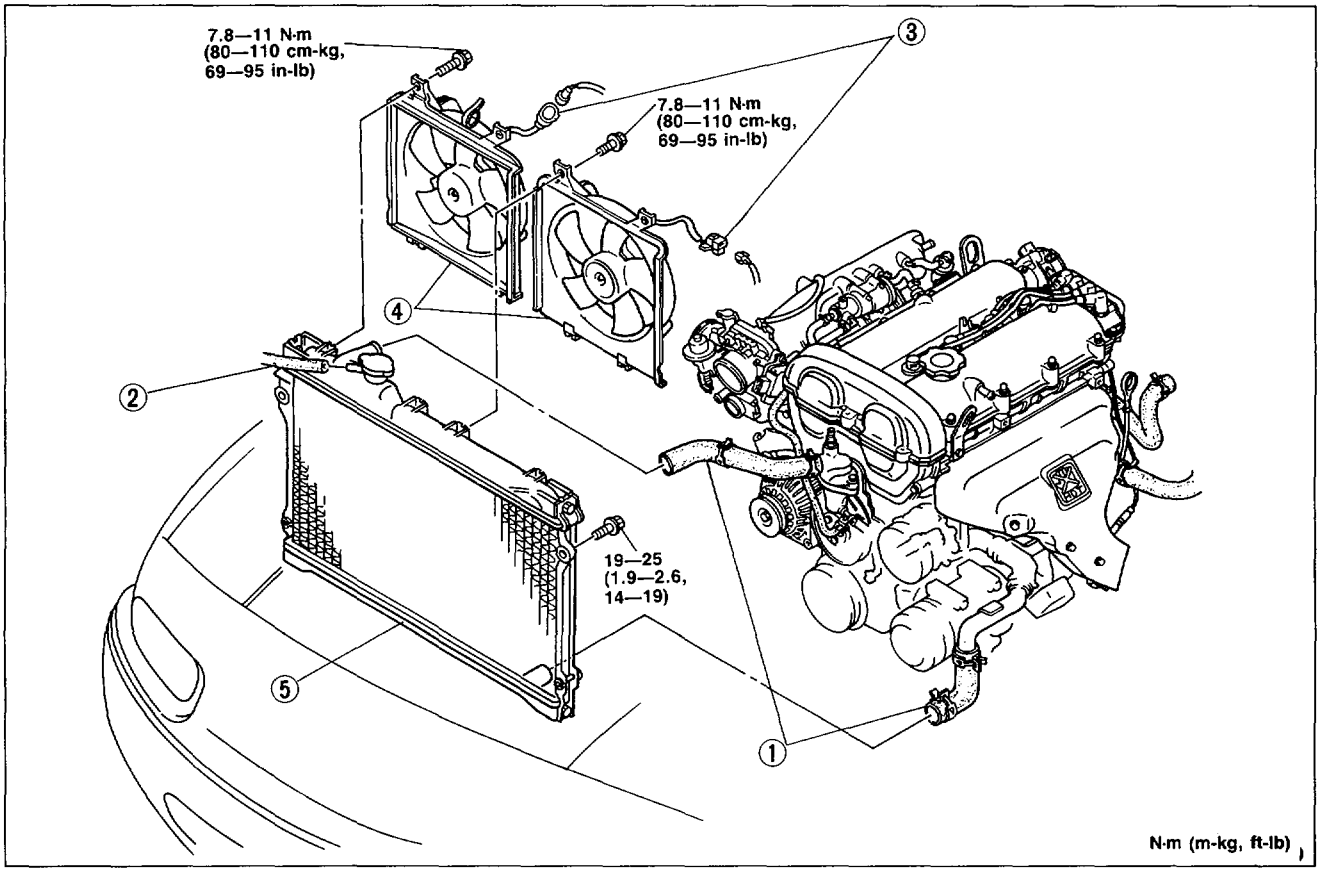
Negative Pressure Valve
1. Pull the negative pressure valve to open it. Verify that it closes completely when released.
2. Check for damage on the contact surfaces and for cracked or deformed seal packing.
3. Replace the radiator cap if necessary.

RADIATOR

REMOVAL / INSTALLATION

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to Section T.)**
- **Position the hose clamp in the original location on the hose, and squeeze the clamp lightly with large pliers to ensure a good fit.**

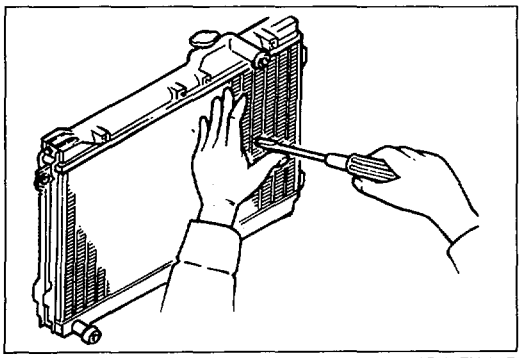
1. Disconnect the negative battery cable.
2. Drain the engine coolant.
3. Remove the under cover.
4. Remove in the order shown in the figure.
5. Install in the reverse order of removal.



25U0EX-005

1. Radiator hose
2. Coolant reservoir hose
3. Cooling fan connector
4. Cooling fan and additional fan
5. Radiator

Inspection ..... page E–8



05U0EX-017

INSPECTION

Check for the following and repair or replace as necessary.
1. Cracks, damage, and water leakage.
2. Bent fins (repair with a screwdriver).
3. Distorted or bent radiator inlet.

Steps After Installation

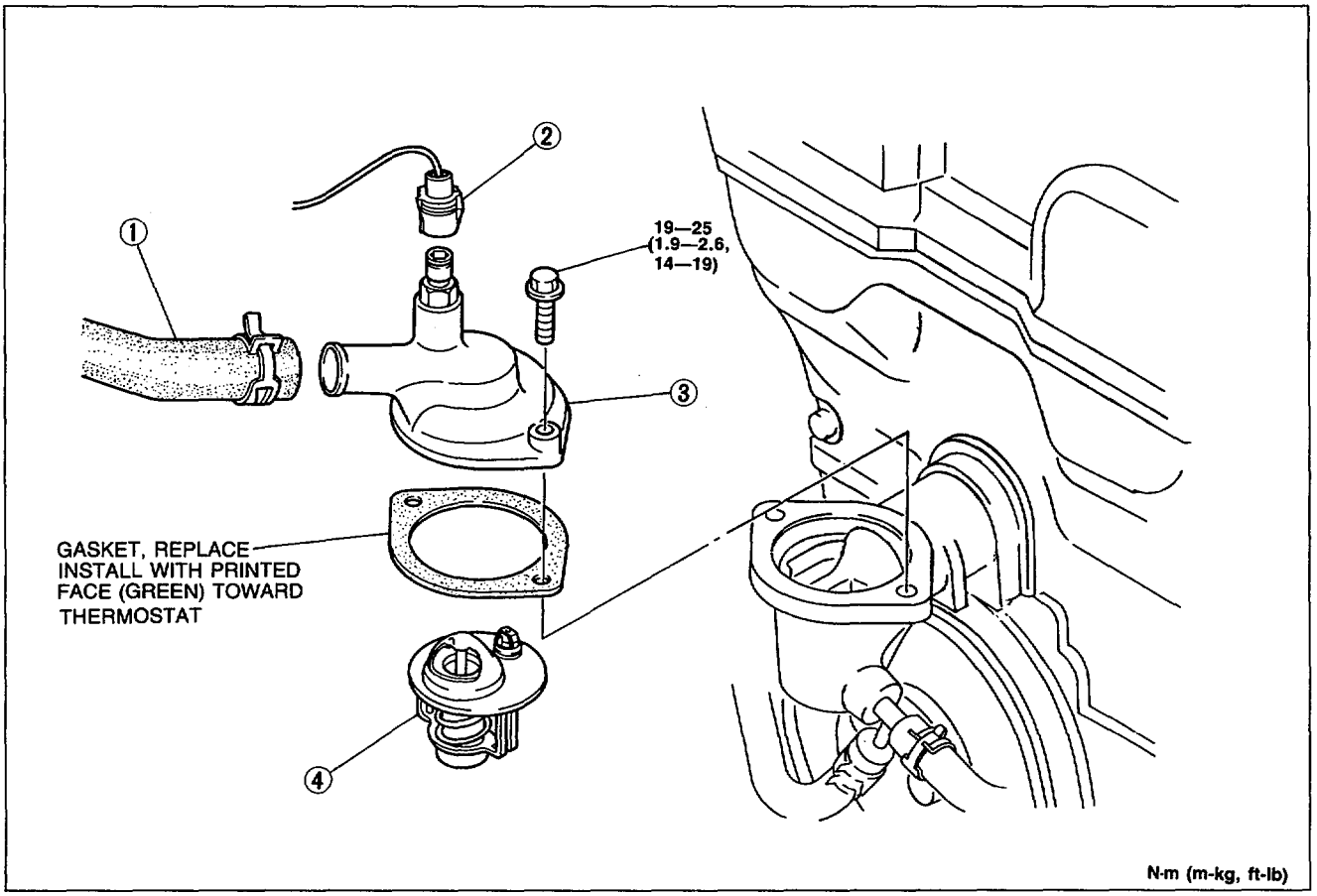
1. Install the under cover.
2. Fill the radiator with the specified amount and type of engine coolant. (Refer to page E–5.)
3. Connect the negative battery cable.
4. Start the engine and check for leaks.

THERMOSTAT

REMOVAL / INSTALLATION

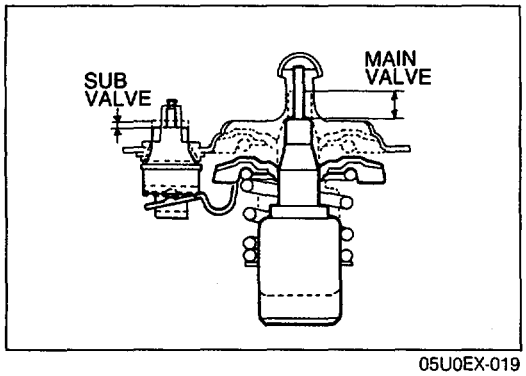
Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to Section T.)**
- **Position the hose clamp in the original location on the hose, and squeeze the clamp lightly with large pliers to ensure a good fit.**

1. Disconnect the negative battery cable.
2. Drain the engine coolant.
3. Remove in the order shown in the figure.
4. Install in the reverse order of removal.



25U0EX-006

1. Radiator hose, upper
2. Water thermoswitch connector
3. Thermostat cover
4. Thermostat
   Inspection ..... page E–9



05U0EX-019

INSPECTION

1. Visually check that the thermostat valve is airtight.
2. Place the thermostat and a thermometer in water.
3. Heat the water and check the following:

Initial-opening temperature
Main: 86.5—89.5°C (188—193°F)
Sub : 83.5—86.5°C (182—188°F)
Full-open temperature: 100°C (212°F)
Full-open lift
Main: 8.0mm (0.31 in) min.
Sub : 1.5mm (0.06 in) min.

Steps After Installation
1. Fill the radiator with the specified amount and type of engine coolant. (Refer to page E–5.)
2. Connect the negative battery cable.
3. Start the engine and check for leaks.

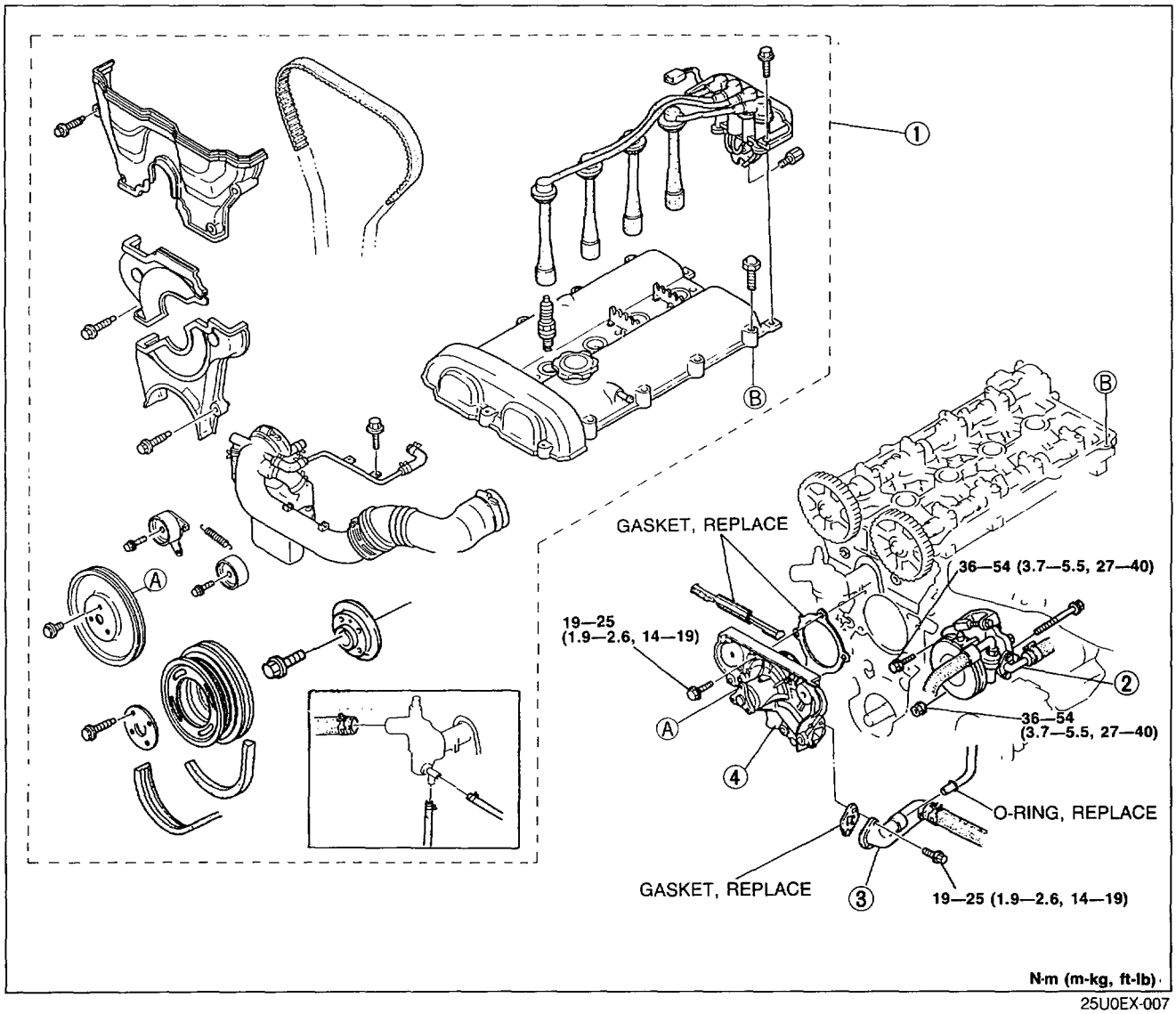
05U0EX-020

WATER PUMP

REMOVAL / INSTALLATION

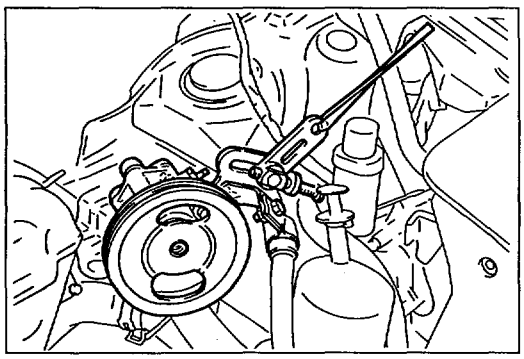
Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to Section T.)**
- **Do not disassemble the water pump. If a problem is found, replace the pump as a unit.**

1. Disconnect the negative battery cable.
2. Drain the engine coolant.
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Install in the reverse order of removal.



25U0EX-007

1. Timing belt
   Service ..... Section B
2. P/S oil pump
   Removal Note..... page E–11
3. Water inlet pipe
4. Water pump
   Inspect for cracks, damaged mounting surface, bearing condition, and leakage



05U0EX-022

Removal Note
P/S oil pump

Caution
- **Do not damage the hoses.**

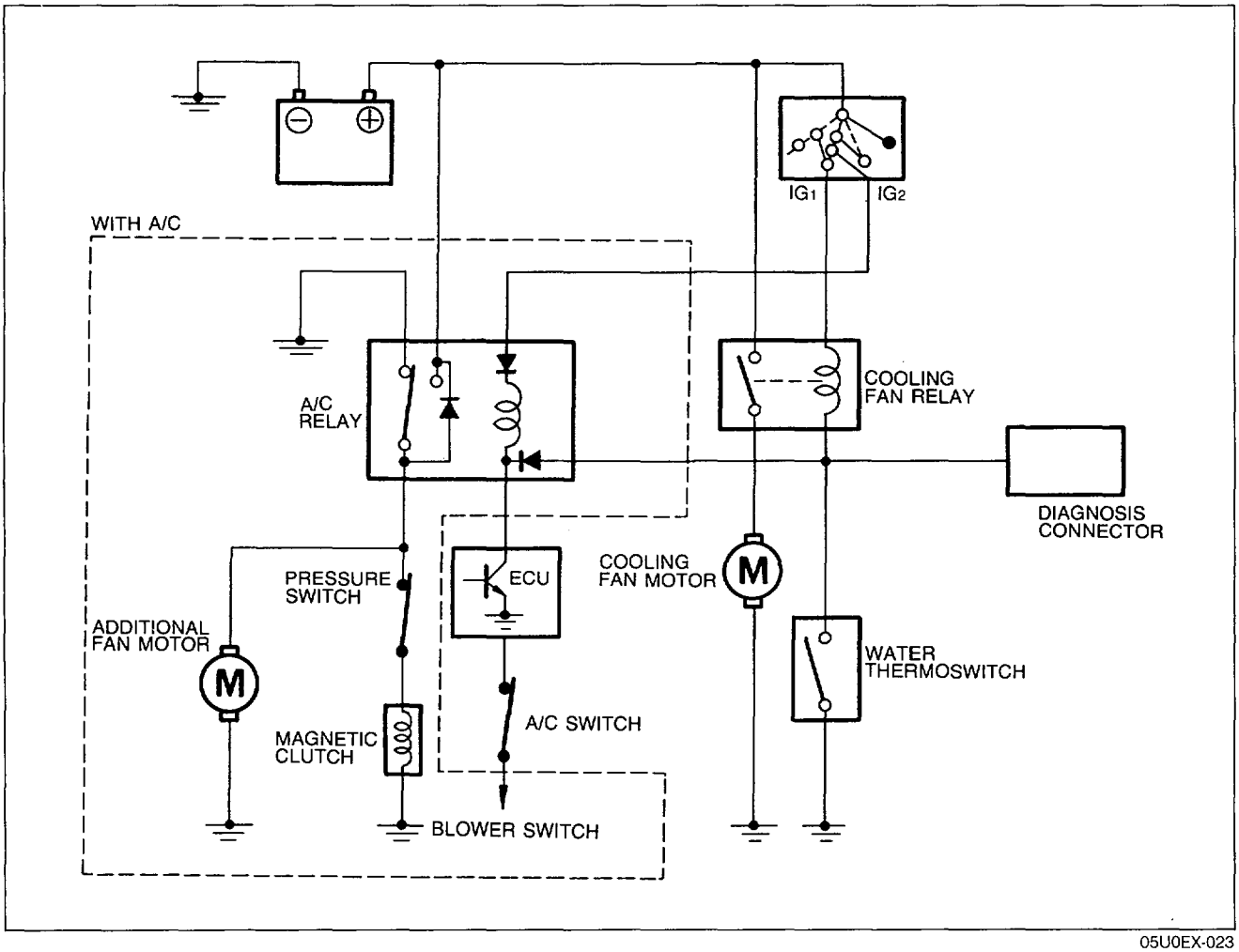
1. Remove the P/S oil pump with the hoses still connected.
2. Position the pump away from the engine and affix it with wire.

Steps After Installation
1. Fill the radiator with the specified amount and type of engine coolant. (Refer to page E–5.)
2. Connect the negative battery cable.
3. Start the engine and check for leaks.

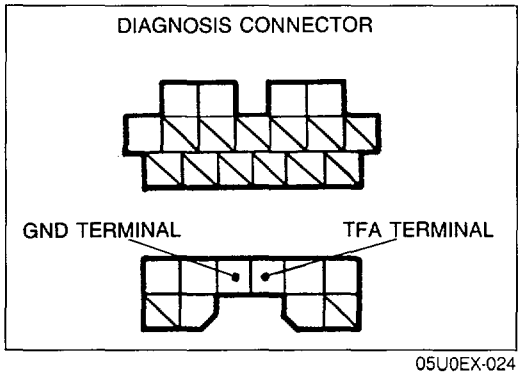
05U0EX-020

ELECTRIC COOLING FAN SYSTEM

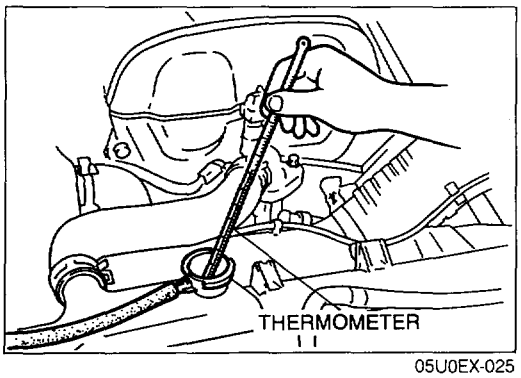
SYSTEM CIRCUIT



05U0EX-023



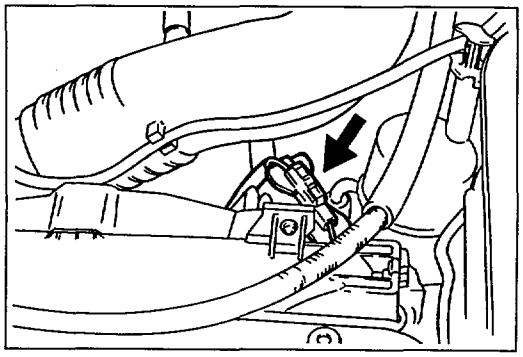
05U0EX-024

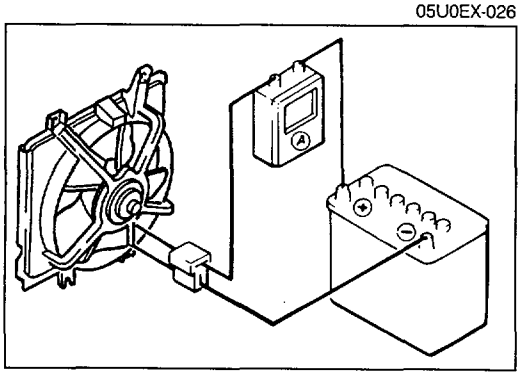


05U0EX-025

SYSTEM INSPECTION

1. Jump across the fan test (TFA) terminal and the ground (GND) terminal of the diagnosis connector.
2. Turn the ignition switch ON and verify that the fan operates. If the fan does not operate, inspect the cooling fan system components and wire harness.
3. Remove the radiator cap and place a thermometer in the radiator filler neck.
4. Start the engine.
5. Verify that the fan operates when the coolant temperature reaches **approx. 97°C (207°F)**.
   If the fan does not operate, check the water thermoswitch. (Refer to page E–14.)


05U0EX-026


05U0EX-027

FAN MOTOR

INSPECTION

1. Check that the battery is fully charged.
2. Disconnect the fan motor connector.
3. Connect the battery and an ammeter to the fan motor connector.
4. Verify that current is as specified.

   Current: 5.3—6.5A

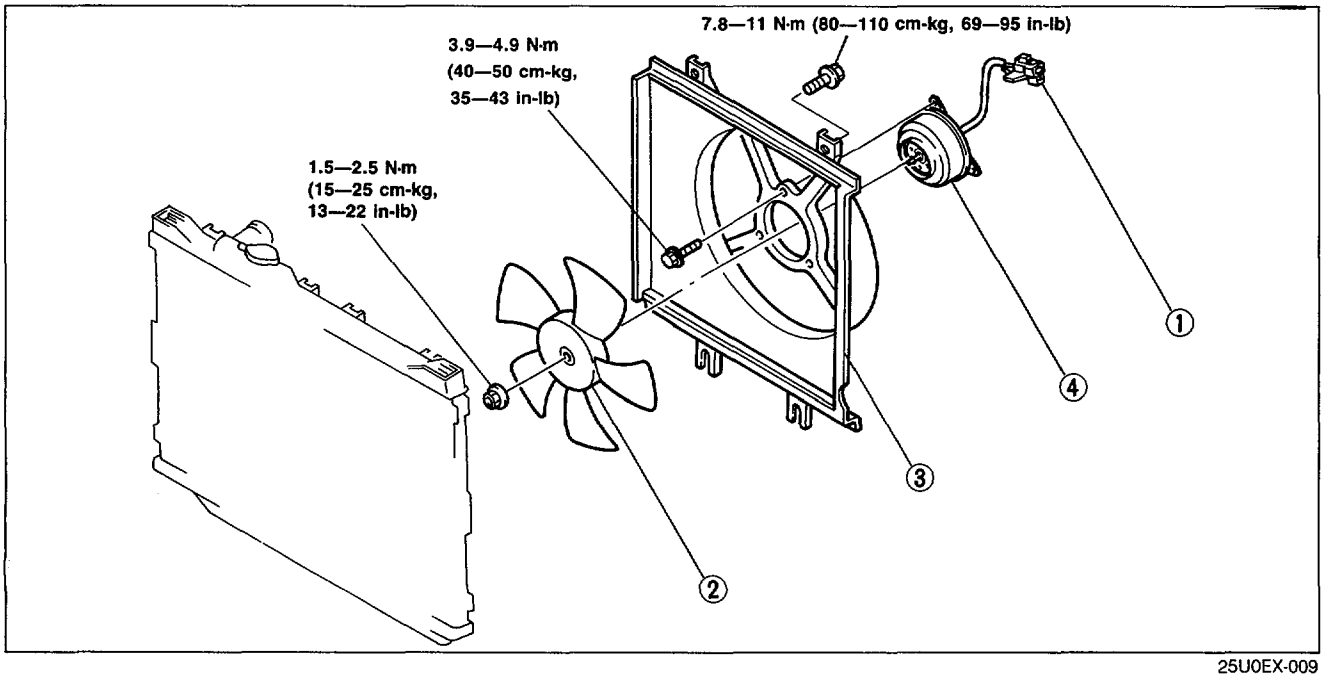
5. If current is not within specification and/or the fan does not turn smoothly, replace the fan motor.

REPLACEMENT

Caution

- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to Section T.)**

1. Disconnect the negative battery cable.
2. Drain the engine coolant.
3. Remove in the order shown in the figure.
4. Install in the reverse order of removal.



25U0EX-009

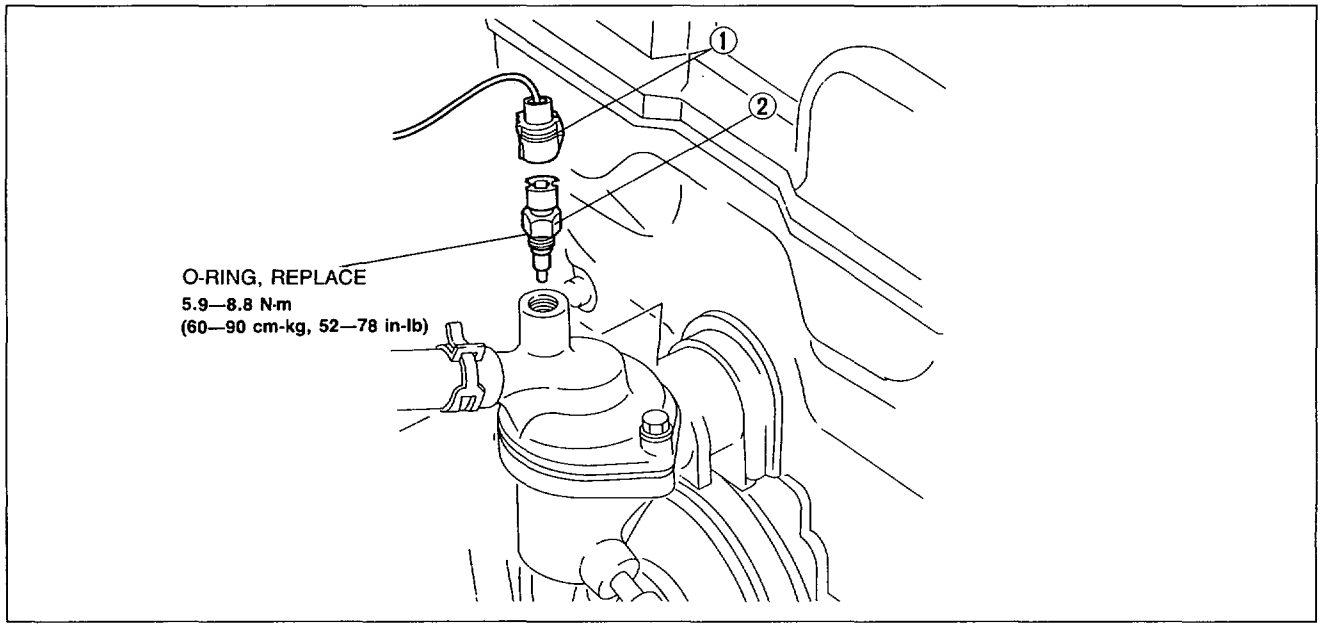
1. Cooling fan connector
2. Cooling fan
3. Radiator cowling
4. Fan motor

WATER THERMOSWITCH

REMOVAL / INSTALLATION

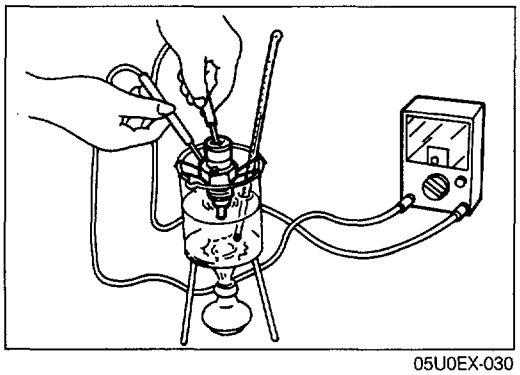
Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to Section T.)**

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal, referring to **Installation Note**.

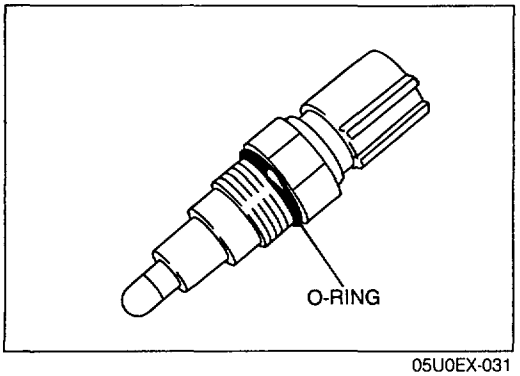


25U0EX-010

1. Water thermoswitch connector
2. Water thermoswitch
   Inspection ..... page E–14
   Installation Note ..... page E–14



05U0EX-030



05U0EX-031

INSPECTION

1. Place the switch and a thermometer in water.
2. Heat the water gradually and check continuity of the switch with an ohmmeter.

Coolant temperature °C (°F)	Continuity
More than 97 (207)	Yes
Less than 90 (194)	No

3. If not as specified, replace the water thermoswitch.

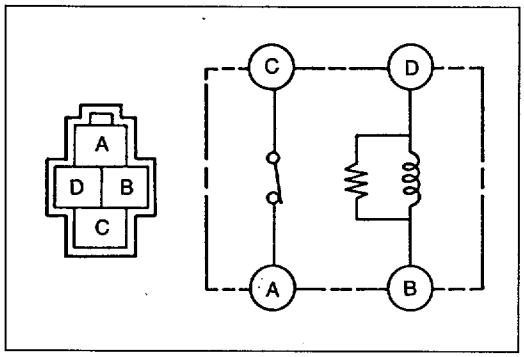
Installation Note
Water thermoswitch

1. Apply a small amount of engine coolant to the new O-ring.

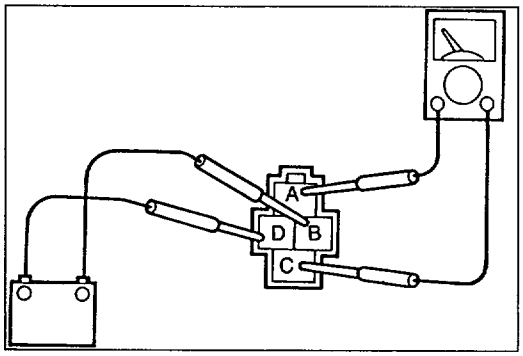
Caution
- **Do not use an impact wrench for installation.**

2. Install the water thermoswitch.

Tightening torque:
5.9—8.8 N·m (60—90 cm-kg, 52—78 in-lb)



05U0EX-032



05U0EX-034

FAN RELAY

INSPECTION

1. Check continuity as shown with an ohmmeter.

Terminal	Continuity
A—C	No
B—D	Yes

2. Apply battery voltage between terminals B and D. Check for continuity between terminals A and C.
3. If not as specified, replace the fan relay.

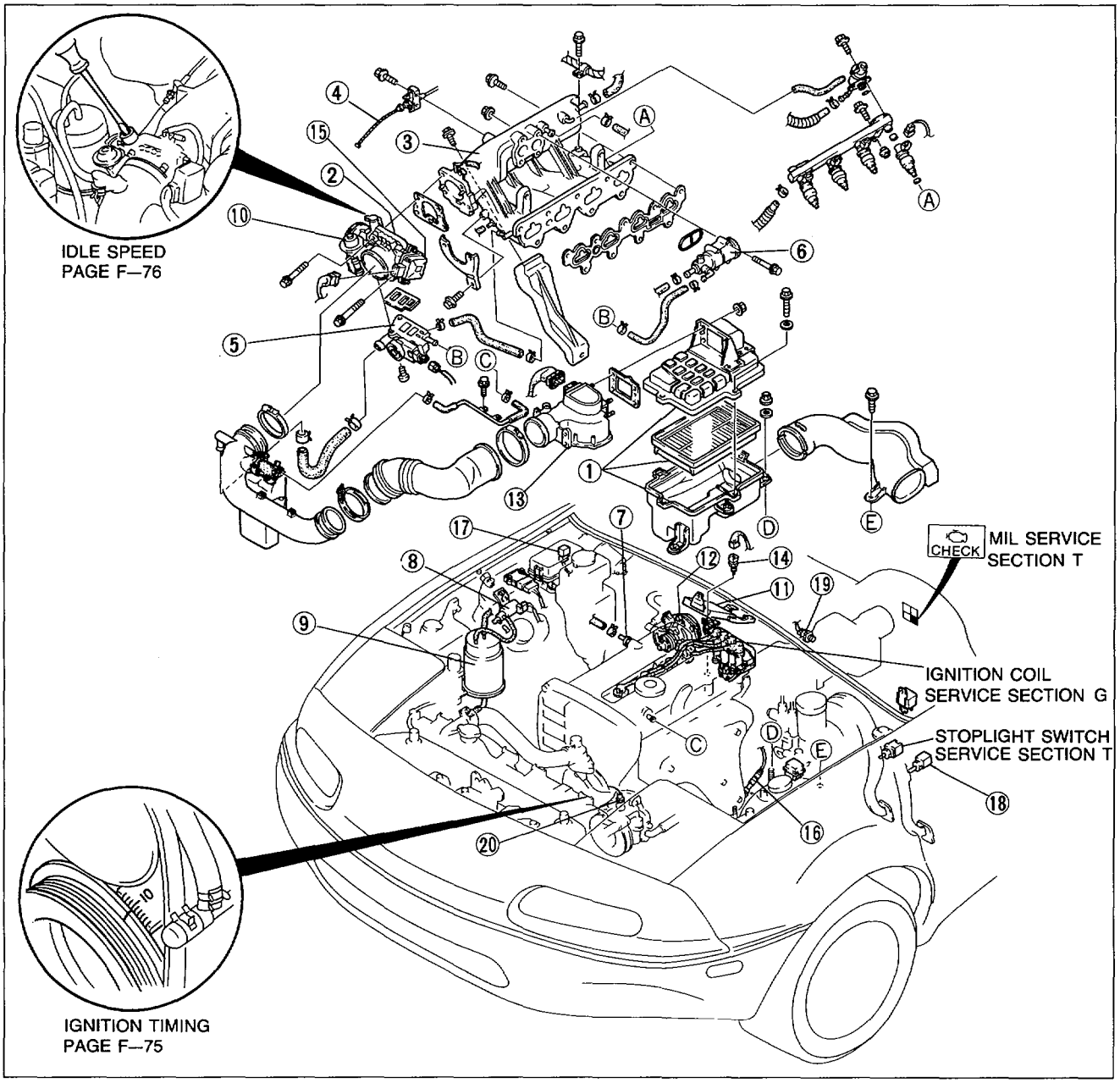
Before beginning any service procedure, refer to Section T of this manual for airbag system warnings and cautions.

FUEL AND EMISSION CONTROL SYSTEMS

INDEX ..... F- 2
OUTLINE ..... F- 5
SYSTEM DIAGRAM ..... F- 5
VACUUM HOSE ROUTING DIAGRAM ..... F- 6
WIRING DIAGRAM ..... F- 7
SPECIFICATIONS ..... F- 9
COMPONENT DESCRIPTIONS ..... F- 10
TROUBLESHOOTING GUIDE ..... F- 12
ENGINE CONTROL OPERATION CHART ..... F- 12
RELATIONSHIP CHART ..... F- 15
USING THIS SECTION ..... F- 16
DIAGNOSTIC INDEX ..... F- 18
PRECAUTION ..... F- 19
SYMPTOM TROUBLESHOOTING ..... F- 20
ENGINE TUNE-UP ..... F- 74
PREPARATION ..... F- 74
BASIC INSPECTION ..... F- 74
ADJUSTMENT ..... F- 75
SELF-DIAGNOSIS FUNCTION ..... F- 77
DESCRIPTION ..... F- 77
PREPARATION ..... F- 78
MALFUNCTION CODE NUMBER ..... F- 78
SWITCH MONITOR FUNCTION ..... F- 89
INTAKE AIR SYSTEM ..... F- 92
COMPONENTS ..... F- 92
SYSTEM OPERATION ..... F- 93
THROTTLE BODY ..... F- 94
INTAKE MANIFOLD ..... F- 95
ACCELERATOR PEDAL AND CABLE ..... F- 96
IDLE SPEED CONTROL (ISC) SYSTEM ..... F- 97
DESCRIPTION ..... F- 97
PREPARATION ..... F- 98
SYSTEM OPERATION ..... F- 98
AIR VALVE ..... F- 98
ISC VALVE ..... F- 99
FUEL SYSTEM F-100
DESCRIPTION F-100
PRECAUTION F-101
SYSTEM OPERATION F-102
FUEL TANK F-104
FUEL FILTER F-106
FUEL PUMP F-107
CIRCUIT OPENING RELAY F-110
PRESSURE REGULATOR F-111
INJECTOR F-112
EXHAUST SYSTEM F-115
COMPONENTS F-115
OUTLINE OF EMISSION CONTROL SYSTEM F-116
STRUCTURAL VIEW F-116
POSITIVE CRANKCASE VENTILATION (PCV) SYSTEM F-117
DESCRIPTION F-117
PCV VALVE F-117
EVAPORATIVE EMISSION CONTROL SYSTEM F-118
DESCRIPTION F-118
SOLENOID VALVE (PURGE CONTROL) F-119
TWO-WAY CHECK VALVE F-119
THREE-WAY CHECK VALVE (4A/T) F-119
FUEL VAPOR VALVE F-120
CHARCOAL CANISTER F-120
DECELERATION CONTROL SYSTEM F-121
DESCRIPTION F-121
DASHPOT F-121
CATALYTIC CONVERTER SYSTEM . F-122
DESCRIPTION F-122
CATALYTIC CONVERTER F-122
A/C CUT-OFF CONTROL SYSTEM ... F-123
DESCRIPTION F-123
DECHOKE CONTROL SYSTEM F-124
DESCRIPTION F-124
CONTROL SYSTEM F-125
PREPARATION F-125
STRUCTURAL VIEW F-126
ENGINE CONTROL UNIT F-127
CRANK ANGLE SENSOR F-134
AIRFLOW METER F-135
WATER THERMOSENSOR F-136
THROTTLE SENSOR (M/T) F-136
THROTTLE SENSOR (4A/T) F-138
OXYGEN SENSOR F-139
MAIN RELAY (FUEL INJECTOR RELAY) F-140
CLUTCH SWITCH F-140
NEUTRAL SWITCH F-141
P/S PRESSURE SWITCH F-141

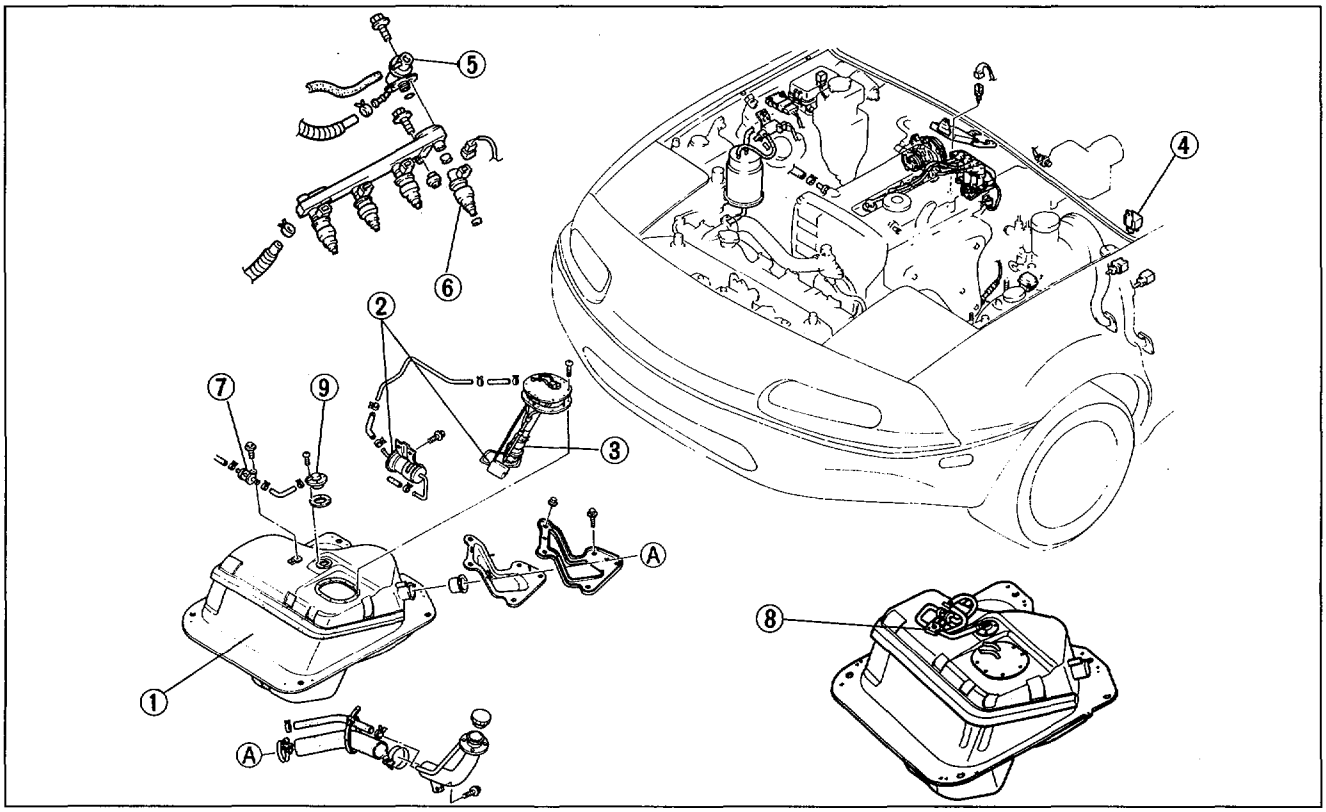
25U0FX-001

INDEX



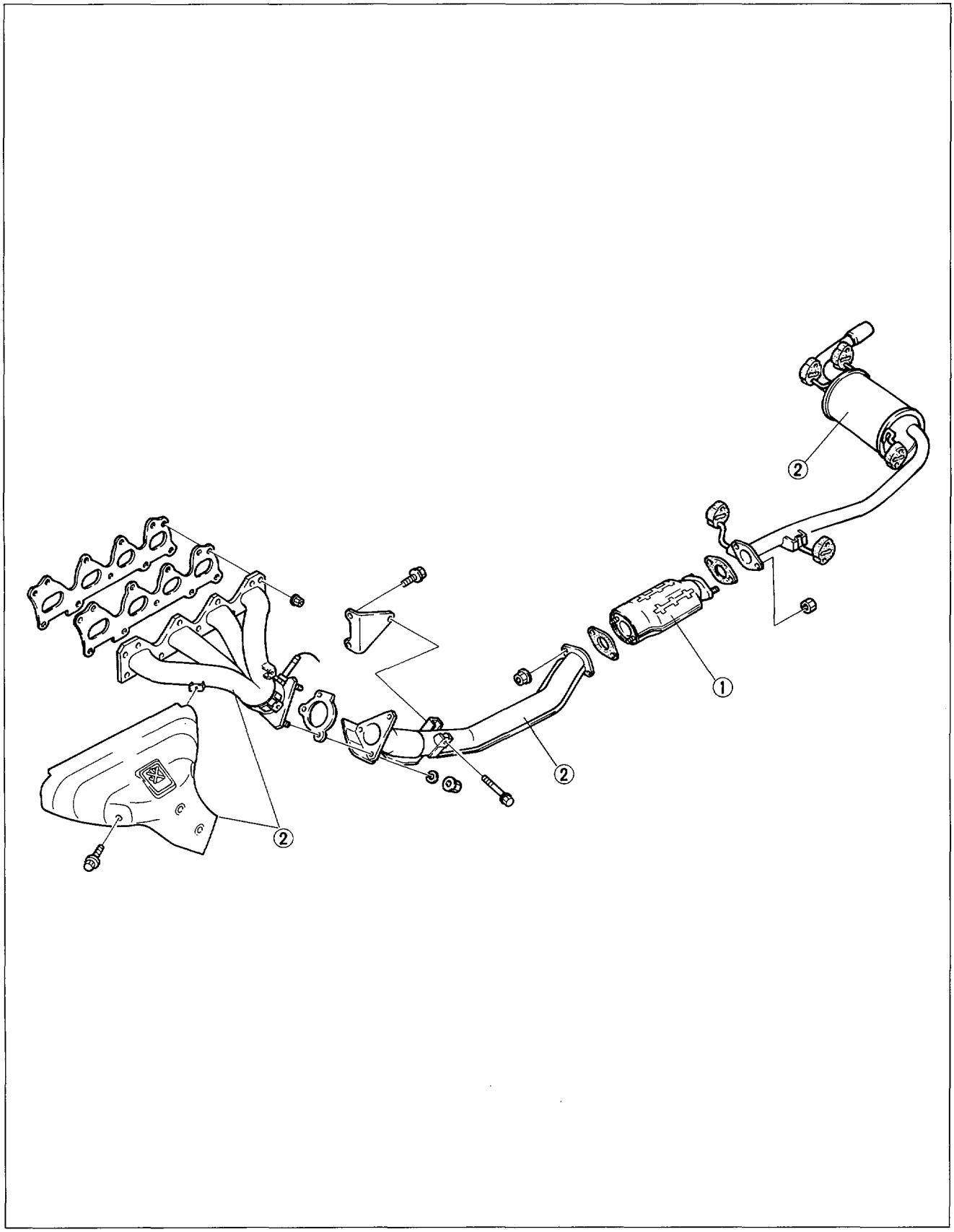
1. Air cleaner
Removal / Inspection / Installation ..... page F– 92
2. Throttle body
Removal ..... page F– 94
Inspection ..... page F– 94
Installation ..... page F– 94
3. Intake manifold
Removal ..... page F– 95
Installation ..... page F– 95
4. Accelerator pedal and cable
Inspection ..... page F– 96
Replacement ..... page F– 96
5. ISC valve
Inspection ..... page F– 99
Replacement ..... page F– 99
6. Air valve
Removal ..... page F– 98
Inspection ..... page F– 99
Installation ..... page F– 99
7. PCV valve
Inspection ..... page F–117
8. Solenoid valve (Purge control)
Inspection ..... page F–119
9. Charcoal canister
Inspection ..... page F–120
10. Dashpot
Inspection ..... page F–121
11. Engine control unit
Inspection ..... page F–127

12. Crank angle sensor
Removal ..... page F–134
Inspection ..... page F–134
Installation ..... page F–134
13. Airflow meter
Inspection ..... page F–135
14. Water thermosensor
Removal ..... page F–136
Inspection ..... page F–136
Installation ..... page F–136
15. Throttle sensor (M/T)
Inspection ..... page F–136
Adjustment ..... page F–137
Replacement ..... page F–137
Throttle sensor (4A/T)
Inspection ..... page F–138
Adjustment ..... page F–138
Replacement ..... page F–138
16. Oxygen sensor
Inspection ..... page F–139
Replacement ..... page F–140
17. Main relay (Fuel INJ relay)
Inspection ..... page F–140
18. Clutch switch
Inspection ..... page F–140
Replacement ..... page F–140
19. Neutral switch
Inspection ..... page F–141
Replacement ..... page F–141
20. Power steering pressure switch
Inspection ..... page F–141
Replacement ..... page F–141



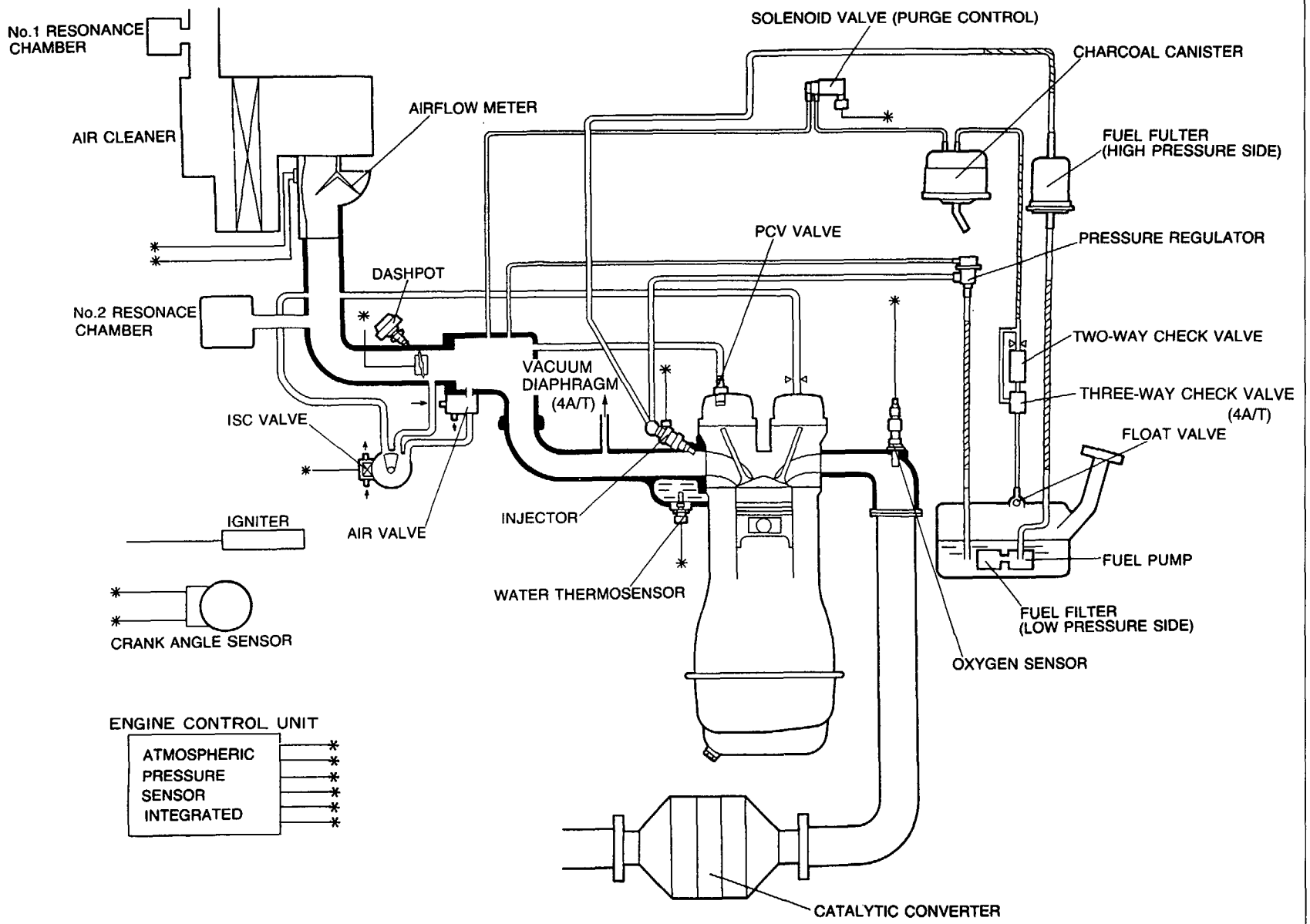
25U0FX-002

1. Fuel tank
Removal / Inspection / Installation ..... page F–104
2. Fuel filter
Replacement ..... page F–106
3. Fuel pump
Inspection ..... page F–107
Replacement ..... page F–108
4. Circuit opening relay
Inspection ..... page F–110
Replacement ..... page F–110
5. Pressure regulator
Inspection ..... page F–111
Replacement ..... page F–112
6. Injector
Inspection ..... page F–112
Removal ..... page F–112
Installation ..... page F–114
7. Two-way check valve
Inspection ..... page F–119
8. Three-way check valve (4A/T)
Inspection ..... page F–119
9. Fuel vapor valve
Inspection ..... page F–120

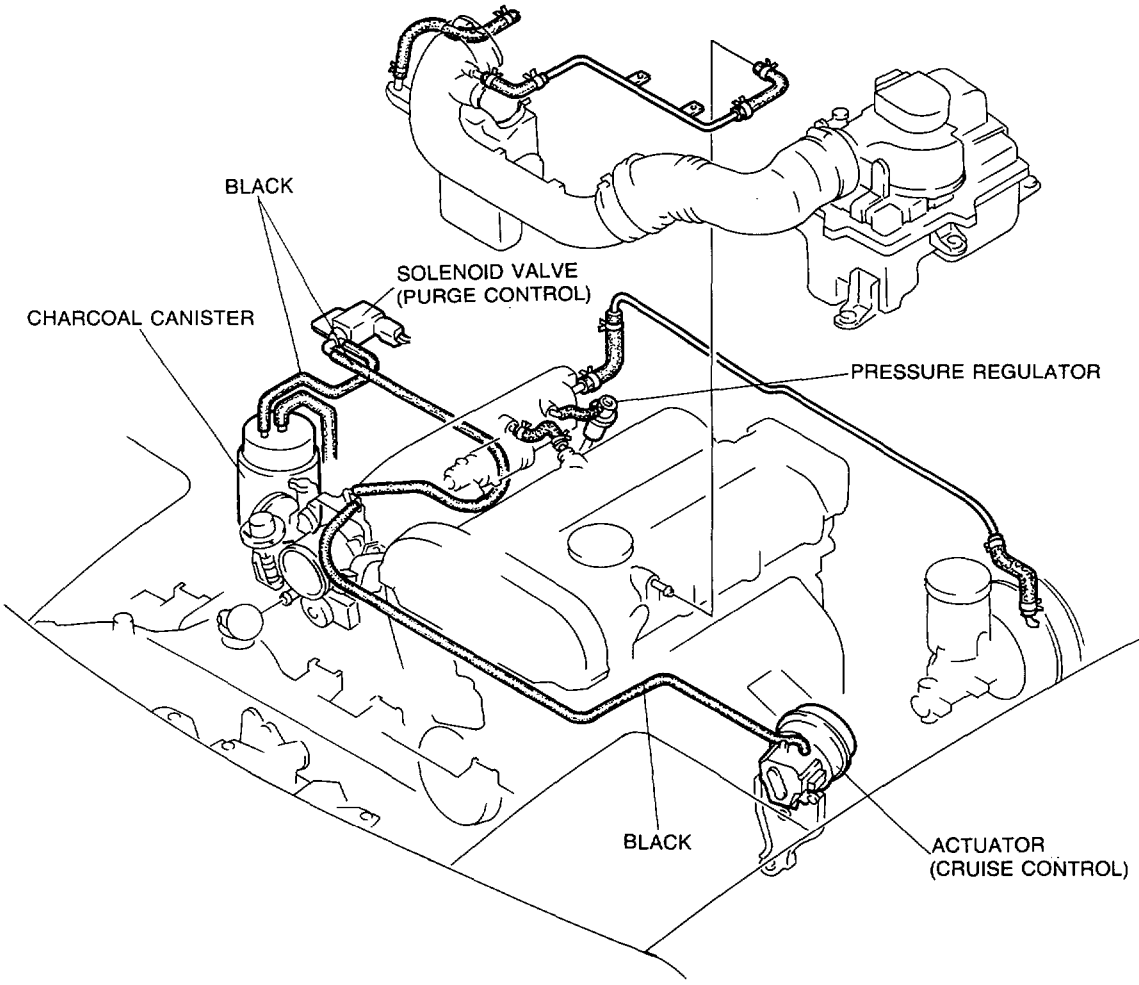


05U0FX-004

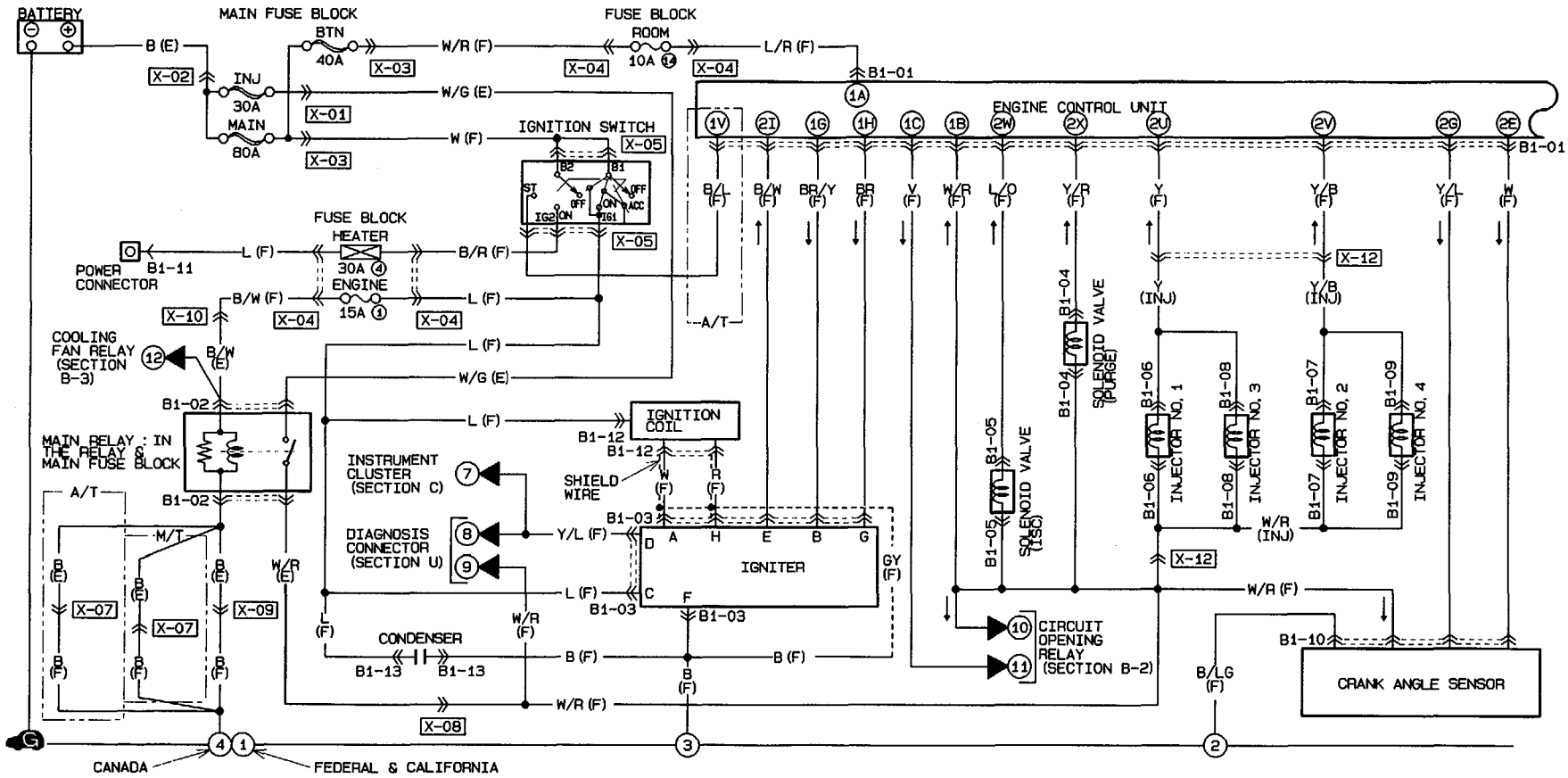
1. Catalytic converter
   Inspection / Replacement..... page F–122
2. Exhaust components
   Removal / Inspection / Installation..... page F–115

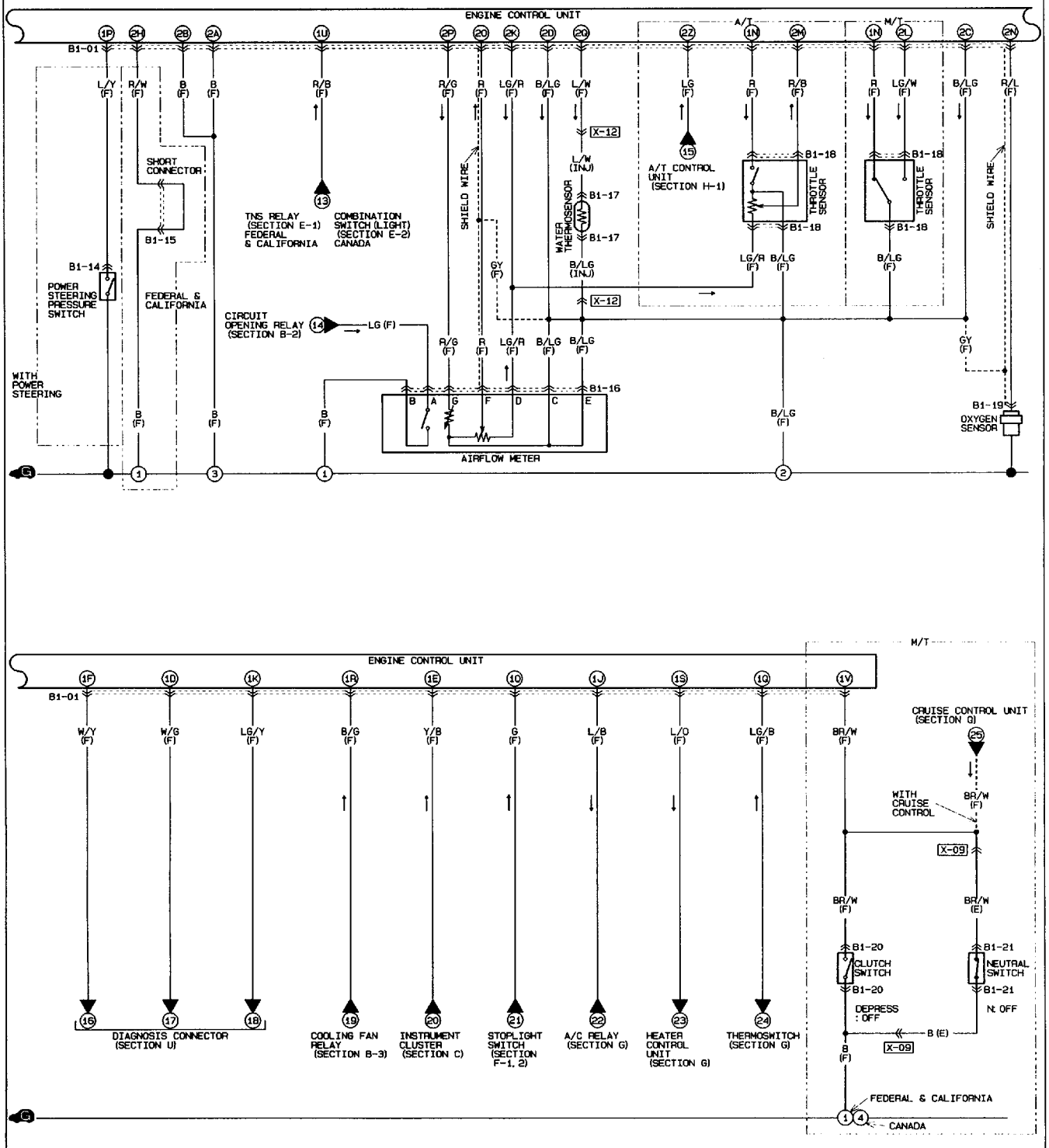

No.1 RESONANCE CHAMBER
AIR CLEANER
AIRFLOW METER
SOLENOID VALVE (PURGE CONTROL)
CHARCOAL CANISTER
FUEL FULTER (HIGH PRESSURE SIDE)
PCV VALVE
PRESSURE REGULATOR
DASHPOT
No.2 RESONACE CHAMBER
TWO-WAY CHECK VALVE
VACUUM DIAPHRAGM (4A/T)
THREE-WAY CHECK VALVE (4A/T)
ISC VALVE
FLOAT VALVE
IGNITER
AIR VALVE
INJECTOR
FUEL PUMP
WATER THERMOSENSOR
FUEL FILTER (LOW PRESSURE SIDE)
CRANK ANGLE SENSOR
OXYGEN SENSOR
ENGINE CONTROL UNIT
ATMOSPHERIC PRESSURE SENSOR INTEGRATED
CATALYTIC CONVERTER

VACUUM HOSE ROUTING DIAGRAM



05U0FX-006


BATTERY
MAIN FUSE BLOCK
FUSE BLOCK
BTN
40A
ROOM
10A
INJ
30A
MAIN
80A
IGNITION SWITCH
ENGINE CONTROL UNIT
FUSE BLOCK
HEATER
30A
ENGINE
15A
POWER CONNECTOR
COOLING FAN RELAY (SECTION B-3)
MAIN RELAY : IN THE RELAY & MAIN FUSE BLOCK
A/T
M/T
INSTRUMENT CLUSTER (SECTION C)
DIAGNOSIS CONNECTOR (SECTION U)
SHIELD WIRE
IGNITION COIL
IGNITER
CONDENSER
SOLENOID VALVE (PURGE)
SOLENOID VALVE (ISC)
INJECTOR NO. 1
INJECTOR NO. 3
INJECTOR NO. 2
INJECTOR NO. 4
CIRCUIT OPENING RELAY (SECTION B-2)
CRANK ANGLE SENSOR
CANADA
FEDERAL & CALIFORNIA


ENGINE CONTROL UNIT
B1-01
A/T
M/T
SHORT CONNECTOR
B1-15
B1-14
POWER STEERING PRESSURE SWITCH
FEDERAL & CALIFORNIA
WITH POWER STEERING
TNS RELAY (SECTION E-1) FEDERAL & CALIFORNIA
COMBINATION SWITCH (LIGHT) (SECTION E-2) CANADA
CIRCUIT OPENING RELAY (SECTION B-2)
SHIELD WIRE
WATER THERMOSENSOR
L/W (INJ)
B/LG (INJ)
B1-17
X-12
A/T CONTROL UNIT (SECTION H-1)
THROTTLE SENSOR
B1-18
B1-16
AIRFLOW METER
OXYGEN SENSOR
B1-19
ENGINE CONTROL UNIT
B1-01
DIAGNOSIS CONNECTOR (SECTION U)
COOLING FAN RELAY (SECTION B-3)
INSTRUMENT CLUSTER (SECTION C)
STOPLIGHT SWITCH (SECTION F-1, 2)
A/C RELAY (SECTION G)
HEATER CONTROL UNIT (SECTION G)
THERMOSWITCH (SECTION G)
M/T
CRUISE CONTROL UNIT (SECTION G)
WITH CRUISE CONTROL
X-09
B1-20
CLUTCH SWITCH
B1-21
NEUTRAL SWITCH
DEPRESS : OFF
N: OFF
FEDERAL & CALIFORNIA
CANADA

SPECIFICATIONS

Item			Specification
Idle speed rpm			850 ± 50*
Ignition timing BTDC			10° ± 1°* (M/T), 8° ± 1°* (4A/T)
Throttle body			
Type			Horizontal draft
Throat diameter mm (in)			55 (2.2)
Fuel pump			
Type			Impeller (in-tank)
Output pressure kPa (kg/cm², psi)			441—589 (4.5—6.0, 64—85)
Fuel filter			
Type	Low-pressure side		Nylon element
	High-pressure side		Paper element
Pressure regulator			
Type			Diaphragm
Regulating pressure kPa (kg/cm², psi)			265—314 (2.7—3.2, 38—46)
Injector			
Type			High-ohmic
Type of drive			Voltage
Resistance Ω			12—16 (at 20°C, 68°F)
ISC valve			
Solenoid resistance Ω			11—13 (at 20°C, 68°F)
Air valve			
Opening temperature			Below 40°C (104°F)
Solenoid valve (Purge control)			
Solenoid resistance Ω			23—27 (at 20°C, 68°F)
Crank angle sensor			
Type			Optical pickup
Airflow meter			
Resistance Ω	E_2↔Vs	Fully closed	200—600
		Fully open	20—1,000
	E_2↔Vc		200—400
	E_2↔THA_A (Intake air thermosensor)	-20°C (-4°F)	13,600—18,400
		20°C (68°F)	2,210—2,690
		60°C (140°F)	493—667
	E_1↔Fc	Fully closed	∞
		Fully open	0
Water thermosensor			
Resistance kΩ		-20°C (-4°F)	14.6—17.8
		20°C (68°F)	2.2—2.7
		80°C (179°F)	0.29—0.35
Circuit opening relay			
Resistance Ω		STA—E_1	21—43
		B—Fc	109—226
		B—Fp	∞
Fuel tank			
Capacity liters (US gal, Imp gal)			45 (11.9, 9.9)
Air cleaner			
Element type			Oil permeated
Accelerator cable			
Free play mm (in)			1—3 (0.039—0.118)
Fuel			
Specification			Unleaded (RON 87 or higher)

*... With System Selector (49 B019 9A0) test switch at SELF TEST.

15U0FX-003

COMPONENT DESCRIPTIONS

Component	Function	Remark
Air cleaner	Filters air entering throttle body	
Airflow meter	Detects amount of intake air; sends signal to engine control unit	• Intake air thermosensor and fuel pump switch included • Use Vref (5 volt) as power source
Air valve	When cold, supplies bypass air into dynamic chamber	• Engine speed increased to shorten warm-up period • Thermowax type
Atmospheric pressure sensor	Detects atmospheric pressure; sends signal to engine control unit	Built-in ECU
Catalytic converter	Reduces HC, CO, and NOx by chemical reaction	Monolith type
Charcoal canister	Stores gas tank fumes while engine stopped	
Circuit opening relay	Voltage for fuel pump while engine running	
Clutch switch (M/T)	Detects in-gear condition; sends signal to engine control unit	Switch OFF when clutch pedal released
Diagnosis connector	Concentrated service connector Concentrated terminals are: 1. EGI self-diagnosis terminal 2. Initial set terminal 3. Fuel pump check terminal 4. Cooling fan check terminal	21-pin (Black)
Crank angle sensor **G-signal** **Ne-signal**	 Detects No.1 cylinder TDC; sends signal to engine control unit Detects crank angle at 180° intervals; sends signal to control unit	
Dynamic chamber	Interconnects all cylinders	
Engine control unit (ECU)	**Detects the following:** 1. A/C operation 2. Air/fuel ratio (Oxygen concentration) 3. Atmospheric pressure 4. Braking signal 5. Cranking signal 6. E/L operation 7. Engine coolant temperature 8. Engine speed 9. In-gear condition 10. Intake air amount 11. Intake air temperature 12. No.1 piston TDC 13. P/S operation 14. Initial set signal 15. Throttle valve fully closed/ fully open condition **Controls operation of the following:** 1. A/C (Cut off) 2. Fail-safe function 3. Fuel injection system 4. Idle speed control 5. Ignition timing control system 6. Monitor function 7. Purge control system 8. Lockup control system	 1. A/C switch 2. Oxygen sensor 3. Atmospheric pressure sensor 4. Stoplight switch 5. Ignition switch (START position) 6. Cooling fan relay Light and turn relay Blower motor switch 7. Water thermosensor 8. Crank angle sensor (Ne-signal) 9. Neutral and clutch switches 10. Airflow meter 11. Intake air thermosensor 12. Crank angle sensor (G-signal) 13. P/S pressure switch 14. Diagnosis connector 15. Throttle sensor 1. A/C relay 2. Self-diagnosis checker and MIL 3. Injector 4. ISC valve 5. Igniter 6. Monitor lamp (Self-diagnosis checker) 7. Solenoid valve (Purge control) 8. 4A/T control unit

Component	Function	Remark
Fuel vapor valve	Prevents fuel from entering canister during vehicle roll over	
Fuel filter	Filters particles from fuel	
Fuel pump	Provides fuel to injectors	• Operates while engine running • Installed in fuel tank
Igniter	Receives spark signal from engine control unit and generates high voltage in ignition coil Detects high voltage ignition; sends substitute ignition signal to engine control unit	
Ignition switch (START position)	Sends engine cranking signal to engine control unit	
Injector	Injects fuel into intake port	• Controlled by signals from engine control unit • High-ohmic injector • Single port injector nozzle
Intake air thermosensor	Detects intake air temperature; sends signal to engine control unit	Installed in airflow meter
ISC valve	Controls bypass air amount	• Controlled by duty signal from engine control unit • Controls idle-up
Solenoid valve (Purge control)	Controls evaporative fumes from canister to intake manifold	• Controlled by duty signal from engine control unit
Main relay	Supplies electric current to injectors, engine control unit, etc.	
MIL (Malfunction indicator lamp)	Lamp illuminates when input device malfunctions	(TEN) terminal of diagnosis connector
	Lamp flashes to indicate malfunction code number of input and output devices	(TEN) terminal of diagnosis connector
Neutral switch	Detects in-gear condition; sends signal to engine control unit	Switch ON when in neutral
Oxygen sensor	Detects oxygen concentration; sends signal to engine control unit	Zirconia ceramic and platinum coating
PCV valve	Controls blow by gas amount introduced into engine	
P/S pressure switch	Detects P/S operation; sends signal to engine control unit	P/S: ON when steering wheel turned
Pressure regulator	Adjusts fuel pressure supplied to injectors	
Resonance chamber	Improves mid-range torque characteristics	
Stoplight switch	Detects braking operation (deceleration); sends signal to engine control unit	
Throttle body	Controls intake air quantity	Integrated throttle sensor, ISC valve, and dashpot
Throttle sensor	• Detects position of the throttle valve fully closed; sends signal to engine control unit • Detects the throttle valve opening at a preset angle; sends signal to engine control unit	
Two-way check valve	Controls pressure in fuel tank	
Three-way check valve (4A/T)	Controls pressure in fuel tank	
Water thermosensor	Detects coolant temperature; sends signal to engine control unit	

15U0FX-004

TROUBLESHOOTING GUIDE

ENGINE CONTROL OPERATION CHART
Input Devices and Engine Conditions

INPUT DEVICES / ENGINE CONDITIONS	APPROXIMATE TIME (BASED ON 10—16°C, or 50—60°F AMBIENT)	SENSORS							
		CRANK ANGLE SENSOR		AIRFLOW METER		WATER THERMO-SENSOR	OXYGEN SENSOR	IGF SIGNAL	ATMOSPHERIC PRESSURE SENSOR
		G-SIGNAL	NE-SIGNAL	INTAKE AIR THERMO-SENSOR	POTENTIOMETER				
CRANKING —COLD ENGINE • COLD AIR • COLD COOLANT	ZERO	SENDS No.1 CYLINDER TDC SIGNAL TO ECU	SENDS ENGINE SPEED SIGNAL TO ECU	SIGNAL HAS NO EFFECT ON ECU	SIGNAL HAS NO EFFECT ON ECU	COOL TO WARM: MEDIUM VOLTAGE (2.3V and DROPPING)	SIGNAL HAS NO EFFECT ON ECU	SENDS IGNITION SPARK SIGNAL TO ECU	SENDS VOLTAGE SIGNAL TO ECU THAT VARIES WITH ALTITUDE; VOLTAGE (APPROX. 4V)
COLD START —FAST IDLE • COLD AIR • COLD COOLANT	ONE MINUTE			COOL TO WARM: MEDIUM VOLTAGE (4.3—1.5V)	LOW VOLUME AIRFLOW: (3.0V)		SENSOR COLD: LOW TO HIGH VOLTAGE (0—0.8V)		
COLD DRIVE AWAY —PART THROTTLE • WARM AIR • WARM COOLANT	TWO MINUTES				MODERATE VOLUME AIRFLOW: LOW TO MEDIUM VOLTAGE (1—3.5V)				
WARM DRIVE AWAY —PART THROTTLE • WARM AIR • WARM COOLANT	THREE MINUTES					WARM: MEDIUM VOLTAGE (APPROX. 0.7V AND DROPPING)	SENSOR WARM: HIGH VOLTAGE (ABOVE 0.6V)		
HOT CRUISE • WARM AIR • WARM COOLANT	MORE THAN FOUR MINUTES					HOT: LOW VOLTAGE (APPROX. 0.4V)	SENSOR HOT SWITCHING FROM HIGH VOLTAGE (ABOVE 0.6V RICH) TO LOW VOLTAGE (BELOW. 0.4V LEAN)		
HOT ACCELERATION —60% THROTTLE					MODERATE TO STRONG VOLUME AIRFLOW: (0.5—1.5V)				
HOT ACCELERATION —WIDE OPEN THROTTLE							HIGH VOLTAGE (ABOVE 0.6V RICH)		
DECELERATION —CLOSED THROTTLE							LOW VOLTAGE (BELOW 0.4V LEAN)		
HOT CURB IDLE —EXTENDED					LOW VOLUME AIRFLOW (3.0V)		SWITCHING FROM HIGH TO LOW VOLTAGE (0.4—0.6V)		
HOT ENGINE SHUTDOWN	—	OFF	OFF	OFF	OFF	OFF	SENSOR HOT: LOW VOLTAGE (0.1V LEAN) UNTIL SENSOR COOLS DOWN	OFF	OFF

SWITCHES										
THROTTLE SENSOR (4A/T) **TVO TERMINAL**	**THROTTLE SENSOR (M/T)** **POWER TERMINAL**	**THROTTLE SENSOR (M/T)** **IDLE TERMINAL**	**A/C SWITCH**	**NEUTRAL AND CLUTCH SWITCHES (M/T)**	**INHIBITOR SWITCH (4A/T)**	**STOP LIGHT SWITCH**	**E/L SIGNAL**	**P/S PRESSURE SWITCH**	**IGNITION SWITCH** **START POSITION**	**TEST TERMINAL**
SEND SIGNAL TO ECU WHEN PEDAL DEPRESSED	SEND SIGNAL TO ECU WHEN PEDAL DEPRESSED	SIGNAL HAS NO EFFECT ON ECU	SIGNAL HAS NO EFFECT ON ECU	SIGNAL HAS NO EFFECT ON ECU	SIGNAL HAS NO EFFECT ON ECU	SIGNAL HAS NO EFFECT ON ECU	SIGNAL HAS NO EFFECT ON ECU	SIGNAL HAS NO EFFECT ON ECU	SENDS SIGNAL TO ECU	SIGNAL HAS NO EFFECT ON ECU
LOW VOLTAGE SIGNAL TO ECU (0.2–0.8)	HIGH VOLTAGE SIGNAL TO ECU (APPROX. 5V)	LOW VOLTAGE SIGNAL TO ECU (BELOW 1.5V)	A/C SWITCH ON: SENDS SIGNAL TO ECU (0V) A/C SWITCH OFF: NO SIGNAL TO ECU (BATTERY VOLTAGE)	IN NEUTRAL: LOW VOLTAGE SIGNAL TO ECU (0V)	IN N OR P RANGE: NO SIGNAL TO ECU (0V)	NO SIGNAL TO ECU (BELOW 1.5V)	HEADLIGHT SWITCH ON: HIGH VOLTAGE SIGNAL TO ECU (BATTERY VOLTAGE) OFF: LOW VOLTAGE SIGNAL TO ECU (BELOW 1.5V) BLOWER CONTROL SWITCH OR COOLING FAN SWITCH ON: LOW VOLTAGE SIGNAL TO ECU (0V) OFF: HIGH VOLTAGE SIGNAL TO ECU (BATTERY VOLTAEG)	STEERING WHEEL TURNED: LOW VOLTAGE SIGNAL TO ECU (0V) STEERING WHEEL STRAIGHT AHEAD: HIGH VOLTAGE TO ECU (BATTERY VOLTAGE)	NO SIGNAL TO ECU (BELOW 1.5V)	TERMINAL NOT GROUNDED: HIGH VOLTAGE TO ECU (BATTERY VOLTAGE)
MEDIUM VOLTAGE SIGNAL TO ECU (0.8–3.0V)		HIGH VOLTAGE SIGNAL TO ECU (BATTERY VOLTAGE)		DRIVING IN ANY GEAR: HIGH VOLTAGE SIGNAL TO ECU (BATTERY VOLTAGE)	IN D RANGE: NO SIGNAL TO ECU (0V)					
HIGH VOLTAGE SIGNAL TO ECU (ABOVE 3.0V)	LOW VOLTAGE SIGNAL TO ECU (0V)									
LOW VOLTAGE SIGNAL TO ECU (0.2–0.8V)	HIGH VOLTAGE SIGNAL TO ECU (APPROX. 5V)	LOW VOLTAGE SIGNAL TO ECU (0V)		IN NEUTRAL: LOW VOLTAGE SIGNAL TO ECU (0V)	IN N OR P RANGE: SENDS SIGNAL TO ECU (0V)	BRAKE PEDAL DEPRESSED: SENDS SIGNAL TO ECU (BATTERY VOLTAGE)				LOW VOLTAGE SIGNAL TO ECU WHEN CONNECTOR GROUNDED (BELOW 1.5V)
OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

25U0FX-003

Output Devices and Engine Conditions

OUTPUT DEVICES / ENGINE CONDITIONS	APPROXIMATE TIME (BASED ON 10—16°C or 50—60°F AMBIENT)	INJECTOR: INJECTION	INJECTOR: INJECTION TIMING	ISC VALVE	SOLENOID VALVE (PURGE CONTROL)	A/C RELAY (A/C CUT-OFF)	MAIN RELAY	IGNITER
CRANKING —COLD ENGINE • COLD AIR • COLD COOLANT	ZERO	RICH	ALL CYLINDERS EACH Ne-SIGNAL	LARGE AMOUNT OF BYPASS AIR	OFF (PURGE CUT)	OFF (A/C CUT)	ON	IGNITION SPARK ADVANCE SIGNAL
COLD START —FAST IDLE • COLD AIR • COLD COOLANT	ONE MINUTE		2-GROUP			ON (A/C ON)		
COLD DRIVE AWAY —PART THROTTLE • COLD AIR • COLD COOLANT	TWO MINUTES							
WARM DRIVE AWAY —PART THROTTLE • WARM AIR • WARM COOLANT	THREE MINUTES	RICH AND LEAN		SMALL AMOUNT OF BYPASS AIR	OPERATES (DUTY VALUES [PURGE GAS AMOUNT] CHANGE)			
HOT CRUISE • WARM AIR • WARM COOLANT	MORE THAN FOUR MINUTES							
HOT ACCELERATION —60% THROTTLE		RICH						
HOT ACCELERATION —WIDE OPEN THROTTLE						OFF (A/C CUT)		
DECELERATION —CLOSED THROTTLE		FUEL CUT		LARGE AND SMALL AMOUNT OF BYPASS AIR	OFF (PURGE CUT)	ON (A/C ON)		
HOT CURB IDLE —EXTENDED		RICH AND LEAN	2-GROUP	SMALL AMOUNT OF BYPASS AIR				
HOT ENGINE SHUT DOWN	—	DOES NOT INJECT		OFF	OFF	OFF	OFF	OFF

05U0FX-011

RELATIONSHIP CHART

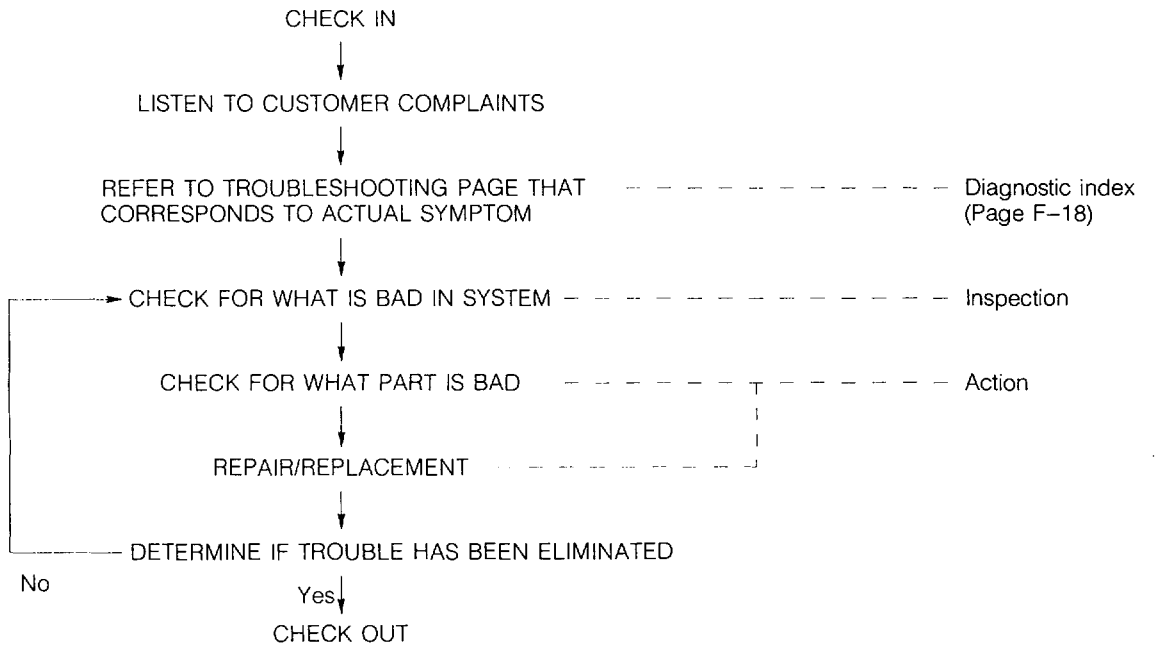
Input Devices \ Output Devices		Injector		ISC Valve	Solenoid Valve (Purge Control)	A/C Relay (A/C Cut-Off)	Igniter (Ignition Timing Control)	4A/T Control Unit
		Fuel Injection Amount	Fuel Injection Timing					
Test Terminal		×	×	○	×	×	○	×
Ignition Switch (Start Position)		○	○	○	×	○	○	×
P/S Pressure Switch		×	×	○	×	×	×	×
Cooling Fan Switch		×	×	○	×	×	×	×
Blower Control Switch		×	×	○	×	×	×	×
Headlight Switch		×	×	○	×	×	×	×
Stoplight Switch (M/T)		○	×	×	×	×	×	×
Neutral and Clutch Switches (M/T)		○	×	○	○	×	○	×
Inhibitor switch (4A/T)		○	×	○	○	○	○	×
A/C Switch		×	×	○	×	○	×	○
Throttle Sensor	Idle Terminal (IDL)	○	×	○	○	×	○	×
	Power Terminal (M/T) Tvo Terminal (4A/T)	○	×	×	×	○	×	×
Atmospheric Pressure Sensor		○	×	○	×	×	×	×
IGF Signal		○	×	×	×	×	×	×
Oxygen Sensor		○	×	×	○	×	×	×
Water Thermosensor		○	×	○	○	×	○	×
Airflow Meter	Potentiometer	○	×	×	○	×	○	○
	Intake Air Thermosensor	○	×	○	○	×	×	×
Crank Angle Sensor	Ne-Signal	○	○	○	○	×	○	×
	G-Signal	×	○	×	×	×	○	×

USING THIS SECTION

Introduction

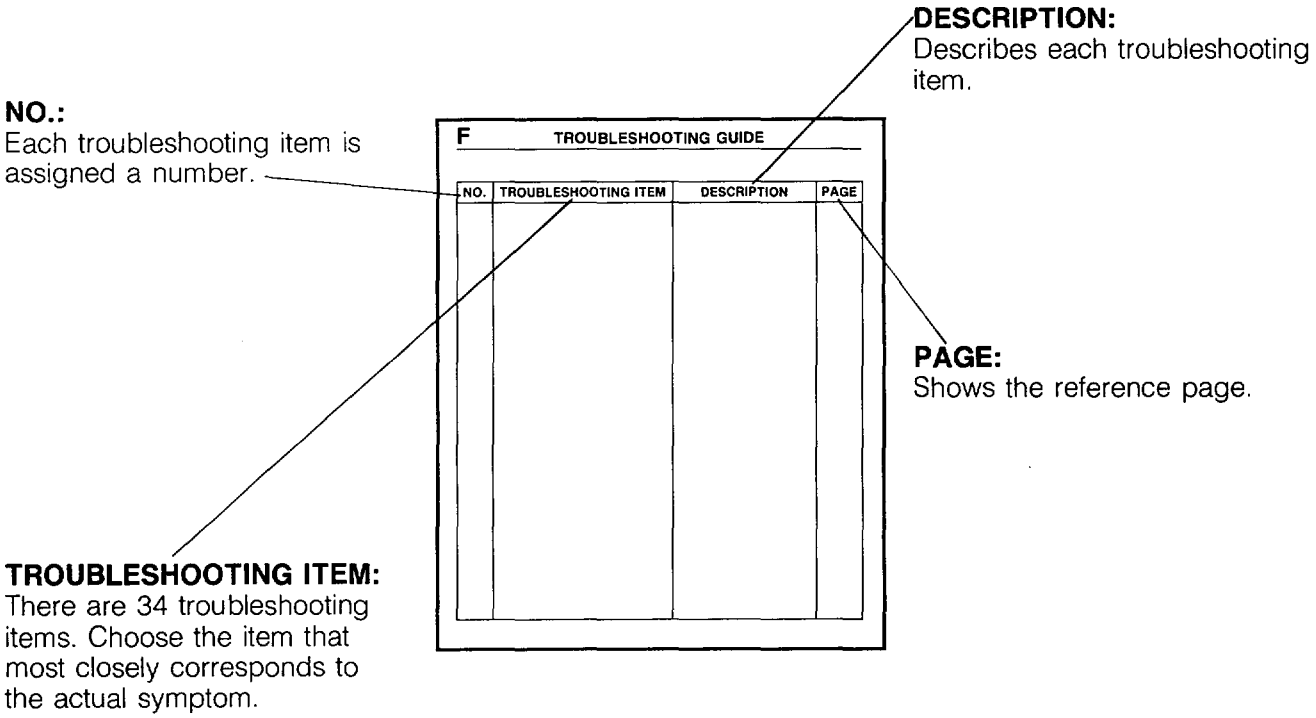
Most of the fuel and emission control system is electrically controlled, often making it difficult to diagnose problems in the system, especially intermittent problems. Before undertaking actual checks, take a few minutes to talk with a customer who approaches with a drivability complaint. The customer is often a good source of information on such problems, especially intermittent ones. Through talks with the customer, one can find out what the symptoms are and under what conditions they occur.

Work flow



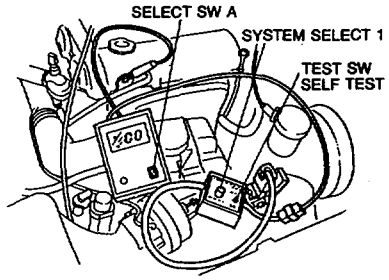
05U0FX-013

Diagnostic index



05U0FX-014

Troubleshooting chart

7	CRANKS NORMALLY BUT HARD TO START — AFTER WARM-UP		
DESCRIPTION	• Engine cranks at normal speed but requires excessive cranking time (more than 5 sec.) before starting after running and hot soaked • Battery is normal condition • Engine starts normally when cold		
[TROUBLESHOOTING HINTS] ① Air/Fuel mixture too rich • Insufficient fuel injection control • Injector fuel leakage ② Vapor lock • Fuel pressure is not held in fuel line after engine stops • High RVP (winter) fuel is used in warm weather			
STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ page F–78  	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ page F–78 **"88" flashes** Check ECU terminal 1F voltage ☞ page F–128 **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ page F–127 ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ page F–7
2	Check if ECU terminal voltages are OK (Especially 2D and 2Q)		
			...ge F–128
3	Run ...		

25U0FX-004

DESCRIPTION:
Further describes the symptom. Confirm that the chart addresses the actual symptom before beginning troubleshooting.

TROUBLESHOOTING HINTS:
This describes the possible point of malfunction.

STEP:
This shows the order of troubleshooting. Proceed with troubleshooting as indicated.

INSPECTION:
This describes an inspection to quickly determine the malfunction of parts. If a detailed procedure is necessary to perform the INSPECTION, refer to the page shown by the "☞" mark.

ACTION:
This recommends the appropriate action to take as a result (Yes/No) of the INSPECTION. How to perform the action is described on the reference page shown by the "☞" mark.

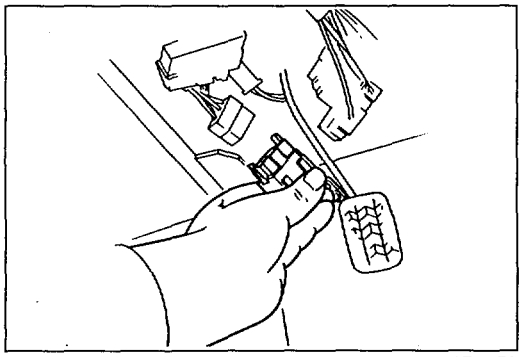
05U0FX-016

DIAGNOSTIC INDEX

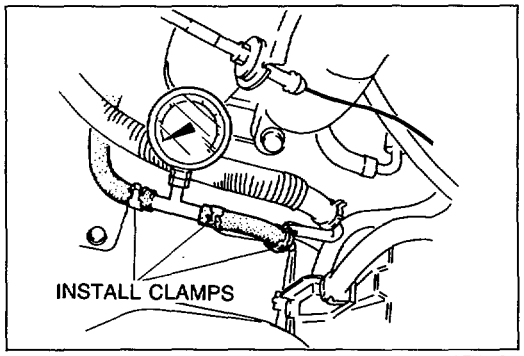
No.	TROUBLESHOOTING ITEM	DESCRIPTION	PAGE
1	Will not crank or cranks slowly	Refer to Engine Electrical System	G– 4
2	Cranks normally but will not start (No combustion)	Engine cranks at normal speed but shows no sign of "firing"	F–20
3	Cranks normally but will not start (Partial combustion) — When engine is cold	Engine cranks at normal speed but shows partial combustion and will not continue to run	F–22
4	Cranks normally but will not start (Partial combustion) — After warm-up	Engine cranks at normal speed but shows partial combustion and will not continue to run after running and hot soaked	F–24
5	Cranks normally but hard to start — Always	Engine cranks at normal speed but requires excessive cranking time (more than 5 sec.) before starting	F–26
6	Cranks normally but hard to start — When engine is cold	Same condition as No.5 when engine is cold Restarts OK after warm-up	F–28
7	Cranks normally but hard to start — After warm-up	Same condition as No.5 after running and hot soaked Starts normally when cold	F–29
8	Rough idle — Always	Engine vibrates excessively at idle in every condition	F–30
9	Low idle speed/Rough idle — Before warm-up	Engine speed low or engine vibrates excessively at idle during warm-up	F–32
10	Low idle speed/Rough idle — After warm-up	Engine runs normally at idle during warm-up but vibrates excessively after warm-up	F–34
11	High idle speed — After warm-up	Engine idle excessive for operation mode	F–36
12	Low idle speed — When A/C, P/S, or E/L ON	Engine speed decreases at idle when A/C, P/S, or E/L is ON	F–38
13	Rough idle just after starting	Engine starts normally but vibrates excessively only just after starting	F–39
14	Idle moves up and down	Engine speed up and down periodically at idle	F–40
15	Engine stalls at idle — Always	Engine starts normally but vibrates excessively and stalls at idle in every condition	F–42
16	Engine stalls at idle — Before warm-up	Engine starts normally but vibrates excessively and stalls at idle before warm-up	F–44
17	Engine stalls at idle — After warm-up	Engine runs normally at idle during warm-up but becomes rough and stalls after warm-up	F–45
18	Engine stalls during start-up	Engine unexpectedly stops running while starting	F–46
19	Engine stalls on deceleration	Engine unexpectedly stops running while decelerating or after deceleration	F–48
20	Engine stalls at idle — When A/C, P/S, or E/L ON	Engine unexpectedly stops running at idle when A/C, P/S, or E/L is ON	F–50
21	Engine stalls suddenly (Intermittent)	Engine intermittently stops running	F–51
22	Hesitates/Stumbles on acceleration	Flat spot occurs just after accelerator is depressed or mild jerking occurs during acceleration	F–52
23	Surges while cruising	Unexpected, usually repetitive change in engine speed	F–54
24	Lack of power	Performance is poor under load Maximum speed reduced	F–56
25	Poor acceleration	Performance is poor while accelerating	F–60
26	Runs rough on deceleration/Afterburn	Engine runs rough while decelerating and abnormal combustion in exhaust system	F–64
27	Knocking	Abnormal combustion accompanied by audible "pinging" noise	F–66
28	Fuel odor	Gasoline odor in cabin	F–68
29	Exhaust sulfur smell	Exhaust gas smells abnormal (rotten egg smell)	F–69
30	High oil consumption	Oil consumption excessive	F–69
31	Poor fuel economy	Fuel economy unsatisfactory	F–70

No.	TROUBLESHOOTING ITEM	DESCRIPTION	PAGE
32	MIL always ON	Self-Diagnosis Checker does not indicate Malfunction Code No. but MIL comes on	F–72
33	MIL never ON	Self-Diagnosis Checker indicates Malfunction Code No. of input device but MIL never comes ON	F–72
34	A/C does not work	Blower fan operates but no cool air is discharged	F–73

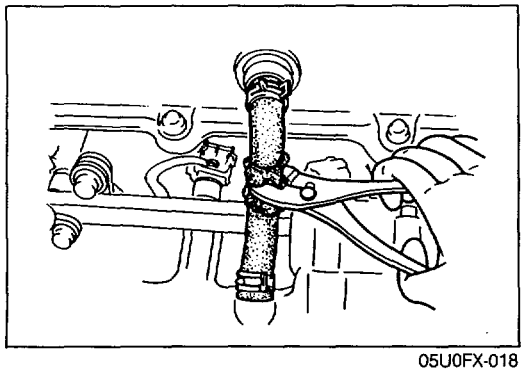
15U0FX-007



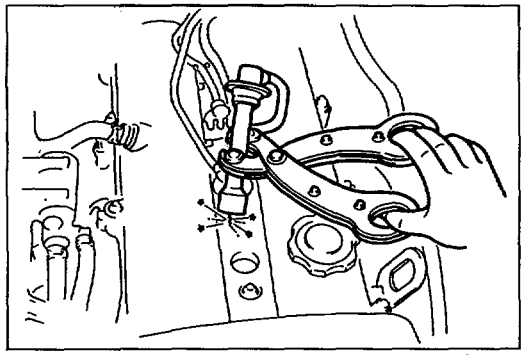
9BU0F2-076



05U0FX-235



05U0FX-018



15U0FX-008

PRECAUTION

Fuel Pressure Release and Servicing Fuel System

Fuel in the fuel system remains under high pressure even when the engine is not running.

a) Before disconnecting any fuel line, release the fuel pressure from the fuel system to reduce the possibility of injury or fire.
   1. Start the engine.
   2. Disconnect the circuit opening relay connector.
   3. After the engine stalls, turn off the ignition switch.
   4. Reconnect the circuit opening relay connector.

b) Use a rag as protection from fuel spray when disconnecting the hoses.
   Plug the hoses after removal.

c) When inspecting the fuel system, use a suitable fuel pressure gauge.

Caution

- **Install hose clamps when securing the fuel pressure gauge to the fuel pipe and the fuel main hose to prevent fuel leakage.**

Pinching Hose

When pinching an air hose or fuel hose with pliers, wrap the hose with a rag to prevent damage.

Checking ignition spark

When checking ignition spark condition, hold the high-tension lead with insulated pliers.

Note

- **If a timing light is used to check for spark, some lights do not light at Nos.2 and 4 cylinders even if the ignition system is normal.**

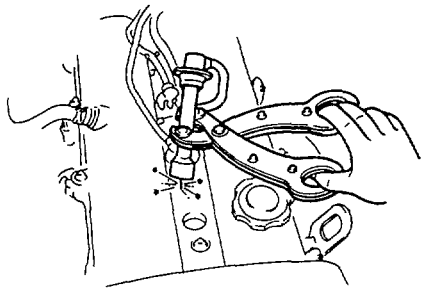
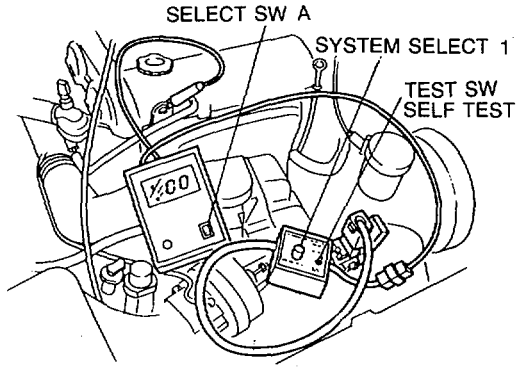
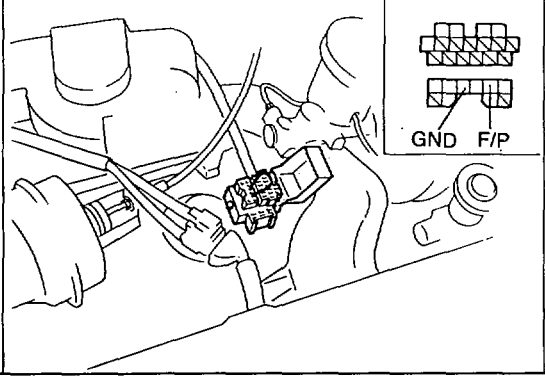
SYMPTOM TROUBLESHOOTING

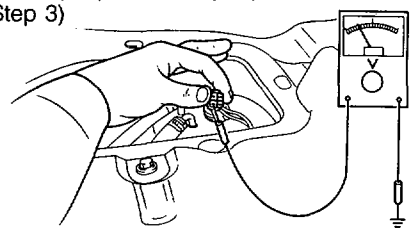
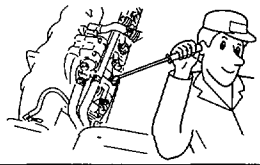
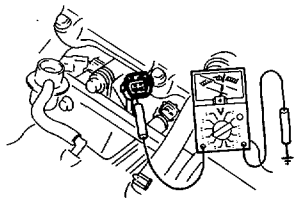
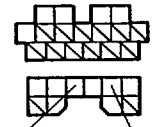
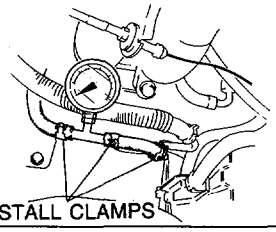
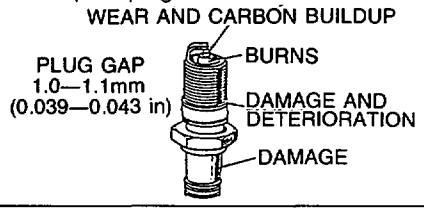
2	CRANKS NORMALLY BUT WILL NOT START (NO COMBUSTION)
DESCRIPTION	• Engine cranks at normal speed but shows no sign of "firing" • Battery in normal condition • Throttle valve not held fully open while cranking • Fuel in tank

[TROUBLESHOOTING HINTS]
Because of no combustion, possibly no fuel is injected to engine or no ignition at all cylinders
① No spark
- Ignition control malfunction
- Ignition system component malfunction

② No fuel injection
- Fuel pump does not operate
- Injector does not operate

③ Low fuel line pressure
④ Low engine compression

STEP	INSPECTION		ACTION
1	Check if strong blue spark is visible at disconnected high-tension lead while cranking engine 	Yes	Go to Step 3
		No	Go to Step 2
2	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78** 	Yes	Check ignition system (Refer to Troubleshooting "Misfire") ☞ **page G–18**
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80**
			"88" flashes Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
3	Connect diagnosis connector terminals F/P and GND with jumper wire and check for fuel pump operating sound with ignition switch ON ☞ **page F–107** 	Yes	Check if engine starts in this condition ⇨ If starts, check circuit opening relay ☞ **page F–110** ⇨ If does not start, go to Step 5
		No	Go to Step 4

STEP	INSPECTION		ACTION
4	Check if battery voltage exists at fuel pump connector (L/R) wire with jumper wire connected (Step 3) 	Yes	Check continuity of fuel pump ☞ **page F–107**
		No	Check circuit opening relay ☞ **page F–110**
5	Check for injector operating sound while cranking engine 	Yes	Go to Step 7
		No	Go to Step 6
6	Check if battery voltage exists at injector connector (W/R) wire with ignition switch ON 	Yes	Check ECU terminals 2A, 2U and 2V voltages ☞ **page F–129**
		No	Check for open circuit in wiring between main relay and injector ☞ **page F– 7**
7	Connect diagnosis connector terminals F/P and GND with jumper wire and check for correct fuel line pressure with ignition switch ON ☞ **page F–103** **Fuel Line pressure:** **265—314 kPa (2.7—3.2 kg/cm², 38—46 psi)**   	Yes	Go to next step
		No	**Low pressure** Check fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator ☞ **page F–111** ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator If not clogged, check fuel pump maximum pressure ☞ **page F–108**
8	Check for correct engine compression ☞ **page B–10** **Engine compression: 1,324—932 kPa (13.5—9.5 kg/cm², 192—135 psi)-300 rpm**	Yes	Go to next step
		No	Check engine condition ☞ **page B–10** • Worn piston, piston rings or cylinder wall • Defective cylinder head gasket • Distorted cylinder head • Improper valve seating • Valve sticking in guide
9	Check if spark plugs are OK  	Yes	Go to next step
		No	Repair, clean, or replace ☞ **page G–20**
10	Try known good ECU and check if condition improves ☞ **page F–127**		

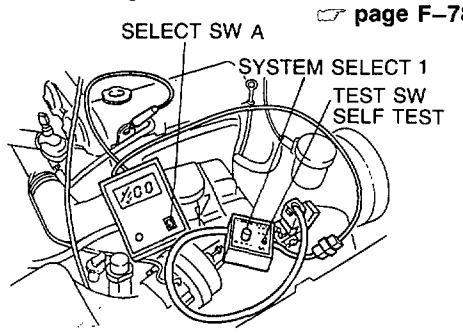
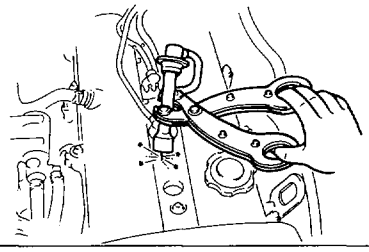
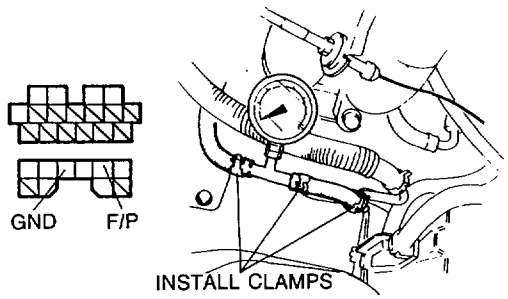
3	CRANKS NORMALLY BUT WILL NOT START (PARTIAL COMBUSTION) — WHEN ENGINE IS COLD
DESCRIPTION	• Engine cranks at normal speed but shows partial combustion and will not continue to run • Battery in normal condition • Fuel in tank

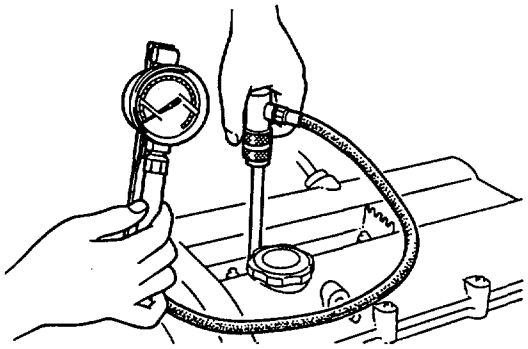
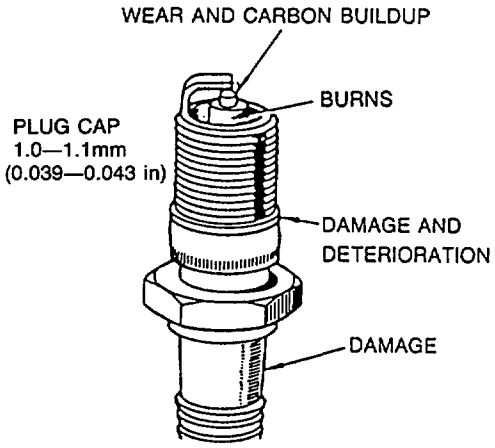
[TROUBLESHOOTING HINTS]

① Air/Fuel mixture too rich
- Air cleaner element clogged
- Airflow meter stuck

② Air/Fuel mixture too lean
- Fuel injection control malfunction (Correction for coolant temperature)
- Low fuel line pressure
- Air leakage of intake air system

③ Low engine compression

STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78** 	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80**
			"88" flashes Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
2	Check if strong blue spark is visible at each disconnected high-tension lead while cranking engine 	Yes	Go to next step
		No	Check ignition system (Refer to Troubleshooting "Misfire") ☞ **page G–18**
3	Connect diagnosis connector terminal F/P and GND with jumper wire and check for correct fuel line pressure with ignition switch ON ☞ **page F–103** **Fuel line pressure: 265—314 kPa (2.7—3.2 kg/cm², 38—46 psi)** 	Yes	Go to next step
		No	**Low pressure** Check fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator ☞ **page F–111** ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator If not clogged, check fuel pump maximum pressure ☞ **page F–108**
			High pressure Check if fuel return hose is clogged or restricted ⇨ If OK, replace pressure regulator ☞ **page F–112** ⇨ If not OK, repair or replace
4	Check if ECU terminal voltages are OK (2D, 2O and 2Q) ☞ **page F–129**	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ **page F–132**

STEP	INSPECTION		ACTION
5	Check for air leakage of intake air system ☞ **page F–93**	Yes	Repair or replace
		No	Go to next step
6	Check if airflow meter vane moves smoothly	Yes	Go to next step
		No	Repair or replace ☞ **page F–92**
7	Check for correct engine compression ☞ **page B–10** **Engine compression: 1,324—932 kPa (13.5—9.5 kg/cm², 192—135 psi)-300 rpm** 	Yes	Go to next step
		No	Check engine condition ☞ **page B–10** • Worn piston, piston rings or cylinder wall • Defective cylinder head gasket • Distorted cylinder head • Improper valve seating • Valve sticking in guide
8	Check if spark plugs are OK 	Yes	Go to next step
		No	Repair, clean, or replace ☞ **page G–20**
9	Try known good ECU and check if condition improves ☞ **page F–127**		

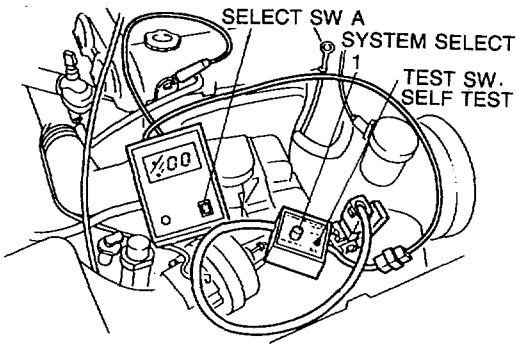
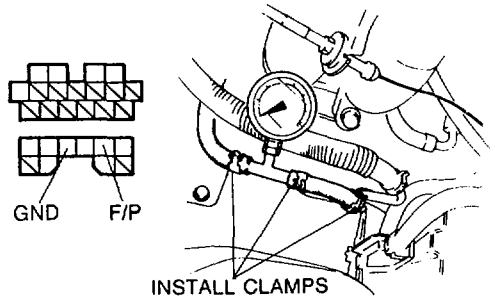
25U0FX-006

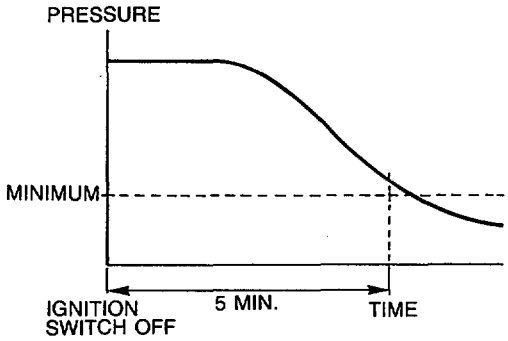
4	CRANKS NORMALLY BUT WILL NOT START (PARTIAL COMBUSTION) — AFTER WARM-UP
DESCRIPTION	• Engine cranks at normal speed but shows partial combustion and will not continue to run after running and hot soaked • Battery in normal condition • Engine starts normally when cold

[TROUBLESHOOTING HINTS]

① Air/Fuel mixture too rich
- Fuel injection control malfunction (Correction for coolant temperature)
- Injector fuel leakage

② Vapor lock
- Fuel pressure not held in fuel line after engine stops
- High RVP (winter) fuel used in warm weather

STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78**  	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80**
			"88" flashes Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
2	Check if ECU terminal voltages are OK (2D and 2Q) ☞ **page F–129**	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ **page F–132**
3	Connect diagnosis connector terminals F/P and GND with jumper wire and check for correct fuel line pressure with ignition switch ON ☞ **page F–103** **Fuel line pressure: 265—314 kPa (2.7—3.2 kg/cm², 38—46 psi)**  	Yes	Go to next step
		No	**Low pressure** Check fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator ☞ **page F–111** ⇨ If fuel line pressure gradually increases, check fuel line and filter for clogging If not clogged, check fuel pump maximum pressure ☞ **page F–108**
			High pressure Check if fuel return hose is clogged or restricted ⇨ If OK, replace pressure regulator ☞ **page F–112** ⇨ If not OK, repair or replace hose

STEP	INSPECTION		ACTION
4	With condition of step 3, check if fuel line pressure is held after ignition switch is turned OFF ☞ **page F–102** **Fuel line pressure: More than 147 kPa (1.5 kg/cm², 21 psi) for 5 min.**  	Yes	Go to Step 6
		No	Go to Step 5
5	Check if fuel line pressure is held after ignition switch is turned OFF and blocking outlet of pressure regulator ☞ **page F–111** **Fuel line pressure: More than 147 kPa (1.5 kg/cm², 21 psi) for 5 min.**	Yes	Replace pressure regulator ☞ **page F–112**
		No	Check fuel pump hold pressure ☞ **page F–107** ⇨ If OK, check injector for fuel leakage ☞ **page F–113** ⇨ If not OK, replace fuel pump ☞ **page F–108**
6	Try known good ECU and check if condition improves ☞ **page F–127**	Yes	Replace ECU
		No	Change fuel to another brand

25U0FX-007

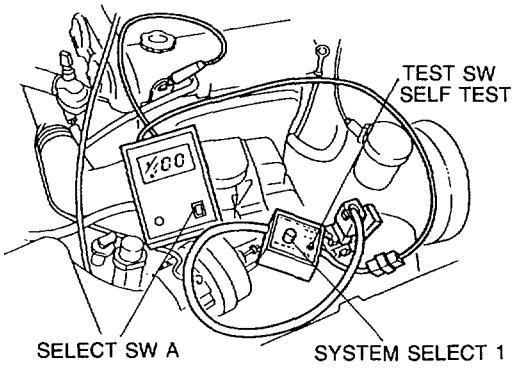
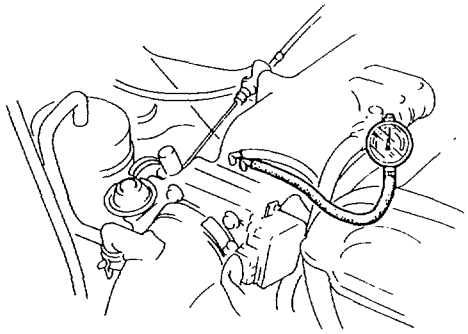
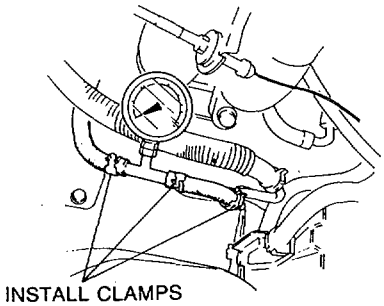
5	CRANKS NORMALLY BUT HARD TO START — ALWAYS
DESCRIPTION	• Engine cranks at normal speed but requires excessive cranking time (more than 5 sec.) before starting • Battery in normal condition

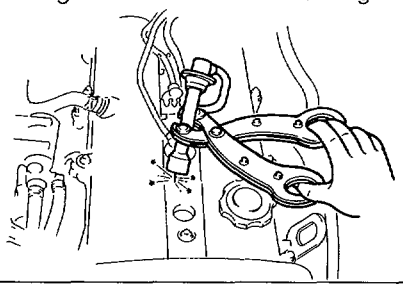
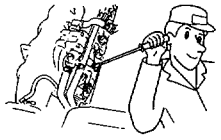
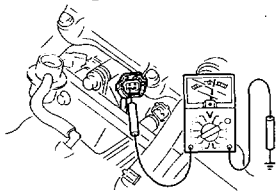
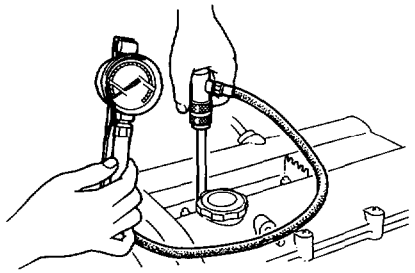
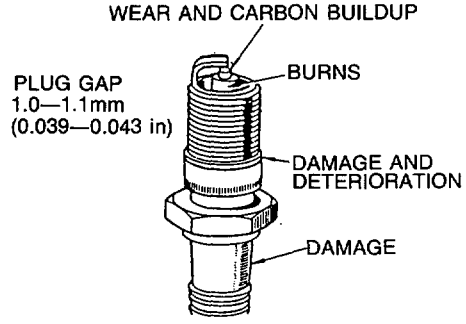
[TROUBLESHOOTING HINTS]

① Air/Fuel mixture too lean
- Fuel injection control malfunction (Correction for coolant temperature)
- Low fuel line pressure
- Air leakage

② Air/Fuel mixture too rich
- Air cleaner element clogged
- Airflow meter stuck

③ Poor ignition spark

STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78**  	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80**
			"88" flashes Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
2	Check for correct intake manifold vacuum at idle **Vacuum: More than 450 mmHg (17.7 inHg)** 	Yes	Go to next step
		No	Check for air leakage of intake air system components ☞ **page F–93**
3	Check if air cleaner element is clean ☞ **page F–75**	Yes	Go to next step
		No	Replace air cleaner element ☞ **page F–92**
4	Check for correct fuel line pressure at idle ☞ **page F–103** **Fuel line pressure:** **265—314 kPa (2.7—3.2 kg/cm², 38—46 psi)** **(Vacuum hose to pressure regulator disconnected)**  	Yes	Go to next step
		No	**Low pressure** Check fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator ☞ **page F–111** ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator If not clogged, check fuel pump maximum pressure ☞ **page F–108**

STEP	INSPECTION		ACTION
5	Check if ECU terminal voltages are OK (2D, 2O and 2Q) ☞ page F–129	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ page F–132
6	Check if strong blue spark is visible at each disconnected high-tension lead while cranking engine 	Yes	Go to next step
		No	Check ignition system (Refer to Troubleshooting "Misfire") ☞ page G–18
7	Check for injector operating sound at each injector at idle 	Yes	Go to Step 9
		No	Go to Step 8
8	Check if battery voltage exists at injector connector (W/R) wire with ignition switch ON 	Yes	Check if injector resistance is OK ☞ page F–112 **Resistance: Approx. 14Ω** ⇨ If OK, check wiring between injector and ECU ☞ page F–7 ⇨ If not OK, replace injector ☞ page F–112
		No	Check wiring between main relay and injector ☞ page F–7
9	Check for correct engine compression ☞ page B–10 **Engine compression: 1,324—932 kPa (13.5—9.5 kg/cm², 192—135 psi) - 300 rpm** 	Yes	Go to next step
		No	Check engine condition ☞ page B–10 • Worn piston, piston rings or cylinder wall • Defective cylinder head gasket • Distorted cylinder head • Improper valve seating • Valve sticking in guide
10	Check if spark plugs are OK 	Yes	Go to next step
		No	Repair, clean, or replace ☞ page G–20
11	Try known good ECU and check if condition improves ☞ page F–127		

25U0FX-008

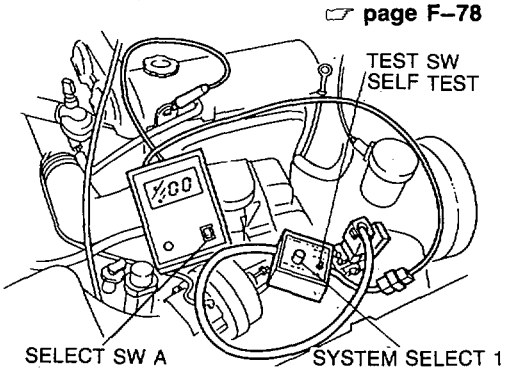
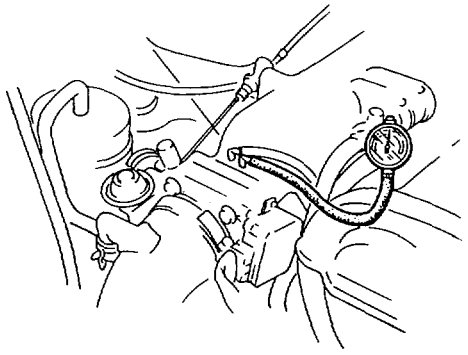
6	CRANKS NORMALLY BUT HARD TO START — WHEN ENGINE IS COLD
DESCRIPTION	• Engine cranks at normal speed but requires excessive cranking time before starting • Battery in normal condition • Restarts OK after warm-up

[TROUBLESHOOTING HINTS]

① Air/Fuel mixture too rich
- Airflow meter stuck
- Air cleaner element clogged
- Idle speed control malfunction

② Air/Fuel mixture too lean
- Fuel injection control malfunction (Correction for coolant temperature)

③ Poor atomization of fuel
- Low RVP (summer) fuel used in cold weather

STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78**  	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80** **"88" flashes** Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
2	Check if ECU terminal voltages are OK (1C, 2D, 2O and 2Q) ☞ **page F–128**	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ **page F–131**
3	Check if engine starts easily when depressing accelerator while cranking	Yes	Check if ISC valve is OK ☞ **page F–99** ⇨ If OK, check air valve ☞ **page F–99** ⇨ If not OK, replace ISC valve ☞ **page F–99**
		No	Go to next step
4	Check for correct intake manifold vacuum at idle **Vacuum: More than 450 mmHg (17.7 inHg)** 	Yes	Go to next step
		No	Check for air leakage of intake air system components ☞ **page F–93**
5	Check if air cleaner element is clean ☞ **page F–75**	Yes	Go to next step
		No	Replace air cleaner element ☞ **page F–92**
6	Try known good ECU and check if condition improves ☞ **page F–127**	Yes	Replace ECU
		No	Change fuel to another brand

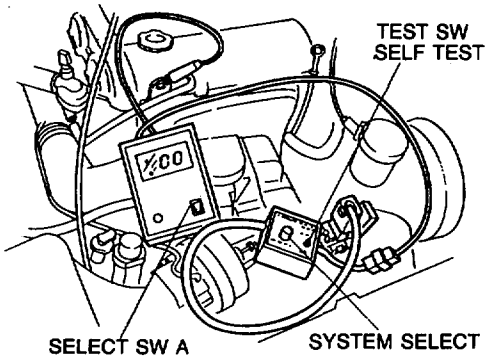
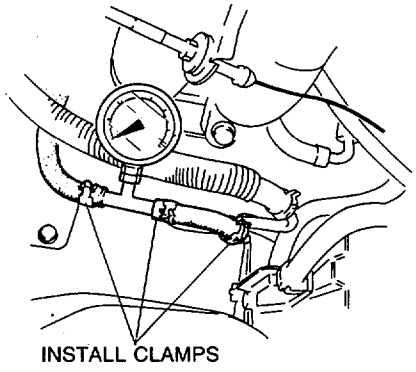
25U0FX-009

7	CRANKS NORMALLY BUT HARD TO START — AFTER WARM-UP
DESCRIPTION	• Engine cranks at normal speed but requires excessive cranking time (more than 5 sec.) before starting after running and hot soaked • Battery in normal condition • Engine starts normally when cold

[TROUBLESHOOTING HINTS]

① Air/Fuel mixture too rich
- Fuel injection control malfunction
- Injector fuel leakage

② Vapor lock
- Fuel pressure not held in fuel line after engine stops
- High RVP (winter) fuel used in warm weather

STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78**  	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80**
			"88" flashes Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
2	Check if ECU terminal voltages are OK (2D and 2Q) ☞ **page F–129**	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ **page F–132**
3	Run engine at idle and check if fuel line pressure is held after ignition switch turned OFF ☞ **page F–102** **Fuel line pressure: More than 147 kPa (1.5 kg/cm², 21 psi) for 5 min.**  	Yes	Go to next step
		No	Block outlet of pressure regulator and check if fuel line pressure is held after ignition switch is turned OFF ☞ **page F–111** ⇨ If OK, replace pressure regulator ☞ **page F–112** ⇨ If not OK, check fuel pump hold pressure ☞ **page F–107** If fuel pump is OK, check injector for fuel leakage ☞ **page F–113**
4	Try known good ECU and check if condition improves ☞ **page F–127**	Yes	Replace ECU
		No	Change fuel to another brand

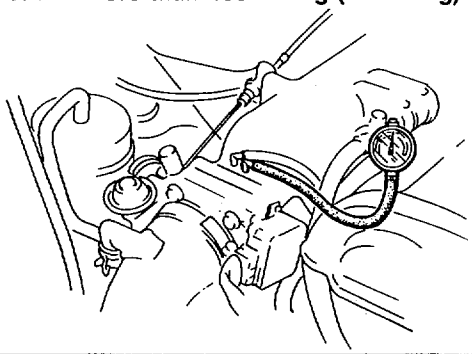
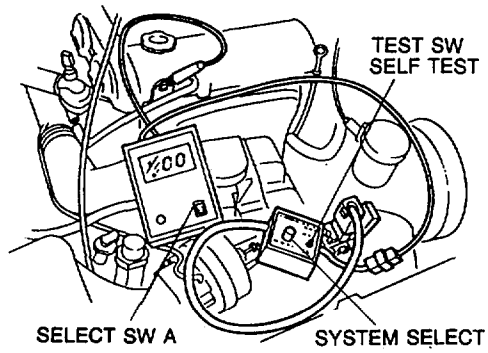
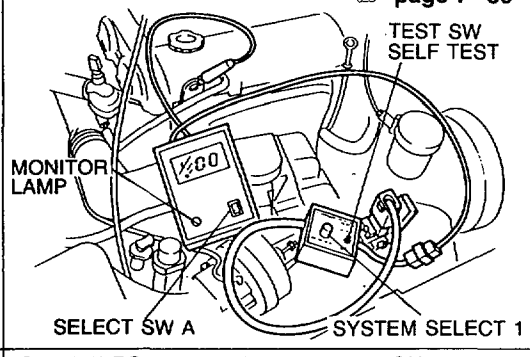
25U0FX-010

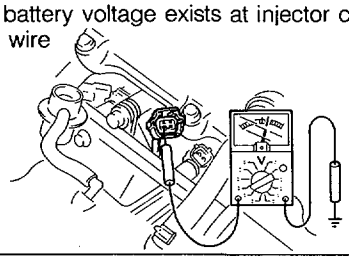
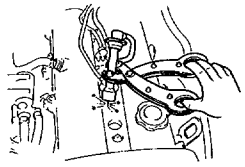
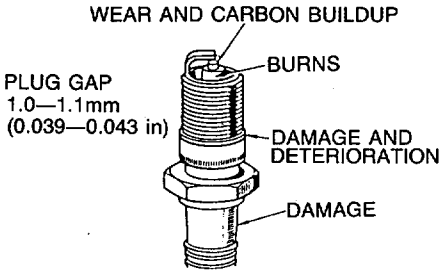
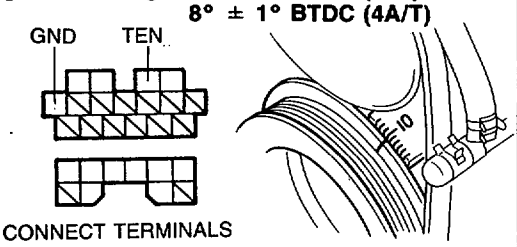
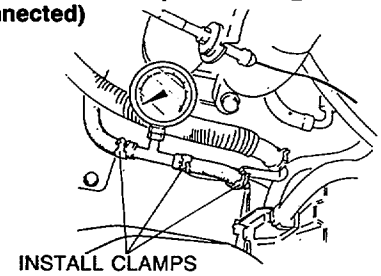
8	ROUGH IDLE — ALWAYS
DESCRIPTION	• Engine vibrates excessively at idle in every condition

[TROUBLESHOOTING HINTS]

① Air/Fuel mixture too lean
- Air leakage
- Fuel injection control malfunction
- Low fuel line pressure

② One or more injectors not operating or clogged
③ One or more spark plugs not sparking
④ Injection timing misadjustment
⑤ Low engine compression

STEP	INSPECTION		ACTION
1	Check for correct intake manifold vacuum at idle **Vacuum: More than 450 mmHg (17.7 inHg)** 	Yes	Go to next step
		No	Check for air leakage of intake air system components ☞ **page F–93**
2	Check if air cleaner element is clean ☞ **page F–75**	Yes	Go to next step
		No	Replace air cleaner element ☞ **page F–92**
3	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78** 	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80** **"88" flashes** Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
4	Check switches for correct operation with Self-Diagnosis Checker Monitor Lamp and ignition switch ON ☞ **page F–89** 	Yes	Go to next step
		No	**Lamp not ON/OFF with specified switch** Check for cause (Refer to specified check sequence) ☞ **page F–90** **Lamp always ON** Check wiring between ECU terminal 1D and Self-Diagnosis Checker ☞ **page F–7**
5	Check if ECU terminal voltages are OK (2D, 2O and 2Q) ☞ **page F–129**	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ **page F–132**

STEP	INSPECTION		ACTION
6	Check for injector operating sound at idle with sound scope or screwdriver	Yes	Go to Step 8
		No	Go to Step 7
7	Check if battery voltage exists at injector connector (W/R) wire 	Yes	Check if injector resistance is OK ☞ **page F–112** **Resistance: Approx. 14Ω** ⇨ If OK, check wiring between ECU and injector ☞ **page F–7** ⇨ If not OK, replace injector ☞ **page F–112**
		No	Check wiring between ECU and injector ☞ **page F–7**
8	Disconnect each high-tension lead at idle and check if engine speed decreases equally each time 	Yes	Disconnect each injector connector at idle and check if engine speed decreases equally each time ⇨ If OK, go to Step 10 ⇨ If not OK, check injector for fuel leakage ☞ **page F–113**
		No	Go to step 9
9	Check if spark plugs are OK 	Yes	Check for correct engine compression ☞ **page B–10** ⇨ If OK, replace injector ☞ **page F–112** ⇨ If not OK, check for cause (Refer to Section B) ☞ **page B–10**
		No	Repair, clean, or replace ☞ **page G–20**
10	Check for correct ignition timing at idle ☞ **page F–75** **Ignition timing: 10° ± 1° BTDC (M/T)** **8° ± 1° BTDC (4A/T)** 	Yes	Check for correct idle speed ☞ **page F–76** **Idle speed: 850 ± 50 rpm** ⇨ If OK, go to next step ⇨ If not OK, adjust idle speed ☞ **page F–76**
		No	Adjust ☞ **page F–75**
11	Check for correct fuel line pressure at idle ☞ **page F–103** **Fuel line pressure:** **265—314 kPa (2.7—3.2 kg/cm², 38—48 psi)** **(Vacuum hose to pressure regulator disconnected)** 	Yes	Go to next step
		No	**Low pressure** Check fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator ☞ **page F–111** ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator If not clogged, check fuel pump maximum pressure ☞ **page F–108**
12	Try known good ECU and check if condition improves ☞ **page F–127**		

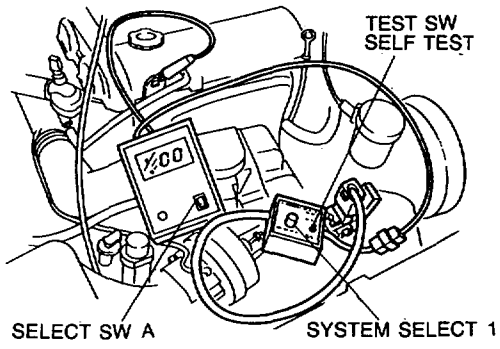
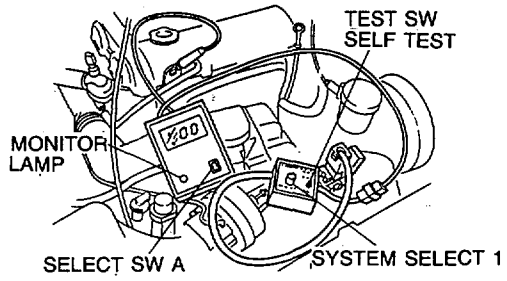
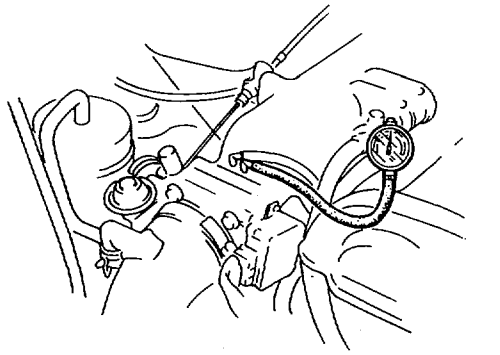
9	LOW IDLE SPEED/ROUGH IDLE — BEFORE WARM-UP
DESCRIPTION	• Engine speed low or engine vibrates excessively at idle during warm-up

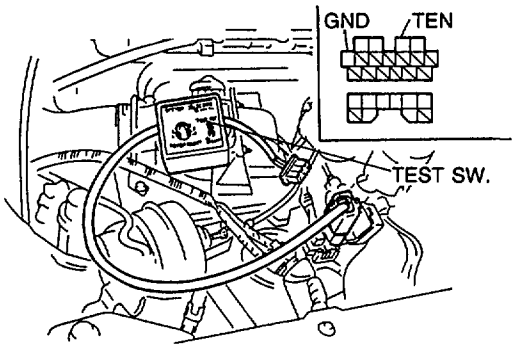
[TROUBLESHOOTING HINTS]

① Low intake air amount
- Airflow meter stuck
- Air cleaner element clogged
- Idle speed control
  [Air valve
  Correction for coolant temperature]

② Low fuel injection amount
- Fuel injection control malfunction (Correction for coolant temperature)

③ Poor atomization of fuel
- Low RVP (summer) fuel used in cold weather

STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78**  	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80**
			"88" flashes Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
2	Check switches for correct operation with Self-Diagnosis Checker Monitor Lamp and ignition switch ON ☞ **page F–89**  	Yes	Go to next step
		No	**Lamp not ON/OFF with specified switch** Check for cause (Refer to specified check sequence) ☞ **page F–90**
			Lamp always ON Check wiring between ECU terminal 1D and Self-Diagnosis Checker ☞ **page F–7**
3	Check if ECU terminal voltages are OK (2D, 2O and 2Q) ☞ **page F–129**	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ **page F–132**
4	Check for correct intake manifold vacuum at idle **Vacuum: More than 450 mmHg (17.7 inHg)** 	Yes	Go to next step
		No	Check for air leakage of intake air system components ☞ **page F–93**
5	Check if air cleaner element is clean ☞ **page F–75**	Yes	Go to next step
		No	Replace air cleaner element ☞ **page F–92**

STEP	INSPECTION		ACTION
6	Connect System Selector to diagnosis connector and set Test Switch to "SELF TEST" when engine is cold Check if engine speed decreases as engine warms up ☞ **page F–98** 	Yes	Go to next step
		No	Check air valve ☞ **page F–99**
7	With condition of Step 5 check for correct ignition timing at idle after warm-up ☞ **page F–75** **Ignition timing: 10° ± 1° BTDC (M/T)** **8° ± 1° BTDC (4A/T)**	Yes	Go to next step
		No	Adjust ☞ **page F–75**
8	Try known good ECU and check if condition improves ☞ **page F–127**	Yes	Replace ECU ☞ **page F–127**
		No	Change fuel to another brand

25U0FX-012

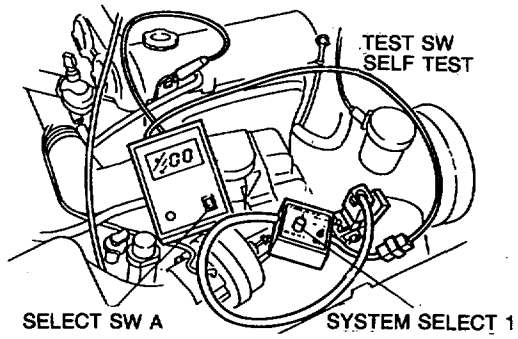
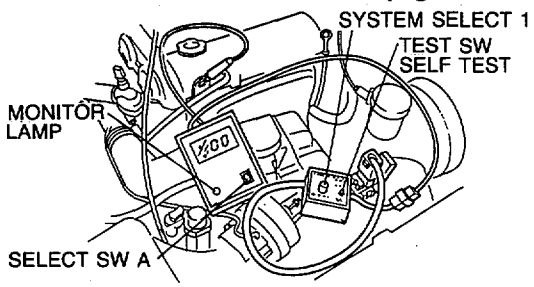
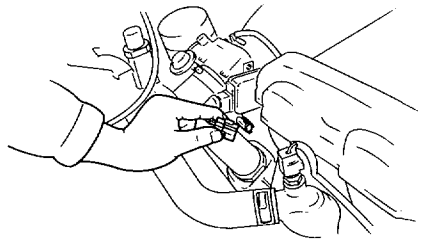
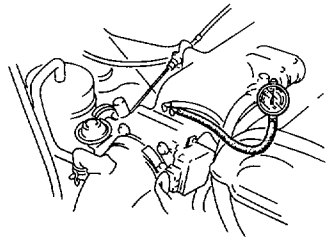
10	LOW IDLE SPEED/ROUGH IDLE — AFTER WARM-UP
DESCRIPTION	• Engine runs normally at idle during warm-up but vibrates excessively after warm-up

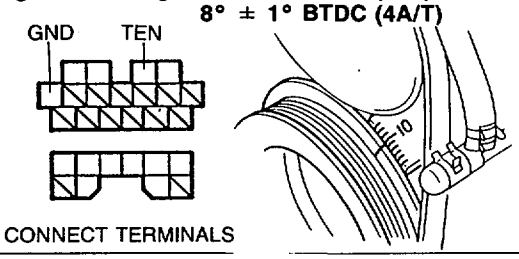
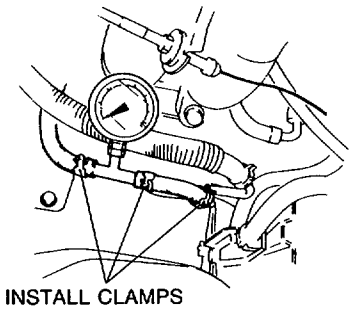
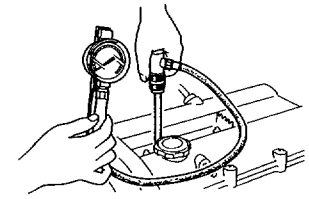
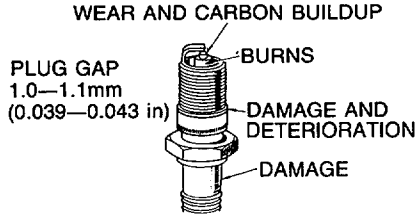
[TROUBLESHOOTING HINTS]

① Idle speed control malfunction
② Air/Fuel mixture too lean
- Air leakage of intake air system
- Low fuel line pressure

③ Air/Fuel mixture too rich
- Fuel injection control malfunction (Correction for coolant temperature)

④ Poor ignition spark
⑤ Low engine compression

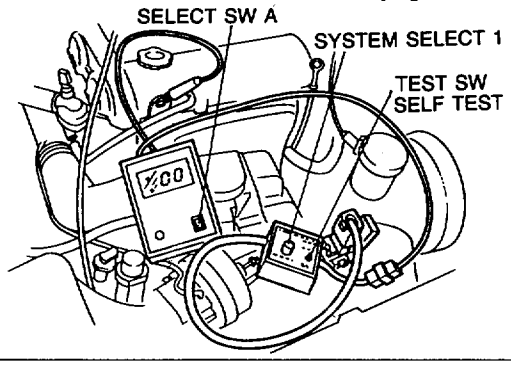
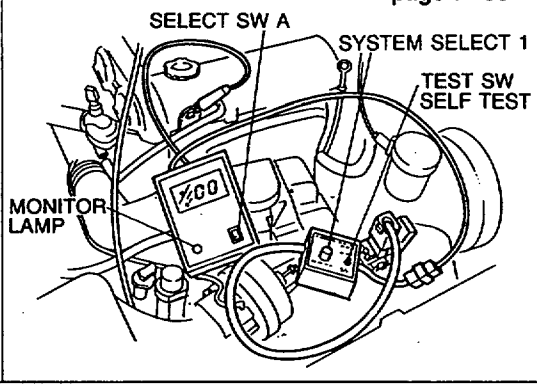
STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78**  	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80**
			"88" flashes Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
2	Check switches for correct operation with Self-Diagnosis Checker Monitor Lamp and ignition switch ON ☞ **page F–89**  	Yes	Go to next step
		No	**Lamp not ON/OFF with specified switch** Check for cause (Refer to specified check sequence) ☞ **page F–90**
			Lamp always ON Check wiring between ECU terminal 1D and Self-Diagnosis Checker ☞ **page F–7**
3	Disconnect ISC valve connector at idle and check if "clicking" is heard from ISC valve 	Yes	Go to next step
		No	Replace ISC valve ☞ **page F–99**
4	Check for correct intake manifold vacuum at idle **Vacuum: More than 450 mmHg (17.7 inHg)** 	Yes	Go to next step
		No	**Low vacuum** Check for air leakage of intake air system components ☞ **page F–93**

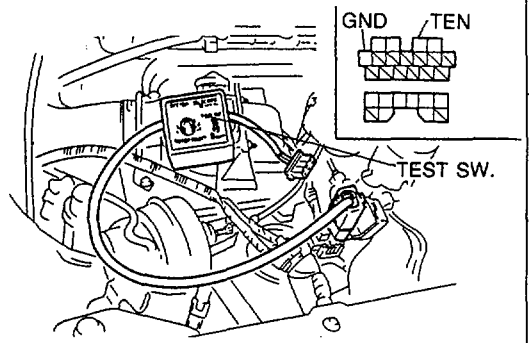
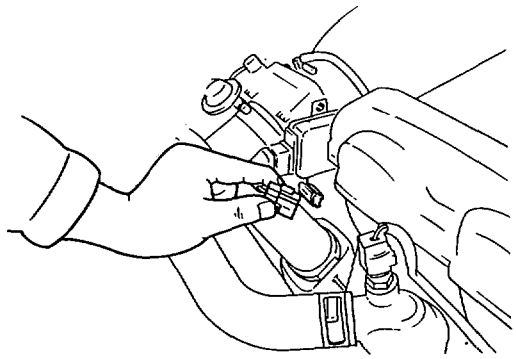
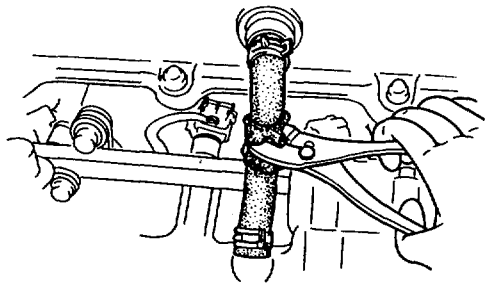
STEP	INSPECTION		ACTION
5	Check if ECU terminal voltages are OK (2D, 2O and 2Q) ☞ **page F–128**	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ **page F–132**
6	Check for correct ignition timing at idle ☞ **page F–75** **Ignition timing: 10° ± 1° BTDC (M/T)** **8° ± 1° BTDC (4A/T)**  	Yes	Check for correct idle speed ☞ **page F–76** **Idle speed: 850 ± 50 rpm** ⇨ If OK, go to next step ⇨ If not OK, adjust idle speed ☞ **page F–76**
		No	Adjust ☞ **page F–75**
7	Check for correct fuel line pressure at idle ☞ **page F–103** **Fuel line pressure:** **265—314 kPa (2.7—3.2 kg/cm², 38—46 psi)** **(Vacuum hose to pressure regulator disconnected)**  	Yes	Go to next step
		No	**Low pressure** Check fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator ☞ **page F–111** ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator If not clogged, check fuel pump maximum pressure ☞ **page F–108**
8	Check if strong blue spark is visible at each disconnected high-tension lead while cranking engine	Yes	Go to next step
		No	Check ignition system (Refer to Troubleshooting "Misfire") ☞ **page G–18**
9	Check for correct engine compression ☞ **page B–10** **Engine compression: 1,324—932 kPa** **(13.5—9.5 kg/cm², 192—135)-300 rpm** 	Yes	Go to next step
		No	Check engine condition ☞ **page B–10** • Worn piston, piston rings or cylinder wall • Defective cylinder head gasket • Distorted cylinder head • Improper valve seating • Valve sticking in guide
10	Check if spark plugs are OK  	Yes	Go to next step
		No	Repair, clean, or replace ☞ **page G–20**
11	Try known good ECU and check if condition improves ☞ **page F–127**		

15U0FX-011

11	HIGH IDLE SPEED — AFTER WARM-UP

[TROUBLESHOOTING HINTS]
Excessive intake air supplied to engine
① Throttle valve not fully closed
② Idle speed control malfunction
- Air valve not closing
- ISC valve stuck
- Incorrect coolant temperature signal

STEP	INSPECTION		ACTION
1	Check if throttle valve is fully closed when accelerator released	Yes	Go to Step 3
		No	Check if throttle linkage is correctly installed and operates freely ☞ **page F–96** ⇨ If OK, go to Step 2 ⇨ If not OK, clean, adjust or replace linkage ☞ **page F–96**
2	Check if dashpot is correctly adjusted ☞ **page F–121** **Dashpot set speed: 2,500 ± 150 rpm**	Yes	Check if throttle valve is contaminated ⇨ If contaminated, clean throttle body ☞ **page F–94** ⇨ If not contaminated, replace throttle body ☞ **page F–94**
		No	Adjust ☞ **page F–121**
3	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78** 	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80** **"88" flashes** Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
4	Check switches for correct operation with Self-Diagnosis Checker Monitor Lamp and ignition switch ON ☞ **page F–89** 	Yes	Go to next step
		No	**Lamp not ON/OFF with specified switch** Check for cause (Refer to specified check sequence) ☞ **page F–90** **Lamp always ON** Check wiring between ECU terminal 1D and Self-Diagnosis Checker ☞ **page F–7**

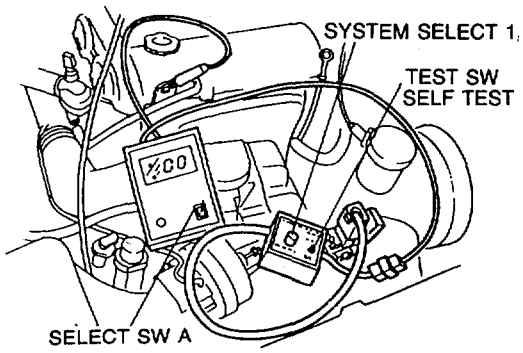
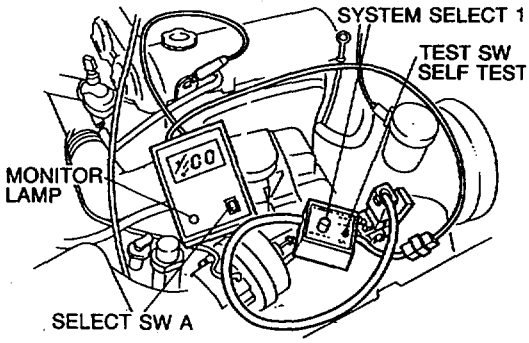
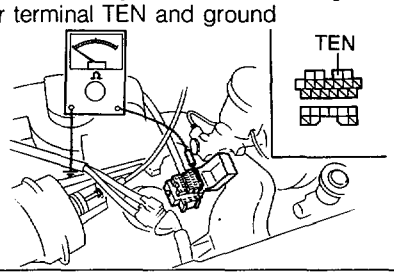
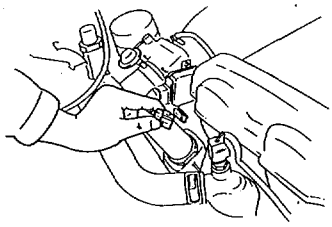
STEP	INSPECTION		ACTION
5	Connect System Selector to diagnosis connector and set Test Switch to "SELF TEST" when engine is cold Check if engine speed decreases as engine warms up 	Yes	Go to next step
		No	Check air valve ☞ **page F–99**
6	Disconnect ISC valve connector at idle and check if "clicking" is heard from ISC valve 	Yes	Go to next step
		No	Check ISC valve ☞ **page F–99**
7	Pinch PCV hose with pliers and check if engine speed decreases 	Yes	Check PCV valve ☞ **page F–117**
		No	Go to next step
8	Check if ECU terminal voltages are OK (2D, 2O and 2Q) ☞ **page F–129**	Yes	Try known good ECU ☞ **page F–127**
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ **page F–132**

25U0FX-014

12	LOW IDLE SPEED — WHEN A/C, P/S, OR E/L ON
DESCRIPTION	• Engine speed decreases at idle when A/C, P/S, or E/L ON • A/C, P/S, headlights, blower fan and electric cooling fan operate normally

[TROUBLESHOOTING HINTS]

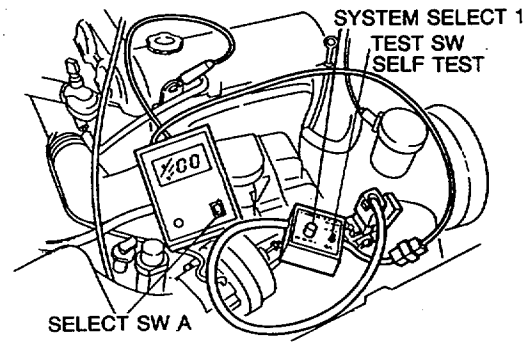
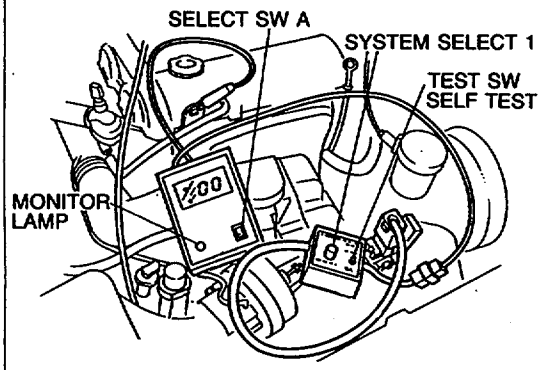
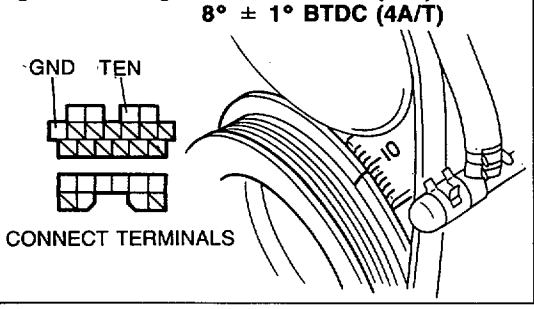
① Idle speed control malfunction
- Engine speed feedback control malfunction
- ISC valve stuck

STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78** 	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80**
			"88" flashes Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
2	Check switches for correct operation with Self-Diagnosis Checker Monitor Lamp and ignition switch ON ☞ **page F–89** 	Yes	Go to next step
		No	**Lamp not ON/OFF with specified switch** Check for cause (Refer to specified check sequence) ☞ **page F–90**
			Lamp always ON Check wiring between ECU terminal 1D and Self-Diagnosis Checker ☞ **page F–7**
3	Check if continuity exists between diagnosis connector terminal TEN and ground 	Yes	Check for short circuit in wiring between diagnosis connector terminal TEN and ground ☞ **page F–7**
		No	Go to next step
4	Disconnect ISC valve connector at idle and check if "clicking" is heard from ISC valve 	Yes	Try known good ECU ☞ **page F–127**
		No	Replace ISC valve ☞ **page F–99**

25U0FX-015

13	ROUGH IDLE JUST AFTER STARTING
DESCRIPTION	• Engine starts normally but vibrates excessively just after starting

[TROUBLESHOOTING HINTS]
① Fuel injection control and idle speed control malfunction
• Start signal not input to ECU
② Idle speed misadjustment
③ Ignition timing misadjustment

STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ page F–78 	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ page F–80
			"88" flashes Check ECU terminal 1F voltage ☞ page F–128 **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ page F–127 ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ page F–7
2	Check switches for correct operation with Self-Diagnosis Checker Monitor Lamp and ignition switch ON ☞ page F–89 	Yes	Go to next step
		No	**Lamp not ON/OFF with specified switch** Check for cause (Refer to specified check sequence) ☞ page F–90
			Lamp always ON Check wiring between ECU terminal 1D and Self-Diagnosis Checker ☞ page F–7
3	Check if ECU terminal 1C voltage is OK ☞ page F–128 **Voltage: Approx. 10V (While cranking)**	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ page F–131
4	Check for correct ignition timing at idle ☞ page F–75 **Ignition timing: 10° ± 1° BTDC (M/T)** **8° ± 1° BTDC (4A/T)** 	Yes	Check for correct idle speed ☞ page F–76 **Idle speed: 850 ± 50 rpm** ⇨ If OK, go to next step ⇨ If not OK, adjust idle speed ☞ page F–76
		No	Adjust ☞ page F–75
5	Try known good ECU and check if condition improves ☞ page F–127		

14	IDLE MOVES UP AND DOWN
DESCRIPTION	• Engine speeds up and down periodically at idle

[TROUBLESHOOTING HINTS]

① Fuel cut occurs at idle
- Air valve not closing after warm-up and idle speed reaches to fuel cut speed

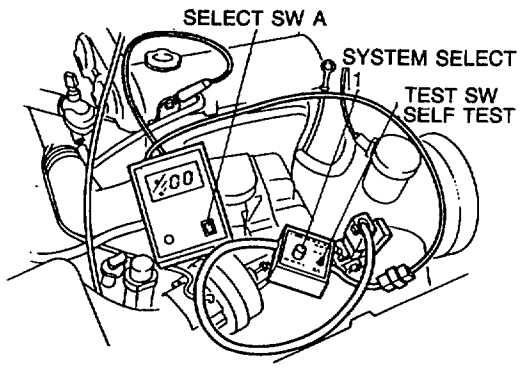
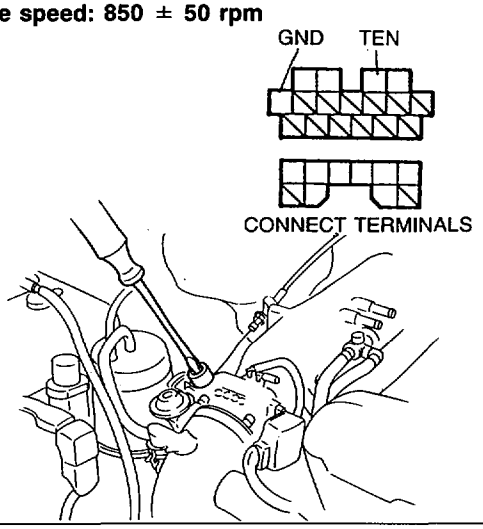
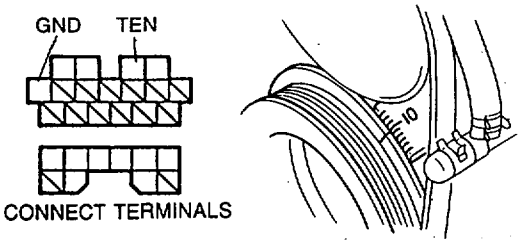
② Fuel injection amount fluctuating
- Bad contact point inside airflow meter

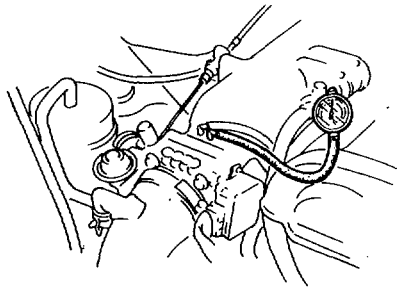
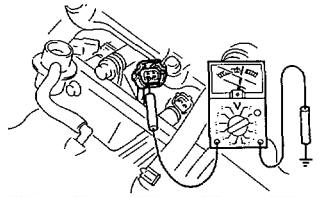
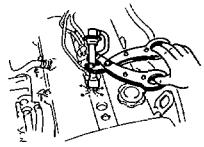
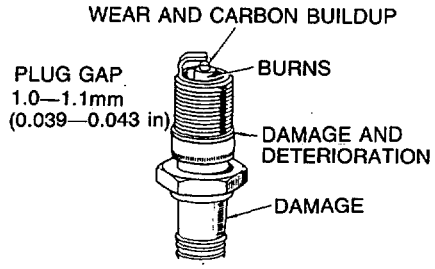
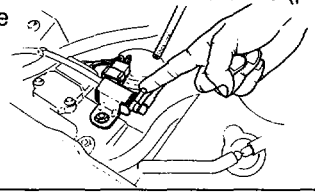
③ Air leakage of intake air system

④ Poor ignition spark

⑤ Air/Fuel mixture too rich
- Evaporative emission control system malfunction

⑥ Low engine compression

STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78**  	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80**
			"88" flashes Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
2	Check for correct idle speed ☞ **page F–76** **Idle speed: 850 ± 50 rpm**  	Yes	Go to next step
		No	Check if idle speed can be adjusted by turning air adjust screw ⇨ If OK, adjust idle speed ⇨ If not OK, check air valve ☞ **page F–99**
3	Check for correct ignition timing at idle ☞ **page F–75** **Ignition timing: 10° ± 1° BTDC (M/T)** **8° ± 1° BTDC (4A/T)**  	Yes	Go to next step
		No	Adjust ☞ **page F–75**

STEP	INSPECTION		ACTION
4	Check for correct intake manifold vacuum at idle **Intake manifold vacuum:** **More than 450 mmHg (17.7 inHg)** 	Yes	Go to next step
		No	**Low vacuum** Check for air leakage of intake air system ☞ **page F–93**
5	Check for injector operating sound at idle with sound scope or screwdriver	Yes	Go to Step 7
		No	Go to Step 6
6	Check if battery voltage exists at injector connector (W/R) wire 	Yes	Check if injector resistance is OK ☞ **page F–112** **Resistance: Approx. 14Ω** ⇨ If OK, check wiring between ECU and injector ☞ **page F–7** ⇨ If not OK, replace injector ☞ **page F–112**
		No	Check wiring between ECU and injector ☞ **page F–7**
7	Disconnect each high-tension lead at idle and check if engine speed decreases equally each time 	Yes	Disconnect each injector connector at idle and check if engine speed decreases equally each time ⇨ If OK, go to Step 9 ⇨ If not OK, check injector for fuel leakage ☞ **page F–113**
		No	Go to Step 8
8	Check if spark plugs are OK 	Yes	Check for correct engine compression ☞ **page B–10** ⇨ If OK, replace injector ☞ **page F–112** ⇨ If not OK, check for cause (Refer to Section B) ☞ **page B–10**
		No	Repair, clean, or replace ☞ **page G–20**
9	Check if ECU terminal voltages are OK (2D, 2Q and 2X) ☞ **page F–128**	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ **page F–132**
10	Check if vacuum is felt at solenoid valve (purge control) at idle 	Yes	Check solenoid valve ☞ **page F–119**
		No	Go to next step
11	Try known good ECU and check if condition improves ☞ **page F–127**		

25U0FX-017

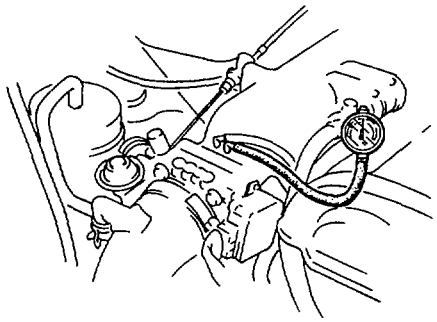
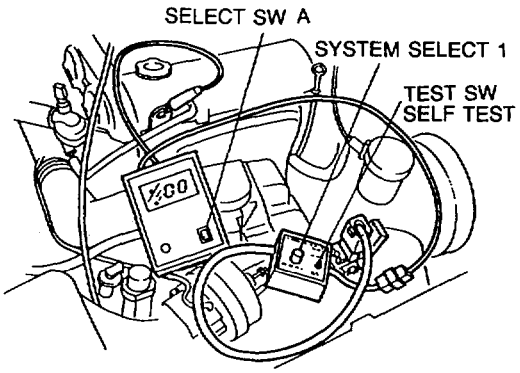
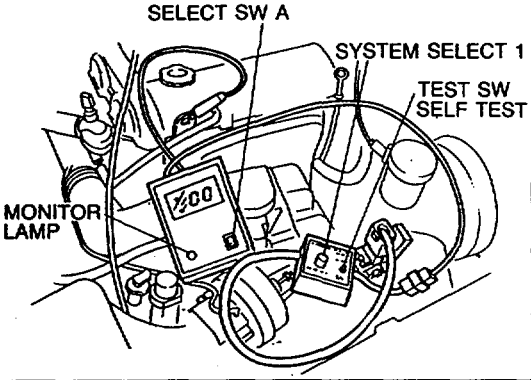
15	ENGINE STALLS AT IDLE — ALWAYS
DESCRIPTION	• Engine starts normally but vibrates excessively and stalls at idle in every condition

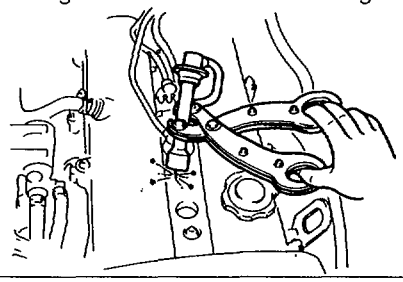
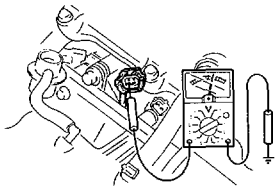
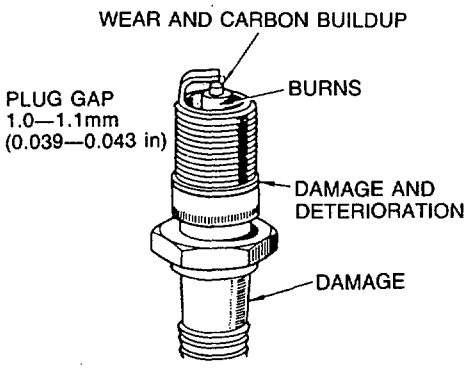
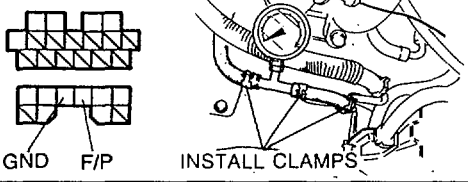
[TROUBLESHOOTING HINTS]

① Incorrect idle speed
- Idle speed misadjustment
- Idle speed control malfunction

② Air/Fuel mixture too rich or lean
- Injector clogged or inoperative
- Low fuel line pressure
- Low intake air amount or air leakage

③ Poor ignition spark

STEP	INSPECTION		ACTION
1	Check for correct intake manifold vacuum at idle **Vacuum: More than 450 mmHg (17.7 inHg)** 	Yes	Go to next step
		No	Check for air leakage of intake air system components ☞ **page F–93**
2	Check if air cleaner element is clean ☞ **page F–75**	Yes	Go to next step
		No	Replace air cleaner element ☞ **page F–92**
3	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78** 	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80**
			"88" flashes Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
4	Check switches for correct operation with Self-Diagnosis Checker Monitor Lamp and ignition switch ON ☞ **page F–89** 	Yes	Go to next step
		No	**Lamp not ON/OFF with specified switch** Check for cause (Refer to specified check sequence) ☞ **page F–90**
			Lamp always ON Check wiring between ECU terminal 1D and Self-Diagnosis Checker ☞ **page F–7**

STEP	INSPECTION		ACTION
5	Check if ECU terminal voltages are OK (2D, 2O and 2Q) ☞ page F–129	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ page F–132
6	Check if strong blue spark is visible at each disconnected high-tension lead while cranking engine 	Yes	Go to next step
		No	Check ignition system (Refer to Troubleshooting "Misfire") ☞ page G–18
7	Check for injector operating sound at each injector at idle	Yes	Go to Step 9
		No	Go to Step 8
8	Check if battery voltage exists at injector connector (W/R) wire with ignition switch ON 	Yes	Check if injector resistance is OK ☞ page F–112 **Resistance: Approx. 14Ω** ⇨ If OK, check wiring between injector and ECU ⇨ If not OK, replace injector ☞ page F–112
		No	Check wiring between main relay and injector ☞ page F–7
9	Check if spark plugs are OK 	Yes	Go to next step
		No	Repair or replace ☞ page G–20
10	Connect diagnosis connector terminals F/P and GND with jumper wire and check for correct fuel line pressure with ignition switch ON ☞ page F–103 **Fuel line pressure:** **265—314 kPa (2.7—3.2 kg/cm², 38—46 psi)** 	Yes	Go to next step
		No	**Low pressure** Check fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator ☞ page F–111 ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump to pressure regulator If not clogged, check for fuel pump maximum pressure ☞ page F–108
11	Try known good ECU and check if condition improves ☞ page F–127		

25U0FX-018

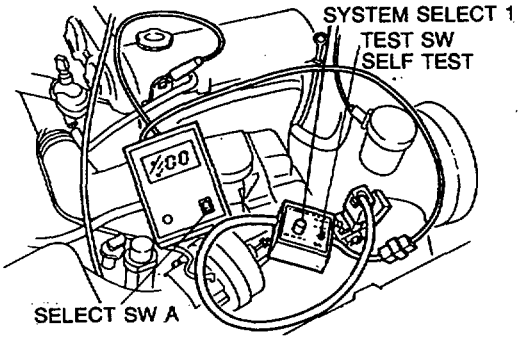
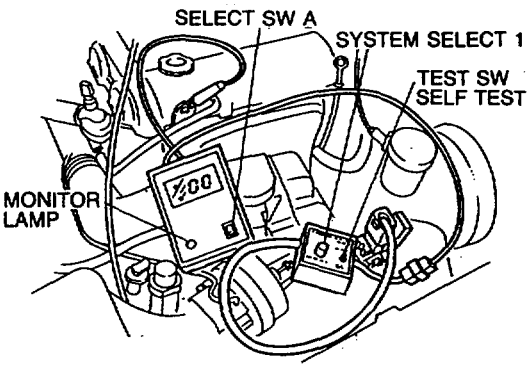
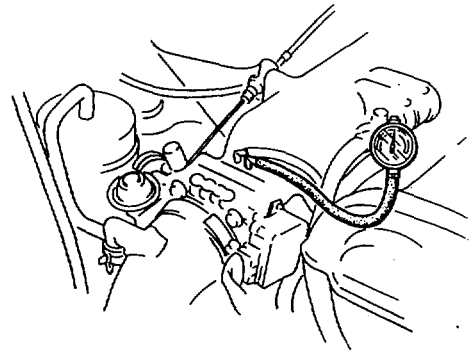
16	ENGINE STALLS AT IDLE — BEFORE WARM-UP
DESCRIPTION	• Engine starts normally but vibrates excessively and stalls at idle before warm-up

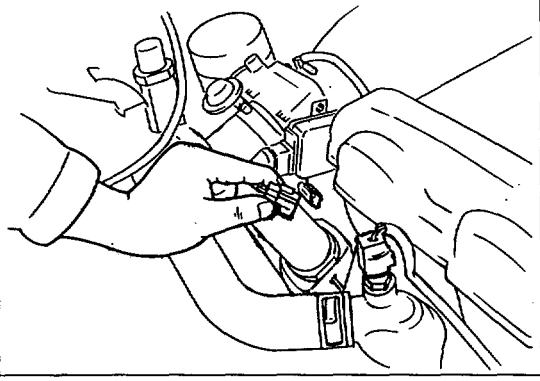
[TROUBLESHOOTING HINTS]

① Low intake air amount
- Idle speed control malfunction
- Air cleaner element clogged
- Airflow meter stuck

② Air/Fuel mixture too lean
- Air leakage of intake air system

③ Poor atomization of fuel
- Low RVP (summer) fuel used in cold weather

STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78**  	No	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80**
			"88" flashes Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
2	Check switches for correct operation with Self-Diagnosis Checker Monitor Lamp with ignition switch ON ☞ **page F–89**  	Yes	Go to next step
		No	**Lamp not ON/OFF with specified switch** Check for cause (Refer to specified check sequence) ☞ **page F–90**
			Lamp always ON Check wiring between ECU terminal 1D and Self-Diagnosis Checker ☞ **page F–7**
3	Check if ECU terminal voltages are OK (2D, 2O and 2Q) ☞ **page F–129**	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ **page F–132**
4	Check for correct intake manifold vacuum at idle **Vacuum: More than 450 mmHg (17.7 inHg)** 	Yes	Go to next step
		No	Check for air leakage of intake air system components ☞ **page F–93**

STEP	INSPECTION		ACTION
5	Check if air cleaner element is clean ☞ **page F–75**	Yes	Go to next step
		No	Replace air cleaner element ☞ **page F–92**
6	Disconnect ISC valve connector when engine is cold and note idle speed Check if engine speed decreases after warm-up 	Yes	Go to next step
		No	Check air valve ☞ **page F–99**
7	Try known good ECU and check if condition improves ☞ **page F–127**	Yes	Replace ECU ☞ **page F–127**
		No	Change fuel to another brand

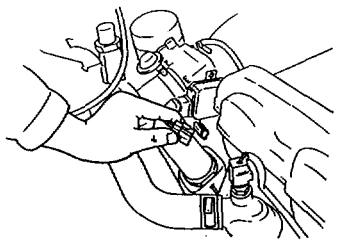
25U0FX-019

17	ENGINE STALLS AT IDLE — AFTER WARM-UP
DESCRIPTION	• Engine runs normally at idle during warm-up but becomes rough and stalls after warm-up

[TROUBLESHOOTING HINTS]

① Air/Fuel mixture too lean
- Air leakage of intake air system

② Low intake air amount
- Idle speed control malfunction

STEP	INSPECTION		ACTION
1	Check if air is leaked from intake air system component ☞ **page F–93**	Yes	Repair or replace ☞ **page F–93**
		No	Go to next step
2	Disconnect ISC valve connector at idle and check if "clicking" is heard from ISC Valve 	Yes	Go to next step
		No	Replace ISC valve ☞ **page F–99**
3	Go to troubleshooting No.10 "LOW IDLE SPEED/ROUGH IDLE—AFTER WARM-UP" ☞ **page F–34**		

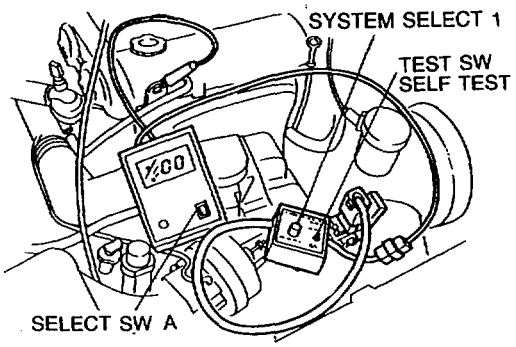
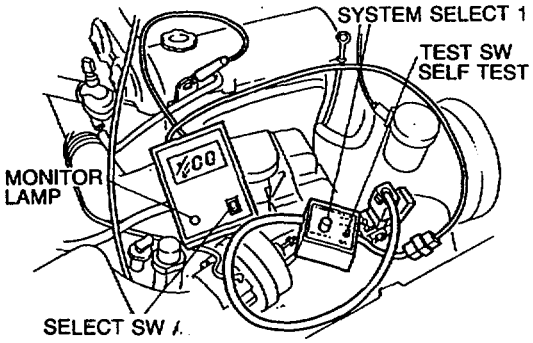
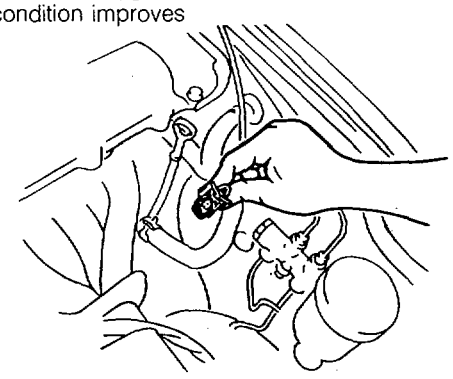
05U0FX-034

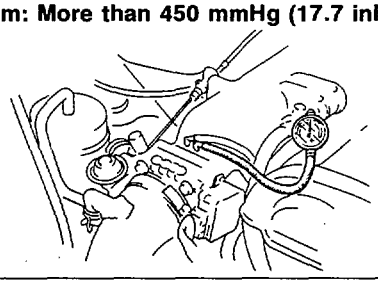
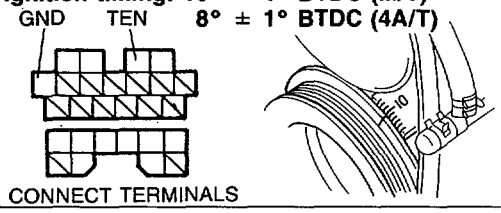
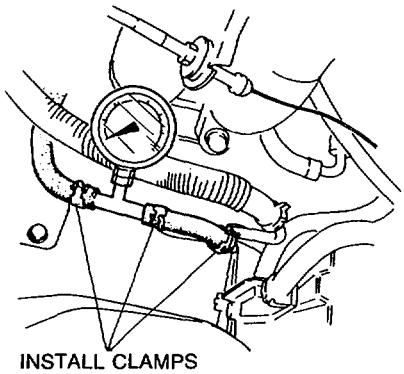
18	ENGINE STALLS DURING START-UP
DESCRIPTION	• Engine unexpectedly stops running while starting

[TROUBLESHOOTING HINTS]

① Misfire occurs when depressing accelerator
- Air/Fuel mixture too rich or too lean
- Incorrect ignition timing
- Weak ignition

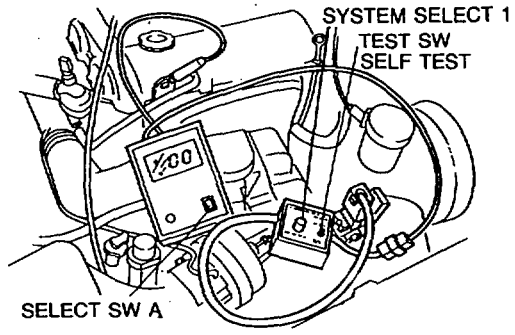
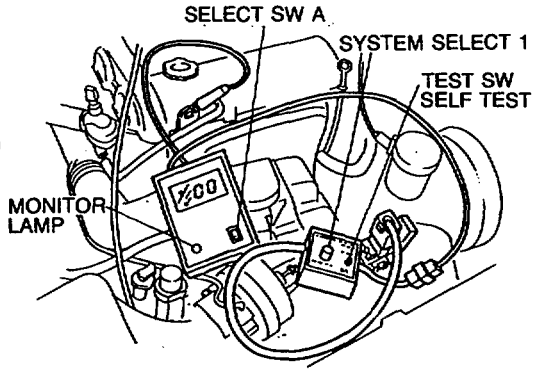
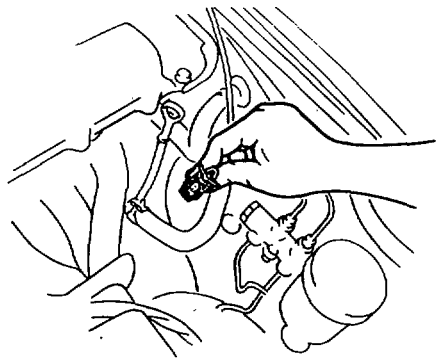
② Lack of engine torque for start-up
- Air/Fuel mixture too rich or too lean
- Low intake air amount
- Low engine compression

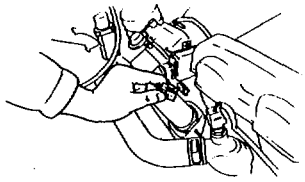
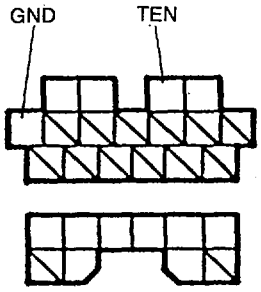
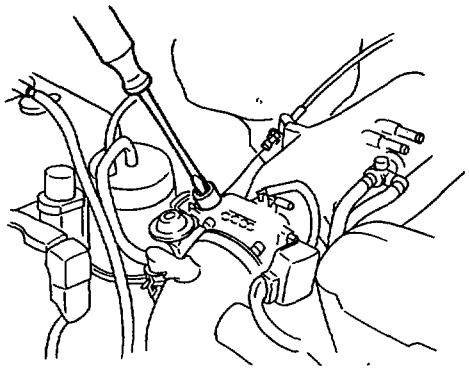
STEP	INSPECTION		ACTION
1	Check if brakes are dragging ☞ **page P–29**	Yes	Repair ☞ **page P–29**
		No	Go to next step
2	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78** 	No	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–78**
			"88" flashes Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
3	Check switches for correct operation with Self-Diagnosis Checker Monitor Lamp and ignition switch ON ☞ **page F–89** 	Yes	Go to next step
		No	**Lamp not ON/OFF with specified switch** Check for cause (Refer to specified check sequence) ☞ **page F–90**
			Lamp always ON Check wiring between ECU terminal 1D and Self-Diagnosis Checker ☞ **page F–7**
4	Disconnect oxygen sensor connector and check if condition improves 	Yes	Check oxygen sensor ☞ **page F–138**
		No	Go to next step
5	Check if ECU terminal voltages are OK ☞ **page F–128**	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ **page F–131**

STEP	INSPECTION		ACTION
6	Check if throttle linkage is correctly installed and operates freely	Yes	Go to next step
		No	Correct, clean, or replace as required any binding or damaged linkage and adjust cable deflection at throttle body ☞ **page F–96**
7	Check for correct intake manifold vacuum at idle **Vacuum: More than 450 mmHg (17.7 inHg)** 	Yes	Go to next step
		No	Check for air leakage of intake air system components ☞ **page F–93**
8	Check if air cleaner element is clean ☞ **page F–75**	Yes	Go to next step
		No	Replace air cleaner element ☞ **page F–92**
9	Check for correct ignition timing at idle ☞ **page F–76** **Ignition timing: 10° ± 1° BTDC (M/T)** **8° ± 1° BTDC (4A/T)**  	Yes	Check if ignition timing advances when accelerating ⇨ If advances, go to next step ⇨ If no advance, replace ECU ☞ **page F–127**
		No	Adjust ☞ **page F–76**
10	Check for correct fuel line pressure at idle ☞ **page F–103** **Fuel line pressure:** **265—314 kPa (2.7—3.2 kg/cm², 38—46 psi)** **(Vacuum hose to pressure regulator disconnected)**  	Yes	Check if fuel line pressure decreases when accelerating quickly ⇨ If decreases, check fuel pump maximum pressure ☞ **page F–108** If OK, check fuel line and filter for clogging ⇨ If no decrease, go to next step
		No	**Low pressure** Check for fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator ☞ **page F–111** ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator If not clogged, check fuel pump maximum pressure ☞ **page F–108**
			High pressure Check if fuel return line is clogged ⇨ If OK, replace pressure regulator ☞ **page F–112** ⇨ If not OK, replace
11	Check for correct engine compression ☞ **page B–10** **Engine compression: 1,324—932 kPa (13.5—9.5 kg/cm², 192—135 psi)-300 rpm**	Yes	Go to next step
		No	Check engine condition ☞ **page B–10** • Worn piston, piston rings or cylinder wall • Defective cylinder head gasket • Distorted cylinder head • Improper valve seating • Valve sticking in guide
12	Try known good ECU and check if condition improves ☞ **page F–127**		

19	ENGINE STALLS ON DECELERATION
DESCRIPTION	• Engine unexpectedly stops running while decelerating or after deceleration

[TROUBLESHOOTING HINTS]
Engine speed drops too much when releasing accelerator
① Idle speed control malfunction
② Fuel cut control malfunction
③ Engine feedback control malfunction
④ Idle speed misadjustment

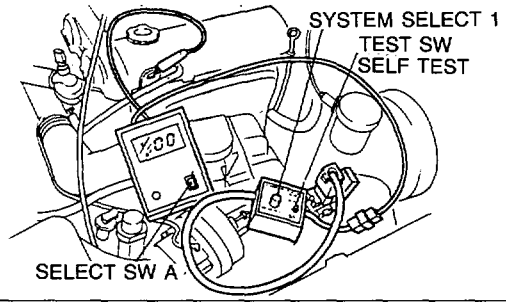
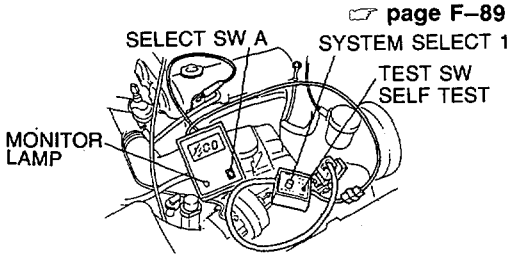
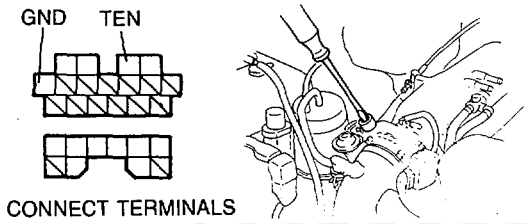
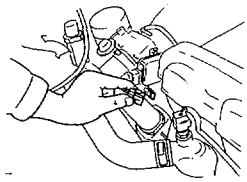
STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78**  	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80**
			"88" flashes Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
2	Check switches for correct operation with Self-Diagnosis Checker Monitor Lamp and ignition switch ON ☞ **page F–89**  	Yes	Go to next step
		No	**Lamp not ON/OFF with specified switch** Check for cause (Refer to specified check sequence) ☞ **page F–90**
			Lamp always ON Check wiring between ECU terminal 1D and Self-Diagnosis Checker ☞ **page F–7**
3	Disconnect oxygen sensor connector and check if condition improves 	Yes	Check oxygen sensor ☞ **page F–138**
		No	Go to next step
4	Check if ECU terminal voltages are OK (2D, 2O, 2U, 2V and 2Q) ☞ **page F–129**	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ **page F–132**

STEP	INSPECTION		ACTION
5	Disconnect ISC valve connector at idle and check if "clicking" is heard from ISC valve 	Yes	Go to next step
		No	Replace ISC valve ☞ **page F–99**
6	Check for correct idle speed ☞ **page F–76** **Idle speed: 850 ± 50 rpm**  CONNECT TERMINALS 	Yes	Go to next step
		No	Adjust ☞ **page F–76**
7	Try known good ECU and check if condition improves ☞ **page F–127**		

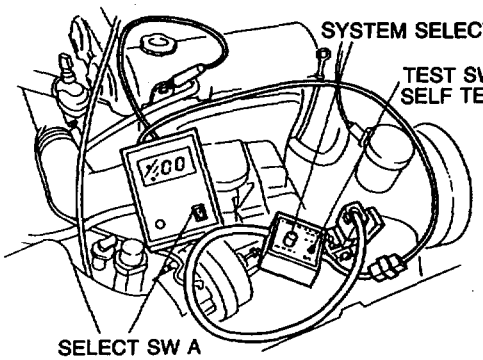
25U0FX-021

20	ENGINE STALLS AT IDLE — WHEN A/C, P/S, OR E/L ON
DESCRIPTION	• Engine unexpectedly stops running at idle when A/C, P/S, or E/L ON • A/C, P/S, headlight, blower fan and electric cooling fan OK

[TROUBLESHOOTING HINTS]
① Idle speed control malfunction
- No input signal from switch
- Idle speed misadjustment
- ISC valve stuck

STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78**  	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80**
			"88" flashes Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
2	Check switches for correct operation with Self-Diagnosis Checker Monitor Lamp and ignition switch ON ☞ **page F–89**  	Yes	Go to next step
		No	**Lamp not ON/OFF with specified switch** Check for cause (Refer to specified check sequence) ☞ **page F–89**
			Lamp always ON Check wiring between ECU terminal 1D and Self-Diagnosis Checker ☞ **page F–7**
3	Check if ECU terminal voltages are OK (1G, 1P, 1U, 2D, 2Q and 2W) ☞ **page F–128**	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ **page F–131**
4	Check for correct idle speed ☞ **page F–76** **Idle speed: 850 ± 50 rpm**  	Yes	Go to next step
		No	Adjust ☞ **page F–76**
5	Disconnect ISC valve connector at idle and check if "clicking" is heard from ISC valve 	Yes	Go to next step
		No	Replace ISC valve ☞ **page F–99**
6	Try known good ECU and check if condition improves ☞ **page F–127**		

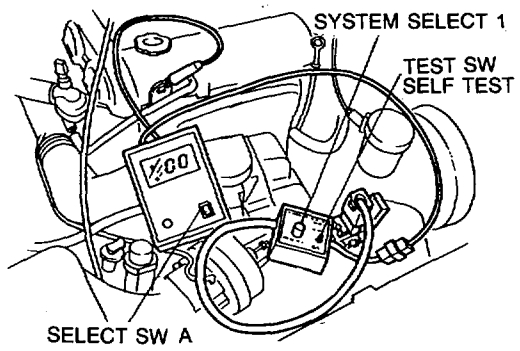
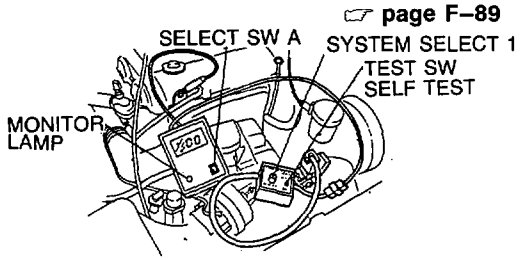
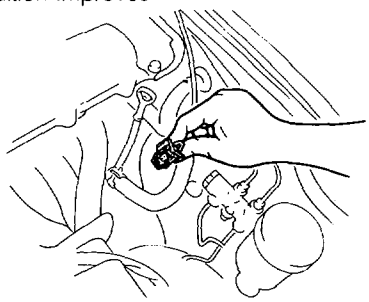
25U0FX-022

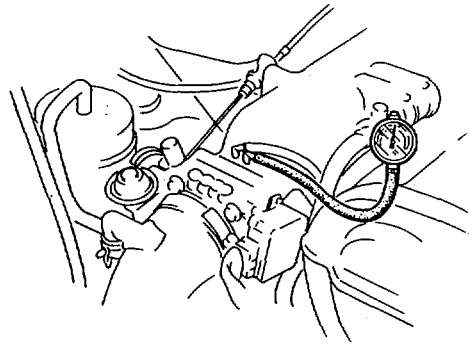
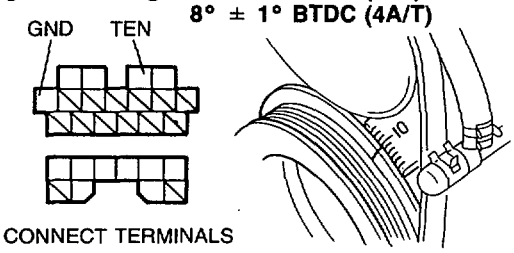
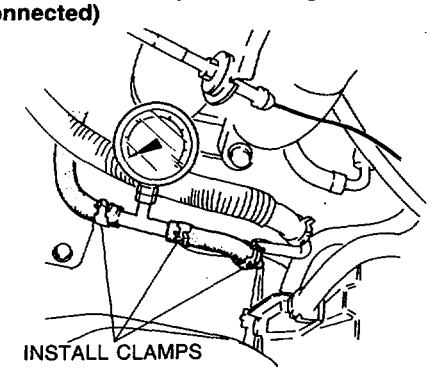
21	ENGINE STALLS SUDDENLY (INTERMITTENT)		
DESCRIPTION	• Engine intermittently stops running • Before stalling, engine condition OK		
[TROUBLESHOOTING HINTS] ① Intermittently no spark or no fuel injection • Poor connection in wiring harness			
STEP	**INSPECTION**		**ACTION**
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78**  	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80** **Note** **When checking wiring harness and connectors, tap, move, and wiggle suspect sensor and/or harness to recreate problem**
			"88" flashes Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
2	Check if ECU terminal voltages are OK (1B, 2A, 2B and 2C) ☞ **page F–128** **Note** **When checking voltages, tap, move, and wiggle harness and connector**	Yes	Go to Troubleshooting No.2 "CRANKS NORMALLY BUT WILL NOT START (NO COMBUSTION)" ☞ **page F–82**
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ **page F–131**

25U0FX-023

22	HESITATES/STUMBLES ON ACCELERATION
DESCRIPTION	• Flat spot occurs just after accelerator depressed or mild jerking occurs during acceleration

[TROUBLESHOOTING HINTS]
① Air/Fuel mixture leaning when depressing accelerator
- Fuel injection control malfunction (Correction for accelerating condition)
- Air leakage of intake air system
- Fuel line pressure low
- Spark advance control malfunction

STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78**  	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80**
			"88" flashes Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
2	Check switches for correct operation with Self-Diagnosis Checker Monitor Lamp and ignition switch ON ☞ **page F–89**  	Yes	Go to next step
		No	**Lamp not ON/OFF with specified switch** Check for cause (Refer to specified check sequence) ☞ **page F–90**
			Lamp always ON Check wiring between ECU terminal 1D and Self-Diagnosis Checker ☞ **page F–7**
3	Disconnect oxygen sensor connector and check if condition improves 	Yes	Check oxygen sensor ☞ **page F–138**
		No	Go to next step
4	Check if ECU terminal voltages are OK ☞ **page F–128**	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ **page F–131**
5	Check if throttle linkage is correctly installed and operates freely	Yes	Go to next step
		No	Correct, clean, or replace as required any binding or damaged linkage and adjust cable deflection at throttle body ☞ **page F–96**

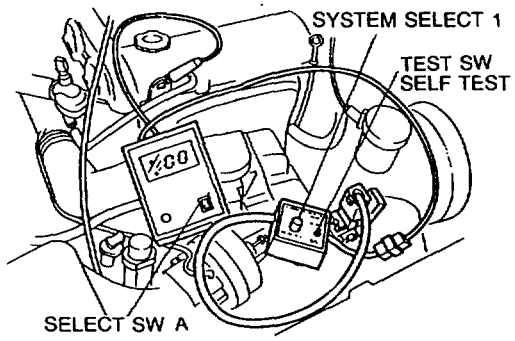
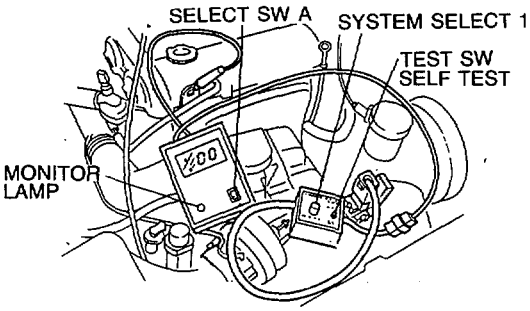
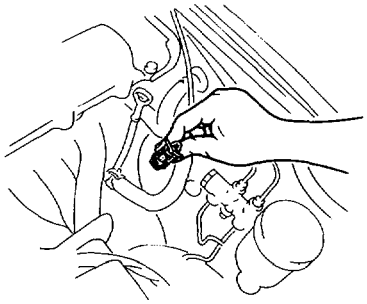
STEP	INSPECTION		ACTION
6	Check if air duct and air hoses are correctly installed ☞ **page F–76**	Yes	Go to next step
		No	Repair ☞ **page F–92**
7	Check for correct intake manifold vacuum at idle **Vacuum: More than 450 mmHg (17.7 inHg)** 	Yes	Go to next step
		No	Check for air leakage of intake air system components ☞ **page F–93**
8	Check if air cleaner element is clean ☞ **page F–75**	Yes	Go to next step
		No	Replace air cleaner element ☞ **page F–92**
9	Check for correct ignition timing at idle ☞ **page F–75** **Ignition timing: 10° ± 1° BTDC (M/T)** **8° ± 1° BTDC (4A/T)** 	Yes	Check if ignition timing advances when accelerating ⇨ If advances, go to next step ⇨ If no advance, replace ECU ☞ **page F–127**
		No	Adjust ☞ **page F–75**
10	Check for correct fuel line pressure at idle ☞ **page F–103** **Fuel line pressure:** **265—314 kPa (2.7—3.2 kg/cm², 38—46 psi)** **(Vacuum hose to pressure regulator disconnected)** 	Yes	Check if fuel line pressure decreases when accelerating quickly ⇨ If decreases, check fuel line and filter for clogging ⇨ If no decrease, go to next step
		No	**Low pressure** Check for fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator ☞ **page F–111** ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator If not clogged, check fuel pump maximum pressure ☞ **page F–108**
11	Check if exhaust system is restricted ☞ **page F–115**	Yes	Repair or replace ☞ **page F–115**
		No	Go to next step
12	Try known good ECU and check if condition improves ☞ **page F–127**		

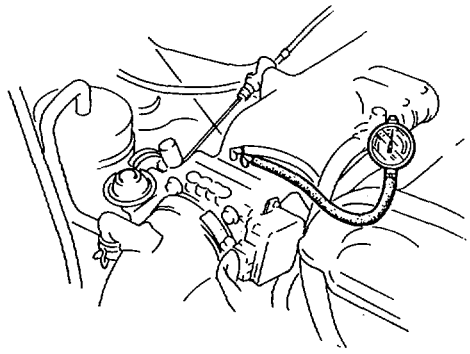
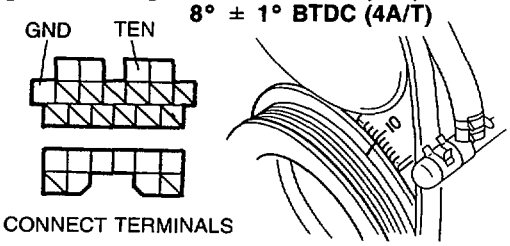
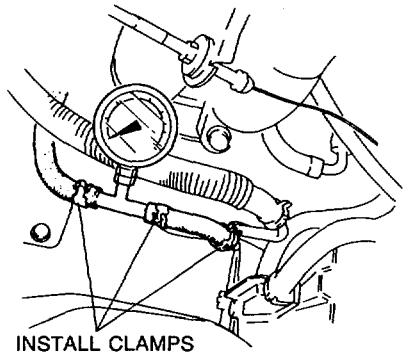
25U0FX-024

23	SURGES WHILE CRUISING
DESCRIPTION	• Unexpected change in engine speed which is usually repetitive

[TROUBLESHOOTING HINTS]

① Air/Fuel mixture too lean or too rich
- Fuel injection control malfunction
- Air leakage of intake air system
- Fuel line pressure low
- Evaporative emission control malfunction
- Spark advance control malfunction

STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78**  	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80** **"88" flashes** Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
2	Check switches for correct operation with Self-Diagnosis Checker Monitor Lamp and ignition switch ON ☞ **page F–89**  	Yes	Go to next step
		No	**Lamp not ON/OFF with specified switch** Check for cause (Refer to specified check sequence) ☞ **page F–90** **Lamp always ON** Check wiring between ECU terminal 1D and Self-Diagnosis Checker ☞ **page F–7**
3	Disconnect oxygen sensor connector and check if condition improves 	Yes	Check oxygen sensor ☞ **page F–138**
		No	Go to next step
4	Check if ECU terminal voltages are OK ☞ **page F–128**	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ **page F–131**
5	Check if throttle linkage is correctly installed and operates freely	Yes	Go to next step
		No	Correct, clean, or replace as required any binding or damaged linkage, and adjust cable deflection at throttle body ☞ **page F–96**

STEP	INSPECTION		ACTION
6	Check for correct intake manifold vacuum **Vacuum: More than 450 mmHg (17.7 inHg)** 	Yes	Go to next step
		No	Check for air leakage of intake air system components ☞ **page F–93**
7	Check if air cleaner element is clean ☞ **page F–75**	Yes	Go to next step
		No	Replace air cleaner element ☞ **page F–92**
8	Check for correct ignition timing at idle ☞ **page F–75** **Ignition timing: 10° ± 1° BTDC (M/T)** **8° ± 1° BTDC (4A/T)**  	Yes	Check if ignition timing advances when accelerating ⇨ If advances, go to next step ⇨ If no advance, replace ECU ☞ **page F–127**
		No	Adjust ☞ **page F–75**
9	Check for correct fuel line pressure at idle ☞ **page F–103** **Fuel line pressure:** **265—314 kPa (2.7—3.2 kg/cm², 38—46 psi)** **(Vacuum hose to pressure regulator disconnected)**  	Yes	Check if fuel line pressure decreases when accelerating quickly ⇨ If decreases, check fuel line and filter for clogging ⇨ If no decrease, go to next step
		No	**Low pressure** Check for fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator ☞ **page F–111** ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator If not clogged, check fuel pump maximum pressure ☞ **page F–108**
10	Check if exhaust system is restricted ☞ **page F–115**	Yes	Repair or replace ☞ **page F–115**
		No	Go to next step
11	Try known good ECU and check if condition improves ☞ **page F–127**		

25U0FX-025

24	LACK OF POWER
DESCRIPTION	• Performance poor under load • Reduced maximum speed

[TROUBLESHOOTING HINTS]

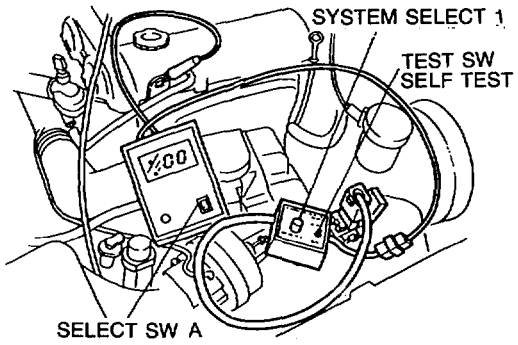
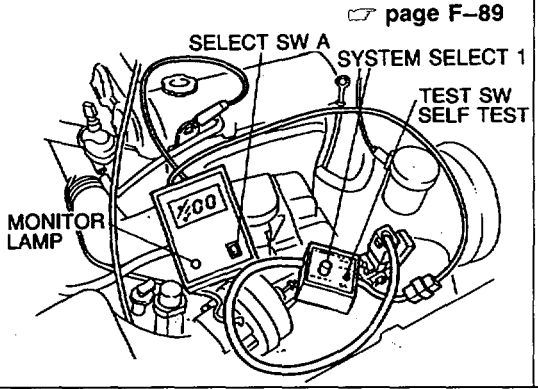
① Factors other than engine malfunction
- Clutch slipping
- Brake dragging
- Low tire pressure
- Unrecommended tire size
- Overloaded

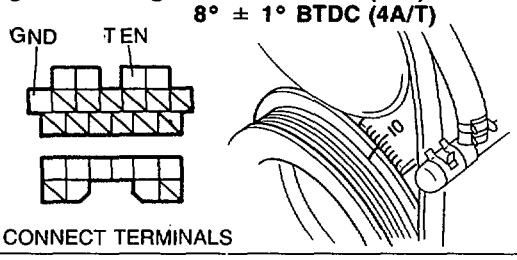
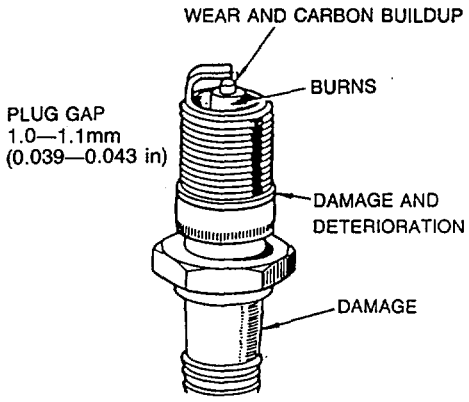
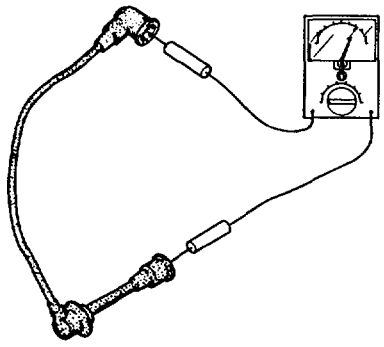
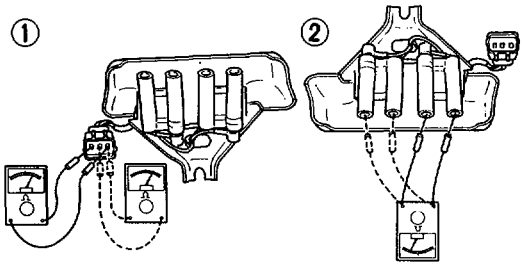
② Low intake air amount
- Throttle valve not open fully
- Clogged intake air system

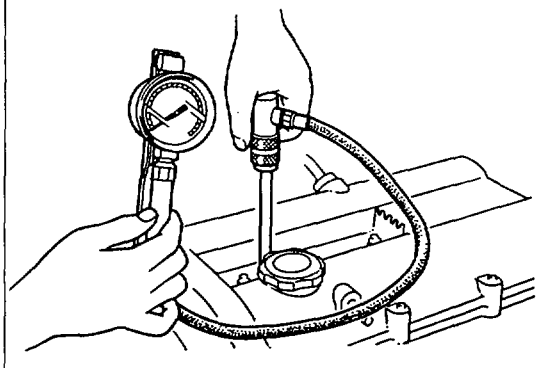
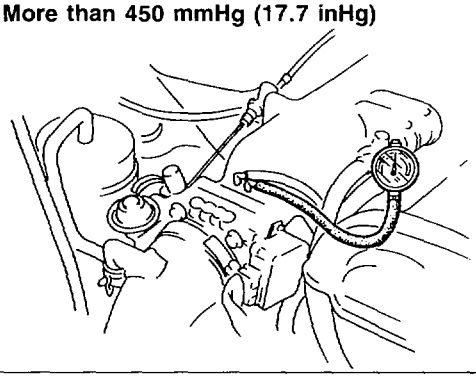
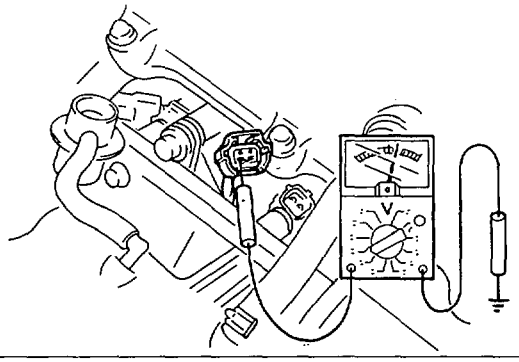
③ Air/Fuel mixture too lean or too rich
- Fuel line pressure low or high
- Insufficient fuel injection

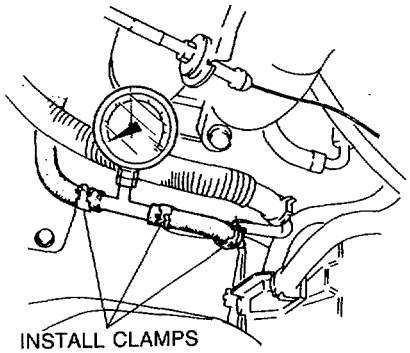
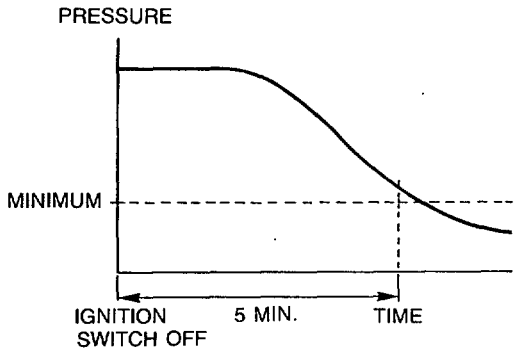
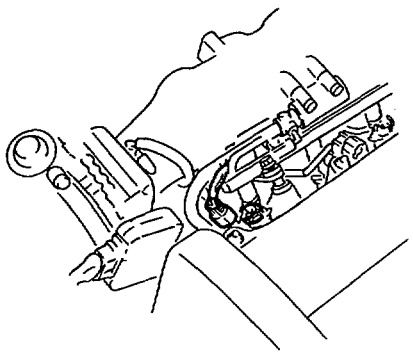
④ Poor ignition

⑤ Low engine compression

STEP	INSPECTION		ACTION
1	Check factors other than engine • Clutch slipping ☞ **page H–3** • Brake dragging ☞ **page P–27** • Low tire pressure ☞ **page Q–3** • Unrecommended tire size ☞ **page Q–2**	Yes	Go to next step
		No	Repair
2	Check if throttle valve fully opens when depressing accelerator fully	Yes	Go to next step
		No	Check if accelerator cable is correctly installed ☞ **page F–96** ⇨ If OK, check throttle body ☞ **page F–94** ⇨ If not OK, install accelerator cable correctly ☞ **page F–96**
3	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78** 	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80** **"88" flashes** Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
4	Check switches for correct operation with Self-Diagnosis Checker Monitor Lamp and ignition switch ON ☞ **page F–89** 	Yes	Go to next step
		No	**Lamp not ON/OFF with specified switch** Check for cause (Refer to specified check sequence) ☞ **page F–90** **Lamp always ON** Check wiring between ECU terminal 1D and Self-Diagnosis Checker ☞ **page F–7**

STEP	INSPECTION		ACTION
5	Check for correct ignition timing at idle ☞ **page F–75** **Ignition timing: 10° ± 1° BTDC (M/T)** **8° ± 1° BTDC (4A/T)**  	Yes	Check if ignition timing advances when accelerating ⇨ If advances, go to next step ⇨ If no advance, check ECU terminal voltages ☞ **page F–127**
		No	Adjust ☞ **page F–75**
6	Check if spark plugs are OK  	Yes	Go to next step
		No	Repair, clean, or replace ☞ **page G–20**
7	Check if resistance of high-tension leads are OK **Resistance: 16 kΩ per 1m (3.28 ft)** 	Yes	Go to next step
		No	Replace ☞ **page G–22**
8	Check if resistance of ignition coil is OK ☞ **page G–21** **Resistance (at 20°C [68°F]):** **① Primary coil..... 0.78—0.94Ω** **② Secondary coil.... 11.2—15.2 kΩ**  	Yes	Go to next step
		No	Replace ☞ **page G–21**

STEP	INSPECTION		ACTION
9	Check for correct engine compression ☞ **page B–10** **Engine compression: 1,324—932 kPa (13.5—9.5 kg/cm², 192—135 psi)-300 rpm** 	Yes	Go to next step
		No	Check engine condition ☞ **page B–10** • Worn piston, piston rings or cylinder wall • Defective cylinder head gasket • Distorted cylinder head • Improper valve seating • Valve sticking in guide
10	Check for correct intake manifold vacuum at idle **Intake manifold vacuum: More than 450 mmHg (17.7 inHg)** 	Yes	Go to next step
		No	Check for air leakage of intake air system components ☞ **page F–93**
11	Check if air cleaner element is clean ☞ **page F–75**	Yes	Go to next step
		No	Replace air cleaner element ☞ **page F–92**
12	Check for injector operating sound at idle	Yes	Go to Step 14
		No	Go to Step 13
13	Check if battery voltage exists at injector connector (W/R) wire with ignition switch ON 	Yes	Check if injector resistance is OK ☞ **page F–99** **Resistance: Approx. 14Ω** ⇨ If OK, check wiring between ECU and injector ☞ **page F–7** ⇨ If not OK, check injector for fuel leakage ☞ **page F–113**
		No	Check wiring between ECU and injector ☞ **page F–7**
14	Check if ECU terminal voltages are OK (2D, 2O and 2Q) ☞ **page F–129**	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ **page F–132**

STEP	INSPECTION		ACTION
15	Check for correct fuel line pressure at idle ☞ **page F–103** **Fuel line pressure:** **265—314 kPa (2.7—3.2 kg/cm², 38—46 psi)** **(Vacuum hose to pressure regulator disconnected)**  	Yes	Check if fuel line pressure decreases when accelerating quickly ⇨ If decreases, check fuel pump maximum pressure ☞ **page F–108** If OK, check fuel line and filter for clogging ⇨ If no decreases, go to next step
		No	**Low pressure** Check for fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator ☞ **page F–111** ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator ☞ **page F–112** If not clogged, check fuel pump maximum pressure ☞ **page F–108**
16	Run engine several minutes at idle and check if fuel line pressure is held after ignition switch is turned OFF ☞ **page F–102** **Fuel line pressure: More than 147 kPa (1.5 kg/cm², 21 psi) for 5 min.**  	Yes	**High pressure** Check if vacuum hose to pressure regulator is damaged or poorly connected ⇨ If OK, replace pressure regulator ☞ **page F–112** ⇨ If not OK, repair or replace hose
		No	Check injector for fuel leakage ☞ **page F–113**
17	Disconnect each injector connector at idle and check if engine speed decreases equally each time 	Yes	Go to next step
		No	Replace injector ☞ **page F–112**
18	Try known good ECU and check if condition improves ☞ **page F–127**		

25U0FX-026

25	POOR ACCELERATION
DESCRIPTION	• Performance poor while accelerating

[TROUBLESHOOTING HINTS]

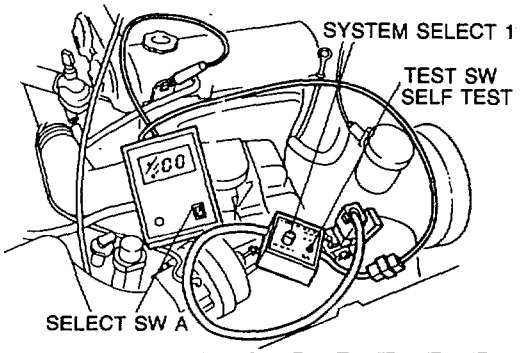
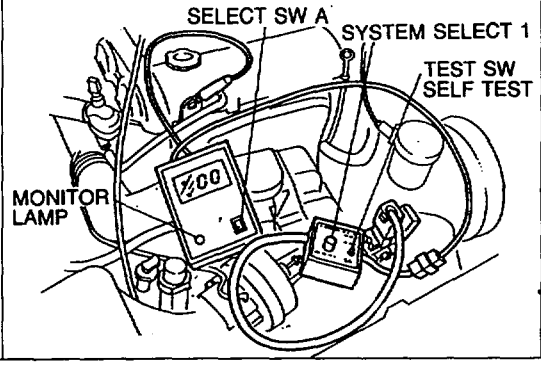
① Factors other than engine malfunction
- Clutch slipping
- Brake dragging
- Low tire pressure
- Unrecommended tire size
- Overloaded

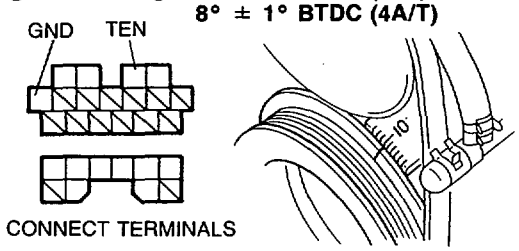
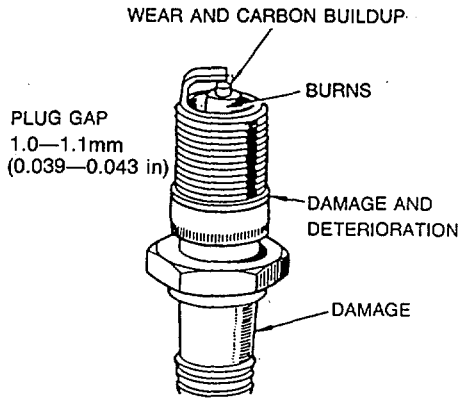
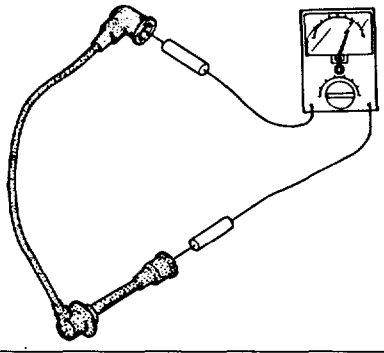
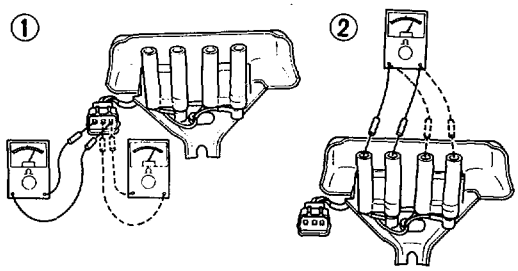
② Low intake air amount
- Throttle valve not open fully
- Clogged intake air system

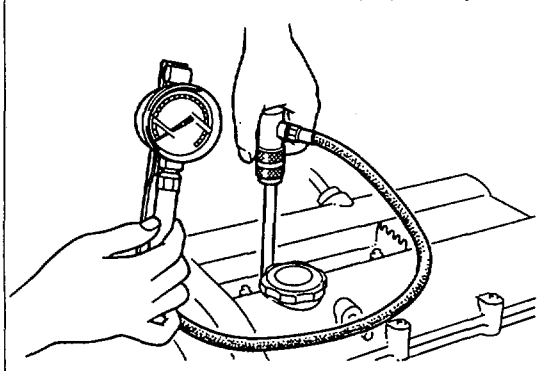
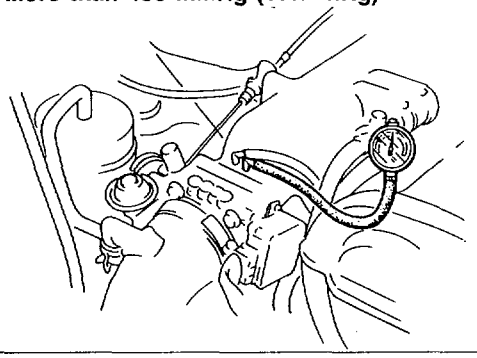
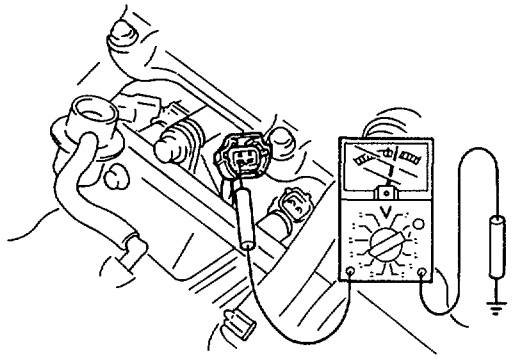
④ Air/Fuel mixture too lean or too rich
- Fuel line pressure low or high
- Insufficient fuel injection

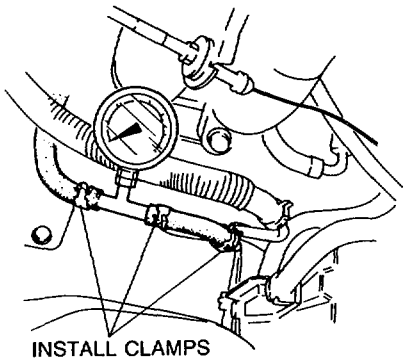
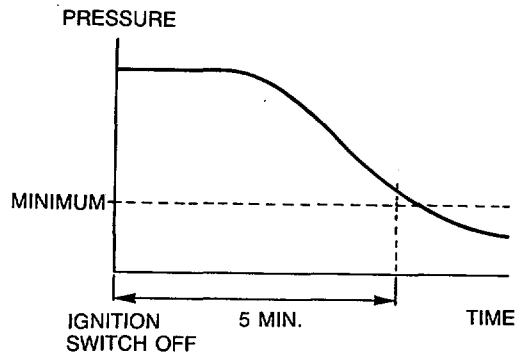
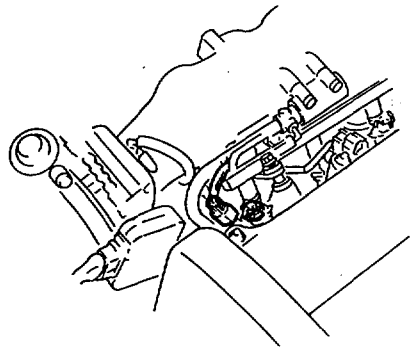
④ Poor ignition

⑤ Low engine compression

STEP	INSPECTION		ACTION
1	Check factors other than engine • Clutch slipping ☞ **page H–3** • Brake dragging ☞ **page P–27** • Low tire pressure ☞ **page Q–3** • Unrecommended tire size ☞ **page Q–2**	Yes	Go to next step
		No	Repair
2	Check if throttle valve fully opens when depressing accelerator fully	Yes	Go to next step
		No	Check if accelerator cable is correctly installed ☞ **page F–96** ⇨ If OK, check throttle body ☞ **page F–94** ⇨ If not OK, install accelerator cable correctly ☞ **page F–96**
3	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78**  	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80** **"88" flashes** Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
4	Check switches for correct operation with Self-Diagnosis Checker Monitor Lamp and ignition switch ON ☞ **page F–89**  	Yes	Go to next step
		No	**Lamp not ON/OFF with specified switch** Check for cause (Refer to specified check sequence) ☞ **page F–90** **Lamp always ON** Check wiring between ECU terminal 1D and Self-Diagnosis Checker ☞ **page F–7**

STEP	INSPECTION		ACTION
5	Check for correct ignition timing at idle ☞ page F–75 **Ignition timing: 10° ± 1° BTDC (M/T)** **8° ± 1° BTDC (4A/T)** 	Yes	Check if ignition timing advances when accelerating ⇨ If advances, go to next step ⇨ If no advance, check ECU terminal voltages ☞ page F–127
		No	Adjust ☞ page F–75
6	Check if spark plugs are OK 	Yes	Go to next step
		No	Repair, clean, or replace ☞ page G–20
7	Check if resistance of high-tension leads are OK **Resistance: 16 kΩ per 1m (3.28 ft)** 	Yes	Go to next step
		No	Replace ☞ page G–22
8	Check if resistance of ignition coil is OK ☞ page G–21 **Resistance (at 20°C [68°F]):** **① Primary coil..... 0.78—0.94Ω** **② Secondary coil.... 11.2—15.2 kΩ** 	Yes	Go to next step
		No	Replace ☞ page G–21

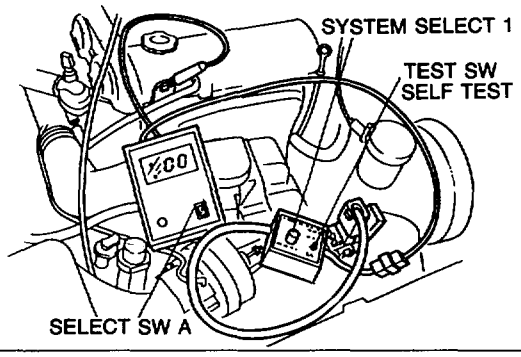
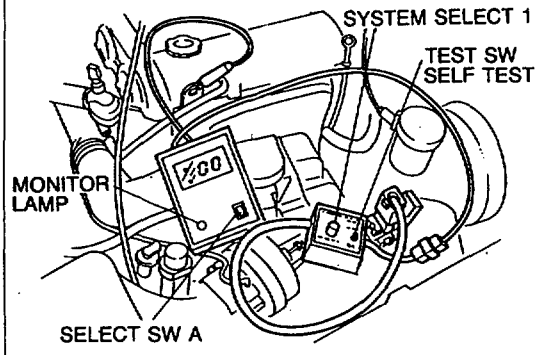
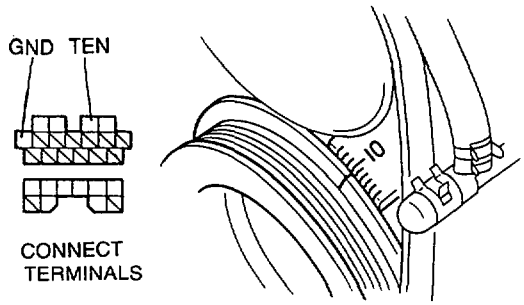
STEP	INSPECTION		ACTION
9	Check for correct engine compression ☞ **page B–10** **Engine compression: 1,324—932 kPa (13.5—9.5 kg/cm², 192—135 psi)-300 rpm** 	Yes	Go to next step
		No	Check engine condition ☞ **page B–10** • Worn piston, piston rings or cylinder wall • Defective cylinder head gasket • Distorted cylinder head • Improper valve seating • Valve sticking in guide
10	Check for correct intake manifold vacuum at idle **Intake manifold vacuum: More than 450 mmHg (17.7 inHg)** 	Yes	Go to next step
		No	Check for air leakage of intake air system components ☞ **page F–93**
11	Check if air cleaner element is clean ☞ **page F–75**	Yes	Go to next step
		No	Replace air cleaner element ☞ **page F–92**
12	Check for injector operating sound at idle	Yes	Go to Step 14
		No	Go to Step 13
13	Check if battery voltage exists at injector connector (W/R) wire with ignition switch ON 	Yes	Check if injector resistance is OK ☞ **page F–112** **Resistance: Approx. 14Ω** ⇨ If OK, check wiring between ECU and injector ☞ **page F–7** ⇨ If not OK, check injector for fuel leakage ☞ **page F–113**
		No	Check wiring between ECU and injector ☞ **page F–7**
14	Check if ECU terminal voltages are OK (2D, 2O and 2Q) ☞ **page F–129**	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ **page F–132**

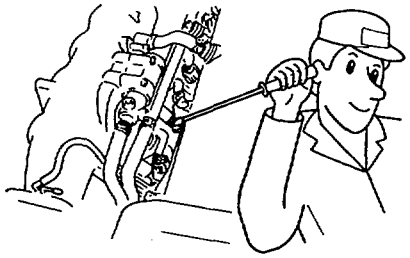
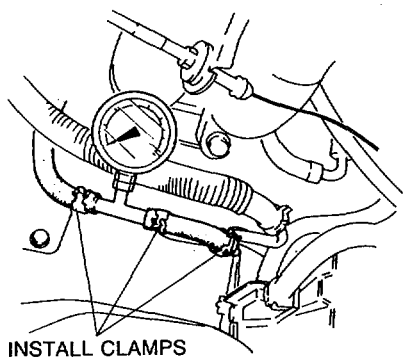
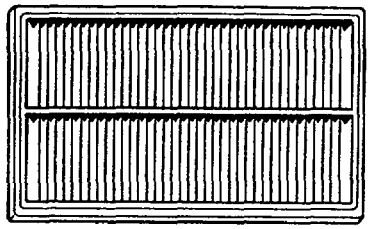
STEP	INSPECTION		ACTION
15	Check for correct fuel line pressure at idle ☞ **page F–103** **Fuel line pressure: 265—314 kPa (2.7—3.2 kg/cm², 38—46 psi) (Vacuum hose to pressure regulator disconnected)**  INSTALL CLAMPS	Yes	Check if fuel line pressure decreases when accelerating quickly ⇨ If decreases, check fuel pump maximum pressure ☞ **page F–108** If OK, check fuel line and filter for clogging ⇨ If no decreases, go to next step
		No	**Low pressure** Check for fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator ☞ **page F–111** ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator If not clogged, check fuel pump maximum pressure ☞ **page F–108**
16	Run engine several minutes at idle and check if fuel line pressure is held after ignition switch is turned OFF ☞ **page F–102** **Fuel line pressure: More than 147 kPa (1.5 kg/cm², 21 psi) for 5 min.**  PRESSURE MINIMUM IGNITION SWITCH OFF 5 MIN. TIME	Yes	**High pressure** Check if vacuum hose to pressure regulator is damaged or poorly connected ⇨ If OK, replace pressure regulator ☞ **page F–112** ⇨ If not OK, repair or replace hose
		No	Check injector for fuel leakage ☞ **page F–113**
17	Disconnect each injector connector at idle and check if engine speed decreases equally each time 	Yes	Go to next step
		No	Replace injector ☞ **page F–112**
18	Try known good ECU and check if condition improves ☞ **page F–127**		

25U0FX-027

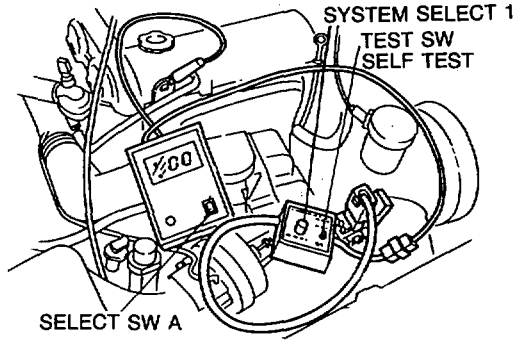
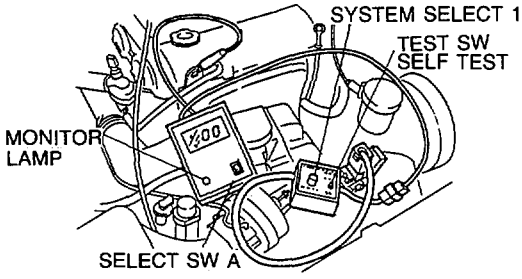
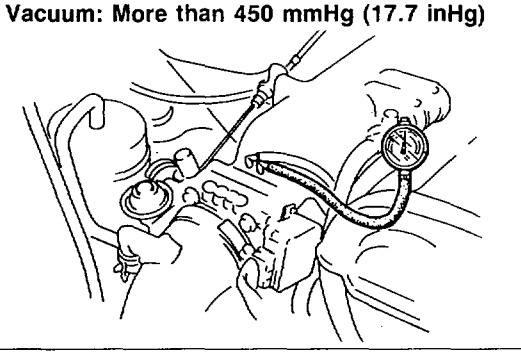
26	RUNS ROUGH ON DECELERATION/AFTERBURN
DESCRIPTION	• Engine runs rough while decelerating and abnormal combustion occurs in exhaust system

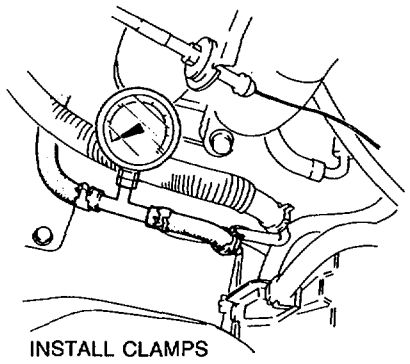
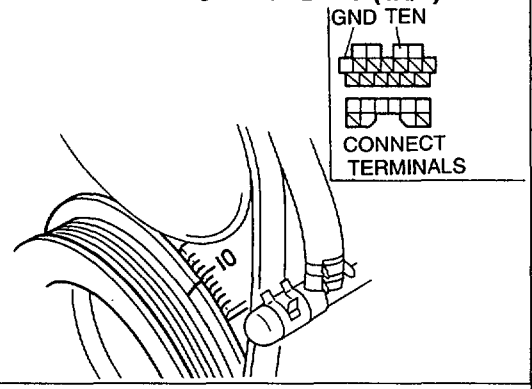
[TROUBLESHOOTING HINTS]
① Air/Fuel mixture too rich
- Air cleaner element clogged
- Fuel injection control malfunction (Fuel cut control)
- Injector fuel leakage
- Ignition timing misadjustment

STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78**  	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80**
			"88" flashes Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
2	Check switches for correct operation with Self-Diagnosis Checker Monitor Lamp with ignition switch ON ☞ **page F–89**  	Yes	Go to next step
		No	**Lamp not ON/OFF with specified switch** Check for cause (Refer to specified check sequence) ☞ **page F–90**
			Lamp always ON Check wiring between ECU terminal 1D and Self-Diagnosis Checker ☞ **page F–7**
3	Check for correct ignition timing at idle ☞ **page F–75** **Ignition timing: 10° ± 1° BTDC (M/T)** **8° ± 1° BTDC (4A/T)**  	Yes	Go to next step
		No	Adjust ☞ **page F–75**

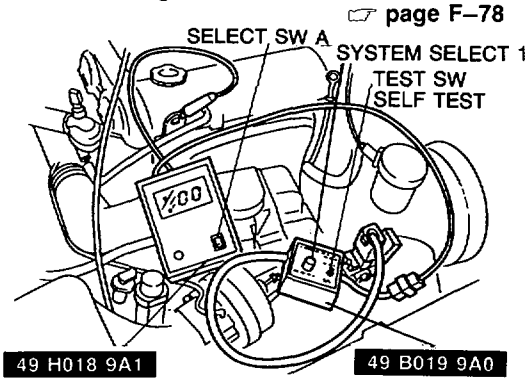
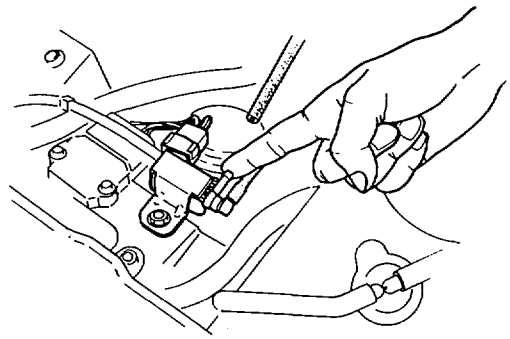
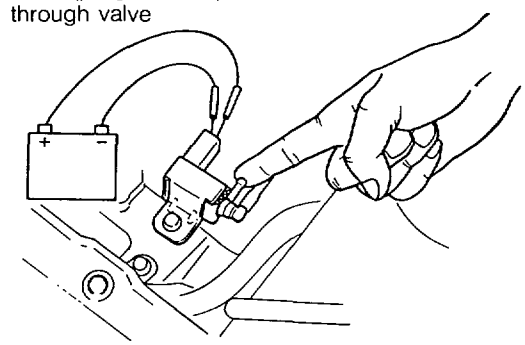
STEP	INSPECTION		ACTION
4	Check if fuel cut operation is OK during deceleration **Fuel cut: Above 1,900 rpm after warm-up** 	Yes	Go to next step
		No	Try known good ECU ☞ **page F–127**
5	Run engine several minutes at idle and check if fuel line pressure is held after ignition switch is turned OFF ☞ **page F–102** **Fuel line pressure: More than 147 kPa (1.5 kg/cm^2, 21 psi) for 5 min.**  	Yes	Go to next step
		No	Check injector for fuel leakage ☞ **page F–113**
6	Check if air cleaner element is clean ☞ **page F–75** 	Yes	Go to next step
		No	Replace ☞ **page F–75**
7	Try known good ECU and check if condition improves ☞ **page F–127**		

25U0FX-028

27	KNOCKING		
[TROUBLESHOOTING HINTS] ① Air/Fuel mixture too lean • Fuel injection amount incorrect • Fuel line pressure decreases while accelerating ② Incorrect ignition timing (too advance) ③ Overheating ④ Carbon deposits in engine			
STEP	**INSPECTION**		**ACTION**
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78**  	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80**
			"88" flashes Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
2	Check switches for correct operation with Self-Diagnosis Checker Monitor Lamp and ignition switch ON ☞ **page F–89**  	Yes	Go to next step
		No	**Lamp not ON/OFF with specified switch** Check for cause (Refer to specified check sequence) ☞ **page F–90**
			Lamp always ON Check wiring between ECU terminal 1D and Self-Diagnosis Checker ☞ **page F–7**
3	Check if ECU terminal voltages are OK (2D, 2O and 2Q) ☞ **page F–129**	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ **page F–128**
4	Check for correct intake manifold vacuum at idle **Vacuum: More than 450 mmHg (17.7 inHg)** 	Yes	Go to next step
		No	Check for air leakage of intake air system components ☞ **page F–93**
5	Check if air cleaner element is clean ☞ **page F–75**	Yes	Go to next step
		No	Replace air cleaner element ☞ **page F–92**
6	Check for correct engine compression ☞ **page B–10** **Engine compression: 1,324—932 kPa (13.5—9.5 kg/cm², 192—135 psi)-300 rpm**	Yes	Go to next step
		No	**High compression** Check engine condition ☞ **page B–10** • Carbon deposits

STEP	INSPECTION		ACTION
7	Check for correct fuel line pressure at idle ☞ **page F–103** **Fuel line pressure:** **265—314 kPa (2.7—3.2 kg/cm², 38—46 psi)** **(Vacuum hose to pressure regulator disconnected)**  INSTALL CLAMPS	Yes	Check if fuel line pressure decreases when accelerating quickly ⇨ If decreases, check for clogging between fuel pump and pressure regulator ⇨ If no decrease, go to next step
		No	**Low pressure** Check for fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator ☞ **page F–111** ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator If not clogged, check fuel pump maximum pressure ☞ **page F–108**
8	Check for correct ignition timing at idle ☞ **page F–75** **Ignition timing: 10° ± 1° BTDC (M/T)** **8° ± 1° BTDC (4A/T)**  	Yes	Check if ignition timing advances when accelerating ⇨ If advances, go to next step ⇨ If no advance, replace ECU ☞ **page F–127**
		No	Adjust ☞ **page F–75**
9	Check if cooling system is OK ☞ **page E–3**	Yes	Go to next step
		No	Repair or replace • Thermostat ☞ **page E–8** • Electric cooling fan ☞ **page B–11** • Radiator ☞ **page E–7**
10	Try known good ECU and check if condition improves ☞ **page F–127**	Yes	Replace ECU
		No	Change fuel to another brand or use higher octane fuel

25U0FX-029

28	FUEL ODOR		
DESCRIPTION	• Gasoline odor in cabin		
[TROUBLESHOOTING HINTS] ① Poor connection or damaged fuel system or evaporative emission control system ② Charcoal canister overflow due to evaporative emission control system malfunction			
STEP	**INSPECTION**		**ACTION**
1	Check if fuel leak or damage are visible at fuel system and evaporative emission control system	Yes	Repair or replace ☞ **page F–100**
		No	Go to next step
2	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78**  	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80** **"88" flashes** Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
3	Check if vacuum is felt at solenoid valve (purge control) with engine running and throttle valve opened (Neutral switch connector disconnected) 	Yes	Go to Step 5
		No	Check for solenoid valve operating sound in this condition ⇨ If OK, check vacuum hoses for clogging ☞ **page F–6** ⇨ If not OK, go to next step
4	Apply battery voltage and ground to solenoid valve (purge control) and check if air flows through valve 	Yes	Check ECU terminal 2X voltage ☞ **page F–130**
		No	Replace solenoid valve ☞ **page F–119**
5	Try known good ECU ☞ **page F–127**		

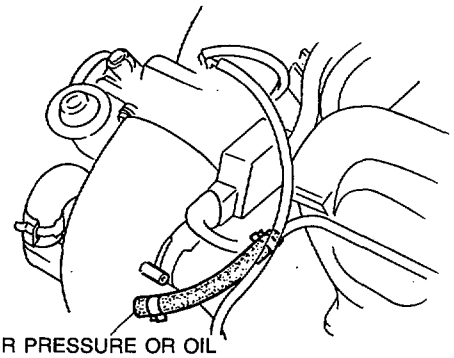
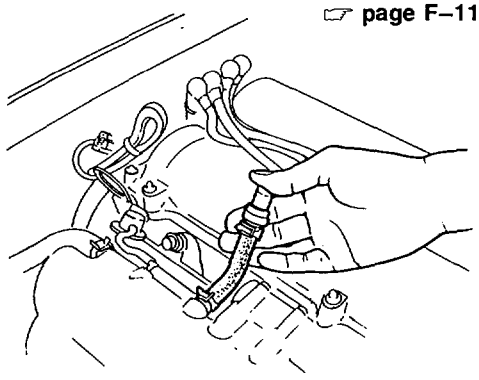
25U0FX-030

29	EXHAUST SULFER SMELL
DESCRIPTION	• Exhaust gas smells abnormal (Rotten egg smell)
[TROUBLESHOOTING HINTS] High sulfer content fuel used	

STEP	INSPECTION	ACTION
1	Change fuel to another brand	

05U0FX-046

30	HIGH OIL CONSUMPTION
[TROUBLESHOOTING HINTS] ① PCV system malfunction ② Engine malfunction (Oil working up, working down, or leakage)	

STEP	INSPECTION		ACTION
1	Check if PCV hose, ventilation hose or their attaching nipples are separated, damaged, clogged, or restricted ☞ **page F–117**	Yes	Repair or replace ☞ **page F–117**
		No	Go to next step
2	Check if air pressure or oil is present at ventilation hose  AIR PRESSURE OR OIL	Yes	Go to next step
		No	Check engine condition ☞ **page B–3** • Oil leakage • Worn valve seal • Worn valve stem • Worn valve guide
3	Check if vacuum is felt at PCV valve at idle ☞ **page F–117** 	Yes	Check engine condition ☞ **page B–3** • Worn piston ring groove • Stuck piston ring • Worn piston or cylinder
		No	Replace PCV valve ☞ **page F–117**

05U0FX-047

31	POOR FUEL ECONOMY

[TROUBLESHOOTING HINTS]
While fuel consumption is drastically increased during city driving, short-run operation, stop and go driving, extended winter warm-up periods, etc., as opposed to "trip" mileage, an attempt should be made to determine these factors when confronted with "poor mileage" conditions. However, since the operator is not always at fault, the following is offered.

① Operator depressing accelerator more than usual due to low engine power
- Poor ignition
- Low intake air amount
- Electric spark advance control malfunction
- Clutch slipping
- Exhaust component restricted

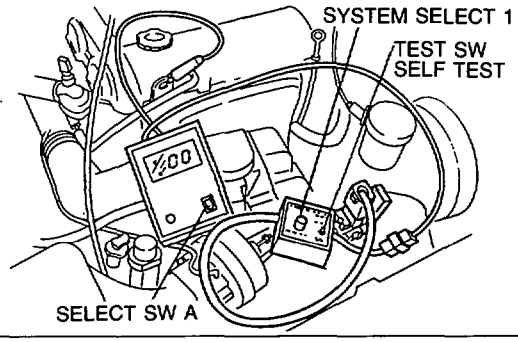
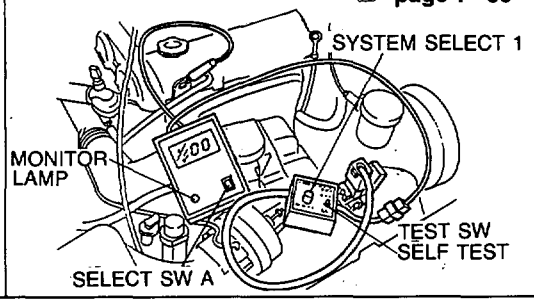
② Air/Fuel mixture too rich
- High fuel line pressure

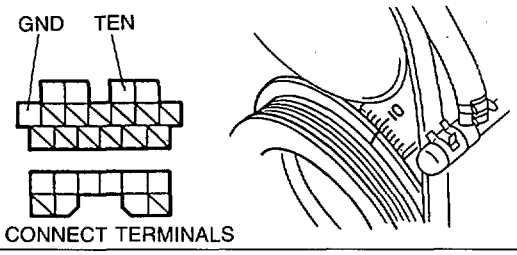
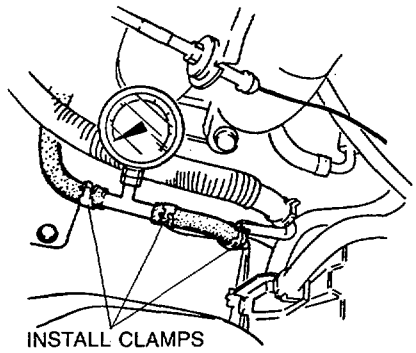
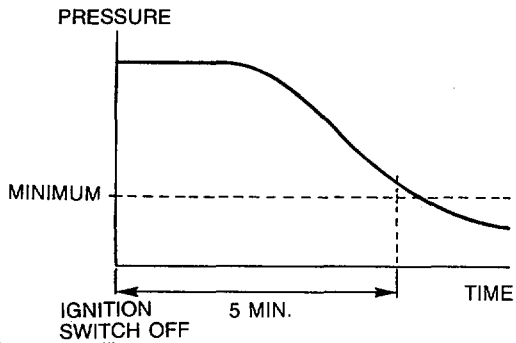
③ Alcohol blended fuel used

④ High vehicle load
- Low tire pressure
- Unrecommended tire used
- Brake dragging

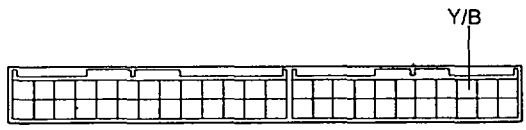
⑤ Fuel cut control malfunction

⑥ High idle speed
(Refer to page F–36)

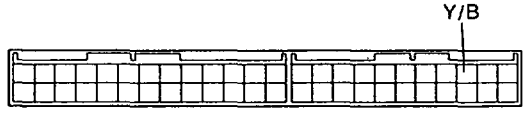
STEP	INSPECTION		ACTION
1	Check factors other than engine • Low tire pressure ☞ **page Q–3** • Unrecommended tire used ☞ **page Q–2** • Clutch slipping ☞ **page H–3** • Brake dragging ☞ **page P–27** • Exhaust component restricted ☞ **page F–115**	Yes	Go to next step
		No	Repair
2	Check if air hoses are connected correctly ☞ **page F–93**	Yes	Go to next step
		No	Repair ☞ **page F–93**
3	Check if air cleaner element is clean ☞ **page F–75**	Yes	Go to next step
		No	Replace ☞ **page F–75**
4	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ **page F–78**  	Yes	Go to next step
		No	**Malfunction Code No. displayed** Check for cause (Refer to specified check sequence) ☞ **page F–80** **"88" flashes** Check ECU terminal 1F voltage ☞ **page F–128** **Specification: Battery voltage (Ignition switch ON)** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, check wiring between ECU and Self-Diagnosis Checker ☞ **page F–7**
5	Check switches for correct operation with Self-Diagnosis Checker Monitor Lamp and ignition switch ON ☞ **page F–89**  	Yes	Go to next step
		No	**Lamp not ON/OFF with specified switch** Check for cause (Refer to specified check sequence) ☞ **page F–90** **Lamp always ON** Check wiring between ECU terminal 1F and Self-Diagnosis Checker ☞ **page F–7**

STEP	INSPECTION		ACTION
6	Check if ECU terminal voltages are OK (2D, 2N, 2O, 2P, 2Q, 2U and 2V) ☞ page F–129	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ page F–132
7	Check if fuel cut operation is OK during deceleration **Fuel cut: Above 1,900 rpm after warm-up**	Yes	Go to next step
		No	Try known good ECU ☞ page F–127
8	Check for correct ignition timing at idle ☞ page F–75 **Ignition timing: 10° ± 1° BTDC (M/T)** **8° ± 1° BTDC (4A/T)** 	Yes	Go to next step
		No	Adjust ☞ page F–75
9	Check for correct fuel line pressure at idle ☞ page F–111 **Fuel line pressure:** **216—265 kPa (2.2—2.7 kg/cm², 31—38 psi)** 	Yes	Go to next step
		No	**High pressure** Check if vacuum hose to pressure regulator is damaged or poorly connected ⇨ If OK, replace pressure regulator ☞ page F–112 ⇨ If not OK, repair or replace hose
10	Run engine several minutes at idle and check if fuel line pressure is held after ignition switch is turned OFF ☞ page F–102 **Fuel line pressure: More than 147 kPa (1.5 kg/cm², 21 psi) for 5 min.** 	Yes	Go to next step
		No	Check injector for fuel leakage ☞ page F–113
11	Change fuel to another brand		

25U0FX-031

32	MIL ALWAYS ON		
DESCRIPTION	• Self-Diagnosis Checker does not indicate Malfunction Code No. but MIL always ON		
[TROUBLESHOOTING HINTS] • Short circuit in wiring harness • ECU malfunction			
STEP	**INSPECTION**		**ACTION**
1	Disconnect (Y/B) wire from ECU and check if MIL goes off 	Yes	Replace ECU ☞ **page F–127**
		No	Check for short circuit in wiring between combination meter and ECU ☞ **page F–8**

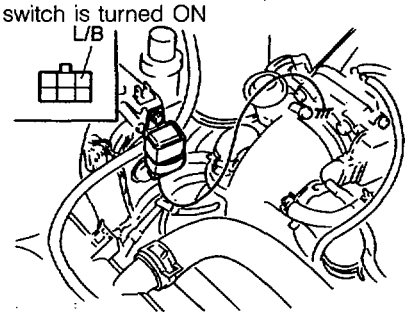
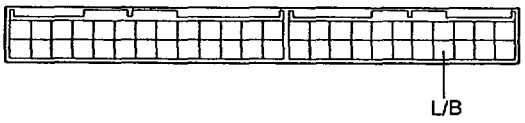
05U0FX-049

33	MIL NEVER ON		
DESCRIPTION	• Self-Diagnosis Checker indicates Malfunction code No. of input device but MIL never ON • Other indicator and warning lamps OK		
[TROUBLESHOOTING HINTS] • Bulb burned out • Open circuit in wiring harness • ECU malfunction			
STEP	**INSPECTION**		**ACTION**
1	Ground (Y/B) wire at ECU with jumper wire and check if MIL comes on 	Yes	Check connection condition of ECU connector ☞ **page F–128** ⇨ If OK, replace ECU ☞ **page F–127** ⇨ If not OK, repair ECU connector ☞ **page F–127**
		No	Check if bulb is OK ⇨ If OK, repair (Y/B) wire between ECU and combination meter ☞ **page F–8** ⇨ If not OK, replace bulb ☞ **page T–33**

05U0FX-050

34	A/C DOES NOT WORK
DESCRIPTION	• Blower fan operates but cool air not expelled

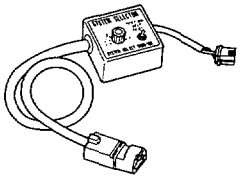
[TROUBLESHOOTING HINTS]
- Open or short circuit in wiring harness
- A/C relay malfunction
- A/C switch malfunction
- Magnetic clutch malfunction
- ECU malfunction

STEP	INSPECTION		ACTION
1	Ground (L/B) wire at A/C relay with jumper wire and check if condenser fan operates when ignition switch is turned ON 	Yes	Go to next step
		No	Go to A/C system Troubleshooting ☞ **page U–4**
2	Ground (L/B) wire at ECU with jumper wire and check if condenser fan operates when ignition switch is turned ON 	Yes	Go to next step
		No	Repair (L/B) wire between ECU and A/C relay ☞ **page F–7**
3	Check if A/C switch is OK ☞ **page U–25**	Yes	Try known good ECU ☞ **page F–127**
		No	Check A/C switch and wiring ☞ **page U–25**

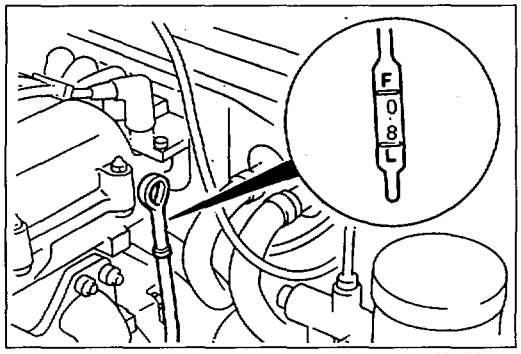
05U0FX-051

ENGINE TUNE-UP

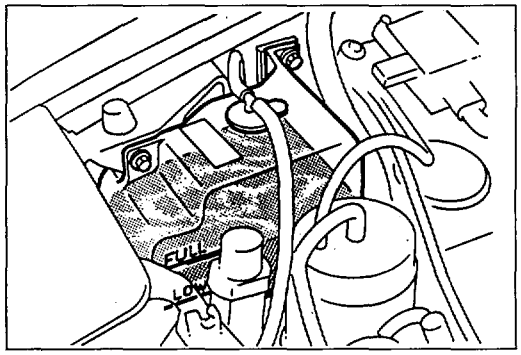
PREPARATION
SST

49 B019 9A0 System Selector		For inspection of ignition timing and idle speed.

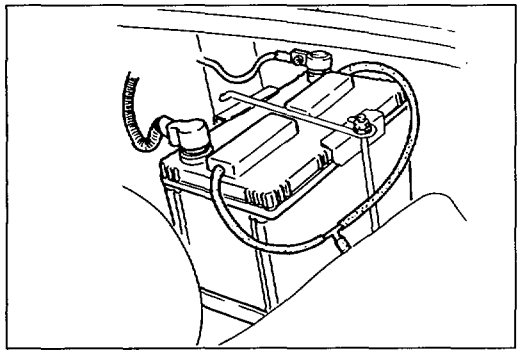
05U0FX-052



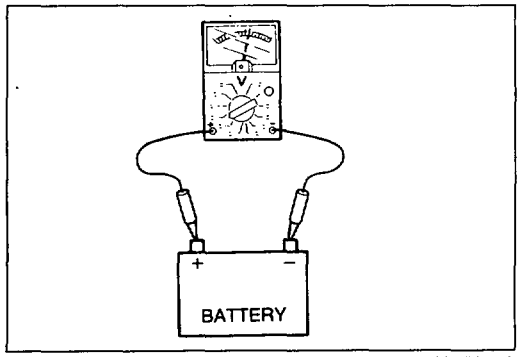
05U0FX-053



05U0FX-054



05U0FX-055



05U0FX-056

BASIC INSPECTION
Engine Oil
1. Be sure the vehicle is on level ground.
2. Warm up the engine to normal operating temperature and stop it.
3. Wait for five minutes.
4. Remove the oil level gauge and check the oil level and condition.
5. Add or replace oil if necessary.

Note
- **The distance between the L and F marks on the level gauge represents 0.8 liter (0.85 US qt, 0.70 Imp qt).**

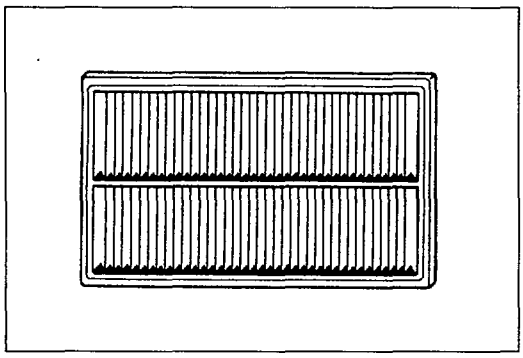
Coolant Level (Cold engine)

Warning
- **Never remove the radiator cap while the radiator and engine are hot.**
- **Wrap a thick cloth around the cap while carefully removing it.**

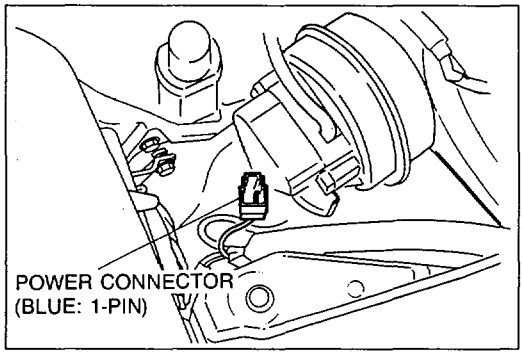
1. Verify that the coolant level is at the bottom of the radiator filler neck.
2. Verify that the level in the coolant reservoir is between the FULL and LOW marks. Add coolant if necessary.

Battery
1. Check for loose or corroded terminals and connections.
2. Clean and tighten the connections as necessary.

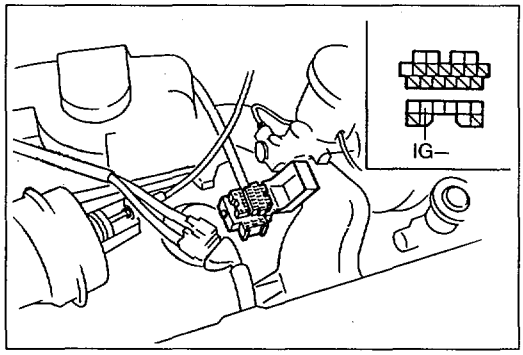
3. Measure the battery voltage. If the voltage is **12.6V or less**, recharge the battery. (Refer to Section G.)



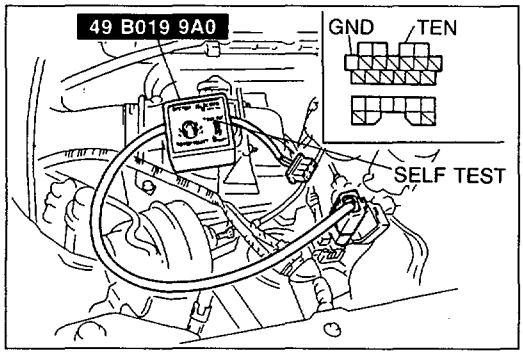
05U0FX-057



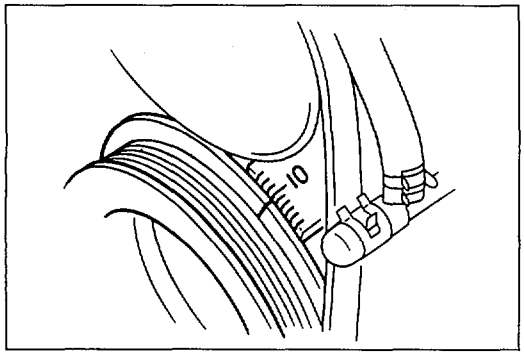
05U0FX-058



05U0FX-059



05U0FX-060



15U0FX-022

Air Cleaner Element

Caution
- **Do not clean the air cleaner element with compressed air.**

Visually check the air cleaner element for excessive dirt, damage, or oil. Replace if necessary.

ADJUSTMENT

Preparation

1. Check the condition of the engine (spark plugs, leaks in hoses, etc.).
2. Make sure all accessories are OFF.
3. Warm up the engine to normal operating temperature.

Note
- **When using an externally powered timing light and/or tachometer connect it to the power connector (Blue: 1-pin).**

Warning
- **Do not ground the power connector terminal (Blue: 1-pin); the wiper 20A fuse will be burned.**

4. Connect a timing light and tachometer to the diagnosis connector terminal **IG–**.

Ignition Timing

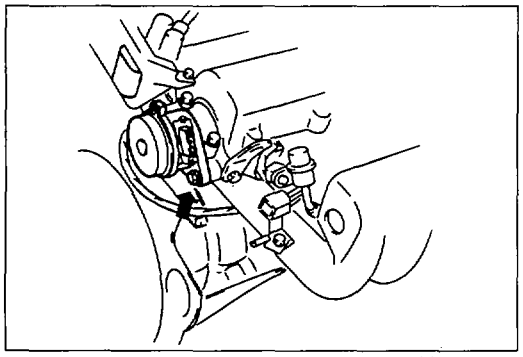
Caution
- **Be extremely careful when making connections to the diagnosis connector as a mistaken connection will cause a malfunction.**

1. Connect the **SST** and set the TEST SW to "SELF TEST" or connect diagnosis connector terminals TEN and GND with a jumper wire.
2. Check the idle speed, and set it to specification if necessary. (Refer to page F–76.)

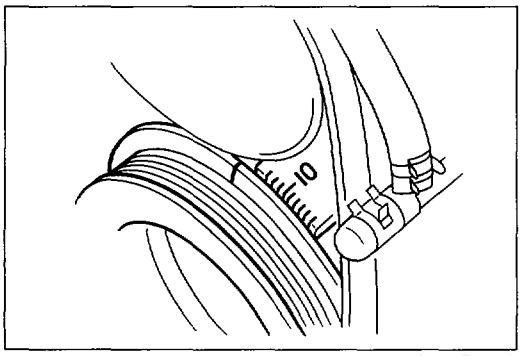
Idle speed: 850 ± 50 rpm

3. Verify that the timing mark (Yellow) on the crankshaft pulley and the timing belt cover are aligned.

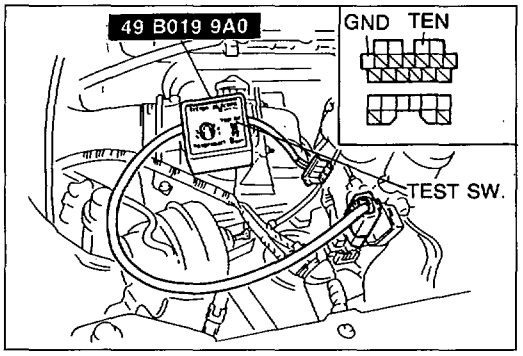
Ignition timing: 10° ± 1° BTDC (at idle) [M/T]
8° ± 1° BTDC (at idle) [4A/T]



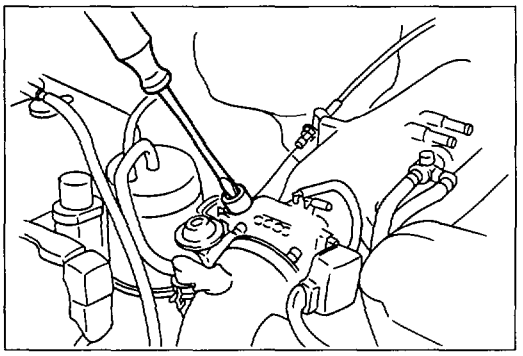
05U0FX-062



05U0FX-063



05U0FX-064



05U0FX-065

4. If the marks are not aligned, loosen the crank angle sensor lock bolt, and turn the crank angle sensor to make the adjustment.
5. Tighten the crank angle sensor lock bolt to the specified torque.

Tightening torque:
19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)

6. After adjusting the ignition timing, disconnect the **SST** or jumper wire from the diagnosis connector.

7. Increase the engine speed and verify that the ignition timing advances.

Idle Speed

1. Connect the **SST** and set the TEST SW to "SELF TEST" or connect diagnosis connector terminals TEN and GND with a jumper wire.

2. Verify that the idle speed is within specification.

Idle speed: 850 ± 50 rpm

3. If the idle speed is not within specification, remove the blind cap from the air adjusting screw and adjust it.
4. After adjusting the idle speed, install the blind cap and disconnect the **SST** or jumper wire from the diagnosis connector.

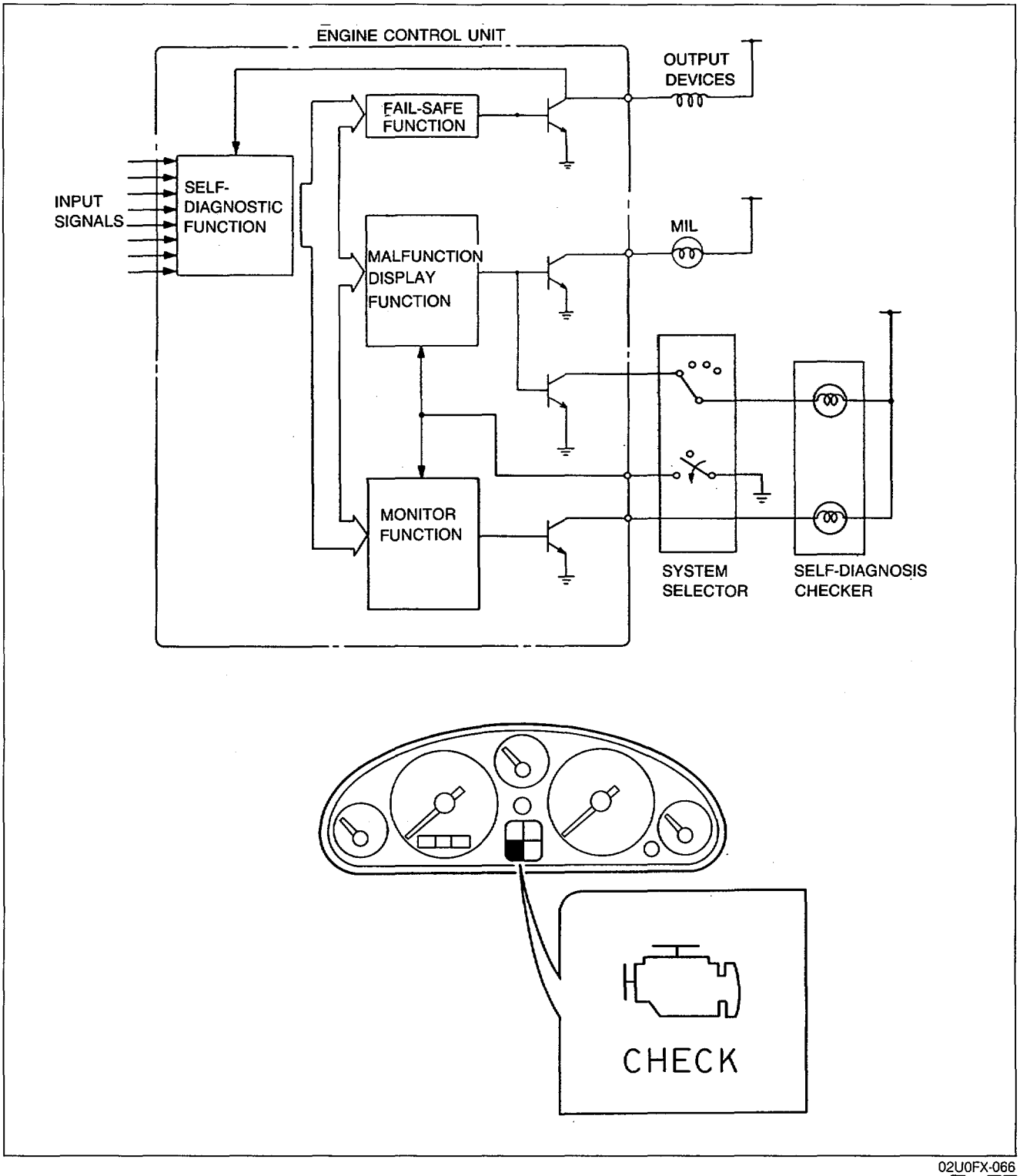
SELF-DIAGNOSIS FUNCTION

DESCRIPTION

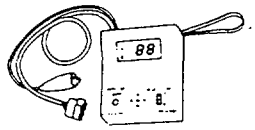
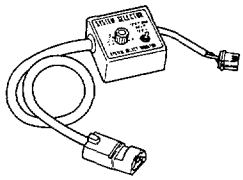
When troubles occur in the main input devices or output devices, check for the cause using the **SST**. Failures of each input and output device are indicated and retrieved from the engine control unit as malfunction code numbers.

Note

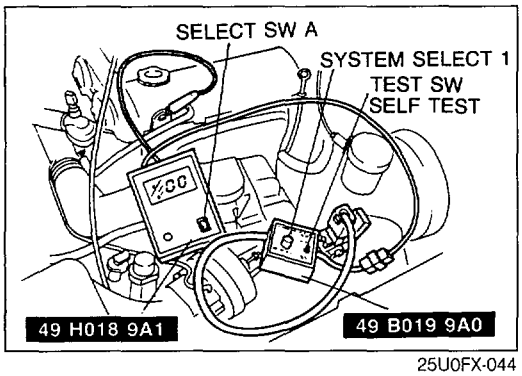
- **The engine control unit constantly checks for malfunction of the input devices.**
- **But, the engine control unit checks for malfunction of output devices only in a 3 second period after the ignition switch is turned ON and the diagnosis connector terminal (TEN) is grounded.**



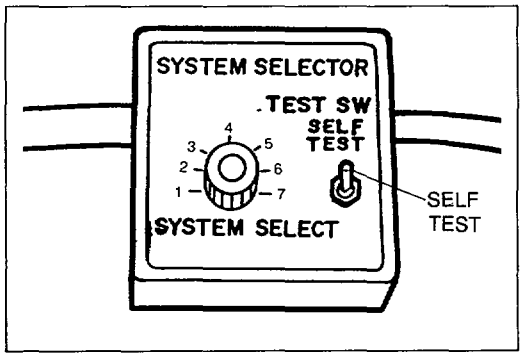
PREPARATION
SST

49 H018 9A1 Self-Diagnosis Checker 	For diagnosis	49 B019 9A0 System Selector 	For diagnosis

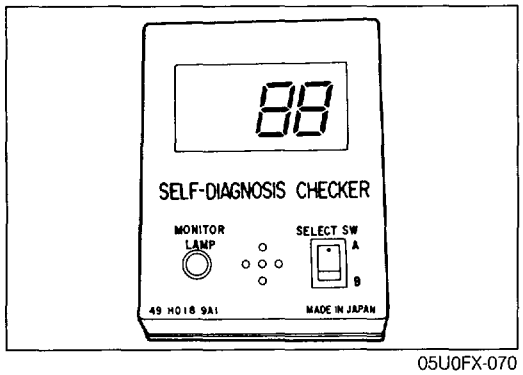
05U0FX-067



25U0FX-044



05U0FX-069



05U0FX-070

MALFUNCTION CODE NUMBER

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

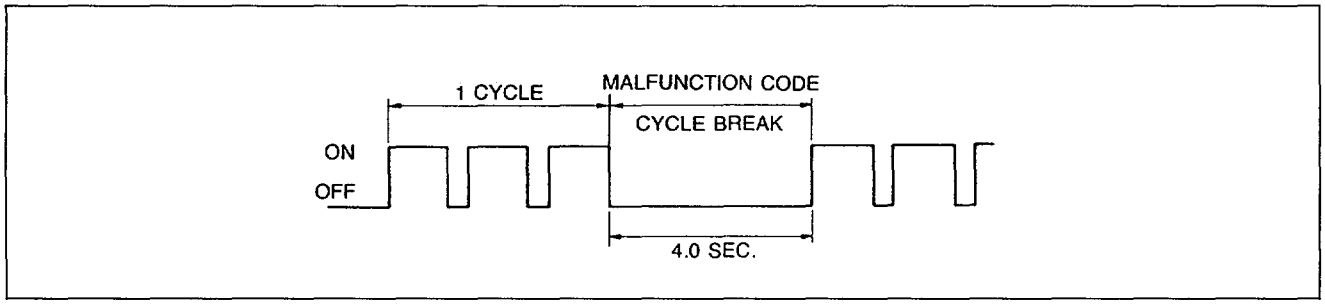
Inspection procedure
1. Connect the **SST** to the diagnosis connector and a ground.
2. Set the select switch to position A.
3. Set the System Selector to position 1 and SELF TEST as shown.
4. Turn the ignition switch ON.
5. Verify that **88** flashes on the digital display and that the buzzer sounds for **3 sec.** after turning the ignition switch ON.
6. If **88** does not flash, check the main relay (Refer to page F–139.), power supply circuit, and check connector wiring.
7. If **88** flashes and the buzzer continues for more than **20 sec.**, check for a short circuit between the engine control unit terminal 1F and the diagnosis connector. Replace the engine control unit if necessary and perform Steps 3 and 4 again.
8. Note any code numbers and check for the causes by referring to the check sequences shown on pages F–81 to F–87. Repair as necessary.

Note
- **Cancel the code numbers by performing the after-repair procedure following repairs. (Refer to page F–88.)**

Principle of Code Cycle
Malfunction codes are determined as shown below.

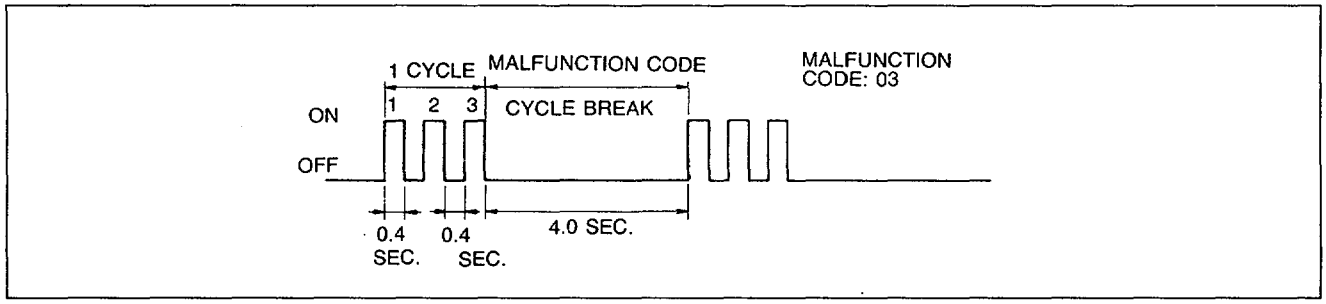
05U0FX-071

1. Code cycle break
The time between malfunction code cycles is 4.0 seconds (the time the lamp is off).



05U0FX-072

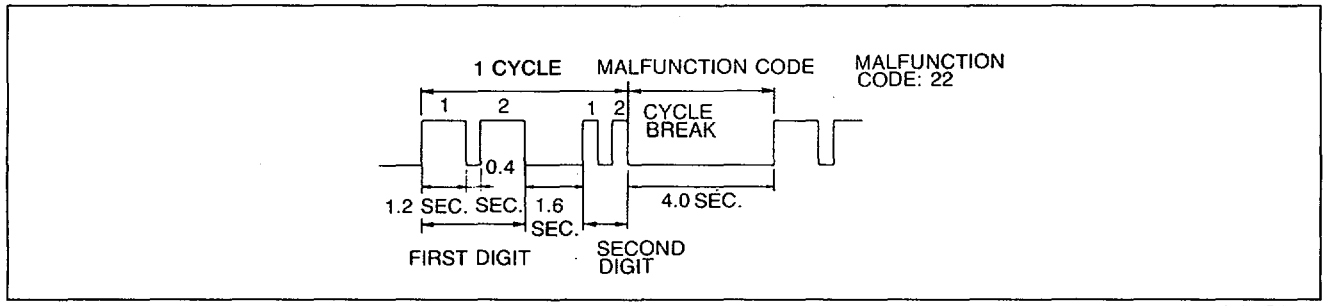
2. Second digit of malfunction code (ones position)
The digit in the ones position of the malfunction code represents the number of times the buzzer sounds 0.4 second during one cycle.



05U0FX-073

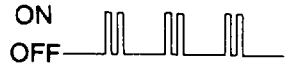
3. First digit of malfunction code (tens position)
The digit in the tens position of the malfunction code represents the number of times the buzzer is on 1.2 seconds during one cycle.

It should also be noted that the light goes off for 1.6 seconds between the long and short pulses of the buzzer.



05U0FX-074

Code Numbers

Malfunction display		Sensor or subsystem	Self-diagnosis	Fail-safe
Code No.	Pattern of output signal (Self-Diagnosis Checker)			
01		Ignition pulse	No IGf-signal	—
02		Ne-signal	No Ne-signal	—
03		G-signal	No G-signal	Cancels 2-group injection and electronic spark distribution
08		Airflow meter	Open or short circuit	Basic fuel injection amount fixed as for two driving modes (1) Idle switch: ON (2) Idle switch: OFF
09		Water thermosensor	Open or short circuit	Maintains constant 20°(68°F) command
10		Intake air thermosensor (Airflow meter)	Open or short circuit	Maintains constant 20°C (68°F) command
12		Throttle sensor	Open or short circuit	Maintains constant command of throttle valve fully open
14		Atmospheric pressure sensor	Open or short circuit	Maintains constant command of sea level pressure
15		Oxygen sensor (Inactivation)	Sensor output continues less than 0.55V 180 sec. after engine exceeds 1,500 rpm	Cancels engine feedback operation
17		Oxygen sensor (Inversion)	Sensor output continues unchanged 20 sec. after engine exceeds 1,500 rpm	Cancels engine feedback operation
26		Solenoid valve (Purge control)	—	—
34		ISC valve		—

25U0FX-032

Caution

- **If there is more than one failure present, the lowest number malfunction code is displayed first, the remaining codes are displayed in order.**
- **After repairing all failures, turn the ignition switch off, disconnect the negative battery cable for at least 20 seconds to erase the memory of a malfunction code from the engine control unit.**

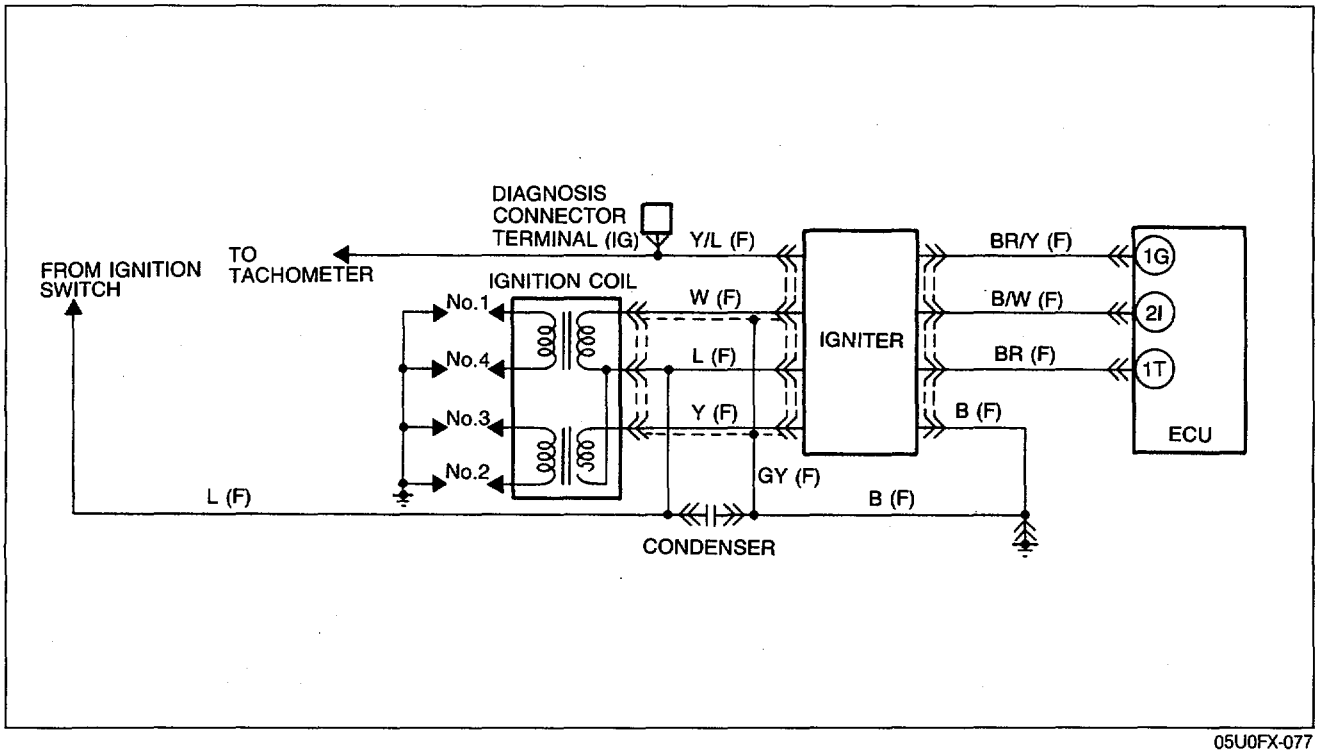
Troubleshooting

If a malfunction code number is shown on the **SST**, check for the cause by using the chart related to the code number shown.

CODE No.	01 (IGf-SIGNAL)		
STEP	**INSPECTION**		**ACTION**
1	Are there any poor connections at ignition coil connectors and igniter connectors?	Yes	Repair or replace connector
		No	Go to next step
2	Does tachometer operate?	Yes	Go to next step
		No	Check for open circuit in wiring from igniter to ECU terminal 2I
3	Is resistance of ignition coil OK? Resistance: Primary 0.78—0.94Ω Secondary 11.2—15.2 kΩ	Yes	Go to next step
		No	Replace ignition coil ☞ **page G–21**
4	Is there continuity between ignition coil and igniter? Ignition coil: A (W), B (Y) — Igniter: A (W), H (Y)	Yes	Go to next step
		No	Check for open circuit in wiring from ignition coil to igniter
5	Is ignition coil terminal wire (L) voltage OK? ☞ **page G–21**	Yes	Go to next step
		No	Check for open circuit in wiring from ignition coil to ignition switch
6	Is igniter terminal-wire (L) voltage OK? ☞ **page G–22**	Yes	Go to next step
		No	Check for open circuit in wiring from igniter to ignition switch
7	Is there continuity between igniter and ground?	Yes	Go to next step
		No	Check for open circuit in wiring from igniter to ground
8	Check igniter ☞ **page G–22**	Yes	Replace ECU ☞ **page F–127**
		No	Replace igniter ☞ **page G–22**

15U0FX-025

Circuit Diagram



05U0FX-077

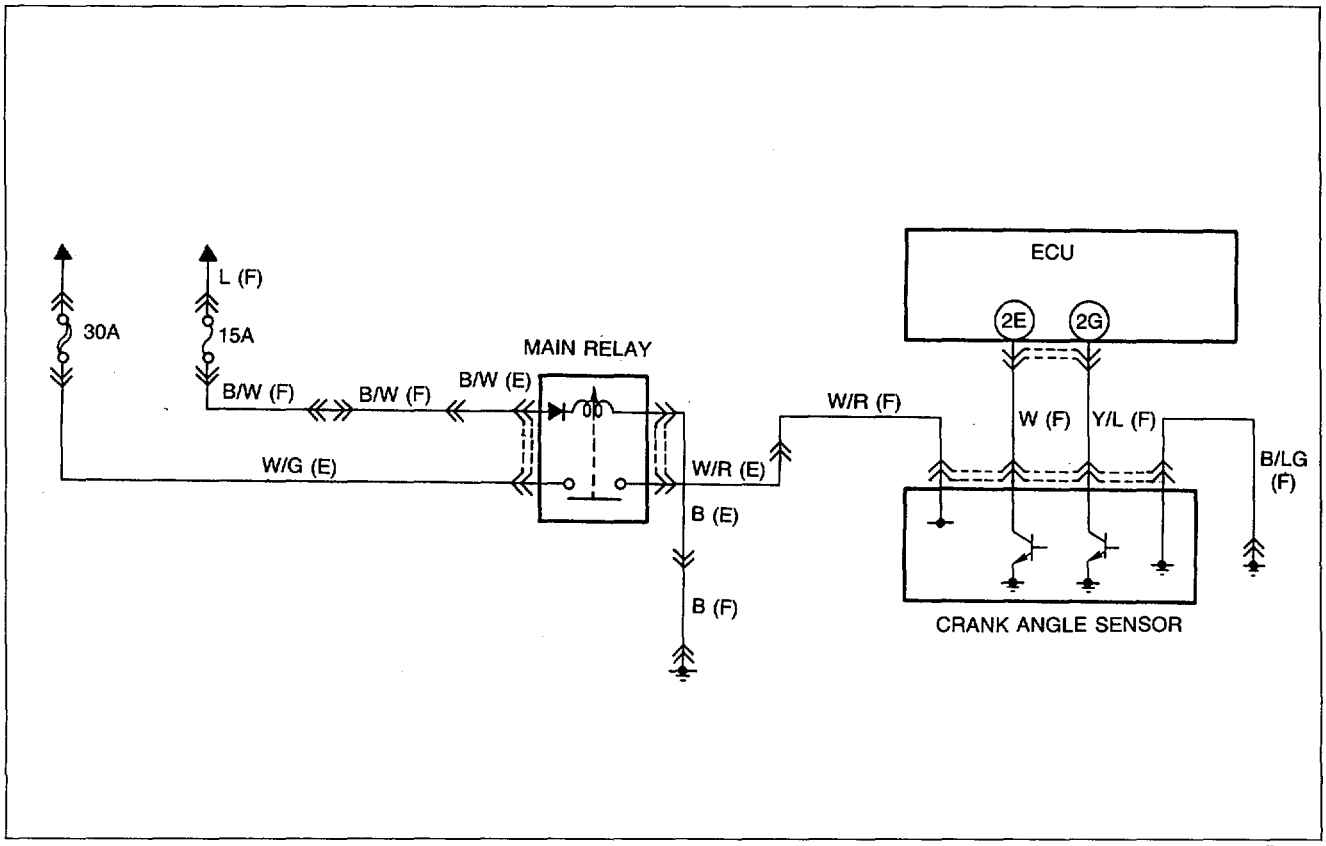
CODE No.	02 (Ne-SIGNAL)		
STEP	INSPECTION		ACTION
1	Are there any poor connections in crank angle sensor circuit?	Yes	Repair or replace connector
		No	Go to next step
2	Is Code No.03 present at same time?	Yes	Go to next step
		No	Go to Step 5
3	Is there continuity between crank angle sensor terminal-wire (B/LG) and ground?	Yes	Go to next step
		No	Check for open circuit in wiring from crank angle sensor to ground
4	Is there battery voltage at crank angle sensor terminal-wire (W/R)?	Yes	Go to next step
		No	Check for open circuit in wiring from crank angle sensor to main relay
5	Is there continuity between crank angle sensor and ECU?	Yes	Go to next step
	Crank angle sensor: C (W) — ECU: 2E	No	Check for open circuit in wiring from crank angle sensor to ECU
6	Is there approx. 5V at ECU terminal 2E? (With crank angle sensor connector disconnected)	Yes	Go to next step
		No	Replace ECU ☞ **page F–133**
7	Is there approx. 5V at crank angle sensor terminal-wire (W)? (At harness-side connector with connector disconnected)	Yes	Replace crank angle sensor ☞ **page F–133**
		No	Check for short circuit in wiring from crank angle sensor to ECU

15U0FX-026

CODE No.	03 (G-SIGNAL)		
STEP	INSPECTION		ACTION
1	Are there any poor connections in crank angle sensor circuit?	Yes	Repair or replace connector
		No	Go to next step
2	Is Code No.02 also present?	Yes	Go to next step
		No	Go to Step 5
3	Is there continuity between crank angle sensor terminal-wire (B/LG) and ground?	Yes	Go to next step
		No	Check for open circuit in wiring from crank angle sensor to ground
4	Is there battery voltage at crank angle sensor terminal-wire (W/R)?	Yes	Go to next step
		No	Check for open circuit in wiring from crank angle sensor to main relay
5	Is there continuity between crank angle sensor and ECU?	Yes	Go to next step
	Crank angle sensor: D (Y/L) — ECU: 2G	No	Check for open circuit in wiring from crank angle sensor to ECU
6	Is there approx. 5V at ECU terminal 2E? (With crank angle sensor connector disconnected)	Yes	Go to next step
		No	Replace ECU ☞ **page F–133**
7	Is there approx. 5V at crank angle sensor terminal-wire (Y/L)? (At harness-side connector with connector disconnected)	Yes	Replace crank angle sensor ☞ **page F–133**
		No	Check for short circuit in wiring from crank angle sensor to ECU

15U0FX-027

Circuit Diagram

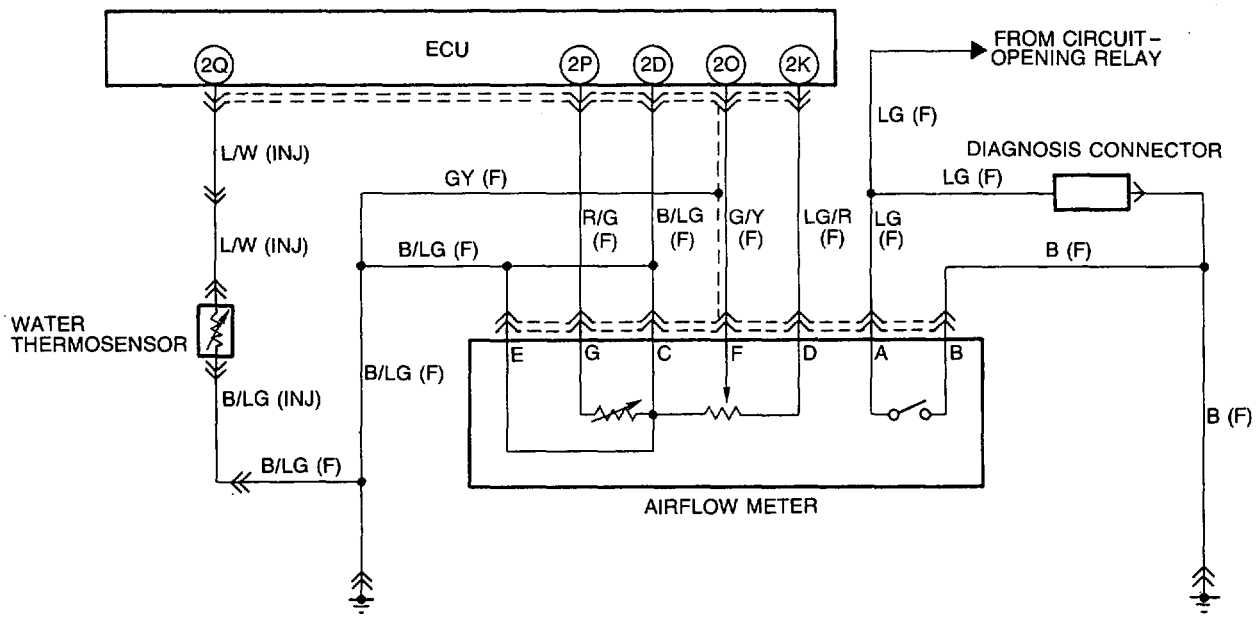


05U0FX-080

CODE No.	08 (AIRFLOW METER)		
STEP	INSPECTION		ACTION
1	Are there any poor connections in airflow meter circuit?	Yes	Repair or replace connector
		No	Go to next step
2	Is Code No.10 present at same time?	Yes	Check for open circuit in wiring from airflow meter terminal-wire (B/LG) to ground
		No	Go to next step
3	Is resistance of airflow meter OK? Airflow meter: D (LG/R)—F (R): Fully closed Ω 200—600; Fully open Ω 20—1,000 D (LG/R)—C (B/LG): 200—400	Yes	Go to next step
		No	Replace airflow meter ☞ page F–135
4	Is there continuity between airflow meter connector and ECU? Airflow meter: D (LG/R) — ECU: 2K F (R) — 2O	Yes	Go to next step
		No	Check for open circuit in wiring from airflow meter to ECU
5	Are ECU terminals 2D and 2K voltages OK? ☞ page F–129	Yes	Replace ECU ☞ page F–127
		No	Check for short circuit in wiring from airflow meter to ECU

15U0FX-028

Circuit Diagram



05U0FX-082

CODE No.	09 (WATER THERMOSENSOR)		
STEP	INSPECTION		ACTION
1	Are there any poor connections in water thermosensor circuit?	Yes	Repair or replace connector
		No	Go to next step
2	Is there continuity between water thermosensor and ECU? Water thermosensor – ECU: A (L/W) – 2Q; B (B/LG) – 2D	Yes	Go to next step
		No	Check for open circuit in wiring from water thermosensor to ECU
3	Is resistance of water thermosensor OK? Coolant temp. / Resistance: –20°C (–4°F) 14.6—17.8 kΩ; 20°C (68°F) 2.2—2.7 kΩ; 80°C (176°F) 290—350Ω	Yes	Go to next step
		No	Replace water thermosensor ☞ **page F–139**
4	Is same Code No. present after performing after-repair procedure? ☞ **page F–88**	Yes	Go to next step
		No	Water thermosensor and circuit OK
5	Are ECU terminals 2Q and 2D voltages OK? ☞ **page F–129**	Yes	Replace ECU ☞ **page F–127**
		No	Check for short circuit in wiring from water thermosensor to ECU

15U0FX-029

CODE No.	10 (INTAKE AIR THERMOSENSOR-IN AIRFLOW METER)		
STEP	INSPECTION		ACTION
1	Are there any poor connections in intake air thermosensor circuit?	Yes	Repair or replace connector
		No	Go to next step
2	Is there continuity between intake air thermosensor (in airflow meter) and ECU? Intake air thermosensor – ECU: C (B/LG) – 2D; G (R/G) – 2P	Yes	Go to next step
		No	Check for open circuit in wiring from intake air thermosensor (in airflow meter) to ECU
3	Is resistance of intake air thermosensor (in airflow meter) OK? Terminal / Temperature / Resistance: C (B/RG) —G (R/G) –20°C (–4°F) 13.6—18.4 kΩ; 20°C (68°F) 2.21—2.69 kΩ; 60°C (140°F) 493—667Ω	Yes	Go to next step
		No	Replace airflow meter ☞ **page F–135**
4	Is same Code No. present after performing after-repair procedure? ☞ **page F–88**	Yes	Go to next step
		No	Intake air thermosensor and circuit OK
5	Are engine control unit terminals 2P and 2D voltages OK? ☞ **page F–129**	Yes	Replace ECU ☞ **page F–127**
		No	Check for short circuit in wiring from intake air thermosensor to ECU

15U0FX-030

CODE No.	12 (THROTTLE SENSOR-4A/T)		
STEP	INSPECTION		ACTION
1	Check throttle sensor circuit for poor connection	Yes	Repair or replace connector
		No	Go to next step
2	Check wire harness between throttle sensor and ECU for continuity Throttle sensor – ECU: A (LG/R) – 2K (LG/R); B (R/B) – 2M (R/B); D (B/LG) – 2D (B/LG)	Yes	Go to next step
		No	Repair or replace
3	Check if resistances between terminals B (R/B) and D (B/LG) are OK Throttle valve – Resistance: Fully closed – Below 1 kΩ; Fully open – Approx. 5 kΩ	Yes	Go to next step
		No	Adjust or replace throttle sensor ☞ **page F–143**
4	Check if ECU terminal 2M voltage is OK ☞ **page F–138**	Yes	Replace ECU ☞ **page F–133**
		No	Check for short circuit in wiring from throttle sensor to ECU

15U0FX-031

CODE No.	14 (ATMOSPHERIC PRESSURE SENSOR)
Replace ECU	☞ **page F–127**

15U0FX-032

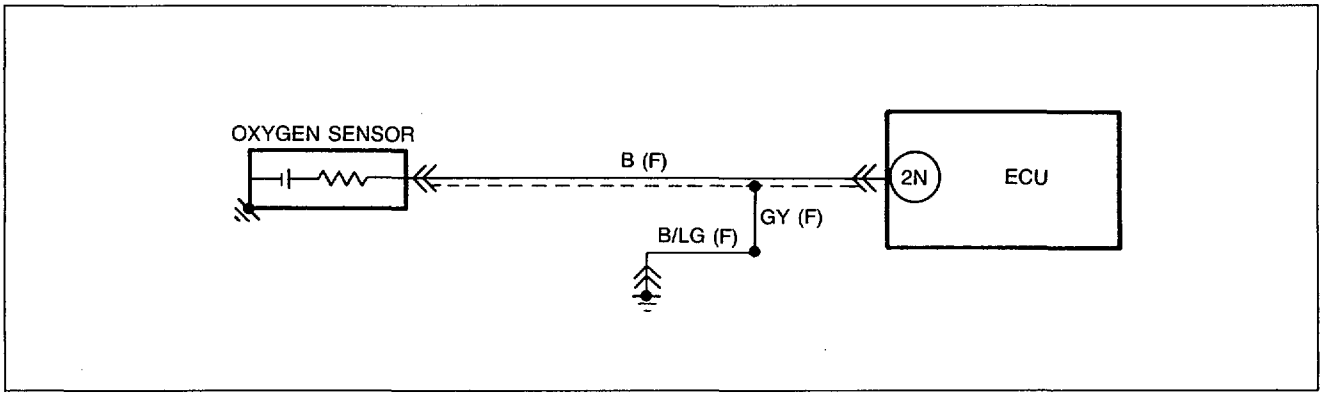
CODE No.	15 (OXYGEN SENSOR)		
Note **• If Code Nos.15 and 17 are both present, first perform the checking procedure for Code No.17**			
STEP	INSPECTION		ACTION
1	Are there any poor connections in oxygen sensor circuit?	Yes	Repair or replace connector
		No	Go to next step
2	Is oxygen sensor output voltage OK? ☞ **page F–138**	Yes	Go to next step
		No	Replace oxygen sensor ☞ **page F–138**
3	Is there continuity between oxygen sensor and ECU terminal 2N?	Yes	Go to next step
		No	Check for open circuit in wiring from oxygen sensor to ECU
4	Is ECU terminal 2N voltage OK?	Yes	Go to next step
		No	Check for short circuit in wiring from oxygen sensor to ECU
5	Is sensitivity of oxygen sensor OK? ☞ **page F–138**	Yes	Replace ECU ☞ **page F–127**
		No	Replace oxygen sensor ☞ **page F–136**

15U0FX-033

CODE No.	17 (FEEDBACK SYSTEM)		
STEP	INSPECTION		ACTION
1	Warm up engine and run it at 2,500—3,000 rpm for 3 min.		
2	Does monitor lamp of Self-Diagnosis Checker illuminate at idle?	Yes	Go to next step
		No	Check for air leak in vacuum hoses or emission components Check for contaminated oxygen sensor Check for insufficient fuel injection
3	Are spark plugs clean?	Yes	Go to next step
		No	Clean or replace spark plugs
4	Is oxygen sensor voltage OK? ☞ **page F–138**	Yes	Go to next step
		No	Replace oxygen sensor ☞ **page F–138**
5	Is same Code No. present after performing after-repair procedure? ☞ **page F–88**	Yes	Go to next step
		No	Check for short circuit in wiring from oxygen sensor to ECU terminal 2N
6	Is there continuity between oxygen sensor and ECU terminal 2N?	Yes	Go to next step
		No	Check for open circuit in wiring from oxygen sensor to ECU
7	Is ECU terminal 2N voltage OK? ☞ **page F–127**	Yes	Replace ECU ☞ **page F–127**
		No	Check for short circuit in wiring from oxygen sensor to ECU

15U0FX-034

Circuit Diagram



05U0FX-088

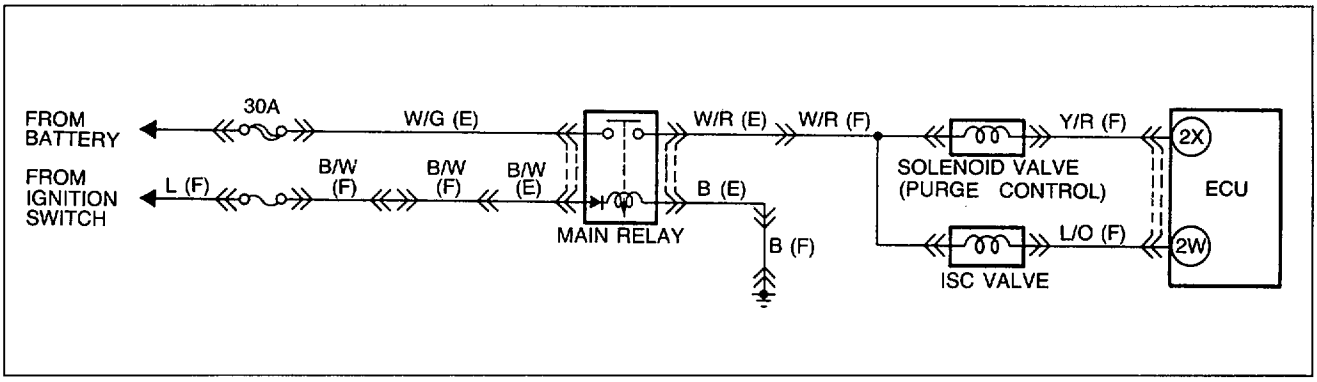
CODE No.	26 (SOLENOID VALVE-PURGE CONTROL)		
STEP	INSPECTION		ACTION
1	Are there any poor connections in solenoid valve circuit?	Yes	Repair or replace connector
		No	Go to next step
2	Is resistance of solenoid valve OK? **Resistance: 25 ± 2Ω**	Yes	Go to next step
		No	Replace solenoid valve ☞ **page F–119**
3	Is there battery voltage at terminal wire (W/R) of solenoid valve circuit?	Yes	Go to next step
		No	Check for open circuit in wiring from solenoid valve to main relay
4	Is there continuity between solenoid valve and ECU? Solenoid valve: B (Y/R) — ECU: 2X	Yes	Go to next step
		No	Check for open circuit in wiring from solenoid valve to ECU
5	Is ECU terminal (2X) voltage OK? ☞ **page F–130**	Yes	Replace ECU ☞ **page F–127**
		No	Check for short circuit in wiring from solenoid valve to ECU

15U0FX-035

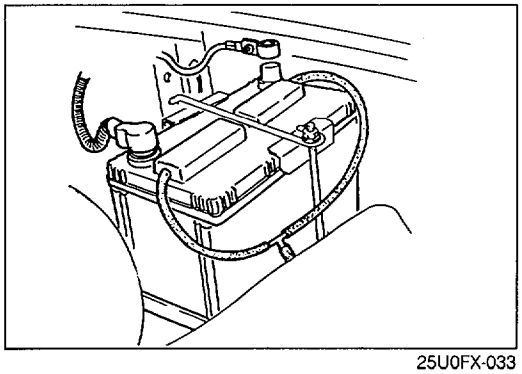
CODE No.	34 (ISC VALVE)		
STEP	INSPECTION		ACTION
1	Are there any poor connections in ISC valve circuit?	Yes	Repair or replace connector
		No	Go to next step
2	Is resistance of ISC valve OK? **Resistance: 12 ± 1Ω**	Yes	Go to next step
		No	Replace ISC valve ☞ **page F–99**
3	Is there battery voltage at terminal-wire (W/R) of ISC valve circuit?	Yes	Go to next step
		No	Check for open circuit in wiring from ISC valve to main relay
4	Is there continuity between ISC valve and ECU? ISC valve: B (L/O) — ECU: 2W	Yes	Go to next step
		No	Check for open circuit in wiring from ISC valve to ECU
5	Is ECU terminal 2W voltage OK? ☞ **page F–130**	Yes	Replace ECU ☞ **page F–127**
		No	Check for short circuit in wiring from ISC valve to ECU

15U0FX-036

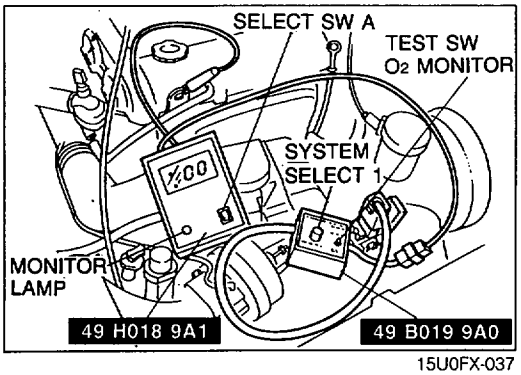
Circuit Diagram



05U0FX-091



25U0FX-033

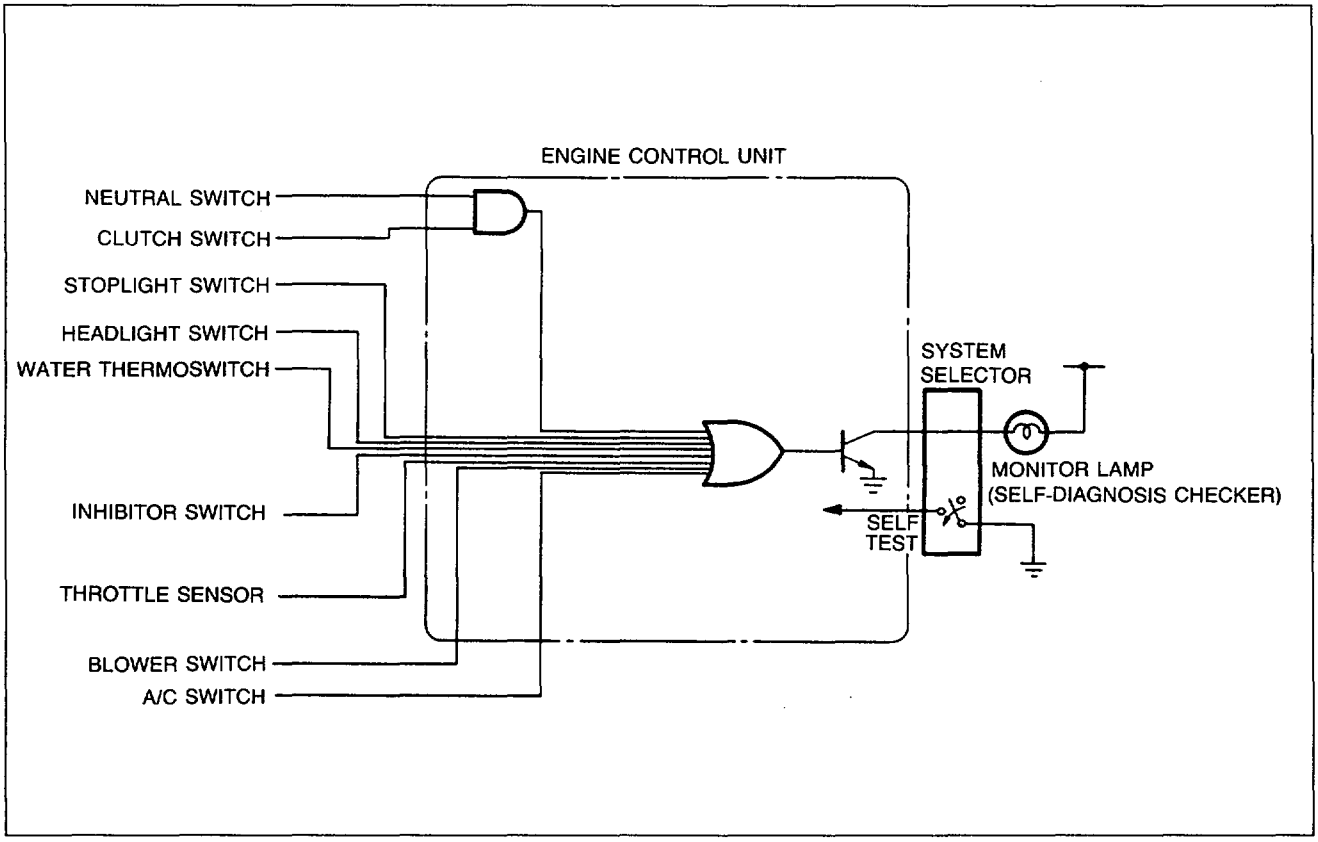


15U0FX-037

After-repair Procedure

1. Cancel the memory of malfunctions by disconnecting the negative battery cable **at least 20 seconds**. Reconnect the negative battery cable.
2. Connect the **SST** to the diagnosis connector as shown.
3. Turn the ignition switch ON, but do not start the engine for **six seconds**.
4. Start and warm up the engine, then run it at **2,000 rpm for three minutes**.
5. Verify that no code numbers are displayed.

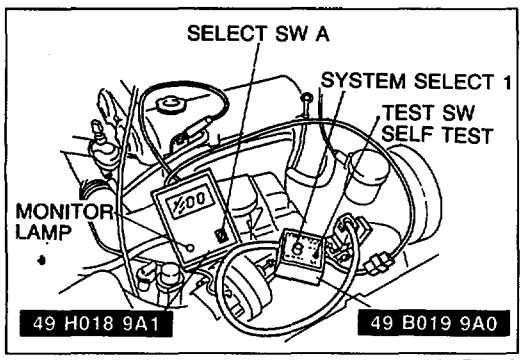
SWITCH MONITOR FUNCTION
Inspection Procedure



05U0FX-094

Switch	Self-Diagnosis Checker (Monitor lamp)		Remark
	Light ON	Light OFF	
Clutch switch (M/T)	Pedal released	Pedal depressed	In gear
Neutral switch (M/T)	In gear	Neutral	Clutch pedal released
Inhibitor switch (4A/T)	L, S, D and R range	N and P range	—
Throttle sensor	Pedal depressed (not fully)	Pedal fully depressed	—
Stoplight switch (M/T)	Pedal depressed	Pedal released	—
Headlight switch	ON	OFF	—
Blower switch	ON	OFF	Blower motor position: "medium" "high" or "super high" position
A/C switch	ON	OFF	Fan speed control: Low position
Water thermoswitch	Fan operating	Fan not operating	

15U0FX-038

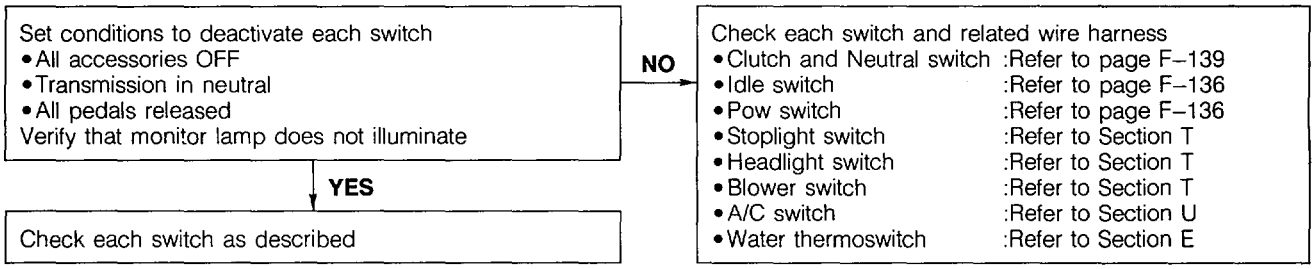


15U0FX-039

1. Connect the **SST** to the diagnosis connector as shown.
2. Turn the ignition switch ON. Check if the monitor lamp illuminates when each switch is made to function as described below.

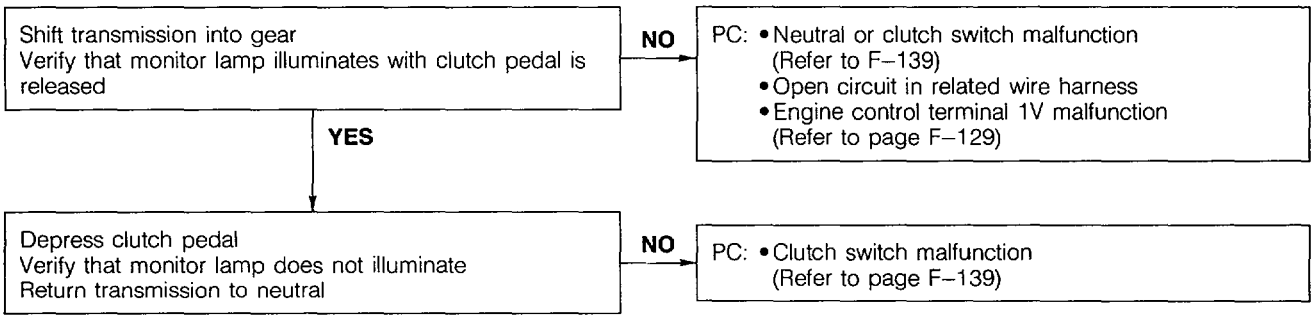
Caution
- **If either of the switches remain activated, the monitor lamp will be illuminated.**
- **Do not start the engine.**

Procedure



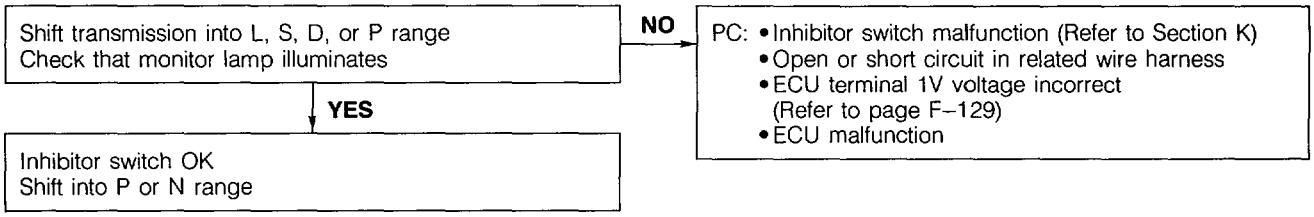
05U0FX-097

Neutral and Clutch switches (M/T)



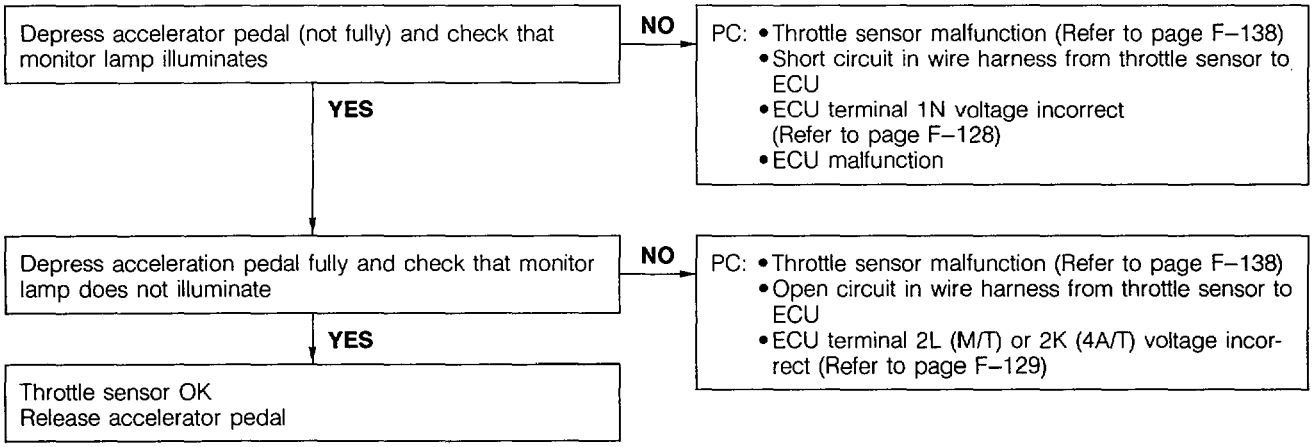
15U0FX-040

Inhibitor switch (4A/T)



15U0FX-041

Throttle sensor



15U0FX-042

Stoplight switch

Depress brake pedal and verify that monitor lamp illuminates
→ NO → PC: • Stoplight switch malfunction (Refer to Section T)
• Open circuit in wire harness from stoplight switch to engine control unit
• Engine control unit terminal 1O malfunction (Refer to page F–128)

↓ YES

Stoplight switch OK
Release brake pedal

05U0FX-101

Headlight switch

Turn ON headlight switch
Verify that monitor lamp illuminates
→ NO → PC: • Headlight switch malfunction (Refer to section T)
• Open circuit in wire harness from headlight switch to engine control unit
• Engine control unit terminal 1U malfunction (Refer to page F–129)

↓ YES

Headlight switch OK
Turn OFF headlight switch

05U0FX-102

Blower switch

Turn blower switch to "medium" position
Verify that monitor lamp illuminates
→ NO → PC: • Blower switch malfunction (Refer to section T)
• Open circuit in wire harness from blower switch to engine control unit
• Engine control unit terminal 1S malfunction (Refer to page F–129)

↓ YES

Blower switch OK
Turn OFF blower switch

05U0FX-103

A/C switch

Set fan speed control to low position
Turn A/C switch ON, and verify that monitor lamp illuminates
→ NO → PC: • A/C switch malfunction (Refer to Section U)
• Blower switch malfunction
• Open circuit in wire harness from A/C switch to blower switch
• Engine control unit terminal 1U malfunction (Refer to page F–129)

↓ YES

A/C switch OK
Turn A/C switch and blower switch OFF

05U0FX-104

Water thermoswitch circuit (not included in switch inspection)

Warning

- **The cooling fan operates when the diagnosis connector terminals TFA and GND are connected with a jumper wire. Use caution.**

Connect diagnosis connector terminals TFA and GND with a jumper wire
Verify that monitor lamp illuminates
→ NO → PC: • Relay malfunction (Refer to Section E)
• Open circuit in wire harness from water thermoswitch to engine control unit
• Engine control unit terminal 1R malfunction

↓ YES

Water thermoswitch circuit is OK
Disconnect a jumper wire

05U0FX-237

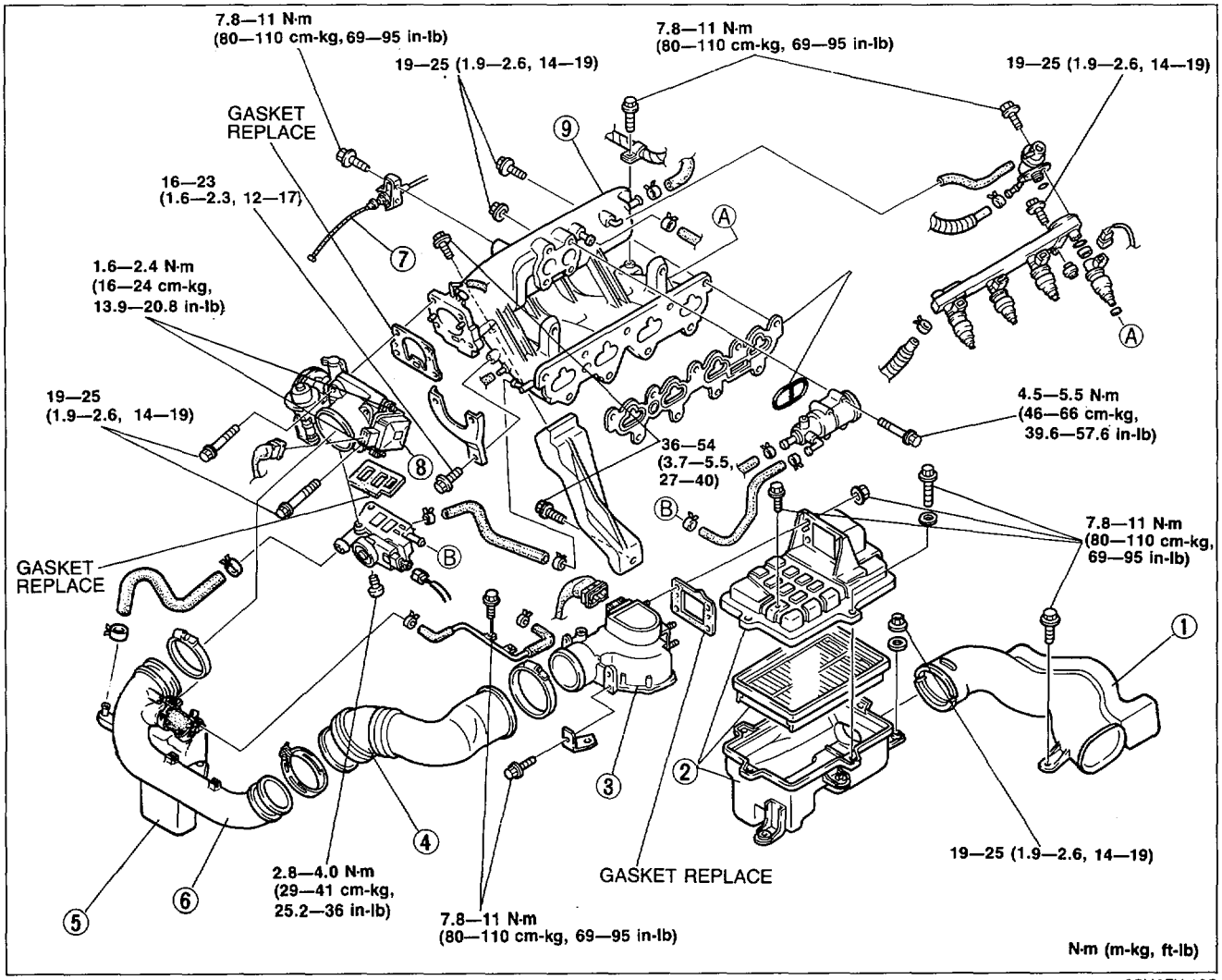
INTAKE AIR SYSTEM

COMPONENTS
Removal / Inspection / Installation

Warning
- **Before removing the intake manifold, release the fuel pressure from the fuel system to reduce the possibility of injury or fire. (Refer to page F–101.)**

Note
- **Before disconnecting the water hoses, drain the engine coolant.**
- **Use new gaskets during reassembly.**

1. Remove in the order shown in the figure.
2. Check the components for damage and repair or replace as necessary.
3. Install in the reverse order of removal.



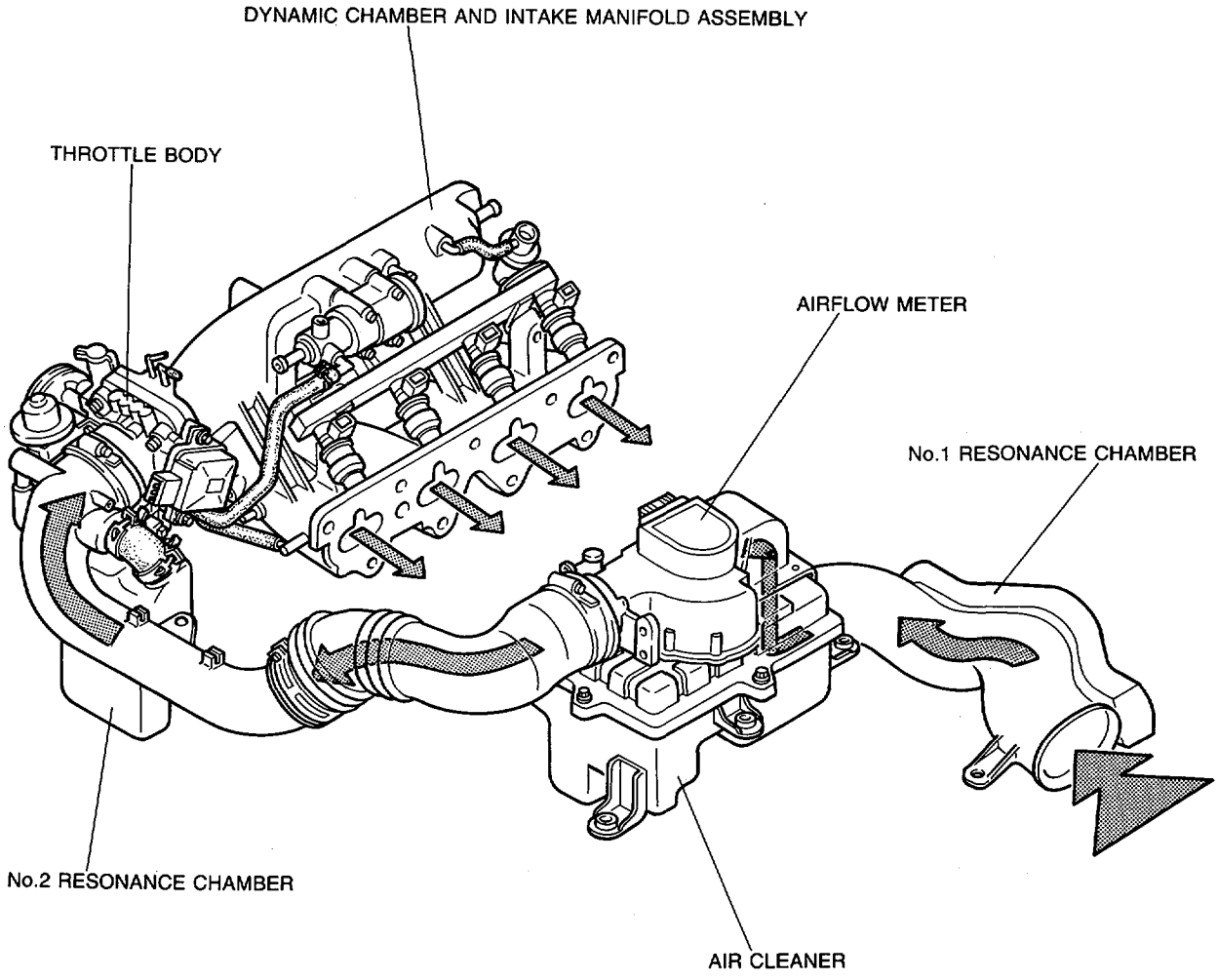
05U0FX-105

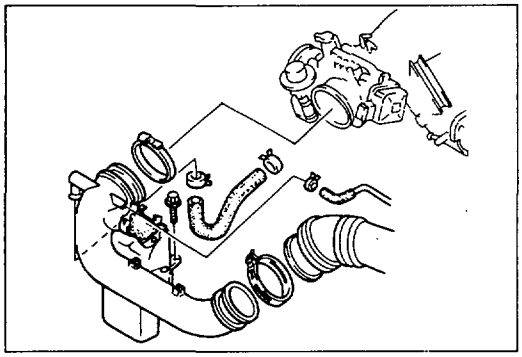
1. Air duct
2. Air cleaner
   Inspection ..... page F–73
3. Airflow meter
   Inspection / Replacement..... page F–92
4. Air hose
5. Resonance chamber
6. Air pipe
7. Accelerator pedal/cable
   Inspection / Replacement..... page F–96
8. Throttle body
   Removal / Inspection / Installation ..... page F–94
9. Intake manifold
   Removal / Installation ..... page F–95

SYSTEM OPERATION

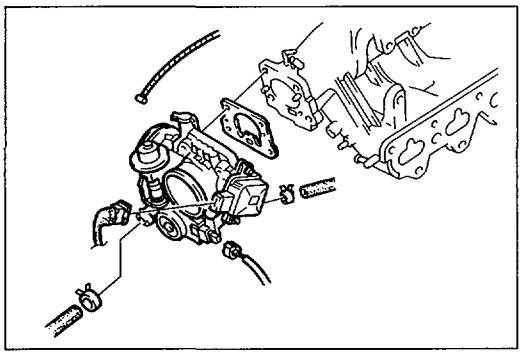
Inspection of Air Leakage

Check for possible air leakage at the points shown and repair or replace as necessary.

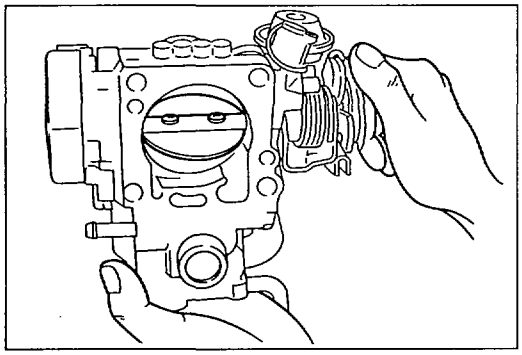




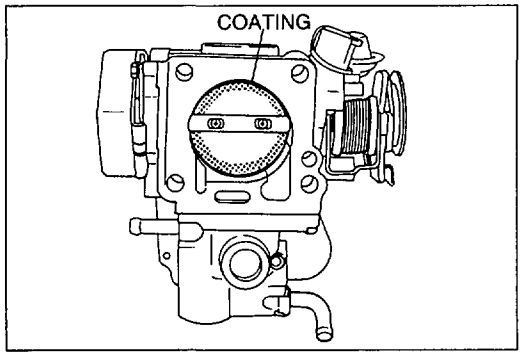
25U0FX-045



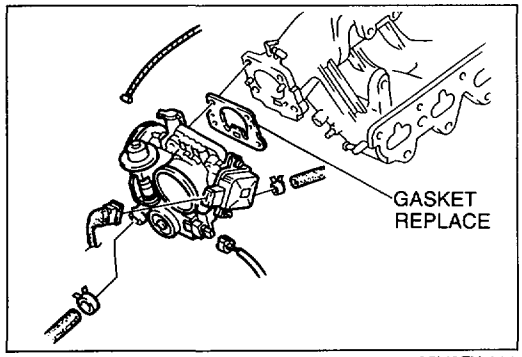
05U0FX-108



05U0FX-109



05U0FX-110



05U0FX-111

THROTTLE BODY

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

Removal
1. Remove the negative battery terminal.
2. Remove the air pipe.
3. Remove the accelerator cable from the throttle lever.

Note
- **Before disconnecting the water hoses, drain the engine coolant.**

4. Disconnect the water hoses.
5. Disconnect the connectors for the ISC valve and the throttle sensor.
6. Remove the throttle body.

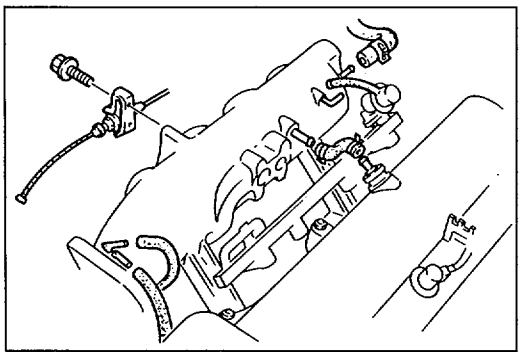
Inspection
1. Verify that the throttle valve is fully closed.
2. Verify that the throttle valve moves smoothly when the throttle lever is moved from fully closed to fully open.
3. Replace the throttle body if necessary.

Caution
- **Do not remove the thin seal coating from the throttle valve or bore.**

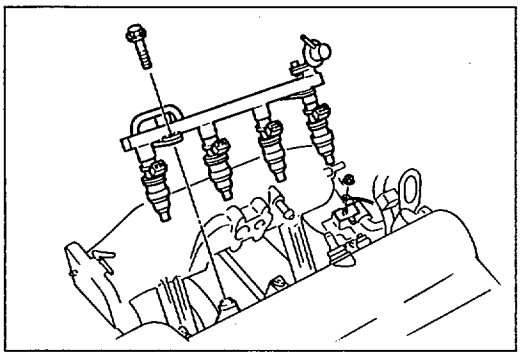
Installation
Install in the reverse order of removal.

Note
- **Use a new mounting gasket.**

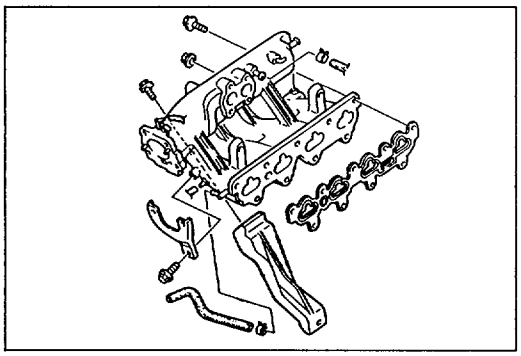
Tightening torque:
19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)



05U0FX-112



05U0FX-113



05U0FX-114

INTAKE MANIFOLD
Removal

Warning
- **Before removal, release the fuel pressure from the fuel system to reduce the possibility of injury or fire. (Refer to page F–101.)**

1. Remove the throttle body. (Refer to page F–94.)
2. Remove the air valve
3. Disconnect the vacuum hoses.

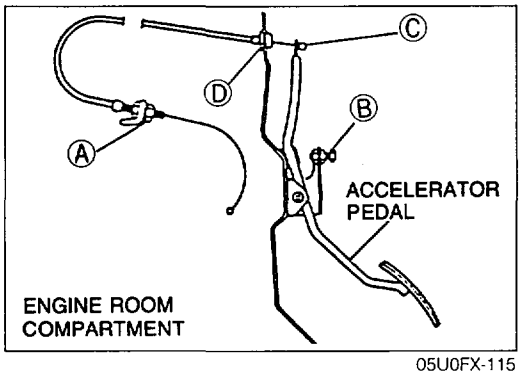
4. Remove the accelerator cable.
5. Disconnect the fuel hoses.
6. Disconnect the connectors from the injectors.
7. Remove the delivery pipe and injectors.
8. Remove the injector harness.

9. Remove the intake manifold bracket.
10. Remove the intake manifold.

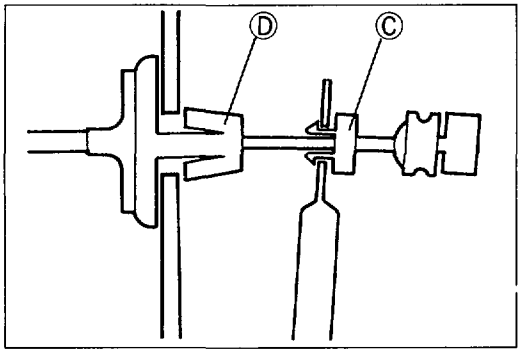
Installation
Install in the reverse order of removal.

Note
- **Use a new mounting gasket.**

Tightening torque
Intake manifold and delivery pipe:
19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)
Injector harness and bracket:
7.8—11 N·m (80—110 cm-kg, 69—95 in-lb)



05U0FX-115



05U0FX-116

ACCELERATOR PEDAL AND CABLE

Accelerator Cable

Inspection

1. Check deflection of the cable. If deflection exceeds **1—3mm (0.039—0.118 in)**, adjust it by turning nut A.
2. Depress the accelerator pedal to the floor and verify that the throttle valve opens fully. Adjust with bolt B if necessary.

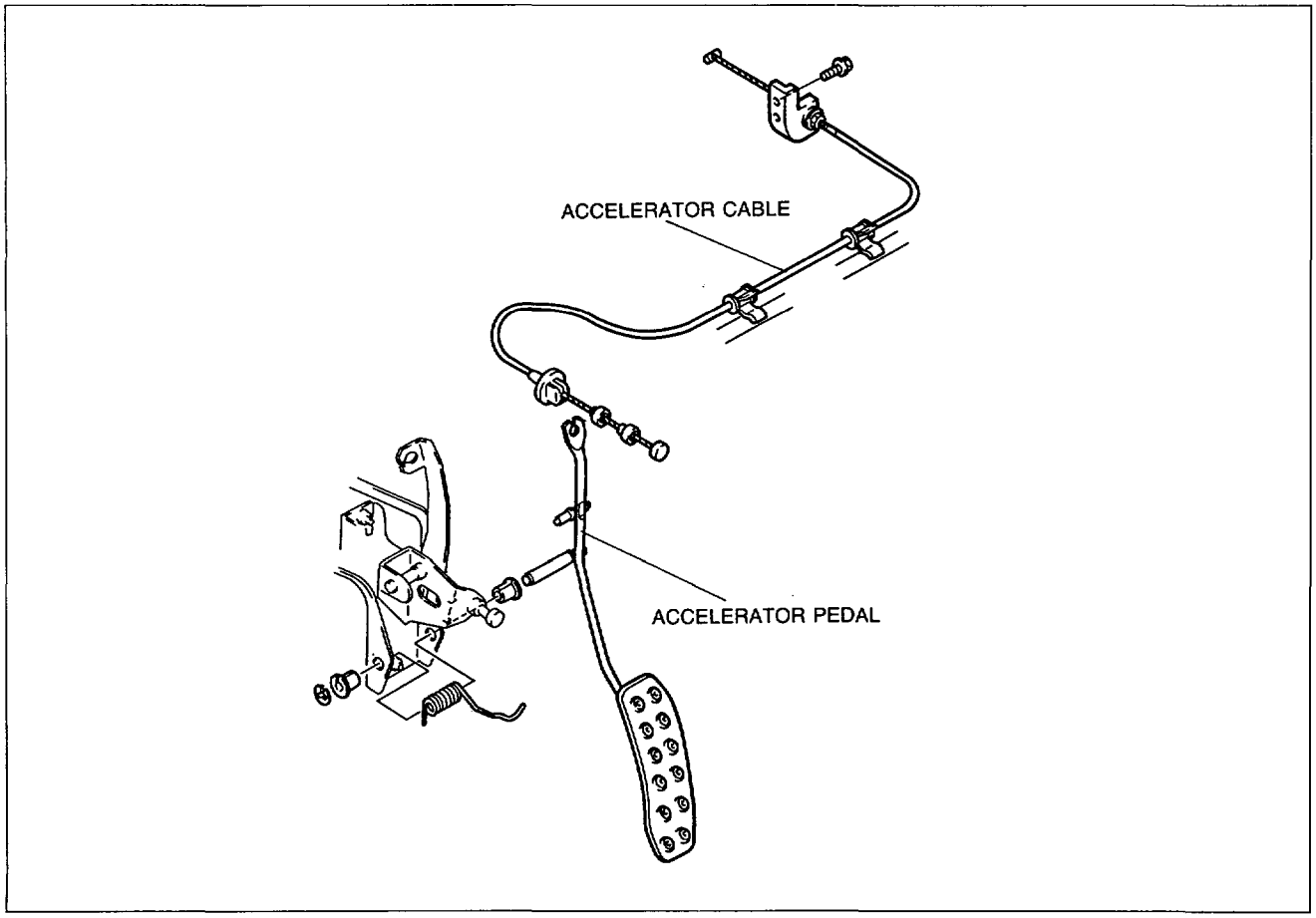
Replacement

1. Remove the accelerator cable from the throttle lever.
2. Loosen the throttle adjustment nuts and remove the cable from the bracket.
3. Compress the tabs of stay C and remove the accelerator cable from the pedal arm.
4. Compress the tabs of stay D and push the cable through the firewall.
5. Remove the accelerator cable.
6. Install in the reverse order of removal.
7. Adjust deflection of the cable after installation. (Refer to above.)

Accelerator Pedal

Replacement

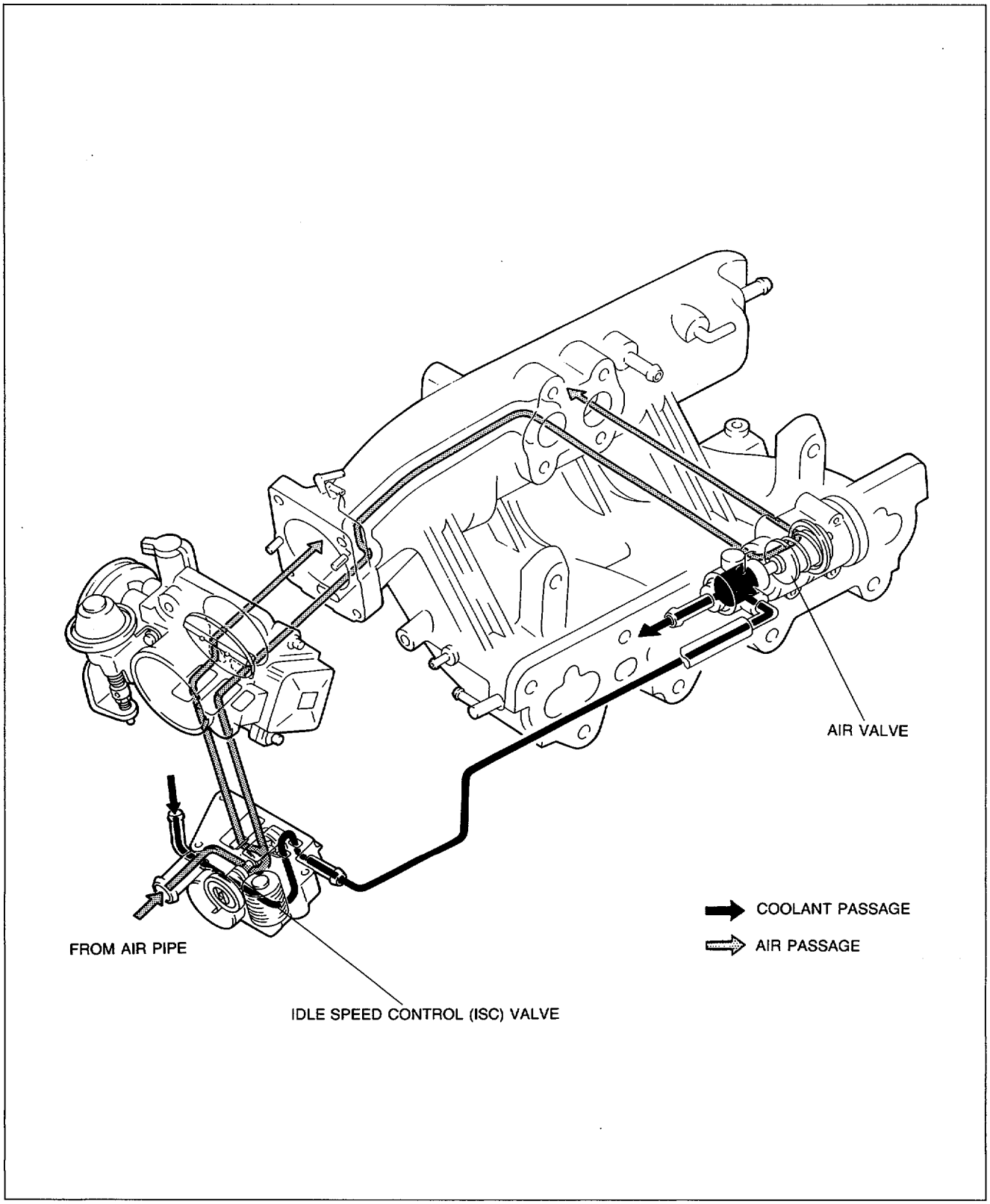
1. Disconnect the accelerator cable.
2. Remove the accelerator pedal as shown in the figure.
3. Install in the reverse order of removal.



05U0FX-117

IDLE SPEED CONTROL (ISC) SYSTEM

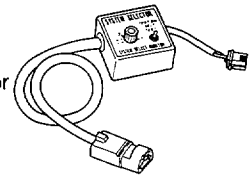
DESCRIPTION



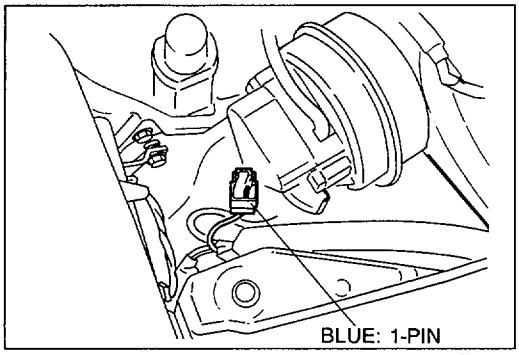
05U0FX-118

To improve idle smoothness, the ISC system controls the intake air amount by regulating amount of the by-pass air that passes through the throttle valve. This system consists of the air valve that functions only when the engine is cold, the ISC valve that works throughout the entire engine speed range, and the control system.

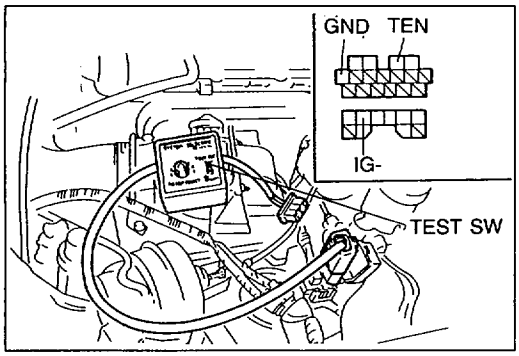
PREPARATION
SST

49 B019 9A0 System Selector 	For inspection of air valve

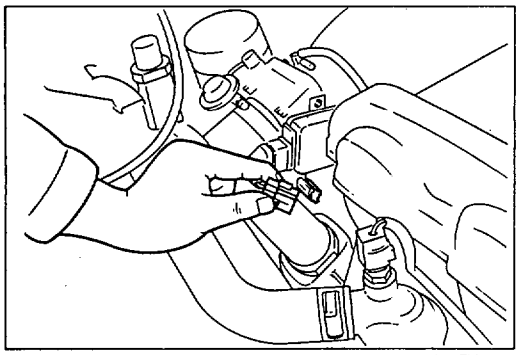
05U0FX-119



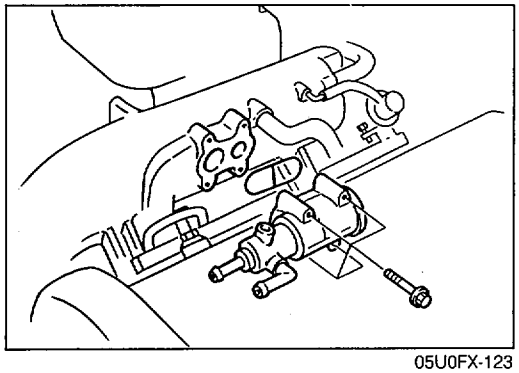
05U0FX-120



05U0FX-121



05U0FX-122



05U0FX-123

SYSTEM OPERATION
Air Valve
—Perform this inspection when the engine is cold. (Engine coolant temperature below 20°C [68°F].)

Note
- **When using an externally powered tachometer connect it to the power connector (Blue: 1-pin).**

Warning
- **Do not ground the power connector terminal (Blue: 1-pin); the wiper 20A fuse will be burned.**

1. Connect a tachometer to the diagnosis connector terminal **IG–**.

Caution
- **Be extremely careful when making connections to the diagnosis connector as a mistaken connection will cause a malfunction.**

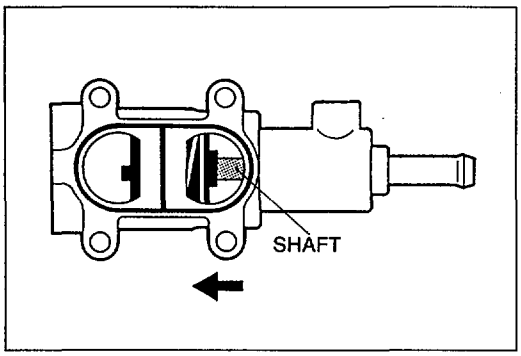
2. Connect the **SST** and set the TEST SW to "SELF TEST" or connect diagnosis connector terminals TEN and GND with a jumper wire.
3. Verify that the engine speed gradually decreases as the engine warms up.
4. Remove the **SST** or the jumper wire.

ISC Valve
1. Warm up the engine to the normal operating temperature and run it at idle.
2. Disconnect the ISC valve connector (Black: 2-pin) and verify that the valve clicks and the engine speed increases to **approx. 1,200 rpm**.
3. Reconnect the ISC valve connector.

AIR VALVE
Removal

Note
- **Before disconnecting the water hoses, drain the engine coolant.**

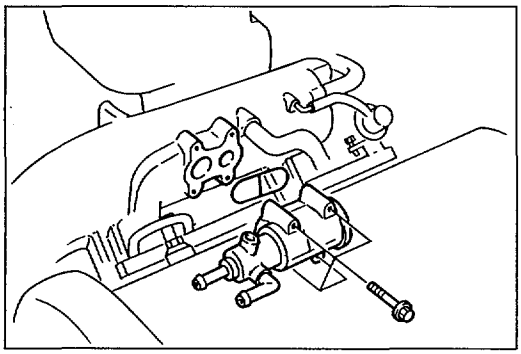
1. Disconnect the water hoses.
2. Remove the air valve from the intake manifold.



15U0FX-062

Inspection

1. Cool the air valve to **0°C (32°F)**.
2. Mark the shaft.
3. Warm the air valve with a hot air gun and verify that the shaft moves in the direction of arrow.
4. Replace the air valve if necessary.



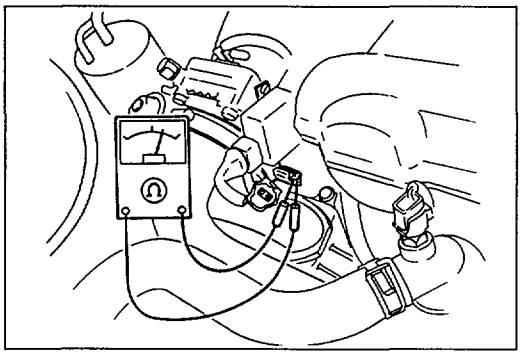
05U0FX-125

Installation

Note
- **Install a new gasket.**

Install in the reverse order of removal.

Tightening torque:
4.9—7.8 N·m (50—80 cm-kg, 43—69 in-lb)



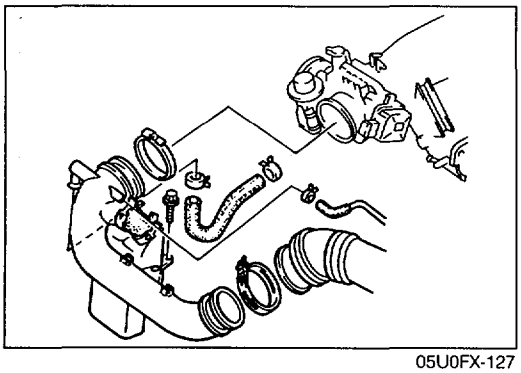
05U0FX-126

ISC VALVE
Inspection

1. Disconnect the ISC valve connector.
2. Connect an ohmmeter between the terminals of the ISC valve and measure the resistance.

Resistance (at 20°C [68°F]): 12 ± 1Ω

3. If not as specified, replace the ISC valve.



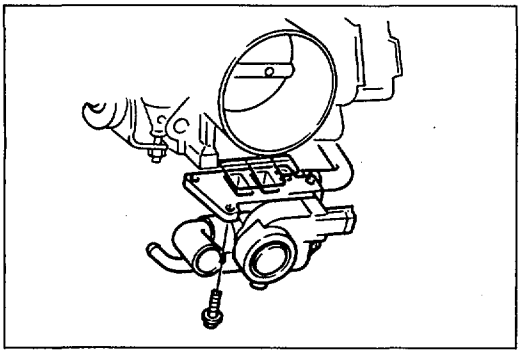
05U0FX-127

Replacement

1. Disconnect the ISC valve connector.
2. Remove the air pipe.

Note
- **Before disconnecting the water hose, drain the engine coolant.**

3. Disconnect the water hose and the air hose.



05U0FX-128

4. Remove the ISC valve.

Note
- **Install a new gasket.**

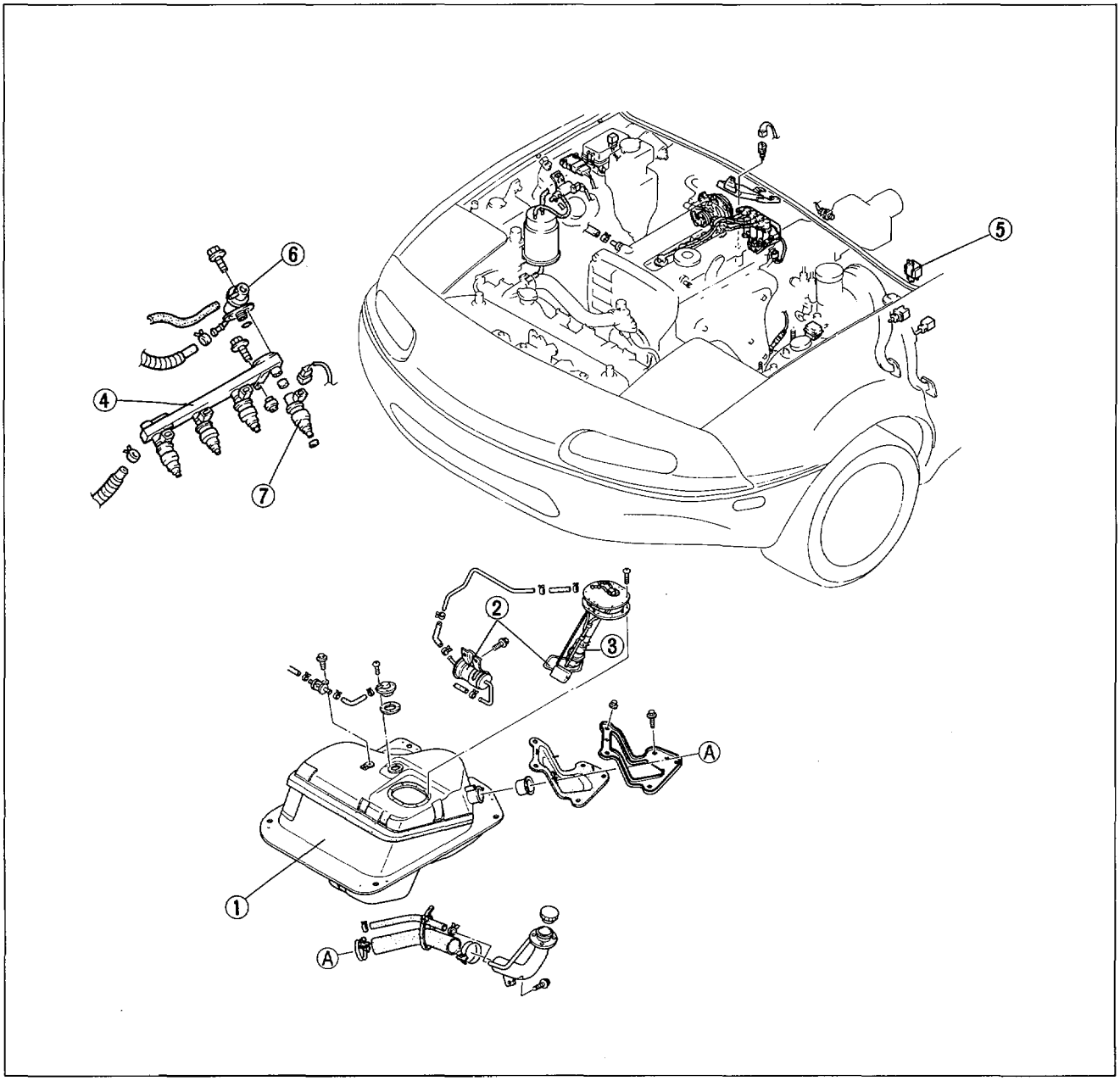
5. Install in the reverse order of removal.

Tightening torque:
2.8—4.0 N·m (29—41 cm-kg, 25—35 in-lb)

FUEL SYSTEM

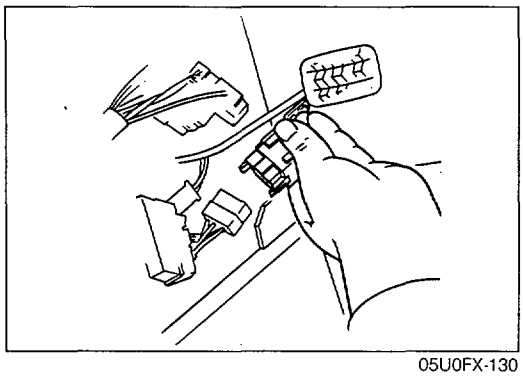
DESCRIPTION

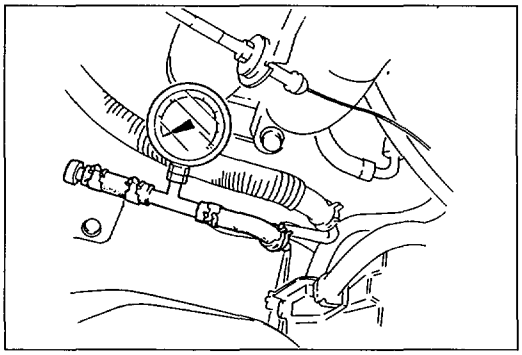
This system supplies the necessary fuel for combustion at a constant pressure to the fuel injectors. Fuel is metered and injected into the intake manifold according to the injection control signals from the engine control unit. The system consists of the fuel tank, the fuel pump, the fuel filters, the delivery pipe, the pressure regulator, the injectors, and the circuit opening relay.

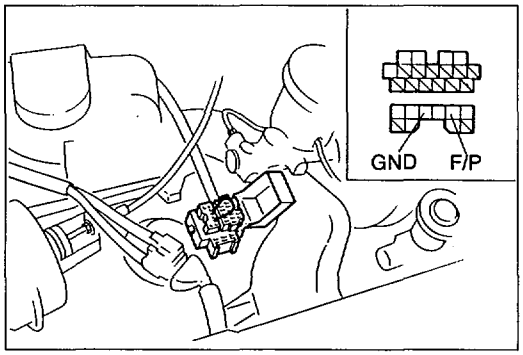


05U0FX-129

1. Fuel tank
   Removal / Inspection / Installation ..... page F–104
2. Fuel filter
   Replacement ..... page F–106
3. Fuel pump
   Inspection ..... page F–107
   Replacement ..... page F–108
4. Delivery pipe
5. Circuit opening relay
   Inspection ..... page F–110
   Replacement ..... page F–110
6. Pressure regulator
   Inspection ..... page F–111
   Replacement ..... page F–111
7. Injector
   Inspection ..... page F–112
   Removal ..... page F–112
   Installation ..... page F–113


05U0FX-130


05U0FX-131



05U0FX-132

PRECAUTION

Fuel Pressure Release and Servicing Fuel System

Fuel in the fuel system remains under high pressure even when the engine is not running.

a) Before disconnecting any fuel line, release the fuel pressure from the fuel system to reduce the possibility of injury or fire.
   1. Start the engine.
   2. Disconnect the circuit opening relay connector.
   3. After the engine stalls, turn off the ignition switch.
   4. Reconnect the circuit opening relay connector.

b) Use a rag as protection from fuel spray when disconnecting the hoses.

c) Plug the hoses after removal.

d) When inspecting the fuel system, use a suitable fuel pressure gauge.

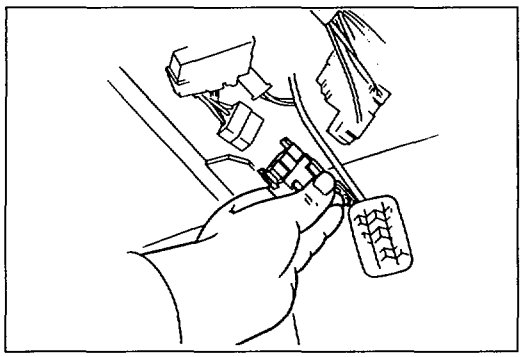
Caution

- **Install hose clamps when securing the fuel pressure gauge to the fuel pipe and the fuel main hose to prevent fuel leakage.**

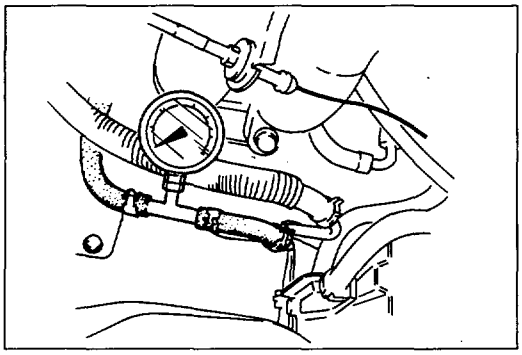
Priming Fuel System

After releasing the fuel system pressure for repairs or inspection, the system must be primed to avoid excessive cranking when first starting the engine. Follow the steps below.

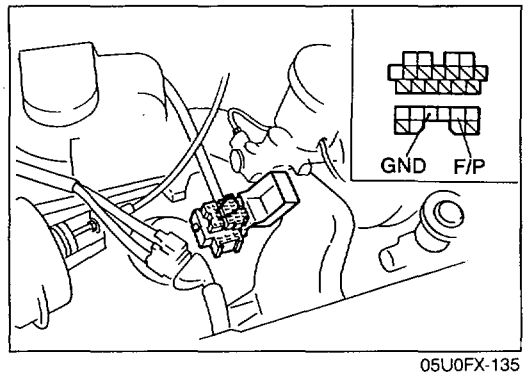
1. Connect diagnosis connector terminals F/P and GND with a jumper wire.
2. Turn the ignition switch ON for **approx. 10 sec.** and check for fuel leaks.
3. Turn the ignition switch OFF and remove the jumper wire.



25U0FX-046



05U0FX-134



05U0FX-135

SYSTEM OPERATION

Caution

- **Obtain the code number and deactivate the anti-theft system before disconnecting the battery. (Refer to page T–120.)**

Fuel Pressure Hold Inspection

Warning

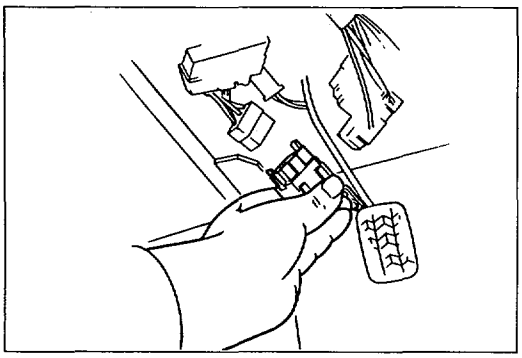
- **Before performing the following operation, release the fuel pressure from the fuel system to reduce the possibility of injury or fire. (Refer to page F–101.)**

1. Disconnect the negative battery terminal.
2. Install a fuel pressure gauge between the fuel pipe and the fuel main hose. (Install clamps as shown.)
3. Connect the negative battery terminal.

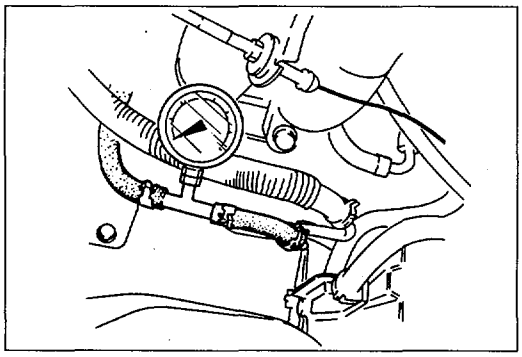
4. Connect diagnosis connector terminals F/P and GND with a jumper wire.
5. Turn the ignition switch ON for **10 sec.** to operate the fuel pump.
6. Turn the ignition switch OFF and disconnect the jumper wire.
7. Observe the fuel pressure **after 5 min.**

Fuel pressure:
More than 147 kPa (1.5 kg/cm^2, 21 psi)

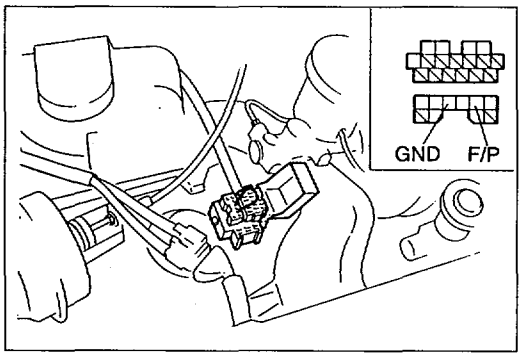
8. If not as specified, perform the following inspections.
   - Fuel pump hold pressure (Refer to page F–107.)
   - Pressure regulator hold pressure (Refer to page F–111.)
   - Injector fuel leakage. (Refer to page F–113.)



05U0FX-136



05U0FX-137



05U0FX-138

Fuel Line Pressure Inspection

Warning

- **Before performing the following operation, release the fuel pressure from the fuel system to reduce the possibility of injury or fire. (Refer to page F–101.)**

1. Disconnect the negative battery terminal.
2. Install a fuel pressure gauge between the fuel pipe and the fuel main hose. (Install clamps as shown.)
3. Connect the negative battery terminal.

4. Connect diagnosis connector terminals F/P and GND with a jumper wire.
5. Turn the ignition switch ON.
6. Measure the fuel line pressure.

Fuel line pressure:
265—314 kPa (2.7—3.2 kg/cm^2, 38—46 psi)

Pressure low — Check fuel pump maximum pressure. (Refer to page F–108.) If as specified, fuel line or fuel filter might be clogged or restricted.

Pressure high — Replace the pressure regulator. (Refer to page F–111.)

FUEL TANK

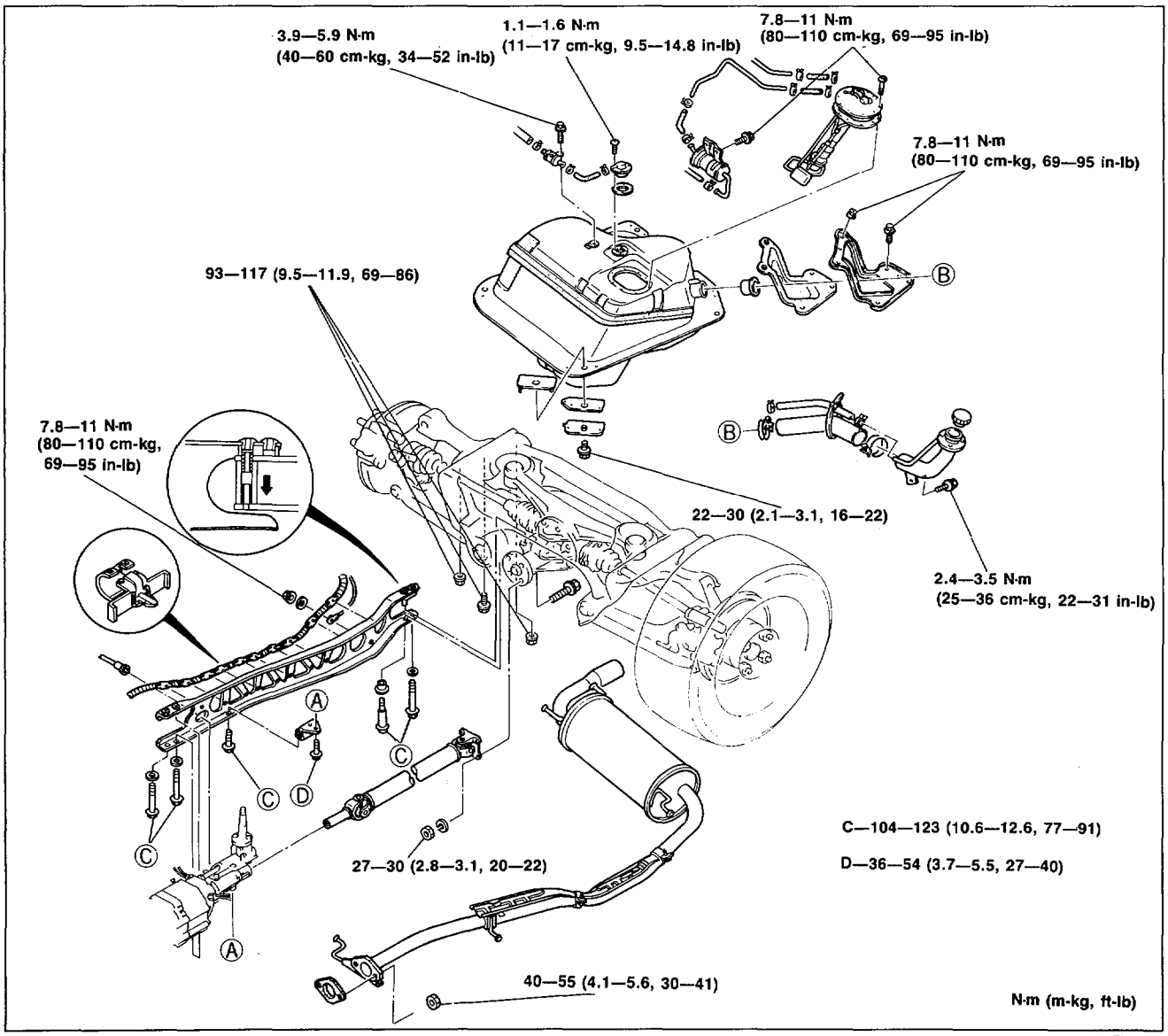
Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

Removal / Inspection / Installation

Warning
- **Before performing the following operation, release the fuel pressure from the fuel system to reduce the possibility of injury or fire. (Refer to page F–101.)**
- **When removing the fuel tank, keep sparks, cigarettes, and open flames away from the tank.**
- **Before repairing the fuel tank, clean it thoroughly with steam to remove all explosive gas.**

Note
- **Drain the fuel from the fuel tank before removing the tank.**

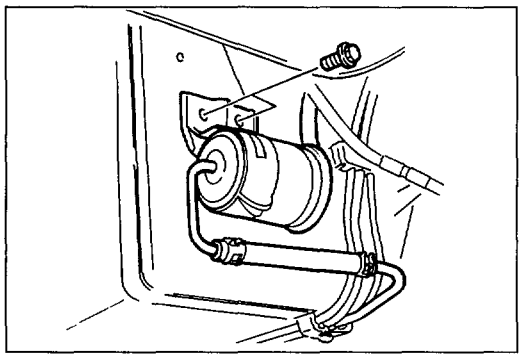
1. Disconnect the negative battery terminal.
2. Remove the main silencer. (Refer to page F–115.)
3. Remove the power plant frame. (Refer to page J–11.)
4. Remove in the order shown in the figure, referring to **Removal Note**.
5. Install in the reverse order of removal, referring to **Installation Note**.



25U0FX-047

1. Fuel filler hoses
2. Fuel hoses
3. Evaporative hoses
4. Fuel pump connector
5. Fuel filter bolts
   Removal Note ..... page F–105
6. Brake pipe joint
   Removal Note ..... page F–105
7. Battery cable
   Removal Note ..... page F–105
8. Rear crossmember assembly
   Removal Note ..... page F–105
9. Fuel tank unit
10. Tow-way check valve
11. Fuel vapor valve
12. Fuel tank

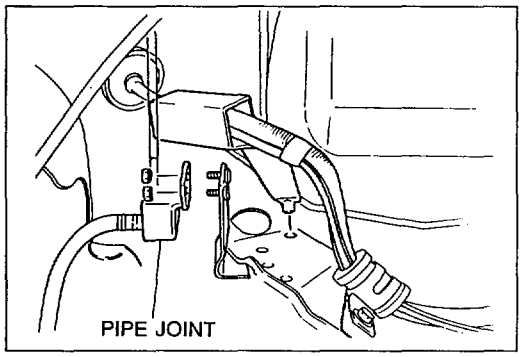
05U0FX-228



15U0FX-046

Removal note
Fuel filter bolts

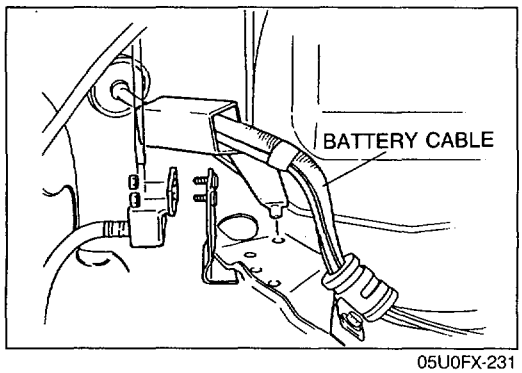
1. Remove the fuel filter cover.
2. Remove the fuel filter bolts. (M/T)
3. Remove the fuel filter nuts. (4A/T)
4. Remove the fuel filter with the fuel hoses still connected.



05U0FX-230

Brake pipe joint

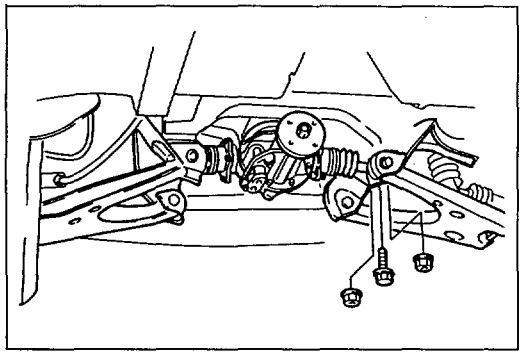
1. Remove the brake pipe joint nuts.
2. Remove the brake pipe joint with the brake pipe and brake hose still connected.



05U0FX-231

Battery cable

1. Remove the battery cable clamp as shown in the figure.



05U0FX-232

Rear crossmember assembly

1. Support the rear crossmember assembly with a transmission jack.
2. Remove the rear crossmember mounting bolts and nuts.

Caution

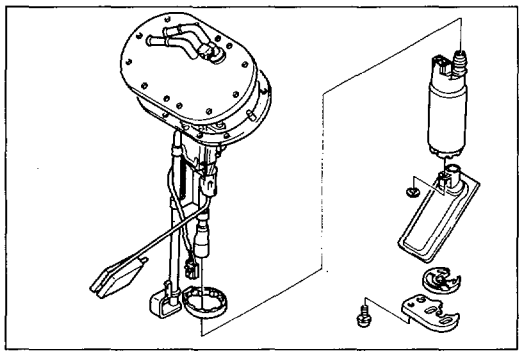
- **Do not damage the brake hose, brake pipe, or fuel hoses.**

3. Lower the rear crossmember assembly.

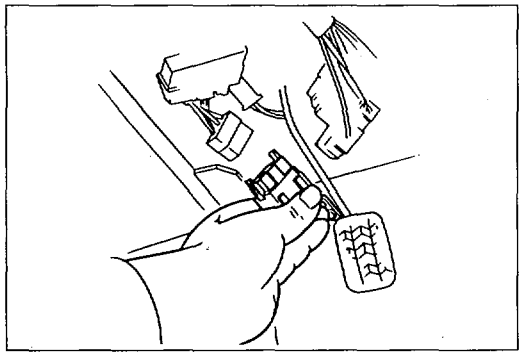
Installation note
Fuel hoses and fuel filler hoses
- Push the ends of the main fuel hose, fuel return hose, and evaporation hose onto the fuel tank fittings **at least 25mm (1.0 in)**.
- Push the fuel filler hose onto the fuel tank pipe and filler pipe **at least 35mm (1.4 in)**.

Power plant frame
- Install the power plant frame referring to the installation procedure on page J–46.

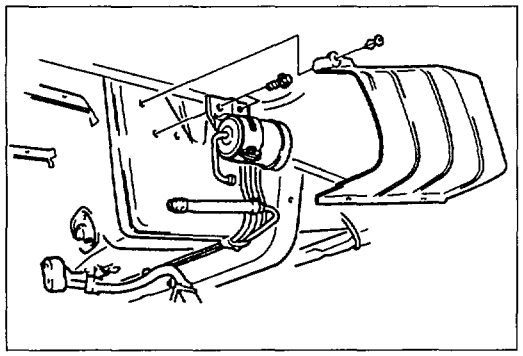
05U0FX-140



05U0FX-141



05U0FX-142



05U0FX-143

FUEL FILTER
Replacement
Low-pressure side (In-tank filter)
(Refer to page F–109.)

High-pressure side
The fuel filter must be replaced at the intervals outlined in the maintenance schedule.

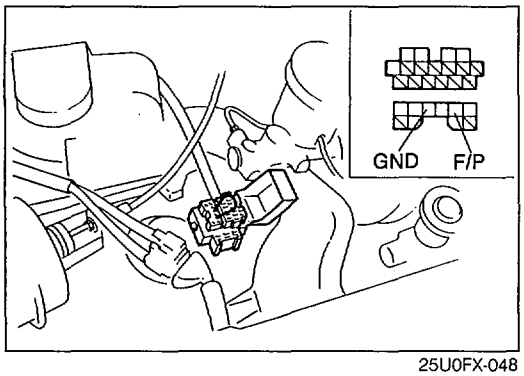
Warning
- **Before performing the following operation, release the fuel pressure from the fuel system to reduce the possibility of injury or fire. (Refer to page F–101.)**
- **When replacing fuel system components, keep sparks, cigarettes, and open flames away from the fuel.**

1. Raise the rear of the vehicle and support it with safety stands.
2. Remove the fuel filter protector.
3. Disconnect the fuel hoses from the fuel filter.
4. Remove the fuel filter and bracket.

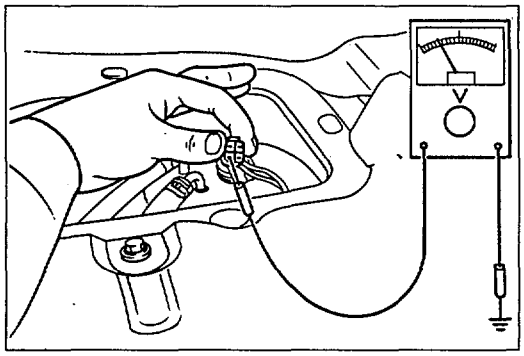
Note
- **When installing the filter, push the fuel hoses fully onto the fuel filter.**

5. Install in the reverse order of removal.

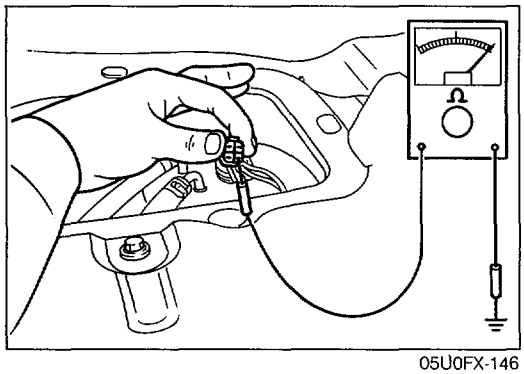
Tightening torque:
7.8—11 N·m (80—110 cm-kg, 69—95 in-lb)



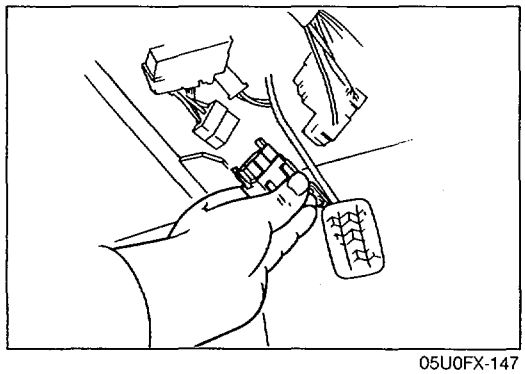
25U0FX-048

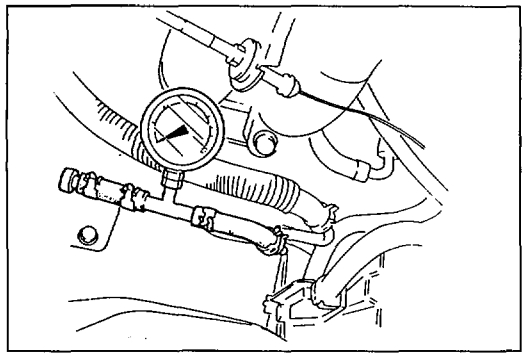


25U0FX-034



05U0FX-146


05U0FX-147


05U0FX-148

FUEL PUMP

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

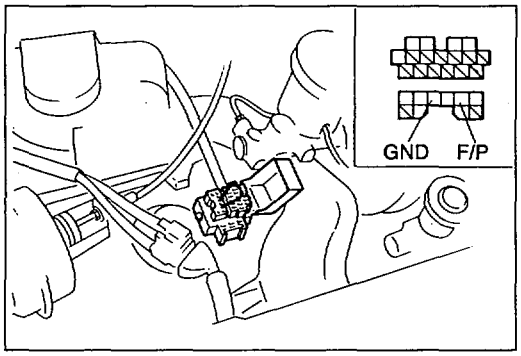
Inspection
Fuel pump operation
1. Connect the diagnosis connector terminals F/P and GND with a jumper wire.
2. Remove the fuel filler cap.
3. Turn the ignition switch ON.
4. Listen for operational sound of the fuel pump at the filler inlet.
5. Install the fuel filler cap.
6. If no sound was heard, measure the voltage between the fuel pump connector wire to ground.

   Voltage: Battery voltage
7. If not correct, check the circuit opening relay and its circuits. (Refer to page F–109.)
8. If the voltage is normal, check for continuity between fuel pump connector (B) and a ground.
9. If there is continuity, replace the fuel pump.
10. If no continuity, repair the ground circuit.

Hold pressure
Perform this inspection if the fuel pressure hold inspection is not as specified. (Refer to page F–102.)

Warning
- **Before performing the following operation, release the fuel pressure from the fuel system to reduce the possibility of injury or fire. (Refer to page F–101.)**

1. Disconnect the negative battery terminal.
2. Connect a fuel pressure gauge to the fuel main pipe and plug the outlet of the fuel pressure gauge as shown. (Install clamps as shown.)
3. Connect the negative battery terminal.



05U0FX-149

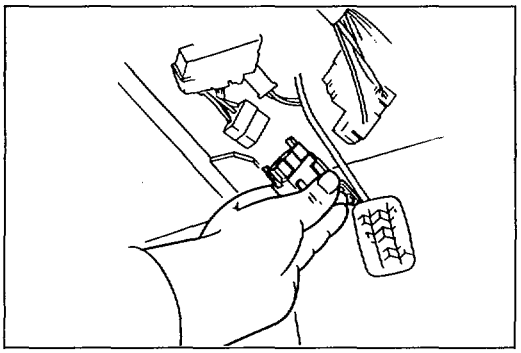
4. Connect diagnosis connector terminals F/P and GND with a jumper wire.
5. Turn the ignition switch ON **for 10 sec.** to operate the fuel pump.
6. Turn the ignition switch OFF and disconnect the jumper wire.
7. Observe the fuel pressure **after 5 min.**.

Fuel pressure:
More than 343 kPa (3.5 kg/cm^2, 50 psi)

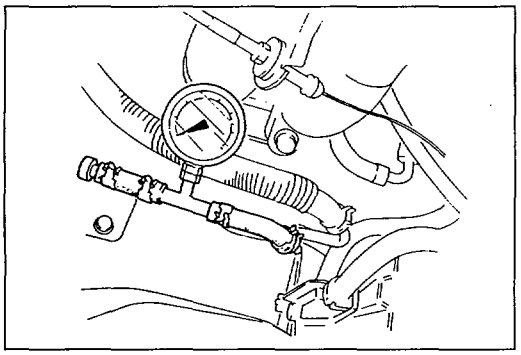
8. If not as specified, replace the fuel pump.

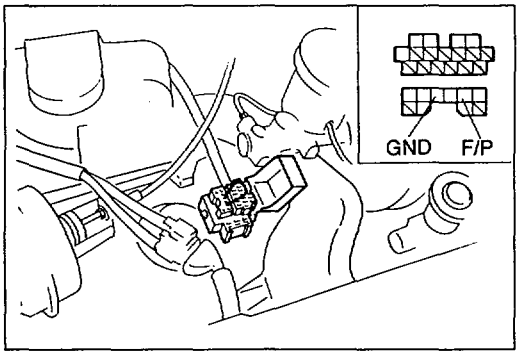
Fuel pump maximum pressure

Warning
- **Before performing the following operation, release the fuel pressure from the fuel system to reduce the possibility of injury or fire. (Refer to page F–101.)**


05U0FX-150

1. Disconnect the negative battery terminal.
2. Connect a fuel pressure gauge to the fuel main pipe and plug the outlet of the fuel pressure gauge as shown. (Install clamps as shown.)
3. Connect the negative battery terminal.


05U0FX-151



05U0FX-152

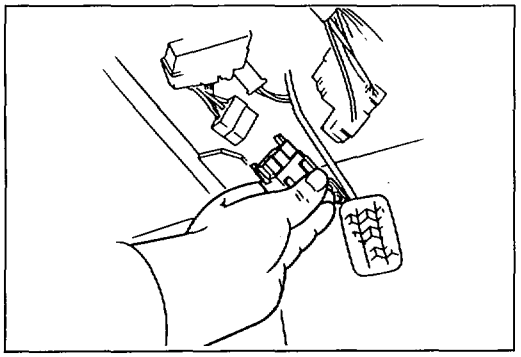
4. Connect diagnosis connector terminals F/P and GND with a jumper wire.
5. Turn the ignition switch ON to operate the fuel pump.
6. Measure the pump maximum pressure.

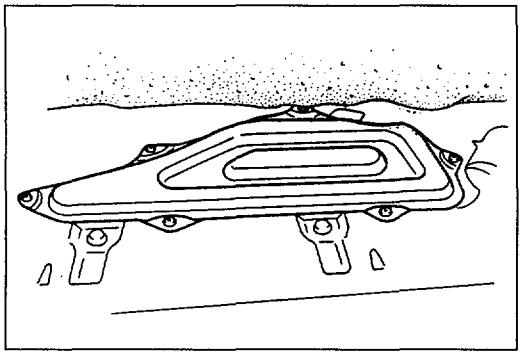
Fuel pump maximum pressure:
441—589 kPa (4.6—6.0 kg/cm^2, 64—85 psi)

7. Turn the ignition switch OFF and disconnect the jumper wire.
8. If not as specified, replace the fuel pump.

Replacement

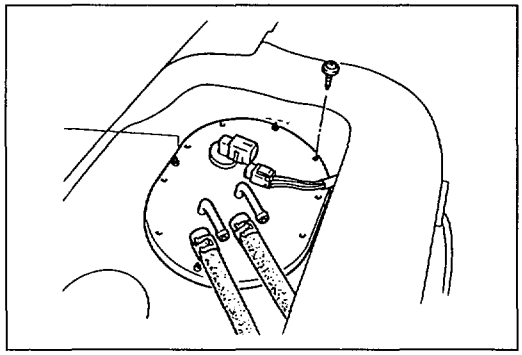
Warning
- **Before performing the following procedures, release the fuel pressure from the fuel system to reduce the possibility of injury or fire. (Refer to page F–101.)**
- **When replacing the fuel system parts, keep sparks, cigarettes, and open flames away from the fuel.**


05U0FX-153



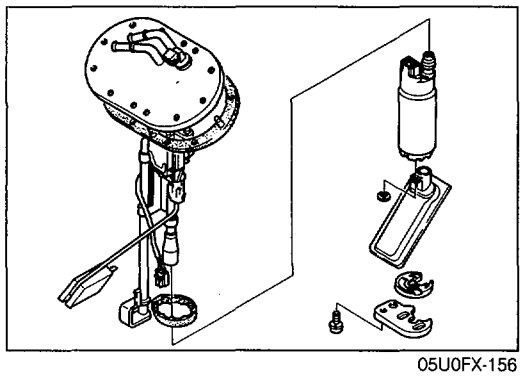
05U0FX-154

1. Remove the rear package trim.
2. Remove the service hole cover.



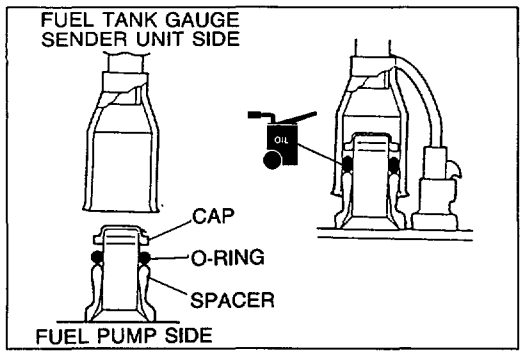
05U0FX-155

3. Remove the fuel pump cover.
4. Disconnect the fuel pump connector.
5. Disconnect the fuel hoses.
6. Remove the fuel pump and fuel tank gauge sender unit assembly.



05U0FX-156

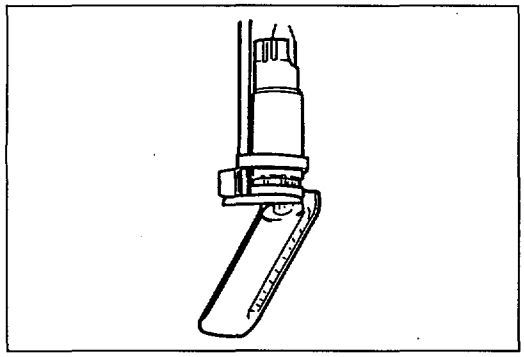
7. Remove the fuel pump.
8. Install in the reverse order of removal, referring to **Installation Note**.



05U0FX-157

Installation note
O-ring set

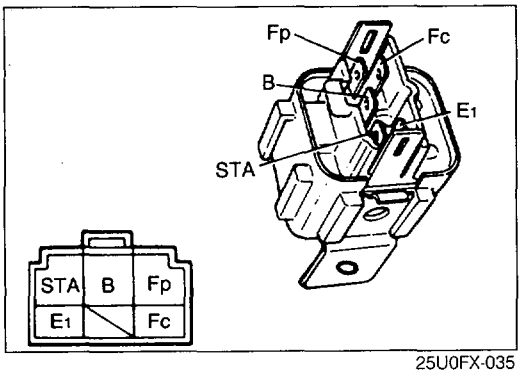
1. Use a new O-ring set. (O-ring, cap, and spacer)
2. Apply oil or fuel to the O-ring set before installing.
3. To confirm sealing of the O-ring, after assembling the fuel pump and fuel tank gauge sender unit, blow air through the fuel main pipe and verify that no air flows.
   If air flows the check ball may be stuck. Shake the fuel pump 2 or 3 times and recheck.



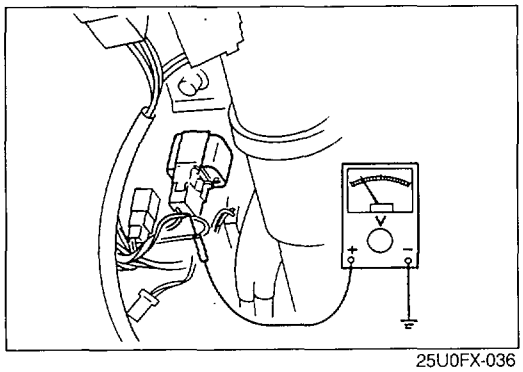
05U0FX-233

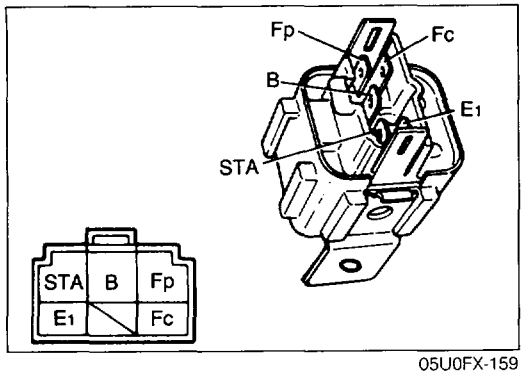
Fuel pump

1. After installing the fuel pump to the bracket, pull down the fuel pump down so that it is tight against the bracket.

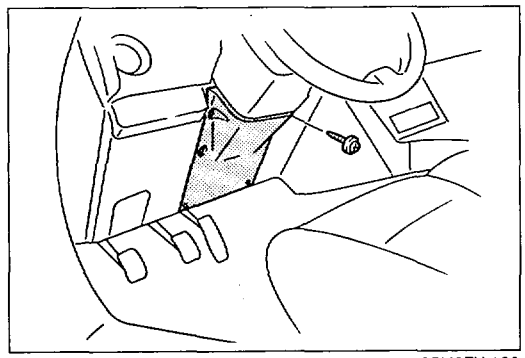


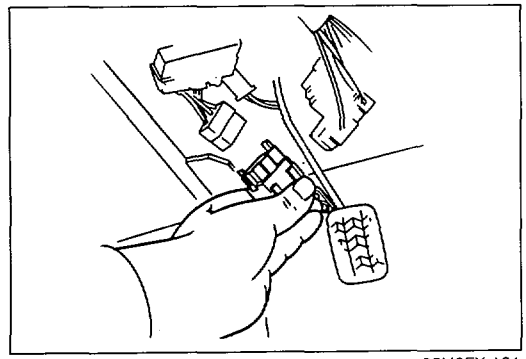
25U0FX-035


25U0FX-036



05U0FX-159


05U0FX-160


05U0FX-161

CIRCUIT OPENING RELAY

Inspection

Switching operation

Apply battery voltage and a ground to the terminals below and check the circuit opening relay operation as described.

12V	Grounded	Correct result
STA	E1	B-Fp: Continuity
B	Fc	Fp: Battery voltage

If not as specified, replace the circuit opening relay.

Relay circuit

Measure voltage between the terminals and a ground with a voltmeter.

VB: Battery voltage

Condition \ Terminal	Fp	Fc	B	STA	E1
Ignition switch: ON	0V	VB	VB	0V	0V
Ignition switch: START	VB	0V	VB	VB	0V
At idle	VB	0V	VB	0V	0V

If not as specified, check the related wiring harness.

Resistance

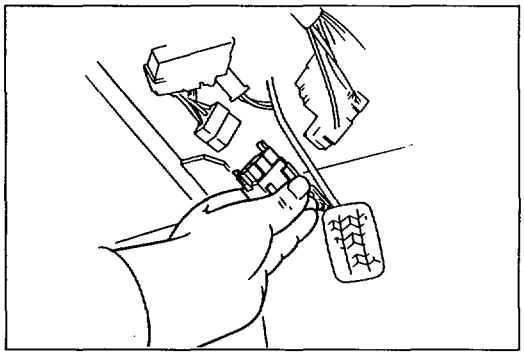
Measure resistance between the terminals with an ohmmeter.

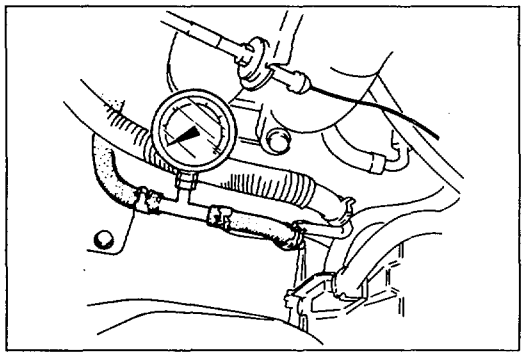
Between terminals	Resistance (Ω)
STA-E1	21—43
B-Fc	109—226
B-Fp	∞

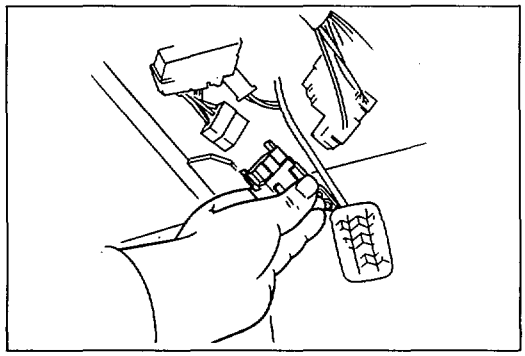
If not as specified, replace the circuit opening relay.

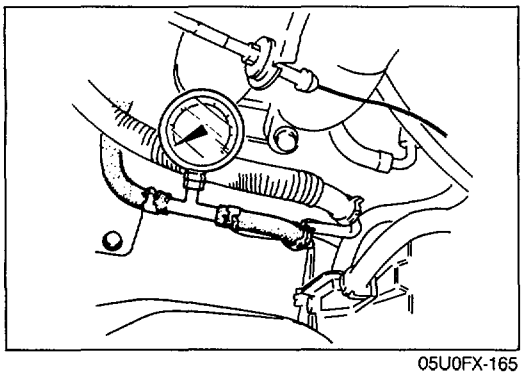
Replacement

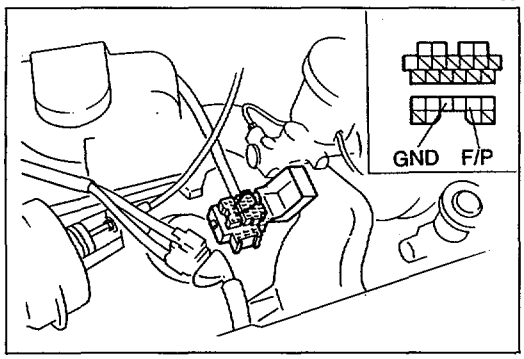
1. Remove the undercover.
2. Remove the circuit opening relay.
3. Install in the reverse order of removal.


25U0FX-049


05U0FX-163


05U0FX-164


05U0FX-165



05U0FX-166

PRESSURE REGULATOR

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

Inspection
Fuel line pressure

Warning
- **Before performing the following operation, release the fuel pressure from the fuel system to reduce the possibility of injury or fire. (Refer to page F–101.)**

1. Disconnect the negative battery terminal.
2. Connect a fuel pressure gauge between the fuel main pipe and the fuel main hose. (Install clamps as shown.)
3. Connect the negative battery terminal.
4. Start the engine and run it at idle.
5. Measure the fuel line pressure.

Fuel line pressure:
216—265 kPa (2.2—2.7 kg/cm^2, 31—38 psi)

Hold pressure
Perform this inspection if the fuel pressure hold inspection is not as specified. (Refer to page F–102.)

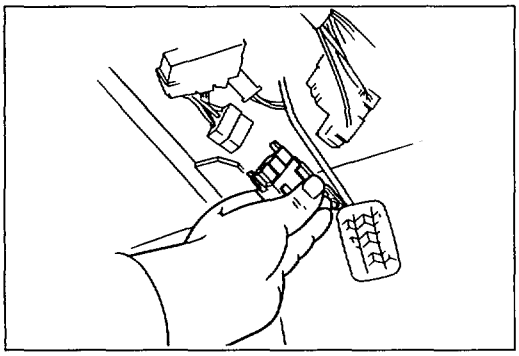
Warning
- **Before performing the following operation, release the fuel pressure from the fuel system to reduce the possibility of injury or fire. (Refer to page F–101.)**

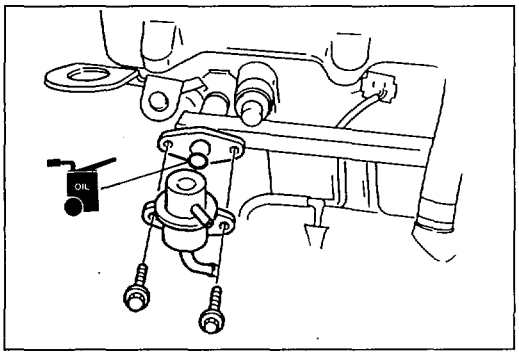
1. Disconnect the negative battery terminal.
2. Install a fuel pressure gauge between the fuel pipe and the fuel main hose. (Install clamps as shown.)
3. Connect the negative battery terminal.

4. Connect diagnosis connector terminals F/P and GND with a jumper wire.
5. Turn the ignition switch ON **for 10 sec.** to operate the fuel pump.
6. Turn the ignition switch OFF and disconnect the jumper wire.
7. Block the outlet of the pressure regulator.
8. Observe the fuel pressure **for 5 min**.

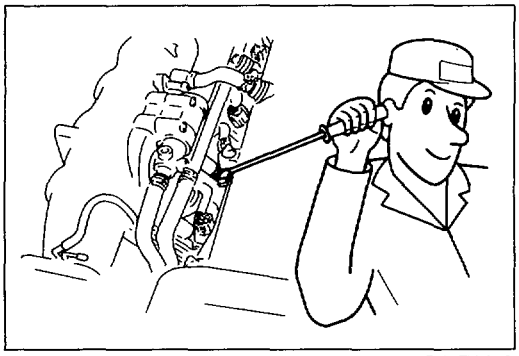
Fuel pressure:
More than 147 kPa (1.5 kg/cm^2, 21 psi)

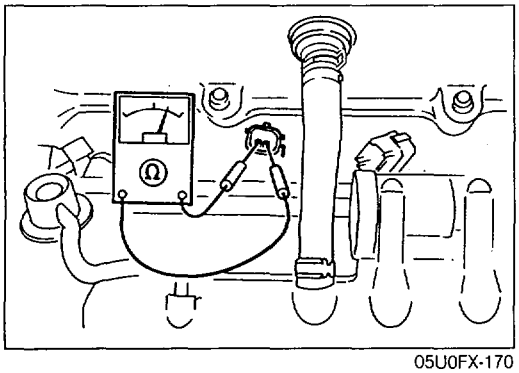
9. If pressure is as specified, replace the pressure regulator.


05U0FX-167

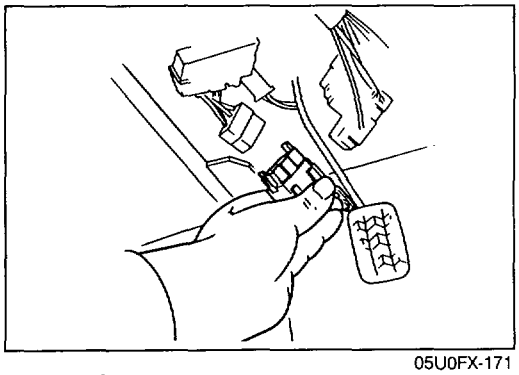


05U0FX-168


15U0FX-049



05U0FX-170


05U0FX-171

Replacement

Warning
- **Before performing the following operation, release the fuel pressure from the fuel system to reduce the possibility of injury or fire. (Refer to page F–101.)**
- **When replacing fuel system components, keep sparks, cigarettes, and open flames away from the fuel.**

1. Disconnect the vacuum hose.
2. Disconnect the fuel return hose.
3. Remove the pressure regulator.

Tightening torque:
7.8—11 N·m (80—110 cm-kg, 69—95 in-lb)

4. Use new O-ring.
5. Install in the reverse order of removal.

INJECTOR

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–115.)**

Inspection
Operation check
1. Warm up the engine and run it at idle.
2. Listen for operational sound of the injector with a screwdriver or a sound scope.
3. If no sound is heard, measure injector resistance.
4. If the injector resistance is OK, check wiring to the injector and engine control unit terminals 2A, 2U, and 2V voltages. (Refer to page F–130.)

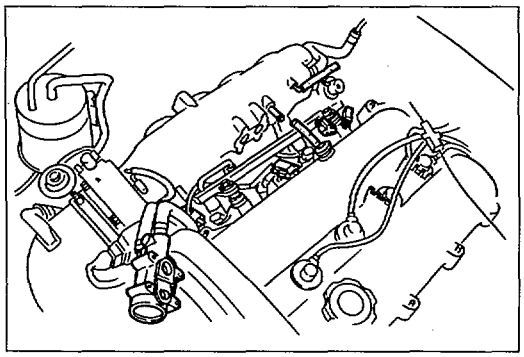
Injector resistance
1. Disconnect the injector harness.
2. Measure resistance of the injector with an ohmmeter.

Resistance: 12—16Ω

3. If not as specified, replace the injector.

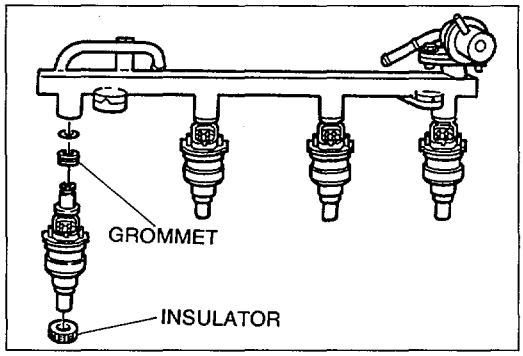
Removal

Warning
- **Before performing the following operation, release the fuel pressure from the fuel system to reduce the possibility of injury or fire. (Refer to page F–101.)**
- **When servicing the fuel system parts, keep sparks, cigarettes, and open flames away from the fuel.**



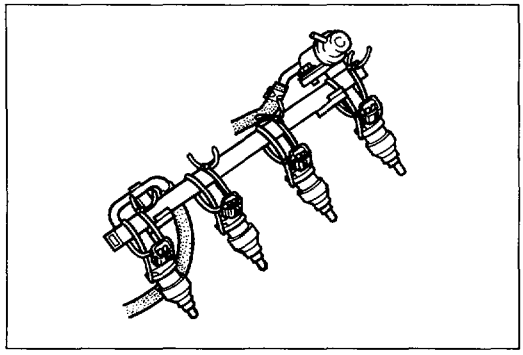
05U0FX-172

1. Disconnect the negative battery terminal.
2. Remove the air valve. (Refer to page F–98.)
3. Remove the PCV hose.
4. Disconnect the vacuum hose.
5. Disconnect the injector connectors.



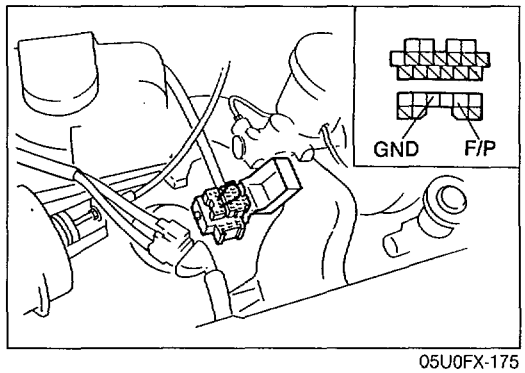
05U0FX-173

6. Remove the delivery pipe and the pressure regulator.
7. Remove the grommets, injectors, and insulators.



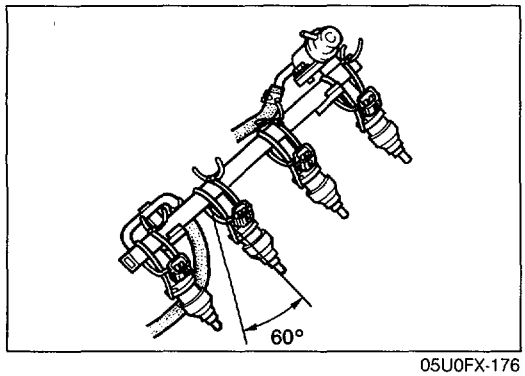
05U0FX-174

Inspection
Fuel leakage test
1. Remove the air valve.
2. Firmly affix the injectors to the delivery pipe with wire.
3. Disconnect the injector connectors.
4. Remove the delivery pipe and injectors together with the fuel hoses connected.



05U0FX-175

5. Connect diagnosis connector terminals (F/P) and (GND) with a jumper wire.

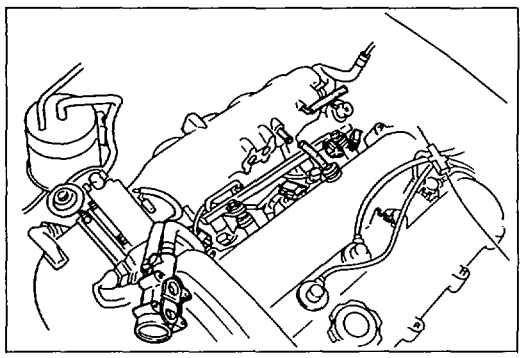


05U0FX-176

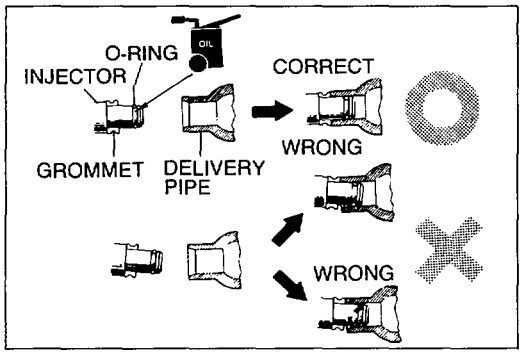
6. Turn the ignition switch ON.
7. Tilt the injectors **approx. 60 degrees** and verify that no fuel leaks from the injector nozzles.
8. If fuel leaks from an injector, replace it.

Note
- **After 2 minute a drop of fuel from the injector is acceptable.**

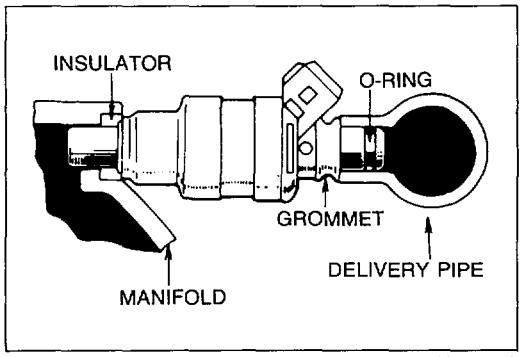
9. Turn the ignition switch OFF and remove the jumper wire.



9MU0F2-172



05U0FX-177



05U0FX-238

Installation

Install in the reverse order of removal, referring to **Installation Note**.

Tightening torque:
Delivery pipe
19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)

Installation note

1. Use new injector O-rings.
2. Apply a small amount of clean engine oil to the O-rings before installing.
3. Use new injector insulators.
4. Install the injectors and new injector insulators.

EXHAUST SYSTEM

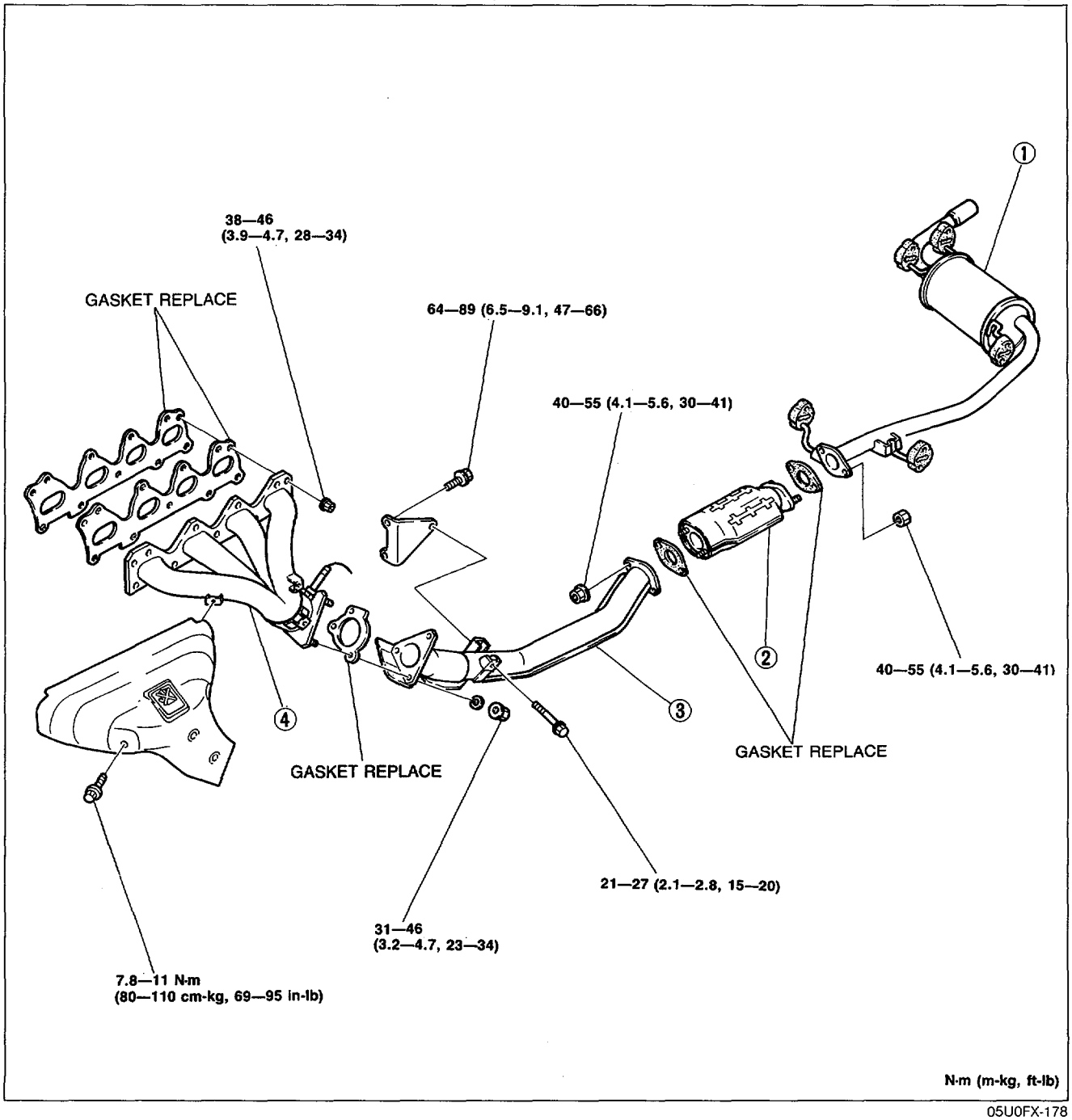
COMPONENTS

Removal / Inspection / Installation

1. Remove in the sequence shown in the figure.
2. Check all components for damage, deterioration, and restriction and repair or replace as necessary.
3. Install in the reverse order of removal.

Note

- **When installing the exhaust system components, tighten all fasteners to the specified torque.**



05U0FX-178

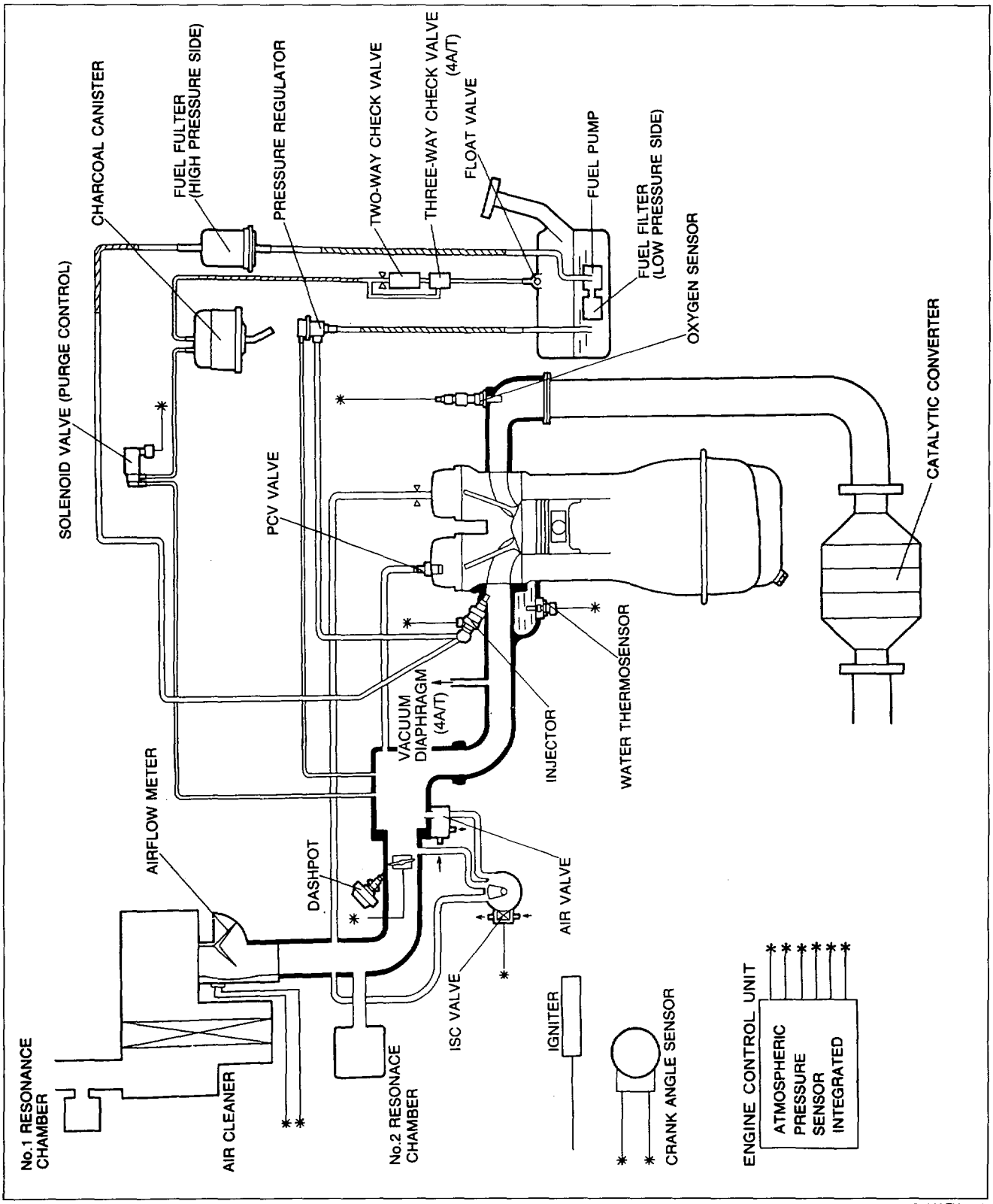
1. Main silencer
   Inspect for deterioration and restriction
2. Catalytic converter
   Inspect ..... page F–122
3. Front exhaust pipe
   Inspect for deterioration and restriction
4. Exhaust manifold
   Inspect for damage

OUTLINE OF EMISSION CONTROL SYSTEM

STRUCTURAL VIEW

The following systems are employed to reduce CO, HC, and NOx emissions.

1. Positive crankcase ventilation (PCV) system.
2. Evaporative emission control system.
3. Catalytic converter.
4. Deceleration control system.

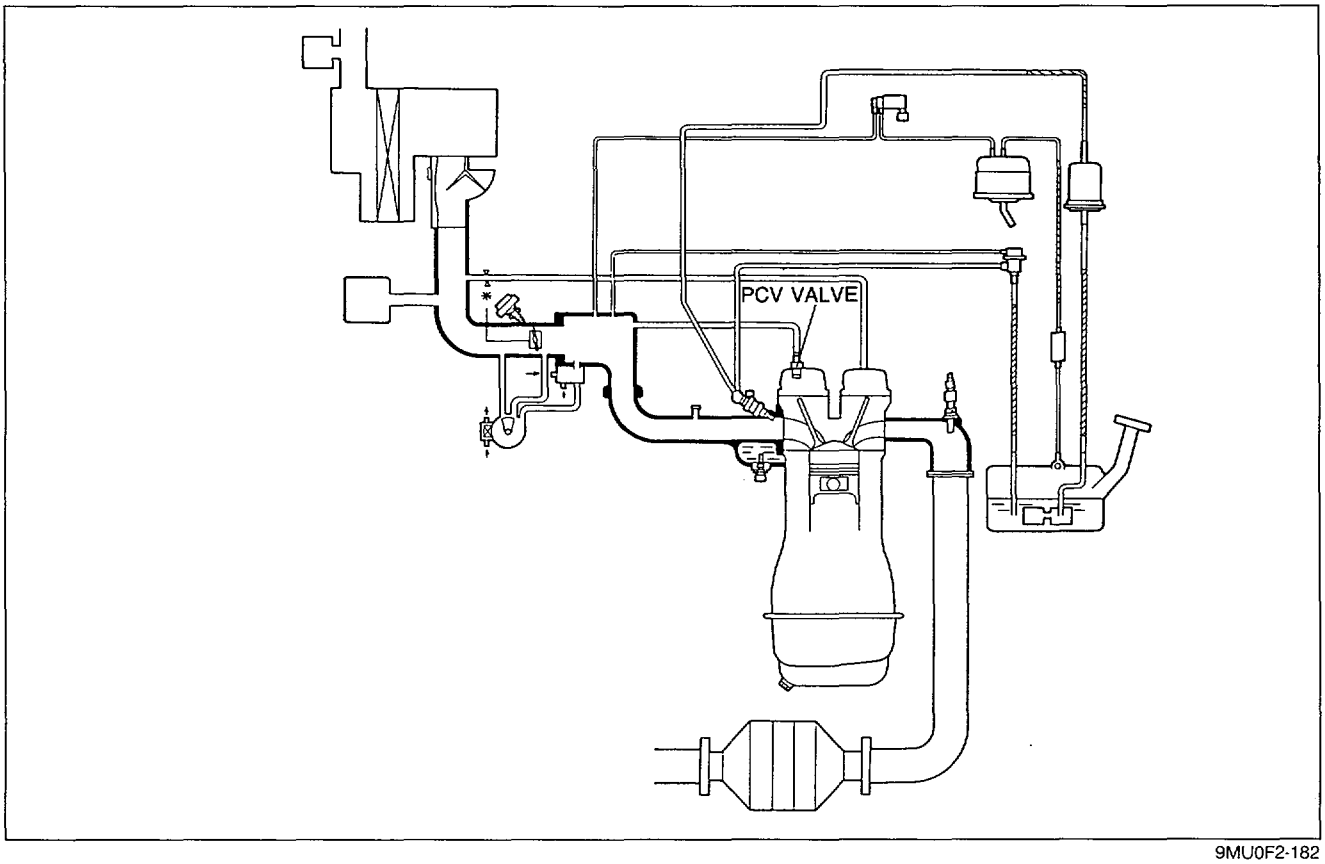


05U0FX-179

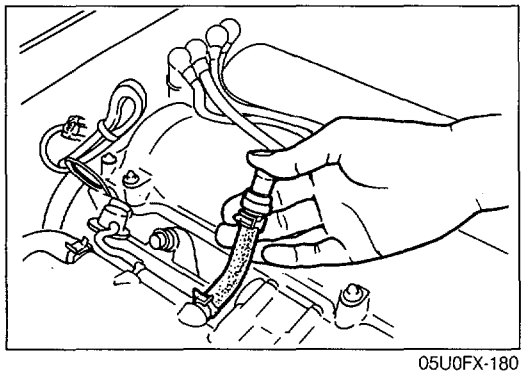
POSITIVE CRANKCASE VENTILATION (PCV) SYSTEM

DESCRIPTION

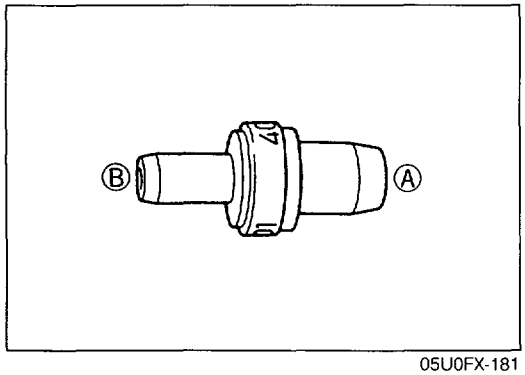
The PCV valve is operated by the intake manifold vacuum.
When the engine is running at idle the PCV valve is opened slightly and a small amount of blowby gas is drawn into the dynamic chamber to be burned.
At higher engine speeds the PCV valve is opened further, allowing a larger amount of blowby gas to be drawn into the dynamic chamber.



9MU0F2-182



05U0FX-180



05U0FX-181

PCV VALVE

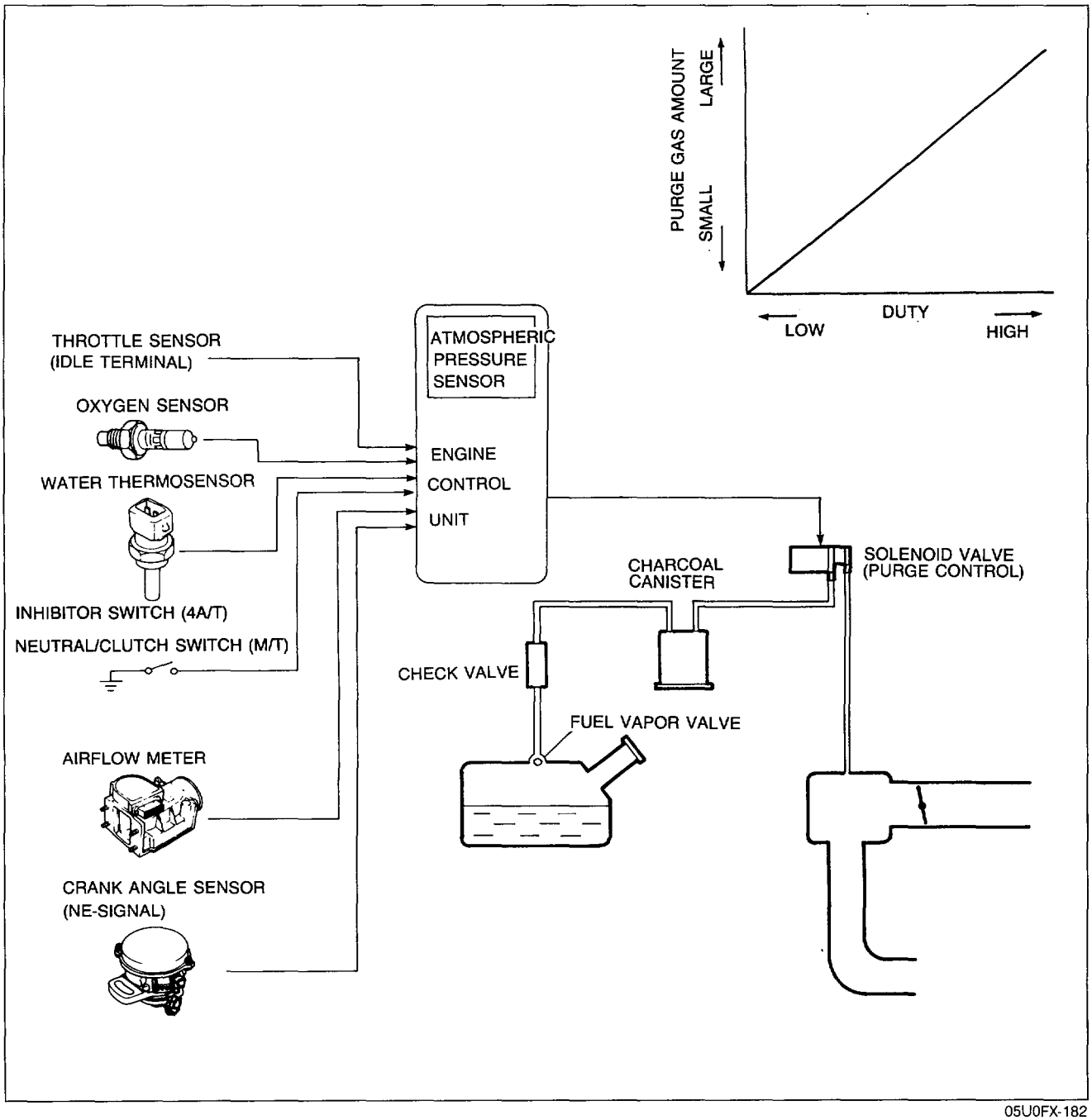
Inspection

1. Warm up the engine to the normal operating temperature and run it at idle.
2. Disconnect the PCV valve together with the ventilation hose from the cylinder head cover.
3. Block the PCV valve opening.
4. Verify that vacuum is felt.
5. Remove the PCV valve.
6. Blow through the valve from port A and verify that air comes out of port B.
7. Blow through the valve from port B and verify that no air comes out of port A.
8. Replace the PCV valve if necessary.

EVAPORATIVE EMISSION CONTROL SYSTEM

DESCRIPTION

The evaporative emission control system consists of the fuel vapor valve, the two-way check valve, the charcoal canister, the solenoid valve (purge control), the engine control unit, and the input devices. The amount of evaporative fumes introduced into the engine and burned is controlled by the solenoid valve in relation to the engine's operating conditions. To maintain the best engine performance, the solenoid valve is controlled by the engine control unit.

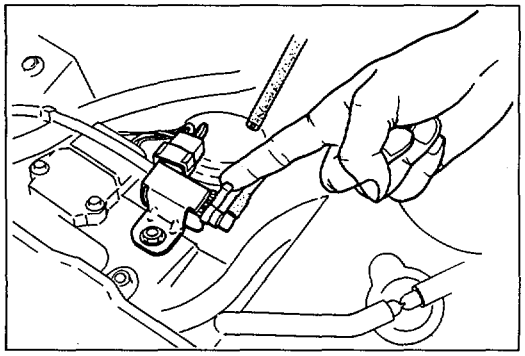


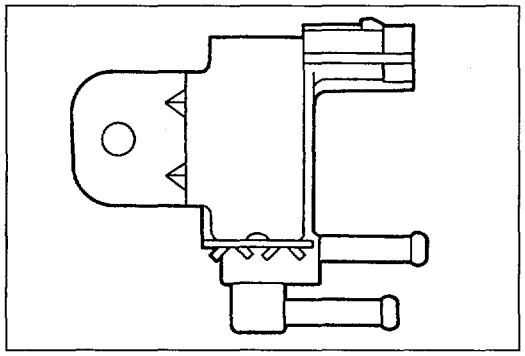
05U0FX-182

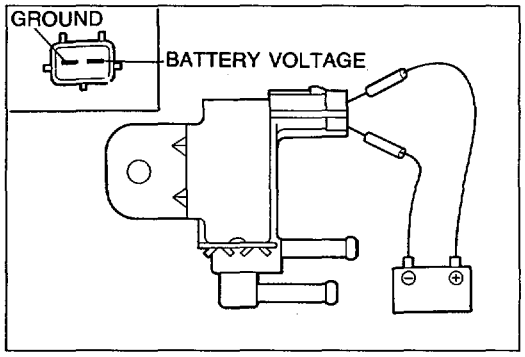
Operation

The solenoid valve (purge control) is controlled by duty signals from the engine control unit to perform purging of the charcoal canister. Purging is done when these conditions are met:

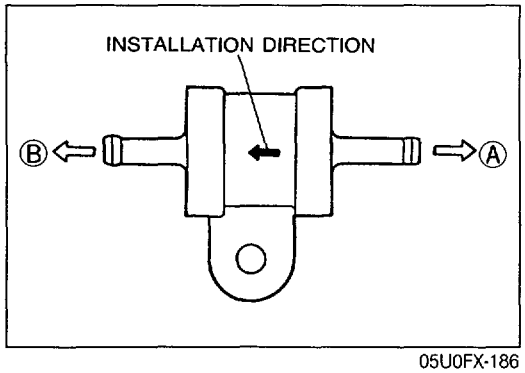
(1) After warm-up.
(2) Driving in gear.
(3) Accelerator pedal depressed (idle switch OFF).
(4) Oxygen sensor functioning normally.


05U0FX-183

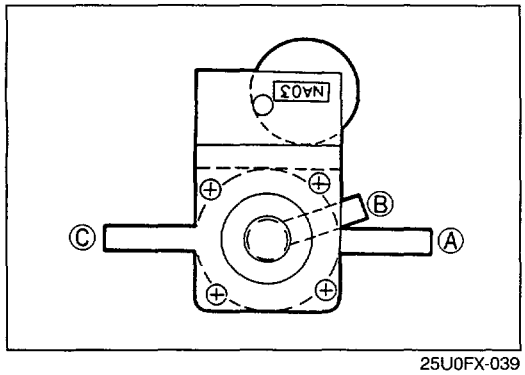

05U0FX-184



25U0FX-038



05U0FX-186



25U0FX-039

SOLENOID VALVE (PURGE CONTROL)

On-vehicle Inspection

1. Warm up the engine to normal operating temperature.
2. Run the engine at idle.
3. Disconnect the vacuum hose from the solenoid valve and verify that no vacuum is felt at the solenoid valve.
4. If not as specified, check the solenoid valve.

Inspection

1. Disconnect the vacuum hoses from the solenoid valve.
2. Verify that no air flows through the valve.
3. Disconnect the solenoid valve connector and connect **battery voltage** and a ground to the terminals of the solenoid valve.
4. Verify that the air flows through the valve.
5. If not as specified, replace the solenoid valve.

TWO-WAY CHECK VALVE

Inspection

1. Remove the valve.
2. Check the operation of the valve with a vacuum pump.

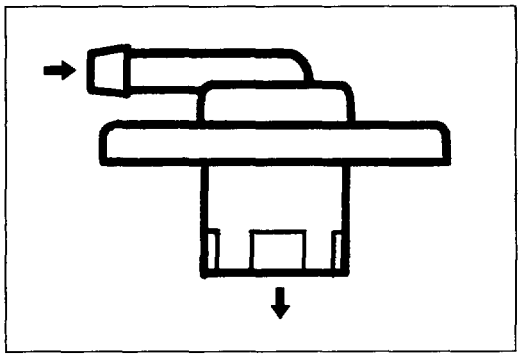
Apply approx. 37 mmHg (1.46 inHg) vacuum at port A	Airflow
Apply approx. 44 mmHg (1.73 inHg) vacuum at port B	Airflow

THREE-WAY CHECK VALVE (4A/T)

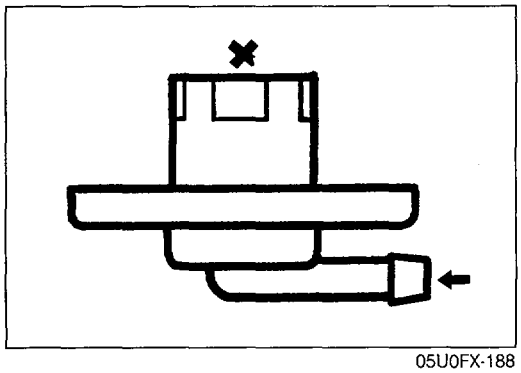
Inspection

1. Remove the valve and plug the port C.
2. Check operation of the valve with a vaccum pump.

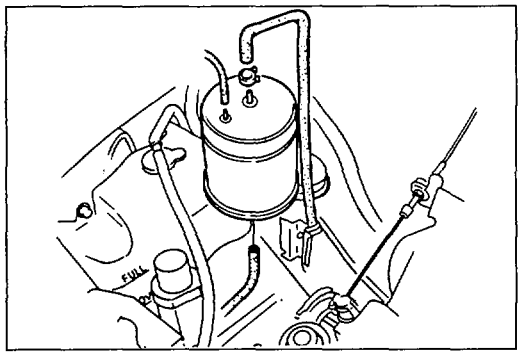
Apply approx. 37 mmHg (1.46 inHg) vaccum at port A	Airflow
Apply approx. 70 mmHg (2.76 inHg) vaccum at port B	Airflow



05U0FX-187



05U0FX-188



05U0FX-189

FUEL VAPOR VALVE

Inspection

1. Remove the valve.
2. Blow through the valve and verify that air flows in the direction shown.
3. Turn the valve over and blow through the valve. Verify that no air flows.
4. Replace the valve if necessary.

CHARCOAL CANISTER

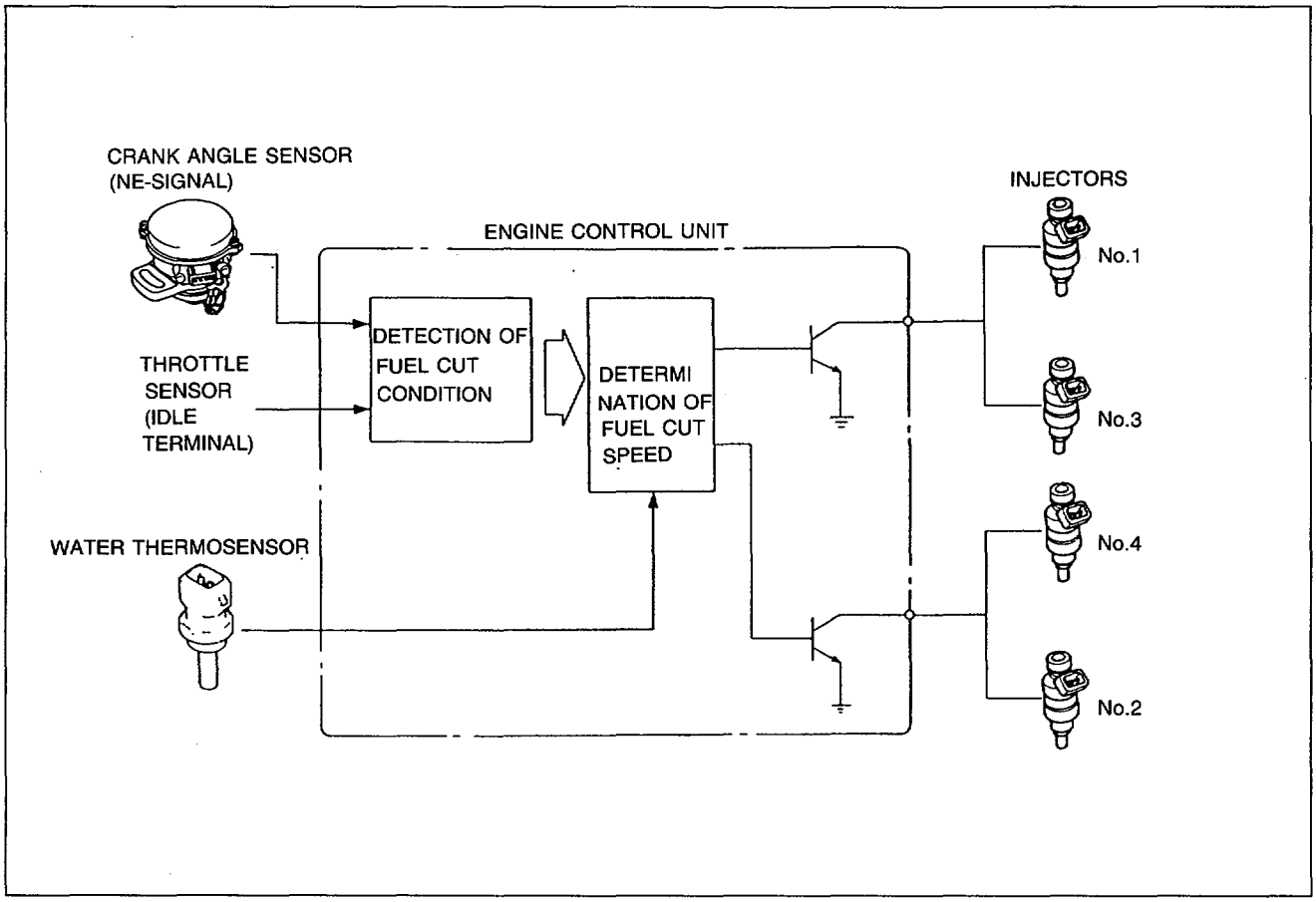
Inspection

Visually check for damage and replace the charcoal canister if necessary.

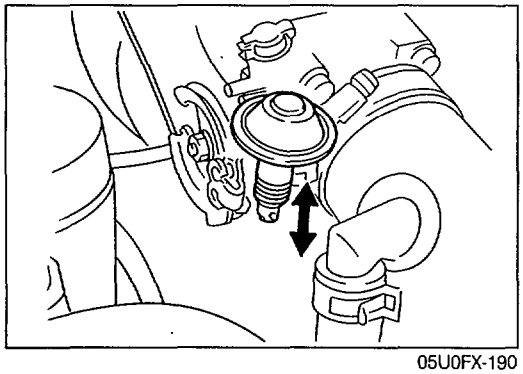
DECELERATION CONTROL SYSTEM

DESCRIPTION

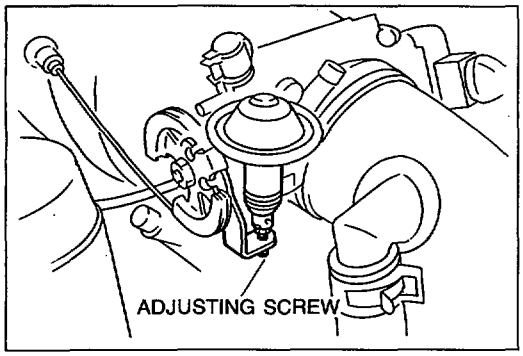
The deceleration control system consists of the fuel cut operation and the dashpot.
1. Dashpot: To prevent the throttle valves from suddenly closing.
2. Fuel cut: To improve the fuel economy and to prevent engine bucking during deceleration.



05U0FX-239



05U0FX-190



15U0FX-051

DASHPOT

Inspection

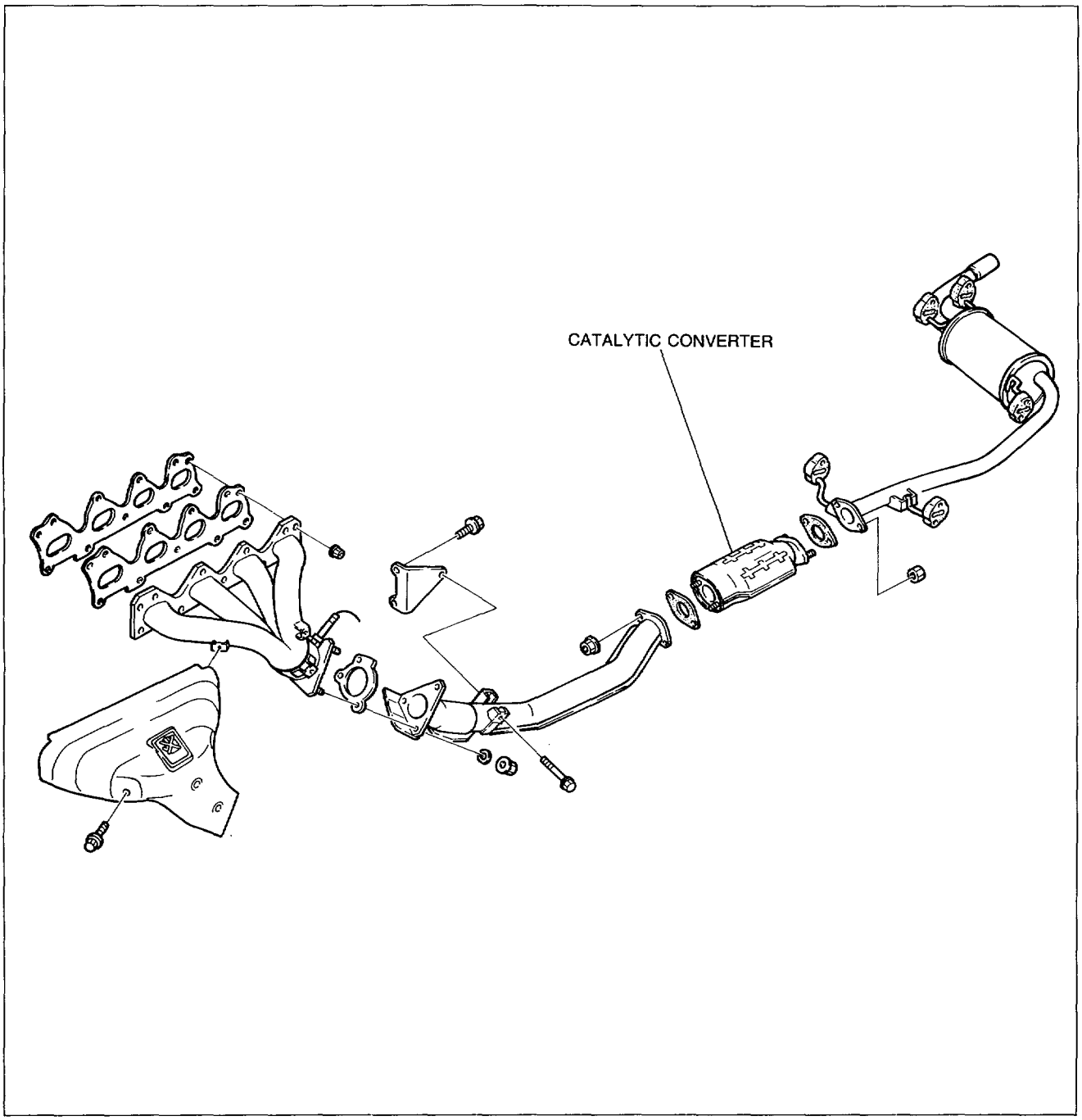
1. Open the throttle valve fully. Push the dashpot rod with a finger and verify that it goes into the dashpot slowly.
2. Release the rod and check that it comes out quickly.
3. Replace the dashpot if necessary.
4. Warm up the engine and run it at idle.
5. Connect a tachometer to the engine, and increase the engine speed to **4,000 rpm**.
6. Slowly decrease the engine speed and check that the lever touches the dashpot rod as specified.

   Specification: 2,500 ± 150 rpm

7. If not as specified, loosen the locknut and turn the adjusting screw to adjust.

CATALYTIC CONVERTER SYSTEM

DESCRIPTION



05U0FX-192

CATALYTIC CONVERTER

Inspection

Check the catalytic converter for deterioration or restriction. Check for damage to the insulation covers welded to the catalytic converter. Replace the catalytic converter if necessary.

Note

- **If the insulation cover touches the catalytic converter housing, excessive heat at the floor of the vehicle will occur.**

Replacement

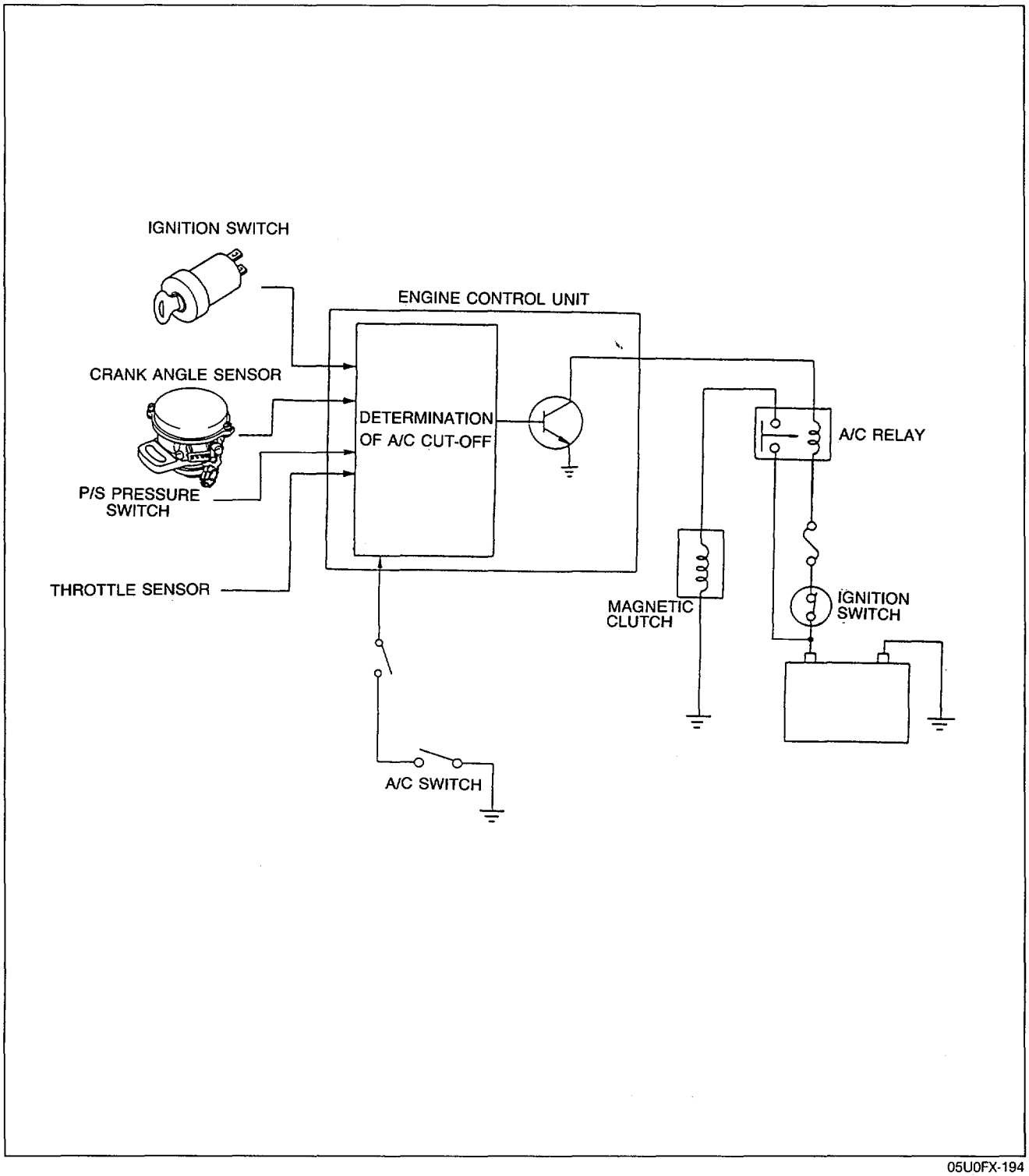
Refer to page F–115.

05U0FX-193

A/C CUT-OFF CONTROL SYSTEM

DESCRIPTION

An A/C cut-off system is used to improve idle smoothness after just starting the engine and to improve acceleration performance.



05U0FX-194

After Engine Has Been Started

The A/C is cut-off for **2 sec.** just after the engine is started.

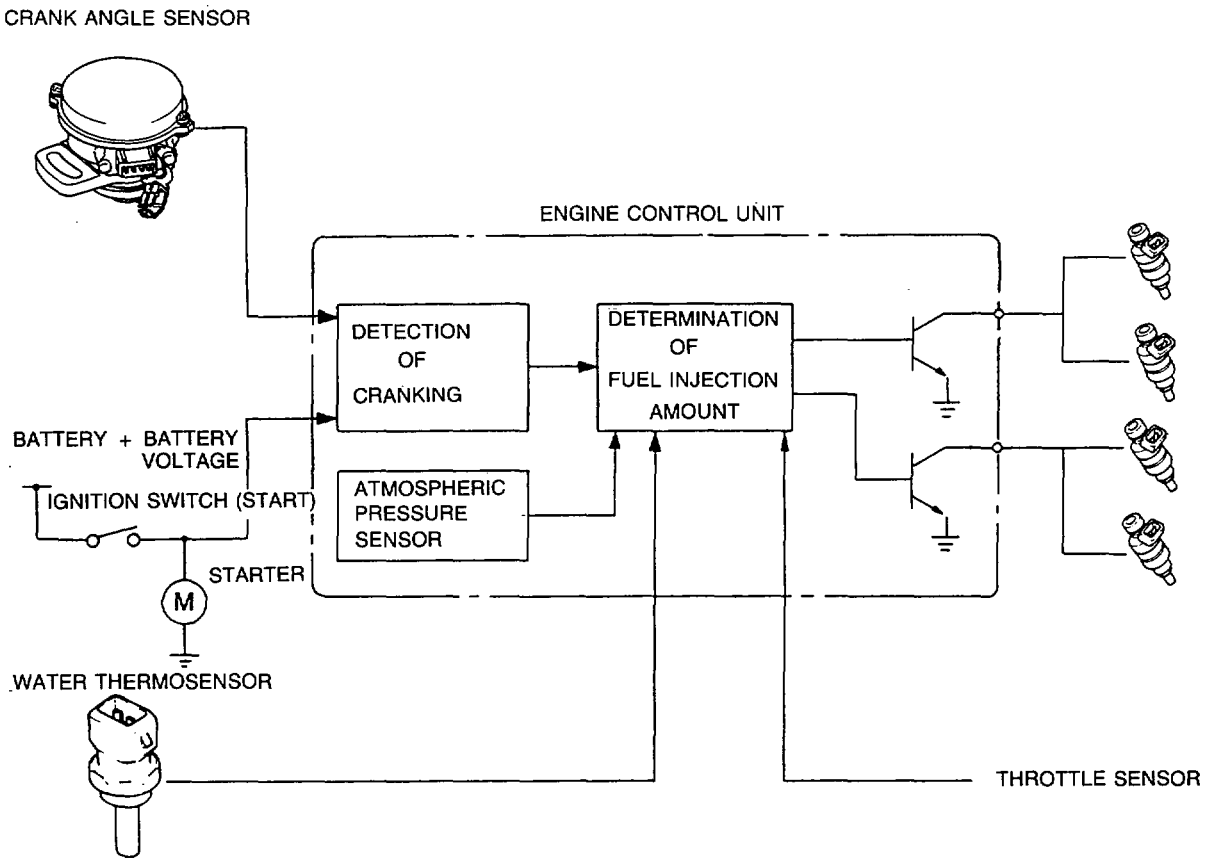
Acceleration

The A/C is cut-off upon wide-open-throttle acceleration for **approx. 16 sec.**

DECHOKE CONTROL SYSTEM

DESCRIPTION

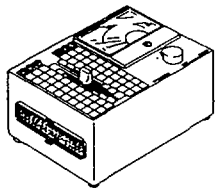
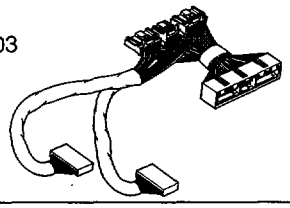
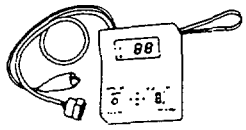
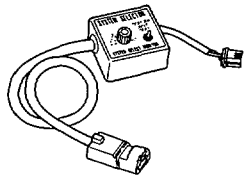
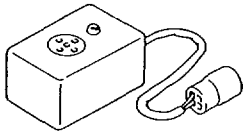
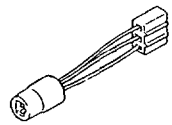
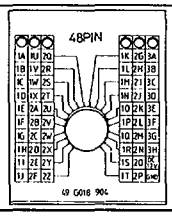
To clean out excess fuel in cylinders, as in the case of engine flooding, when the engine is cold, no fuel will be injected when the accelerator is held fully depressed while cranking the engine.



05U0FX-196

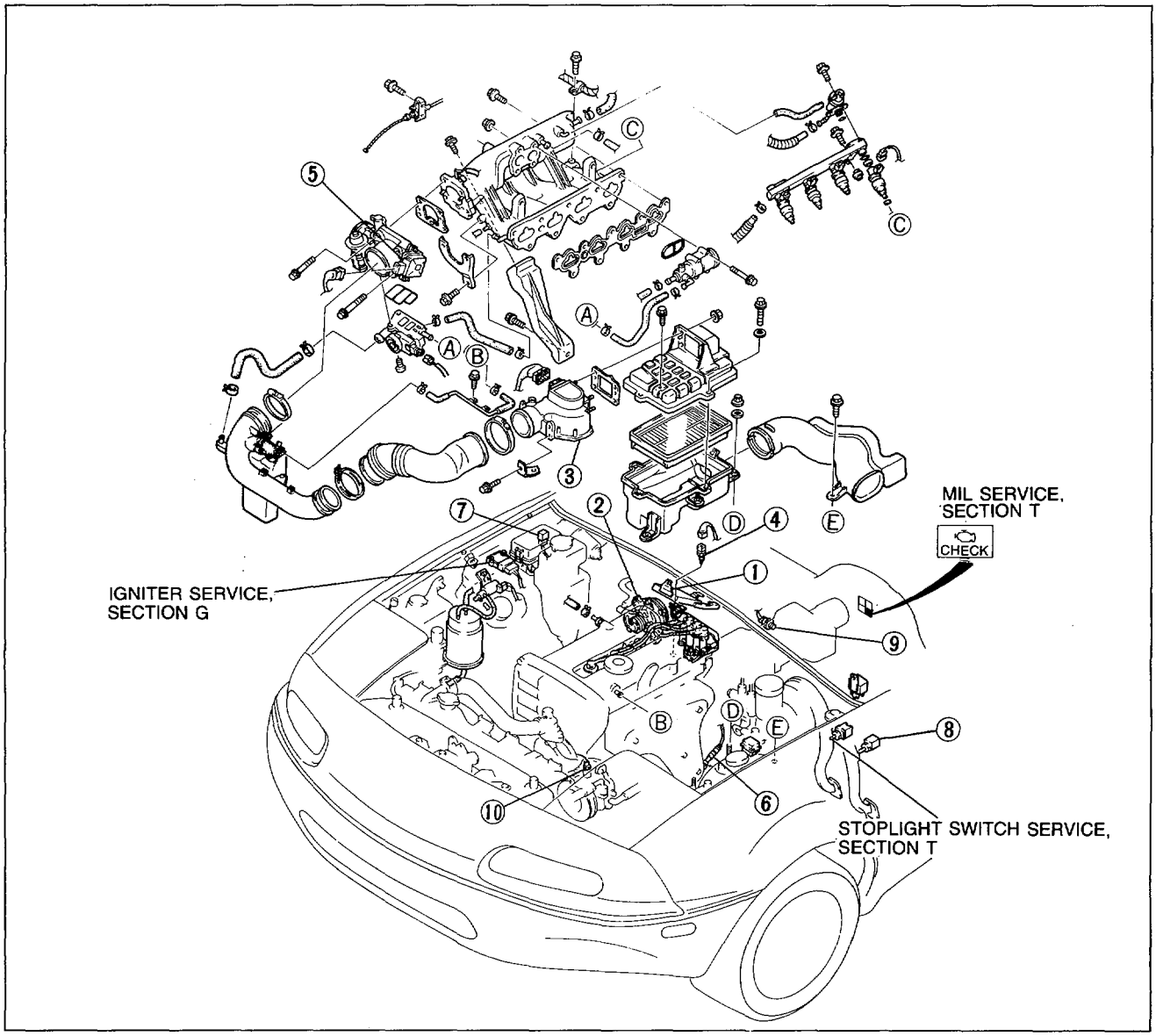
CONTROL SYSTEM

PREPARATION
SST

49 9200 162 Engine Signal Monitor 	For inspection of engine control unit	49 G018 903 Adapter harness 	For inspection of engine control unit
49 H018 9A1 Self-Diagnosis Checker 	For inspection of oxygen sensor	49 B019 9A0 System Selector 	For inspection of oxygen sensor
49 9200 165 Throttle Sensor Checker 	For inspection of oxygen sensor	49 9200 166 Adapter harness 	For inspection of oxygen sensor
49 G018 904 Sheet 	For inspection of engine control unit		

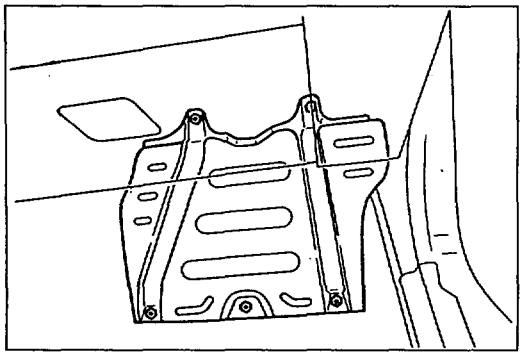
05U0FX-197

STRUCTURAL VIEW



15U0FX-053

1. Engine control unit
   - Inspection ..... page F–127
2. Crank angle sensor
   - Removal ..... page F–134
   - Inspection ..... page F–134
   - Installation ..... page F–134
3. Airflow meter
   - Inspection ..... page F–135
4. Water thermosensor
   - Removal ..... page F–136
   - Inspection ..... page F–136
   - Installation ..... page F–136
5. Throttle sensor
   - Inspection (M/T) ..... page F–136
   - Adjustment (M/T) ..... page F–137
   - Replacement (M/T) ..... page F–137
   - Inspection (4A/T) ..... page F–138
   - Adjustment (4A/T) ..... page F–138
   - Replacement (4A/T) ..... page F–138
6. Oxygen sensor
   - Inspection ..... page F–139
   - Replacement ..... page F–140
7. Main relay (Fuel injector relay)
   - Inspection ..... page F–140
8. Clutch switch
   - Inspection ..... page F–140
   - Replacement ..... page F–140
9. Neutral switch
   - Inspection ..... page F–141
   - Replacement ..... page F–141
10. Power steering pressure switch
    - Inspection ..... page F–141
    - Replacement ..... page F–141

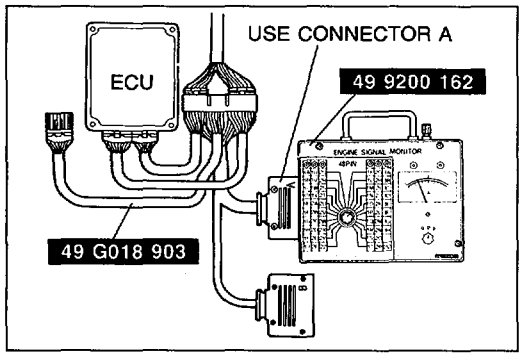


9MU0F2-207

ENGINE CONTROL UNIT

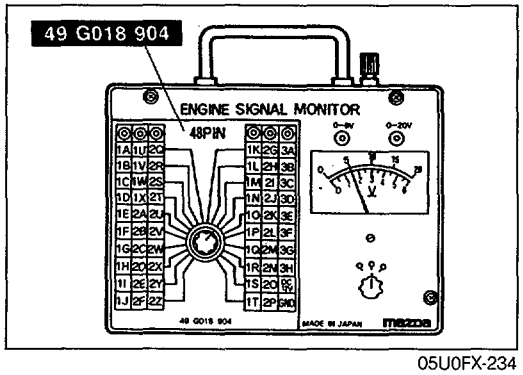
Inspection

1. Lift up the floormat in front of the passenger's seat.
2. Remove the protector cover.



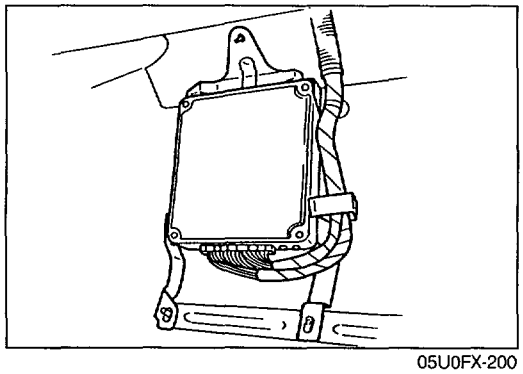
05U0FX-199

3. Connect the **Engine Signal Monitor** between the engine control unit and the wiring harness using the **Adapter** as shown.



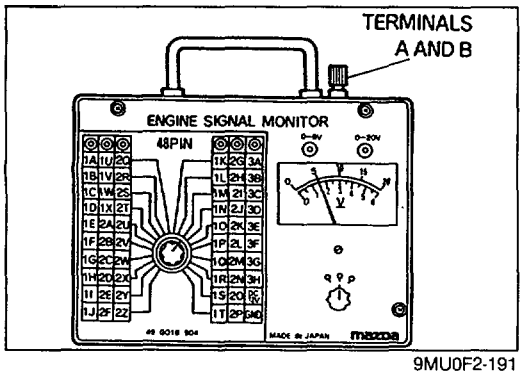
05U0FX-234

4. Place the **SST (Sheet)** on the **SST**.
5. Measure the voltage at each terminal.
   (Refer to pages F–128 to F–130.)



05U0FX-200

6. If any engine control unit terminal voltage is incorrect, check the input or output device and related wiring.
   If they are normal, replace the engine control unit.
   (Refer to pages F–131 to F–133.)



9MU0F2-191

Caution

- **Never apply voltage to SST terminals A and B.**

VB: Battery voltage

Terminal	Input	Output	Connection to	Test condition	Voltage	Remark
1A	—	—	Battery	Constant	VB	For backup
1B	○		Main relay	Ignition switch OFF	0V	
				Ignition switch ON	VB	
1C	○		Ignition switch (Start position)	While cranking	Approx. 10V	
				Ignition switch ON	0V	
1D		○	Self-Diagnosis Checker (Monitor lamp)	Test switch at "SELF-TEST" Lamp illuminated for 3 sec. after ignition switch OFF→ON	4.5—5.5V	With Self-Diagnosis Checker and System Selector
				Lamp not illuminated after 3 sec.	VB	
				Test switch at "O_2 MONITOR" at idle Monitor lamp illuminated	4.5—5.5V	
				Test switch at "O_2 MONITOR" at idle Monitor lamp not illuminated	VB	
1E		○	Malfunction indicator lamp	Lamp illuminated for 3 sec. after ignition switch OFF→ON	Below 2.5V	With System Selector test switch at "SELF-TEST"
				Lamp not illuminated after 3 sec.	VB	
				Lamp illuminated	Below 2.5V	
				Lamp not illuminated	VB	
1F		○	Self-Diagnosis Checker (Code number)	Buzzer sound for 3 sec. after ignition switch OFF→ON	Below 2.5V	• With Self-Diagnosis Checker and System Selector • With System Selector test switch at "SELF-TEST"
				Buzzer not sounded after 3 sec.	VB	
				Buzzer sounded	Below 2.5V	
				Buzzer not sounded	VB	
1G		○	Igniter	Ignition switch ON	0V	
				Idle	Approx. 0.2V	
1H		○	Igniter	Ignition switch ON	0V	
				Idle	Approx. 0.2V	
1I	—	—	—	—	—	—
1J		○	A/C relay	Ignition switch ON	VB	
				A/C switch ON at idle	Below 2.5V	
				A/C switch OFF at idle	VB	
1K	○		Diagnosis connector	System Selector test switch at "O_2 MONITOR"	VB	
				System Selector test switch at "SELF-TEST"	0V	
1L	—	—	—	—	—	—
1M	—	—	—	—	—	—
1N	○		Throttle sensor (Idle point)	Accelerator pedal released	0V	Ignition switch ON
				Accelerator pedal depressed	VB	
1O	○		Stoplight switch	Brake pedal released	0V	
				Brake pedal depressed	VB	
1P	○		P/S pressure switch	Ignition switch ON	VB	
				P/S ON (at idle)	0V	
				P/S OFF (at idle)	VB	
1Q	○		A/C switch	A/C switch ON (Ignition switch ON)	Below 2.5V	Blower motor ON
				A/C switch OFF (Ignition switch ON)	VB	

VB: Battery voltage

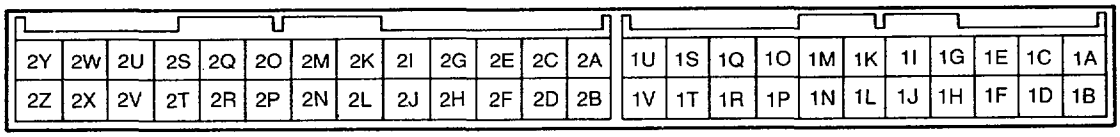
Terminal	Input	Output	Connection to	Test condition	Voltage	Remark
1R	O		Fan switch	Fan operating (Engine coolant temperature over 97°C (207°F) or diagnosis connector terminal TFA grounded)	0V	
				Fan not operating (Idle)	VB	
1S	O		Blower control switch	Blower control switch at mid, high or super high position	Approx. 0V	Ignition switch ON
				Blower control switch OFF or low	Approx. 12V	
1T	—	—	—	—	—	
1U	O		Headlight switch	Headlights ON (Tail, parking, low beam/ high beam)	Approx. 12V	
				Headlights OFF	0V	
1V	O		Neutral or clutch switch (M/T)	Neutral position or clutch pedal depressed	0V	
				Other conditions	VB	
			Inhibitor switch (4A/T)	N or P range	0V	
				Other conditions	VB	
2A	—	—	Ground (Injector)	Constant	0V	
2B	—	—	Ground (Output)	Constant	0V	
2C	—	—	Ground (CPU)	Constant	0V	
2D	—	—	Ground (Input)	Constant	0V	
2E	O		Crank angle sensor (Ne-signal)	Ignition switch ON	0V or 5V	
				Idle	Approx. 2V	
2F	—	—	—	—	—	—
2G	O		Crank angle sensor (G-signal)	Ignition switch ON	0V or 5V	
				Idle	Approx. 1.5V	
2H	O		Ground	Constant	0V	
			Open	Federal and Canada spec	Approx. 2V	
2I	O		Igniter	Ignition switch ON	Below 0.5V	
				Idle	Approx. 1V	
2K		O	Airflow meter	Constant	4.5—5.5V	
2L	O		Throttle sensor (Power terminal)	Accelerator pedal released	Approx. 5V	
				Accelerator pedal fully depressed	0V	
2M	O		Throttle sensor (4A/T)	Accelerator pedal released	Approx. 0.5V	
				Accelerator pedal fully depressed	Approx. 4.0V	
2N	O		Oxygen sensor	Ignition switch ON	0V	
				Idle (Cold engine)	0V	
				Idle (After warm-up)	0—1V	
				Increase engine speed (After warm-up)	0.5—1V	
				Deceleration	0—0.4V	
2O	O		Airflow meter	Ignition switch ON	Approx. 3.8V	
				Idle	Approx. 3.3V	
2P	O		Airflow sensor (Intake air thermosensor)	At 20°C (68°F)	Approx. 2.5V	
2Q	O		Water thermosensor	Engine coolant temperature 20°C (68°F)	Approx. 2.5V	
				After warm-up	Approx. 0.4V	
2R	—	—	—	—	—	—

VB: Battery voltage

Terminal	Input	Output	Connection to	Test condition	Voltage	Remark
2S	—	—	—	—	—	—
2T	—	—	—	—	—	—
2U		○	Injector (Nos.1, 3) (Nos.2, 4)	Ignition switch ON	VB	* Engine Signal Monitor: Green and red lights flash
				Idle	Approx. 12V*	
2V		○		Deceleration from 3,000 rpm to 1,900 rpm (After warm-up)	Approx. 12V	
2W		○	ISC valve	Ignition switch ON	Approx. 7V	
				Idle	Approx. 9V	
2X		○	Solenoid valve (Purge control)	Ignition switch ON	VB	
				Idle	VB	
2Y	—	—	—	—	—	—
2Z		○	4A/T control unit	Ignition switch ON	0V	

25U0FX-040

Terminal location



Check Point for Each Terminal

VB: Battery voltage

Terminal	Connection to	Abnormal voltage	Possible cause
1A	Battery	Always 0V (Battery OK)	• ROOM 10A fuse burned • Open circuit in wiring from ROOM 10A fuse to ECU terminal 1A
1B	Main relay	Always 0V	• Main relay malfunction (Refer to page F–140) • Open circuit in wiring from main relay to ECU terminal 1B
1C	Ignition switch (Start position)	Always 0V (Starter turns)	• Open circuit in wiring from starter interlock switch to ECU terminal 1C
1D	Self-Diagnosis Checker (Monitor lamp)	Always 0V	• Main relay malfunction (Refer to page F–140) • Open circuit in wiring from main relay to diagnosis connector terminal +B • Open or short circuit in wiring from diagnosis connector terminal MEN to ECU terminal 1D
		Always VB	• Poor connection at ECU connector • ECU malfunction
		Always approx. 5V	• ECU malfunction
1E	Malfunction indicator lamp (MIL)	Always below 2.5V (MIL always ON)	• Short circuit in wiring from combination meter to ECU terminal 1E • ECU malfunction
		Always below 2.5V (MIL never ON)	• Open circuit in wiring from combination meter to ECU terminal 1E
		Always VB	• Poor connection at ECU connector • ECU malfunction
1F	Self-Diagnosis Checker (Code No.)	Always below 2.5V (No display on Self-Diagnosis Checker)	• Main relay malfunction (Refer to page F–140) • Open circuit in wiring from main relay to diagnosis connector terminal +B
		Always below 2.5V ("88" is displayed and buzzer sounds continuously)	• Open or short circuit in wiring from diagnosis connector terminal FEN to ECU terminal 1F
		Always VB	• Poor connection at ECU connector • ECU malfunction
1G 1H	Igniter	Always 0V	Refer to Code No.01 troubleshooting (Refer to page F–81)
1J	A/C relay	Always below 2.5V (A/C does not operate)	• A/C relay malfunction (Refer to page U–39) • Open circuit in wiring from main relay to A/C relay • Open circuit in wiring from A/C relay to ECU terminal 1J
		Always below 2.5V (A/C switch OFF but A/C operates)	• Short circuit in wiring from A/C relay to ECU terminal 1J • ECU malfunction
		Always VB	• A/C switch malfunction (Refer to page U–25) • Poor connection at ECU connector • ECU malfunction
1K	Diagnosis connector (Terminal TEN)	Always 0V	• Short circuit in wiring from ECU terminal 1K to diagnosis connector terminal TEN
		Always VB	• Open circuit in wiring from ECU terminal 1K to diagnosis connector terminal TEN • Open circuit in wiring from diagnosis connector terminal GND to ground
1N	Throttle sensor (Idle terminal)	Always 0V	• Throttle sensor misadjustment (Refer to page F–136) • Short circuit in wiring from ECU terminal 1N to throttle sensor • ECU malfunction
		Always VB	• Throttle sensor misadjustment (Refer to page F–136) • Open circuit in wiring from ECU terminal 1N to throttle sensor • Open circuit in wiring from throttle sensor to ground
1O	Stoplight switch	Always 0V (Stoplights OK)	• Open circuit in wiring from stoplight switch to ECU terminal 1O

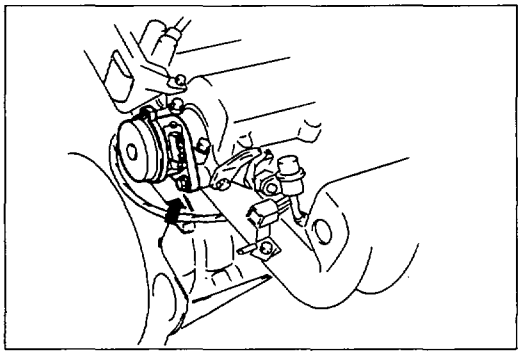
VB: Battery voltage

Terminal	Connection to	Abnormal voltage	Possible cause
1P	P/S pressure switch	Always 0V	• P/S pressure switch malfunction (Refer to page F–140) • Short circuit in wiring from ECU terminal 1P to P/S pressure switch • ECU malfunction
		Always VB	• P/S pressure switch malfunction (Refer to page F–140) • Open circuit in wiring from ECU terminal 1P to P/S pressure switch • Open circuit in wiring from P/S pressure switch to ground
1Q	A/C switch	Always 0V (with blower switch ON)	• A/C switch malfunction (Refer to page U–25) • Short circuit in wiring from ECU terminal 1Q to A/C switch • Poor connection at ECU connector • ECU malfunction
		Always VB (with blower switch ON) (Blower fan OK)	• A/C switch malfunction (Refer to page U–25) • Open circuit in wiring from ECU terminal 1Q to A/C switch • Open circuit in wiring from A/C switch to blower control switch
1R	Fan switch	Always 0V (Cooling fan OK)	• Open or short circuit in wiring from electric cooling fan relay to ECU terminal 1R • ECU malfunction
1S	Blower control switch	Always 0V (Blower fan OK)	• Short circuit in wiring from blower control switch to ECU terminal 1S • Poor connection at ECU connector • ECU malfunction
		Always VB (Blower fan OK)	• Open circuit in wiring from blower control switch to ECU terminal 1S
1U	Headlight switch	Always 0V (Headlights OK)	• Open or short circuit in wiring from headlight relay to ECU terminal 1U
1V	Neutral switch Clutch switch (M/T)	Always 0V (M/T)	• Neutral switch malfunction (Refer to page F–140) • Clutch switch malfunction (Refer to page F–139) • Short circuit in wiring from ECU terminal 1V to neutral or clutch switch
		Always VB (M/T)	• Neutral switch malfunction (Refer to page F–140) • Clutch switch malfunction (Refer to page F–139) • Open circuit in wiring from ECU terminal 1V to neutral or clutch switch • Poor connection at ECU connector
	Inhibitor switch (4A/T)	Always 0V (4A/T)	• Inhibitor switch malfunction (Refer to Section K) • Short circuit in wiring from inhibitor switch to ECU terminal 1V
		Always VB (4A/T)	• Inhibitor switch malfunction (Refer to Section K) • Open circuit in wiring from inhibitor switch to ECU terminal 1V
2A 2B 2C 2D	Ground	More than 0V	• Poor contact at ground terminal • Open circuit in wiring from ECU to ground
2E	Crank angle sensor (Ne-signal)	Always 0V or approx. 5V	• Refer to Code No.02 troubleshooting (Refer to page F–82)
2G	Crank angle sensor (G-signal)	Always 0V or approx. 5V	• Refer to Code No.03 troubleshooting (Refer to page F–82)
2H	Ground	Approx. 2V	• Open circuit in wiring from ECU terminal 2H to ground
	— (Federal and Canada)	0V	• Short circuit in wiring from ECU terminal 2H to ground

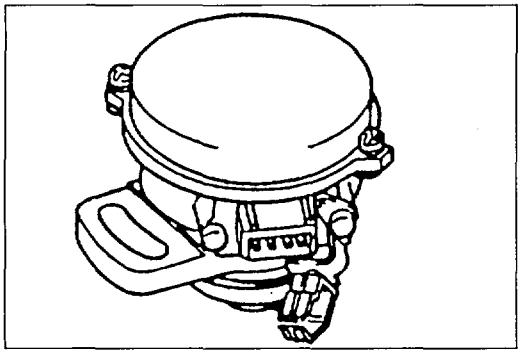
VB: Battery voltage

Terminal	Connection to	Abnormal voltage	Possible cause
2I	Igniter	Always 0V	• Refer to Code No.01 troubleshooting (Refer to page F–81)
2K	Airflow meter	Always 0V	• Short circuit in wiring from ECU terminal 2K to airflow meter • Poor connection at ECU connector • ECU malfunction
		Below 4.5V or above 5.5V	• ECU malfunction
2L	Throttle sensor (Power terminal) (M/T)	Always 0V	• Throttle sensor malfunction (Refer to page F–136) • Short circuit in wiring from ECU terminal 2L to throttle sensor • Poor connection at ECU connector • ECU malfunction
		Always approx. 5V	• Throttle sensor misadjustment (Refer to page F–136) • Open circuit in wiring from ECU terminal 2L to throttle sensor • Open circuit in wiring from throttle sensor to ground
2M	Throttle sensor (4A/T)	Always constant	• Open circuit in wiring from ECU terminal 2M to throttle sensor • Open circuit in wiring from ECU terminal 2K to throttle sensor • Open circuit in wiring from ECU terminal 2D to throttle sensor
		Always above 1V	• Throttle sensor misadjustment
2N	Oxygen sensor	0V after warm-up	• Refer to Code No.15 troubleshooting (Refer to page F–86)
		Always approx. 1V after warm-up	• Refer to Code No.17 troubleshooting (Refer to page F–86)
2O	Airflow meter	Always 0V or approx. 5V	• Refer to Code No.08 troubleshooting (Refer to page F–84)
2P	Airflow meter (Intake air thermosensor)	Always 0V or approx. 5V	• Refer to Code No.10 troubleshooting (Refer to page F–85)
			• Intake air thermosensor malfunction (Refer to page F–135)
2Q	Water thermosensor	Always 0V or approx. 5V	• Refer to Code No.09 troubleshooting (Refer to page F–85)
			• Water thermosensor malfunction (Refer to page F–136)
2U 2V	Injector	Always 0V	• Main relay malfunction (Refer to page F–140) Open or short circuit in wiring from injector to ECU terminal 2U or 2V
		Always VB	• ECU malfunction
2W	ISC valve	Always 0V or VB	• Refer to Code No.34 troubleshooting (Refer to page F–87)
			• ISC valve malfunction (Refer to page F–99)
2X	Solenoid valve (Purge control)	Always 0V or VB	• Refer to Code No.26 troubleshooting (Refer to page F–87)
			• Solenoid valve (Purge control) malfunction (Refer to page F–119)
2Z	4A/T control unit	Always VB	• ECU malfunction

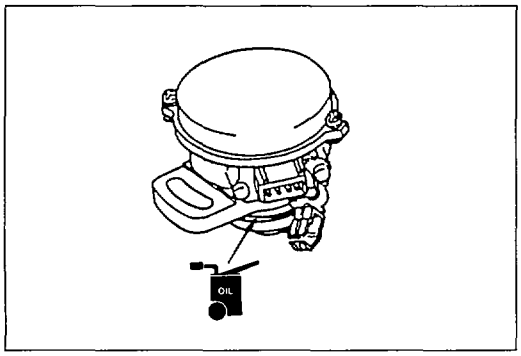
25U0FX-041



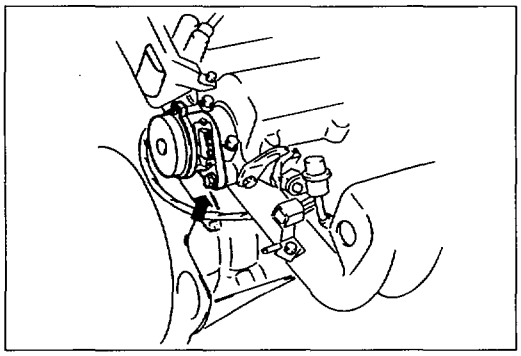
05U0FX-203



05U0FX-204



05U0FX-205



05U0FX-240

CRANK ANGLE SENSOR

Removal

1. Disconnect the crank angle sensor connector
2. Remove the crank angle sensor.

Inspection

1. Visually check the crank angle sensor for damage.
2. Replace if necessary.

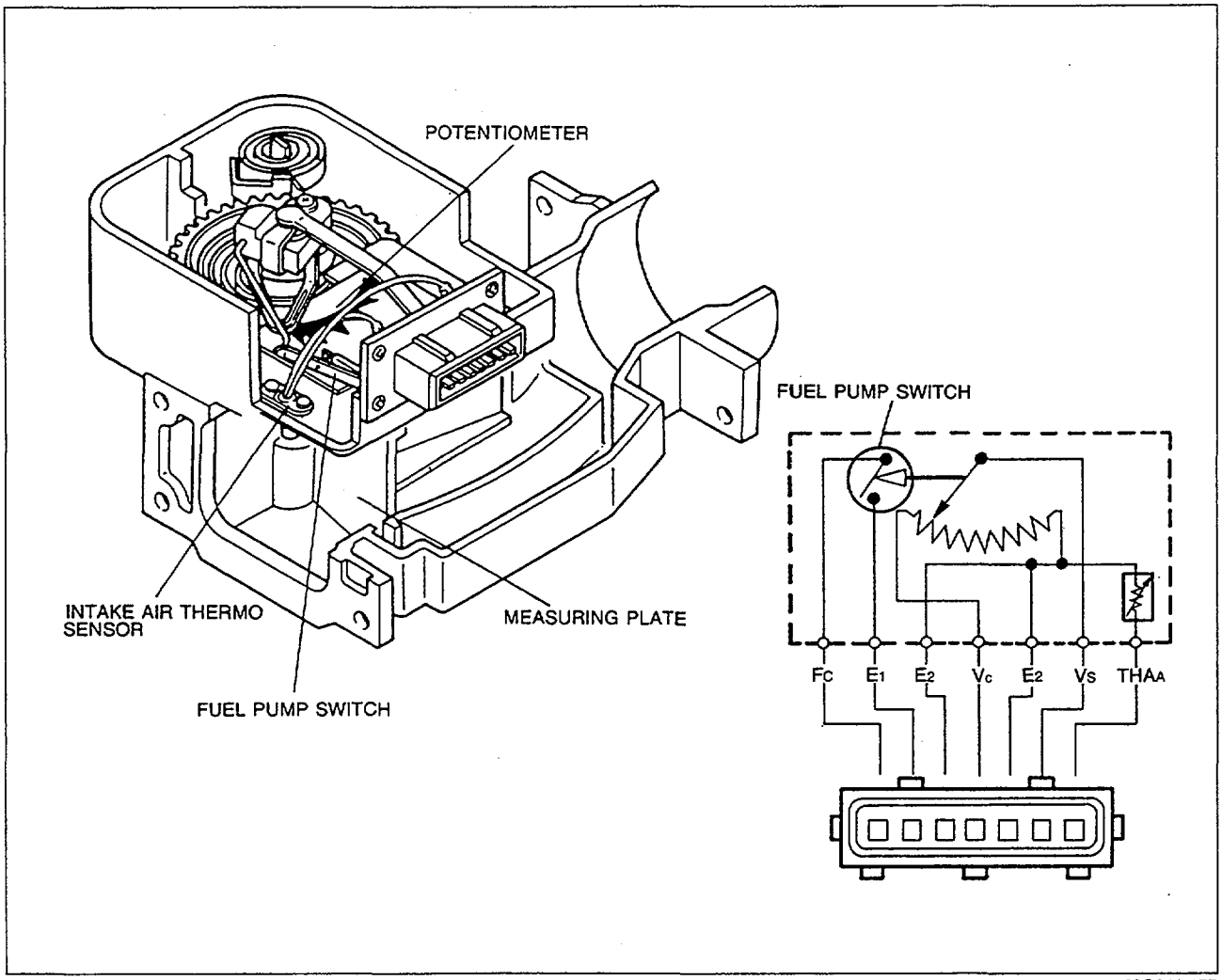
Installation

1. Apply grease to the new O-ring and the blade.
2. Install the crank angle sensor.

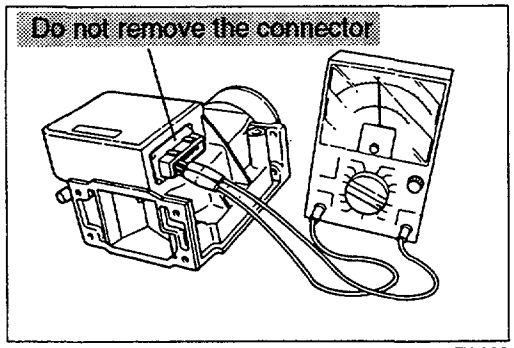
Tightening torque:
19—27 N·m (1.9—2.6 m-kg, 14—20 ft-lb)

3. Connect the crank angle sensor connector.
4. Adjust the ignition timing. (Refer to page F–75.)

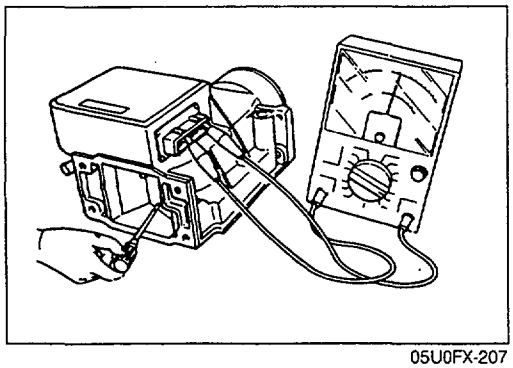
AIRFLOW METER



69G04A-177



05U0FX-206



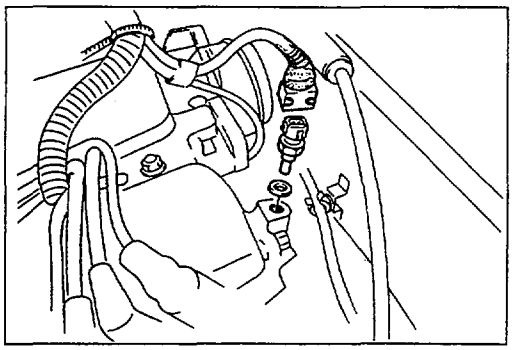
05U0FX-207

Inspection

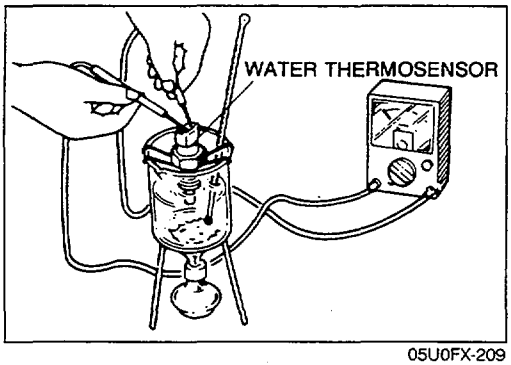
1. Remove the airflow meter. (Refer to page F–92.)
2. Check the airflow meter body for cracks.
3. Verify that the measuring plate moves smoothly.
4. Move the measuring plate and check for resistance between the terminals with an ohmmeter.
5. If not as specified, replace the airflow meter.

Terminal	Resistance (Ω)	
	Fully closed	Fully open
E2↔Vs	200—600	20—1,000
E2↔Vc	200—400	
E2↔THAA (Intake air thermosensor)	−20°C (−4°F) 13,600—18,400 20°C (68°F) 2,210— 2,690 60°C (140°F) 493— 667	
E1↔Fc	∞	0

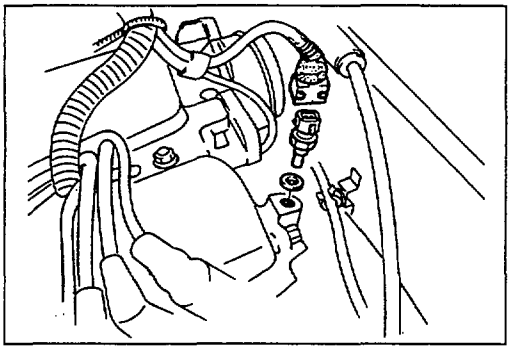
6. Connect the airflow meter connector after checking.



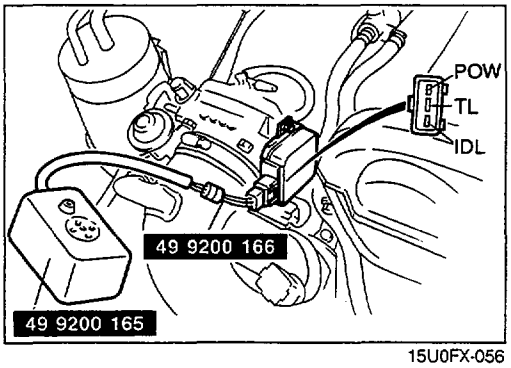
05U0FX-208



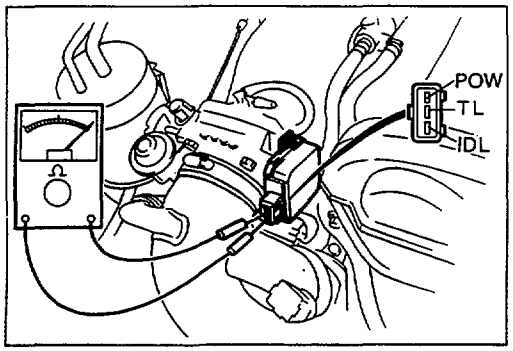
05U0FX-209



05U0FX-210



15U0FX-056



WATER THERMOSENSOR

Removal

1. Remove the ignition coil assembly. (Refer to page G–21.)
2. Disconnect the water thermosensor connector.
3. Remove the water thermosensor.

Inspection

1. Place the sensor in water with a thermometer and heat the water gradually.
2. Measure resistance of the sensor with an ohmmeter.

Coolant	Resistance kΩ
–20°C (–4°F)	14.6 —17.8
20°C (68°F)	2.2 — 2.7
80°C (176°F)	0.29— 0.35

3. If not as specified, replace the water thermosensor.

Installation

1. Install the water thermosensor and a new washer.

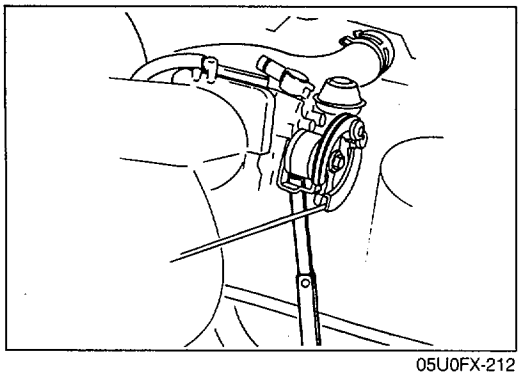
Tightening torque:
25—29 N·m (2.5—3.0 m-kg, 18—22 ft-lb)

2. Connect the water thermosensor connector.
3. Install the ignition coil assembly. (Refer to page G–21.)

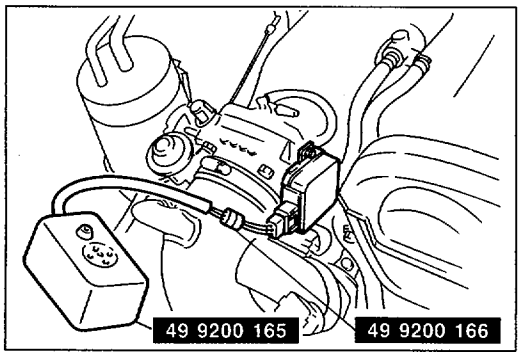
THROTTLE SENSOR (M/T)

Inspection

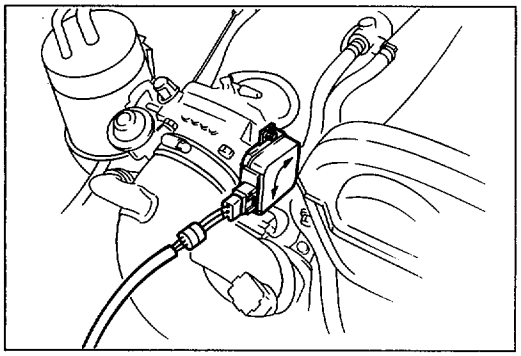
1. Disconnect the connector from the throttle sensor.
2. Connect the **(SST)** or an ohmmeter to the throttle sensor.



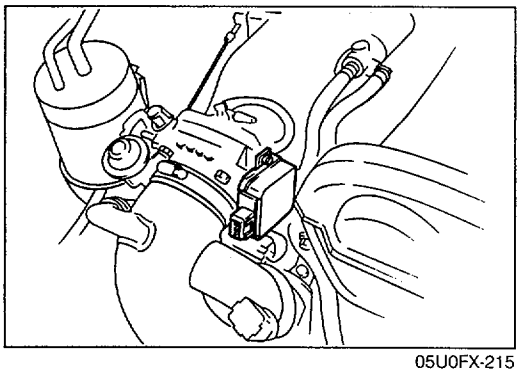
05U0FX-212



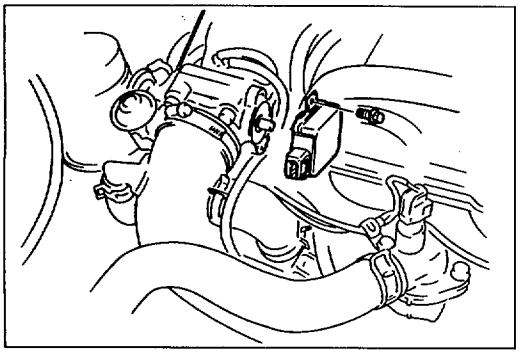
15U0FX-057



05U0FX-214



05U0FX-215



05U0FX-216

3. Insert a feeler gauge between the throttle stop screw and the stop lever.
4. Note the operation of the buzzer or the continuity between terminals.

Feeler gauge	Buzzer	Continuity between terminals	
		IDL↔TL	POW↔TL
0.4mm (0.016 in)	Yes	Yes	No
0.7mm (0.027 in)	No	No	No
Wide-open throttle	Yes	No	Yes

Adjustment

1. Disconnect the connector from the throttle sensor and connect the **SST**.
2. Insert a **0.4mm (0.016 in)** feeler gauge between the throttle stop screw and the stop lever.
3. Loosen the two attaching screws.
4. Rotate the throttle sensor clockwise **approx. 30 degrees**, then rotate it back counterclockwise until the buzzer sounds.
5. Replace the feeler gauge with a **0.7mm (0.027 in)** gauge.
6. Verify that the buzzer does not sound.
7. If it sounds, repeat Steps 3 through 6.
8. Tighten the two attaching screws.

Note

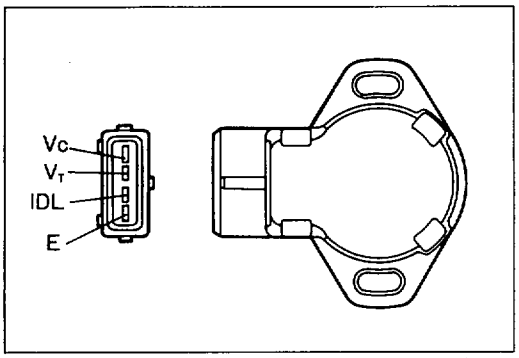
- **Do not move the throttle sensor from the set position when tightening the screws.**

9. Open the throttle valve fully a few times.
10. Recheck the adjustment of the throttle sensor.

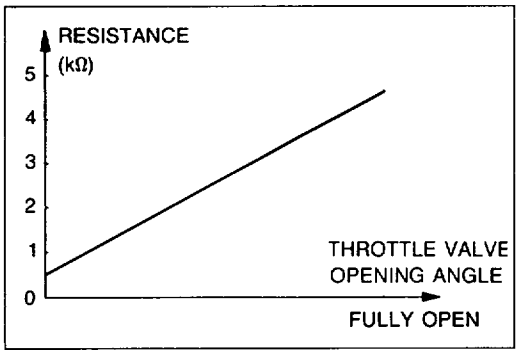
Replacement

1. Disconnect the throttle sensor connector.
2. Remove the throttle sensor mounting screws.
3. Remove the throttle sensor.
4. Install in the reverse order of removal.

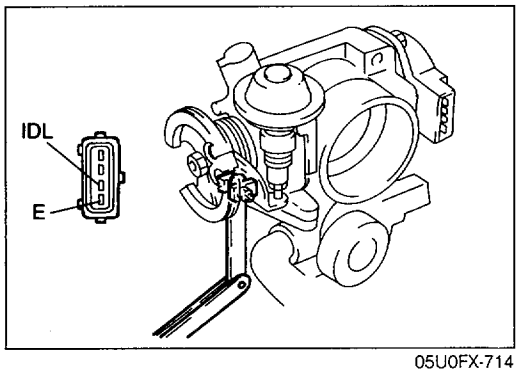
Tightening torque:
1.6—2.4 N·m (16—24 cm-kg, 13.9—20.8 in-lb)



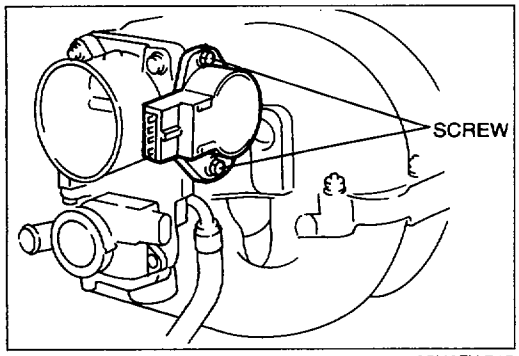
15U0FX-058



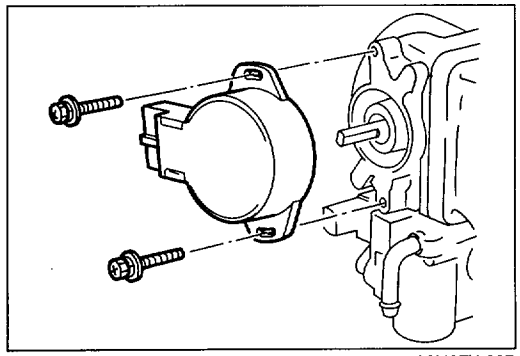
05U0FX-713



05U0FX-714



05U0FX-715



03U0FX-227

THROTTLE SENSOR (4A/T)

Inspection

1. Disconnect the connector from the throttle sensor.
2. Connect an ohmmeter between throttle sensor terminals E and IDL.
3. Insert a feeler gauge between the throttle stop screw and the stop lever.
4. Check the continuity between terminals.

Feeler gauge	Continuity
0.1mm (0.004 in)	Yes
0.6mm (0.024 in)	No

5. Connect an ohmmeter to throttle sensor terminals VT and E.
6. Verify that the resistance increases linerally according to throttle valve opening angle.

Throttle valve condition	Resistance (kΩ)
Fully closed	Below 1
Fully open	Approx. 5

Adjustment

1. Disconnect the connector from the throttle sensor.
2. Connect an ohmmeter between throttle sensor terminals E and IDL.
3. Loosen the two attaching screws.
4. Insert a **0.25mm (0.01 in)** feeler gauge between the throttle stop screw and the stop lever.
5. Rotate the throttle sensor clockwise **approx. 30 degrees**, then rotate it back counterclockwise until there is continuity.
6. Replace the feeler gauge with a **0.4mm (0.016 in)** gauge and verify that there is no continuity.
7. If there is continuity, repeat Steps 4 through 6.
8. Tighten the two attaching screws.

Note

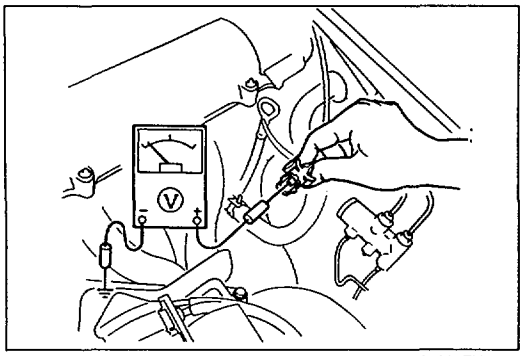
- **Do not move the throttle sensor from the set position when tightening the screws.**

9. Open the throttle valve fully and verify that the resistance between throttle sensor terminals E and VT is **approx. 5 kΩ**.

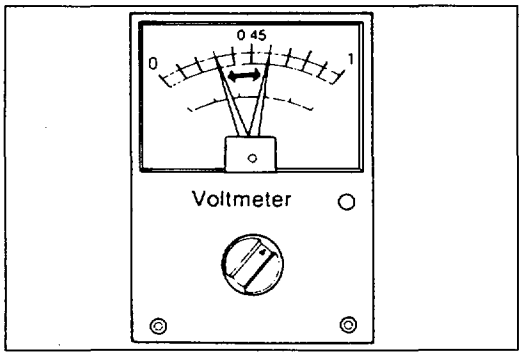
Replacement

1. Disconnect the throttle sensor connector.
2. Remove the throttle sensor mounting screws.
3. Remove the throttle sensor.
4. Install in the reverse order of removal.

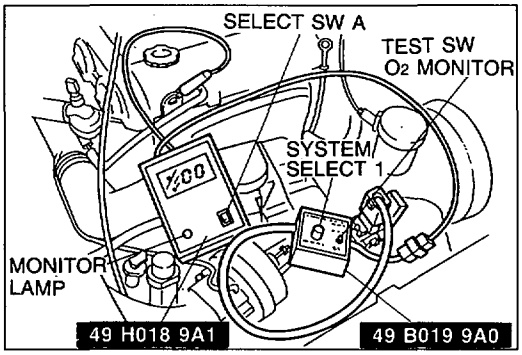
Tightening torque:
1.6—2.4 N·m (16—24 cm-kg, 14—21 in-lb)



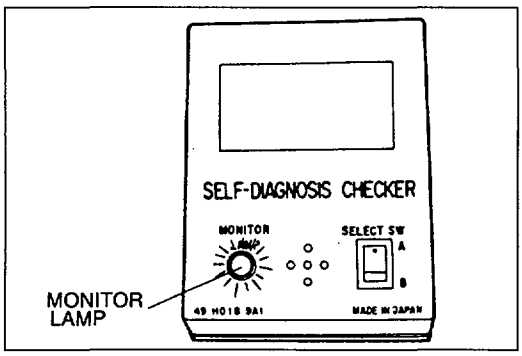
25U0FX-050



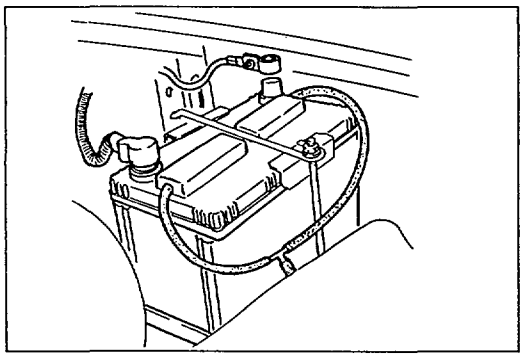
05U0FX-218



05U0FX-219



15U0FX-059



25U0FX-042

OXYGEN SENSOR

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

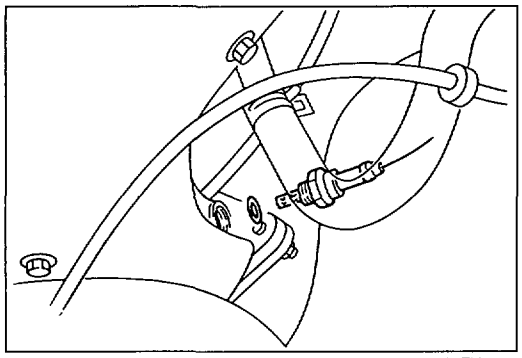
Inspection of Terminal Voltage

1. Warm up the engine and run it at idle.
2. Disconnect the oxygen sensor connector.
3. Connect a voltmeter between the oxygen sensor and a ground.
4. Run the engine **at 3,000 rpm** until the voltmeter indicates **approx. 0.55V**.
5. Increase and decrease the engine speed suddenly several times. Verify that when the speed is increased the meter reads **0.5V—1.0V**, and when the speed is decreased it reads **0V—0.4V**.
6. If not as specified, replace the oxygen sensor.

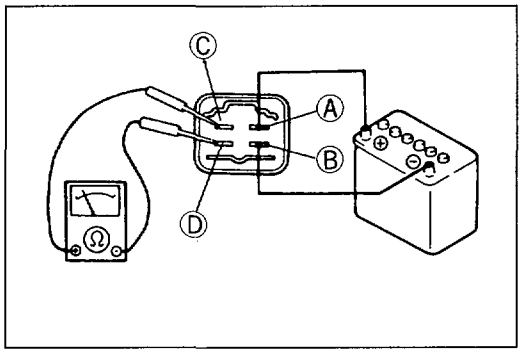
Inspection of Sensitivity

1. Warm up the engine to normal operating temperature.
2. Connect the **SST** to the diagnosis connector.
3. Set the **SST** as shown.
4. Increase the engine speed to **between 2,000 and 3,000 rpm**, and verify that the monitor lamp flashes for **10 sec.**. If not as specified, replace the oxygen sensor. (Refer to page F–140.)

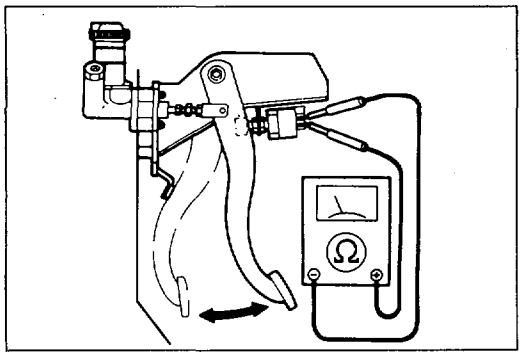
   Monitor lamp: Flashes more than 8 times/10 seconds
5. Turn the ignition switch OFF.
6. Disconnect the negative battery terminal for **at least 20 sec.** to eliminate the malfunction code that was created during inspection from the control unit memory.



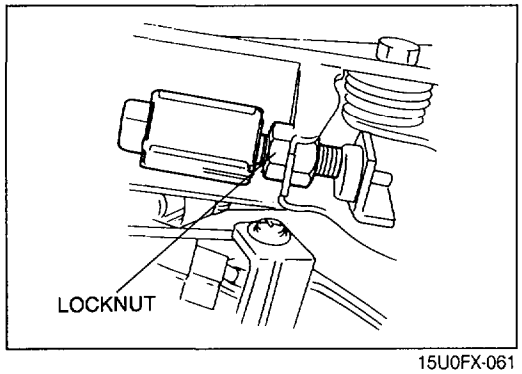
05U0FX-222



25U0FX-043



05U0FX-224



15U0FX-061

Replacement

1. Disconnect the oxygen sensor connector.
2. Remove the oxygen sensor.
3. Install in the reverse order of removal.

Tightening torque:
29—49 N·m (3—5 m-kg, 22—36 ft-lb)

MAIN RELAY (FUEL INJECTOR RELAY)

Inspection

1. Verify that the main relay clicks when turning the ignition switch OFF → ON.
2. Apply **battery voltage** to terminal A and ground terminal B of the main relay.
3. Use an ohmmeter to check continuity of the terminals as shown.

Terminals	Battery voltage not applied	Battery voltage applied
C—D	No continuity	Continuity

4. If not as specified, replace the main relay.

CLUTCH SWITCH

Inspection

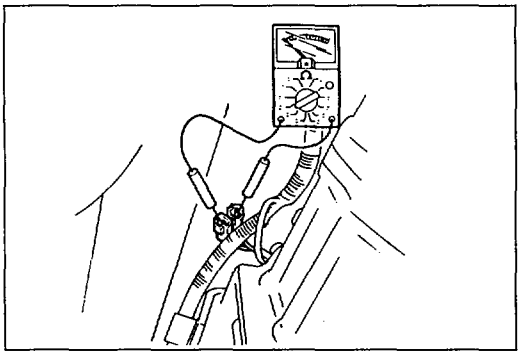
1. Disconnect the clutch switch connector.
2. Connect an ohmmeter to the switch.
3. Check continuity of the switch.

Pedal	Continuity
Depressed	Yes
Released	No

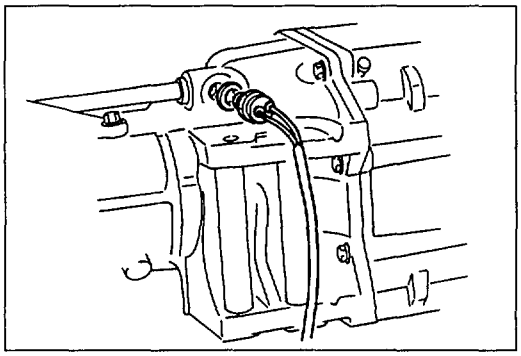
4. If not as specified, replace the clutch switch.

Replacement

1. Disconnect the clutch switch connector.
2. Loosen the locknut.
3. Remove the clutch switch.
4. Install in the reverse order of removal.
5. Adjust the pedal height. (Refer to Section H.)



05U0FX-226



9MU0F2-240

NEUTRAL SWITCH

Inspection

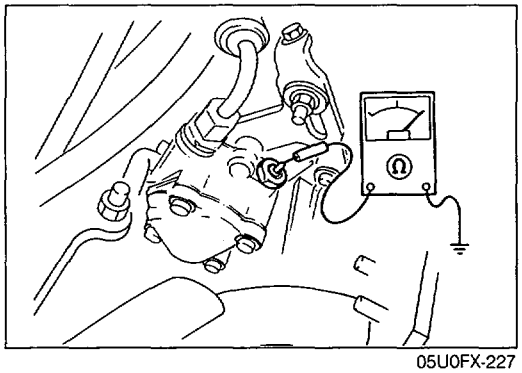
1. Disconnect the neutral switch connector.
2. Connect an ohmmeter to the switch.
3. Check continuity of the switch.

Transmission	Continuity
Neutral	Yes
Other ranges	No

4. If not as specified, replace the neutral switch.

Replacement

Replace the neutral switch as shown in the figure.



05U0FX-227

POWER STEERING PRESSURE SWITCH

Inspection

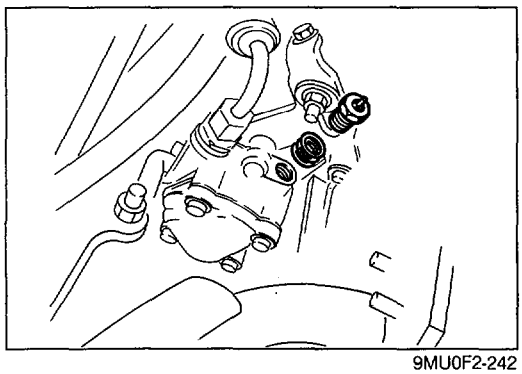
1. Disconnect the P/S pressure switch connector.
2. Connect an ohmmeter to the switch.
3. Start the engine and let it idle. Check continuity of the switch while turning the steering wheel.

P/S	Continuity
Turning	Yes
Not turning	No

4. If not as specified, replace the P/S pressure switch.

Replacement

Replace the P/S pressure switch as shown in the figure.



9MU0F2-242

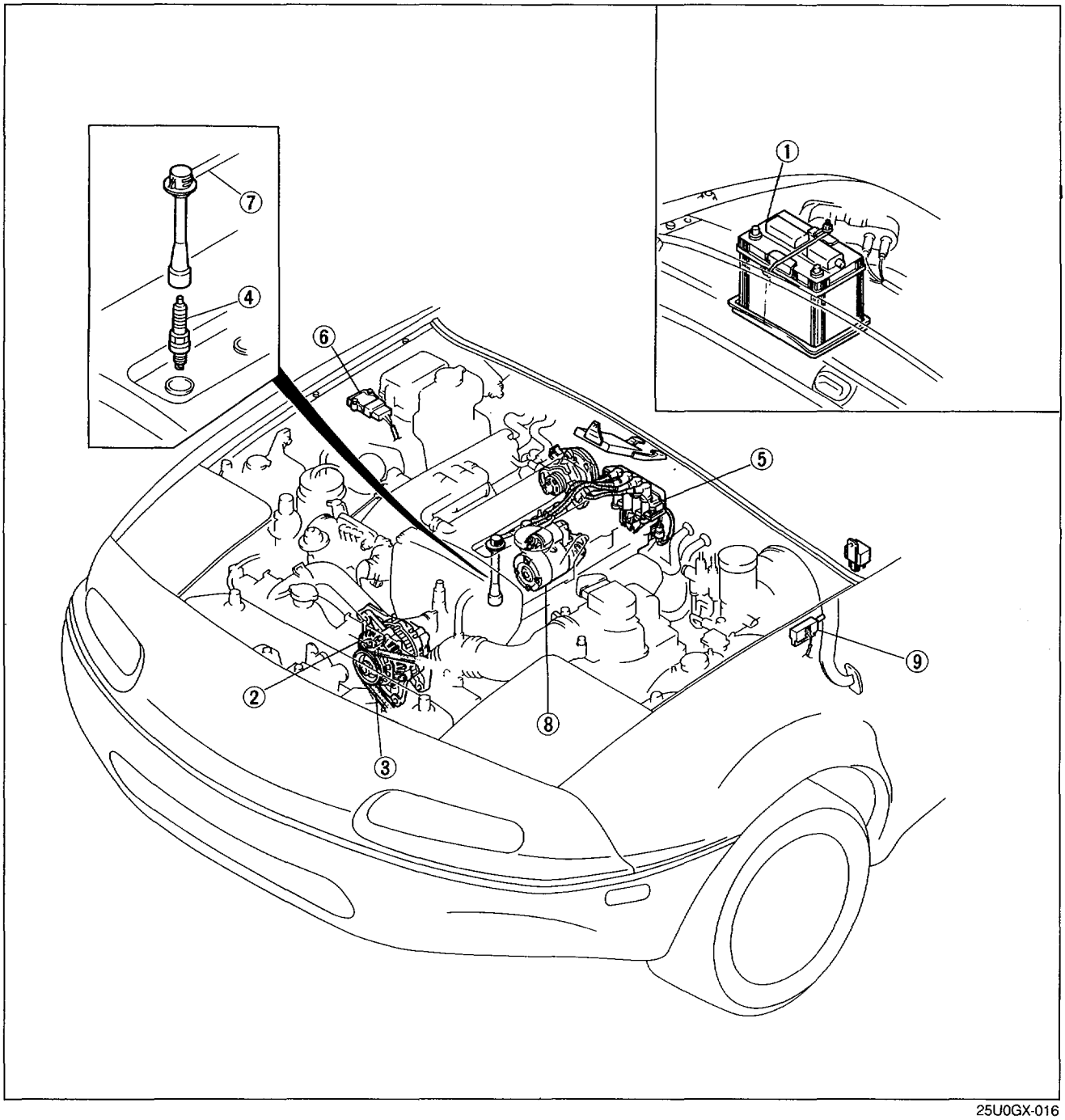
Before beginning any service procedure, refer to Section T of this manual for airbag system warnings and cautions.

ENGINE ELECTRICAL SYSTEM

INDEX ..... **G– 2**
OUTLINE ..... **G– 3**
SPECIFICATIONS ..... **G– 3**
TROUBLESHOOTING GUIDE ..... **G– 4**
CHARGING SYSTEM ..... **G– 6**
PREPARATION ..... **G– 6**
CIRCUIT DIAGRAM ..... **G– 6**
TROUBLESHOOTING ..... **G– 7**
BATTERY ..... **G– 8**
ALTERNATOR **G–10**
SELF-DIAGNOSIS SYSTEM **G–10**
DRIVE BELT **G–13**
IGNITION SYSTEM **G–15**
PREPARATION **G–15**
CIRCUIT DIAGRAM **G–15**
TROUBLESHOOTING **G–16**
IGNITION TIMING **G–17**
SPARK PLUG **G–18**
IGNITION COIL **G–19**
IGNITER **G–20**
HIGH-TENSION LEAD **G–20**
STARTING SYSTEM **G–21**
CIRCUIT DIAGRAM **G–21**
TROUBLESHOOTING **G–21**
STARTER **G–22**
STARTER INTERLOCK SWITCH (M/T) **G–27**

25U0GX-009

INDEX



25U0GX-016

1. Battery
Inspection ..... page G- 8
Recharging ..... page G- 9
Replacement.... page G- 9
2. Alternator
Removal / Installation ..... page G-10
Disassembly / Assembly ..... page G-11
Inspection ..... page G-12
3. Drive belt
Inspection ..... page G-13
Adjustment..... page G-14
4. Spark plug
Removal / Installation ..... page G-18
Spark test ..... page G-18
Inspection ..... page G-18
5. Ignition coil
Inspection ..... page G-19
Replacement.... page G-19
6. Igniter
Inspection ..... page G-20
7. High-tension lead
Inspection ..... page G-20
8 Starter
Removal / Installation ..... page G-22
Performance inspection ..... page G-23
Disassembly / Assembly ..... page G-24
Inspection ..... page G-25
9. Starter interlock switch
Inspection ..... page G-27

OUTLINE

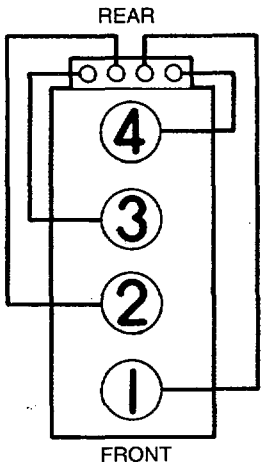
SPECIFICATIONS

Item \ Engine			B6 DOHC
Battery	Voltage	V	12, Negative ground
	Type and capacity (5-hour rate)		S46A24LS (32 Ah) Maintenance-free
Dark current*1		mA	20.0
Alternator	Type		A.C.
	Output	V, A	12, 60 (M/T), 12, 65 (4A/T)
	Regulator type		Transistorized (built-in IC regulator)
	Regulated voltage		14.3—14.9
	Brush length mm (in)	Standard	21.5 (0.85)
		Minimum	8 (0.31)
	Drive belt tension mm (in)	New	8—9 (0.31—0.35)
		Used	9—10 (0.35—0.39)
Starter	Type		Direct
	Output	V-kW	12-0.95
	Brush length mm (in)	Standard	17.0 (0.67)
		Minimum	11.5 (0.45)
Ignition system	Type		Electronic spark advance (ESA)
	Spark advance control		Engine control unit controls spark advance
Ignition timing		BTDC	9°—11° *2 (M/T), 7°—9° *2 (4A/T)
Ignition coil	Type		Molded
	Primary coil winding	Ω	0.78—0.94
	Secondary coil winding	kΩ	11.2—15.2
Spark plug	Type		NGK : BKR5E-11, BKR6E-11 (Standard...M/T), BKR7E-11 NIPPONDENSO : K16PR-U11, K20PR-U11 (Standard...M/T, 4A/T), K22PR-U11
	Plug gap	mm (in)	1.0—1.1 (0.039—0.043)
	Firing order		1—3—4—2

25U0GX-001

*1 Dark current is the constant flow of current while the ignition switch is OFF (i.e. engine control unit, audio, etc.)
*2 With System Selector (49 B019 9A0) test switch at SELF TEST.

Cylinder Arrangement



05U0GX-076

TROUBLESHOOTING GUIDE

Problem	Page
Will not crank	**G–4**
Cranks slowly	**G–4**
Discharged battery	**G–5**
Misfire	**G–5**

Will not crank

Will not crank

Check 1

Check if engine cranks with fully charged battery — **YES** → Check charging system (Refer to page G–7)

NO

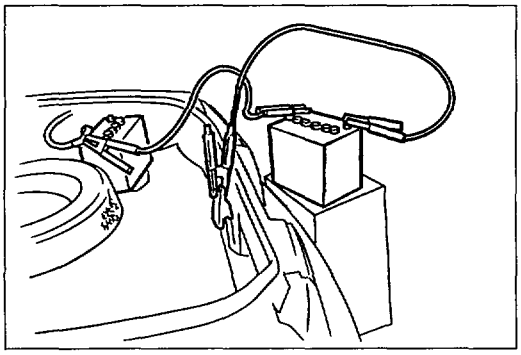
Check if click is heard from starter magnetic switch when ignition is turned to START — **YES** → Check starting system (Refer to page G–21)

NO

Check ignition switch (Refer to page T–21), starter interlock switch (Refer to page G–27) and inhibitor switch (Refer to Section K)

25U0GX-017

Check 1



Cranks slowly

Cranks slowly

Check 1

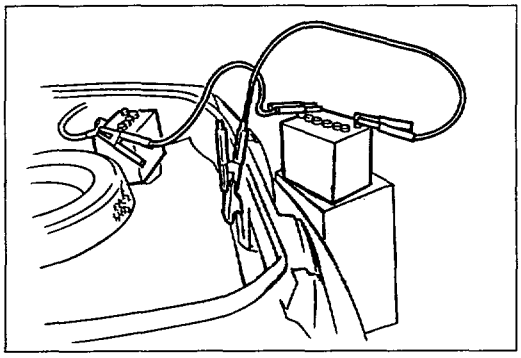
Check if engine cranks with fully charged battery — **YES** → Check charging system (Refer to page G–7)

NO

Check starting system (Refer to page G–21)

25U0GX-018

Check 1



Discharged battery

Discharged battery	→	Check charging system (Refer to page G–7)

05U0GX-006

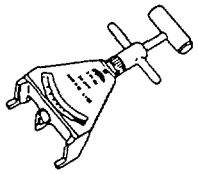
Misfire

Misfire	→	Check ignition system (Refer to page G–16)

25U0GX-019

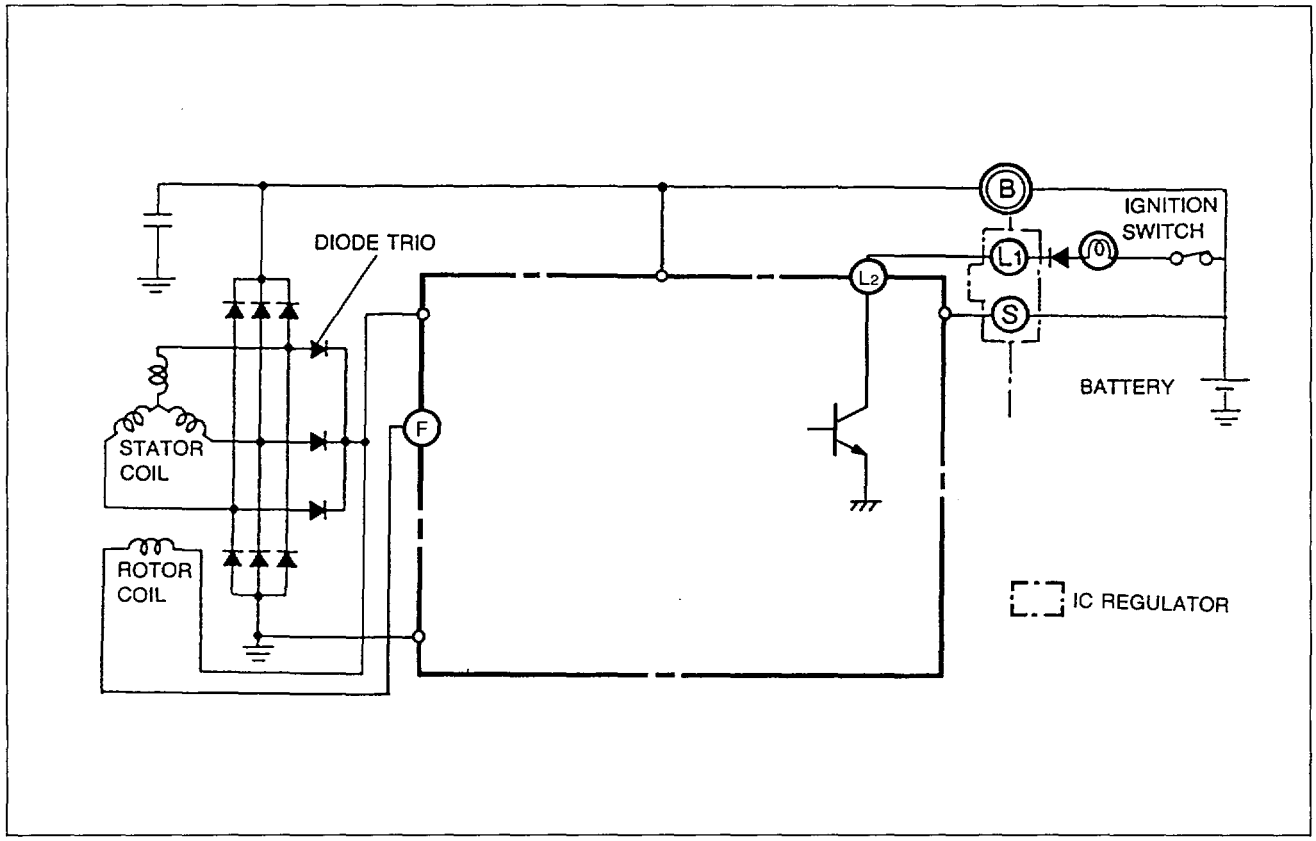
CHARGING SYSTEM

PREPARATION
SST

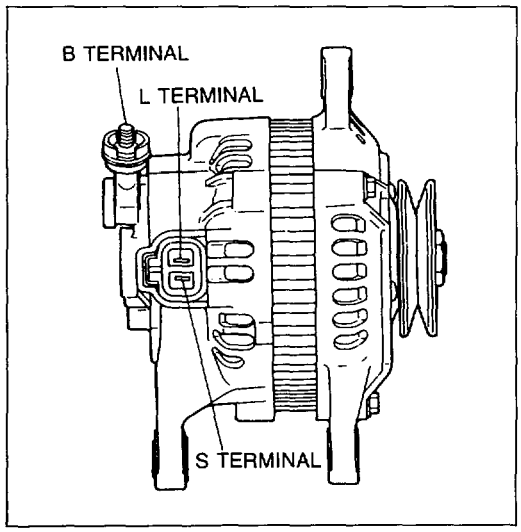
49 9200 020 V-ribbed belt tension gauge		For inspection of drive belt tension

05U0GX-008

CIRCUIT DIAGRAM



05U0GX-009



TROUBLESHOOTING

Check 1

Check if battery voltage is above 12.6V — NO → Check battery (Refer to page G–8)

YES ↓

Check 2

1. Turn ignition switch ON
2. Check if voltage exists at each terminal of alternator — NO → Check wire harness (Refer to page G–6)

YES ↓

Check 3

1. Start engine
2. Check if alternator warning lamp goes off — NO → Check alternator (Refer to page G–10)

YES ↓

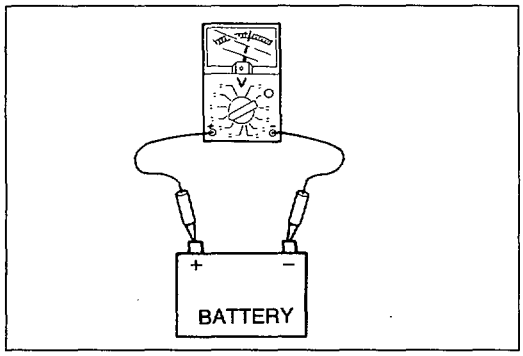
Check if drive belt tension is OK (Refer to page G–13) — NO → Adjust drive belt or replace (Refer to page G–13)

YES ↓

Check for dark current (Refer to page G–3)

25U0GX-020

Check 1



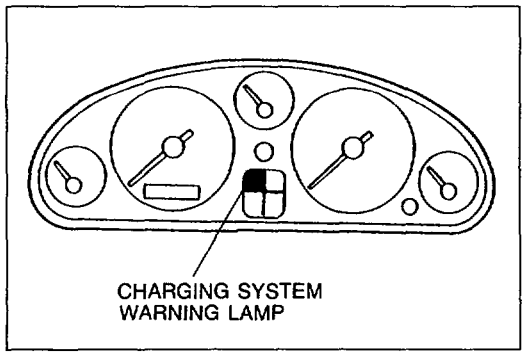
Check 2

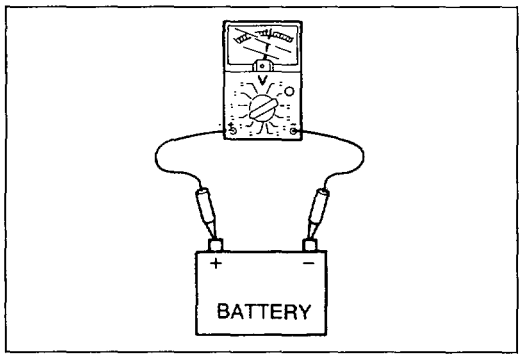
VB: Battery voltage

Terminal \ Ignition switch	OFF	ON	ON (Idle)
B	Approx. 12V	Approx. 12V	VB
L	0V	Approx. 1V	VB
S	Approx. 12V	Approx. 12V	VB

25U0GX-002

Check 3





25U0GX-010

BATTERY

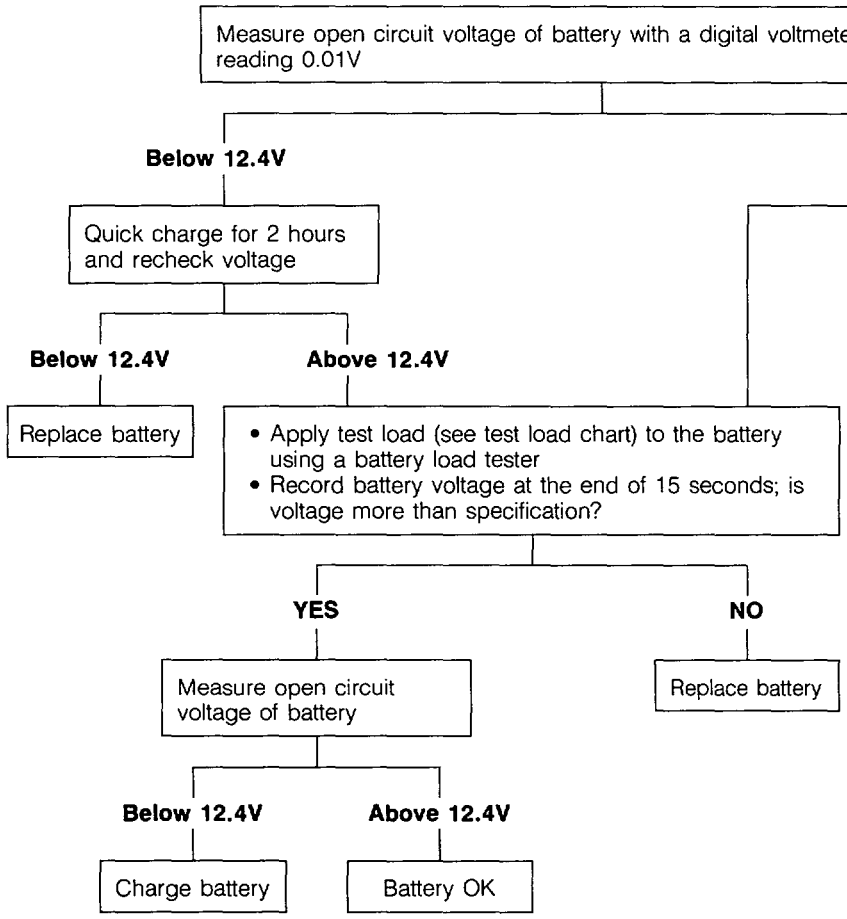
Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

Inspection

Warning
- **The negative battery cable must be removed first and installed last.**

1. Disconnect the battery cables from the battery.
2. Connect a voltmeter to the battery.

Battery discharge test



Test load

Battery	Load (A)
S46A24LS	45

Battery voltage with load

Approximate battery temp.	Minimum voltage (V)
21°C (70°F)	9.6
15°C (60°C)	9.5
10°C (50°F)	9.4
4°C (40°F)	9.3
−1°C (30°F)	9.1
−7°C (20°F)	8.9
−12°C (10°F)	8.7
−18°C (0°F)	8.5

25U0GX-003

Terminal and cable

1. Clean and tighten the battery terminals and cables.
2. Coat the terminals with grease.
3. Inspect for corroded or frayed battery cables.
4. Check the rubber protector on the positive terminal for proper coverage.

05U0GX-014

Recharging

Battery	Slow charge (A)	Quick charge (A)
S46A24LS	Under 3	Max. 20

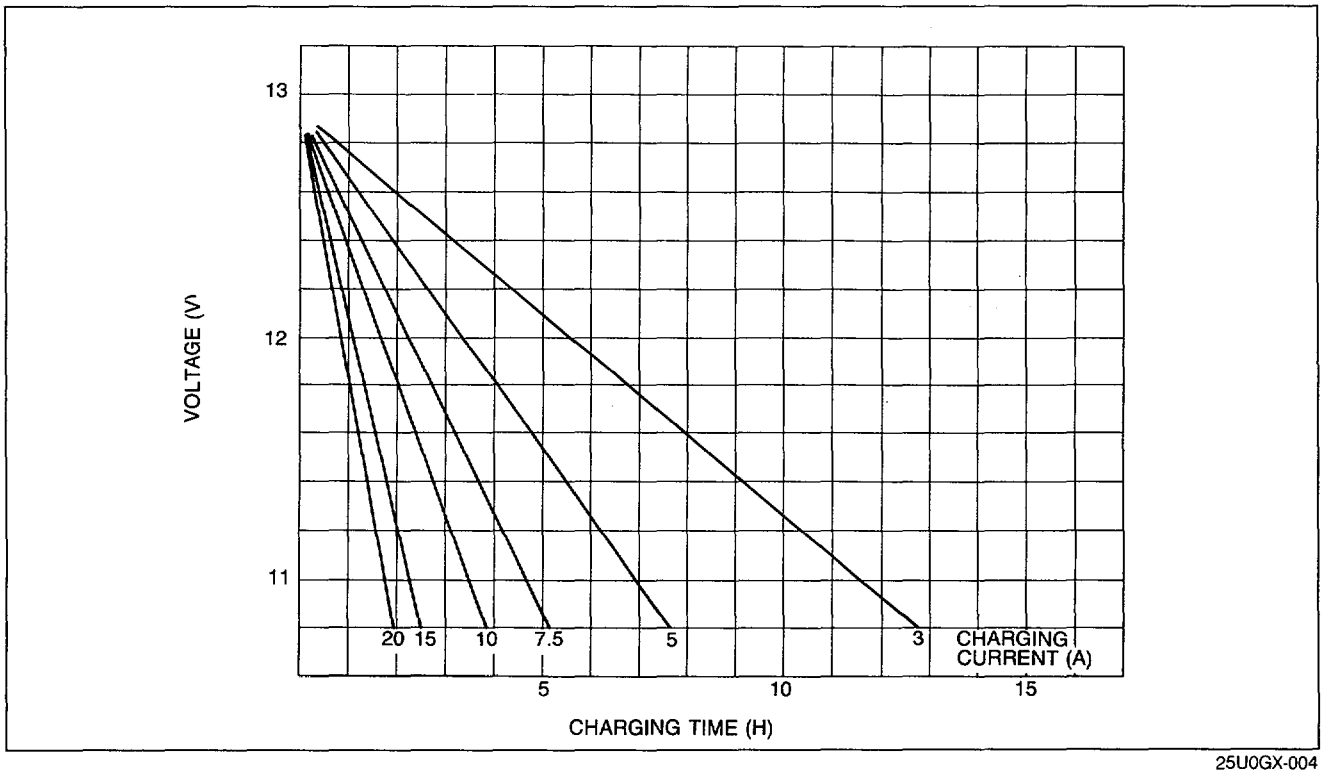
Warning

- **Before performing maintenance or recharging the battery, turn off all accessories and stop the engine.**
- **The negative battery cable must be removed first and installed last.**

Caution

- **Do not remove vent caps.**
  Follow carefully the instructions of the battery charger to prevent overcharging.

1. Remove the battery cover.
2. Disconnect the battery cables from the battery.
3. Measure and record the voltage between the battery terminals.
4. Decide the charging current and charging time by referring to the figure below.
5. Charge the battery.



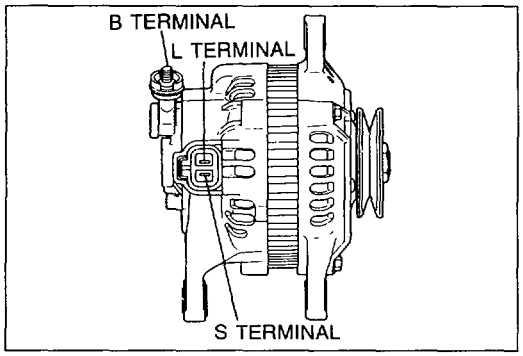
25U0GX-004

Replacement

Note

- **When replacing the battery, replace it with the same style Mazda genuine battery (with vent manifold).**

25U0GX-011

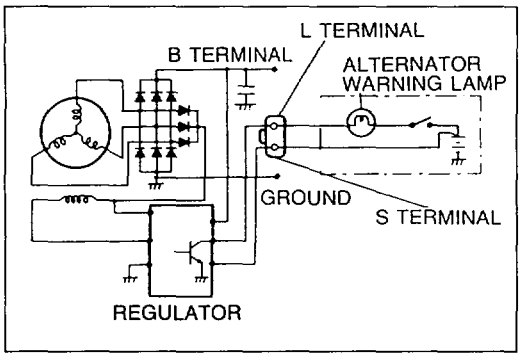


25U0GX-012

ALTERNATOR

Caution

- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**
- **Be sure the battery connections are not reversed because this will damage the rectifier.**
- **Do not use high-voltage testers such as a megger because they will damage the rectifier.**
- **Remember that battery voltage is always applied to the alternator B terminal.**
- **Do not ground the L terminal while the engine is running.**
- **Do not start the engine while the connector is disconnected from the L and S terminals.**

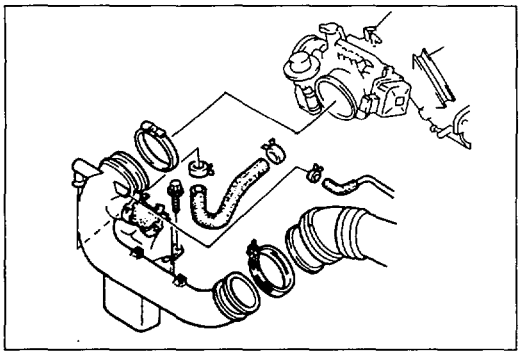


05U0GX-024

SELF-DIAGNOSIS SYSTEM

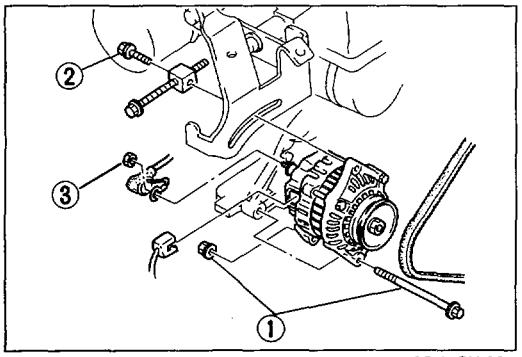
The alternator has a self-diagnostic function to warn of problems in the charging system.
If any of the following problems arise, the alternator warning lamp illuminates.

1. S circuit open.
2. No voltage output.
3. Field circuit open.
4. B circuit open.
5. Voltage output too high.


05U0GX-025

Removal / Installation

1. Disconnect the negative battery cable.
2. Disconnect the P/S pressure switch connector.
3. Disconnect the water thermoswitch connector.
4. Disconnect the ISC valve connector.
5. Remove the air pipe.



05U0GX-026

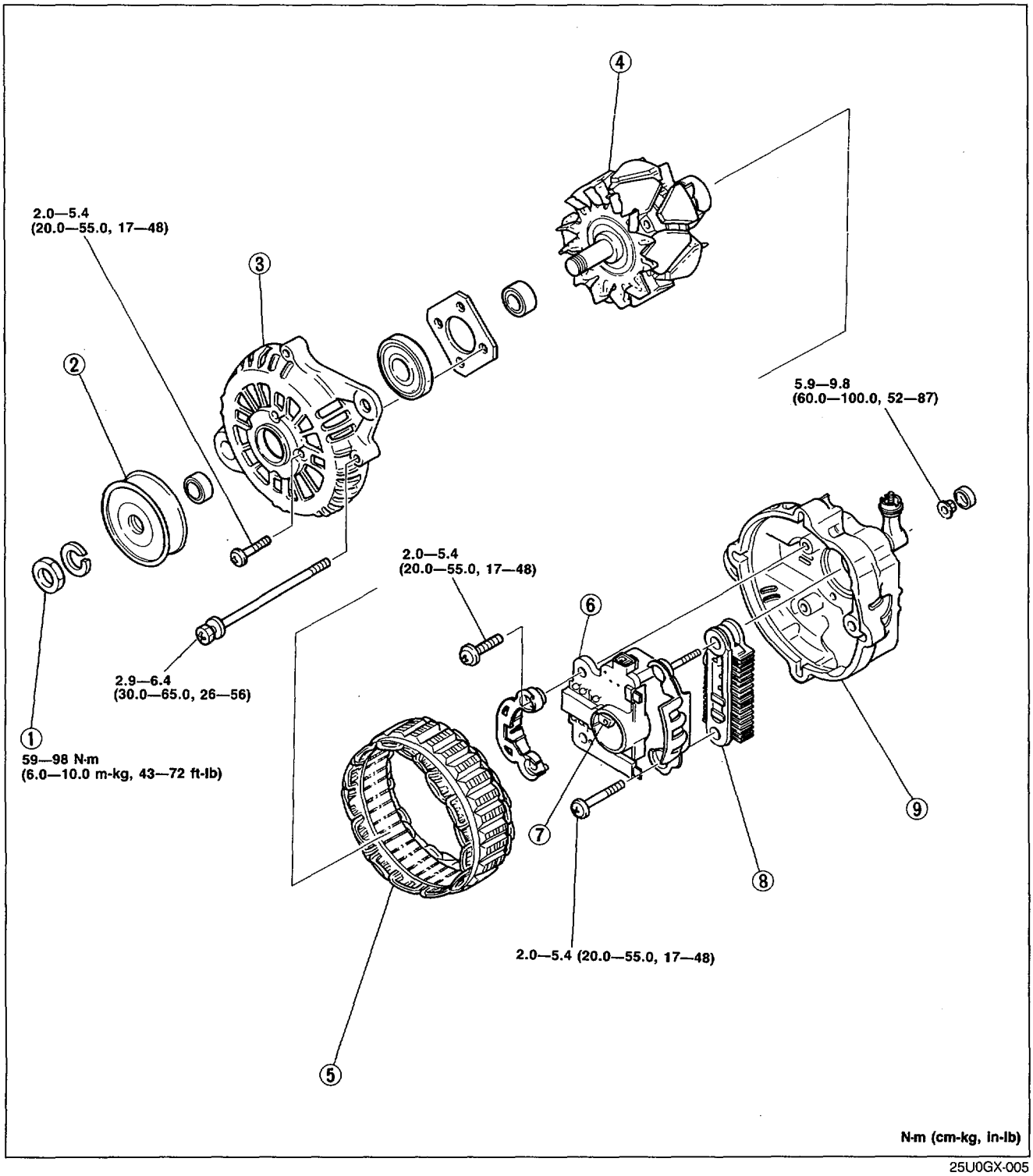
6. Disconnect the wire and connector from the alternator.
7. Remove the alternator bolts and nut.
8. Remove the alternator.
9. Install in the reverse order of removal.

Tightening torque

Bolt, Nut (1):
37–52 N·m (3.8—5.3 m-kg, 27—38 ft-lb)
Bolt (2):
19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)
Nut (3):
9.8—15 N·m (100—150 cm-kg, 87—130 in-lb)

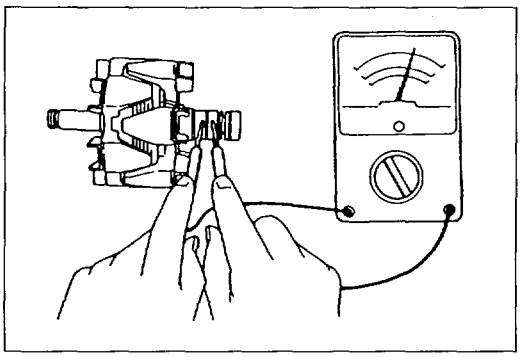
Disassembly / Assembly

1. Disassemble in the order shown in the figure.
2. Assemble in the reverse order of disassembly.



25U0GX-005

1. Pulley nut
2. Pulley
3. Front cover
4. Rotor
   Inspection..... page G–12
5. Stator
   Inspection..... page G–12
6. Brush holder assembly
   Inspection..... page G–26
7. Brush
   Inspection..... page G–12
8. Rectifier
   Inspection..... page G–13
9. Rear cover

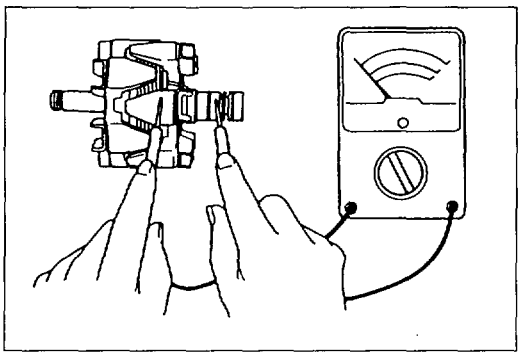


05U0GX-028

Inspection
Rotor
1. Winding damage
   (1) Check the resistance between the slip rings with an ohmmeter.

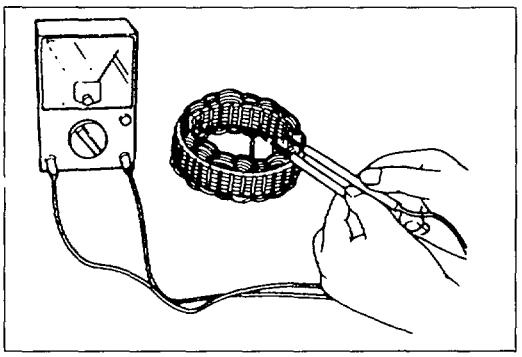
   Specification: 3.5—4.5Ω/20°C (68°F)

   (2) If it is not within specification, replace the rotor.



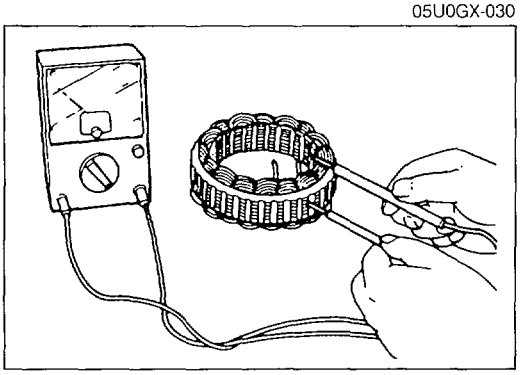
05U0GX-029

2. Ground of field coil
   (1) Check for continuity between each slip ring and the core with an ohmmeter.
   (2) Replace the rotor if there is continuity.
3. Slip ring surface
   If the slip ring surface is rough, use fine sandpaper to repair it.



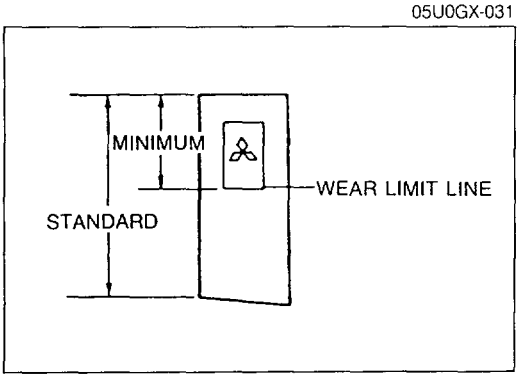
05U0GX-030

Stator
1. Wiring damage
   (1) Check for continuity between the stator coil leads with an ohmmeter.
   (2) Replace the stator if there is no continuity.



05U0GX-031

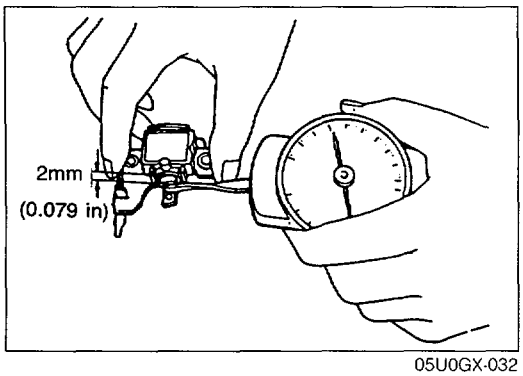
2. Ground of stator coil
   (1) Check for no continuity between the stator coil leads and the core with an ohmmeter.
   (2) Replace the stator if there is continuity.



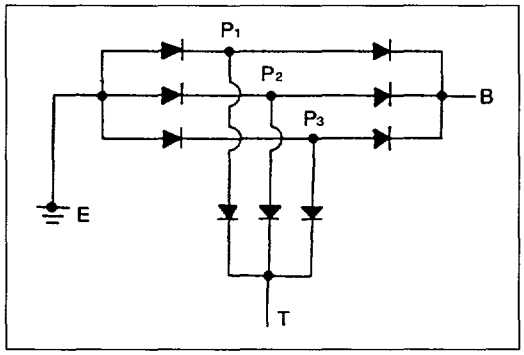
9MU0GX-025

Brush
If the brushes are worn almost to or beyond the limit, replace them.

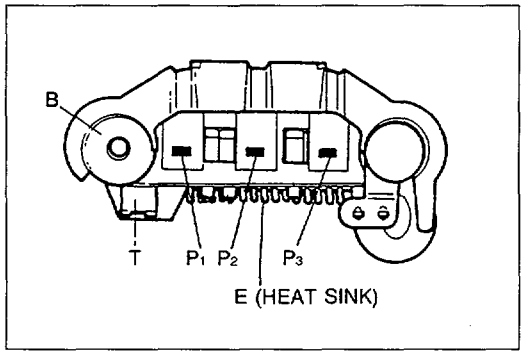
Standard: 21.5mm (0.846 in)
Minimum: 8.0mm (0.315 in)



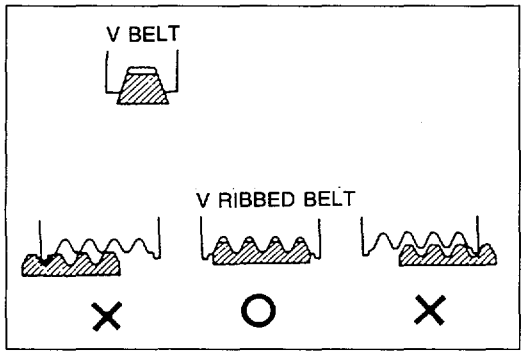
05U0GX-032



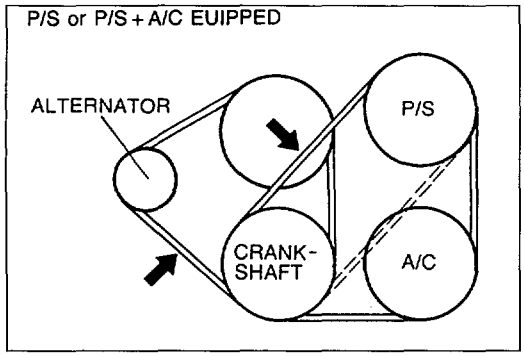
05U0GX-033



05U0GX-034



05U0BX-009



05U0BX-010

Brush Spring

1. Measure the force of the brush spring with a spring pressure gauge.
2. Replace the spring if necessary.

Standard force:
3.1—4.3 N (320—440 g, 11.3—15.5 oz)
Minimum: 1.6—2.4 N (160—240 g, 5.6—8.5 oz)

Note
- **Read the spring pressure gauge at a brush tip projection of 2mm (0.079 in).**

Rectifier

1. Check for continuity of the diodes with an ohmmeter.

Negative (Black)	Positive (Red)	Continuity
E	P1, P2, P3	Yes
B		No
T		No
P1, P2, P3	E	No
	B	Yes
	T	Yes

2. Replace the rectifier if necessary.

DRIVE BELT

Inspection

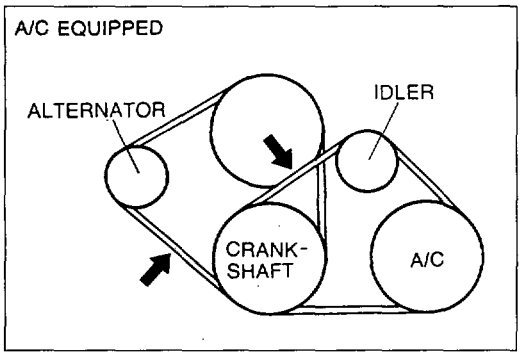
1. Remove the air intake pipe.
2. Check the drive belts for wear, cracks, or fraying. Replace if necessary.
3. Verify that the drive belts are correctly mounted on the pulleys.

4. Check the drive belt deflection by applying moderate pressure **(98 N, 10 kg, 22 lb)** midway between the pulleys as shown in the figure. Adjust if necessary.

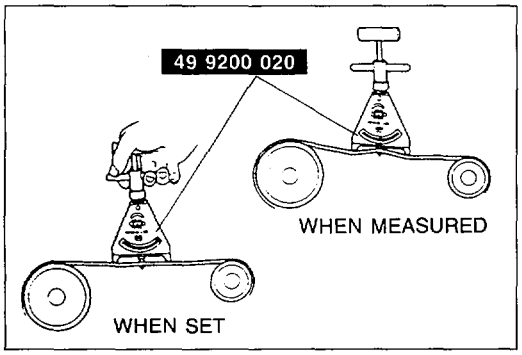
Deflection

mm (in)

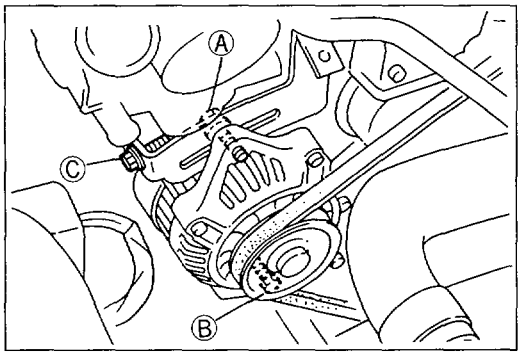
Drive belt	New	Used
Alternator	8.0—9.0 (0.31—0.35)	9.0—10.0 (0.35—0.39)
P/S, P/S + A/C	8.0—9.0 (0.31—0.35)	9.0—10.0 (0.35—0.39)
A/C	8.0—9.0 (0.31—0.35)	9.0—10.0 (0.35—0.39)



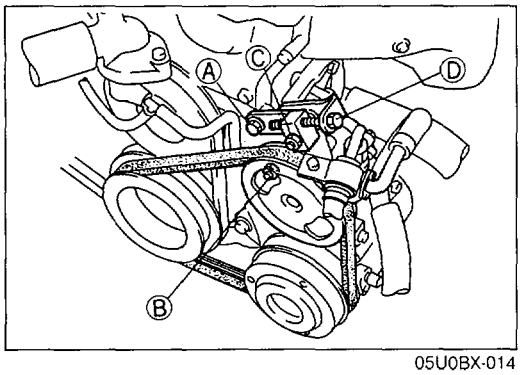
05U0BX-011



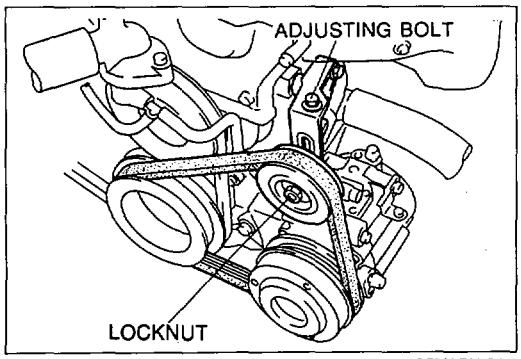
05U0BX-012



05U0BX-013



05U0BX-014



05U0BX-015

5. Check the drive belt tension with a tension gauge.

Note
- **Belt tension can be measured between any pulleys.**

Tension

N (kg, lb)

Drive belt	New	Used
Alternator	491—589 (50—60, 110—132)	422—491 (43—50, 95—110)
P/S, P/S + A/C	491—589 (50—60, 110—132)	422—491 (43—50, 95—110)
A/C	491—589 (50—60, 110—132)	422—491 (43—50, 95—110)

6. Install the air intake pipe.

Adjustment

Caution
- **If a new belt is used, adjust the belt deflection at the midpoint of new belt specification.**

(1) Alternator belt
If necessary, loosen the alternator bolts Ⓐand Ⓑand adjust the belt deflection by turning the adjusting bolt Ⓒ.

Tightening torque
Ⓐ: 19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)
Ⓑ: 37—52 N·m (3.8—5.3 m-kg, 27—38 ft-lb)

(2) P/S belt, P/S + A/C belt
If necessary, loosen the P/S oil pump bolts Ⓐand Ⓑ and nut Ⓒ, and adjust the belt deflection by turning the adjusting bolt Ⓓ.

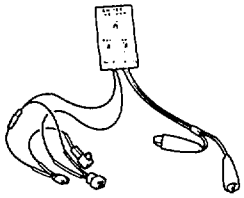
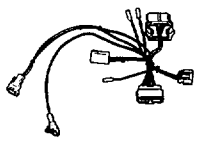
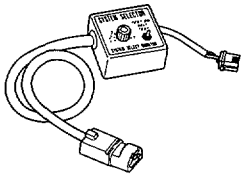
Tightening torque
Ⓐ: 31—46 N·m (3.2—4.7 m-kg, 23—34 ft-lb)
Ⓑ: 36—54 N·m (3.7—5.5 m-kg, 27—40 ft-lb)
Ⓒ: 19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)

(3) A/C belt
If necessary, loosen the locknut and adjust the belt deflection by turning the adjusting bolt.

Tightening torque:
37—52 N·m (3.8—5.3 m-kg, 27—38 ft-lb)

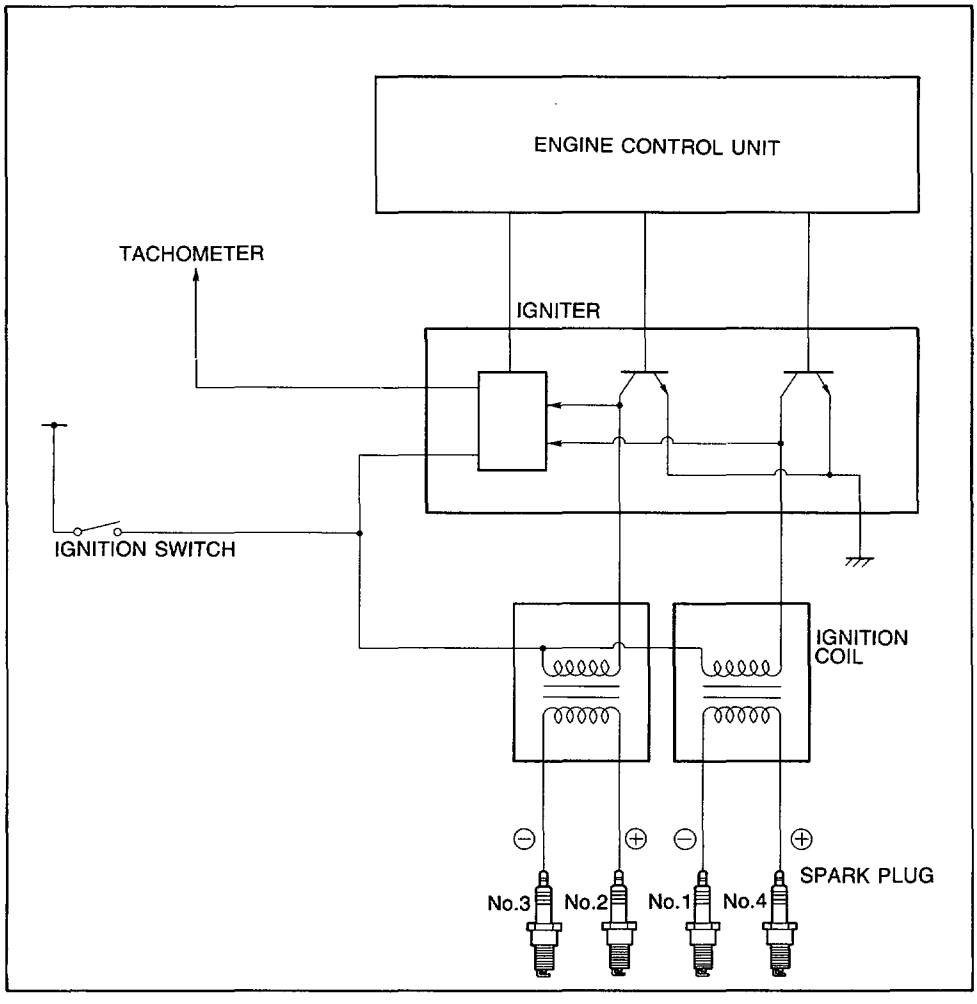
IGNITION SYSTEM

PREPARATION
SST

49 F018 002 Igniter checker 	For inspection of igniter	49 N018 001 Adapter harness 	For inspection of igniter
49 B019 9A0 System selector 	For inspection of ignition timing		

05U0GX-035

CIRCUIT DIAGRAM



15U0GX-006

Note

- **If a timing light is used to check for spark, some lights do not light at Nos.2 and 4 cylinders even if the ignition system is normal.**

TROUBLESHOOTING

Misfire

1. Turn ignition switch ON
2. Connect diagnosis connector terminals (TEN) and (GND) with a jumper wire
3. Check if MIL illuminates

YES → Refer to Section F (Refer to page F–80)

Check 1

NO

Check if resistance of secondary windings is OK (Refer to page G–19)

NO → Check ignition coil (Refer to page G–19)

Check 2

YES

Check if resistance of high-tension lead is OK (Refer to page G–20)

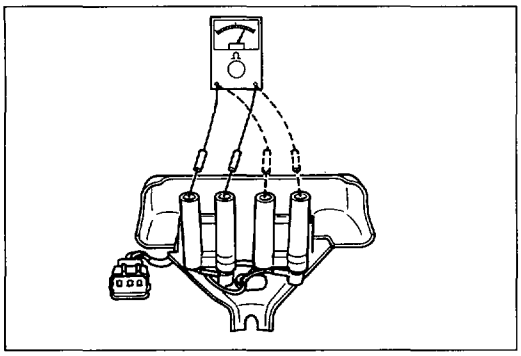
YES → Check spark plug (Refer to page G–18)

NO

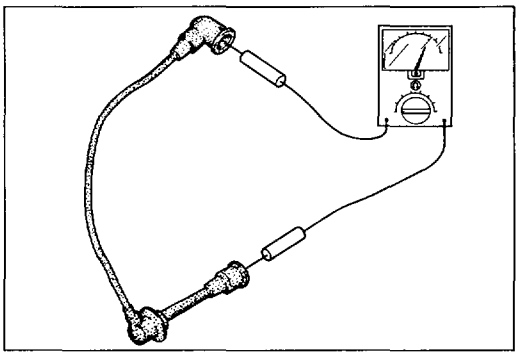
Check high-tension lead (Refer to page G–20)

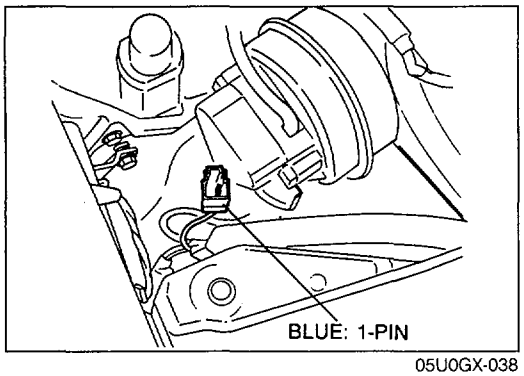
25U0GX-021

Check 1

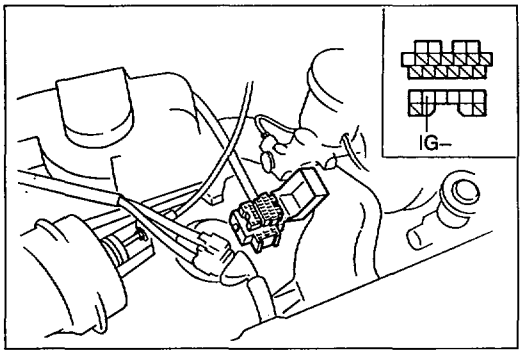


Check 2

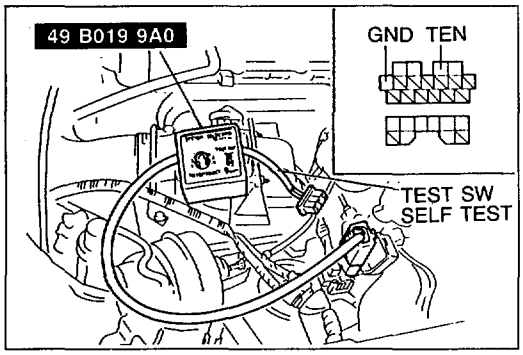




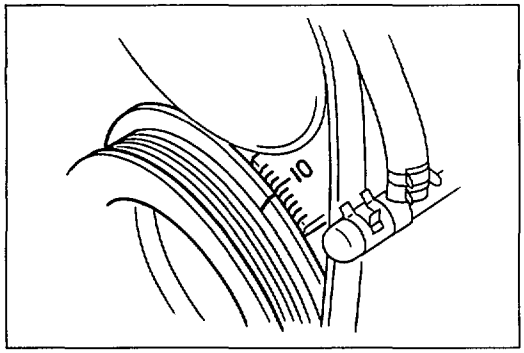
05U0GX-038



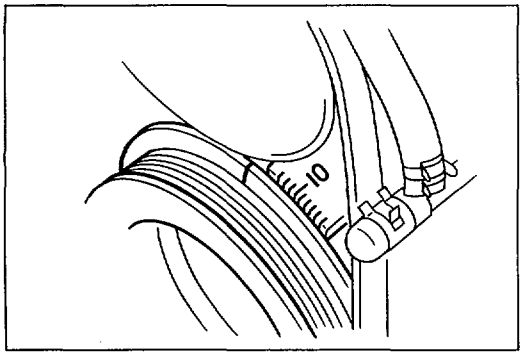
05U0GX-039



25U0GX-013



25U0GX-014



25U0GX-022

IGNITION TIMING

1. Check the condition of the engine (spark plugs, leaks in hoses, etc.).
2. Verify that all accessories are OFF.
3. Warm up the engine to the normal operating temperature.

Note
- **When using an externally powered timing light and/ or tachometer connect it to the power connector (Blue: 1-pin).**

Warning
- **Do not ground the power connector terminal (Blue: 1-pin); the wiper 20A fuse will be burned.**

4. Connect a timing light and tachometer to the diagnosis connector terminal (**IG-**).

Caution
- **Be extremely careful when making connections to the diagnosis connector as a mistaken connection will cause a malfunction.**

5. Connect the **SST** and set TEST SW to "SELF TEST" or connect diagnosis connector terminals (TEN) and (GND) with a jumper wire.
6. Check the idle speed, and set it to specification if necessary.

Idle speed: 800—900 rpm

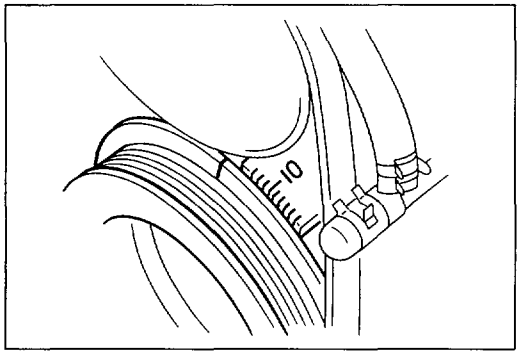
7. Check if the timing mark (Yellow) on the crankshaft pulley and the timing belt cover are aligned.

Ignition timing: 9°—11° BTDC (at idle) [M/T]
7°—9° BTDC (at idle) [4A/T]

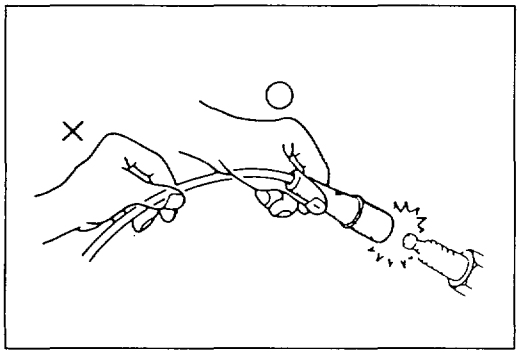
8. If the marks are not aligned, loosen the crank angle sensor lock bolt, and turn the crank angle sensor to make the adjustment.
9. Tighten the crank angle sensor lock bolt to the specified torque.

Tightening torque:
19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)

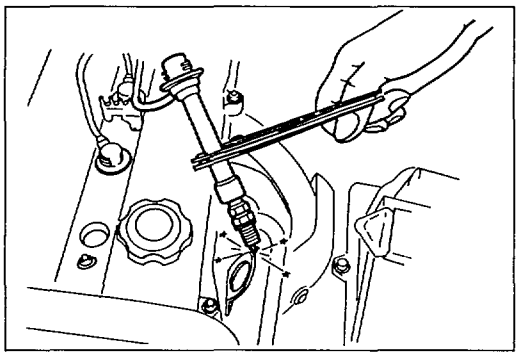
10. After adjusting the ignition timing, disconnect the jumper wire or **SST (System selector)** from the diagnosis connector.



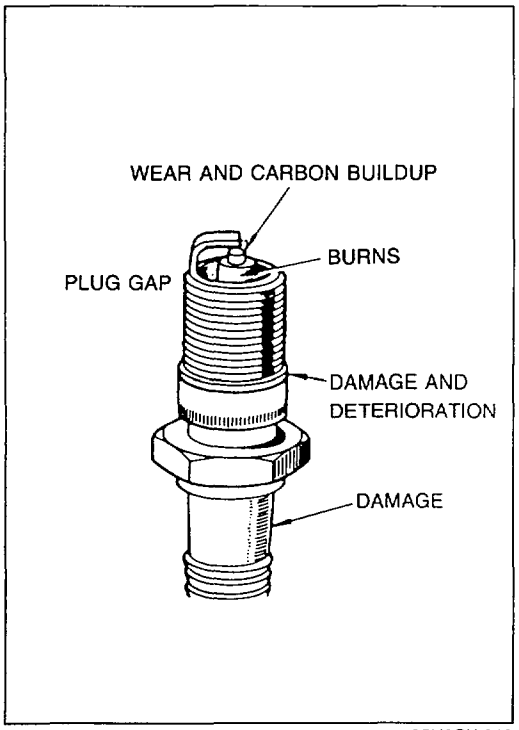
05U0GX-043



05U0GX-044



15U0GX-008



05U0GX-046

11. Increase the engine speed and verify that the ignition timing advances.

SPARK PLUG

Removal / Installation

Note the following points:

1. When the high-tension lead is to be pulled off, be sure to pull on the boot, not the wire.
2. Apply anti-seize compound or molybdenum-based lubricant to the spark plug threads before installing.
3. Tighten the spark plugs to the specified torque.

Tightening torque:
15—23 N·m (1.5—2.3 m-kg, 11—17 ft-lb)

Spark Test

1. Disconnect the high-tension lead from the spark plug.
2. Connect a new spark plug to the high-tension lead.
3. Hold with insulated pliers **approx. 5—10mm (0.20—0.39 in)** from a ground.
4. Crank the engine and verify that a strong blue spark is visible.

Note

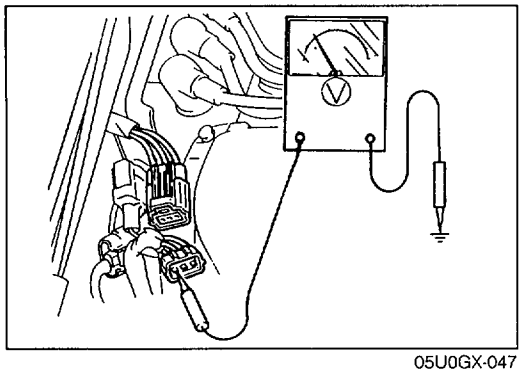
- **If a timing light is used to check for spark, some lights do not light at Nos.2 and 4 cylinders even if the ignition system is normal.**

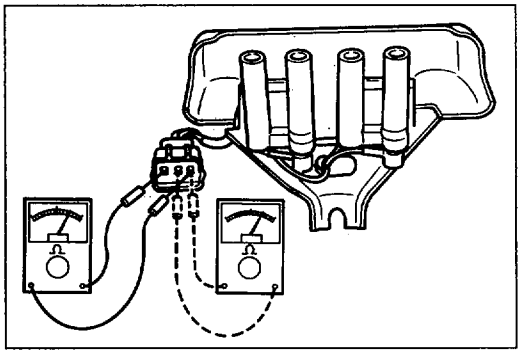
Inspection

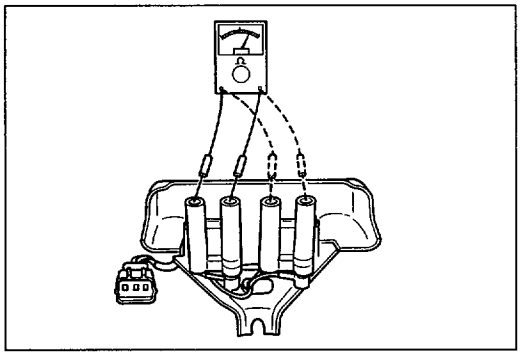
Check the following and replace the spark plugs as necessary.

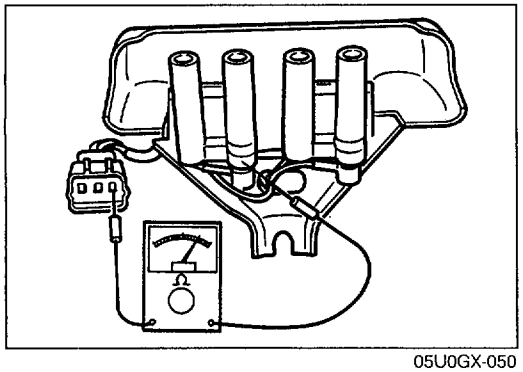
1. Damaged insulation.
2. Worn electrodes.
3. Carbon deposits.
   If cleaning is necessary, use a plug cleaner or a wire brush.
   Wipe upper insulator.
4. Damaged gasket.

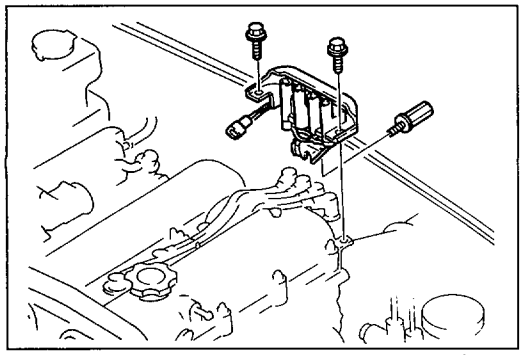
Plug gap: 1.0—1.1mm (0.039—0.043 in)


05U0GX-047


05U0GX-048


05U0GX-049


05U0GX-050


05U0GX-051

IGNITION COIL

Inspection

1. Disconnect the ignition coil connector.
2. Check for voltage at the positive (+) terminal of the ignition coil connector with the ignition switch in the ON position.

   Voltage: Approx. 12V

3. If there is no voltage check the main fuse, ignition switch, and wire harness.

Primary coil winding

Measure resistance of the primary coil winding of each coil with an ohmmeter.
If not within specification, replace the coil.

Primary coil winding resistance (at 20°C [68°F]): 0.78—0.94Ω

Secondary coil winding

Measure resistance of the secondary coil winding of each coil with an ohmmeter.
If not within specification, replace the coil.

Secondary coil winding resistance (at 20°C [68°F]): 11.2—15.2 kΩ

Installation of Case

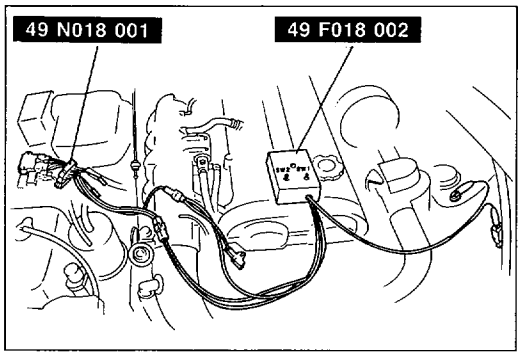
Use a **500V megger** tester to measure the insulation resistance between the primary terminal and the coil case.

Resistance : 10 MΩ min.

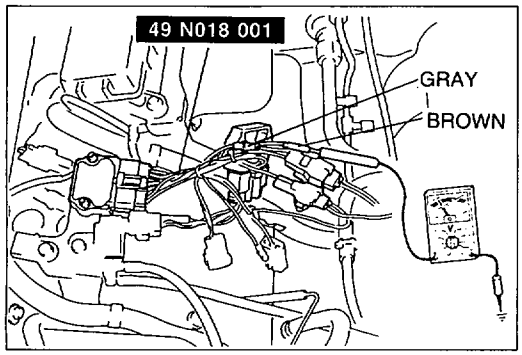
Replacement

1. Disconnect the high tension-leads and ignition coil connector.
2. Remove the installation bolts and the ignition coil.
3. Install in the reverse order of removal.

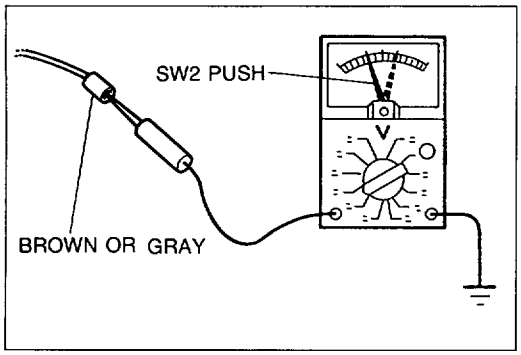
Tightening torque:
19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)



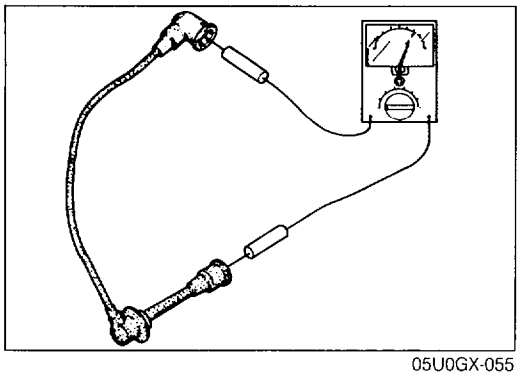
05U0GX-052



05U0GX-053



05U0GX-054


05U0GX-055

IGNITER

Inspection

1. Disconnect the igniter connector.

Warning

- **Do not ground the power connector terminal (Blue: 1-pin), the wiper 20A fuse will be burned.**

2. Connect the **SST** between the igniter and igniter connector as shown.
3. Connect the **SST** to the power connector (Blue: 1-pin).
4. Connect a voltmeter between the **SST** (brown wire) and a ground.
5. Turn the ignition switch ON.
6. Verify that there is **approx. 12V** at the terminal. If not as specified, check related wiring.

Caution

- **Do not activate the SW2 switch for more than 1 sec.**

7. Push the **SW2** switch on the **SST** while observing the ohmmeter.
8. Verify that the voltmeter indicates **approx. 8V**.
9. If not as specified, replace the igniter.
10. Disconnect the voltmeter from the brown wire and connect it to the **SST** gray wire.
11. Repeat Steps 5 through 9.

HIGH-TENSION LEAD

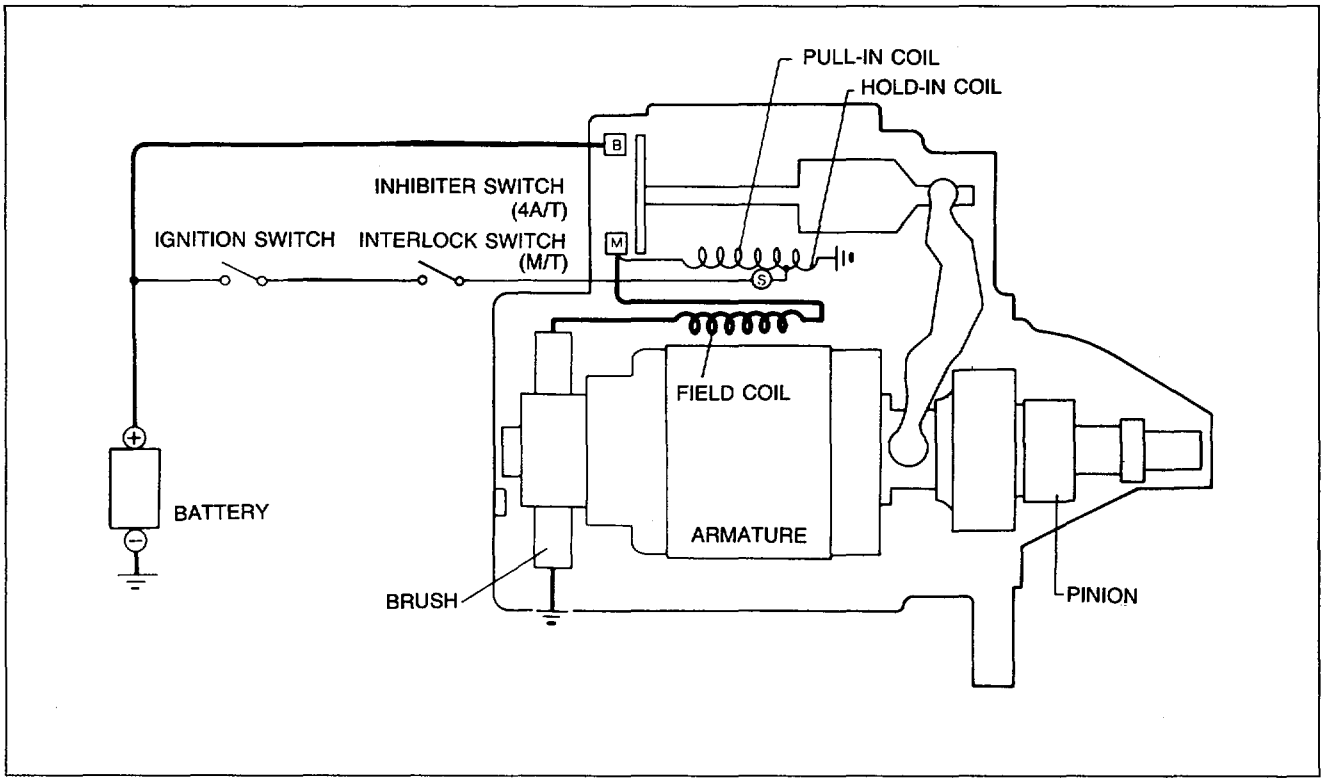
Inspection

Use an ohmmeter to measure the resistance of each lead.

Resistance: 16 kΩ per 1 m (3.28 ft)

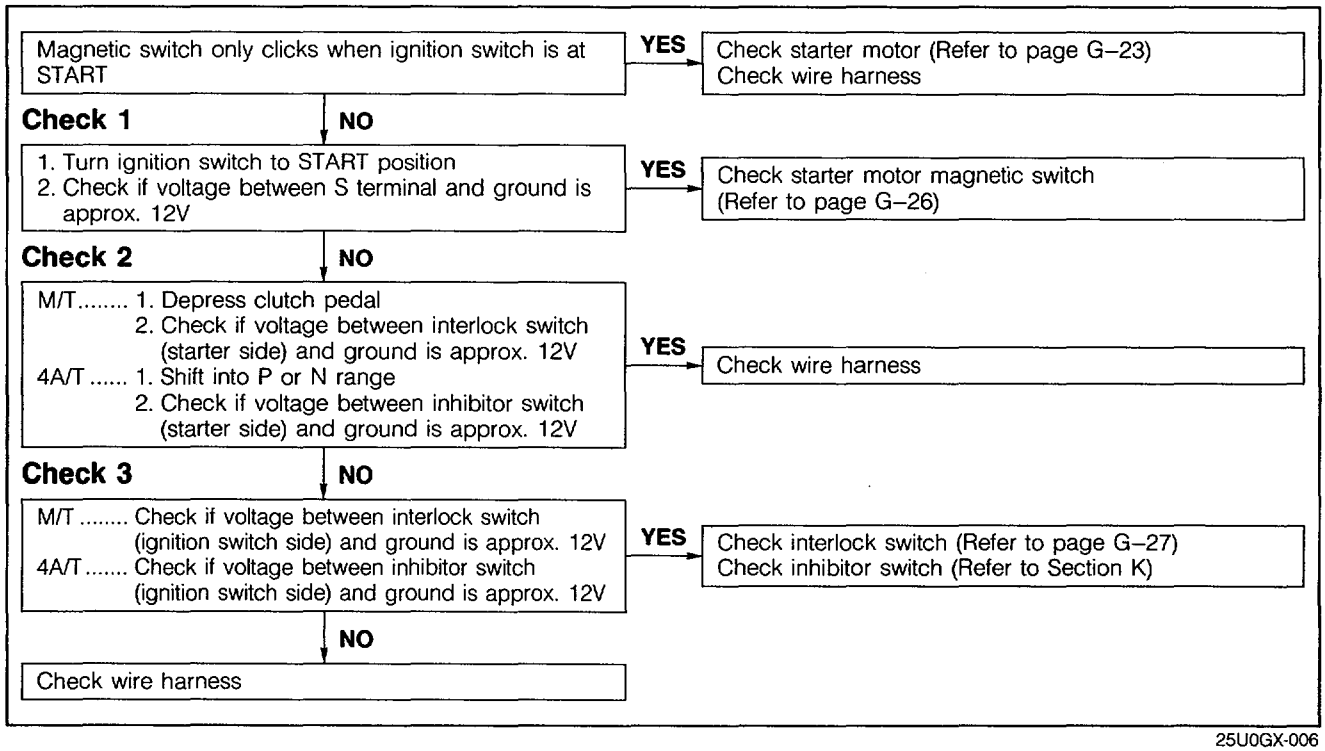
STARTING SYSTEM

CIRCUIT DIAGRAM



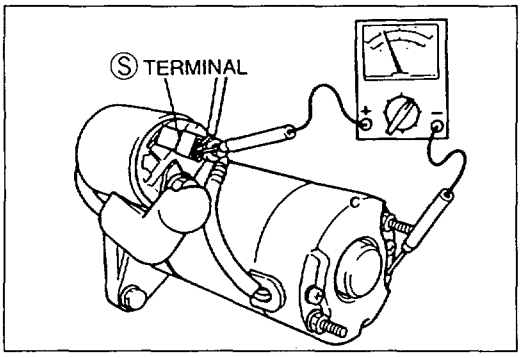
05U0GX-056

TROUBLESHOOTING

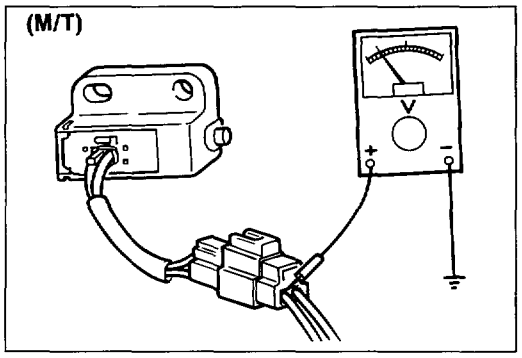


25U0GX-006

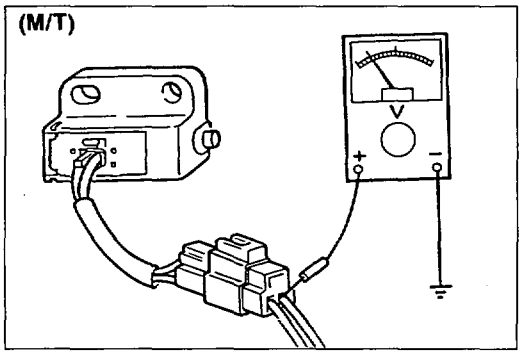
Check 1

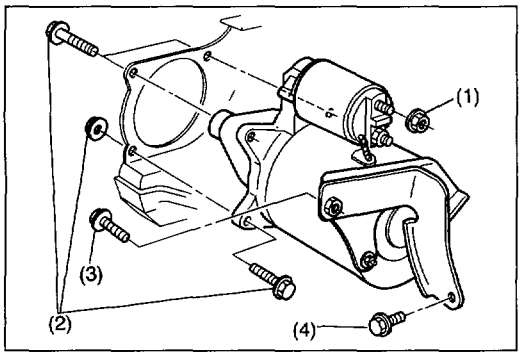


Check 2



Check 3





25U0GX-015

STARTER

Caution

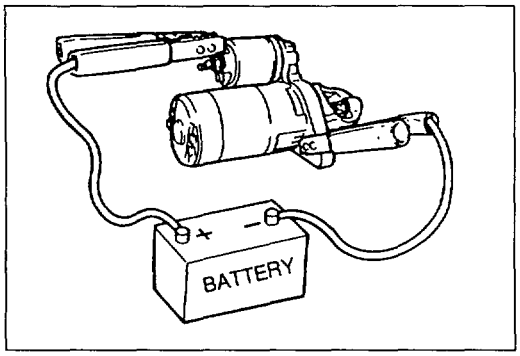
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

Removal / Installation

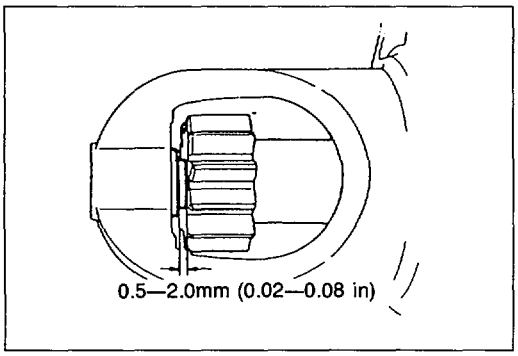
1. Disconnect the negative battery cable.
2. Disconnect the wiring from the starter.
3. Remove the starter bracket.
4. Raise the front of the vehicle and support it with safety stands.
5. Remove the bolts and the starter.
6. Install in the reverse order of removal.

Tightening torque

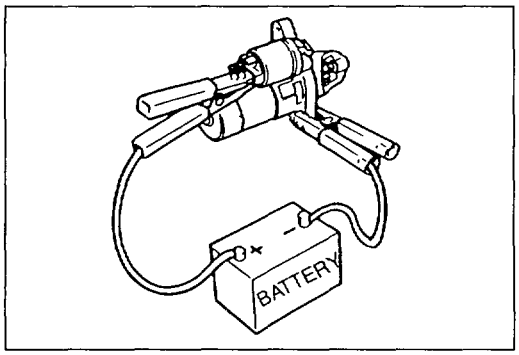
Nut (1):
10—12 N·m (105—120 cm-kg, 91—104 in-lb)
Bolt, Nut (2):
37—52 N·m (3.8—5.3 m-kg, 27—38 ft-lb)
Bolt (3): 16—23 N·m (1.6—2.3 m-kg, 5.0—7.2 ft-lb)
Bolt (4): 37—52 N·m (3.8—5.3 m-kg, 27—38 ft-lb)



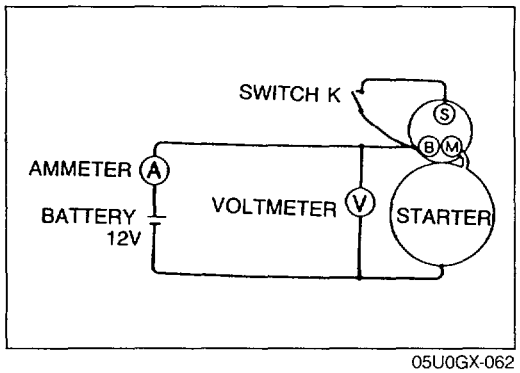
25U0GX-007



05U0GX-060



25U0GX-008



05U0GX-062

Performance Inspection

Pull-out test

Verify that the pinion is pulled out with battery voltage connected to the S terminal and the starter body grounded.

Pinion gap check

Measure the pinion gap while the pinion is pulled out.

Specification: 0.5—2.0mm (0.02—0.08 in)

Adjust the pinion gap with an adjustment washer (between drive housing front cover and magnetic switch) if it is not within specification.

Return test

1. Disconnect the motor wire from the M terminal.
2. Connect battery voltage to the M terminal and ground to the body.
3. Pull out the overrunning clutch with a screwdriver. Verify that it returns to its original position when released.

No-load test

1. After adjusting the pinion gap, form a test circuit with a voltmeter and an ammeter.

Note

- **Use heavy gauge wires and tighten each terminal fully.**

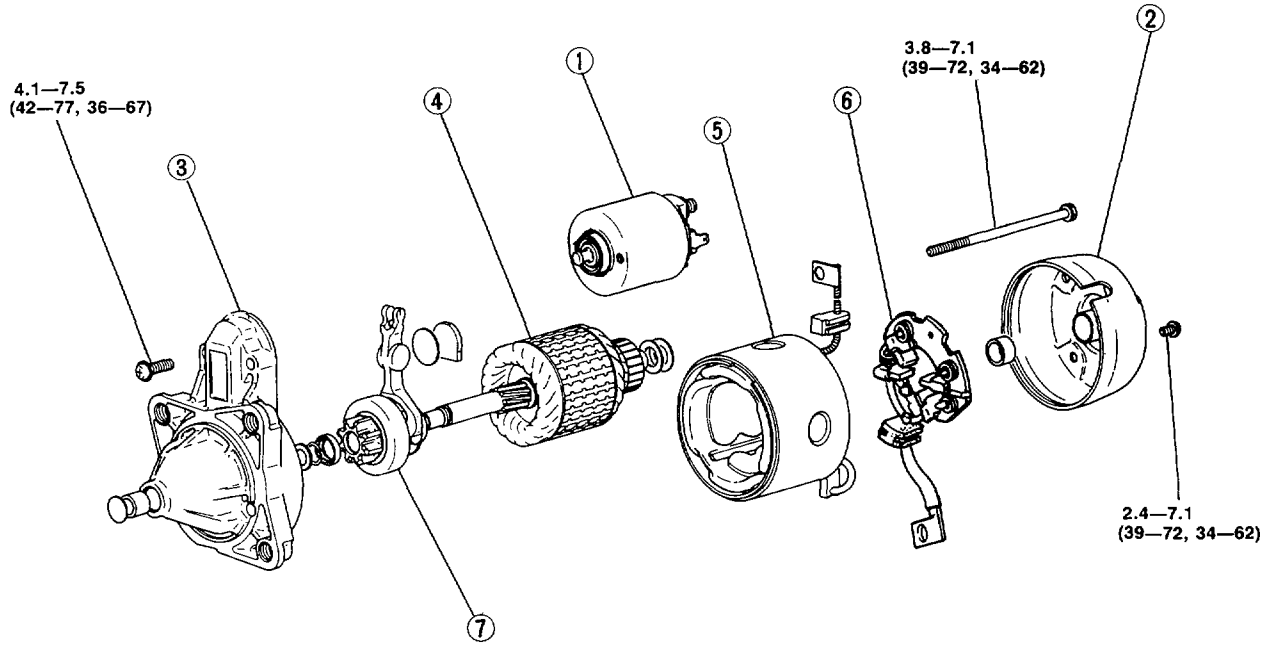
2. Close switch K to run the starter.
3. Check for the following:

Starter type	kW	0.95
Voltage	V	11.5
Current	A	Max. 60
Gear shaft speed	rpm	Min. 6,600

4. If not as specified, check for the cause by referring to Inspection.

Disassembly / Assembly

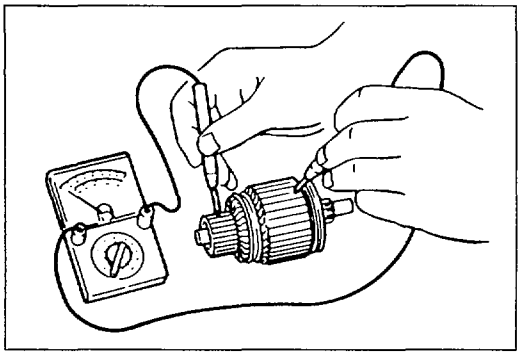
1. Disassemble in the order shown in the figure.
2. Inspect and repair or replace parts as necessary.
3. Assemble in the reverse order of disassembly.



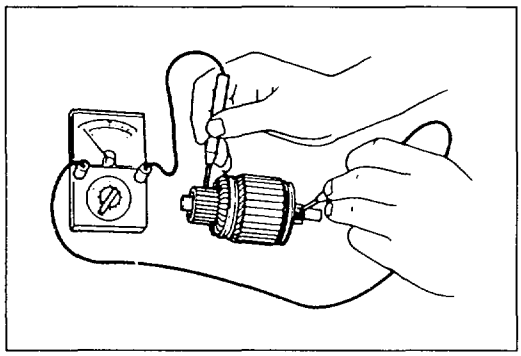
N·m (cm-kg, in-lb)

25U0GX-023

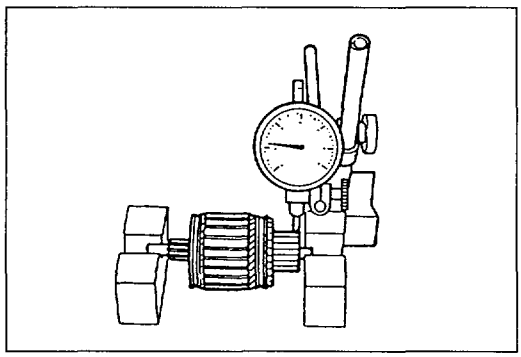
1. Magnetic switch
   Inspection..... page G–26
2. Rear housing
3. Front cover
4. Armature
   Inspection..... page G–25
5. Yoke assembly
   Inspection..... page G–26
6. Brush holder assembly
   Inspection..... page G–26
7. Drive pinion


05U0GX-064

Inspection
Armature
1. Ground of armature coil
   Check for no continuity between the commutator and the core with an ohmmeter. Check the entire circumference of the commutator. Replace the armature if there is continuity.

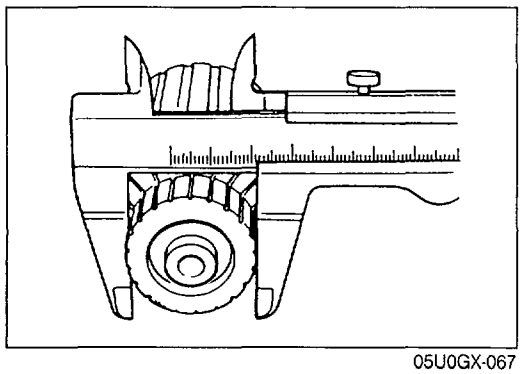

05U0GX-065

2. Insulation of armature coil
   Check for no continuity between the commutator and the shaft with an ohmmeter. Check the entire circumference of the commutator. Replace the armature if there is continuity.


05U0GX-066

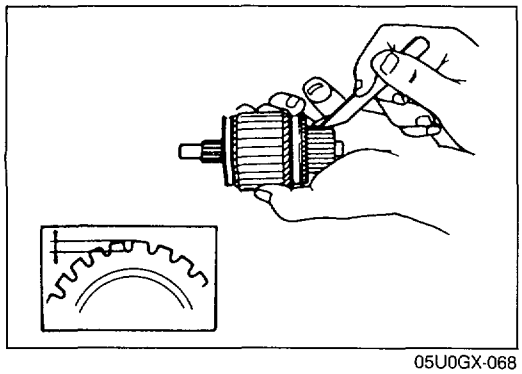
3. Runout of commutator
   (1) Place the armature on V blocks, and measure the runout with a dial gauge.
   (2) Repair with a lathe if the runout is small or replace the armature if necessary.

   Runout: 0.03mm (0.001 in)


05U0GX-067

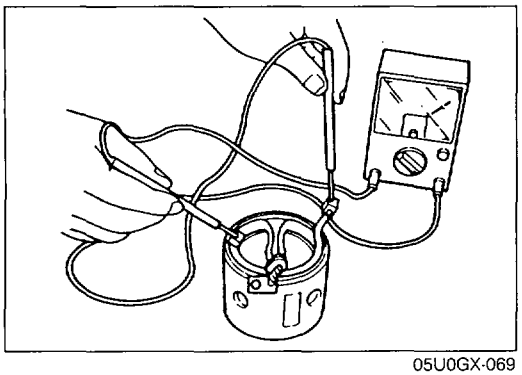
4. Outer diameter of commutator
   Replace the armature if the outer diameter of the commutator is at the grind limit or less.
5. Roughness of commutator surface
   If the commutator surface is dirty, wipe it with a cloth; if it is rough, repair it with a lathe or fine sandpaper.

   Grind limit: 30.8mm (1.21 in)


05U0GX-068

6. Segment groove depth
   If the depth of the molding between segments is at the depth limit or less, undercut the grooves to the standard depth.

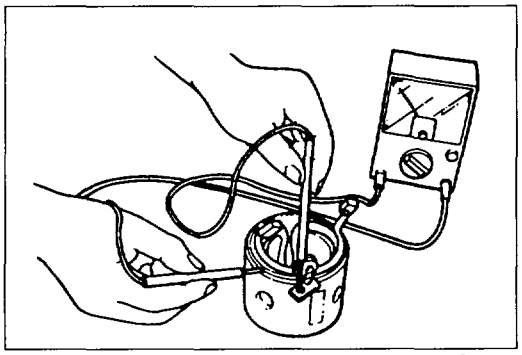
   Standard depth: 0.5—0.8mm (0.020—0.031 in)
   Depth limit: 0.2mm (0.008 in)



05U0GX-069

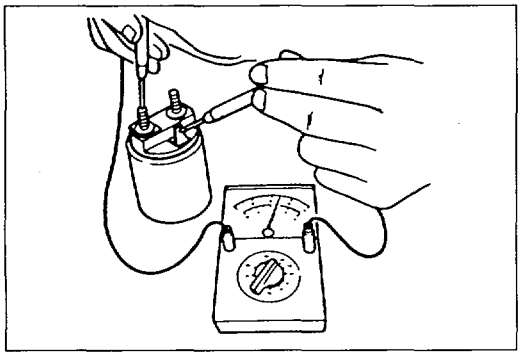
Yoke assembly

1. Wiring damage of field coil
   (1) Check for continuity between the connector and the brushes with an ohmmeter.
   (2) Replace the yoke assembly if there is no continuity.



05U0GX-070

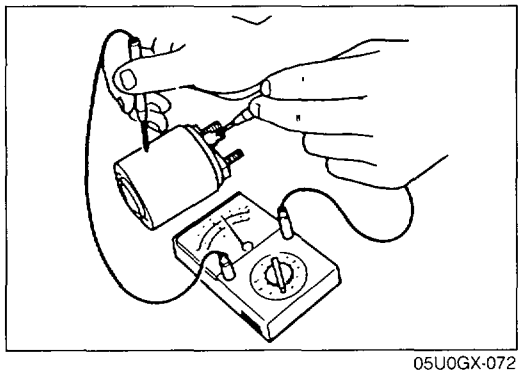
2. Ground of field coil
   (1) Check for no continuity between the connector and the yoke with an ohmmeter.
   (2) Repair or replace the yoke assembly if there is continuity.
3. Installation of field coil
   Replace the yoke assembly if the field coil is loose.



05U0GX-071

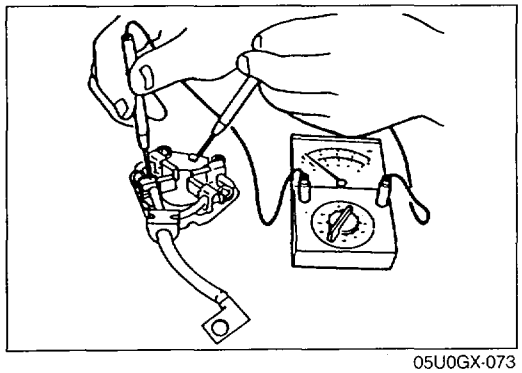
Magnetic Switch

1. Wiring damage (S terminal — M terminal)
   Check for continuity between terminal S and terminal M with an ohmmeter. Replace the magnetic switch if there is no continuity.



05U0GX-072

2. Wiring damage (S terminal — body)
   Check for continuity between terminal S and the body with an ohmmeter.
   Replace the magnetic switch if there is no continuity.

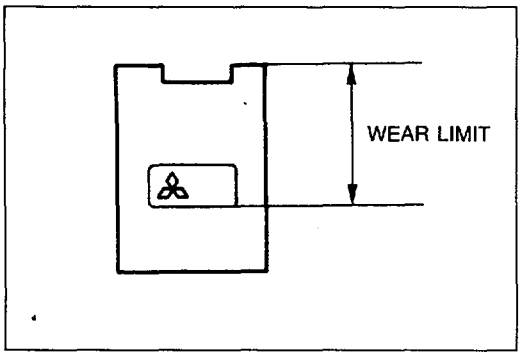


05U0GX-073

Brush and Brush Holder

Insulation of brush holder

Check for no continuity between each insulated brush and the plate with an ohmmeter. Replace the brush holder if there is continuity.



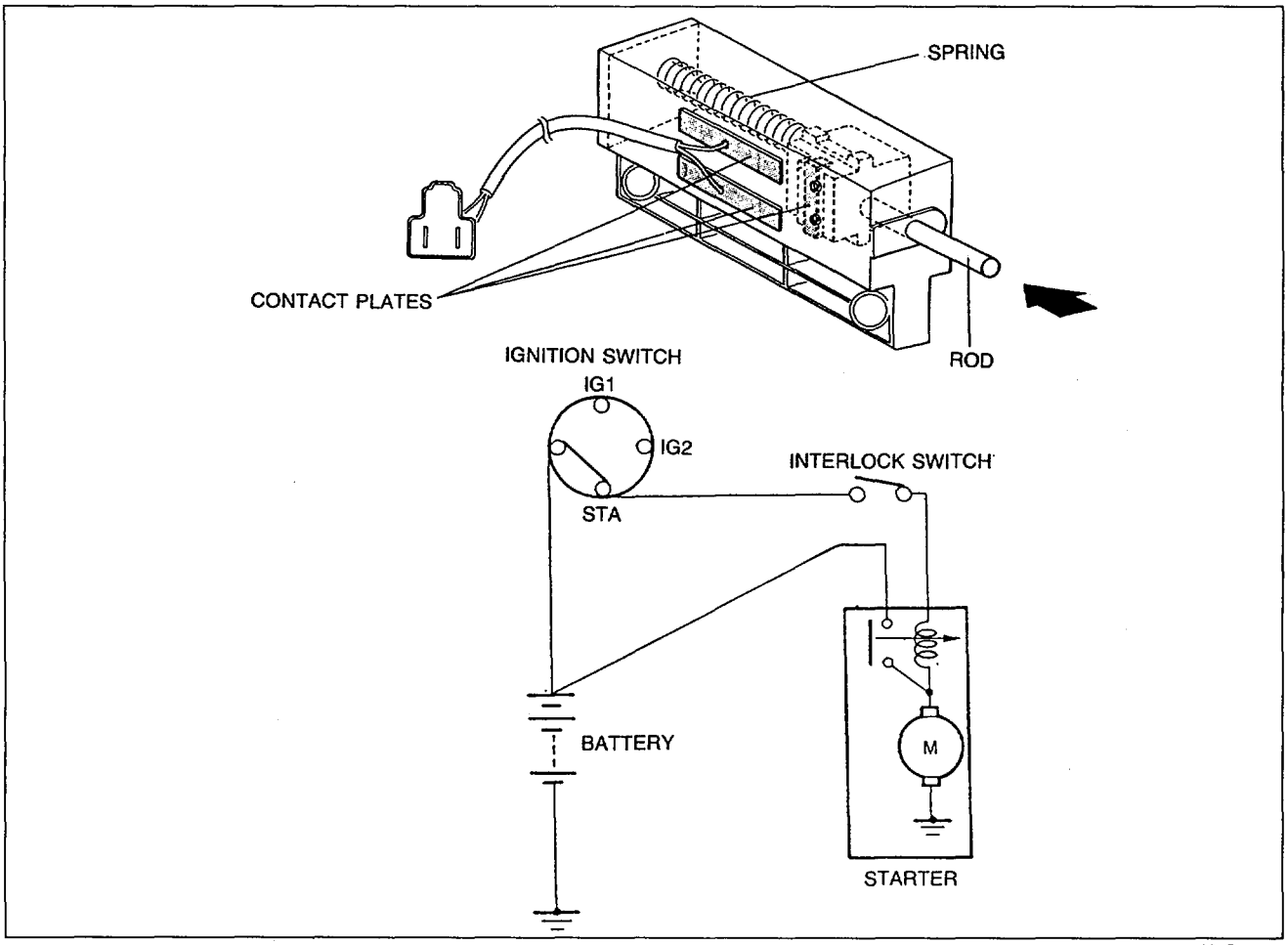
05U0GX-077

Brush

If the brushes are worn beyond the wear limit or if the wear is near the limit, replace the brushes.

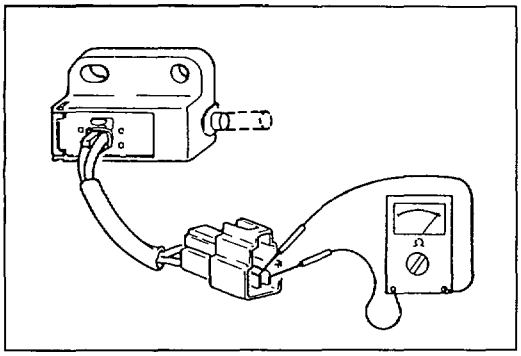
Standard: 17mm (0.67 in)
Wear limit: 11.5mm (0.45 in)

STARTER INTERLOCK SWITCH (M/T)



15U0GX-012

The clutch pedal must be depressed during starting for battery power to be supplied to the starter.



05U0GX-075

Inspection

1. Disconnect the interlock switch connector.
2. Check continuity of the switch with an ohmmeter.

Pedal	Continuity
Depressed	Yes
Released	No

3. If not as specified, replace the interlock switch.

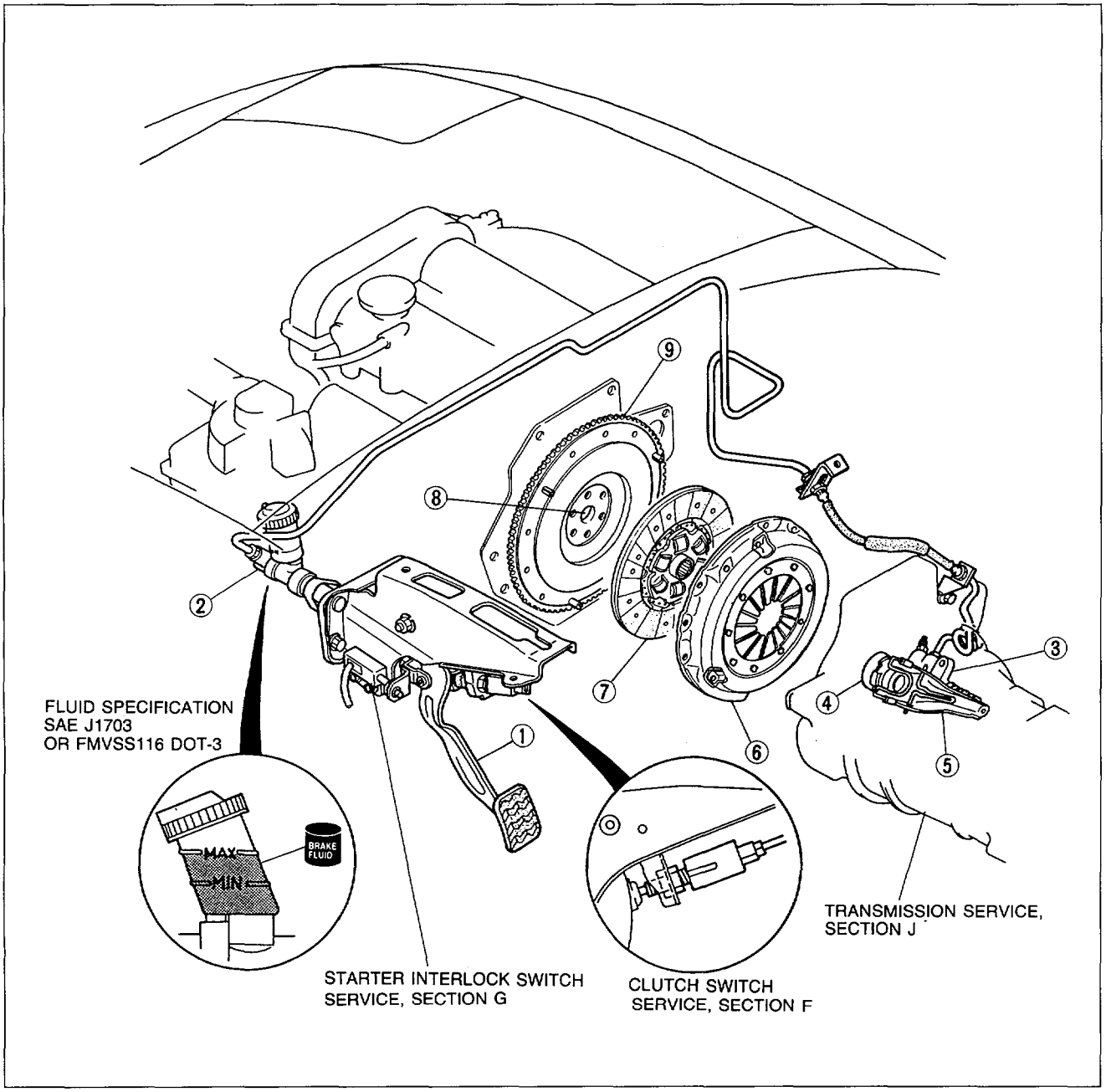
Before beginning any service procedure, refer to Section T of this manual for airbag system warnings and cautions.

CLUTCH

INDEX ..... **H– 2**
OUTLINE ..... **H– 3**
SPECIFICATIONS ..... **H– 3**
TROUBLESHOOTING GUIDE ..... **H– 3**
CLUTCH FLUID ..... **H– 4**
PREPARATION ..... **H– 4**
REPLACEMENT ..... **H– 4**
CLUTCH PEDAL ..... **H– 5**
ADJUSTMENT ..... **H– 5**
REMOVAL / INSPECTION / INSTALLATION .. **H– 6**
CLUTCH MASTER CYLINDER ..... **H– 7**
PREPARATION ..... **H– 7**
REMOVAL / INSTALLATION ..... **H– 8**
AIR BLEEDING ..... **H– 9**
OVERHAUL **H–10**
CLUTCH RELEASE CYLINDER **H–12**
PREPARATION **H–12**
REMOVAL / INSTALLATION **H–12**
AIR BLEEDING (REFER TO PAGE H–9.)
OVERHAUL **H–13**
CLUTCH UNIT **H–14**
PREPARATION **H–14**
REMOVAL / INSTALLATION **H–14**
RELEASE BEARING **H–17**
INSPECTION **H–17**
CLUTCH COVER **H–17**
INSPECTION **H–17**
CLUTCH DISC **H–17**
INSPECTION **H–17**
PILOT BEARING **H–18**
INSPECTION **H–18**
FLYWHEEL **H–18**
INSPECTION **H–18**

25U0HX-002

INDEX



05U0HX-002

1. Clutch pedal
Adjustment..... page H– 5
Removal / Inspection / Installation ..... page H– 6
2. Clutch master cylinder
Removal / Installation ..... page H– 8
Overhaul..... page H–10
Air bleeding..... page H– 9
3. Clutch release cylinder
Removal / Installation ..... page H–12
Overhaul..... page H–13
Air bleeding..... page H– 9
4. Release bearing
Removal / Installation ..... page H–14
Inspection..... page H–17
5. Release fork
Removal / Installation ..... page H–14
6. Clutch cover
Removal / Installation ..... page H–14
Inspection..... page H–17
7. Clutch disc
Removal / Installation ..... page H–14
Inspection..... page H–17
8. Pilot bearing
Removal / Installation ..... page H–14
Inspection..... page H–18
9. Flywheel
Removal / Installation ..... page H–14
Inspection..... page H–18

OUTLINE

SPECIFICATIONS

Item \ Engine/Transmission			B6 DOHC M5M-D
Clutch control			Hydraulic
Clutch cover	Type		Diaphragm spring
	Set load N (kg, lb)		4,022 (410, 902)
Clutch disc	Outer diameter mm (in)		200 (7.87)
	Inner diameter mm (in)		130 (5.12)
	Thickness	Pressure plate side mm (in)	3.5 (0.14)
		Flywheel side mm (in)	3.5 (0.14)
Clutch pedal	Type		Suspended
	Pedal ratio		6.13
	Full stroke mm (in)		120 (4.72)
	Height mm (in)		175—185 (6.89—7.28)
Master cylinder inner diameter mm (in)			15.87 (0.625)
Release cylinder inner diameter mm (in)			19.05 (0.750)
Clutch fluid			SAE J1703 or FMVSS116 DOT-3

05U0HX-003

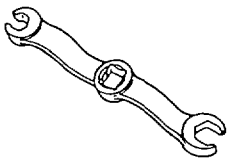
TROUBLESHOOTING GUIDE

Problem	Possible Cause	Action	Page
Slipping	Clutch disc facing worn excessively	Replace	H–14
	Clutch disc facing surface hardened or oil on surface	Repair or replace	H–14
	Pressure plate damaged	Repair or replace	H–14
	Diaphragm spring damaged or weak	Replace	H–14
	Insufficient clutch pedal play	Adjust	H– 5
	Clutch pedal sticking	Repair or replace	H– 6
	Flywheel damaged	Repair or replace	H–14
Faulty disengagement	Excessive runout or damaged clutch disc	Replace	H–14
	Clutch disc splines rusted or worn	Remove rust or replace	H–14
	Oil on facing	Repair or replace	H–14
	Diaphragm spring weak	Replace	H–14
	Excessive clutch pedal play	Adjust	H– 5
	Insufficient clutch fluid	Add fluid	H– 2
	Leakage of clutch fluid	Locate and repair or replace	—
Clutch vibrates when accelerating	Oil on facing	Repair or replace	H–14
	Torsion rubbers weak	Replace	H–14
	Clutch disc facing hardened or damaged	Repair or replace	H–14
	Clutch disc facing rivets loose	Replace	H–14
	Pressure plate damaged or excessive runout	Replace	H–14
	Flywheel surface hardened or damaged	Repair or replace	H–14
	Loose or worn engine mount	Tighten or replace	—
Clutch pedal sticking	Pedal shaft not properly lubricated	Lubricate or replace	H– 6
Abnormal noise	Clutch release bearing damaged	Replace	H–14
	Poor lubrication of release bearing sleeve	Lubricate or replace	H–14
	Torsion rubbers weak	Replace	H–14
	Excessive crankshaft end play	Repair	Refer to Section B
	Pilot bearing worn or damaged	Replace	H–14
	Worn pivot points of release fork	Repair or replace	H–14

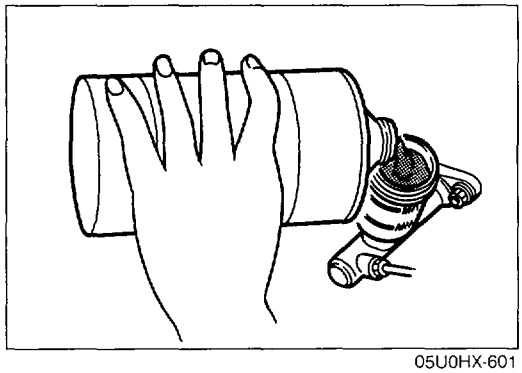
15U0HX-001

CLUTCH FLUID

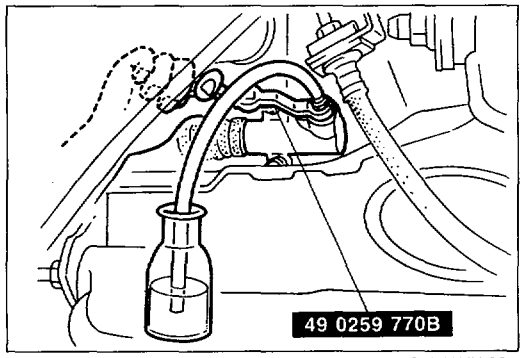
PREPARATION

49 0259 770B Wrench, flare nut		For loosening and tightening bleeder screw

05U0HX-005



05U0HX-601



9MU0HX-007

REPLACEMENT

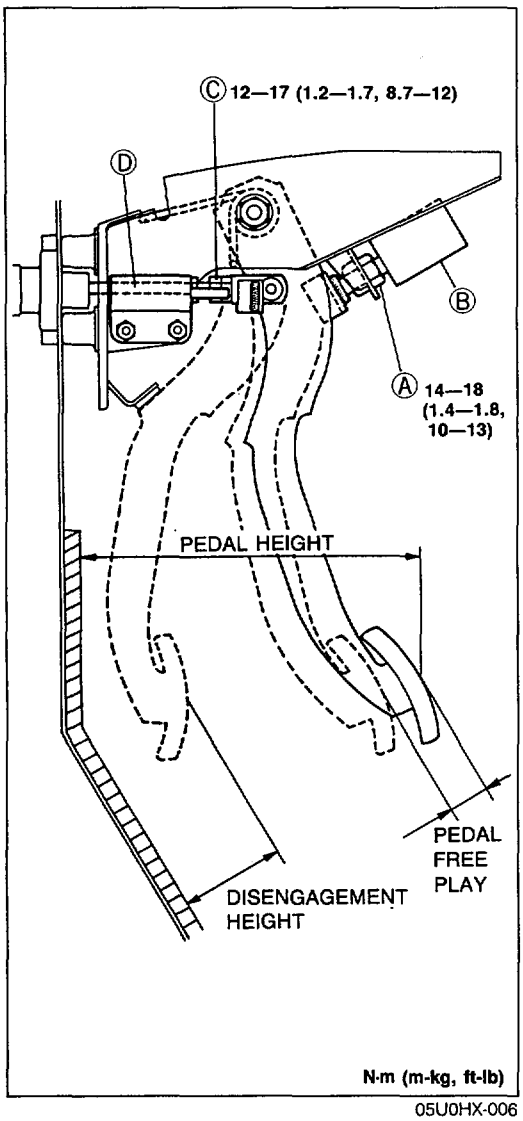
Note
- **The fluid in the reservoir must be maintained at the 3/4 level or higher during replacement.**

Caution
- **Be careful not to spill clutch fluid on a painted surface. If this should happen, wash it off immediately.**
- **Do not mix different brands of clutch fluid.**
- **Do not reuse the clutch fluid which was drained out.**

1. Draw the fluid from the reserve tank with a suction pump.
2. Remove the bleeder cap from the clutch release cylinder and attach a vinyl hose to the bleeder plug.
3. Place the other end of the vinyl hose in a container.
4. Slowly pump the clutch pedal several times.
5. With the clutch pedal depressed, loosen the bleeder screw with the **SST** to let fluid escape. Close the bleeder screw with the **SST**.
6. Repeat Steps 4 and 5 until only clean fluid is seen.
7. Tighten the bleeder screw.

Tightening torque:
5.9—8.8 N·m (60—90 cm-kg, 52—78 in-lb)

8. Add fluid to the MAX mark.
9. Check for correct clutch operation.



05U0HX-006

CLUTCH PEDAL

ADJUSTMENT

Clutch Pedal Height

Inspection

Measure the distance from the upper surface of the pedal pad to the carpet.

Pedal height: 175—185mm (6.89—7.28 in) (With carpet)

If necessary, adjust the pedal height.

Adjustment

1. Loosen locknut Ⓐ and turn clutch switch Ⓑ until the height is correct.
2. Tighten locknut Ⓐ.

Tightening torque: 14—18 N·m (1.4—1.8 m-kg, 10—13 ft-lb)

3. After adjustment, inspect the pedal free play.

Clutch Pedal Free Play

Inspection

Depress the clutch pedal by hand until clutch resistance is felt.

Pedal free play: 0.6—3.1mm (0.02—0.12 in)
Total pedal free play: 5—13mm (0.20—0.51 in)

If necessary, adjust the pedal free play.

Adjustment

1. Loosen locknut Ⓒ and turn push rod Ⓓ until pedal free play is correct.
2. Verify that the disengagement height as measured from the upper surface of the pedal to the carpet is correct when the pedal is fully depressed.

Minimum disengagement height: 68mm (2.68 in) (With carpet)

3. Tighten locknut Ⓒ.

Tightening torque: 12—17 N·m (1.2—1.7 m-kg, 8.7—12 ft-lb)

4. After adjustment, inspect the pedal height.

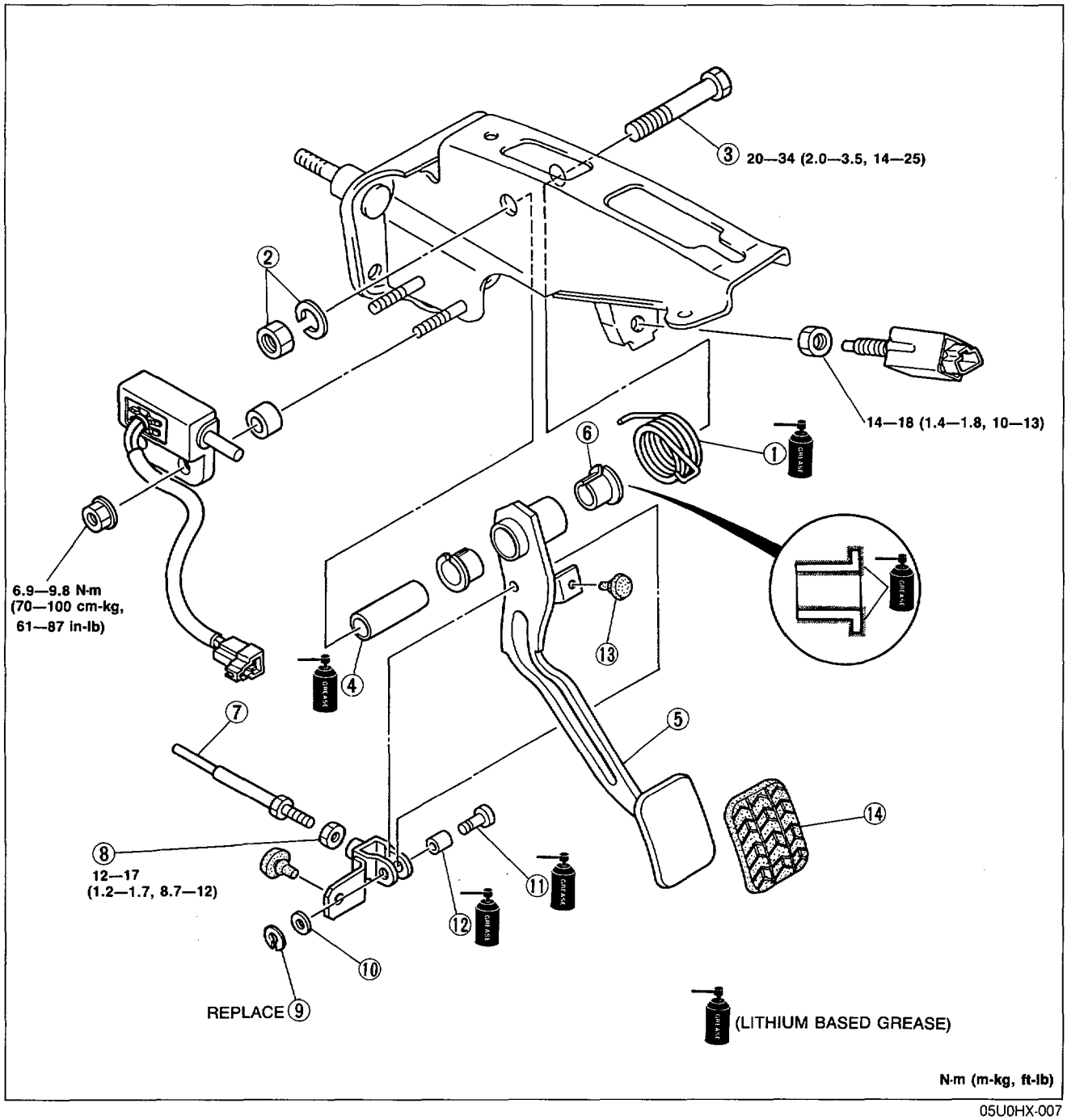
REMOVAL / INSPECTION / INSTALLATION

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Inspect all parts and repair or replace as necessary.

Note

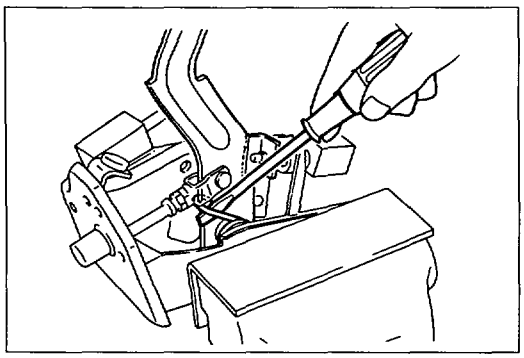
- **Apply lithium based grease to the bushings and pin when installing.**

3. Install in the reverse order of removal, referring to **Installation Note**.

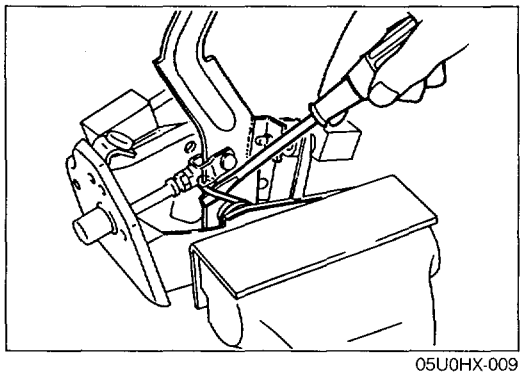


05U0HX-007

1. Spring
   Removal Note.... page H–7
   Installation Note. page H–7
2. Nut and lock washer
3. Bolt
4. Spacer
5. Clutch pedal
6. Bushings
7. Push rod
   Inspect for damage and bending
8. Nut
9. Clip
10. Wave washer
11. Pin
12. Spacer
13. Stop
14. Pedal pad



05U0HX-008



05U0HX-009

Removal Note
Spring

Note
- **Use pads in the vise to prevent damaging the clutch master cylinder bracket.**

1. Place the clutch pedal assembly in the vise.
2. Pry the spring off the clutch pedal as shown in the figure.

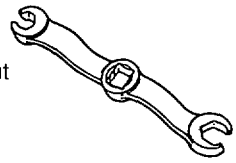
Installation Note
Spring

Note
- **Use pads in the vise to prevent damaging the clutch master cylinder bracket.**

1. Place the clutch pedal assembly in the vise.
2. Pry the spring on the clutch pedal as shown in the figure.
3. Adjust the clutch pedal height and free play after installation. (Refer to page H–5.)

CLUTCH MASTER CYLINDER

PREPARATION
SST

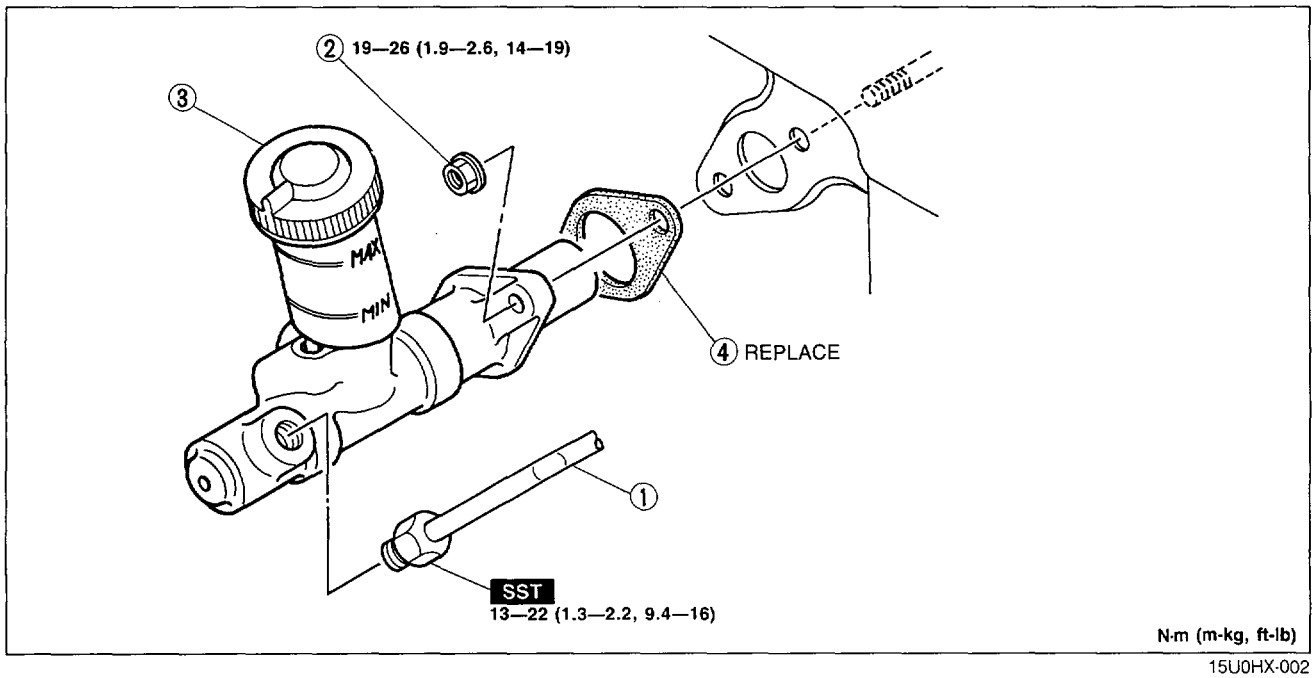
49 0259 770B Wrench, flare nut		For disconnecting and connecting clutch pipe

05U0HX-010

REMOVAL / INSTALLATION

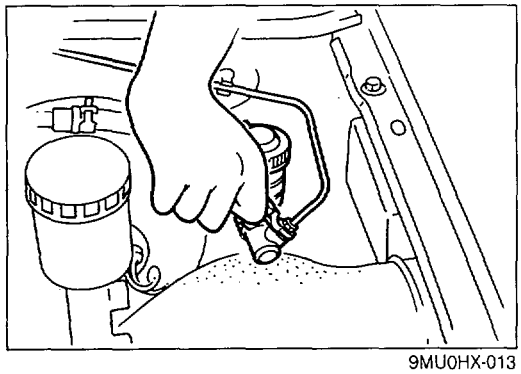
Caution
- **Clutch fluid will damage painted surfaces. Be sure to use a container or rags to collect it. If fluid does get on a painted surface, wipe it off immediately with a rag.**

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.

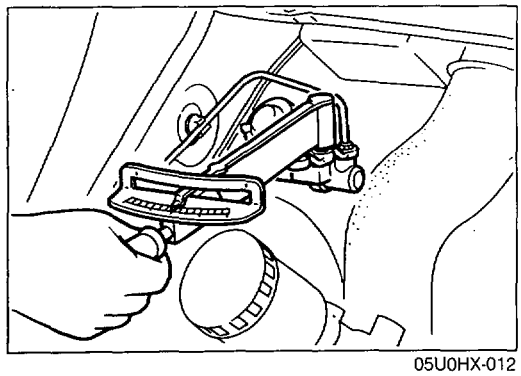


15U0HX-002

1. Clutch pipe
   Removal Note.. page H– 8
   Installation Note page H– 8
2. Nut
3. Clutch master cylinder
   Check for fluid leakage from cylinder bore
   Overhaul..... page H–10
   Air bleeding .... page H– 8
4. Gasket



9MU0HX-013



05U0HX-012

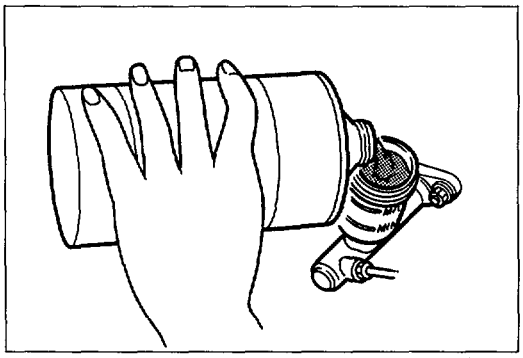
Removal Note
Clutch pipe
Disconnect the clutch pipe with the **SST**.

Installation Note
Clutch pipe
Tighten the clutch pipe with the **SST**.

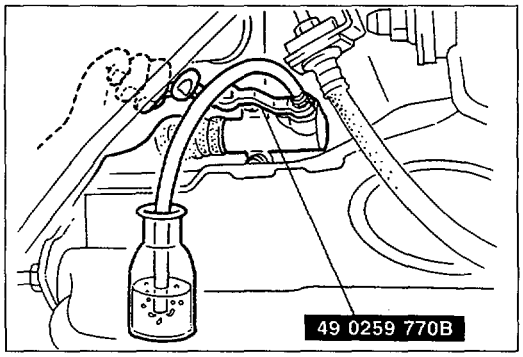
Tightening torque:
13—22 N·m (1.3—2.2 m-kg, 9.4—16 ft-lb)

Air Bleeding
After installation, bleed the clutch system.
(Refer to page H–9.)

Inspection and Adjustment
Clutch pedal height and free play
(Refer to page H–5.)



05U0HX-602



97U0HX-010

AIR BLEEDING

The clutch hydraulic system must be bled to remove air introduced whenever a hydraulic line is disconnected.

Note

- **The fluid in the reservoir must be maintained at the 3/4 level or higher during air bleeding.**

Caution

- **Clutch fluid will damage a painted surface. If fluid does get on a painted surface, wipe it off immediately.**
- **Do not mix different brands of clutch fluid.**
- **Do not reuse the clutch fluid which was drained out.**

1. Remove the bleeder cap from the clutch release cylinder and attach a vinyl hose to the bleeder plug.
2. Insert the other end of the vinyl hose in a clear container.
3. Slowly pump the clutch pedal several times.
4. While depressing the pedal, loosen the bleeder screw with the **SST** to let fluid and air escape.
   Close the bleeder screw with the **SST**.
5. Repeat Steps 3 and 4 until no air bubbles are seen in the fluid.
6. Tighten the bleeder screw.

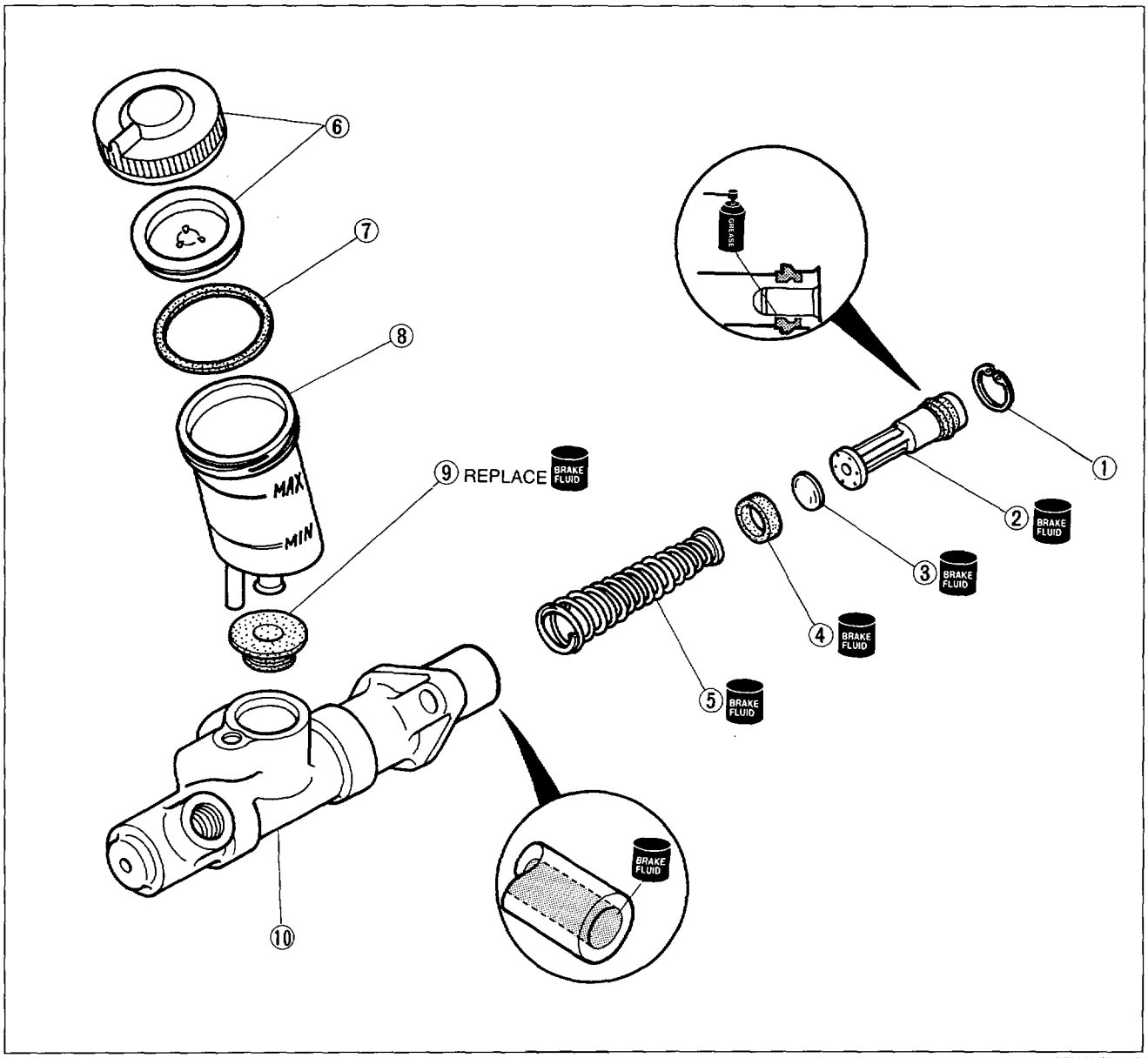
Tightening torque:
5.9—8.8 N·m (60—90 cm-kg, 52—78 in-lb)

7. Check for correct clutch operation.
8. Verify that there is no fluid leakage.

OVERHAUL

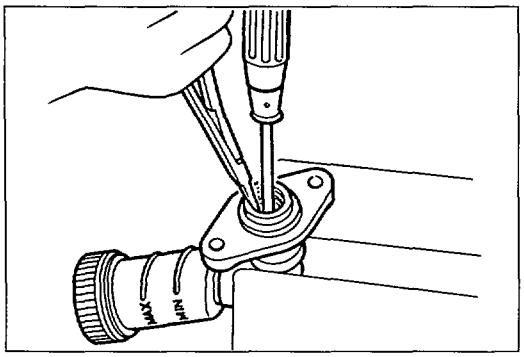
Caution
- **Clean the disassembled parts in solvent and blow through all ports and passages with compressed air.**

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.

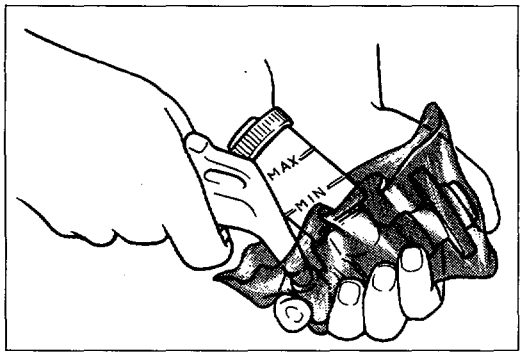


05U0HX-013

1. Snap ring
   - Disassembly Note ..... page H–11
   - Assembly Note ..... page H–11
2. Piston and secondary cup assembly
   - Disassembly Note ..... page H–11
   - Inspect for wear, scoring, and cracks
   - Assembly Note ..... page H–11
3. Spacer
4. Primary cup
   - Inspect for wear and cracks
5. Return spring
6. Cap
7. Packing
8. Reservoir
9. Bushing
10. Master cylinder body
    - Inspect cylinder bore for scoring and corrosion



9MU0HX-018



9MU0HX-019

Disassembly Note
Snap ring

Note
- **Do not damage the push rod contact surface of the piston.**

Press down on the piston and remove the snap ring with snap-ring pliers.

Piston and secondary cup assembly

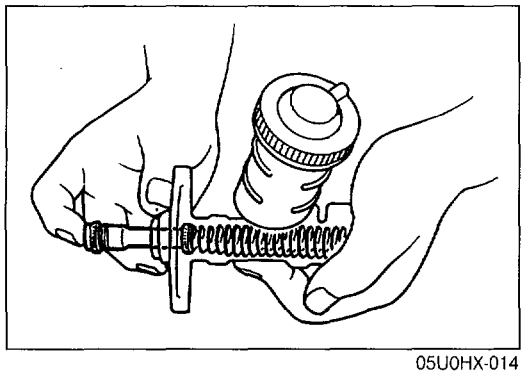
Caution
- **Hold a rag over the master cylinder to prevent the piston and secondary cup assembly from jumping out.**

Remove the piston and secondary cup assembly, spacer, and primary cup by applying compressed air through the clutch pipe installation hole.

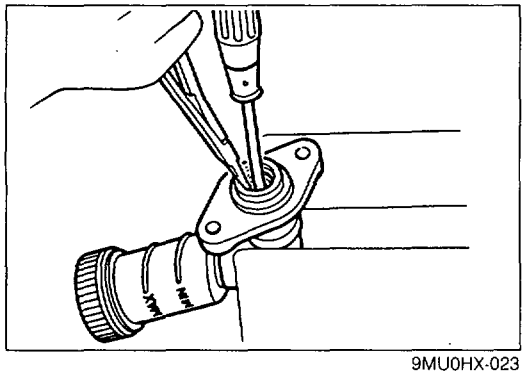
Assembly Note

Caution
- **Before assembly, make sure all parts are completely clean.**
- **Do not mix different brands of clutch fluid.**
- **Do not reuse the clutch fluid which was drained out.**
- **Apply the specified clutch fluid to the piston and secondary cup assembly, spacer, primary cup, and cylinder bore before assembly.**
- **Replace parts with new ones whenever specified to do so.**

9MU0HX-021


05U0HX-014

Piston and secondary cup assembly
Install the spring, primary cup, spacer, and piston and secondary cup assembly, noting the proper direction of the parts. (Refer to page H–10.)



9MU0HX-023

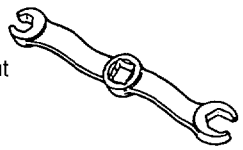
Snap ring

Note
- **Do not damage the push rod contact surface of the piston.**

While pressing the piston, install the snap ring.

CLUTCH RELEASE CYLINDER

PREPARATION
SST

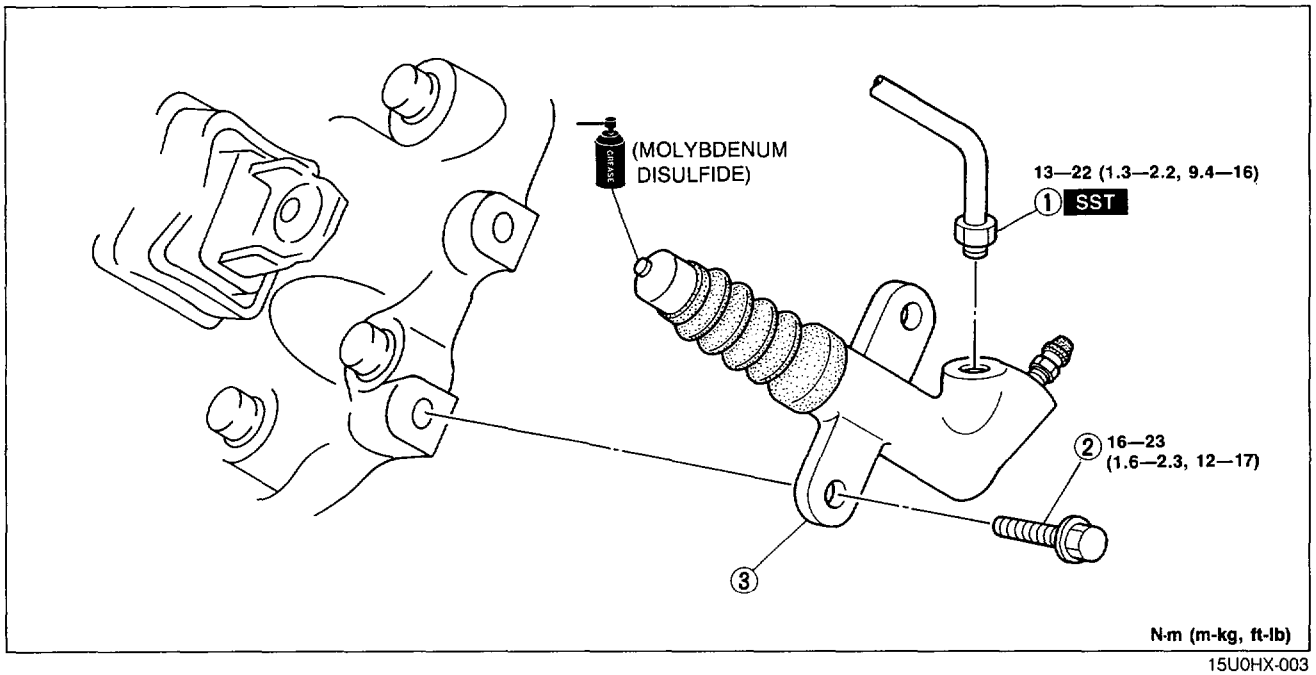
49 0259 770B Wrench, flare nut		For disconnecting and connecting clutch pipe

05U0HX-015

REMOVAL / INSTALLATION

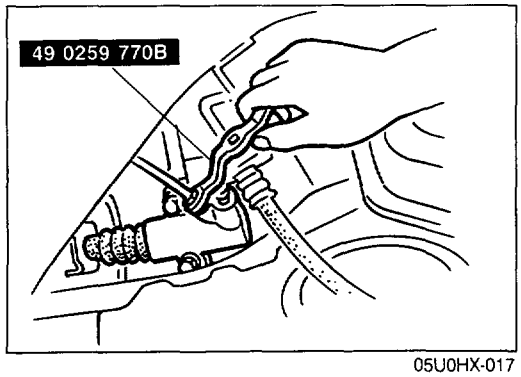
Caution
- **Clutch fluid will damage painted surfaces. Be sure to use a container or rags to collect it. If fluid does get on a painted surface, wipe it off immediately with a rag.**

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.



15U0HX-003

1. Clutch pipe
   - Removal Note ..... page H–12
   - Installation Note..... page H–13
2. Bolt
3. Clutch release cylinder
   - Remove boot and check for fluid leakage
   - Overhaul..... page H–13
   - Air Bleeding ..... page H–13

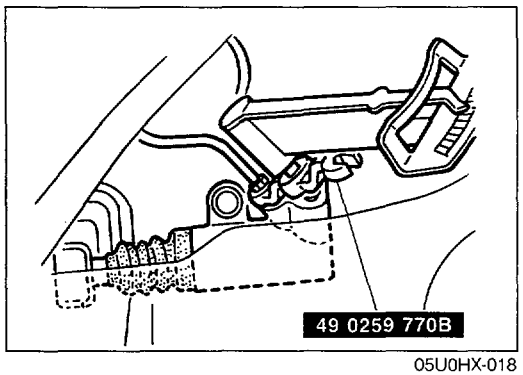


05U0HX-017

Removal Note
Clutch pipe

Caution
- **After disconnecting the clutch pipe, plug it to prevent fluid leakage.**

Disconnect the clutch pipe with the **SST**.



05U0HX-018

Installation Note
Clutch pipe
Tighten the clutch pipe with the **SST**.

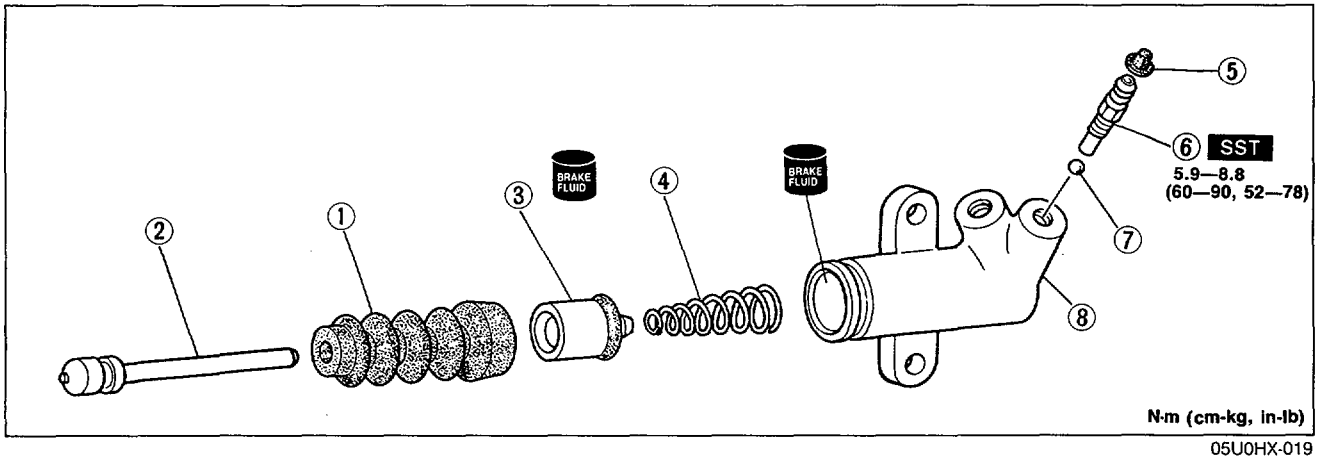
Tightening torque:
13—22 N·m (1.3—2.2 m-kg, 9.4—16 ft-lb)

Air Bleeding
After installation, bleed the clutch system.
(Refer to page H–9.)

OVERHAUL

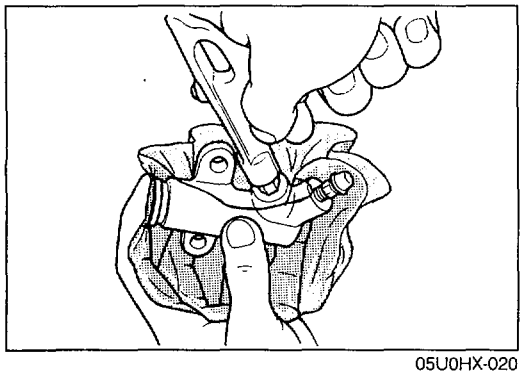
Caution
- **Clean the disassembled parts in solvent and blow through all ports and passages with compressed air.**
- **Before assembly, make sure all parts are completely clean.**
- **Apply the specified clutch fluid to the piston and cup assembly and cylinder bore before assembly.**

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly.



05U0HX-019

1. Boot
2. Push rod
3. Piston and cup assembly
   Disassembly Note
   ..... page H–13
   Inspect for wear, scoring, and cracks
4. Spring
5. Bleeder cap
6. Bleeder screw
7. Steel ball
8. Release cylinder body
   Inspect cylinder bore for scoring and corrosion



05U0HX-020

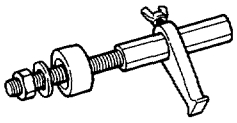
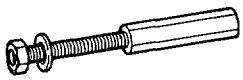
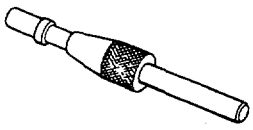
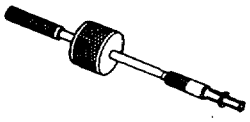
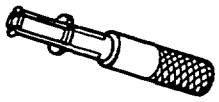
Disassembly Note
Piston and cup assembly

Caution
- **Hold a rag over the release cylinder to prevent the piston and cup assembly from jumping out.**

Remove the piston and cup assembly by applying compressed air through the clutch pipe installation hole.

CLUTCH UNIT

PREPARATION
SST

49 E011 1A0 Brake set, ring gear 	For holding ring gear	49 E011 103 Shaft (Part of 49 E011 1A0) 	For holding ring gear
49 E011 104 Collar (Part of 49 E011 1A0)	For holding ring gear	49 E011 105 Stopper (Part of 49 E011 1A0)	For holding ring gear
49 SE01 310 Clutch disc centering tool 	For removal and installation of clutch disc	49 1285 071 Puller, bearing 	For removal of pilot bearing
49 1285 073 Chuck (Part of 49 1285 071) 	For removal of pilot bearing		

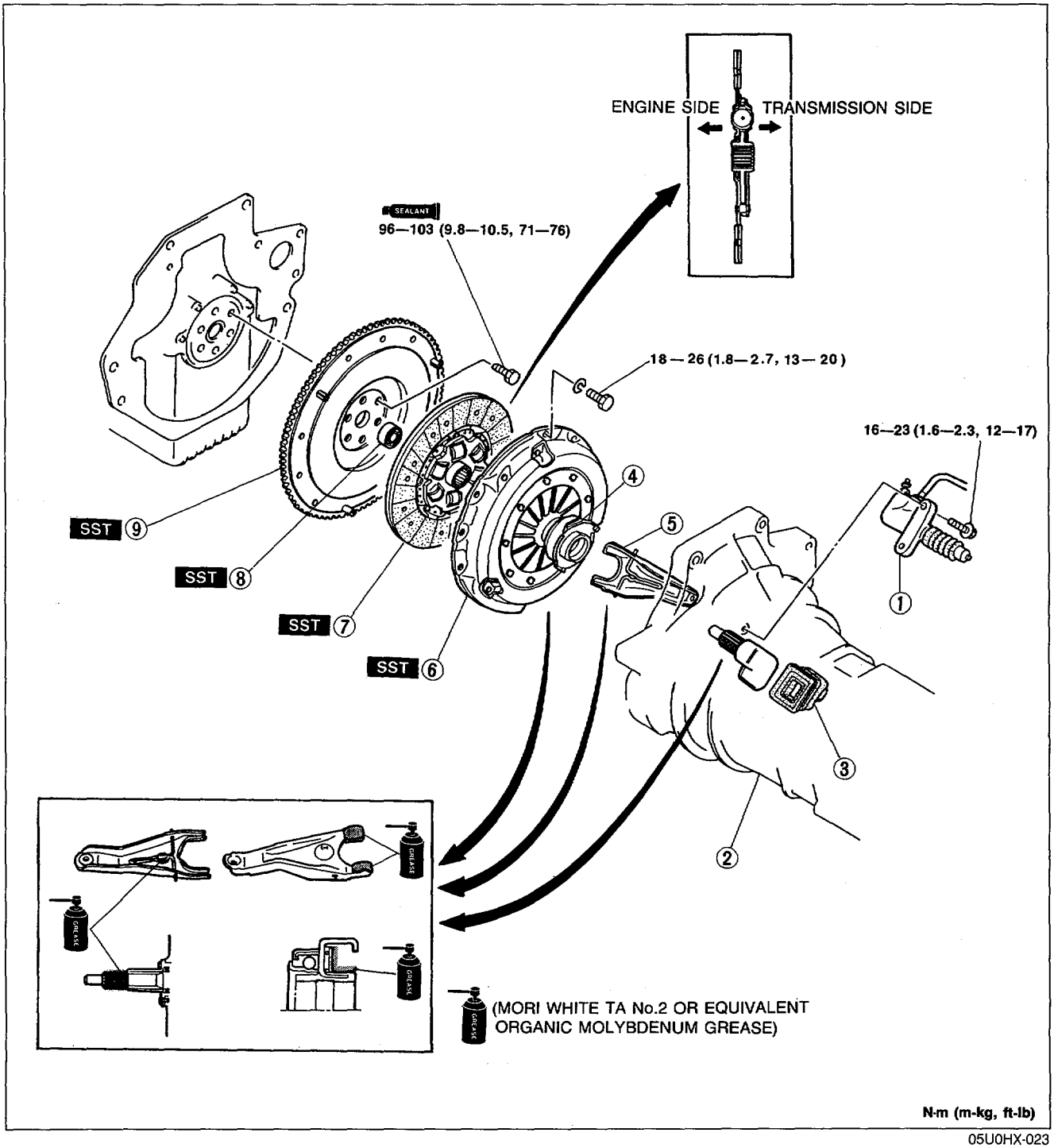
25U0HX-001

REMOVAL / INSTALLATION

Note
- **Remove the clutch release cylinder with the clutch pipe connected.**
- **Do not remove the pilot bearing if not necessary.**

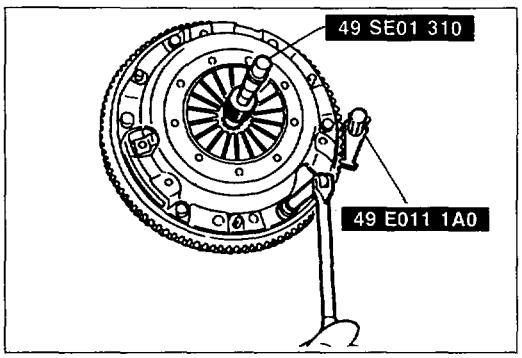
1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.

05U0HX-022



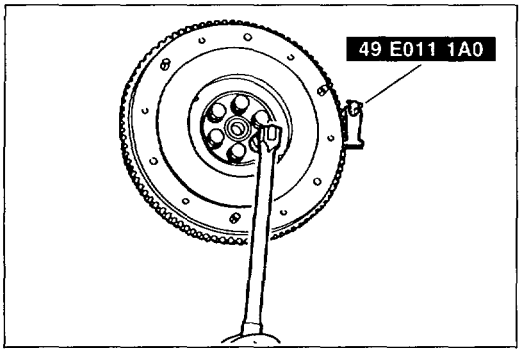
05U0HX-023

1. Clutch release cylinder
2. Transmission
   Service ..... Section J
3. Boot
4. Release bearing
   Inspection ..... page H–17
5. Release fork
6. Clutch cover
   Removal Note ..... page H–16
   Inspection ..... page H–17
   Installation Note ..... page H–17
7. Clutch disc
   Removal Note ..... page H–16
   Inspection ..... page H–17
   Installation Note ..... page H–17
8. Pilot bearing
   Inspection ..... page H–18
   Removal Note ..... page H–16
   Installation Note ..... page H–16
9. Flywheel
   Removal Note ..... page H–16
   Inspection ..... page H–18
   Installation Note ..... page H–16



25U0HX-003

Removal Note
Clutch cover and disc
1. Install the **SST**.
2. Hold the flywheel with the **SST** or equivalent.
3. Loosen each bolt one turn at a time in a crisscross pattern until spring tension is released. Then remove the clutch cover and disc.

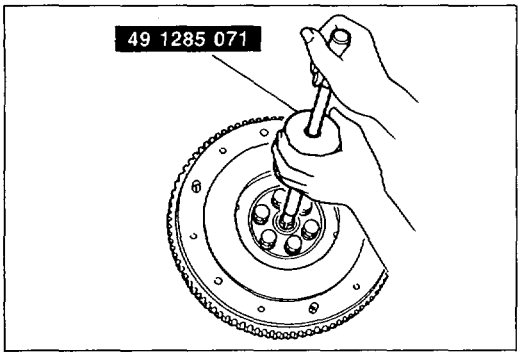


25U0HX-004

Flywheel

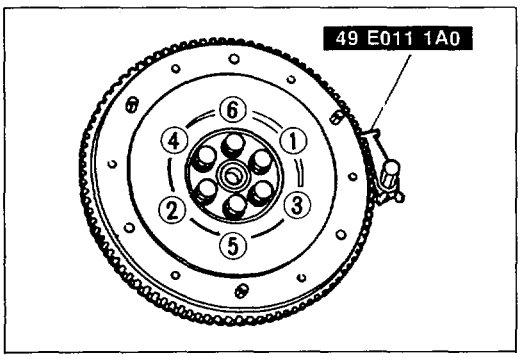
Note
- **After removing the flywheel, inspect for oil leakage past the crankshaft rear oil seal. If necessary, replace the oil seal. (Refer to Section B.)**

1. Hold the flywheel with the **SST** or equivalent.
2. Remove the flywheel.



05U0HX-025

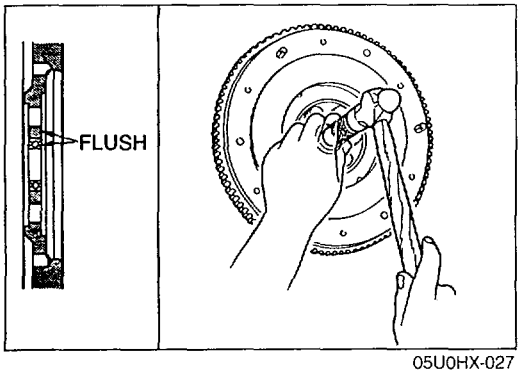
Pilot bearing
Remove the pilot bearing with the **SST**, if necessary.



25U0HX-005

Installation Note
Flywheel
1. Wipe the bolts clean, and apply sealant to the bolt threads.
2. Install the flywheel and **SST** or equivalent.
3. Tighten the bolts in the pattern shown.

Tightening torque:
96—103 N·m (9.8—10.5 m-kg, 71—76 ft-lb)

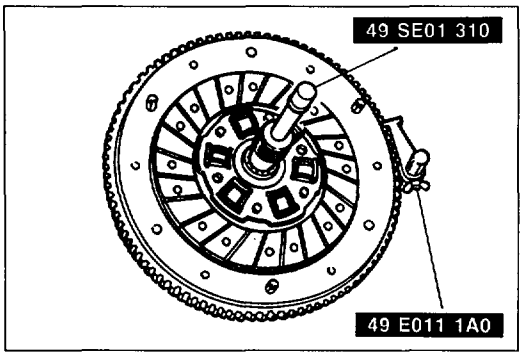


05U0HX-027

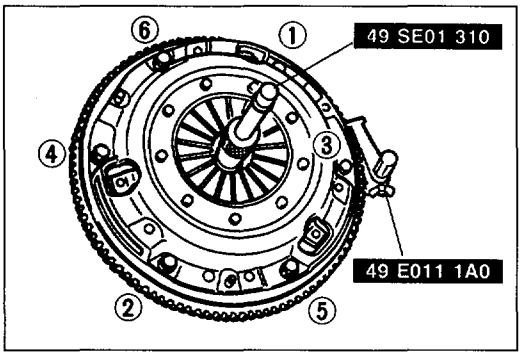
Pilot bearing

Note
- **Install the pilot bearing flush with the flywheel.**

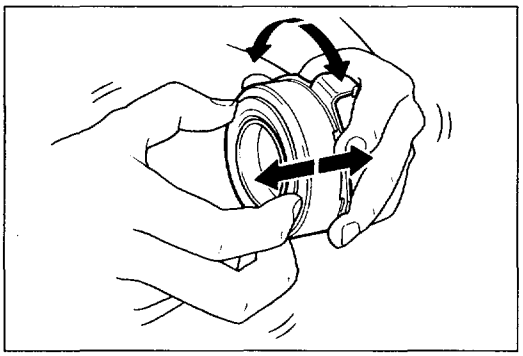
Install the new bearing with a suitable pipe.

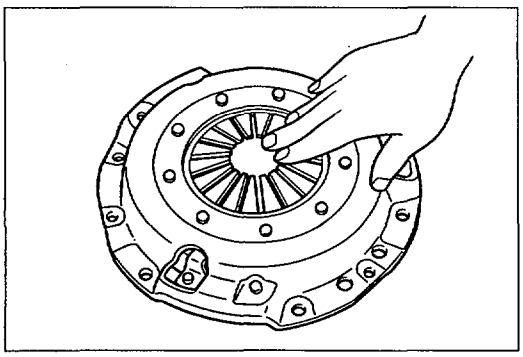


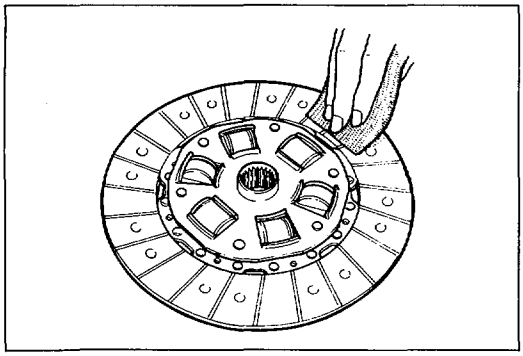
05U0HX-029



25U0HX-006


9MU0HX-040


05U0HX-031


05U0HX-032

Clutch disc

1. Clean the clutch disc splines and main drive gear splines, and apply Mori White TA No.2 or equivalent organic molybdenum grease.
2. Hold the clutch disc in position with the **SST**.

Clutch cover

1. Hold the flywheel with the **SST** or equivalent.
2. Align the dowel holes with the flywheel dowels.
3. Tighten the bolts evenly and gradually in the pattern shown.

Tightening torque:
18—26 N·m (1.8—2.7 m-kg, 13—20 ft-lb)

RELEASE BEARING

INSPECTION

Note
- **The clutch release bearing is a sealed bearing and must not be washed in solvent.**

Turn the bearing while applying force in the axial direction. If the bearing sticks or has excessive resistance, replace it.

CLUTCH COVER

INSPECTION

Note
- **Minor scoring or burning should be removed with emery paper.**

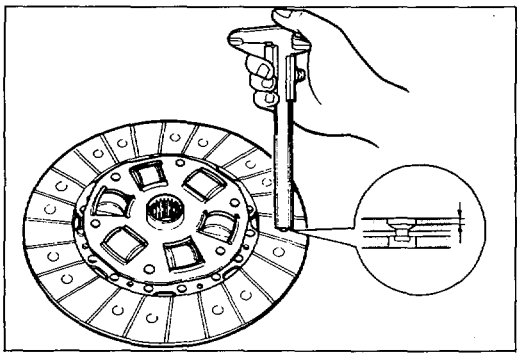
1. Inspect the contact surface of the clutch disc for scoring, cracks, and burning. Repair or replace as necessary.
2. Inspect the contact surface of the clutch release bearing for wear and cracks.
3. If there is wear or cracks, replace the clutch cover.

CLUTCH DISC

INSPECTION

Note
- **Use sandpaper if the trouble is minor.**

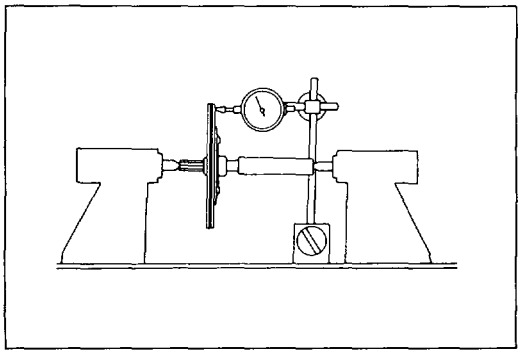
1. Inspect the lining surface for burning and oil contamination. Replace the clutch disc if it is badly burned or oil soaked.
2. Inspect for loose facing rivets or torsion rubbers. Replace the clutch disc if any are loose.



05U0HX-033

3. Measure the thickness of the lining at a rivet head on both sides with vernier calipers.
   Replace the clutch disc if less than minimum.

   Minimum thickness: 0.3mm (0.012 in)



97U0HX-024

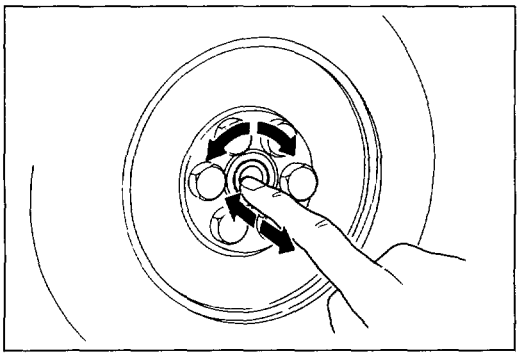
4. Measure the clutch disc runout with a dial indicator.
   Replace the clutch disc if runout is excessive.

   Maximum runout: 0.7mm (0.028 in)

PILOT BEARING

INSPECTION

Turn the bearing while applying force in the axial direction. If the bearing sticks or has excessive resistance, replace it.



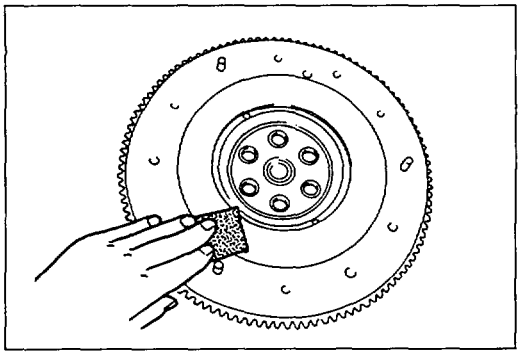
05U0HX-028

FLYWHEEL

INSPECTION

Note
- **Minor scoring or burning should be removed with emery paper.**

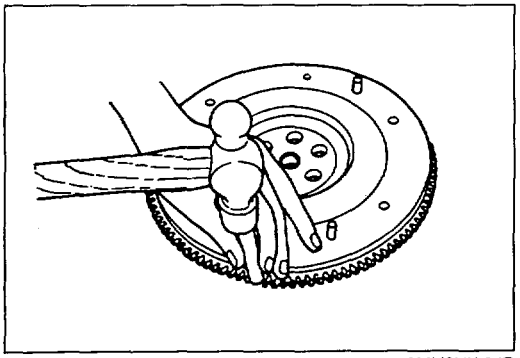
1. Inspect the contact surface of the clutch disc for scoring, cracks, or burning. Repair or replace as necessary.



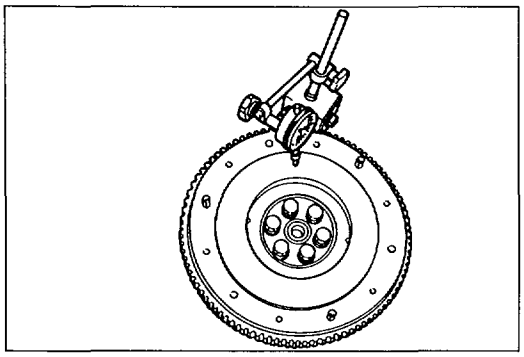
9MU0HX-046

Note
- **The beveled side of the ring gear must face the engine side.**

2. Inspect the ring gear teeth for wear or damage. If necessary, replace the ring gear as follows:
   (1) Heat the ring gear with a blowtorch. Tap around the gear to remove it from the flywheel.
   (2) Heat the new ring gear to **250—300°C (480—570°F)**; then fit it onto the flywheel.



9MU0HX-047



9MU0HX-048

3. Measure the flywheel runout with a dial indicator. Replace the flywheel if runout is excessive.

Maximum runout: 0.2mm (0.008 in)

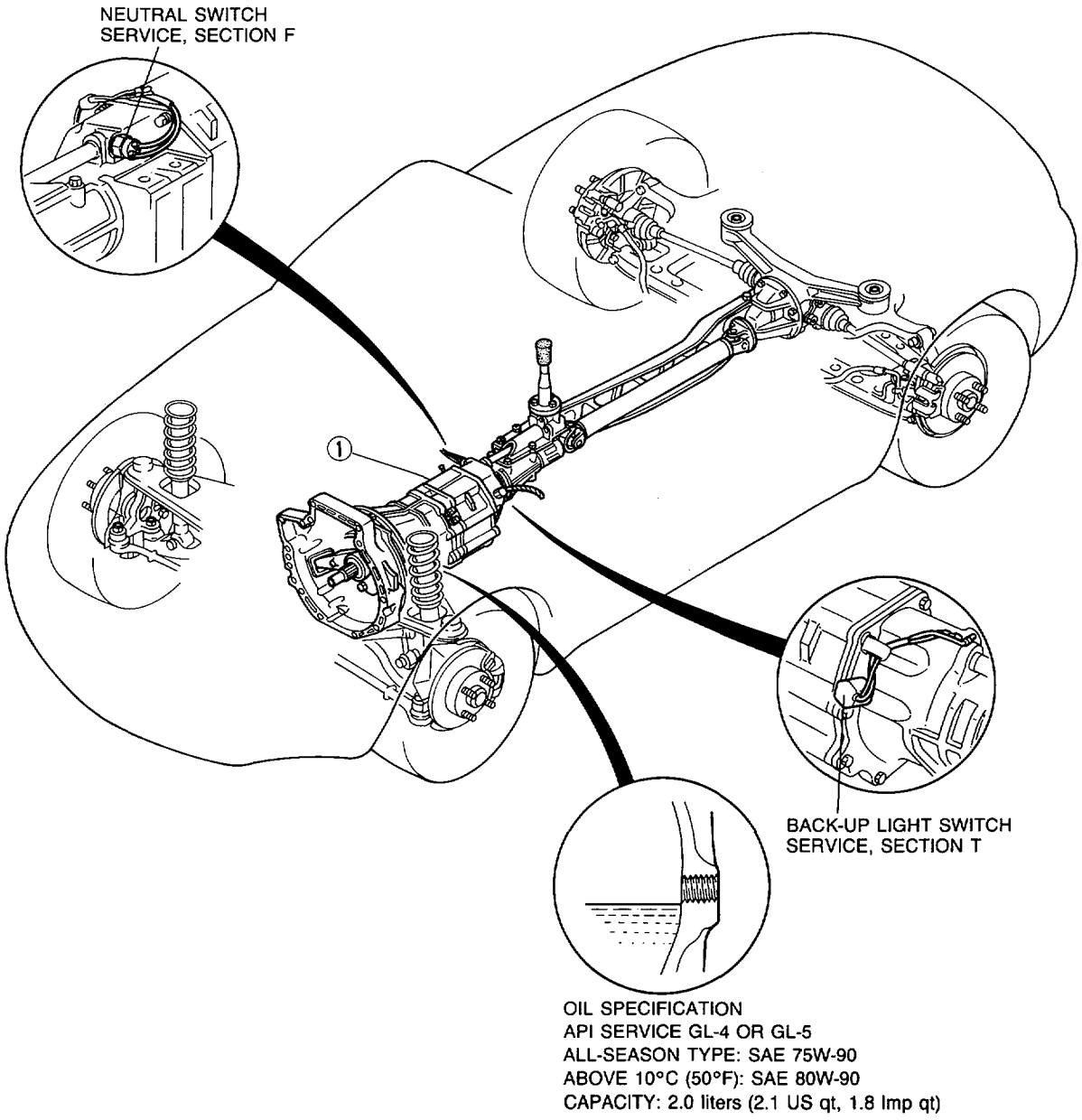
Before beginning any service procedure, refer to Section T of this manual for airbag system warnings and cautions.

MANUAL TRANSMISSION

INDEX ..... **J– 2**
OUTLINE ..... **J– 3**
SPECIFICATIONS ..... **J– 3**
STRUCTURAL VIEW ..... **J– 4**
COMPONENTS ..... **J– 5**
POWER FLOW ..... **J– 6**
TROUBLESHOOTING GUIDE ..... **J– 7**
TRANSMISSION OIL ..... **J– 8**
INSPECTION ..... **J– 8**
REPLACEMENT ..... **J– 8**
TRANSMISSION ..... **J– 9**
PREPARATION ..... **J– 9**
REMOVAL **J–10**
DISASSEMBLY **J–13**
INSPECTION **J–23**
ASSEMBLY **J–26**
INSTALLATION **J–45**

25U0JX-011

INDEX

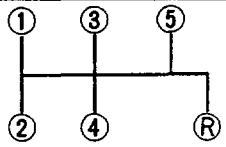


05U0JX-002

1. Transmission
Removal ..... page J–10
Disassembly ..... page J–13
Inspection ..... page J–23
Assembly ..... page J–26
Installation ..... page J–45

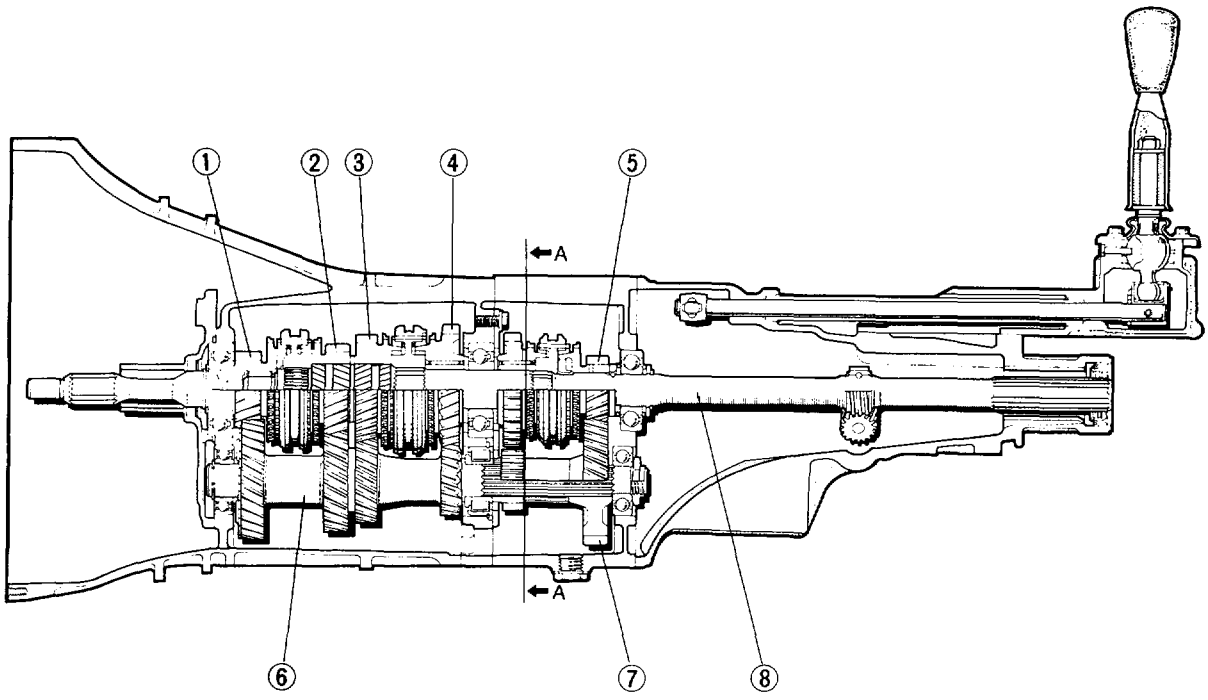
OUTLINE

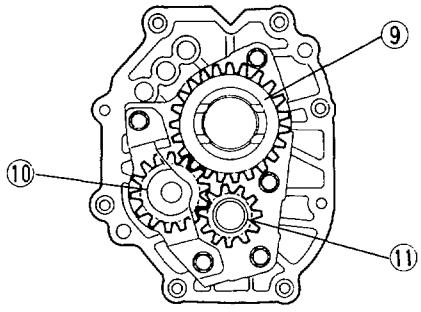
SPECIFICATIONS

Item \ Transmission			M-type
Synchronization mechanism			Forward: Synchromesh Reverse: Synchromesh
Shift type			5-speed, floor shift
Shift pattern			
Gear ratio	1st		3.136
	2nd		1.888
	3rd		1.330
	4th		1.000
	5th		0.814
	Reverse		3.758
Oil	Grade		API service GL-4 or GL-5
	Viscosity	All-season	SAE 75W-90
		Above 10°C (50°F)	SAE 80W-90
	Capacity liters (US qt, Imp qt)		2.0 (2.1, 1.8)

05U0JX-003

STRUCTURAL VIEW



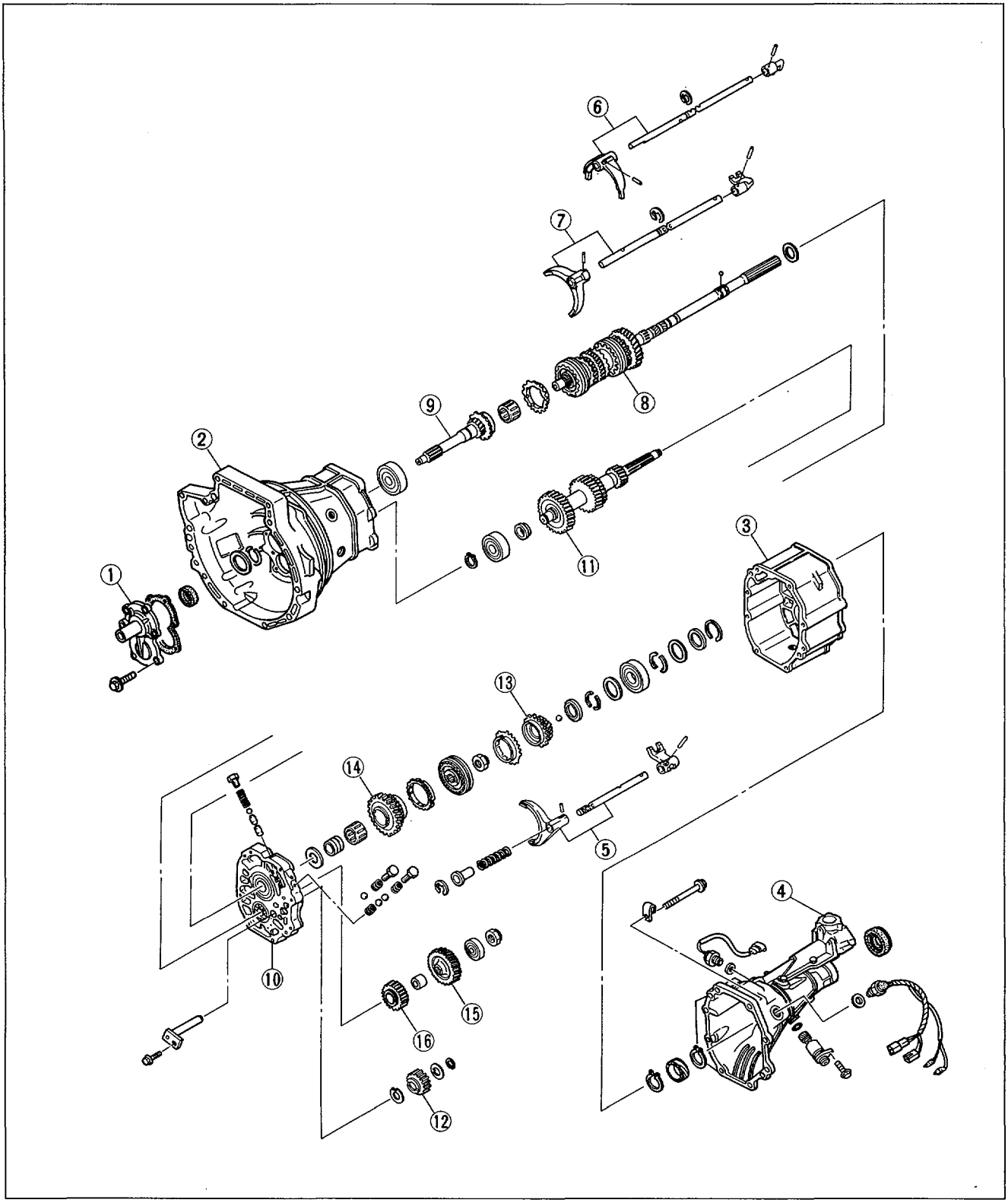


VIEW A—A

9MU0JX-004

1. Main drive gear (4th gear)
2. 3rd gear
3. 2nd gear
4. 1st gear
5. 5th gear
6. Countershaft
7. Counter 5th gear
8. Mainshaft
9. Reverse gear
10. Reverse idler gear
11. Counter reverse gear

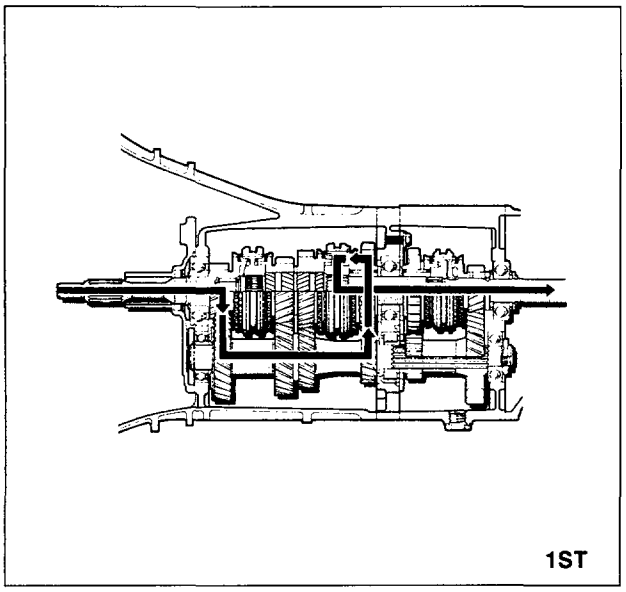
COMPONENTS



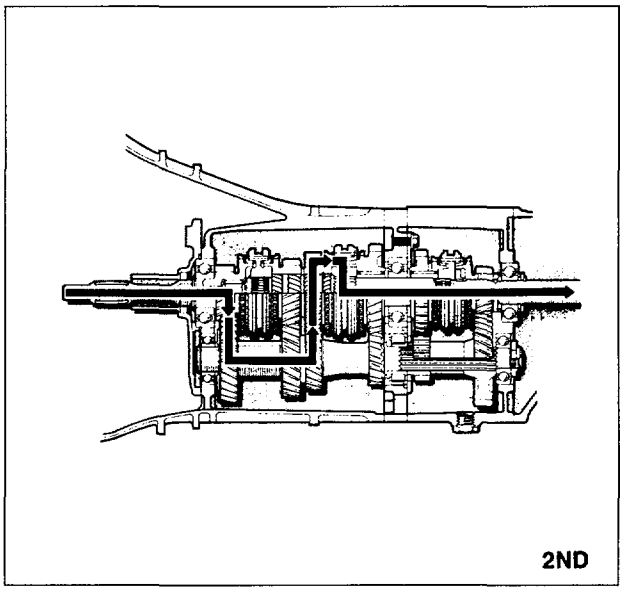
05U0JX-004

1. Front cover
2. Transmission case
3. Intermediate housing
4. Extension housing
5. Shift fork and rod (5th/Reverse)
6. Shift fork and rod (1st/2nd)
7. Shift fork and rod (3rd/4th)
8. Mainshaft gear assembly
9. Main drive gear
10. Bearing housing
11. Countershaft
12. Reverse idler gear
13. 5th gear
14. Reverse gear
15. Counter 5th gear
16. Counter reverse gear

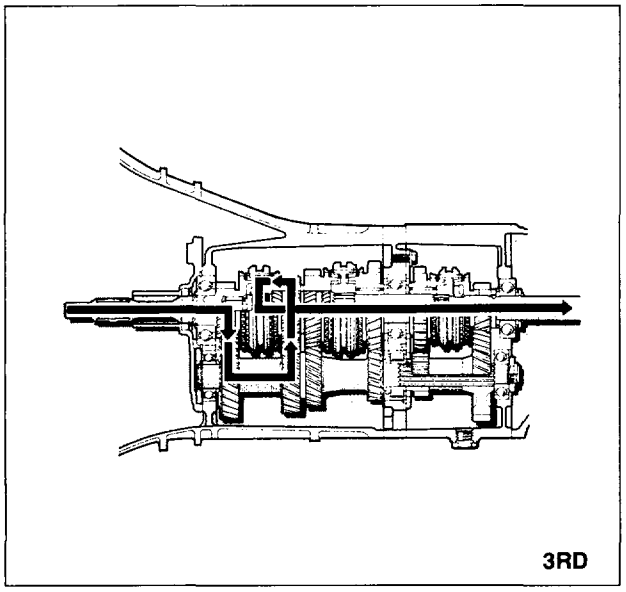
POWER FLOW



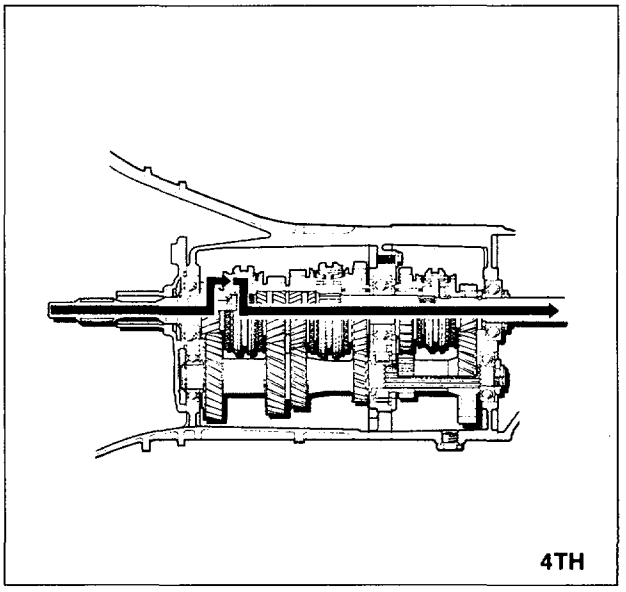
1ST



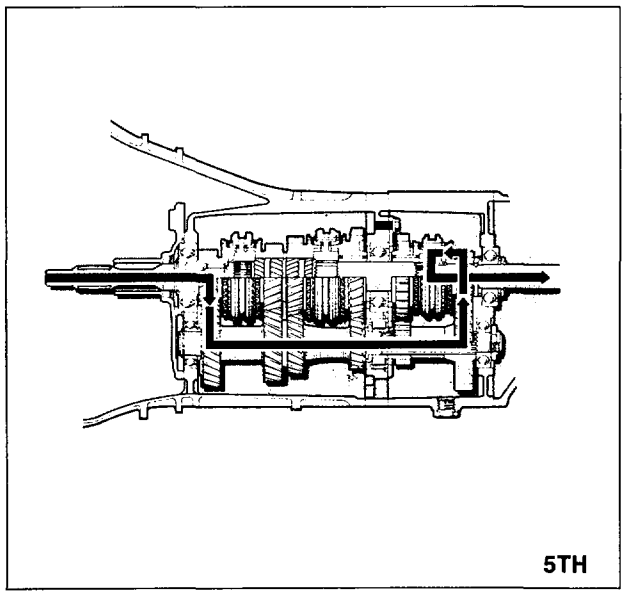
2ND



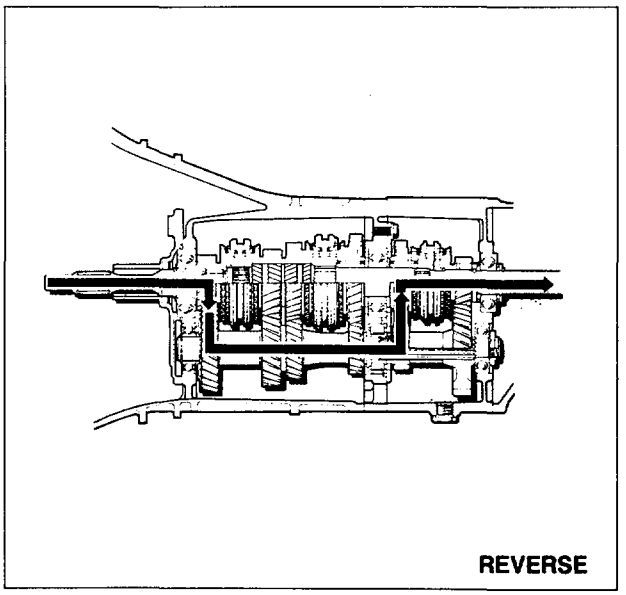
3RD



4TH



5TH



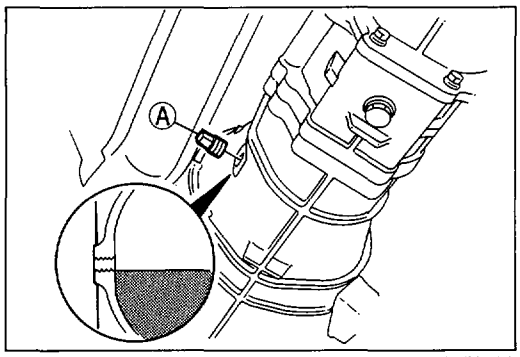
REVERSE

9MU0JX-006

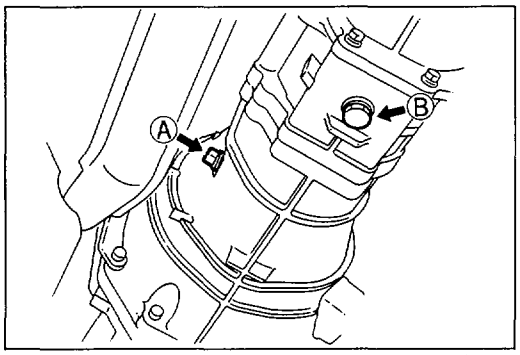
TROUBLESHOOTING GUIDE

Problem	Possible Cause	Action	Page
Abnormal noise	Insufficient oil	Add oil	J– 8
	Deterioration of oil quality	Replace with specified oil	J– 8
	Worn bearing	Replace	J–24
	Worn contact surface of countershaft gear	Replace	J–23
	Worn contact surface of gears	Replace	J–23
	Excessive gear backlash	Replace	—
	Damaged gear teeth	Replace	J–23
Difficult to shift	Insufficient oil	Add oil	J– 8
	Deterioration of oil quality	Replace with specified oil	J– 8
	Worn synchronizer ring	Replace	J–24
	Worn synchronizer cone of gear	Replace	J–24
	Poor contact of synchronizer ring and gear cone	Replace	J–24
	Excessive longitudinal play of gears	Replace	J–23
	Worn bearing	Replace	J–24
	Improper disengagement of clutch	Refer to Section H	—
Jumps out of gear	Weak detent ball spring	Replace	J–25
	Worn shift fork	Replace	J–24
	Worn clutch hub	Replace	J–23
	Worn clutch hub sleeve	Replace	J–23
	Worn gears	Replace	J–23
	Excessive gear backlash	Replace	—
	Worn bearing	Replace	J–24
Vibration	Incorrect installation of or loose power plant frame	Correct or tighten	J–45

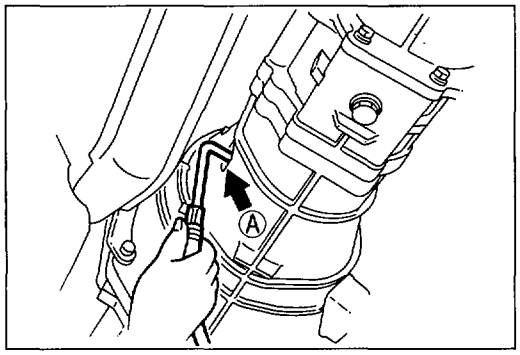
05U0JX-005



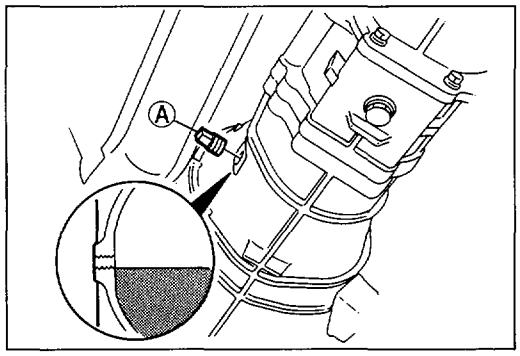
05U0JX-006



9BU0J1-006



05U0JX-007



9BU0J1-008

TRANSMISSION OIL

INSPECTION

1. Remove check plug Ⓐ.
2. Verify that the oil is at the bottom of the check plug hole. If it is low, add the specified oil from check plug Ⓐ.
3. Wipe clean and apply sealant to the plug threads before installing.

Tightening torque
Ⓐ: 25—39 N·m (2.5—4.0 m-kg, 18—29 ft-lb)

REPLACEMENT

Note
- **Replace drain plug Ⓑ washer with a new one whenever the drain plug is removed.**

1. Remove the plugs (Ⓐ and Ⓑ with washer).
2. Drain the oil into a suitable container.
3. Wipe all plugs clean.
4. Apply sealant to plug thread Ⓐ.
5. Install the drain plug (Ⓑ with new washer).

Tightening torque
Ⓑ: 39—59 N·m (4.0—6.0 m-kg, 29—43 ft-lb)

6. Add the specified oil from check plug Ⓐ port until the level reaches the bottom of check plug hole.

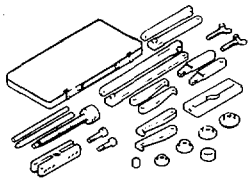
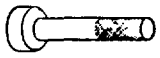
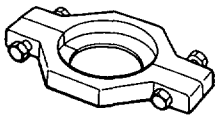
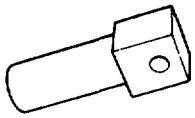
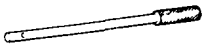
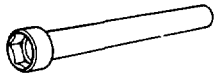
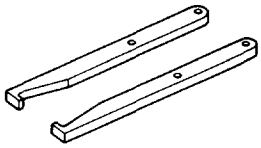
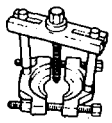
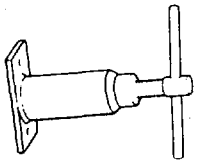
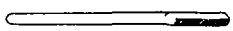
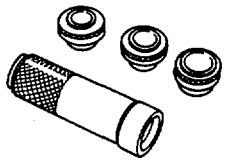
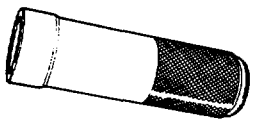
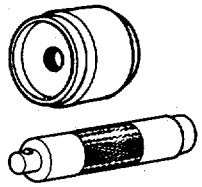
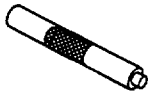
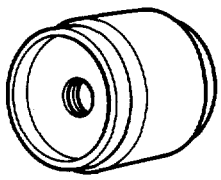
Specified oil:
API service GL-4 or GL-5
All-season: SAE 75W-90
Above 10°C (50°F): SAE 80W-90

7. Install plug Ⓐ.

Tightening torque
Ⓐ: 25—39 N·m (2.5—4.0 m-kg, 18—29 ft-lb)

TRANSMISSION

PREPARATION
SST

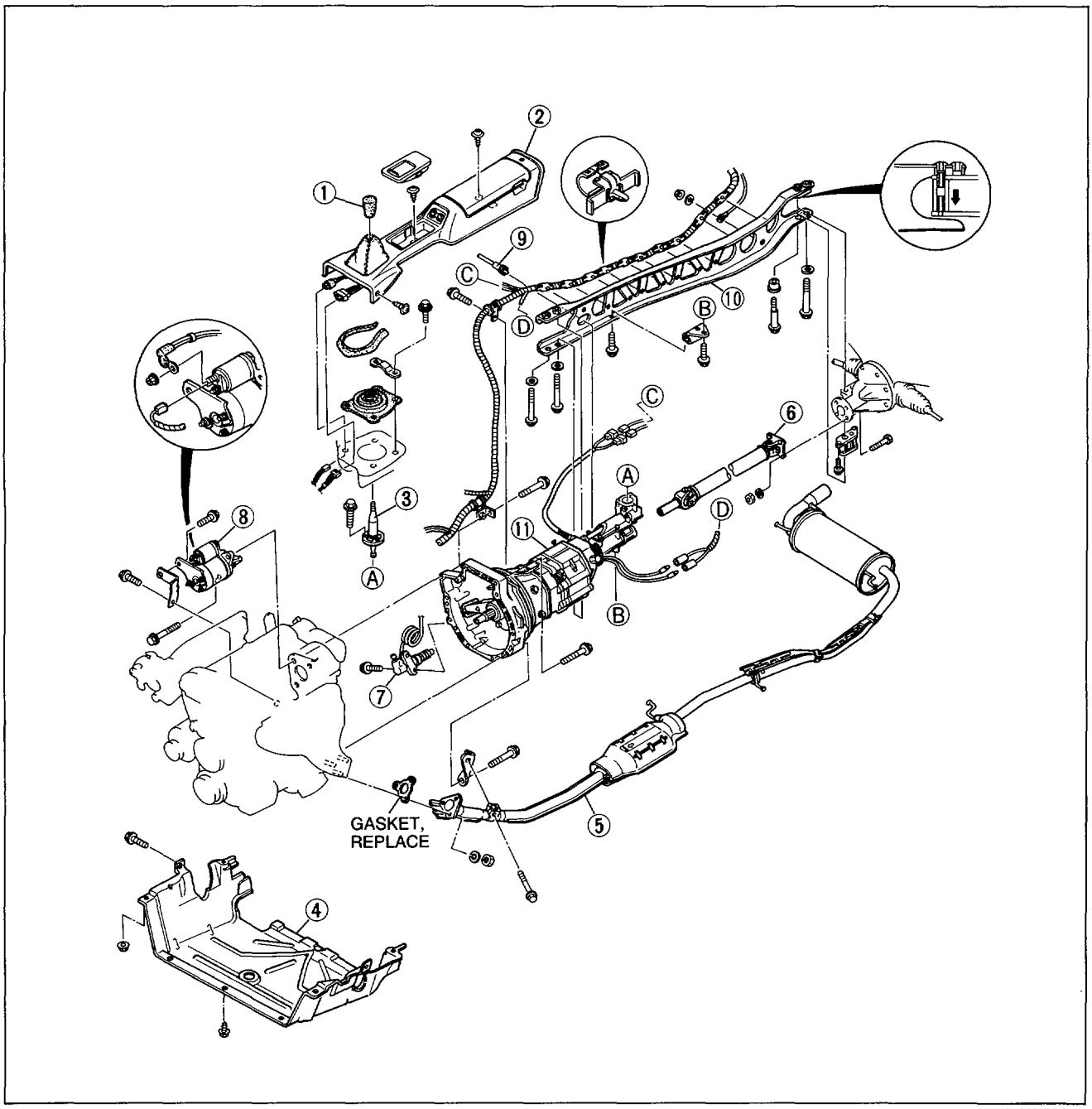
49 0839 425C Puller set, bearing 	For removal of bearing	49 0500 330 Installer, transmission bearing 	For installation of bearing
49 0636 145 Puller, fan pulley boss 	For removal of clutch hub assembly	49 0259 440 Holder, mainshaft 	For holding mainshaft
49 0862 350 Guide, shift fork 	For installation of interlock pin	49 1243 465A Wrench, mainshaft locknut 	For removal of locknut
49 H017 101 Hook 	For removal of bearing	49 0710 520 Puller, bearing 	For removal of bearing
49 0305 430 Pusher, main drive shaft 	For removal of transmission case	49 0180 321A Installer, bearing	For installation of bearing
49 0187 451A Guide, interlock pin 	For installation of spring and ball	49 F401 330B Installer set, bearing 	For installation of bearing
49 F401 331 Body (Part of 49 F401 330B) 	For installation of clutch hub assembly	49 B025 0A0 Installer, oil seal 	For installation of dust seal
49 G030 797 Handle (Part of 49 B025 0A0) 	For installation of oil seal	49 B025 001 Body (Part of 49 B025 0A0) 	For installation of oil seal

05U0JX-008

REMOVAL

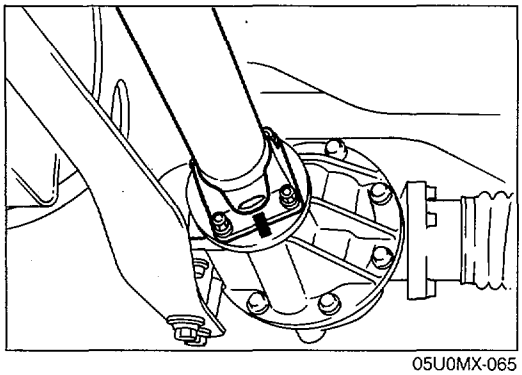
Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

1. Disconnect the negative battery cable.
2. Raise the vehicle and support it with safety stands.
3. Drain the transmission oil into a suitable container.
4. Remove in the order shown in the figure, referring to **Removal Note**.



25U0JX-012

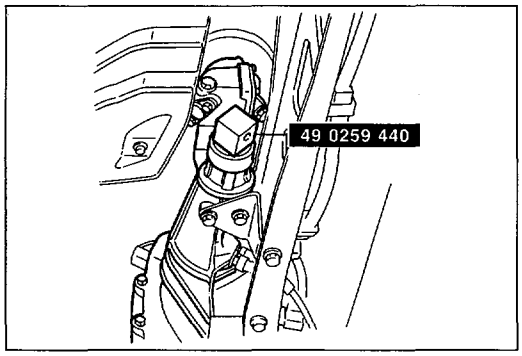
1. Shift lever knob
2. Rear console
3. Shift lever
4. Undercover
5. Exhaust pipe
6. Propeller shaft
   Removal Note... page J–11
7. Clutch release cylinder
8. Starter
9. Speedometer cable
10. Power plant frame (PPF)
    Removal Note... page J–11
11. Transmission
    Removal Note... page J–12



05U0MX-065

Removal note
Propeller shaft

1. Before removing the propeller shaft, mark the flanges for correct installation.

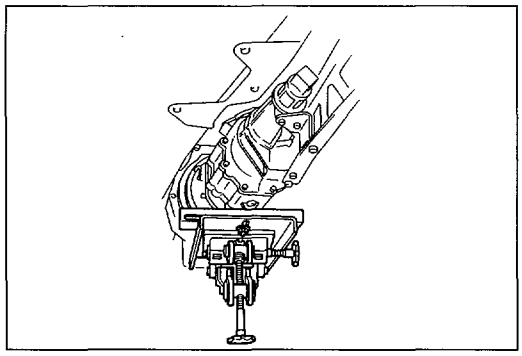


05U0MX-066

2. When the propeller shaft is removed from the extension housing, immediately install the **SST** to prevent oil leakage.

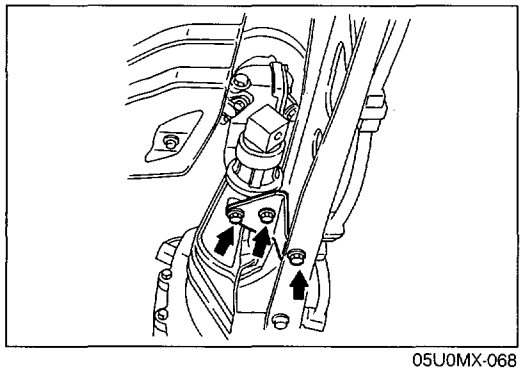
Power plant frame (PPF)

1. Disconnect the wire harness from the PPF.
2. Support the transmission with a jack.



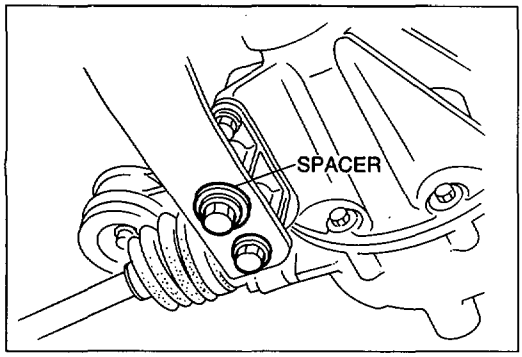
05U0MX-067

3. Remove the power plant frame bracket.

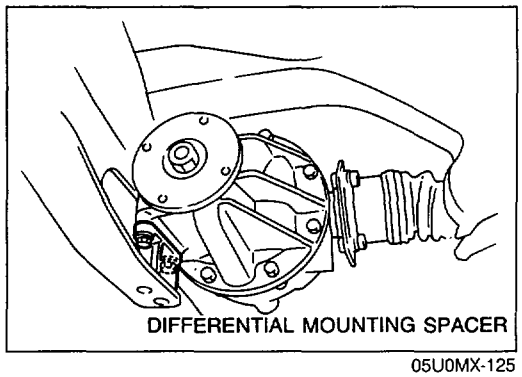


05U0MX-068

4. Remove the differential-side bolts, and pry out the spacer.

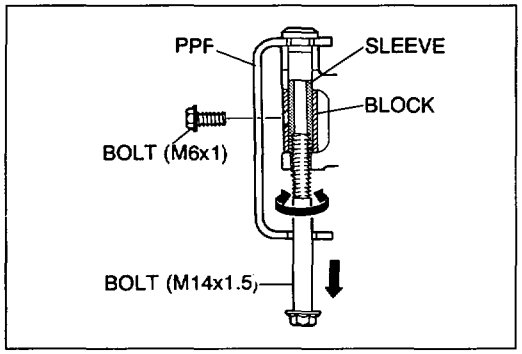


05U0MX-069



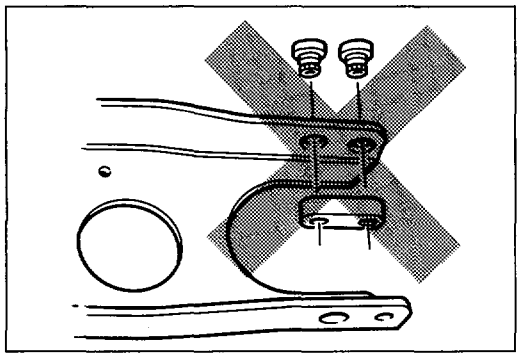
05U0MX-125

5. Remove the differential mounting spacer.



05U0MX-070

6. Turn a bolt (M14x1.5) into the sleeve.
7. Twist and pull the bolt downward.
8. Install a bolt (M6x1) into the hole in the block to hold the sleeve, and remove the long bolt (M14x1.5).
9. Remove the bolt (M6x1).



05U0MX-071

Caution

- **Do not remove the spacers shown in the figure from the PPF.**
- **If they are removed, replace the PPF as an assembly.**

10. Remove the transmission-side bolts, and remove the PPF.

Transmission

Caution

- **Do not violently shake the transmission, the crank angle sensor may be damaged.**

05U0JX-010

DISASSEMBLY

Precaution

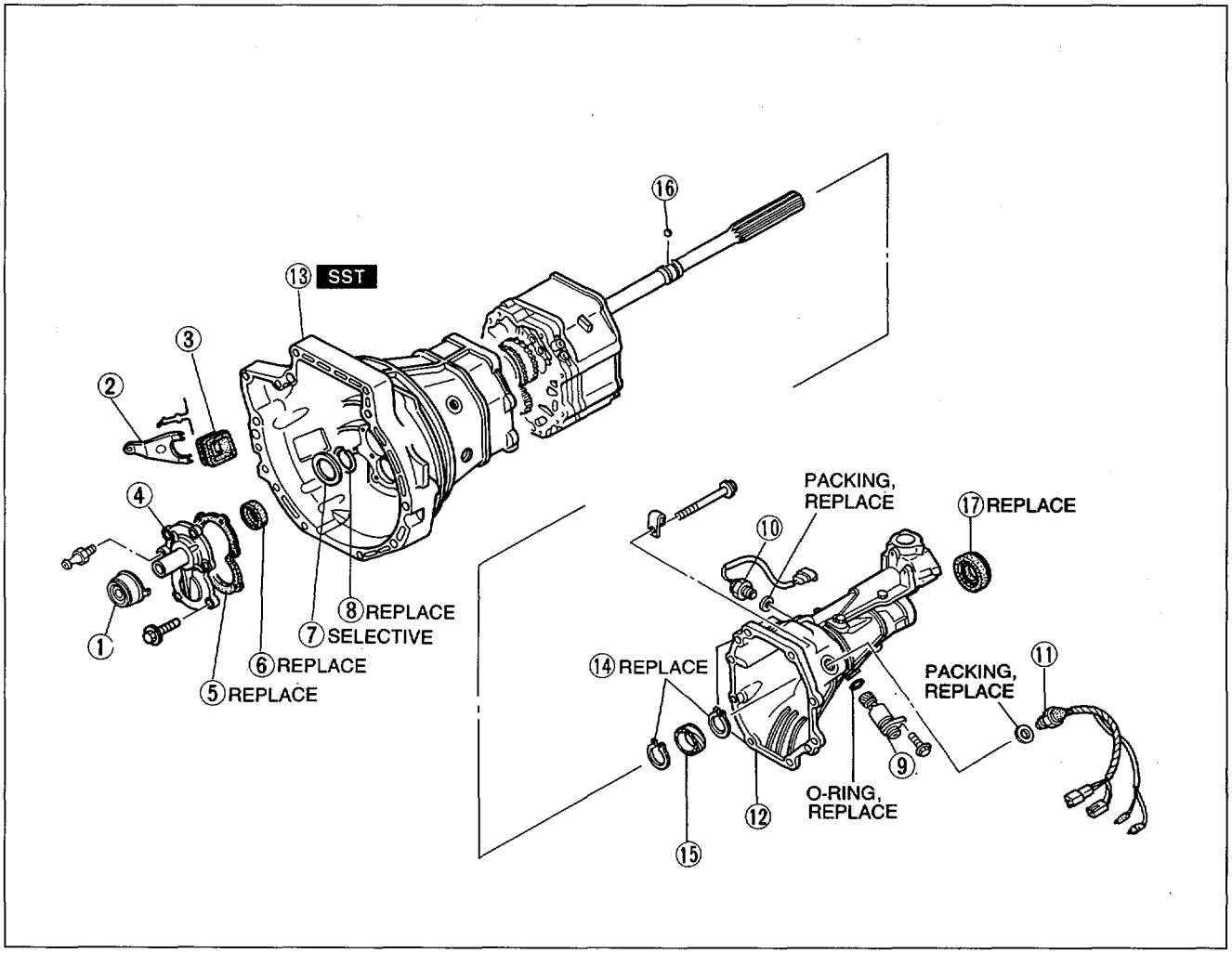
1. Clean the transmission exterior thoroughly with a steam cleaner or cleaning solvent before disassembly.
2. Clean the removed parts (except sealed bearings) and all sealing surfaces with cleaning solvent, and dry with compressed air.
   Clean out all holes and passages with a compressed air, and check that there are no obstructions.
3. Wear eye protection when using compressed air to clean components.

Housing Components

Note

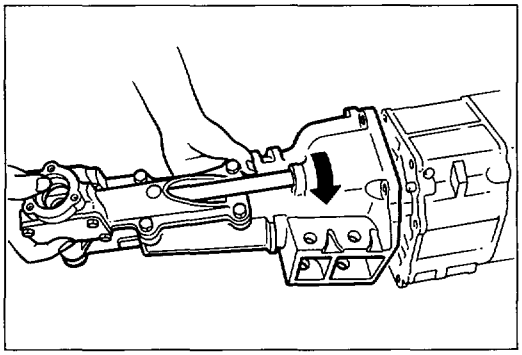
- **Do not remove the front and rear oil seals if not necessary.**

Disassemble in the order shown in the figure, referring to **Disassembly Note**.



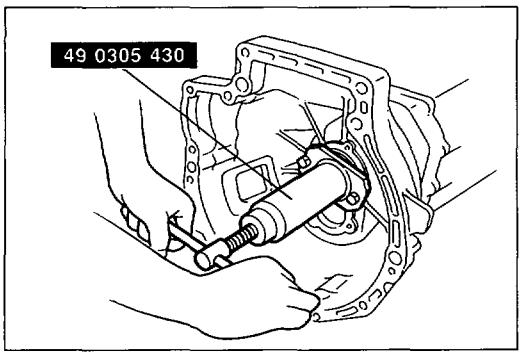
05U0JX-011

1. Release bearing
2. Release fork
3. Boot
4. Front cover
5. Gasket
6. Oil seal (front)
   Inspect for damage of oil seal lip. If necessary, replace it.
7. Adjustment shim
8. Snap ring
9. Speedometer driven gear
10. Neutral switch
11. Back-up light switch
12. Extension housing
    Disassembly Note ..... page J–14
    Disassembly ..... page J–22
13. Transmission case
    Disassembly Note ..... page J–14
14. Snap rings
15. Speedometer drive gear
16. Steel ball
17. Oil seal (rear)
    Inspect for damage of oil seal lip
    If necessary, replace it.
    Replace (on-vehicle) ..... page J–14



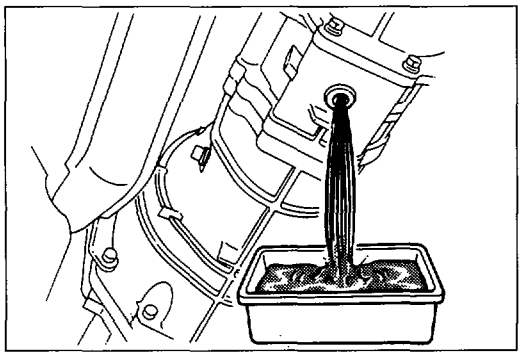
05U0JX-012

Disassembly note
Extension housing
Turn the extension housing to remove it.



9BU0J1-013

Transmission case
Remove the transmission case from the intermediate housing and gear assembly with the **SST**.

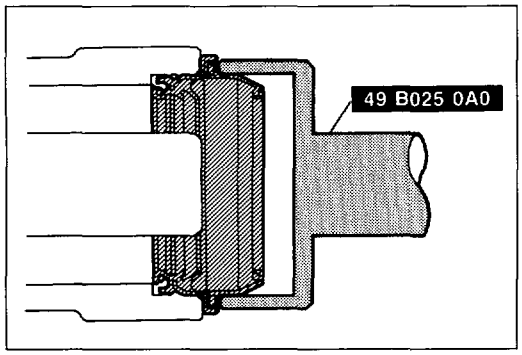


05U0JX-013

On-vehicle replacement
Oil seal (rear)

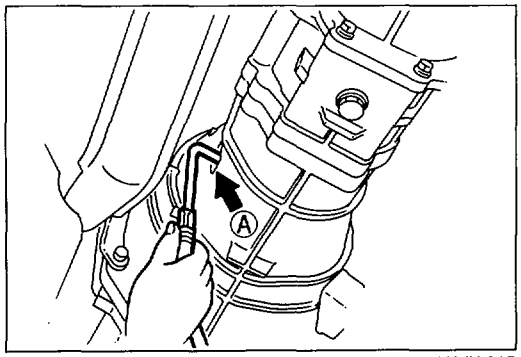
Caution
- **Do not damage the mainshaft splines.**

1. Raise the vehicle and support it with safety stands.
2. Drain the transmission oil into a suitable container.
3. Remove the exhaust pipe.
4. Remove the propeller shaft. (Refer to Section L.)
5. Remove the oil seal from the extension housing.



05U0JX-014

6. Apply transmission oil to outer periphery.
7. Install a new oil seal with the **SST**.

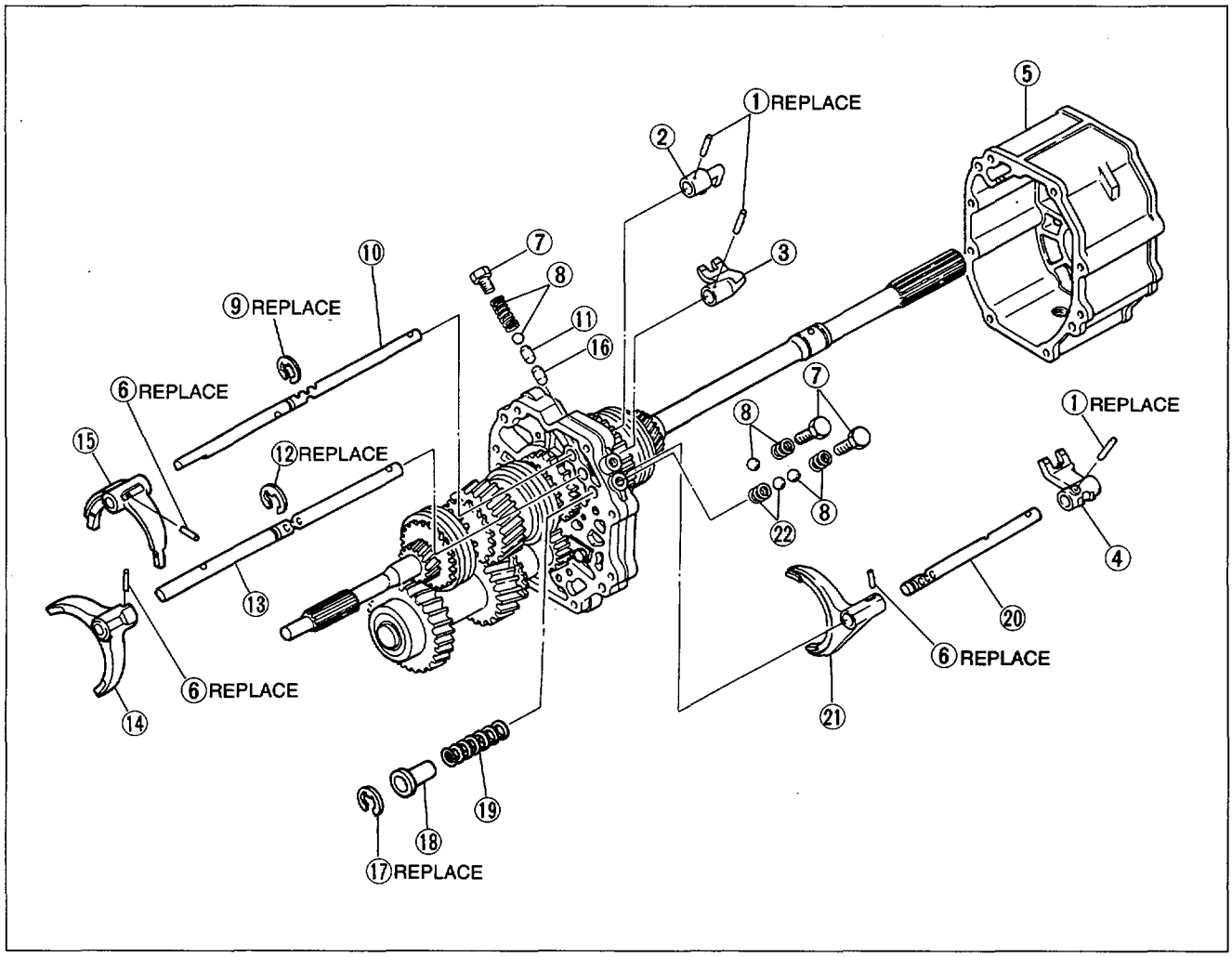


05U0JX-015

8. Install the propeller shaft. (Refer to Section L.)
9. Install the exhaust pipe.
10. Add the specified oil from check plug Ⓐport until the level reaches the bottom of the check plug hole. (Refer to page J–8.)

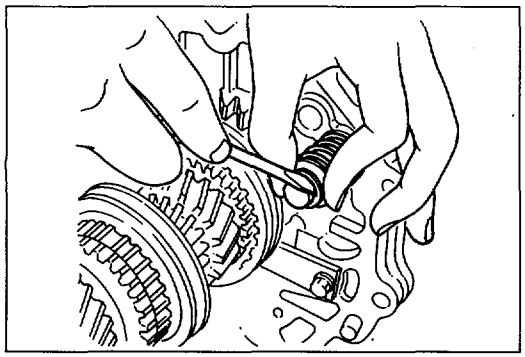
Shift Fork and Shift Rod Parts

Disassemble in the order shown in the figure, referring to **Disassembly Note**.



05U0JX-016

1. Roll pin
2. 1st/2nd shift rod end
3. 3rd/4th shift rod end
4. 5th/Reverse shift rod end
5. Intermediate housing
   Inspection..... page J–25
6. Roll pin
7. Cap plug
8. Spring and ball
   Inspection..... page J–25
9. Clip
10. 1st/2nd shift rod
11. Interlock pin
12. Clip
13. 3rd/4th shift rod
14. 3rd/4th shift fork
    Inspection..... page J–24
15. 1st/2nd shift fork
    Inspection..... page J–24
16. Interlock pin
17. Clip
    Disassembly Note
    ..... page J–15
18. Spacer
19. Spring
    Inspection..... page J–25
20. 5th/Reverse shift rod
21. 5th/Reverse shift fork
    Inspection..... page J–24
22. Spring and ball
    Inspection..... page J–25



97U0J1-016

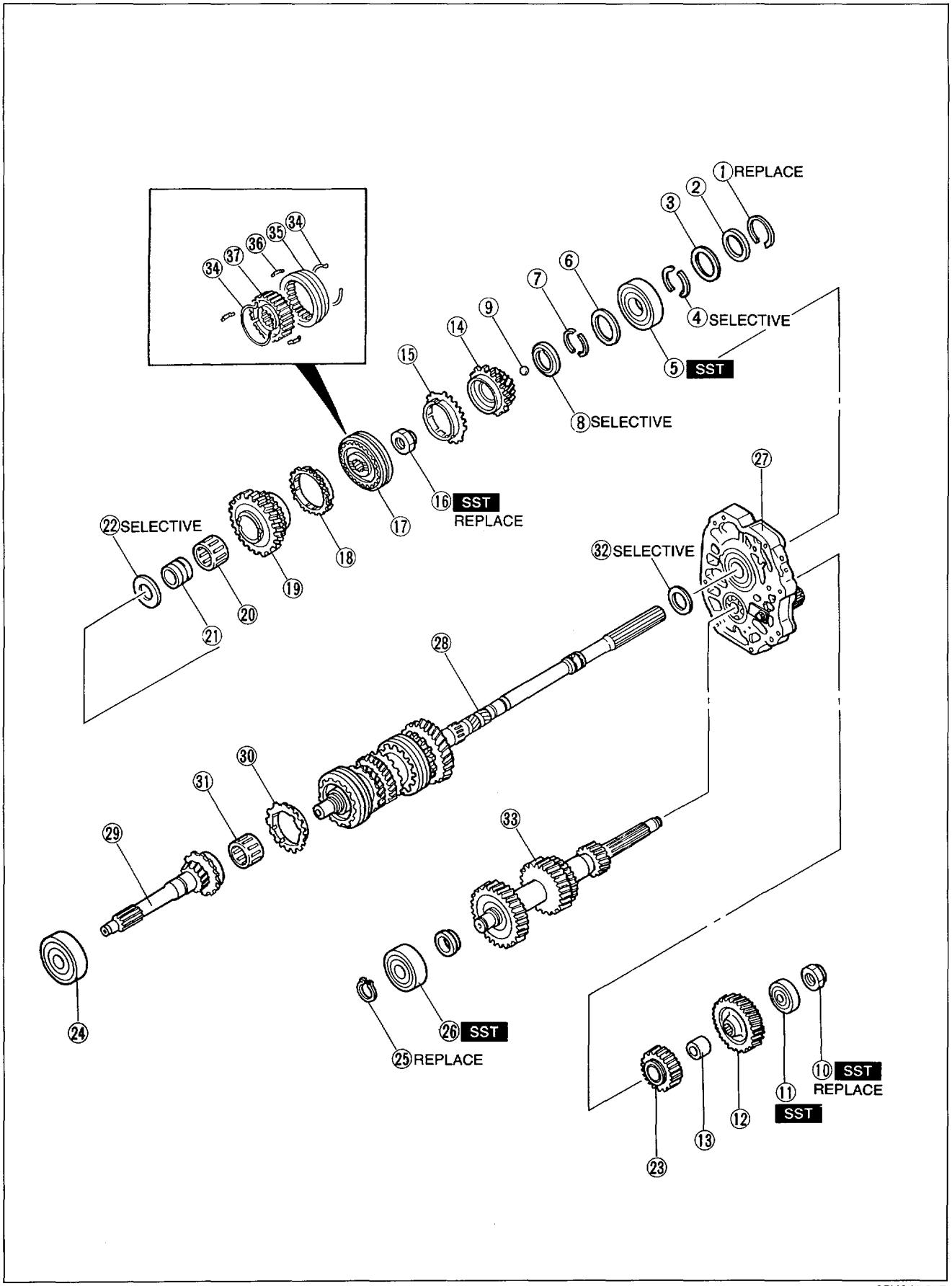
Disassembly note
Clip

Caution
- **Hold the spacer and spring to prevent it from jumping out.**

Remove the clip, spacer, and spring from the 5th/Reverse shift rod.

Mainshaft and Countershaft Parts

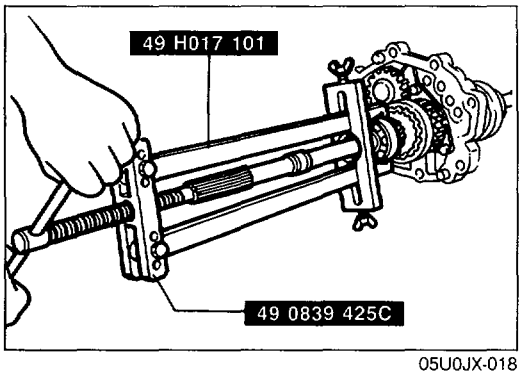
Disassemble in the order shown in the figure, referring to **Disassembly Note**.



97U0J1-017

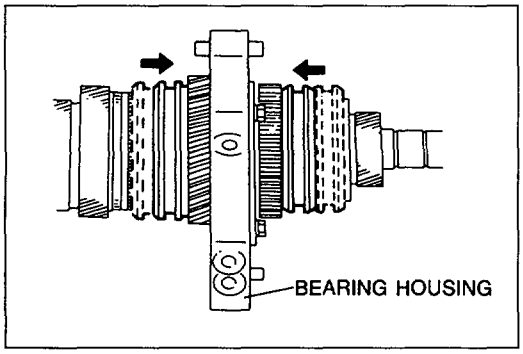
1. Snap ring
2. Washer
3. Retaining ring
4. C-washer
5. Mainshaft rear bearing
   Disassembly Note ..... page J–17
   Inspection ..... page J–24
6. Retaining ring
7. C-washer
8. Thrust lock washer
9. Steel ball
10. Locknut (Countershaft)
    Disassembly Note ..... page J–17
11. Countershaft rear bearing
    Disassembly Note ..... page J–18
    Inspection ..... page J–24
12. Counter 5th gear
    Inspection ..... page J–23
13. Spacer
14. 5th gear
    Inspection ..... page J–23
15. Synchronizer ring (5th)
    Inspection ..... page J–24
16. Locknut (Mainshaft)
    Disassembly Note ..... page J–18
17. Clutch hub assembly (5th/Reverse)
    Inspection ..... page J–23
18. Synchronizer ring (Reverse)
    Inspection ..... page J–24
19. Reverse gear
    Inspection ..... page J–23
20. Needle bearing
    Inspection ..... page J–24
21. Inner race
22. Washer
23. Counter reverse gear
    Inspection ..... page J–23
24. Main drive gear bearing
    Disassembly Note ..... page J–18
    Inspection ..... page J–24
25. Snap ring
26. Countershaft front bearing
    Disassembly Note ..... page J–18
    Inspection ..... page J–24
27. Bearing housing assembly
    Disassembly Note ..... page J–18
    Disassembly ..... page J–20
28. Mainshaft gear assembly
29. Main drive gear
    Inspection ..... page J–23
30. Synchronizer ring (4th)
    Inspection ..... page J–24
31. Needle bearing
    Inspection ..... page J–24
32. Washer
33. Countershaft
    Inspection ..... page J–23
34. Synchronizer key spring
35. Clutch hub sleeve
36. Synchronizer key
37. Clutch hub

05U0JX-017



05U0JX-018

Disassembly note
Mainshaft rear bearing
Remove the mainshaft rear bearing with the **SST**.

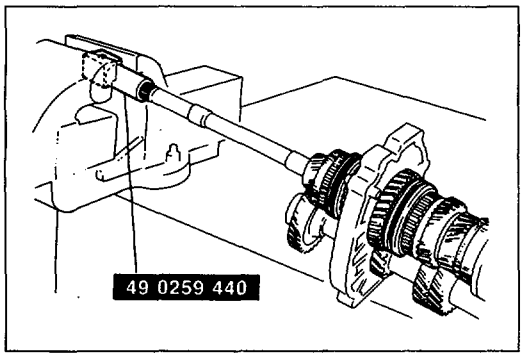


97U0J1-020

Locknut (Countershaft)
1. Shift the clutch hub sleeves to first gear and reverse gear to put the gears in the double-engaged condition.

Caution
- **Do not reuse the locknut.**
- **Do not damage the countershaft.**

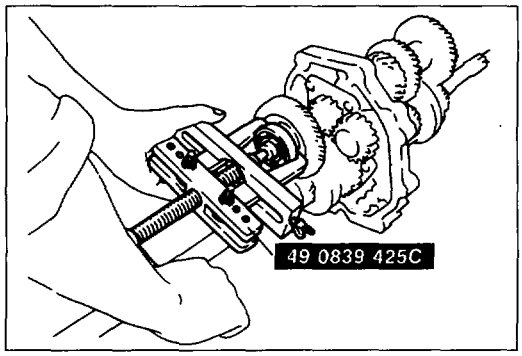
2. Use a suitable tool to uncrimp the tabs of the locknut.



97U0J1-021

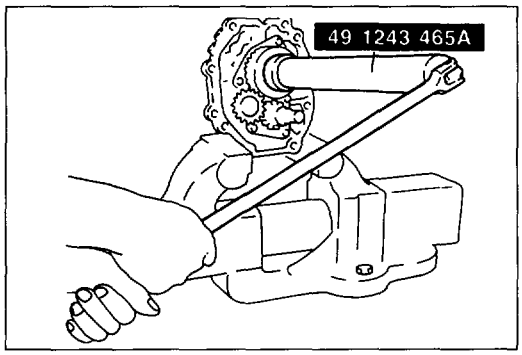
Note
- **Use pads in the vise to prevent damaging the SST.**

3. Connect the **SST** to the mainshaft and tighten it securely in a vise.
4. Remove the locknut.



97U0J1-022

Countershaft rear bearing
Remove the countershaft rear bearing with the **SST**.

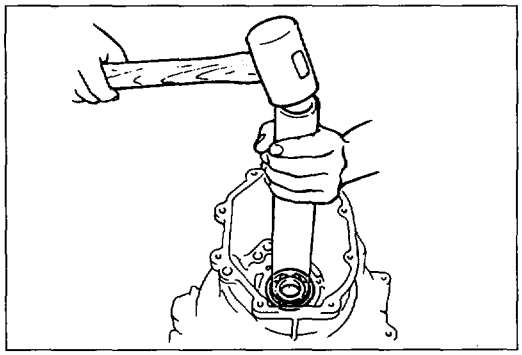


05U0JX-019

Locknut (Mainshaft)
1. Shift the clutch hub sleeves to first gear and reverse gear to put the gears in the double-engaged condition.

Caution
- **Do not reuse the locknut.**
- **Do not damage the mainshaft and clutch hub assembly.**

2. Use a suitable tool to uncrimp the tabs of the locknut.

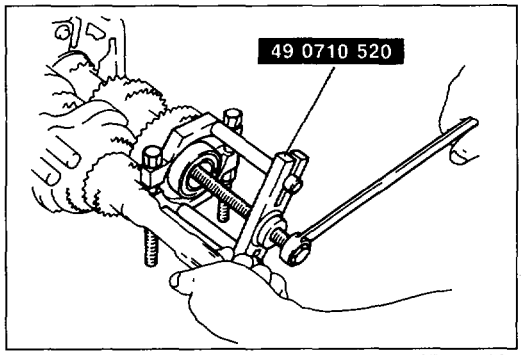


97U0J1-024

Note
- **Use pads in the vise to prevent damaging the bearing housing.**

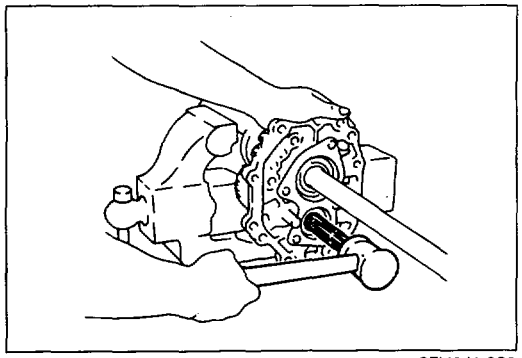
3. Secure the bearing housing in a vise.
4. Remove the locknut with the **SST**.

Main drive gear bearing
Remove the main drive gear bearing with a suitable pipe.



97U0J1-025

Countershaft front bearing
Remove the countershaft front bearing with the **SST**.

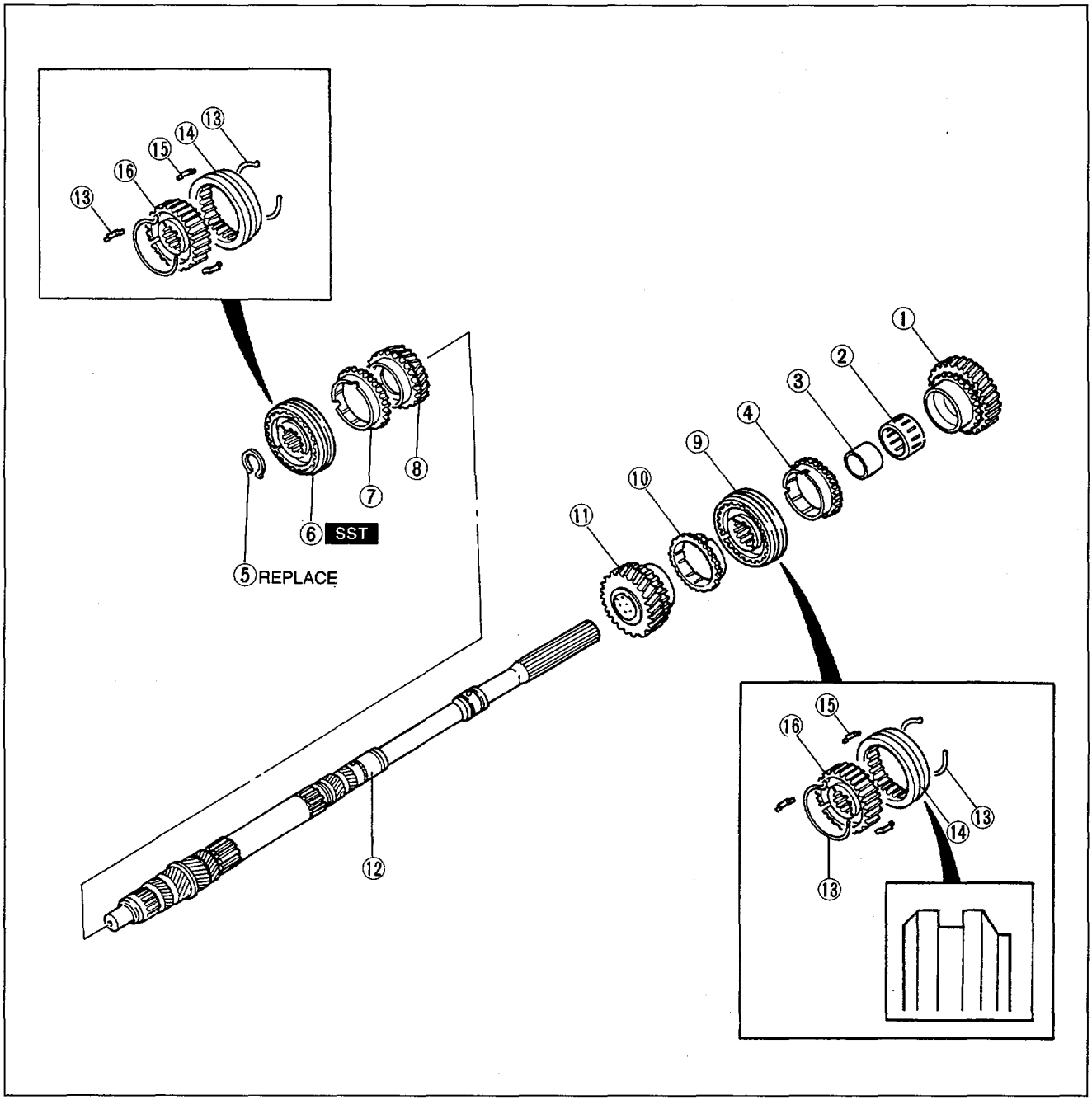


97U0J1-026

Bearing housing assembly
Remove the bearing housing by lightly tapping the countershaft with a copper hammer.

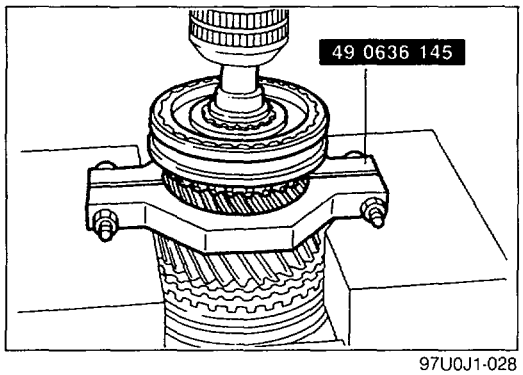
Mainshaft Parts

Disassemble in the order shown in the figure, referring to **Disassembly Note**.

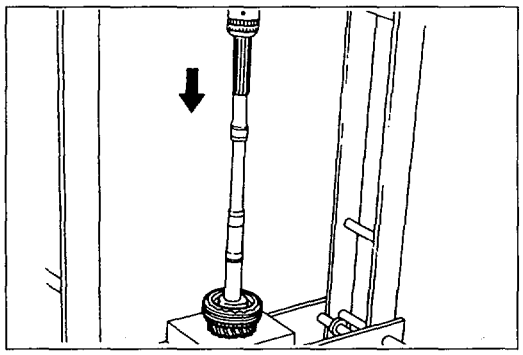


05U0JX-020

1. 1st gear
   Inspection ..... page J–23
2. Needle bearing
   Inspection ..... page J–24
3. Inner race
4. Synchronizer ring (1st)
   Inspection ..... page J–24
5. Snap ring
6. Clutch hub assembly (3rd/4th)
   Disassembly Note ..... page J–20
   Inspection ..... page J–23
7. Synchronizer ring (3rd)
   Inspection ..... page J–24
8. 3rd gear
   Inspection ..... page J–23
9. Clutch hub assembly (1st/2nd)
   Disassembly Note ..... page J–20
   Inspection ..... page J–23
10. Synchronizer ring (2nd)
    Inspection ..... page J–24
11. 2nd gear
    Inspection ..... page J–23
12. Mainshaft
    Inspection ..... page J–23
13. Synchronizer key spring
14. Clutch hub sleeve
15. Synchronizer key
16. Clutch hub



97U0J1-028



97U0J1-029

Disassembly note
Clutch hub assembly (3rd/4th)
1. Position the **SST** between 2nd and 3rd gears.

Caution
- **Hold the mainshaft with one hand so that it does not fall.**

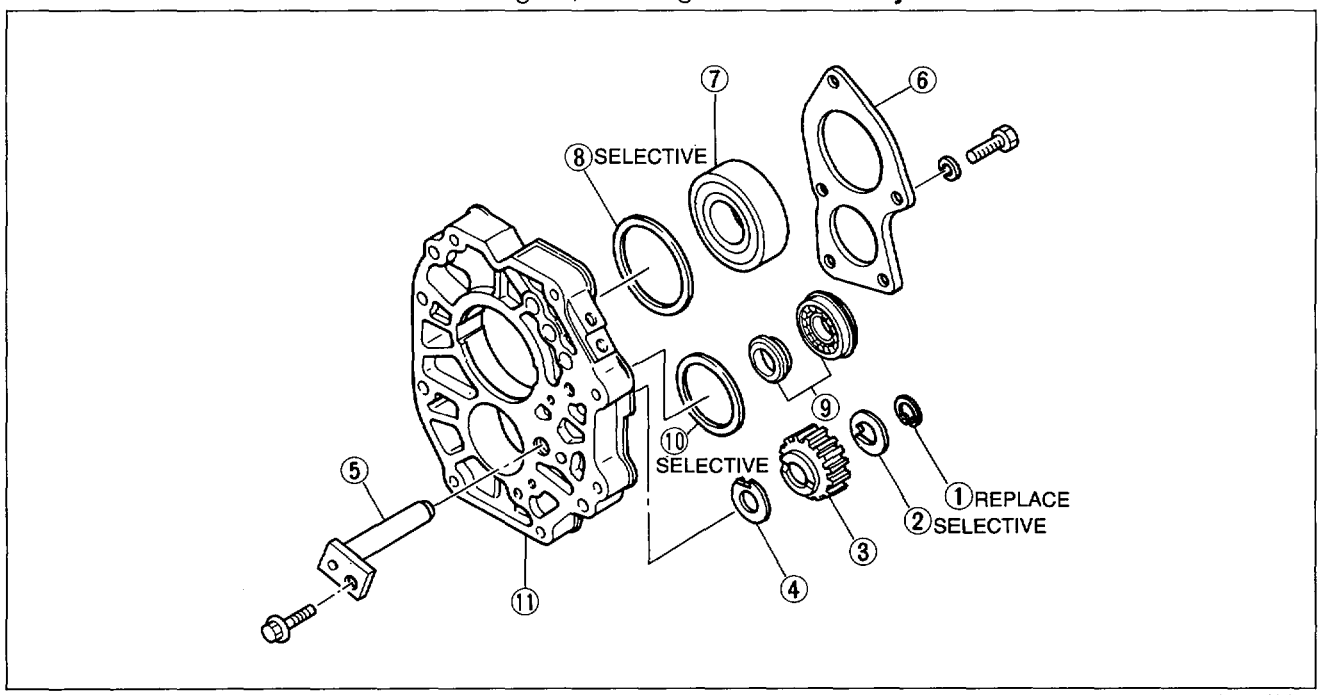
2. Press the mainshaft out of the clutch hub assembly (3rd/4th) and 3rd gear.

Clutch hub assembly (1st/2nd)

Caution
- **Hold the mainshaft with one hand so that it does not fall.**

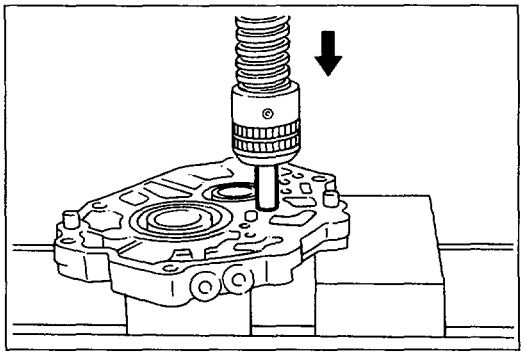
Press the mainshaft out of the clutch hub assembly (1st/2nd) and 2nd gear.

Bearing Housing Parts
Disassemble in the order shown in the figure, referring to **Disassembly Note**.



05U0JX-021

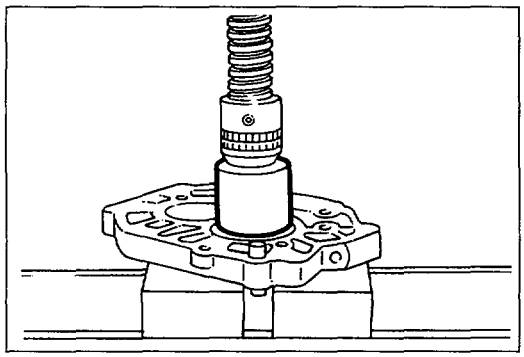
1. Snap ring
2. Adjustment washer
3. Reverse idler gear
   Inspection ..... page J–24
4. Thrust washer
5. Reverse idler gear shaft
   Disassembly Note
   ..... page J–21
   Inspection ..... page J–24
6. Bearing cover
7. Mainshaft front bearing
   Disassembly Note
   ..... page J–21
   Inspection ..... page J–24
8. Adjustment shim
9. Countershaft center bearing
   Disassembly Note
   ..... page J–21
   Inspection ..... page J–24
10. Adjustment shim
11. Bearing housing


97U0J1-031

Disassembly note
Reverse idler gear shaft

Caution
- **Support the reverse idler gear shaft with one hand so that it does not fall.**

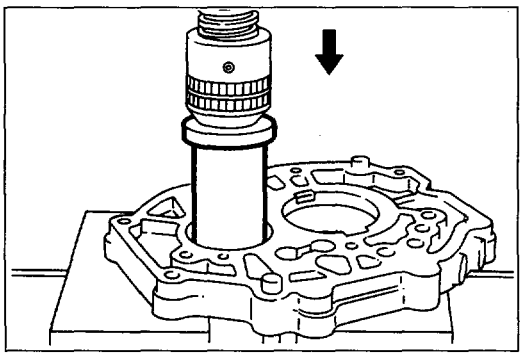
Press the reverse idler gear shaft out of the bearing housing.


97U0J1-032

Mainshaft front bearing

Caution
- **Support the mainshaft front bearing with one hand so that it does not fall.**

Remove the mainshaft front bearing with a suitable pipe.


97U0J1-033

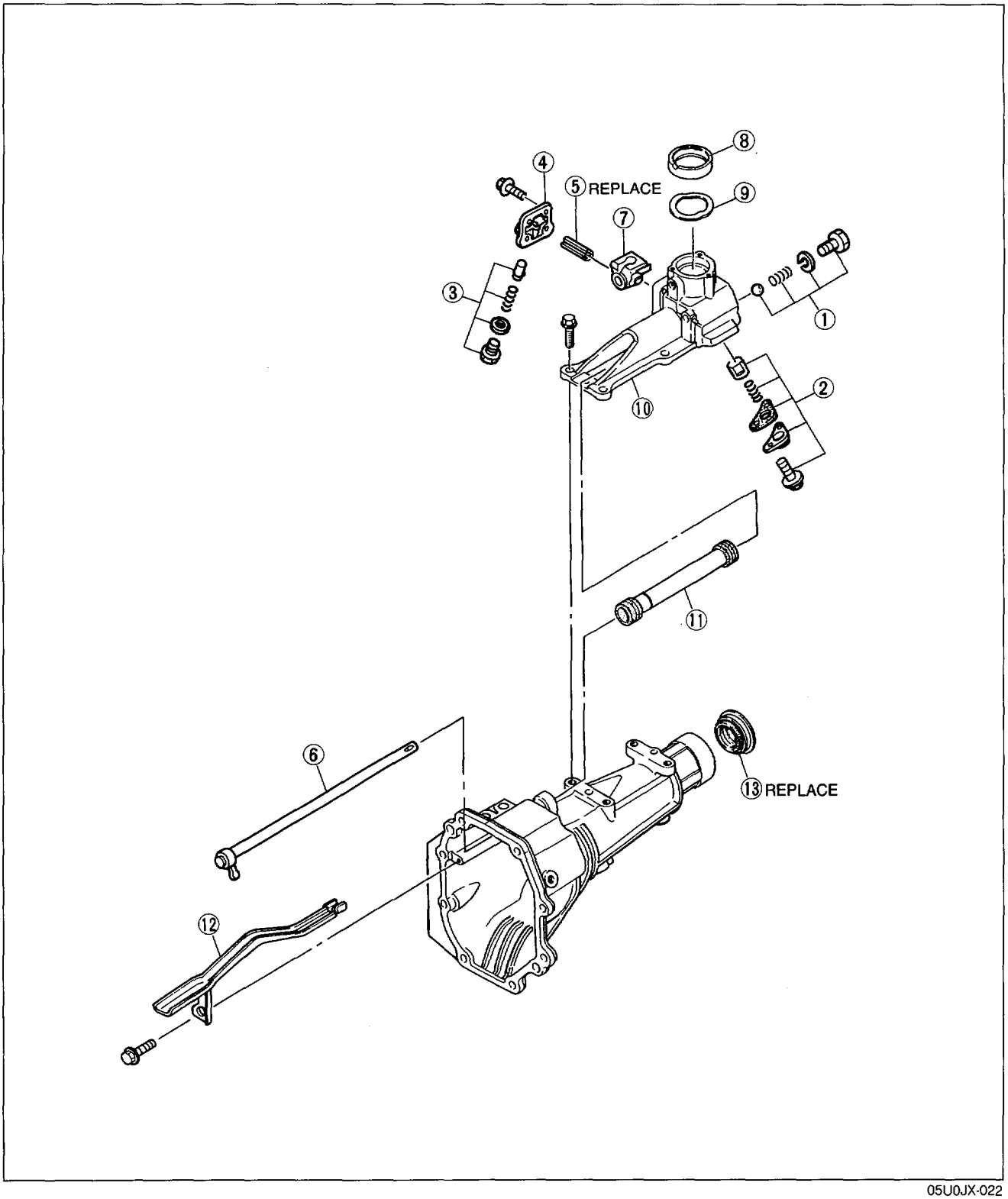
Countershaft center bearing

Caution
- **Support the countershaft center bearing with one hand so that it does not fall.**

Note
- **If countershaft center bearing is replaced, replace the spacer also.**

Remove the countershaft center bearing with a suitable pipe.

Extension Housing Parts
Disassemble in the order shown in the figure.



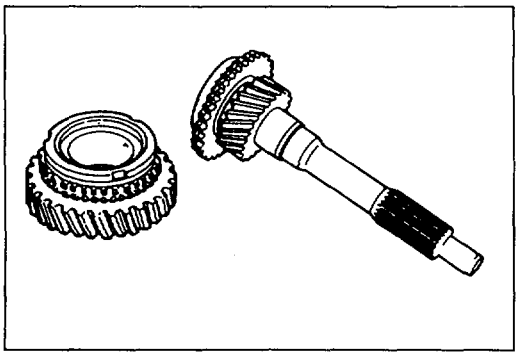
05U0JX-022

1. Steel ball, spring, and spring cap
2. Select-lock spindle, spring, and spring cap
3. Plug, spring, and pushpin
4. Blind cover
5. Roll pin
6. Control lever
7. Control lever end
8. Change bushing
9. Wave washer
10. Change control case
11. Rod cover
12. Oil passage
13. Oil seal
    Do not remove if not necessary

INSPECTION

Inspect all parts and repair or replace as necessary.

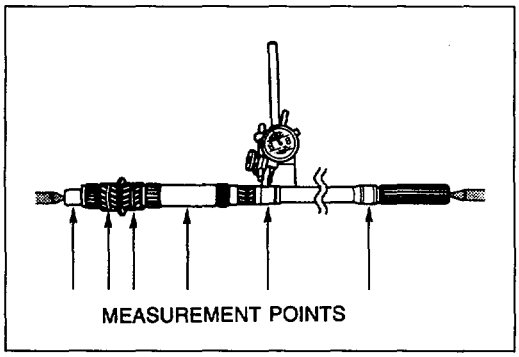
05U0JX-023



05U0JX-065

Each gear and main drive gear

1. Inspect the synchronizer cones for wear.
2. Inspect the individual gear teeth for wear and cracks.
3. Inspect the synchronizer ring matching teeth for damage and wear.
4. Inspect the main drive gear splines for damage and wear.



25U0JX-001

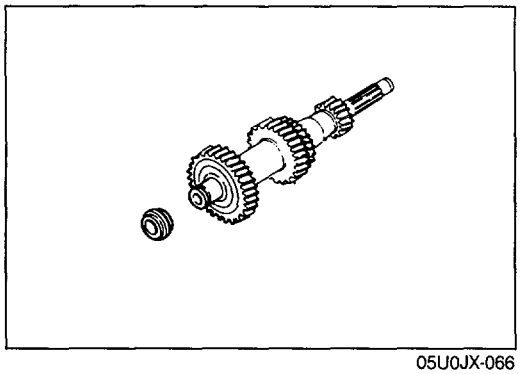
Mainshaft

1. Measure the mainshaft runout as shown.

   Maximum runout: 0.03mm (0.0012 in)

2. Inspect splines for damage or wear.
3. Measure the clearance between mainshaft and gear (or bush).

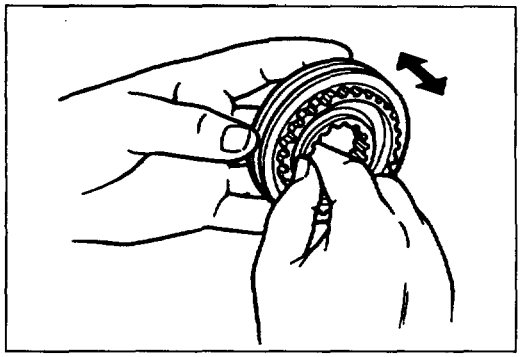
   Maximum clearance: 0.15mm (0.006 in)



05U0JX-066

Countershaft

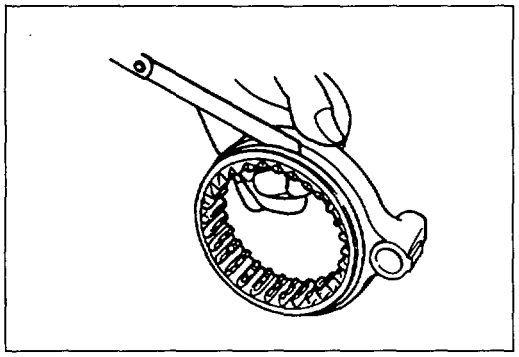
1. Inspect the gear teeth for wear and cracks.
2. Inspect the splines for damage and wear.



9MU0JX-059

Clutch hub assembly

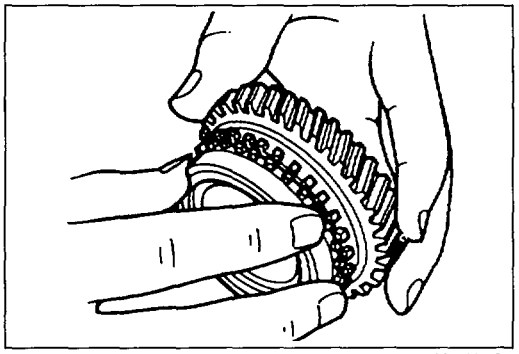
1. Inspect the clutch hub sleeve and hub operation.
2. Inspect the individual gear teeth for damage, wear, and cracks.
3. Inspect the synchronizer key for damage, wear, and cracks.



9MU0JX-060

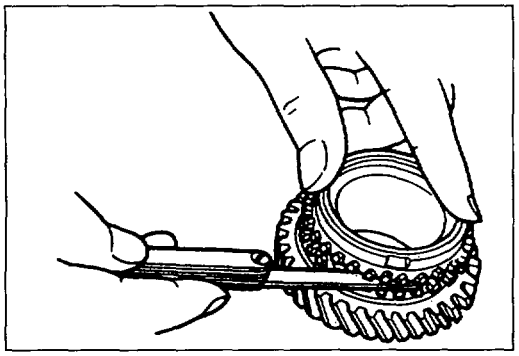
4. Measure the clearance between hub sleeve and shift fork.

Standard clearance: 0.2—0.3mm (0.008—0.012 in)
Maximum: 0.5mm (0.020 in)



05U0JX-067

Synchronizer ring
1. Inspect the individual synchronizer ring teeth for wear and cracks.
2. Inspect the taper surface for wear and cracks.

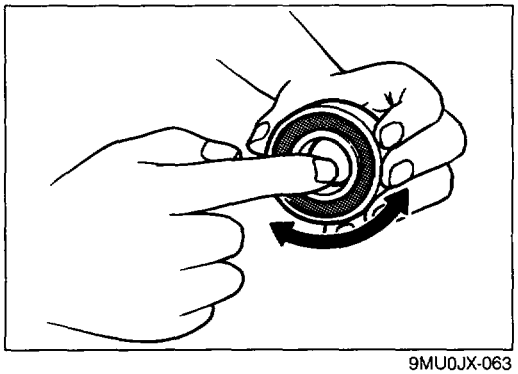


25U0JX-002

Note
- **Set the synchronizer ring squarely in the gear; then measure around the circumference.**

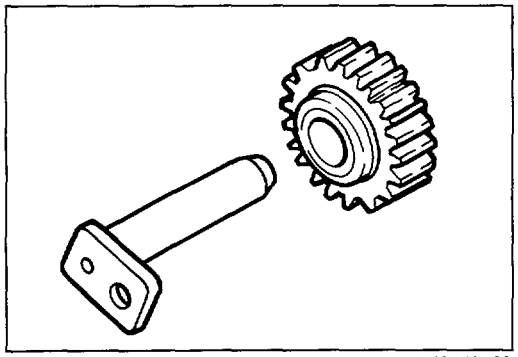
3. Measure the clearance between synchronizer ring and flank surface of gear.

Standard clearance: 1.5mm (0.059 in)
Minimum: 0.8mm (0.032 in)



9MU0JX-063

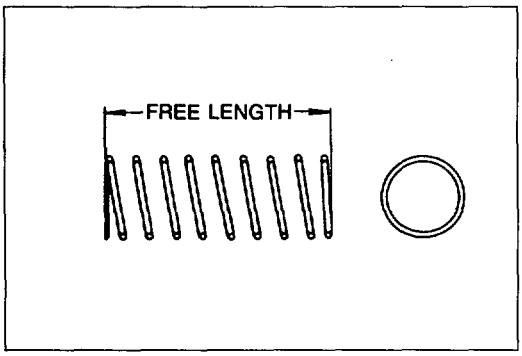
Bearing
Inspect for damage and rough rotation.



05U0JX-068

Reverse idler gear and shaft
1. Inspect the gear teeth for wear and cracks.
2. Measure the clearance between the reverse idler gear bushing and shaft.

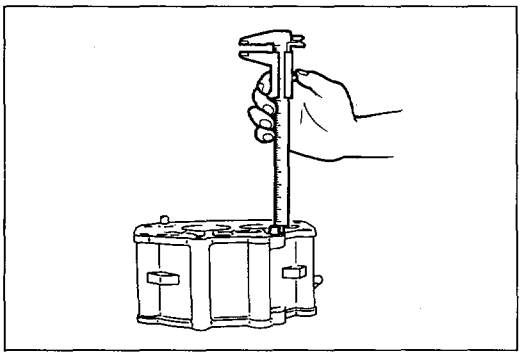
Standard clearance:
0.02—0.05mm (0.0008—0.0020 in)
Maximum: 0.15mm (0.006 in)



97U0J1-038

Springs
Measure the free length of the springs.

Standard free length
Shift rod (5th/Reverse) spring: 75mm (2.953 in)
Detent ball spring (1st/2nd, 3rd/4th): 22.5mm (0.886 in)
Detent ball spring (5th/Reverse): 17.0mm (0.669 in)



97U0J1-039

Intermediate housing
Measure the intermediate housing pin height.

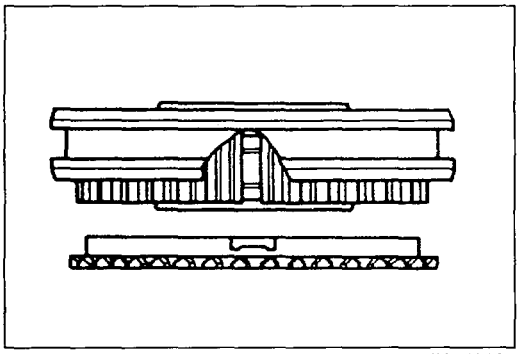
Standard height: 9.0—10.0mm (0.354—0.394 in)

ASSEMBLY

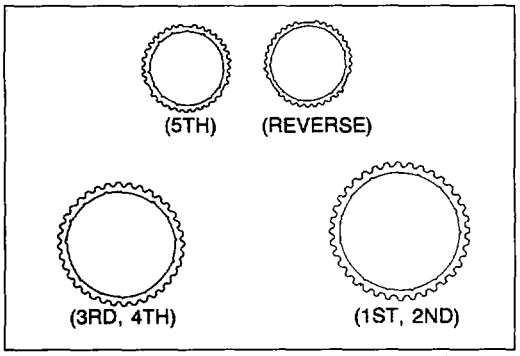
Precaution

1. All O-rings and gasket must be replaced with the new ones included in the overhaul kit.
2. Before assembly, make sure all parts are completely clean.
3. Assemble the parts within 10 minutes after applying sealant. Allow all sealant to cure at least 30 minutes after assembly before filling the transmission with transmission oil.

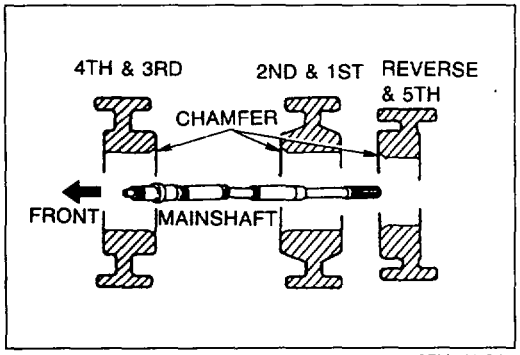
05U0JX-024



9MU0JX-067



05U0JX-025



97U0J1-041

Clutch hub

Caution

- **Align the synchronizer ring grooves with the clutch hub keys during installation.**

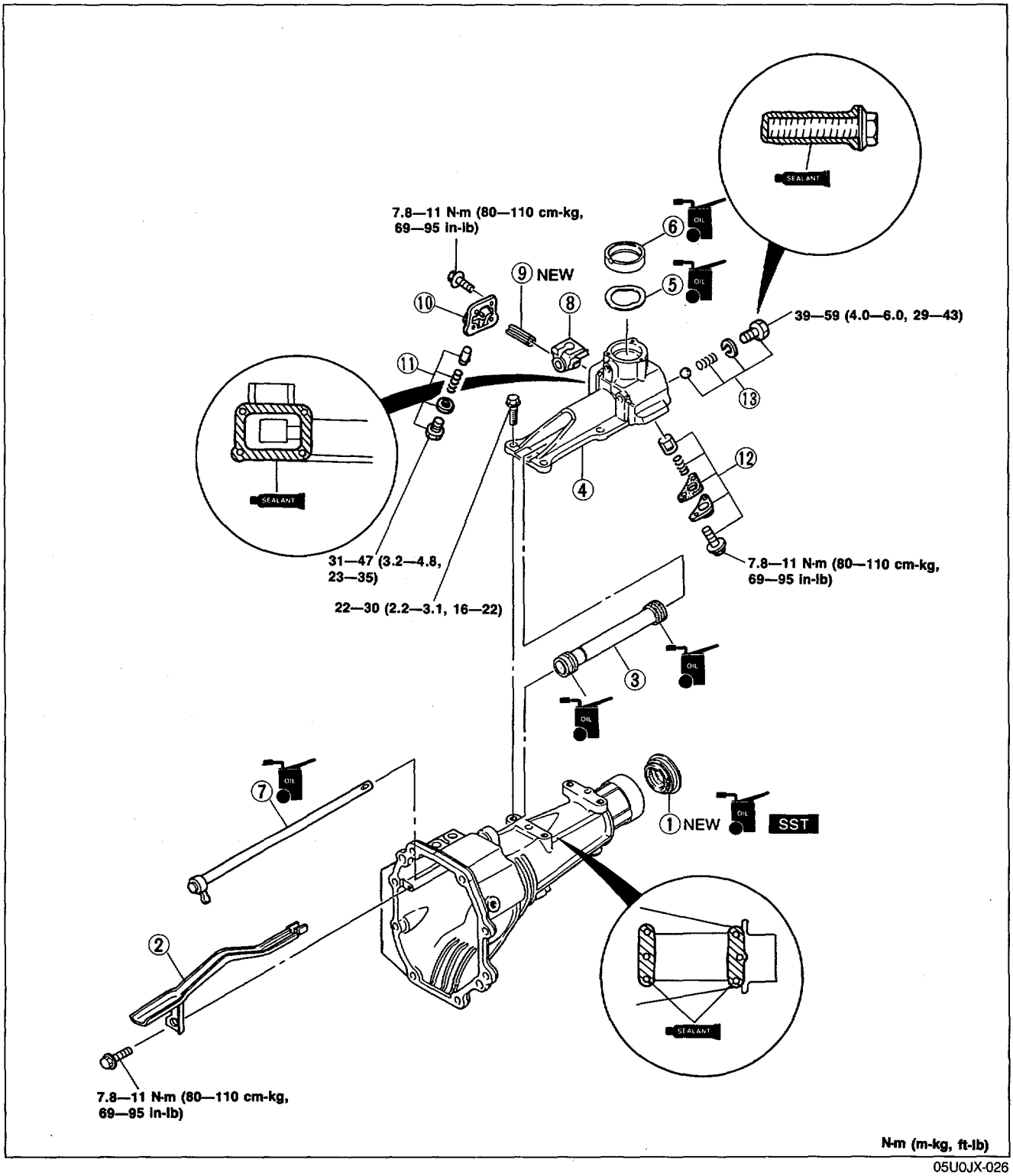
Note

- **The synchronizer rings all have the same basic shape. Carefully note these distinguishing features:**
  - **a) 5th and Reverse synchronizer rings are the smallest.**
  - **b) Reverse has 2 notches in the teeth.**
  - **c) 4th and 3rd are the next larger and are exactly the same.**
  - **d) 2nd and 1st are the biggest and are exactly the same.**

- **Press each clutch hub assembly onto the mainshaft in the proper direction.**
- **Install the clutch hubs with the chamfers of the inner gear teeth as shown.**

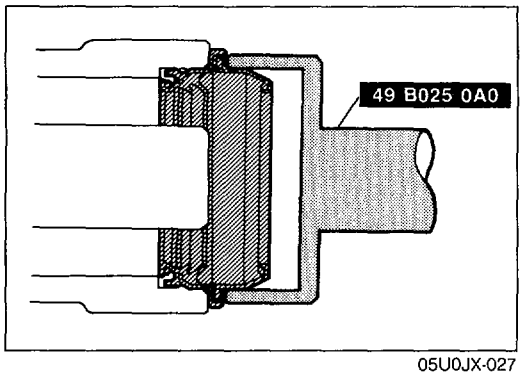
Extension Housing Parts

Assemble in the order shown in the figure, referring to **Assembly Note**.



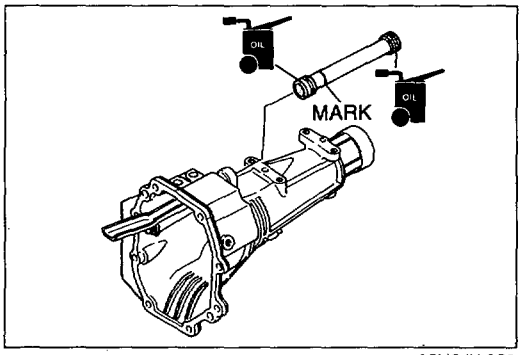
05U0JX-026

1. Oil seal
   Assembly Note. page J–28
2. Oil passage
3. Rod cover
   Assembly Note. page J–28
4. Change control case
5. Wave washer
6. Change bushing
7. Control lever
8. Control lever end
9. Roll pin
   Assembly Note. page J–28
10. Blind cover
11. Plug, spring, and pushpin
12. Select-lock spindle, spring, and spring cap
    Assembly Note. page J–28
13. Steel ball, spring, and spring cap



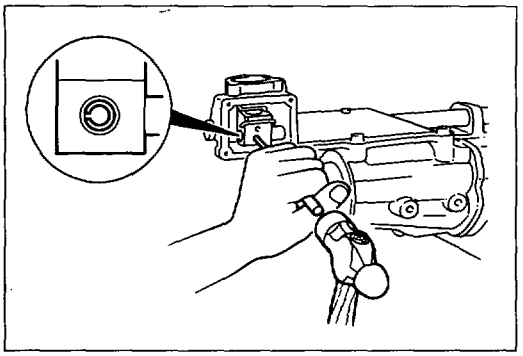
05U0JX-027

Assembly note
Oil seal
1. Apply transmission oil to outer periphery.
2. Install a new oil seal with the **SST**.



05U0JX-028

Rod cover
1. Apply transmission oil to rubbers on the rod cover.
2. Install the rod cover with the mark facing forward.

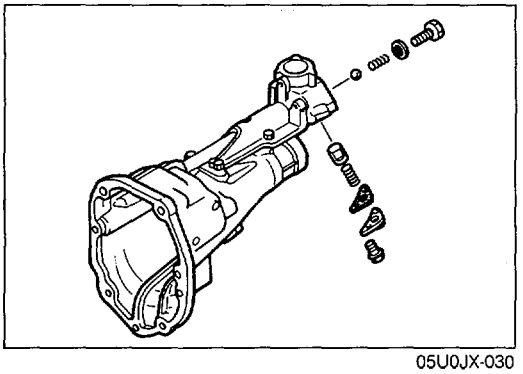


05U0JX-029

Roll pin

Caution
- **Install the roll pin with the seam facing as shown in the figure.**

Install a new roll pin into the control lever end.



05U0JX-030

Select-lock spindle, spring, and spring cap
1. Install the select-lock spindle, spring, and spring cap.

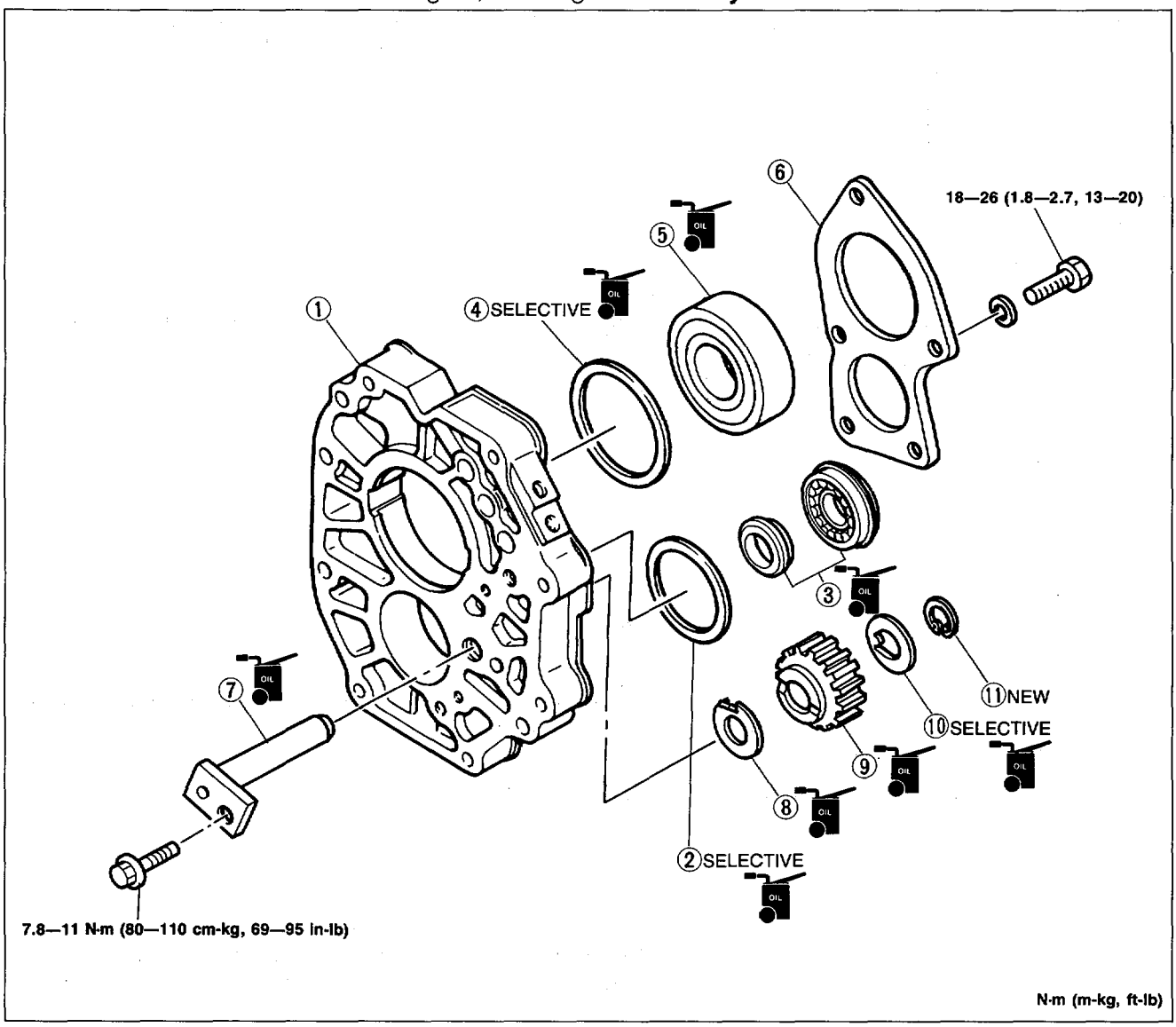
Tightening torque:
7.8—11 N·m (80—110 cm-kg, 69—95 in-lb)

Note
- **If the select-lock spindle is not pushed down, the ball will not correctly engage the select-lock spindle.**

2. Push the select-lock spindle down by pushing on the control rod.

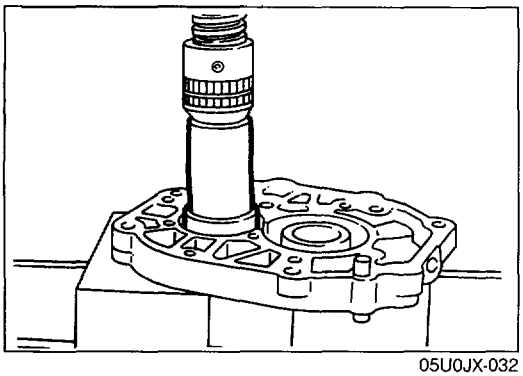
Bearing Housing Parts

Assemble in the order shown in the figure, referring to **Assembly Note**.



05U0JX-031

1. Bearing housing
2. Adjustment shim
   Assembly Note. page J–30
3. Countershaft center bearing
   Assembly Note. page J–29
4. Adjustment shim
   Assembly Note. page J–30
5. Mainshaft front bearing
   Assembly Note. page J–30
6. Bearing cover
7. Reverse idler gear shaft
   Assembly Note. page J–30
8. Thrust washer
9. Reverse idler gear
10. Adjustment washer
    Assembly Note. page J–30
11. Snap ring

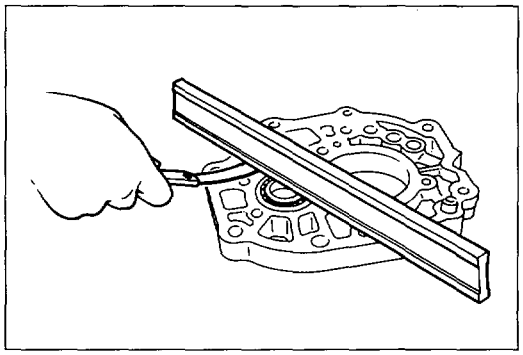


05U0JX-032

Assembly note

Countershaft center bearing

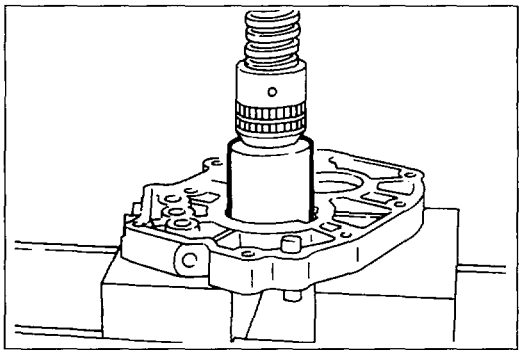
Press the countershaft center bearing into the bearing housing with a suitable pipe.



05U0JX-033

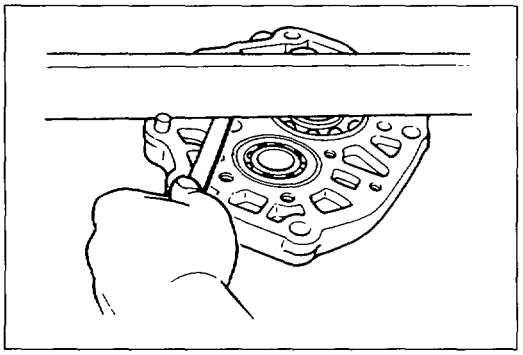
Adjustment shim
Measure the clearance between the countershaft center bearing and the bearing housing.
If not within specification, adjust the clearance by installing the correct adjustment shim(s).

Standard clearance: 0—0.1mm (0—0.004 in)
Adjustment shim:
0.1mm (0.004 in), 0.3mm (0.012 in)



05U0JX-034

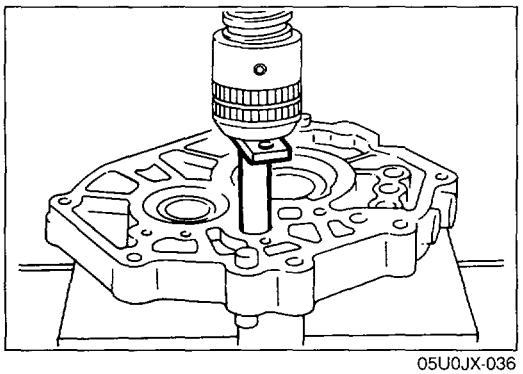
Mainshaft front bearing
Press the mainshaft front bearing into the bearing housing with a suitable pipe.



05U0JX-035

Adjustment shim
Measure the clearance between the mainshaft front bearing and the bearing housing.
If not within specification, adjust the clearance by installing the correct adjustment shim(s).

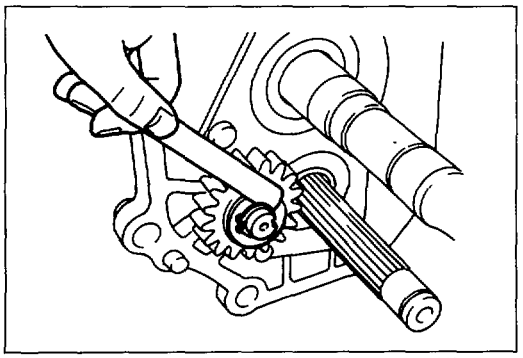
Standard clearance: 0—0.1mm (0—0.004 in)
Adjustment shim:
0.1mm (0.004 in), 0.15mm (0.006 in), 0.3mm (0.012 in)



05U0JX-036

Reverse idler gear shaft
Press the reverse idler gear into the bearing housing.

Tightening torque:
7.8—11 N·m (80—110 cm-kg, 69—95 in)



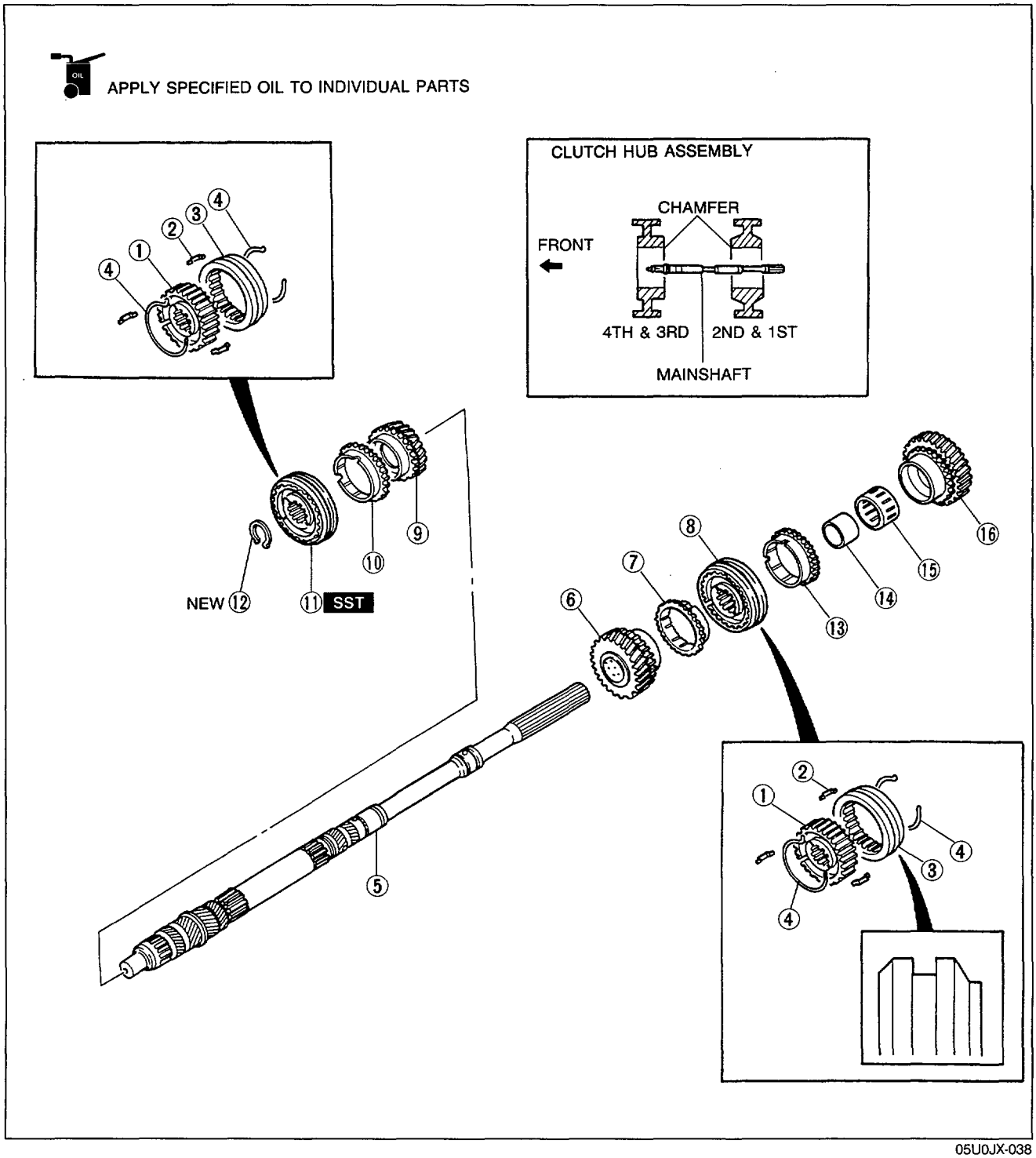
05U0JX-037

Adjustment washer
Measure the clearance between the adjustment washer and snap ring.
If not within specification, adjust the clearance by installing the correct adjustment washer.

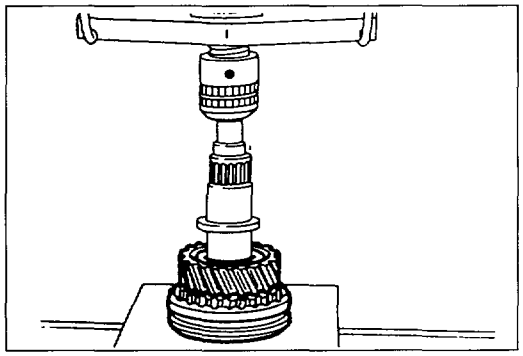
Maximum clearance: 0.1mm (0.004 in)
Adjustment washer:
2.6mm (0.102 in), 2.8mm (0.110 in), 3.0mm (0.118 in)

Mainshaft Parts

Assemble in the order shown in the figure, referring to **Assembly Note**.



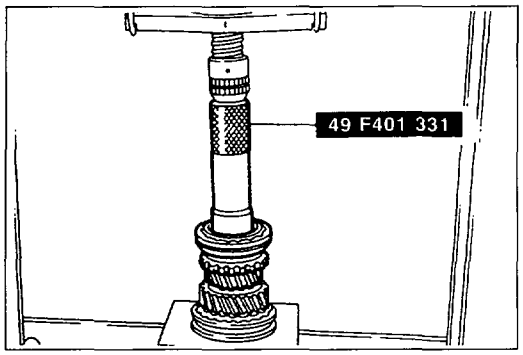
1. Clutch hub
2. Synchronizer key
3. Clutch hub sleeve
4. Synchronizer key spring
5. Mainshaft
6. 2nd gear
   Assembly Note. page J–32
7. Synchronizer ring
8. Clutch hub assembly (1st/2nd)
   Assembly Note. page J–32
9. 3rd gear
   Assembly Note. page J–32
10. Synchronizer ring (3rd)
11. Clutch hub assembly (3rd/4th)
    Assembly Note. page J–32
12. Snap ring
    Assembly Note. page J–32
13. Synchronizer ring
14. Inner race
    Assembly Note. page J–32
15. Needle bearing
    Assembly Note. page J–32
16. 1st gear
    Assembly Note. page J–32



97U0J1-052

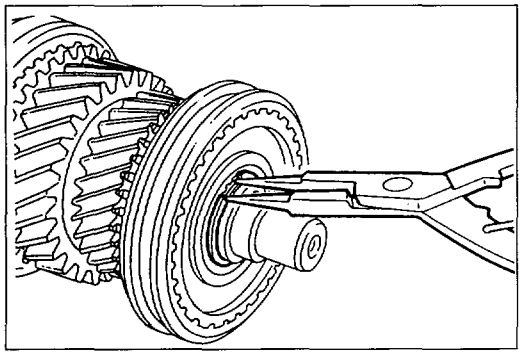
Assembly note
Clutch hub assembly

1. Set the 2nd gear and the 1st/2nd clutch hub assembly on the mainshaft, then press in the mainshaft.



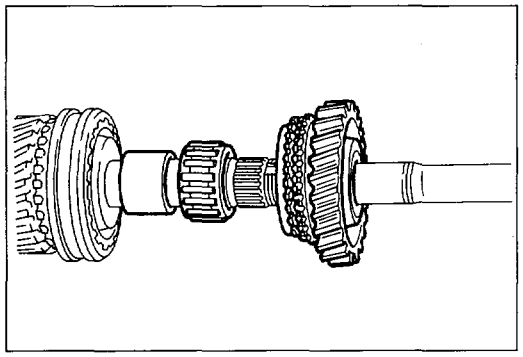
97U0J1-053

2. Set the 3rd gear and 3rd/4th clutch hub assembly on the mainshaft, then press on the 3rd/4th clutch hub assembly with the **SST**.



9MU0JX-073

3. Install a new snap ring on the front of the mainshaft.



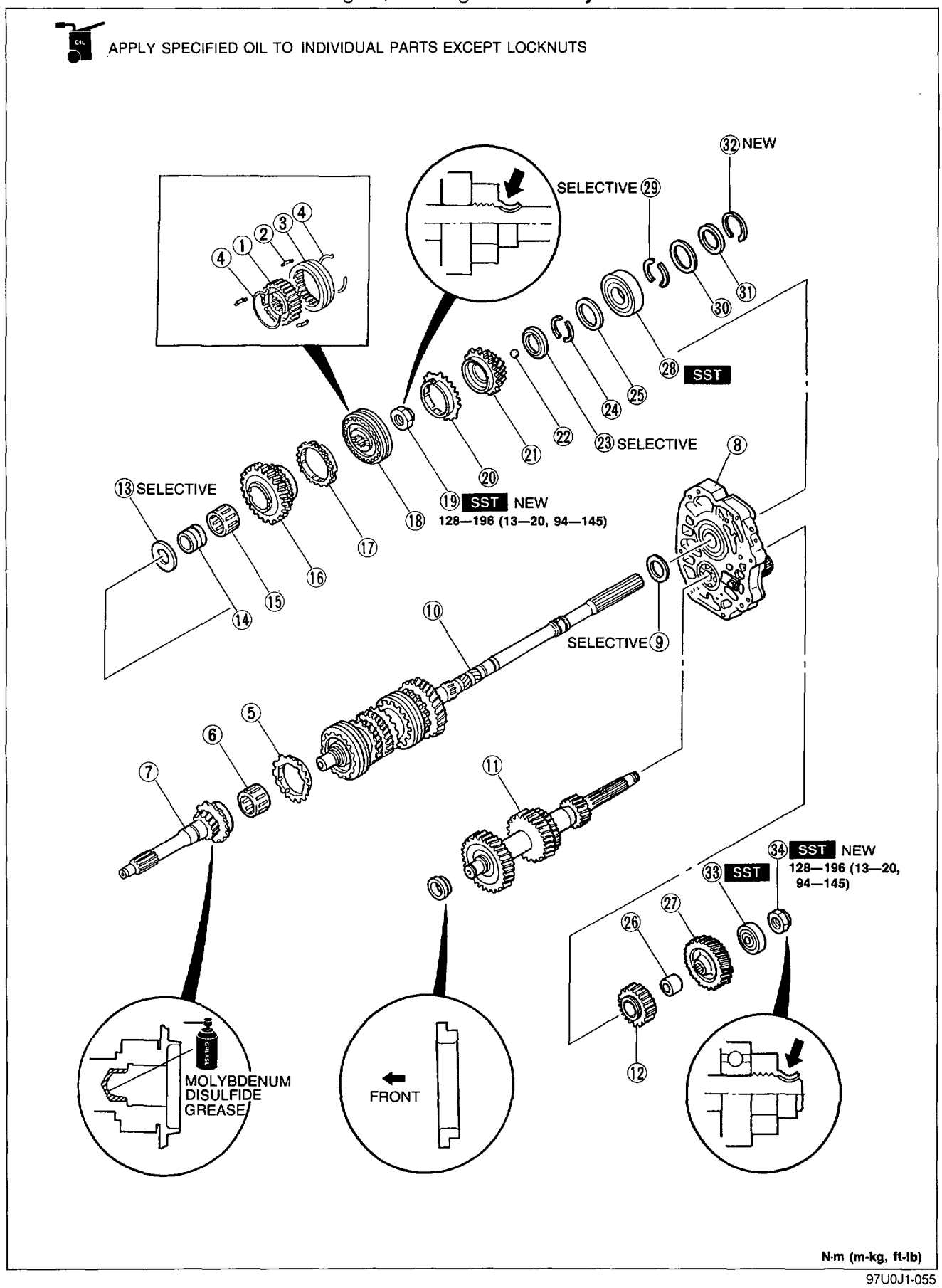
97U0J1-054

4. Install the inner race, needle bearing, and 1st gear.

MEMO

Mainshaft and Countershaft Parts

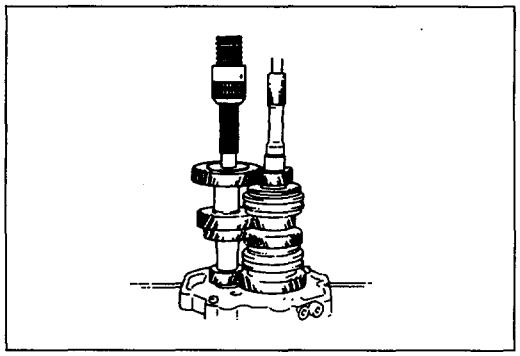
Assemble in the order shown in the figure, referring to **Assembly Note**.



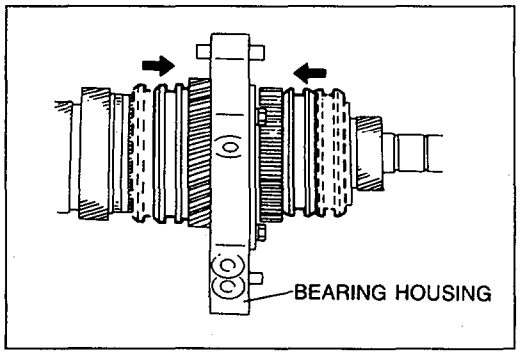
97U0J1-055

1. Clutch hub
2. Synchronizer key
3. Clutch hub sleeve
4. Synchronizer key spring
5. Synchronizer ring (4th)
6. Needle bearing
7. Main drive gear
8. Bearing housing assembly
9. Washer
10. Mainshaft gear assembly
    Assembly Note..... below
11. Countershaft
    Assembly Note..... below
12. Counter reverse gear
13. Washer
14. Inner race
15. Needle bearing
16. Reverse gear
17. Synchronizer ring (Reverse)
18. Clutch hub assembly
19. Locknut (Mainshaft)
    Assembly Note..... below
20. Synchronizer ring (5th)
21. 5th gear
22. Steel ball
23. Thrust lock washer
    Assembly Note. page J–36
24. C-washer
    Assembly Note. page J–36
25. Retaining ring
    Assembly Note. page J–36
26. Spacer
27. Counter 5th gear
28. Mainshaft rear bearing
    Assembly Note. page J–36
29. C-washer
    Assembly Note. page J–36
30. Retaining ring
    Assembly Note. page J–36
31. Washer
    Assembly Note. page J–36
32. Snap ring
33. Countershaft rear bearing
    Assembly Note. page J–36
34. Locknut (Countershaft)
    Assembly Note. page J–37

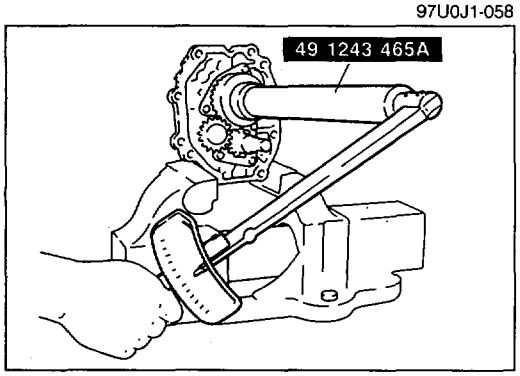
25U0JX-003



97U0J1-057



97U0J1-058



25U0JX-004

Assembly note
Mainshaft and countershaft

1. Place the mainshaft gear assembly and the countershaft on the bearing housing.
2. Use a suitable bar to press in the countershaft.

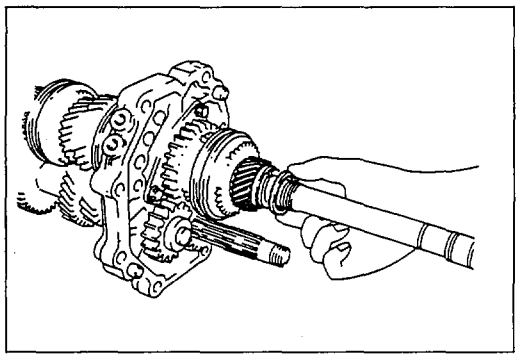
Locknut (Mainshaft)

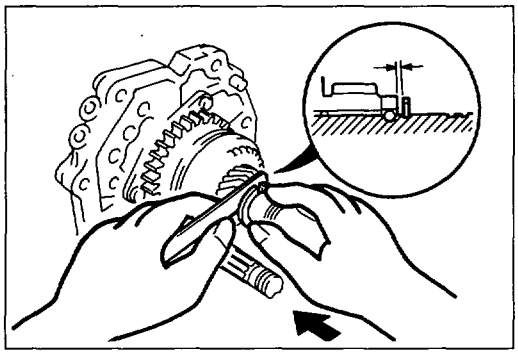
Note
- **Use pads in the vise to prevent damaging the bearing housing.**

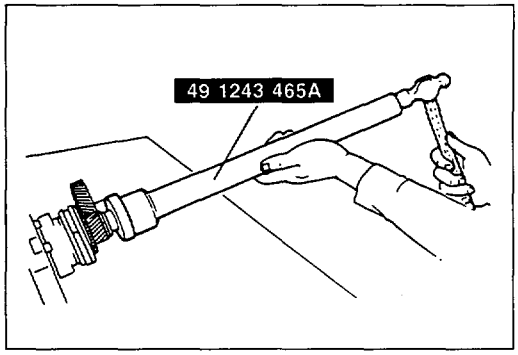
1. Secure the bearing housing in a vise.
2. Slide the clutch hub sleeves onto 1st and reverse gears to lock the mainshaft.
3. Tighten a new locknut by using the **SST**.

Tightening torque:
128—196 N·m (13—20 m-kg, 94—145 ft-lb)

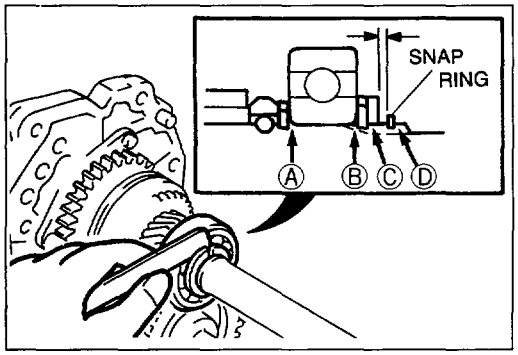
4. Use a chisel to stake the locknut.


25U0JX-005

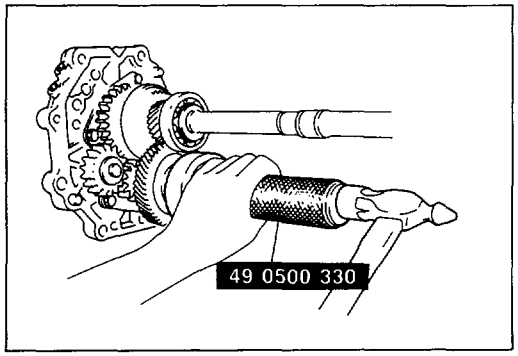

25U0JX-006



25U0JX-007



25U0JX-008



25U0JX-009

Thrust lock washer

1. Install the synchronizer ring and 5th gear.
2. Insert the steel ball and thrust lock washer.
3. Install only the two 3.0mm (0.118 in) thick C-washers in the front mainshaft groove.

Caution

- **If the C-washers are not pushed fully foward the 5th gear side, the measurement will be incorrect.**

4. While pushing the C-washers toward the 5th gear side, measure the clearance between the thrust lock washer and C-washers.
   If the clearance is not as specified select the proper thrust lock washer.

   Standard play: 0.1—0.3mm (0.004—0.012 in)
   Thrust lock washer thickness:
   6.2mm (0.244 in), 6.4mm (0.252 in),
   6.5mm (0.256 in), 6.6mm (0.260 in)

5. Install the retaining ring.

Mainshaft Rear Bearing

1. Drive on the mainshaft rear bearing by using the **SST**, fully seating it against the front C-washers.
2. Install the original C-washers and hold them with the retaining ring.
3. Install the washer and new snap ring.

Caution

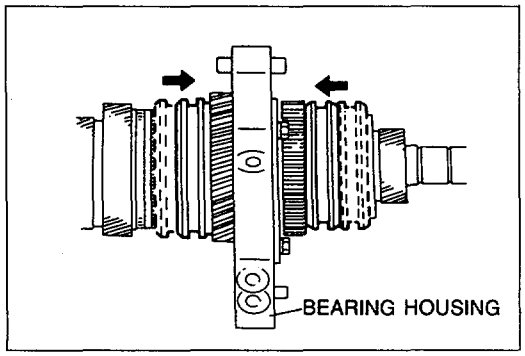
- **If points A through D, as shown in the figure, are not pressed together tightly, the measurement will be incorrect.**
- **If the C-washers will not fit into the rear mainshaft groove, select the proper thickness C-washers.**
- **Ensure that both C-washers at one position are the same thickness.**

4. With points A through D pressed tightly, together, measure the clearance between the washer and snap ring.
   If the clearance is not as specified, select the proper C-washers.

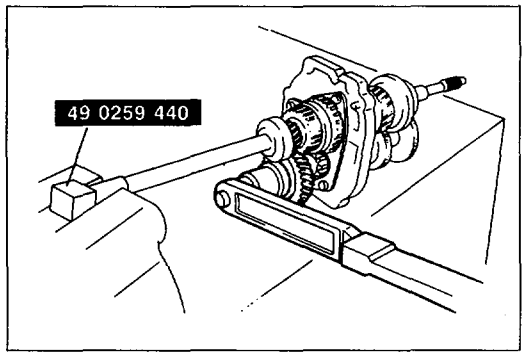
   Standard play: 0—0.1mm (0—0.004 in)
   C-washer thickness:
   2.9mm (0.114 in), 3.0mm (0.118 in),
   3.1mm (0.122 in), 3.2mm (0.126 in)

Countershaft rear bearing

Drive the countershaft rear bearing onto the countershaft by using the **SST**.



97U0J1-065



05U0JX-042

Locknut (Countershaft)

1. Shift the clutch hub sleeves to 1st gear and reverse gear to put the gears in a double-engaged condition.

Note

- **Use pads in the vise to prevent damaging the SST.**

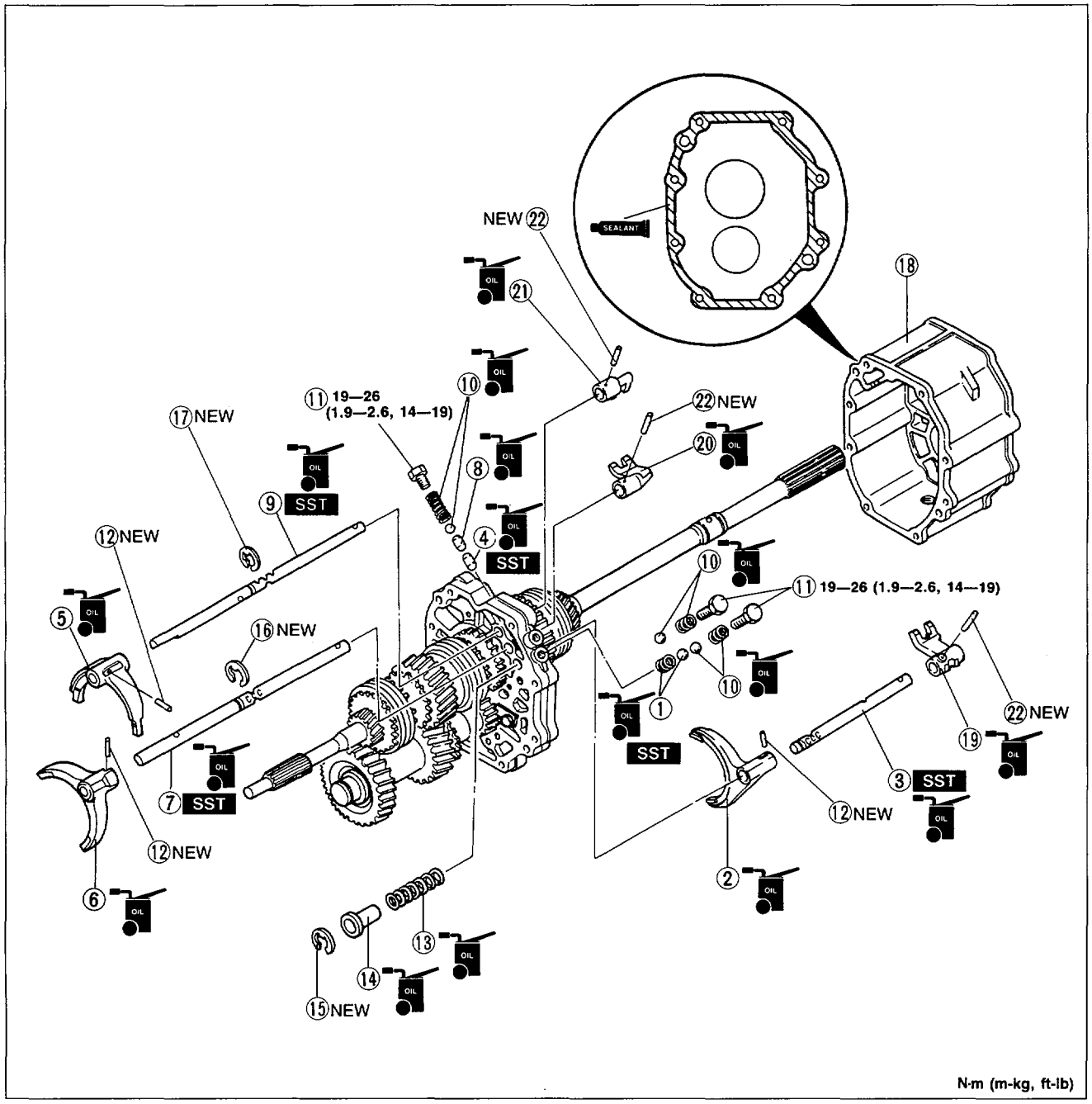
2. Connect the **SST** to the mainshaft and tighten it securely in a vise.
3. Tighten a new locknut.

Tightening torque:
128—196 N·m (13—20 m-kg, 94—145 ft-lb)

4. Use a chisel to stake the locknut.

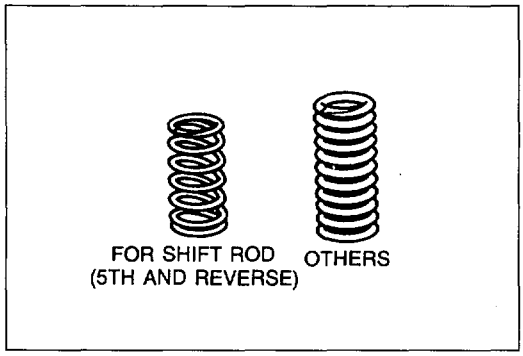
Shift Fork and Shift Rod Parts

Assemble in the order shown in the figure, referring to **Assembly Note**.



05U0JX-043

1. Spring and ball
   Assembly Note. page J–39
2. 5th/Reverse shift fork
   Assembly Note. page J–39
3. 5th/Reverse shift rod
   Assembly Note. page J–39
4. Interlock pin
   Assembly Note. page J–39
5. 1st/2nd shift fork
   Assembly Note. page J–40
6. 3rd/4th shift fork
   Assembly Note. page J–40
7. 3rd/4th shift rod
   Assembly Note. page J–40
8. Interlock pin
   Assembly Note. page J–40
9. 1st/2nd shift rod
10. Ball and spring
11. Cap plug
12. Roll pin
    Assembly Note. page J–40
13. Spring
    Assembly Note. page J–40
14. Spacer
    Assembly Note. page J–40
15. Clip
    Assembly Note. page J–40
16. Clip
    Assembly Note. page J–40
17. Clip
    Assembly Note. page J–40
18. Intermediate housing
    Assembly Note. page J–41
19. 5th/Reverse shift rod end
20. 3rd/4th shift rod end
21. 1st/2nd shift rod end
22. Roll pin
    Assembly Note. page J–41

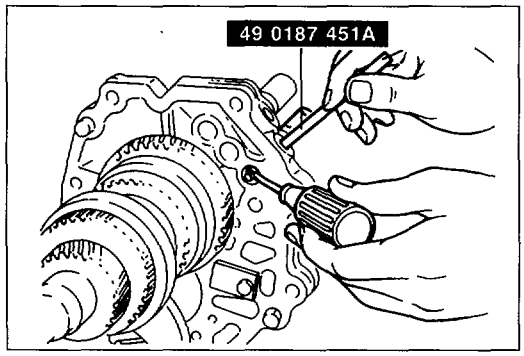


05U0JX-044

Assembly note
Spring and ball

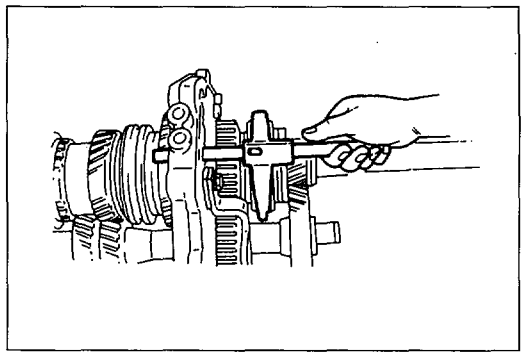
Note
- **There are 2 types of springs; be sure to install them correctly.**

1. Insert the spring and ball (5th/Reverse) into the bearing housing.



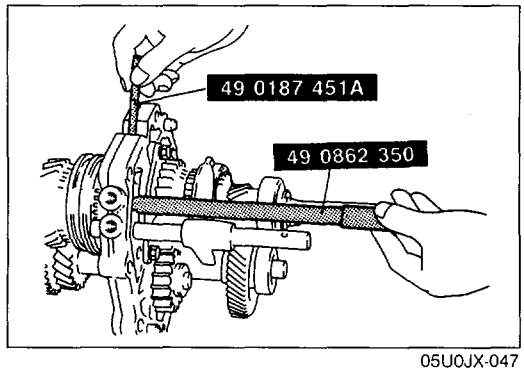
05U0JX-045

2. Press the spring and ball (5th/Reverse) with a screwdriver and the **SST** to install the shift rod.



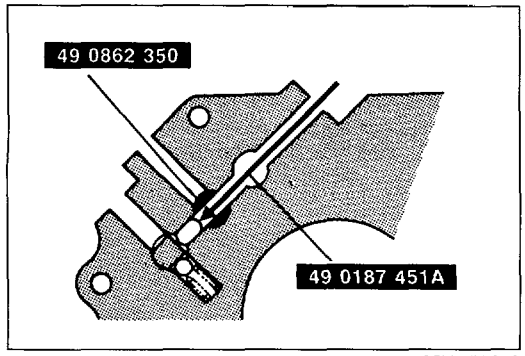
05U0JX-046

Shift fork and rod
Install the 5th/Reverse shift fork and 5th/Reverse shift rod into the bearing housing.



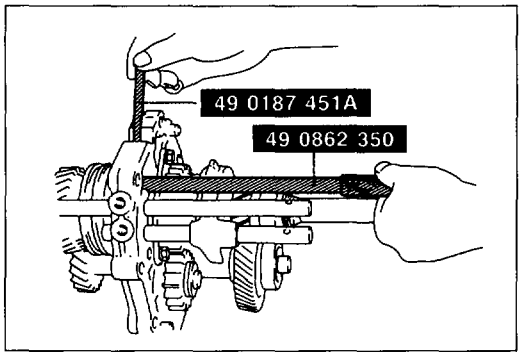
05U0JX-047

Interlock pin
1. Position the interlock pin into the bearing housing with the **SST**.



05U0JX-048

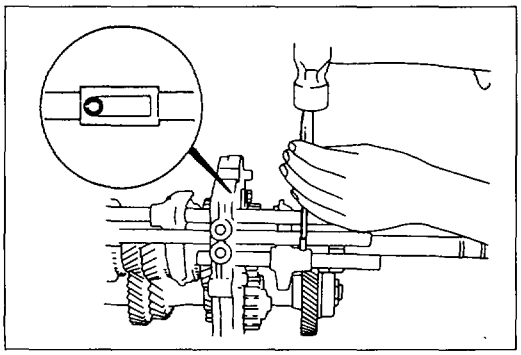
2. Verify that the interlock pin is correctly installed.



05U0JX-049

Shift fork and rod, interlock pin

1. Set the 1st/2nd shift fork onto the 1st/2nd clutch hub assembly.
2. Install the 3rd/4th shift fork and 3rd/4th shift rod, and install the interlock pin into the bearing housing as in Step 4.

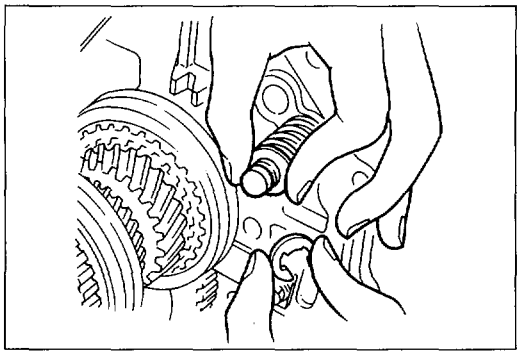

05U0JX-050

Roll pin

Caution

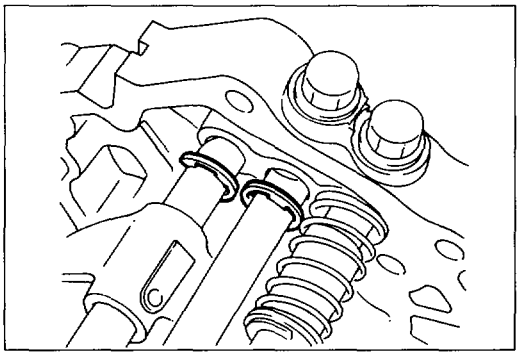
- **Install the roll pin with the seam facing as shown in the figure.**

Install a new roll pin into each shift fork.

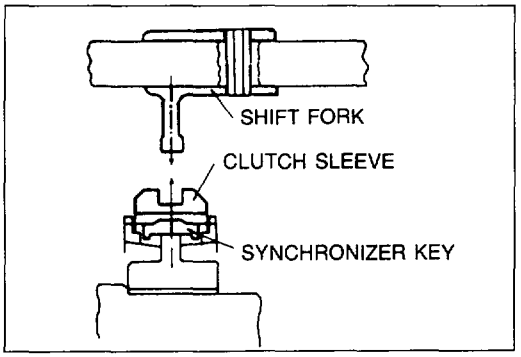

05U0JX-051

Spring, spacer, clip

1. Slide the spring and spacer onto the 5th/Reverse shift rod. While pressing the spacer, install a new clip.

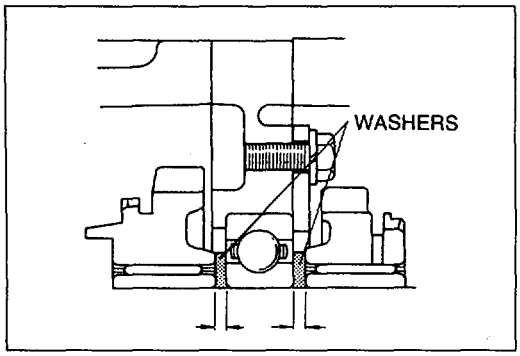

05U0JX-052

2. Install new clips to the 3rd/4th shift rod and 1st/2nd shift rod.

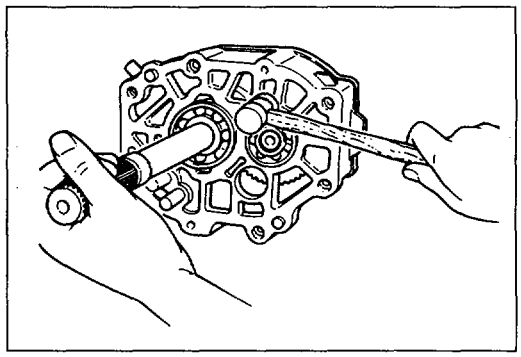


05U0JX-053

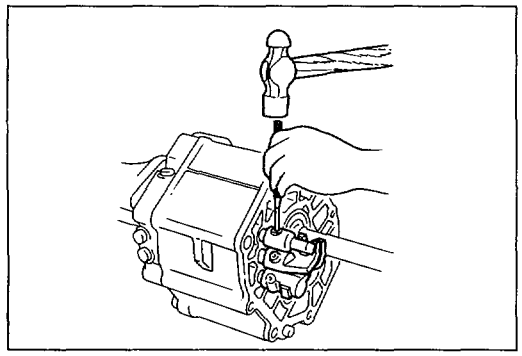
3. Verify that the centers of the shift fork and clutch hub sleeve are aligned properly.
   If they are not, select the proper washer for between 1st gear and the mainshaft front bearing, and between reverse gear and the mainshaft front bearing.



25U0JX-010



97U0J1-080



05U0JX-055

Caution
- **The total thickness of the front and rear washers should be 5.9—6.0mm (0.2323—0.2362 in).**

4. The following washer thicknesses are available.

Washer thickness:
2.2mm (0.0866 in), 2.7mm (0.1063 in)
3.0mm (0.1181 in), 3.2mm (0.1260 in)
3.7mm (0.1457 in)

Intermediate housing
1. Apply sealant to the contacting surfaces of the intermediate housing and bearing housing.
2. Mount the intermediate housing to the bearing housing by tapping it lightly with a plastic hammer.

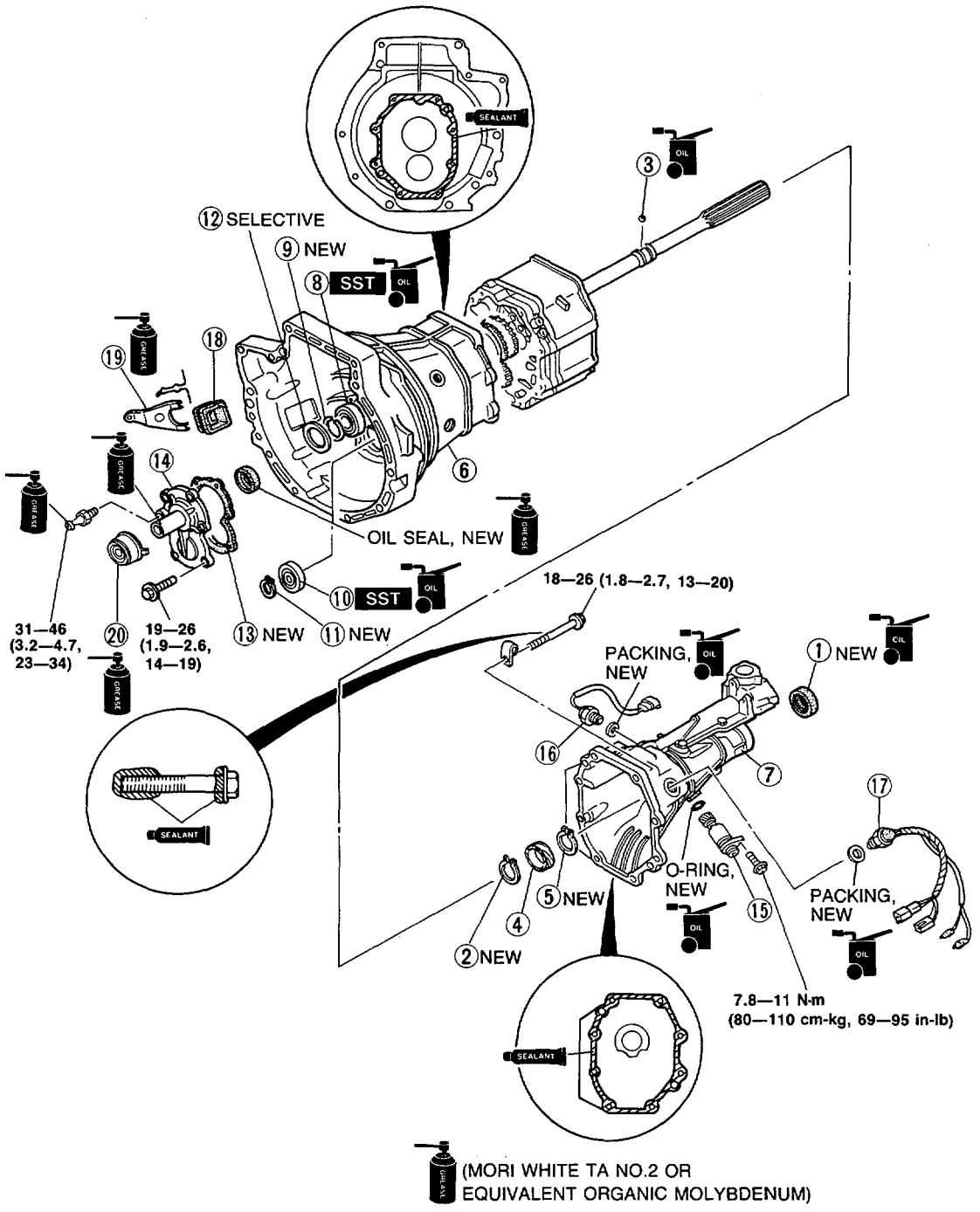
Roll pin

Caution
- **Install the roll pin with the seam facing forward.**

Install a new roll pin into each shift rod end.

Housing Components

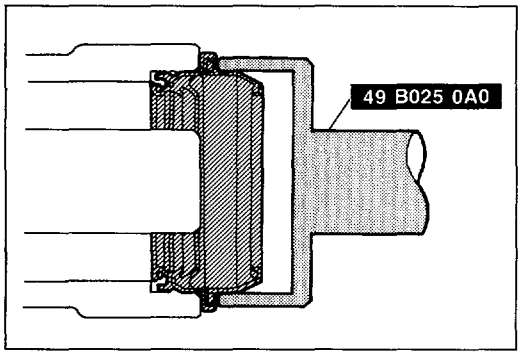
1. Assemble in the order shown in the figure, referring to **Assembly Note**.
2. Check the gearshift lever operation.



05U0JX-056

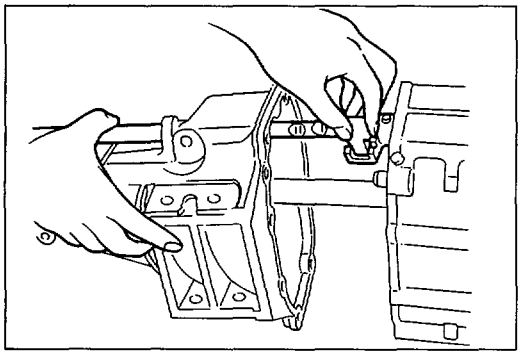
1. Oil seal
   Assembly Note. page J–43
2. Snap ring
3. Steel ball
4. Speedometer drive gear
5. Snap ring
6. Transmission case
7. Extension housing
   Assembly Note. page J–43
8. Main drive gear bearing
   Assembly Note. page J–43
9. Snap ring
10. Countershaft front bearing
    Assembly Note. page J–43
11. Snap ring
12. Adjustment shim
    Assembly Note. page J–44
13. Gasket
14. Front cover
15. Speedometer driven gear
16. Neutral switch
17. Back-up light switch
18. Boot
19. Release fork
    Assembly Note. page J–44
20. Release bearing
    Assembly Note. page J–44

05U0JX-057



05U0JX-058

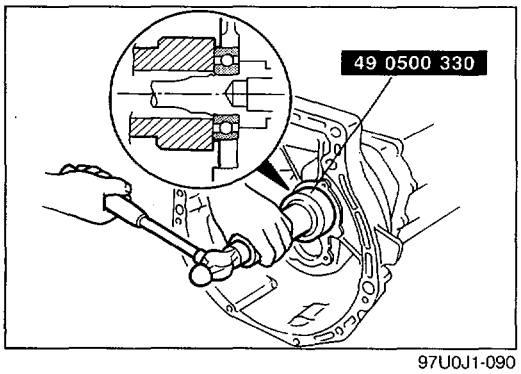
Assembly note
Oil seal
1. Apply transmission oil to outer periphery.
2. Install a new oil seal with the **SST**.



15U0JX-012

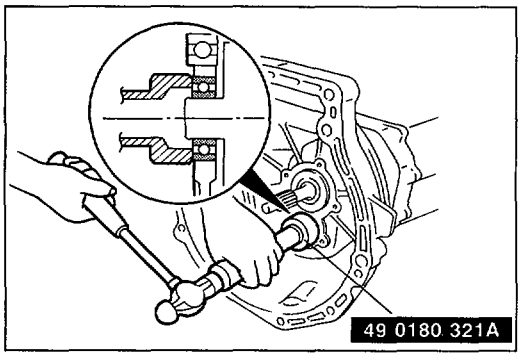
Extension housing
1. Apply sealant to the contact surfaces of the bearing housing and transmission case.
2. Align the inner shift lever and shift rod end groove, and install the extension housing.
3. Apply sealant to the bolt threads, and install the bolts.

Tightening torque:
18—26 N·m (1.8—2.7 m-kg, 13—20 ft-lb)



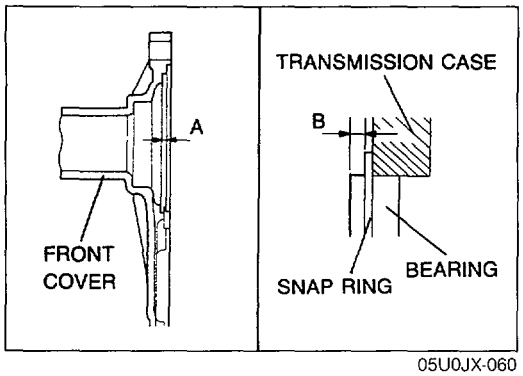
97U0J1-090

Main drive gear bearing
Drive on the main drive gear bearing with the **SST**, and secure it with a new snap ring.

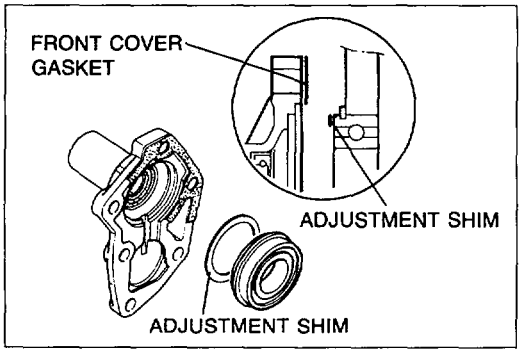


97U0J1-091

Countershaft front bearing
Drive on the countershaft front bearing with the **SST**, and secure it with a new snap ring.



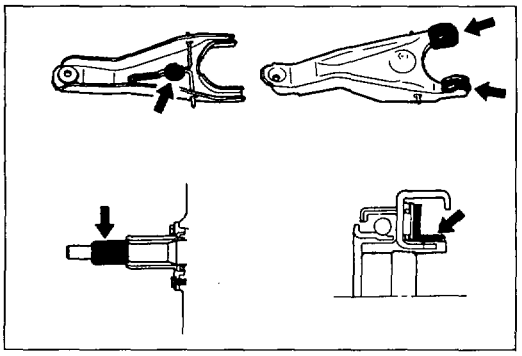
05U0JX-060



Adjustment shim

After measuring dimensions (A) and (B) shown in the figure, use an adjustment shim(s), as specified below, of the thickness corresponding to the value of (A) minus (B), so that bearing end play will be within specification.

Bearing end play: 0—0.1mm (0—0.004 in)
Adjustment shim thickness:
0.10mm (0.004 in), 0.15mm (0.006 in), 0.30mm (0.012 in)



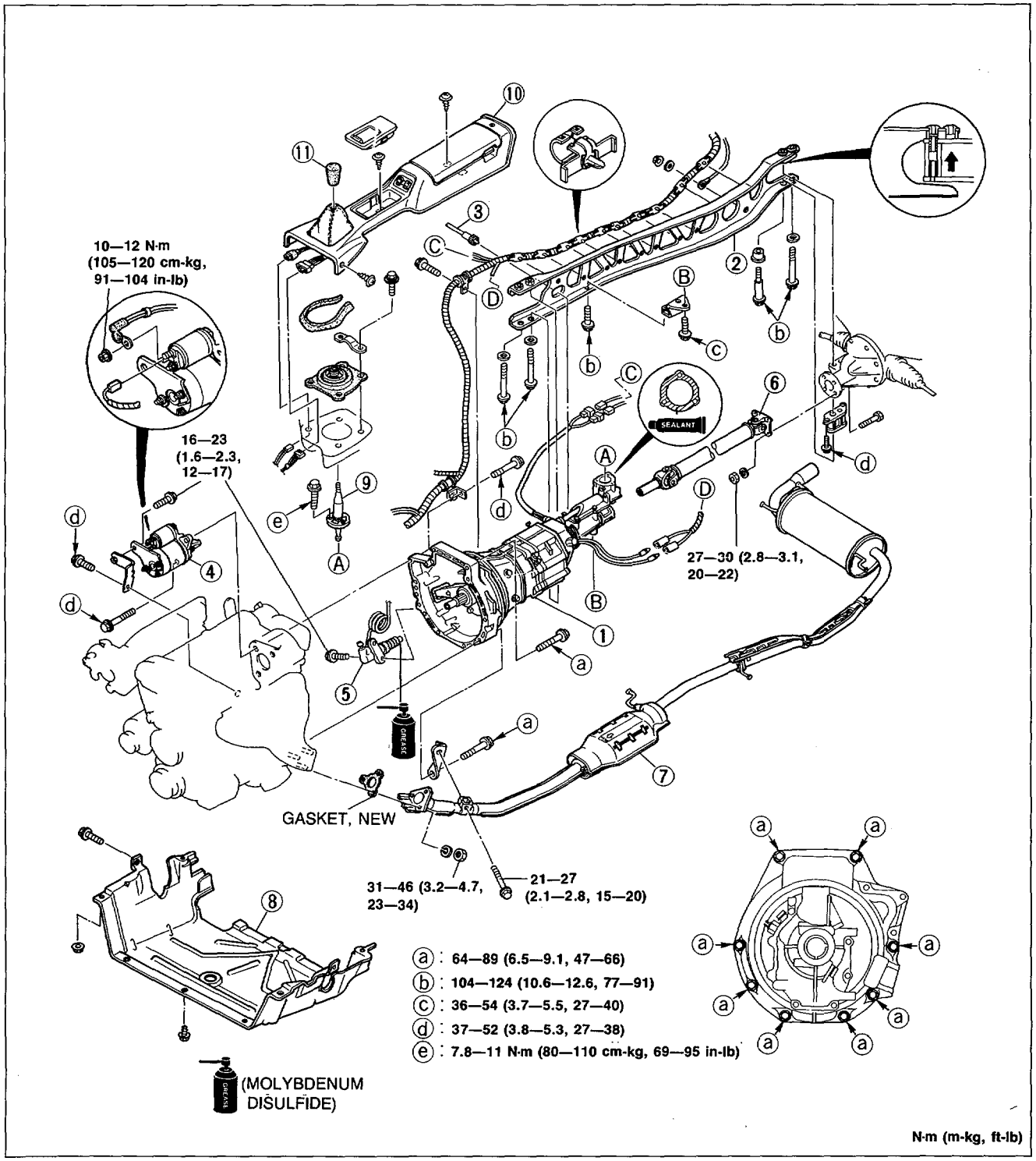
9MU0JX-110

Release fork

1. Apply Mori white TA No.2 or equivalent organic molybdenum grease to the shaded areas of the release bearing and release fork.
2. Install the release bearing and release fork.

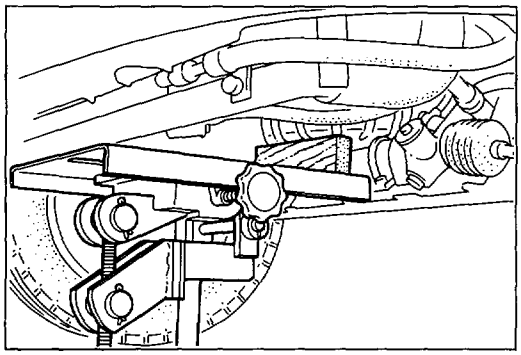
INSTALLATION

1. Raise the vehicle and support it with safety stands.
2. Install in the order shown in the figure, referring to **Installation Note**.
3. Add the specified amount of the specified transmission oil. (Refer to page J–8.)
4. Warm up the engine and transmission, and inspect for oil leakage and transmission operation.



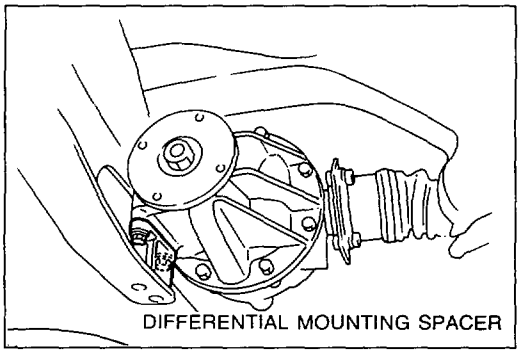
05U0JX-061

1. Transmission
   Installation Note page J–46
2. Power plant frame (PPF)
   Installation Note page J–46
3. Speedometer cable
4. Starter
5. Clutch release cylinder
6. Propeller shaft
   Installation Note page J–47
7. Exhaust pipe
8. Undercover
9. Shift lever
   Installation Note page J–47
10. Rear console
11. Shift lever knob



05U0JX-062

Installation note
Transmission
Tilt the engine by pushing up on the front of oil pan with a wooden block and a jack for easy installation of the transmission.

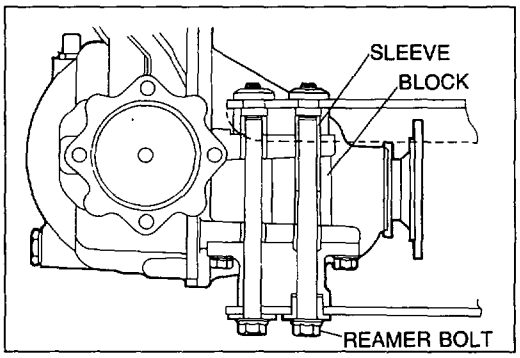


05U0MX-078

Power plant frame (PPF)
1. Install the differential mounting spacer.

Tightening torque:
37—52 N·m (3.8—5.3 m-kg, 27—38 ft-lb)

2. Support the transmission with a jack so that it is level.
3. Position the PPF and snugly tighten the transmission-side bolts by hand.

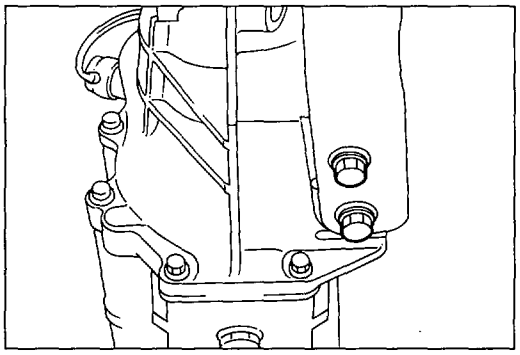


05U0MX-079

4. Verify that the sleeve is installed into the block.

Note
- **The reamer bolt is installed in the forward hole.**

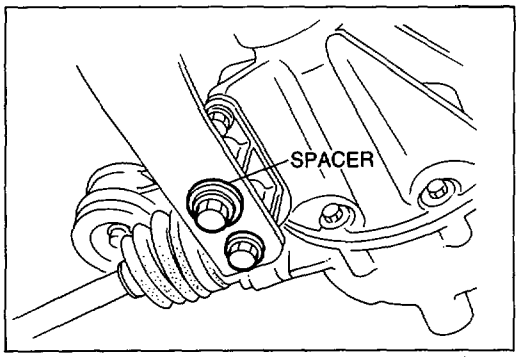
5. Install the spacer and bolts, then snugly tighten them.



15U0JX-006

6. Snugly install the power plant frame bracket.
7. Tighten the transmission-side bolts.

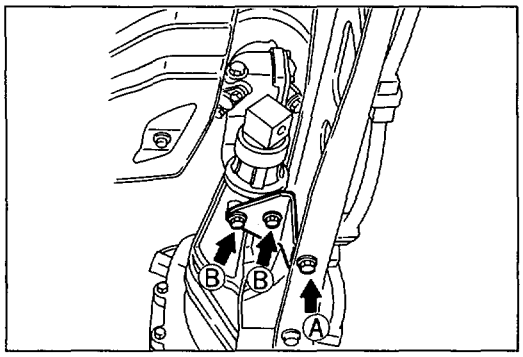
Tightening torque:
104—124 N·m (10.6—12.6 m-kg, 77—91 ft-lb)



15U0JX-007

8. Tighten the differential-side bolts.

Tightening torque:
104—124 N·m (10.6—12.6 m-kg, 77—91 ft-lb)

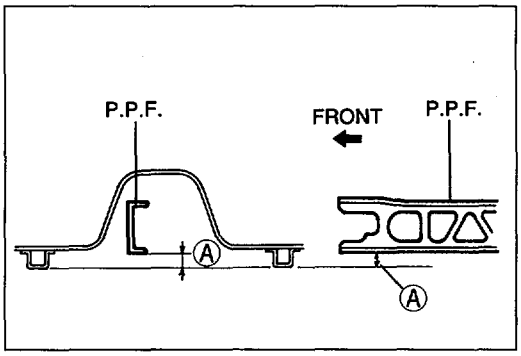


15U0JX-008

9. Install the power plant frame bracket.

Tightening torque
Ⓐ: 104—124 N·m (10.6—12.6 m-kg, 77—91 ft-lb)
Ⓑ: 36—54 N·m (3.7—5.5 m-kg, 27—40 ft-lb)

10. Remove the jack, and connect the wire harness.

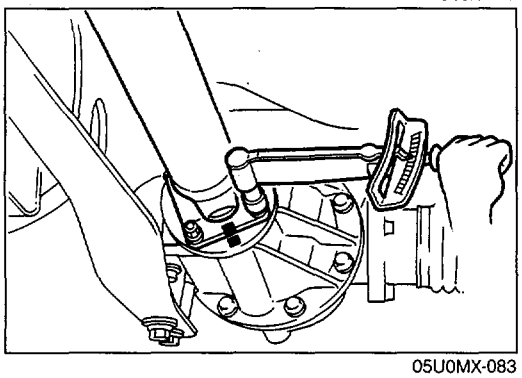


15U0JX-009

11. Measure distance A with a straightedge and vernier calipers.

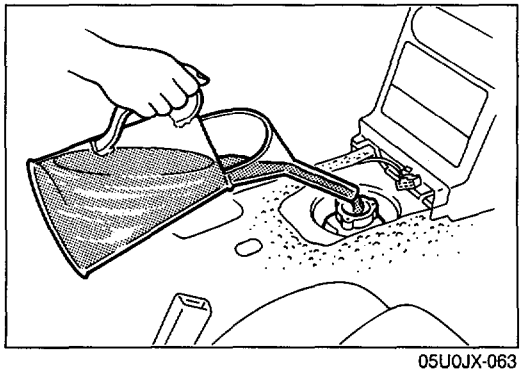
Distance A: 66.0 ± 5mm (2.60 ± 0.197 in)

12. If the distance is not within specification, repositon the PPF at the transmission.


05U0MX-083

Propeller shaft
Align the marks, and install the propeller shaft.

Tightening torque:
27—30 N·m (2.8—3.1 m-kg, 20—22 ft-lb)

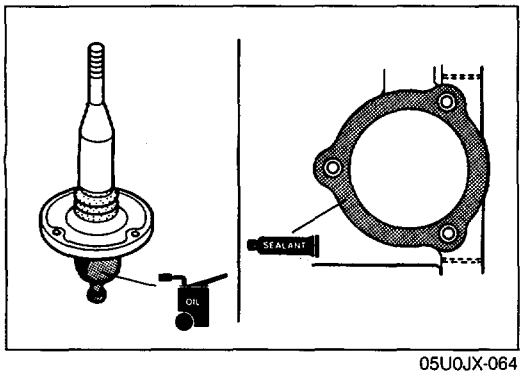

05U0JX-063

Shift lever

Note
- **Add the specified oil whenever the extension housing has been removed or the transmission has been overhauled.**

1. Pour the specified amount of oil into the change control case.

Specified oil
Grade: API service GL-4 or GL-5
All season: SAE 75W-90
Above 10°C (50°F): SAE 80W-90
Specified amount: 80—95 cc (4.9—5.8 cu in)



05U0JX-064

2. Apply oil to the shift lever as shown.
3. Apply sealant to the contact surfaces of the boot panel and change control case.

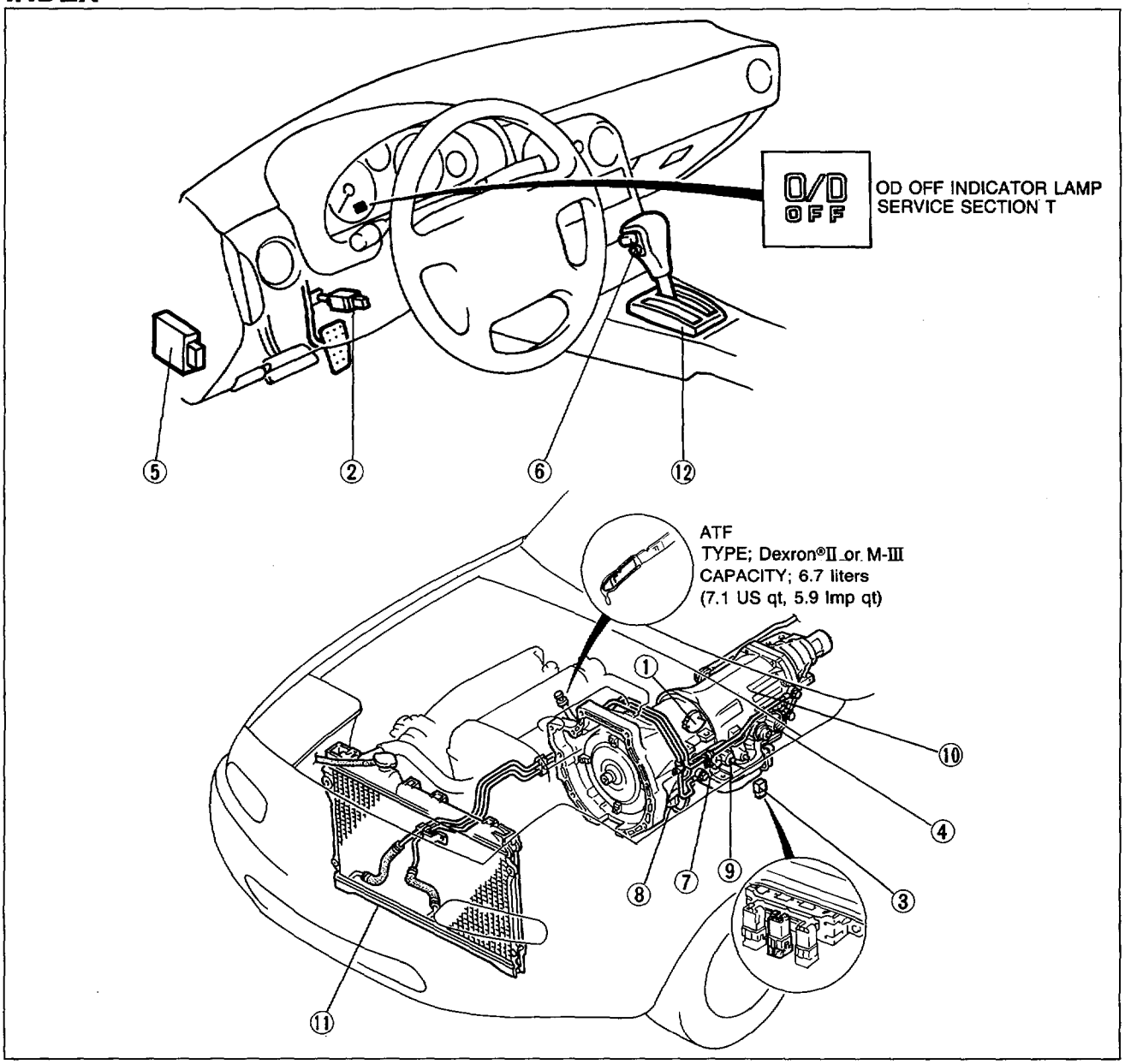
Before beginning any service procedure, refer to Section T of this manual for airbag system warnings and cautions.

AUTOMATIC TRANSMISSION (Hydraulically-Controlled)

INDEX ..... K- 2
OUTLINE ..... K- 3
SPECIFICATIONS ..... K- 3
STRUCTURAL VIEW ..... K- 4
POWER FLOW DIAGRAM ..... K- 5
OPERATION OF COMPONENTS ..... K- 5
FLUID PASSAGE LOCATIONS ..... K- 6
TROUBLESHOOTING ..... K- 8
GENERAL NCTE ..... K- 8
QUICK DIAGNOSIS CHART ..... K- 9
ELECTRICAL SYSTEM INSPECTION ..... K- 13
OD OFF SWITCH FUNCTION ..... K- 13
KICKDOWN AND 4-3 SWITCH FUNCTION ..... K- 13
CRUISE CONTROL SWITCH FUNCTION ..... K- 13
MECHANICAL SYSTEM TEST ..... K- 14
PREPARATION ..... K- 14
STALL TEST ..... K- 14
TIME LAG TEST ..... K- 17
LINE PRESSURE TEST ..... K- 18
GOVERNOR PRESSURE TEST ..... K- 20
LINE PRESSURE CUTBACK POINT TEST ..... K- 21
ROAD TEST ..... K- 22
D RANGE TEST ..... K- 22
2 RANGE TEST ..... K- 22
1 RANGE TEST ..... K- 23
P RANGE TEST ..... K- 23
ELECTRONIC SYSTEM COMPONENTS ..... K- 24
INHIBITOR SWITCH ..... K- 24
KICKDOWN AND 4-3 SWITCH ..... K- 25
KICKDOWN RELAY ..... K- 26
KICKDOWN SOLENOID ..... K- 26
OD OFF SWITCH ..... K- 27
OD CANCEL SOLENOID ..... K- 27
LOCKUP SOLENOID ..... K- 28
OIL PRESSURE SWITCH ..... K- 29
4AT CONTROL UNIT ..... K- 29
AUTOMATIC TRANSMISSION FLUID (ATF) ..... K- 31
INSPECTION ..... K- 31
REPLACEMENT ..... K- 33
TRANSMISSION ..... K- 34
TRANSMISSION (REMOVAL) ..... K- 34
TRANSMISSION (DISASSEMBLY) ..... K- 38
TORQUE CONVERTER ..... K- 49
OIL PUMP ..... K- 49
OD CONNECTING SHELL AND OD PLANETARY GEAR UNIT (OD SUN GEAR, OD PLANETARY PINION CARRIER, OD CLUTCH HUB) ..... K- 54
DIRECT CLUTCH ..... K- 56
OD BAND SERVO ..... K- 62
DRUM SUPPORT, ACCUMULATOR, OD CASE ..... K- 65
2ND BAND SERVO ..... K- 70
FRONT CLUTCH ..... K- 73
REAR CLUTCH ..... K- 78
CONNECTING SHELL AND FRONT PLANETARY GEAR UNIT (REAR CLUTCH HUB, FRONT PLANETARY PINION CARRIER, REAR SUN GEAR) ..... K- 83
REAR PLANETARY GEAR UNIT (CONNECTING DRUM, REAR PLANETARY PINION CARRIER, ONE-WAY CLUTCH) ..... K- 85
LOW AND REVERSE BRAKE ..... K- 89
GOVERNOR ..... K- 94
EXTENSION HOUSING AND PARKING MECHANISM ..... K- 97
OIL SEAL ..... K- 99
CONTROL VALVE BODY (DISASSEMBLY / INSPECTION) K-100
UPPER VALVE BODY K-103
CONTROL VALVE BODY (ASSEMBLY) K-106
VACUUM DIAPHRAGM K-109
TRANSMISSION (ASSEMBLY) K-112
TRANSMISSION (INSTALLATION) K-127
OIL COOLER K-131
REMOVAL / INSPECTION / INSTALLATION K-131
DRIVE PLATE K-132
PREPARATION K-132
REMOVAL / INSPECTION / INSTALLATION K-132
SHIFT MECHANISM (WITH SHIFT-LOCK SYSTEM) K-134
SHIFT-LOCK SYSTEM COMPONENTS K-134
TROUBLESHOOTING K-135
P RANGE SWITCH K-137
SHIFT-LOCK ACTUATOR K-137
SELECTOR LEVER K-138
HYDRAULIC CIRCUIT K-147
P RANGE K-147
R RANGE K-148
N RANGE K-149
D RANGE; 1ST GEAR K-150
D RANGE; 2ND GEAR K-151
D RANGE; 3RD GEAR K-152
D RANGE; OD K-153
D RANGE; OD, LOCKUP OFF K-154
D RANGE; OD, LOCKUP ON K-155
D RANGE; KICKDOWN K-156
2 RANGE K-157
1 RANGE; 1ST GEAR K-158
1 RANGE; 2ND GEAR K-159

25U0KX-039

INDEX



15U0KX-002

1. Inhibitor switch
   - Inspection ..... page K– 24
   - Adjustment ..... page K– 24
2. Kickdown and 4-3 switch
   - Inspection (Kickdown switch)... page K– 25
   - Inspection (4-3 switch)..... page K– 25
   - Adjustment ..... page K– 26
3. Kickdown relay
   - Inspection ..... page K– 26
4. Kickdown solenoid
   - Inspection ..... page K– 26
5. 4AT control unit
   - Inspection ..... page K– 29
6. OD OFF switch
   - Inspection ..... page K– 27
7. OD cancel solenoid
   - Inspection ..... page K– 27
8. Lockup solenoid
   - Inspection ..... page K– 28
9. Oil pressure switch
   - Inspection ..... page K– 29
10. Automatic transmission
    - Removal ..... page K– 34
    - Disassembly ..... page K– 38
    - Assembly ..... page K–112
    - Installation ..... page K–127
11. Oil cooler
    - Removal / Inspection / Installation ..... page K–131
12. Shift mechanism
    - Inspection ..... page K–134
    - Adjustment ..... page K–134
    - Removal / Installation ..... page K–141

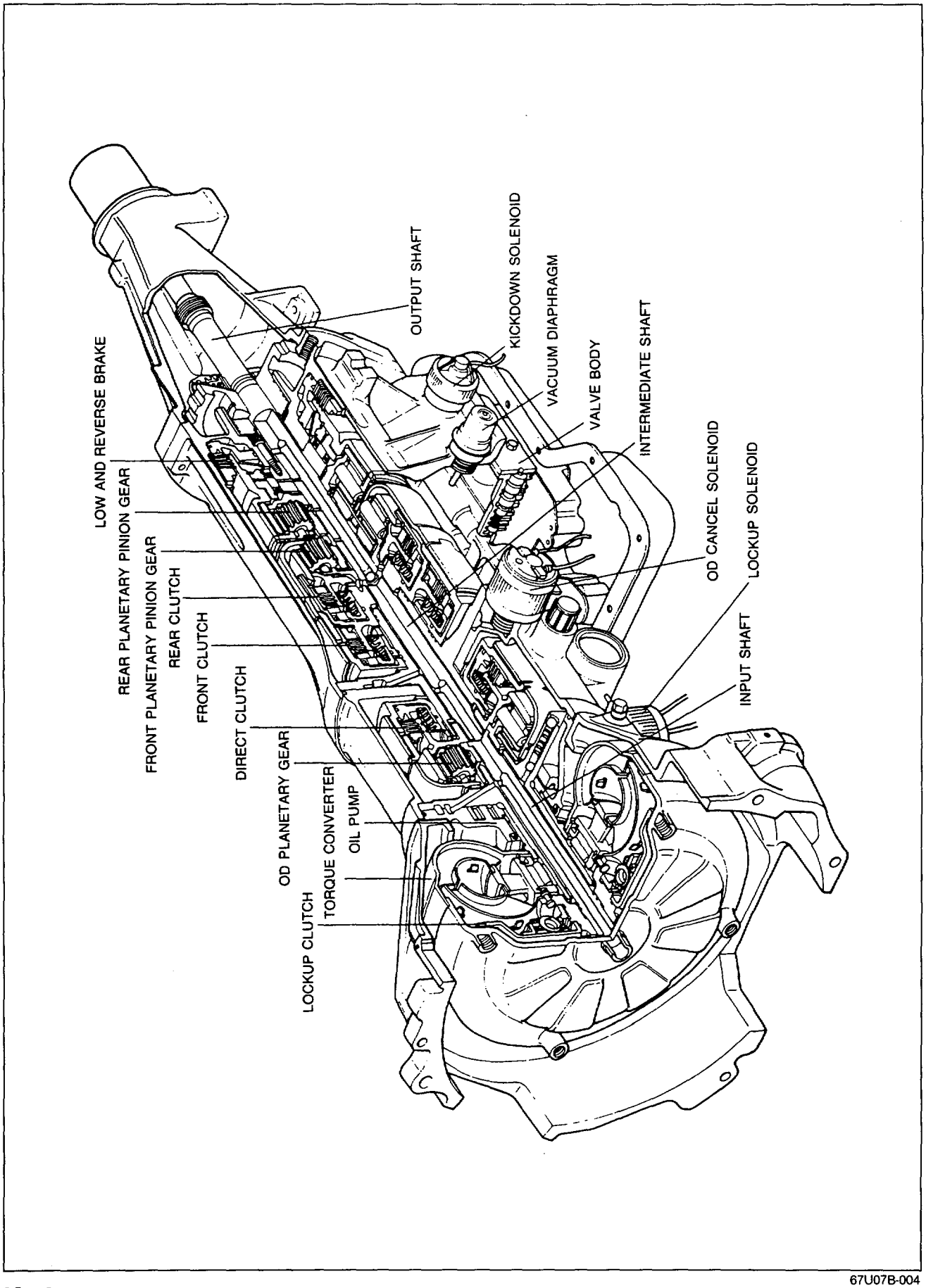
OUTLINE

SPECIFICATIONS

Item \ Transmission			N4A-HL
Torque converter stall torque ratio			1.900
Gear ratio	1st		2.841
	2nd		1.541
	3rd		1.000
	OD (4th)		0.720
	Reverse		2.400
Number of drive/driven plates	Direct clutch		2/2
	Front clutch		4/5
	Rear clutch		6/6
	Low and reverse brake		4/4
Servo diameter (Piston outer diameter/retainer inner diameter) mm (in)	OD band servo		56/36 (2.20/1.42)
	2nd band servo		72/44 (2.83/1.73)
Automatic transmission fluid (ATF)	Type		Dexron®II or M-III
	Capacity liters (US qt, Imp qt)	Total	6.7 (7.1, 5.9)
		Oil pan	4.0 (4.2, 3.5)

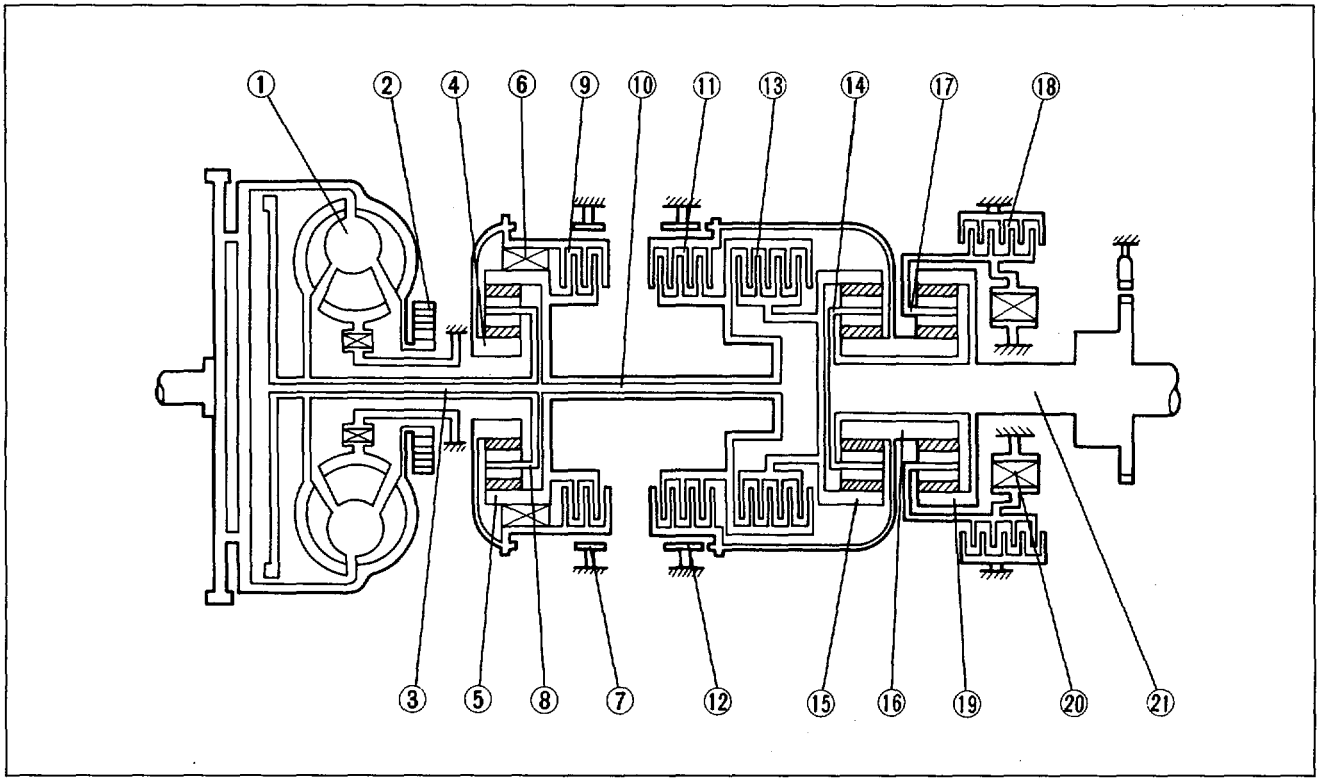
25U0KX-001

STRUCTURAL VIEW



67U07B-004

POWER FLOW DIAGRAM



05U0KX-235

1. Torque converter
2. Oil pump
3. Input shaft
4. OD sun gear
5. Internal gear
6. OD one-way clutch
7. OD brake band
8. OD planetary pinion carrier
9. Direct clutch
10. Intermediate shaft
11. Front clutch
12. 2nd brake band
13. Rear clutch
14. Front planetary pinion carrier
15. Internal gear
16. Sun gear
17. Rear planetary pinion carrier
18. Low and reverse brake
19. Internal gear
20. One-way clutch
21. Output shaft

OPERATION OF COMPONENTS

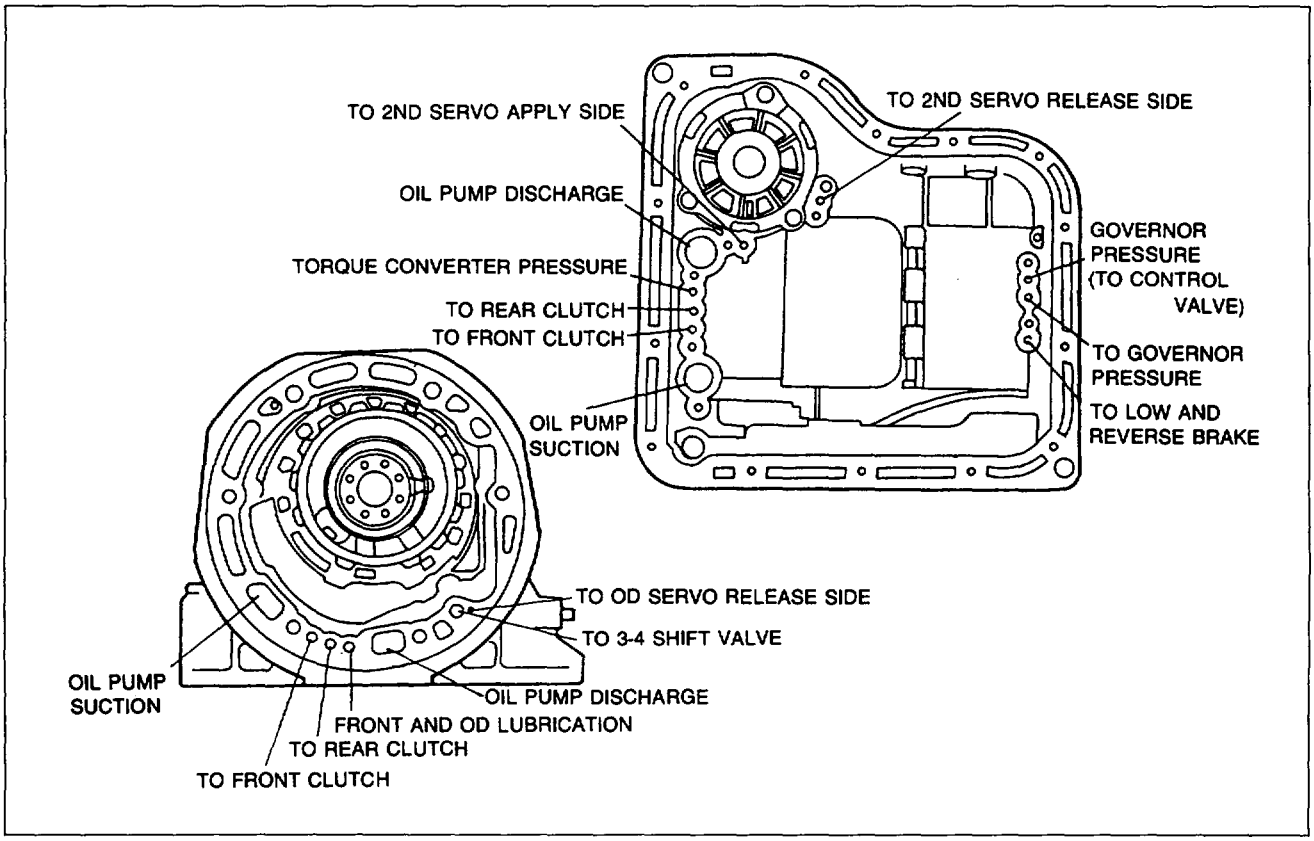
Range	Gear	Direct clutch	OD band servo		Front clutch	Rear clutch	2nd band servo		Low and reverse brake	One-way clutch
			Operation	Release			Operation	Release		
P	—	○	◎	○					○	
R	Reverse	○	◎	○	○			○	○	
N	—	○	◎	○						
D	1st	○	◎	○		○				○
	2nd	○	◎	○		○	○			
	3rd	○	◎	○	○	○	◎	○		
	OD		○		○	○	◎	○		
2	—	○	◎	○		○	○			
1	2nd	○	◎	○		○	○			
	1st	○	◎	○		○			○	

◎: Operates although the band servos remain deactivated because of the larger release pressure side area. Brake band does not operate.

9MU0K2-005

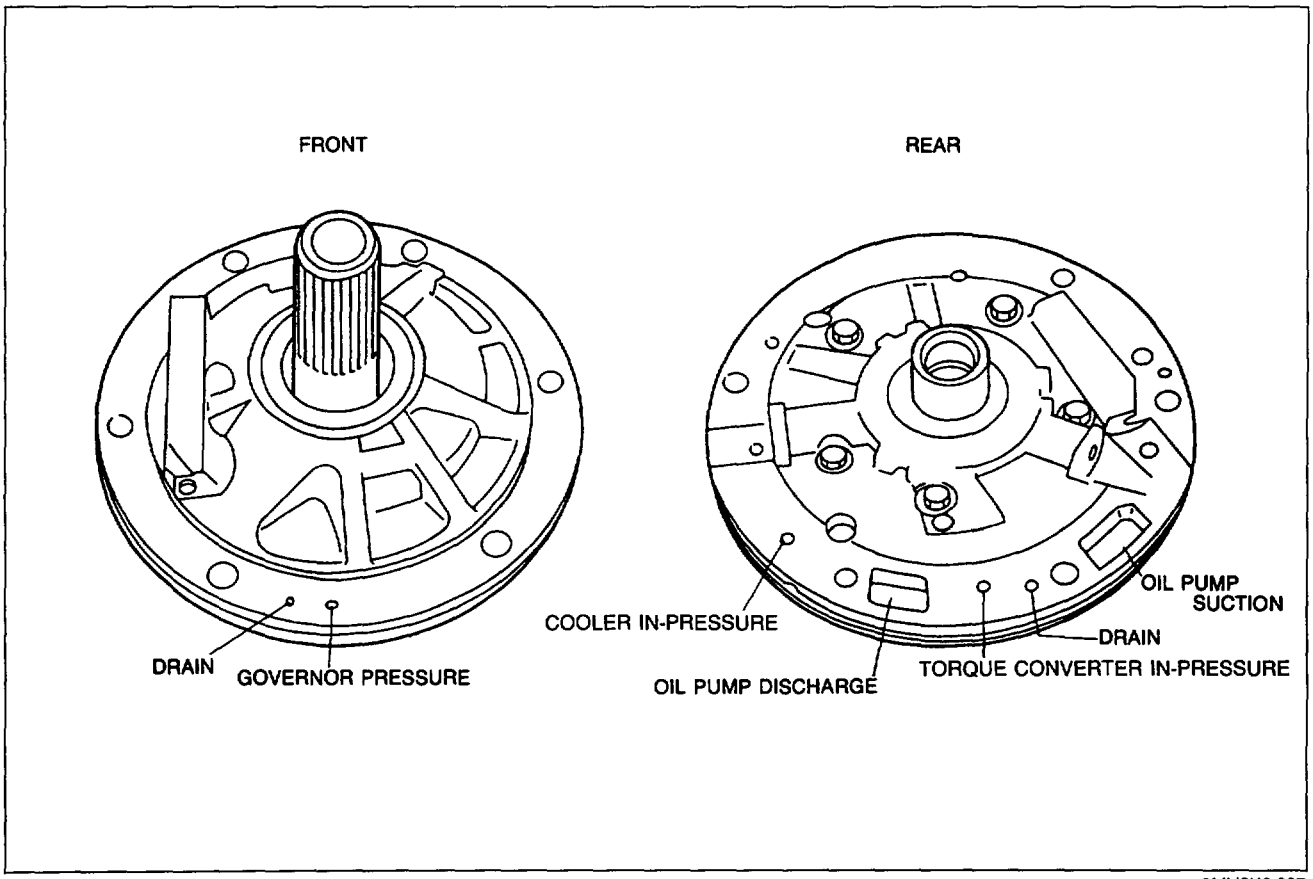
FLUID PASSAGE LOCATIONS

Transmission Case



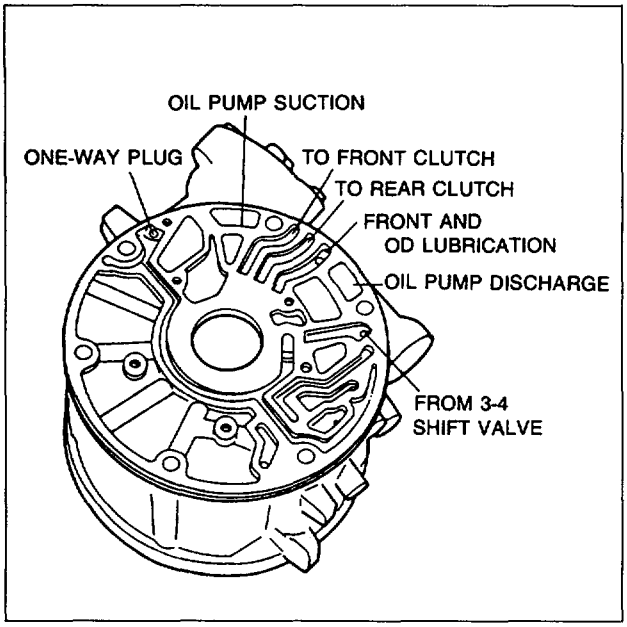
9MU0K2-006

Oil Pump



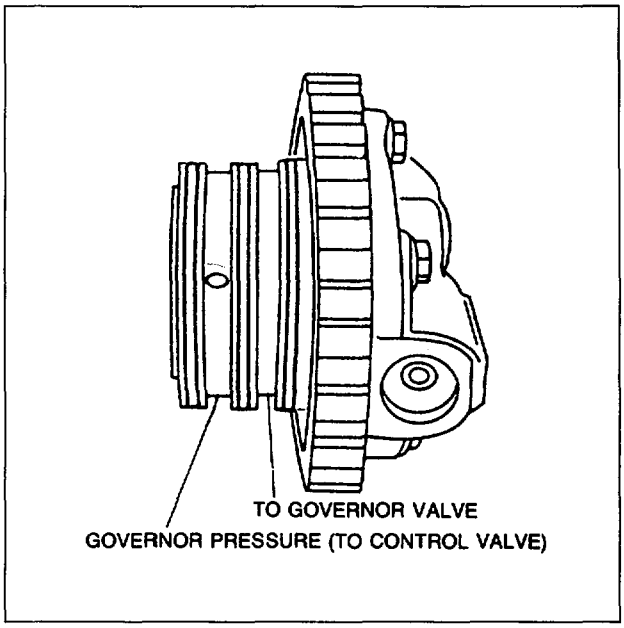
9MU0K2-007

OD Case



9MU0K2-008

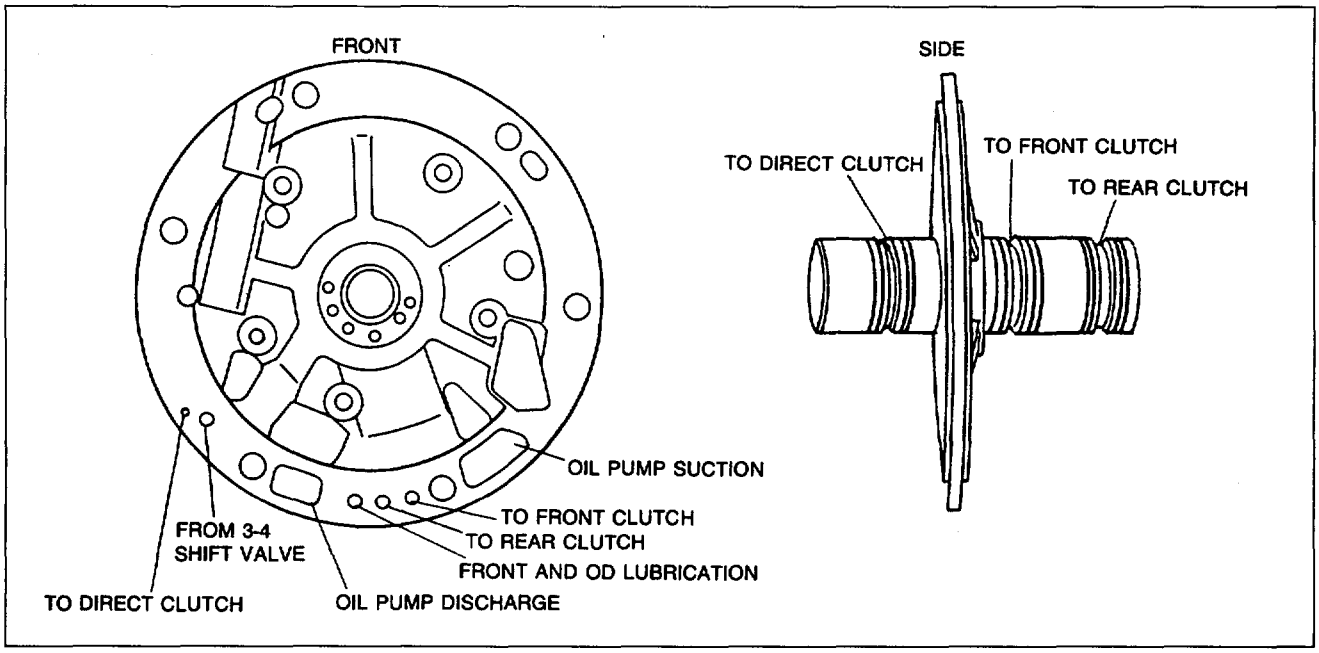
Parking Gear (Oil Distributor)



9MU0K2-009

K

Drum Support



9MU0K2-010

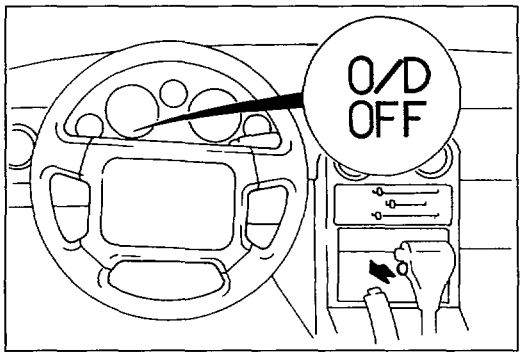
TROUBLESHOOTING

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

GENERAL NOTE

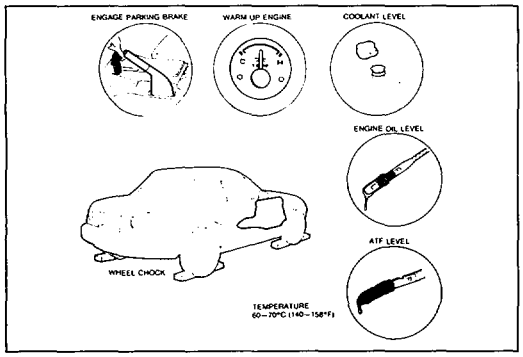
- A problem with the automatic transmission may be caused by the engine or the transmission powertrain, hydraulic control system, or the electronic control system.
  When troubleshooting, first check those points which can be inspected quickly and easily. The recommended troubleshooting sequence is described below.

25U0KX-046



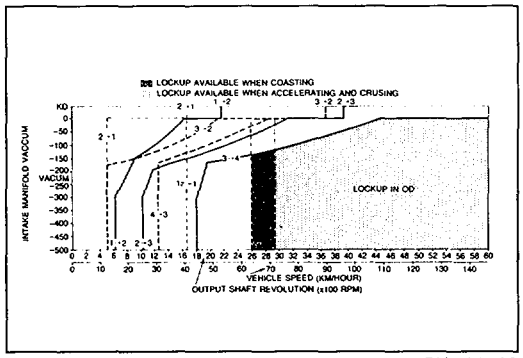
9BU0KX-004

Step 1: Electrical System Inspection
Check the electrical system. (Refer to page K–13.)



9BU0KX-005

Step 2: Mechanical System Test
Check the engine stall speed, time lag, line pressure, and governor pressure. (Refer to page K–14.)



9BU0KX-006

Step 3: Road Test
Check the shift points and shift schedule, and check for shift shock. (Refer to page K–22.)

If the above 3 steps are followed, the cause of the problem should be located.
Another guide to faster location of the causes of problems, the QUICK DIAGNOSIS CHART, is on pages K–9 to 12.
In this chart, numbers are used to indicate the components that may be the cause of 56 possible problems. It is necessary to check only those components indicated by numbers during each steps of the troubleshooting process to locate the cause of the problem quickly.

9BU0KX-007

QUICK DIAGNOSIS CHART

The QUICK DIAGNOSIS CHART shows different problems and the relationship of components that might be the cause.

1. Components indicated in the "Adjustment" column indicate the possibility that the problem may result from an incorrect adjustment.
   Check the adjustment of each component, and readjust if necessary.
2. Components indicated in the "Electrical System Inspection" column can be checked for malfunction via the electrical inspection.
3. Components indicated in the "Mechanical System Test" column can be checked for malfunction by the results of the oil pressure test.
4. Components indicated in the "Road Test" column can be checked for malfunction by the results of the road test.
5. The numbers in the chart indicate the order of inspection for detecting malfunctions.
6. Circled numbers indicate that the transmission must be removed from the vehicle.
7. The checking, adjusting, repair, and replacement procedures for components are described in the page(s) shown in the "Reference page" column.

05U0KX-006

Inspection point and reference page / Item		ON VEHICLE: Pre-liminary			Electronic control system						Hydraulic control system										Powertrain									
		K– 31	K–134	Section F	K– 24	K– 25,26	Section G	K– 27	K– 27	K– 28	K–109	K– 14	K– 18,20,21	K–100	K– 94	K– 62	K– 70	K– 65	K– 6	K– 65	K– 49	K– 49	K– 49	K– 56	K– 73	K– 78	K– 62	K– 70	K– 89	K– 56	K– 85	K– 54,83,85	K– 97
		ATF level and condition	Shift mechanism	Engine idle speed and condition	Inhibitor switch and wiring	Kickdown switch, kickdown solenoid, and wiring	Ignition switch and starter	OD OFF switch	OD cancel solenoid	Lockup solenoid	Vacuum diaphragm and piping	Engine stall speed	Line and governor pressure	Control valve body	Governor valve	OD band servo	2nd band servo	Accumulator	Transmission air check	OD cancel valve	Lockup control valve	Oil pump	Torque converter	Direct clutch	Front clutch	Rear clutch	OD brake band	2nd brake band	Low and reverse brake	OD one-way clutch	One-way clutch	Planetary gear	Parking gear
Adjustment		X	X	X	X	X					X					X	X															
Electrical System Inspection						X		X	X	X																						
Mechanical System Test											X			X								X	X	X	X	X		X	X	X	X	
Road Test															X								X	X		X	X	X	X	X	X	
Engine starting	Engine does not start in N or P range		2		3		1																									
Engine starting	Engine starts in ranges other than N and P ranges		1		2																											
Accelerating	Vehicle does not move in D range (moves in 1, 2, and R ranges)		1										2	3																④		
Accelerating	Vehicle does not move in forward ranges (moves in R range) Extremely poor acceleration	1	2										3	4					5						⑥							
Accelerating	Vehicle does not move in R range (moves in forward range) Extremely poor acceleration	1	2										3	4					5					⑦	⑧		⑥					
Accelerating	Vehicle does not move in any range	1	2										3	4					5		⑥		⑧						⑨			⑦
Accelerating	Slippage felt when accelerating	1	2								6		3	4					5		⑦											
Accelerating	Vehicle moves in N range		1											2											③							
Accelerating	Excessive creep			1																												
Accelerating	No creep at all	1	2	3										4							⑤											
Accelerating	Low maximum speed and poor acceleration	1	2	6								3	4	5							⑬		⑨	⑪	⑫		⑦	⑧	⑩			

		ON VEHICLE																				OFF VEHICLE															
	Inspection point and reference page	Pre-liminary			Electronic control system						Hydraulic control system											Powertrain															
	Item	K– 31	K–134	Section F	K– 24	K– 25,26	Section G	K– 27	K– 27	K– 28	K–109	K– 14	K– 18,20,21	K–100	K– 94	K– 62	K– 70	K– 65	K– 6	K– 65	K– 49	K– 49	K– 49	K– 56	K– 73	K– 78	K– 62	K– 70	K– 89	K– 56	K– 85	K– 54,83,85	K– 97
		ATF level and condition	Shift mechanism	Engine idle speed and condition	Inhibitor switch and wiring	Kickdown switch, kickdown solenoid, and wiring	Ignition switch and starter	OD OFF switch	OD cancel solenoid	Lockup solenoid	Vacuum diaphragm and piping	Engine stall speed	Line and governor pressure	Control valve body	Governor valve	OD band servo	2nd band servo	Accumulator	Transmission air check	OD cancel valve	Lockup control valve	Oil pump	Torque converter	Direct clutch	Front clutch	Rear clutch	OD brake band	2nd brake band	Low and reverse brake	OD one-way clutch	One-way clutch	Planetary gear	Parking gear
No shift	Does not shift from 1st to 2nd		1			3					2			4	5		6		7						⑧		⑨							
	Does not shift from 2nd to 3rd		1			3					2			4	5		6		7					⑧									
	Does not shift from 3rd to OD		1			3		8	9		2			4	5	6			7	⑫				⑩			⑫		⑪				
	Lockup does not occur in OD									3					1	2					⑤						④							
	Does not shift from OD to 3rd	1						6	7		2			3	4				5	⑪				⑧	⑩		⑪		⑨				
	Does not shift from 3rd to 2nd or from OD to 2nd	1									2			3	4		5		6						⑦		⑧	⑨					
	Does not shift from 2nd to 1st or from 3rd to 1st	1									2			3	4		5		6									⑦			⑧		
	Does not kickdown when accelerator depressed in 3rd within kickdown range	1				2					3			4	5													⑥					
	Does not kickdown when accelerator depressed in OD within kickdown range	1				2					3			4	5								⑥						⑦				
	Excessive engine speed when accelerated in 3rd due to delayed kickdown	1	2										3	4	5				6					⑦									
	Excessive engine speed when accelerated in OD due to delayed kickdown	1	2										3	4	5				6							⑦							
	Does not shift from 3rd to 2nd on D range to 2 range shift	1	2											3	4		5							⑥			⑦						
	Does not shift from 3rd to 1st on D range to 1 range shift	1	2										3	4	5		6							⑦			⑧						

Item	Inspection point and reference page	ON VEHICLE: Pre-liminary			ON VEHICLE: Electronic control system					ON VEHICLE: Hydraulic control system										OFF VEHICLE: Powertrain									
		K– 31	K–134	Section F	K– 24	K– 25,26	Section G	K– 27	K– 27	K– 28	K–109	K– 14	K– 18,20,21	K–100	K– 94	K– 62	K– 70	K– 65	K– 6	K– 65	K– 49	K– 49	K– 49	K– 56	K– 73	K– 78	K– 62	K– 70	K– 89	K– 56	K– 85	K– 54,83,85	K– 97
		ATF level and condition	Shift mechanism	Engine idle speed and condition	Inhibitor switch and wiring	Kickdown switch, kickdown solenoid, and wiring	Ignition switch and starter	OD OFF switch	OD cancel solenoid	Lockup solenoid	Vacuum diaphragm and piping	Engine stall speed	Line and governor pressure	Control valve body	Governor valve	OD band servo	2nd band servo	Accumulator	Transmission air check	OD cancel valve	Lockup control valve	Oil pump	Torque converter	Direct clutch	Front clutch	Rear clutch	OD brake band	2nd brake band	Low and reverse brake	OD one-way clutch	One-way clutch	Planetary gear	Parking gear
Shift shock	Excessive N range to D range shift shock			1							2		3	4												⑤						
	Excessive 1st to 2nd shift shock	1									2	3					4		5		⑦						⑥					
	Excessive 2nd to 3rd shift shock										1		2	3			4				⑥						⑤					
	Excessive 3rd to OD shift shock										1		2	3						⑤						④						
	Vehicle brakes when shifted from 1st to 2nd	1												2														③		⑤		
	Vehicle brakes when shifted from 2nd to 3rd	1												3			2													④		
	Vehicle brakes when shifted from 3rd to OD	1												3			2									④						
	Shift shock felt when accelerator released and deceleration occurs		1			3					2		4	5	6			7														
	Excessively large 2nd to 1st shock in 1 range		1								2	3	4	5															⑥		
Shift point	Excessively high 1st to 2nd, 2nd to 3rd, and 3rd to OD shift points	1				3					2		4	5	6																	
	Excessively high OD to 3rd, 3rd to 2nd, and 2nd to 1st shift points		1			3					2		4	5	6																	
	Kickdown operates or engine overruns when depressing pedal in 3rd beyond kick-down vehicle speed range	1	2										3	4	5									⑥								
	Kickdown operates or engine overruns when depressing pedal in OD beyond kick-down vehicle speed range	1	2										3	4	5											⑥						
Shift sequence	Shifts directly from 1st to 3rd	1												2	3				4							⑤						
	Shifts directly from 1st to OD	1												2	3				4					⑤								
	Shifts from 2nd to 1st, or 2nd to 3rd in 2 range		1										2	3																		
	Shifts from 1st to 2nd, or 2nd to 3rd in 1 range		1											2																		

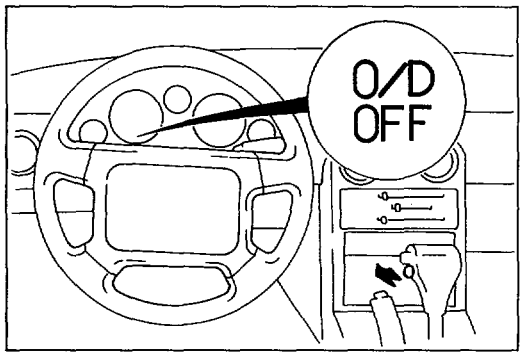
		ON VEHICLE																				OFF VEHICLE															
	Inspection point and reference page	Pre-liminary			Electronic control system						Hydraulic control system											Powertrain															
		K– 31	K–134	Section F	K– 24	K– 25,26	Section G	K– 27	K– 27	K– 28	K–109	K– 14	K– 18,20,21	K–100	K– 94	K– 62	K– 70	K– 65	K– 6	K– 65	K– 49	K– 49	K– 49	K– 56	K– 73	K– 78	K– 62	K– 70	K– 89	K– 56	K– 85	K– 54,83,85	K– 97
	Item	ATF level and condition	Shift mechanism	Engine idle speed and condition	Inhibitor switch and wiring	Kickdown switch, kickdown solenoid, and wiring	Ignition switch and starter	OD OFF switch	OD cancel solenoid	Lockup solenoid	Vacuum diaphragm and piping	Engine stall speed	Line and governor pressure	Control valve body	Governor valve	OD band servo	2nd band servo	Accumulator	Transmission air check	OD cancel valve	Lockup control valve	Oil pump	Torque converter	Direct clutch	Front clutch	Rear clutch	OD brake band	2nd brake band	Low and reverse brake	OD one-way clutch	One-way clutch	Planetary gear	Parking gear
Slipping	Little shift shock or excessive slippage during 1st to 2nd shift	1	2								3		4	5		6			7								⑧							
Slipping	Little shift shock or excessive slippage during 2nd to 3rd shift	1	2								3		4	5		6			7					⑧										
Slipping	Little shift shock or excessive slippage during 3rd to OD shift	1	2								3		4	5		6			7							⑧								
Slipping	No shift shock or engine overruns when shifting 1st to 2nd	1	2	4							3	5		6					7		⑨						⑧							
Slipping	Engine overruns or slips when shifting OD to 3rd	1									2		3	4			5		6				⑦	⑨		⑩			⑧				
Slipping	Engine overruns or slips when shifting 3rd to 2nd	1									2		3				4		5					⑥		⑦								
Noise	Transmission noisy in P and N ranges	1											2								③													
Noise	Transmission noisy in D, 2, 1, and R ranges	1											2								④				③					⑤	⑥			
Others	No engine braking in 1 range		1										2	3					4									⑤						
Others	Vehicle moves in P range or parking gear not disengaged when P range disengaged		1																														②
Others	Transmission overheats	1		4									5	6		2	3		7		⑮	⑯	⑧	⑩	⑪	⑫	⑬	⑭	⑨		⑰		
Others	White smoke discharged from exhaust while running	1									2	3	4	5					6		⑭	⑮	⑦	⑨	⑩	⑪	⑫	⑬	⑧		⑯		
Others	Abnormal odor from oil level gauge pipe	1																			⑨	⑩	②	④	⑤	⑥	⑦	⑧	③		⑪		
Others	Transmission shifts to OD even when OD OFF switch depressed							1	2											③													
Others	Vehicle surges in OD									1																							

15U0KX-005

ELECTRICAL SYSTEM INSPECTION

In this inspection, the function of the electrical control system (inhibition of OD and lockup) and components are checked.

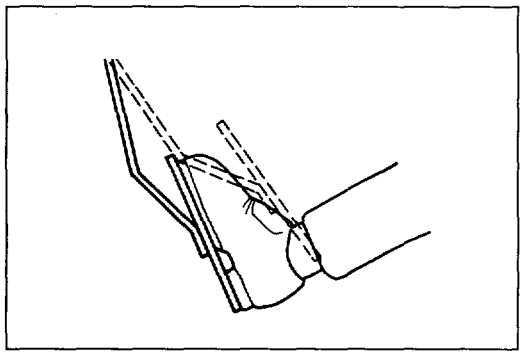
9MU0K2-018



05U0KX-008

OD OFF SWITCH FUNCTION

1. Drive the vehicle in D range below 140 km/h (87 mph).
2. Verify that OD and lockup are provided.
3. Depress the OD OFF switch, and verify that OD and lockup operations are canceled.
4. If not correct, check the OD OFF switch, OD cancel solenoid, and lockup solenoid. (Refer to pages K–27, 28.)

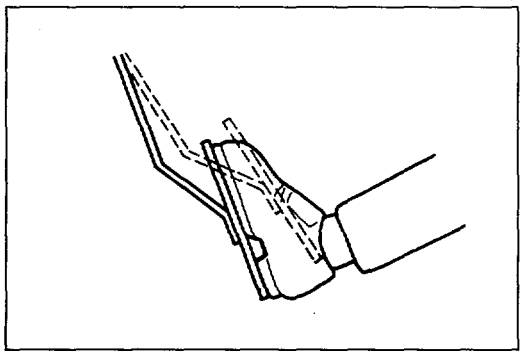


05U0KX-009

KICKDOWN AND 4-3 SWITCH FUNCTION

Kickdown Switch Function

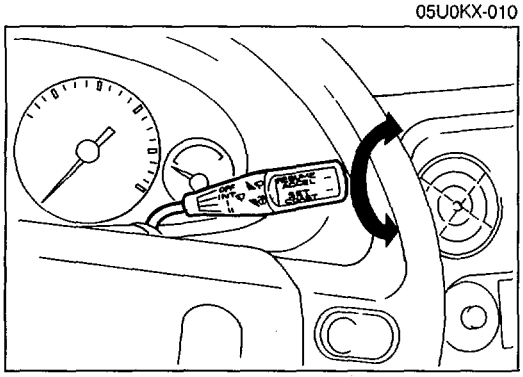
1. Drive the vehicle in D range below 140 km/h (87 mph).
2. Depress the accelerator pedal 7/8 or more, and verify that there is kickdown.
3. If it is not correct, check the kickdown switch, kickdown solenoid and kickdown relay. (Refer to pages K–25, 26.)



05U0KX-010

4-3 Switch Function

1. Drive the vehicle in OD below 100 km/h (62 mph) in D range.
2. Depress the accelerator pedal 6/8 of its maximum, and verify that OD is canceled.
3. If not correct, check the 4-3 switch. (Refer to page K–25.)



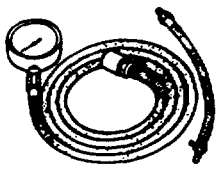
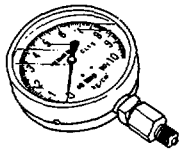
15U0KX-006

CRUISE CONTROL SWITCH FUNCTION

1. Turn the main cruise control switch ON.
2. Drive the vehicle in OD below 140 km/h (87 mph) in D range.
3. Set the cruise control for operation.
4. Turn the SET switch, and verify that OD is canceled.
5. Accelerate to OD, turn the RESUME switch, and verify that OD is canceled.
6. If not correct, check the cruise control operation. (Refer to Section T.)

MECHANICAL SYSTEM TEST

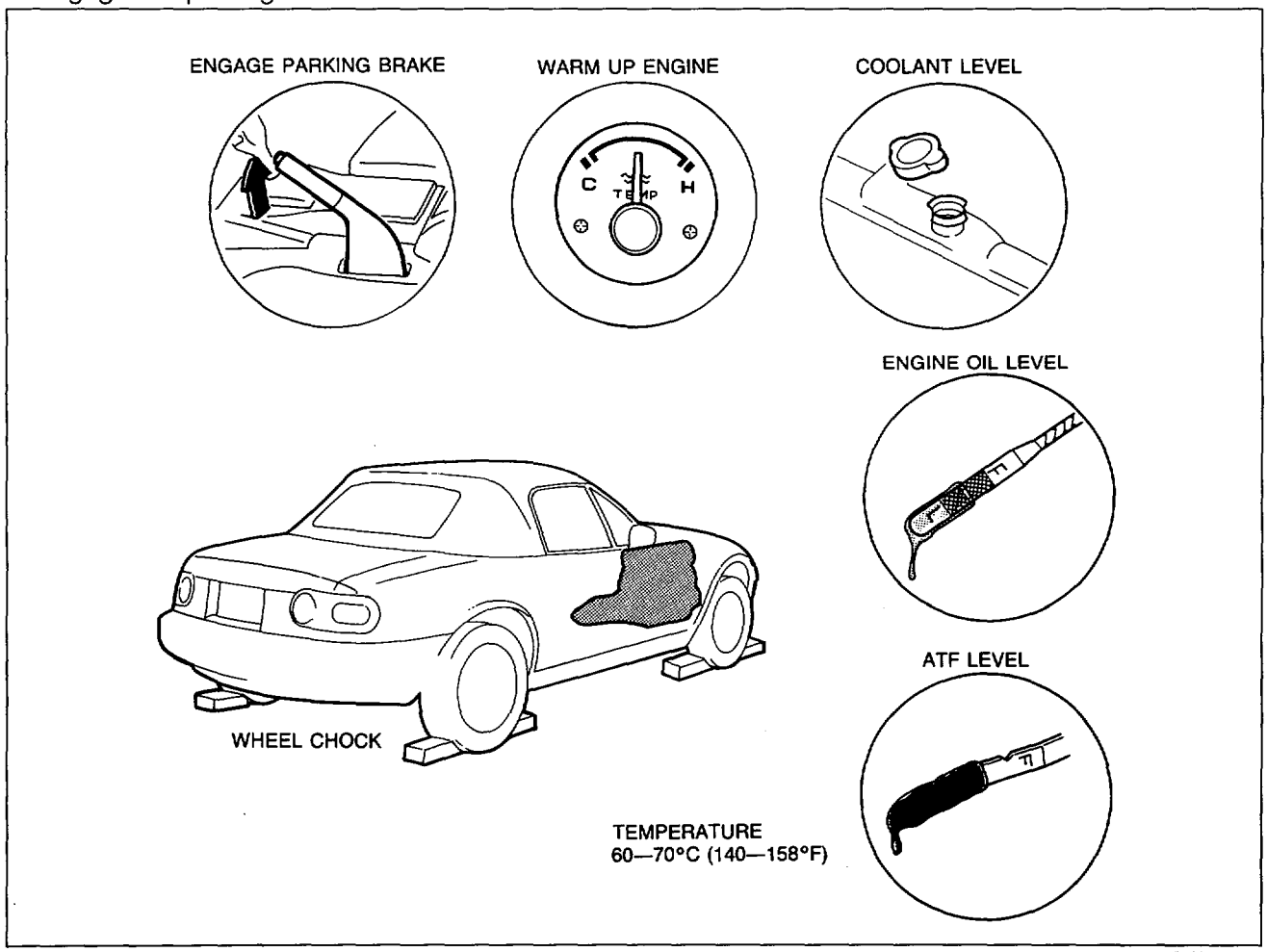
PREPARATION
SST

49 0378 400A Gauge set, oil pressure 	For oil pressure test	49 H075 406 Adapter oil pressure gauge	For oil pressure test
49 H019 002 Adapter	For oil pressure test	49 B019 901 Gauge oil pressure 	For oil pressure test

05U0KX-012

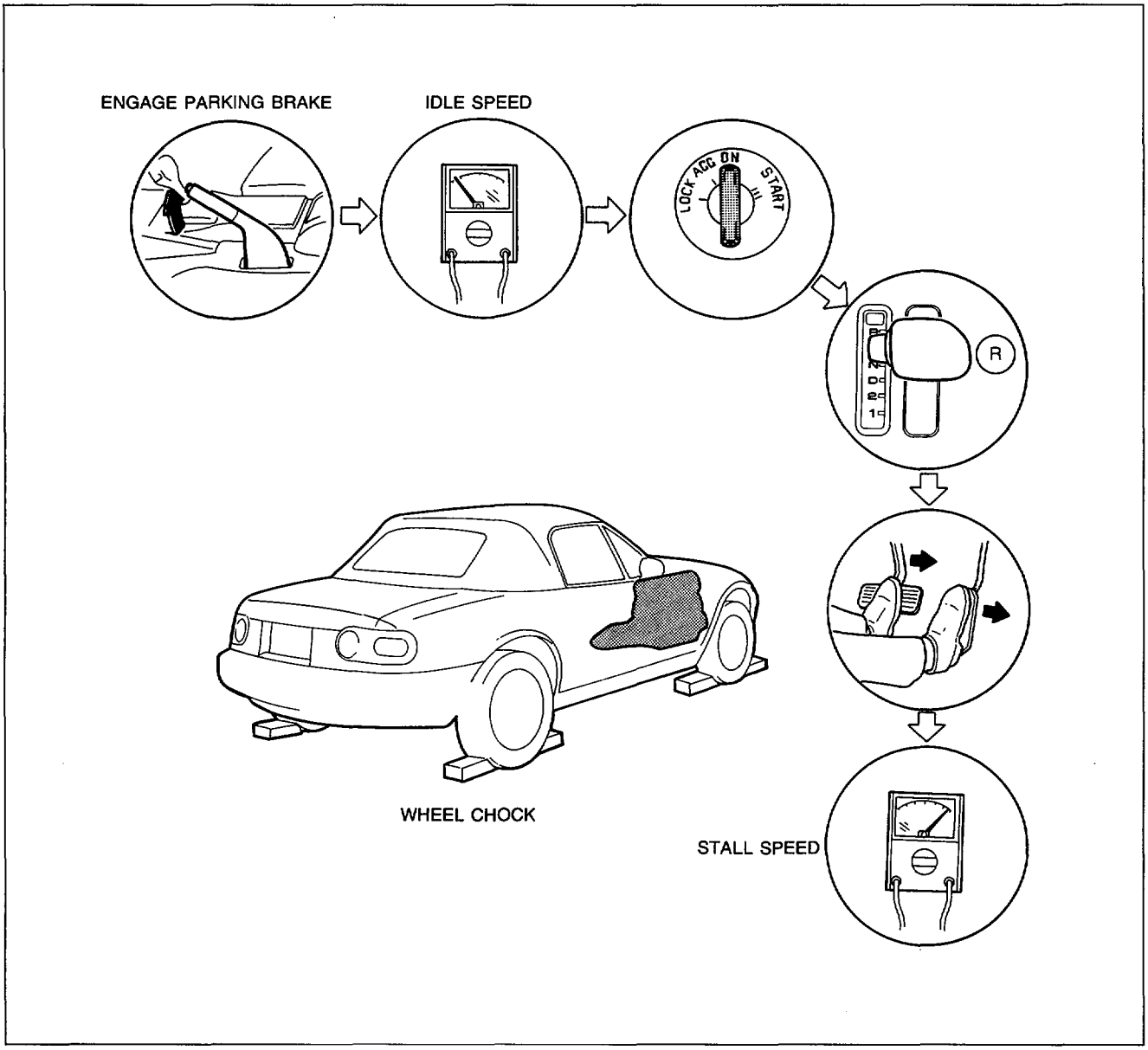
STALL TEST
This test is performed to determine if there is slippage of the friction elements or malfunction of the hydraulic components.

Preparation
1. Check the engine coolant, engine oil, and ATF levels before testing.
2. Warm the engine thoroughly to raise the ATF temperature to operating level **(60—70°C, 140—158°F)**.
3. Engage the parking brake and use wheel chocks at front and rear of the wheels.



0BU0K1-012

Procedure



25U0KX-002

1. Connect a tachometer to the engine.
2. Start the engine and check the idle speed in P range.

Idle speed: 800—900 rpm

3. Shift the selector lever to R range.

Caution
- **Steps 4 and 5 must be performed within 5 seconds to prevent possible transmission damage.**

4. Firmly depress the service brake pedal with the left foot, and gently depress the accelerator pedal with the right foot.
5. When the engine speed no longer increases, quickly read the engine speed and release the accelerator.

Caution
- **Idling for at least one minute is to cool the ATF and to prevent deterioration of the fluid.**

6. Move the selector lever to N range and let the engine idle for at least one minute.

Caution
- **Allow sufficient cooling time between each stall test.**

7. Perform the stall test for the following ranges in the same manner.
   (1) D range
   (2) 2 range
   (3) 1 range

Engine stall speed: 2,600—3,000 rpm

05U0KX-014

Evaluation of Stall Test

Condition		Possible cause	
Above specification	In all ranges	Insufficient line pressure	Worn oil pump
			Oil leakage from oil pump, control valve, and/or transmission case
			Stuck pressure regulator valve
			Direct clutch slipping
	In D, 2, and 1 ranges	Rear clutch slipping	
	In D range only	One-way clutch slipping	
	In 2 range only	Brake band slipping	
	In R range only	Low and reverse brake slipping	
		Front clutch slipping	
		Perform road test to determine if this is caused by low and reverse brake or front clutch, as follows: a) Effective engine braking in 1 range.....Front clutch b) No engine braking in 1 range.....Low and reverse brake	
Within specification		All shift control elements within transmission are functioning normally	
Below specification		Engine out of tune	
		One-way clutch slipping within torque converter	

9MU0K2-027

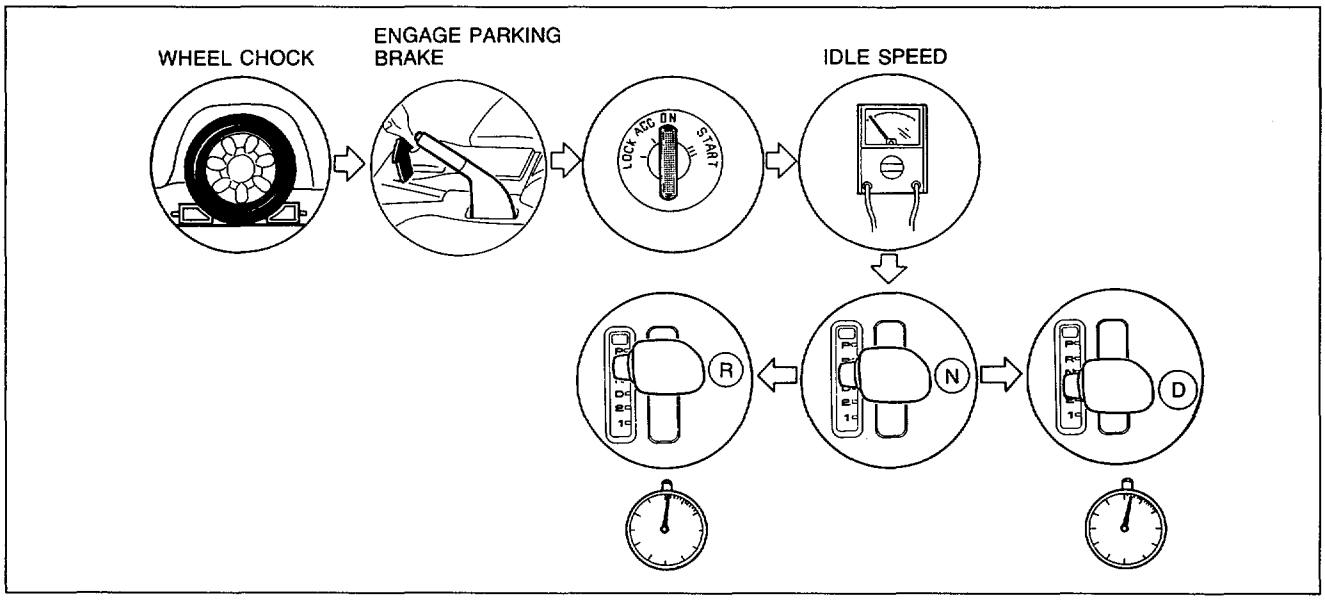
TIME LAG TEST

If the selector lever is shifted while the engine is idling, there will be a certain time lapse, or time lag, before shock is felt. This step measures this time lag for checking condition of the front, rear, and one-way clutches; low and reverse brake; and orifice check valve.

Preparation

1. Perform the preparation procedure shown in STALL TEST. (Refer to page K–14.)

Procedure



25U0KX-003

1. Start the engine and check the idle speed in P range.

   Idle speed: 800—900 rpm

2. Shift from N range to D range.
3. Use a stopwatch to measure the time it takes from shifting until shock is felt.

   Note
   - **Make three measurements for each test and average the values.**

4. Perform the test for N range to R range in the same manner.

   Specified time lag: N → D range ..... 0.5—1.0 second
   N → R range ..... 0.5—1.0 second

Evaluation of Time Lag Test

Condition		Possible Cause
N → D shift	More than specification	Insufficient line pressure
		Rear clutch slipping
		One-way clutch slipping
	Less than specification	Excessive line pressure
N → R shift	More than specification	Insufficient line pressure
		Low and reverse brake slipping
		Front clutch slipping
	Less than specification	Stuck orifice check valve
		Excessive line pressure

9MU0K2-029

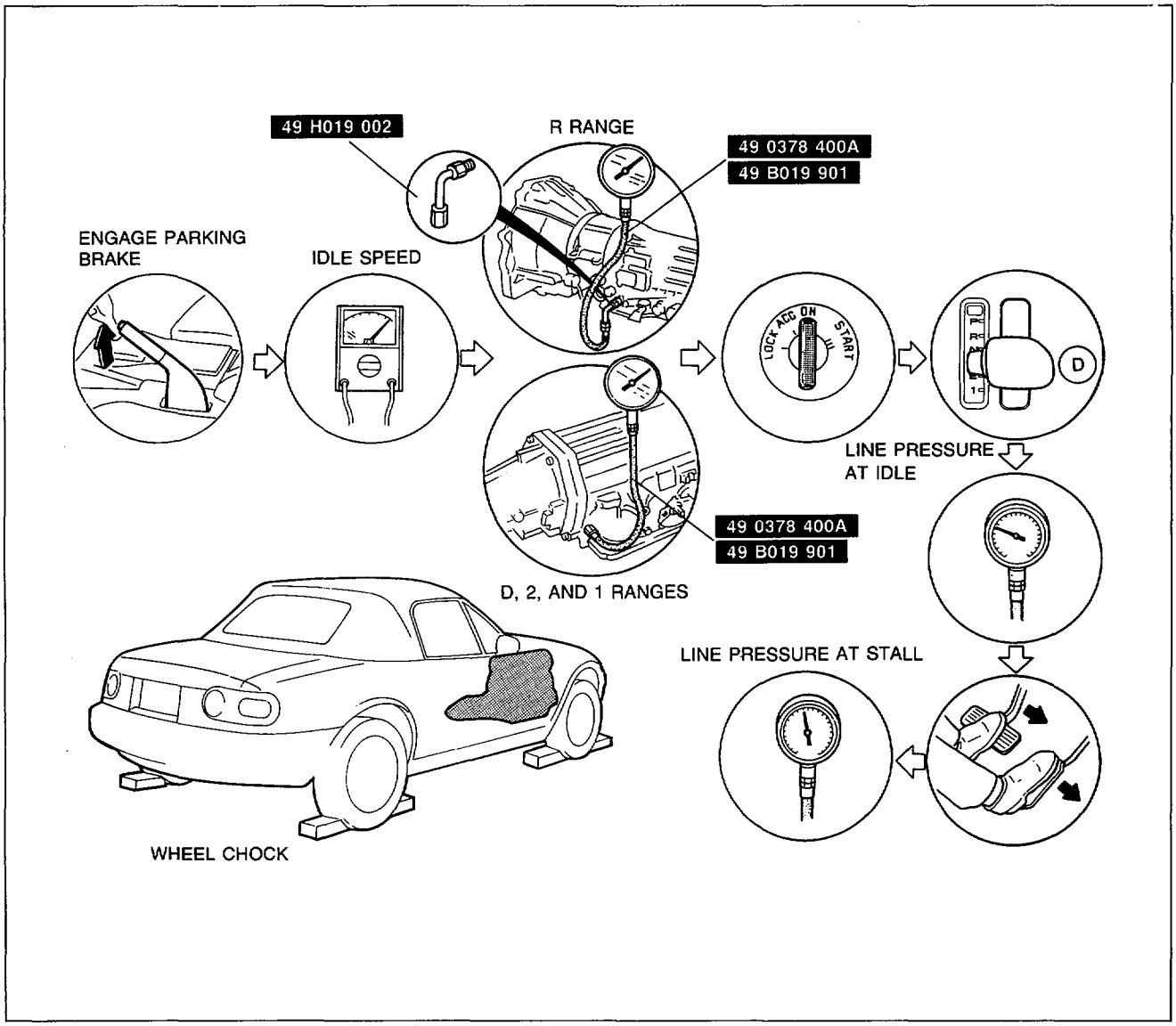
LINE PRESSURE TEST

This test measures line pressures for checking the hydraulic components and inspecting for oil leakage.

Preparation

1. Perform the preparation procedure shown in STALL TEST (Refer to page K–14.)
2. Connect a tachometer to the engine.
3. Connect the **SST** to the line pressure inspection hole(s).

Procedure



25U0KX-004

1. Start the engine and check the idle speed in P range.

   Idle speed: 800—900 rpm

2. Shift the selector lever to D range and read the line pressure at idle.

   Caution
   - **Steps 3 and 4 must be performed within 5 seconds to prevent possible transmission damage.**

3. Depress the service brake pedal firmly with the left foot and gradually depress the accelerator pedal with the right foot.
4. Read the line pressure as soon as the engine speed becomes constant; then release the accelerator pedal.

Caution
- **Idling for at least one minute is to cool the ATF and prevent deterioration of the fluid.**

5. Shift the selector lever to N range and run the engine at idle for at least one minute.
6. Read the line pressure at idle and at the engine stall speeds for each range in the same manner.

Specified line pressure:

Range	Pressure kPa (kg/cm^2, psi)	
	Idle	Stall
D, 1	294—392 (3.0—4.0, 43—57)	932—1,128 (9.5—11.5, 135—164)
2	1,020—1,138 (10.4—11.6, 148—166)	981—1,177 (10.0—12.0, 142—171)
R	697—834 (7.1—8.5, 101—121)	2,246—2,541 (22.9—25.9, 326—369)

15U0KX-007

Evaluation of Line Pressure Test

Condition		Possible cause
Below standard	In all ranges	Worn oil pump
		Fluid leakage from the oil pump, control valve, or transmission case
		Stuck pressure regulator valve
		Fluid leakage from the direct clutch and/or OD band servo release side
	In D, 1, and 2 ranges	Fluid leakage from the rear clutch and/or governor hydraulic circuit
	In R range only	Fluid leakage from the low and reverse brake hydraulic circuit
Excessive line pressure at idle		Leaking or disconnected vacuum hose
		Leaking vacuum diaphragm

05U0KX-018

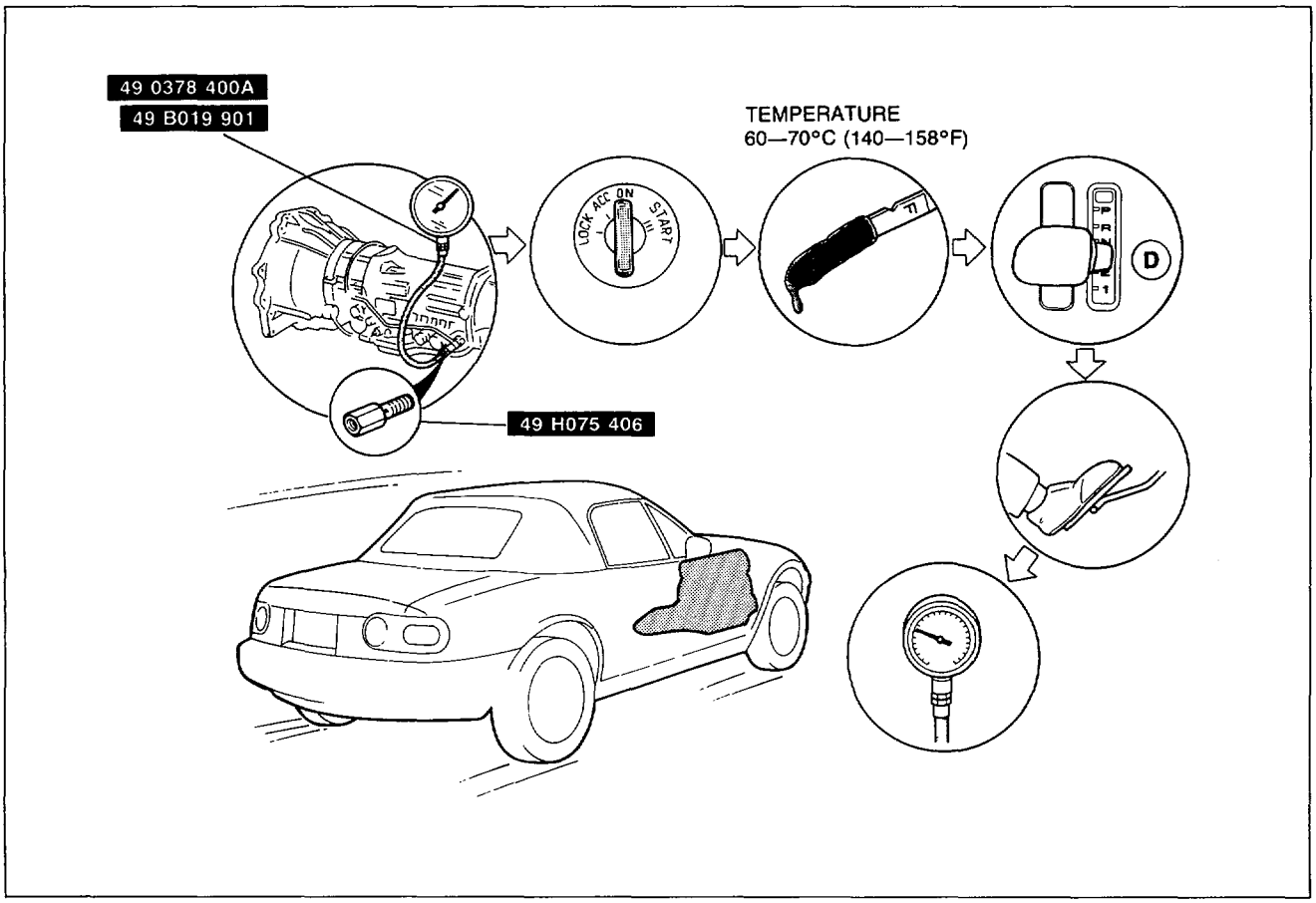
GOVERNOR PRESSURE TEST

This test checks governor pressures for inspecting hydraulic components and for oil leakage.

Preparation

1. Connect the **SST** to the governor pressure output hole.
2. Place the **SST** inside the vehicle.
3. Start the engine and warm up the ATF; then check the ATF level.

Procedure



25U0KX-005

1. Start the engine and check the idle speed in P range.

   Idle speed: 800—900 rpm

2. Drive the vehicle in D range.
3. Read the governor pressure at the speeds listed in the table below.

Specified governor pressure:

Vehicle speed km/h (mph)	Governor pressure kPa (kg/cm^2, psi)
30 (19)	78—137 (0.8—1.4, 11—20)
55 (34)	157—235 (1.6—2.4, 23—34)
85 (53)	334—432 (3.4—4.4, 48—63)

05U0KX-020

Evaluation of Governor Pressure Test

Condition	Possible cause
Not within specification	Fluid leakage from line pressure hydraulic circuit
	Fluid leakage from governor pressure hydraulic circuit
	Defective or stuck governor valve

9MU0K2-035

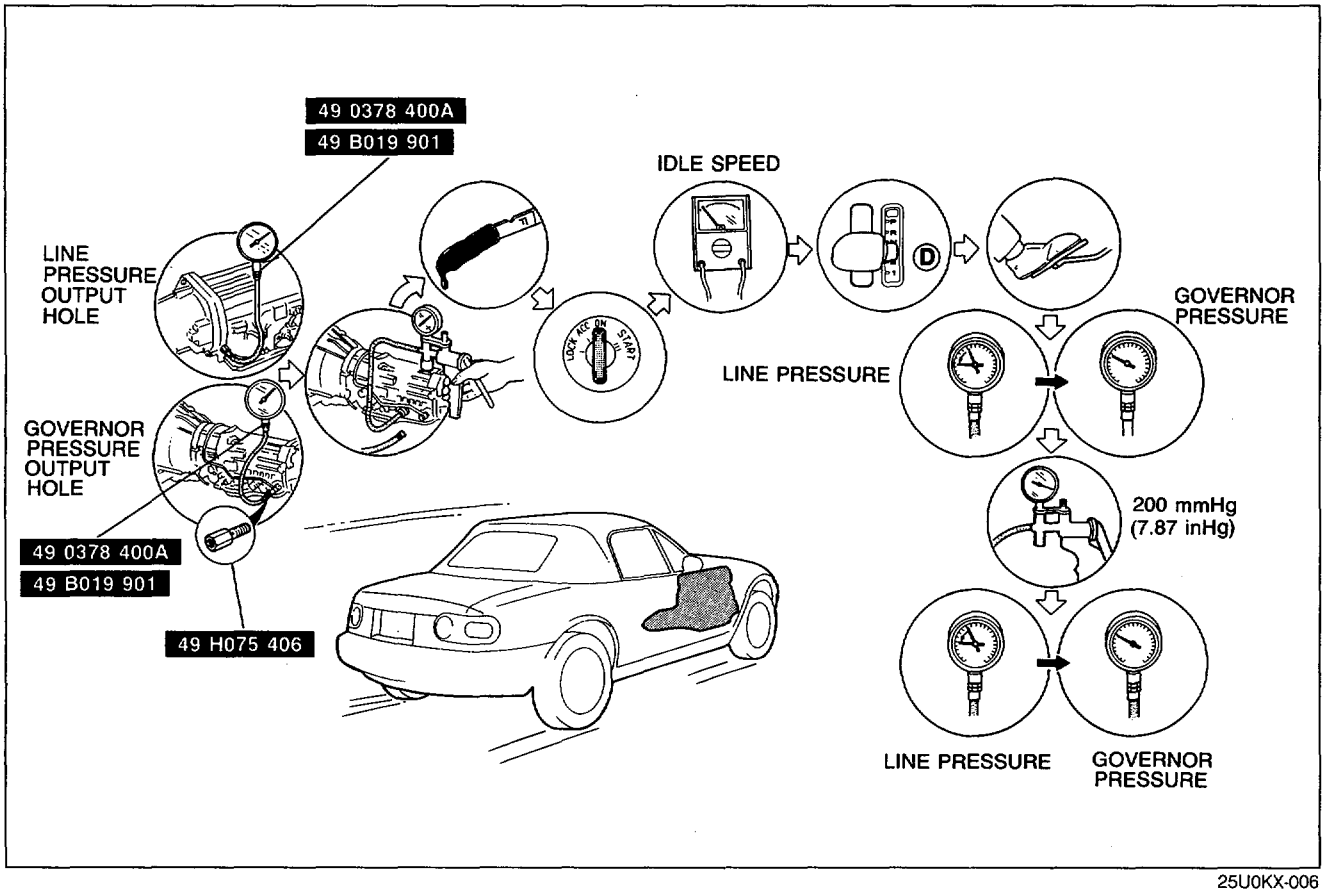
LINE PRESSURE CUTBACK POINT TEST

This test checks line pressure cutback point for checking of the hydraulic components.

Preparation

1. Connect the **SST** to the line pressure output hole and the governor pressure output hole.
2. Place the **SST** inside the vehicle.
3. Disconnect and plug the vacuum diaphragm hose.
4. Connect a vacuum pump to the vacuum diaphragm and place the pump inside the vehicle.
5. Start the engine and warm up the ATF; then check the ATF level.

Procedure



25U0KX-006

1. Start the engine and check the idle speed in P range.

   Idle speed: 800—900 rpm

2. Gradually accelerate the vehicle in D range.
3. Read the governor pressure at the point where the line pressure suddenly drops.
4. Apply **200 mmHg (7.87 inHg)** vacuum, and repeat Steps 2 and 3.

Specified governor pressure:

Vacuum mmHg (inHg)	Governor pressure kPa (kg/cm^2, psi)
Atmospheric pressure	108—167 (1.1—1.7, 16—24)
200 (7.87)	59—118 (0.6—1.2, 9—17)

05U0KX-022

Evaluation of Cutback Point Test

Condition	Possible cause
Not within specification	Missing diaphragm rod or rod length incorrect
	Stuck valve in control valve

05U0KX-023

ROAD TEST

This step is performed to inspect for problems in the various ranges. If these tests show any problems, refer to the mechanical sections to adjust or replace.

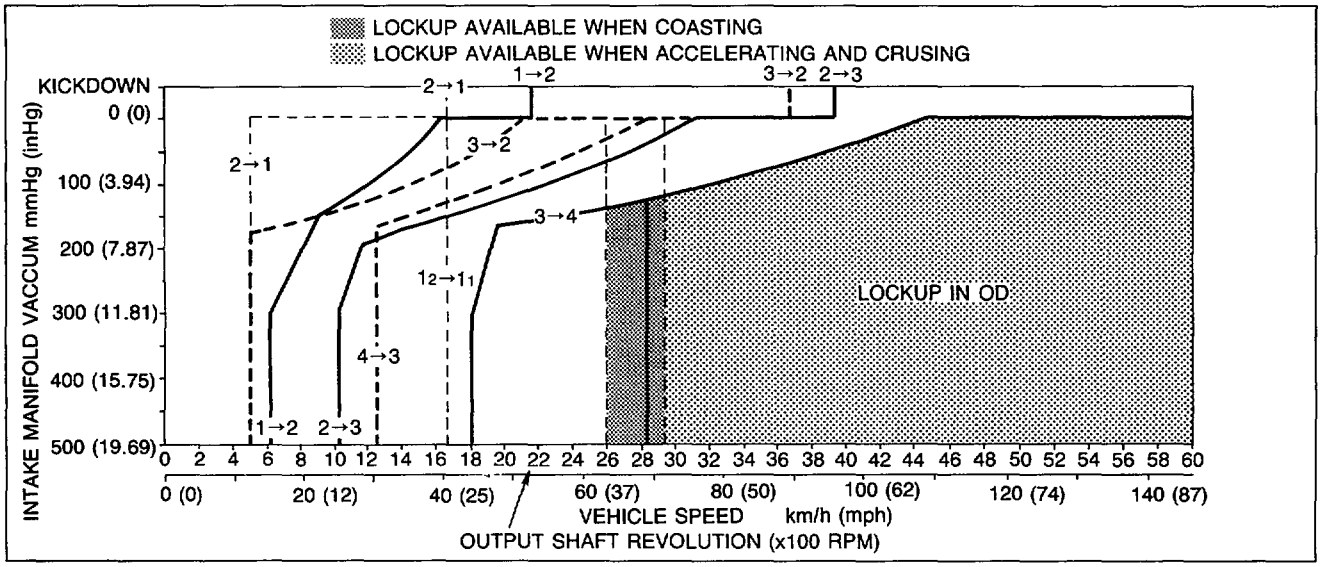
Caution
- **Perform the test at normal ATF operating temperature (60—70°C, 140—158°F).**

D RANGE TEST
Shift Point, Shift Pattern, and Shift Shock
1. Shift the selector lever to D range and depressed the OD OFF switch.
2. Accelerate the vehicle with half- and full-throttle opening.
3. Verify that 1-2, 2-3 and 3-OD upshifts and downshifts and lockup are obtained. The shift points must be as shown in the D range shift diagram.

Note
- **Vehicle speed on a chassis roller may not meet the specified shift diagram if incorrect tire sizes are used.**
- **There is no lockup or OD when the OD OFF switch is released.**

4. Check the upshifts and downshifts for shift shock or slippage.
5. While driving in 3rd shift the selector lever to 2 range and check that 3-2 downshift immediately occurs, then decelerate and verify that engine braking effect is felt in 2nd gear.

Basic shift diagram



25U0KX-007

Noise and Vibration
1. Drive the vehicle in OD (lockup), OD (no lockup), and 3rd. Check for abnormal noise or vibration.

Note
- **Abnormal noise and vibration can also be caused by the torque converter, propeller shaft, or differential. Therefore, check for the cause with extreme care.**

Kickdown
1. Drive the vehicle in OD, 3rd, and 2nd gears and verify that kickdown occurs for OD→3, 2, or 1; 3→2, or 1; 2→1 and that the shift points are as shown in the basic shift diagram.

2 RANGE TEST
Shift Pattern
1. Shift the selector lever to 2 range.
2. Accelerate the vehicle in 2 range and verify that 2nd gear is held.

Noise and vibration

1. Drive the vehicle in 2nd gear and check for abnormal noise or vibration.

Note

- **Abnormal noise and vibration can also be caused by the torque converter, propeller shaft, or differential. Therefore, check for the cause with extreme care.**

1 RANGE TEST

Shift Pattern

1. Shift the selector lever to 1 range.
2. Accelerate the vehicle in 1 range and verify that 1st gear is held.

Noise and vibration

1. Drive the vehicle in 1st gear and check for abnormal noise or vibration.

Note

- **Abnormal noise and vibration can also be caused by the torque converter, propeller shaft, or differential. Therefore, check for the cause with extreme care.**

P RANGE TEST

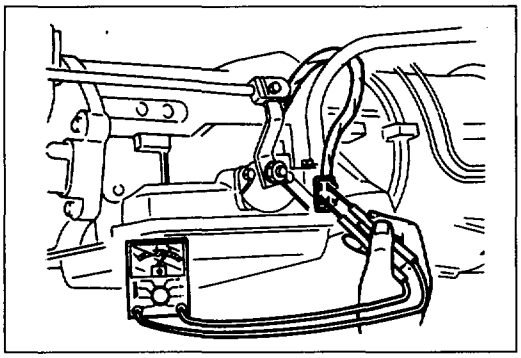
1. Shift into P range on a gentle slope, release the brake, and verify that the vehicle does not roll.
2. Shift into P range while driving the vehicle at **maximum** of **4 km/h (2.5 mph)** on a level surface, and verify that the vehicle stops.

25U0KX-008

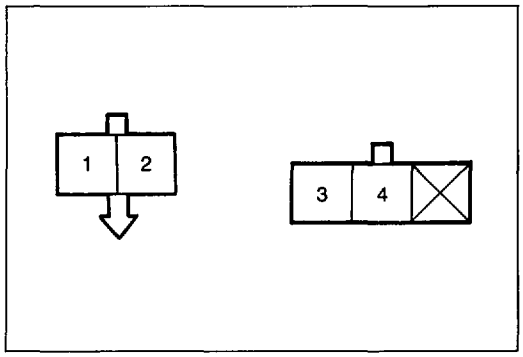
Vehicle speed at gearshift table

Range	Throttle condition (Manifold vacuum)	Shifting	Vehicle speed km/h (mph)
D	Fully opened	$D_1 \rightarrow D_2$	50—56 (31—35)
		$D_2 \rightarrow D_3$	93—99 (58—61)
		OD→D_3	Above 93 (58)
		$D_3 \rightarrow D_2$	87—93 (54—58)
		$D_2 \rightarrow D_1$	37—43 (23—27)
	Half throttle 200 mmHg (7.87 inHg)	$D_1 \rightarrow D_2$	17—23 (11—14)
		$D_2 \rightarrow D_3$	25—31 (16—19)
		D_3→OD	44—50 (27—31)
		Lockup ON (OD)	66—72 (41—45)
		Lockup OFF (OD)	60—66 (37—41)
		OD→D_3	27—33 (17—20)
		$D_3 \rightarrow D_2$	9—15 (6— 9)
		$D_2 \rightarrow D_1$	9—15 (6— 9)
	Fully closed	$D_1 \rightarrow D_2$	12—18 (7—11)
		$D_2 \rightarrow D_3$	22—28 (14—17)
		D_3→OD	41—47 (25—29)
		OD→D_3	27—33 (17—20)
		$D_3 \rightarrow D_2$	9—15 (6— 9)
		$D_2 \rightarrow D_1$	9—15 (6— 9)
1	—	$1_2 \rightarrow 1_1$	38—44 (24—27)

15U0KX-008



25U0KX-047



05U0KX-028

ELECTRONIC SYSTEM COMPONENTS

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

INHIBITOR SWITCH

Inspection

Operation

1. Verify that the starter operates with the ignition switch at START position and the selector lever in P and N range only.
2. Verify that the backup lights illuminate when shifted to R range with the ignition switch ON.
3. Check the inhibitor switch if it is not as specified.

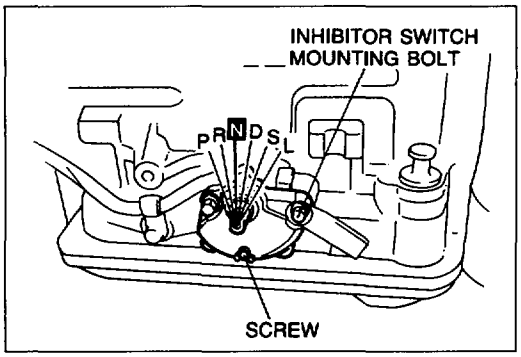
Continuity

1. Jack up the vehicle and support it with safety stands.
2. Disconnect the control linkage from the manual shaft.
3. Disconnect the inhibitor switch connector.
4. Check continuity of the terminals as shown.

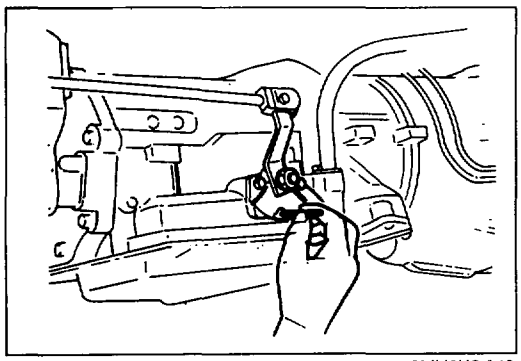
Position	Connector terminal			
	1	2	3	4
P	○—○			
R			○—○	
N	○—○			
D, 1, 2				

○—○ : Indicates continuity

5. If not correct, adjust the inhibitor switch.
6. If correct, check or adjust the selector lever and control linkage.



9MU0K2-048



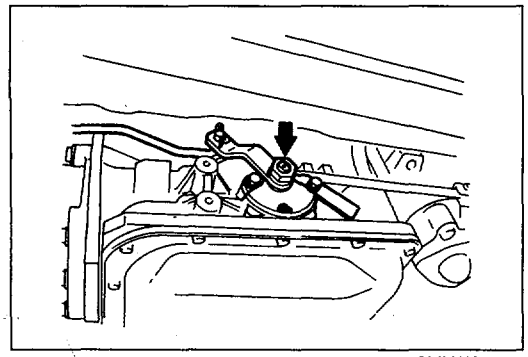
9MU0K2-049

Adjustment

1. Move the manual shaft to N position.
2. Loosen the inhibitor switch mounting bolts.
3. Remove the screw on the switch body and move the inhibitor switch so that the screw hole is aligned with the small hole inside the switch. Check their alignment by inserting an **approx. 2.0mm (0.079 in)** diameter pin through the holes.
4. Tighten the mounting bolts and remove the pin.

Tightening torque:
4.9—6.9 N·m (50—70 cm-kg, 43—61 in-lb)

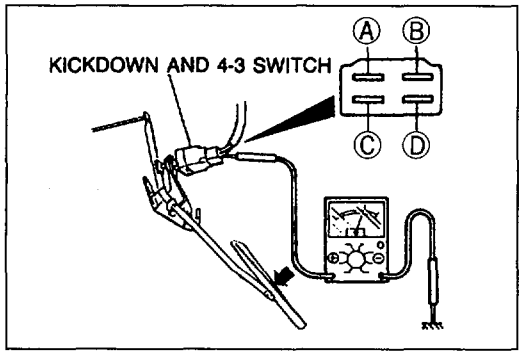
5. Install and tighten the screw in the switch body.
6. Check the continuity of the inhibitor switch.
7. If not correct, replace the inhibitor switch.



9MU0K2-050

8. Connect the control linkage.

Tightening torque:
29—39 N·m (3.0—4.0 m-kg, 22—29 ft-lb)



25U0KX-009

KICKDOWN AND 4-3 SWITCH

Inspection

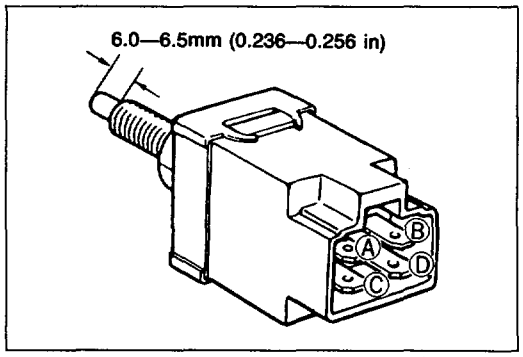
Kickdown switch terminal voltage

1. Turn the ignition switch ON.
2. Check the voltage of terminal Ⓒ (YG).

VB: Battery voltage

Terminal voltage	Depressed
VB	7/8—8/8 (Full)
0V	0/8—7/8

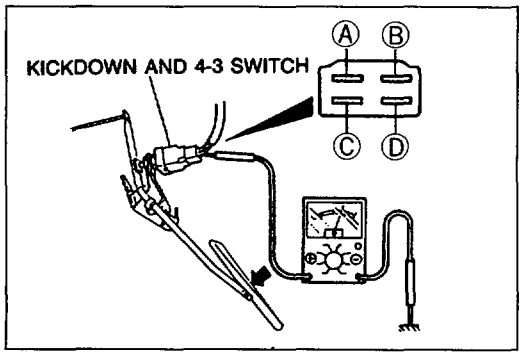
3. If not correct, check the continuity between terminals.



9MU0K2-052

Kickdown switch continuity

1. Disconnect the connector.
2. Check the continuity between terminals Ⓒ and Ⓓ when the tip of the switch is depressed **6.0—6.5mm (0.236—0.256 in)**.
3. If not correct, replace the switch.
4. If correct, adjust the switch.



25U0KX-010

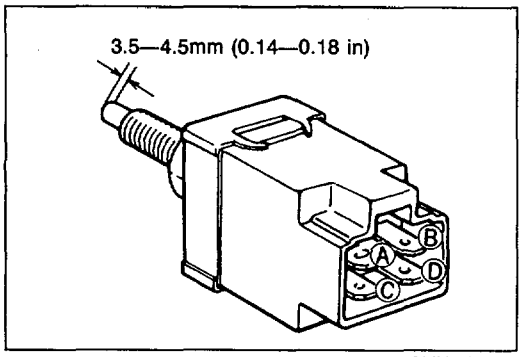
4-3 switch terminal voltage

1. Turn the ignition switch ON.
2. Check the voltage of terminal Ⓐ (GB).

VB: Battery voltage

Terminal voltage	Depressed
VB	6/8—8/8
0V	0/8—5/8

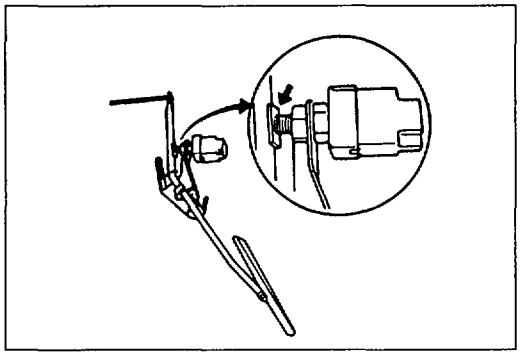
3. If not correct, check the continuity between terminals.



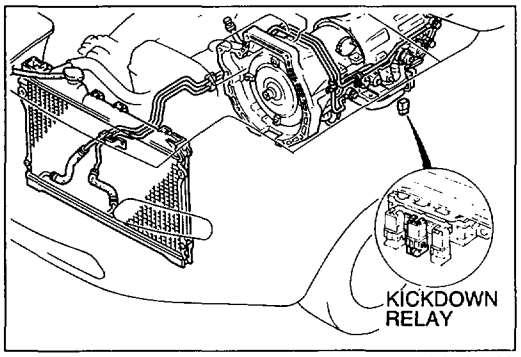
9MU0K2-054

4-3 switch continuity

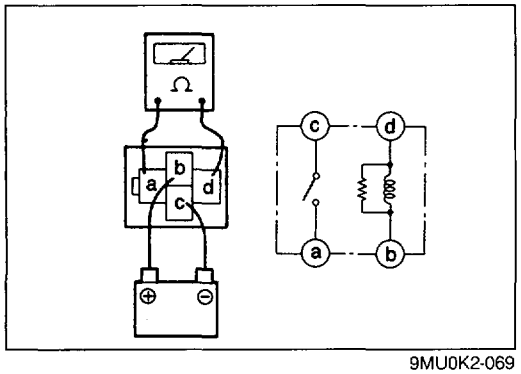
1. Disconnect the connector.
2. Check the continuity between terminals Ⓐ and Ⓑ when the tip of the switch is depressed **3.5—4.5mm (0.14—0.18 in)**.
3. If not correct, replace the switch.
4. If correct, adjust the switch.



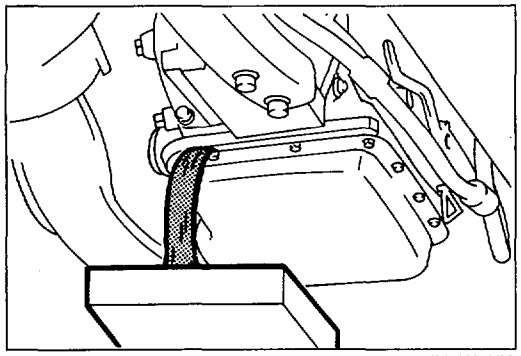
05U0KX-029



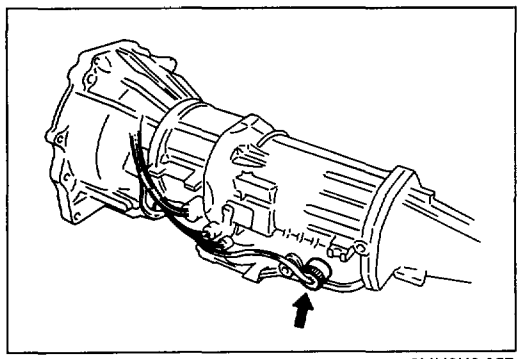
9MU0K2-068



9MU0K2-069



9MU0K2-056



9MU0K2-057

Adjustment

1. Disconnect the connector.
2. Loosen the locknuts and back the switch out fully.
3. Depress the accelerator pedal fully and hold it.
4. With the accelerator pedal fully down, turn the kickdown switch clockwise until it turns ON (clicking sound heard). Then, turn the switch 1/4 turn further clockwise.
5. Tighten the locknuts and release the accelerator pedal.

Tightening torque:
14—18 N·m (1.4—1.8 m-kg, 10—13 ft-lb)

6. Reconnect the connector.
7. Depress the accelerator pedal fully and verify that the kickdown switch clicks at the fully depressed position.

KICKDOWN RELAY

Inspection

1. Remove the kickdown relay.
2. Connect a battery and an ohmmeter as shown.
3. First check that there is continuity; then disconnect the battery and check that there is no continuity.
4. If not correct, replace the relay.

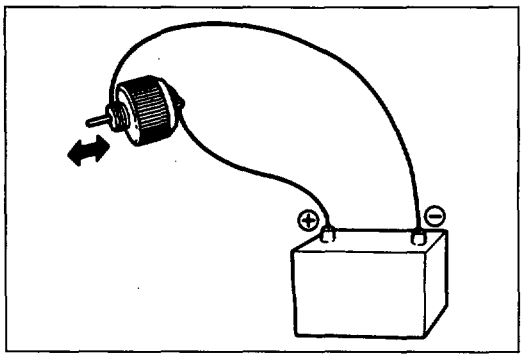
KICKDOWN SOLENOID

Inspection

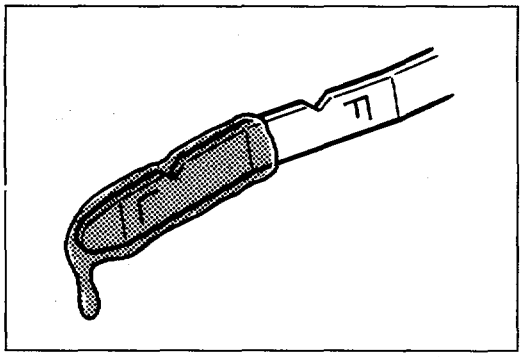
1. Jack up the vehicle and support it with safety stands.
2. Loosen the oil pan mounting bolts and drain **approx. 1.0 liter (1.1 US qt, 0.9 Imp qt)** of ATF.
3. Tighten the oil pan mounting bolts.

Tightening torque:
5.9—7.8 N·m (60—80 cm-kg, 52—69 in-lb)

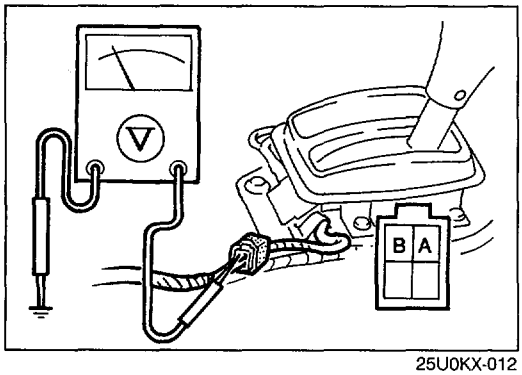
4. Remove the kickdown solenoid.


25U0KX-011

5. Apply battery voltage to the kickdown solenoid and verify that the kickdown solenoid clicks.
6. If not correct, replace the kickdown solenoid.
7. Apply the ATF to the new O-ring and install it to the solenoid; then install the kickdown solenoid.


05U0KX-030

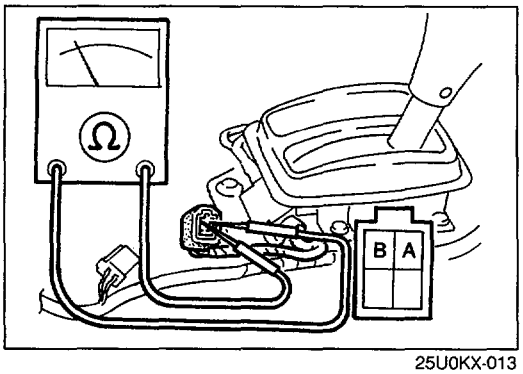
8. Add ATF to the correct level. (Refer to page K–31.)


25U0KX-012

OD OFF SWITCH
Inspection
Terminal voltage
1. Remove the rear console.
2. Turn the ignition switch ON.
3. Check the voltage between terminal A and ground.

VB: Battery voltage

Terminal voltage	Switch
VB	Released
0V	Depressed

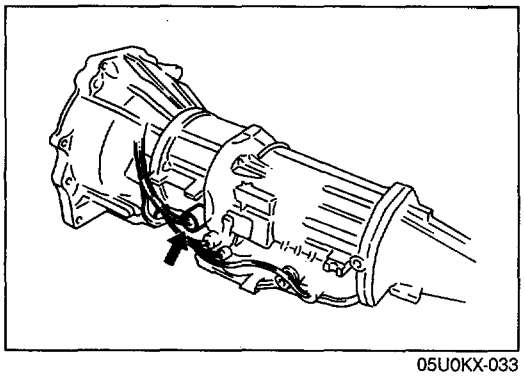

25U0KX-013

4. If not correct, check continuity between the terminals.

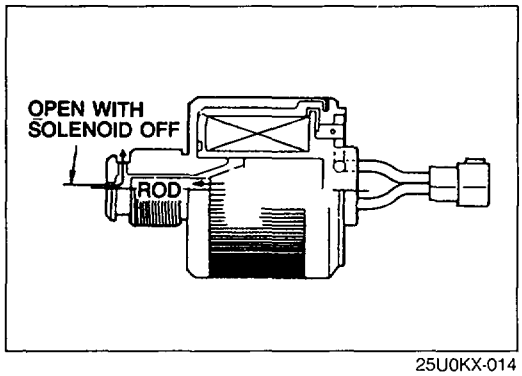
Continuity
1. Disconnect OD OFF switch connector.
2. Check continuity of the terminal A and B.

Continuity	Switch
Yes	Released
No	Depressed

3. If not correct, replace the selector lever knob.


05U0KX-033

OD CANCEL SOLENOID
Inspection
1. Jack up the vehicle and support it with safety stands.
2. Drain the ATF as described in KICKDOWN SOLENOID. (Refer to page K–26.)
3. Remove the OD cancel solenoid.

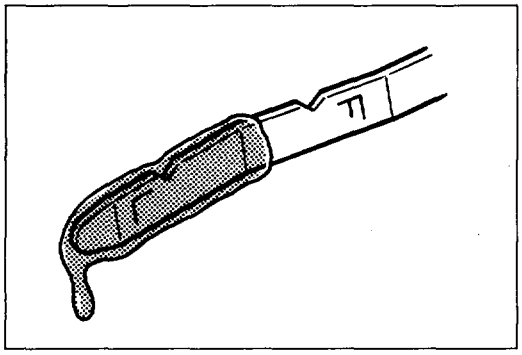


25U0KX-014

4. Apply battery voltage to the solenoid and verify operation of the solenoid.

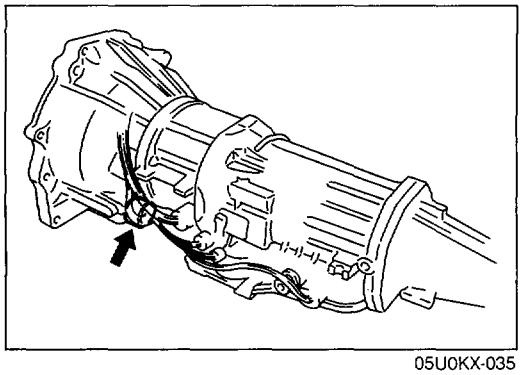
Note
- **The oil passage should close when current is applied and open when it is cut off.**

5. If not correct, replace the OD cancel solenoid.
6. Apply the ATF to the new O-ring and install it to the solenoid; then install the OD cancel solenoid.



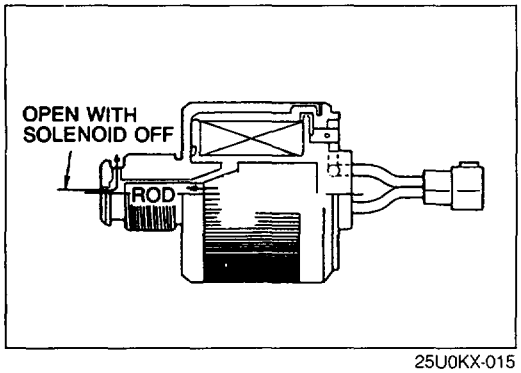
05U0KX-034

7. Add ATF to the correct level. (Refer to page K–31.)



05U0KX-035

LOCKUP SOLENOID
Inspection
1. Jack up the vehicle and support it with safety stands.
2. Drain the ATF as described in KICKDOWN SOLENOID. (Refer to page K–26.)
3. Remove the lockup solenoid.

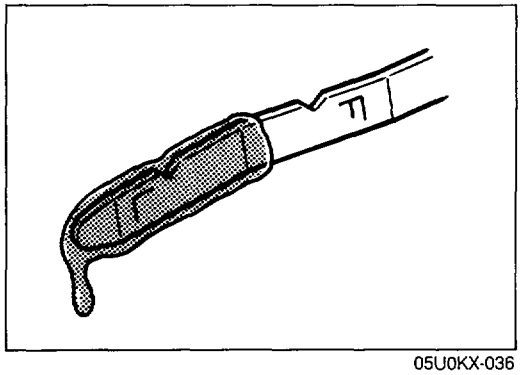


25U0KX-015

4. Apply battery voltage to the solenoid and verify operation of the solenoid.

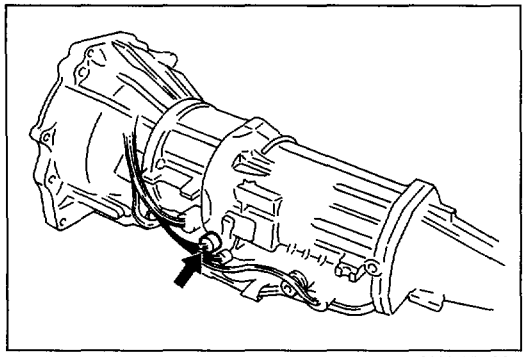
Note
- **The oil passage should close when current is applied and open when it is cut off.**

5. If not correct, replace the lockup solenoid.
6. Apply the ATF to the new O-ring and install it to the solenoid; then install the lockup solenoid.

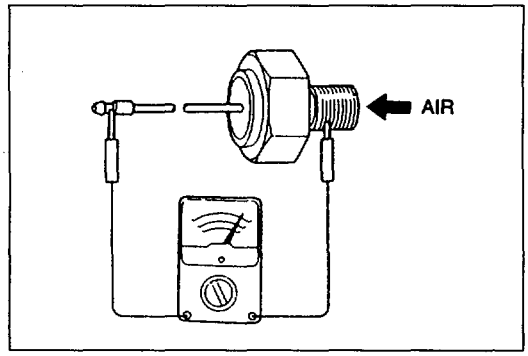


05U0KX-036

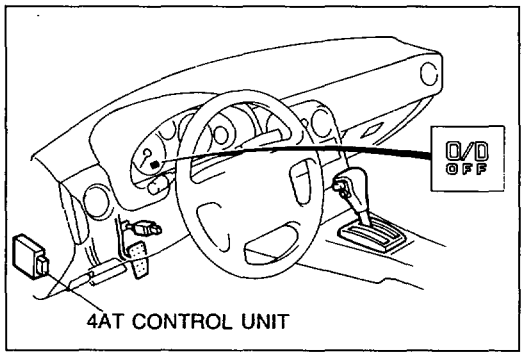
7. Add ATF to the correct level. (Refer to page K–31.)



05U0KX-037



05U0KX-038



25U0KX-016

OIL PRESSURE SWITCH

Inspection

1. Jack up the vehicle and support it with safety stands.
2. Drain the ATF as described in KICKDOWN SOLENOID. (Refer to page K–26.)
3. Remove the oil pressure switch.

4. Check continuity of the switch while applying air pressure.

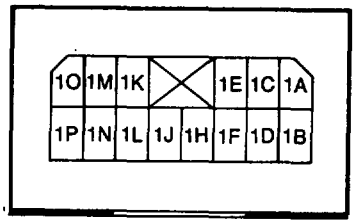
Pressure	Continuity
Less than 49 kPa (0.5 kg/cm^2, 7.1 psi)	Yes
More than 294 kPa (3.0 kg/cm^2, 42.7 psi)	No

5. If not correct, replace the oil pressure switch.
6. Apply the ATF to the new O-ring and install it to the solenoid; then install the oil pressure switch.
7. Add ATF to the correct level. (Refer to page K–31.)

4AT CONTROL UNIT

Inspection

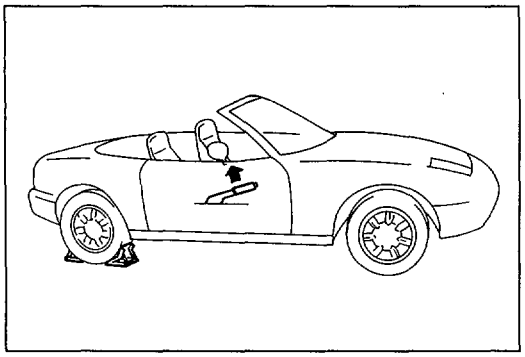
1. Turn the ignition switch OFF, and verify that the control unit terminal 1B is grounded.
2. Turn the ignition switch ON, and verify that the terminal 1A voltage is battery voltage.
3. Turn the ignition switch ON, and check the 4AT control unit terminal voltage.
4. If not correct, check and replace or repair the component(s), wiring, and/or 4AT control unit.



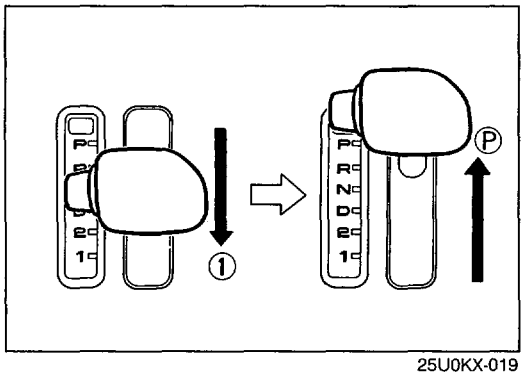
VB: Battery voltage

Terminal	Connected to	Voltage	Condition	
1A (Battery power)	Battery	VB	Ignition switch ON	
		0V	Ignition switch OFF	
1B (Ground)	Battery ground	0V	Constant	
1C (Input)	OD OFF switch	VB	OD OFF switch released • OD not available	
		0V	OD OFF switch depressed • OD available	
1D (Input)	Kickdown switch	VB	Switch ON: • Throttle opening 7/8—8/8	
		0V	Switch OFF: • Other than conditions above	
1E (Input)	4-3 switch	VB	Switch ON: • Throttle opening 6/8—8/8	
		0V	Switch OFF: • Other than conditions above	
1F (Input)	Oil pressure switch	VB	Switch OFF: • 1st, 2nd, and 3rd gear positions in forward ranges • P, R, and N ranges	
		0V	Switch ON: • OD gear position	
1H (Input)	Engine control unit	Below. 1.5V	Ignition switch ON	
1J (Input)	Cruise control unit	VB	Normal conditions	
		Below. 1.5V	Set or Resume switch ON, or vehicle speed 8 km/h (5 mph) lower than preset speed (Driving vehicle: cruise control operation)	
1K (Output)	OD cancel solenoid	VB	Solenoid OFF: • OD gear position	
		Below. 1.5V	Solenoid ON: • 1st, 2nd, and 3rd gear positions in forward ranges • P, R, and N ranges	
1L (Input)	Speed sensor	1.5—7V	During driving	
		Approx. 7V or below 1.5V	Vehicle stopped	
1M (Input)	Kickdown relay	VB	Kickdown relay OFF: • Other than conditions below	
		Below. 1.5V	Kickdown relay ON: • Kickdown switch ON (throttle opening more than 7/8)	
1N (Output)	Lockup solenoid	VB	Solenoid OFF: • Lockup prohibition	Ignition switch ON
		Below. 1.5V	Solenoid ON: • Lockup	Engine running
1O	—	—	—	
1P	—	—	—	

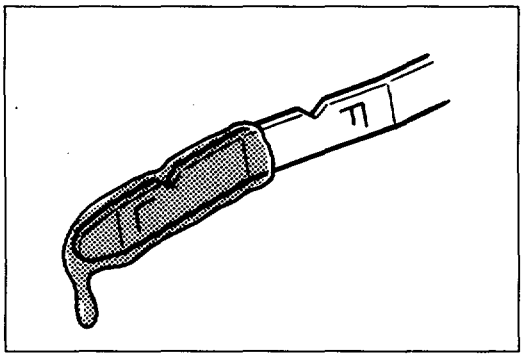
25U0KX-017



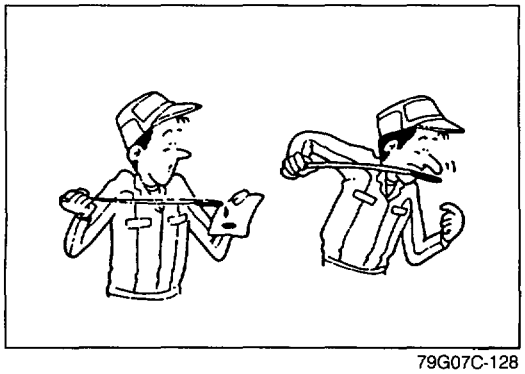
25U0KX-018



25U0KX-019



25U0KX-020



79G07C-128

AUTOMATIC TRANSMISSION FLUID (ATF)

INSPECTION

Level

1. Apply the parking brake and position wheel chocks securely to prevent the vehicle from rolling.

Note
- **Place the vehicle on a flat, level surface.**

2. Start the engine.
3. Warm up the engine until the ATF reaches **60—70°C (140—158°F)**.

4. While depressing the service brake pedal, shift the selector lever to each range (P-1) and leave it a few seconds in each range.
5. Shift back to P.

6. Verify that the ATF level is between the marks on the transmission oil level gauge. Add ATF to specification if necessary.

ATF type: Dexron®II or M-III

Condition

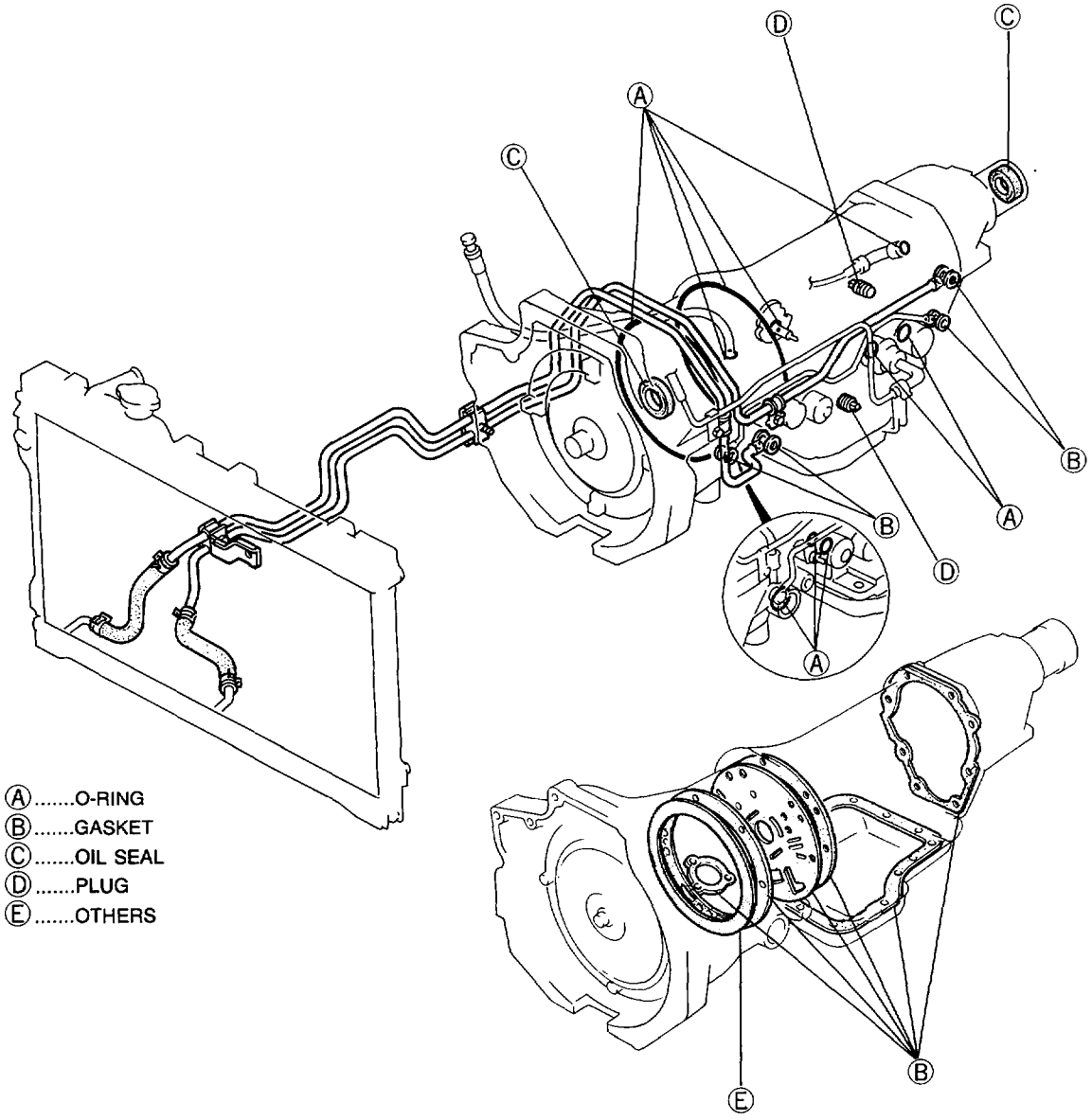
1. Check the ATF for discoloration.
2. Check the ATF for any unusual smell.

Note
- **Determine whether or not the automatic transmission should be disassembled by observing the condition of the ATF carefully. If the ATF is muddy and varnished, it indicates burned drive plates.**

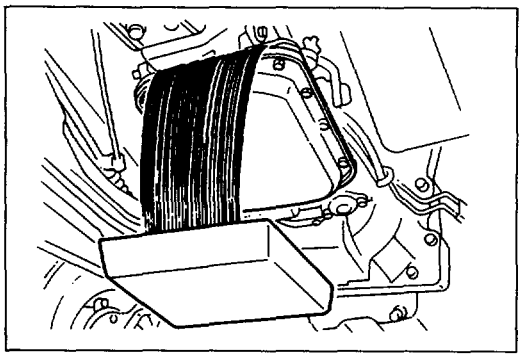
Fluid leaks

Check for fluid leaks of the transmission as shown below, and repair or replace as necessary.

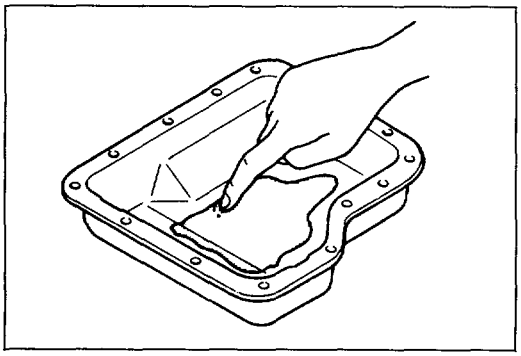
1. Gaskets, O-ring, and plugs
2. Oil hoses, oil pipes, and connections
3. Oil cooler



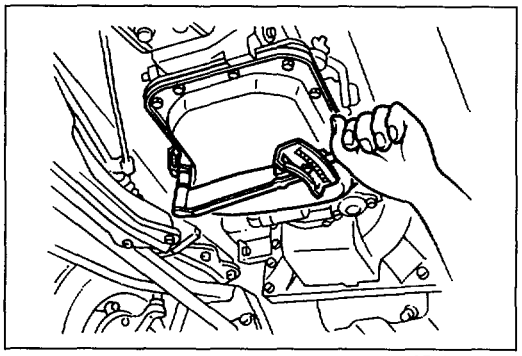
05U0KX-043



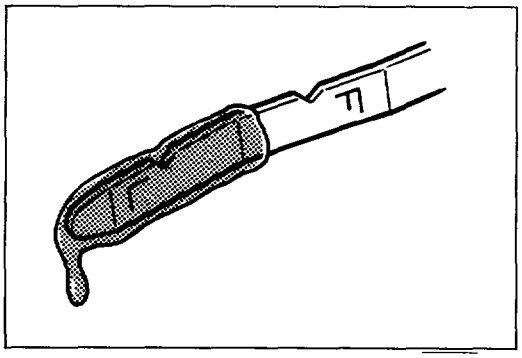
15U0KX-111



9BU0KX-452



9BU0KX-453



25U0KX-021

REPLACEMENT

1. Jack up the vehicle and support it with safety stands.

   Warning
   - **Be careful when draining; the ATF is hot.**

2. Loosen the oil pan installation bolts, and drain the ATF into a container.

3. Remove the oil pan and gasket.
4. Clean the oil pan and the magnet.

5. Install the oil pan along with a new gasket.

   Tightening torque:
   5.9—7.8 N·m (60—80 cm-kg, 52—69 in-lb)

6. Add **approx. 4.0 liters (4.2 US qt, 3.5 Imp qt)** ATF, and check the ATF level. (Refer to page K–31.)

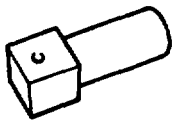
   Specified ATF: Dexron®II or M-III

TRANSMISSION

TRANSMISSION (REMOVAL)

Preparation

SST

49 0259 440 Holder, mainshaft		For prevention of oil leakage

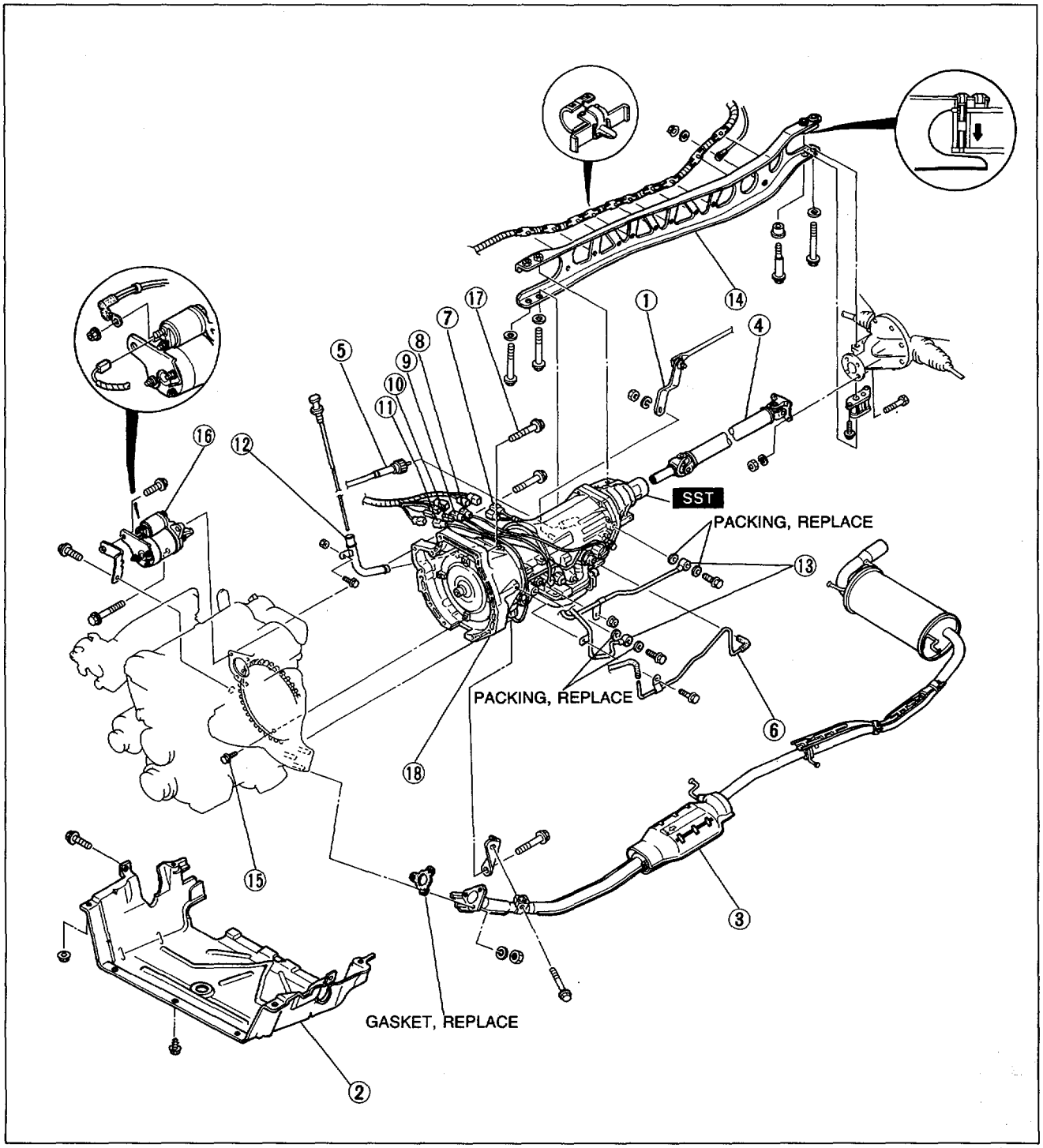
25U0KX-048

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

1. Disconnect the negative battery cable.
2. Jack up the vehicle and support it with safety stands.
3. Drain the ATF into a suitable container.
4. Remove in the order shown in the figure, referring to **Removal Note**.

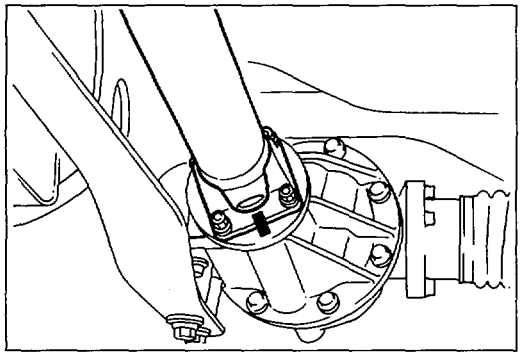
Caution
- **Do not turn the transmission over before removing the oil pan.**

5. After removal, remove the oil pan to check condition of the transmission.



15U0KX-011

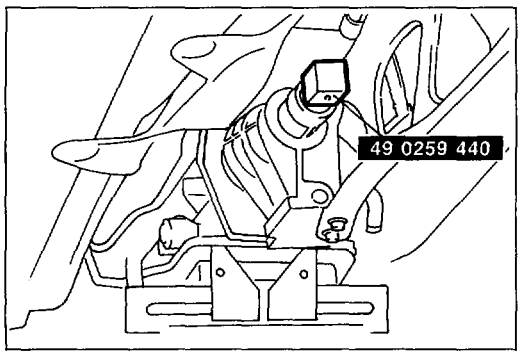
1. Shift rod
2. Undercover
3. Exhaust pipe
4. Propeller shaft
   Removal Note..... page K–36
5. Speedometer cable
6. Vacuum hose
7. Inhibitor switch connector
8. Kickdown solenoid connector
9. OD cancel solenoid connector
10. Oil pressure switch connector
11. Lockup solenoid connector
12. Level gauge pipe
13. Oil cooler pipe
14. Power plant frame (PPF)
    Removal Note..... page K–36
15. Torque converter bolt
16. Starter
17. Transmission mount bolt
18. Transmission
    Removal Note..... page K–37



05U0MX-065

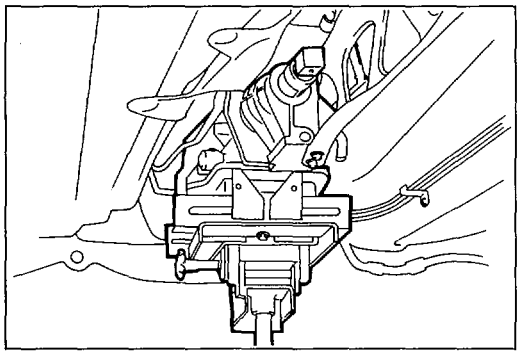
Removal note
Propeller shaft

1. Before removing the propeller shaft, mark the flanges for correct installation.



05U0MX-066

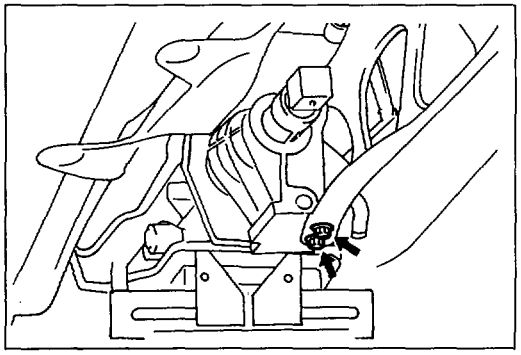
2. When the propeller shaft is removed from the extension housing, immediately install the **SST** to prevent oil leakage.



05U0MX-067

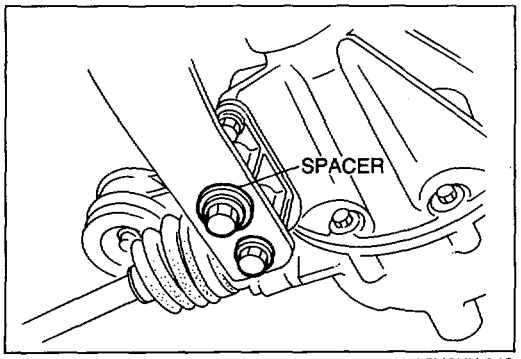
Power plant frame (PPF)

1. Disconnect the wire harness from the PPF.
2. Support the transmission with a jack.



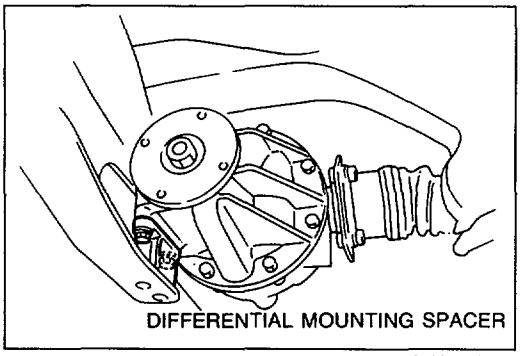
05U0KX-047

3. Remove the front bolts.



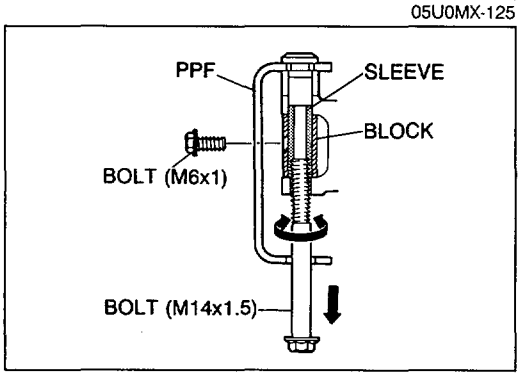
05U0KX-048

4. Remove the rear bolts, and pry out the bolt spacer.



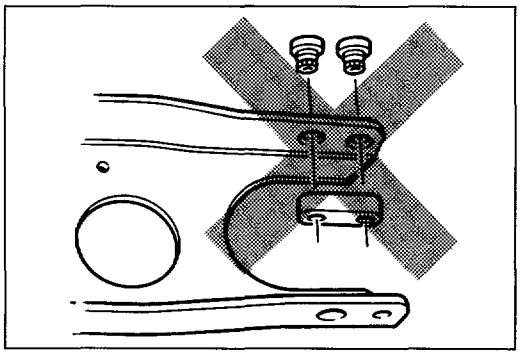
05U0MX-125

5. Remove the differential mounting spacer bolts.



05U0KX-049

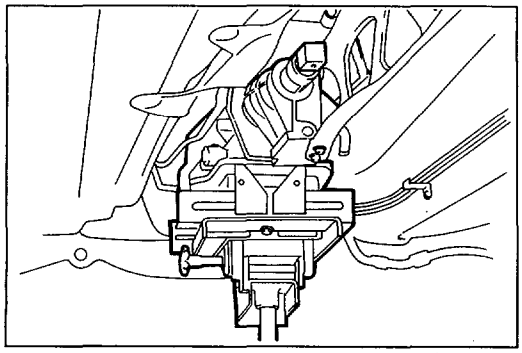
6. Turn a bolt (M14 × 1.5) into the sleeve.
7. Twist and pull the bolt downward.
8. Install a bolt (M6 × 1) into the hole in the block to hold the sleeve. Remove the long bolt (M14 × 1.5).
9. Remove the remaining bolt (M6 × 1).



05U0KX-050

Caution
- **Do not remove the spacers shown in the figure from the PPF.**
- **If they are removed, replace the PPF as an assembly.**

10. Remove the PPF.



15U0KX-112

Transmission

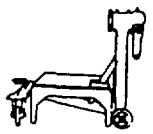
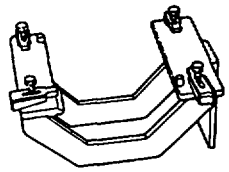
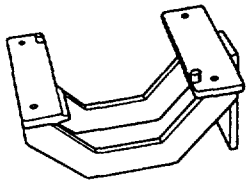
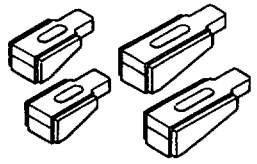
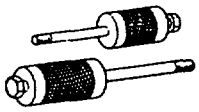
Caution
- **Do not violently shake the transmission to avoid damage to the crank angle sensor.**

1. Remove the transmission.

TRANSMISSION (DISASSEMBLY)

Preparation

SST

49 0107 680A Engine stand 	For disassembly of transmission	49 U019 0A0A Hanger, transmission 	For disassembly of transmission
49 H075 495B Body (Part of 49 U019 0A0A) 	For disassembly of transmission	49 U019 003 Holder (Part of 49 U019 0A0A) 	For disassembly of transmission
49 0378 390 Puller, oil pump 	For removal of oil pump		

25U0KX-022

Precaution

General notes:

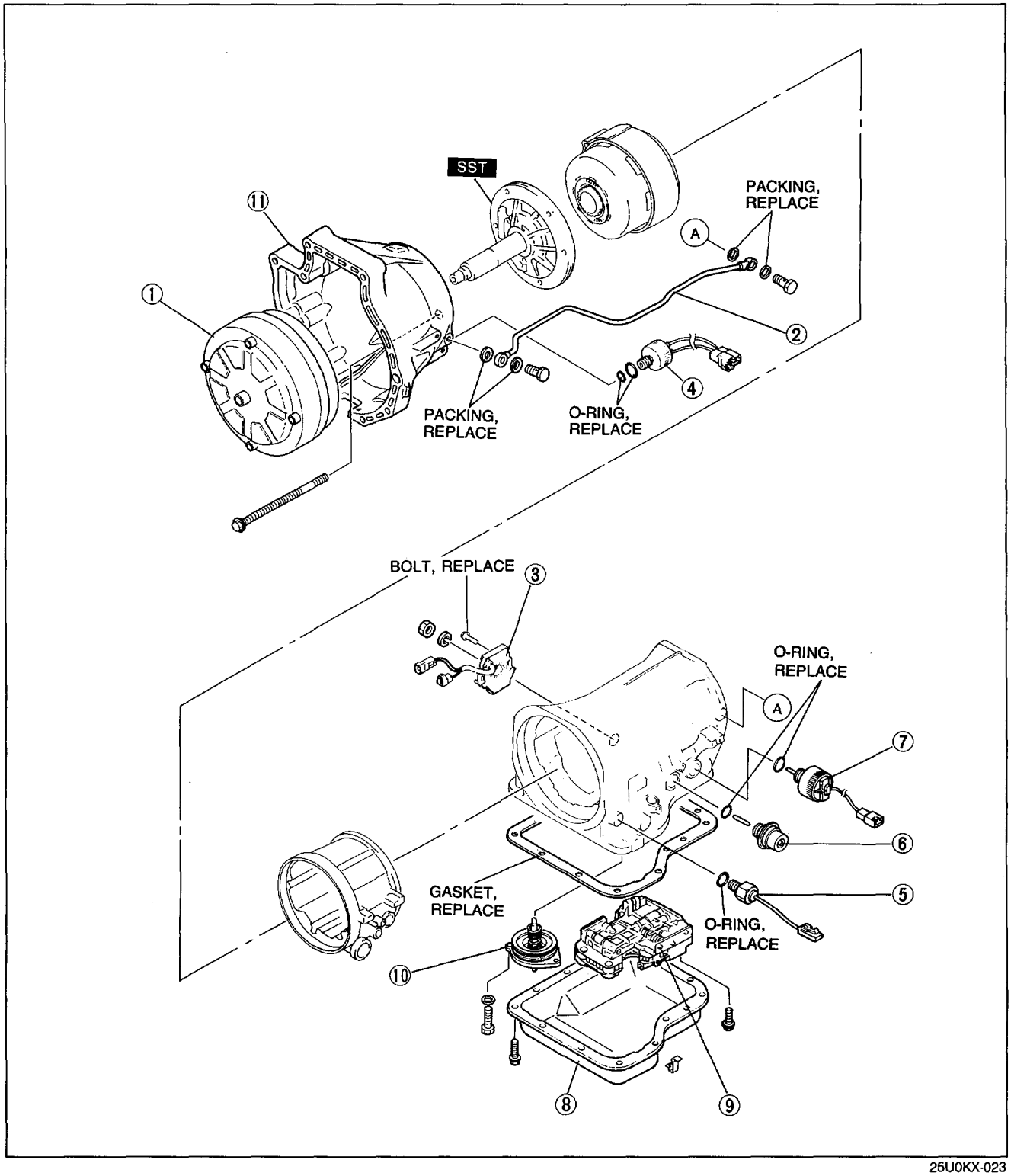
1. Disassemble the transmission in a clean area (dustproof work space) to prevent entry of dust into the mechanisms.
2. Inspect the individual transmission components in accordance with the QUICK DIAGNOSIS CHART during disassembly.
3. Use only plastic hammers when applying force to separate the light alloy case joints.
4. Never use rags during disassembly; they may leave particles that can clog fluid passages.
5. Several parts resemble one another; organize them so they do not get mixed up.
6. Disassemble the control valve assembly and thoroughly clean it when a clutch or brake band is burned or when the ATF has degenerated.

Cleaning notes:

1. Clean the transmission exterior thoroughly with a steam cleaner or cleaning solvents before disassembly.
2. Clean the removed parts with cleaning solvent, and dry with compressed air. Clean out all holes and passages with compressed air, and check that there are no obstructions.
3. Wear eye protection when using compressed air to clean components.

05U0KX-055

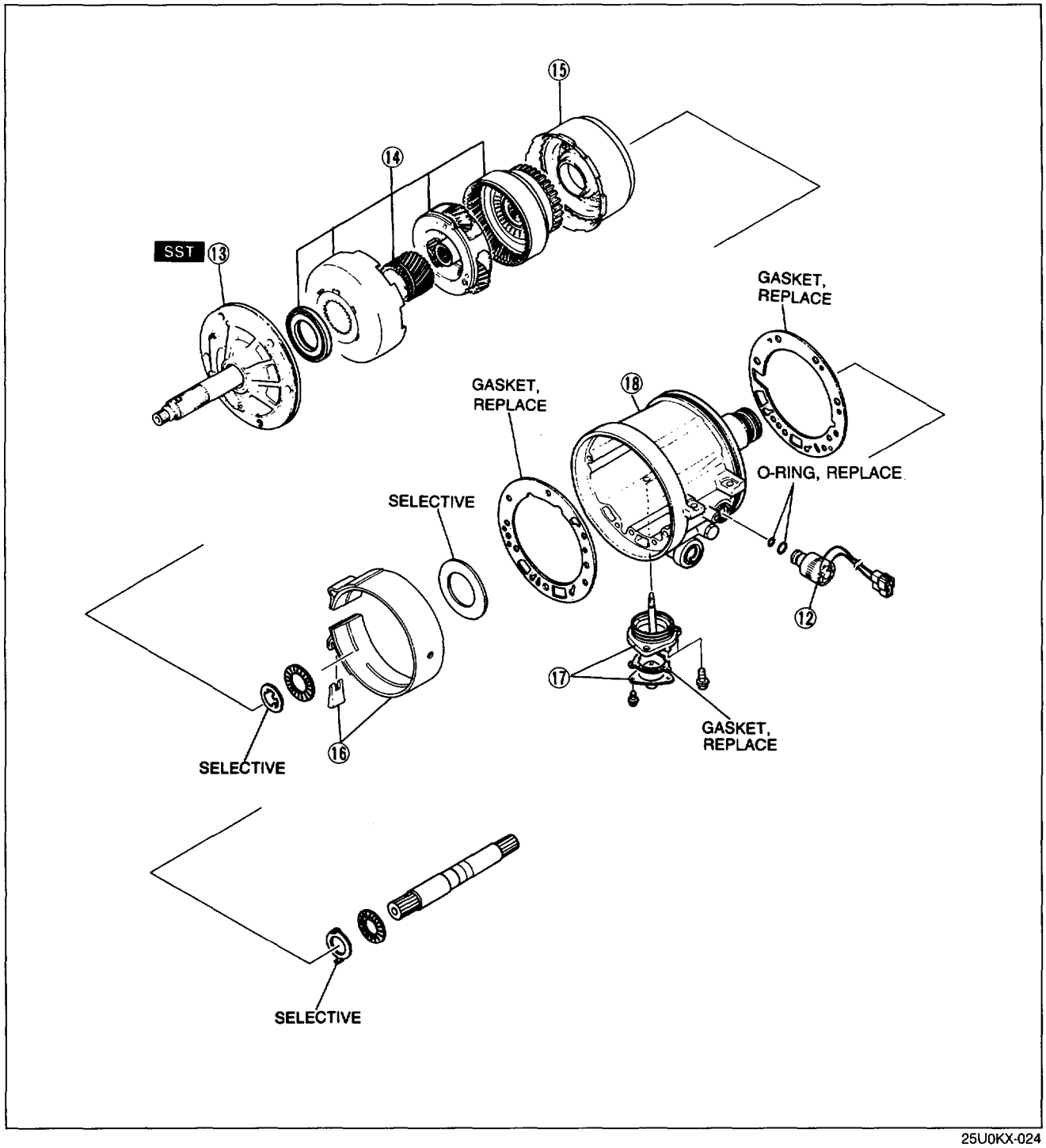
Components



25U0KX-023

1. Torque converter
   Inspection ..... page K–49
2. Governor pressure pipe
3. Inhibitor switch
   Inspection ..... page K–24
   Adjustment ..... page K–24
4. Lockup solenoid
   Inspection ..... page K–28
5. Oil pressure switch
   Inspection ..... page K– 29
6. Vacuum diaphragm
   Inspection ..... page K–109
7. Kickdown solenoid
   Inspection ..... page K– 26
8. Oil pan
9. Control valve body
   Disassembly / Inspection .... page K–100
   Assembly ..... page K–106
10. 2nd band servo
    Disassembly / Inspection / Assembly ..... page K– 70
11. Converter housing

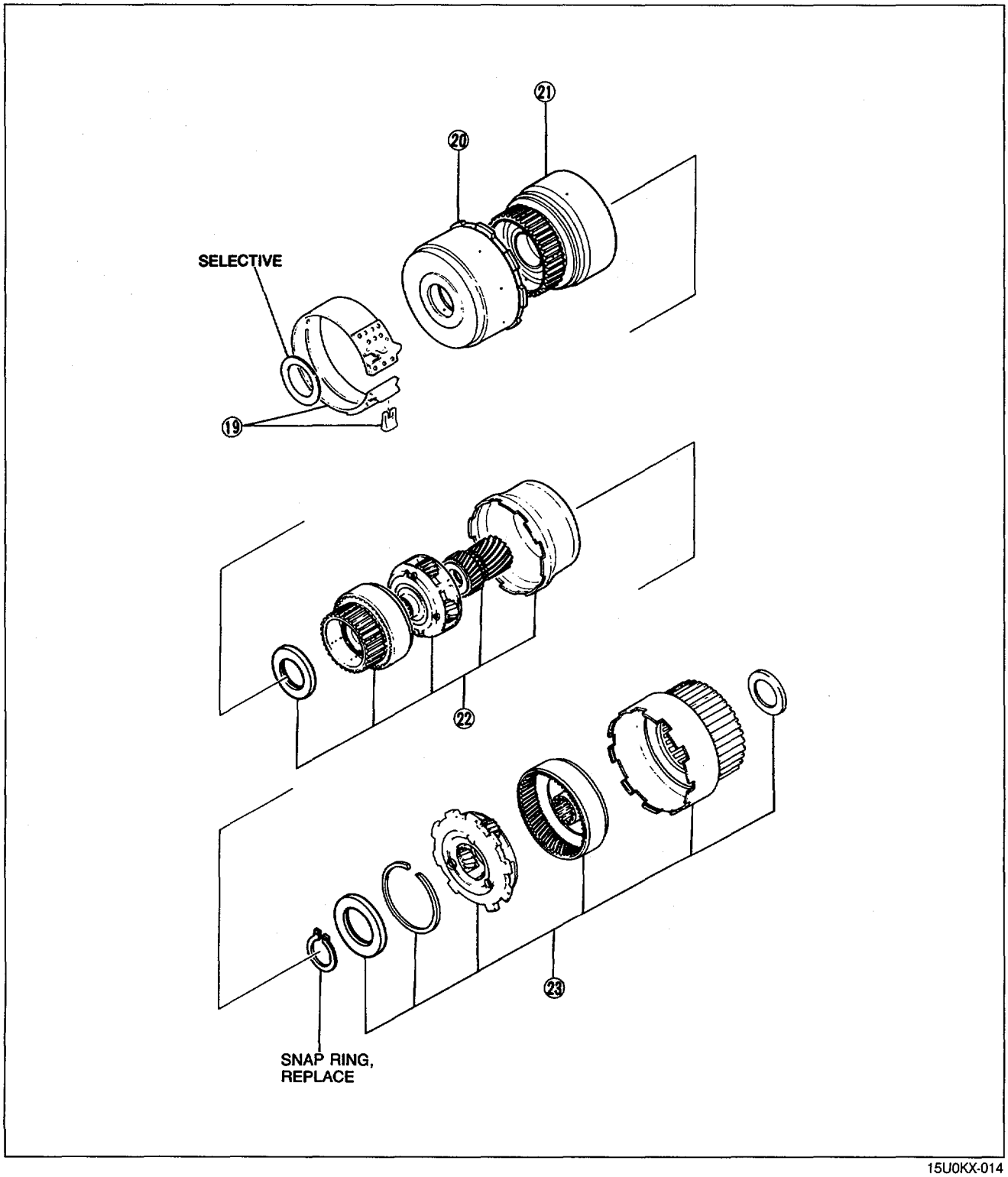
Components (cont'd)



25U0KX-024

12. OD cancel solenoid
    Inspection ..... page K–27
13. Oil pump
    Disassembly / Inspection / Assembly ..... page K–49
14. OD connecting shell and OD planetary gear unit (OD sun gear, OD planetary pinion carrier, OD clutch hub)
    Disassembly / Inspection / Assembly ..... page K–54
15. Direct clutch
    Disassembly / Inspection / Assembly ..... page K–56
16. OD brake band and band strut
17. OD band servo and cover
    Disassembly / Inspection / Assembly ..... page K–62
18. Drum support, accumulator, and OD case
    Disassembly / Inspection / Assembly ..... page K–65

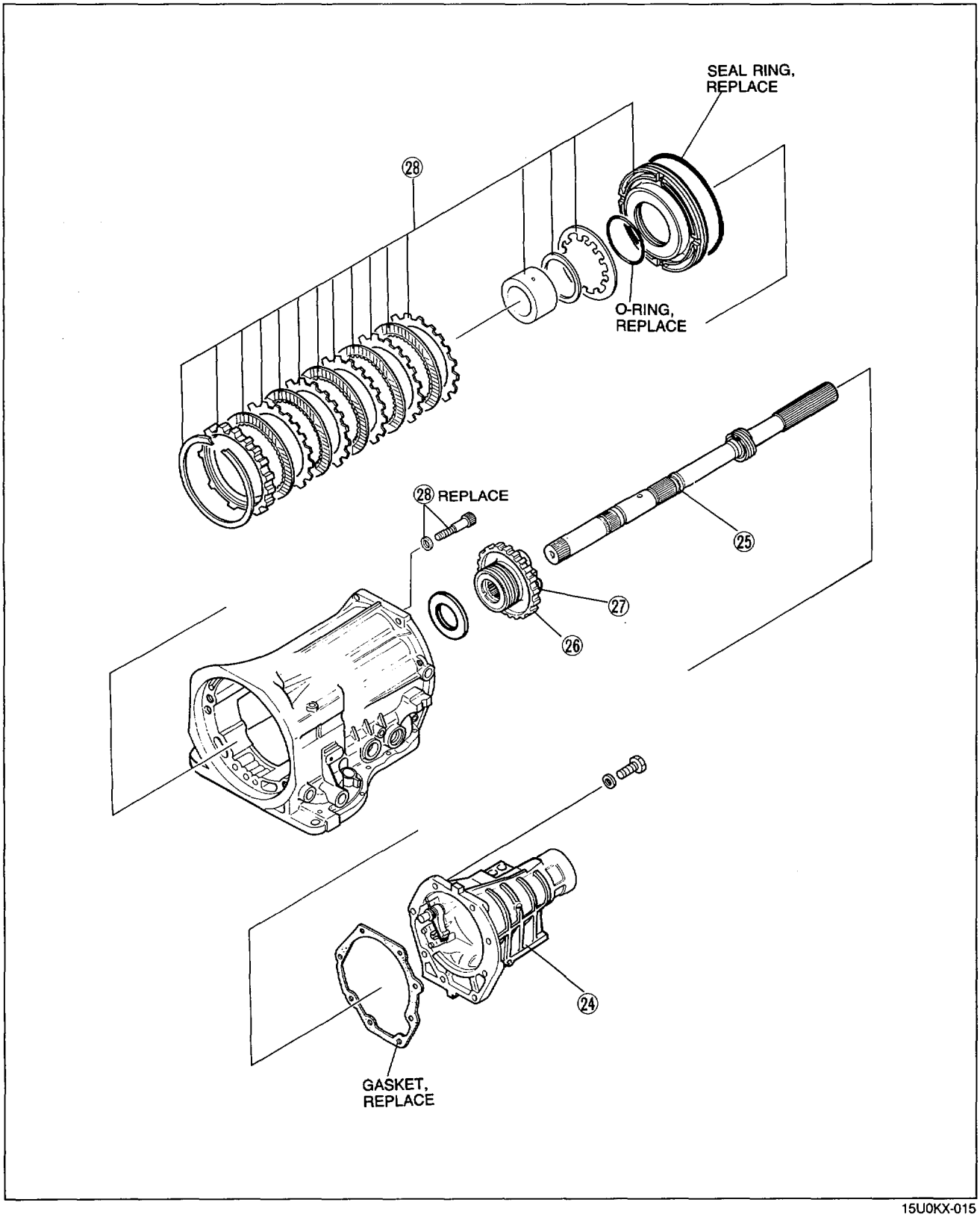
Components (cont'd)



15U0KX-014

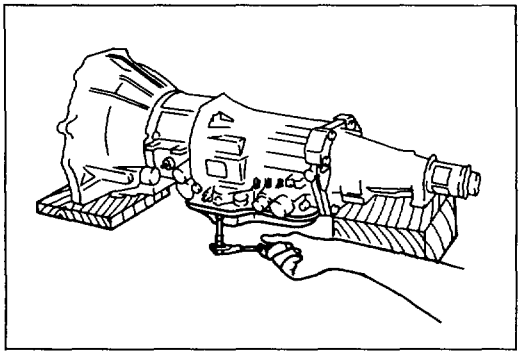
19. 2nd brake band and band strut
20. Front clutch
    Disassembly / Inspection / Assembly ..... page K–73
21. Rear clutch
    Disassembly / Inspection / Assembly ..... page K–78
22. Connecting shell and front planetary gear unit
    (Rear clutch hub, front planetary pinion carrier, rear sun gear)
    Disassembly / Inspection / Assembly ..... page K–83
23. Rear planetary gear unit
    (Connecting drum, rear planetary pinion carrier, one-way clutch)
    Disassembly / Inspection / Assembly ..... page K–85

Components (cont'd)

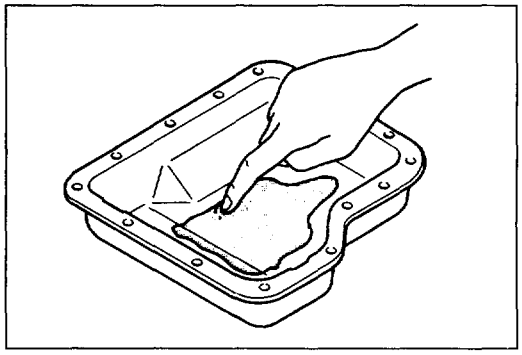


15U0KX-015

24. Extension housing and parking mechanism
    Disassembly / Inspection / Assembly ..... page K–97
25. Output shaft
26. Parking gear
27. Governor
    Disassembly / Inspection / Assembly ..... page K–94
28. Low and reverse brake
    Disassembly / Inspection / Assembly ..... page K–89



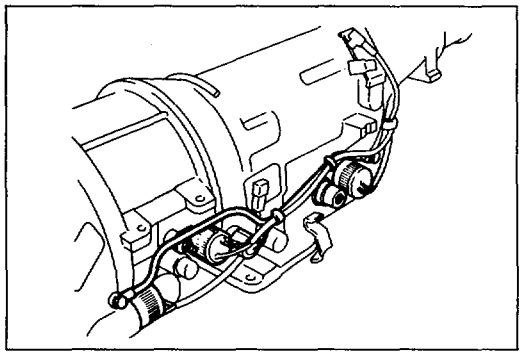
05U0KX-060



Procedure

Caution
- **Keep the transmission upright so that any foreign material will remain in the pan.**

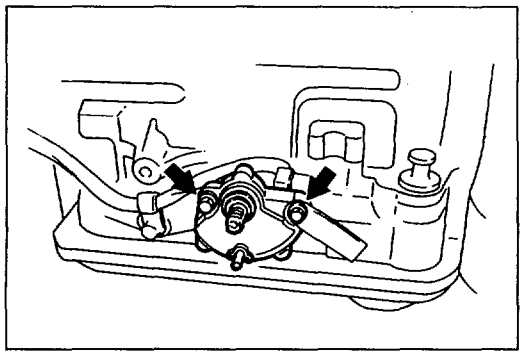
1. Place the transmission on wooden blocks under the converter housing and the extension housing.
2. Remove the oil pan and gasket.
   Examine any material found in the pan or on the magnet to determine the condition of the transmission.
   Clutch facing material ..... Drive plate and brake band wear
   Steel (magnetic) ..... Bearing, gear, and driven plate wear
   Aluminum (nonmagnetic) .... Bushings or cast aluminum parts wear
   If large amounts of material are found, replace the torque converter and carefully check the transmission for the cause.
3. Install the oil pan with a few bolts to protect the valve body.



05U0KX-061

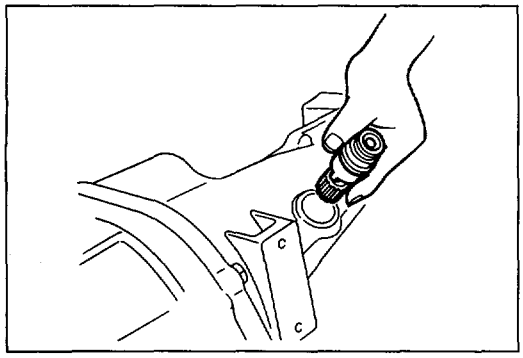
Caution
- **Do not leave the vacuum rod in the tip of the vacuum diaphragm after removal.**

4. Remove the governor pressure pipe, kickdown solenoid, vacuum diaphragm, oil pressure switch, OD cancel solenoid, and lockup solenoid.



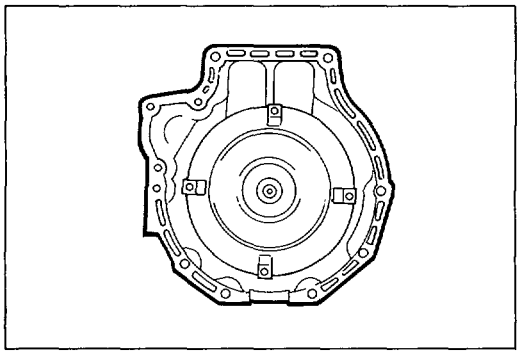
9MU0K2-090

5. Remove the inhibitor switch.



9MU0K2-091

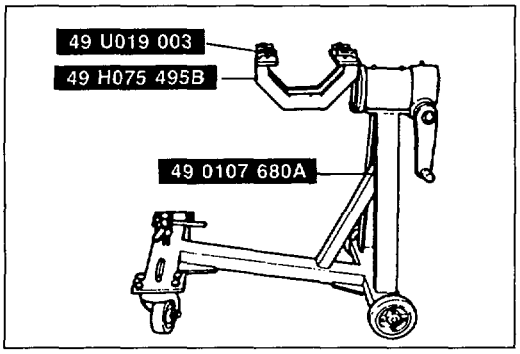
6. Remove the speedometer driven gear from the extension housing.
7. Remove the O-ring from the speedometer driven gear.



05U0KX-062

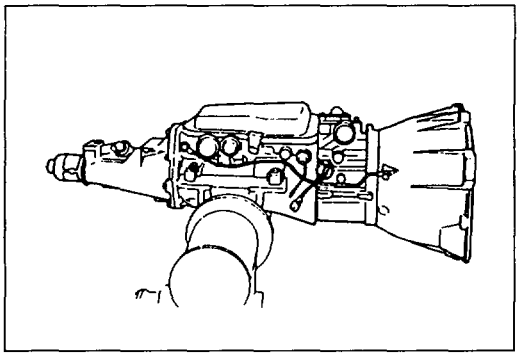
Caution
- **Do not spill the ATF when removing the torque converter.**

8. Remove the torque converter.



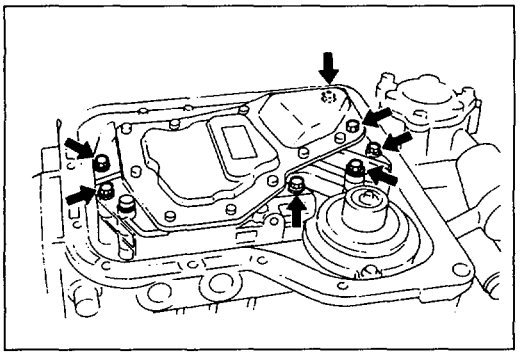
9MU0K2-088

9. Assemble the **SST** as shown.



9MU0K2-095

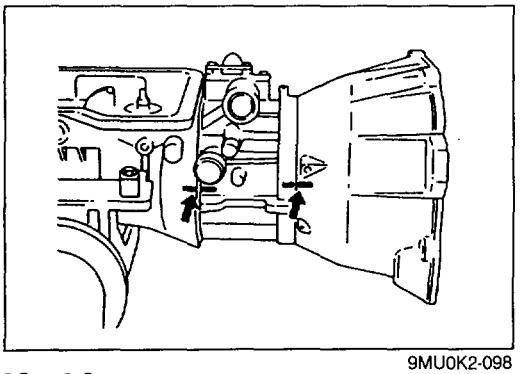
10. Mount the transmission onto the **SST**.
11. Remove the oil pan and gasket.



05U0KX-063

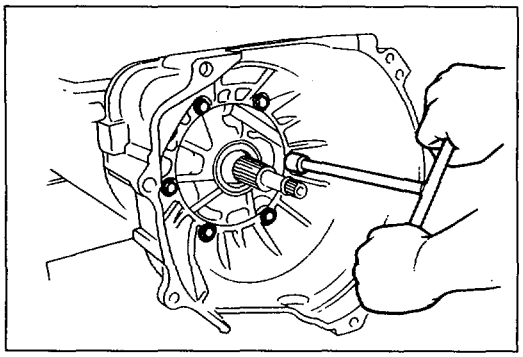
Note
- **Neatly arrange bolts of different lengths for proper reassembly.**

12. Remove the control valve body bolts shown in the figure, and remove the valve body.



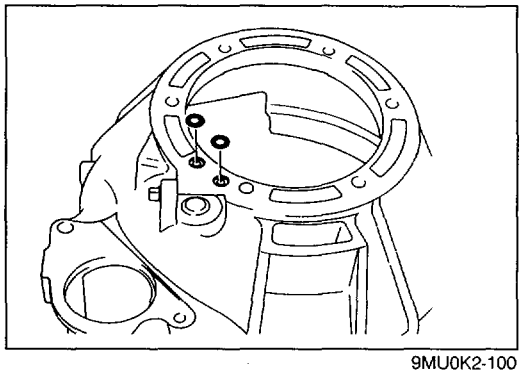
9MU0K2-098

13. Mark the converter housing, OD case, and transmission case for proper reassembly.



9MU0K2-099

14. Remove the converter housing from the OD case.

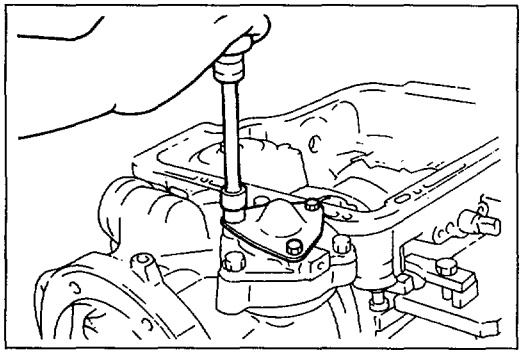


9MU0K2-100

15. Remove the O-rings from the converter housing.

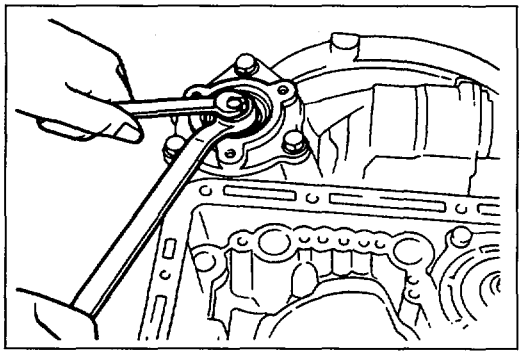
Caution
- **Do not damage the converter housing.**

16. Clean the sealing compound from the converter housing.



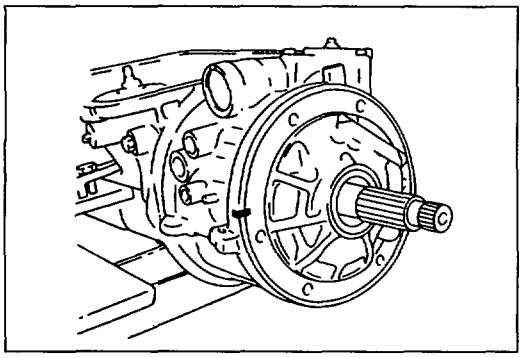
9MU0K2-101

17. Remove the OD band servo cover and gasket.



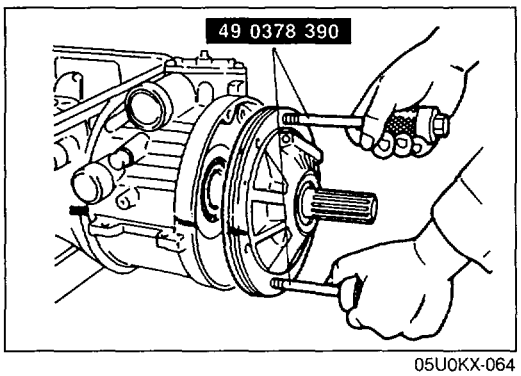
9MU0K2-102

18. Loosen the OD band servo locknut and tighten the piston stem.



9MU0K2-103

19. Mark the OD case and oil pump for proper reassembly.

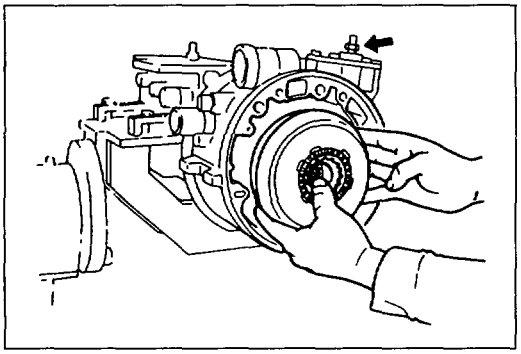


05U0KX-064

20. Install the **SST** to the oil pump assembly.

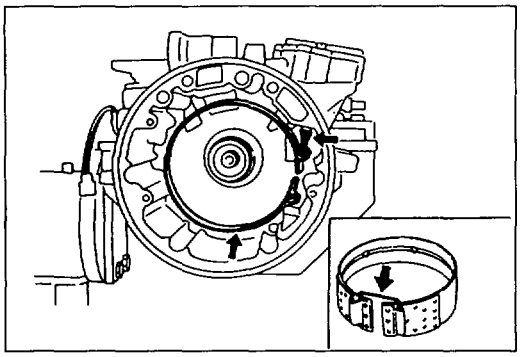
Caution
- **Carefully remove the oil pump to prevent the OD connection shell, sun gear, and planetary pinion carrier from falling out.**

21. Remove the oil pump assembly from the OD case by sliding the weights of the **SST** evenly. Remove the **SST** from the oil pump.



05U0KX-065

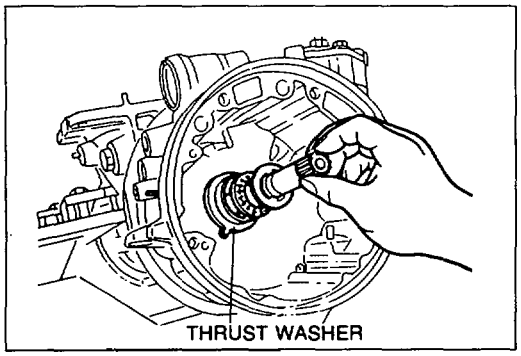
22. Loosen the piston stem of the OD band servo. Remove the OD connecting shell and OD planetary gear unit (OD sun gear, OD planetary pinion carrier, and OD clutch hub), and direct clutch.



9MU0K2-107

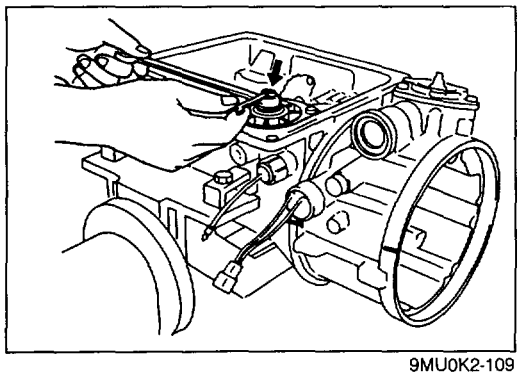
Caution
- **To prevent the brake lining from cracking or peeling, do not stretch the OD brake band. Secure it with a wire clip.**

23. Remove the OD brake band and band strut.



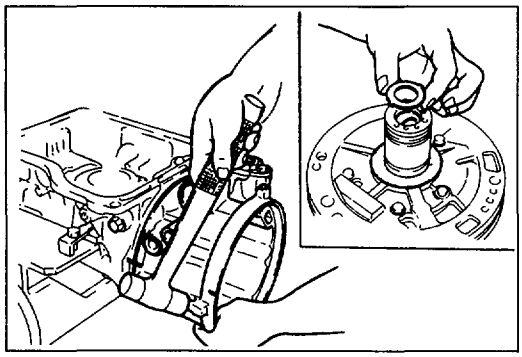
05U0KX-066

24. Remove the bearing races, bearing, and thrust washer. Remove the intermediate shaft.
Inspect the following parts and repair or replace as necessary.
1) Bearing
Inspect for damage or rough rotation.
2) Bearing race
Inspect bearing surface for scoring or scratches.



9MU0K2-109

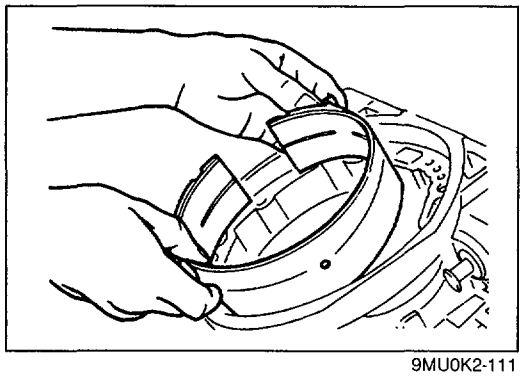
25. Loosen the 2nd band servo locknut and tighten the piston stem.



9MU0K2-110

Caution
- **Do not lose the bearing race.**

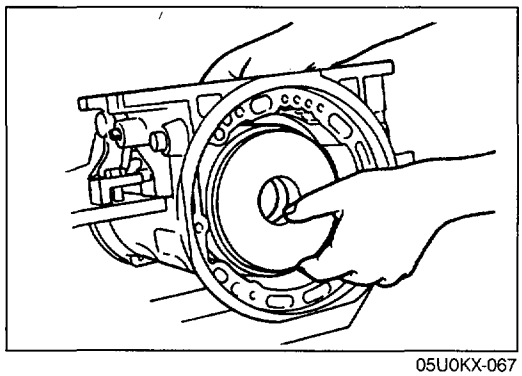
26. Separate the drum support, accumulator and OD case from the transmission case by tapping it lightly with a plastic hammer. Remove the gasket.
27. Remove the bearing race and thrust washer from the drum support, accumulator and OD case.



9MU0K2-111

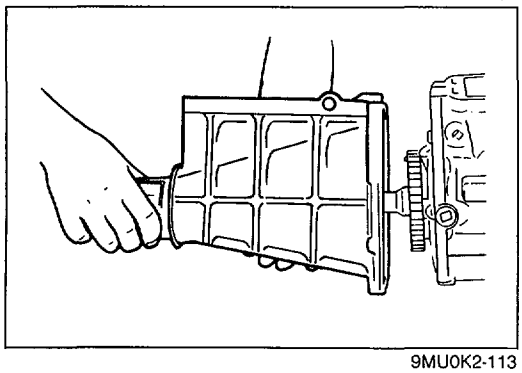
Caution
- **To prevent the brake lining from cracking or peeling, do not stretch the 2nd band brake. Secure it with a wire clip.**

28. Loosen the piston stem of the 2nd band servo. Remove the 2nd brake band and band strut.



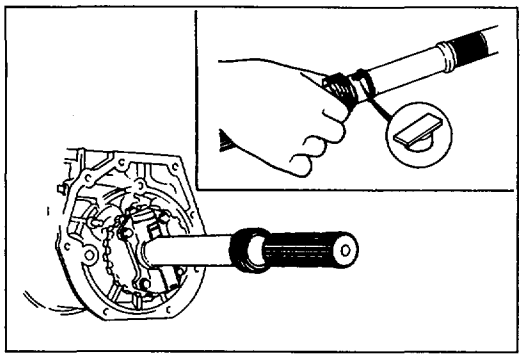
05U0KX-067

29. Remove the front clutch, rear clutch, connecting shell, and front planetary gear unit (rear clutch hub, front planetary pinion carrier, and rear sun gear) as a unit.



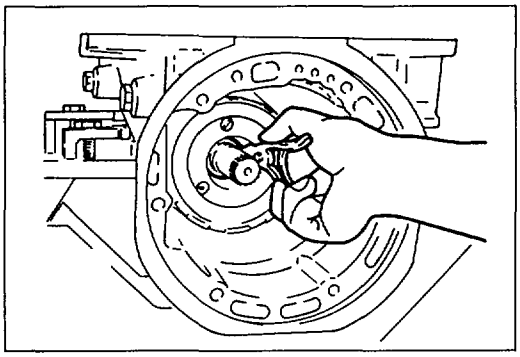
9MU0K2-113

30. Remove the extension housing and gasket.



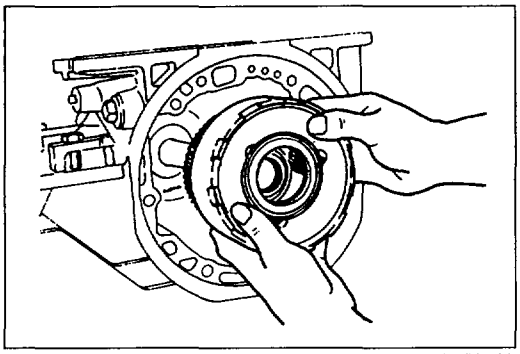
05U0KX-240

31. Remove the rear snap rings and speedometer drive gear.
32. Remove the steel ball and front snap ring.



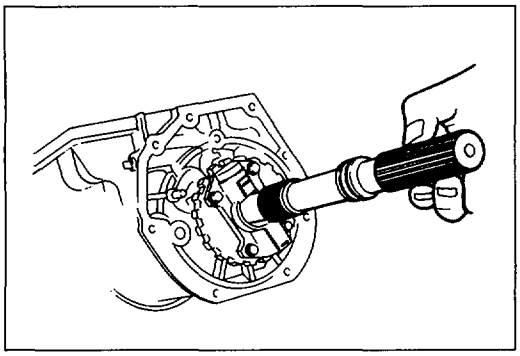
9MU0K2-115

33. Remove the snap ring from the output shaft with snap-ring pliers.



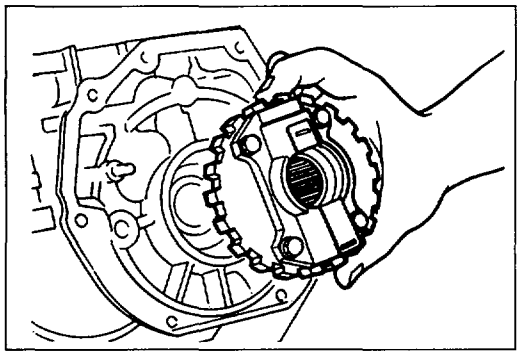
05U0KX-068

34. Remove the rear planetary gear unit (connecting drum, rear planetary pinion carrier, and one-way clutch).



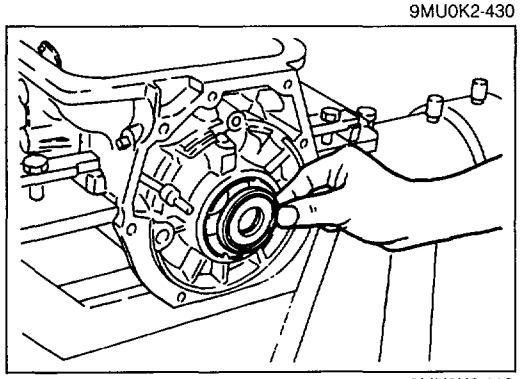
9MU0K2-117

35. Pull out the output shaft.



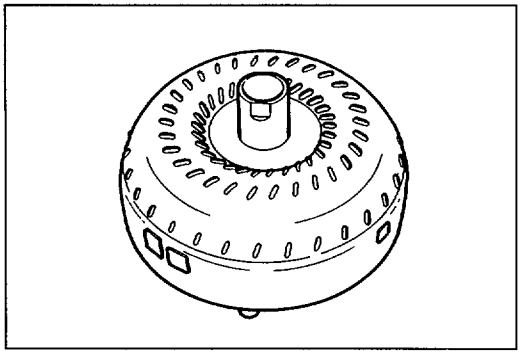
9MU0K2-430

36. Remove the governor valve and parking gear as a unit.

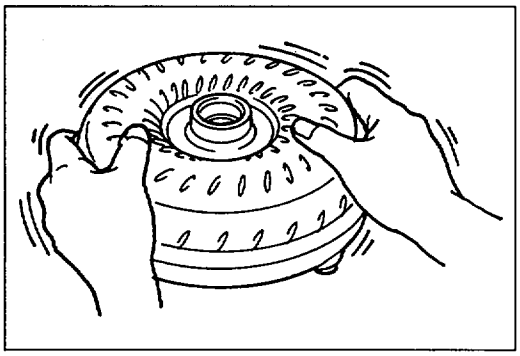


9MU0K2-118

37. Remove the bearing.
    Inspect the following parts and repair or replace as necessary.
    Bearing
    Inspect for damage or rough rotation.



9MU0K2-119



15U0KX-113

TORQUE CONVERTER

Inspection

1. Check the outside of the converter for damage and cracks, and replace the torque converter if there is any problem.
2. Check for rust on the pilot hub or on the boss, and remove it completely if there is any.

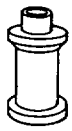
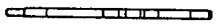
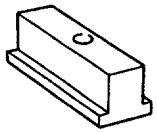
Washing inside the converter

1. Drain any ATF remaining in the converter.
2. Pour in solvent **(0.5 liter, 0.5 US qt, 0.4 Imp qt)**.
3. Shake the converter to clean the inside. Pour out the solvent.
4. Pour in ATF.
5. Shake the converter to clean the inside. Pour out the ATF.

OIL PUMP

Preparation

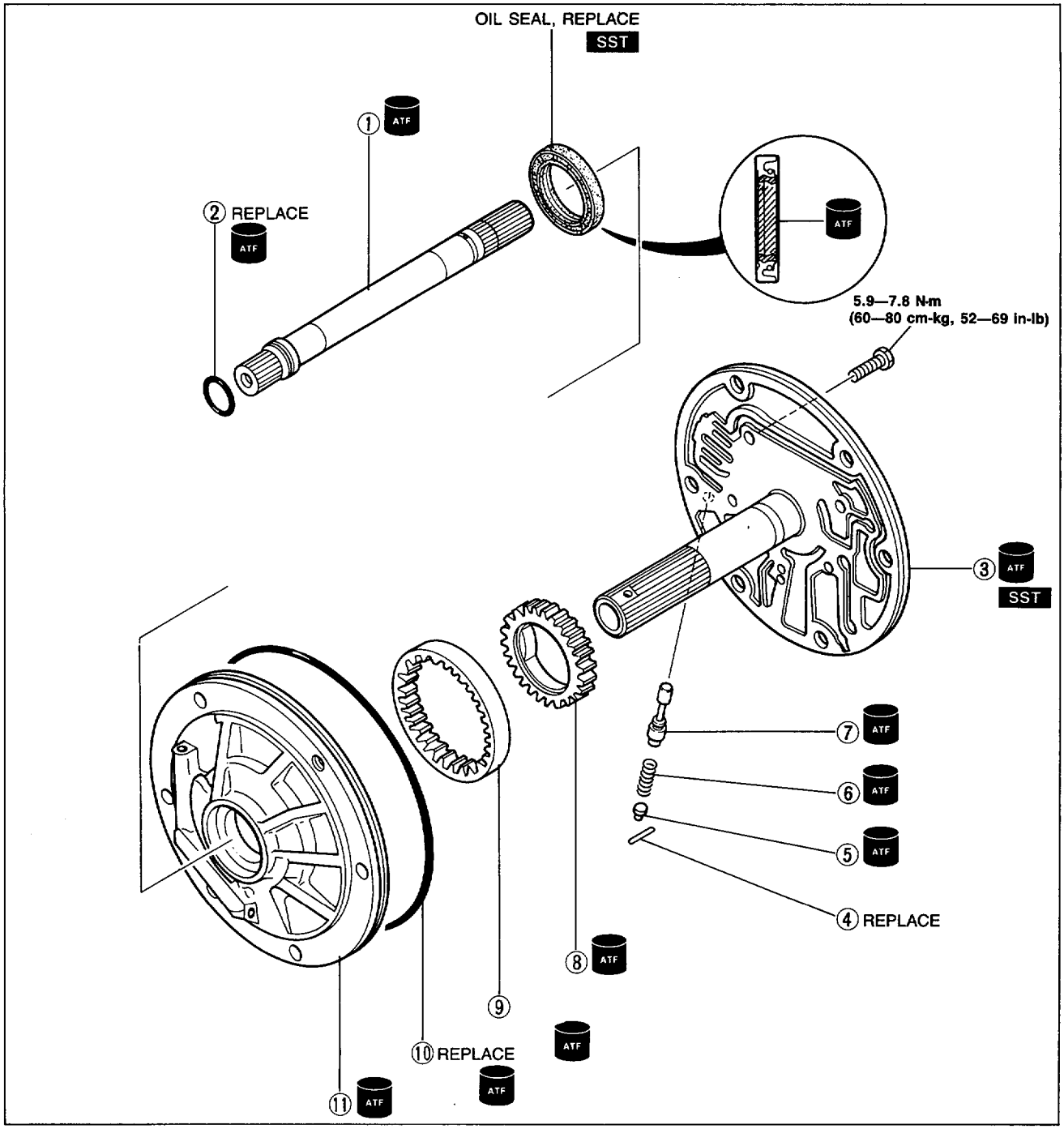
SST

49 S019 0A0 Set, centering tool	For assembly of oil pump	49 S019 001 Holder (Part of 49 S019 0A0) 	For assembly of oil pump
49 S019 002 Shaft (Part of 49 S019 0A0) 	For assembly of oil pump	49 S019 003 Stand (Part of 49 S019 0A0) 	For assembly of oil pump
49 S019 004 Pin (Part of 49 S019 0A0)	For assembly of oil pump	49 G030 795 Installer, oil seal	For assembly of oil pump
49 G030 796 Body (Part of 49 G030 795)	For assembly of oil pump	49 G030 797 Handle (Part of 49 G030 795)	For assembly of oil pump

05U0KX-069

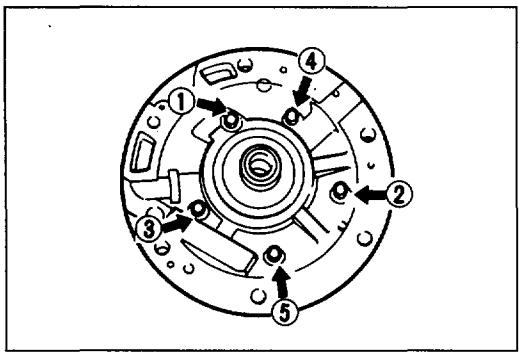
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly procedure**.



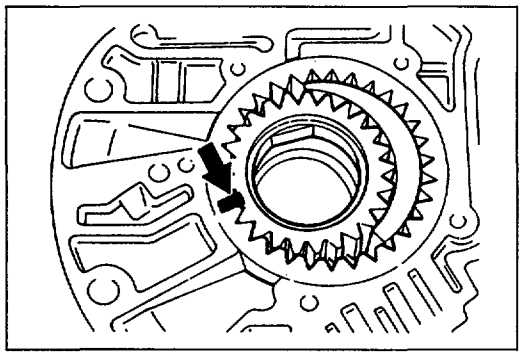
15U0KX-016

1. Input shaft
2. O-ring
3. Oil pump cover
   Disassembly Note ..... page K–51
4. Spring pin
5. Plug
6. Spring
   Inspection ..... page K–52
7. Lockup control valve
   Inspect for sticking, scoring, or scratches
8. Inner gear
   Disassembly Note ..... page K–51
   Inspection ..... page K–51
9. Outer gear
   Disassembly Note ..... page K–51
   Inspection ..... page K–51
10. O-ring
11. Oil pump housing
    Inspection ..... page K–51



9MU0K2-123

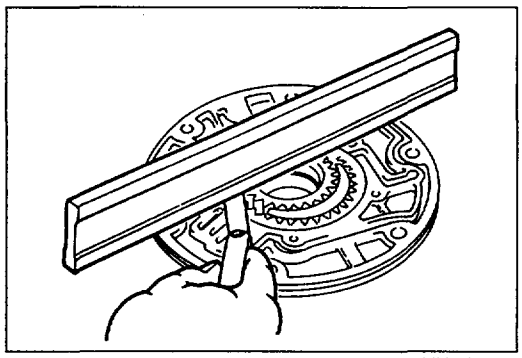
Disassembly note
Oil pump cover
Loosen the mounting bolts evenly in the pattern shown, and remove the oil pump cover from the oil pump housing.


9MU0K2-124

Inner gear and outer gear

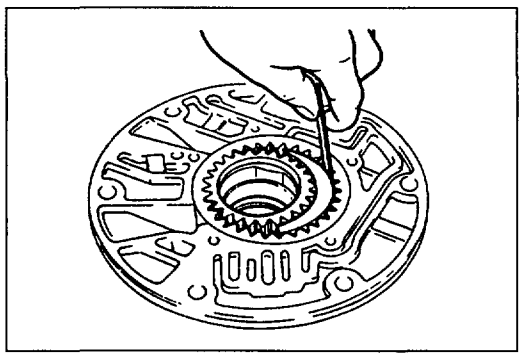
Caution
- **Do not use a punch to mark the gears.**

Mark the inner and outer gear positions, and remove the gears from the housing.


9MU0K2-126

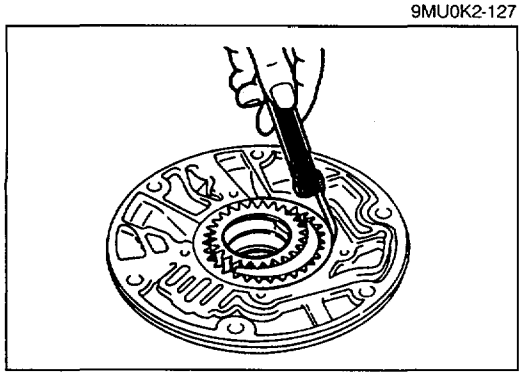
Inspection
Clearance
1. Measure the clearance between the gears and the pump cover.

   Standard clearance:
   0.02—0.04mm (0.0008—0.0016 in)
   Maximum clearance: 0.08mm (0.0031 in)


9MU0K2-127

2. Measure the clearance between the outer gear teeth tip and the crescent.

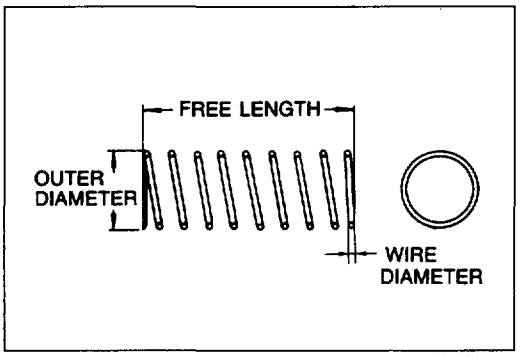
   Standard clearance:
   0.14—0.21mm (0.0055—0.0083 in)
   Maximum clearance: 0.25mm (0.0098 in)


05U0KX-071

3. Measure the side clearance between the outer gear the and housing.

   Standard clearance:
   0.05—0.20mm (0.0020—0.0079 in)
   Maximum clearance: 0.25mm (0.0098 in)

4. If any measurement is not within specification, replace the oil pump assembly.



05U0KX-072

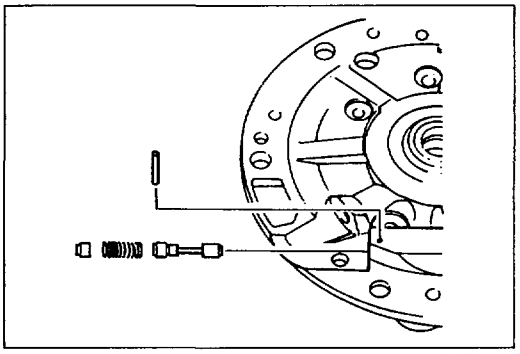
Spring

1. Measure the spring dimensions.

Specifications

Outer dia. mm (in)	Free length mm (in)	No. of coils	Wire dia. mm (in)
5.5 (0.217)	25.0 (0.984)	15.0	0.7 (0.028)

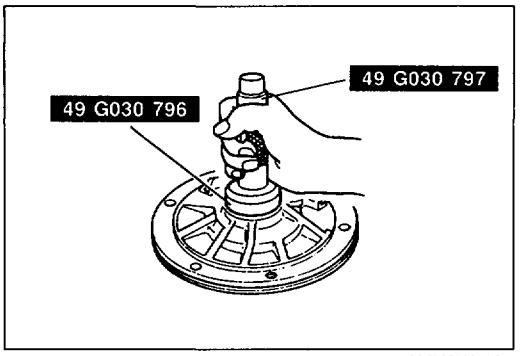
2. If not within specification, replace the spring.



15U0KX-017

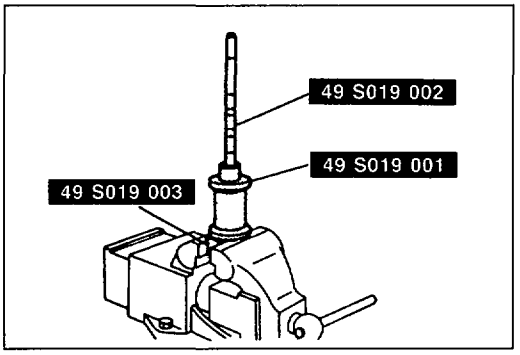
Assembly procedure

1. Apply ATF to the lockup control valve, spring, and plug, and install them into the oil pump housing.
2. Tap in the new spring pin.



9MU0K2-131

3. Apply ATF to a new oil seal, and install it with the **SST**.

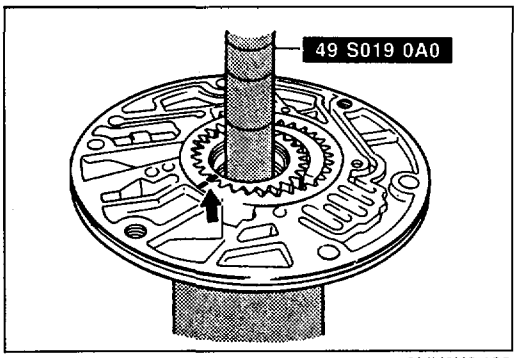


9MU0K2-132

Note

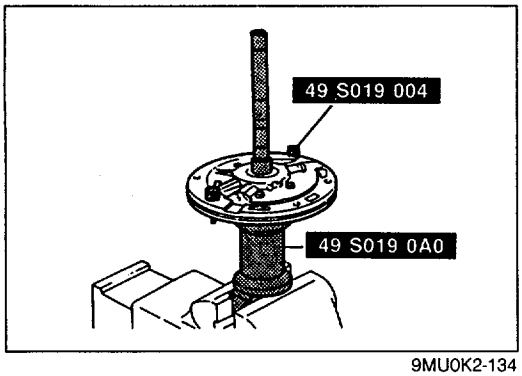
- **Use protective plates to prevent damaging the SST.**

4. Assemble the **SST** and secure it in a vise.



9MU0K2-133

5. Apply ATF to the new O-ring, and place it on the pump cover.
6. Set the pump housing on the **SST**.
7. Apply ATF to the inner and outer gears, and install them in the pump housing with their matching marks toward the pump cover.

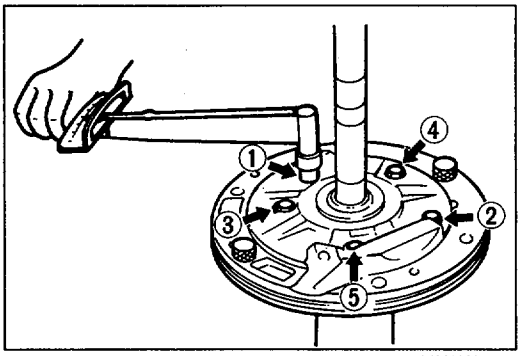


9MU0K2-134

8. Set the pump cover on the **SST**.

Caution
- **Do not damage the oil seal with the splines of the oil pump cover.**

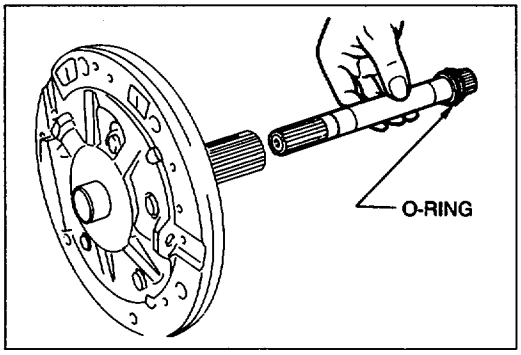
9. Install the **SST** (pins) for alignment.



9MU0K2-135

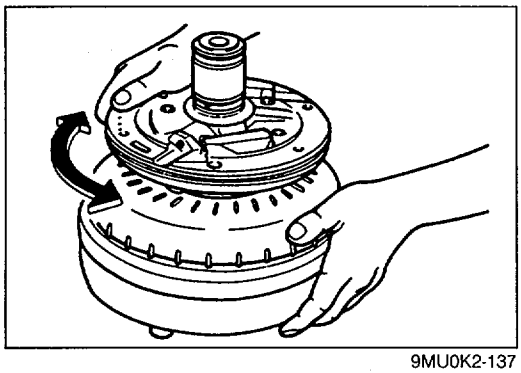
10. Tighten the bolts evenly and gradually in the order shown.

Tightening torque:
5.9—7.8 N·m (60—80 cm-kg, 52—69 in-lb)



9MU0K2-136

11. Apply ATF to a new O-ring, and install it onto the input shaft.
12. Apply ATF to the input shaft, and install it into the oil pump.

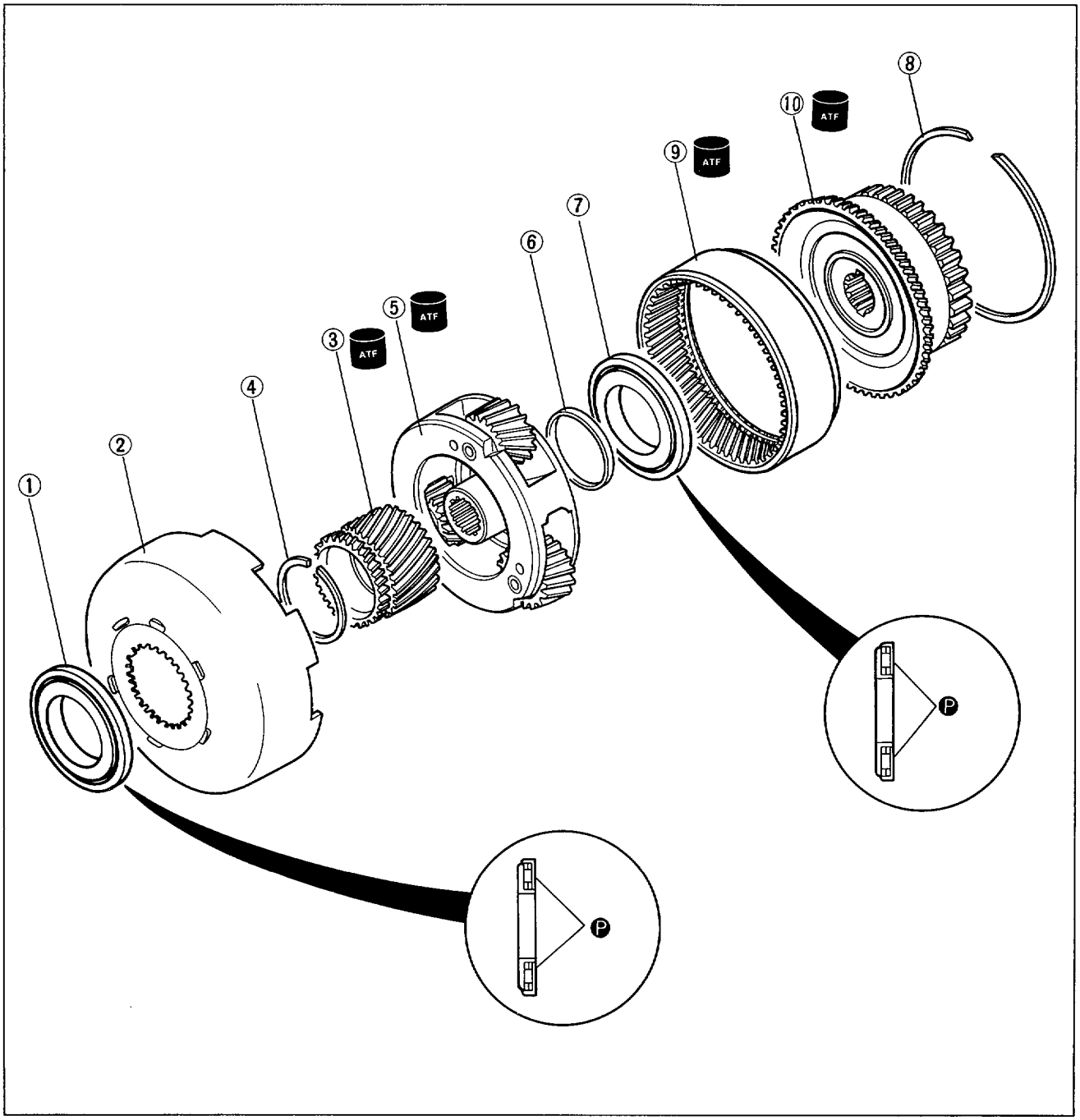

9MU0K2-137

13. Set the oil pump on the torque converter, and verify that the pump turns smoothly.

OD CONNECTING SHELL AND OD PLANETARY GEAR UNIT (OD SUN GEAR, OD PLANETARY PINION CARRIER, OD CLUTCH HUB)

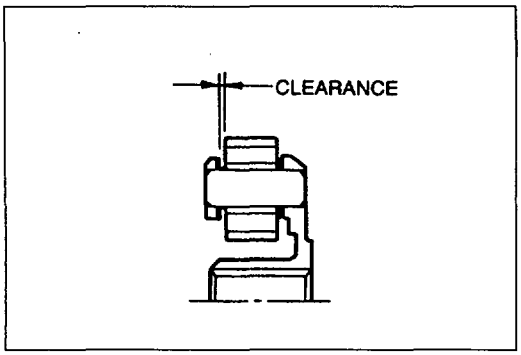
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly procedure**.

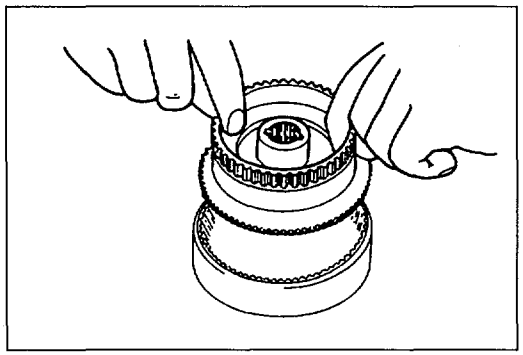


15U0KX-018

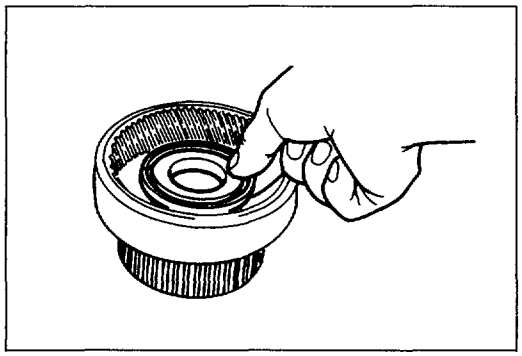
1. Bearing
   Inspect for damage or rough rotation
2. OD connecting shell
3. Sun gear
   Inspect gear teeth for damage, wear and cracks
4. Snap ring
5. OD planetary pinion carrier
   Inspect gear teeth for damage, wear and cracks, and rotation of pinion gears
   Inspection ..... page K–55
6. Seal seleeve
7. Bearing
   Inspect for damage or rough rotation
8. Snap ring
9. Internal gear
   Inspect gear teeth for damage, wear cracks
10. OD clutch hub



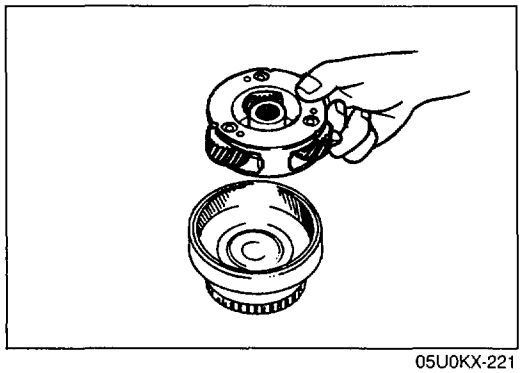
9MU0K2-248



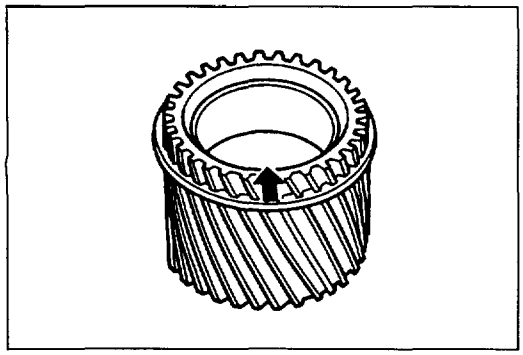
15U0KX-019



05U0KX-220



05U0KX-221



05U0KX-222

Inspection

OD planetary pinion carrier

1. Measure the clearance between the pinion washer and the planetary pinion carrier.

   Clearance
   Standard: 0.2—0.7mm (0.008—0.028 in)
   Maximum: 0.8mm (0.031 in)

2. If not within specification, replace the planetary pinion carrier.

Assembly procedure

1. Apply ATF to the OD clutch hub and internal gear, and assemble them with the snap ring.

2. Apply petroleum jelly to the bearing, and install it onto the OD clutch hub with the black surface facing upward.

   Bearing outer diameter: 70.0mm (2.756 in)

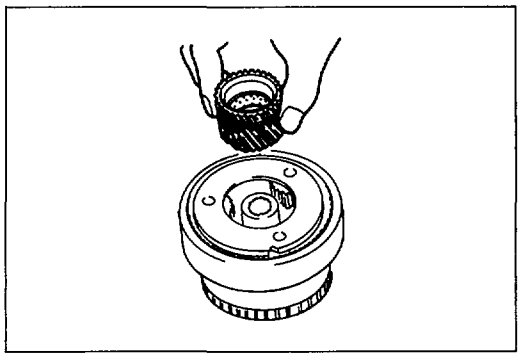
3. Apply ATF to the new seal sleeve, and install it into the OD clutch hub.

4. Apply ATF to the OD planetary pinion carrier, and install it into the internal gear.

Note

- **Pay close attention to the front and rear directions of the sun gear. The grooved side (arrow) is the front.**

5. Install the snap ring onto the sun gear.



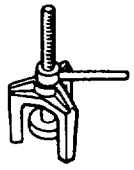
05U0KX-223

6. Apply ATF to the sun gear, and install it into the OD planetary pinion carrier.

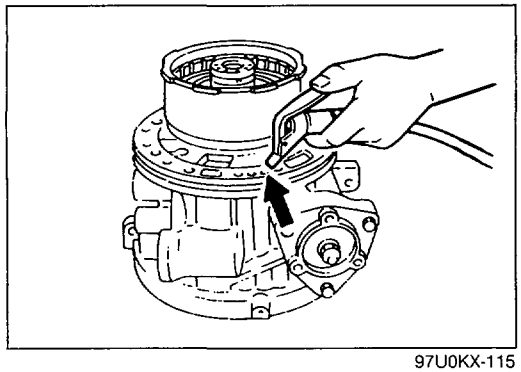
DIRECT CLUTCH

Preparation

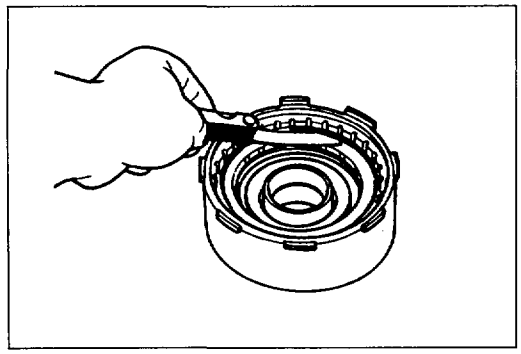
SST

49 0378 375 Compressor, clutch spring		For disassembly / assembly of direct clutch

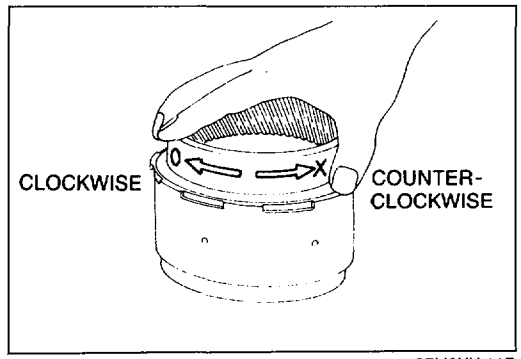
05U0KX-074



97U0KX-115



15U0KX-020



97U0KX-117

Preinspection

Direct clutch operation

1. Install the direct clutch onto the drum support along with the seal rings.
   Apply compressed air through the oil passage as shown.

   Air pressure: 392 kPa (4.0 kg/cm^2, 57 psi) max.

2. Verify that the side plate moves toward the snap ring. If not, the seal ring or O-ring may be damaged or fluid may be leaking at the piston check ball. Inspect them, and replace as necessary when assembling.

Clearance between side plate and snap ring

Measure the clearance between the side plate and the snap ring.

Clearance: 0.2mm (0.008 in) max.

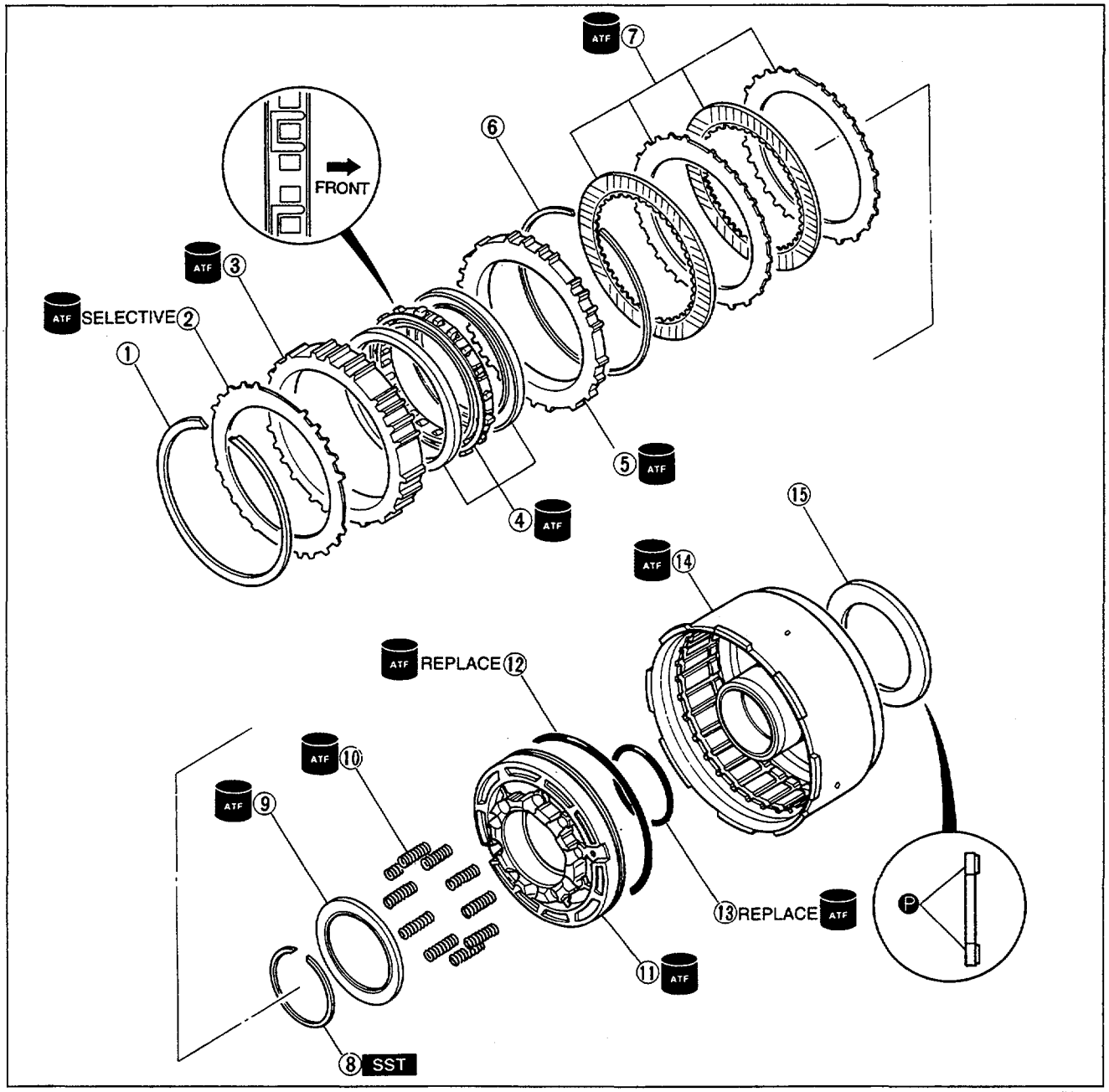
Select and install the correct side plate when assembling.

One-way clutch operation

Insert the OD clutch hub on the top of the direct clutch, check that the OD clutch hub rotates smoothly when turned clockwise and lock when turned counterclockwise.
If not, replace the one-way clutch.

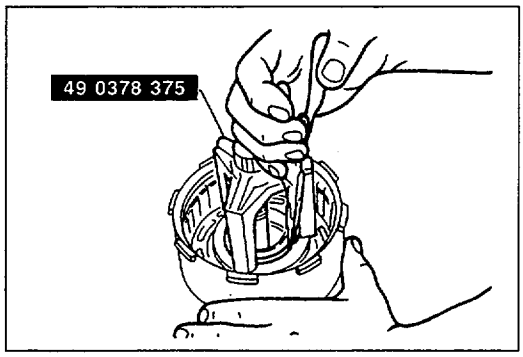
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts, and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly procedure**.

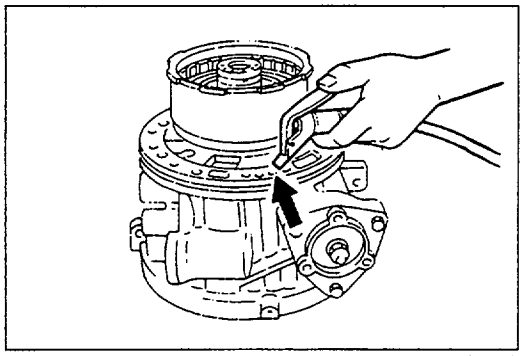


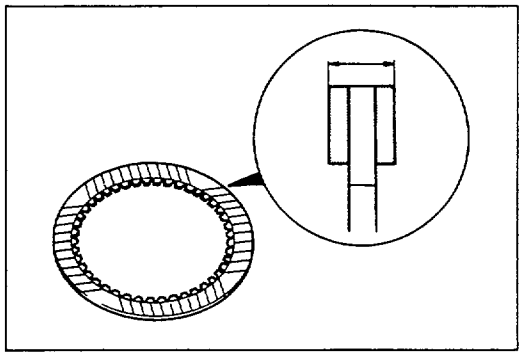
15U0KX-021

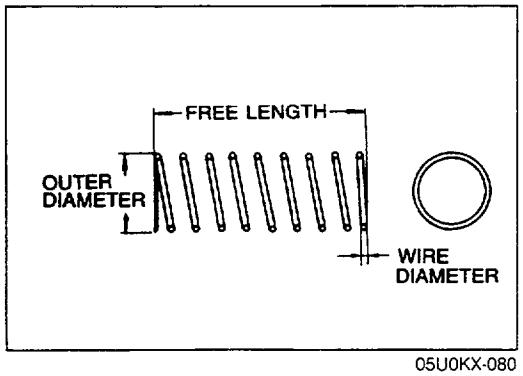
1. Snap ring
2. Side plate
3. Outer race
4. One-way clutch
5. Retaining plate
6. Snap ring
7. Drive plates and driven plates
   Inspect for wear or burning
   Inspection ..... page K–58
8. Snap ring
   Disassembly Note
   ..... page K–58
9. Spring retainer
10. Return spring
    Inspection ..... page K–58
11. Clutch piston
    Inspect balls for sticking by shaking piston
    Disassembly Note
    ..... page K–58
    Inspection ..... page K–58
12. Seal ring
13. O-ring
14. Direct clutch drum
15. Bearing
    Inspect for damage or rough rotation



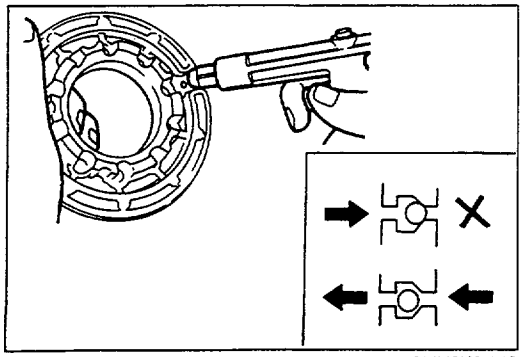
05U0KX-078


9MU0K2-143


05U0KX-079



05U0KX-080


9MU0K2-146

Disassembly note
Snap ring

Caution
- **Do not damage the snap ring.**

1. Compress the spring with the **SST**, then remove the snap ring with snap-ring pliers.
2. Remove the spring retainer and springs.

Clutch piston
1. Install the direct clutch drum onto the drum support along with the seal rings.
2. Remove the piston by applying compressed air through the oil passage.

Air pressure: 392 kPa (4.0 kg/cm^2, 57 psi) max.

Inspection
Drive plate
1. Measure the facing thickness in three places, and average the three readings.

Standard thickness: 1.6mm (0.063 in)
Minimum thickness: 1.4mm (0.055 in)

2. If not within specification, replace the drive plate(s).

Return spring
1. Measure the spring dimensions.

Specifications

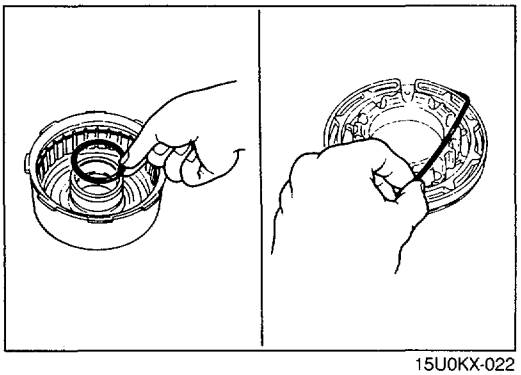
Outer dia. mm (in)	Free length mm (in)	No. of coils	Wire dia. mm (in)
8.0 (0.315)	30.5 (1.201)	14.5	1.3 (0.051)

2. If not within specification, replace the return spring.

Clutch piston
1. Verify that there is no air leakage when applying compressed air through the oil hole opposite the return spring.
2. Verify that there is airflow when applying compressed air through the oil hole on the return spring side.

Air pressure: 392 kPa (4.0 kg/cm^2, 57 psi) max.

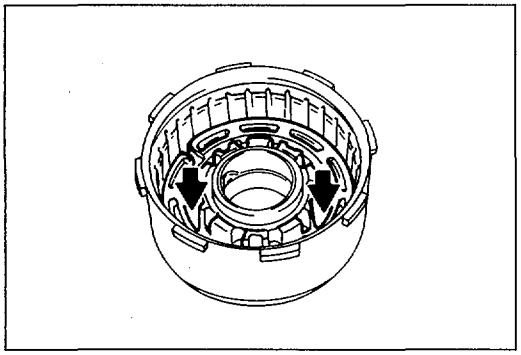
3. If not correct, replace the clutch piston.



15U0KX-022

Assembly procedure

1. Apply ATF to a new O-ring, and install it onto the direct clutch drum.
2. Apply ATF to a new seal ring, and install it onto the piston.



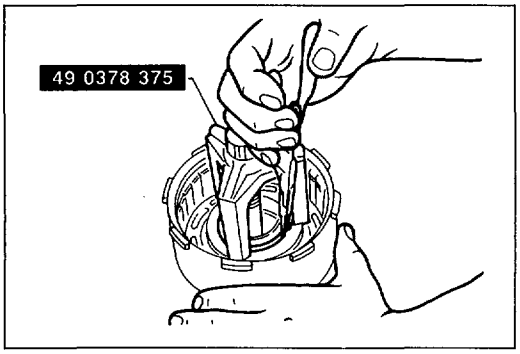
9MU0K2-148

3. Apply ATF to the inside of the direct clutch drum.

Caution

- **Apply even pressure to the outer edge of the piston to avoid damaging the seal rings when installing.**

4. Install the piston in the direct clutch drum.

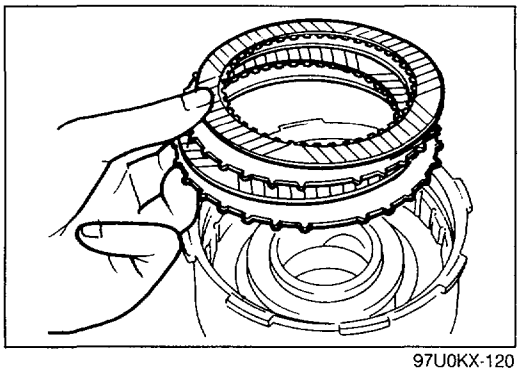


9MU0K2-149

Caution

- **Do not overexpand the snap ring when installing.**
- **Do not align the snap ring end-gap with the spring retainer stop.**

5. Install the springs and spring retainer and compress them with the **SST**.
6. Install the snap ring.



97U0KX-120

Caution

- **Align the flats of the drive plates with the lubrication hole of the clutch drum, then set them into the drum.**

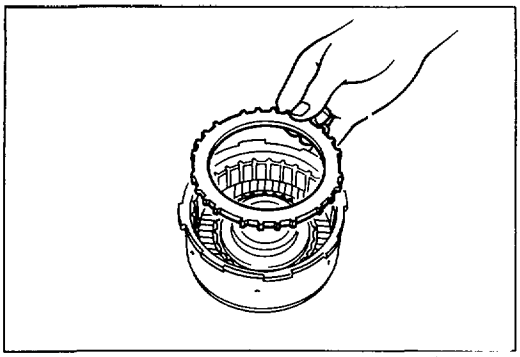
Note

- **Installation order: Driven-Drive-Driven-Drive**

7. Apply ATF to the drive plates and driven plates, and install them into the direct clutch drum.

Caution

- **Do not deform the snap ring.**



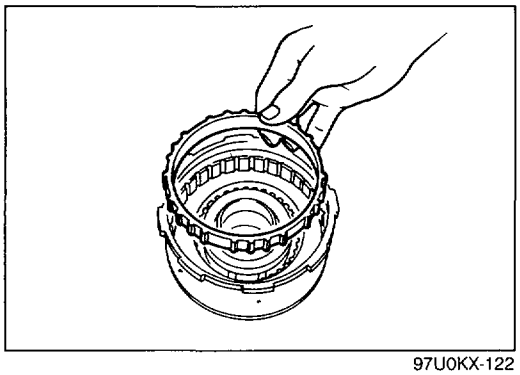
97U0KX-121

8. Install the snap ring.

Caution

- **Align the flats of the retaining plate with the lubrication hole of the clutch drum, then set it into the drum.**

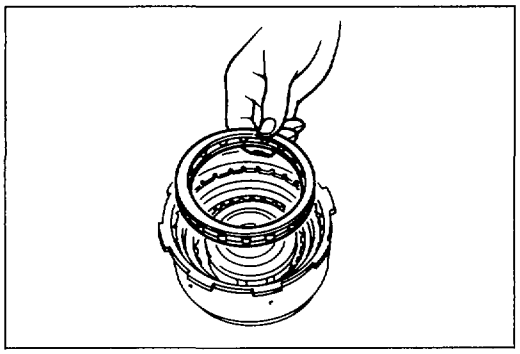
9. Apply ATF to the retaining plate, and install it into the direct clutch drum.



97U0KX-122

Caution
- **Align the flats of the outer race with the lubrication hole of the clutch drum, then set it into the drum.**

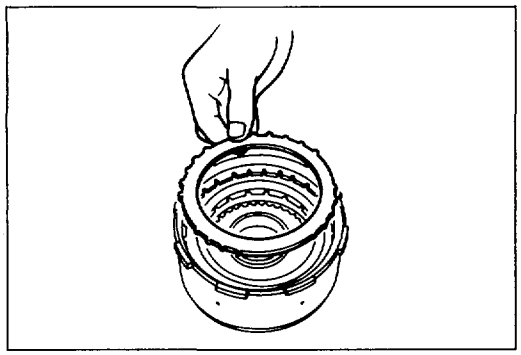
10. Apply ATF to the outer race, and install it into the direct clutch drum.



97U0KX-123

Caution
- **Check that the spring cage of the one-way clutch faces toward the direct clutch drum.**

11. Apply ATF to the one-way clutch, and install it into the outer race.



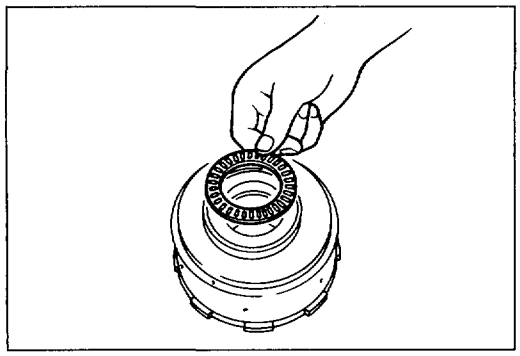
97U0KX-124

Caution
- **Align the flats of the side plate with the lubrication hole of the clutch drum, then set it into the drum.**

12. Apply ATF to the side plate, and install it into the direct clutch drum.

Caution
- **Do not deform the snap ring.**

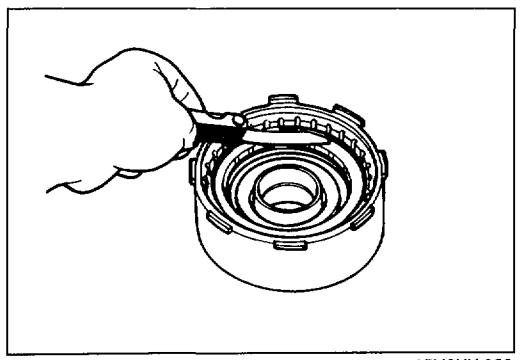
13. Install the snap ring.



97U0KX-125

14. Apply petroleum jelly to the bearing, and install it onto the direct clutch drum.

Bearing outer diameter: 70.0mm (2.756 in)



15U0KX-023

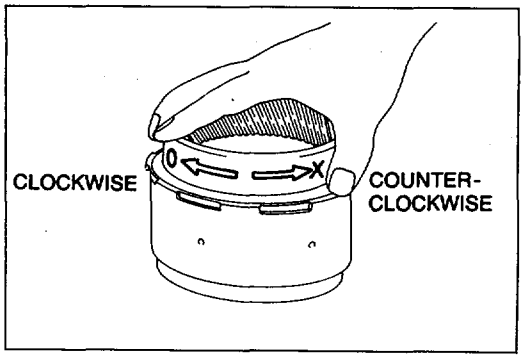
15. Measure the clearance between the side plate and the snap ring with a feeler gauge. If not within specification, adjust the clearance by installing the correct side plate.

Clearance: 0.2mm (0.008 in) max.

Side plate sizes

mm (in)

0.4 (0.016)	0.6 (0.024)	0.8 (0.031)
1.0 (0.039)	1.2 (0.047)	

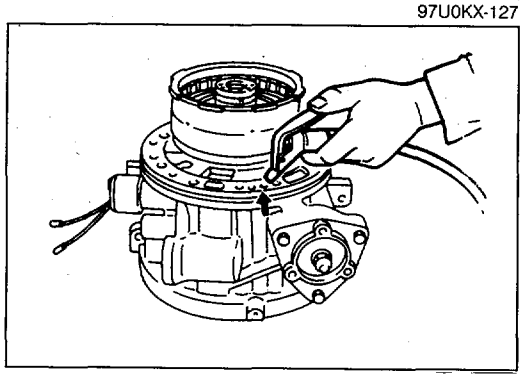


97U0KX-127

Note

- **If it turns counterclockwise, the one-way clutch is installed upside down.**

16. Insert the OD clutch hub on the top of the direct clutch, check the one-way clutch operation by turring right and left. If should turn clockwise only, and locked counterclockwise.



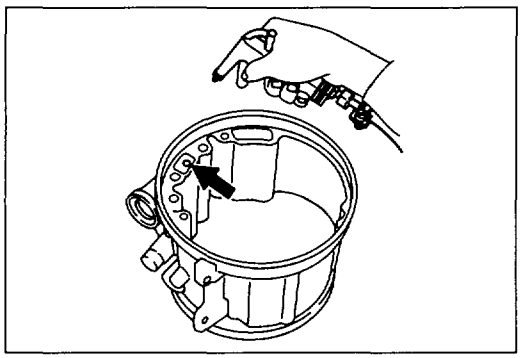
25U0KX-025

Caution

- **Apply air for no more than three(3) seconds.**

17. Install the direct clutch onto the drum support along with the seal rings. Apply compressed air to the oil passage and check the clutch operation.

Air pressure: 392 kPa (4.0 kg/cm^2, 57 psi) max.



05U0KX-083

OD BAND SERVO

Preinspection

OD band servo operation

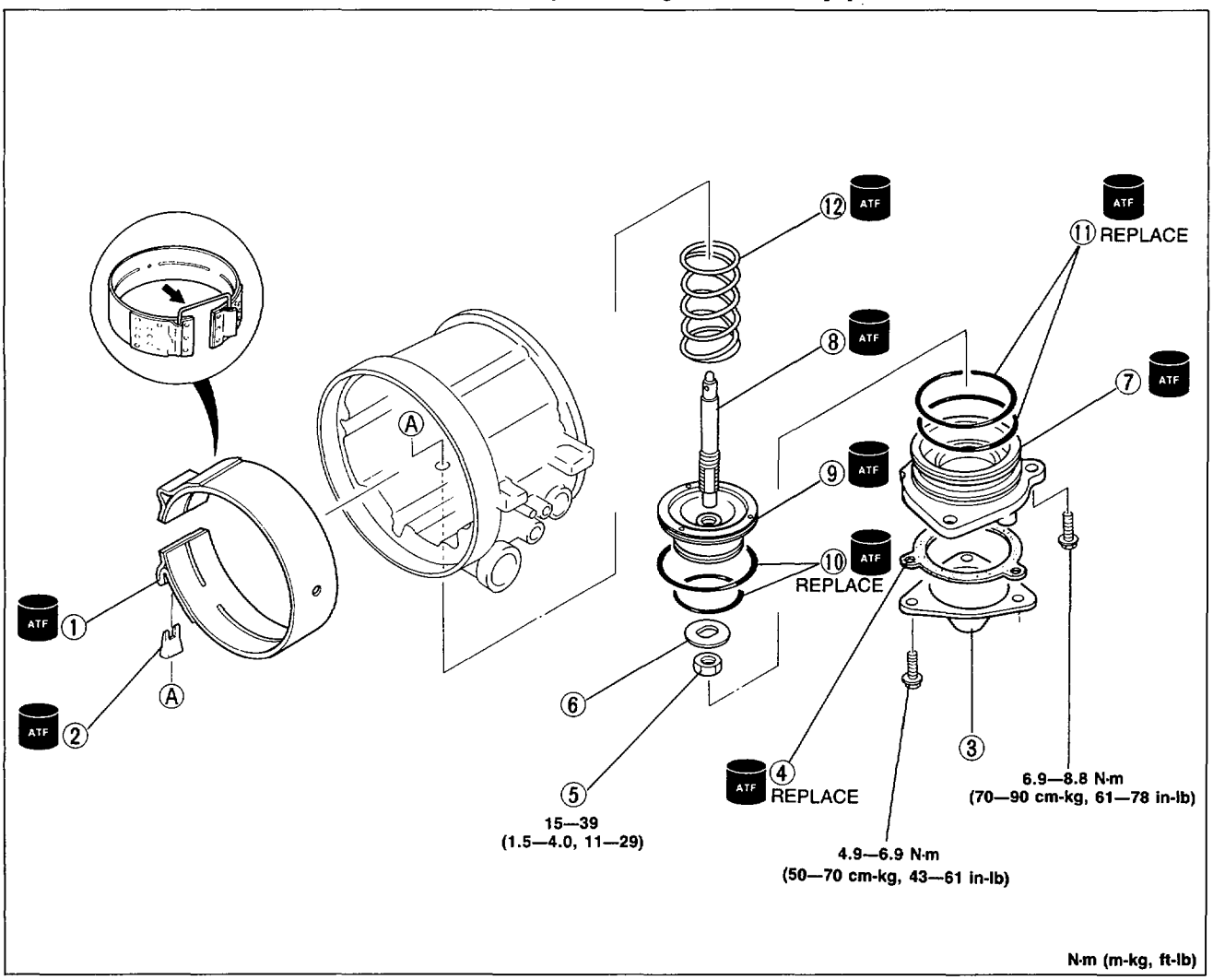
1. Apply compressed air through the oil passage shown.

Air pressure: 392 kPa (4.0 kg/cm^2, 57 psi) max.

2. Verify that the piston stem moves toward the brake band. If not, the seal rings or the oil seal may be damage or the piston assembly may be sticking. Inspect, and replace as necessary when assembling.

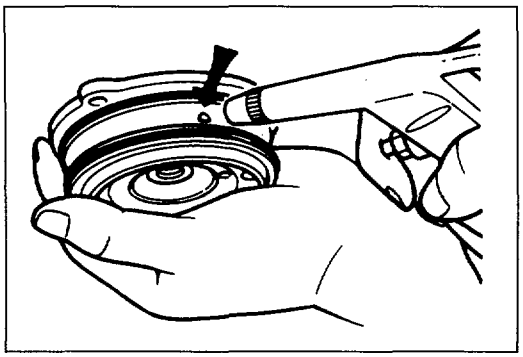
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly procedure**.

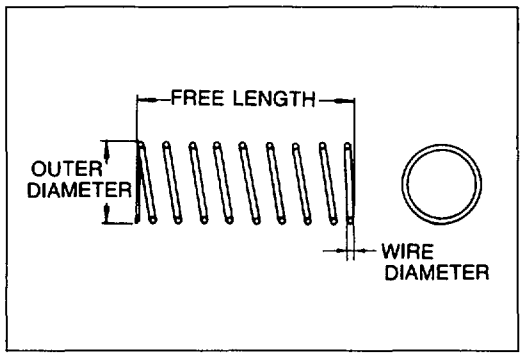


15U0KX-024

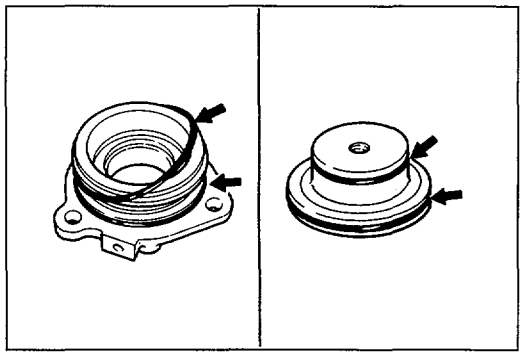
1. Brake band
   Inspect for wear and burning
2. Band strut
3. OD band servo cover
4. Gasket
5. Nut
6. Washer
7. Body
8. Piston stem
9. Piston assembly
   Disassembly Note ..... page K–63
10. Seal rings
11. O-rings
12. Return spring
    Inspection ..... page K–63



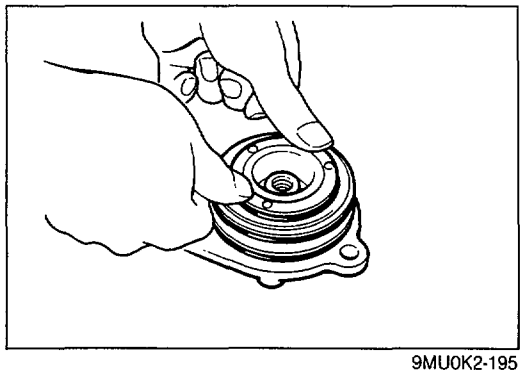
9MU0K2-192



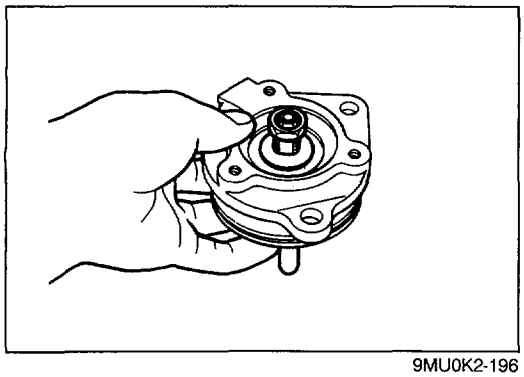
05U0KX-085



15U0KX-025



9MU0K2-195



9MU0K2-196

Disassembly note
Piston assembly

1. Remove the piston assembly from the body by applying compressed air through the oil passage hole.

   Air pressure: 392 kPa (4.0 kg/cm^2, 57 psi) max.

Inspection
Return spring

1. Measure the spring dimensions.

Specifications

Outer dia. mm (in)	Free length mm (in)	Wire dia. mm (in)
26.8 (1.055)	47.0 (1.850)	2.9 (0.114)

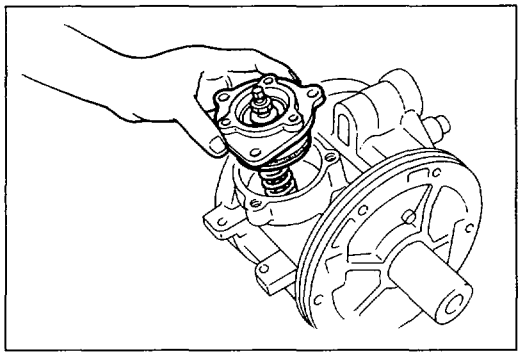
2. If not within specification, replace the return spring.

Assembly procedure

1. Apply ATF to the new seal rings, and install them onto the body.
2. Apply ATF to the new O-rings, and install them onto the piston assembly.
3. Apply ATF to the piston assembly and body.

   Caution
   - **Apply even pressure to the outside edge of the piston to avoid damaging the seal rings when installing.**

4. Press the piston assembly in the body.
5. Apply ATF to the piston stem and washer, and install them into the body.
6. Loosely tighten the nut.

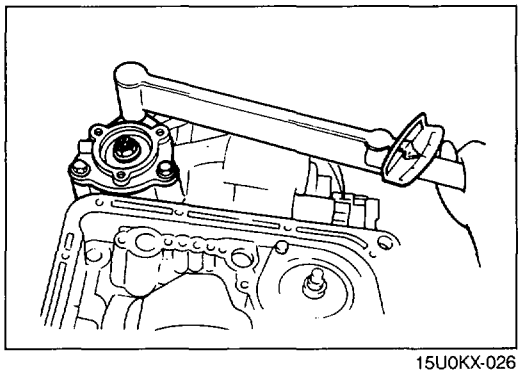


97U0KX-131

7. Apply ATF to the return spring, and install it into the transmission case.

Caution
- **Apply even pressure to the outside edge of the body to avoid damaging the O-ring when installing.**

8. Install the piston assembly.



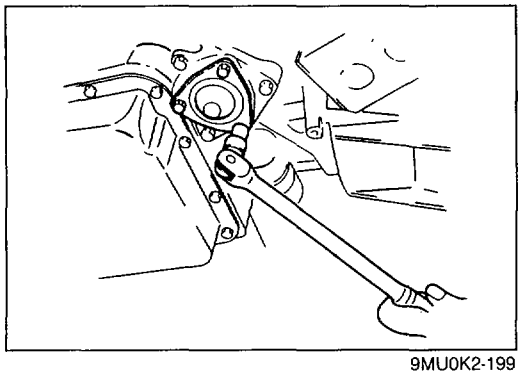
15U0KX-026

9. Install and tighten the bolts.

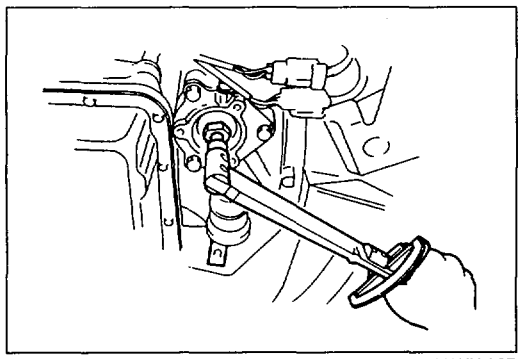
Tightening torque:
6.9—8.8 N·m (70—90 cm-kg, 61—78 in-lb)

On-vehicle Adjustment

1. Remove the OD band servo cover and gasket.



9MU0K2-199



15U0KX-027

2. Loosen the locknut and tighten the piston stem.

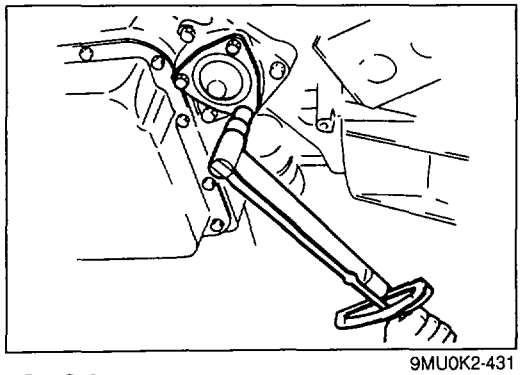
Tightening torque:
6.9—9.8 N·m (70—100 cm-kg, 61—87 in-lb)

3. Loosen the stem the number of turns shown below.

Stem: 2 turns

4. Tighten the locknut.

Tightening torque:
15—39 N·m (1.5—4.0 m-kg, 11—29 ft-lb)

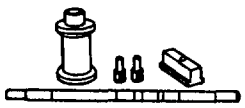
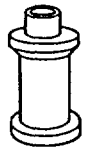
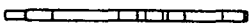
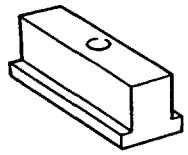


9MU0K2-431

5. Install a new gasket and the OD band servo cover.

Tightening torque:
4.9—6.9 N·m (50—70 cm-kg, 43—61 in-lb)

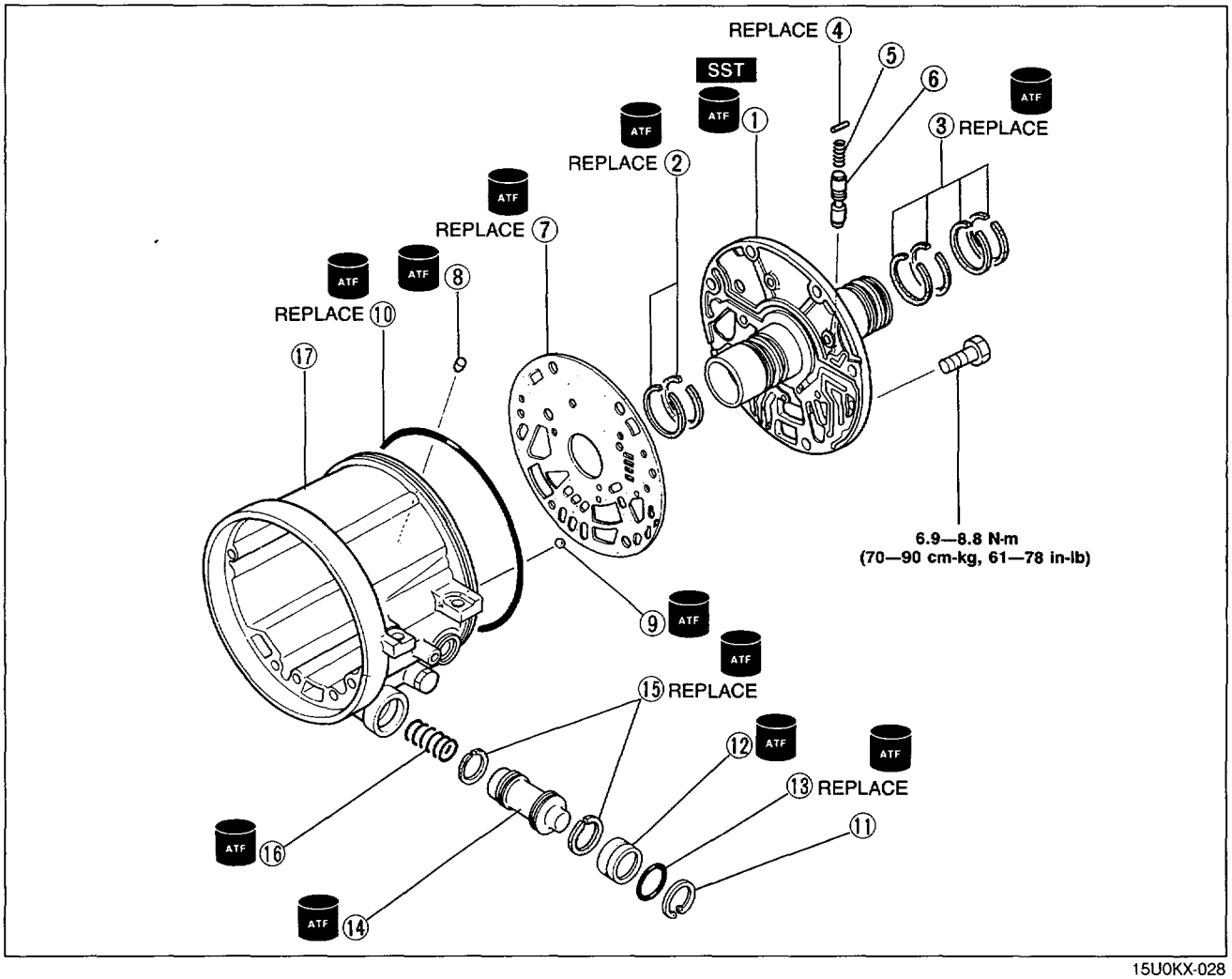
DRUM SUPPORT, ACCUMULATOR, OD CASE
Preparation
SST

49 S019 0A0 Set, centering tool 	For assembly of drum support	49 S019 001 Holder (Part of 49 S019 0A0) 	For assembly of drum support
49 S019 002 Shaft (Part of 49 S019 0A0) 	For assembly of drum support	49 S019 003 Stand (Part of 49 S019 0A0) 	For assembly of drum support
49 S019 004 Pin (Part of 49 S019 0A0)	For assembly of drum support		

05U0KX-086

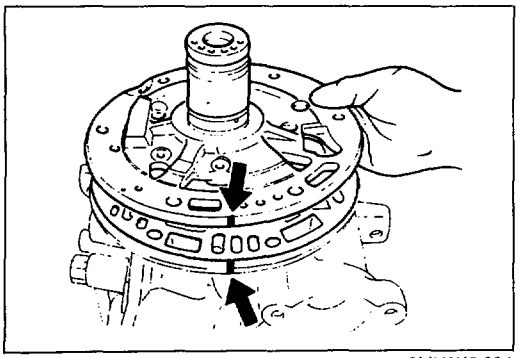
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly procedure**.



15U0KX-028

1. Drum support
   Disassembly Note ..... below
   Inspection ..... page K–67
2. Seal rings
3. Seal rings
4. Spring pin
5. Spring
   Inspection ..... page K–67
6. OD cancel valve
   Inspect for sticking and scoring
7. Gasket
8. One-way valve
9. Steel ball
10. Seal ring
11. Snap ring
12. Accumulator plug
    Disassembly Note ..... page K–67
13. O-ring
14. Accumulator piston
15. Seal rings
16. Spring
    Inspection ..... page K–67
17. OD case

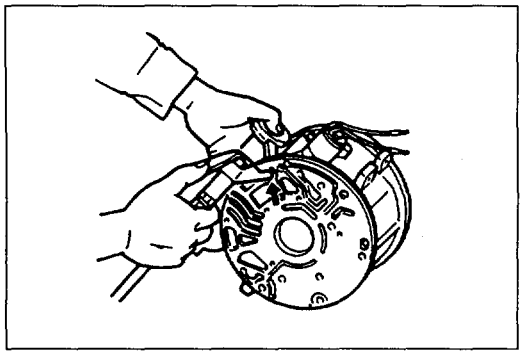


9MU0K2-234

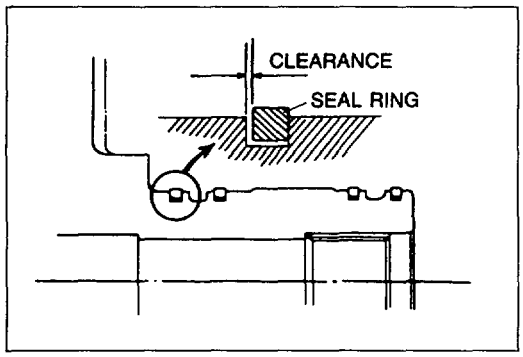
Disassembly note

Drum support

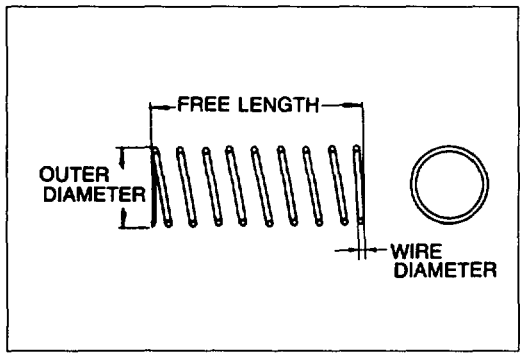
1. Mark the OD case and drum support for proper reassembly, then remove the drum support.



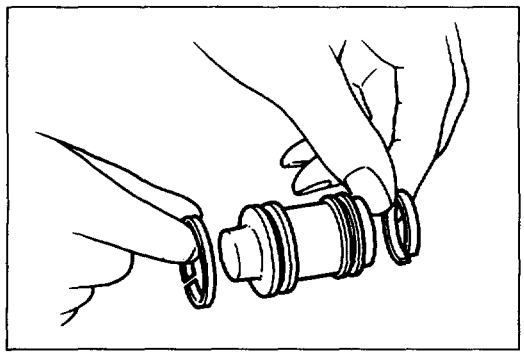
9MU0K2-235



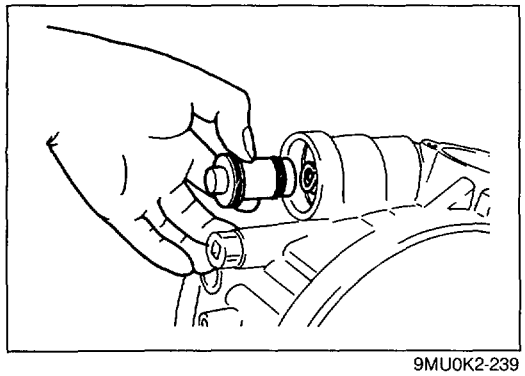
9MU0K2-236



15U0KX-029



15U0KX-030



9MU0K2-239

Accumulator plug

1. Remove the accumulator plug, piston, and spring by applying compressed air through the oil passage.

Air pressure: 392 kPa (4.0 kg/cm^2, 57 psi) max.

Inspection

Drum support

1. Apply ATF to the new seal rings and install them into the seal ring grooves of the drum support.
2. Measure the clearance between the seal rings and the seal ring grooves.

Clearance
Standard: 0.04—0.16mm (0.0016—0.0063 in)
Maximum: 0.40mm (0.016 in)

3. If not within specification, replace the drum support.

Spring

1. Measure the spring dimensions.

Specifications

Item / Spring	Outer dia. mm (in)	Free length mm (in)	No. of coils	Wire dia. mm (in)
OD cancel	4.95 (0.195)	23.0 (0.906)	14.8	0.65 (0.026)
Accumulator	16.0 (0.630)	40.4 (1.591)	9.8	2.6 (0.102)

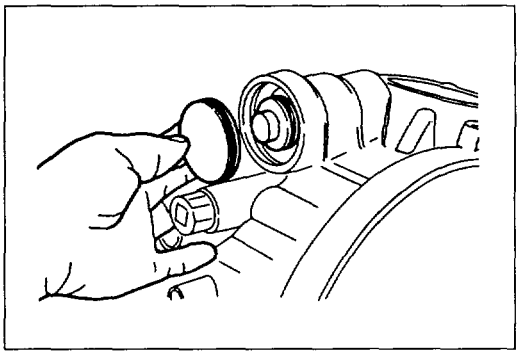
2. If not within specification, replace the spring.

Assembly procedure

1. Apply ATF to the new seal rings, and install them onto the accumulator piston.

Caution
- **Apply even pressure to the outside edge of the piston to avoid damaging the seal rings when installing.**

2. Apply ATF to the spring and accumulator piston, and install them into the OD case.



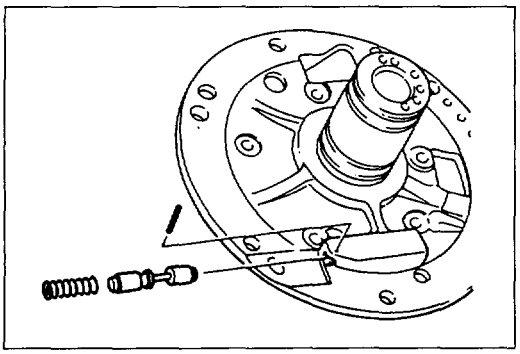
9MU0K2-240

3. Apply ATF to a new O-ring, and install it on the accumulator plug.
4. Install the accumulator plug and snap ring.

Caution
- **Apply air for no more than three (3) seconds.**

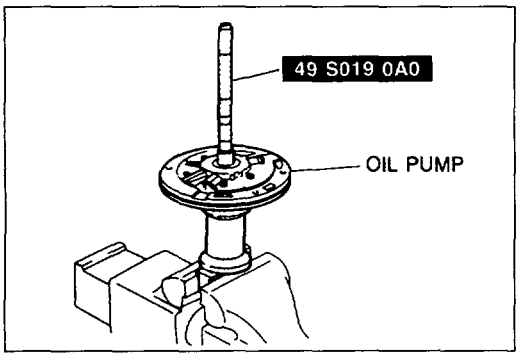
5. Check the accumulator operation by applying compressed air through the oil passage.

Air pressure: 392 kPa (4.0kg/cm^2, 57 psi) max.



15U0KX-114

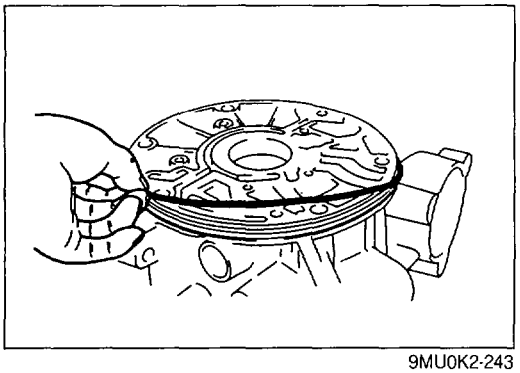
6. Apply ATF to the OD cancel valve and spring, and install them into the drum support.
7. Tap in a new spring pin.



9MU0K2-242

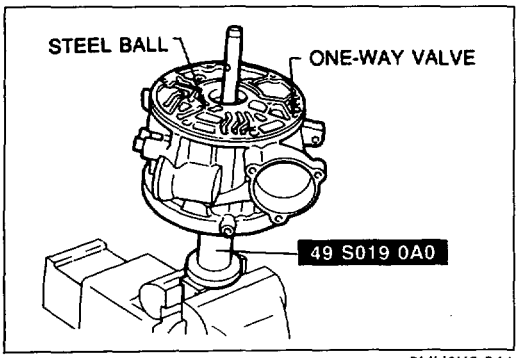
Note
- **Use protective plates to prevent damaging the SST.**

8. Set the oil pump onto the **SST**.



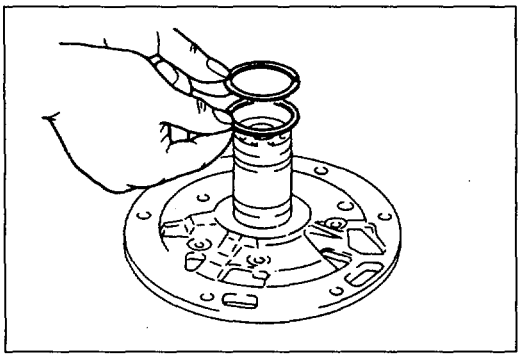
9MU0K2-243

9. Apply ATF to a new seal ring, and install it onto the drum support.



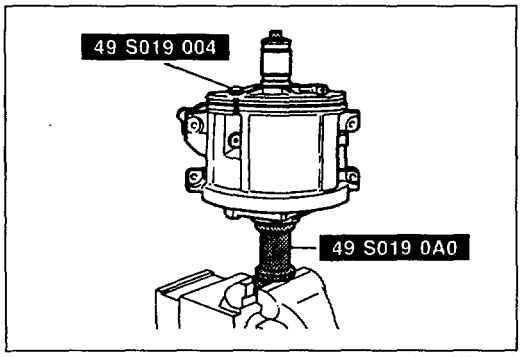
9MU0K2-244

10. Apply ATF to the OD case, and mount it onto the oil pump.
11. Install the steel ball and the one-way valve.



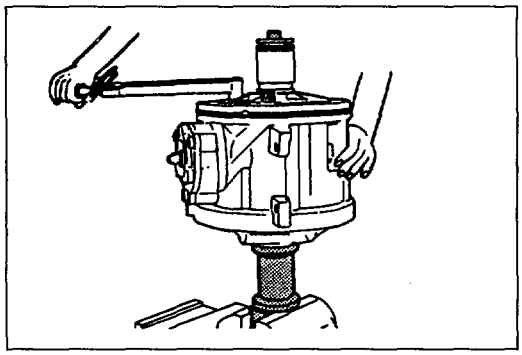
9MU0K2-245

12. Apply ATF to the new seal rings, and install them onto the drum support.



9MU0K2-246

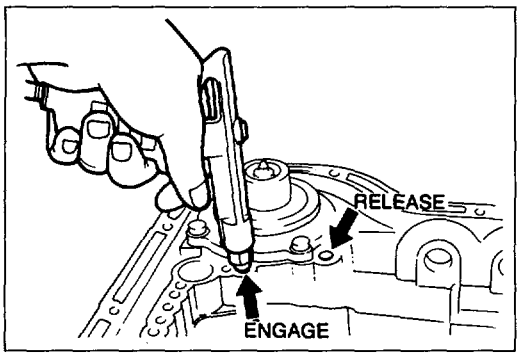
13. Apply ATF to the drum support, and install the support and a new gasket onto the OD case, aligning the marks.
14. Install the **SST** (pins).



79G07C-284

15. Tighten the drum support mounting bolts.

Tightening torque:
6.9—8.8 N·m (70—90 cm-kg, 61—78 in-lb)



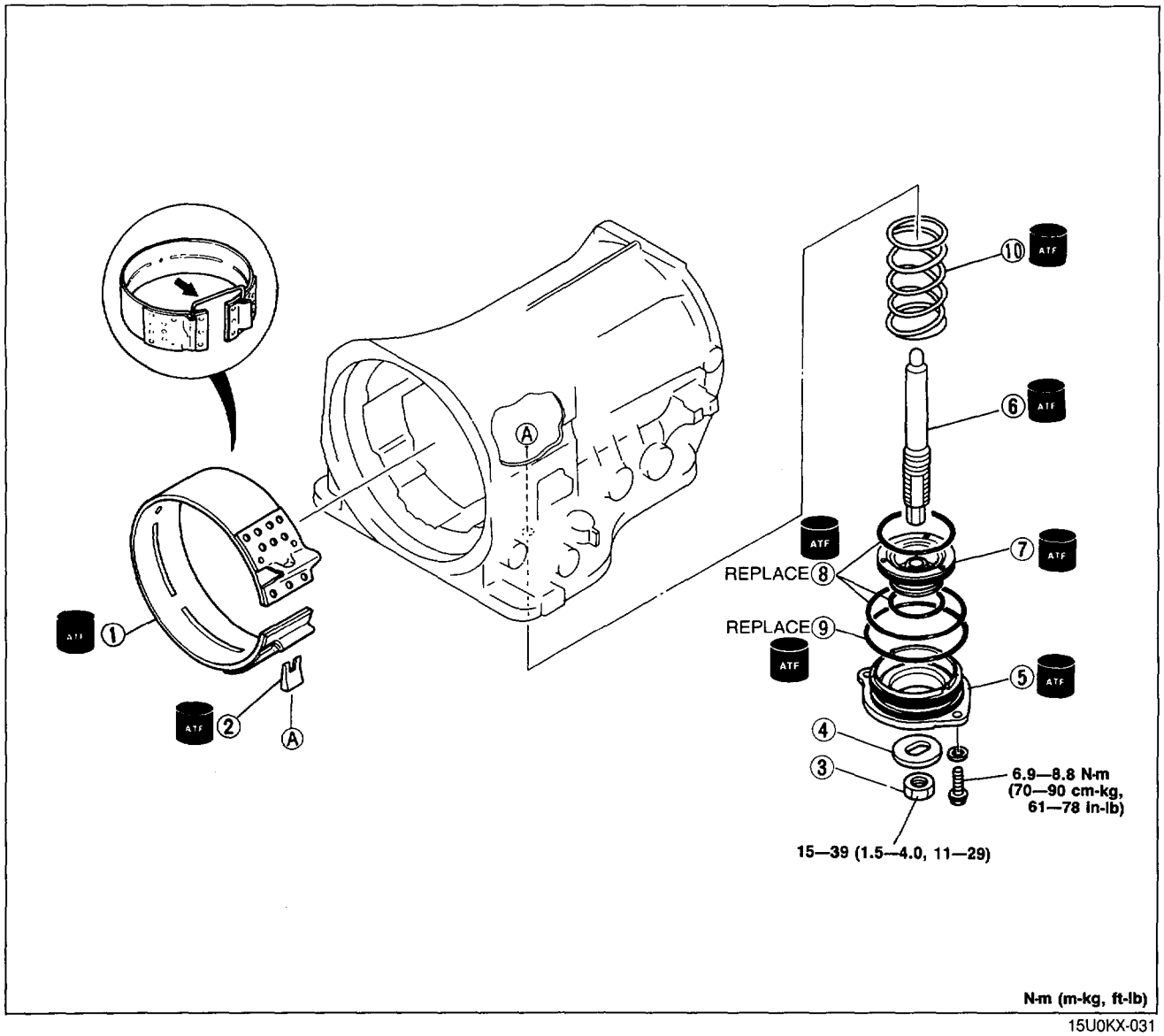
05U0KX-090

2ND BAND SERVO
Preinspection
2ND band servo operation
1. Apply compressed air through the oil passage shown.

Air pressure: 392 kPa (4.0 kg/cm^2, 57 psi) max.

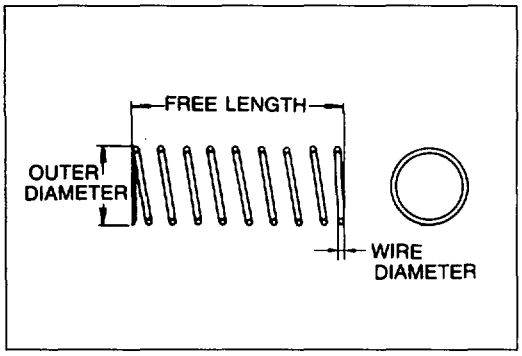
2. Verify that the piston stem moves toward the brake band. If not, the seal rings or the oil seal may be damage or the pistion assembly may be sticking. Inspect, and replace as necessary when assembling.

Disassembly / Inspection / Assembly
1. Disassemble in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly procedure**.

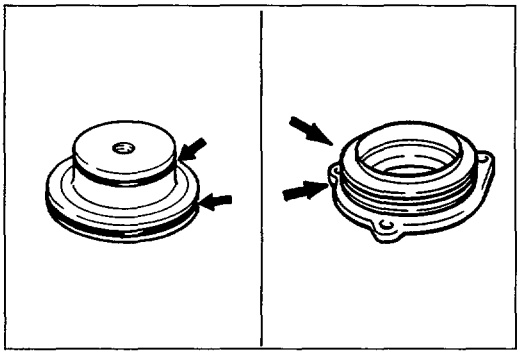


15U0KX-031

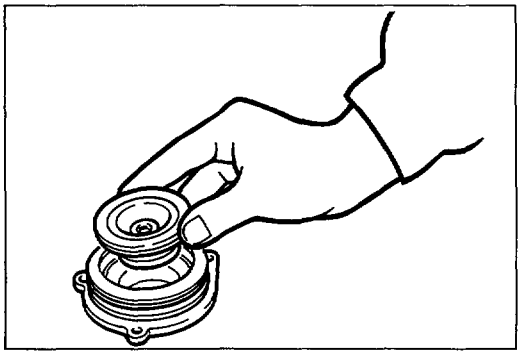
1. Brake band
   Inspect for wear and burning
2. Band strut
3. Nut
4. Washer
5. Body
6. Piston stem
7. Piston assembly
8. D-ring
9. O-ring
10. Return spring
    Inspection ..... page K–71



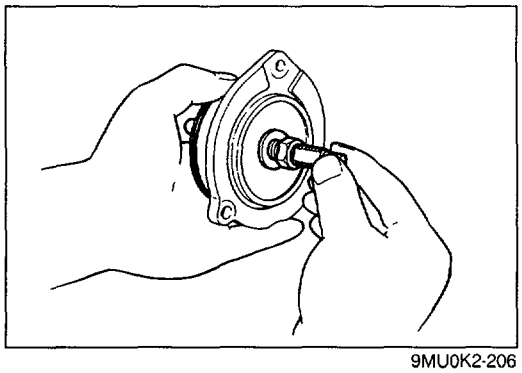
05U0KX-092



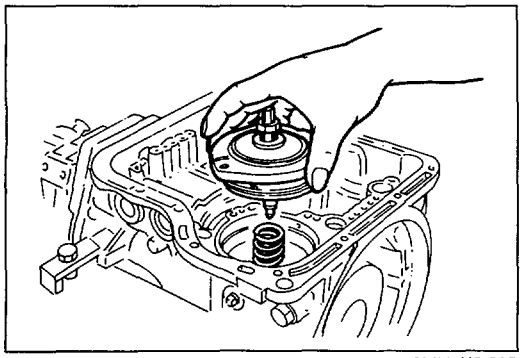
15U0KX-032



9MU0K2-205



9MU0K2-206



9MU0K2-207

Inspection

Return spring

1. Measure the spring dimensions.

Specifications

Outer dia. mm (in)	Free length mm (in)	Wire dia. mm (in)
28.25 (1.112)	37.0 (1.457)	3.5 (0.138)

2. If not within specification, replace the return spring.

Assembly procedure

Note
- **Install the D-rings with the rounded surface outward.**

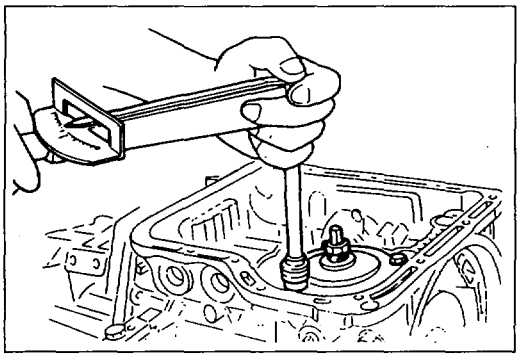
1. Apply ATF to the D-rings, and install them onto the piston assembly.
2. Apply ATF to a new O-ring, and install it onto the piston body.
3. Apply ATF to the piston assembly and body.

Caution
- **Apply even pressure to the outside edge of the piston to avoid damaging the seal rings when installing.**

4. Press the piston assembly into the body.
5. Apply ATF to the piston stem and washer, and install them into the body.
6. Loosely tighten the nut.
7. Apply ATF to the return spring, and install it into the transmission case.

Caution
- **Apply even pressure to the outside edge of the body to avoid damaging the O-ring when installing.**

8. Install the piston assembly.



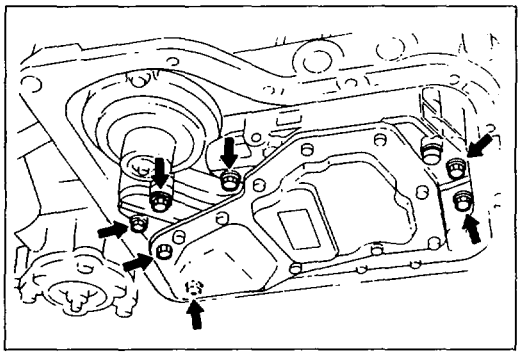
9MU0K2-208

9. Install and tighten the bolts.

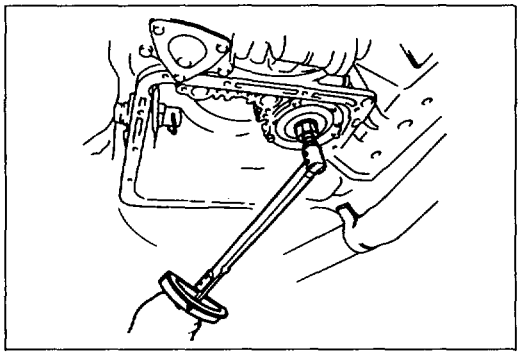
Tightening torque:
6.9—8.8 N·m (70—90 cm-kg, 61—78 in-lb)

On-vehicle Adjustment

1. Remove the valve body assembly.



9BU0KX-052



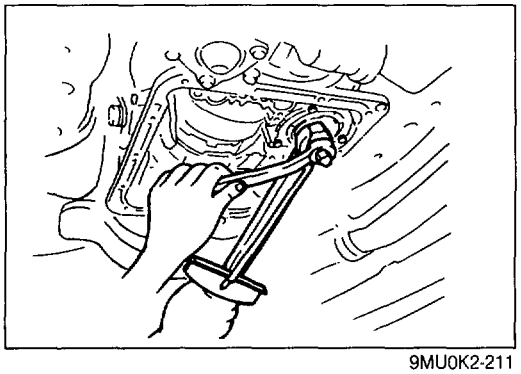
15U0KX-033

2. Loosen the locknut and tighten the piston stem.

Tightening torque:
12—15 N·m (1.2—1.5 m-kg, 8.7—11 ft-lb)

3. Loosen the stem the number of turns shown below.

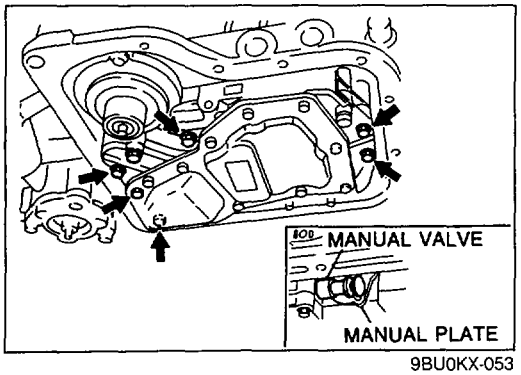
Stem: 3 turns



9MU0K2-211

4. Hold the stem and tighten the locknut.

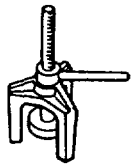
Tightening torque:
15—39 N·m (1.5—4.0 m-kg, 11—29 ft-lb)



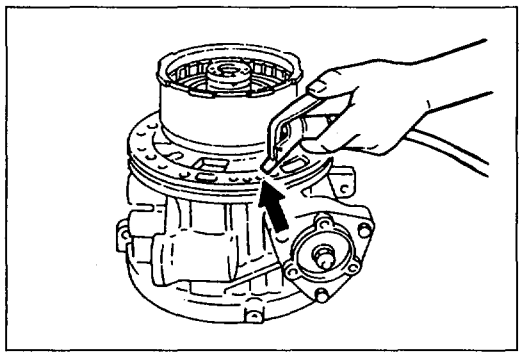
9BU0KX-053

5. Install the valve body assembly.

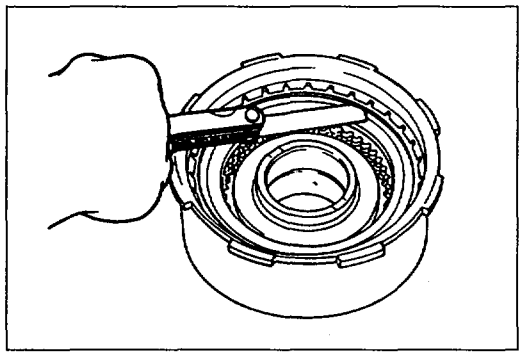
FRONT CLUTCH
Preparation
SST

49 0378 375 Compressor, clutch spring		For disassembly / assembly of front clutch

05U0KX-094



9MU0K2-156



05U0KX-095

Preinspection
Front clutch operation

1. Install the front clutch onto the drum support along with the seal rings.
   Apply compressed air through the oil passage as shown.

   Air pressure: 392 kPa (4.0 kg/cm^2, 57 psi) max.

2. Verify that the retaining plate moves toward the snap ring. If not, the seal ring or O-ring may be damaged or fluid may be leaking at the piston check ball. Inspect them, and replace when assembling.

Clearance between retaining plate and snap ring

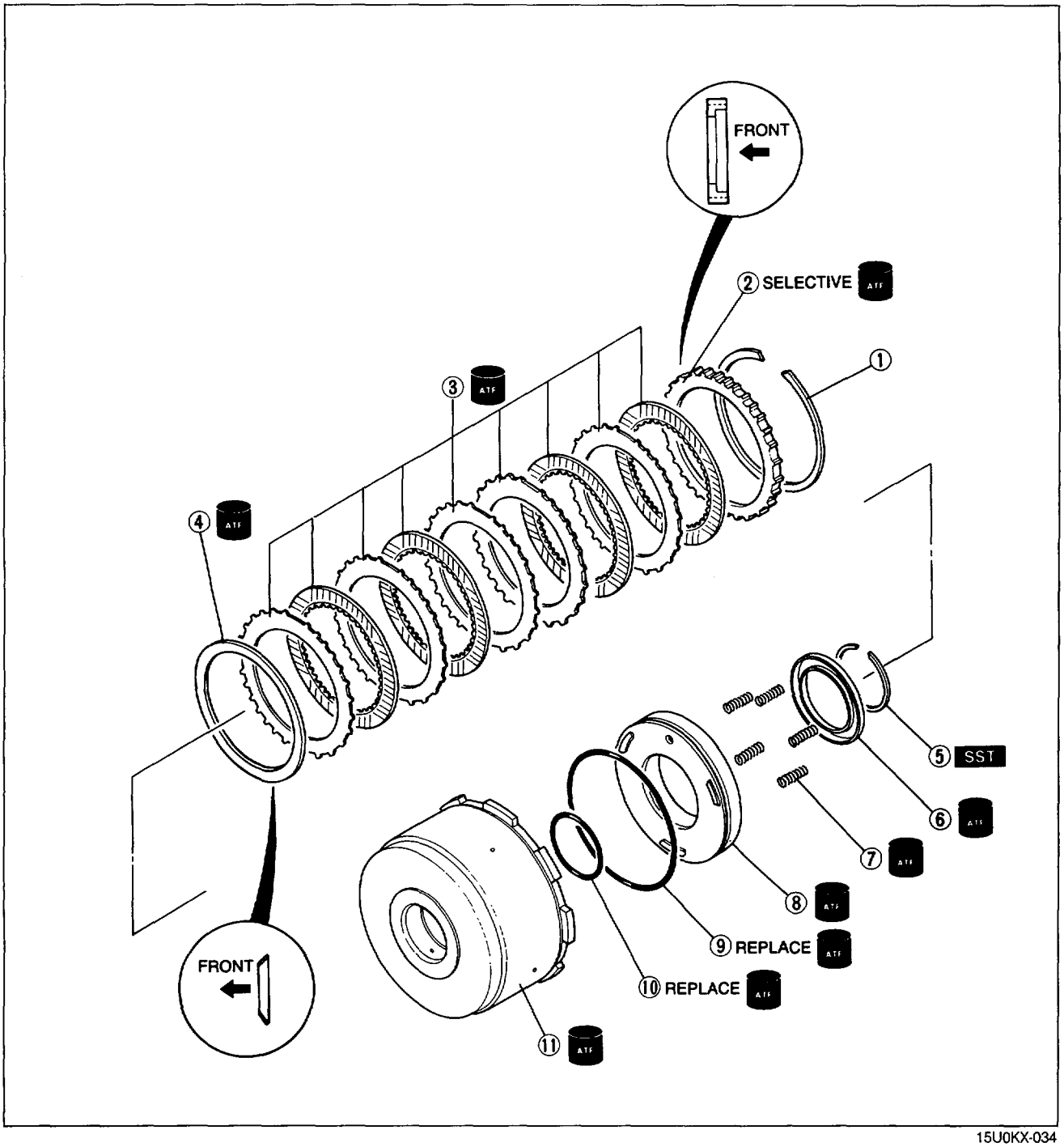
1. Measure the clearance between the retaining plate and the snap ring.

   Clearance: 0.9—1.1mm (0.035—0.043 in)

2. Select and install the correct retaining plate when assembling.

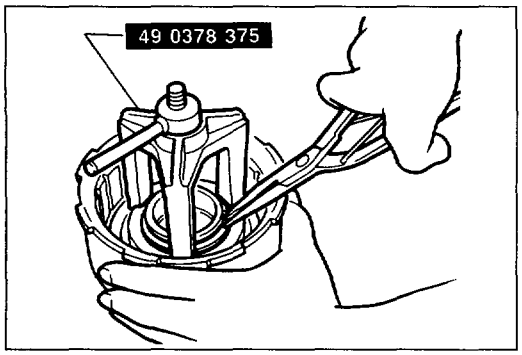
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly procedure**.

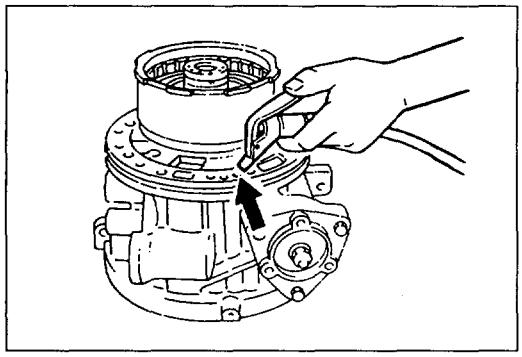


15U0KX-034

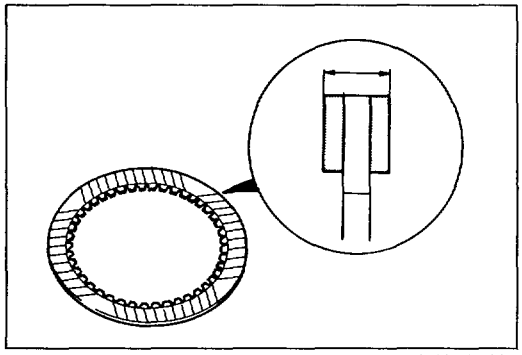
1. Snap ring
2. Retaining plate
3. Drive plates and driven plates
   Inspect for wear and burning
   Inspection ..... page K–75
4. Dished plate
5. Snap ring
   Disassembly Note
   ..... page K–75
6. Spring retainer
7. Return spring
   Inspection ..... page K–75
8. Clutch piston
   Inspect balls for sticking by shaking piston
   Disassembly Note
   ..... page K–75
   Inspection ..... page K–75
9. Seal ring
10. O-ring
11. Front clutch drum



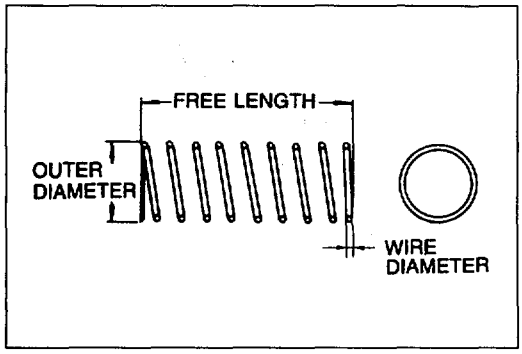
05U0KX-097



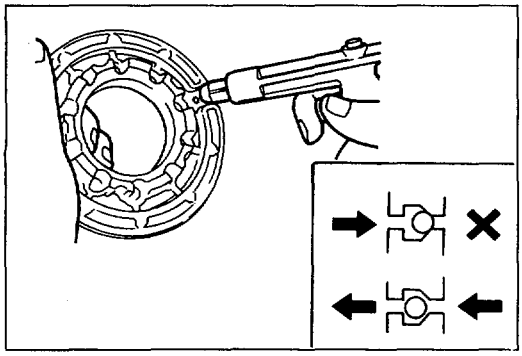
05U0KX-098



05U0KX-099



05U0KX-100



9MU0K2-163

Disassembly note
Snap ring

Caution
- **Do not damage the snap ring.**

1. Compress the spring with the **SST**, then remove the snap ring with snap-ring pliers.
2. Remove the spring retainer and springs.

Clutch piston
1. Install the front clutch drum onto the drum support along with new seal rings.
2. Remove the piston by applying compressed air through the oil passage shown.

Air pressure: 392 kPa (4.0 kg/cm^2, 57 psi) max.

Inspection
Drive plate
1. Measure the facing thickness in three places, and average the three readings.

Standard thickness: 1.6mm (0.063 in)
Minimum thickness: 1.4mm (0.055 in)

2. If not within specification, replace the drive plate(s).

Return spring
1. Measure the spring dimensions.

Specifications

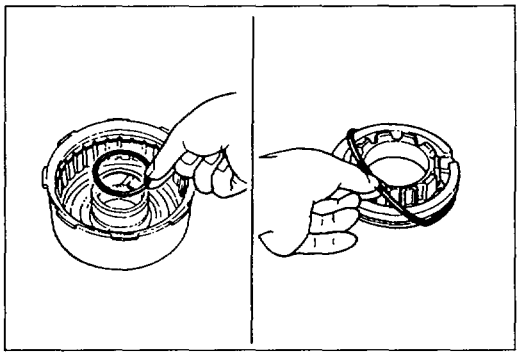
Outer dia. mm (in)	Free length mm (in)	No. of coils	Wire dia. mm (in)
8.0 (0.315)	30.5 (1.201)	14.5	1.3 (0.051)

2. If not within specification, replace the return spring.

Clutch piston
1. Verify that there is no air leakage when applying compressed air through the oil hole opposite the return spring.
2. Verify that there is airflow when applying compressed air through the oil hole on the return spring side.

Air pressure: 392 kPa (4.0 kg/cm^2, 57 psi) max.

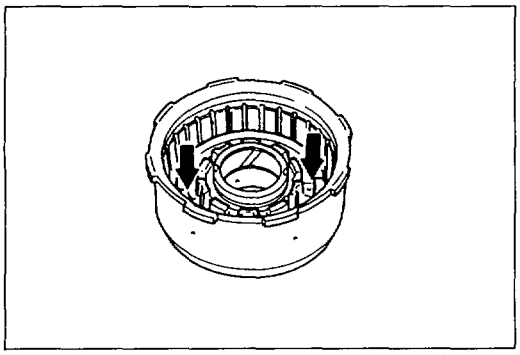
3. If not correct, replace the clutch piston.



15U0KX-035

Assembly procedure

1. Apply ATF to a new O-ring and install it onto the front clutch drum.
2. Apply ATF to a new seal ring and install it onto the piston.

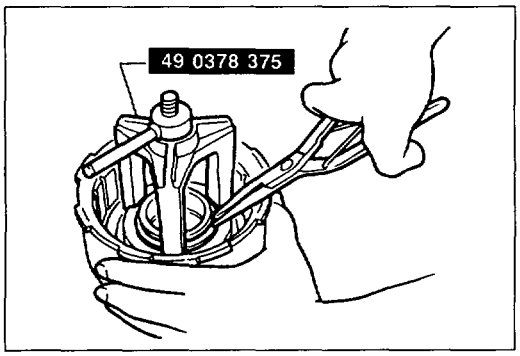


9MU0K2-165

Caution

- **Apply even pressure to the outside edge of the piston to avoid damaging the seal rings when installing.**

3. Apply ATF to the inside of the front clutch drum.
4. Install the piston in the front clutch drum.

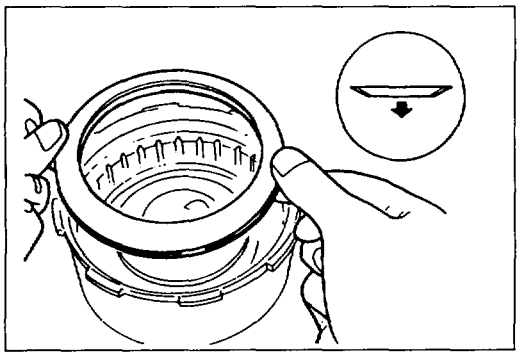


9MU0K2-166

Caution

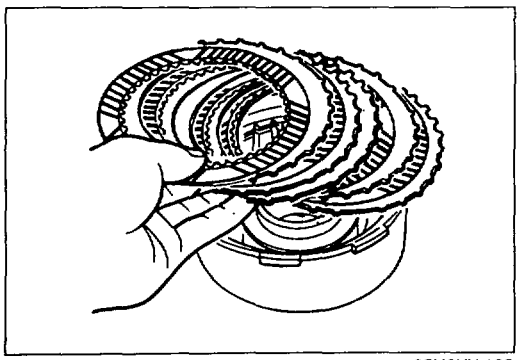
- **Do not overexpand the snap ring when installing.**
- **Do not align the snap ring end-gap with the spring retainer stop.**

5. Install the springs and spring retainer, then compress them with the **SST**.
6. Install the snap ring.



05U0KX-101

7. Install the dished plate as shown.



05U0KX-102

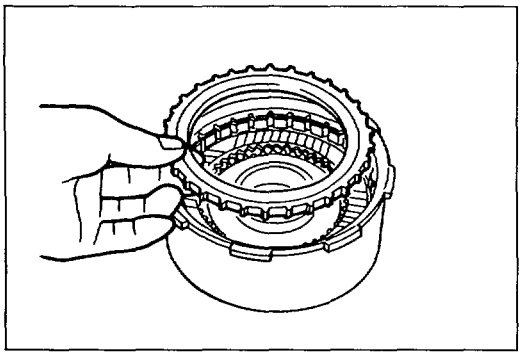
Caution

- **Align the flats of the drive plates with the lubrication hole of the clutch drum, then set them into the drum.**

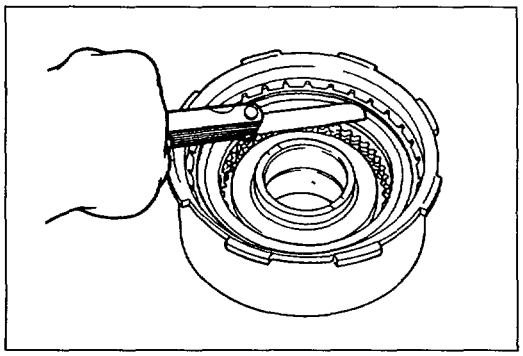
Note

- **Installation order**
  Driven-Drive-Driven-Drive-Driven-Driven-Drive-Driven-Drive

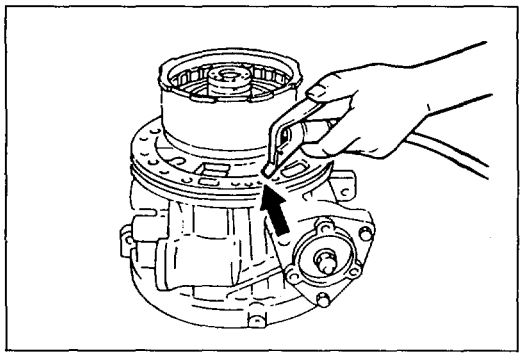
8. Apply ATF to the drive plates and driven plates and install them into the front clutch drum.



9MU0K2-169



15U0KX-036



05U0KX-104

Caution
- **Align the flats of the retaining plate with the lubrication hole of the clutch drum, then set it into the drum.**

9. Install the retaining plate with the step facing upward.

Caution
- **Do not deform the snap ring.**

10. Install the snap ring.

11. Measure the clearance between the retaining plate and snap ring with a feeler gauge. If not within specification, adjust the clearance by installing the correct retaining plate.

Clearance: 0.9—1.1mm (0.035—0.043 in)

Retaining plate sizes

mm (in)

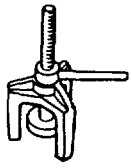
5.6 (0.220)	5.8 (0.228)	6.0 (0.236)
6.2 (0.244)	6.4 (0.252)	6.6 (0.260)
6.8 (0.268)	7.0 (0.276)	

Caution
- **Apply air for no more than three (3) seconds.**

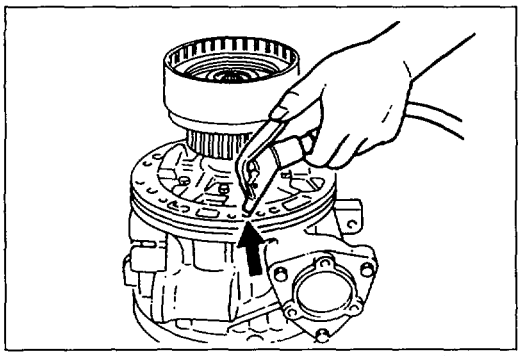
12. Install the front clutch onto the drum support along with the seal rings. Apply compressed air through the oil passage shown and check the clutch operation.

Air pressure: 392 kPa (4.0 kg/cm^2, 57 psi) max.

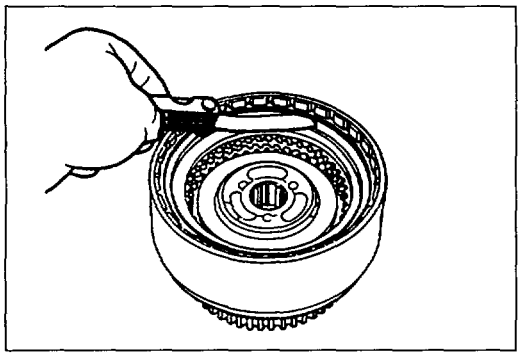
REAR CLUTCH
Preparation
SST

49 0378 375 Compressor, clutch spring		For disassembly / assembly of rear clutch

05U0KX-105



05U0KX-106



05U0KX-107

Preinspection
Rear clutch operation

1. Install the rear clutch onto the drum support along with the seal rings. Apply compressed air through the oil passage shown.

   Air pressure: 392 kPa (4.0 kg/cm^2, 57 psi) max.

2. Verify that the retaining plate moves toward the snap ring. If not, the seal ring or O-ring may be damaged or fluid may be leaking at the piston check ball. Inspect, and replace when assembling.

Clearance between retaining plate and snap ring

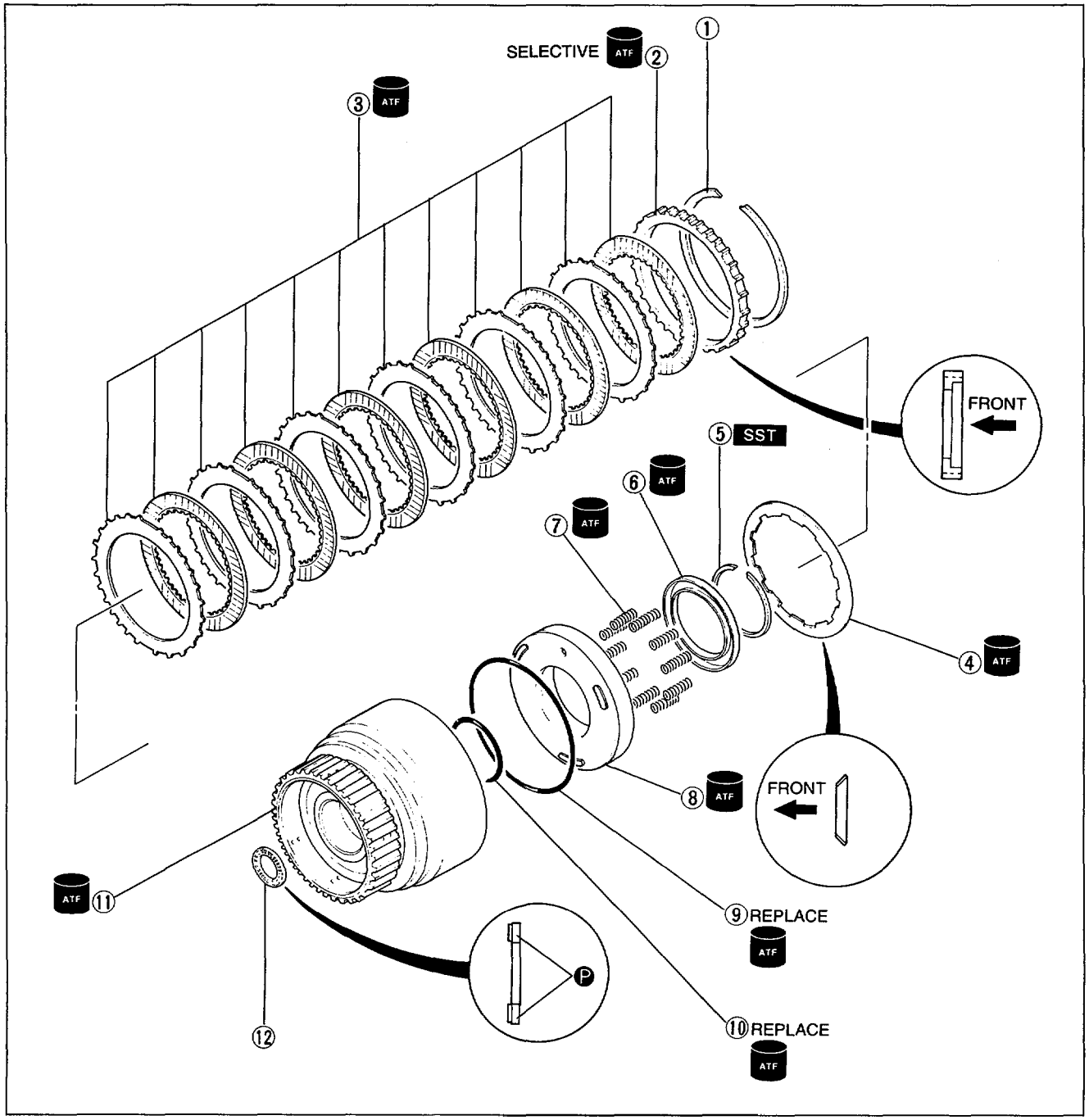
1. Measure the clearance between the retaining plate and the snap ring.

   Clearance: 0.8—1.0mm (0.031—0.039 in)

2. If not within specification, replace the dished plate, drive plates, driven plates, and retaining plate when assembling.

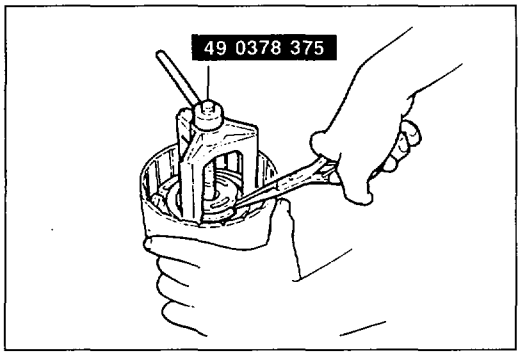
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly procedure**.

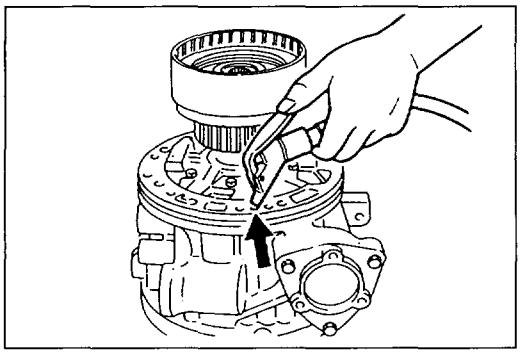


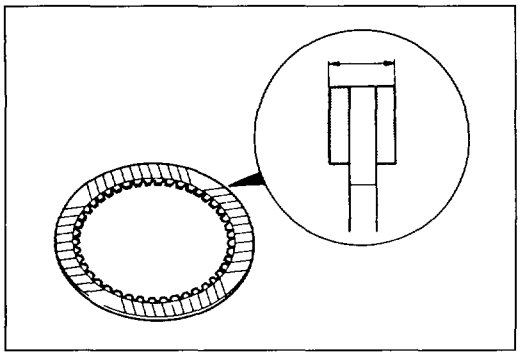
25U0KX-026

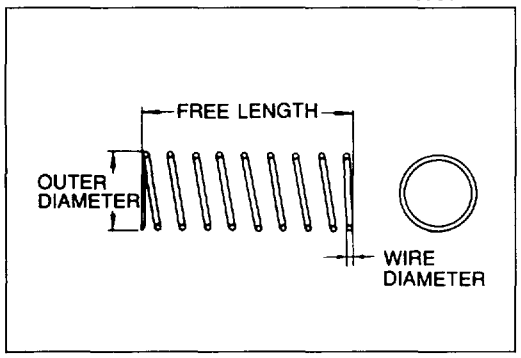
1. Snap ring
2. Retaining plate
3. Drive plates and driven plates
   Inspect for wear and burning
   Inspection ..... page K–80
4. Dished plate
5. Snap ring
   Disassembly Note
   ..... page K–80
6. Spring retainer
7. Return spring
   Inspection ..... page K–80
8. Clutch piston
   Inspect balls for sticking by shaking piston
   Disassembly Note
   ..... page K–80
   Inspection ..... page K–80
9. Seal ring
10. O-ring
11. Rear clutch drum
12. Bearing
    Inspect for damage or rough rotation



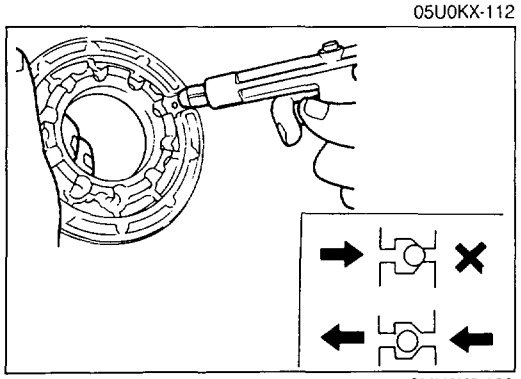
05U0KX-109


05U0KX-110


05U0KX-111



05U0KX-112


9MU0K2-180

Disassembly note
Snap ring

Caution
- **Do not damage the snap ring.**

1. Compress the spring with the **SST**, then remove the snap ring with snap-ring pliers.
2. Remove the spring retainer and springs.

Clutch piston
1. Install the rear clutch drum onto the drum support along with the seal rings.
2. Remove the piston by applying compressed air through the oil passage shown.

Air pressure: 392 kPa (4.0 kg/cm^2, 57 psi) max.

Inspection
Drive plate
1. Measure the facing thickness in three places and average the three readings.

Standard thickness: 1.6mm (0.063 in)
Minimum thickness: 1.4mm (0.055 in)

2. If not within specification, replace the drive plates.

Return spring
1. Measure the spring dimensions.

Specifications

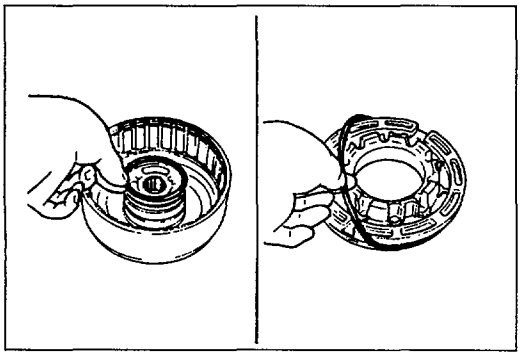
Outer dia. mm (in)	Free length mm (in)	No. of coils	wire dia. mm (in)
8.0 (0.315)	30.5 (1.201)	14.5	1.3 (0.051)

2. If not within specification, replace the return spring.

Clutch piston
1. Verify that there is no air leakage when applying compressed air through the oil hole opposite the return spring.
2. Verify that there is airflow when applying compressed air through the oil hole on the return spring side.

Air pressure: 392 kPa (4.0 kg/cm^2, 57psi) max.

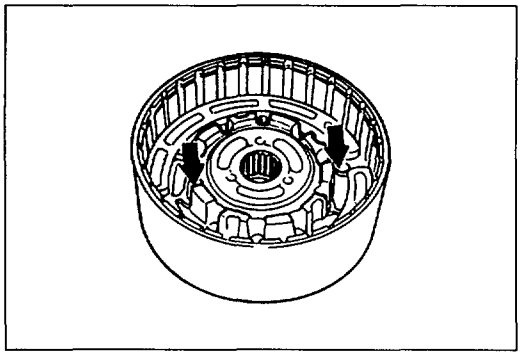
3. If not correct, replace the clutch piston.



15U0KX-038

Assembly procedure

1. Apply ATF to a new O-ring and install it onto the rear clutch drum.
2. Apply ATF to a new seal ring and install it onto the piston.



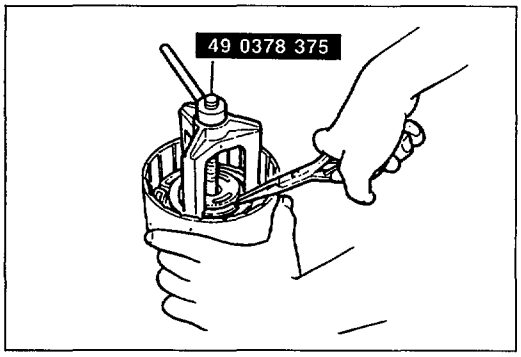
9MU0K2-182

3. Apply ATF to the inside of the rear clutch drum.

Caution

- **Apply even pressure to the outside edge of the piston to avoid damaging the seal rings when installing.**

4. Install the piston in the rear clutch drum.

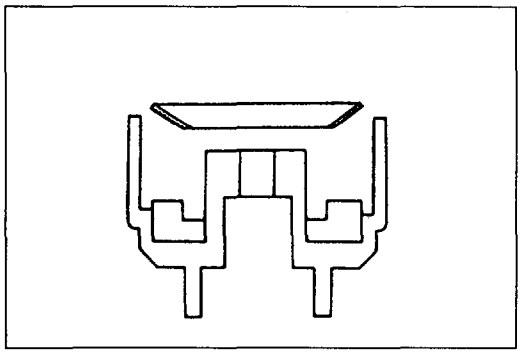


9MU0K2-183

Caution

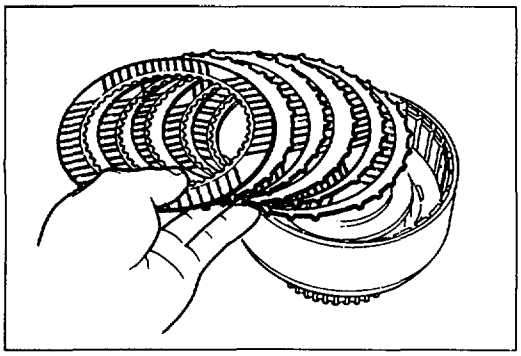
- **Do not overexpand the snap ring when installing.**
- **Do not align the snap ring end-gap with the spring retainer stop.**

5. Install the springs and spring retainer and compress them with the **SST**.
6. Install the snap ring.



9MU0K2-184

7. Install the dished plate as shown.



05U0KX-241

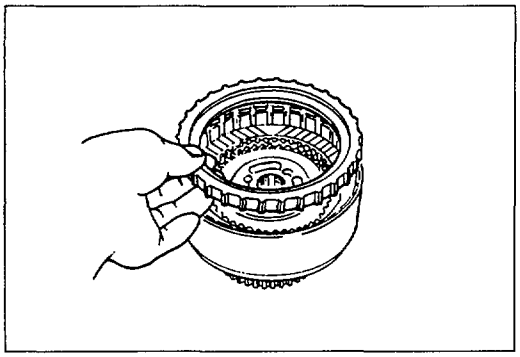
Caution

- **Align the flats of the drive plates with the lubrication hole of the clutch drum, then set them into the drum.**

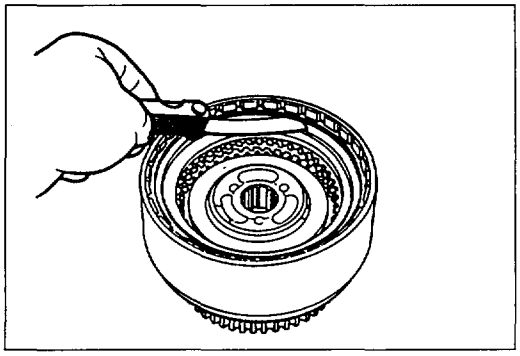
Note

- **Installation order:**
  Driven-Drive-Driven-Drive-Driven-Drive-Driven-Drive-Driven-Drive-Driven-Drive

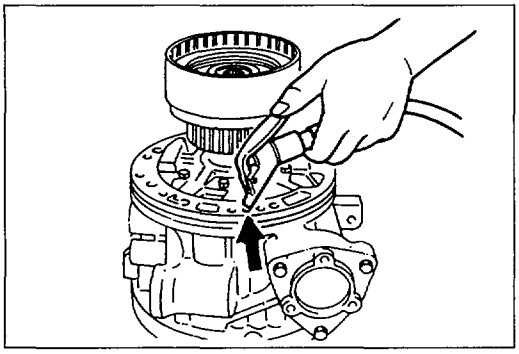
8. Apply ATF to the drive plates and driven plates and install them into the rear clutch drum.



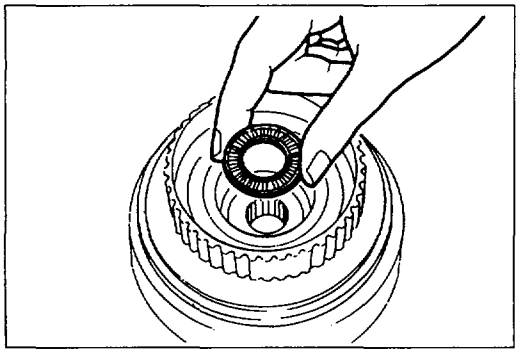
9MU0K2-186



05U0KX-113



05U0KX-114



0BU0K1-145

Caution
- **Align the flats of the retaining plate with the lubrication hole of the clutch drum, then set it into the drum.**

9. Install the retaining plate with the step facing upward.

Caution
- **Do not deform the snap ring.**

10. Install the snap ring.

11. Measure the clearance between the retaining plate and snap ring with a feeler gauge. If not within specification, adjust the clearance by installing the correct retaining plate.

Clearance: 0.8—1.0mm (0.031—0.039 in)

Retaining plate sizes

mm (in)

6.2 (0.244)	6.4 (0.252)	6.6 (0.260)
6.8 (0.268)	7.0 (0.276)	7.2 (0.283)
7.4 (0.291)	7.6 (0.299)	

Caution
- **Apply air for no more than three (3) seconds.**

12. Install the rear clutch onto the drum support along with the seal rings.
Apply compressed air to the oil passage shown and check the clutch operation.

Air pressure: 392 kPa (4.0 kg/cm^2, 57 psi) max.

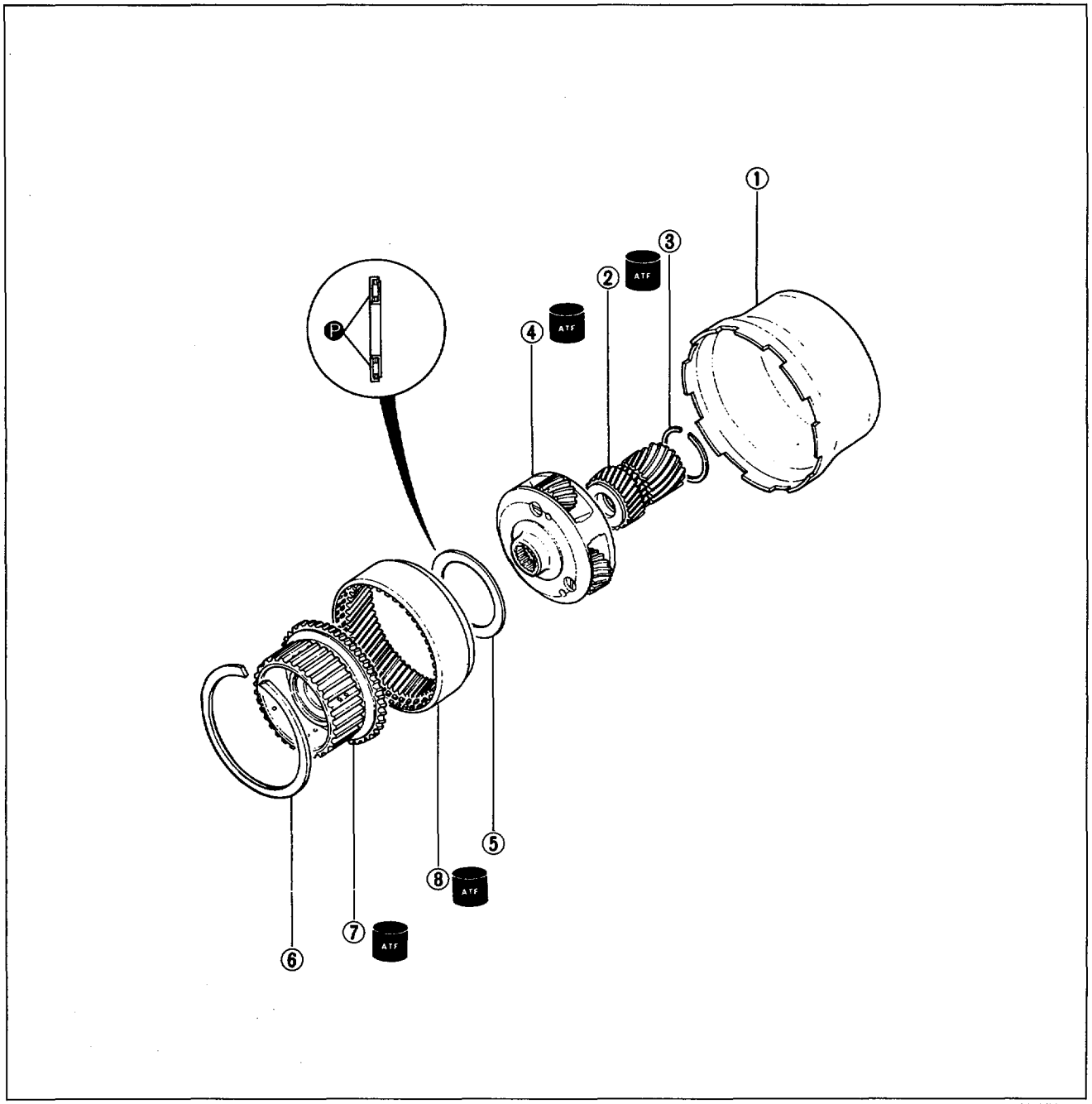
13. Apply petroleum jelly to the bearing race, and install it onto the rear clutch drum.

Bearing race outer diameter: 51.5mm (2.028 in)

CONNECTING SHELL AND FRONT PLANETARY GEAR UNIT (REAR CLUTCH HUB, FRONT PLANETARY PINION CARRIER, REAR SUN GEAR)

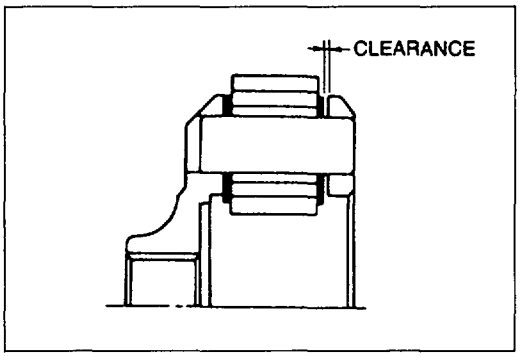
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly procedure**.



15U0KX-039

1. Connecting shell
2. Front sun gear
   Inspect gear teeth for damage, wear, and cracks
3. Snap ring
4. Front planetary pinion carrier
   Inspect gear teeth for damage, wear and cracks, and rotation of pinion gears
   Inspection ..... page K–84
5. Bearing
   Inspect for damage or rough rotation
6. Snap ring
7. Rear clutch hub
8. Internal gear
   Inspect gear teeth for damage, wear, and cracks



9MU0K2-257

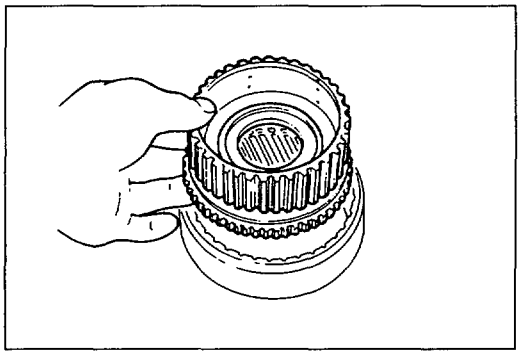
Inspection

Front planetary pinion carrier

1. Measure the clearance between the pinion washer and the planetary pinion carrier.

   Clearance
   Standard: 0.2—0.7mm (0.008—0.028 in)
   Maximum: 0.8mm (0.031 in)

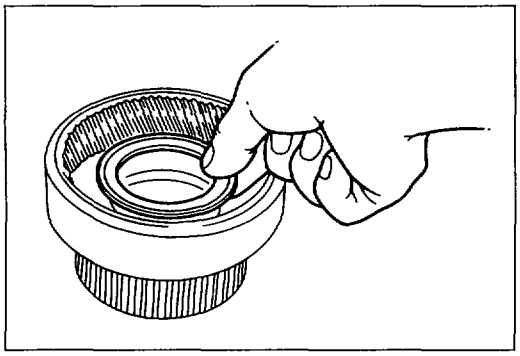
2. If not within specification, replace the planetary pinion carrier.



15U0KX-040

Assembly procedure

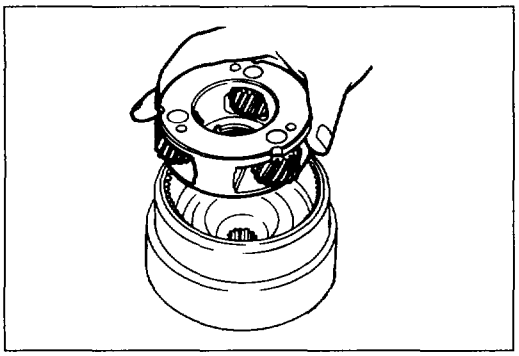
1. Apply ATF to the rear clutch hub and internal gear, and assemble them with the snap ring.



0BU0K1-064

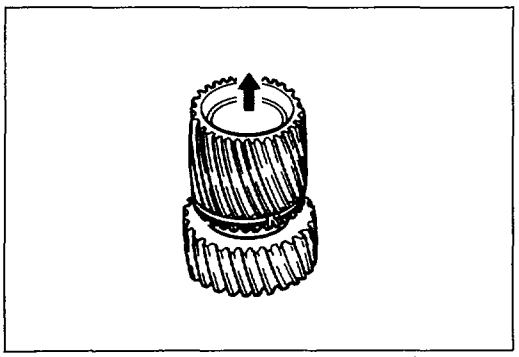
2. Apply petroleum jelly to the bearings, and install it onto the rear clutch hub with the black surface facing upward.

   Bearing outer diameter: 70.0mm (2.756 in)



0BU0K1-065

3. Apply ATF to the front planetary pinion carrier, and install it into the internal gear.

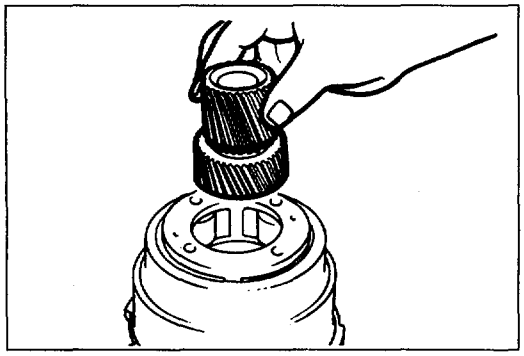


0BU0K1-066

Note

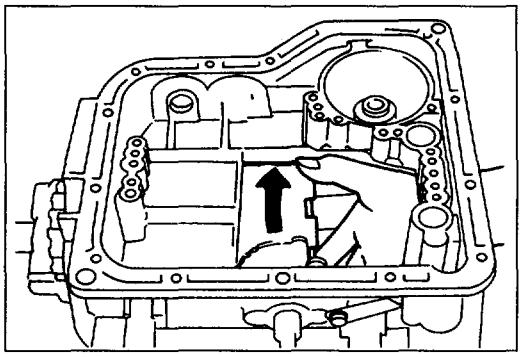
- **Pay close attention to the front and rear directions of the sun gear. The grooved side (arrow) is the front.**

4. Install the snap ring onto the sun gear.



0BU0K1-067

5. Apply ATF to the sun gear, and install it into the front planetary pinion carrier.



05U0KX-116

REAR PLANETARY GEAR UNIT (CONNECTING DRUM, REAR PLANETARY PINION CARRIER, ONE-WAY CLUTCH)

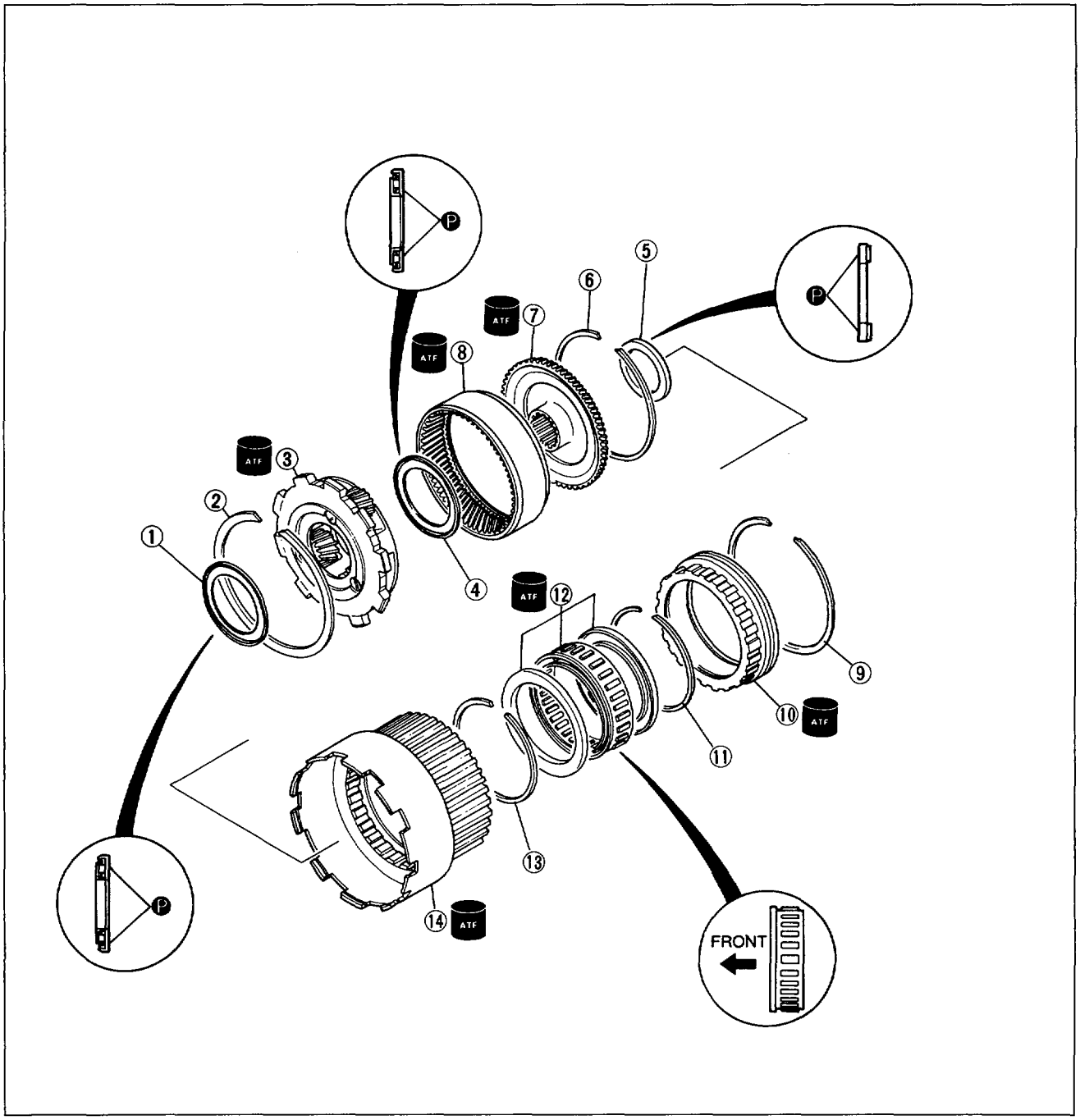
Preinspection

One-way clutch operation

1. Install the rear planetary gear unit and verify that the rear planetary gear unit rotate smoothly when turned clockwise and locks when turned counterclockwise.
2. If not as specified, replace the one-way clutch.

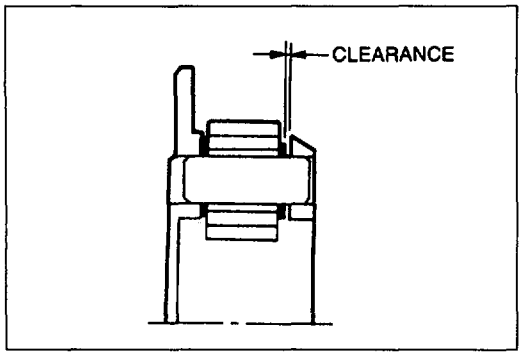
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly procedure**.

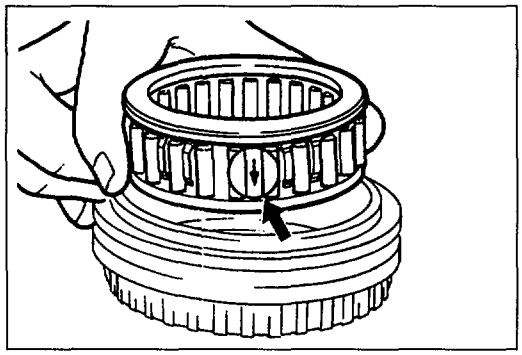


15U0KX-041

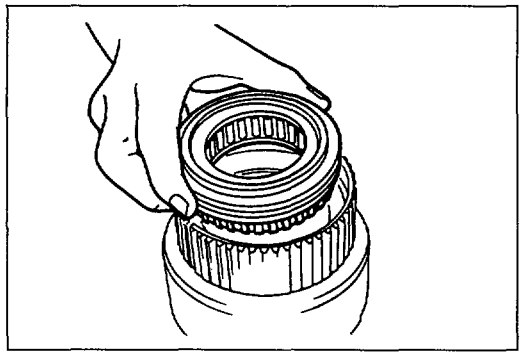
1. Bearing
   Inspect for damage or rough rotation
2. Snap ring
3. Rear planetary pinion carrier
   Inspect gears teeth for damage, wear and cracks, and rotation of pinion gears
   Inspection ..... page K–87
4. Bearing
   Inspect for damage or rough rotation
5. Bearing
   Inspect for damage or rough rotation
6. Snap ring
7. Drive flange
   Inspect gears teeth for damage, wear and cracks
8. Internal gear
   Inspect gear teeth for damage, wear and cracks
9. Snap ring
10. One-way clutch outer race
11. Snap ring
12. One-way clutch
13. Snap ring
14. Connecting drum



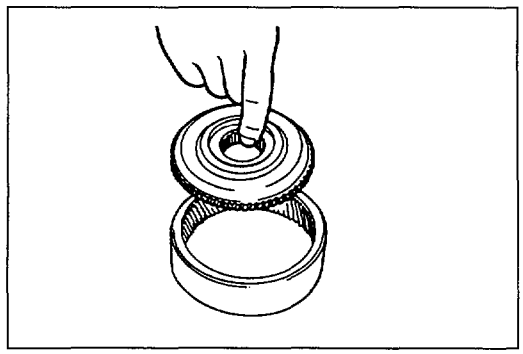
9MU0K2-266



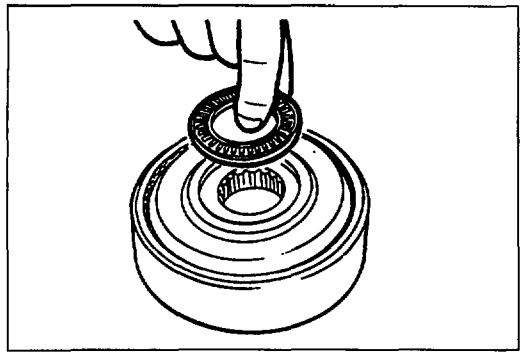
15U0KX-042



9MU0K2-269



9MU0K2-270



9MU0K2-271

Inspection

Rear planetary pinion carrier

1. Measure the clearance between the pinion washer and the planetary pinion carrier.

Clearance
Standard: 0.2—0.7mm (0.008—0.028 in)
Maximum: 0.8mm (0.031 in)

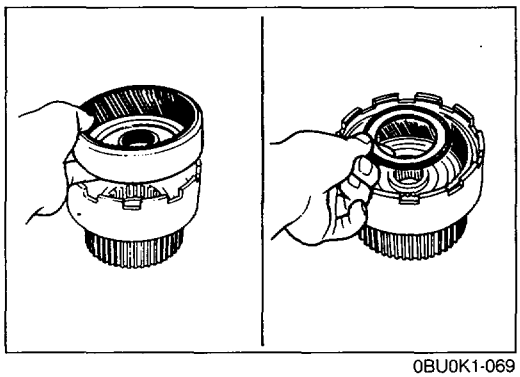
2. If not within specification, replace the planetary pinion carrier.

Assembly procedure

Caution
- **Install the side indicated by an arrow in the figure toward the front when inserting the one-way clutch into the one-way clutch outer race.**

1. Install the snap ring in the one-way clutch outer race.
2. Apply ATF to the one-way clutch, and install it into the one-way clutch outer race.
3. Apply ATF to the connecting drum, and install it into the one-way clutch outer race.
4. Install the snap ring.
5. Apply ATF to the drive flange and internal gear, and install it into the internal gear.
6. Install the snap ring.
7. Apply petroleum jelly to the bearing, and install it onto the drive flange.

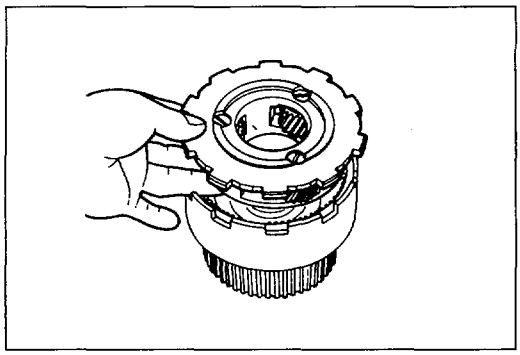
Bearing outer diameter: 47.0mm (1.850 in)



0BU0K1-069

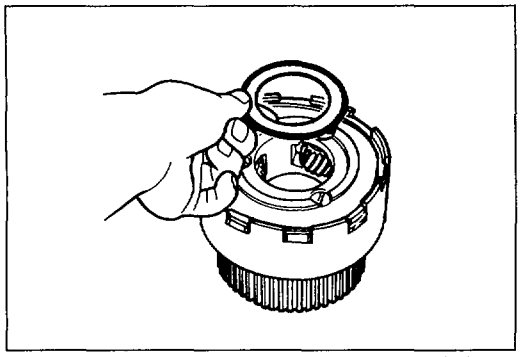
8. Install the internal gear and the drive flange into the connecting drum.
9. Apply petroleum jelly to the bearing, and install it into the drive flange with the black surface facing upward.

Bearing outer diameter: 70.0mm (2.756 in)



0BU0K1-070

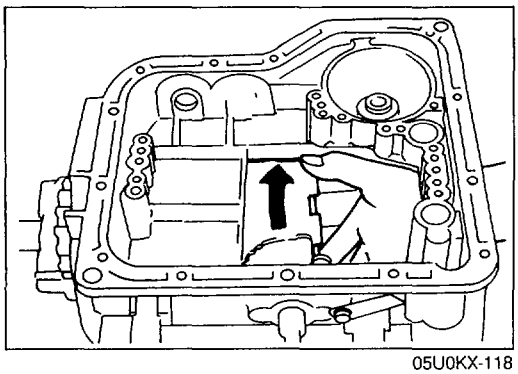
10. Apply ATF to the rear planetary pinion carrier, and install it into the connecting drum.
11. Install the snap ring.



0BU0K1-071

12. Apply petroleum jelly to the bearing, and install it into the bearing race with the black surface facing upward.

Bearing race outer diameter: 70.0mm (2.756 in)



05U0KX-118

Note

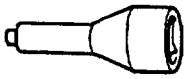
- **If it turns counterclockwise, the one-way clutch is installed upside down.**

13. Check the one-way clutch operation by turning right and left. If should turn clockwise only, and lock counterclockwise.

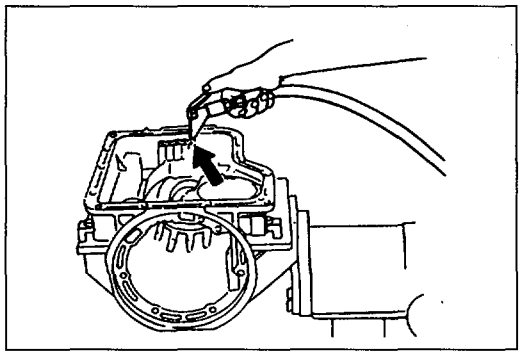
LOW AND REVERSE BRAKE

Preparation

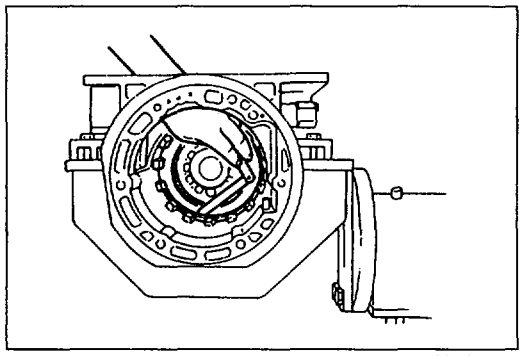
SST

49 0378 346 Hex wrench		For disassembly / assembly of one-way clutch

05U0KX-119



05U0KX-120



05U0KX-121

Preinspection

Low and reverse brake operation

1. Apply compressed air through the oil passage shown.

   Air pressure: 392 kPa (4.0 kg/cm^2, 57 psi) max.

2. Verify that the retaining plate moves toward the snap ring. If not, the seal ring or O-ring may be damaged or fluid may be leaking at the piston check ball. Inspect, and replace as necessary when assembling.

Clearance between retaining plate and snap ring

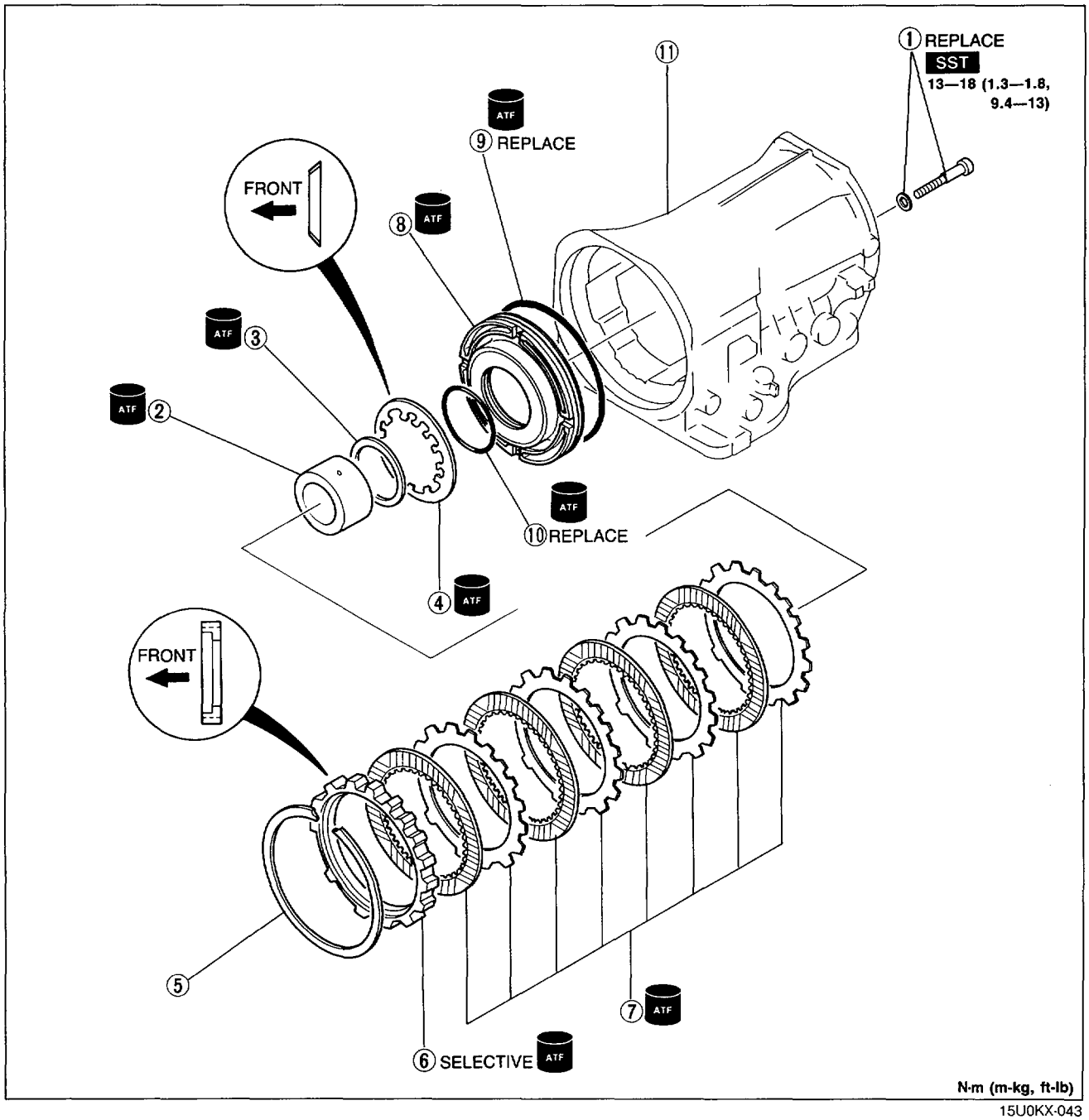
1. Measure the clearance between the retaining plate and the snap ring.

   Clearance: 0.8—1.05mm (0.031—0.041 in)

2. Select and install the correct retaining plate when assembling.

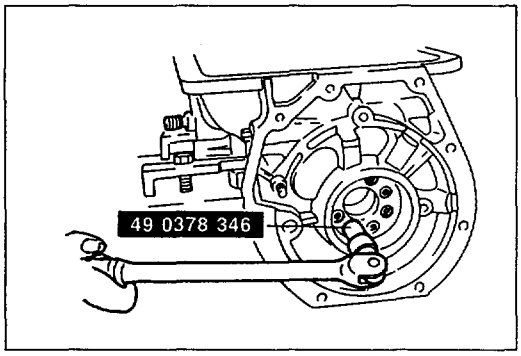
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly procedure**.



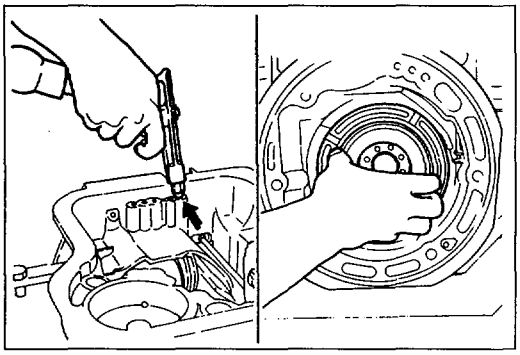
15U0KX-043

1. Allen head bolts and washers
2. One-way clutch inner race
   Disassembly Note ..... page K–91
3. Thrust washer
4. Return spring
   Inspection ..... page K–91
5. Snap ring
6. Retaining plate
7. Drive plates and driven plates
   Inspect for wear and burning
   Inspection ..... page K–91
8. Low and reverse brake piston
   Inspect balls for sticking by shaking piston
   Disassembly Note ..... page K–91
   Inspection ..... page K–91
9. Seal ring
10. O-ring
11. Transmission case



9MU0K2-217

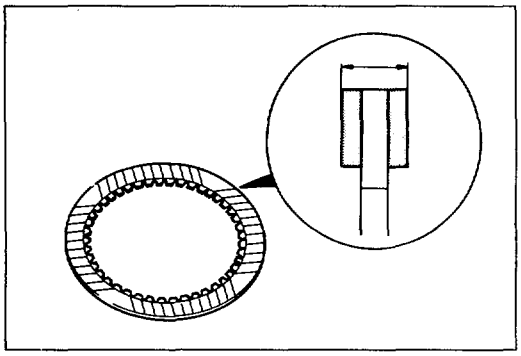
Disassembly note
One-way clutch inner race
1. Remove the allen head bolts from the rear of the transmission case with the **SST**.
2. Remove the one-way clutch inner race, thrust washer, and piston return spring.



05U0KX-123

Low and reverse brake piston
1. Remove the piston by applying compressed air through the oil passage shown.

Air pressure: 392 kPa (4.0 kg/cm^2, 57 psi) max.

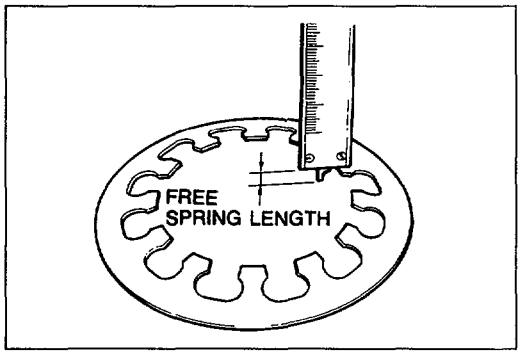


05U0KX-124

Inspection
Drive plate
1. Measure the facing thickness in three places, and average the three readings.

Standard thickness: 2.0mm (0.079 in)
Minimum thickness: 1.8mm (0.071 in)

2. If not within specification, replace the drive plates.

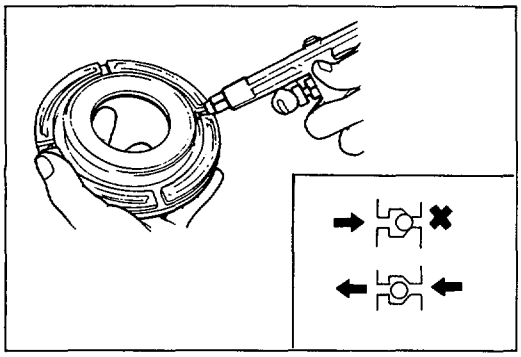


05U0KX-125

Return spring
1. Measure the return spring free length.

Spring free length: 5.9—6.2mm (0.232—0.244 in)

2. If not within specification, replace the return spring.

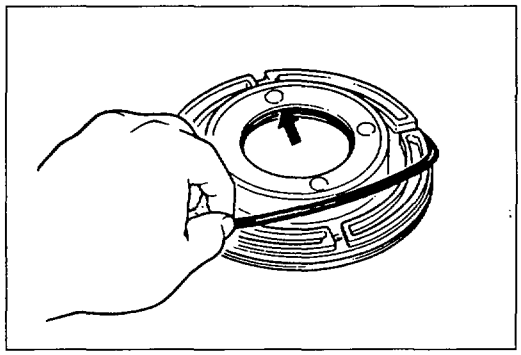


15U0KX-044

Low and reverse brake piston
1. Verify that there is no air leakage when applying compressed air through the oil hole opposite the return spring.
2. Verify that there is airflow when applying compressed air through the oil hole on the return spring side.

Air pressure: 392 kPa (4.0 kg/cm^2, 57 psi) max.

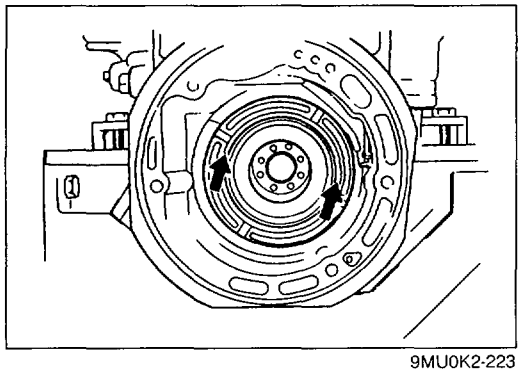
3. If not correct, replace the low and reverse brake piston.



15U0KX-045

Assembly procedure

1. Apply ATF to a new O-ring and install it onto the piston.
2. Apply ATF to a new seal ring and install it onto the piston.

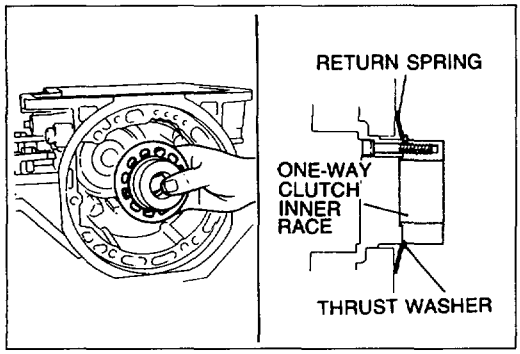


9MU0K2-223

Caution

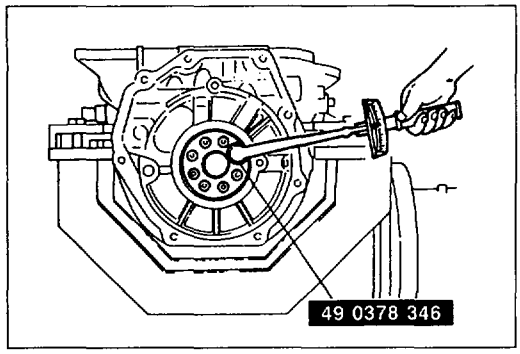
- **Apply even pressure to the outside edge of the piston to avoid damaging the seal ring and O-ring when installing.**

3. Install the low and reverse brake piston.



05U0KX-126

4. Apply ATF to the one-way clutch inner race, thrust washer, and return spring.
5. Assemble the one-way clutch inner race, thrust washer, and return spring, and install them in the transmission case.
6. Verify that the return spring, thrust washer, and rings are properly positioned before securing the bolts.



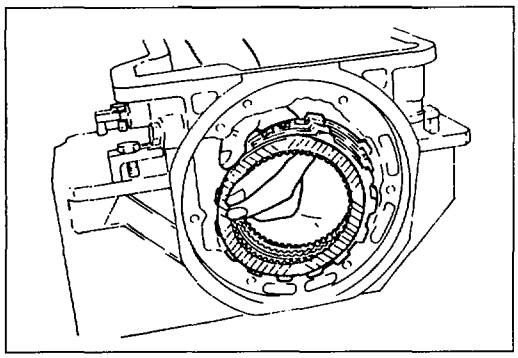
15U0KX-115

7. Install and tighten the new inner race mounting bolts and washers with the **SST**.

Tightening torque:
13—18 N·m (1.3—1.8 m-kg, 9.4—13 ft-lb)

Caution

- **Do not reuse bolts and washers.**

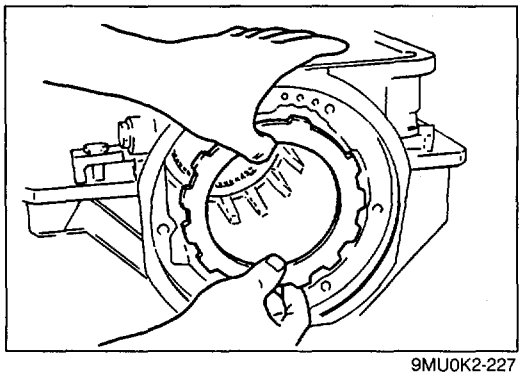


15U0KX-046

Note

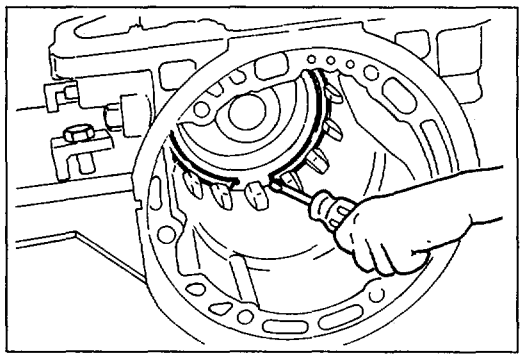
- **Installation order:**
  Driven-Drive-Driven-Drive-Driven-Drive-Driven-Drive

8. Apply ATF to the drive plates and drive plates, and install them into the transmission case.



9MU0K2-227

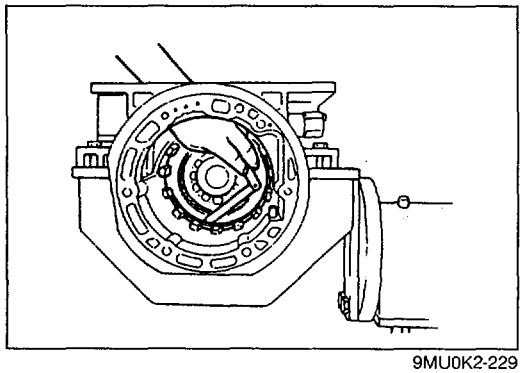
9. Install the retaining plate.



9MU0K2-228

Caution
- **Do not deform the snap ring.**

10. Install the snap ring with a screwdriver.



9MU0K2-229

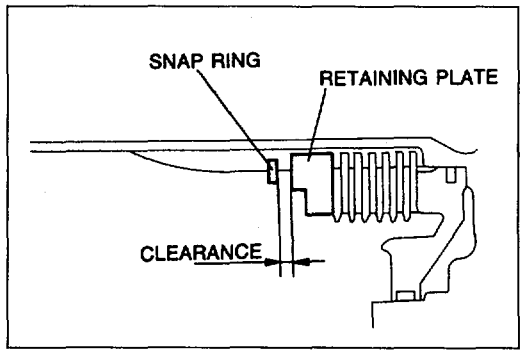
11. Measure the clearance between the snap ring and the retaining plate with a feeler gauge. If not within specification, adjust the clearance by installing the proper retaining plate.

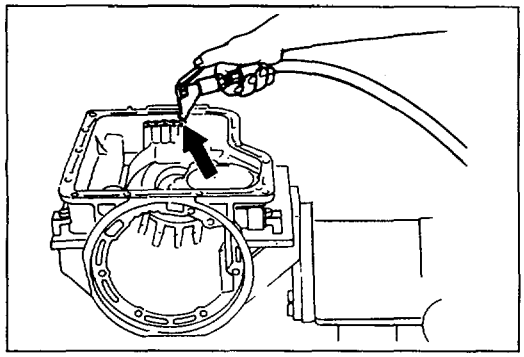
Clearance: 0.8—1.05mm (0.031—0.041 in)

Retaining plate sizes

mm (in)

7.8 (0.307)	8.0 (0.315)	8.2 (0.323)
8.4 (0.331)	8.6 (0.339)	8.8 (0.346)



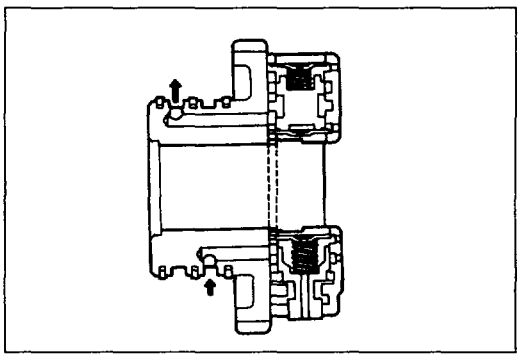


05U0KX-129

Caution
- **Apply air for no more than three (3) seconds.**

12. Check operation of the piston by applying compressed air through the oil passage shown of the low and reverse brake.

Air pressure: 392 kPa (4.0 kg/cm^2, 57 psi) max.



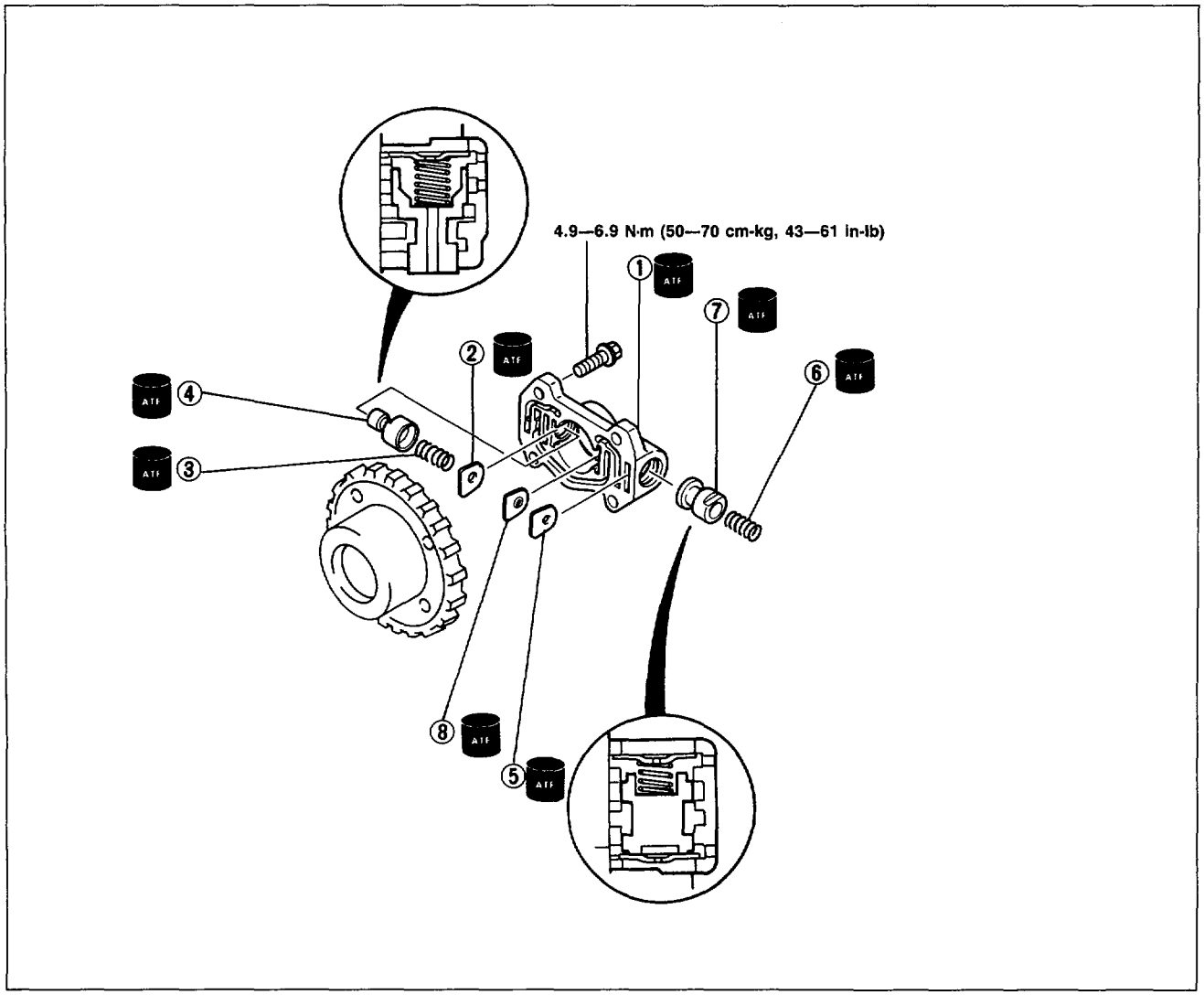
9MU0K2-433

GOVERNOR
Preinspection
Governor valve operation

Caution
- **The compressed air must be less than 500 kPa (5.0 kg/cm^2, 71 psi) and should not be applied for more than five (5) seconds.**

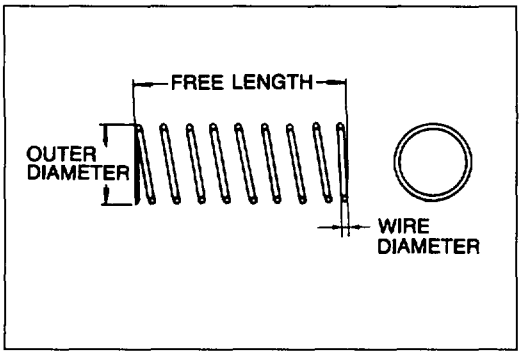
1. Check that the valves move slightly, and that a vibrating sound is heard when compressed air is applied as shown.

Disassembly / Inspection / Assembly
1. Disassemble in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly procedure**.

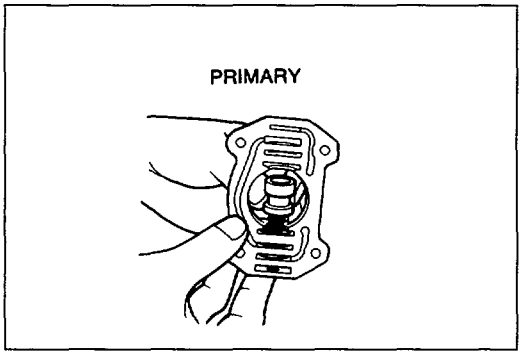


15U0KX-047

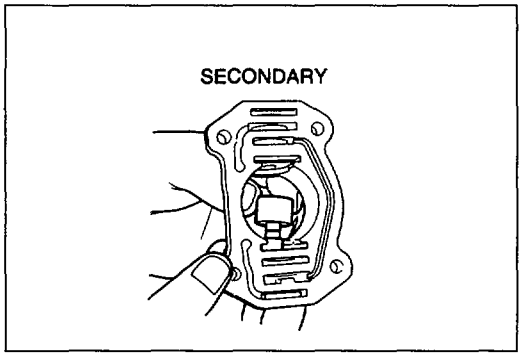
1. Governor valve body
   Inspect for damage and scoring
2. Retainer plate
3. Secondary governor spring
   Inspection ..... page K–95
4. Secondary governor valve
   Inspect for sticking and scoring
5. Retainer plate
6. Primary governor spring
   Inspection ..... page K–95
7. Primary governor valve
   Inspect for sticking and scoring
8. Retainer plate



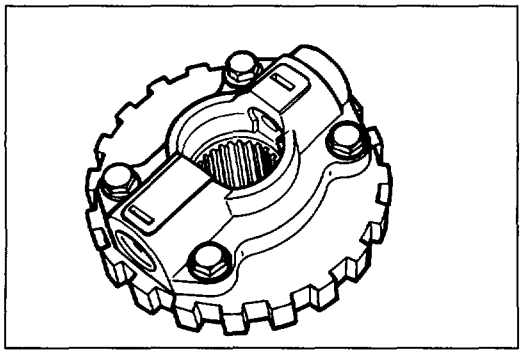
15U0KX-048



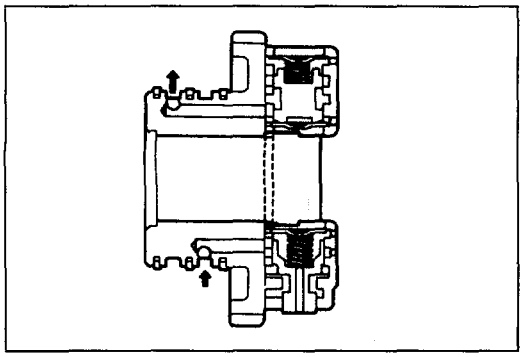
15U0KX-049



9MU0K2-298



9MU0K2-299



9MU0K2-434

Inspection
Secondary and primary governor springs
1. Measure the spring dimensions.

Specifications

Item / Spring	Outer dia. mm (in)	Free length mm (in)	No. of coils	Wire dia. mm (in)
Secondary	9.25 (0.364)	26.7 (1.051)	9.0	0.75 (0.030)
Primary	8.75 (0.344)	21.8 (0.858)	7.0	0.45 (0.018)

2. If not within specification, replace the spring.

Assembly procedure
1. Apply ATF to the primary governor valve, primary spring, and retainer plate, and install them into the governor valve body.

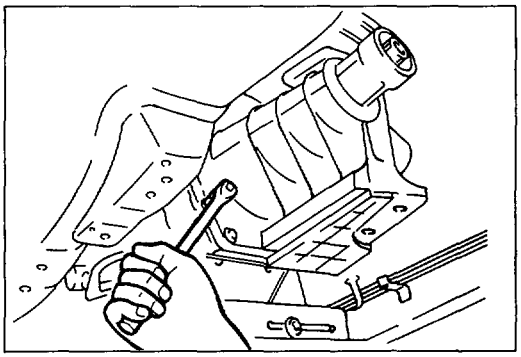
2. Apply ATF to the secondary governor valve, secondary spring, and retainer plate, and install them into the governor valve body.

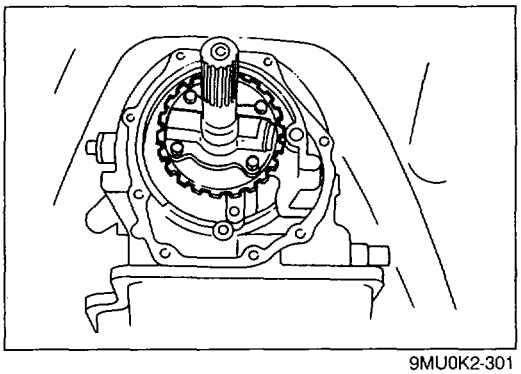
3. Install the governor assembly onto the parking gear.

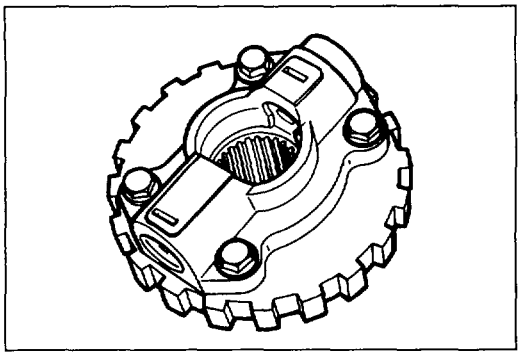
Tightening torque:
4.9—6.9 N·m (50—70 cm-kg, 43—61 in-lb)

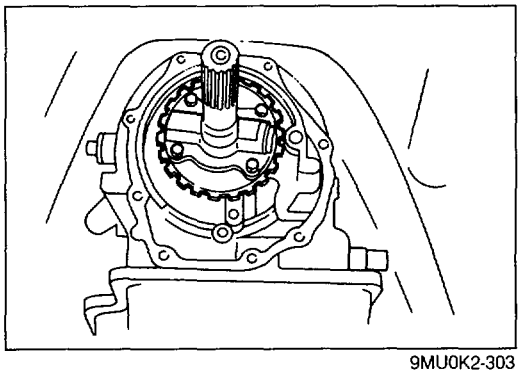
Caution
- **The compressed air must be less than 500 kPa (5.0 kg/cm^2, 71 psi) and should not be applied for more than five (5) seconds.**

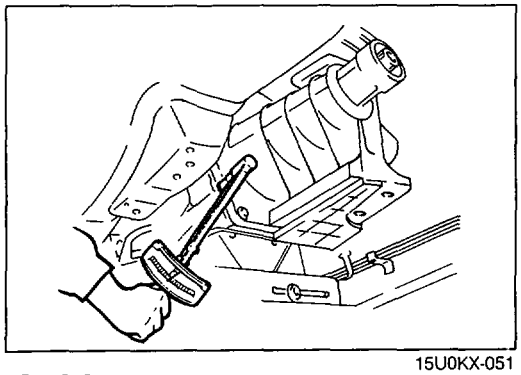
4. Check that the valves move slightly, and that a vibrating sound is heard when compressed air is applied as shown in the figure.


15U0KX-050


9MU0K2-301


9MU0K2-302


9MU0K2-303


15U0KX-051

On-vehicle Removal

1. Remove the extension housing. (Refer to page K–97.)
2. Remove the speedometer drive gear.
3. Remove the governor and parking gear.
4. Separate the governor from the parking gear.

On-vehicle Installation

1. Install the governor onto the parking gear.

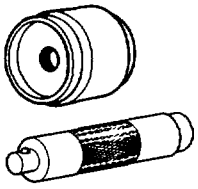
   Tightening torque:
   4.9—6.9 N·m (50—70 cm-kg, 43—61 in-lb)

2. Install the governor and parking gear onto the output shaft, and secure it with a new snap ring.
3. Install the speedometer drive gear.
4. Install the extension housing. (Refer to page K–97.)

EXTENSION HOUSING AND PARKING MECHANISM

Preparation

SST

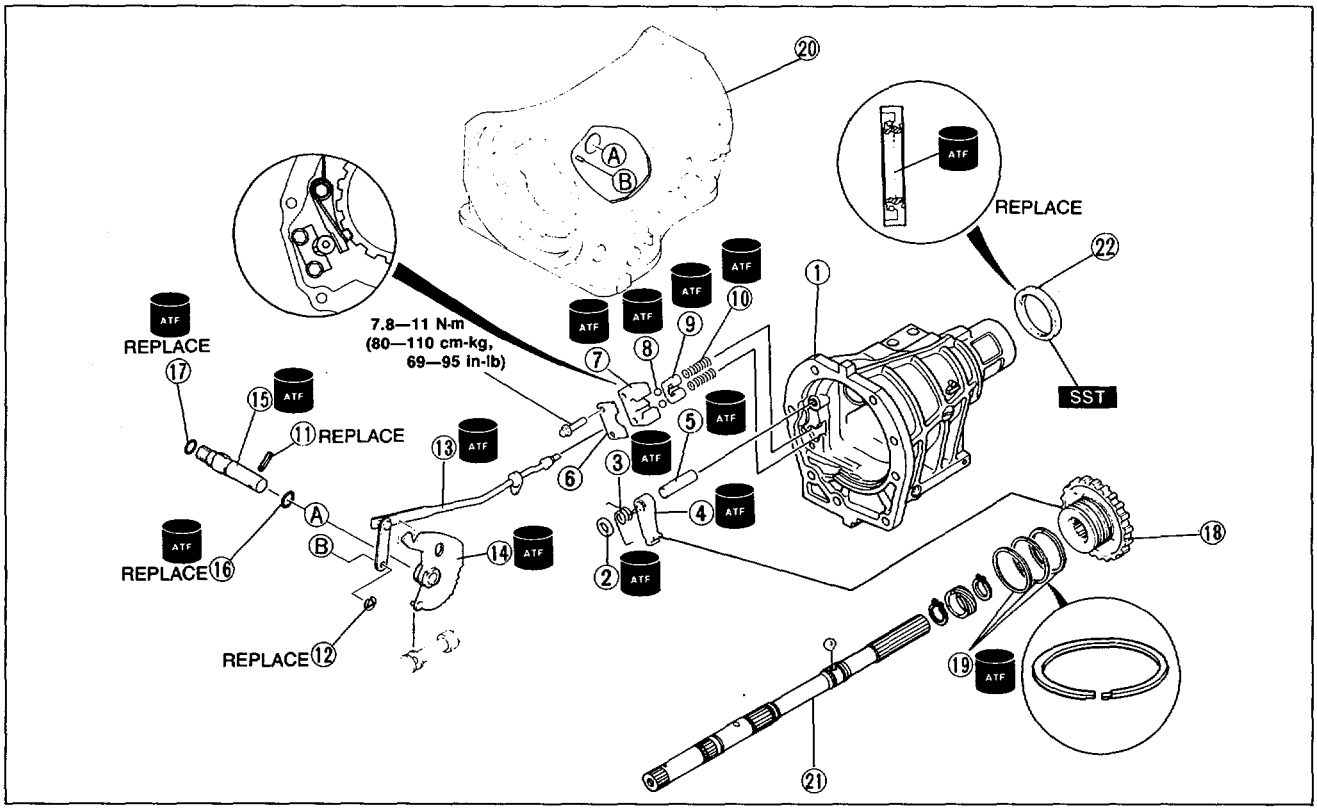
49 B025 0A0 Installer oil seal		For install of oil seal

05A0KX-048

Disassembly / Inspection / Assembly

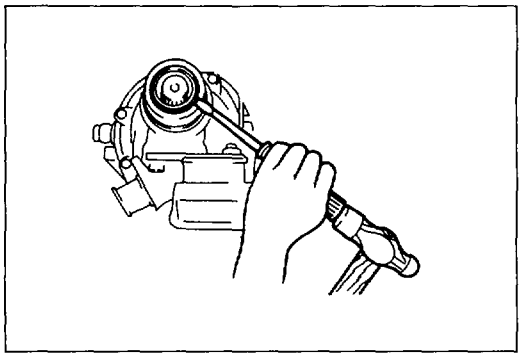
Caution
- **Do not remove the oil seal if not necessary.**

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.

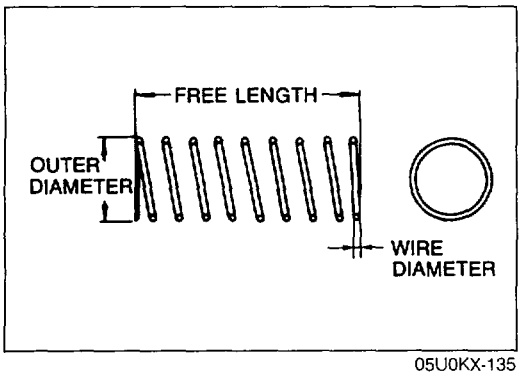


15U0KX-052

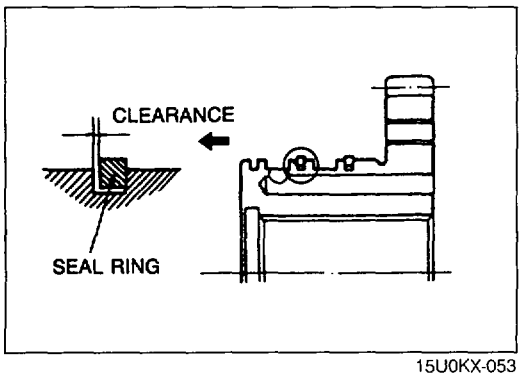
1. Extension housing
2. Dowel spacer
3. Return spring
4. Parking pawl
   Assembly Note page K–98
5. Pawl shaft
   Assembly Note page K–98
6. Retainer plate
7. Actuator support
   Assembly Note page K–98
8. Steel balls
9. Retainer
10. Spring
    Inspection ..... page K–98
11. Spring pin
12. Retaining ring
13. Parking rod
    Inspect for damage and wear and condition of spring
14. Manual plate
15. Manual shaft
16. O-ring
17. O-ring
18. Parking gear
    Inspection ..... page K–98
19. Seal rings
20. Transmission case
21. Output shaft
    Inspect splines for damage and wear
22. Oil seal
    Disassembly Note
    ..... page K–98
    Assembly Note page K–99



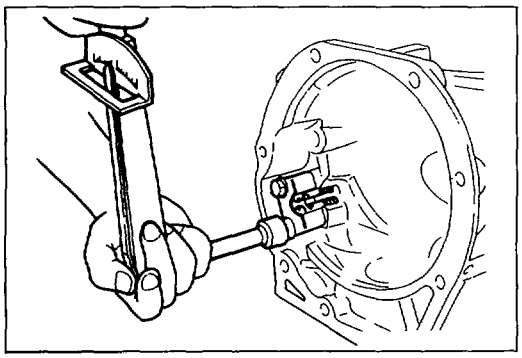
9MU0K2-276



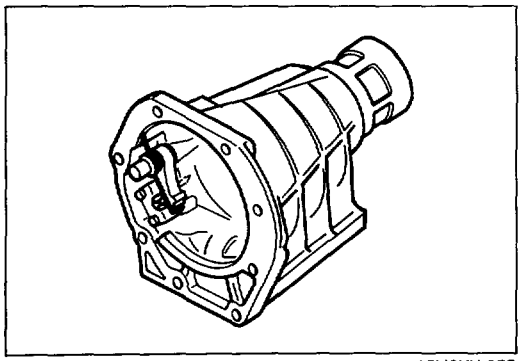
05U0KX-135



15U0KX-053



15U0KX-054



15U0KX-055

Disassembly note
Oil seal

Caution
- **Do not remove the seal unless necessary.**

1. Remove the oil seal with a screwdriver.

Inspection
Spring
1. Measure the spring dimensisons.

Specifications

Outer dia. mm (in)	Free length mm (in)	No. of coils	Wire dia. mm (in)
7.2 (0.283)	32.0 (1.260)	14.0	0.7 (0.028)

2. If not within specification, replace the spring.

Parking gear
1. Measure the clearance between the seal rings and the grooves.

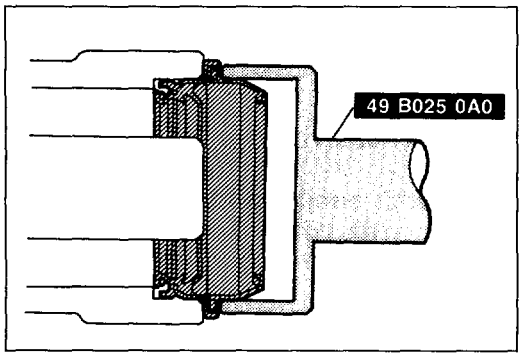
Clearance
Standard: 0.04—0.16mm (0.0016—0.0063 in)
Maximum: 0.40mm (0.0157 in)

2. If not within specification, replace the parking gear.

Assembly Note
Actuator support
1. Apply ATF to the springs and retainer and install them into the extension housing.
2. Apply ATF to the steel balls and actuator support and install them into the extension housing.
3. Apply ATF to the retainer plate, and install it into the extension housing.

Tightening torque:
7.8—11 N·m (80—110 cm-kg, 69—95 in-lb)

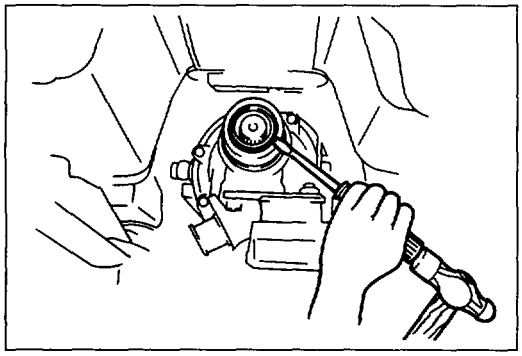
Parking pawl and shaft
1. Apply ATF to the pawl shaft, and install it into the extension housing.
2. Apply ATF to the parking pawl and return spring, and install them into the extension housing.
3. Apply ATF to the dowel spacer, and install it into the extension housing.



15U0KX-056

Oil seal

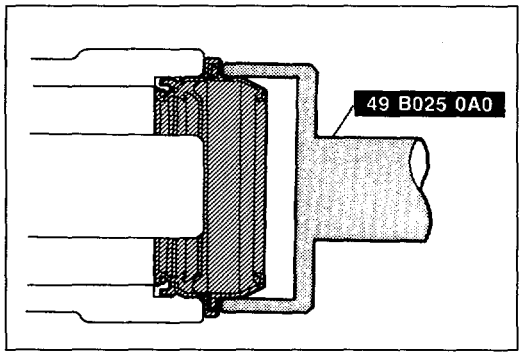
1. Apply transmission oil to outer periphery.
2. Install a new oil seal with the **SST**.


15U0KX-057

OIL SEAL

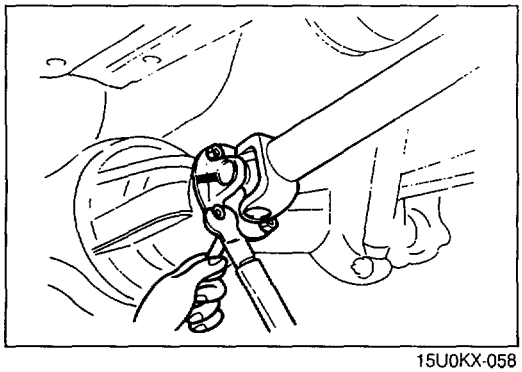
On-vehicle Replacement

1. Remove the propeller shaft. (Refer to Section L.)
2. Pry the oil seal from the extension housing.



05U0KX-136

3. Apply transmission oil to outer periphery.
4. Install a new oil seal with the **SST**.


15U0KX-058

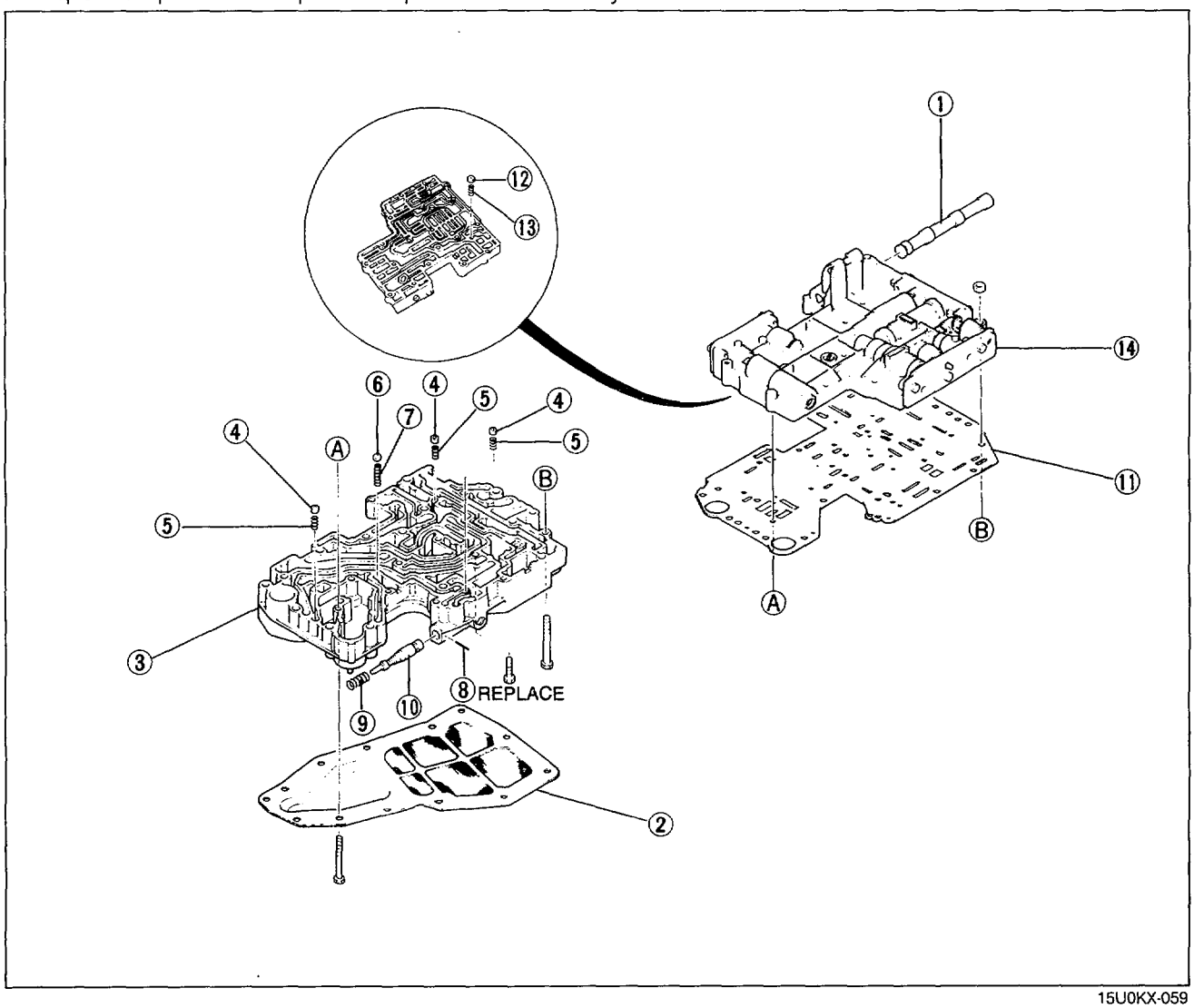
5. Install the propeller shaft. (Refer to Section L.)

CONTROL VALVE BODY (DISASSEMBLY / INSPECTION)

Caution

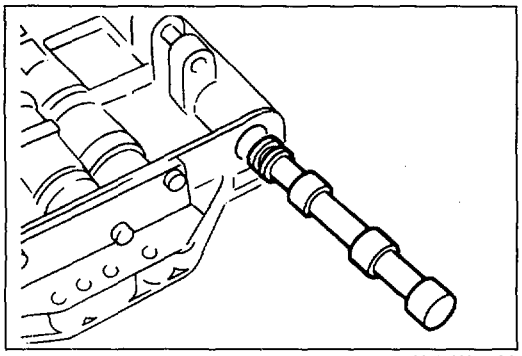
- **Be especially careful when handling the control valve body because it consists of the most precise and delicate parts of the transmission.**
- **Neatly arrange the removed parts to avoid confusing them with similar parts.**
- **Clean the removed parts with cleaning solvent and dry them with compressed air. Clean out all holes and passages with compressed air.**

1. Disassemble in the order shown in the figure, referring to **Procedure**.
2. Inspect all parts and repair or replace as necessary.



15U0KX-059

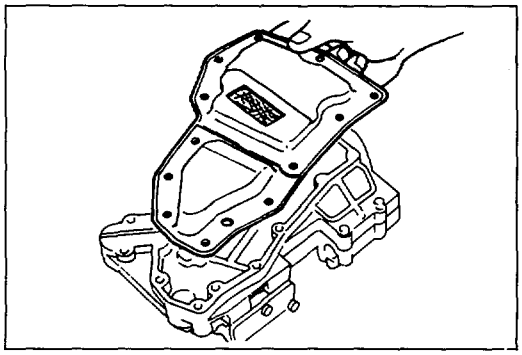
1. Manual valve
   Inspect for sticking and scoring
2. Oil strainer
   Inspect for clogging and damage
3. Lower valve body
   Inspect for damage and scoring
4. Orifice check valve
5. Orifice check valve spring
   Inspection ..... page K–102
6. Throttle relief ball
7. Throttle relief spring
   Inspection ..... page K–102
8. Spring pin
9. 3-2 timing spring
   Inspection ..... page K–102
10. 3-2 timing valve
    Inspect for sticking and scoring
11. Separator plate
    Inspect fluid passage for clogging and damage
12. Orifice check valve
13. Orifice check valve spring
    Inspection ..... page K–102
14. Upper valve body
    Disassembly / Inspection / Assembly ..... page K–103



9MU0K2-306

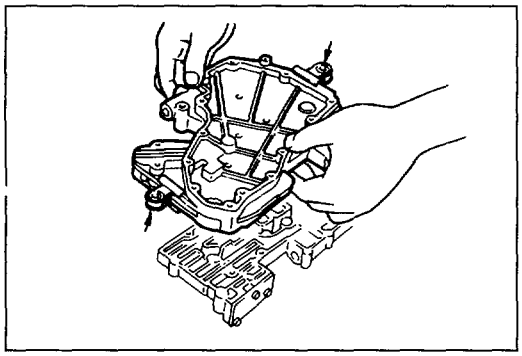
Procedure

1. Remove the manual valve.



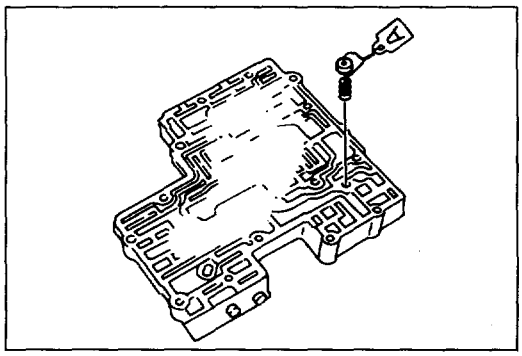
9MU0K2-307

2. Remove the oil strainer.



05U0KX-138

3. Hold the lower valve body and separator plate together with large clips.
4. Remove the bolts.
5. Remove the lower valve body.

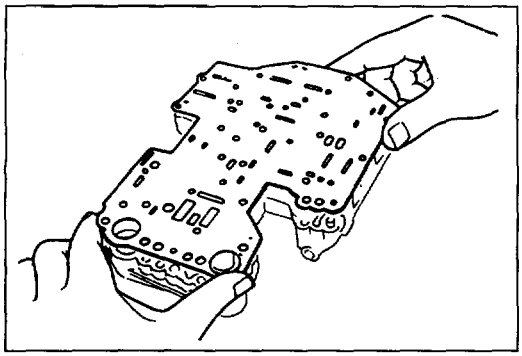


05U0KX-139

6. Remove the orifice check valve and spring from the upper valve body.

Note

- **Tag the valve and spring for proper reassembly.**



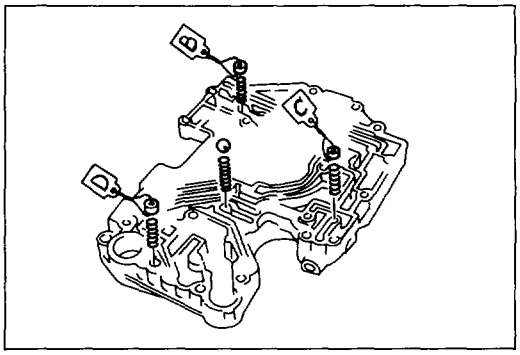
05U0KX-140

7. Remove the clips.

Caution

- **Remove the separator plate gently to avoid losing the orifice check valves and springs and the throttle relief ball and spring in the valve body.**

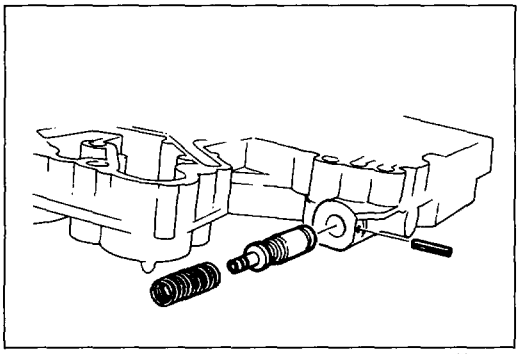
8. Remove the separator plate.



9MU0K2-311

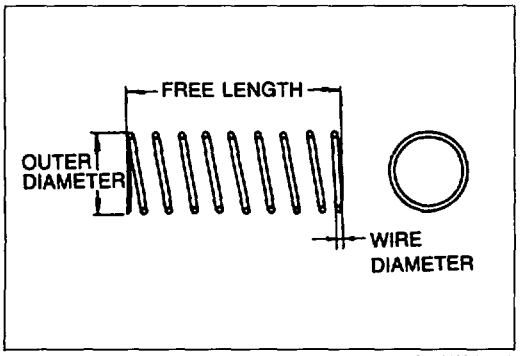
Note
- **Tag the orifice check valves as shown for proper reassembly.**

9. Remove the orifice check valves, throttle relief ball, and springs.



15U0KX-116

10. Remove the spring pin.
11. Remove the 3-2 timing valve and spring.



05U0KX-141

Inspection
1. Measure the spring dimensions.
2. If not within specification, replace the spring.

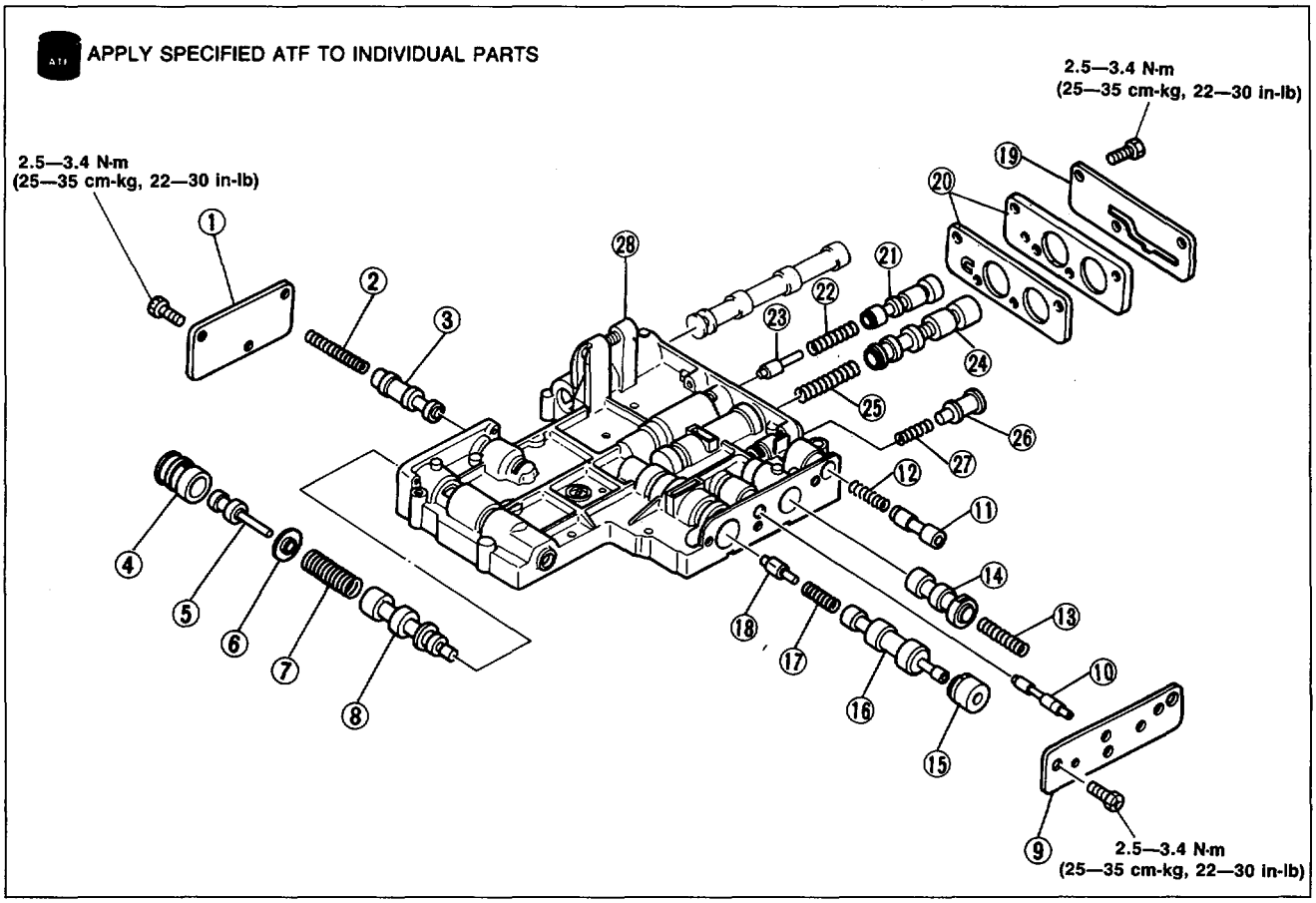
Item / Spring	Outer dia. mm (in)	Free length mm (in)	No. of coils	Wire dia. mm (in)
Orifice check	5.0 (0.197)	15.5 (0.610)	12.0	0.23 (0.009)
Throttle relief	6.5 (0.256)	26.8 (1.055)	16.0	0.9 (0.035)
3-2 timing	7.5 (0.295)	23.2 (0.913)	11.0	0.8 (0.031)

15U0KX-060

UPPER VALVE BODY

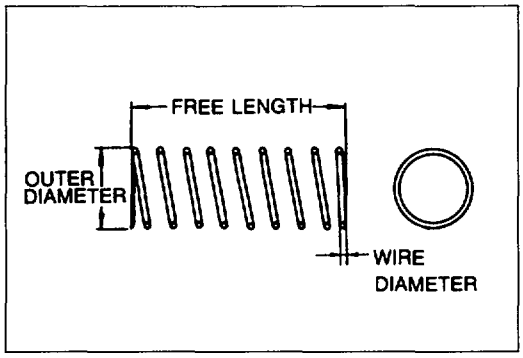
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly procedure**.



15U0KX-061

1. Side plate D
2. Second lock spring
   Inspection ..... page K–104
3. Second lock valve
   Inspect for sticking and scoring
4. Pressure regulator sleeve
   Inspect for sticking and scoring
5. Pressure regulator plug
   Inspect for sticking and scoring
6. Pressure regulator valve
   Inspect for sticking and scoring
7. Pressure regulator spring
   Inspection ..... page K–104
8. Pressure regulator valve
   Inspect for sticking and scoring
9. Side plate B
10. Vacuum throttle valve
    Inspect for sticking and scoring
11. Downshift valve
    Inspect for sticking and scoring
12. Downshift spring
    Inspection ..... page K–104
13. Throttle backup spring
    Inspection ..... page K–104
14. Throttle backup valve
    Inspect for sticking and scoring
15. 3-4 shift sleeve
    Inspect for sticking and scoring
16. 3-4 shift valve
    Inspect for sticking and scoring
17. 3-4 shift spring
    Inspection ..... page K–104
18. 3-4 shift plug
    Inspect for sticking and scoring
19. Side plate A
20. Seperators
21. 2-3 shift valve
    Inspect for sticking and scoring
22. 2-3 shift spring
    Inspection ..... page K–104
23. 2-3 shift plug
    Inspect for sticking and scoring
24. 1-2 shift valve
    Inspect for sticking and scoring
25. 1-2 shift spring
    Inspection ..... page K–104
26. Pressure modifier valve
    Inspect for sticking and scoring
27. Pressure modifier spring
    Inspection ..... page K–104
28. Upper valve body
    Inspect for damage and scoring



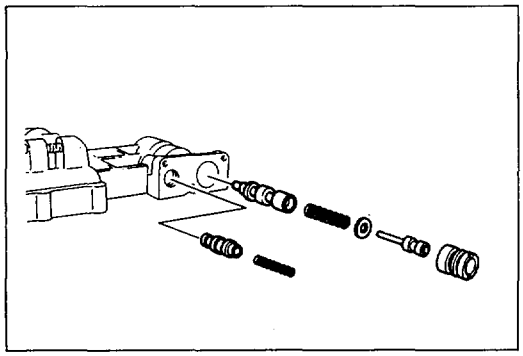
05U0KX-144

Inspection

1. Measure the spring dimensions.
2. If not within specification, replace the spring.

Item / Spring	Outer dia. mm (in)	Free length mm (in)	No. of coils	Wire dia. mm (in)
Second lock	5.55 (0.219)	33.5 (1.319)	18.0	0.55 (0.022)
Pressure regulator	11.7 (0.461)	43.0 (1.693)	15.0	1.2 (0.047)
Downshift	5.55 (0.219)	21.9 (0.862)	14.0	0.55 (0.022)
Throttle backup	7.3 (0.287)	36.0 (1.417)	16.0	0.8 (0.031)
3-4 shift	6.6 (0.260)	30.3 (1.193)	14.6	0.8 (0.031)
2-3 shift	6.4 (0.252)	39.2 (1.543)	20.0	0.7 (0.028)
1-2 shift	6.65 (0.262)	26.9 (1.059)	12.2	0.65 (0.026)
Pressure modifier	8.6 (0.339)	15.5 (0.610)	7.5	0.6 (0.024)

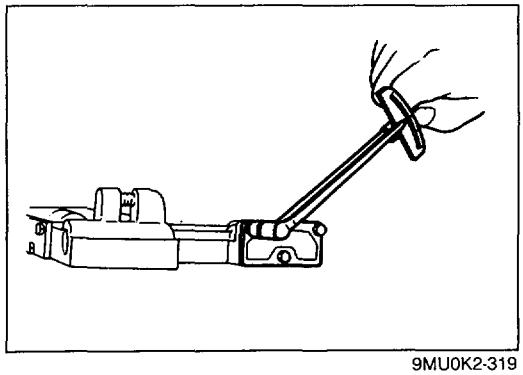
25U0KX-027



15U0KX-063

Assembly procedure

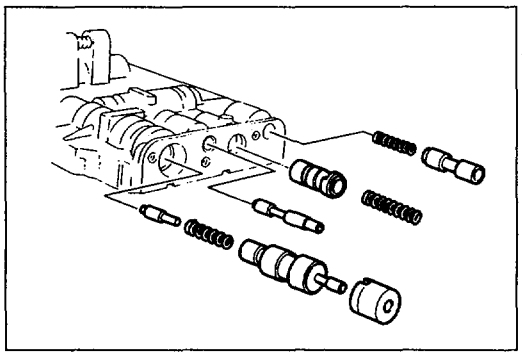
1. Insert the pressure regulator valve, spring, spring seat, plug, and sleeve into the lower valve body.
2. Insert the second lock valve and spring into the lower valve body.



9MU0K2-319

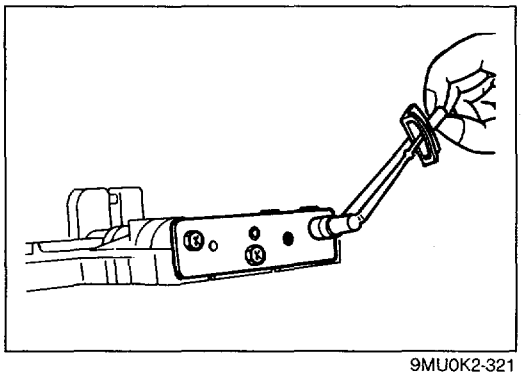
3. Install side plate D in position where it will not interfere with the set plate.
4. Tighten the installation bolts.

Tightening torque:
2.5—3.4 N·m (25—35 cm-kg, 22—30 in-lb)



05U0KX-146

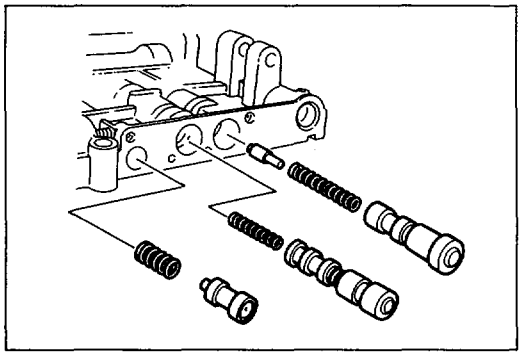
5. Insert the downshift spring and valve into the lower valve body.
6. Insert the throttle backup valve and spring into the lower valve body.
7. Insert the vacuum throttle valve into the lower valve body.
8. Insert the 3-4 shift plug, spring, valve, and sleeve into the lower valve body.
9. Install side plate B so that it will not contact the vacuum throttle valve.



9MU0K2-321

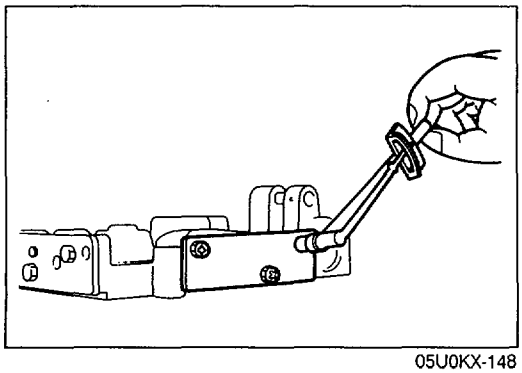
10. Tighten the installation bolts.

Tightening torque:
2.5—3.4 N·m (25—35 cm-kg, 22—30 in-lb)



05U0KX-147

11. Insert the pressure modifier spring and valve into the lower valve body.
12. Insert the 1-2 shift spring and valve into the lower valve body.
13. Insert the 2-3 shift plug, spring, and valve into the lower valve body.

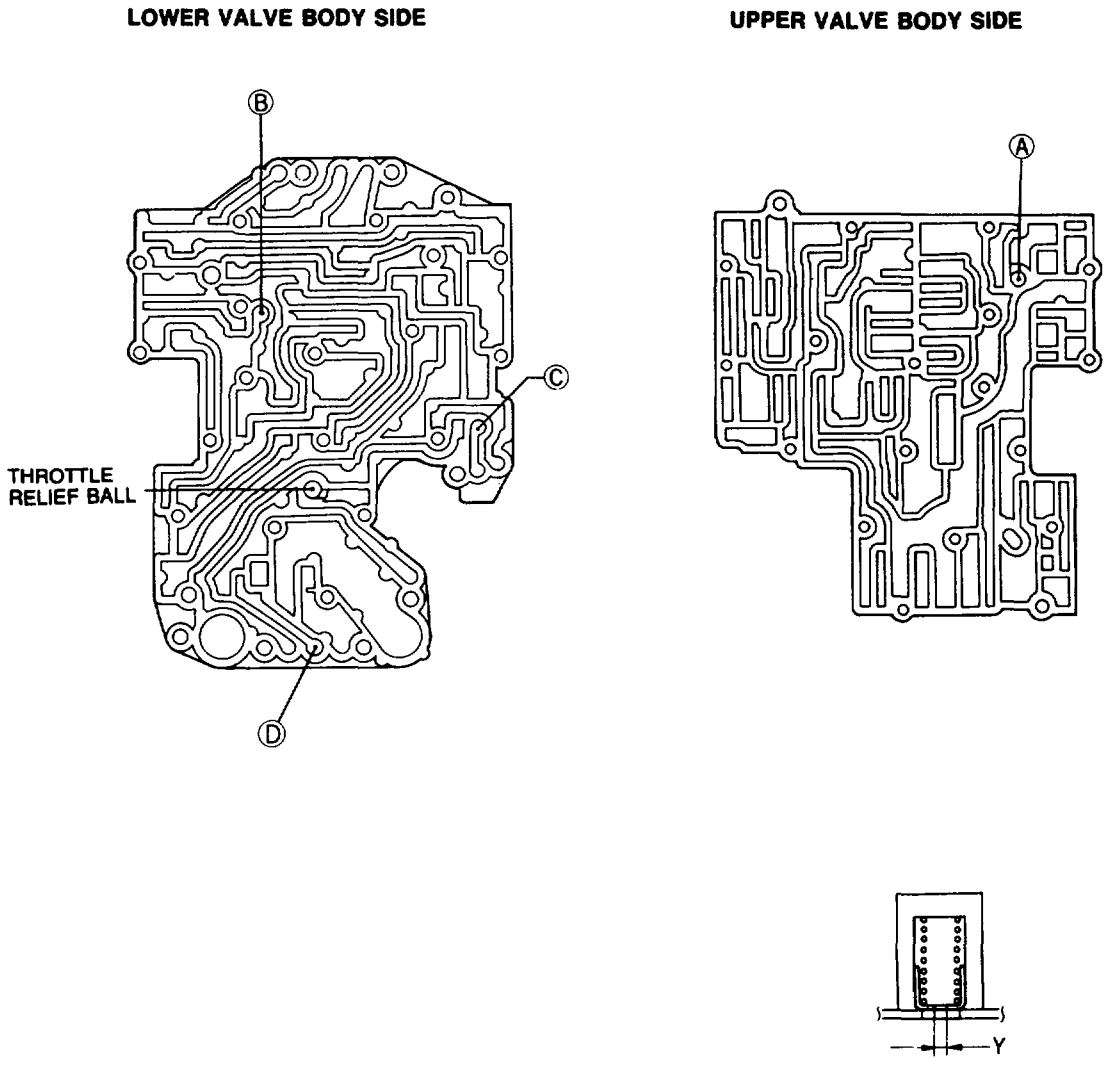


05U0KX-148

14. Install the separators and side plate A so that it will not interfere with the set plate.
15. Tighten the installation bolts.

Tightening torque:
2.5—3.4 N·m (25—35 cm-kg, 22—30 in-lb)

CONTROL VALVE BODY (ASSEMBLY)
Orifice check valve location

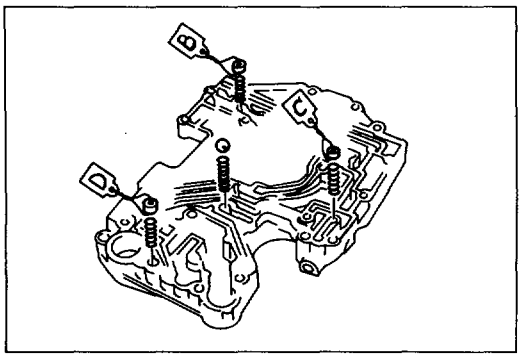


15U0KX-064

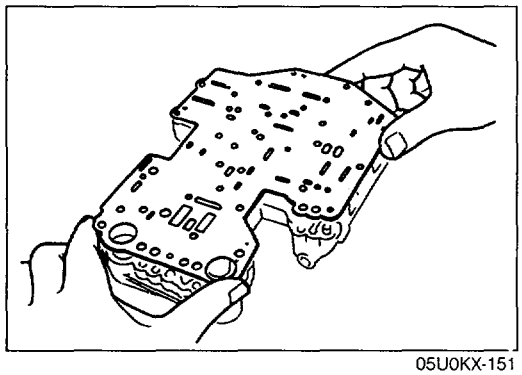
Orifice check valve specifications

		Y diameter mm (in)
Upper valve body side	Ⓐ	ϕ 2.0 (0.079)
Lower valve body side	Ⓑ	ϕ 1.5 (0.059)
	Ⓒ	ϕ 1.1 (0.043)
	Ⓓ	ϕ 1.8 (0.071)

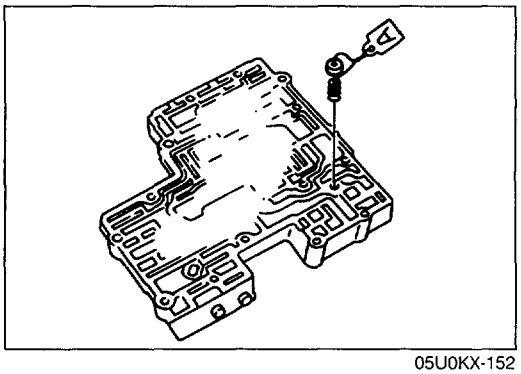
05U0KX-149



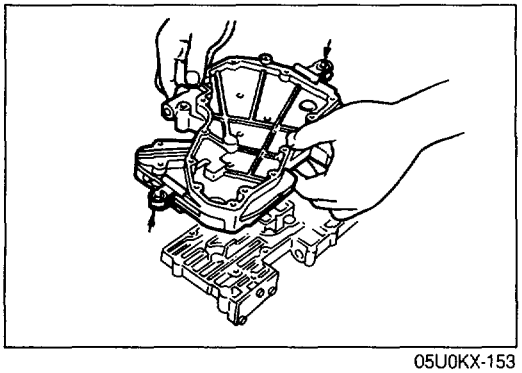
05U0KX-150



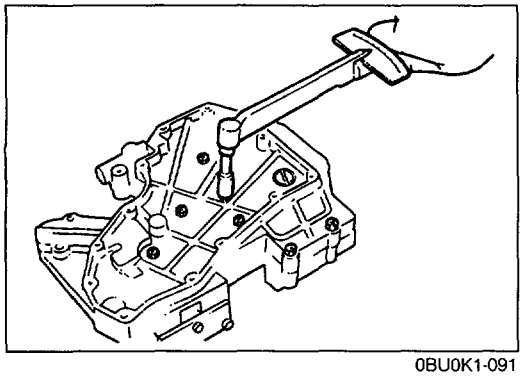
05U0KX-151



05U0KX-152



05U0KX-153



0BU0K1-091

Procedure

Note
- **Be sure the orifice check valve and throttle relief ball are properly inserted. (Refer to page K–106.)**

1. Install the orifice check valves and springs and the throttle relief ball and spring into the lower valve body.

2. Position the separator plate on the lower valve body. Align the plate and valve body, and hold them together with large clips.

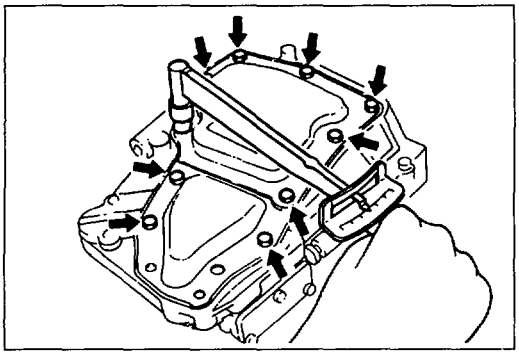
Note
- **Be sure the orifice check valve and throttle relief ball are properly inserted. (Refer to page K–106.)**

3. Install the orifice check valve and spring to the upper valve body.

4. Turn over the lower valve body and separator plate and set them onto the upper valve body.
5. Remove the holding clips.

6. Install and tighten the installation bolts.

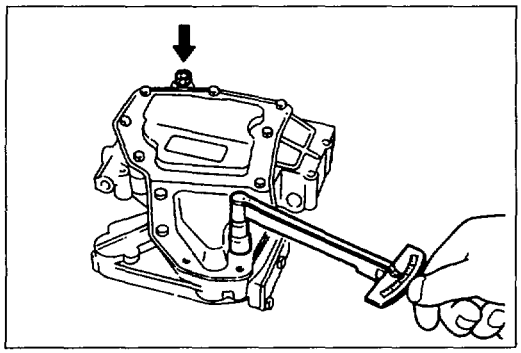
Tightening torque:
2.5—3.4 N·m (25—35 cm-kg, 22—30 in-lb)

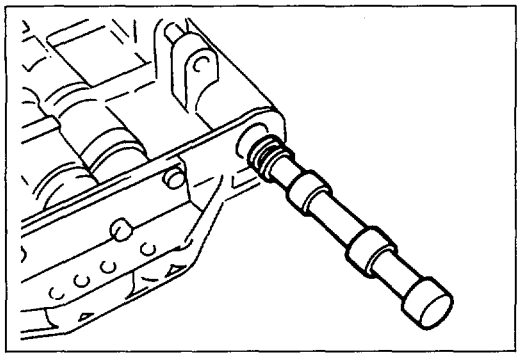


0BU0K1-092

7. Install the oil strainer.

Tightening torque
Bolt: 2.9—3.9 N·m (30—40 cm-kg, 26—35 in-lb)
Nut: 4.9—6.9 N·m (50—70 cm-kg, 43—61 in-lb)

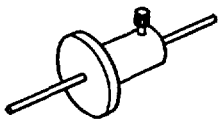




0BU0K1-093

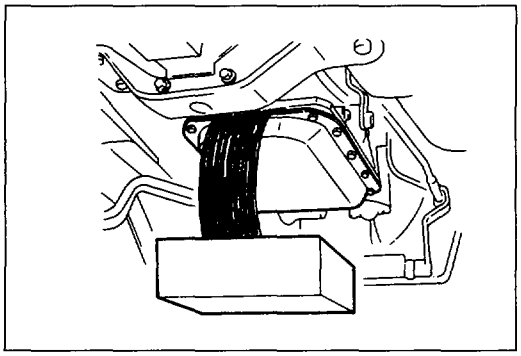
8. Insert the manual valve into the lower valve body.

VACUUM DIAPHRAGM
Preparation
SST

49 G032 355 Gauge, adjustment		For measurement of vacuum diaphragm valve rod

05U0KX-154

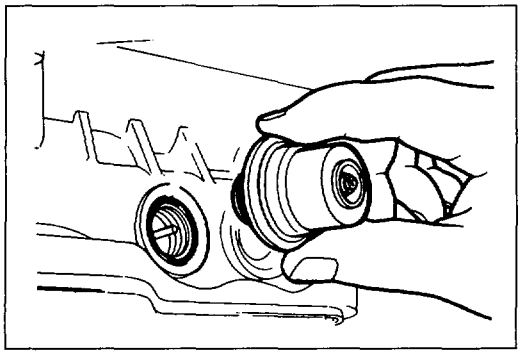
Note
- **Excessive shift shock and improper shifting often indicate a vacuum diaphragm malfunction.**



9MU0K2-347

On-vehicle Removal

1. Jack up the vehicle and support it with safety stands.
2. Loosen the oil pan mounting bolts, and drain **approx. 1.0 liter (1.1 US qt, 0.9 Imp qt)** of ATF.



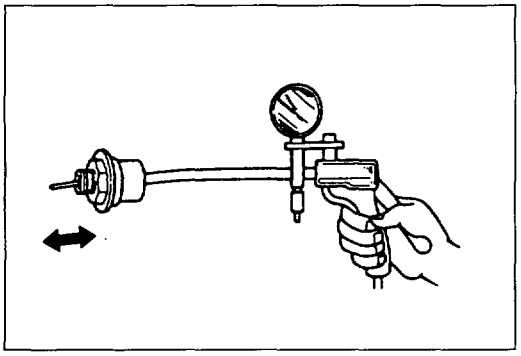
9MU0K2-348

3. Disconnect the vacuum hose.

Caution

- **When removing the vacuum diaphragm, do not drop the vacuum diaphragm rod into the oil pan.**

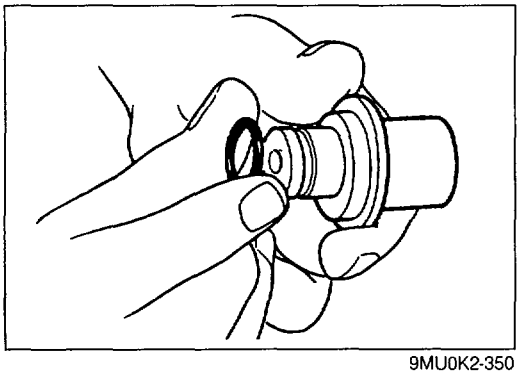
4. Remove the vacuum diaphragm, O-ring, and vacuum diaphragm rod.



05U0KX-155

Inspection

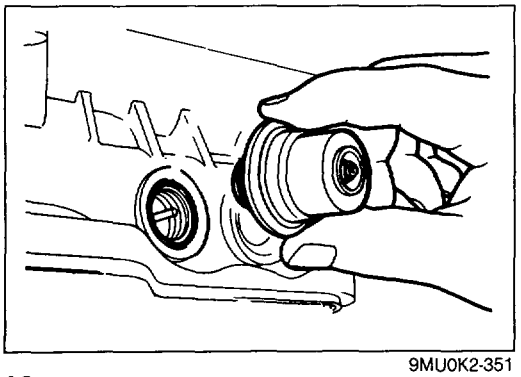
1. Verify that the vacuum diaphragm rod moves when vacuum is applied to the vacuum diaphragm.
2. If not correct, replace the vacuum diaphragm.



9MU0K2-350

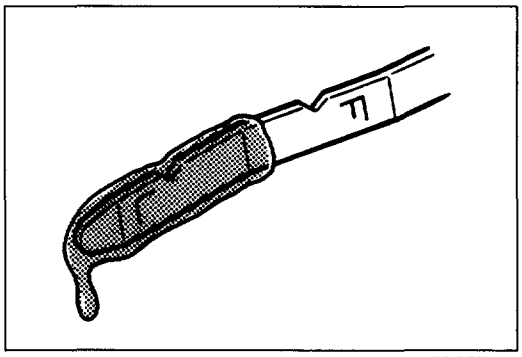
On-vehicle Installation

1. Apply ATF to a new O-ring, and install it onto the vacuum diaphragm.

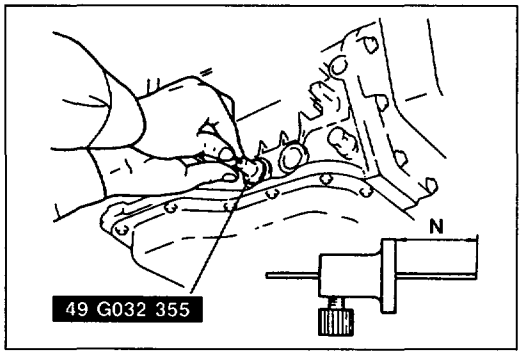


9MU0K2-351

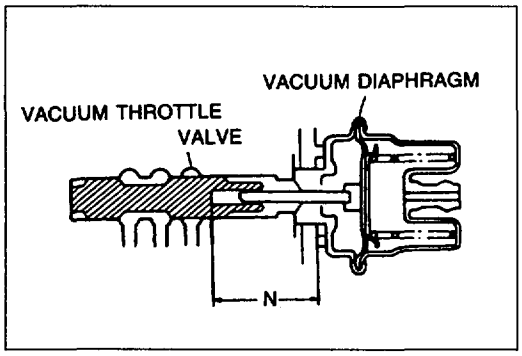
2. Apply ATF to the vacuum diaphragm rod and vacuum diaphragm, and install them into the transmission case.
3. Connect the vacuum hose.



15U0KX-117



15U0KX-065



05U0KX-158

4. Add **approx. 1.0 liter (1.1 US qt, 0.9 Imp qt)** of ATF and check the oil level. (Refer to page K–31.)
5. Warm up the ATF to normal operating temperature **(50—80°C, 122—176°F)**, then check for the following:
   (1) Fluid leakage.
   (2) Vacuum leakage.

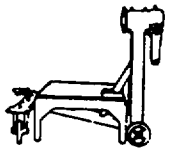
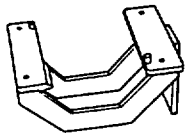
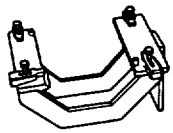
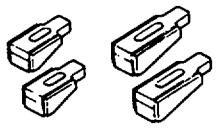
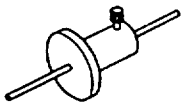
On-vehicle Adjustment

1. Remove the vacuum diaphragm, vacuum diaphragm rod, and O-ring from the transmission case. (Refer to "On-vehicle Removal", page K–110.)
2. Measure dimension N indicated in the figure with the **SST** and a scale.
3. Select the proper diaphragm rod from the table.

Dimension N	Applicable diaphragm rod
Below 25.65mm (1.0099 in)	29.0mm (1.14 in)
25.65—25.90mm (1.0099—1.0197 in)	29.5mm (1.16 in)
25.90—26.40mm (1.0197—1.0394 in)	29.75mm (1.17 in)
26.40—26.65mm (1.0394—1.0492 in)	30.0mm (1.18 in)
26.65—27.15mm (1.0492—1.0689 in)	30.5mm (1.20 in)
27.15mm (1.0689 in) or over	31.0mm (1.22 in)

4. Install the correct vacuum diaphragm rod, O-ring, and vacuum diaphragm.
   (Refer to "On-vehicle Installation", page K–110.)

TRANSMISSION (ASSEMBLY)
Preparation
SST

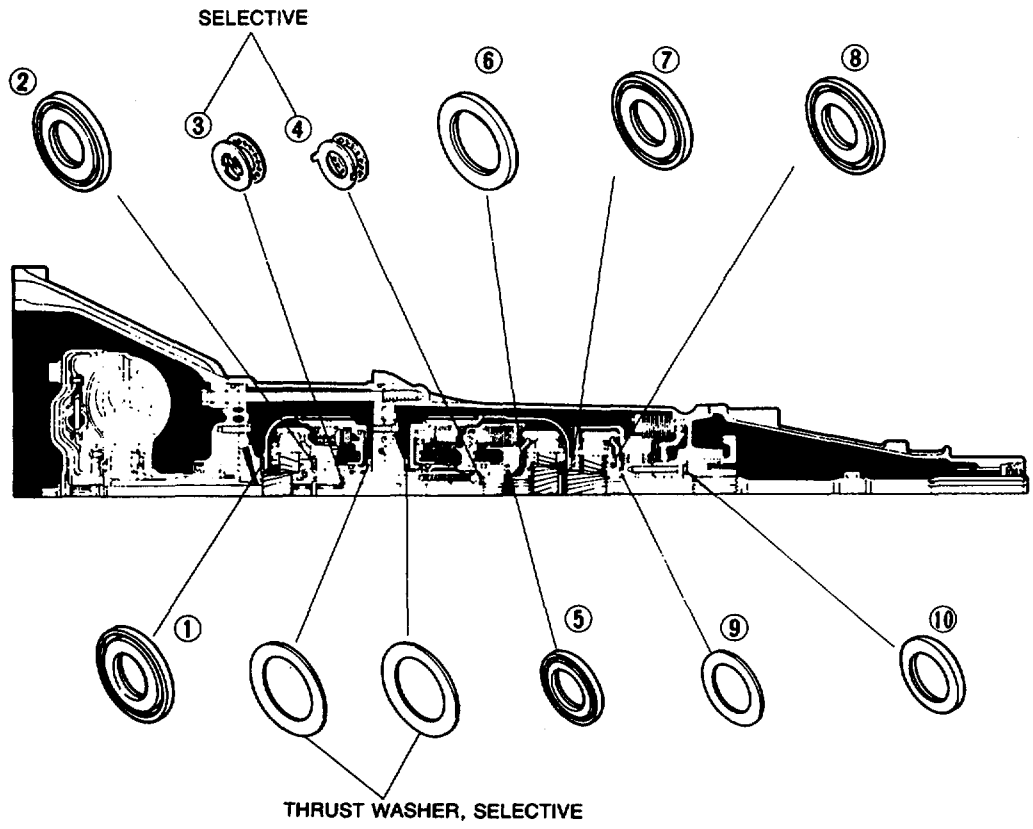
49 0107 680 A Stand, engine 	For assembly of transmission	49 H075 495B Body (Part of 49 U019 0A0A) 	For assembly of transmission
49 U019 0A0A Hanger, transmission 	For assembly of transmission	49 U019 003 Holder (Part of 49 U019 0A0A) 	For assembly of transmission
49 G032 355 Gauge, adjustment 	For measurement of vacuum diaphragm rod		

25U0KX-028

Precaution
1. If the drive plates or brake bands are replaced with new ones, soak the new parts in ATF for at least two hours before installation.
2. Before assembly, apply ATF to all seal rings, rotating parts, O-rings, D-rings, and sliding parts.
3. All O-rings, D-rings, seals, and gaskets must be replaced with the new ones supplied in the overhaul kit.
4. Use petroleum jelly, not grease, during reassembly.
5. When it is necessary to replace a bushing, replace the subassembly that includes that bushing.
6. Assemble the housing within 10 minutes after applying sealant, and allow it to cure at least 30 minutes after assembly before filing the transmission with ATF.

05U0KX-160

Thrust Washer, Bearing, and Race Location



9MU0K2-357

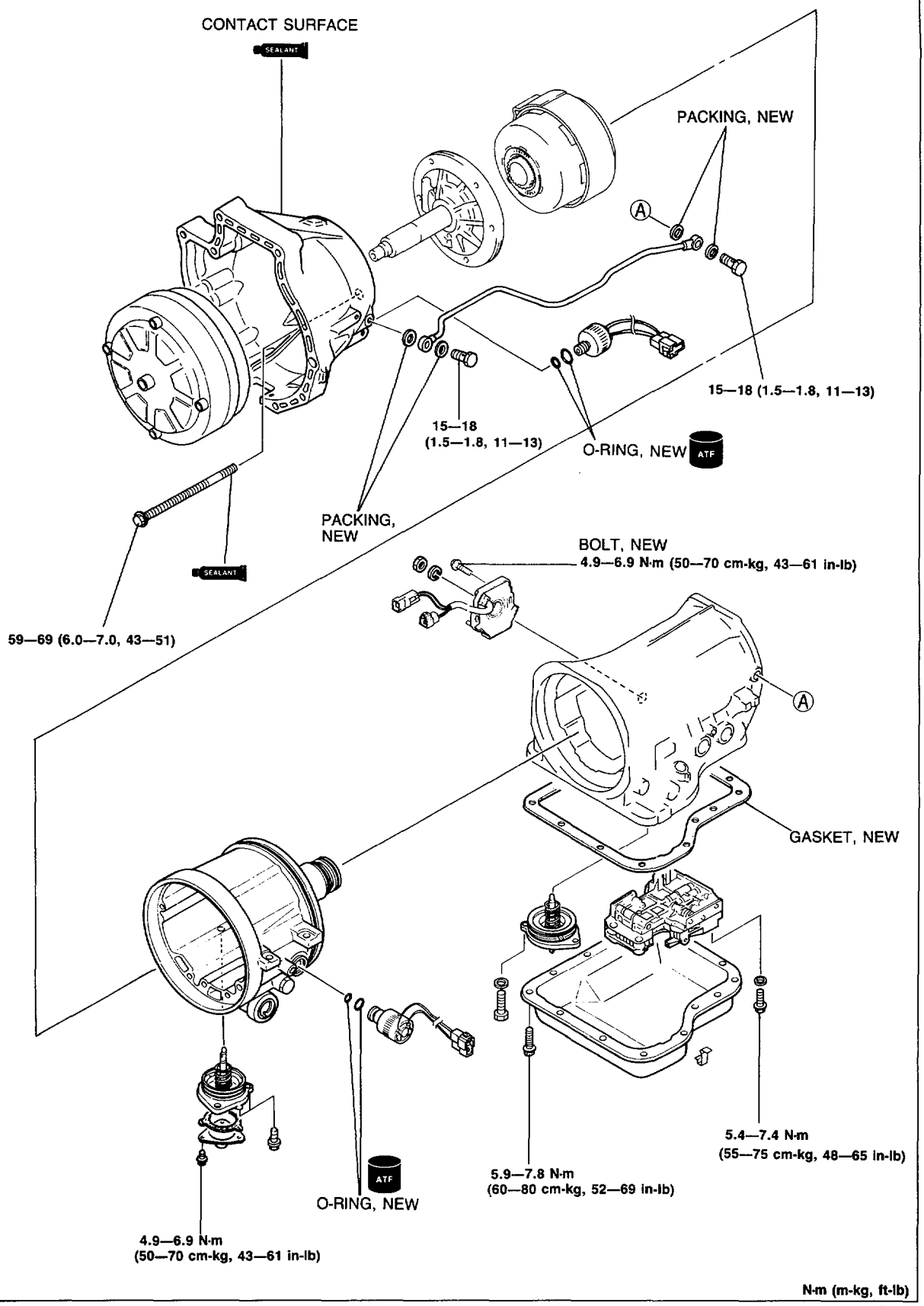
Outer diameter of bearing and race

		1	2	3	4	5	6
Bearing	mm (in)	70.0 (2.756)	70.0 (2.756)	35.0 (1.378)	35.0 (1.378)	53.0 (2.087)	70.0 (2.756)
Race	mm (in)	—	—	33.0 (1.299)	33.0 (1.299)	—	—

		7	8	9	10
Bearing	mm (in)	70.0 (2.756)	70.0 (2.756)	47.0 (1.850)	53.0 (2.087)
Race	mm (in)	—	—	—	—

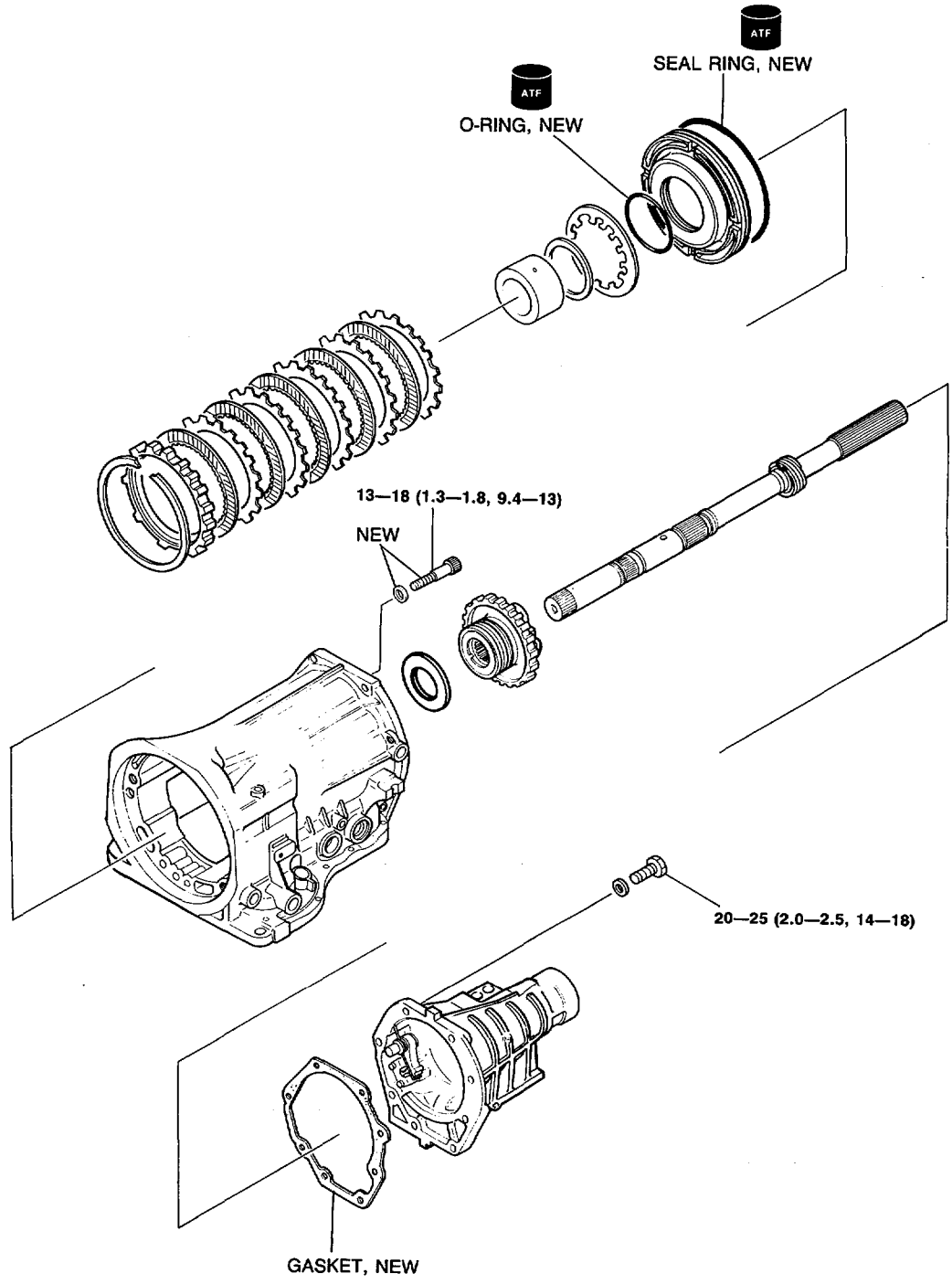
0BU0K1-096

Torque specifications

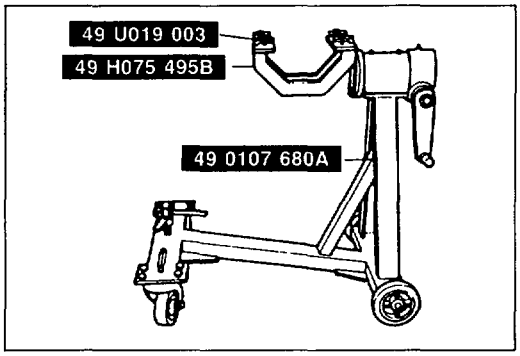


9MU0K2-359

Torque specifications (cont'd)



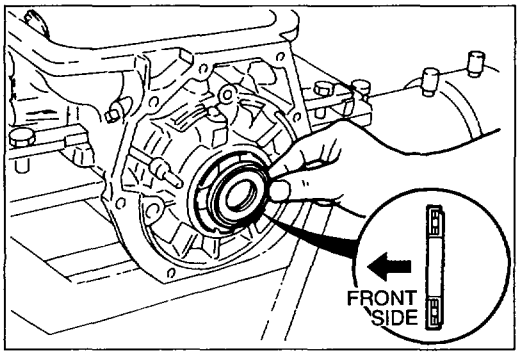
N·m (m-kg, ft-lb)



9MU0K2-360

Procedure

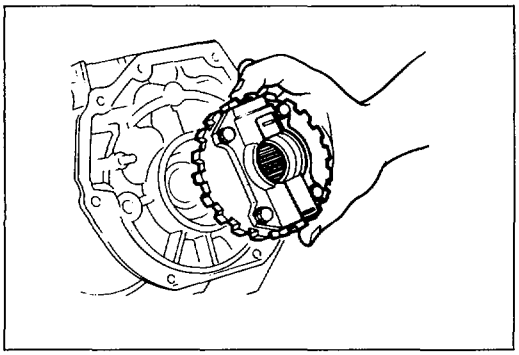
1. Assemble the **SST** as shown.
2. Mount the transmission case onto the **SST**.



15U0KX-066

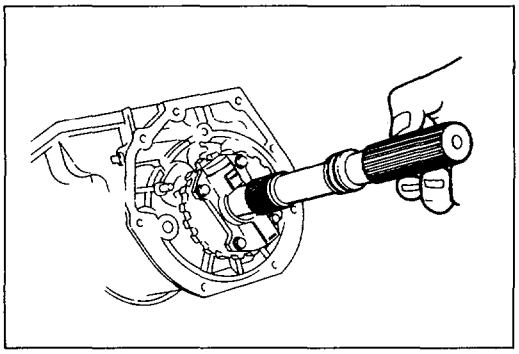
3. Apply petroleum jelly to the bearing, and install it into the rear of the transmission case as shown.

   Bearing outer diameter: 53.0mm (2.087 in)



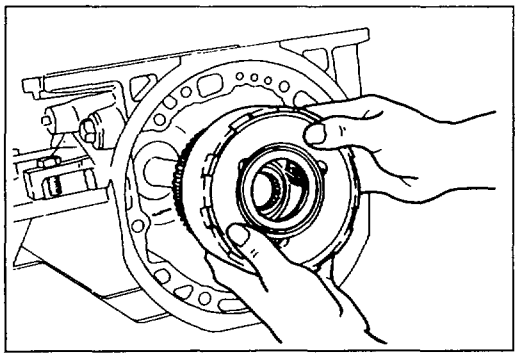
0BU0K1-098

4. Install the oil distributor in the transmission case.



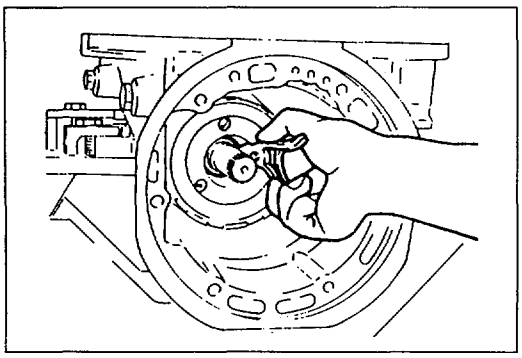
0BU0K1-099

5. Insert the output shaft.



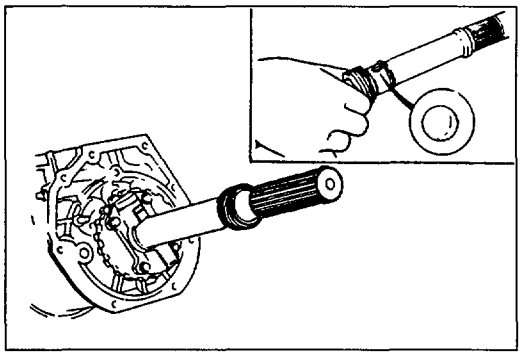
0BU0K1-100

6. Install the rear planetary gear unit (connecting drum, rear planetary pinion carrier and one-way clutch) in the low and reverse brake side.



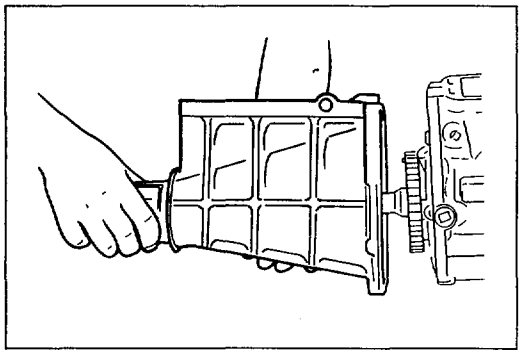
0BU0K1-101

7. Install a new snap ring onto the front of the output shaft.



05U0KX-162

8. Install the front snap ring, steel ball, and speedometer drive gear onto the rear of the output shaft.
9. Secure the speedometer drive gear with the rear snap ring.

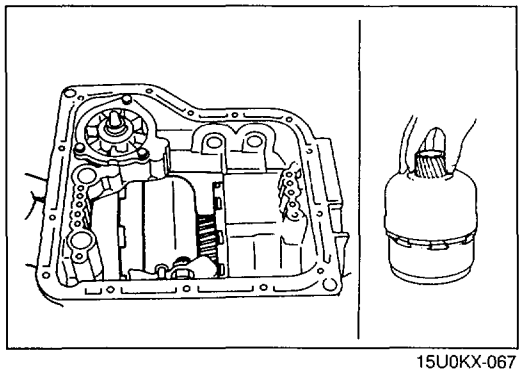


05U0KX-163

10. Install the extension housing along with a new gasket.

Tightening torque:
20—25 N·m (2.0—2.5 m-kg, 14—18 ft-lb)

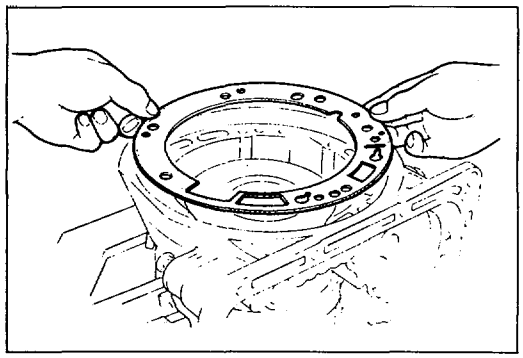
11. Verify that the output shaft is locked with the manual lever in P range.



15U0KX-067

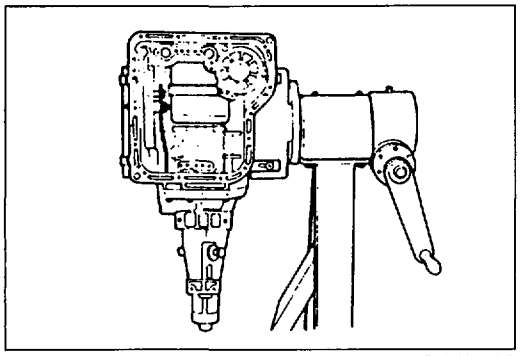
Caution
- **Be very careful to avoid incorrect assembly of the many similar bearings and races.**
(Refer to page K–113.)

12. Install the front clutch, rear clutch, rear clutch hub, front planetary carrier, connecting shell, internal gear, sun gear, bearing, and bearing races as a unit into the transmission case.



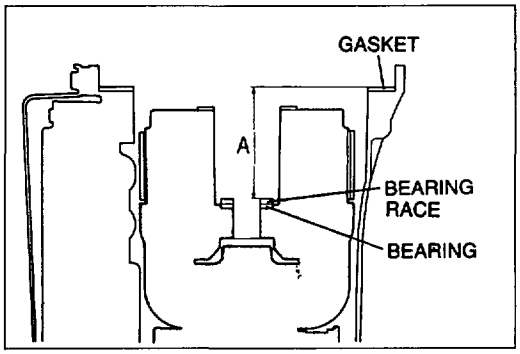
0BU0K1-105

13. Set a new gasket into the front of the case.

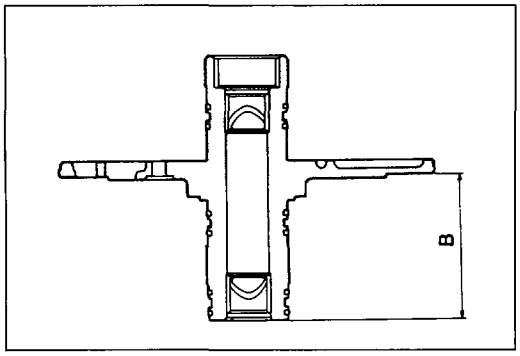


0BU0K1-106

14. Check and adjust the rear clutch total end play.
    (1) Position the front of the transmission case upward.
    (2) Set the drum support bearing and race on the rear clutch.



05U0KX-165



(3) Measure distances A and B with a straightedge and vernier calipers.
(4) Calculate the total end play using the formula below.

Formula: T = A—B—0.1mm (0.004 in)

T : Total end play
A : The distance between the drum support mounting surface (including the drum support gasket) and the drum support bearing race surface on the rear clutch assembly.
B : The distance between the drum support bearing race contact surface and the drum support gasket contact surface.
0.1: The compression amount of a new gasket.

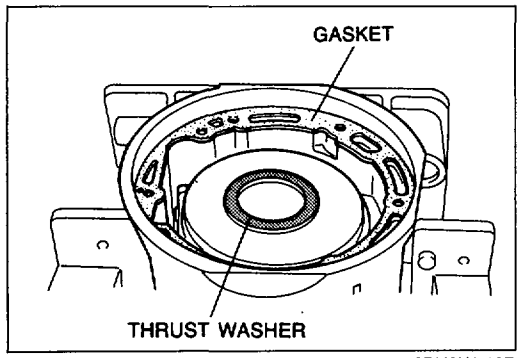
Total end play: 0.25—0.50mm (0.0098—0.0197 in)

(5) Adjust the total end play by selecting the proper bearing race.

Bearing race sizes

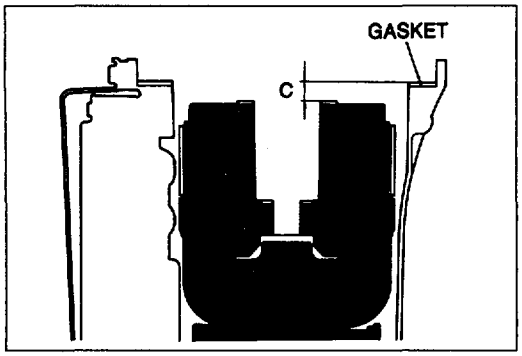
mm (in)

1.2 (0.047)	1.4 (0.055)	1.6 (0.063)
1.8 (0.071)	2.0 (0.079)	2.2 (0.087)

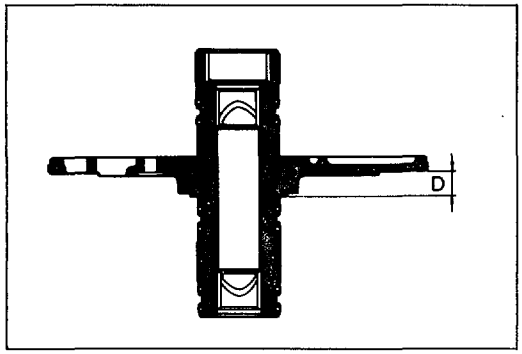


0BU0K1-107

15. Check and adjust the front clutch end play.
    (1) Set the bearing race and bearing in position.



0BU0K1-108



(2) Measure distances C and D with a straight edge and vernier calipers.
(3) Calculate the front clutch end play by using the formula below.

Formula: T = C—D—0.1mm (0.004 in)

T : Front clutch end play
C : The distance between the drum support mounting surface (including the drum support gasket) of the transmission case and the bearing surface on the front clutch assembly.
D : The distance between the sliding surface of the bearing and the drum support gasket contact surface.
0.1: The compression amount of a new gasket.

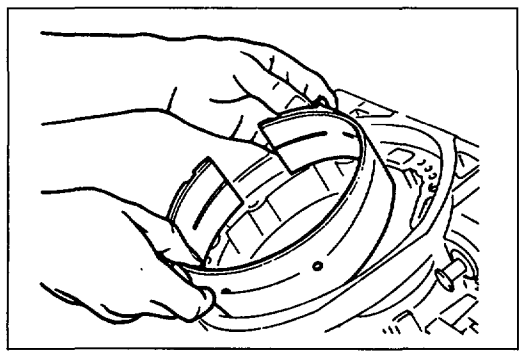
Front clutch end play: 0.5—0.8mm (0.020—0.031 in)

(4) Adjust the front clutch end play by selecting the proper thrust washer.

Thrust washer sizes

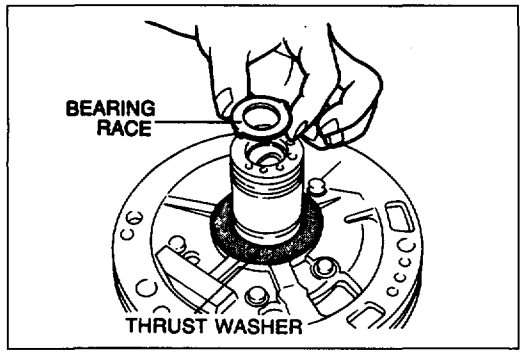
mm (in)

1.3 (0.051)	1.5 (0.059)	1.7 (0.067)
1.9 (0.075)	2.1 (0.083)	2.3 (0.091)
2.5 (0.098)	2.7 (0.106)	



0BU0K1-109

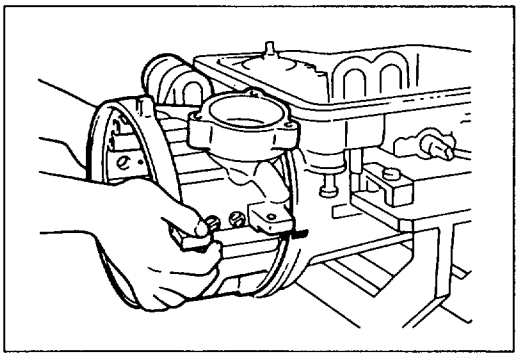
16. Set the 2nd brake band and strut in position.
17. Tighten the piston stem lightly.



0BU0K1-110

18. Apply petroleum jelly to the bearing race and thrust washer, and install them as shown.

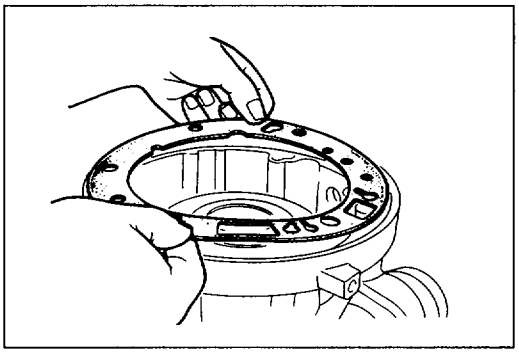
Bearing race and thrust washer outer diameters
Bearing race: 33.0mm (1.299 in)
Thrust washer: 66.0mm (2.598 in)



05U0KX-166

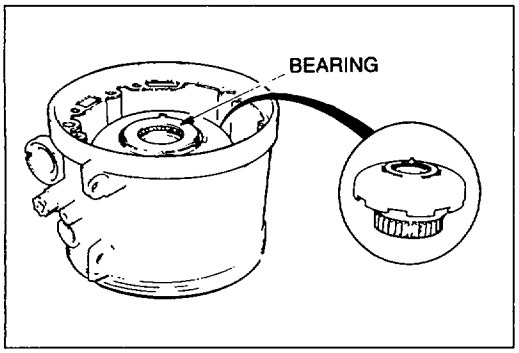
Note
- **Align the marks of the transmission case and OD case. Tap lightly with a plastic hammer to avoid damaging the seal rings when installing.**
- **Install two bolts for alignment.**

19. Check that the bearing race is atop the front clutch and that the bearing is at the bottom of the front clutch hole, then mount the OD case.



0BU0K1-112

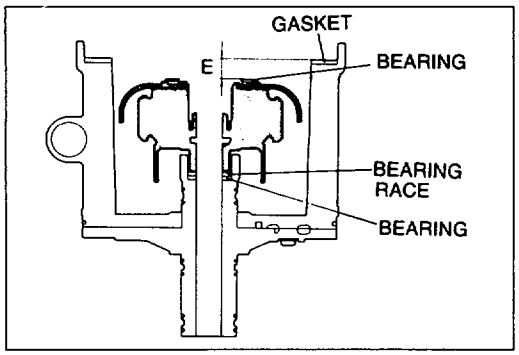
20. Set a new gasket in place.



05U0KX-167

Note
- **Do not install the direct clutch drum at this time.**

21. Check and adjust the OD planetary gear unit total end play.
    (1) Position the OD case upright.
    (2) Install the bearing and race on the OD case.
    (3) Install the planetary carrier, sun gear, connecting shell, and bearing as a unit in the OD case.

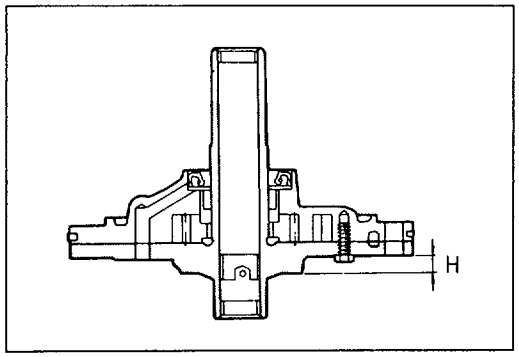


05U0KX-168

Note
- **Install the black surface toward the oil pump cover side.**

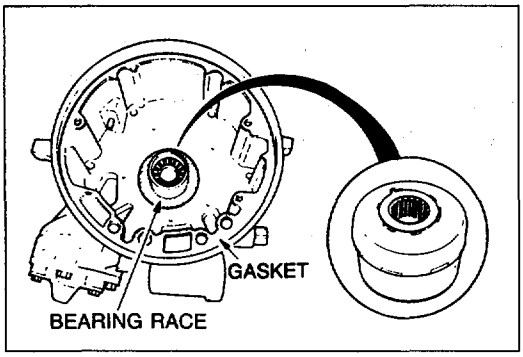
    (4) Measure distances E and H with a straightedge and vernier calipers.
    (5) Calculate the OD gear train total end play using the formula below.

Formula: T = E—H—0.1mm (0.004 in)

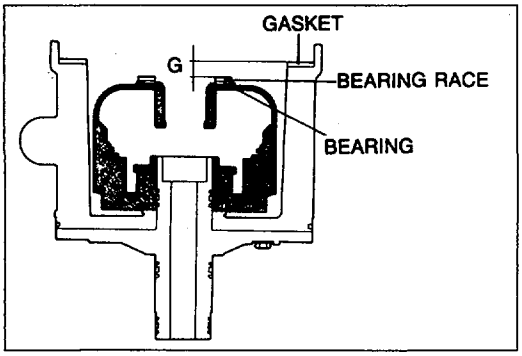


T : Total end play
E : The distance between the oil pump mounting surface (including the oil pump gasket) and the connecting shell bearing surface.
H : The distance between the oil pump side connecting shell bearing contact surface and the oil pump gasket contact surface.
0.1: The compression amount of a new gasket.

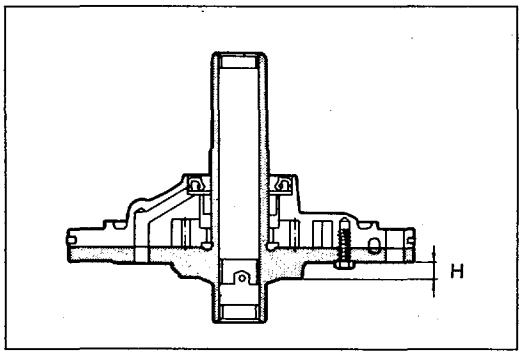
Total end play: 0.25—0.50mm (0.0098—0.0197 in)



9MU0K2-380



0BU0K1-114



25U0KX-029

(6) Adjust the total end play by selecting the proper bearing race.

Bearing race sizes

mm (in)

1.2 (0.047)	1.4 (0.055)	1.6 (0.063)
1.8 (0.071)	2.0 (0.079)	2.2 (0.087)

Note
- **Do not install the planetary pinion carrier at this time.**

22. Check and adjust the direct clutch end play.
(1) Install the bearing race in the OD case.
(2) Install the direct clutch, sun gear, connecting shell, and bearings in the OD case.

(3) Measure distances G and H with a straightedge and vernier calipers.
(4) Calculate the direct clutch end play using the formula below.

Formula: T = G—H—0.1mm (0.004 in)

T : Total end play
G : The distance between the oil pump mounting surface (including the oil pump gasket) and the connecting shell bearing surface.
H : The distance between the oil pump side connecting shell bearing contact surface and the oil pump gasket contact surface.
0.1: The compression amount of a new gasket.

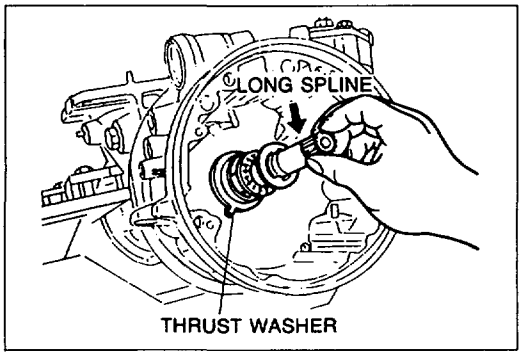
Total end play: 0.5—0.8mm (0.020—0.032 in)

(5) Adjust the direct clutch end play by selecting the proper thrust washer.

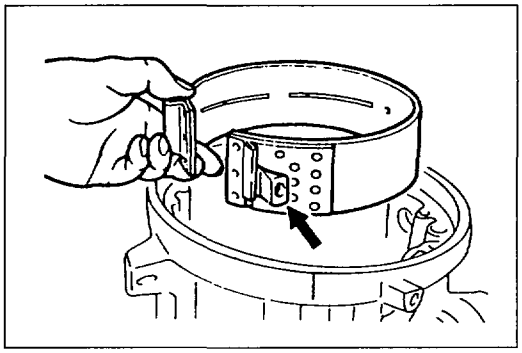
Thrust washer sizes

mm (in)

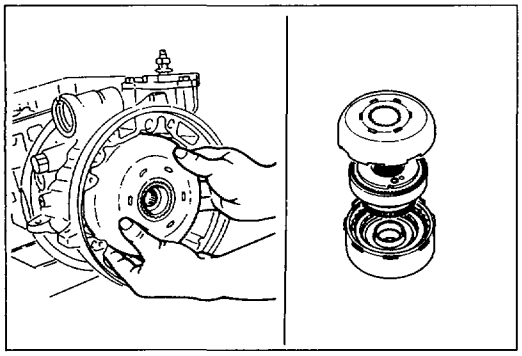
1.3 (0.051)	1.5 (0.059)	1.7 (0.067)
1.9 (0.075)	2.1 (0.083)	2.3 (0.091)
2.5 (0.098)	2.7 (0.106)	



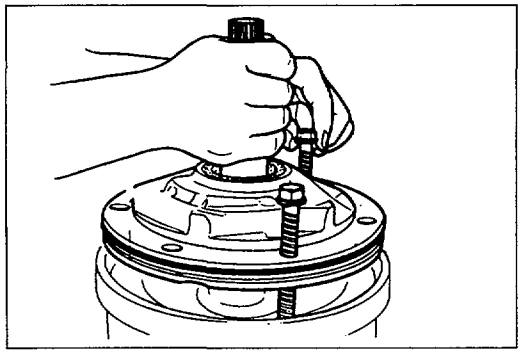
25U0KX-030



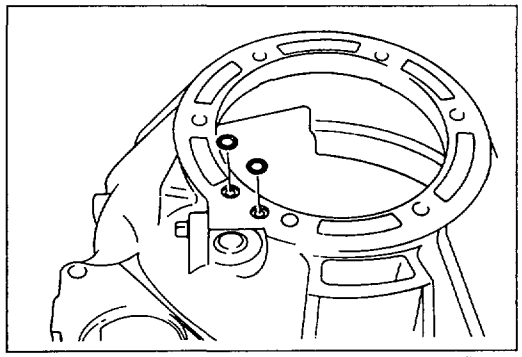
0BU0K1-117



15U0KX-068



15U0KX-069



15U0KX-070

Caution
- **The end with the long spline is the front.**

Long spline: 23.0mm (0.906 in)
Short spline: 18.6mm (0.732 in)

23. Insert the intermediate shaft.
24. Apply petroleum jelly to the thrust washer and install it into the OD case.
25. Apply petroleum jelly to the small bearing and small bearing race, and install them as shown.

Bearing outer diameter: 35.0mm (1.318 in)
Bearing race outer diameter: 33.0mm (1.299 in)

26. Install the OD brake band and band strut.

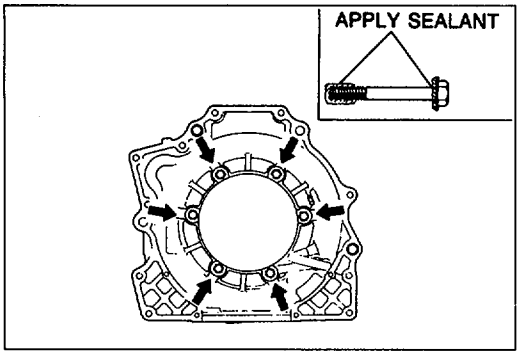
27. Install the direct clutch assembly.
28. Apply petroleum jelly to the bearing and install it onto the OD connecting shell with the black surface facing upward.

Bearing outer diameter: 70.0mm (2.756 in)

Caution
- **Do not damage the seal rings or O-ring.**
- **Do not use a hammer, plastic or otherwise, to install the oil pump.**

29. Install the oil pump assembly into the transmission case using two converter housing bolts as guides.

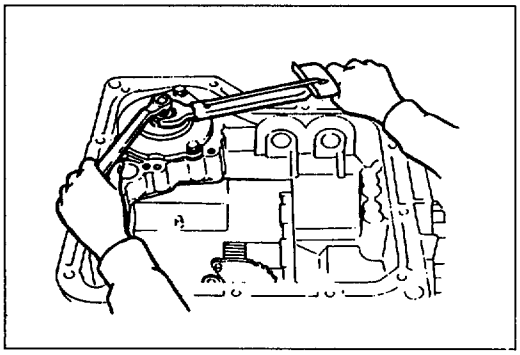
30. Coat the contact surfaces of the converter housing and transmission case with sealant.
31. Install new O-rings.



15U0KX-071

32. Remove the converter housing bolts used as guides. Apply sealant to all of the bolts.
33. Install the converter housing onto the transmission case, and tighten bolts evenly in a crisscross pattern.

Tightening torque:
59—69 N·m (6.0—7.0 m-kg, 43—51 ft-lb)


15U0KX-072

34. Apply ATF to the piston stem.
35. Adjust the 2nd brake band.
    (1) Loosen the locknut and tighten the piston stem.

Tightening torque:
12—15 N·m (1.2—1.5 m-kg, 8.7—11 ft-lb)

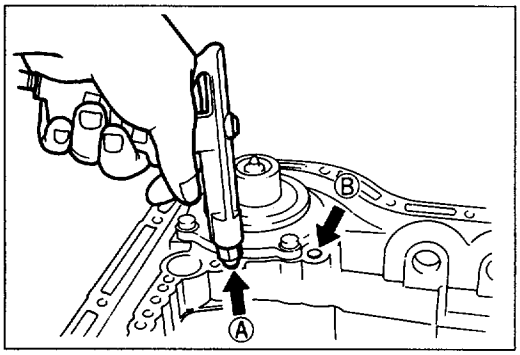
    (2) Loosen the stem the number of turns shown below.

Stem: 3 turns

    (3) Hold the stem and tighten the locknut.

Tightening torque:
15—39 N·m (1.5—4.0 m-kg, 11—29 ft-lb)

Caution
- **Apply air for no more than three (3) seconds.**

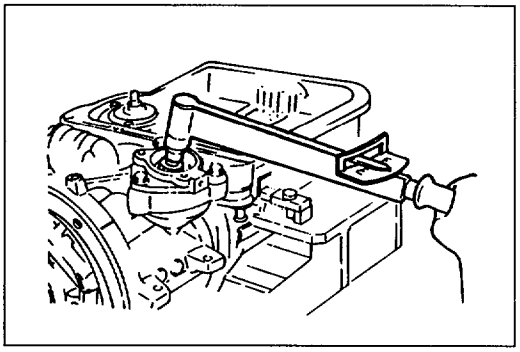


15U0KX-073

36. Check the servo piston operation by applying compressed air through the oil passages of the 2nd band servo.

Ⓐ: Engage
Ⓑ: Release

Air pressure: 392 kPa (4.0 kg/cm^2, 57 psi) max.


15U0KX-074

37. Apply ATF to the piston stem.
    Adjust the OD brake band.
    (1) Loosen the locknut and tighten the piston stem.

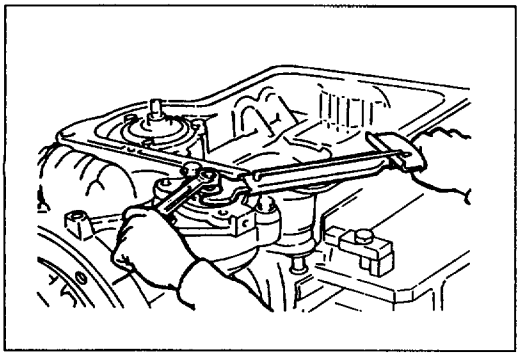
Tightening torque:
6.9—9.8 N·m (70—100 cm-kg, 61—87 in-lb)

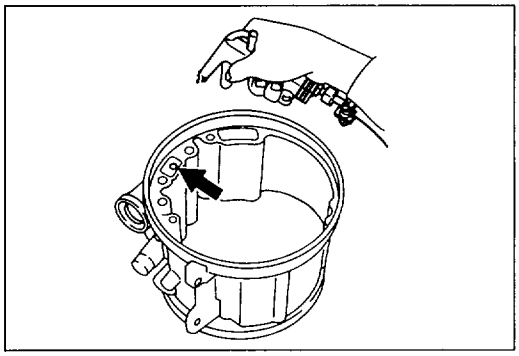
    (2) Loosen the stem the number of turns shown below.

Stem: 2 turns

    (3) Hold the stem and tighten the locknut.

Tightening torque:
15—39 N·m (1.5—4.0 m-kg, 11—29 ft-lb)


9MU0K2-392

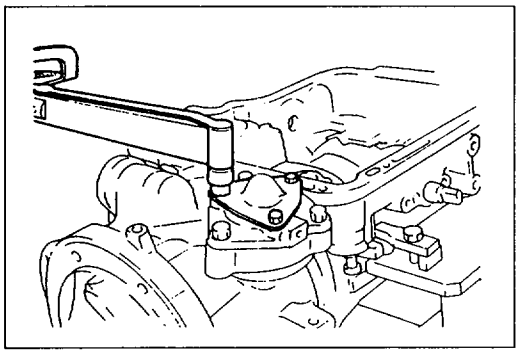


15U0KX-075

Caution
- **Apply air for no more than three (3) seconds.**

38. Check the servo piston operation by applying compressed air through the oil passage of the OD band servo.

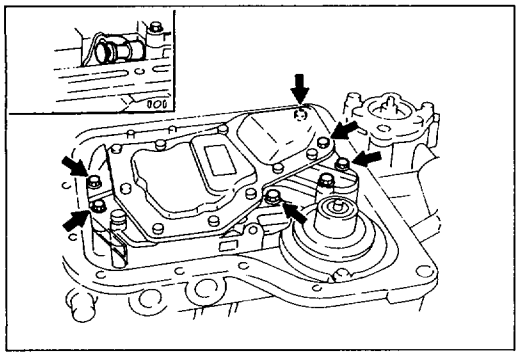
Air pressure: 392 kPa (4.0 kg/cm^2, 57 psi) max.



15U0KX-076

39. Set a new gasket on the OD band servo.
40. Install the OD band servo cover.

Tightening torque:
4.9—6.9 N·m (50—70 cm-kg, 43—61 in-lb)

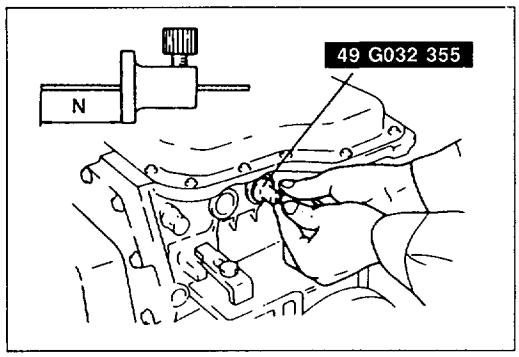


15U0KX-077

Note
- **Be careful to place the manual plate in the correct position of the manual valve.**

41. Set the valve body assembly in position.
42. Install the bolts.

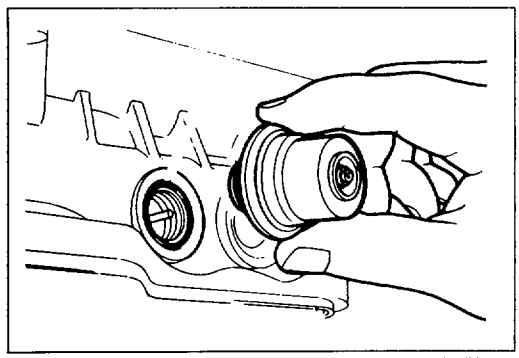
Tightening torque:
5.4—7.4 N·m (55—75 cm-kg, 48—65 in-lb)



15U0KX-078

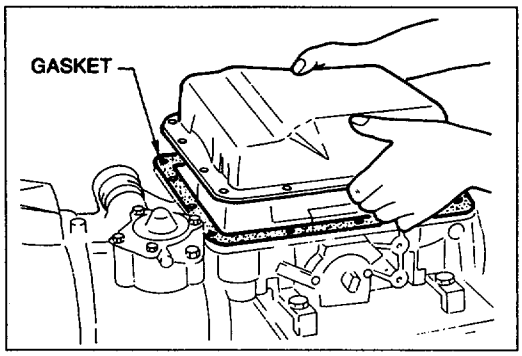
43. Apply ATF to a new O-ring and install it onto the vacuum diaphragm.
44. Select the diaphragm rod.
    (1) Measure dimension N with the **SST** and a scale.
    (2) Select the proper diaphragm rod in accordance with the table below.

Dimension N	Applicable diaphragm rod
Below 25.65mm (1.0099 in)	29.0mm (1.14 in)
25.65—25.90mm (1.0099—1.0197 in)	29.5mm (1.16 in)
25.90—26.40mm (1.0197—1.0394 in)	29.75mm (1.17 in)
26.40—26.65mm (1.0394—1.0492 in)	30.0mm (1.18 in)
26.65—27.15mm (1.0492—1.0689 in)	30.5mm (1.20 in)
27.15mm (1.0689 in) or over	31.0mm (1.22 in)



15U0KX-079

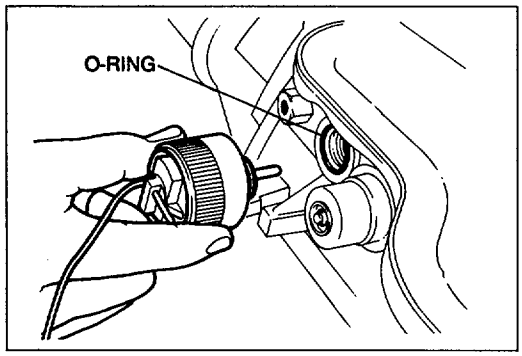
45. Apply ATF to the new O-rings, and install them to the vacuum diaphragm; then install the vacuum diaphragm into the transmission case.



15U0KX-080

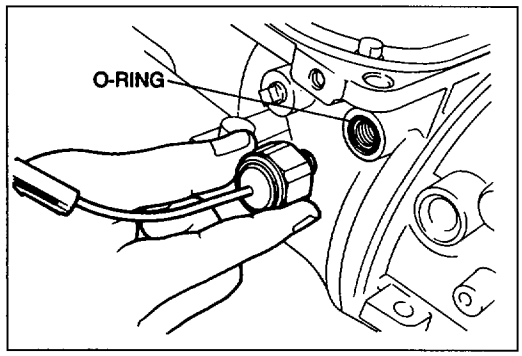
46. Install the oil pan along with a new gasket.
47. Install the bracket and the pan mounting bolts.

Tightening torque:
5.9—7.8 N·m (60—80 cm-kg, 52—69 in-lb)



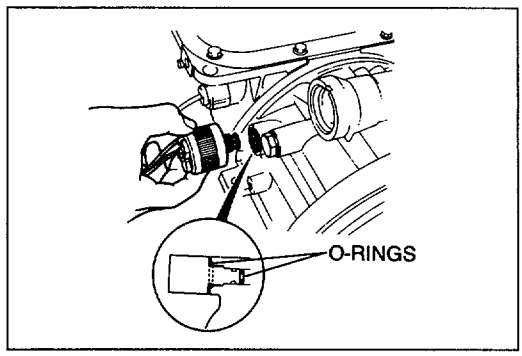
15U0KX-081

48. Apply ATF to a new O-ring and install it into the transmission case.
49. Install the downshift solenoid.



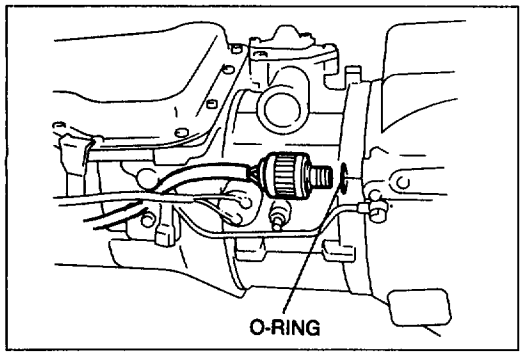
15U0KX-082

50. Apply ATF to a new O-ring and install it into the transmission case.
51. Install the transmission oil pressure switch.



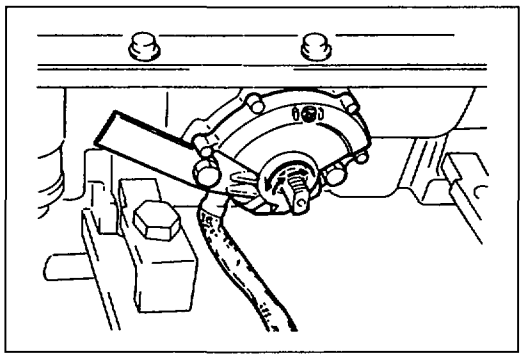
15U0KX-083

52. Apply ATF to the new O-rings and install them into the transmission case.
53. Install the OD cancel solenoid.

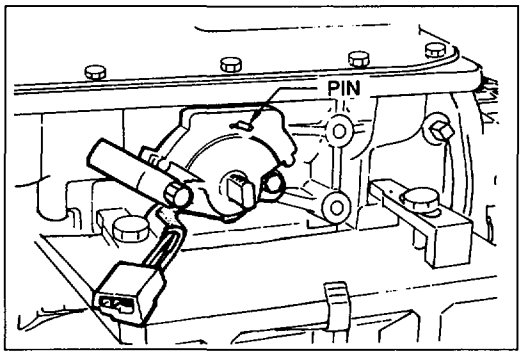


15U0KX-084

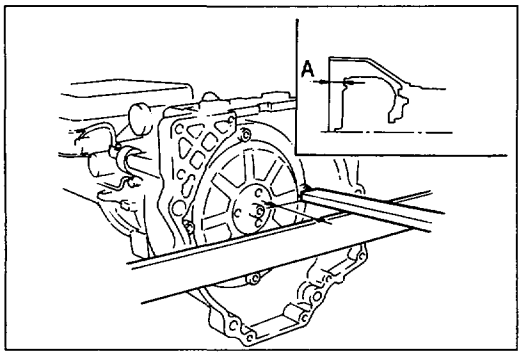
54. Apply ATF to the new O-ring and install them into the transmission case.
55. Install the lockup solenoid.



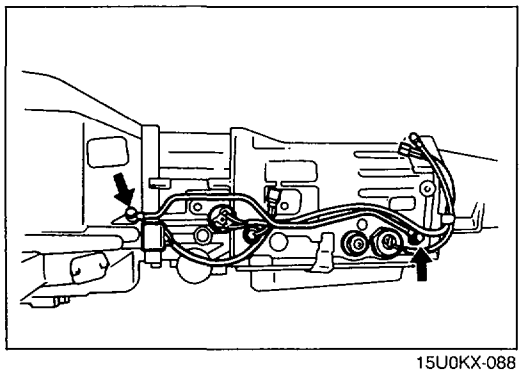
25U0KX-031



15U0KX-086



15U0KX-087



15U0KX-088

56. Rotate the manual shaft fully reward, then return it two (2) notches to the N position.
57. Loosely tighten the new inhibitor switch bolts.
58. Remove the screw on the switch body and move the inhibitor switch so that the screw hole on the switch body is aligned with the small hole inside the switch. Check their alignment by inserting a **2.0mm (0.0079 in)** diameter pin into the holes.
59. Tighten the switch attaching bolts.

    Tightening torque:
    4.9—6.9 N·m (50—70 cm-kg, 43—61 in-lb)

60. Remove the pin, and tighten the screw into the hole.

61. Ensure that the torque converter is installed correctly by measuring distance (A) between the end of the torque converter and the end of the converter housing.

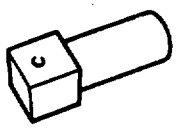
    "A": 22.5mm (0.89 in) min.

62. Remove the transmission from the engine stand.

63. Install the governor pressure pipe.

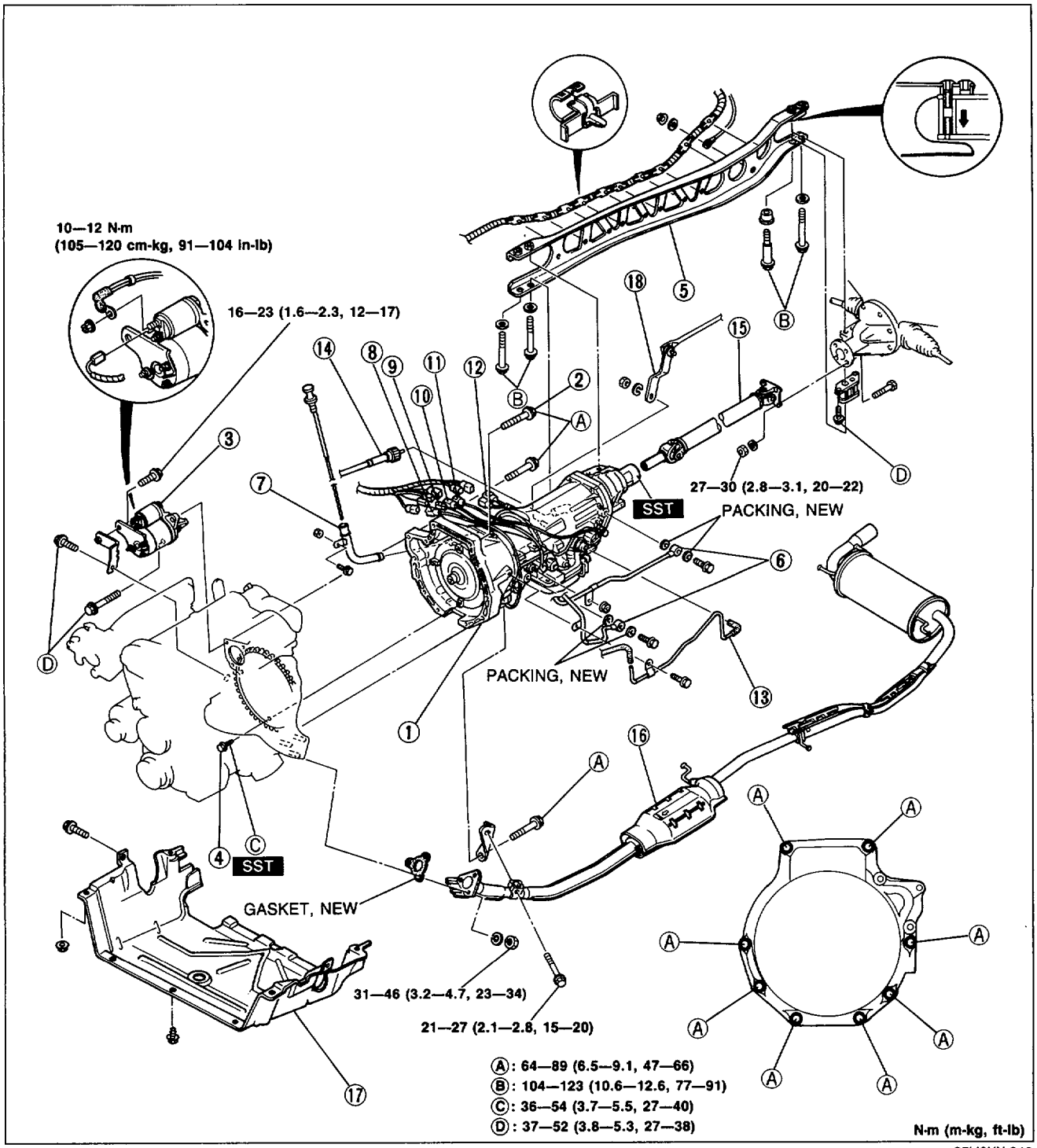
    Tightening torque:
    15—18 N·m (1.5—1.8 m-kg, 11—13 ft-lb)

TRANSMISSION (INSTALLATION)
Preparation
SST

49 0259 440 Holder, mainshaft		For prevention of oil leakage	49 0877 435 Wrench	For installation of torque converter bolts

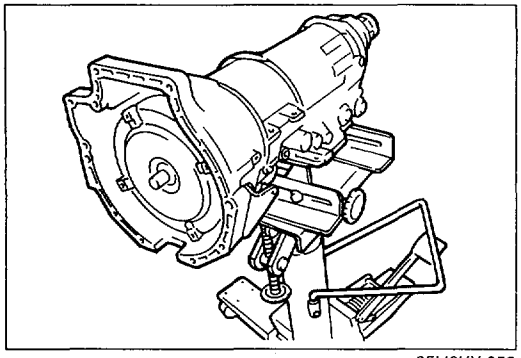
25U0KX-032

1. Raise the vehicle and support it with safety stands.
2. Install in the order shown in figure, refferring to **Installation Note**.
3. Fill the transmission with the specified amount and type of the ATF after installation.
4. Warm up the engine, and inspect for oil leakage and transmission operation.

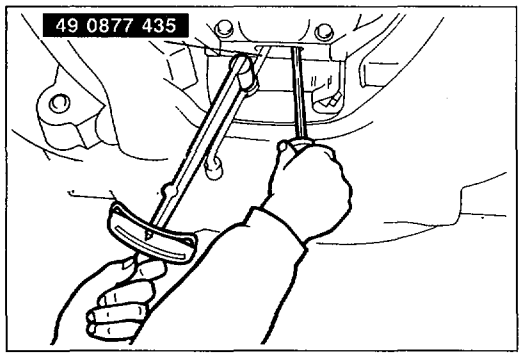


25U0KX-040

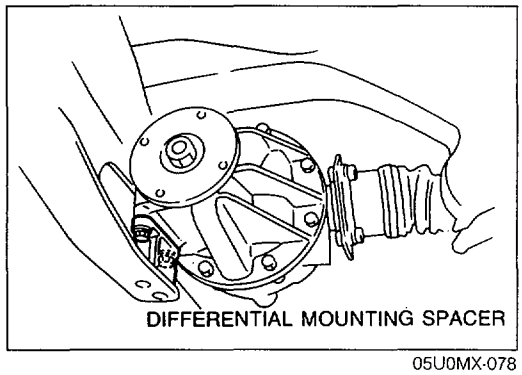
1. Transmission
   Installation Note..... page K–129
2. Transmission mount bolt
3. Starter
4. Torque converter bolt
   Installation Note..... page K–129
5. Power plant frame (PPF)
   Installation Note..... page K–129
6. Oil cooler pipe
7. Level gauge pipe
8. Lockup solenoid connector
9. Oil pressure switch connector
10. OD cancel solenoid connector
11. Kickdown solenoid connector
12. Inhibitor switch connector
13. Vacuum hose
14. Speedometer cable
15. Propeller shaft
    Installation Note..... page K–130
16. Exhaust pipe
17. Undercover
18. Shift rod



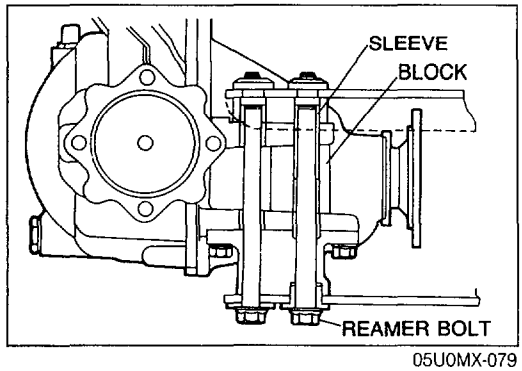
05U0KX-053



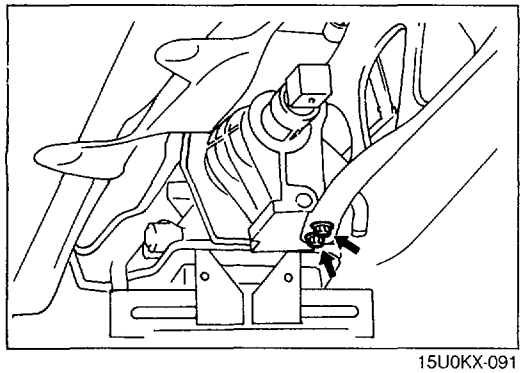
05U0KX-217



05U0MX-078



05U0MX-079



15U0KX-091

Installation note
Transmission

Caution
- **Do not allow the transmission to lean toward the torque converter side.**

1. Install the transmission.

Torque converter bolt
1. Hold the drive plate with a screw driver.
2. Tighten the bolts with the **SST**.

Tightening torque:
36—54 N·m (3.7—5.5 m-kg, 27—40 ft-lb)

Caution
- **When tightening the bolts with the SST, tighten them to the minimum specified tightening torque.**

Power plant frame (PPF)
1. Install the differential mounting spacer.

Tightening torque:
37—52 N·m (3.8—5.3 m-kg, 27—38 ft-lb)

2. Support the transmission with a jack so that it is level.
3. Position the PPF and snugly tighten the transmission-side bolts by hand.

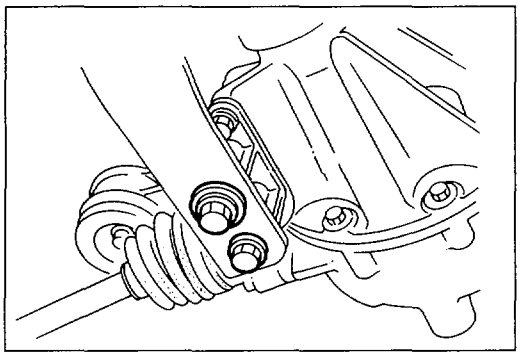
4. Verify that the sleeve is installed into the block.

Note
- **The reamer bolt is installed in the forward hole.**

5. Install the spacer and bolts and snugly tighten them.

6. Tighten the transmission-side bolts.

Tightening torque:
104—123 N·m (10.6—12.6 m-kg, 77—91 ft-lb)

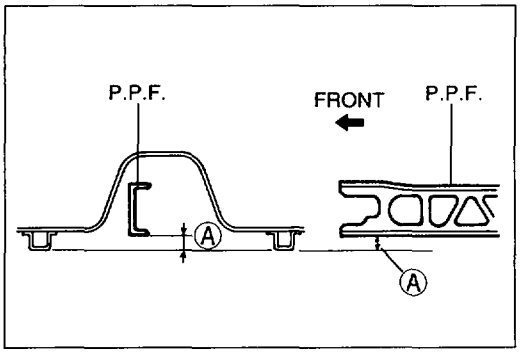


15U0KX-092

7. Tighten the differential-side bolts.

Tightening torque:
104—123 N·m (10.6—12.6 m-kg, 77—91 ft-lb)

8. Remove the jack.



15U0KX-093

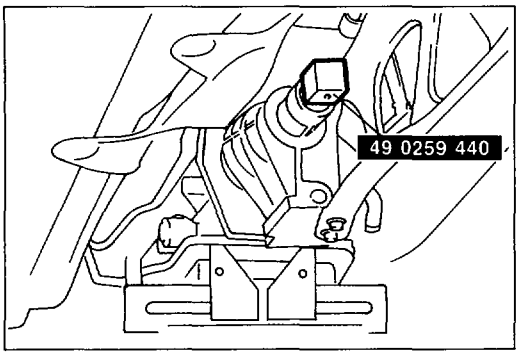
9. Measure distance A with a straightedge and vernier calipers.

Distance A: 56.5 ± 5mm (2.22 ± 0.197 in)

10. If the distance is not within specification, repositon the PPF at the transmission.

Propeller shaft

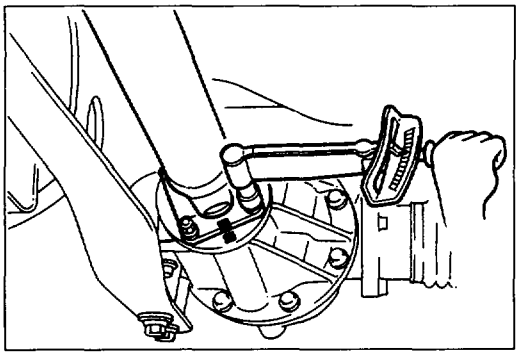
1. Remove the **SST** from the extension housing.



15U0KX-118

2. Align the marks, and install the propeller shaft.

Tightening torque:
27—30 N·m (2.8—3.1 m-kg, 20—22 ft-lb)



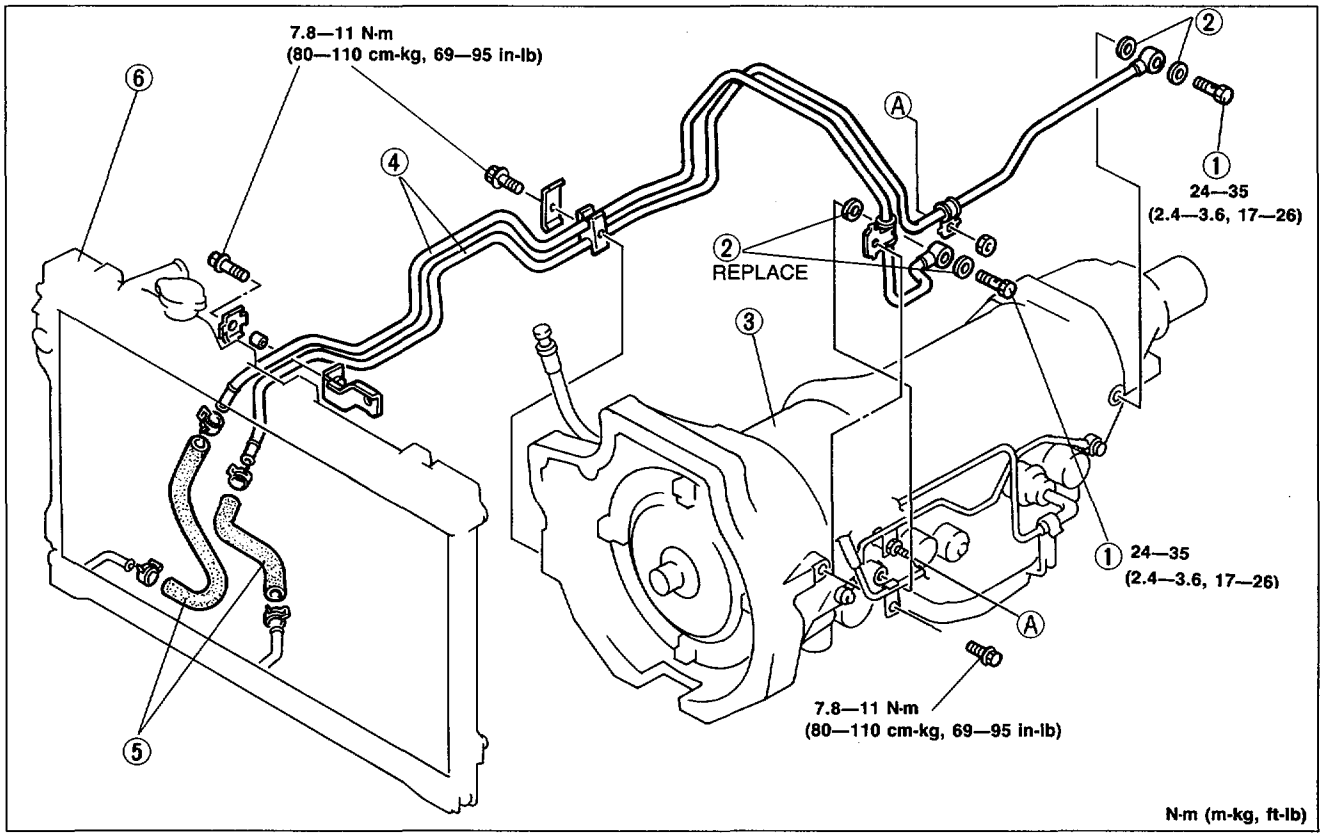
15U0KX-119

OIL COOLER

REMOVAL / INSPECTION / INSTALLATION

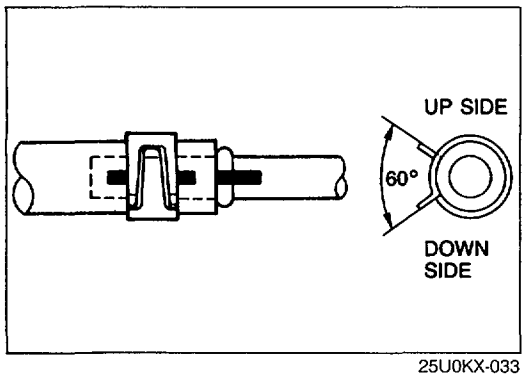
Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

1. Remove in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Install in the reverse order of removal, referring to **Installation Note**.



25U0KX-049

1. Connetor bolts
   Inspect for clogging
2. Packing
3. Transmission
   Removal ..... page K– 34
   Installation..... page K–127
4. Oil pipe
   Inspect for damage or cracks
   Installation Note ..... below
5. Oil hose
   Inspect for damage or cracks
6. Radiator



25U0KX-033

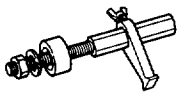
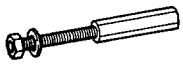
Installation Note
Oil pipe

Caution
- **If reuse the hose clamp, position the hose clamp in the original location on the hose. Squeeze the clamp lightly with large pliers to ensure a good fit.**

1. Align the marks, and slide the oil cooler hose onto the oil cooler pipe until it contacts the ridge.
2. Install the hose clamp onto the hose at the center of the mark and at the angle shown.
3. Verify that the hose clamp does not interfere with any other parts.

DRIVE PLATE

PREPARATION
SST

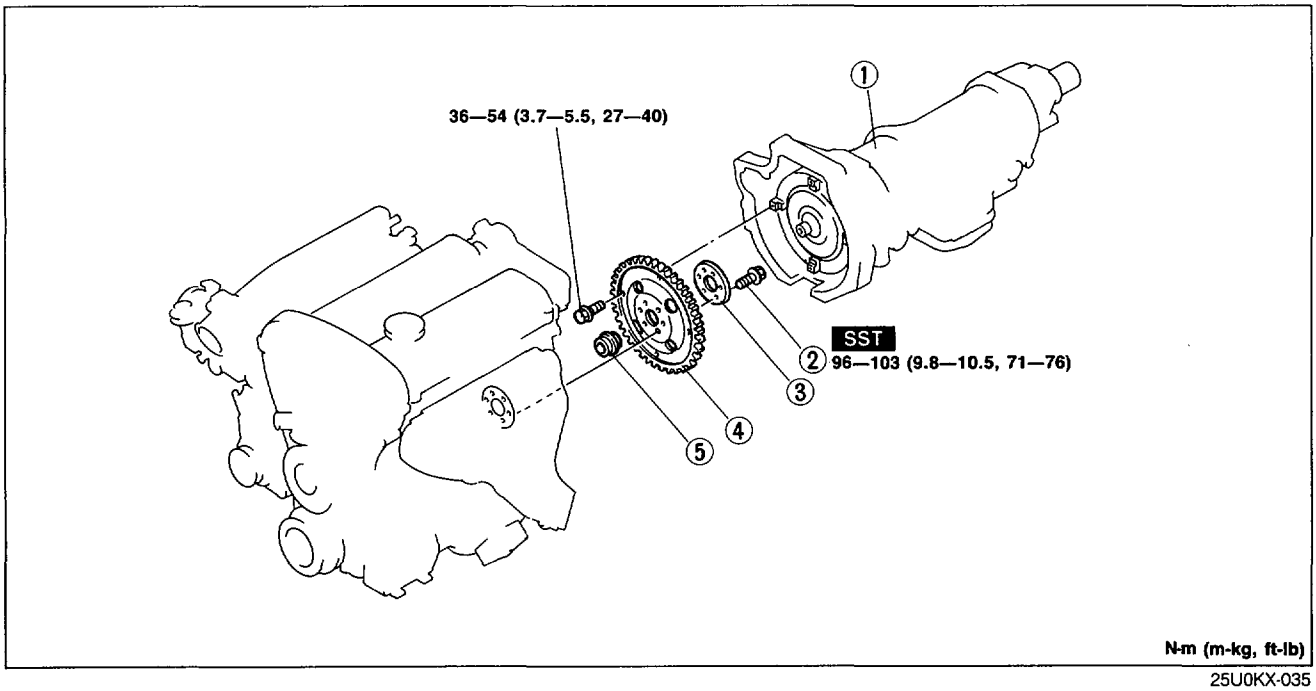
49 E011 1A0 Brake set, ring gear 	For holding ring gear	49 E011 103 Shaft (Part of 49 E011 1A0) 	For holding ring gear
49 E011 104 Collar (Part of 49 E011 1A0)	For holding ring gear	49 E011 105 Stopper (Part of 49 E011 1A0)	For holding ring gear

25U0KX-034

REMOVAL / INSPECTION / INSTALLATION

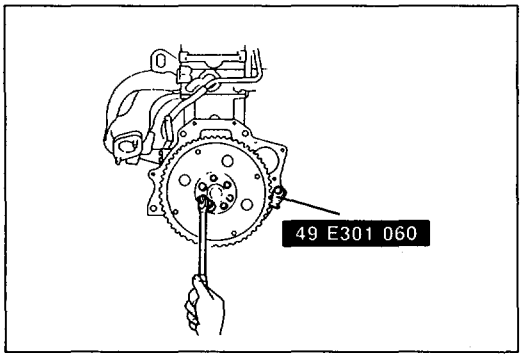
Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Inspect all parts and repair or replace as necessary.
3. Install in the reverse order of removal, referring to **Installation Note**.

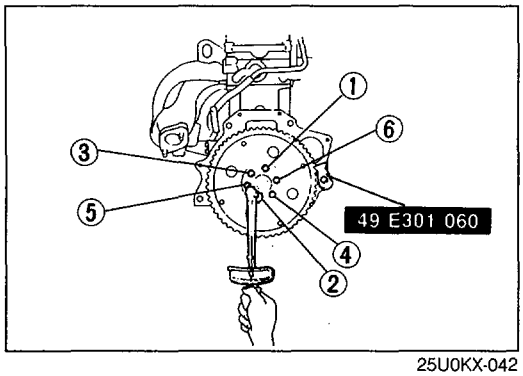


25U0KX-035

1. Transmission
   Removal ..... page K– 34
   Installation..... page K–127
2. Bolts
3. Backing plate
4. Drive plate
   Removal Note..... page K–133
   Inspect for cracks and ring gear for wear and damage
   Installation Note..... page K–133
5. Adapter



25U0KX-041



25U0KX-042

Removal Note
Drive plate
Hold the drive plate with the **SST** or equivalent for removal of the mounting bolts.

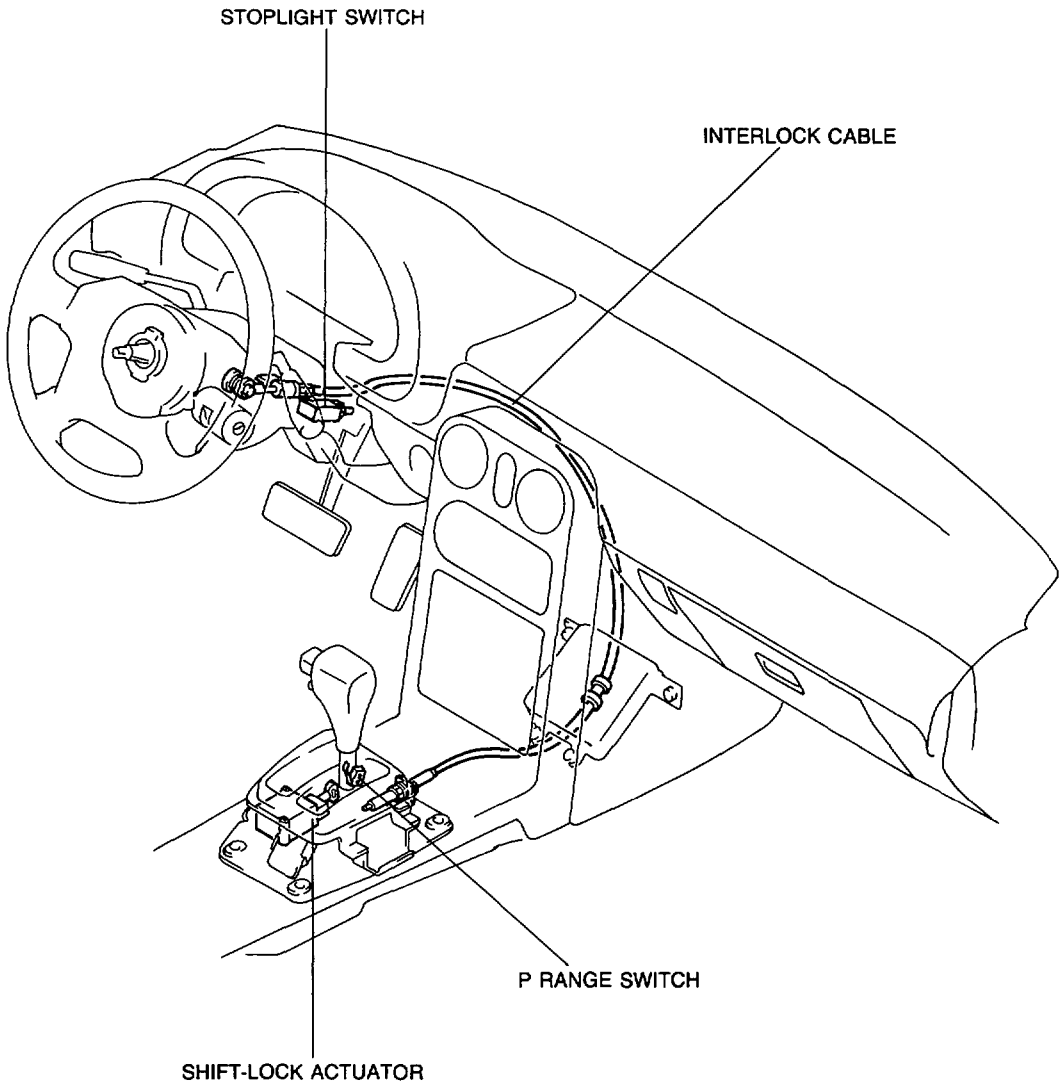
Installation Note
Drive plate
1. Assemble the adapter, drive plate, and backing plate.
2. Install the **SST** or equivalent and tighten the bolts in the order shown.

   Tightening torque:
   96—103 N·m (9.8—10.5 m-kg, 71—76 ft-lb)

3. Install the transmission. (Refer to page K–127.)

SHIFT MECHANISM (WITH SHIFT-LOCK SYSTEM)

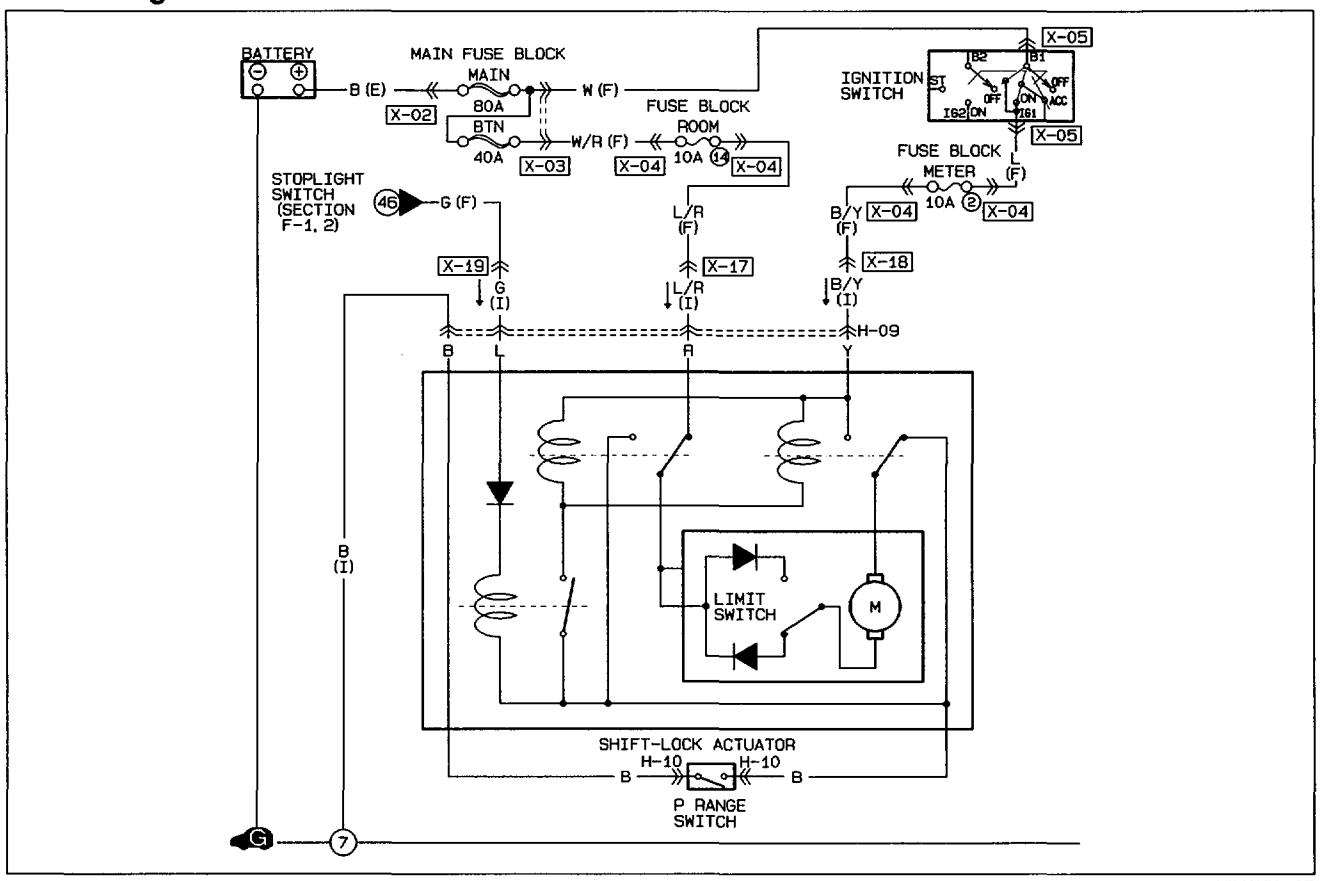
SHIFT-LOCK SYSTEM COMPONENTS



15U0KX-098

TROUBLESHOOTING

Circuit Diagram

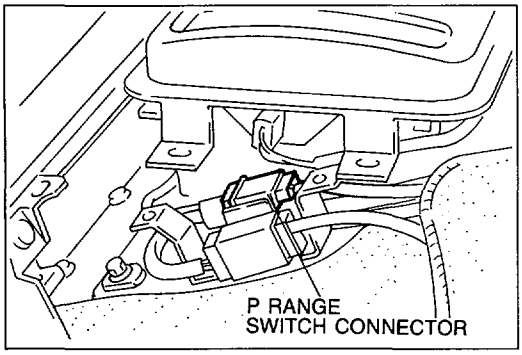


05U0KX-187

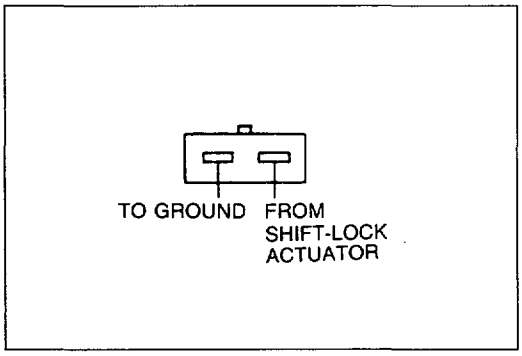
Troubleshooting

Problem	Possible Cause	Action	Page
Selector lever cannot be moved from P range with brake pedal depressed and ignition switch ON	ROOM 10A fuse burned or missing	Replace or install	K–135
	IG1 system malfunction • Wiring harness broken • Poor connection • METER 10A fuse burned	 Repair Connect firmly Replace	 K–135 K–135 K–135
	Ignition switch malfunction	Inspect and replace	—
	Stoplight switch remains OFF	Adjust or replace	—
	Stoplight system malfunction • Wiring harness broken • Poor connection • STOP 15A fuse burned	 Repair Connect firmly Replace	 K–135 K–135 K–135
	P range switch remains OFF	Inspect and replace	K–137, 145
	P range switch system malfunction • Wiring harness broken (Poor ground) • Poor connection	 Repair Connect firmly	 K–135 K–135
	Shift-lock actuator malfunction • Wiring harness broken • Poor connection	Inspect and replace Repair wiring harness Connect firmly	K–137, 145 K–135 K–135
	Misadjustment of selector lever or improper assembly of shift-lock actuator	Adjust or repair	K–138, 145
Selector lever can be moved from P range with ignition switch ON, but without brake pedal depressed	ROOM 10A fuse burned or missing	Replace or install	K–135
	Stoplight switch remains ON	Adjust or replace	—
	Shift-lock actuator malfunction	Inspect and replace	K–137, 145
	Misadjustment of selector lever or improper assembly of shift-lock actuator	Adjust or repair	K–138, 145
Selector lever can be moved from P range with ignition switch OFF and brake pedal depressed	ROOM 10A fuse burned or missing	Replace or install	K–135
	Ignition switch malfunction	Inspect and repair	—
	Shift-lock actuator malfunction	Inspect and replace	K–137, 145
	Misadjustment of selector lever or improper assembly of shift-lock actuator	Adjust and repair	K–138, 145
Shift-lock actuator operation heard when brake pedal depressed with ignition switch ON in other than P range	P range switch remains ON	Inspect and replace	K–137, 145
Selector remains locked when emergency override button operated	Emergency override button not slid fully back	Slide back fully and hold emergency override button, move selector lever	—
	Broken emergency override button	Replace	K–140, 141
	Misadjustment of indicator panel	Adjust	K–141
Ignition key can be turned to LOCK position with selector lever in ranges other than P range	Interlock cable • Disconnected • Kinked • Stuck • Spring damaged	Inspect and replace	K–141
	Key cylinder malfunction	Replace	—
Ignition key cannot be turned to LOCK position with selector lever in P range	Interlock cable • Disconnected • Kinked • Stuck • Spring damaged	Inspect and replace	K–141
	Key cylinder malfunction	Replace	—

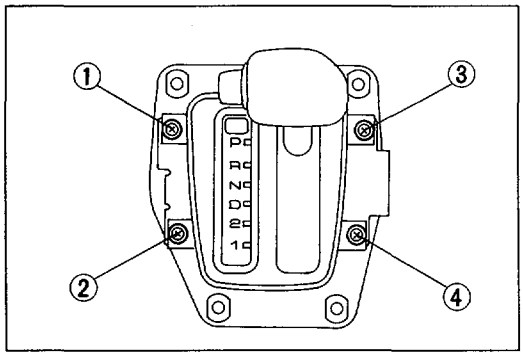
25U0KX-036



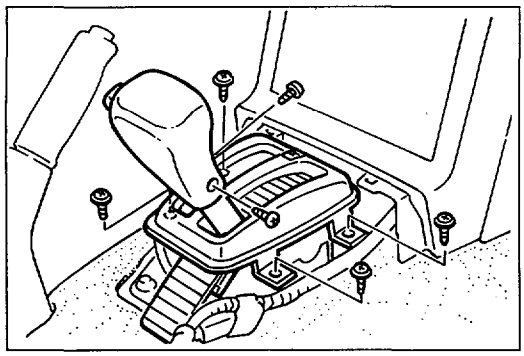
25U0KX-043

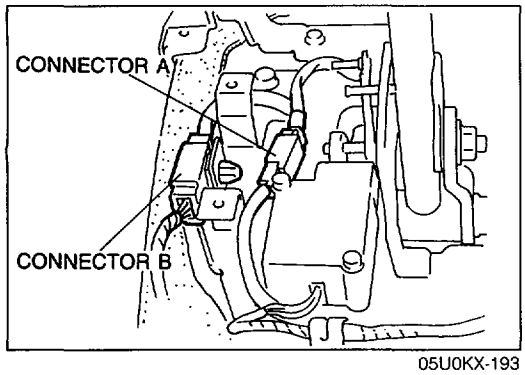


25U0KX-037



05U0KX-191


25U0KX-044



05U0KX-193

P RANGE SWITCH
Inspection
Continuity

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

1. Disconnect the negative battery cable.
2. Remove the rear console.
3. Remove the screws and lift up the indicator panel.
4. Disconnect the P range switch connector.
5. Check continuity between the terminals.

Range	Selector lever release button	Continuity
P	Released	Yes
	Depressed	No
R, N, D, 2, 1	——	No

6. If not as specified, replace the P range switch. (Refer to page K–145.)

7. Connect the P range switch connector.
8. Adjust the indicator panel. (Refer to page K–139.) Install the screws in the order shown in the figure.
9. Install the rear console.
10. Connect the negative battery cable.
11. Verify correct operation of the shift-lock system.

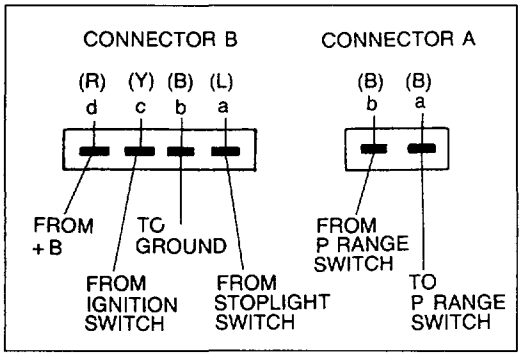
SHIFT-LOCK ACTUATOR
Inspection
Terminal voltage and continuity

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

1. Remove the rear console.
2. Remove the selector knob and indicator panel screws.

Caution
- **Do not pull the selector knob up too far to prevent damaging the wiring harness.**

3. Lift up the selector knob, selector sleeve, and indicator panel.
4. Disconnect the OD switch connector.
5. Shift the selector lever to P range.



05U0KX-194

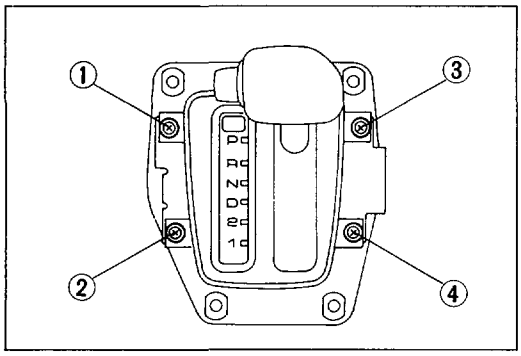
Caution
- **Disconnect connector B to check continuity between terminal b (harness side) and a ground.**

6. Turn the ignition switch ON, and check terminal voltages and continuity, referring to the chart below.
7. If not as specifed, repair the wiring harness and/or shift-lock actuator.

VB: Battery voltage

Connector	Terminal	⊖ terminal connected to	Condition	Correct measurement value
A	a	B—b	P range, selector lever release button not depressed	0Ω
A	b	B—b	Constant	0Ω
B	a	B—b	Brake pedal released → depressed	0V → VB
B	b (harness side)	Body	Constant	0Ω
B	c	B—b	Ignition switch ON	VB
B	d	B—b	Ignition switch OFF	VB

25U0KX-038

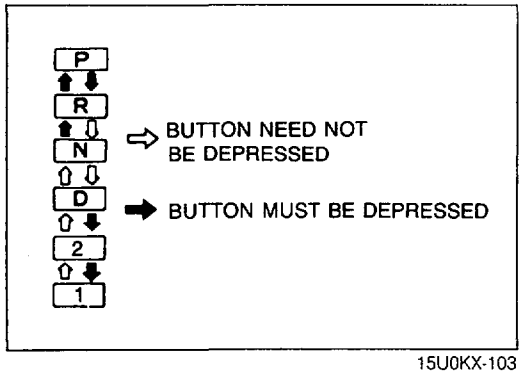


05U0KX-196

8. Grasp the OD switch wiring harness and pull it while pushing the selector knob down fully onto the selector lever.
9. Connect the OD switch connector.
10. Adjust the indicator panel. (Refer to page K–139.) Install the screws in the order shown in the figure.
11. Clean and apply locking compound to the selector knob screws threads. Tighten the screws.

Tightening torque:
2.0—2.9 N·m (20—30 cm-kg, 17—26 in-lb)

12. Install the rear console.
13. Connect the negative battery cable.
14. Verify correct operation of the shift-lock system.

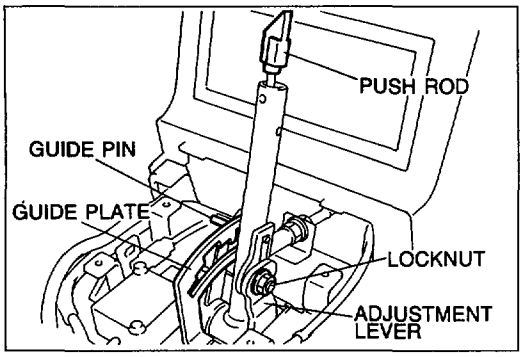


15U0KX-103

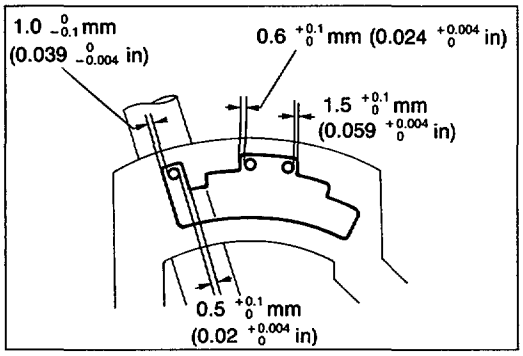
SELECTOR LEVER
Inspection

Caution
- **Shift the selector lever from P range to other ranges with ignition switch ON and brake pedal depressed.**

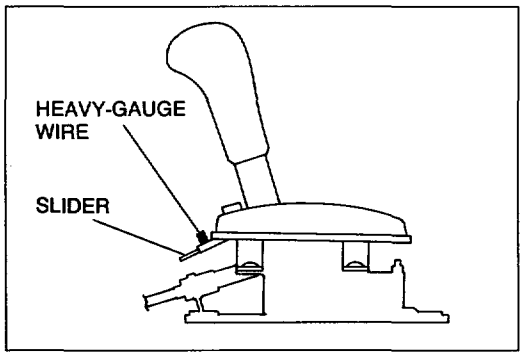
1. Verify that the selector lever can only be shifted as shown in the figure.
2. Verify there is a click at each range when shifted from P → 1 range.
3. Verify that the positions of the selector lever and the indicator are aligned.
4. Verify that the button returns smoothly when pushed to shift.



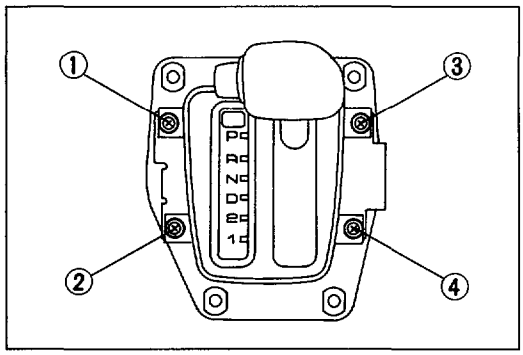
25U0KX-045



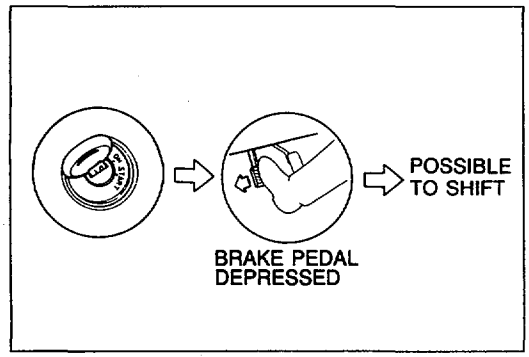
05U0KX-199



05U0KX-200



05U0KX-201



05U0KX-202

Adjustment
Lever position

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

1. Disconnect the negative battery cable to deactive the shift-lock.
2. Remove the rear console, selector knob, selector sleeve, and indicator panel. (Refer to "Shift-lock actuator inspection"; page K–137, steps 1–6.)
3. Loosen the locknut.
4. Shift the transmission to P range by pushing the adjustment lever forward.
5. Adjust the lever so that the clearance between the guide plate and the guide pin in P range with the push rod lightly depressed is as shown.
6. Tighten the locknut.

Tightening torque:
18—25 N·m (1.8—2.5 m-kg, 13—18 ft-lb)

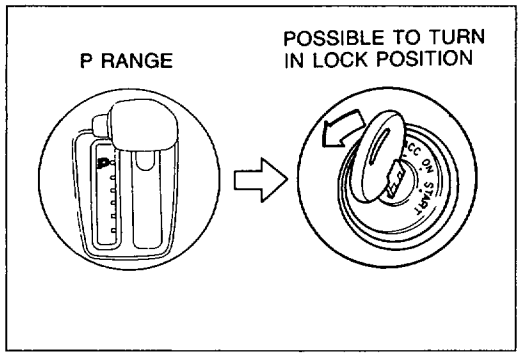
7. Move the selector lever to N and D ranges and verify that there is the same clearance between the guide plate and the guide pin.
8. If not as specified, readjust the lever.
9. Install the indicator panel, selector sleeve, selector knob, and rear console in the reverse order of removal.
10. Check the selector lever operation. (Refer to "Inspection"; page K–138.)

Indicator panel
1. Remove the rear console.
2. Shift the selector lever to P range.
3. Loosen the indicator screws.
4. Align the alignment hole in the slider with the hole in the indictor panel. Install suitable heavy-gauge wire to hold the slider.
5. Tighten the indicator mounting screws in the order shown in the figure.
6. Remove the wire from the slider.
7. Verify that the selector lever properly aligns with the indicator in each range.
8. Verify correct operation of the emergency override button.

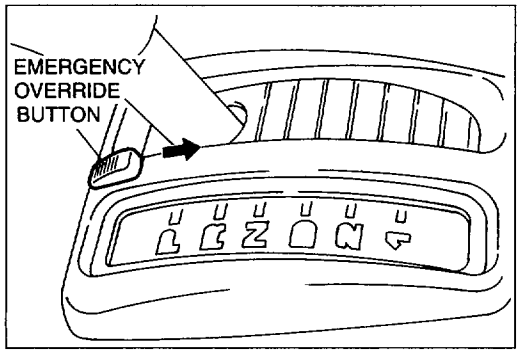
Shift-lock System Operation Inspection

Caution
- **Service with the engine OFF.**

Shift-lock system
1. Turn the ignition switch ON.
2. Verify that the selector lever is in P range.
3. Without the brake pedal depressed, verify that the selector lever cannot be shifted from P range.
4. Depress the brake pedal. Verify that the selector lever can be shifted from P range.



97U0KX-314



05U0KX-203

5. Shift the selector lever to R range.
6. Verify that the ignition key cannot be turned to LOCK position.
7. Shift the selector lever to P range.
8. Verify that the ignition key can be turned to LOCK position.
9. If not as specified, inspect and repair as necessary, referring to "Troubleshooting".

Emergency override button

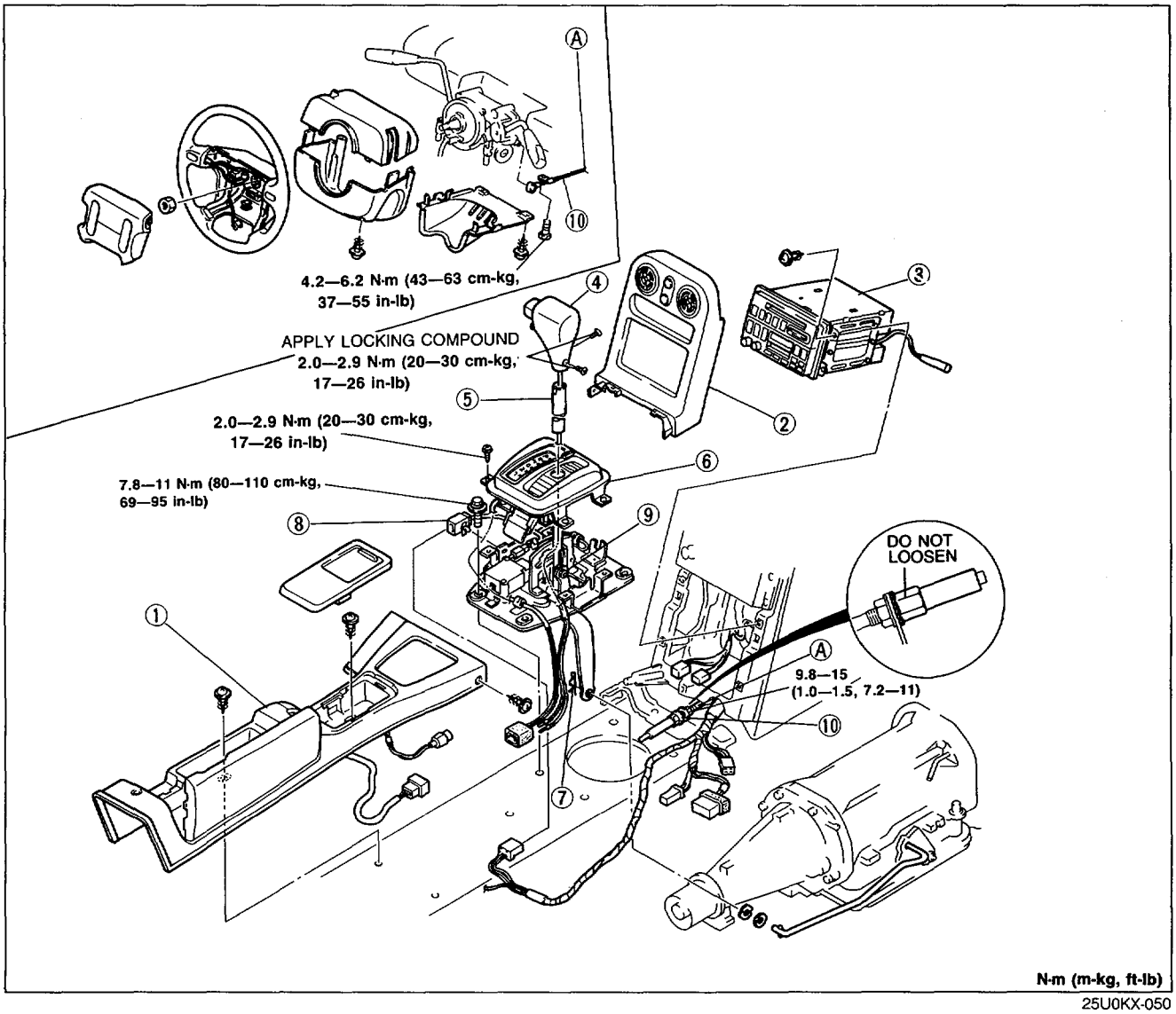
1. Verify that the selector lever is locked in P range.
2. Slide back and hold the emergency override button. Verify that the selector lever can be shifted from P range.
3. If not as specified, inspect and repair as necessary, referring to "Troubleshooting".

Removal / Inspection / Installation

Caution

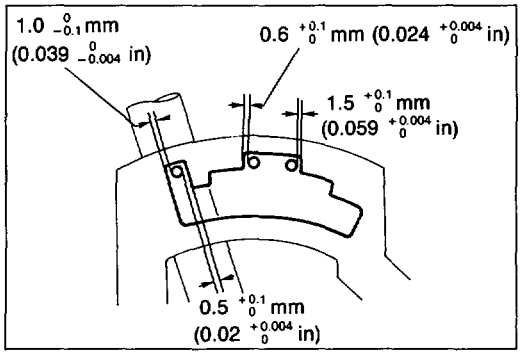
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Inspect all parts and repair or replace as necessary.
4. Install in the reverse order of removal, referring to **Installation Note**.

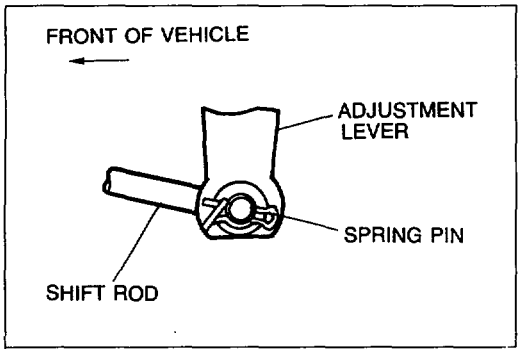


25U0KX-050

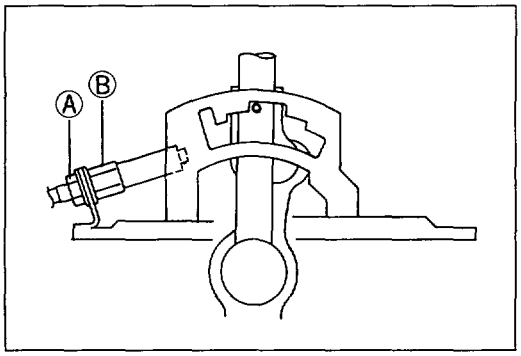
1. Rear console
2. Center panel
3. Audio unit
4. Selector knob
   - Removal Note ..... page K–142
   - Installation Note ..... page K–144
5. Selector sleeve
6. Indicator panel
   - Inspect emergency override lever for wear and damage
   - Inspect override button operation
   - Installation Note ..... page K–144
7. Spring pin
   - Removal Note ..... page K–142
   - Installation Note ..... page K–143
8. Shift-lock actuator connector
9. Selector lever
   - Removal Note ..... page K–142
   - Disassembly / Inspection / Assembly ..... page K–145
   - Installation Note ..... page K–143
10. Interlock cable
    - Removal Note ..... page K–142
    - Installation Note ..... page K–143



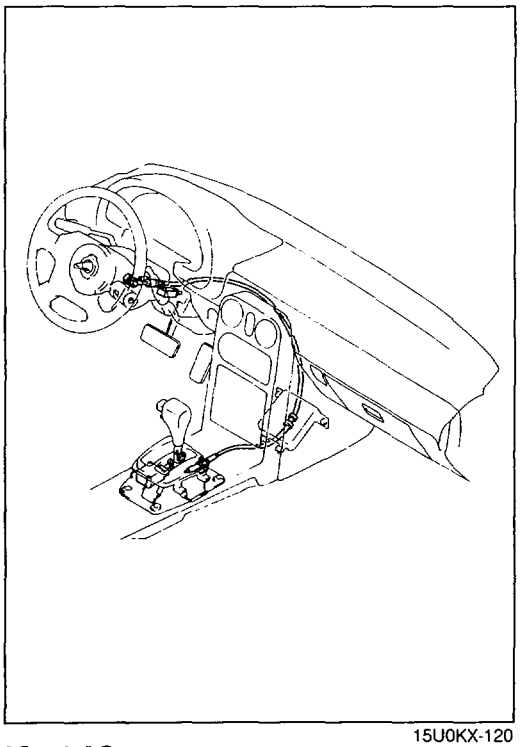
05U0KX-205



05U0KX-206



05U0KX-207



15U0KX-120

Removal note
Selector knob

Caution
- **Do not pull the selector knob up too far to prevent damaging the wire harness.**

Refer to shift-lock actuator inspection; page K–137, Steps 2—6.

Spring pin
1. Jack up the vehicle and support it with safety stands.
2. Remove the spring pin.

Selector lever
1. Shift the selector lever to N range.

Caution
- **Do not loosen locknut Ⓑ, it is factory preset for proper shift-lock system operation.**

2. Loosen locknut Ⓐ.

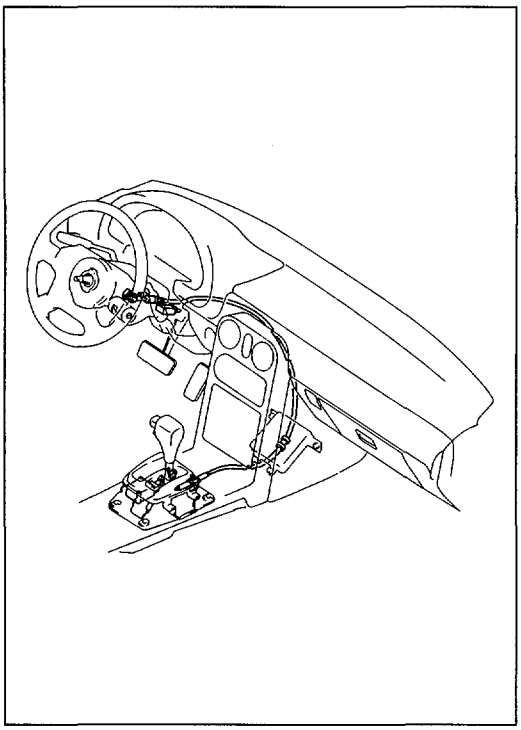
Caution
- **Do not kink the cable.**

3. Separate the cable from the selector lever.

Interlock cable

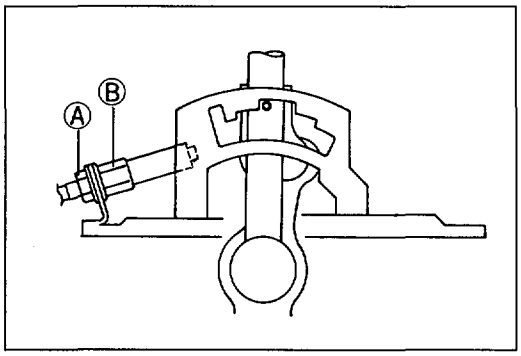
Note
- **Do not remove the interlock cable unless necessary.**

1. Remove the instrument panel.
2. Remove the interlock cable.



05U0KX-238

Installation note
Interlock cable
1. Install the interlock cable.
2. Install the instrument panel.



05U0KX-208

Selector lever
1. Shift the selector lever to N range.
2. Install the selector lever.

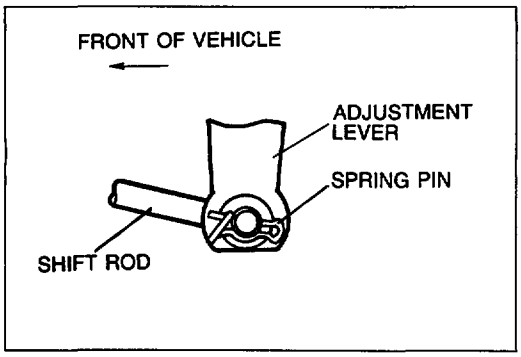
Tightening torque:
7.8—11 N·m (80—110 cm-kg, 69—95 in-lb)

Caution
- **Do not kink the cable.**
- **Do not lossen locknut, Ⓑ, it is factory preset for proper shift-lock system operation.**

3. Install the cable and tighten locknut Ⓐ.

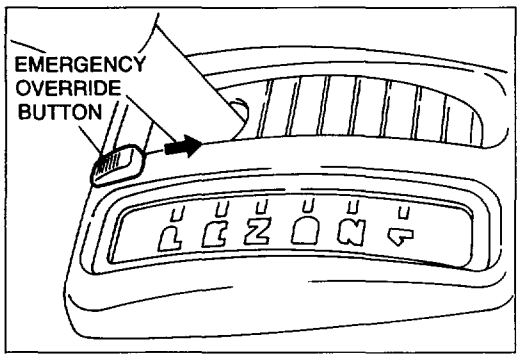
Tightening torque:
9.8—15 N·m (1.0—1.5 m-kg, 7.2—11 ft-lb)

4. Check shift-lock system operation.
(Refer to page K–139, Steps 5—8.)

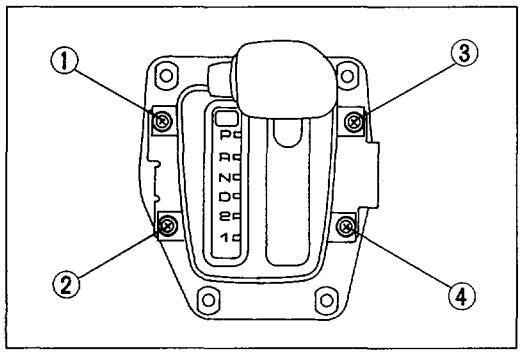


05U0KX-209

Spring pin
1. Jack up the vehicle and support it with safety stands.
2. Install a new spring pin forward as shown in the figure.
3. Adjust the selector lever position. (Refer to page K–139.)



05U0KX-210



05U0KX-211

Indicator panel

1. Set the selector sleeve over the selector lever.
2. Grasp the OD switch wiring harness and pull it while pushing the selector knob down fully on the selector lever.
3. Connect the OD switch connector.
4. Shift the selector lever to P range.
5. Align the alignment hole in the slider with the hole in the indicator panel. Install suitable heavy-gauge wire to hold the slider.
6. Tighten the indicator mounting screws in the order shown in the figure.
7. Remove the wire from the slider.
8. Verify that the selector lever properly aligns with the indicator in each range.
9. Verify correct operation of the emergency override button.

Selector knob

1. Clean, and apply locking compound to the selector knob screws. Tighten the screws.

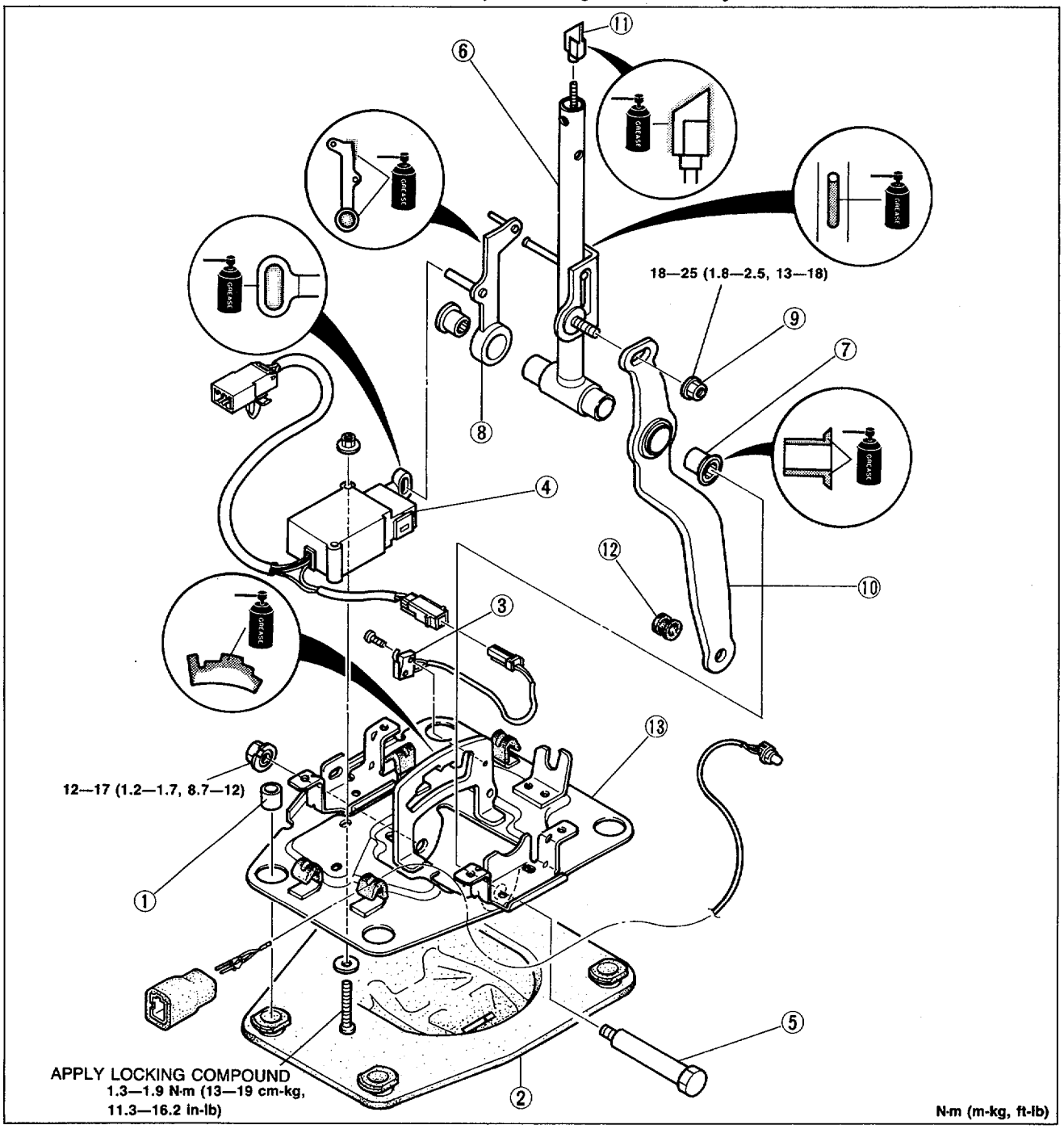
   Tightening torque:
   2.0—2.9 N·m (20—30 cm-kg, 17—26 in-lb)

2. Check the selector lever and shift-lock system operation. (Refer to pages K–138, 139.)

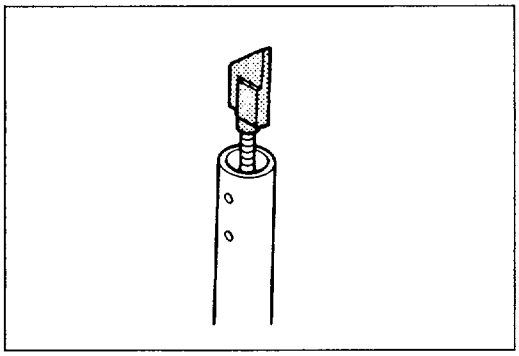
05U0KX-212

Disassembly / Inspection / Assembly

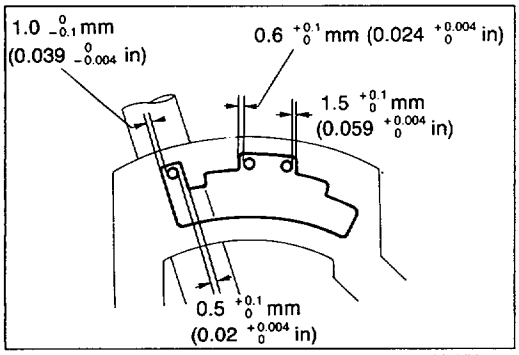
1. Disassemble in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



1. Spacer
2. Boot
3. P range switch
   Inspection ..... page K–137
4. Shift lock actuator
5. Spindle
6. Push rod assembly
   Inspect for smooth operation
   Inspect guide pin for damage and wear
7. Bushing
8. Lock lever
9. Locknut
10. Adjustment lever
11. Cam
    Assembly Note ..... page K–146
12. Bushing
    Inspect for damage and wear
13. Selector lever bracket



15U0KX-107



05U0KX-215

Assembly Note
Cam

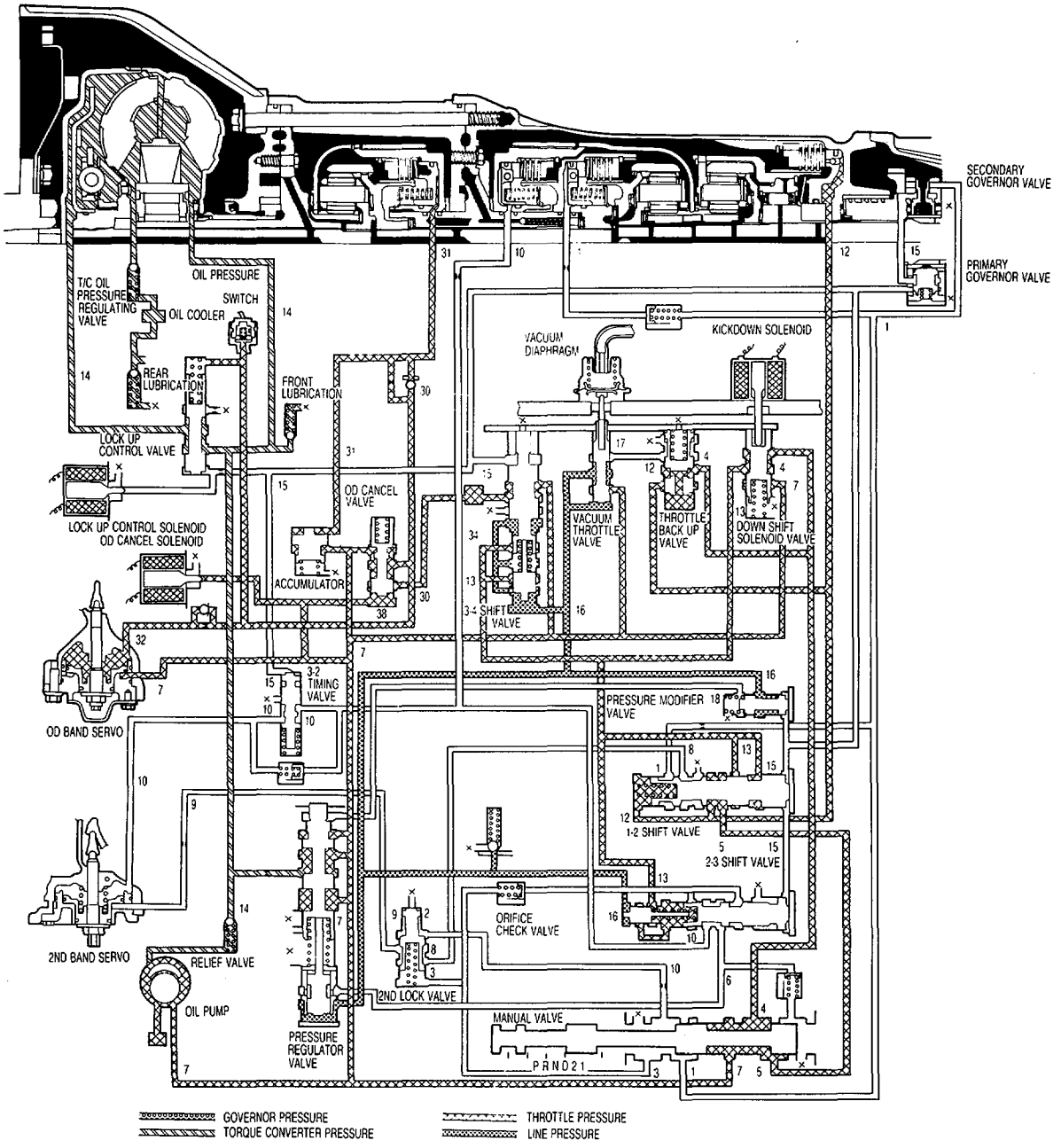
1. Loosely install the cam to the push rod.

Note
- **Clearance becomes smaller by turning the cam clockwise.**

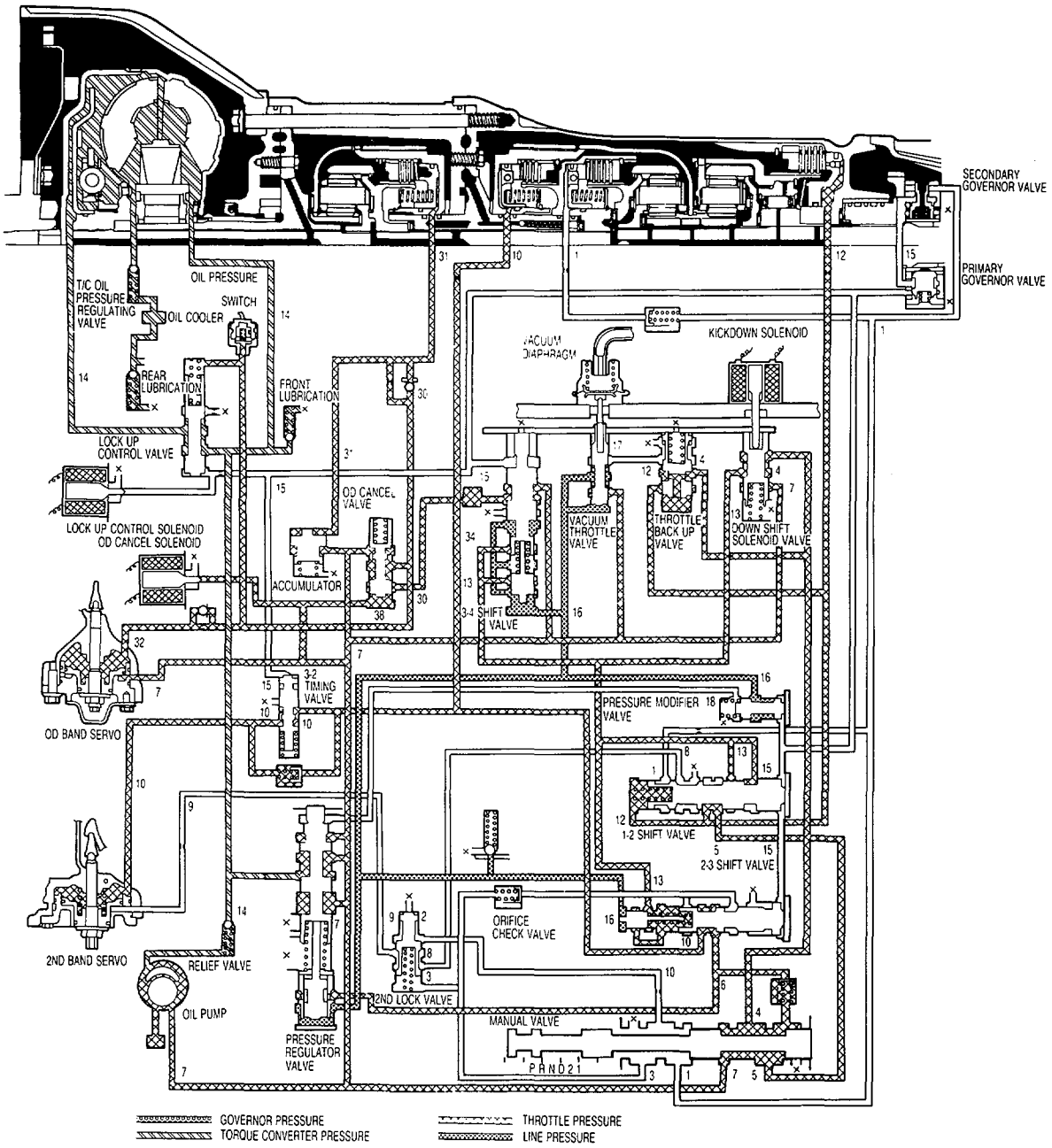
2. Adjust the clearance between the guide plate and the guide pin by turning the cam.
3. Install the selector lever knob and verify that the clearance is as specified.
4. If not, repeat from Step 2.
5. Remove the selector lever knob.
6. Apply grease to the cam as shown.

HYDRAULIC CIRCUIT

P RANGE

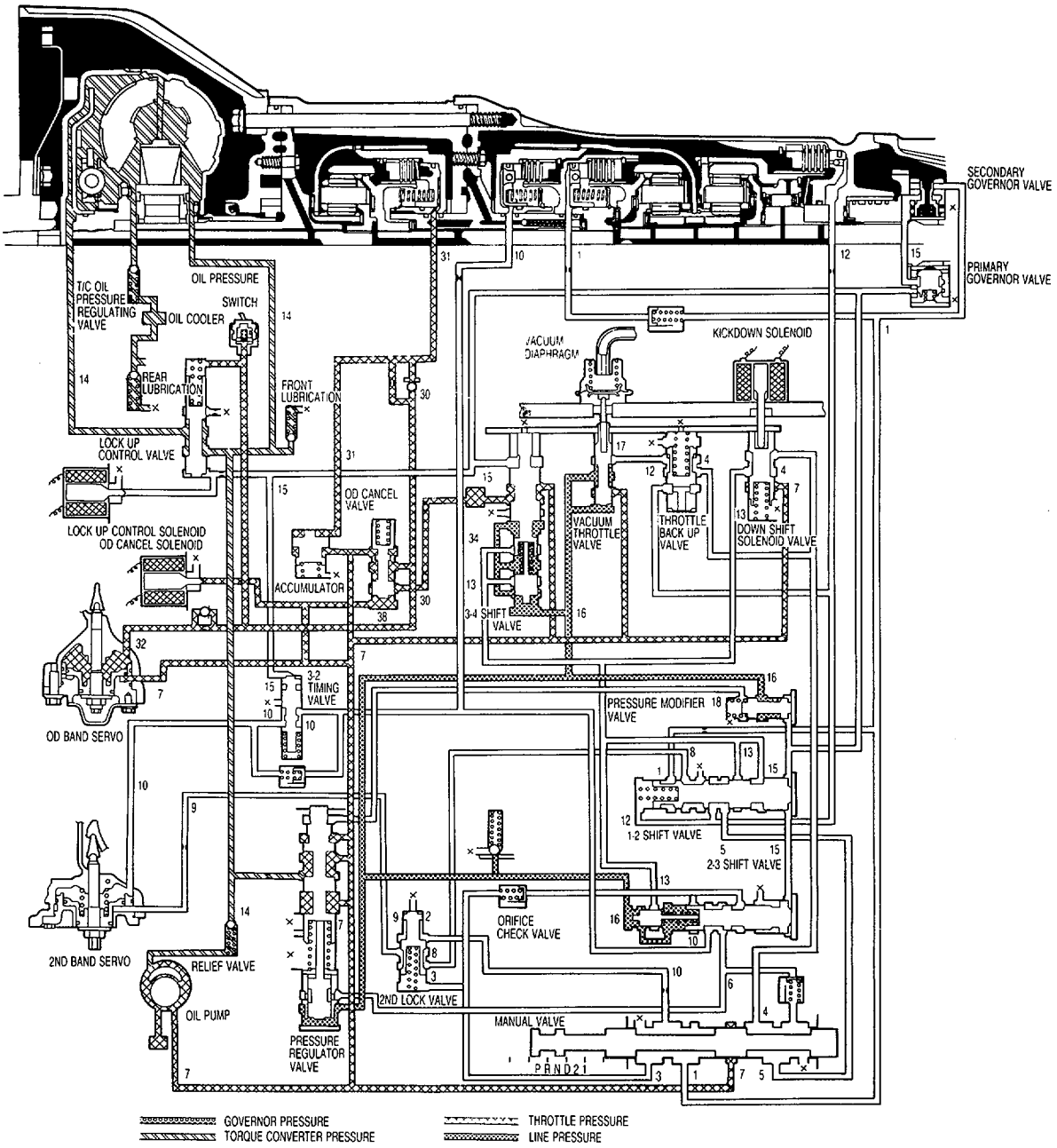


R RANGE



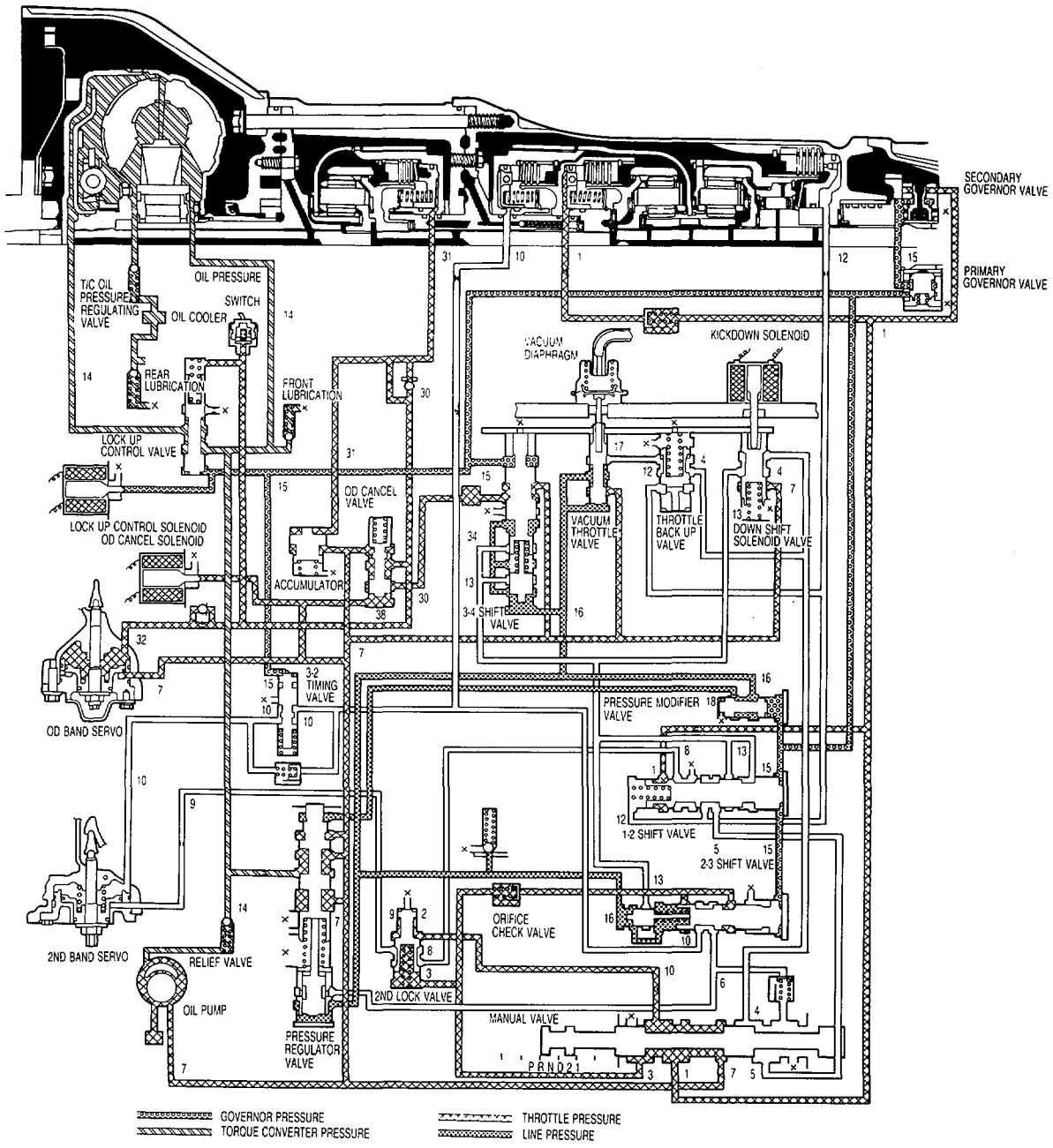
9MU0K2-437

N RANGE


SECONDARY GOVERNOR VALVE
PRIMARY GOVERNOR VALVE
OIL PRESSURE SWITCH
T/C OIL PRESSURE REGULATING VALVE
OIL COOLER
REAR LUBRICATION
FRONT LUBRICATION
LOCK UP CONTROL VALVE
LOCK UP CONTROL SOLENOID
OD CANCEL SOLENOID
OD CANCEL VALVE
ACCUMULATOR
OD BAND SERVO
2ND BAND SERVO
RELIEF VALVE
OIL PUMP
PRESSURE REGULATOR VALVE
VACUUM DIAPHRAGM
KICKDOWN SOLENOID
VACUUM THROTTLE VALVE
THROTTLE BACK UP VALVE
DOWN SHIFT SOLENOID VALVE
3-4 SHIFT VALVE
3-2 TIMING VALVE
PRESSURE MODIFIER VALVE
1-2 SHIFT VALVE
2-3 SHIFT VALVE
ORIFICE CHECK VALVE
2ND LOCK VALVE
MANUAL VALVE
P R N D 2 1
GOVERNOR PRESSURE
TORQUE CONVERTER PRESSURE
THROTTLE PRESSURE
LINE PRESSURE

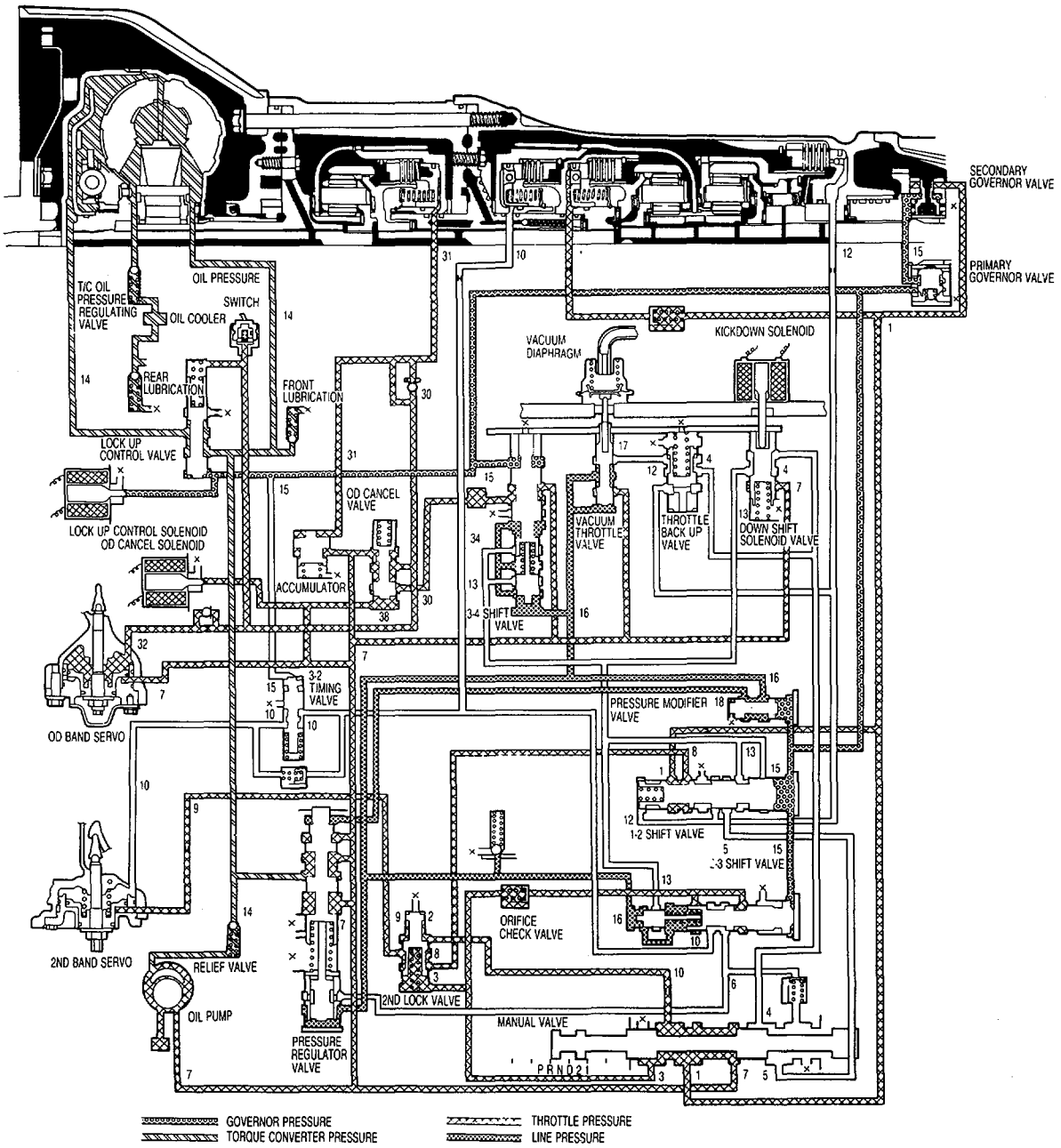
HYDRAULIC CIRCUIT

D RANGE; 1ST GEAR

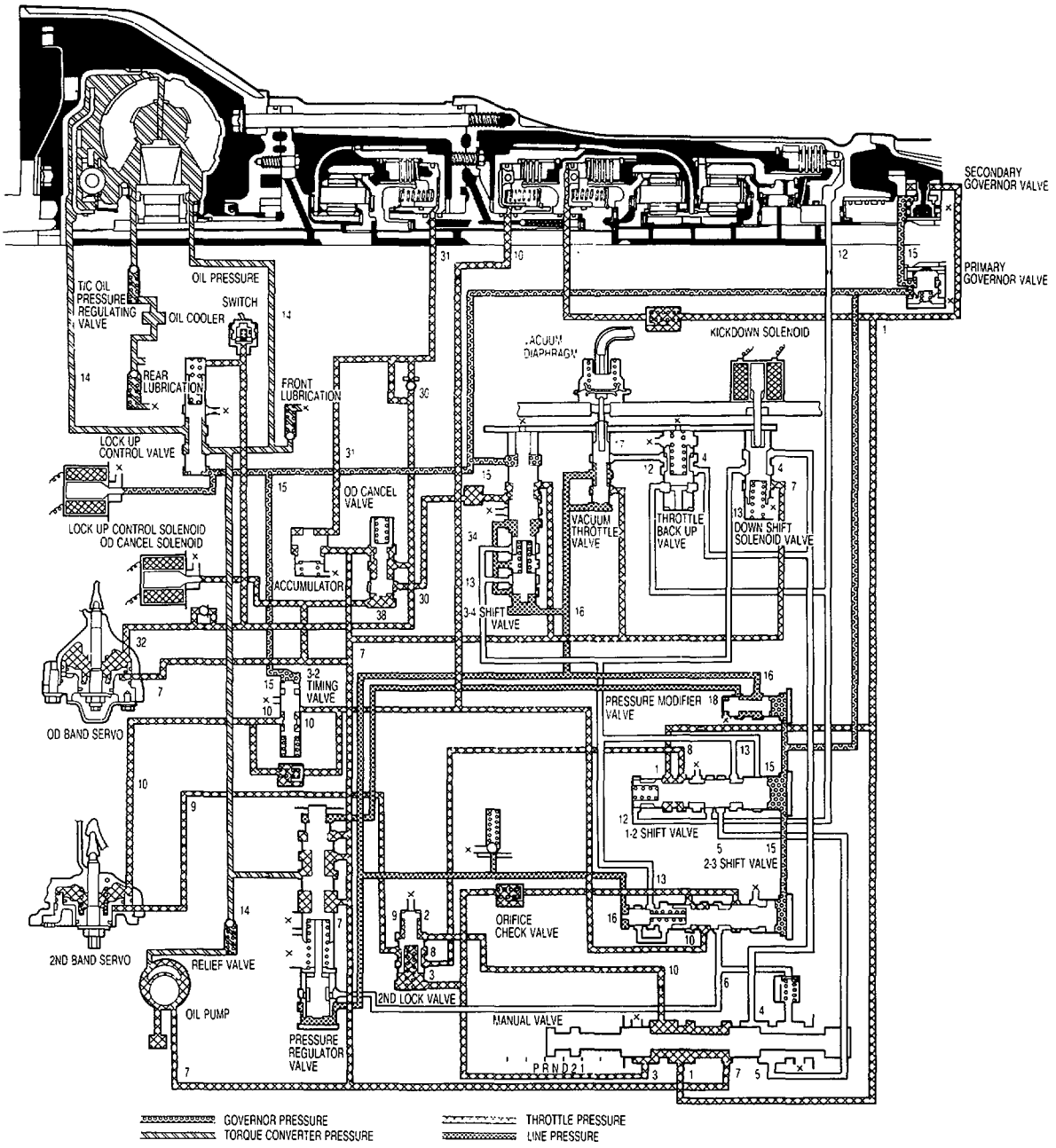


9MU0K2-439

D RANGE; 2ND GEAR

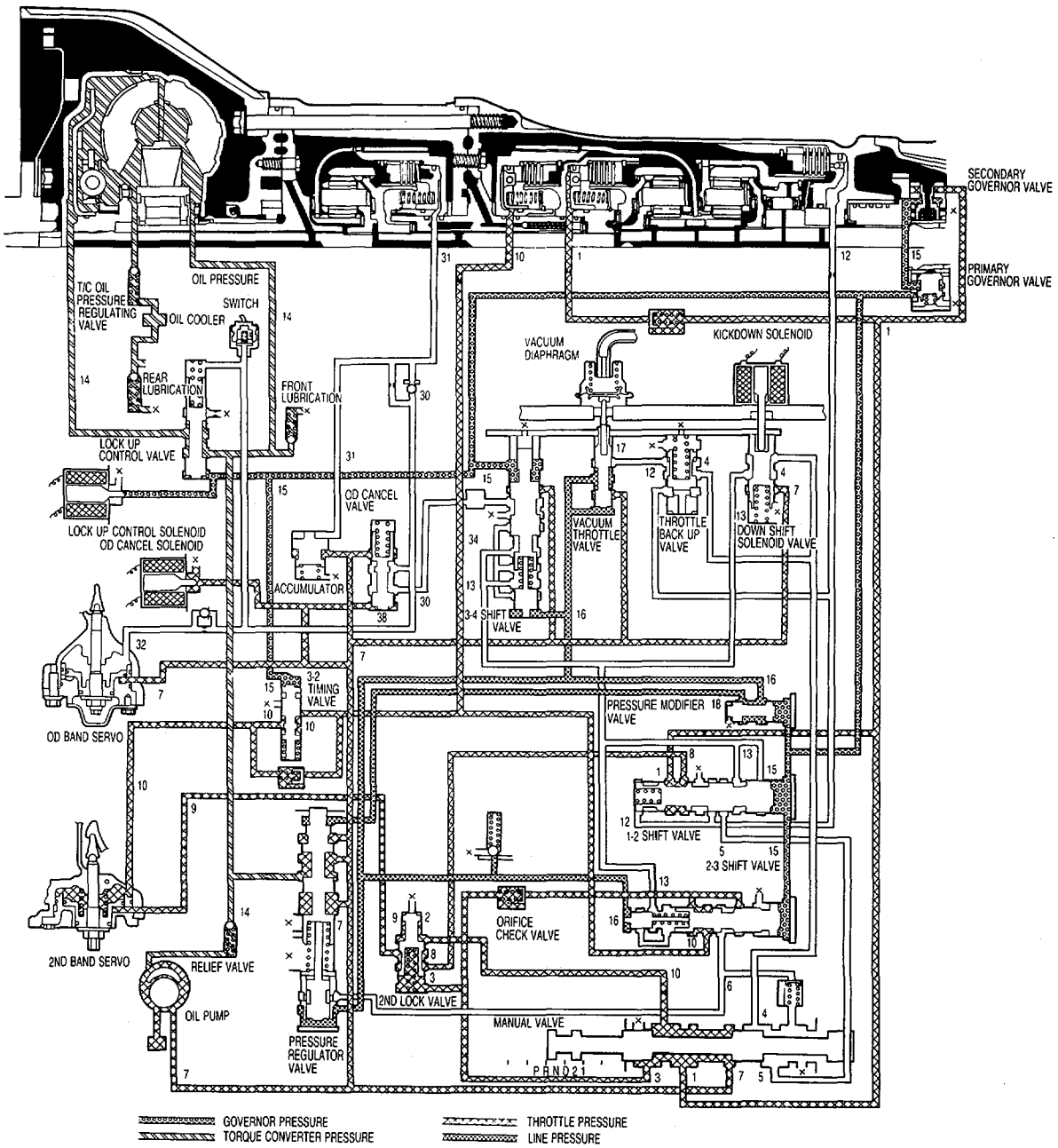


D RANGE; 3RD GEAR



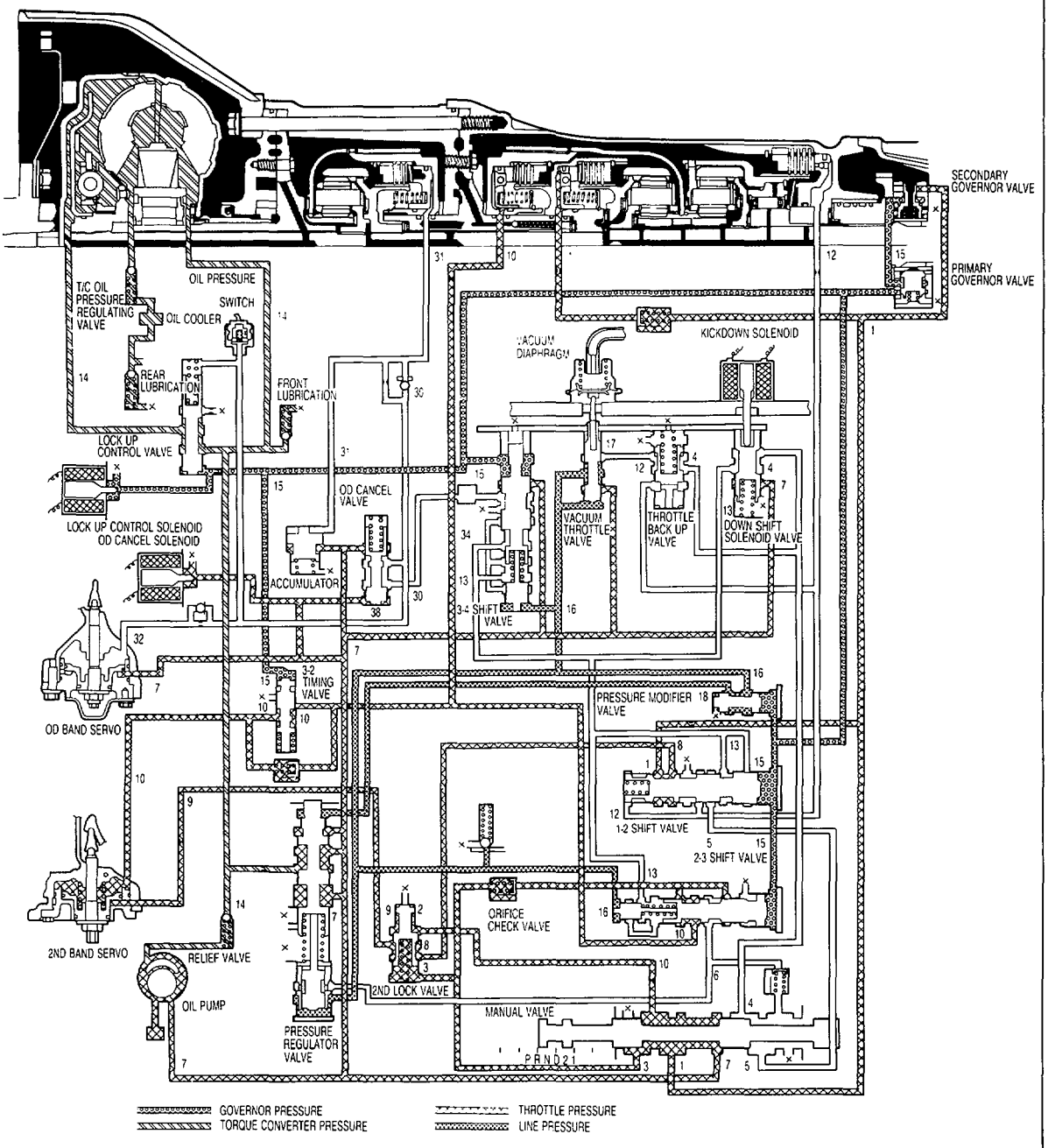
9MU0K2-441

D RANGE; OD


SECONDARY GOVERNOR VALVE
PRIMARY GOVERNOR VALVE
OIL PRESSURE SWITCH
T/C OIL PRESSURE REGULATING VALVE
OIL COOLER
REAR LUBRICATION
FRONT LUBRICATION
LOCK UP CONTROL VALVE
LOCK UP CONTROL SOLENOID
OD CANCEL SOLENOID
OD CANCEL VALVE
ACCUMULATOR
VACUUM DIAPHRAGM
KICKDOWN SOLENOID
VACUUM THROTTLE VALVE
THROTTLE BACK UP VALVE
DOWN SHIFT SOLENOID VALVE
3-4 SHIFT VALVE
3-2 TIMING VALVE
OD BAND SERVO
PRESSURE MODIFIER VALVE
1-2 SHIFT VALVE
2-3 SHIFT VALVE
ORIFICE CHECK VALVE
2ND BAND SERVO
RELIEF VALVE
OIL PUMP
2ND LOCK VALVE
MANUAL VALVE
PRESSURE REGULATOR VALVE
P R N D 2 1
GOVERNOR PRESSURE
TORQUE CONVERTER PRESSURE
THROTTLE PRESSURE
LINE PRESSURE

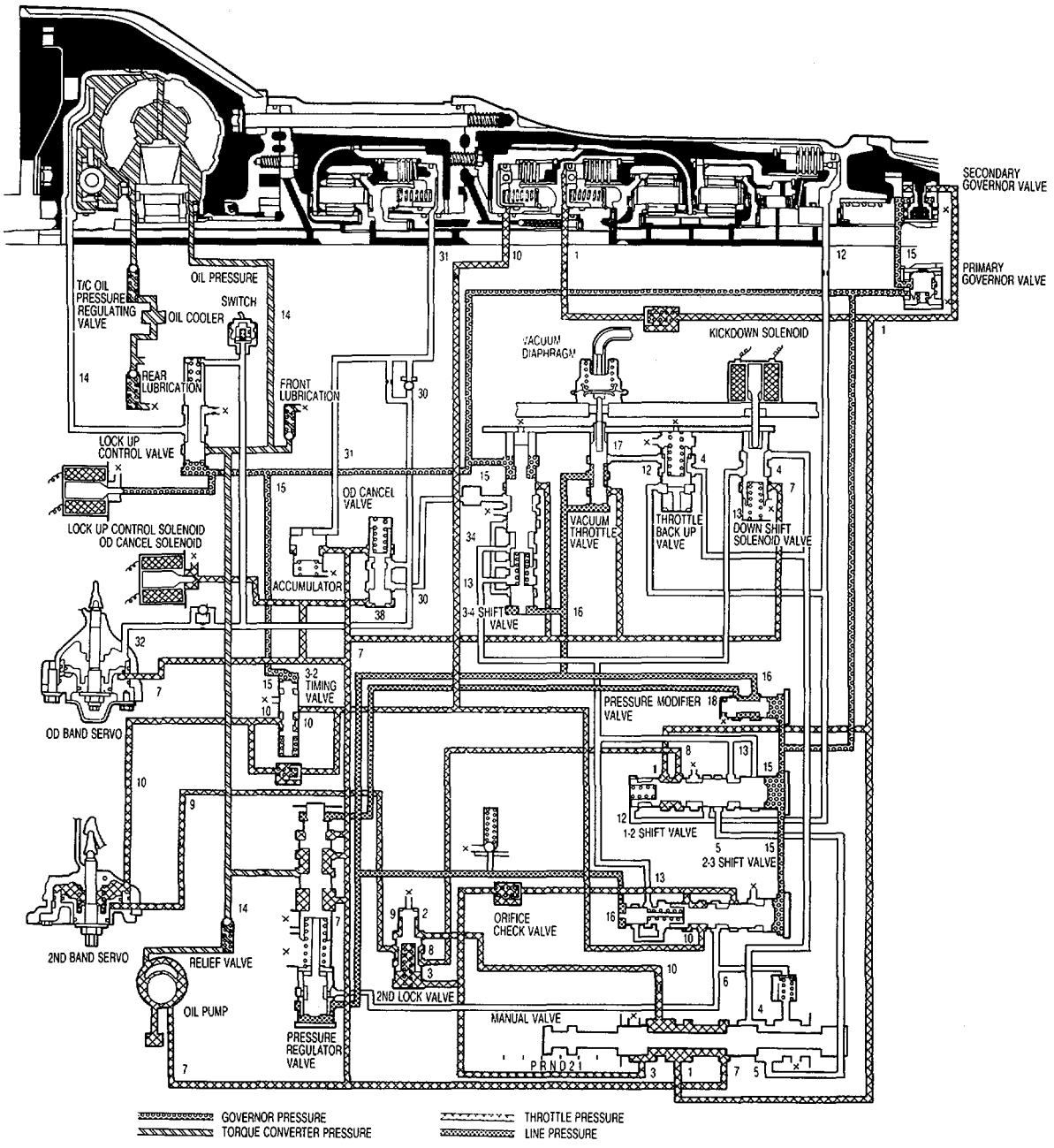
HYDRAULIC CIRCUIT

D RANGE; OD, LOCKUP OFF



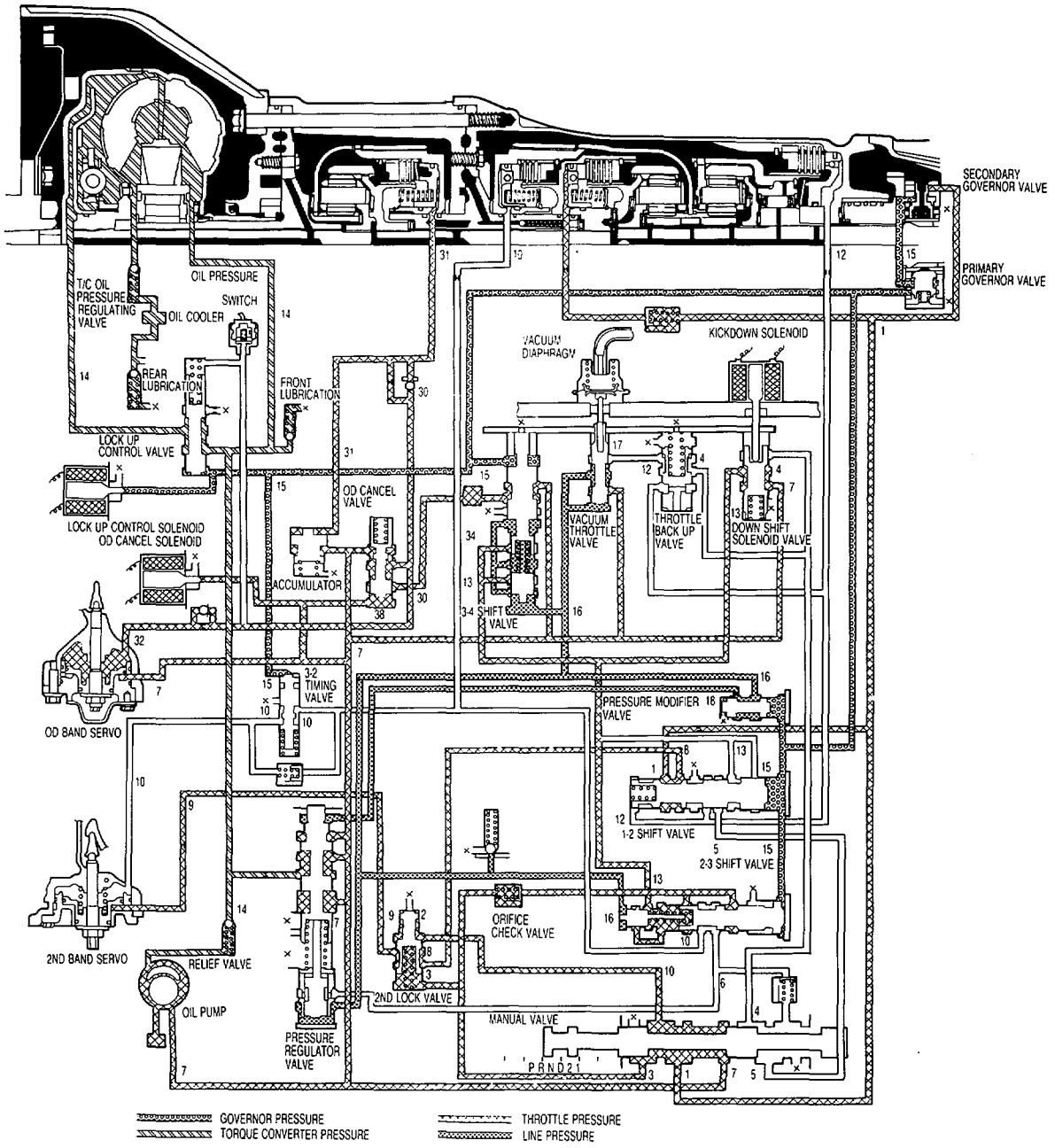
9MU0K2-443

D RANGE; OD, LOCKUP ON



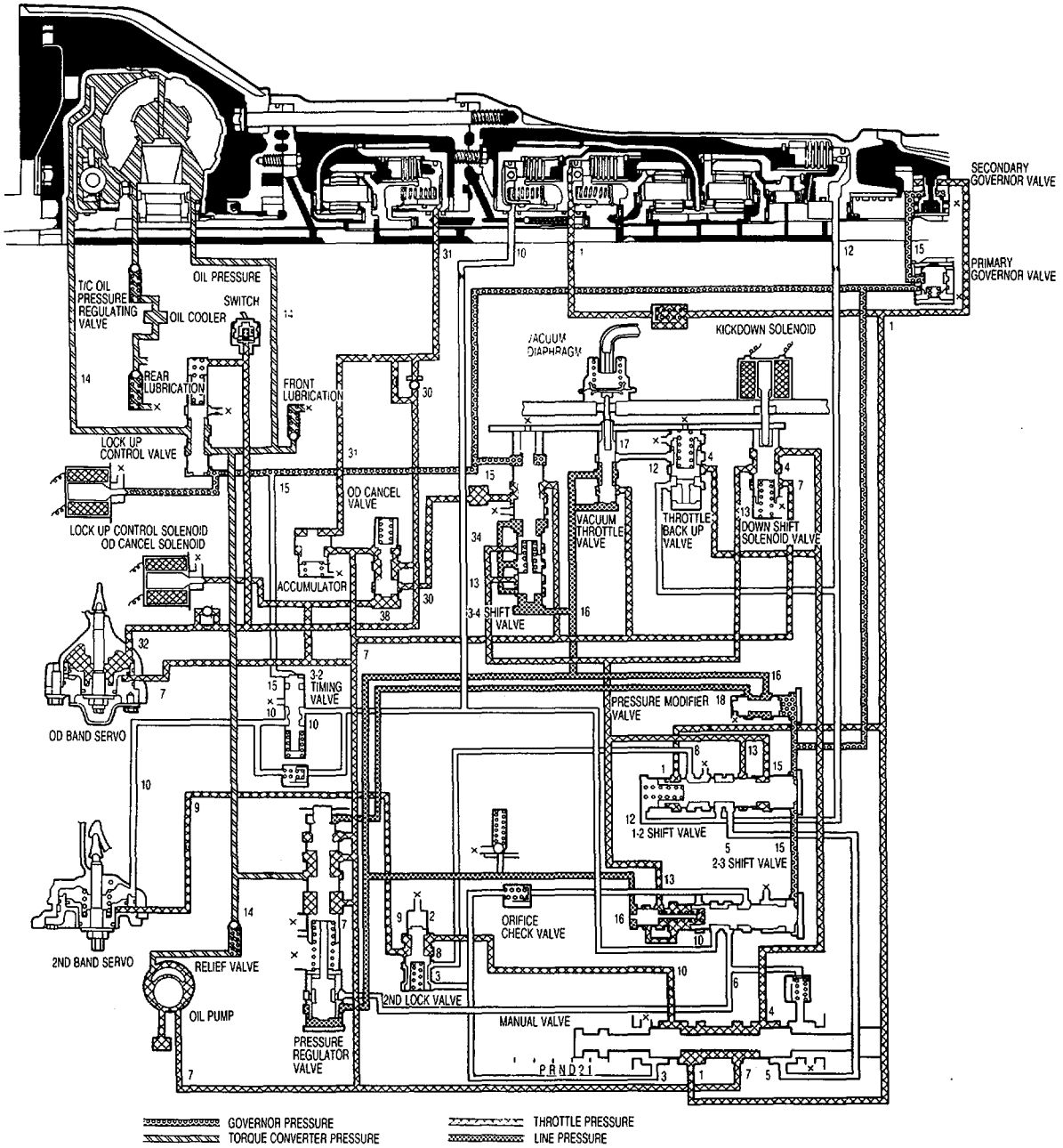
HYDRAULIC CIRCUIT

D RANGE; KICKDOWN

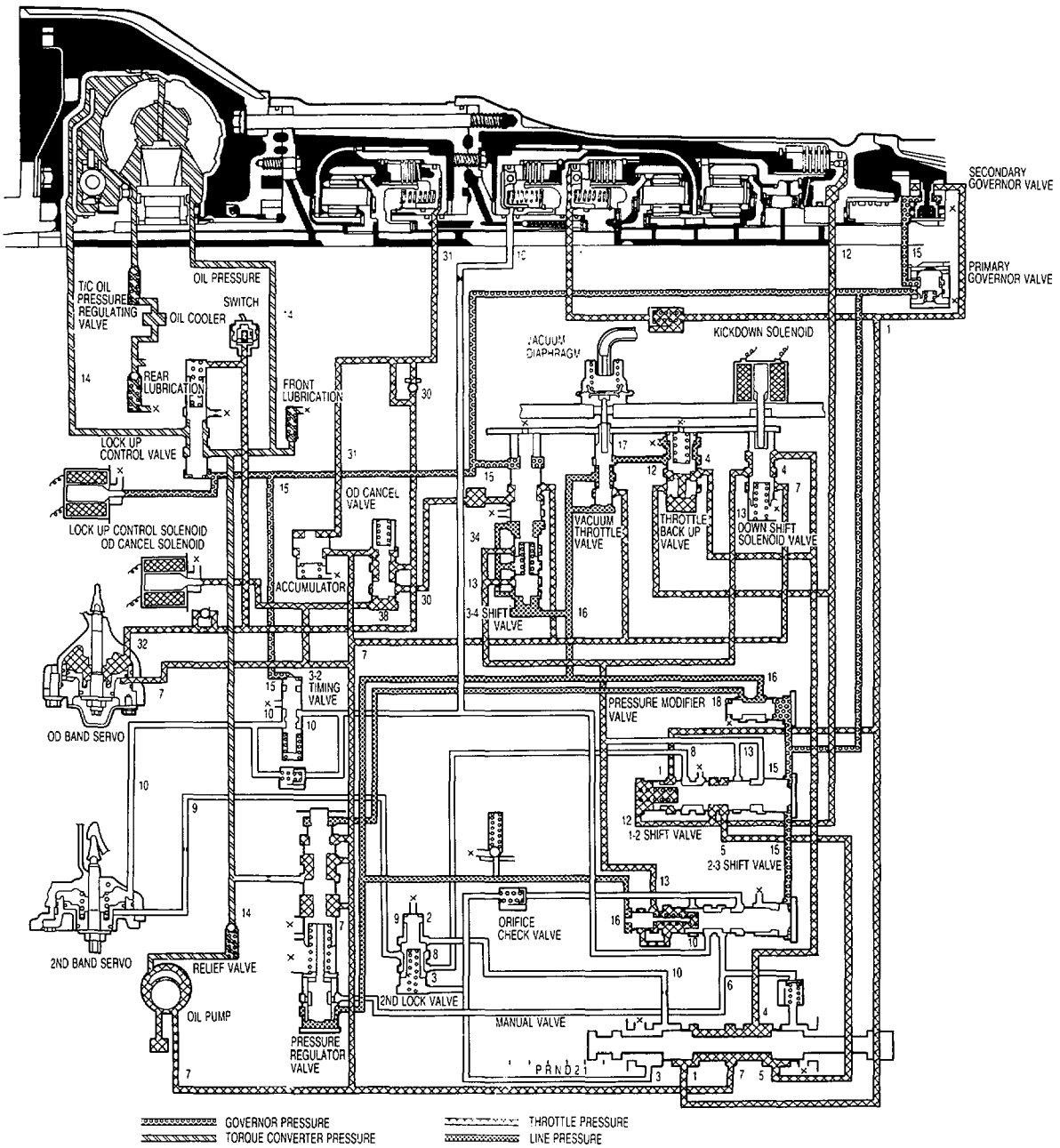


9MU0K2-445

2 RANGE

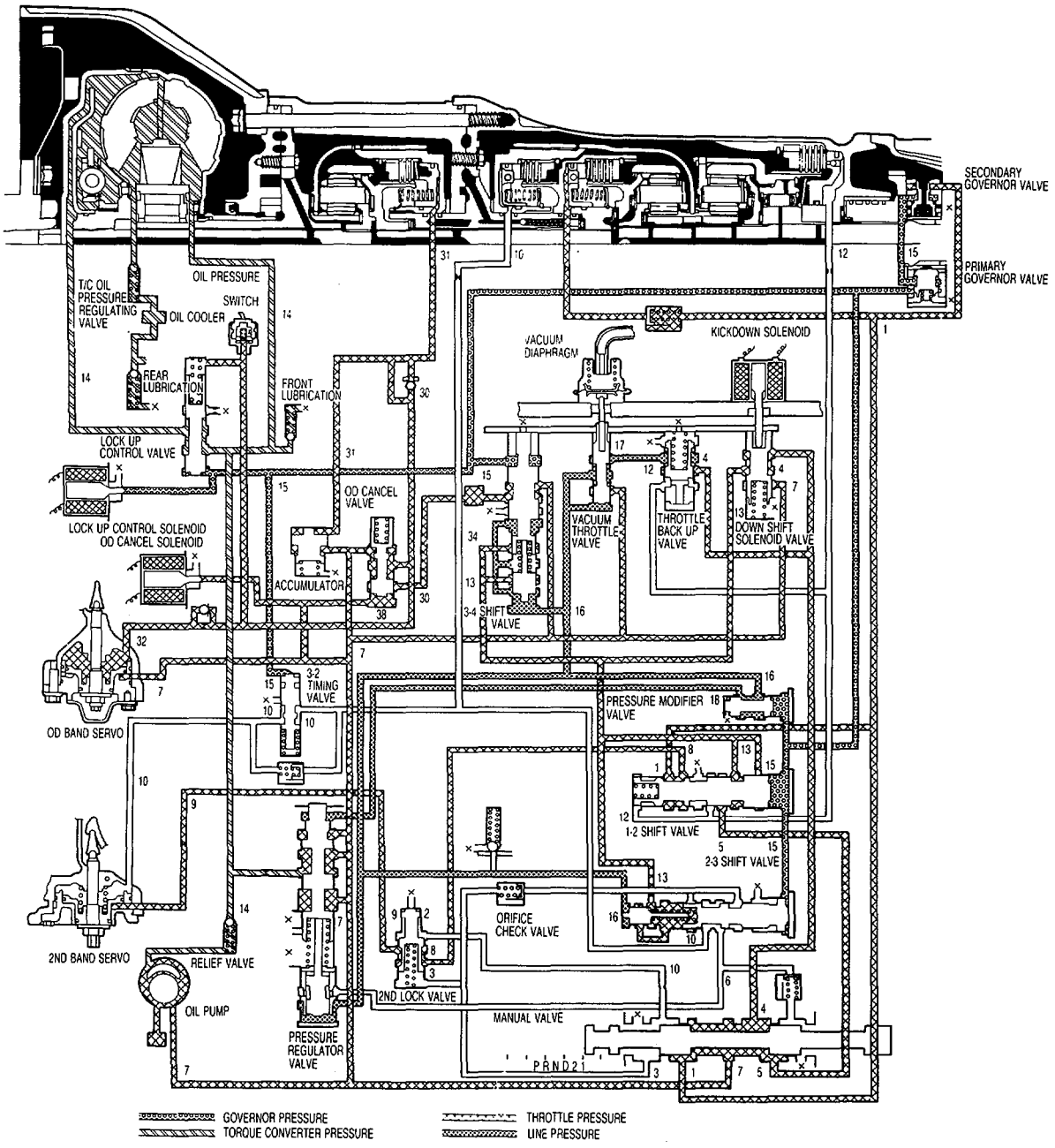

SECONDARY GOVERNOR VALVE
PRIMARY GOVERNOR VALVE
T/C OIL PRESSURE REGULATING VALVE
OIL PRESSURE SWITCH
OIL COOLER
REAR LUBRICATION
FRONT LUBRICATION
LOCK UP CONTROL VALVE
LOCK UP CONTROL SOLENOID
OD CANCEL SOLENOID
OD CANCEL VALVE
ACCUMULATOR
OD BAND SERVO
2ND BAND SERVO
RELIEF VALVE
OIL PUMP
PRESSURE REGULATOR VALVE
3-2 TIMING VALVE
2ND LOCK VALVE
ORIFICE CHECK VALVE
MANUAL VALVE
P R N D 2 1
VACUUM DIAPHRAGM
KICKDOWN SOLENOID
VACUUM THROTTLE VALVE
THROTTLE BACK UP VALVE
DOWN SHIFT SOLENOID VALVE
3-4 SHIFT VALVE
PRESSURE MODIFIER VALVE
1-2 SHIFT VALVE
2-3 SHIFT VALVE
GOVERNOR PRESSURE
TORQUE CONVERTER PRESSURE
THROTTLE PRESSURE
LINE PRESSURE

1 RANGE; 1ST GEAR



9MU0K2-447

1 RANGE; 2ND GEAR



PROPELLER SHAFT

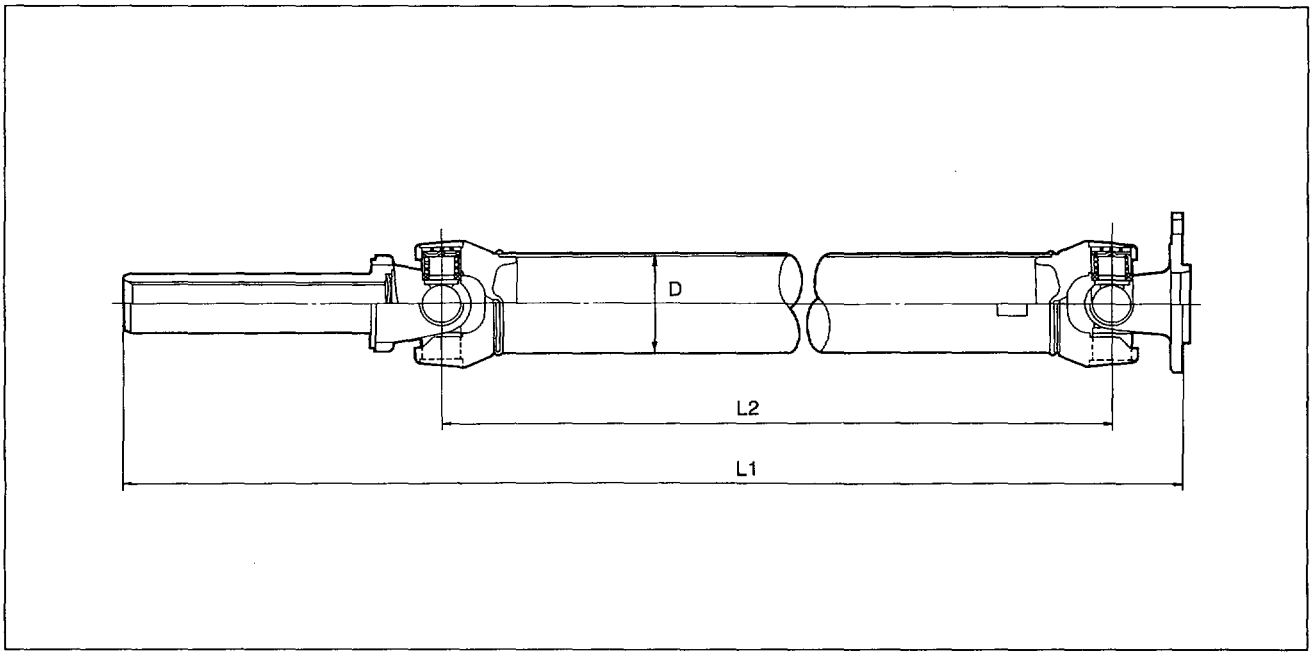
OUTLINE ..... **L– 2**
SPECIFICATIONS ..... **L– 2**
TROUBLESHOOTING GUIDE ..... **L– 2**
PROPELLER SHAFT ..... **L– 2**
PREPARATION ..... **L– 2**
REMOVAL / INSPECTION / INSTALLATION .. **L– 3**

25U0LX-001

OUTLINE

SPECIFICATIONS

Item \ Engine/Transmission			B6 DOHC	
			M5M-D	N4A-HL
Length	mm (in)	L1	1,049 (41.30)	
		L2	864 (34.02)	
Outer diameter	mm (in)	D	57 (2.24)	



15U0LX-001

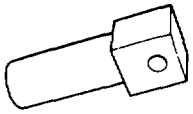
TROUBLESHOOTING GUIDE

Problem	Possible Cause	Action	Page
Vibration	Worn universal joint	Replace	L–3
	Bent propeller shaft	Replace	L–3
	Worn slip yoke splines	Replace	L–3
	Runout of propeller shaft	Replace	L–3
	Unbalanced propeller shaft	Replace	L–3
Abnormal noise	Worn or damaged universal joint	Replace	L–3
	Worn slip yoke splines	Replace	L–3

05U0LX-003

PROPELLER SHAFT

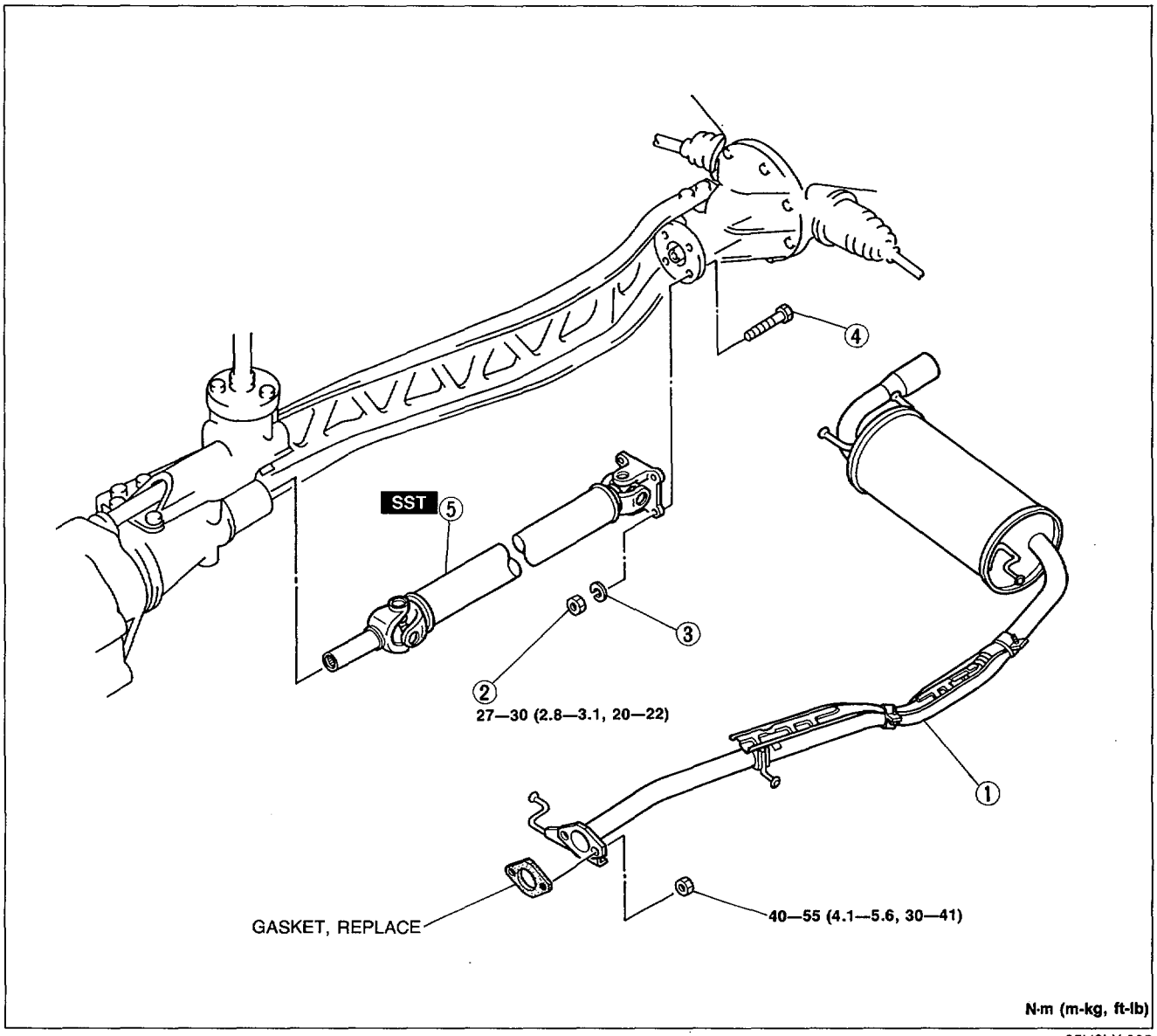
PREPARATION
SST

49 0259 440 Holder, main shaft		For prevention of oil leakage

05U0LX-004

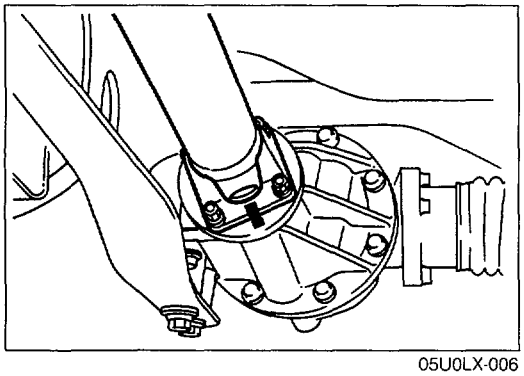
REMOVAL / INSPECTION / INSTALLATION

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Inspect all parts and repair or replace as necessary.
3. Install in the reverse order of removal, referring to **Installation Note**.



05U0LX-005

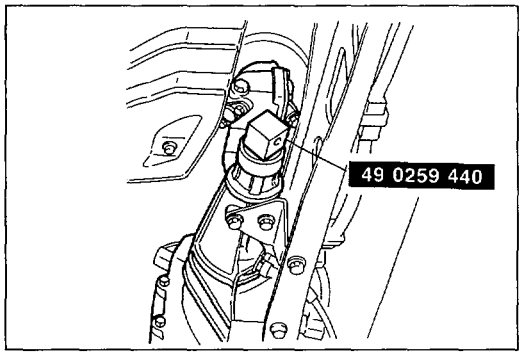
1. Exhaust pipe
2. Nut
3. Lock washer
4. Bolt
5. Propeller shaft
   Removal Note .. page L– 3
   Inspection..... page L– 4
   Installation Note page L– 4



05U0LX-006

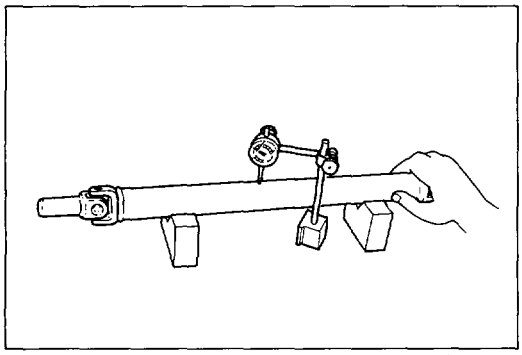
Removal Note
Propeller shaft

1. Before removing the propeller shaft, mark the flanges for correct installation.



05U0LX-007

2. When the propeller shaft is removed from the extension housing, immediately install the **SST** to prevent oil leakage.

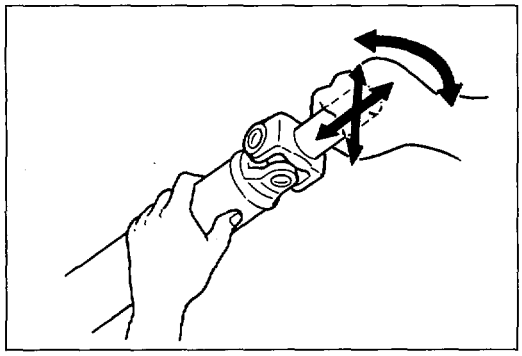

25U0LX-002

Inspection
Propeller shaft

Note
- **Clean the propeller shaft (except universal joints) thoroughly with a steam cleaner or cleaning solvent before inspection.**

1. Measure the propeller shaft runout with a dial indicator. Replace the propeller shaft if runout is excessive.

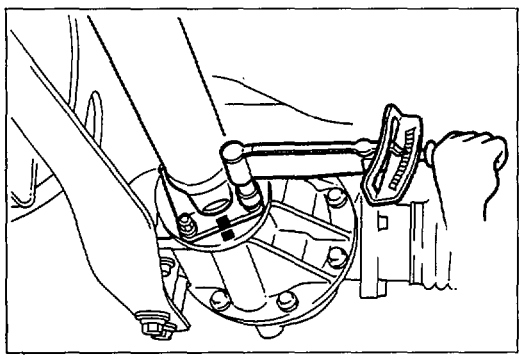
Maximum runout: 0.4mm (0.016 in)

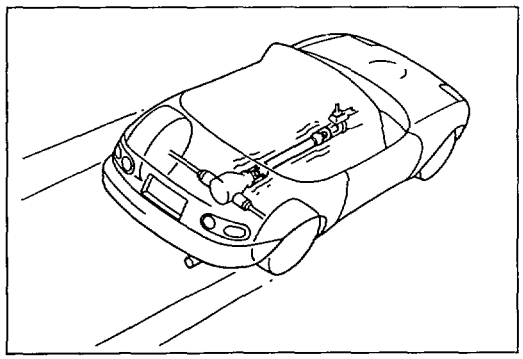

97U0LX-008

2. Move the universal joints in the directions shown, and check for universal joint looseness.
   If there is looseness, replace the propeller shaft.
3. Check operation of the universal joint.
   If the universal joint has excessive resistance, replace the propeller shaft.

Installation Note
1. Align the marks, and install the propeller shaft.

Tightening torque:
27—30 N·m (2.8—3.1 m-kg, 20—22 ft-lb)


05U0LX-009


05U0LX-010

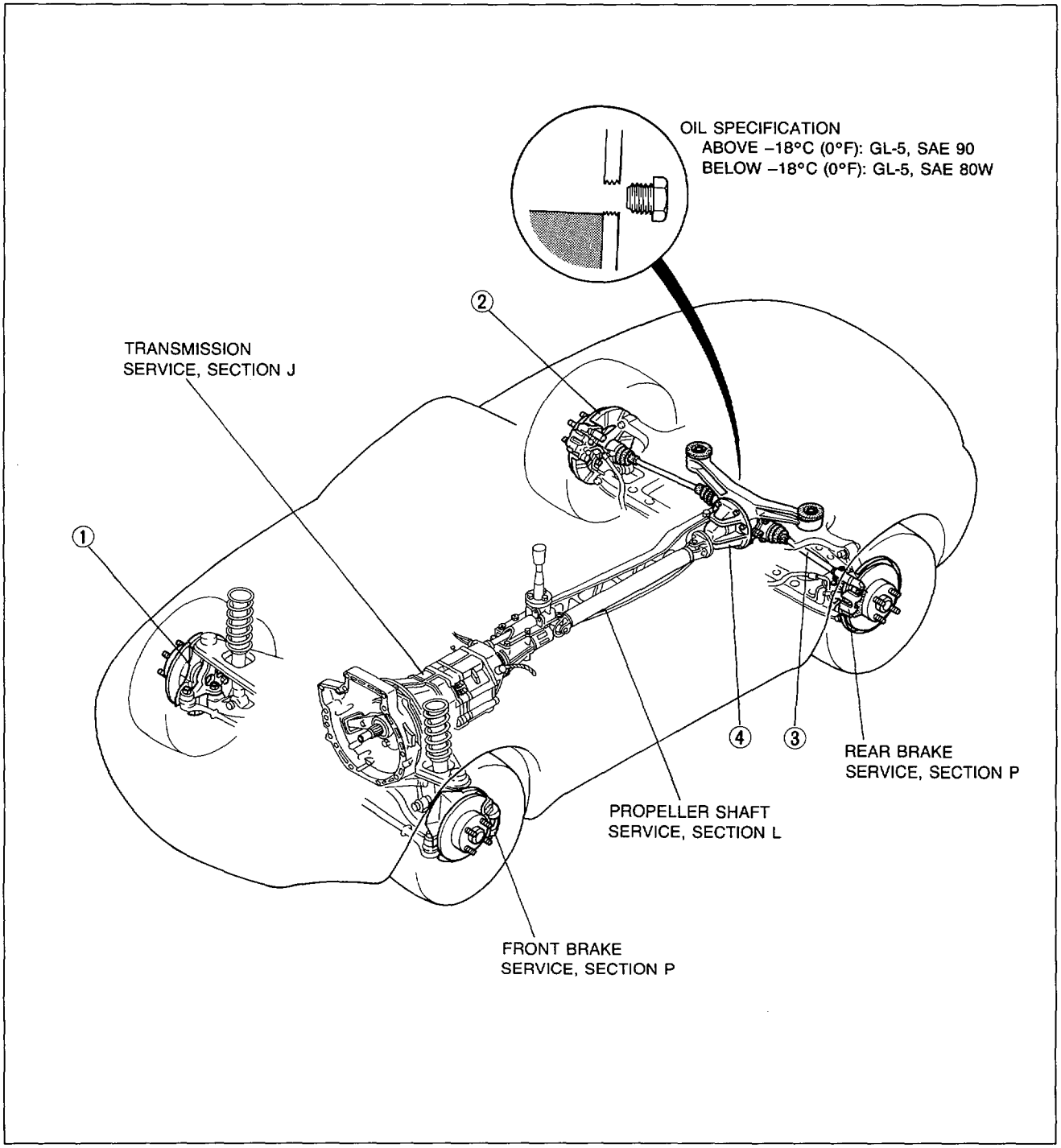
2. Check that there is no abnormal noise or vibration when driving the vehicle.
   If noise or vibration occurs from the propeller shaft, replace the propeller shaft.

FRONT AND REAR AXLES

INDEX ..... **M– 2**
OUTLINE ..... **M– 3**
SPECIFICATIONS ..... **M– 3**
TROUBLESHOOTING GUIDE ..... **M– 3**
FRONT AXLE ..... **M– 3**
REAR AXLE ..... **M– 3**
DIFFERENTIAL, STANDARD ..... **M– 4**
DIFFERENTIAL, VISCOUS LIMITED SLIP ..... **M– 4**
FRONT AXLE ..... **M– 5**
PREPARATION ..... **M– 5**
WHEEL HUB, STEERING KNUCKLE ..... **M– 6**
REAR AXLE **M–10**
PREPARATION **M–10**
DISC BRAKE TYPE **M–11**
DRIVE SHAFT **M–17**
DOUBLE OFFSET JOINT **M–17**
DIFFERENTIAL **M–23**
PREPARATION **M–23**
DIFFERENTIAL OIL **M–25**
OIL SEAL (OUTPUT SHAFT) **M–25**
OPERATION INSPECTION **M–27**
DIFFERENTIAL, STANDARD; DIFFERENTIAL, VISCOUS LIMITED SLIP (VISCOUS L.S.D.) **M–28**

25U0MX-001

INDEX



25U0MX-002

1. Front axle
Inspection / Removal / Installation ..... page M– 6
Disassembly / Inspection / Assembly ..... page M– 8
2. Rear axle
Inspection / Removal / Installation ..... page M–11
Disassembly / Inspection / Assembly ..... page M–13
3. Drive shaft
Inspection / Removal / Installation ..... page M–17
Overhaul ..... page M–19
4. Differential
(Standard, Viscous limited slip differential)
Differential oil ..... page M–25
Oil seal (Output shaft) ..... page M–25
Operation inspection ..... page M–27
Removal / Installation ..... page M–28
Overhaul ..... page M–33

OUTLINE

SPECIFICATIONS

Item				Specifications	
Front axle	Type			Double-wishbone	
	Bearing			Angular ball bearing	
	Maximum wheel bearing play mm (in)			0.05 (0.002)	
Rear axle	Type			Double-wishbone	
	Bearing			Angular ball bearing	
	Maximum wheel bearing play mm (in)			0.05 (0.002)	
Differential	Type			Standard	Viscous L.S.D.
	Reduction gear			Hypoid gear	
	Reduction ratio			4.300	
	Differential gear			Straight-bevel gear	
	Ring gear size mm (in)			162.16 (6.384)	
	Oil	Grade		API service GL-5	
		Viscosity		Above −18°C (0°F): SAE 90 Below −18°C (0°F): SAE 80W	
		Capacity liter (US qt, Imp qt)		0.65 (0.69, 0.57)	
Drive shaft	Type			Constant velocity (double offset) joint	
	Length mm (in)			659.5 (25.965)	

Viscous L.S.D.: Viscous Limited Slip Differential

25U0MX-003

TROUBLESHOOTING GUIDE

FRONT AXLE

Problem	Possible Cause	Action	Page
Steering wheel vibration	Worn or damaged wheel bearing	Replace	M– 6
Pulls or one-sided braking	Worn or damaged wheel bearing	Replace	M– 6

15U0MX-004

REAR AXLE

Problem	Possible Cause	Action	Page
Abnormal noise	Bent drive shaft Worn or damaged wheel bearing Worn drive shaft spline	Replace Replace Replace	M–17 M–13 M–17

REAR AXLE (Cont'd)

Problem	Possible Cause	Action	Page
Body "rolls"	Worn or deteriorated upper arm bushing	Replace	M–13, Section R
Body leans	Weak upper arm bushing	Replace	M–13, Section R
Abnormal noise from suspension system	Worn or deteriorated upper arm bushing	Replace	M–13, Section R

25U0MX-004

DIFFERENTIAL, STANDARD

Problem	Possible Cause	Action	Page
Abnormal noise	Insufficient differential oil	Add oil	M–25
	Incorrect differential oil	Replace	M–25
	Improperly adjusted ring gear backlash	Adjust	M–41
	Poor contact of ring gear teeth	Adjust	M–42
	Worn or damaged side bearing	Replace	M–33
	Worn or damaged ring gear	Replace	M–33
	Worn or damaged drive pinion bearing	Replace	M–33
	Worn or damaged pinion and side gear	Replace	M–33
	Seized side gear and case	Replace	M–33
	Worn side gear spline	Replace	M–33
	Worn pinion shaft	Replace	M–33
	Worn thrust washer	Replace	M–33
	Improperly adjusted side gear backlash	Adjust	M–41
	Improperly adjusted drive pinion gear preload	Adjust	M–39
Heat buildup	Insufficient differential oil	Add oil	M–25
	Insufficient gear backlash	Adjust	M–41
	Excessive bearing preload	Adjust	M–39, 41
Oil leakage	Excessive differential oil	Remove oil	M–25
	Loose differential carrier	Tighten or repair	M–43
	Worn or damaged oil seal	Replace	M–33
No differential operation	Misassembled	Repair	M–33

15U0MX-006

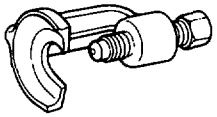
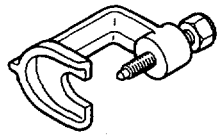
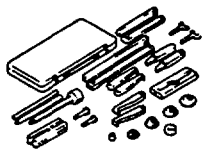
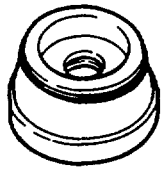
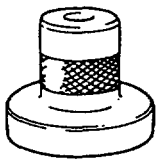
DIFFERENTIAL, VISCOUS LIMITED SLIP

Problem	Possible Cause	Action	Page
Abnormal noise	Insufficient differential oil	Add oil	M–25
	Incorrect differential oil	Replace	M–25
	Improperly adjusted ring gear backlash	Adjust	M–41
	Poor contact of ring gear teeth	Adjust	M–42
	Worn or damaged viscous limited slip differential oil seal	Replace	M–25, 33
	Worn or damaged ring gear	Replace	M–33
	Worn or damaged drive pinion bearing	Replace	M–33
Heat buildup	Insufficient differential oil	Add oil	M–25
	Excessive bearing preload	Adjust	M–39, 41
Oil leakage	Excessive differential oil	Remove oil	M–25
	Loose differential carrier	Tighten or repair	M–43
	Worn or damaged oil seal	Replace	M–25, 33
No differential operation	Misassembled	Repair	M–33

15U0MX-007

FRONT AXLE

PREPARATION
SST

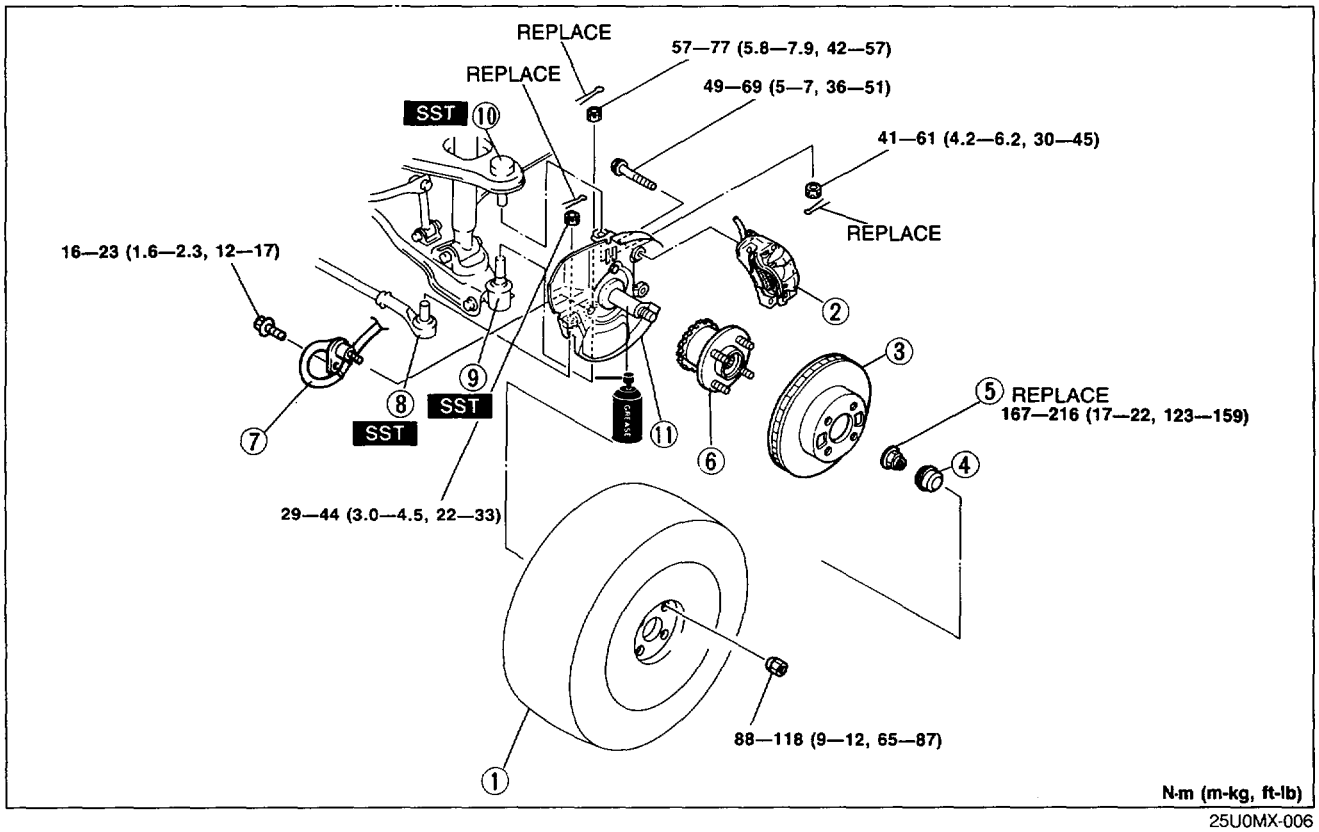
49 0118 850C Puller, ball joint 	For disconnection of tie rod end and upper arm ball joint	49 0727 575 Puller, ball joint 	For disconnection of lower arm ball joint
49 0839 425C Puller set, bearing 	For removal of sensor rotor (ABS)	49 F027 007 Attachment for bearing ϕ72 	For removal of sensor rotor (ABS)
49 V001 795 Installer, oil seal 	For installation of sensor rotor (ABS)		

25U0MX-005

WHEEL HUB, STEERING KNUCKLE

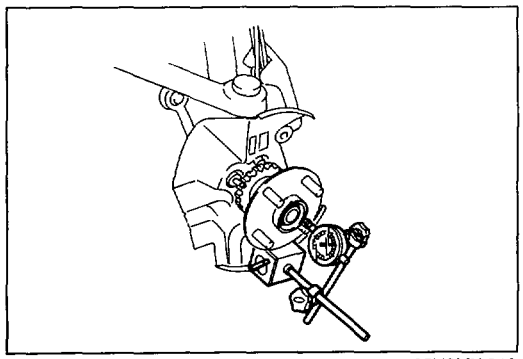
Inspection / Removal / Installation

1. Inspect wheel bearing play, referring to **Inspection**.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Inspect all parts and repair or replace as necessary.
4. Install in the reverse order of removal, referring to **Installation Note**.



25U0MX-006

1. Front wheel
2. Brake caliper assembly
   Removal Note ..... page M–7
3. Disc plate
4. Hub cap
5. Locknut
   Installation Note ..... page M–7
6. Front wheel hub assembly
   Inspect for cracks and damage
   Disassembly / Inspection / Assembly ..... page M–8
7. Wheel speed sensor (ABS)
8. Tie rod end
   Removal Note ..... page M–7
   Service ..... Section N
9. Lower arm
   Removal Note ..... page M–7
   Service ..... Section R
10. Upper arm
    Removal Note ..... page M–7
    Service ..... Section R
11. Dust cover and knuckle spindle
    Inspect dust cover for damage and distortion
    Inspect knuckle spindle for cracks and damage
    Disassembly / Inspection / Assembly ..... page M–8



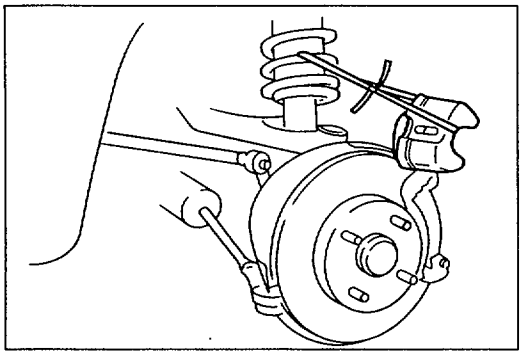
05U0MX-010

Inspection

Wheel bearing play

1. Remove the wheel, brake caliper assembly, and disc plate, referring to **Removal note** below.
2. Position a dial indicator against the wheel hub. Push and pull the wheel hub by hand in the axial direction and measure the wheel bearing play.
   If the bearing play exceeds specification, check and adjust the locknut torque or replace the wheel hub assembly if necessary.

Maximum wheel bearing play: 0.05mm (0.002 in)

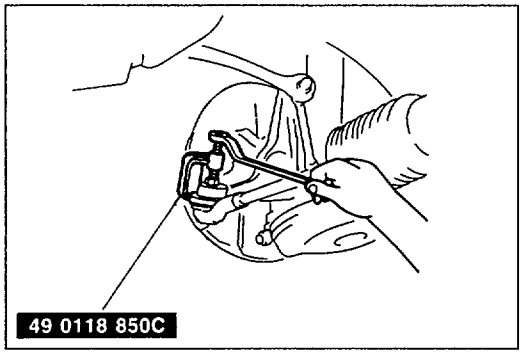


05U0MX-011

Removal note
Brake caliper assembly

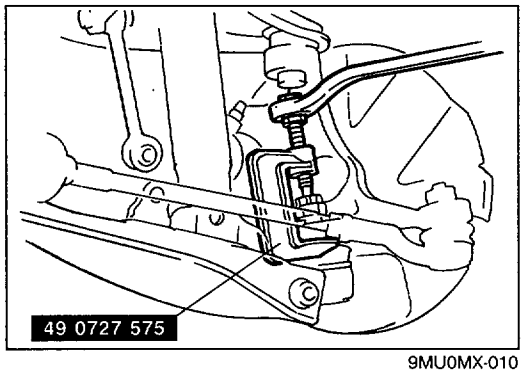
Note
- **For easier installation, do not depress the brake pedal after removing the brake caliper assembly.**

Suspend the brake caliper assembly with a rope.



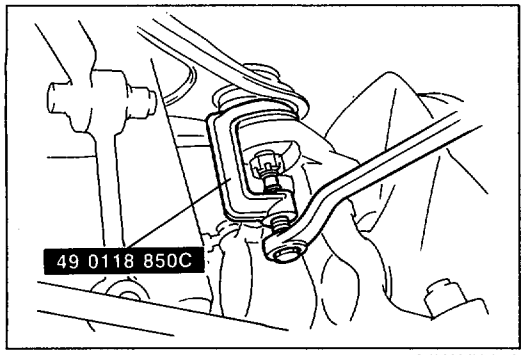
25U0MX-007

Tie rod end
Loosen the nut and disconnect the tie rod end with the **SST**.



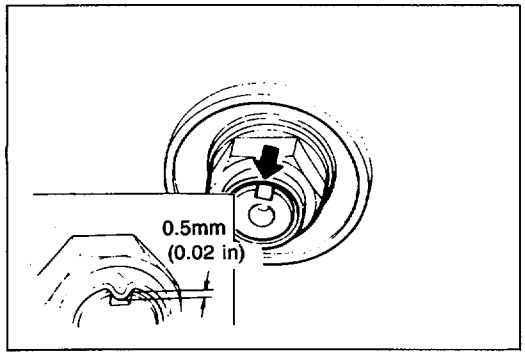
9MU0MX-010

Lower arm
Loosen the nut and disconnect the lower arm with the **SST**.



05U0MX-013

Upper arm
Loosen the nut and disconnect the upper arm with the **SST**.



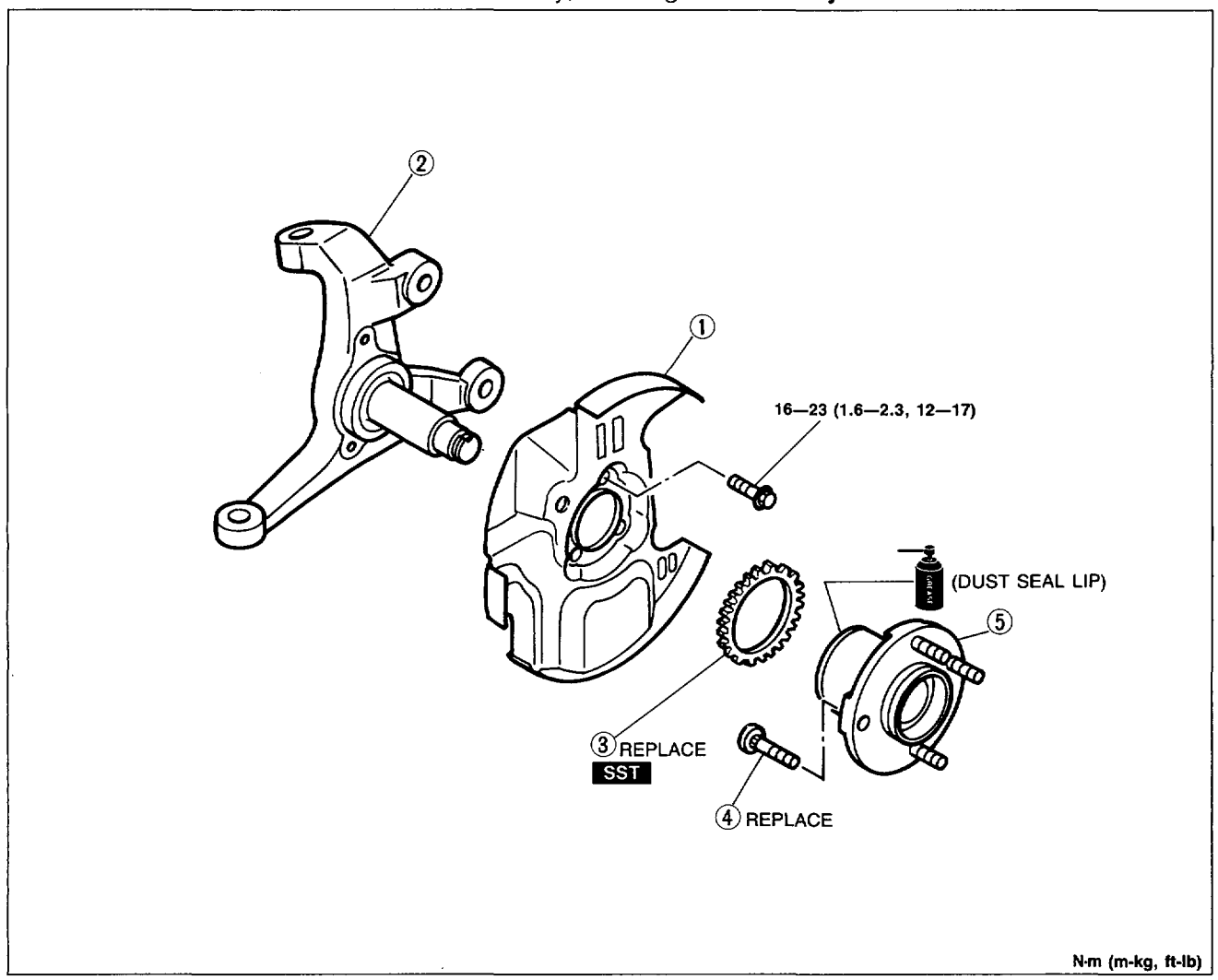
05U0MX-014

Installation note
Locknut
Install a new locknut and stake it.

Tightening torque:
167—216 N·m (17—22 m-kg, 123—159 ft-lb)

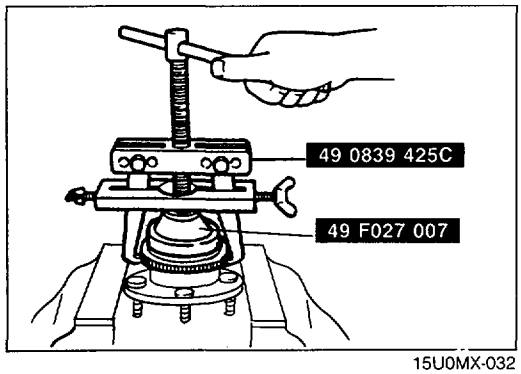
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



25U0MX-008

1. Dust cover
2. Knuckle spindle
3. Sensor rotor (ABS)
   Disassembly Note..... page M–8
   Assembly Note ..... page M–9
4. Hub bolt
   Disassembly Note..... page M–8
   Assembly Note ..... page M–9
5. Front wheel hub assembly
   Inspection ..... page M–9



15U0MX-032

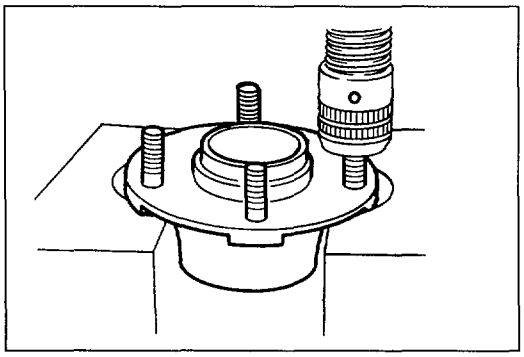
Disassembly note

Note
- **Do not remove the hub bolts unless necessary.**
- **Do not reuse the hub bolts if removed.**

Sensor rotor (ABS)

Secure the front wheel hub in a vise and remove the sensor rotor with the **SST**.

Note
- **Do not remove the sensor rotor unless necessary.**
- **Do not reuse the sensor rotor if removed.**

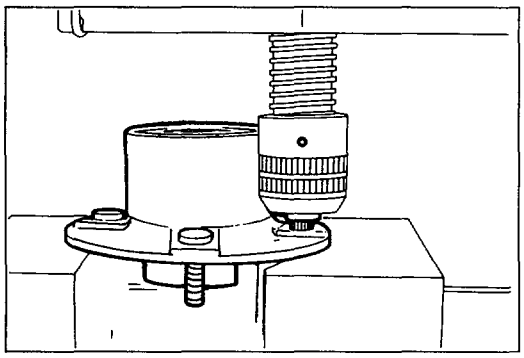


15U0MX-011

Hub bolts

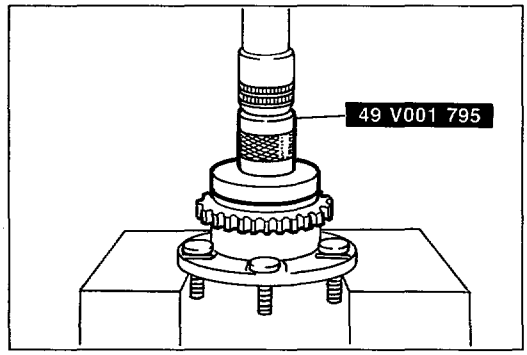
Caution
- **Do not remove the hub bolts if not necessary.**
- **Do not reuse the removed hub bolts.**

Remove the hub bolts with a press.



05U0MX-017

Assembly note
Hub bolts
Install the new hub bolts with a press.



25U0MX-009

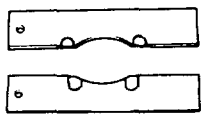
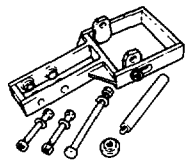
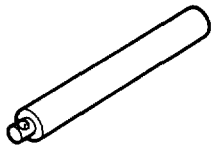
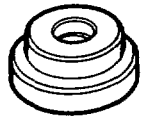
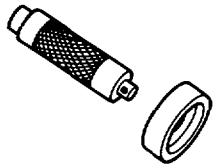
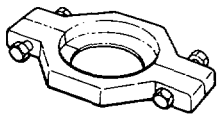
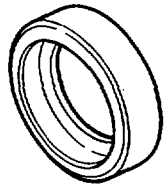
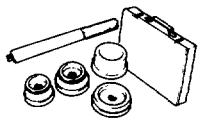
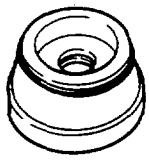
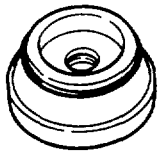
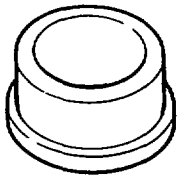
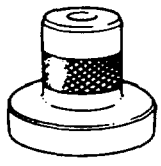
Sensor rotor (ABS)
Install a new sensor rotor with the **SST** and a press.

Inspection
Front wheel hub assembly
Inspect for damage.

Note
- **Front wheel hub assembly can not be disassembled. Replace it as an assembly if necessary.**

REAR AXLE

PREPARATION
SST

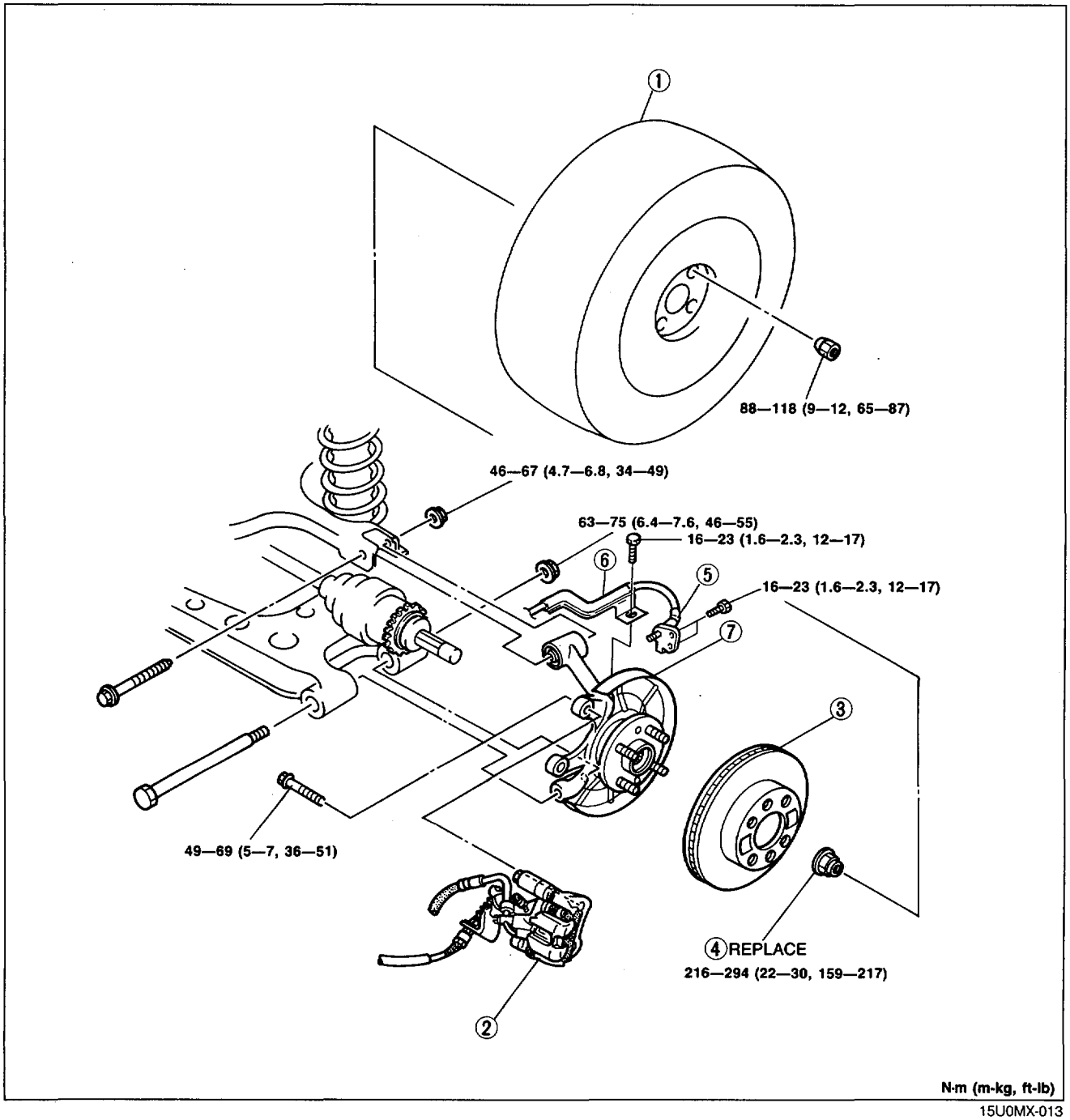
49 F026 103 Puller, wheel hub 	For disassembly and assembly of rear axle	49 B026 1A0 Puller, wheel hub 	For disassembly and assembly of wheel hub
49 G033 102 Handle (Part of 49 B026 1A0) 	For removal and installation of rear wheel hub	49 G030 727 Attachment A (Part of 49 B026 1A0) 	For removal and installation of rear wheel hub
49 G030 795 Installer, oil seal 	For installation of oil seal	49 G030 797 Handle (Part of 49 G030 795)	For removal and installation of wheel bearing
49 0636 145 Puller, fan pulley boss 	For removal of wheel bearing	49 G033 107 Installer, dust cover 	For installation of dust cover
49 F027 0A1 Installer set, bearing 	For installation of bearing	49 F027 005 Attachment 62 (Part of 49 F027 0A1) 	For assembly of rear axle
49 F027 007 Attachment 72 (Part of 49 F027 0A1) 	For assembly of rear axle	49 F027 009 Attachment 68 & 77 (Part of 49 F027 0A1) 	For assembly of rear axle
49 V001 795 Installer, oil seal 	For installation of oil seal		

05U0MX-018

DISC BRAKE TYPE

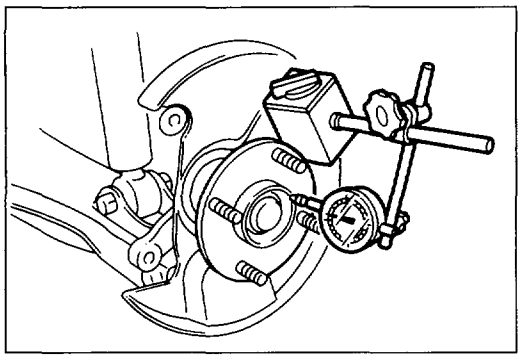
Inspection / Removal / Installation

1. Inspect wheel bearing play, referring to **Inspection**.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Inspect all parts and repair or replace as necessary.
4. Install in the reverse order of removal, referring to **Installation Note**.
5. After installation, adjust the rear wheel alignment. (Refer to Section R.)

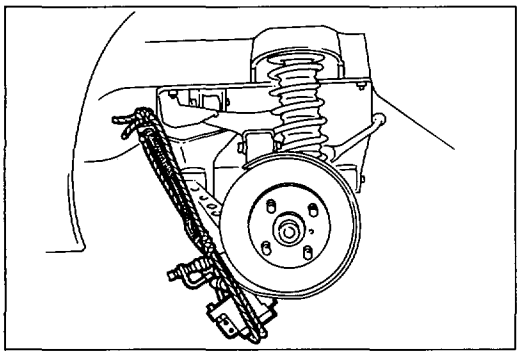


15U0MX-013

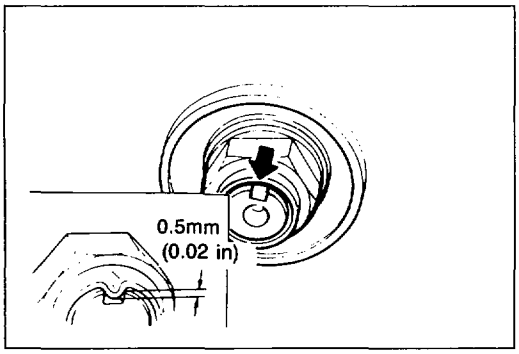
1. Rear wheel
2. Brake caliper assembly
   Removal Note ..... page M–12
3. Disc plate
4. Locknut
   Installation Note ..... page M–12
5. Wheel speed sensor (ABS)
6. Sensor bracket
7. Knuckle, wheel hub, and dust cover
   Inspect knuckle for cracks and damage
   Inspect wheel hub for cracks and damage
   Inspect dust cover for damage and distortion
   Disassembly / Inspection / Assembly ..... page M–13



05U0MX-020



05U0MX-021



05U0MX-022

Inspection
Wheel bearing play

1. Remove the wheel, brake caliper assembly, and disc plate, referring to **Removal note** below.
2. Position a dial indicator against the wheel hub. Push and pull the wheel hub by hand in the axial direction and measure the wheel bearing play.
   If the bearing play exceeds specification, check and adjust the locknut torque or replace the wheel bearing if necessary.

Maximum wheel bearing play: 0.05mm (0.002 in)

Removal note
Brake caliper assembly

Note
- **For easier installation, do not depress the brake pedal after removing the brake caliper assembly.**

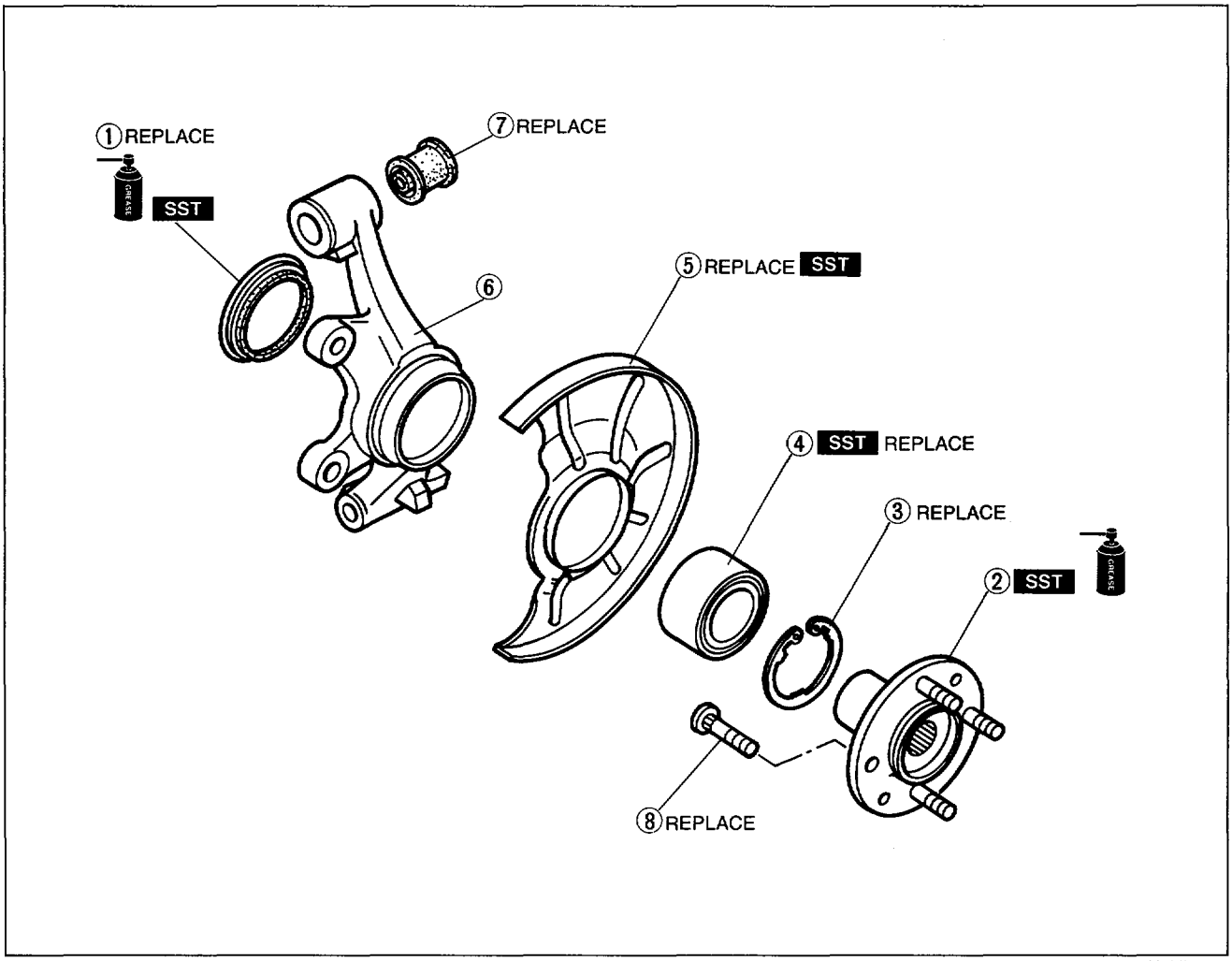
Suspend the brake caliper assembly with a rope.

Installation note
Locknut
Install a new locknut and stake it.

Tightening torque:
216—294 N·m (22—30 m-kg, 159—217 ft-lb)

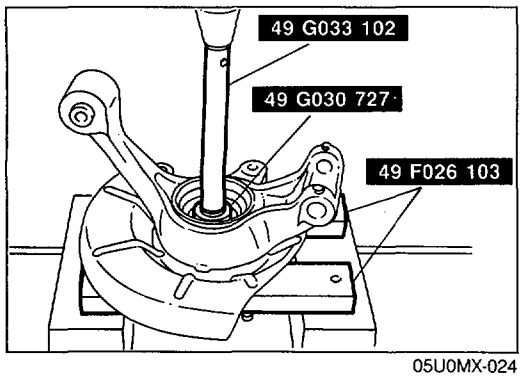
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



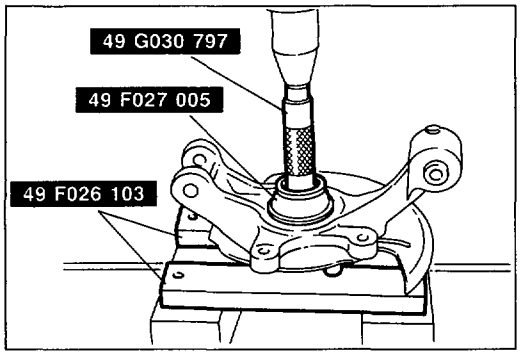
15U0MX-014

1. Oil seal
   Assembly Note ..... page M–16
2. Rear wheel hub assembly
   Disassembly Note..... page M–13
   Assembly Note ..... page M–16
3. Retaining ring
4. Wheel bearing
   Disassembly Note..... page M–14
   Assembly Note ..... page M–15
5. Dust cover
   Disassembly Note..... page M–14
   Assembly Note ..... page M–15
6. Knuckle
7. Bushing
8. Hub bolt
   Disassembly Note..... page M–15
   Assembly Note ..... page M–15



05U0MX-024

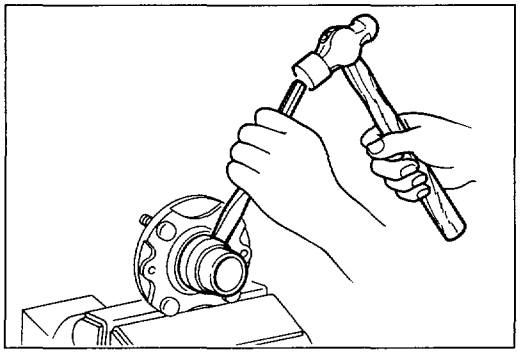
Disassembly note
Rear wheel hub assembly
Press out the rear wheel hub assembly with the **SST**.



05U0MX-025

Wheel bearing

Press out the wheel bearing with the **SST**.

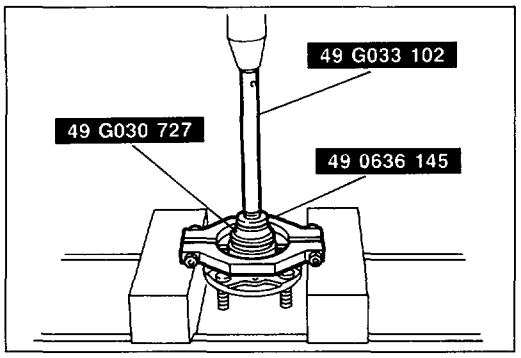


05U0MX-026

Note

- **If the bearing inner race remains on the rear wheel hub assembly, remove as follows.**

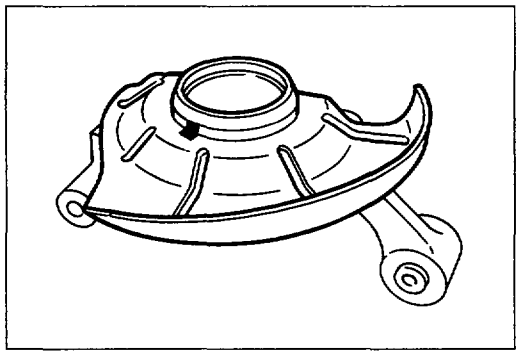
1. Move the bearing inner race away from the rear wheel hub assembly with a chisel.



9MU0MX-617

2. Press the bearing inner race off the wheel hub with the **SST**.

Dust cover

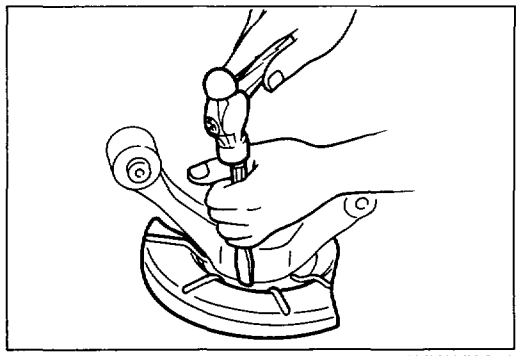


05U0MX-027

Caution

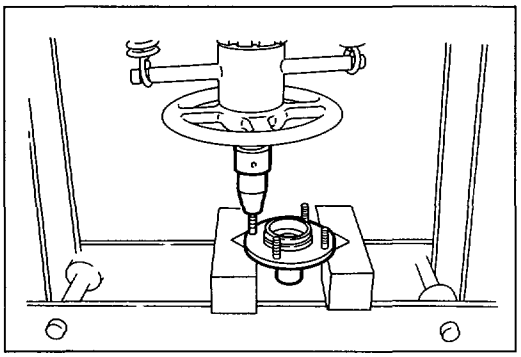
- **Do not remove the dust cover if not necessary.**
- **Do not reuse the removed dust cover.**

1. Mark the dust cover and knuckle for proper reassembly.



9MU0MX-014

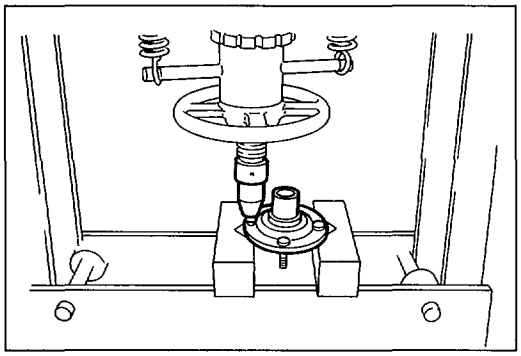
2. Remove the dust cover with a chisel.


05U0MX-028

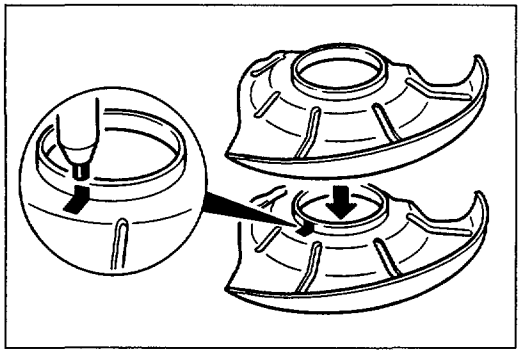
Hub bolt

Caution
- **Do not remove the hub bolts if not necessary.**
- **Do not reuse the removed hub bolts.**

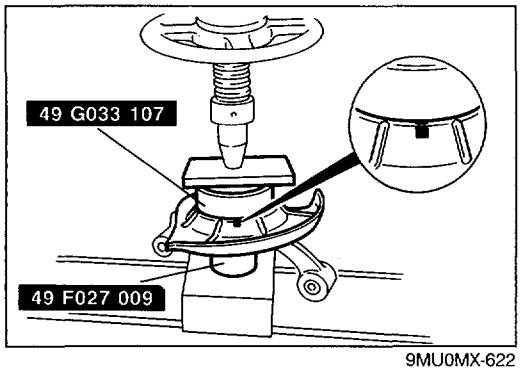
Press out the hub bolts.


9MU0MX-620

Assembly note
Hub bolt
Press in new hub bolts.

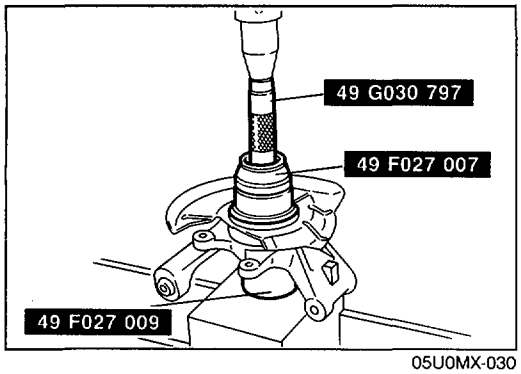

05U0MX-029

Dust cover
1. Mark the new dust cover as the removed one.



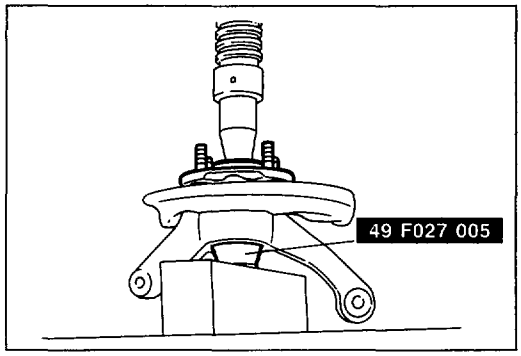
9MU0MX-622

2. Align the marks of the new dust cover and the knuckle.
3. Install the new dust cover with the **SST**.



05U0MX-030

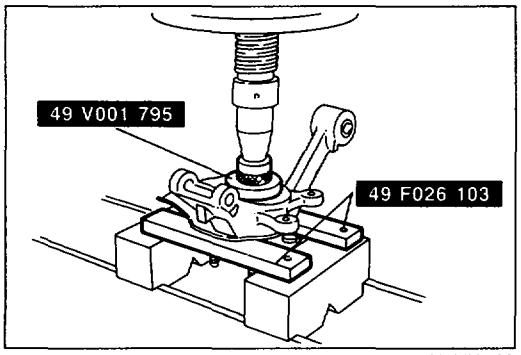
Wheel bearing
Press the new wheel bearing into the knuckle with the **SST**.



05U0MX-031

Rear wheel hub assembly

1. Apply grease to the wheel bearing inner race.
2. Press the rear wheel hub assembly in with the **SST**.



05U0MX-032

Oil seal

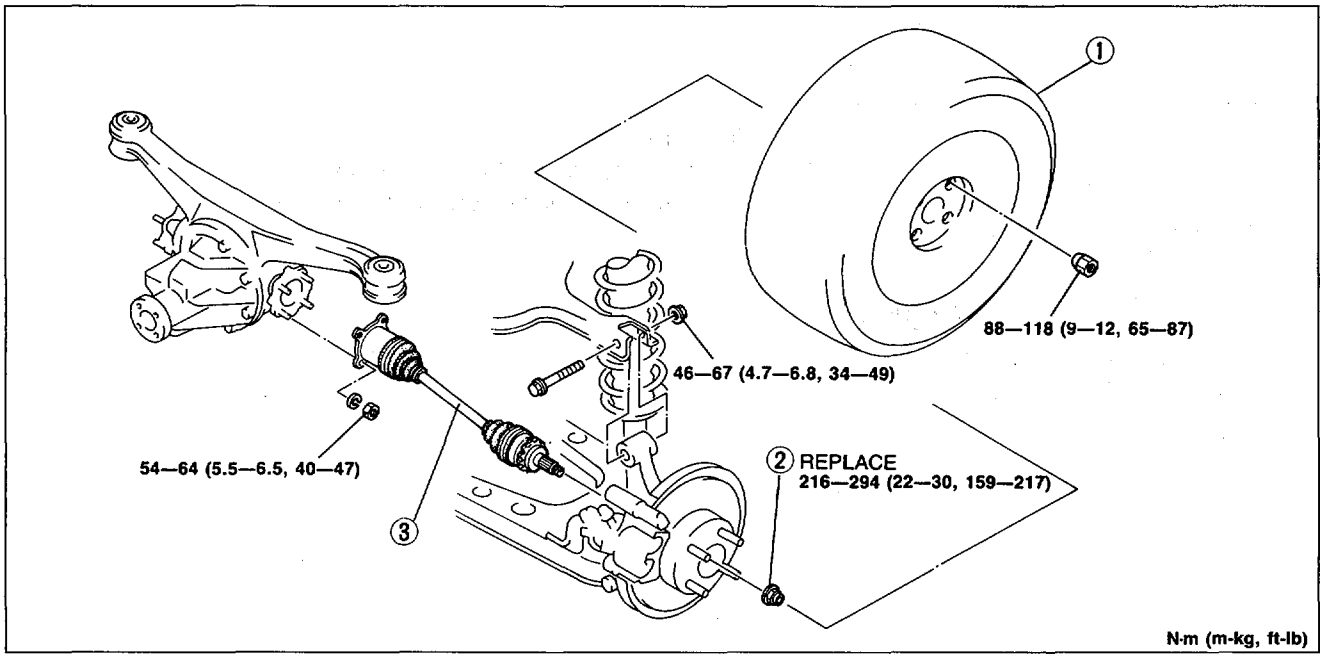
1. Apply grease to the new oil seal lip.
2. Install the new oil seal with the **SST**.

DRIVE SHAFT

DOUBLE OFFSET JOINT

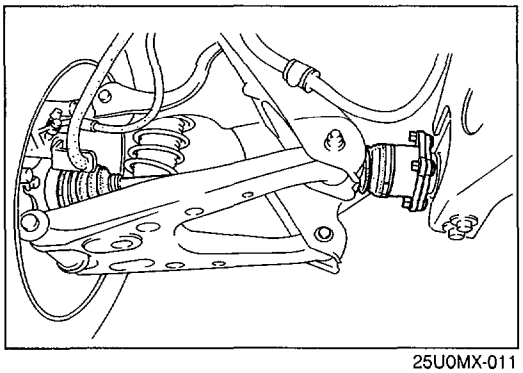
Inspection / Removal / Installation

1. Inspect the drive shaft, referring to **Inspection**.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Install in the reverse order of removal, referring to **Installation Note**.
4. After installation, adjust the rear wheel alignment. (Refer to Section R.)

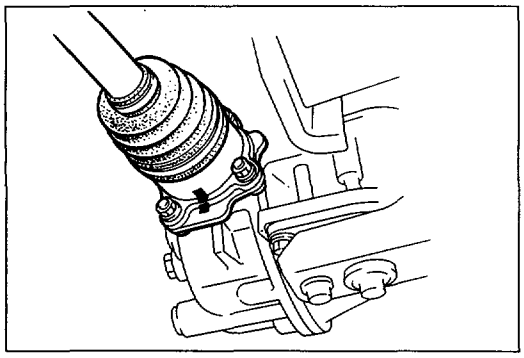


25U0MX-010

1. Rear wheel
2. Locknut
   Installation Note ..... page M–18
3. Drive shaft
   Inspection ..... page M–17
   Removal Note ..... page M–17
   Installation Note ..... page M–18
   Overhaul ..... page M–19



25U0MX-011



25U0MX-012

Inspection

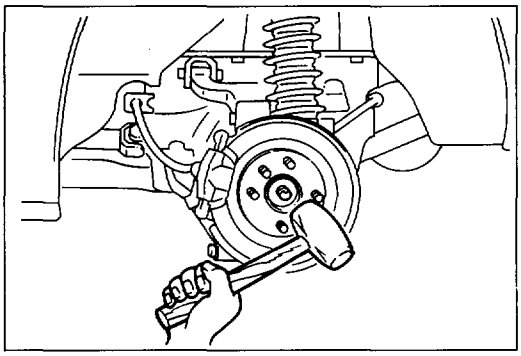
Drive shaft

1. Check the dust boot on the drive shaft for cracks, damage, leaking grease, and a loose boot band.
2. Check the drive shaft for bending, cracks, and wear of joints or splines.
3. Repair or replace the drive shaft if necessary.

Removal note

Drive shaft

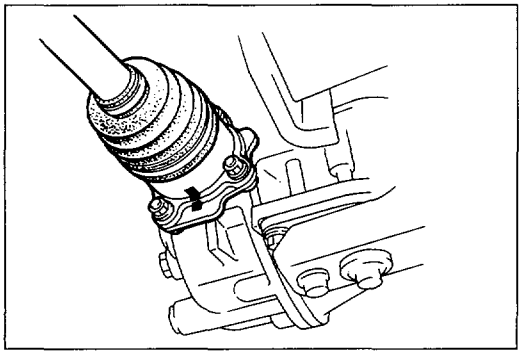
Before removing the drive shaft, mark the drive shaft and output shaft for proper installation.



25U0MX-013

Note

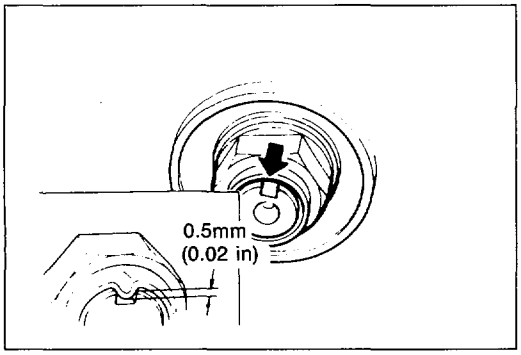
- **If the drive shaft is stuck to the wheel hub, install a used locknut so that it is flush with the end of the shaft, and tap the nut with a copper hammer.**



25U0MX-014

Installation note
Drive shaft
Align the marks and install the drive shaft.

Tightening torque:
54—64 N·m (5.5—6.5 m-kg, 40—47 ft-lb)



05U0MX-038

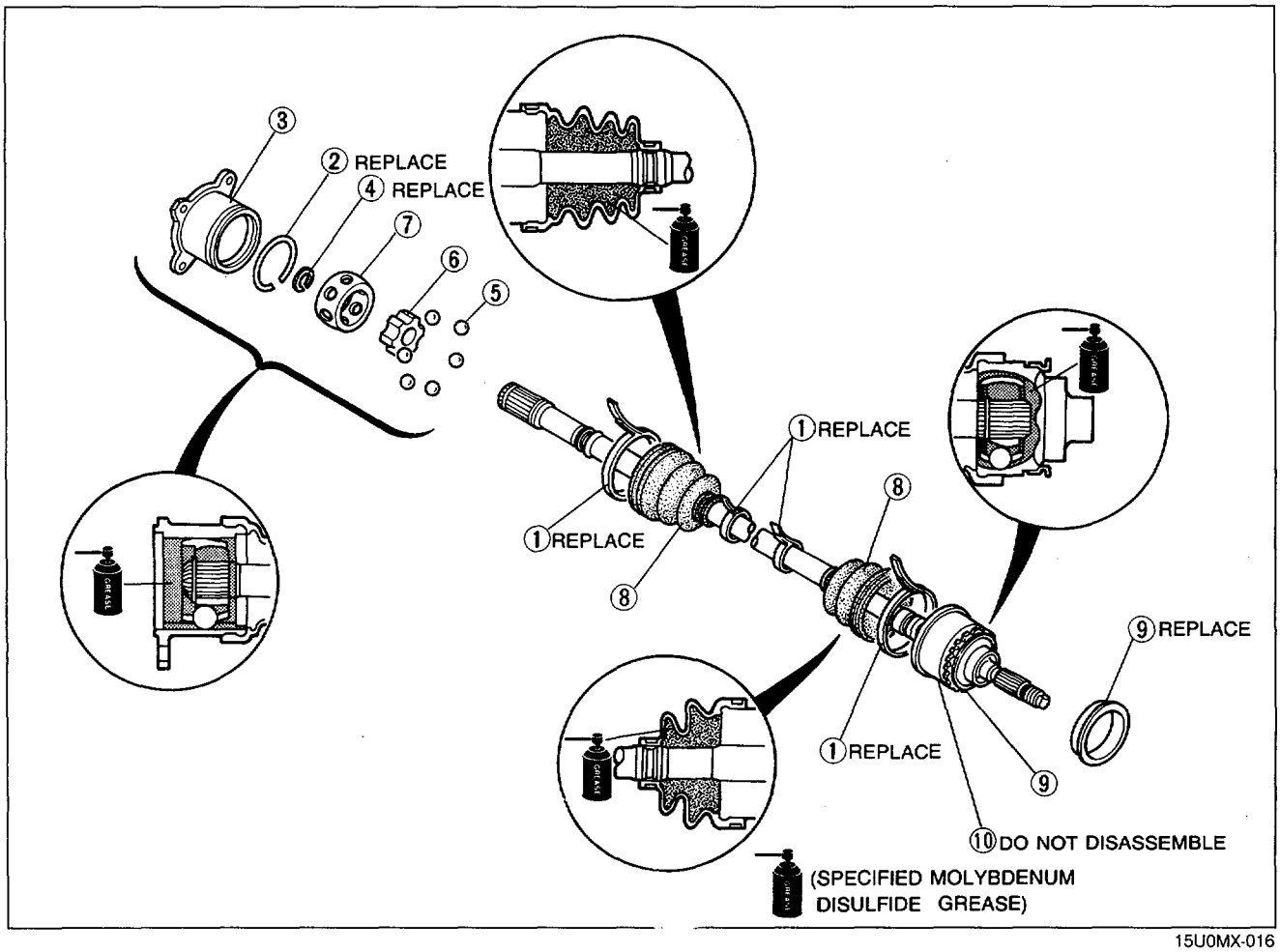
Locknut
Install a new locknut and stake it.

Tightening torque:
216—294 N·m (22—30 m-kg, 159—217 ft-lb)

Overhaul

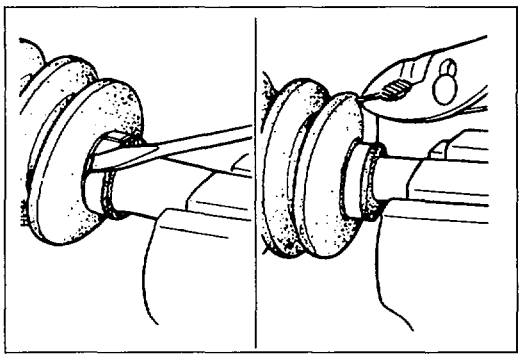
Caution
- **Secure the joint in a vise with protective material (such as copper plates) on the vise jaws.**
- **Be careful that dust or other foreign material does not enter the joint while the work is being performed.**
- **Do not disassemble the wheel-side ball joint.**
- **Do not wash the joint unless it is being disassembled.**

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



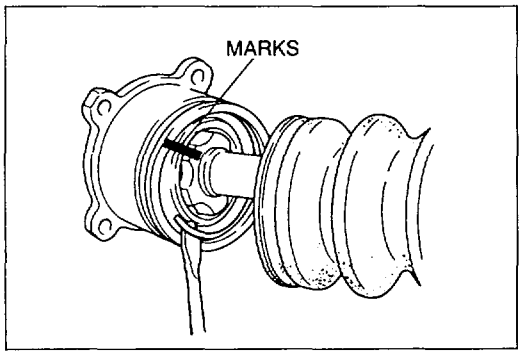
15U0MX-016

1. Boot bands
   Disassembly Note..... page M–20
   Assembly Note ..... page M–22
2. Clip
   Disassembly Note..... page M–20
3. Outer ring
   Inspect inside bore for wear, corrosion, and scoring
4. Snap ring
   Disassembly Note..... page M–20
5. Balls
   Disassembly Note..... page M–20
   Assembly Note ..... page M–21
6. Inner ring
   Disassembly Note..... page M–20
   Assembly Note ..... page M–21
7. Cage
   Disassembly Note..... page M–20
   Assembly Note ..... page M–21
8. Boots
   Disassembly Note..... page M–21
   Assembly Note ..... page M–21
9. Dust cover (STANDARD)
9. Sensor rotor (ABS) (Refer to Section P)
10. Shaft and ball joint assembly
    Inspect splines for damage and wear
    Inspect wheel-side joint for excessive play and rough rotation



05U0MX-040

Disassembly note
Boot bands
To remove the boot bands, pry up the locking clip with a screwdriver, then raise the end of the band.

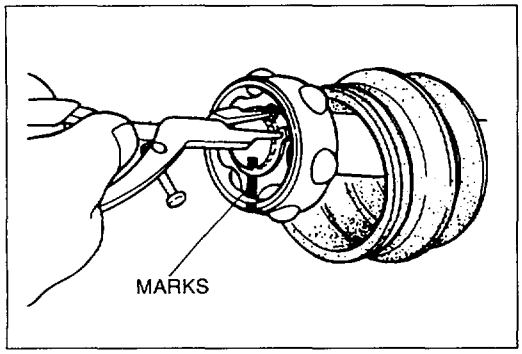


25U0MX-015

Clip

Note
- **Mark with paint; do not use a punch.**

1. Mark the drive shaft and outer ring for proper reassembly.
2. Remove the clip.

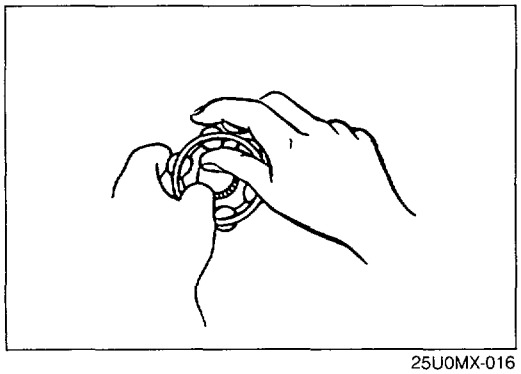


25U0MX-016

Snap ring

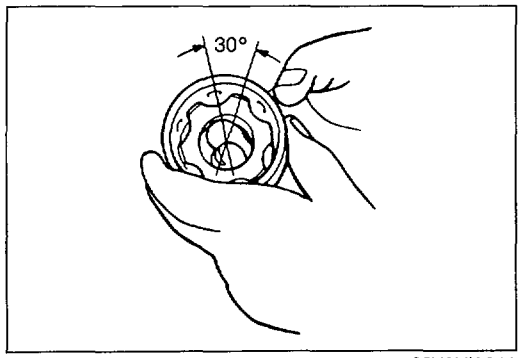
Note
- **Mark with paint; do not use a punch.**

1. Mark the drive shaft end and inner ring.
2. Remove the snap ring with snap ring pliers.



25U0MX-016

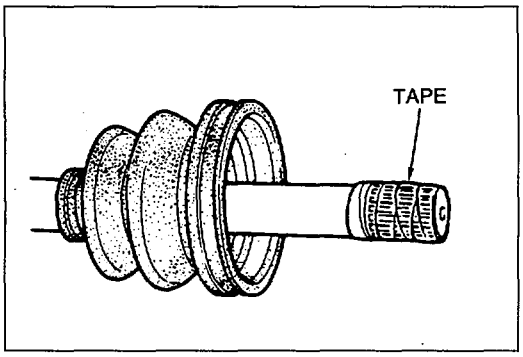
Cage, inner ring, and balls
Disassemble in the following order:
1. Insert a screwdriver between the inner ring and cage to remove the balls.



05U0MX-044

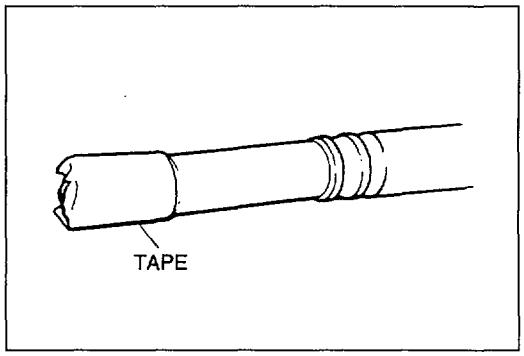
Note
- **Mark with paint; do not use a punch.**

2. Mark the inner ring and cage.
3. Turn the cage approximately 30°, then pull it away from the inner ring.



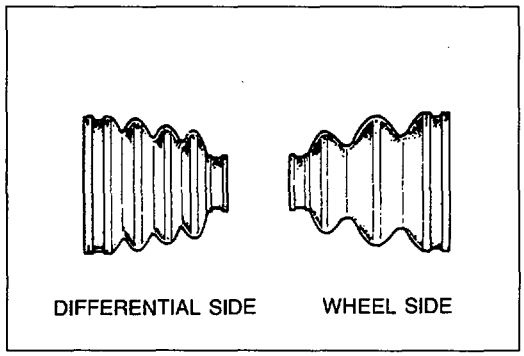
05U0MX-045

Boots
1. Wrap the shaft splines with tape.
2. Remove the boot.



05U0MX-046

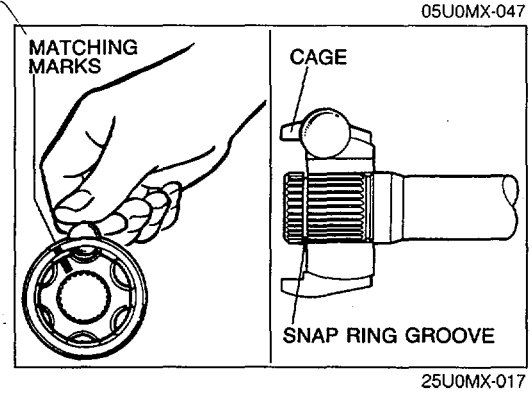
Assembly note
Boots
Before putting the boot onto the shaft, wrap the shaft splines with tape.



05U0MX-047

Note
- **The shape of the ball-joint boots at the wheel side and the differential side differ; be careful not to install them incorrectly.**

Outer diameter of large boot end
Differential side: 87.4mm (3.441 in)
Wheel side : 90.8mm (3.575 in)

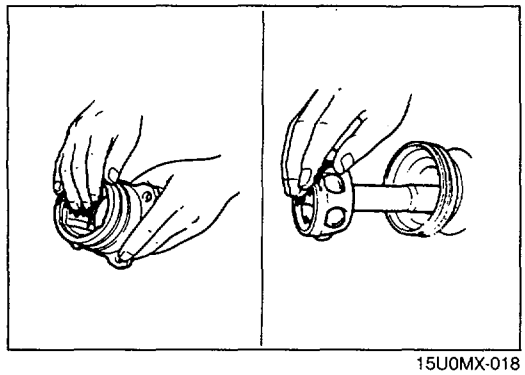


25U0MX-017

Cage, inner ring, and balls
1. Align the marks and install the balls to the inner ring.

Caution
- **Install the cage with the larger diameter facing the snap ring groove. If the drive shaft is installed backwards it may malfunction.**

2. Install the cage, inner ring, and ball assembly to the drive shaft in the direction shown in the figure.
3. Install a new snap ring in the drive shaft snap ring groove.

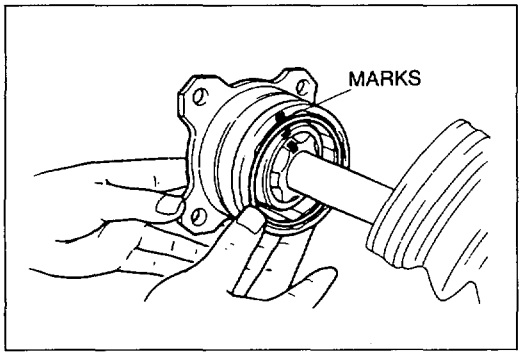


15U0MX-018

Caution
- **Do not use any other than the specified grease.**

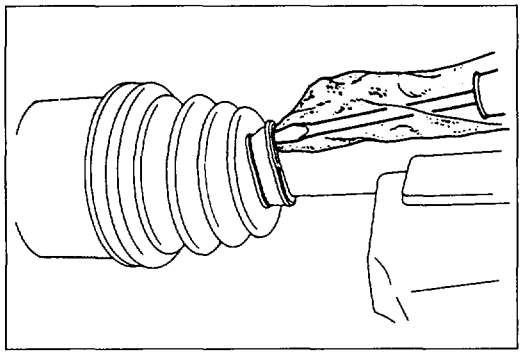
4. Apply the specified grease **(molybdenum disulfide)** to the joints and boots.

Total quantity
Differential side: 75—95 g (2.65—3.35 oz)
Wheel side : 55—75 g (1.94—2.65 oz)



15U0MX-019

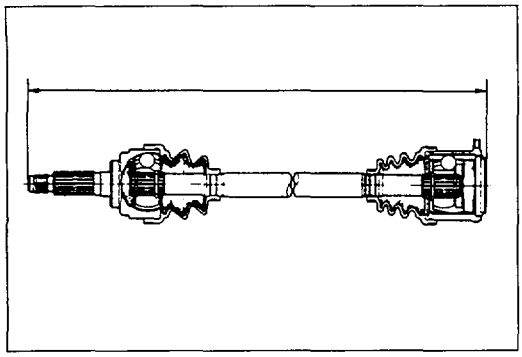
5. Align the marks, then install a new clip.


05U0MX-051

Boot bands

Caution
- **Be sure the boot is not dented or twisted.**
- **Carefully lift up the small end of the boot to release any trapped air.**

1. Set the boots onto the rings.

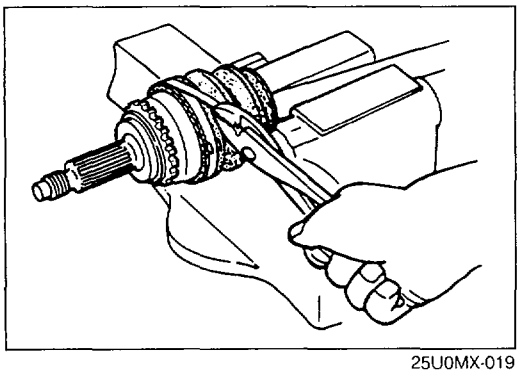

25U0MX-018

2. Measure the drive shaft length.

Standard length: 642.6—677.7mm (25.299—26.681 in)

If not within specification, return to Step 1.

Note
- **Standard length (On-vehicle): 657.0mm (25.866 in)**

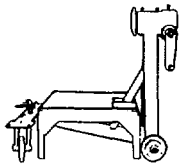
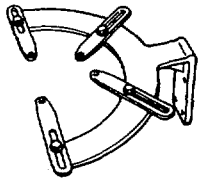
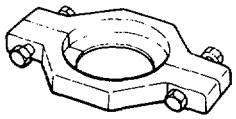
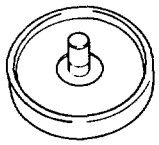
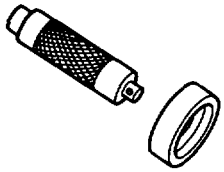
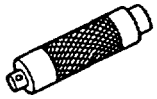
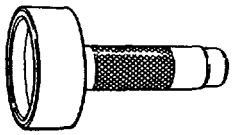
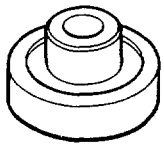
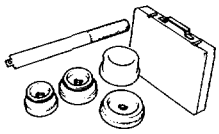
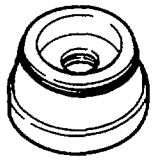
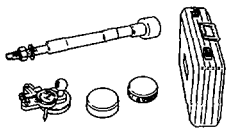
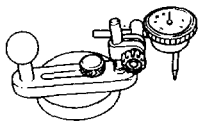
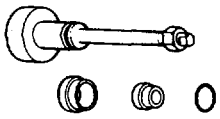
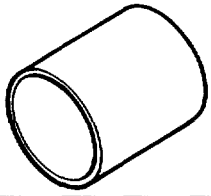
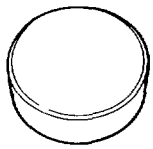

25U0MX-019

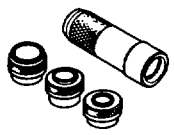
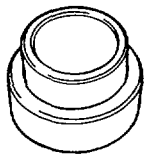
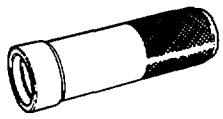
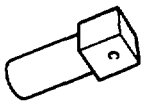
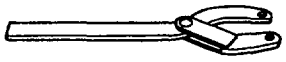
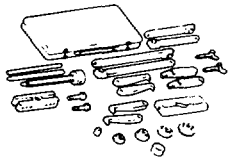
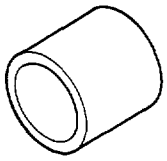
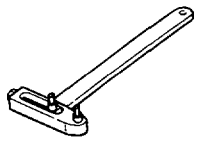
Note
- **Always use a new band.**
- **The band should be folded in the direction opposite the forward revolving direction of the drive shaft.**

3. Fold the band back by pulling on the end of it with pliers.
4. Lock the end of the band by bending the locking clips.

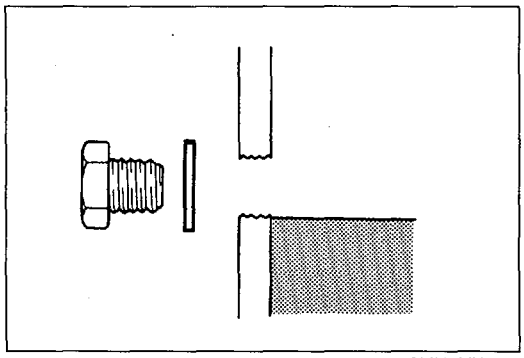
DIFFERENTIAL

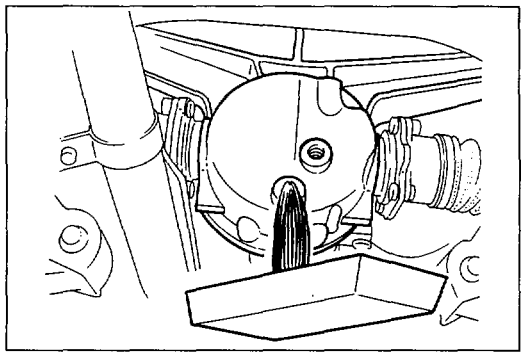
PREPARATION
SST

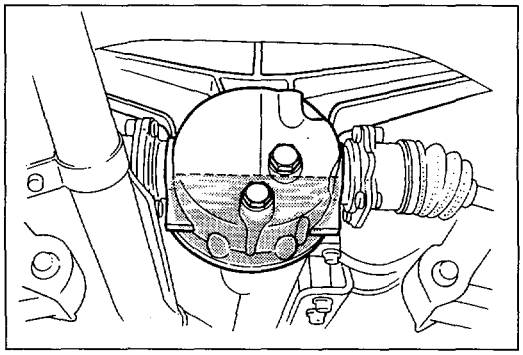
49 0107 680A Engine stand 	For disassembly and assembly of differential	49 M005 561 Hanger, differential carrier 	For disassembly and assembly of differential
49 0636 145 Puller, fan pulley boss 	For removal of bearing inner race (side bearing)	49 N034 213 Installer, rubber bushing 	For installation of differential mounting rubber
49 G030 795 Installer, oil seal 	For installation of oil seal	49 G030 797 Handle (Part of 49 G030 795) 	For installation of bearing outer race
49 B001 795 Installer, oil seal 	For installation of oil seal (output shaft)	49 H033 101 Remover, bearing 	For installation of bearing outer race (front bearing)
49 F027 0A1 Installer set, bearing 	For installation of bearing	49 F027 005 Attachment ϕ62 (Part of 49 F027 0A1) 	For installation of bearing outer race (rear bearing)
49 F027 0A0 Gauge set, pinion height adjustment 	For adjustment of pinion height	49 0727 570 Gauge body, pinion height (Part of 49 F027 0A0) 	For adjustment of pinion height
49 8531 565 Pinion model 	For adjustment of pinion height	49 8531 567 Collar A (Part of 49 8531 565)	For adjustment of pinion height
49 H027 001 Collar 	For adjustment of pinion height	49 N027 001 Gauge block 	For adjustment of pinion height

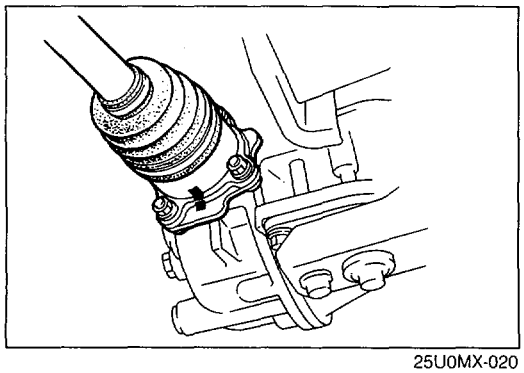
49 D017 2A1 Installer set, bearing 	For installation of bearing	49 F401 336B Attachment B (Part of 49 D017 2A1) 	For installation of bearing inner race (rear bearing)
49 F401 331 Body (Part of 49 D017 2A1) 	For installation of bearing inner race (rear bearing)	49 0259 440 Holder, main shaft 	For prevention of oil leakage
49 F401 337A Attachment C (Part of 49 D017 2A1)	For installation of bearing inner race (side bearing)	49 S120 710 Holder, coupling flange 	For removal and installation of companion flange
49 0839 425C Puller set, bearing 	For removal and installation of companion flange	49 U027 003 Installer, oil seal 	For installation of oil seal (companion flange)
49 0259 720 Wrench, differential side bearing adjusting nut 	For adjustment of drive pinion and ring gear backlash		

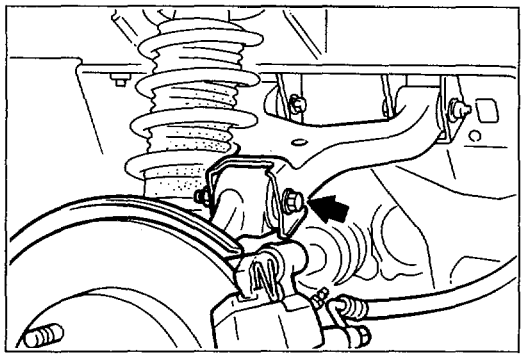
15U0MX-021


9MU0MX-033


15U0MX-022


05U0MX-055


25U0MX-020


05U0MX-057

DIFFERENTIAL OIL

Inspection

1. Remove the filler plug.
2. Verify that the oil is at the bottom of the filler plug hole. If it is low, add the specified oil.
3. Install the filler plug.

Tightening torque:
39—54 N·m (4.0—5.5 m-kg, 29—40 ft-lb)

Replacement

1. Remove the filler and drain plugs.
2. Drain the differential oil into a suitable container.
3. Wipe the plugs clean.
4. Install the drain plug and a new washer.

Tightening torque:
39—54 N·m (4.0—5.5 m-kg, 29—40 ft-lb)

5. Add the specified oil from the filler plug until the level reaches the bottom of the plug hole.

Specified oil
Type
Above −18°C (0°F): API GL-5, SAE 90
Below −18°C (0°F): API GL-5, SAE 80W
Capacity: 0.65 liter (0.69 US qt, 0.57 Imp qt)

6. Install the filler plug.

Tightening torque:
39—54 N·m (4.0—5.5 m-kg, 29—40 ft-lb)

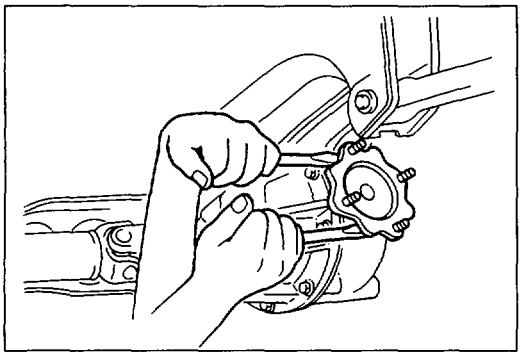
OIL SEAL (OUTPUT SHAFT)

Replacement

1. Jack up the vehicle and support it with safety stands.
2. Drain the differential gear oil.

Note
- **Mark the drive shaft and output shaft flanges for proper reassembly.**

3. Remove the upper arm installation bolt and nut.

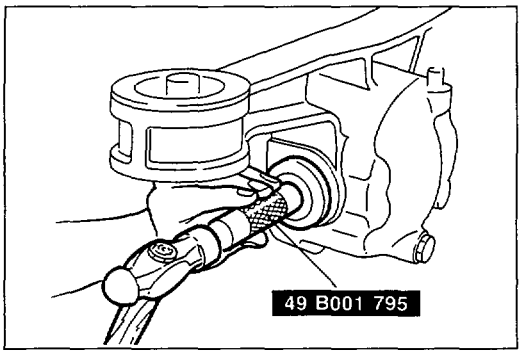


05U0MX-058

4. Separate the driveshaft from the differential and suspend it.

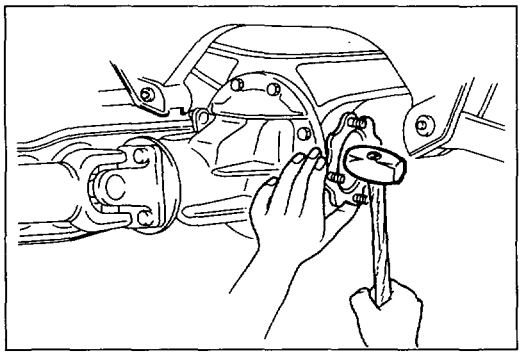
Note
- **Use caution during the removal operation, because the shaft may suddenly drop.**

5. Remove the output shaft with two pry bars as shown in the figure.
6. Remove the oil seal.



05U0MX-059

7. Apply lithium-based grease to the new oil seal lip and install it with the **SST**.

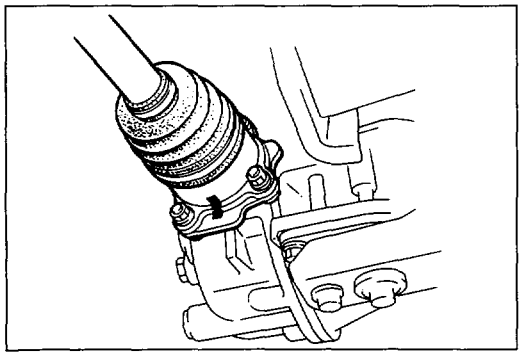


05U0MX-060

8. Install the new clips.

Caution
- **With viscous L.S.D., the right output shaft is longer than the left shaft.**

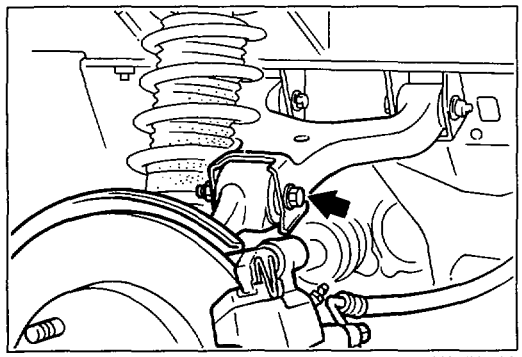
9. Install the output shaft into the side gears by lightly tapping with a plastic hammer.
10. Verify that the output shaft is hooked into the side gears by pulling it by hand.



25U0MX-021

11. Align the marks and install the drive shaft.

Tightening torque:
54—64 N·m (5.5—6.5 m-kg, 40—47 ft-lb)

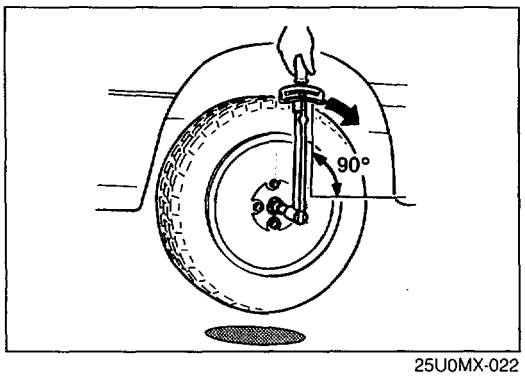


05U0MX-062

12. Install the upper arm installation bolt and nut.

Tightening torque:
46—67 N·m (4.7—6.8 m-kg, 34—49 ft-lb)

13. Add the specified oil.
14. Adjust the rear wheel alignment. (Refer to Section R.)



25U0MX-022

OPERATION INSPECTION
Viscous Limited Slip Differential

1. Turn off the engine and shift the transmission into reverse.
2. Block the front wheels with wheel chocks.
3. Jack up the rear wheels and support the vehicle with safety stands.
4. Release the parking brake.
5. Using a torque wrench on a wheel hub locknut, measure the time it takes to turn the wheel **90°** while applying the specified torque.

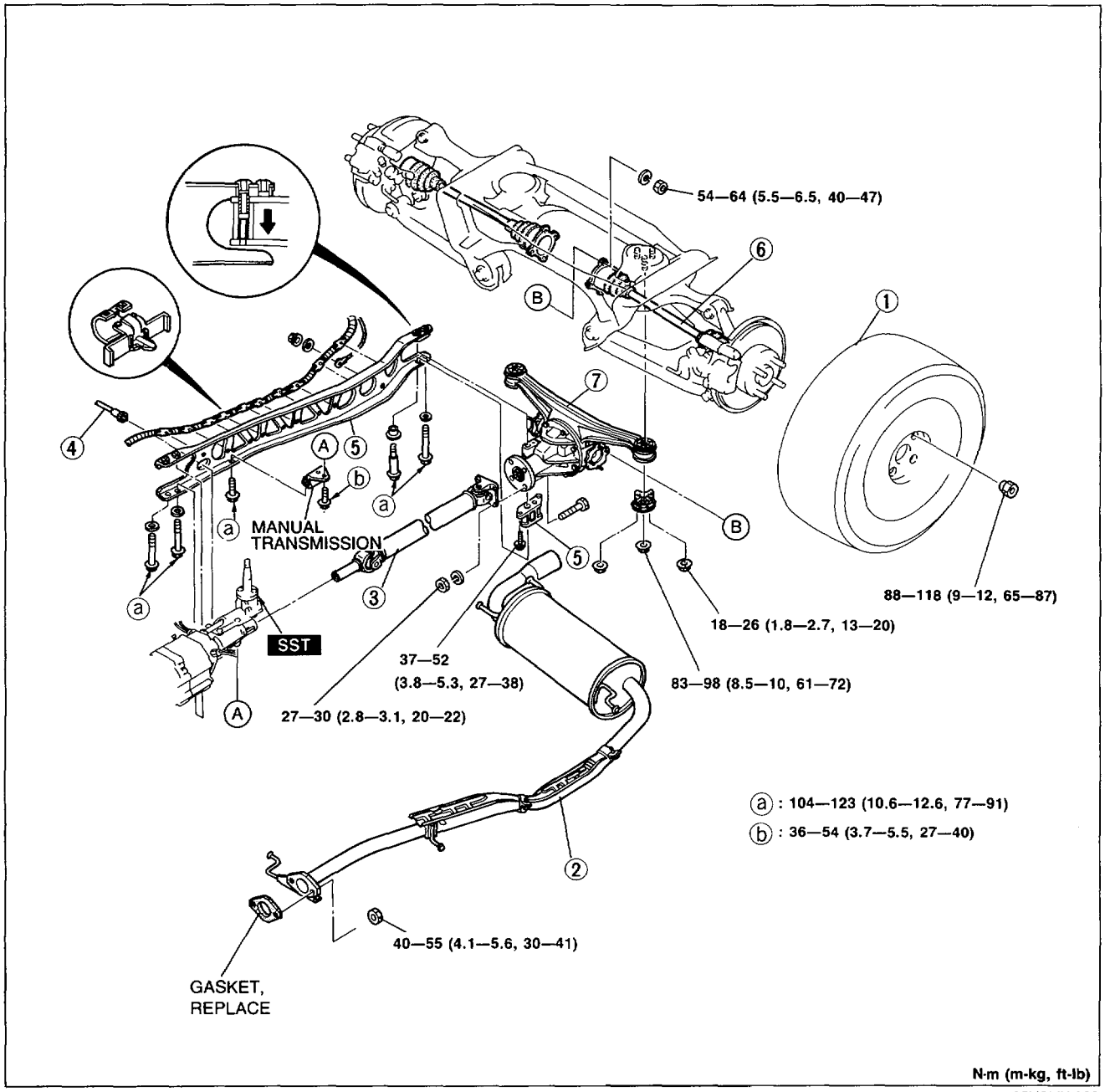
   Specified torque: 15 N·m (1.5 m-kg, 11 ft-lb)
   Specified time: 4.0 sec. min.

6. If not as specified, replace the viscous limited slip differential and fill the differential with new specified oil. (Refer to pages M–25, 33.)

DIFFERENTIAL, STANDARD; DIFFERENTIAL, VISCOUS LIMITED SLIP (VISCOUS L.S.D.)

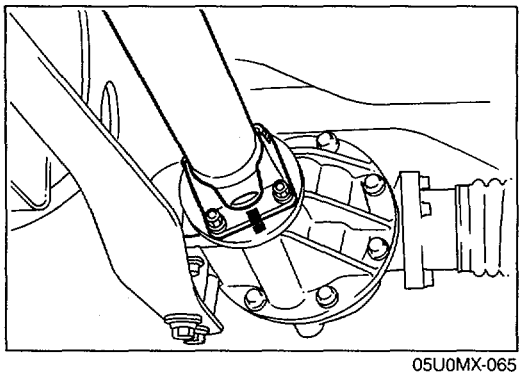
Removal / Installation

1. Drain the differential oil.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Install in the reverse order of removal, referring to **Installation Note**.
4. Add the specified oil to the specified level.



25U0MX-023

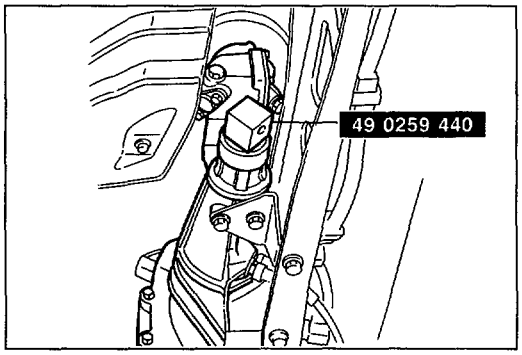
1. Rear wheels
2. Exhaust pipe
3. Propeller shaft
   - Removal Note ..... page M–29
   - Installation Note ..... page M–32
4. Speedometer cable
5. Power plant frame (PPF), Differential mounting spacer
   - Removal Note ..... page M–29
   - Installation Note ..... page M–31
6. Drive shafts
   - Removal Note ..... page M–30
7. Differential
   - Removal Note ..... page M–30
   - Installation Note ..... page M–31
   - Overhaul ..... page M–33



05U0MX-065

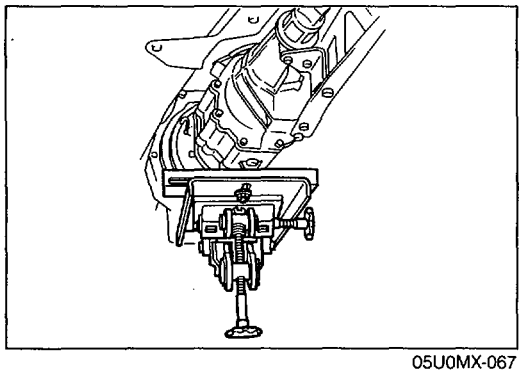
Removal note
Propeller shaft

1. Before removing the propeller shaft, mark the flanges for correct installation.



05U0MX-066

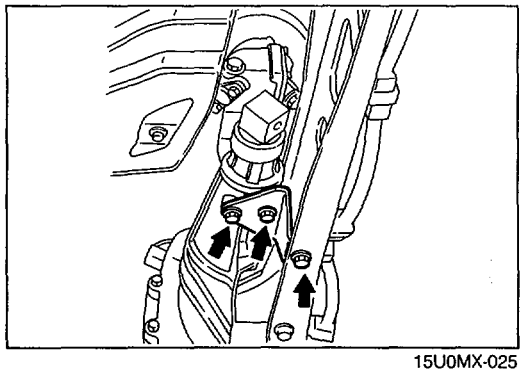
2. When the propeller shaft is removed from the extension housing, immediately install the **SST** to prevent oil leakage.



05U0MX-067

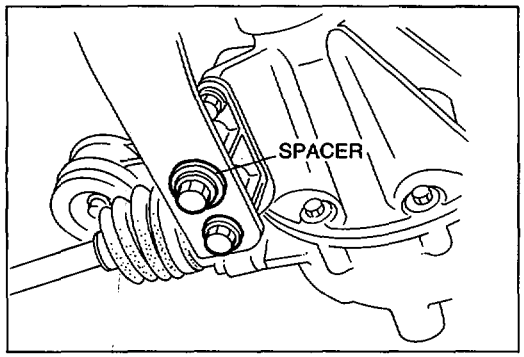
Power plant frame (PPF)

1. Disconnect the wire harness from the PPF.
2. Support the transmission with a jack.



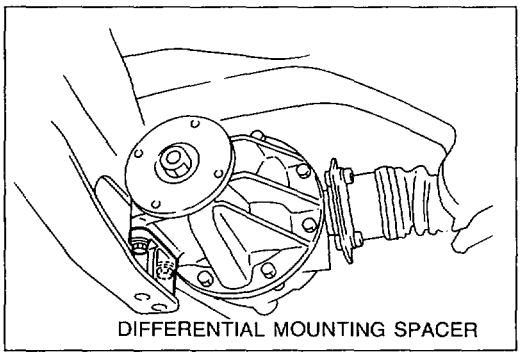
15U0MX-025

3. Remove the power plant frame bracket. (Manual transmission)



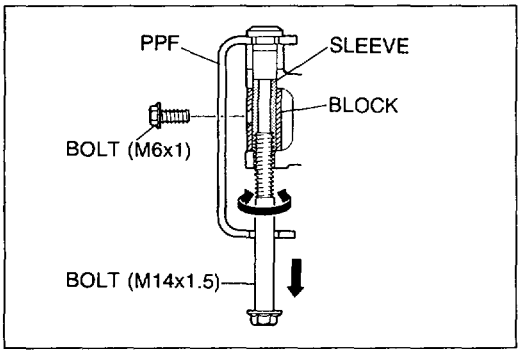
05U0MX-069

4. Remove the differential-side bolts, and pry out the spacer.



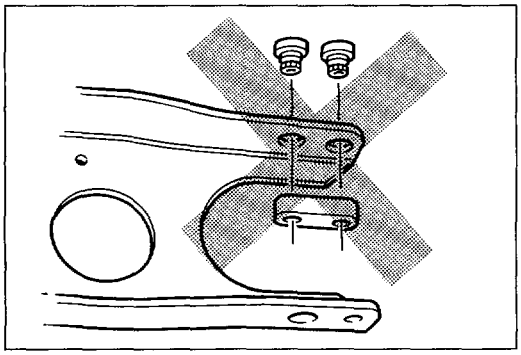
05U0MX-125

5. Remove the differential mounting spacer.



05U0MX-070

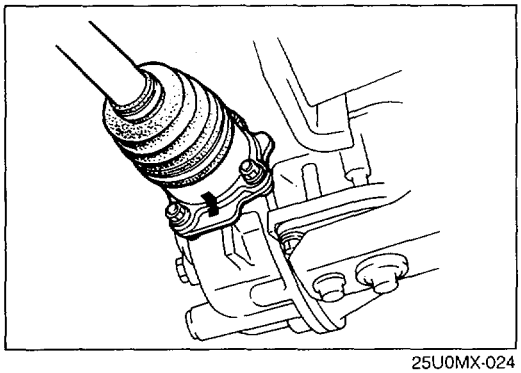
6. Turn a bolt (M14x1.5) into the sleeve.
7. Twist and pull the bolt downward.
8. Install a bolt (M6x1) into the hole in the block to hold the sleeve, and remove the long bolt (M14x1.5).
9. Remove the bolt (M6x1).



05U0MX-071

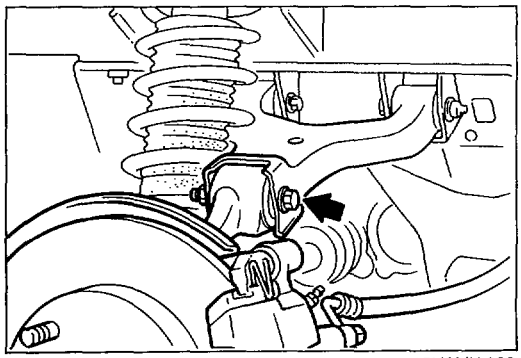
Caution
- **Do not remove the spacers shown in the figure from the PPF.**
- **If they are removed, replace the PPF as an assembly.**

10. Remove the transmission-side bolts, and remove the PPF.



25U0MX-024

Drive shaft
Mark the drive shaft and output shaft for proper installation.

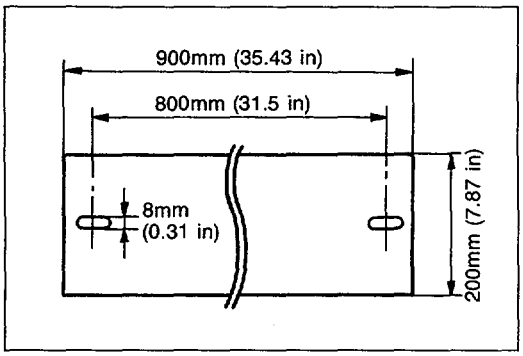


15U0MX-033

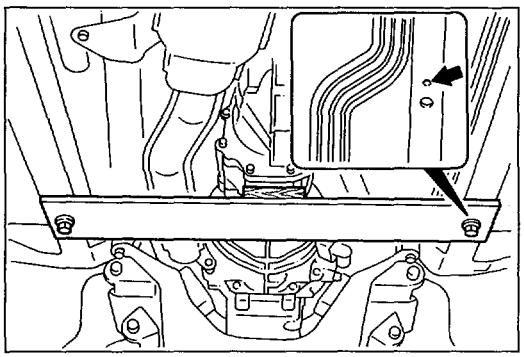
Differential
1. Support the differential with a jack.
2. Lower the differential and move it forward.

Note
- **If it is difficult to separate the driveshaft from the output shaft, remove one side upper arm installation bolt and nut.**

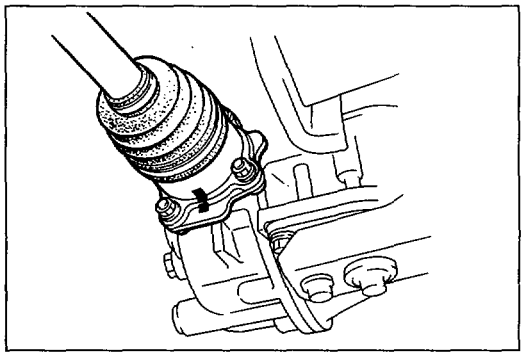
3. Separate the driveshaft from the output shaft.



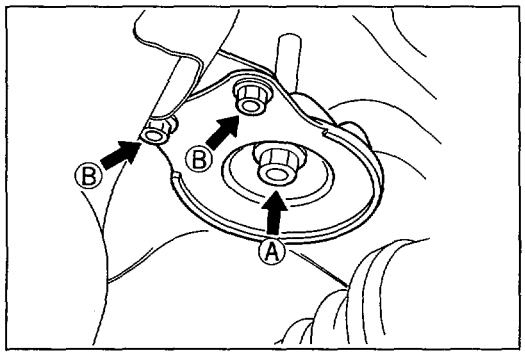
05U0MX-074



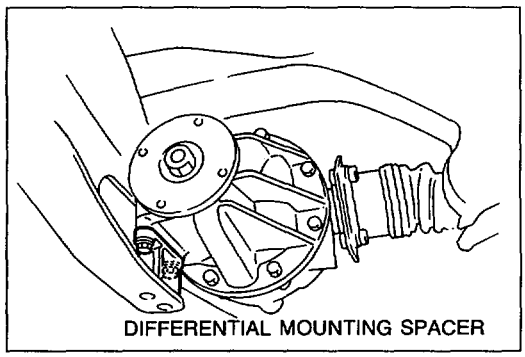
05U0MX-075



25U0MX-025



05U0MX-077



05U0MX-078

Note

- **After removing the differential, support the transmission as follows to prevent damaging the fire wall, crank angle sensor, and engine mount.**

1. Prepare a steel plate as shown in the figure, a wooden block, bolts (8 × 1.25mm), and washers.

2. Install the parts as shown in the figure.

Installation note

Differential

1. Connect the drive shaft to the output shaft with the marks aligned.

2. Install the differential.

Tightening torque

Ⓐ: 83—98 N·m (8.5—10 m-kg, 61—72 ft-lb)
Ⓑ: 18—26 N·m (1.8—2.7 m-kg, 13—20 ft-lb)

Caution

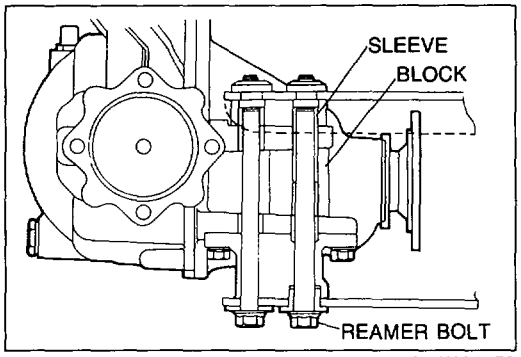
- **Adjust the rear wheel alignment after installation, if the upper arm installation bolt and nut are removed. (Refer to Section R.)**

Power plant frame (PPF)

1. Install the differential mounting spacer.

Tightening torque:
37—52 N·m (3.8—5.3 m-kg, 27—38 ft-lb)

2. Support the transmission with a jack so that it is level.
3. Position the PPF and snugly tighten the transmission-side bolts by hand.

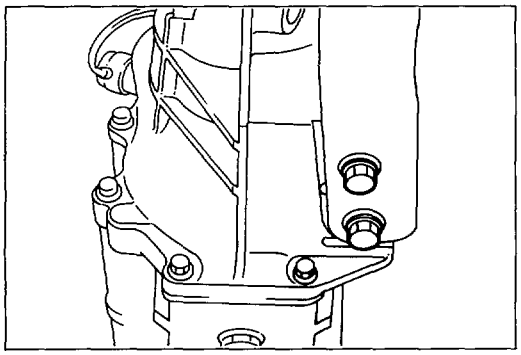


05U0MX-079

4. Verify that the sleeve is installed into the block.

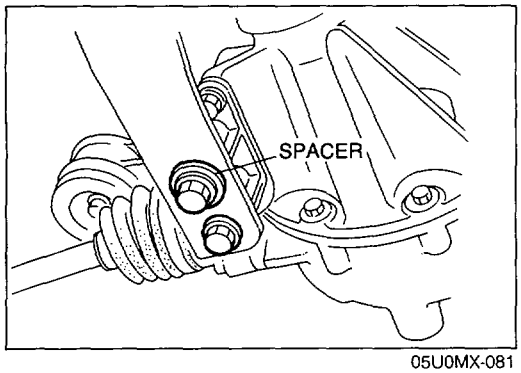
Note
- **The reamer bolt is installed in the forward hole.**

5. Install the spacer and bolts and snugly tighten them.


05U0MX-080

6. Snugly install the power plant frame bracket.
7. Tighten the transmission-side bolts.

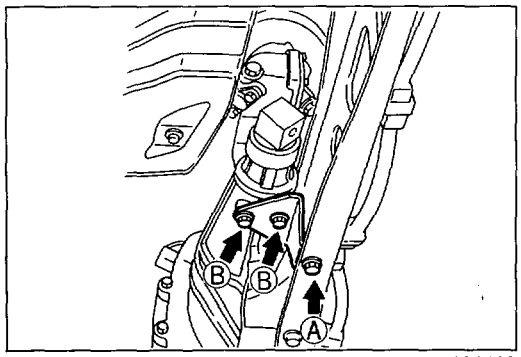
Tightening torque:
104—123 N·m (10.6—12.6 m-kg, 77—91 ft-lb)



05U0MX-081

8. Tighten the differential-side bolts.

Tightening torque:
104—123 N·m (10.6—12.6 m-kg, 77—91 ft-lb)

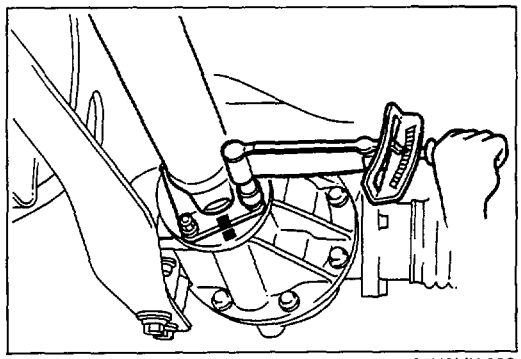


15U0MX-026

9. Install the power plant frame bracket. (Manual transmission)

Tightening torque
Ⓐ: 104—123 N·m (10.6—12.6 m-kg, 77—91 ft-lb)
Ⓑ: 36—54 N·m (3.7—5.5 m-kg, 27—40 ft-lb)

10. Remove the jack, and connect the wire harness.

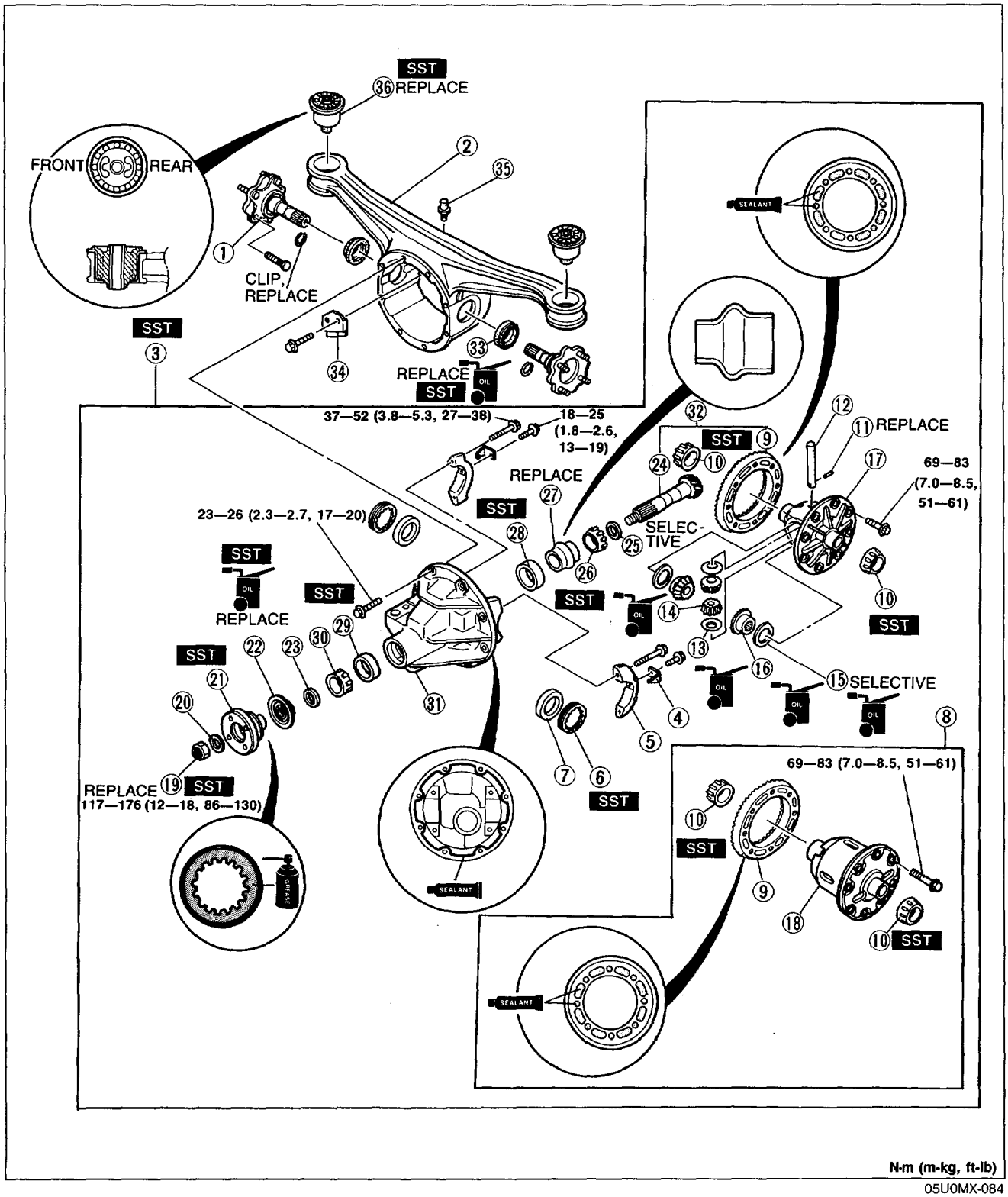

05U0MX-083

Propeller shaft
1. Remove the **SST**.
2. Align the marks, and install the propeller shaft.

Tightening torque:
27—30 N·m (2.8—3.1 m-kg, 20—22 ft-lb)

Overhaul

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.

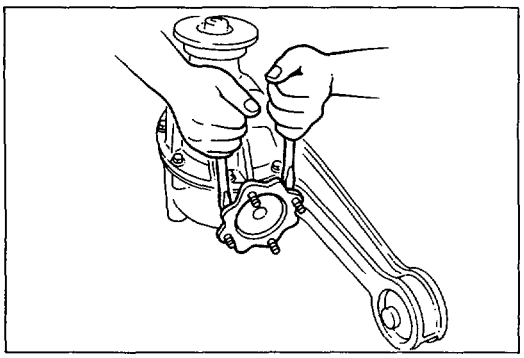


N·m (m-kg, ft-lb)

05U0MX-084

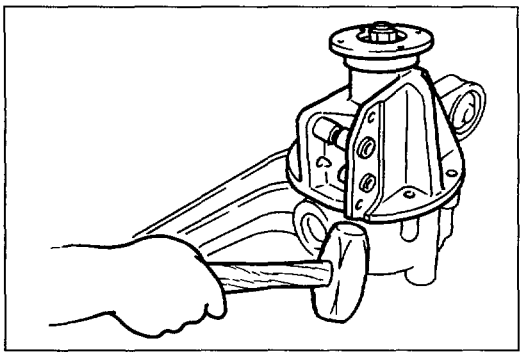
1. Output shafts
   - Disassembly Note ..... page M–35
   - Assembly Note ..... page M–43
2. Differential case
   - Disassembly Note ..... page M–35
   - Assembly Note ..... page M–43
3. Differential gear assembly
   - Disassembly Note ..... page M–35
4. Lock plates
5. Bearing caps
   - Disassembly Note ..... page M–35
   - Assembly Note ..... page M–43
6. Adjusting nuts
   - Disassembly Note ..... page M–35
7. Bearing outer races (Side bearing)
8. Gear case (Viscous L.S.D.)
9. Ring gear
   - Inspect individual gear teeth for wear and cracks
10. Knock pin (Standard)
    - Disassembly Note ..... page M–36
11. Bearing inner races (Side bearing)
    - Disassembly Note ..... page M–36
    - Inspect for damage and rough rotation
12. Pinion shaft (Standard)
13. Thrust washers (Standard)
14. Pinion gears (Standard)
    - Inspect individual gear teeth for wear and cracks
15. Thrust washers (Standard)
16. Side gears (Standard)
    - Inspect individual gear teeth for wear and cracks
17. Gear case (Standard)
18. Viscous L.S.D.
19. Locknut (Companion flange)
    - Disassembly Note ..... page M–35
20. Washer
21. Companion flange
    - Disassembly Note ..... page M–35
    - Inspect splines for wear and damage
22. Oil seal (Companion flange)
23. Washer
24. Drive pinion
    - Disassembly Note ..... page M–36
    - Inspect splines for wear and damage
    - Inspect individual gear teeth for wear and cracks
25. Spacer
26. Bearing inner race (Front bearing)
    - Inspect for damage and rough rotation
27. Collapsible spacer
28. Bearing outer race (Rear bearing)
    - Disassembly Note ..... page M–36
29. Bearing outer race (Front bearing)
    - Disassembly Note ..... page M–36
30. Bearing inner race (Rear bearing)
    - Disassembly Note ..... page M–36
    - Inspect for damage and rough rotation
31. Differential carrier
32. Final gear set
33. Oil seal (Output shaft)
    - Assembly Note ..... page M–37
34. Baffle
35. Breather
36. Differential mounting rubber
    - Disassembly Note ..... page M–37
    - Assembly Note ..... page M–37

25U0MX-026



05U0MX-086

Disassembly note
Output shafts
Remove the output shafts with two pry bars as shown in the figure.

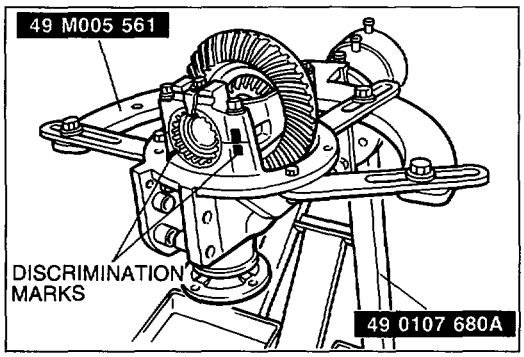


05U0MX-087

Differential case

Caution
- **Do not strike the aluminum alloy differential case.**

Strike the differential carrier with a copper hammer to separate it from the case.

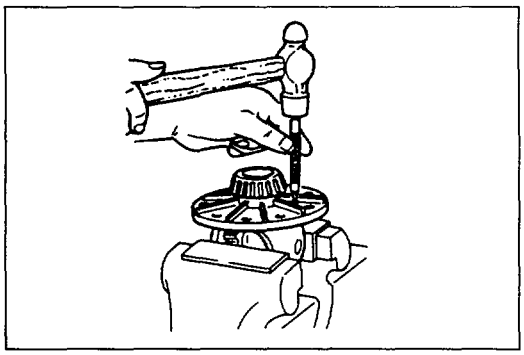


05U0MX-088

Differential gear assembly
Mount the differential gear assembly on the **SST**.

Bearing caps
Mark one bearing cap and the carrier.

Adjusting nuts
Mark one adjusting nuts and the carrier.

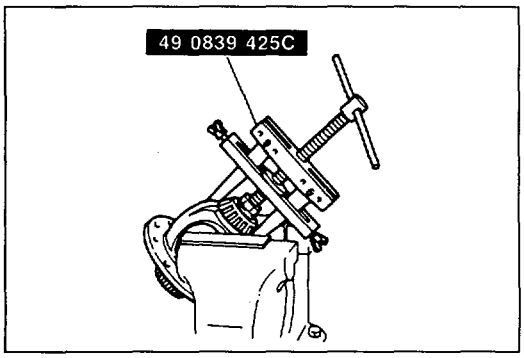


25U0MX-027

Roll pin

Note
- **Use protective plates in the vise.**
- **Tap out toward the ring gear side.**

Secure the gear case in a vise and remove the knock pin.

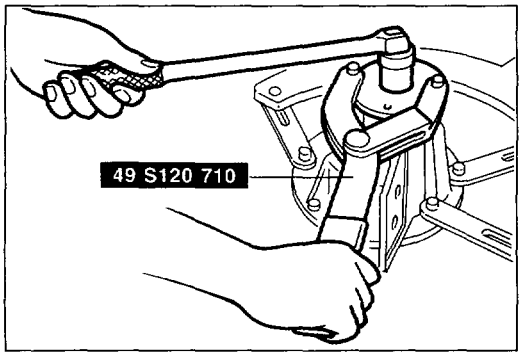


05U0MX-095

Bearing inner races (Side bearing)

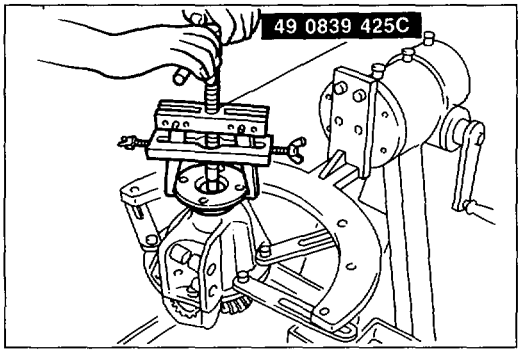
Note
- **Use protective plates in the vise.**
- **Identify the bearings so that they can later be reinstalled in the same position.**

Remove the bearing inner races (side bearing) from the gear case with the **SST**.



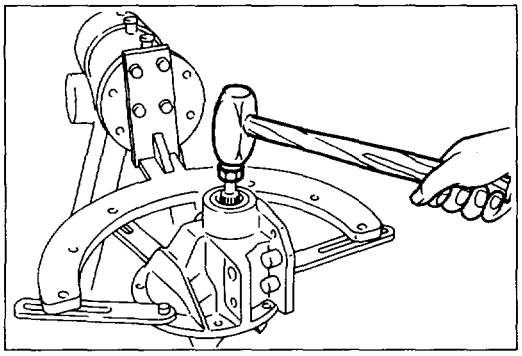
05U0MX-089

Locknut (Companion flange)
Hold the companion flange with the **SST** and remove the locknut.

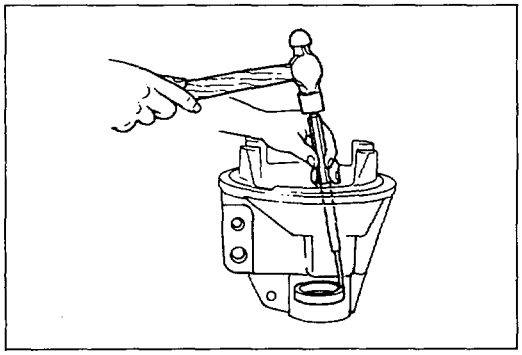


05U0MX-090

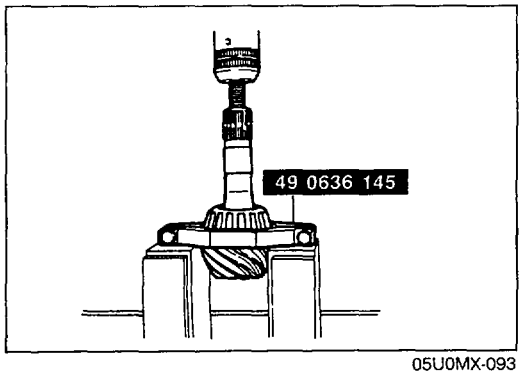
Companion flange
Pull the companion flange off with the **SST**.


05U0MX-091

Drive pinion
Push out the drive pinion by attaching a miscellaneous locknut to the drive pinion, and tapping it with a copper hammer.


05U0MX-092

Bearing outer races (Front, and rear bearing)
Remove the bearing outer races using the two grooves in the carrier and alternately tapping the sides of the races.

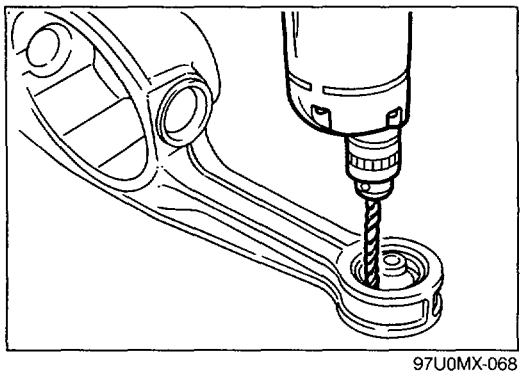


05U0MX-093

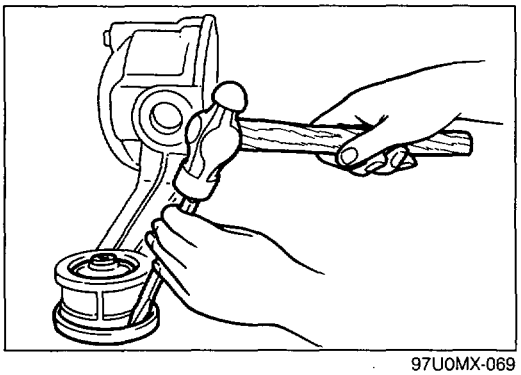
Bearing inner race (Rear bearing)

Note
- **Support the drive pinion by hand so that it will not fall.**

Remove the bearing inner race (rear bearing) with the **SST**.

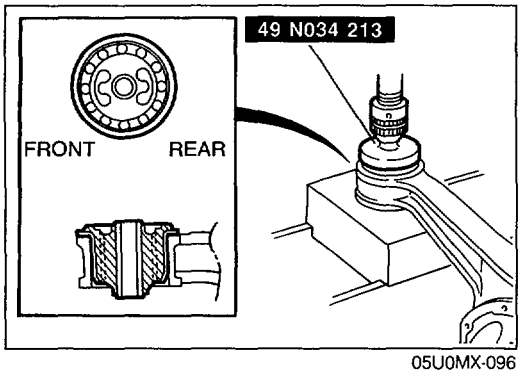

97U0MX-068

Differential mounting rubber
1. Drill holes around the differential mounting rubber.


97U0MX-069

Note
- **Use a new mounting rubber when reassembling.**

2. Hit the edge of the differential mounting rubber to remove it.



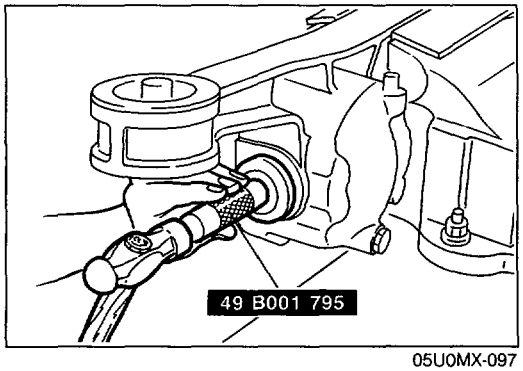
05U0MX-096

Assembly note
Differential mounting rubber

Note
- **Install the mounting rubber with the voids facing fore and aft.**

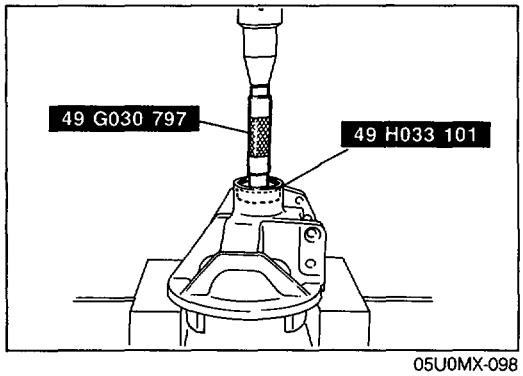
Press in the new differential mounting rubber with the **SST**.

Press force: 2000 kg (2 tons)



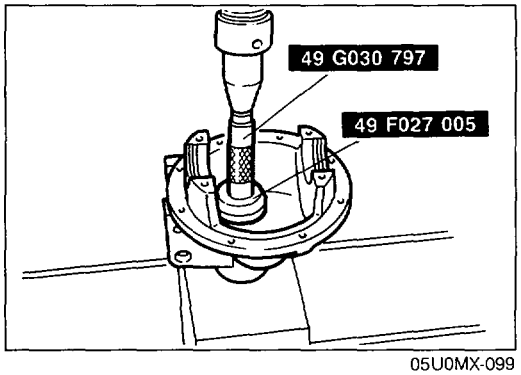
05U0MX-097

Oil seal (Output shaft)
Apply lithium based grease to the new oil seal lip and install it with the **SST**.



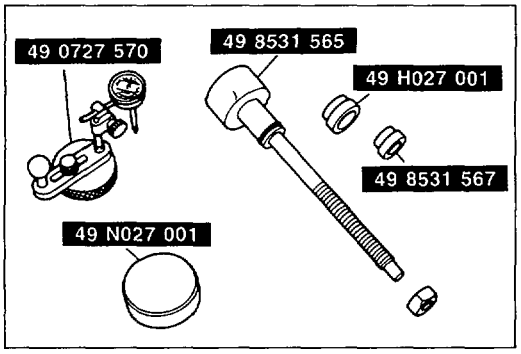
05U0MX-098

Adjustment of pinion height
1. Install the bearing outer race (front bearing) with the **SST**.



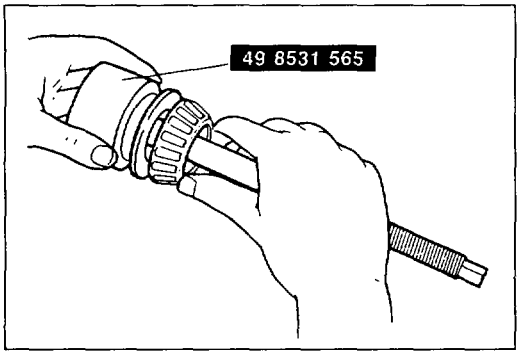
05U0MX-099

2. Install the bearing outer race (rear bearing) with the **SST**.



69G09X-169

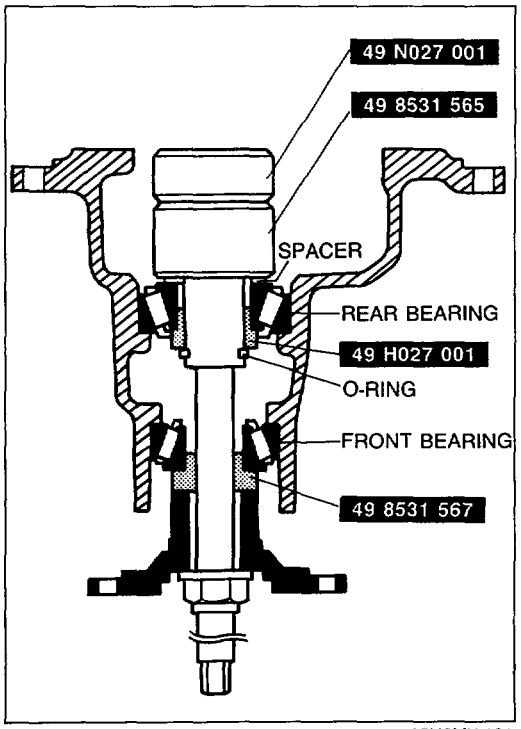
3. Adjust the drive pinion height as follows with the **SST**.



05U0MX-100

Note
- **Use the spacer that was removed.**

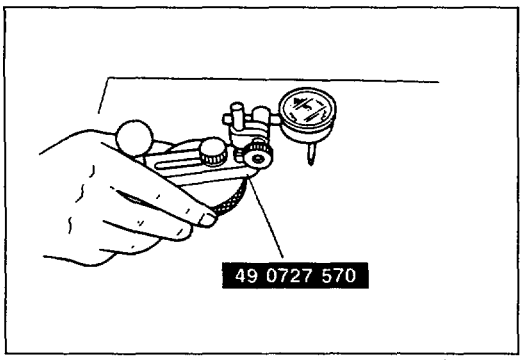
4. Install the spacer and bearing inner race (rear bearing) onto the **SST**.



05U0MX-101

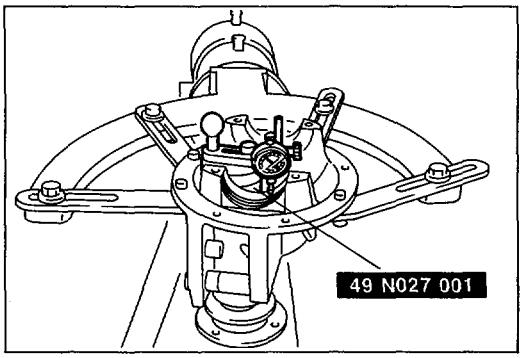
Note
- **Use the same spacer and nut removed during disassembly.**

5. Assemble the spacer, bearing inner race (rear bearing), and **SST**.
   Secure the **SST** with the O-ring. Install this assembly in the carrier.
   Install the bearing inner race (front bearing), the **SST**, companion flange, washer, and nut.
6. Tighten the nut just enough so that the companion flange can still be turned by hand.



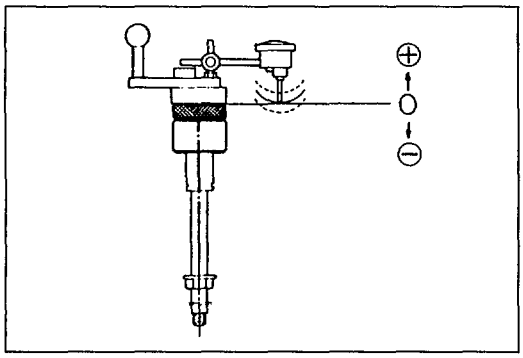
69G09X-172

7. Place the **SST** on the surface plate and set the dial indicator to "Zero".



05U0MX-102

8. Place the **SST** atop the drive pinion model. Set the gauge body atop the gauge block.
9. Place the feeler of the dial indicator so that it contacts where the bearing inner race (side bearing) is installed in the carrier. Measure the lowest position on the left and right sides of the carrier.



05U0MX-103

10. Add the two (left and right) values obtained in Step 9 and divide the total by 2.

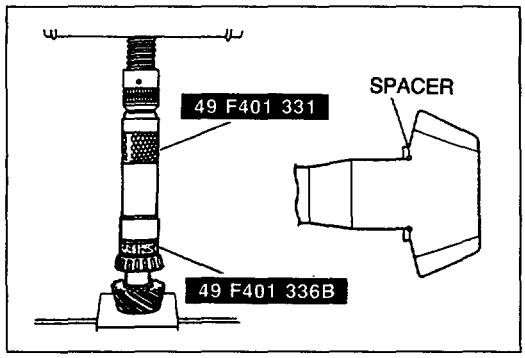
Specification: 0mm (0 in)

Mark	Thickness	Mark	Thickness
08	3.08mm (0.1213 in)	29	3.29mm (0.1295 in)
11	3.11mm (0.1224 in)	32	3.32mm (0.1307 in)
14	3.14mm (0.1224 in)	35	3.35mm (0.1319 in)
17	3.17mm (0.1248 in)	38	3.38mm (0.1331 in)
20	3.20mm (0.1260 in)	41	3.41mm (0.1343 in)
23	3.23mm (0.1271 in)	44	3.44mm (0.1354 in)
26	3.26mm (0.1283 in)	47	3.47mm (0.1366 in)

25U0MX-036

Note
- **Spacers are available in increments of 0.03mm (0.0012 in). Select the spacer thickness that is closest to that necessary.**

11. If not within specification, adjust the pinion height by selection of a spacer.



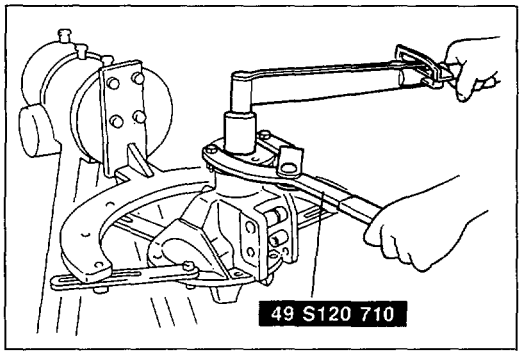
05U0MX-105

Adjustment of drive pinion preload

1. Install the spacer.

Note
- **Press on until the force required suddenly increases.**
- **Install the spacer selected for the pinion height adjustment, being careful that the installation direction is correct.**

2. Press the bearing inner race (rear bearing) on with the **SST**.

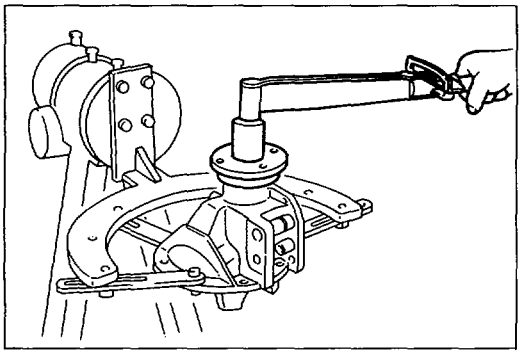


25U0MX-028

3. Install the drive pinion, spacer, new collapsible spacer, front bearing, washer, and companion flange to the carrier, and temporarily tighten the locknut with the **SST**.

Note
- **Do not install the oil seal.**

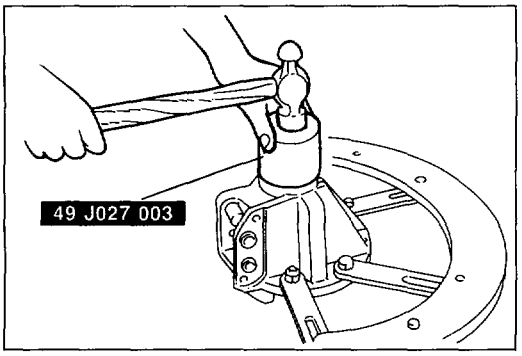
Tightening torque: 118 N·m (12 m-kg, 87 ft-lb)


25U0MX-029

4. Turn the companion flange several turns by hand to seat the bearing.
5. Measure the drive pinion preload.
   Adjust the preload by tightening the locknut and record the tightening torque.

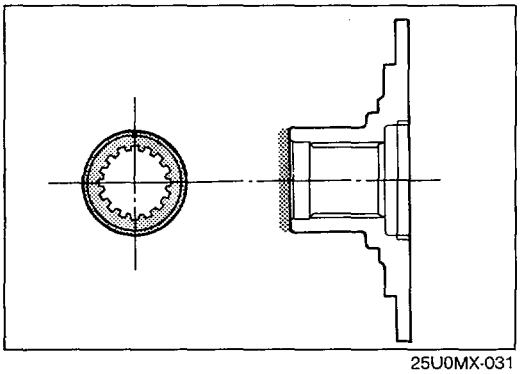
Preload:
0.3—0.7 N·m (3—7 cm-kg, 2.6—6.1 in-lb)

Tightening torque:
118—177 N·m (12—18 m-kg, 87—130 ft-lb)

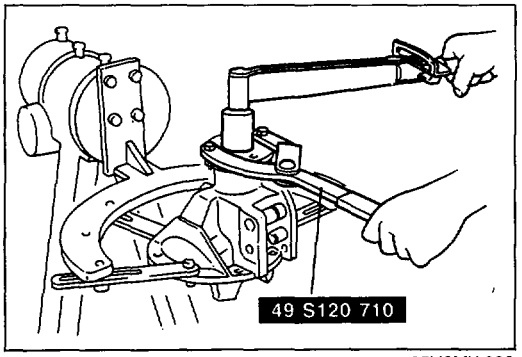


25U0MX-030

6. Remove the locknut, washer, and companion flange.
7. Tap a new oil seal into the differential carrier with the **SST**.

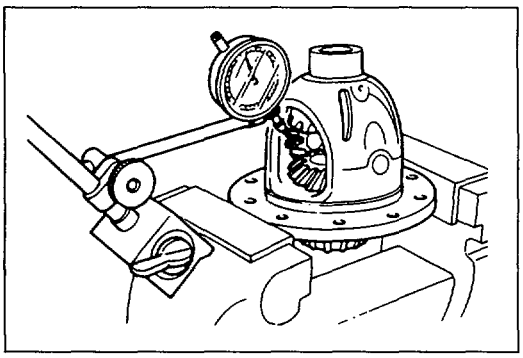

25U0MX-031

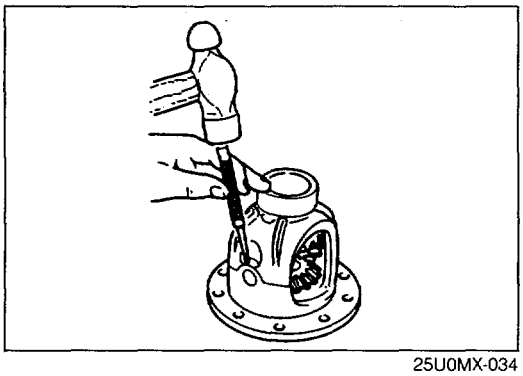
8. Apply a light coat of grease to the end face of the companion flange.

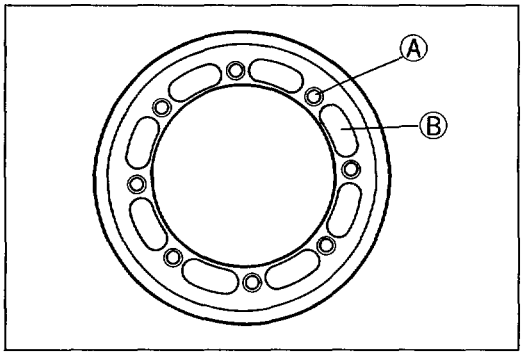


25U0MX-032

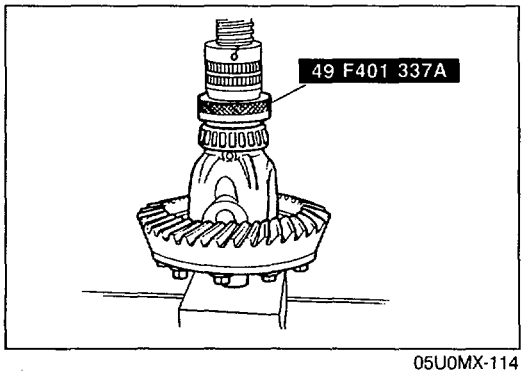
9. Install the companion flange and washer; while holding the flange with the **SST**, and tighten a new locknut to the tightening torque recorded in Step 5.


25U0MX-033

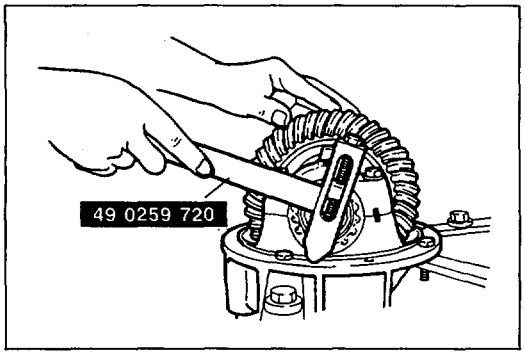

25U0MX-034



05U0MX-113



05U0MX-114



05U0MX-115

Adjustment of backlash

1. Adjust the backlash of the side gears and pinion gear as follows. (Standard)
   (1) Set a dial gauge against the pinion gear as shown.
   (2) Secure one of the side gears.
   (3) Move the pinion gear, and measure the backlash at the end of it.
   If not within specification, replace the differential gear as an assembly. (Viscous L.S.D.)

   Standard backlash: 0—0.1mm (0—0.004 in)

   (4) If the backlash exceeds the standard, use the selectable thrust washers for adjustment.

Thrust washer thickness:

Identification mark	Thickness
0	1.95—2.00mm (0.0768—0.0787 in)
1	2.05—2.10mm (0.0807—0.0827 in)
2	2.15—2.20mm (0.0846—0.0866 in)

2. Install the new knock pin to secure the pinion shaft. Stake the pin with a punch to prevent it from coming out of the case.

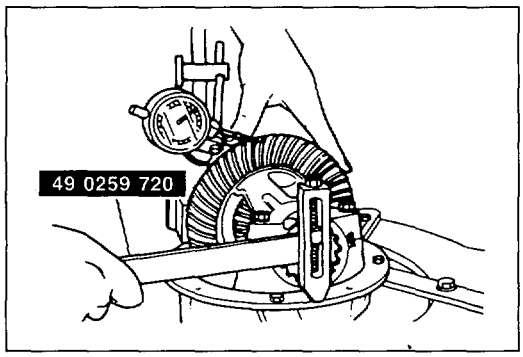
Adjustment of drive pinion and ring gear backlash

Note
- **Apply approx. 0.04 cc (0.0024 cu in) of thread-locking compound at each point.**

1. Apply thread-locking compound to the bolt threads Ⓐ and point Ⓑ of the gear back face.
2. Install the ring gear onto the gear case.

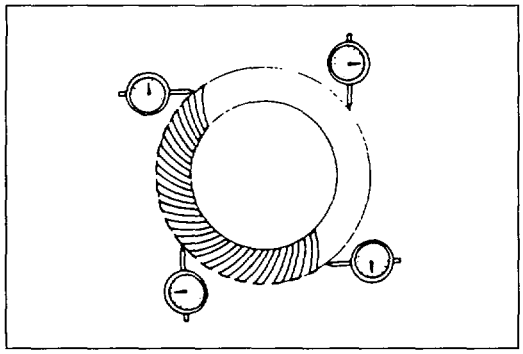
   Tightening torque:
   69—83 N·m (7.0—8.5 m-kg, 51—61 ft-lb)

3. Press the bearing inner races (side bearing) on with the **SST**.
4. Install the differential gear assembly in the carrier.
5. Note the identification marks on the adjusting nuts, and install them on their respective sides.
6. Install the differential bearing caps, making sure that the identification mark on the cap corresponds with the one on the carrier with the **SST**.

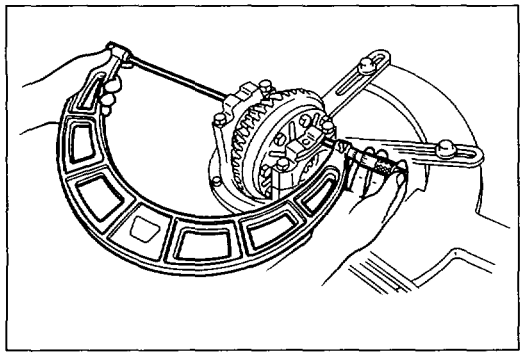


05U0MX-116

7. Mark the ring gear at four points at approx. **90°** intervals. Mount a dial indicator to the carrier so that the feeler comes in contact at a right angle with one of the ring gear teeth.
8. Turn both bearing adjusters equally with the **SST** until the backlash is **0.09—0.11mm (0.0035—0.0043 in)**.


05U0MX-117

9. Check the backlash at the three other marked points, and make sure the maximum backlash is less than **0.07mm (0.0028 in)**.

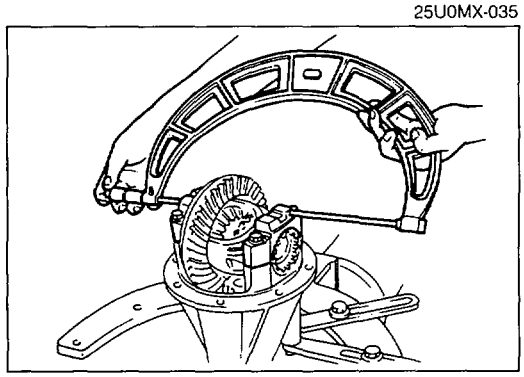

25U0MX-035

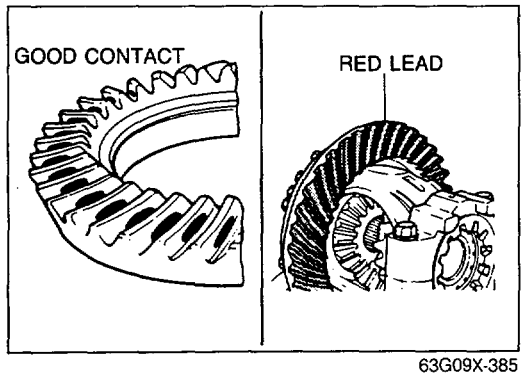
Note
- **When adjusting the differential bearing preload, be careful not to affect the backlash of the drive pinion and ring gear.**

10. Tighten the adjusting nuts equally until the distance between the pilot sections on the bearing caps is **150.137—150.20mm (5.9105—5.913 in)**.

Inspection and adjustment of teeth contact

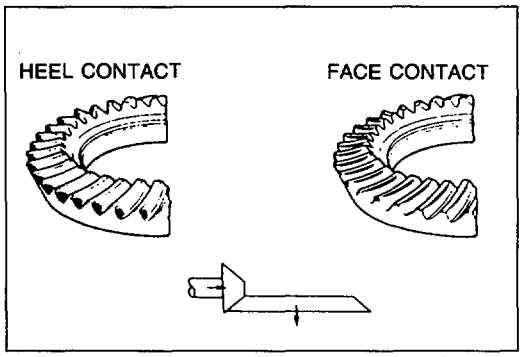
1. Coat both surfaces of 6—8 teeth of the ring gear with a thin coat of red lead.
2. While moving the ring gear back and forth by hand, rotate the drive pinion several times and check the tooth contact.
3. If the tooth contact is good, wipe off the red lead.
4. If it is not good, adjust the pinion height, and then adjust the backlash.


99U09X-025



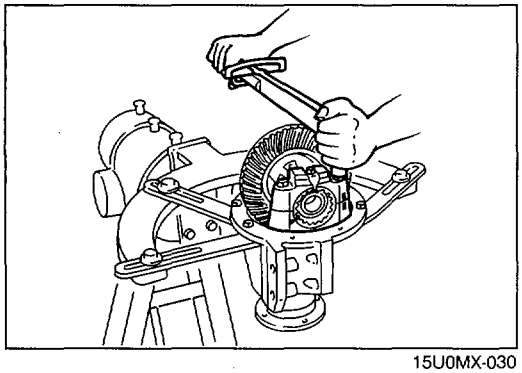
63G09X-385

(1) Toe and flank contact
Replace the spacer with a thinner one to move the drive pinion outward.



63G09X-386

(2) Heel and face contact
Replace the spacer with a thicker one to bring the drive pinion in.

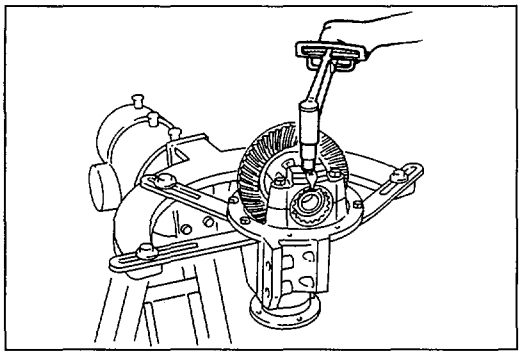


15U0MX-030

Bearing caps

1. Tighten the bearing cap bolts.

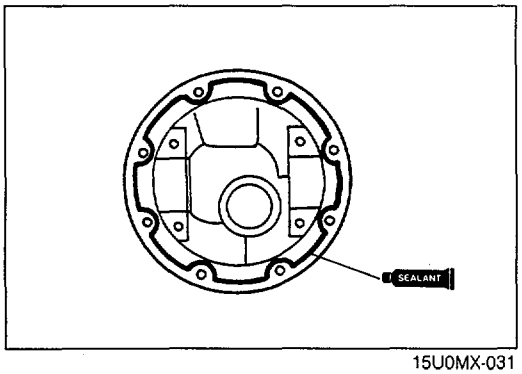
Tightening torque:
37—52 N·m (3.8—5.3 m-kg, 27—38 ft-lb)



99U09X-043

2. Install the lock plates on the bearing caps.

Tightening torque:
18—25 N·m (1.8—2.6 m-kg, 13—19 ft-lb)

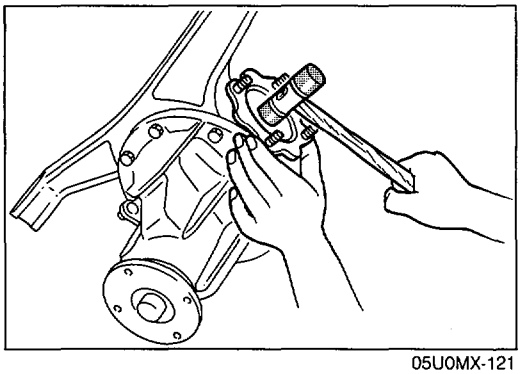


15U0MX-031

Differential case

1. Apply sealant to the housing face.
2. Tighten the bolts.

Tightening torque:
23—26 N·m (2.3—2.7 m-kg, 17—20 ft-lb)



05U0MX-121

Output shaft

Caution
- **With viscous L.S.D., the right output shaft is longer than the left shaft.**

1. Install a new clip.
2. Install the output shafts into the side gears by lightly tapping them with a plastic hammer.
3. Verify that the output shafts are hooked into the side gears by pulling them by hand.

Before beginning any service procedure, refer to Section T of this manual for airbag system warnings and cautions.

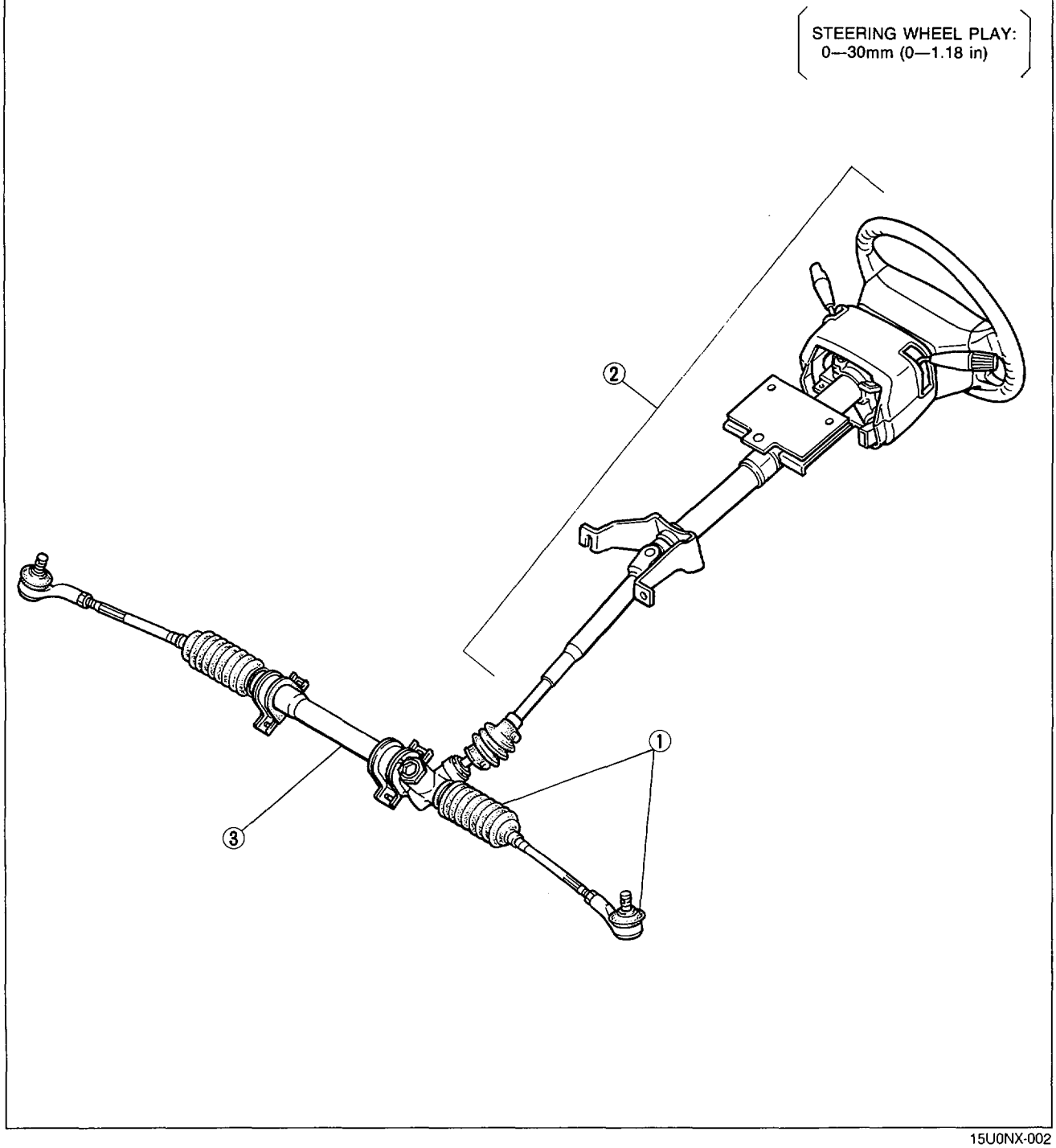
STEERING SYSTEM

INDEX ..... **N– 2**
OUTLINE ..... **N– 4**
SPECIFICATIONS ..... **N– 4**
MANUAL STEERING ..... **N– 4**
PREPARATION ..... **N– 4**
TROUBLESHOOTING GUIDE ..... **N– 5**
BOOT ..... **N– 6**
STEERING WHEEL AND COLUMN ..... **N– 8**
STEERING GEAR AND LINKAGE **N–12**
ENGINE SPEED SENSING POWER STEERING **N–18**
PREPARATION **N–18**
TROUBLESHOOTING GUIDE **N–20**
AIR BLEEDING **N–21**
POWER STEERING FLUID **N–22**
STEERING WHEEL AND COLUMN **N–24**
STEERING GEAR AND LINKAGE **N–25**
POWER STEERING OIL PUMP **N–33**
DRIVE BELT **N–37**

25U0NX-001

INDEX

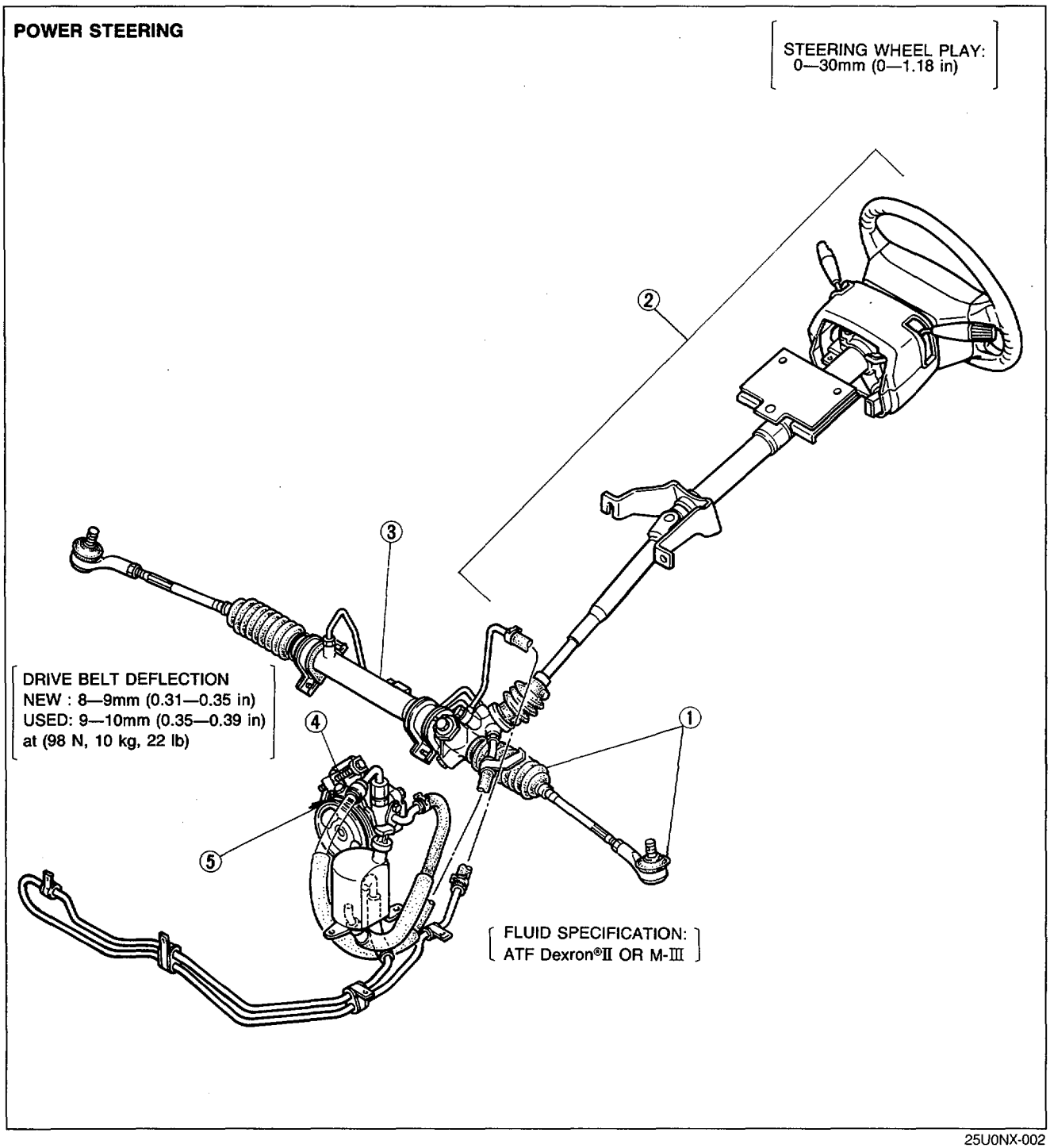
MANUAL STEERING



15U0NX-002

1. Boot
Replacement ..... page N– 6
2. Steering wheel and column
On-vehicle inspection ..... page N– 8
Removal / Installation ..... page N– 9
Disassembly / Inspection / Assembly ..... page N–10
3. Steering gear and linkage
Removal / Installation ..... page N–12
Disassembly / Inspection / Assembly ..... page N–13

POWER STEERING



25U0NX-002

1. Boot
Replacement ..... page N– 6
2. Steering wheel and column
On-vehicle inspection..... pages N– 8, 24
Removal / Installation..... page N– 9
Disassembly / Inspection / Assembly..... page N–10
3. Steering gear and linkage
Removal / Installation..... page N–25
Air bleeding..... page N–21
Disassembly / Inspection / Assembly..... page N–27
4. Power steering oil pump
Removal / Installation..... page N–33
Air bleeding..... page N–21
Power steering fluid ..... page N–22
5. Drive belt
Inspection..... page N–37
Adjustment ..... page N–38
Replacement ..... page N–38

OUTLINE

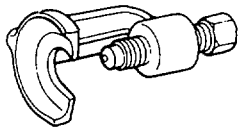
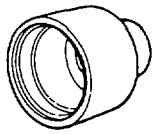
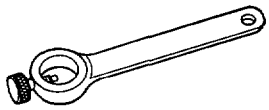
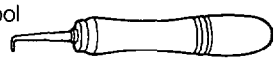
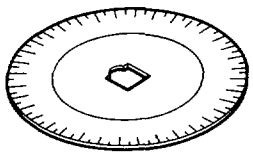
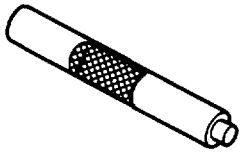
SPECIFICATIONS

Item	Type	Manual steering	Power steering
Steering wheel	Outer diameter mm (in)	370 (14.6)	
	Lock-to-lock turns	3.36	2.8
Steering shaft and joint	Shaft	Collapsible, non-tilt	
	Joint	2-cross joint	
Steering gear	Power assist	—	Engine speed sensing
	Gear	Rack-and-pinion	
	Gear ratio	∞ (infinite)	
	Rack stroke mm (in)	121.0 (4.76)	
	Power steering fluid	—	ATF Dexron®II or M-III
	Fluid capacity liter (US qt, Imp qt)	—	0.8 (0.85, 0.70)

25U0NX-003

MANUAL STEERING

PREPARATION
SST

49 0118 850C Puller, ball joint 	For removal of tie-rod end	49 1243 785 Installer, boot 	For installation of tie-rod end boot
49 0180 510B Preload attachment 	For measurement of pinion torque	49 0208 701A Boot air out tool 	For removal of oil seal
49 H032 321A Hexagon wrench	For removal and installation of adjusting cover	49 D032 316 Protractor 	For tightening of adjusting cover
49 G030 797 Handle 	For installation of bushing		

25U0NX-004

TROUBLESHOOTING GUIDE

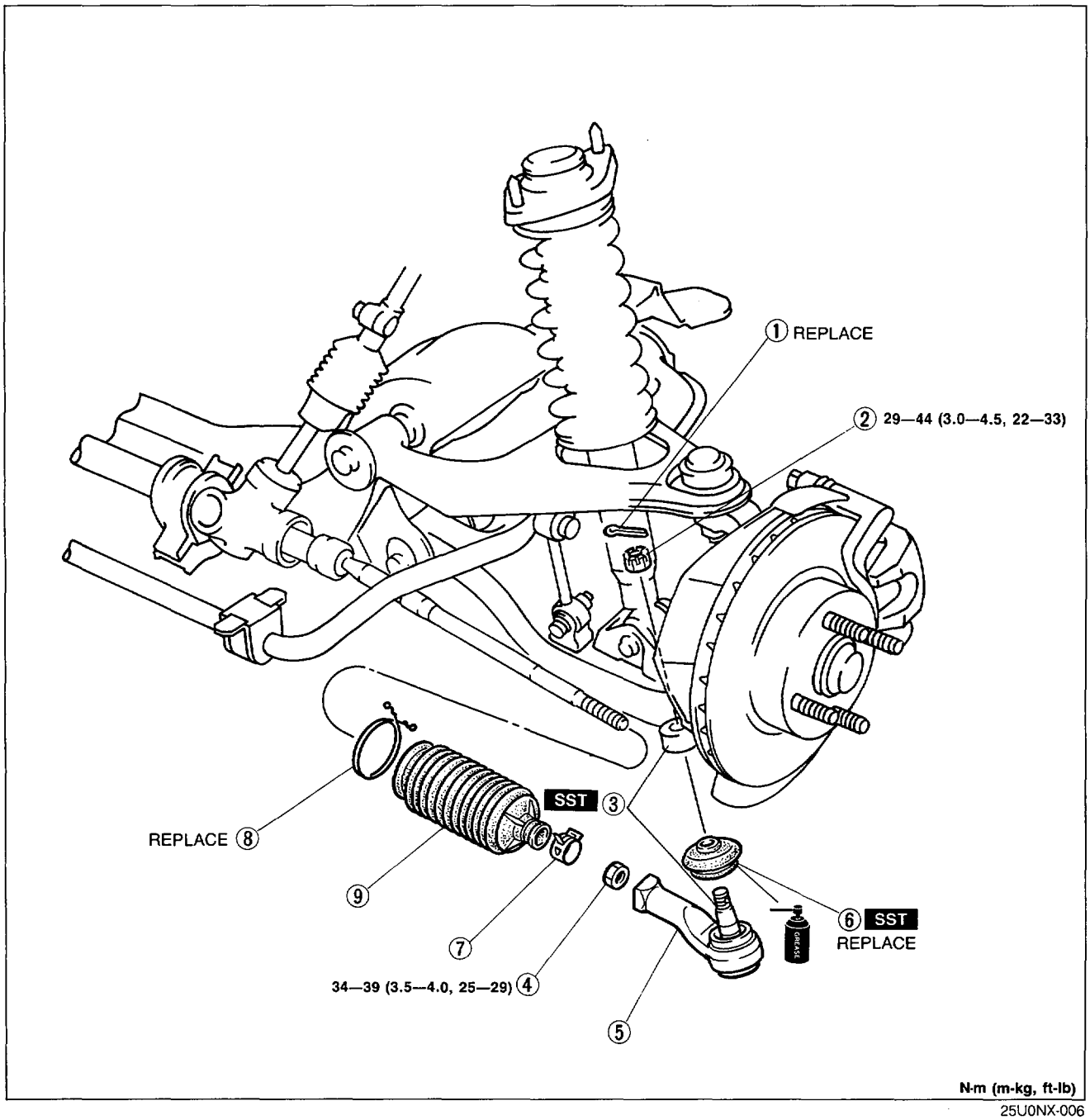
Problem	Possible Cause	Action	Page/Section
Steering heavy	Poor lubrication, foreign material, or abnormal wear of steering ball joint	Lubricate or replace	N–12
	Stuck or damaged lower arm ball joints	Replace	Section R
	Improper steering pinion preload	Replace gear	N–12
	Damaged steering gear	Replace	N–12
	Malfunction of steering shaft joint	Replace	N– 9
	Improperly adjusted wheel alignment	Adjust	Section R
	Malfunctioning steering gear	Replace	N–12
	Incorrect tire pressure	Adjust	Section Q
Steering wheel pulls to one side	Incorrect tire pressure	Adjust	Section Q
	Unevenly worn tires	Replace	Section Q
	Weak front spring	Replace	Section R
	Worn or damaged stabilizer and/or suspension arm bushings	Replace	Section R
	Dragging brake	Repair	Section P
	Loose lower arm	Tighten	Section R
	Improperly adjusted wheel alignment	Adjust	Section R
General instability while driving	Incorrect tire pressure	Adjust	Section Q
	Damaged or unbalanced wheel	Adjust or replace	Section Q
	Worn or damaged steering joints	Replace	N– 9
	Improper steering pinion preload	Replace gear	N–12
	Weak front coil spring	Replace	Section R
	Worn or damaged stabilizer and/or suspension arm bushings	Replace	Section R
	Malfunctioning shock absorber	Replace	Section R
	Improperly adjusted wheel alignment	Adjust	Section R
Shake (Steering wheel vibrates up/down)	Excessive tire and/or wheel runout	Replace	Section Q
	Loose lug nuts	Tighten	Section Q
	Unbalanced wheel(s)	Adjust or replace	Section Q
	Cracked or worn engine mount rubber	Replace	Section B
	Cracked or worn transmission mount rubber	Replace	Section J
Shimmy (Steering wheel vibrates circmferentially)	Cracked or worn steering gear mount rubber	Replace	N–12
	Loose steering gear mounting bolts	Tighten	N–12
	Stuck or damaged steering ball joint	Replace	N–14
	Excessive tire and/or wheel runout	Replace	Section Q
	Loose lug nuts	Tighten	Section Q
	Unbalanced wheel(s)	Adjust or replace	Section Q
	Incorrect tire pressure	Adjust	Section Q
	Unevenly worn tires	Replace	Section Q
	Malfunction of shock absorber	Replace	Section R
	Loose shock absorber mounting bolts	Tighten	Section R
	Stuck or damaged lower arm ball joint	Replace	Section R
	Cracked or worn suspension bushings	Replace	Section R
	Damaged or worn front wheel bearing	Replace	Section M
	Improperly adjusted front wheel alignment	Adjust	Section R
Excessive steering wheel play	Worn steering gear	Replace	N–12
	Worn or damaged steering joints	Replace	N– 9
	Worn or damaged suspension arm bushings	Replace	Section R
	Loose steering gear mounting bolts	Tighten	N–12
	Worn linkage or tie rod ball joint	Replace	N–12
Poor steering wheel return	Incorrect tire pressure	Adjust	Section Q
	Stuck or damaged steering joints	Replace	N– 9
	Improperly adjusted front wheel alignment	Adjust	Section R
	Improper steering pinion preload	Replace gear	N–12
	Ball joint not operating smoothly	Replace	N–14
	Steering shaft contacting something	Repair	N– 9
Abnormal noise from steering system	Loose steering gear	Tighten	N–12
	Malfunctioning steering gear	Replace	N–12
	Obstruction near steering column	Repair or replace	N– 9
	Loose steering linkage	Tighten or replace	N–12
	Worn steering joints	Replace	N– 9

25U0NX-005

BOOT

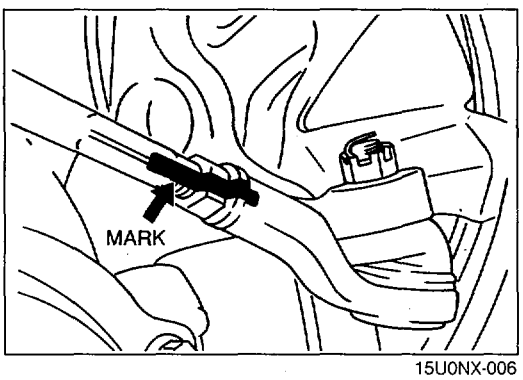
Replacement

1. Loosen the wheel lug nuts.
2. Jack up the front of the vehicle and support it with safety stands.
3. Remove the wheel.
4. Remove in the order shown in the figure, referring to **Removal Note**.
5. Install in the reverse order of removal, referring to **Installation Note**.
6. After installation, check the steering angle and toe-in and adjust if necessary. (Refer to Section R.)



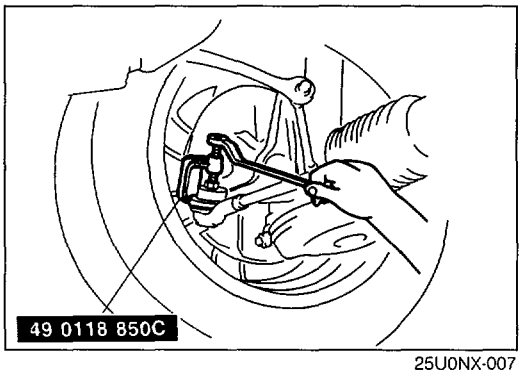
25U0NX-006

1. Cotter pin
2. Nut
3. Tie rod end/Steering knuckle
   Removal Note ..... page N– 7
4. Locknut
   Removal Note ..... page N– 7
5. Tie rod end
6. Tie rod end boot
   Removal Note ..... page N– 7
   Installation Note..... page N– 7
7. Boot clamp
8. Boot wire
9. Steering gear boot
   Installation Note..... page N– 7



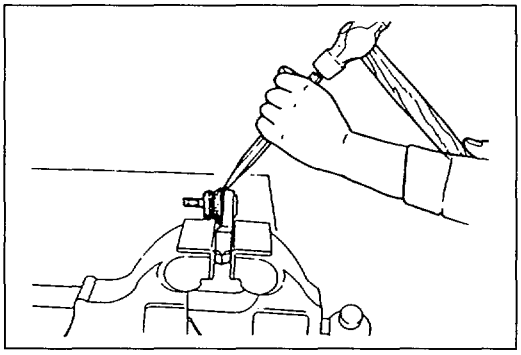
15U0NX-006

Removal note
Locknut
Before loosening the locknut from the tie rod end, make a mark for reference when tightening.



25U0NX-007

Tie rod end/Steering knuckle
1. Loosen the tie rod nut.
2. With the nut protecting the tie rod end stud, separate the tie rod end from the steering knuckle with the **SST**.

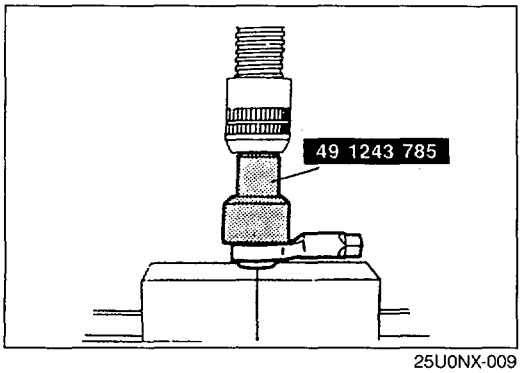


25U0NX-008

Tie rod end boot

Caution
- **Do not scar the part where the boot is attached to the tie rod end.**

Secure the tie rod end in a vise. Place a chisel against the boot and hold it at the angle shown. Remove the boot by tapping it with a hammer.



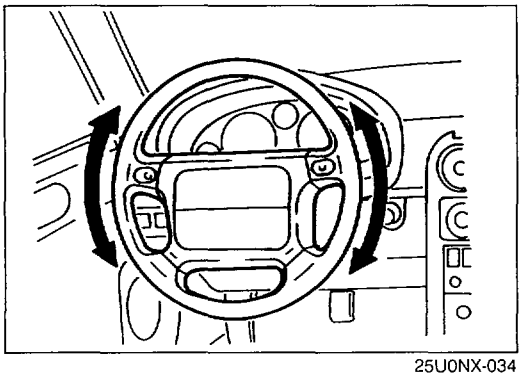
25U0NX-009

Installation note
Tie rod end boot
Put a small amount of grease (lithium base) into the new boot and set it onto the tie rod end. Press the boot onto the tie rod end with the **SST** and a press.

Steering gear boot

Caution
- **Check that the boot is not twisted or dented.**

15U0NX-008


25U0NX-034

STEERING WHEEL AND COLUMN

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to Section T.)**

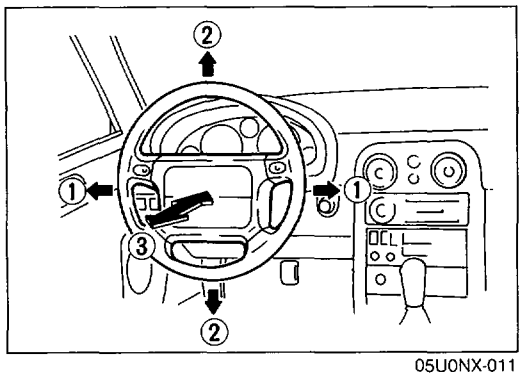
On-vehicle Inspection

Steering wheel play

With the wheels in the straight-ahead position, gently turn the steering wheel to the left and right and verify that the play is within specification.

Play: 0—30mm (0—1.18 in)

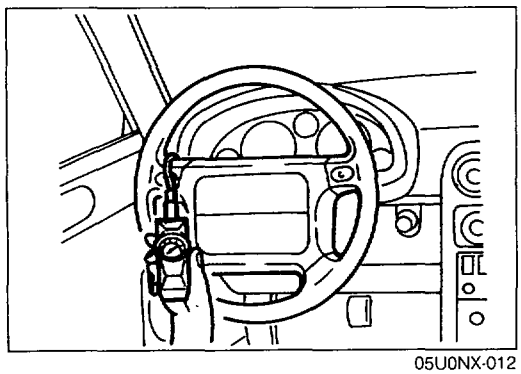
Note
- **If the play exceeds specification, either the steering joints are worn or the backlash of the steering gear is excessive.**



05U0NX-011

Looseness or play of steering wheel

Move the steering wheel in directions ①, ②, and ③ to check for column bearing wear, steering shaft joint play, steering wheel looseness, and column looseness.


05U0NX-012

Steering wheel effort

1. Jack up the front of the vehicle.
2. Turn the steering wheel fully to the left and right at least 5 times.
3. Move the steering wheel to put the wheels in the straight-ahead position.
4. Attach a pull scale to the outermost point of the steering wheel spoke.
   Then, starting with the wheels in the straight-ahead position, measure the effort required to turn the steering wheel to the left and to the right.

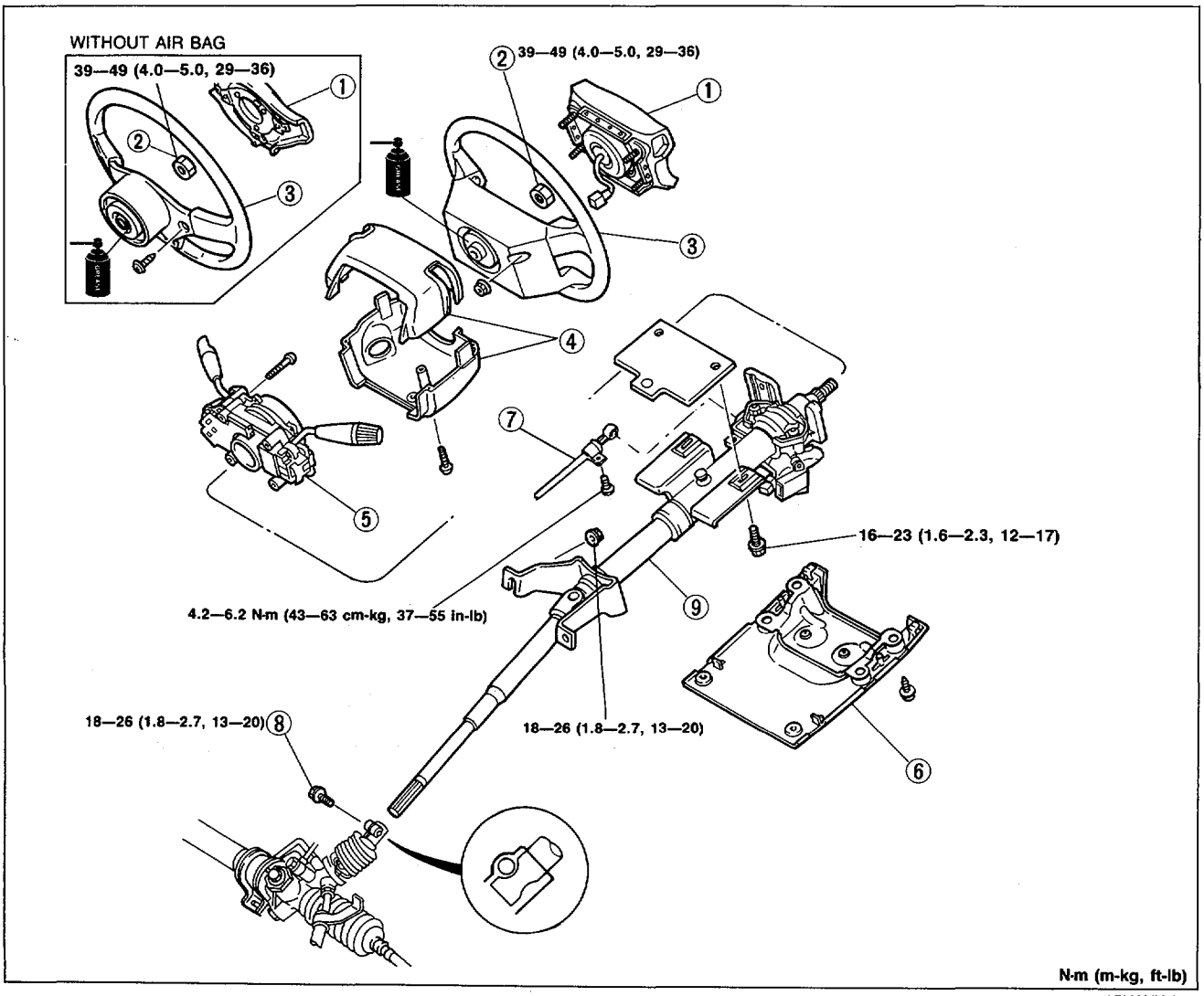
   Steering wheel effort:
   4.9—29.4 N (0.5—3.0 kg, 1.1—6.6 lb)
   [during one turn of steering wheel]

5. If not within specification, check the following: rotation starting torque of pinion, rotation torque of each ball joint, and steering joints.

Removal / Installation

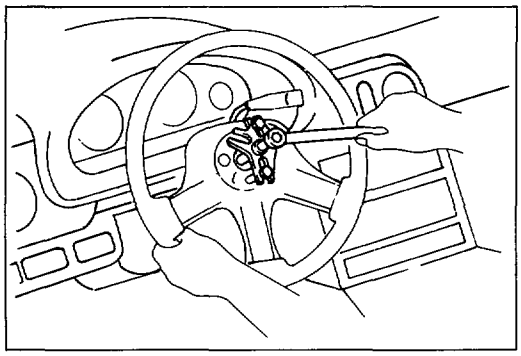
Caution
- **Do not remove the steering wheel of air bag equipped models (U.S. spec.) if not necessary.**
- **Adjust the clockspring connector after installing the combination switch. (U.S. spec.) (Refer to Section T.)**

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Inspect all parts and repair or replace as necessary.
4. Install in the reverse order of removal.
5. Tighten all necessary nuts and bolts to the specified torque.
6. After installation, check if the horn sounds. If the horn does not sound, remove the air bag module and connect the module connectors. (Refer to Section T.)



15U0NX-010

1. Air bag module
   Removal / Installation ..... Section T
1. Horn pad (without air bag)
2. Locknut
3. Steering wheel
   Removal Note ..... page N–10
4. Column cover
5. Combination switch
   Removal / Installation ..... Section T
6. Lower panel
7. Key interlock cable (Automatic transmission)
8. Intermediate shaft bolt
9. Steering shaft
   Disassembly / Inspection / Assembly ..... page N–10

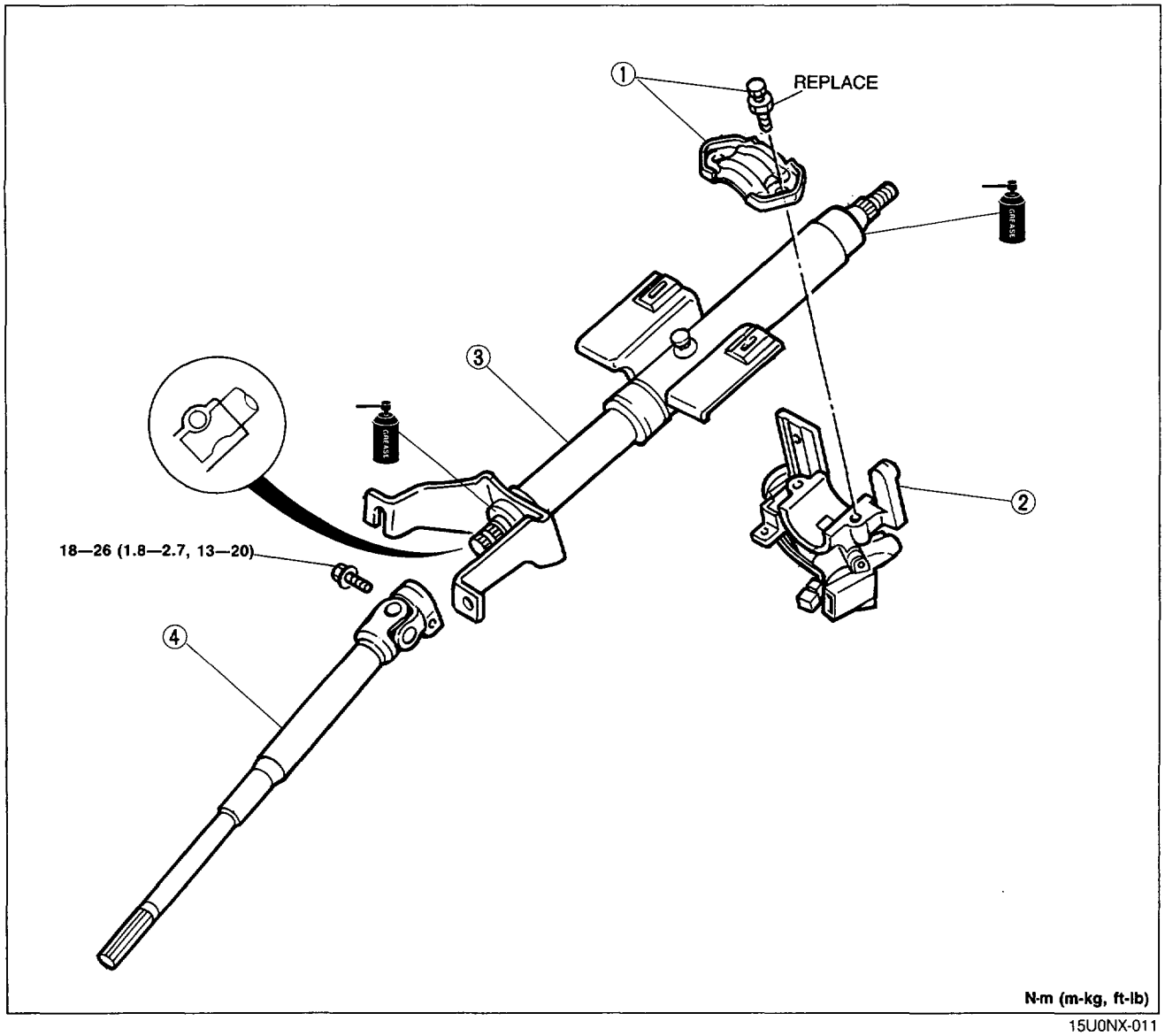

05U0NX-014

Removal note
Steering wheel

Caution
- **Do not remove the steering wheels of models with air bag systems if not necessary.**
- **Do not try to remove the steering wheel by hitting the shaft with a hammer. The column will collapse.**

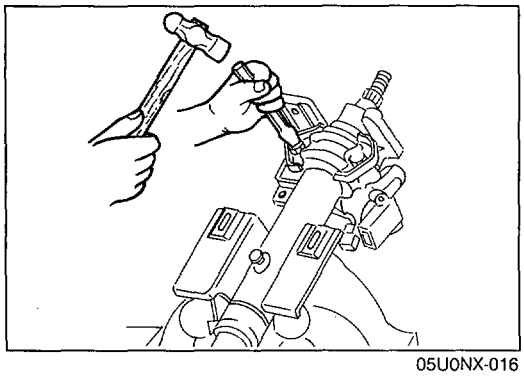
Remove the steering wheel with a suitable puller.

Disassembly / Inspection / Assembly
1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



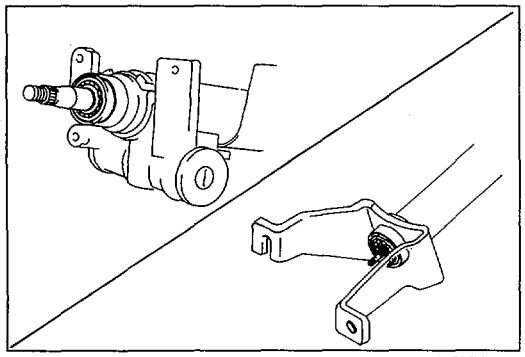
15U0NX-011

1. Steering lock mounting bolts and bracket
   Disassembly Note ..... page N–11
   Assembly Note..... page N–11
2. Steering lock assembly
3. Steering shaft
   Inspection..... page N–11
4. Intermediate shaft
   Inspect universal joint for looseness, abnormal noise, and sticking



05U0NX-016

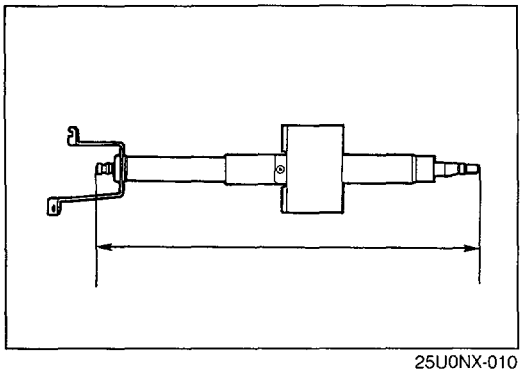
Disassembly note
Steering lock mounting bolts and bracket
Use a chisel to make a groove in the heads of the steering lock mounting bolts. Remove the bolts with a screwdriver. Remove the steering lock assembly.



05U0NX-017

Inspection
Check for the following and replace the column assembly if necessary.

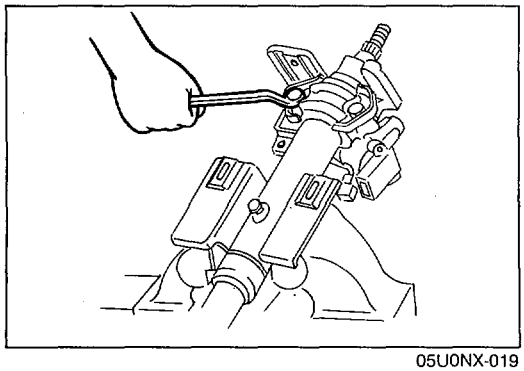
Steering shaft
1. Column bearing damage.



25U0NX-010

2. Steering shaft length.

Length: 603.7—605.7mm (23.77—23.85 in)



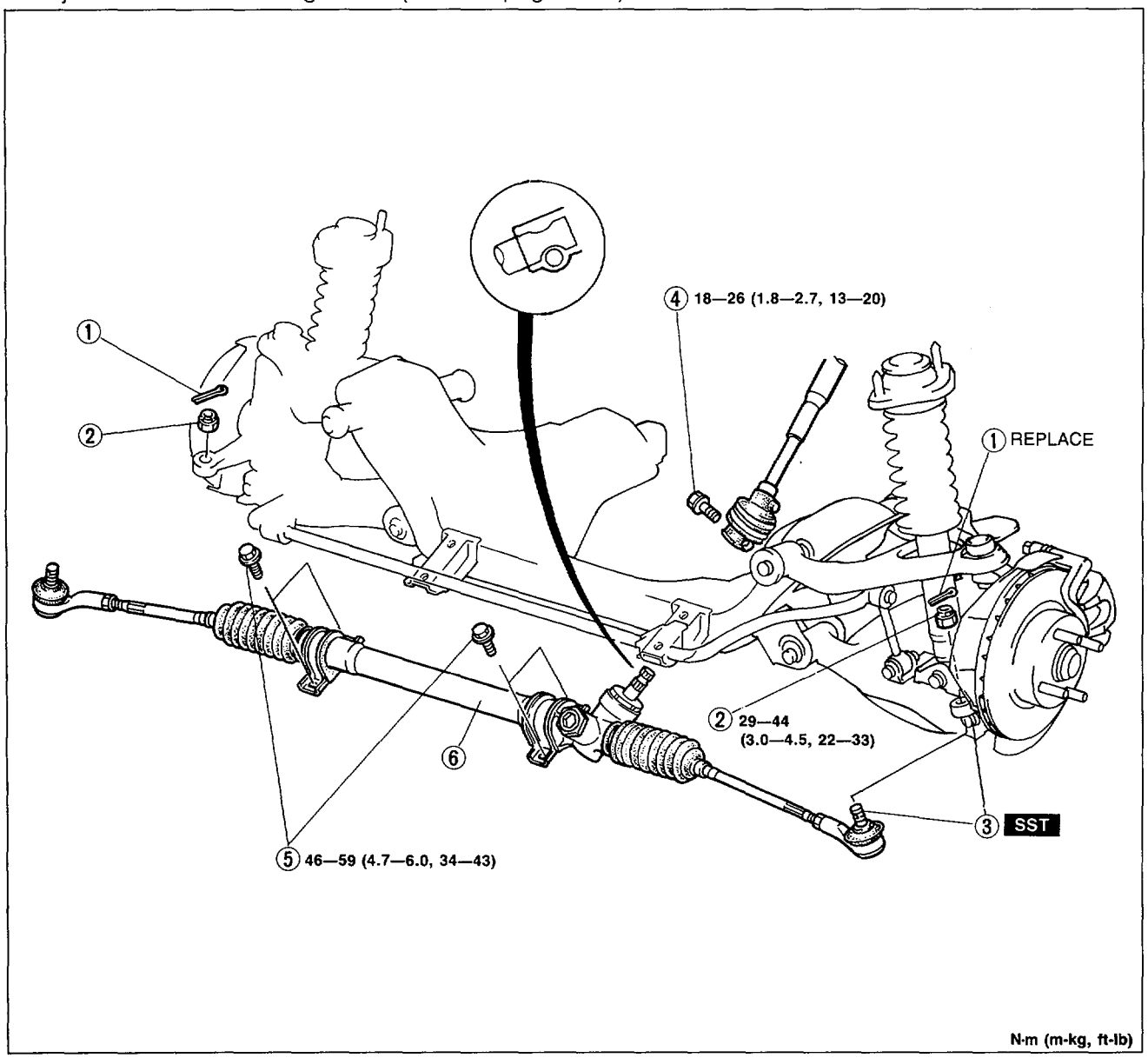
05U0NX-019

Assembly note
Steering lock mounting bolts and bracket
Install the steering lock assembly on the jacket. Install the new steering lock mounting bolts. Tighten the bolts until the heads break off.

STEERING GEAR AND LINKAGE
Removal / Installation

Caution
- **Disconnect/connect the pinion shaft from/to the intermediate shaft with the wheels in the straight-ahead position, and do not turn the steering wheel while the steering gear is removed. If not done correctly, adjust the clockspring connector. (U.S. spec.) (Refer to Section T.)**

1. Loosen the wheel lug nuts.
2. Jack up the front of the vehicle and support it with safety stands.
3. Remove the wheel.
4. Remove the undercover.
5. Remove in the order shown in the figure, referring to **Removal Note**.
6. Install in the reverse order of removal.
7. Adjust the front wheel alignment. (Refer to page R–6.)

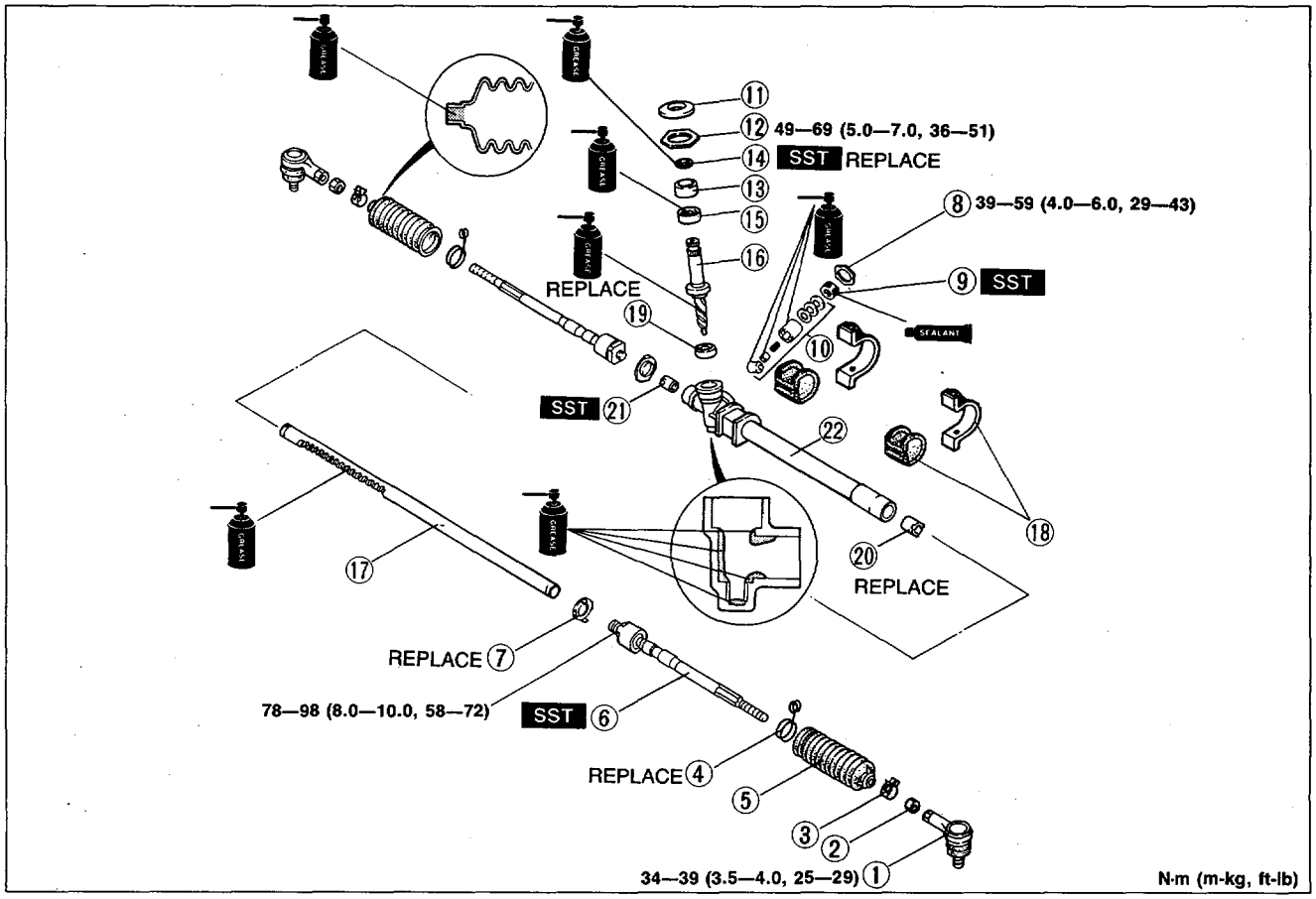


25U0NX-011

1. Cotter pin
2. Nut
3. Tie rod end/Steering knuckle
   Removal Note ..... page N–7
4. Intermediate shaft bolt
5. Mounting bracket bolt
6. Steering gear and linkage

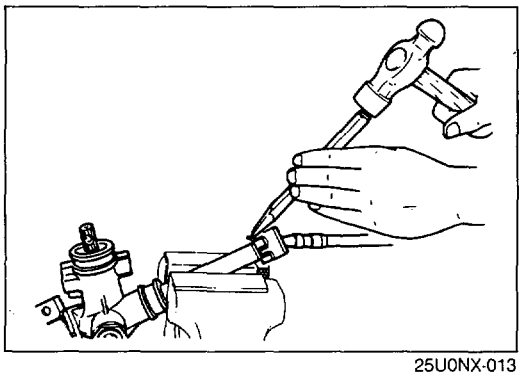
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



25U0NX-012

1. Tie rod end
   Inspect ball joint for damage and malfunction
2. Locknut (Tie rod end)
3. Boot band
4. Boot wire
5. Boot
   Inspect for cracks and other damage
6. Tie rod
   Disassembly Note ..... page N–14
   Assembly Note ..... page N–32
7. Washer
8. Locknut (Adjusting cover)
9. Adjusting cover
   Disassembly Note ..... page N–14
   Assembly Note ..... page N–17
10. Roller assembly
    Inspect parts for wear, damage, weakness and malfunction
11. Dust cover
    Inspect for cracks and other damage
12. Locknut (Rear cover)
13. Rear cover
    Assembly Note ..... page N–17
14. Oil seal
    Disassembly note ..... page N–14
15. Upper bearing
    Inspect for wear, damage, and malfunction
16. Pinion shaft
    Assembly Note ..... page N–16
    Inspect teeth for wear, damage and cracks
17. Rack
    Disassembly Note ..... page N–14
    Inspection ..... page N–15
    Assembly Note ..... page N–16
18. Mounting bracket and rubber
19. Lower bearing
    Disassembly Note ..... page N–14
    Assembly Note ..... page N–16
    Inspect for wear, damage, and malfunction
20. Rack bushing
    Disassembly Note ..... page N–15
    Assembly Note ..... page N–15
    Inspect for wear and damage
21. Bushing
    Disassembly Note ..... page N–15
    Assembly Note ..... page N–15
    Inspect for wear and damage
22. Gear housing
    Inspect for cracks and other damage

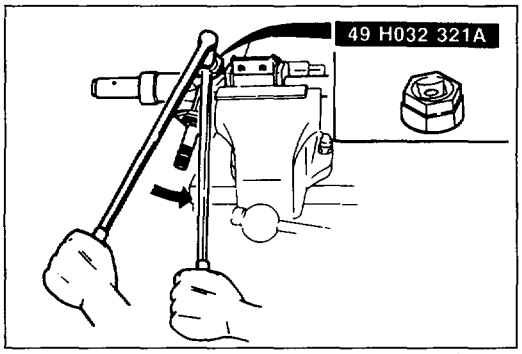


25U0NX-013

Disassembly note
Tie rod

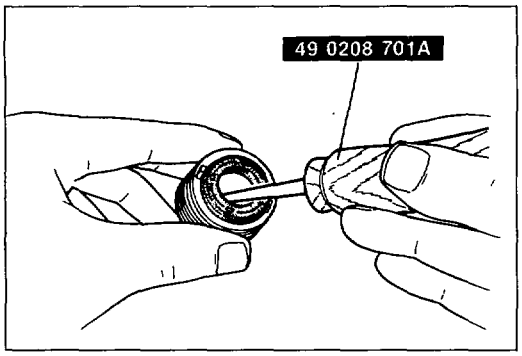
Caution
- **Use copper or aluminum plates in the jaws of the vise.**

1. Uncrimp the washer.
2. Remove the tie rod.



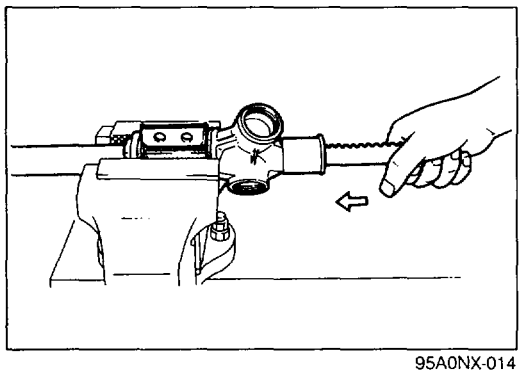
95A0NX-012

Adjusting cover
1. Remove the adjusting cover with the **SST**.



95A0NX-013

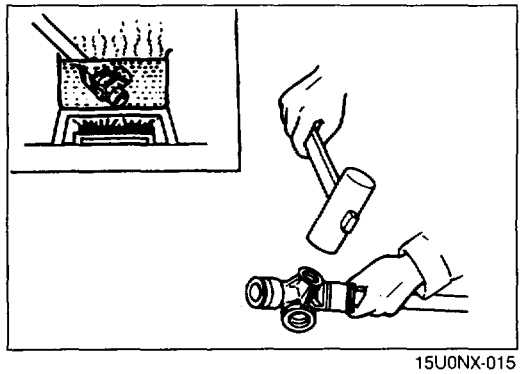
Oil seal
1. Remove the oil seal with the **SST**.



95A0NX-014

Rack
1. Remove the rack from the tube side.

Caution
- **Do not damage the rack bushing with the rack teeth.**

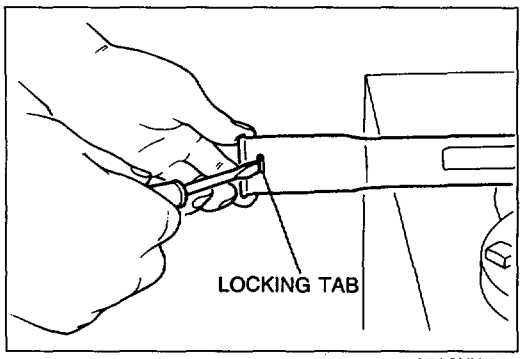


15U0NX-015

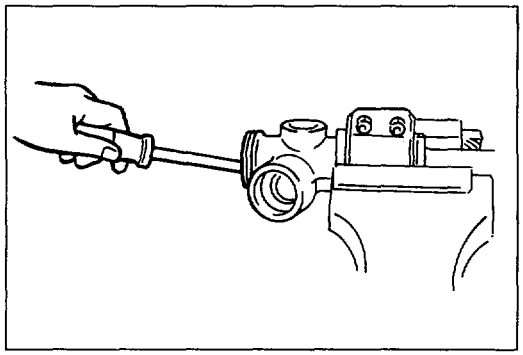
Lower bearing

Caution
- **Do not remove the lower bearing if not necessary.**

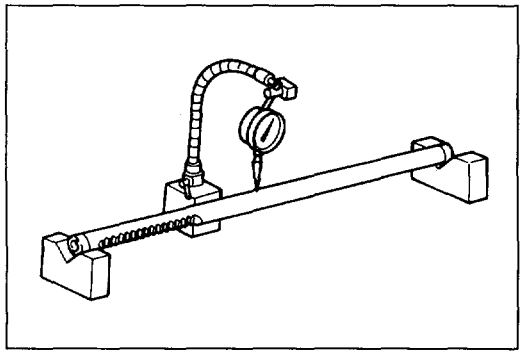
1. Heat the gear housing in the water to about **80°C (180°F)**.
2. Tap the end of the housing with a plastic hammer to remove the lower bearing.



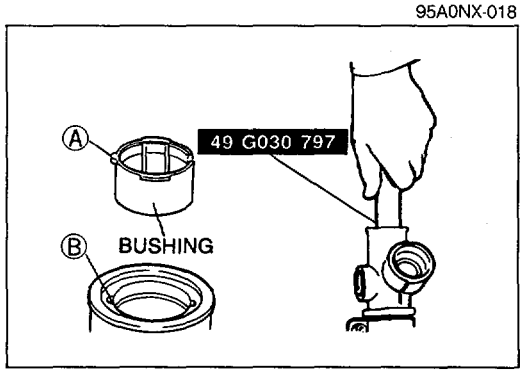
95A0NX-016



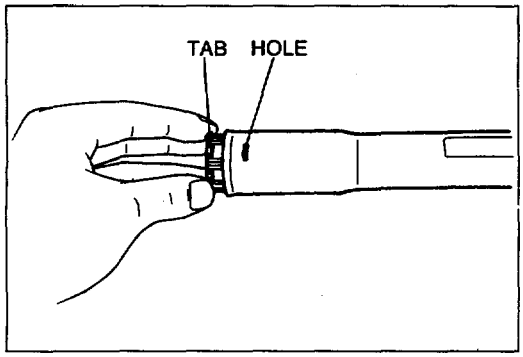
95A0NX-017



95A0NX-018



15U0NX-016



15U0NX-017

Rack bushing

Caution
- **Do not remove the rack bushing if not necessary.**
- **Do not damage the column when removing.**

1. Depress the locking tab to remove the rack bushing.

Bushing

Caution
- **Do not remove the bushing if not necessary.**
- **Do not damage the gear housing when removing.**

1. Break the bushing to remove it.

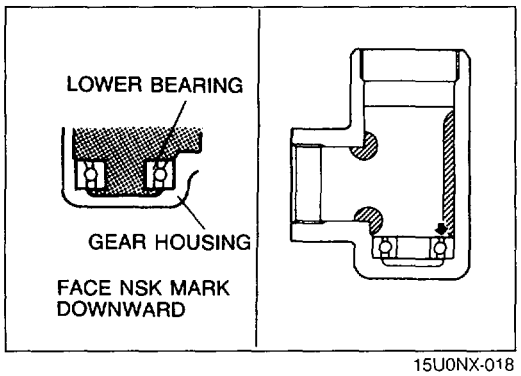
Inspection
Rack
1. Inspect for cracking, damage, and tooth wear, replace if necessary.
2. Measure runout of the the rack.

Runout: 0.3mm (0.012 in) max.

3. If not within specification, replace the rack.

Assembly note
Bushing
1. Align A and B and press a new bushing into the gear housing with the **SST** until it is fully seated.

Rack bushing
1. Align the tab of a new rack bushing with hole in the column.
2. Push the rack bushing in until it is locked in place by the tab.



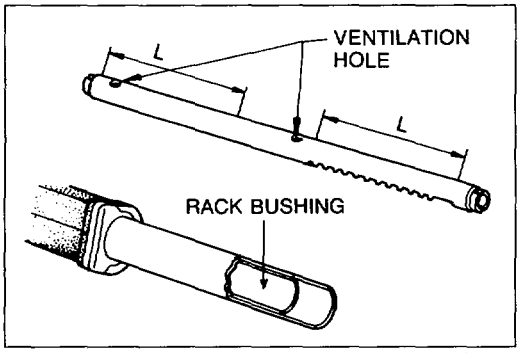
15U0NX-018

Lower bearing

1. Apply grease to a new lower bearing.

Caution
- **Face the NSK mark downward.**

2. Insert the pinion shaft with the lower bearing.
3. Press the pinion shaft to seat the lower bearing.
4. Apply grease to the inside of the gear housing as shown.



95A0NX-022

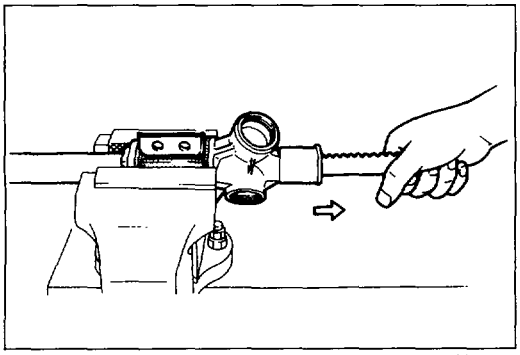
Rack

1. Secure the mounting bracket in a vise.

Caution
- **Use copper or aluminum plates in the jaws of the vise.**

2. Apply grease to the rack bushing.
3. Apply grease to the rack teeth and the sliding surface.

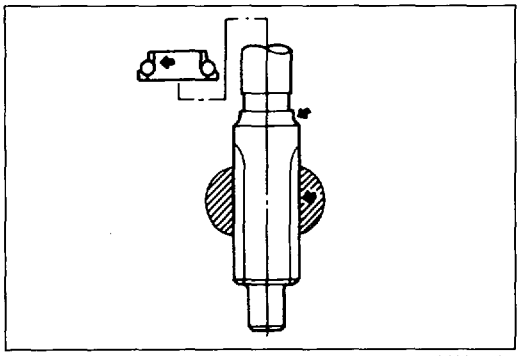
Caution
- **Do not plug the ventilation holes with the grease.**



95A0NX-023

4. Slide the rack in from the tube side.

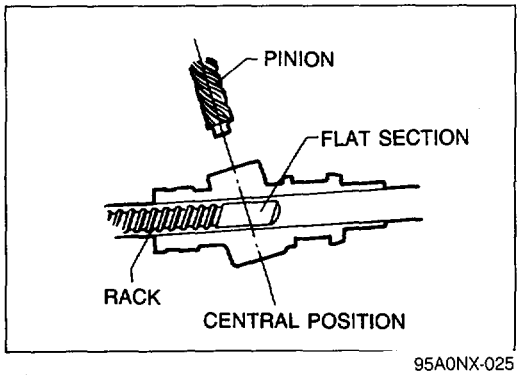
Caution
- **Do not damage the rack bushing.**



95A0NX-024

Pinion shaft

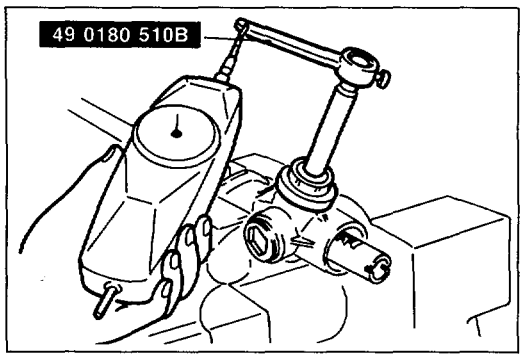
1. Apply grease to the inner race of the upper bearing and install it to the pinion shaft.
2. Apply grease to the teeth of the pinion shaft.



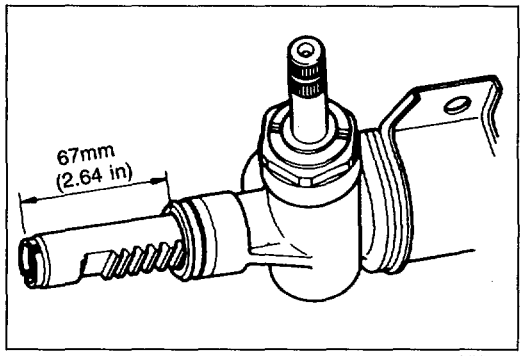
95A0NX-025

3. Turn the flat section of the rack toward the pinion, and insert the pinion.

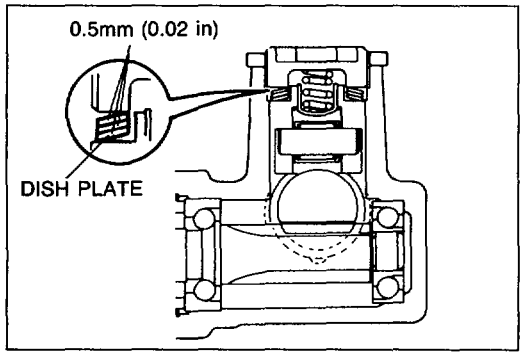
Caution
- **This flat section is for adjustment of the pinion bearing preload without the pinion engaging the rack.**



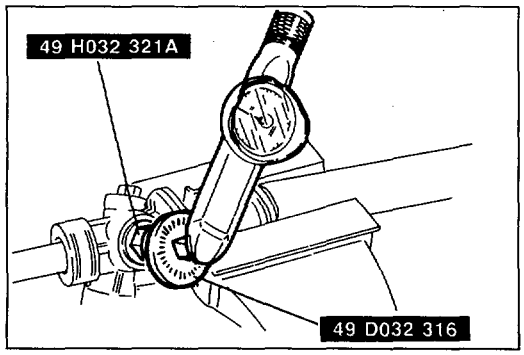
15U0NX-019



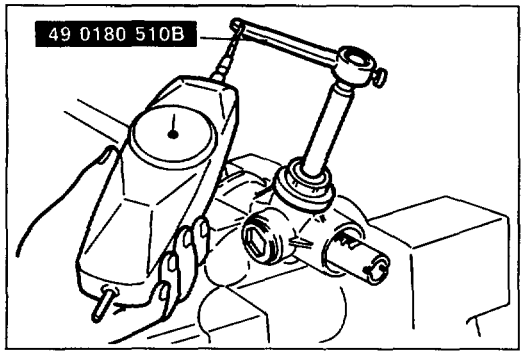
15U0NX-020



95E0NX-012



15U0NX-021



95A0NX-030

Rear cover

1. Apply grease to the outer race of the upper bearing and install it in the gear housing.
2. Install a new oil seal to the rear cover.
3. Apply sealant to the threads of the rear cover and install it into the gear housing.

Caution
- **Before measuring the torque, rotate the pinion to the left and right a few times to seat the bearing.**

4. Tighten the rear cover so that the starting torque of the pinion is **200—350 g (7.1—13.8 oz)** as checked with the **SST** and a pull gauge.
5. Tighten the locknut as shown.

Tightening torque:
49—69 N·m (5.0—7.0 m-kg, 36—51 ft-lb)

Caution
- **Do not allow the rear cover to turn.**

Adjusting cover

1. Carefully move the rack so that the pinion is set to the center (neutral position) of the rack gear as shown.
2. Install the roller assembly, needle roller, holder, dish springs, friction block, and spring.

Caution
- **Install the roller bearing so that it contacts the rack correctly.**

Note
- **Apply sealant to the threads of the adjusting cover.**

3. Torque the adjusting cover to **9.8 N·m (1 m-kg, 85 in-lb)**, then loosen it 25°—45°. Use the **SST** to secure the adjusting cover with the locknut.

Tightening torque:
39—59 N·m (4.0—6.0 m-kg, 29—43 ft-lb)

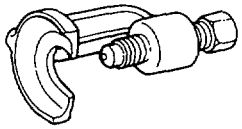
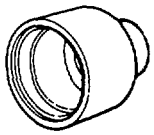
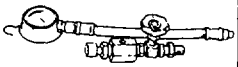
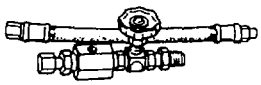
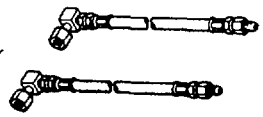
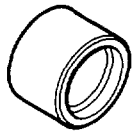
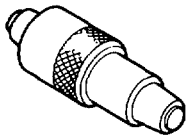
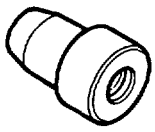
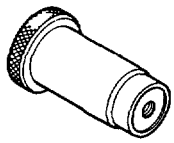
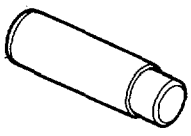
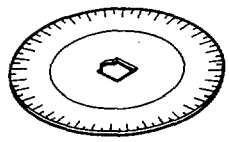
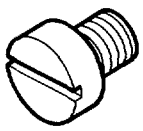
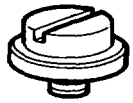
4. Measure the starting torque of the pinion with the **SST**.

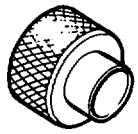
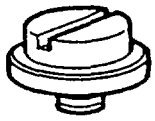
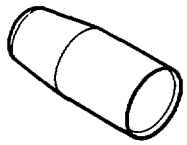
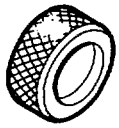
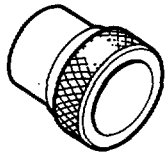
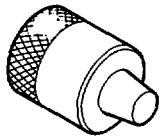
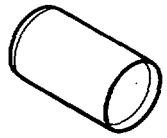
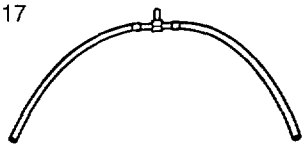
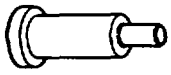
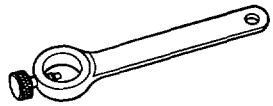
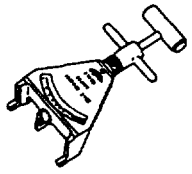
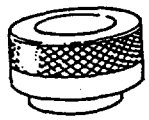
Center position ± 90°
Pull gauge reading: 1000—1400 g (35—50 oz)
Any other position
Pull gauge reading: less than 1700 g (60 oz)

5. If not within specification, repeat Steps 2 and 3.

ENGINE SPEED SENSING POWER STEERING

PREPARATION
SST

49 0118 850C Puller, ball joint 	For removal of tie-rod end	49 1243 785 Installer, boot 	For installation of tie-rod end boot
49 1232 670A Gauge set, power steering 	For inspection of power steering fluid pressure	49 1232 672 Gauge (Part of 49 1232 670A)	For inspection of power steering fluid pressure
49 1232 673 Valve body (Part of 49 1232 670A) 	For inspection of power steering fluid pressure	49 H002 671 Adapter, power steering gauge 	For inspection of power steering fluid pressure
49 B032 302 Adapter, power steering gauge	For inspection of power steering fluid pressure	49 D032 306 Support block 	For removal and installation of upper bearing For pressurize oil seal
49 D032 304 Installer, oil seal and bearing 	For removal of upper bearing For pressurize oil seal	49 F032 303 Handle	For removal of backup ring and oil seal
49 N032 303 Remover, backup ring and oil seal 	For removal of backup ring and oil seal	49 D032 301 Installer body, oil seal and bearing 	For installtion of oil seal and center bearing
49 D032 307 Remover, oil seal and bearing 	For removal of oil seal and center bearing	49 D032 316 Protractor 	For installation of adjusting cover
49 D032 303 Attachment 	For installation of center bearing	49 D032 302 Attachment 	For installtion of oil seal

49 N032 301 Protector body, oil seal 	For installation of oil seal	49 N032 302 Guide, oil seal 	For installation of oil seal
49 N032 305 Protector, backup ring and oil seal	For installtion of steering rack assembly	49 N032 304 Protector, oil seal 	For installation of holder
49 D032 313 Seal ring former 	For formation of seal ring of pinion shaft	49 D032 315 Former and guide, seal ring 	For formation of seal ring of control valve
49 D032 305 Remover, oil seal and bearing 	For pressurize upper bearing	49 D032 310 Protector, pinion shaft 	For installation of plug assembly
49 G032 317 Hose 	For inspection of cylinder sealing	49 G032 319 Adapter	For inspection of cylinder sealing
49 B032 305 Holder 	For disassembly of oil pump	49 0180 510B Preload attachment 	For measurement of pinion torque
49 9200 020 V-ribbed belt tension gauge 	For measurement of drive belt tention	49 N032 303 Installer, bearing 	For installation of bearing

15U0NX-022

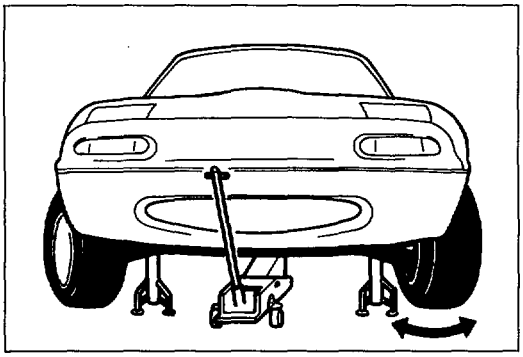
TROUBLESHOOTING GUIDE

Problem	Possible Cause	Action	Page/Section
Steering feels heavy	Poor lubrication, foreign material, or abnormal wear of steering ball joint	Lubricate or replace	N–25
	Stuck or damaged lower arm ball joints	Replace	Section R
	Improper steering pinion preload	Adjust	N–32
	Damaged steering gear	Replace	N–25
	Malfunctioning steering shaft joint	Replace	N– 9
	Improperly adjusted wheel alignment	Adjust	Section R
	Malfunctioning steering gear	Replace	N–25
	Incorrect tire pressure	Adjust	Section Q
	Loose or damaged oil pump drive belt	Adjust or replace	N–37
	Low fluid level or air in fluid	Add fluid or bleed air	N–21, 22
	Leakage of fluid	Repair or replace	—
	Insufficient oil pump pressure	Replace	N–34
Steering wheel pulls to one side	Incorrect tire pressure	Adjust	Section Q
	Unevenly worn tires	Replace	Section Q
	Weak front spring	Replace	Section R
	Worn or damaged stabilizer and/or upper or lower arm bushing	Replace	Section R
	Dragging brake	Repair	Section P
	Loose lower arm	Tighten or replace	Section R
	Improperly adjusted wheel alignment	Adjust	Section R
General instability while driving	Incorrect tire pressure	Adjust	Section Q
	Damaged or unbalanced wheel	Adjust or replace	Section Q
	Worn or damaged steering joint(s)	Replace	N– 9
	Improper steering pinion preload	Adjust	N–32
	Weak front coil spring	Replace	Section R
	Worn or damaged stabilizer and/or upper or lower arm bushing	Replace	Section R
	Malfunctioning shock absorber	Replace	Section R
	Improperly adjusted wheel alignment	Adjust	Section R
Shake (Steering wheel vibrates up/down)	Excessive tire and/or wheel runout	Replace	Section Q
	Loose lug nuts	Tighten	Section Q
	Unbalanced wheel(s)	Adjust or replace	Section Q
	Cracked or worn engine mount rubber	Replace	Section B
	Cracked or worn transmission mount rubber	Replace	Section J
Shimmy (Steering wheel vibrates left/right)	Cracked or worn steering gear mount rubber	Replace	N–25
	Loose steering gear mounting bolts	Tighten	N–25
	Stuck or damaged steering ball joint	Replace	N–25
	Excessive tire and/or wheel runout	Replace	Section Q
	Loose lug nuts	Tighten	Section Q
	Unbalanced wheel(s)	Adjust or replace	Section Q
	Incorrect tire pressure	Adjust	Section Q
	Unevenly worn tires	Replace	Section Q
	Malfunctioning shock absorber	Replace	Section R
	Loose shock absorber mounting bolts	Tighten	Section R
	Stuck or damaged lower arm ball joint	Replace	Section R
	Cracked or worn suspension bushings	Replace	Section R
	Damaged or worn front wheel bearing	Replace	Section M
	Improperly adjusted front wheel alignment	Adjust	Section R
Excessive steering wheel play	Worn steering gear	Replace	N–25
	Worn or damaged steering joints	Replace	N– 9
	Worn or damaged lower arm bushing	Replace	Section R
	Loose steering gear mounting bolts	Tighten	N–25
	Worn linkage or tie-rod ball joint	Replace	N–25
Poor steering wheel return	Incorrect tire pressure	Adjust	Section Q
	Stuck or damaged steering joints	Replace	N– 9
	Improperly adjusted front wheel alignment	Adjust	Section R
	Improper steering pinion preload	Adjust	N–25
	Ball joint not operating smoothly	Replace	N–25
	Steering shaft contacting something	Repair	N– 9

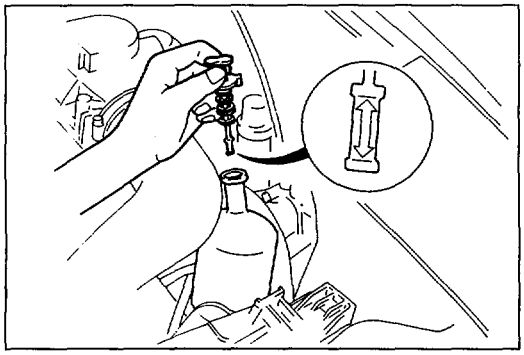
TROUBLESHOOTING GUIDE (Cont'd)

Problem	Possible Cause	Action	Page/Section
Abnormal noise from steering system	Loose oil pump	Tighten	N–33
	Loose steering gear	Tighten	N–25
	Loose oil pump bracket	Tighten	Section B
	Drive belt loose/tight	Adjust	N–38
	Air in system	Bleed air	N–21
	Malfunctioning steering gear	Replace	N–25
	Malfunctioning oil pump	Replace	N–33
	Obstruction near steering column or pressure hose	Repair or replace	N– 9
	Loose steering linkage	Tighten or replace	N–25
	Worn steering joints	Replace	N– 9

25U0NX-014



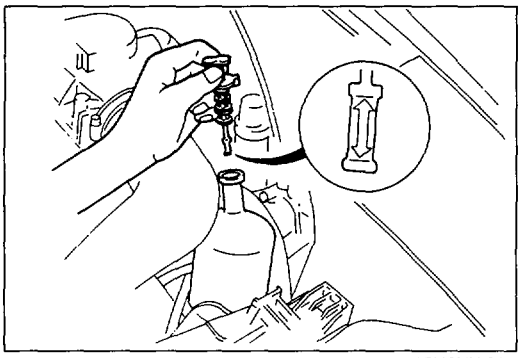
95E0NX-015



97U0NX-040

AIR BLEEDING

1. Check the fluid level. (Refer to page N–22.)
2. Turn the steering wheel fully to the left and right several times with the engine not running.
3. Recheck the fluid level. If it has dropped, add fluid.
4. Repeat Steps 2 and 3 until the fluid level stabilizes.
5. Start the engine and let it idle.
6. Turn the steering wheel fully to the left and right several times.
7. Verify that the fluid is not foamy and that the fluid level has not dropped.
8. Add fluid if necessary and repeat Steps 6 and 7.



25U0NX-015

POWER STEERING FLUID

Inspection

Fluid level

Check the power steering fluid level. Add fluid to the specified level, if necessary.

Caution

- **Use only the specified power steering fluid.**

Fluid specification: ATF Dexron®II or M-III

Fluid leakage

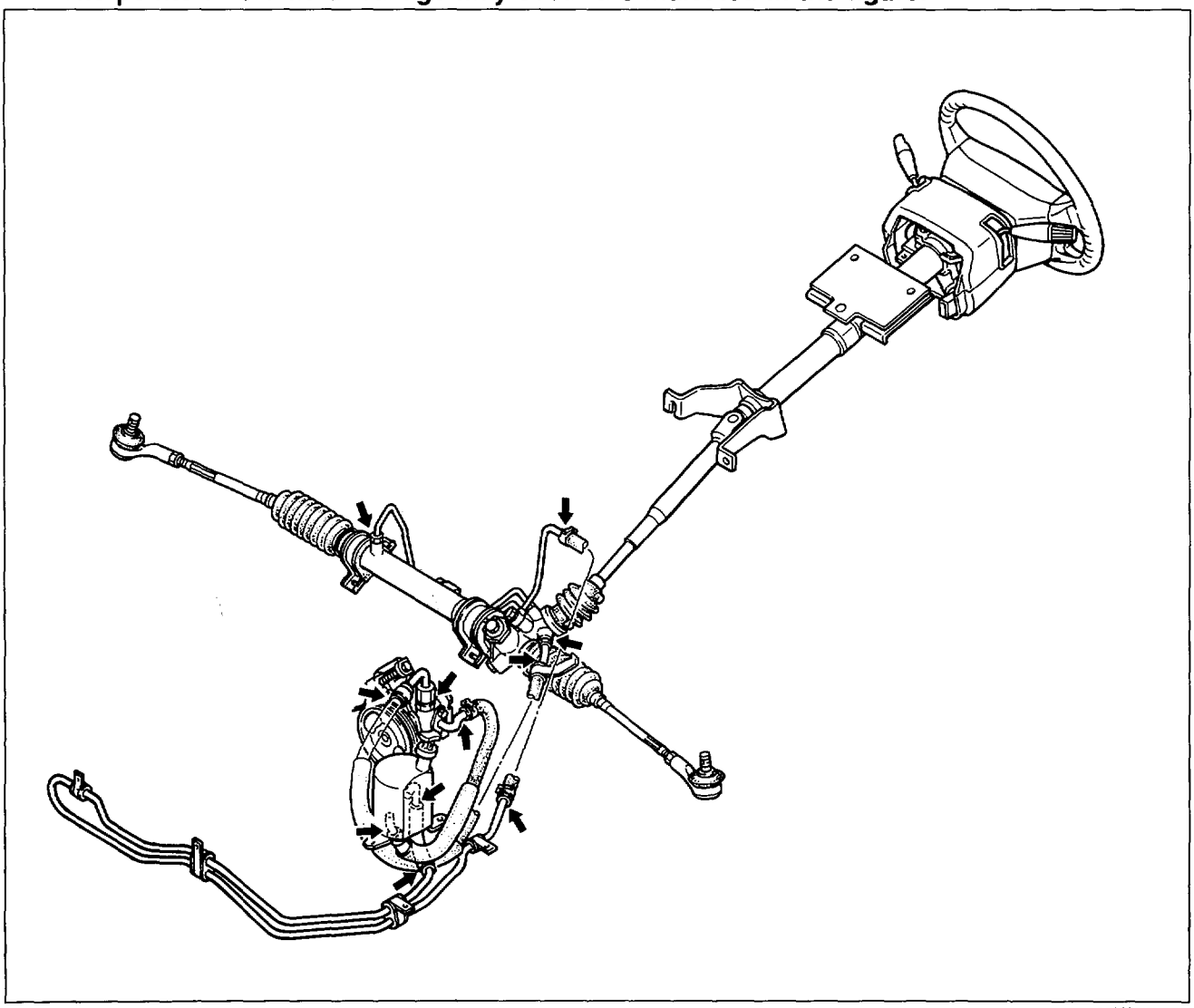
Caution

- **To prevent damage to the steering system, do not keep the steering wheel in the fully turned position for more than 15 seconds.**

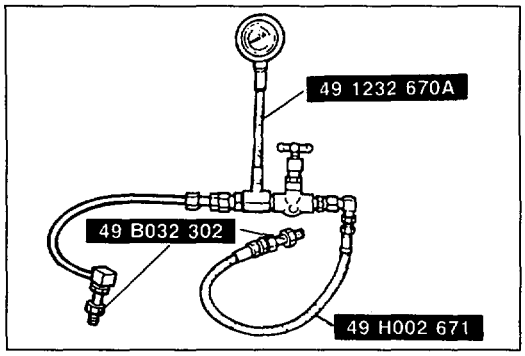
Start the engine and let it idle. Turn the steering wheel fully to the left and right to apply fluid pressure. Check for fluid leakage.

Note

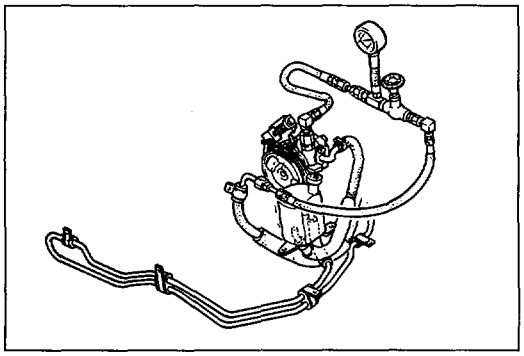
- **The points where fluid leakage may occur are indicated in the figure.**

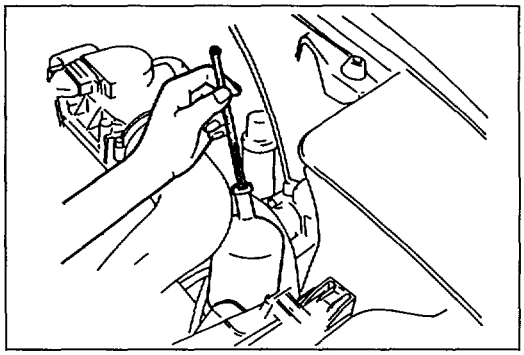


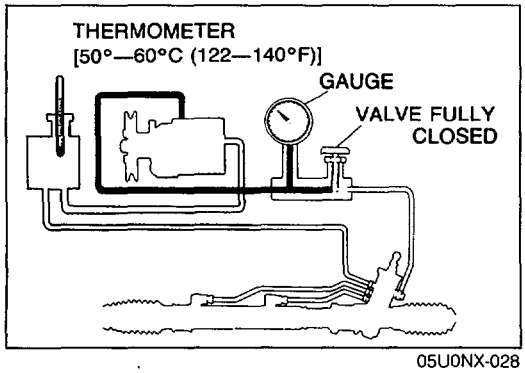
05U0NX-025



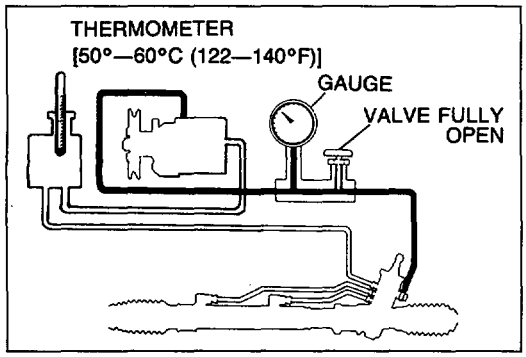
05U0NX-026


25U0NX-033


9MU0NX-010



05U0NX-028



05U0NX-029

Fluid pressure

1. Assemble the **SST** as shown in the figure.

Tightening torque:
39—49 N·m (4.0—5.0 m-kg, 29—36 ft-lb)

Note
- **Before disconnecting the hose, make marks at the connections for proper reinstallation.**

2. Disconnect the pressure hose from the oil pump. Attach the **SST**.
3. Bleed the air from the system. (Refer to page N–21.)

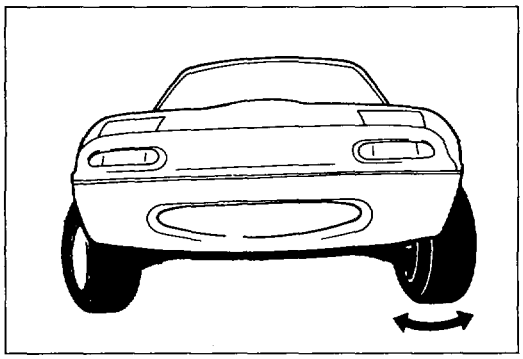
4. Open the gauge valve fully. Start the engine and turn the steering wheel fully left and right to raise the fluid temperature to **50—60°C (122—140°F)**.

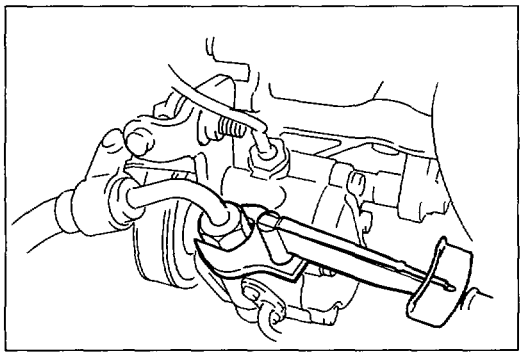
Caution
- **If the valve is left closed for more than 15 seconds, the fluid temperature will increase excessively and adversely affect the oil pump.**

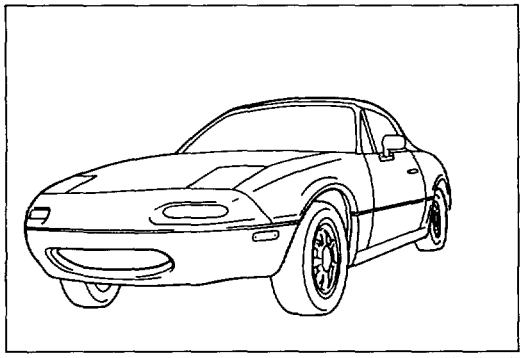
5. Close the gauge valve completely. Increase the engine speed to **1000—1500 rpm** and measure the fluid pressure generated by the oil pump. If the pressure is not within specification, replace the oil pump assembly.

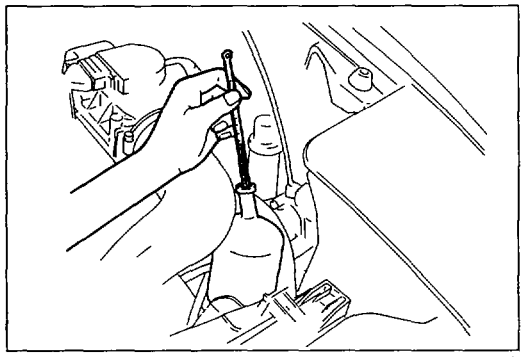
Oil pump fluid pressure: 7603—8339 kPa (77.5—85.0 kg/cm^2, 1102—1209 psi)

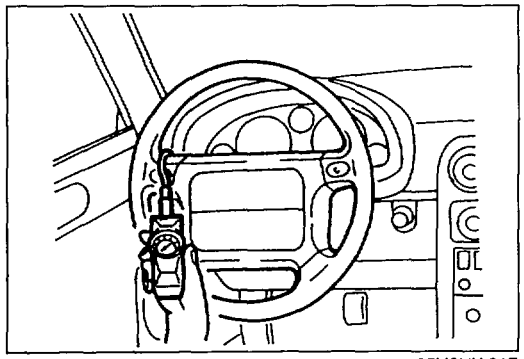
6. Open the gauge valve fully and increase the engine speed to **1000—1500 rpm**.


05U0NX-030


25U0NX-016


25U0NX-035


97U0NX-016


25U0NX-017

Caution
- **If the steering wheel is kept in the fully turned position for more than 15 seconds, the fluid temperature will rise excessively and adversely affect the oil pump.**

7. Turn the steering wheel fully to the left and right and measure the fluid pressure generated by the gear housing. If the pressure is not within specification, replace the gear housing assembly.

   Gear housing fluid pressure: 7603—8339 kPa (77.5—85.0 kg/cm^2, 1102—1209 psi)

8. Remove the gauge set. Install and tighten the pressure hose to the specified torque.

   Tightening torque:
   31—47 N·m (3.2—4.8 m-kg, 23—35 ft-lb)

9. Bleed the air from the system. (Refer to page N–21.)

STEERING WHEEL AND COLUMN

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to Section T.)**

On-vehicle Inspection
Steering wheel effort

1. With the vehicle on a hard, level surface, put the wheels in the straight-ahead position.

2. Start the engine and warm the power steering fluid to **50—60°C (122—140°F)**.

3. With the engine running at idle, attach a pull scale to the outermost point of the steering wheel spoke.
   Then, starting with the wheels in the straight-ahead position, measure the effort required to turn the steering wheel to the left and to the right.

   Steering wheel effort:
   23.5—35.3 N (2.4—3.6 kg, 5.3—8.0 lb)
   [during one turn of the steering wheel]

4. If not within specification, check the following: fluid level, air in system, fluid leakage at hose or connections, function of oil pump and steering gear, and tire pressure.

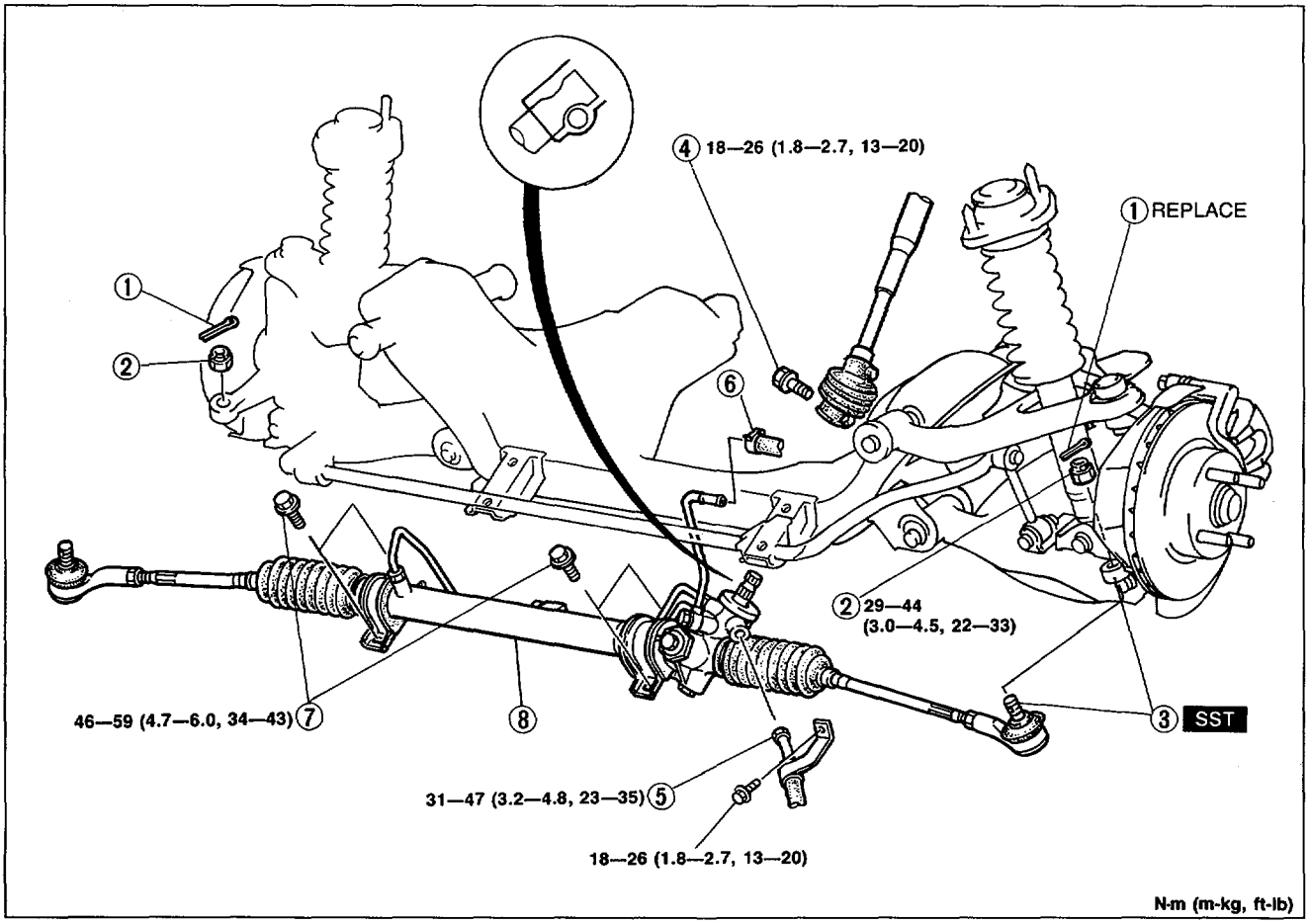
STEERING GEAR AND LINKAGE
Removal / Installation

Caution
- **Disconnect/connect the pinion shaft from/to the intermediate shaft with the wheels in the straight-ahead position, and do not turn the steering wheel while the steering gear is removed. If not done correctly, adjust the clockspring connector. (U.S. spec.) (Refer to Section T.)**

1. Loosen the wheel lug nuts.
2. Jack up the front of the vehicle and support it with safety stands.
3. Remove the wheels.
4. Remove in the order shown in the figure, referring to **Removal Note**.

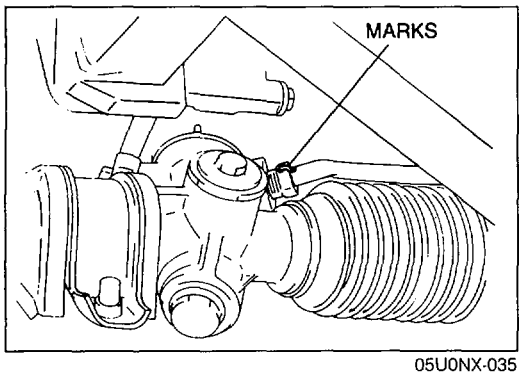
Note
- **Use a container or rags to collect the power steering fluid when disconnecting the pressure pipe and return hose.**

5. Install in the reverse order of removal.
6. Tighten all necessary bolts and nuts to the specified torque.
7. After installation:
   (1) Check for fluid leakage. (Refer to page N–22.)
   (2) Bleed air from the system. (Refer to page N–21.)
   (3) Adjust the front wheel alignment. (Refer to page R–9.)



25U0NX-018

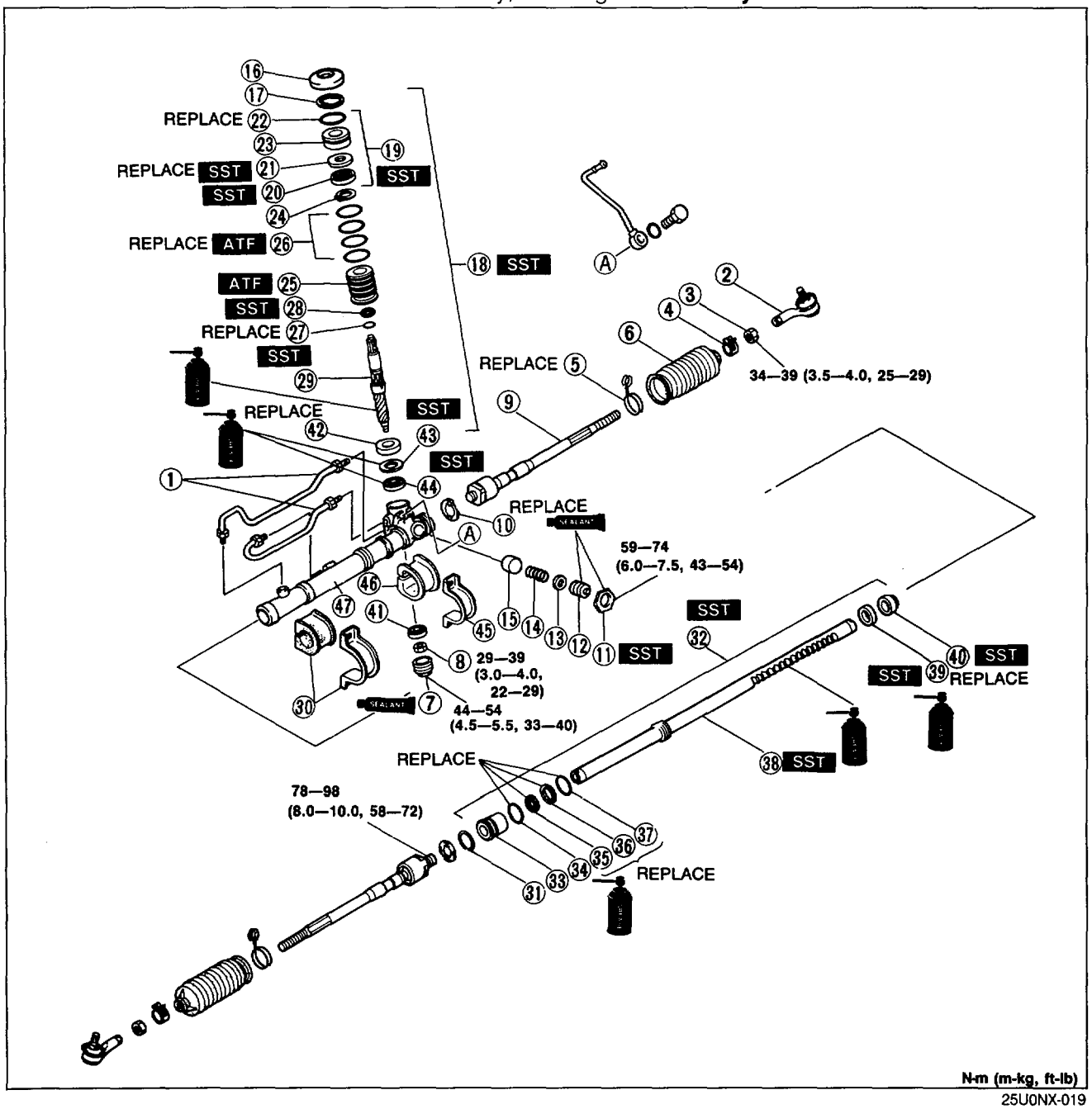
1. Cotter pin
2. Nut
3. Tie rod end/Steering knuckle
   Removal Note ..... page N– 7
4. Bolt
5. Pressure pipe
   Removal Note ..... page N–26
6. Return hose
7. Mounting bracket bolt
8. Steering gear and linkage



05U0NX-035

Removal note
Pressure pipe
Before removing the pressure pipe, make marks for reference during installation.

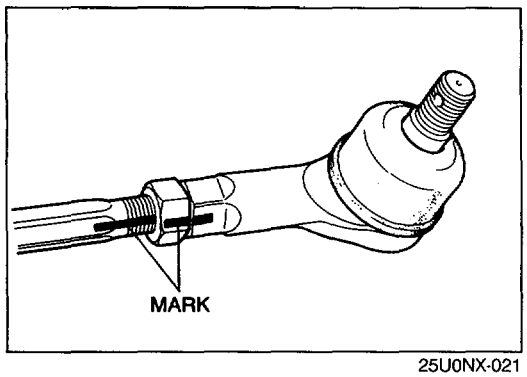
Disassembly / Inspection / Assembly
1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



25U0NX-019

1. Oil pipe
   Inspect for clogging and damage
2. Tie rod end
   Disassembly Note ..... below
   Inspect ball joint for damage and malfunction
3. Locknut (Tie rod end)
4. Boot clamp
5. Boot wire
6. Boot
   Inspect for cracks and other damage
7. Housing cover
8. Locknut (Pinion shaft)
9. Tie rod
   Disassembly Note ..... page N–28
   Assembly Note ..... page N–32
   Inspect for bending
   Inspect ball joint for damage and malfunction
10. Washer
11. Locknut (Adjusting cover)
12. Adjusting cover
    Assembly Note ..... page N–32
13. Plate
14. Yoke spring
    Inspect for weakness and damage
15. Support yoke
    Inspect for damage and wear
16. Dust cover
    Inspect for cracks and other damage
17. Retaining ring
18. Pinion shaft assembly
    Disassembly Note ..... page N–28
    Inspection ..... page N–29
    Assembly Note ..... page N–31
19. Plug assembly
    Disassembly Note ..... page N–28
    Assembly Note ..... page N–31
20. Upper bearing
    Inspect for wear, damage and malfunction
21. Oil seal
22. O-ring
23. Plug
24. Snap ring
25. Control valve
    Assembly Note ..... page N–31
26. Seal ring
27. O-ring
28. Seal ring
29. Pinion shaft
30. Mounting bracket and rubber
31. Stop ring
32. Steering rack assembly
    Disassembly Note ..... page N–28
    Assembly Note ..... page N–30
33. Holder
    Assembly Note ..... page N–30
    Inspect for wear and damage
34. O-ring
35. Y-packing
36. Seal ring
37. O-ring
38. Steering rack
    Inspect for cracks, damage and wear
39. Oil seal
    Disassembly Note ..... page N–28
    Assembly Note ..... page N–30
40. Backup ring
    Disassembly Note ..... page N–28
    Assembly Note ..... page N–30
    Inspect for cracks and other damage
41. Lower bearing
    Disassembly Note ..... page N–29
    Inspect for wear, damage and malfunction
42. Oil seal
    Disassembly Note ..... page N–29
    Assembly Note ..... page N–29
43. Spacer
    Disassembly Note ..... page N–29
    Inspect for cracks, damage and wear
44. Center bearing
    Disassembly Note ..... page N–29
    Assembly Note ..... page N–29
    Inspect for wear, damage and malfunction
45. Mounting bracket
46. Mounting rubber
47. Gear housing
    Inspect for cracks and other damage

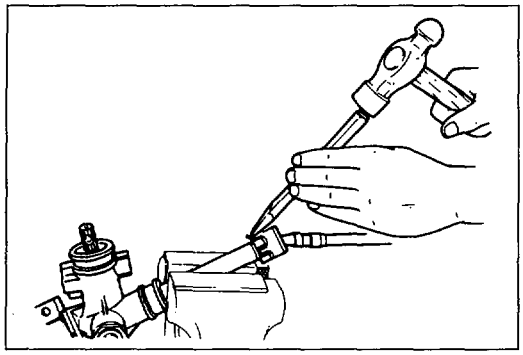
25U0NX-020



25U0NX-021

Disassembly note
Tie rod end

1. Mark the tie rod, locknut and tie rod end for proper reassembly.



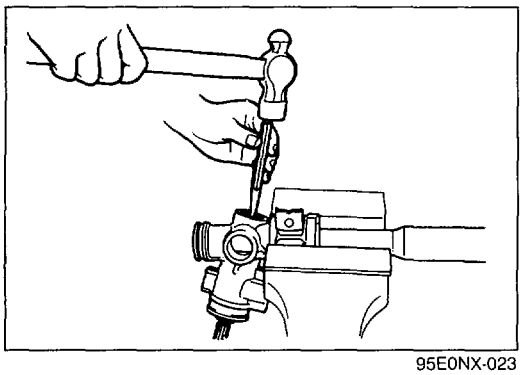
25U0NX-022

Tie rod

Caution
- **Use copper or aluminum plates in the jaws of the vise.**

1. Uncrimp the washer.
2. Remove the tie rod.

Caution
- **Do not damage the tie rod or the rack.**

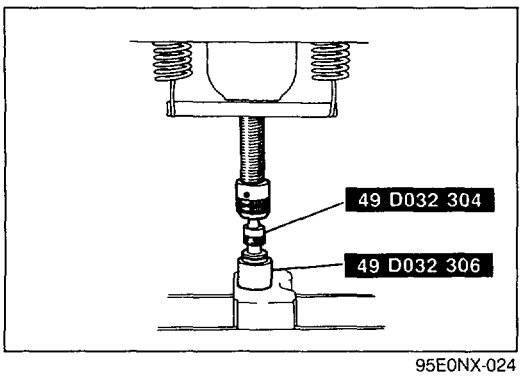


95E0NX-023

Pinion shaft assembly
1. Secure the mounting bracket in a vise.
2. Remove the retaining ring.

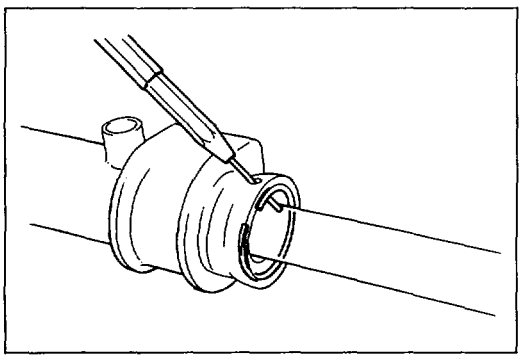
Caution
- **Do not tap on the lower bearing.**

3. Tap the pinion shaft with a punch to remove it.



95E0NX-024

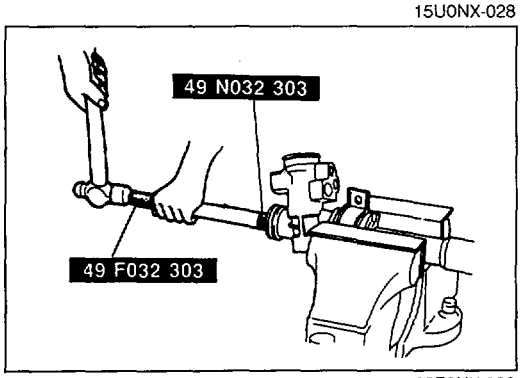
Plug assembly
1. Remove the plug assembly from the pinion shaft.
2. Press out the upper bearing and oil seal with the **SST**.
3. Remove the O-ring from the plug.



15U0NX-028

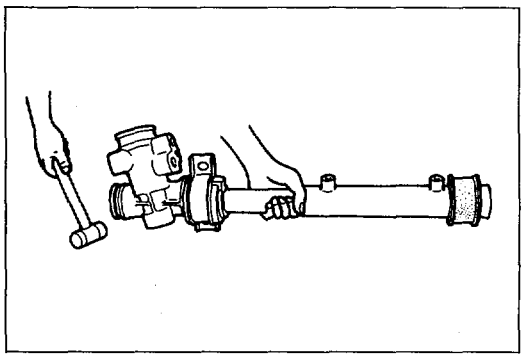
Steering rack assembly
1. Remove the stop ring with a pin punch.
2. Temporarily tighen the tie-rod to the tube side and pull it to remove the rack.

Caution
- **Do not damage the rack.**



95E0NX-026

Backup ring and oil seal
1. Tap the **SST** from gear housing side to remove the back-up ring and the oil seal.



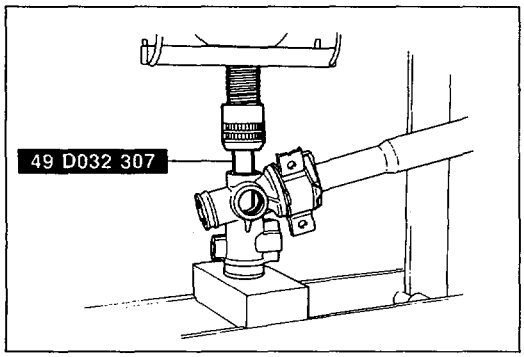
15U0NX-029

Lower bearing

1. Tap the end of gear housing column to remove the lower bearing.

Caution

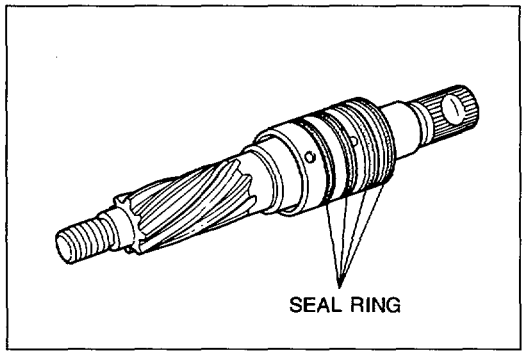
- **Do not remove the lower bearing it not necessary.**
- **Do not tap the gear housing bearing section.**



95E0NX-028

Oil seal, spacer and center bearing

1. Press out the oil seal, the spacer and the center bearing with the **SST**.

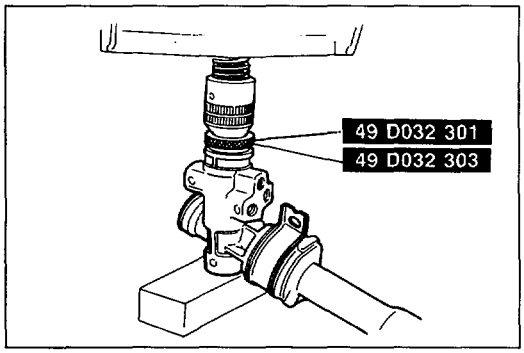


95E0NX-029

Inspection

Pinion shaft assembly

1. Inspect the teeth of the pinion shaft for wear and damage. Replace the pinion shaft assembly if necessary.
2. Inspect the control valve for damage, oil passage clogging and seal ring and friction surface wear and damage. Replace the pinion shaft assembly if necessary.

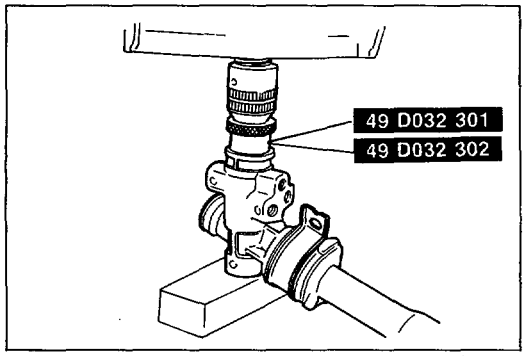


95E0NX-030

Assembly note

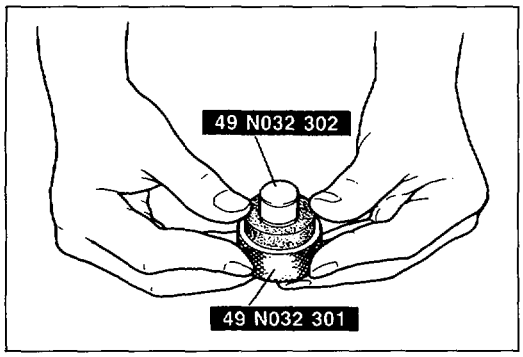
Oil seal, center bearing

1. Apply grease to the center bearing and set it in the gear housing.
2. Press in the center bearing with the **SST**.



15U0NX-030

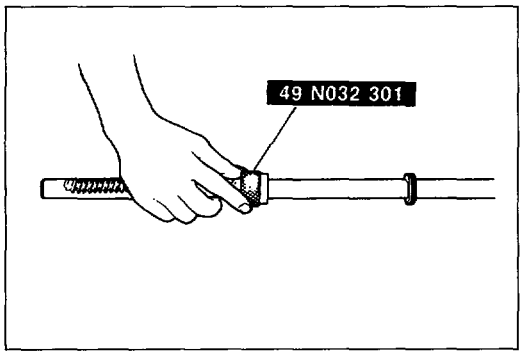
3. Set the spacer in the gear housing.
4. Apply grease to a new oil seal and set it in the gear housing.
5. Press in the oil seal with the **SST**.



15U0NX-031

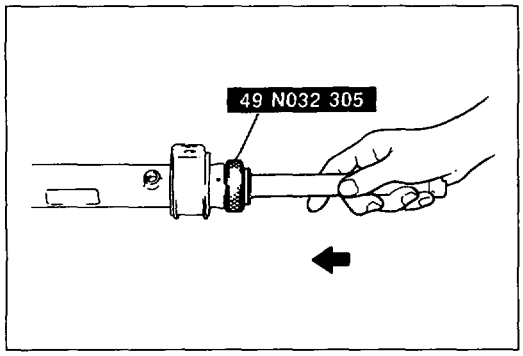
Backup ring and oil seal

1. Apply grease to a new oil seal.
2. Install the oil seal to the **SST (Protector body and guide)**.
3. Remove the **SST (guide)**.



95E0NX-033

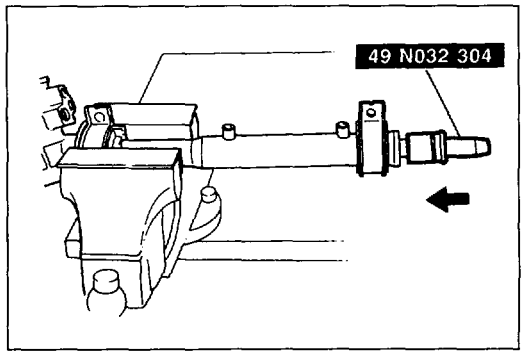
4. Slide the oil seal and the **SST** over the rack from the gear side to the piston. Remove the **SST**.
5. Install the backup ring.



15U0NX-032

Steering rack assembly

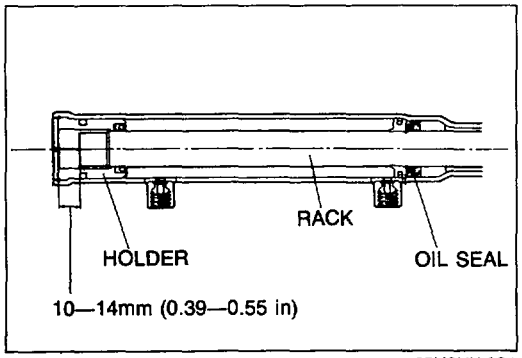
1. Apply grease to the teeth and friction surface of the rack.
2. Using the **SST** Slide the rack into the gear housing from the tube side.



25U0NX-023

Holder

1. Apply grease to a new Y-packing and install it into the holder.
2. Install a new O-ring onto the holder.
3. Install the **SST** over the rack end and install the holder.
4. Install the new stop ring.



25U0NX-024

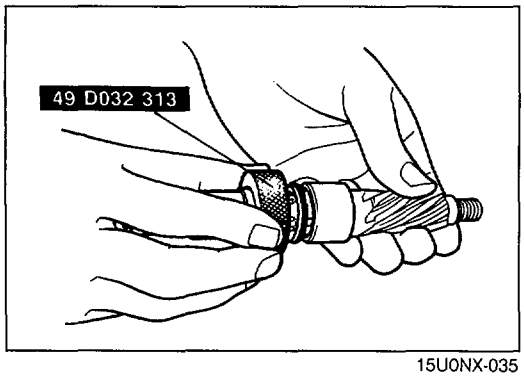
Oil seal

1. Press in a new oil seal from tube side with a suitable pipe (Dia. 22mm (0.86 in)).

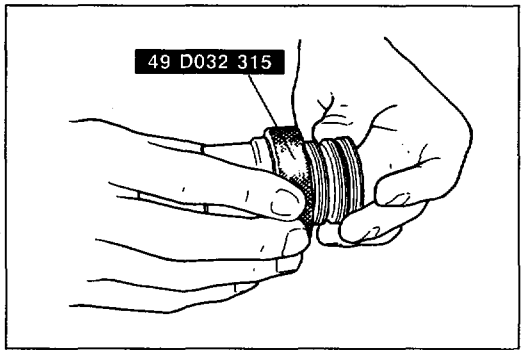
Caution

- **Do not press over 400 kg (880 lb).**

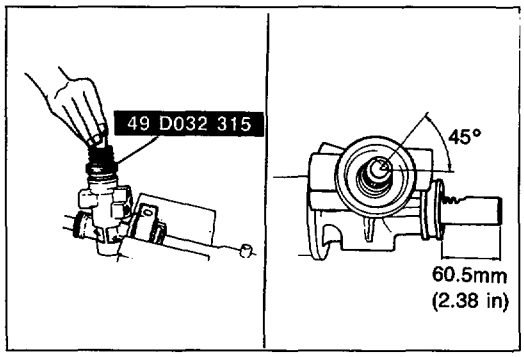
2. Verify that the distance between the end of the rack and the holder is 10—14mm (0.39—0.55 in).



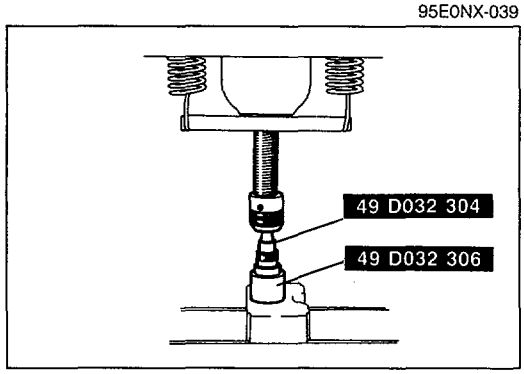
15U0NX-035



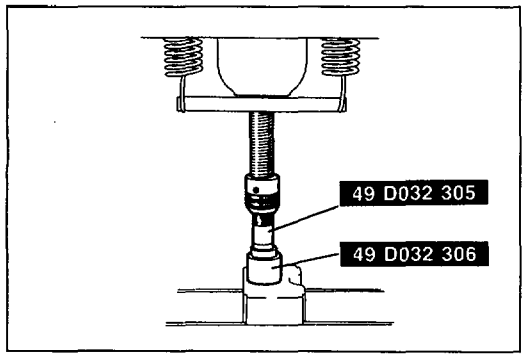
25U0NX-025



95E0NX-039



15U0NX-036



15U0NX-037

Control valve

1. Install a new O-ring and a new seal ring onto the pinion shaft.
2. Pass the pinion shaft back and forth through the **SST** to form the O-ring and the seal rings.
3. Install new seal rings onto the control valve and form them with the **SST**.
4. Remove the **SST** from pinion shaft and align pin position of control valve with thread of pinion shaft assembly and install control valve assembly.
5. Install the new snap ring to the pinion shaft assembly.

Pinion shaft assembly

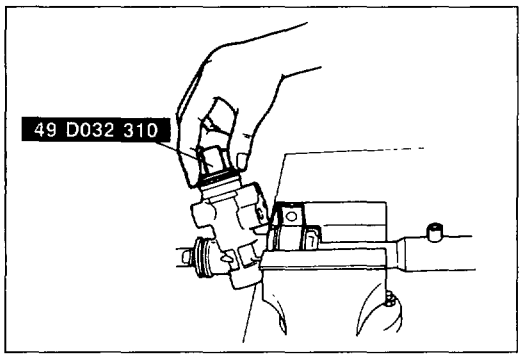
1. Apply sufficeint grease to the teeth of the pinion shaft.
2. Apply ATF to the seal ring and the friction surface of the control valve.
3. Attach the **SST** to the gear housing and install the pinion shaft.

Caution

- **Do not damage the edge of the seal ring and the control valve.**

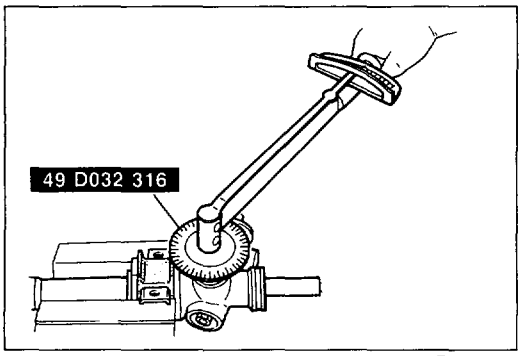
Plug assembly

1. Apply ATF to the upper bearing and a new oil seal.
2. Set the oil seal into the plug.
3. Press in the oil seal with the **SST**.
4. Put the upper bearing into the plug.
5. Press in the upper bearing with the **SST**.
6. Install a new O-ring to the plug assembly.



95E0NX-042

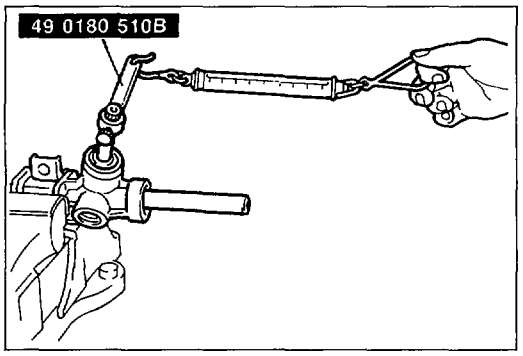
7. Attach the **SST** to the pinion and install the plug assembly.



95E0NX-043

Adjusting cover

1. Tighten the mounting, bracket in a vise.
2. Set the rack to the center position.
3. Tighten the adjusting cover to **4.9 N·m (50 cm-kg, 43 in-lb)** with the **SST** three times, then return it **25°**.
4. Apply sealant to the threads of the locknut.
5. Attach the locknut.



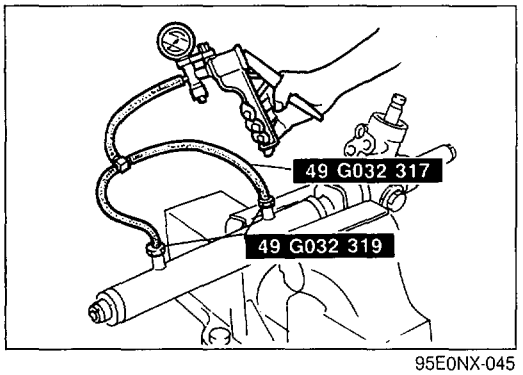
25U0NX-026

6. Measure pinion torque with the **SST** and a pull scale.

Standard
Center of rack ± 90°:
1.0—1.2 N·m (10—12 cm-kg, 8.7—10.4 in-lb)
Scale reading: 1.0—1.2 kg (35.3—42.4 oz)

7. If not within specification, repeat Steps 3 through 6.
8. Install the locknut.

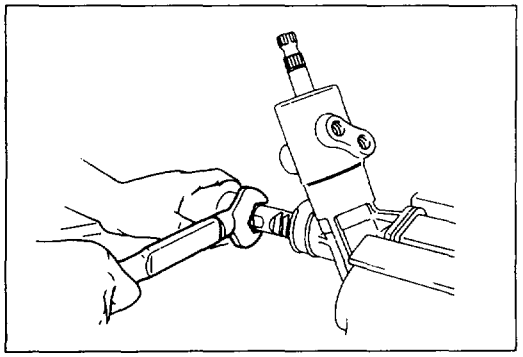
Tightening torque:
59—74 N·m (6.0—7.5 m-kg, 43—54 ft-lb)



95E0NX-045

Hearmetic sealing inspection

1. Connect the **SST** to the power cylinder section of the gear housing.
2. Apply **400 mmHg (15.7 inHg)** vacuum with a vacuum pump and verify that it is held for at least **30 seconds**.
3. If vacuum is not held, replace the oil seal.



25U0NX-027

Tie rod

1. Secure the rack gear in a vise, tighten the tie rods with the wrench.

Tightening torque:
78—98 N·m (8—10 m-kg, 58—72 ft-lb)

2. Align the washer with the rack groove, and crimp the washer.

POWER STEERING OIL PUMP

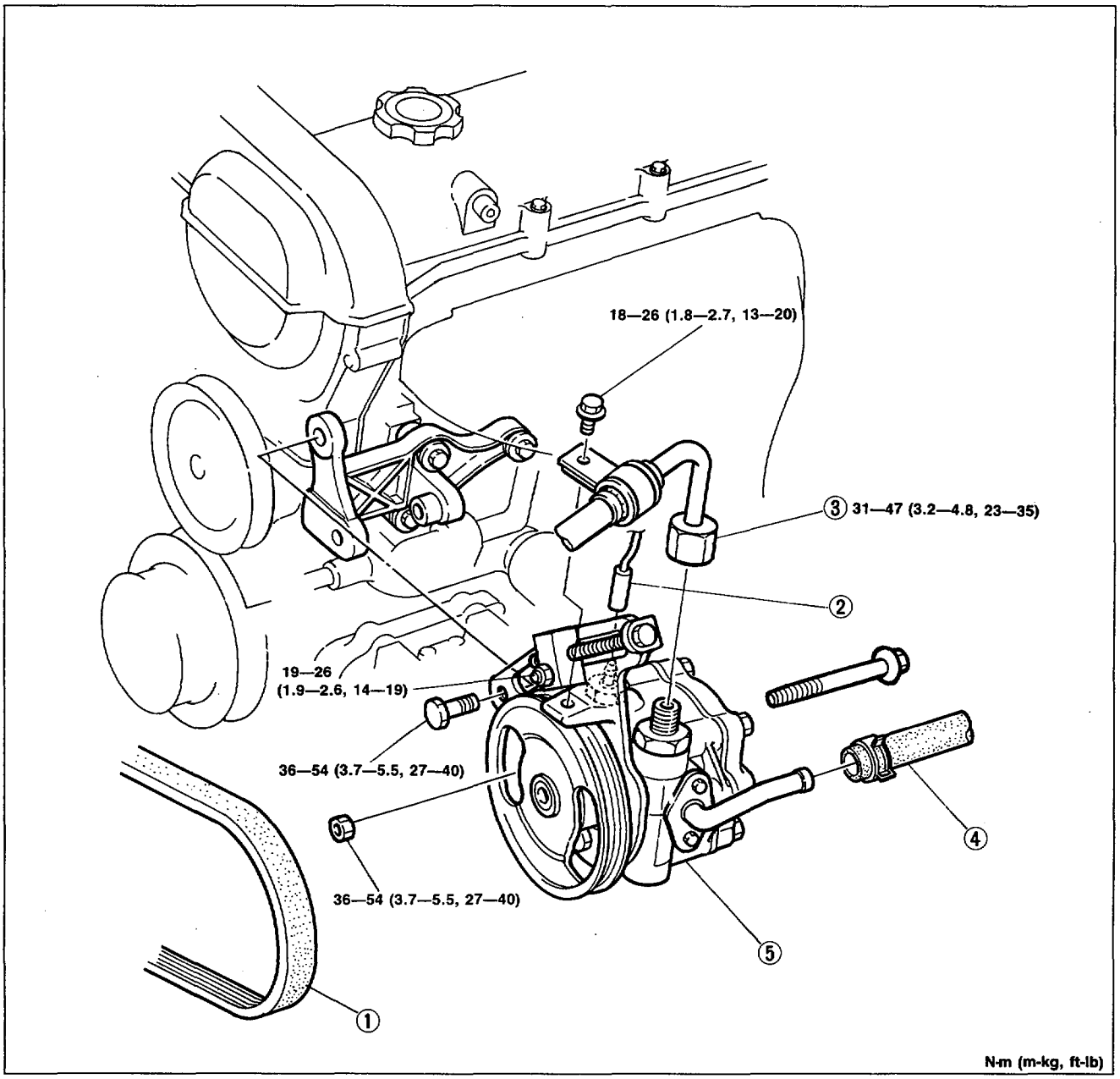
Removal / Installation

1. Remove in the order shown in the figure, referring **Removal Note**.

Note

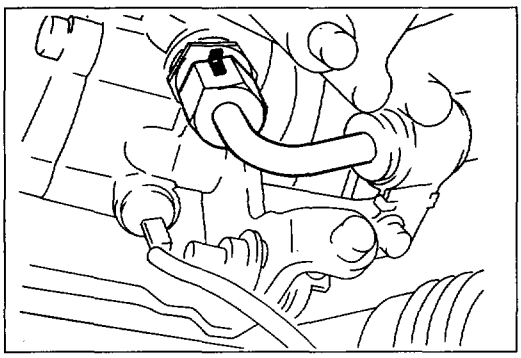
- **Use a container or rags to collect the power steering fluid when disconnecting the pressure pipe and return hose.**

2. Install in the reverse order of removal.
3. After installation:
   (1) Check connections for fluid leakage. (Refer to page N–22.)
   (2) Bleed air from system. (Refer to page N–21.)



25U0NX-028

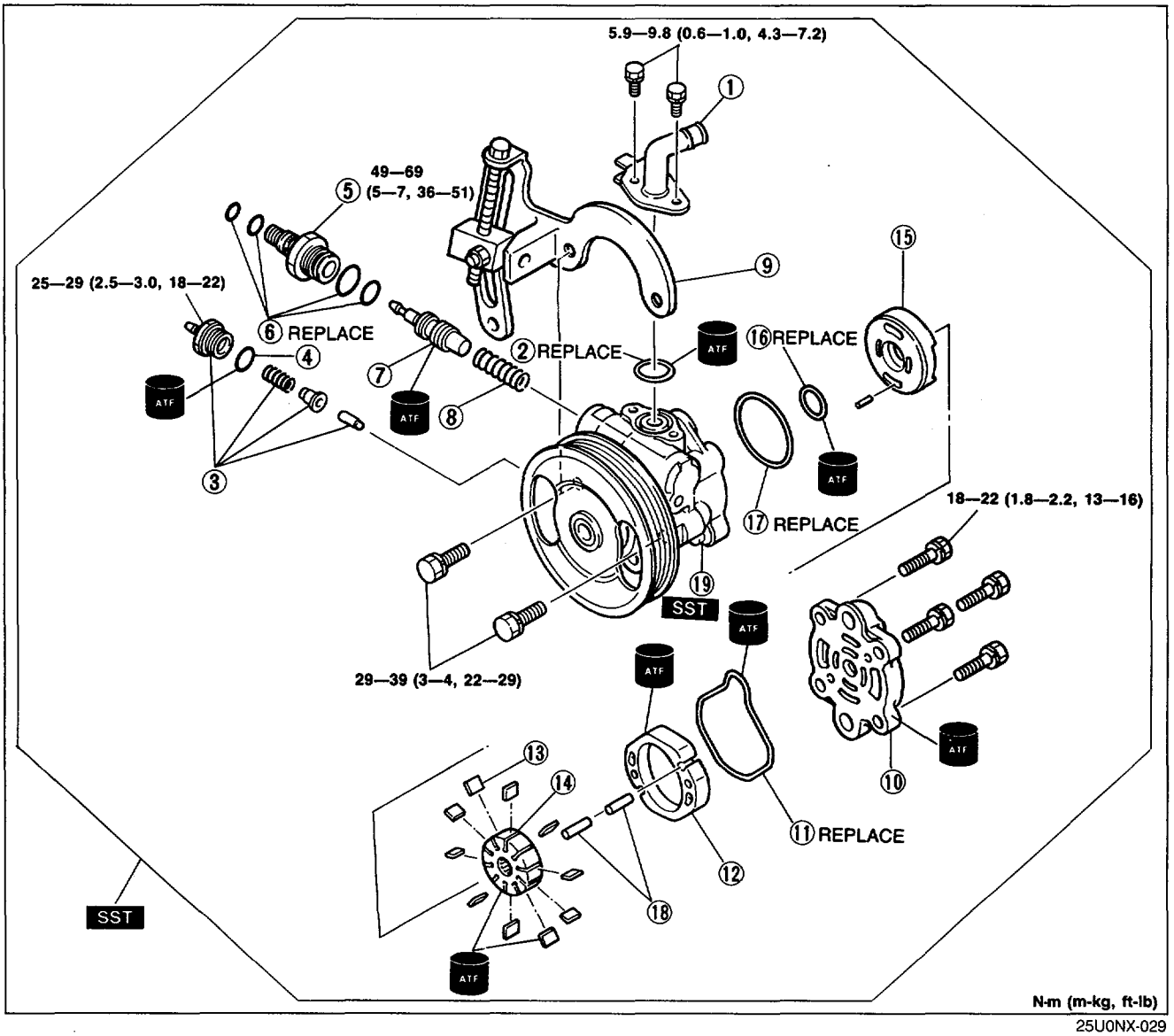
1. Drive belt
   Inspection ..... page N–37
   Adjustment ..... page N–38
   Replacement ..... page N–38
2. Power steering pressure switch connector
3. Pressure pipe
   Removal Note ..... page N–34
4. Return hose
5. Power steering oil pump


05U0NX-037

Removal note
Pressure pipe
Mark the pressure pipe for reference during installation before loosening.

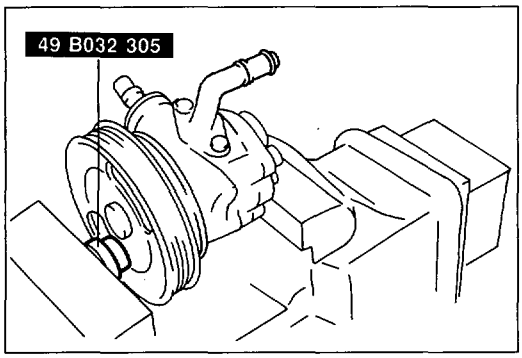
Disassembly / Inspection / Assembly

1. The following precedure is for replacement of the O-ring only. Replace the pump assembly if other repairs are necessary.
2. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



25U0NX-029

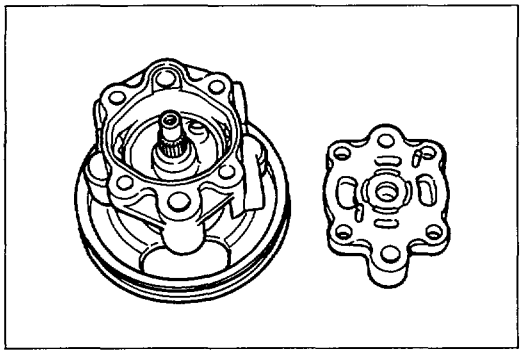
1. Suction pipe
2. O-ring
3. Pressure switch assembly
4. O-ring
5. Connector
6. O-ring
7. Control valve
   Inspection..... page N–36
8. Spring
   Inspection..... page N–36
9. Bracket
10. Pump body rear
    Inspection..... page N–36
11. O-ring
12. Cam ring
    Inspection..... page N–36
    Assembly Note..... page N–37
13. Blade
    Inspection..... page N–36
    Assembly Note..... page N–37
14. Rotor
    Inspection..... page N–36
    Assembly Note..... page N–36
15. Side plate
    Inspection..... page N–36
16. O-ring
17. O-ring
18. Pin
19. Pump body front
    Inspection..... page N–36



95E0NX-048

Disassembly note
Oil pump

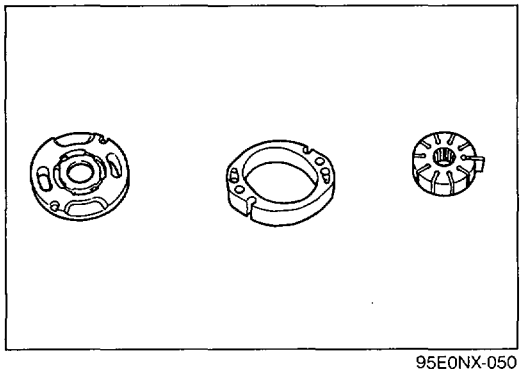
Caution
- **To secure the oil pump in a vise, use the SST as shown to prevent damage to the pump.**


15U0NX-040

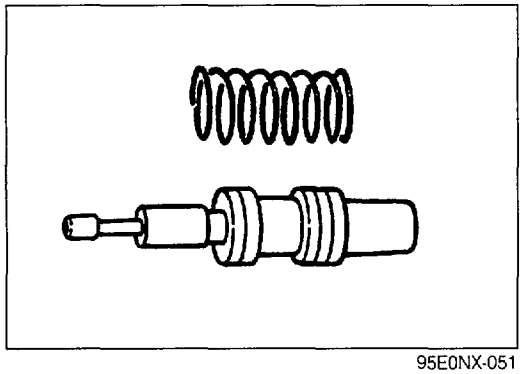
Inspection

Caution
- **Replace the pump assembly if damaged.**

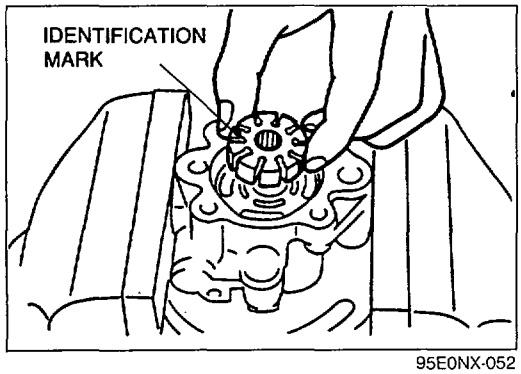
Pump body front, rear
1. Inspect the front and rear of the pump body for cracks and damage and the friction surface of rotor for wear.


95E0NX-050

Cam ring, rotor, blade, side plate
1. Inspect the blade friction surface of the cam ring for wear.
2. Inspect the pump body of the rotor and side plate friction surface for wear.
3. Inspect the cam ring friction surface of the blade for wear.
4. Inspect clearance between the rotor and blade.

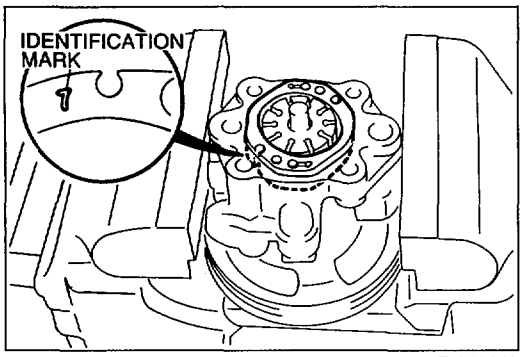

95E0NX-051

Control valve, spring
1. Inspect the control valve for cracks, damage and clogging, and the friction surface for wear.
2. Inspect the spring for damage.

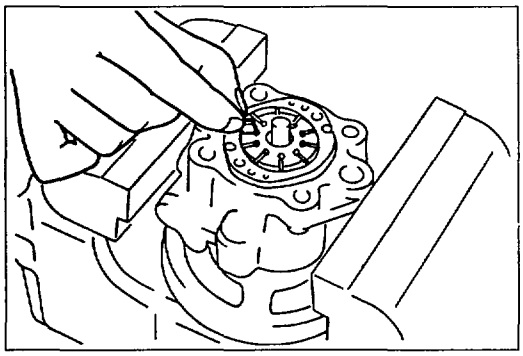


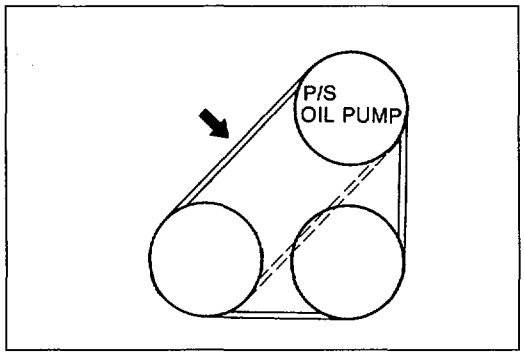
95E0NX-052

Assembly note
Rotor
1. Install the rotor with the indentification mark facing upward.

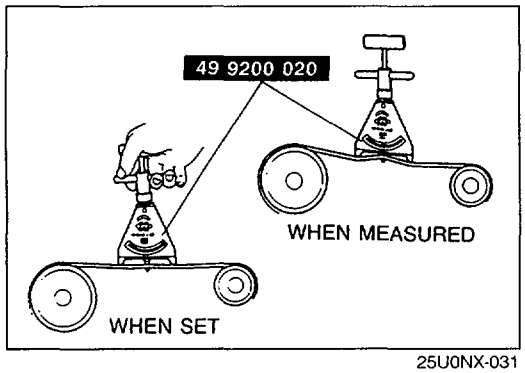


95E0NX-053


95E0NX-054



25U0NX-030



25U0NX-031

Cam ring

1. Install cam ring with the identification mark facing downward.

Blade

1. Install the blades into rotor with the rounded edges outward.

DRIVE BELT

Inspection

1. Check the drive belt for wear, cracks, and fraying. Replace as necessary.
2. Verify that the drive belts are correctly mounted on the pulleys.
3. Check the drive belt deflection by applying moderate pressure **(98 N, 10 kg, 22 lb)** midway between the pulleys.

Note

- **Measure the belt deflection between the specified pulleys.**
- **A belt is considered "new" if it has been used on a running engine for less than five minutes. Set the deflection accordingly.**
- **Check the belt deflection when the engine is cold, or at least 30 minutes after the engine has stopped.**

Deflection

mm (in)

New	Used
8—9 (0.31—0.35)	9—10 (0.35—0.39)

4. If the deflection is not within specification, adjust it.

Drive belt tension check

Note

- **Belt tension can be checked in place of belt deflection.**
- **Belt tension can be measured between any two pulleys.**

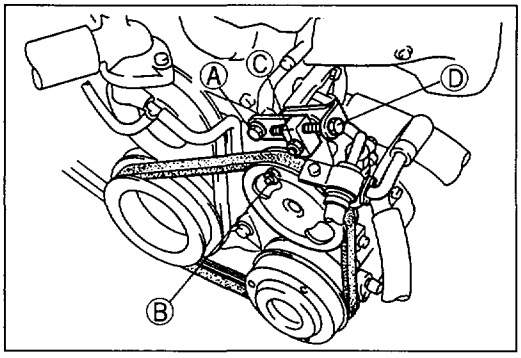
Using the **SST**, check the belt tension.

Tension

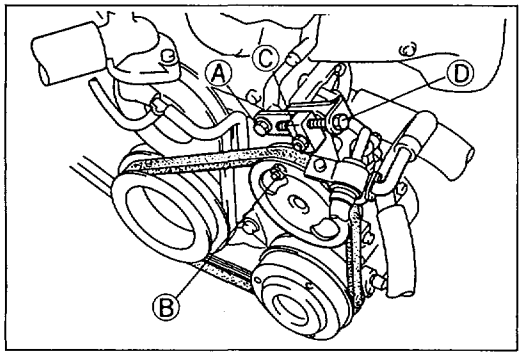
N (kg, lb)

New	Used
491—589 (50—60, 110—132)	422—491 (43—50, 95—110)

25U0NX-032



15U0NX-043



25U0NX-036

Adjustment

1 Loosen P/S oil pump bolt Ⓐ and nuts Ⓑ and Ⓒ. Adjust the belt deflection by turning the adjusting bolt Ⓓ.

Tightening torque

Ⓐ: 36—54 N·m (3.7—5.5 m-kg, 27—40 ft-lb)
Ⓑ: 36—54 N·m (3.7—5.5 m-kg, 27—40 ft-lb)
Ⓒ: 19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)

Replacement

1. Loosen bolt Ⓐ, nuts Ⓑ and Ⓒ, and adjusting bolt Ⓓ.
2. Remove and replace the drive belt.
3. Adjust the deflection (tension). (Refer to page N–37.)

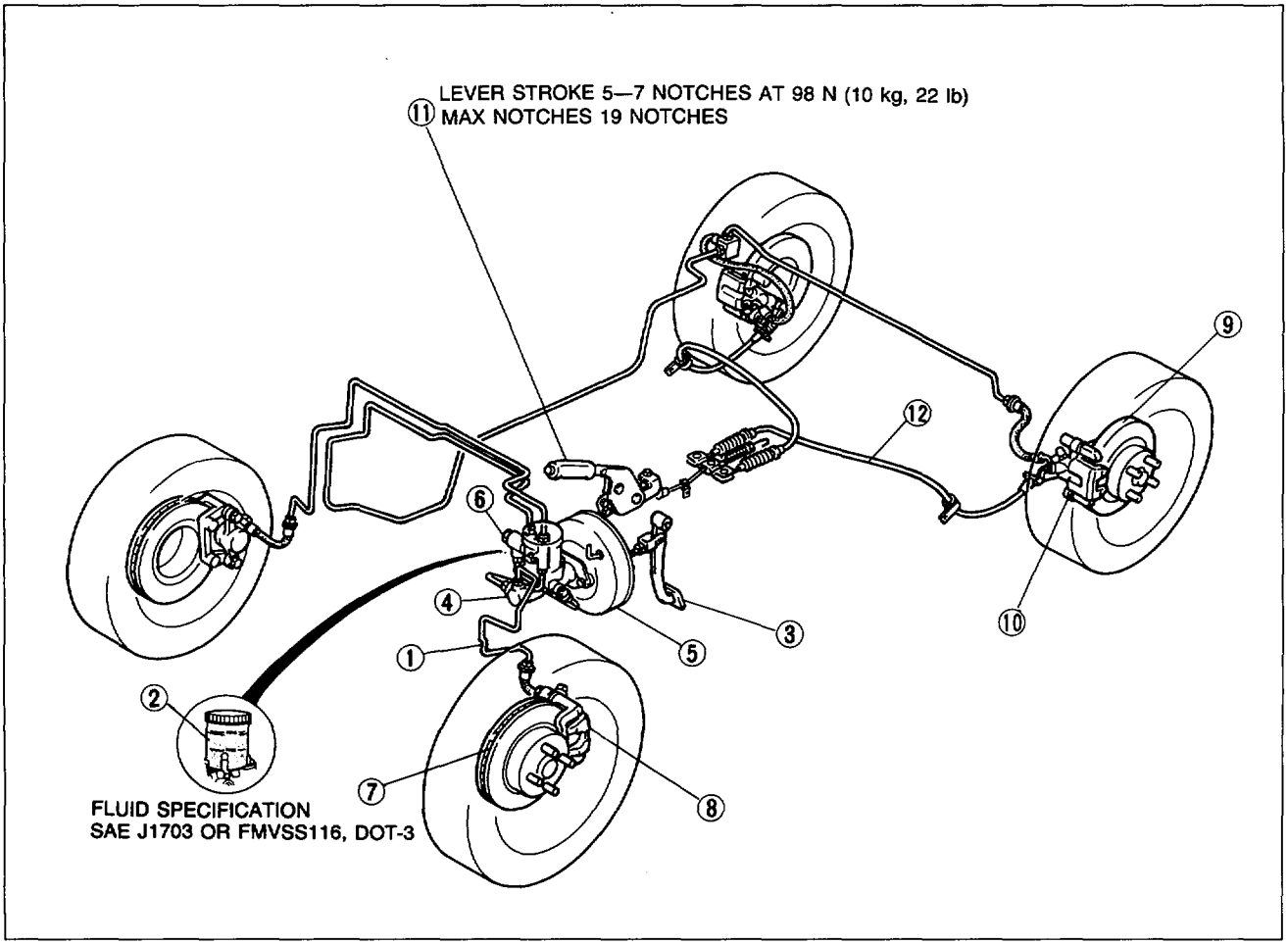
Before beginning any service procedure, refer to Section T of this manual for airbag system warnings and cautions.

BRAKING SYSTEM

INDEX ..... **P– 2**
OUTLINE ..... **P– 4**
SPECIFICATIONS ..... **P– 4**
BRAKE SYSTEM ..... **P– 5**
PREPARATION ..... **P– 5**
TROUBLESHOOTING GUIDE ..... **P– 6**
AIR BLEEDING ..... **P– 7**
BRAKE HYDRAULIC LINE ..... **P– 7**
BRAKE FLUID ..... **P– 8**
BRAKE PEDAL ..... **P– 8**
MASTER CYLINDER (STANDARD) **P–11**
MASTER CYLINDER (ABS) **P–13**
POWER BRAKE UNIT **P–18**
PROPORTIONING BYPASS VALVE **P–21**
FRONT BRAKE (DISC) **P–23**
CALIPER **P–26**
REAR BRAKE (DISC) **P–27**
CALIPER **P–30**
PARKING BRAKE SYSTEM **P–32**
TROUBLESHOOTING GUIDE **P–32**
PARKING BRAKE LEVER **P–32**
PARKING BRAKE CABLE **P–34**
ANTI-LOCK BRAKE SYSTEM (ABS) **P–35**
DESCRIPTION **P–35**
PREPARATION **P–35**
TROUBLESHOOTING GUIDE **P–36**
CIRCUIT DIAGRAM **P–50**
HYDRAULIC UNIT **P–51**
ABS CONTROL UNIT **P–53**
RELAYS **P–54**
ABS WHEEL SPEED SENSOR (FRONT) **P–56**
ABS SENSOR ROTOR (FRONT) **P–57**
ABS WHEEL SPEED SENSOR (REAR) **P–58**
ABS SENSOR ROTOR (REAR) **P–59**

25U0PX-001

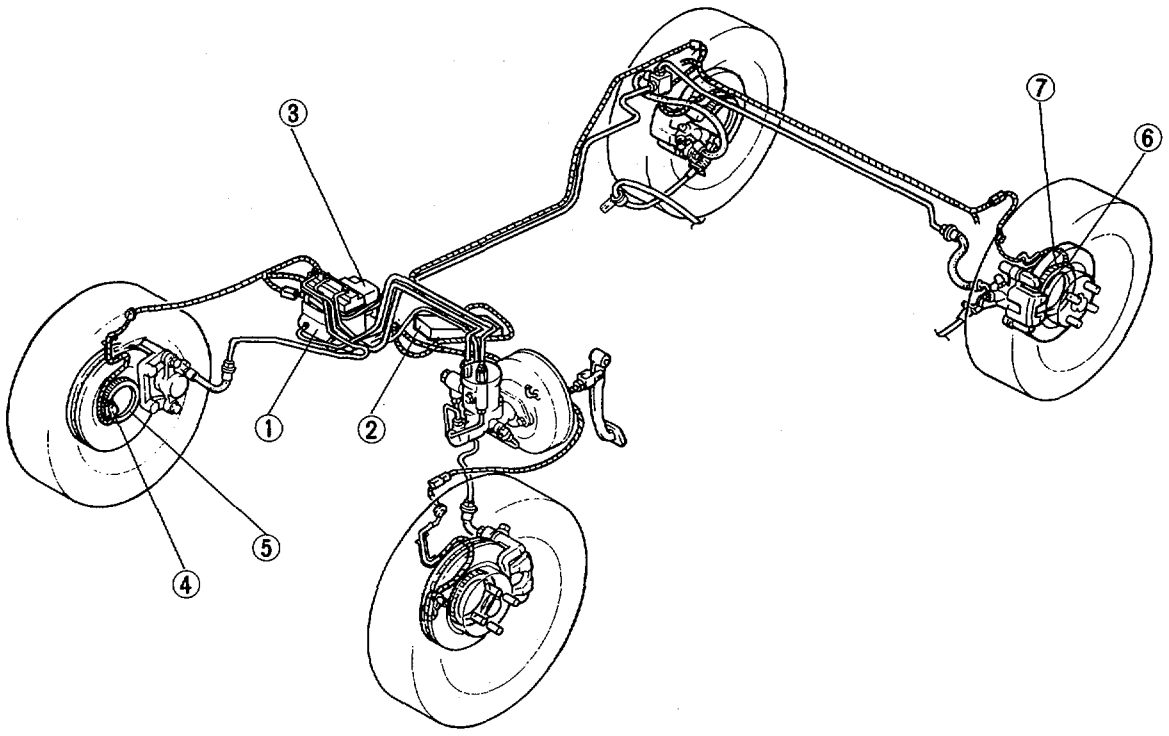
INDEX



15U0PX-002

1. Brake hydraulic line
   - On-vehicle inspection ..... page P– 7
   - Removal / Installation ..... page P– 7
2. Brake fluid
   - Inspection ..... page P– 8
   - Replacement ..... page P– 8
3. Brake pedal
   - On-vehicle inspection ..... page P– 8
   - Removal / Inspection / Installation ..... page P–10
4. Master cylinder
   - (Standard)
   - Removal / Installation / Inspection ..... page P–11
   - (ABS)
   - Removal / Installation / Inspection ..... page P–13
   - Disassembly / Inspection / Assembly ..... page P–16
5. Power brake unit
   - Quick Inspection, On-vehicle ..... page P–18
   - Removal / Installation ..... page P–20
6. Proportioning bypass valve (PBV)
   - Inspection ..... page P–21
   - Replacement (Standard) ..... page P–21
   - Replacement (ABS) ..... page P–22
7. Front disc brake
   - Quick Inspection, On-vehicle ..... page P–23
   - Replacement (pad) ..... page P–23
   - Removal / Installation ..... page P–24
   - Inspection ..... page P–25
8. Caliper
   - Disassembly / Inspection / Assembly ..... page P–26
9. Rear disc brake
   - Quick Inspection, On-vehicle ..... page P–27
   - Replacement (pad) ..... page P–27
   - Removal / Installation ..... page P–28
   - Inspection ..... page P–29
10. Caliper
    - Disassembly / Inspection / Assembly ..... page P–30
11. Parking brake lever
    - Inspection ..... page P–32
    - Adjustment ..... page P–32
    - Removal / Inspection / Installation ..... page P–33
12. Parking brake cable
    - Removal / Inspection / Installation ..... page P–34

ANTI-LOCK BRAKE SYSTEM (ABS)



25U0PX-002

1. Hydraulic unit
   - Removal / Installation ..... page P–51
   - Disassembly / Assembly ..... page P–52
2. ABS control unit
   - Removal / Installation ..... page P–53
3. Relays
   - Removal / Inspection / Installation ..... page P–54
4. ABS wheel speed sensor (front)
   - Removal / Inspection / Installation ..... page P–56
5. ABS sensor rotor (front)
   - Removal / Inspection / Installation ..... page P–57
6. ABS wheel speed sensor (rear)
   - Removal / Inspection / Installation ..... page P–58
7. ABS sensor rotor (rear)
   - Removal / Inspection ..... page P–59
   - Installation ..... page P–60

OUTLINE

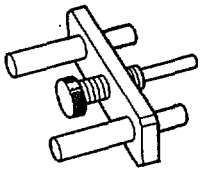
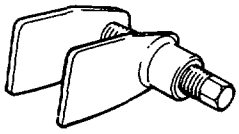
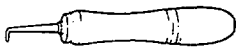
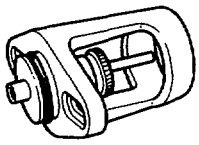
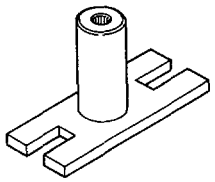
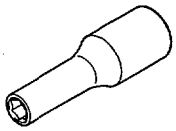
SPECIFICATIONS

Item		Specifications
Brake pedal	Type	Suspended
	Pedal level ratio	4.1 : 1
	Maximum stroke mm (in)	120 (4.72)
Master cylinder	Type	Tandem (with level sensor)
	Bore mm (in)	22.22 (0.875)
Front disc brake	Type	Disc (ventilated)
	Cylinder bore mm (in)	51.1 (2.01)
	Pad dimensions (area × thickness) $mm^2 \times mm$ ($in^2 \times in$)	3,700 × 9.5 (5.73 × 0.37)
	Disc plate dimension (effective diameter × thickness) mm (in)	235 × 18 (9.25 × 0.71)
Rear disc brake	Type	Disc (solid)
	Cylinder bore mm (in)	31.75 (1.25)
	Pad dimensions (area × thickness) $mm^2 \times mm$ ($in^2 \times in$)	2,600 × 8.0 (4.03 × 0.31)
	Disc plate dimensions (effective diameter × thickness) mm (in)	231 × 9 (9.09 × 0.35)
Power brake unit	Type	Vacuum multiplier
	Size mm (in)	214 (8)
Braking force control device	Type	Proportioning bypass valve (PBV)
Brake fluid		SAE J1703 or FMVSS 116, DOT-3
Parking brake	Type	Mechanical, two rear brakes
	Operation system	Hand lever

15U0PX-003

BRAKE SYSTEM

PREPARATION
SST

49 0259 770B Wrench, flare nut	For removal and installation brake pipes	49 F043 001 Adjust gauge 	For adjustment of push rod clearance
49 0221 600C Expand tool, disc brake 	For installation of disc pads	49 0208 701A Boot air out tool 	For removal of piston seal
49 B043 001 Adjust gauge 	For Adjustment of push rod clearance	49 B043 003 Lock tool, turning 	For adjustment of push rod clearance
49 B043 004 Wrench, socket 	For adjustment of push rod clearance		

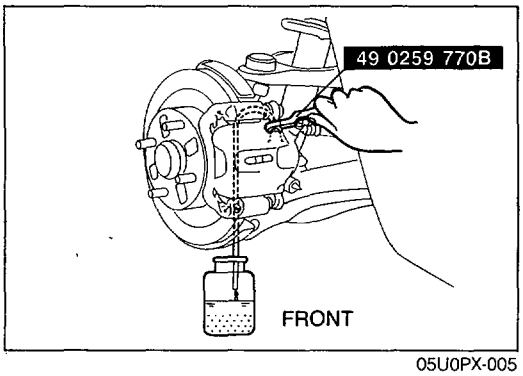
15U0PX-004

P

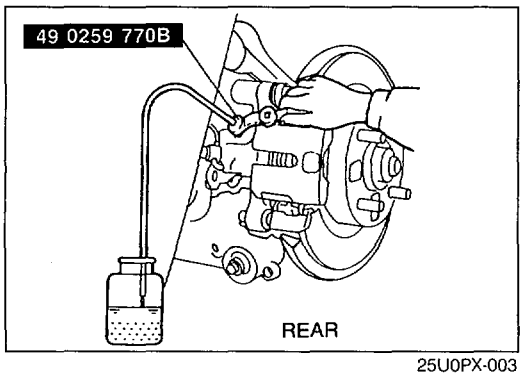
TROUBLESHOOTING GUIDE

Problem	Possible cause	Action	Page
Poor braking	Leakage of brake fluid	Repair	—
	Air in lines	Air bleed	P– 7
	Worn pad	Replace	P–23, 27
	Brake fluid, grease, oil, or water on pad	Clean or replace	P–23, 27
	Hardening of pad surface or poor contact	Grind or replace	P–23, 27
	Malfunction of disc brake piston	Replace	P–26, 30
	Malfunction of master cylinder	Repair or replace	P–11, 13
	Malfunction of power brake unit	Repair or replace	P–20
	Malfunction of check valve (vacuum hose)	Repair or replace	P–20
	Damaged vacuum hose	Replace	P–20
	Deterioration of flexible hose	Replace	P– 7
	Malfunction of proportioning bypass valve (PBV)	Replace	P–21, 22
Brakes pull to one side	Worn pad	Replace	P–23, 27
	Brake fluid, grease, oil, or water on pad	Clean or replace	P–23, 27
	Hardening of pad surface or poor contact	Grind or replace	P–23, 27
	Abnormal wear, distortion, or eccentricity of disc	Repair or replace	Section M
	Malfunction of automatic adjuster in rear brake	Repair	—
	Looseness or deformation of dust cover mounting bolt	Tighten or replace	Section M
	Malfunction of disc brake piston	Repair or replace	P–26, 30
	Worn or improperly adjusted wheel bearing preload	Replace or adjust	Section M
	Improper adjustment of wheel alignment	Adjust	Section R
	Unequal tire air pressure	Adjust	Section Q
Brakes do not release	No brake pedal play	Adjust	P– 9
	Improper adjustment of push rod clearance	Adjust	P–12, 14
	Clogged master cylinder return port	Clean	—
	Pad not returning properly	Repair	—
	Improper return of malfunction of brake caliper piston	Replace	P–26, 30
	Excessive runout of disc plate	Replace	Section M
	Improper adjustment of wheel bearing preload	Adjust or replace	Section M
Pedal goes too far (Too much pedal stroke)	Air in system because of insufficient brake fluid	Add fluid and bleed air	P– 7
	Improper adjustment of pedal play	Adjust	P– 9
	Worn pad	Replace	P–23, 27
	Air in lines	Bleed air	P– 7
Abnormal noise or vibration during braking	Worn pad	Replace	P–23, 27
	Deterioration of pads	Grind or replace	P–23, 27
	Brakes do not release	Repair	—
	Foreign material or scratches on disc plate contact surface	Clean	—
	Looseness of caliper mounting bolt(s)	Tighten	P–24, 28
	Damage or deviation of disc contact surface	Replace	Section M
	Poor contact of pads	Repair or replace	P–23, 27
	Insufficient grease on sliding parts	Apply grease	—

15U0PX-005



05U0PX-005



25U0PX-003

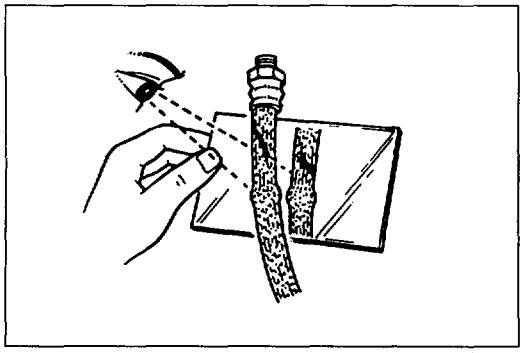
AIR BLEEDING

Caution
- **The fluid in the reservoir must be maintained at the 3/4 level or higher during air bleeding.**
- **Do not spill brake fluid onto painted surfaces.**

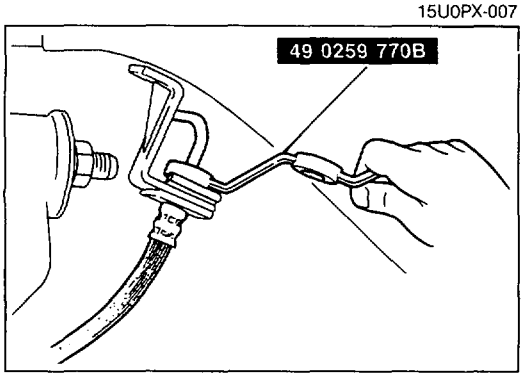
1. Jack up the vehicle and support it with safety stands.
2. Remove the bleeder cap and attach a vinyl tube to the bleeder screw.
3. Place the other end of the vinyl tube in a clear container.
4. One person should depress the brake pedal a few times, and then hold it in the depressed position.
5. A second person should loosen the bleeder screw, drain out the fluid, and retighten the screw by using the **SST**.

Caution
- **The two persons should stay in voice contact with each other.**
- **Be sure the pedal remains depressed until the air bleed screw is tightened.**

6. Repeat Steps 4 and 5 until no air bubbles are seen.
7. Check for correct brake operation.
8. Verify that there is no fluid leakage. Clean away any spilled fluid with rags.
9. After bleeding the air, add brake fluid to the reservoir up to the specified level.



15U0PX-007



15U0PX-008

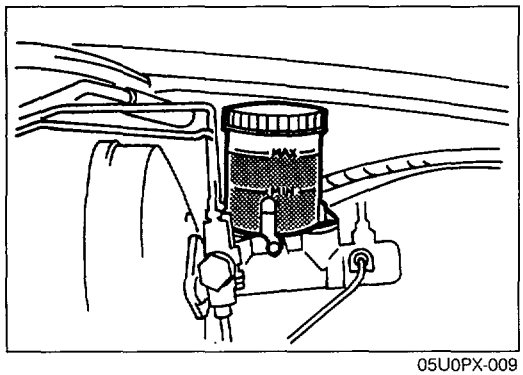
BRAKE HYDRAULIC LINE

On-vehicle Inspection

Check the following and replace parts as necessary.
1. Cracks, damage, and corrosion of the brake hose
2. Damage to the brake hose threads
3. Scars, cracks, and swelling of the flexible hose
4. All lines for fluid leakage

Removal / Installation

1. When disconnecting the flexible hose and brake line, remove the clip after loosening the flare nut with the **SST**.
2. When connecting the flexible hose, do not tighten it too tight or twist it.
3. Check that the hose does not contact other parts when the vehicle bounces or when the steering wheel is turned all the way to the left or right.
4. Bleed the air from the brake system.



05U0PX-009

BRAKE FLUID

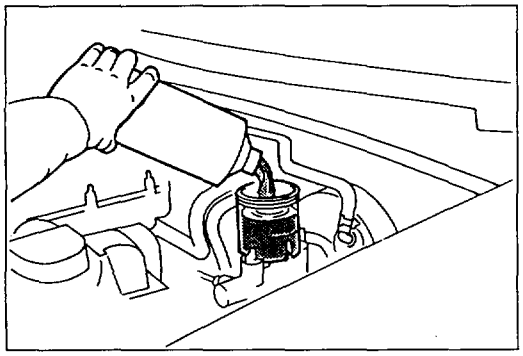
Inspection

Check the fluid level in the reservoir. It should be between MAX and MIN.
If the fluid level is extremely low, check the brake system for leaks.

Fluid specification:
SAE J1703 or FMVSS 116, DOT-3

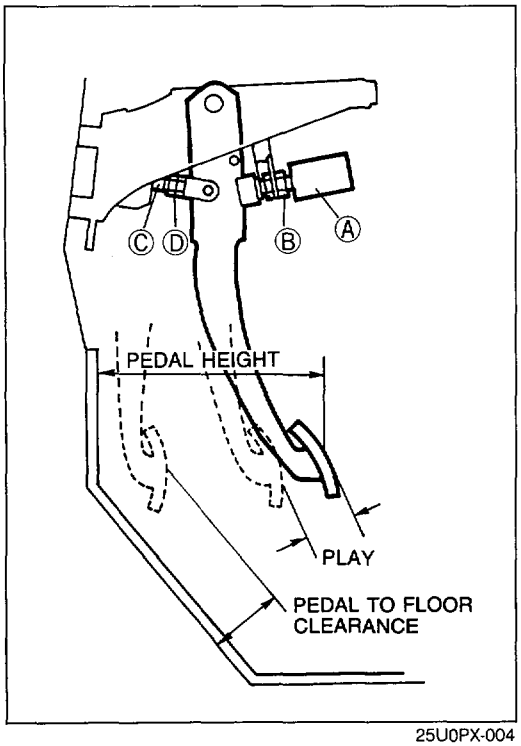
Caution

- **The fluid in the reservoir must be maintained at 3/4 level or higher during bleeding.**
- **Do not allow the brake fluid to get on painted surfaces.**


05U0PX-010

Replacement

1. Remove the brake fluid from the reservoir with a suction pump.
2. Fill the reservoir with clean brake fluid.
3. Attach a vinyl tube to the bleeder screw and place the other end of the tube in a clear container.
4. Pump out the old brake fluid by loosening the bleeder screws one by one and pumping the brake pedal until only clean fluid is expelled.
5. Fill the reservoir to the specified level.



25U0PX-004

BRAKE PEDAL

On-vehicle Inspection

Pedal height

Check that the distance from the center of the upper surface of the pedal pad to the carpet is as specified.

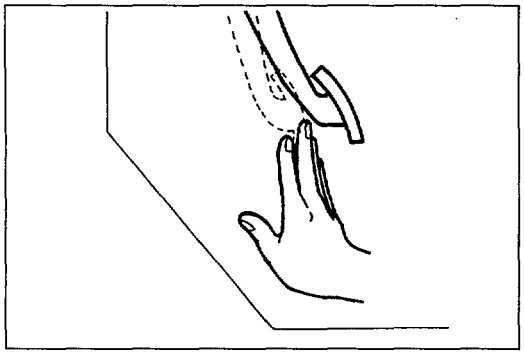
Pedal height: 171—181mm (6.93—7.13 in)
(With carpet)

Adjustment

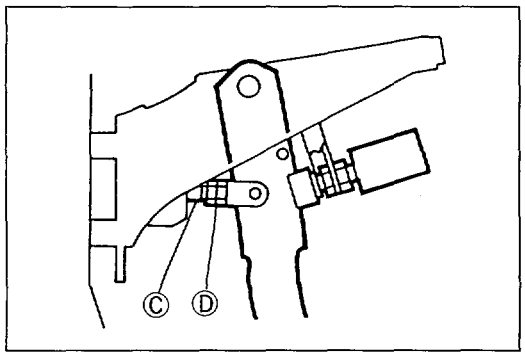
1. Disconnect the stoplight switch connector.
2. Loosen locknut Ⓑ and turn switch Ⓐ until it does not contact the pedal.
3. Loosen locknuts Ⓓ and turn rod Ⓒ to adjust the height.
4. Adjust the pedal free play and tighten operating rod locknuts Ⓓ.
5. Turn the stoplight switch until it contacts the pedal; then turn an additional 1/2 turn. Tighten the locknuts.

Tightening torque:
14—18 N·m (1.4—1.8 m-kg, 10—13 ft-lb)

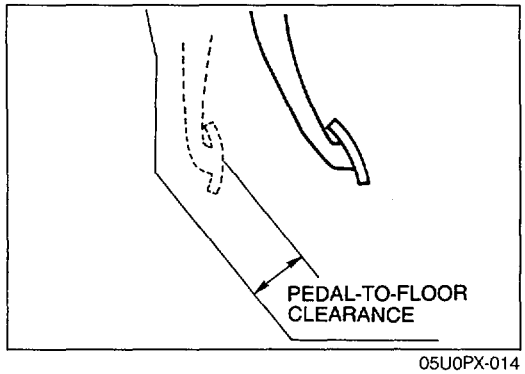
6. Connect the stoplight switch connector.
7. Verify that the stoplight operates correctly.



05U0PX-012



25U0PX-005



05U0PX-014

Pedal play

1. Depress the pedal a few times to eliminate the vacuum in the system.
2. Lightly depress the pedal by hand until resistance is felt, and check the free play.

Free play: 4—7mm (0.16—0.28 in)

Adjustment

1. Loosen locknuts Ⓓ and turn rod Ⓒ to adjust the free play.
2. Check the pedal height and verify that the stoplight switch operates correctly.

Tightening torque:
24—34 N·m (2.4—3.5 m-kg, 17—25 ft-lb)

Pedal-to-floor clearance

Check that the distance from the floor panel to the center of the upper surface of the pedal pad is as specified when the pedal is depressed with a force of **589 N (60 kg, 132 lb)**.

Pedal-to-floor clearance: 95mm (3.74 in)
(Without carpet)

If the distance is less than specified, inspect for air in the brake system.

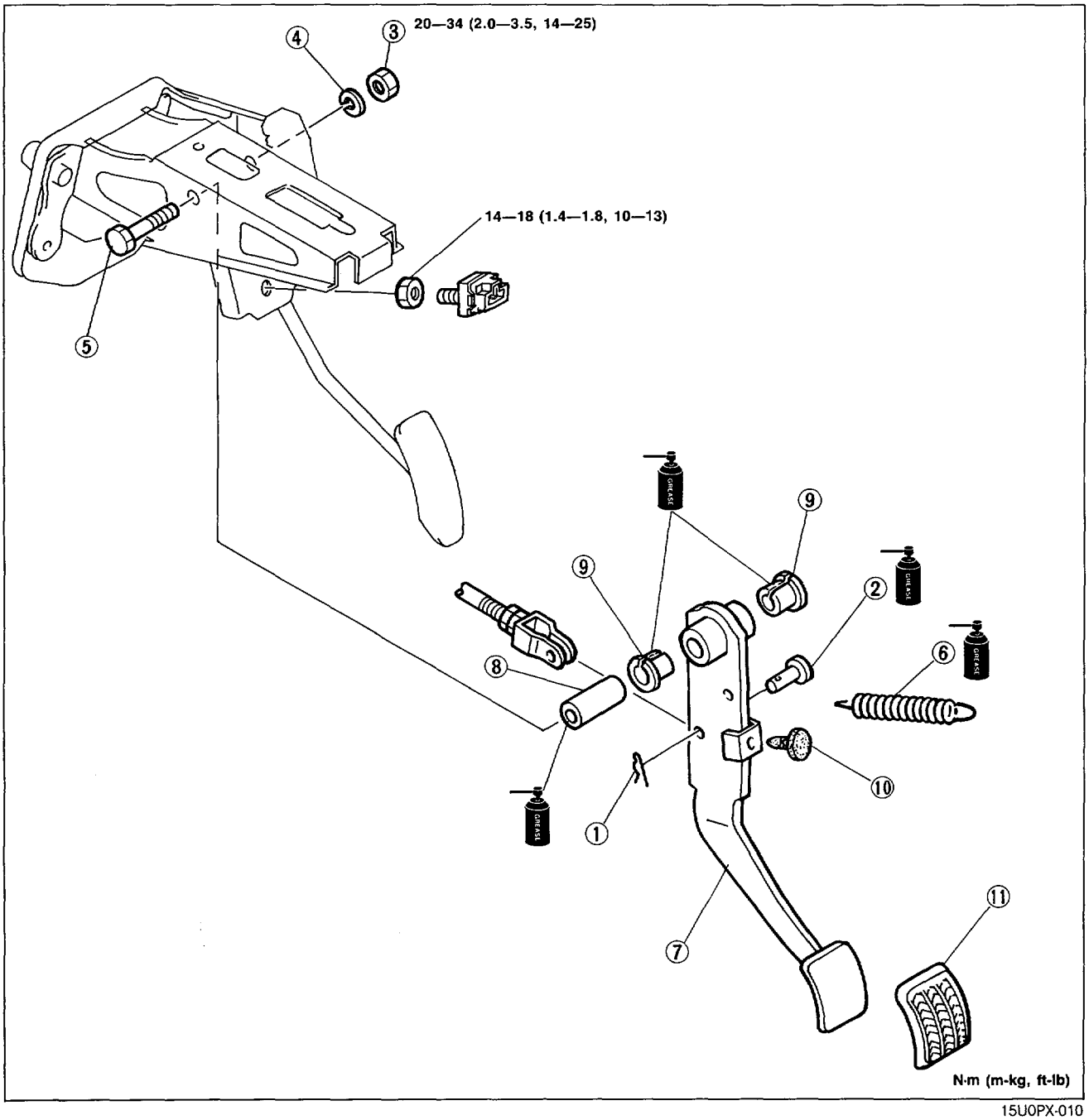
P

Removal / Inspection / Installation

1. Remove in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Install in the reverse order of removal.
4. After installation, check and adjust the pedal height and free play if necessary.

Caution

- **Apply grease to the inner surface of the bushing and to the contact surfaces of the clevis pin and spring.**



15U0PX-010

1. Spring clip
2. Clevis pin
3. Nut
4. Spring washer
5. Bolt
6. Return spring
   Inspect for weakness and damage
7. Brake pedal
   Inspect for bending
8. Guide pipe
9. Bushing
   Inspect for wear
10. Stopper rubber
    Inspect for wear
11. Pedal pad
    Inspect for wear and damage

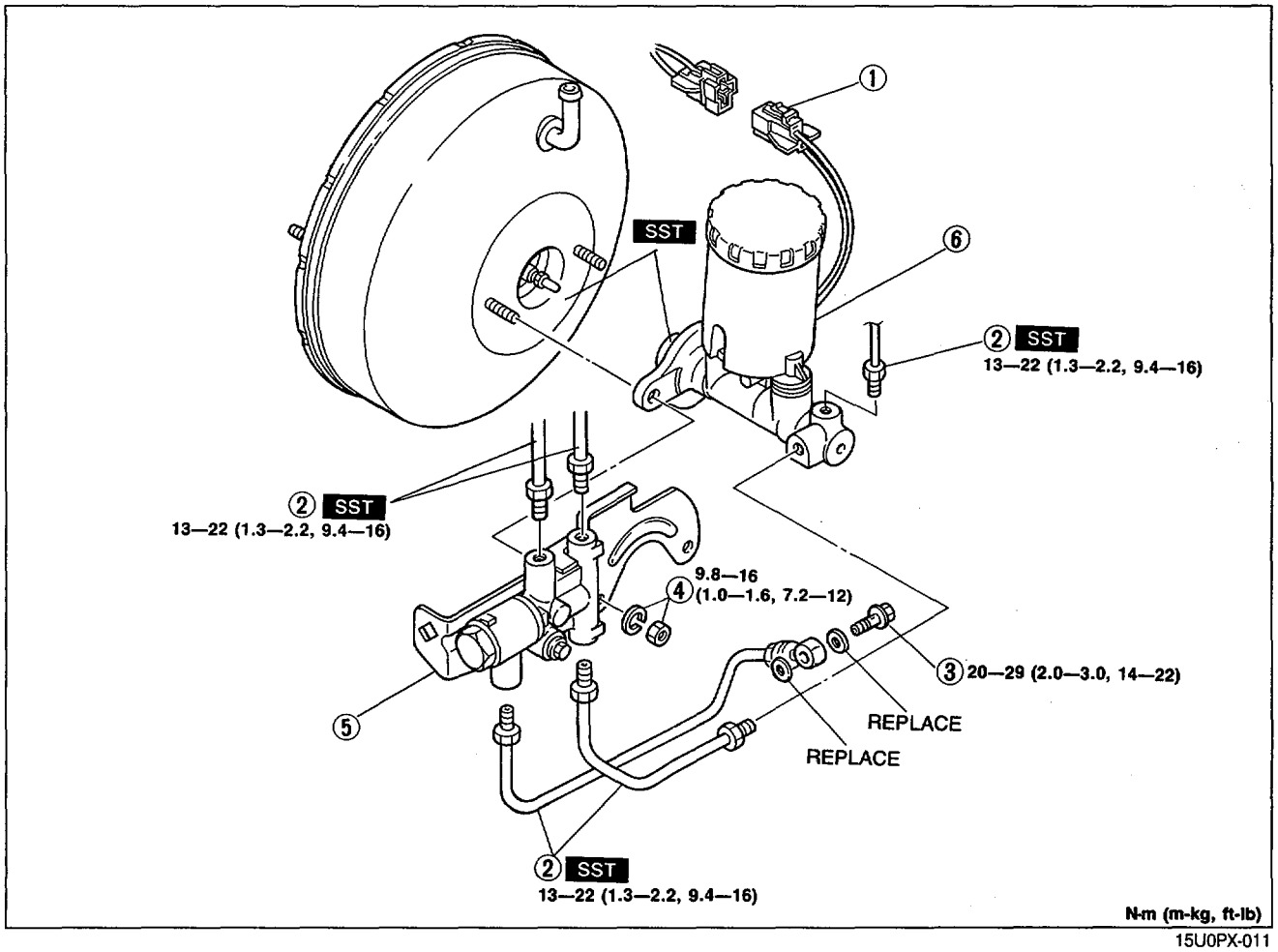
MASTER CYLINDER (STANDARD)

Removal / Installation / Inspection

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.
3. After installation, add brake fluid, bleed air, and check for fluid leakage.

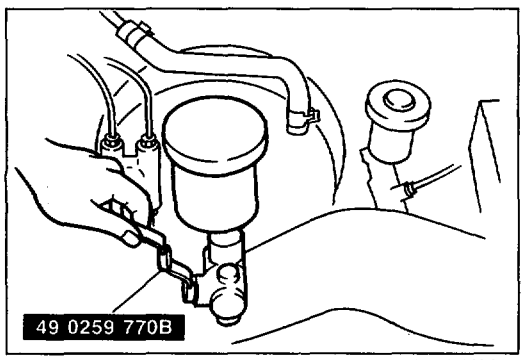
Caution

- **Brake fluid will damage painted surfaces. If it does get on a painted surface, wipe it off immediately.**



15U0PX-011

1. Fluid level sensor connector
2. Brake pipe
   Removal Note..... page P–11
3. Connector bolt
4. Nut and washer
5. Proportioning bypass valve and bracket
6. Reservoir and master cylinder
   Installation Note..... page P–12
   Inspection..... page P–12
   Disassembly / Assembly / Inspection..... page P–16

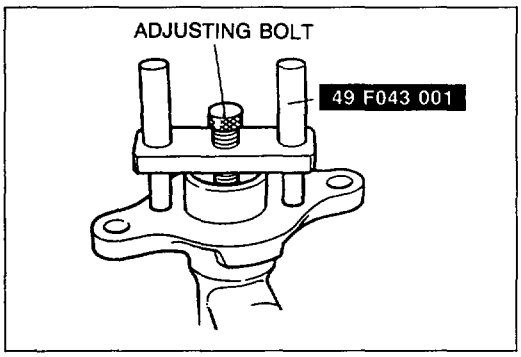


9MU0PX-020

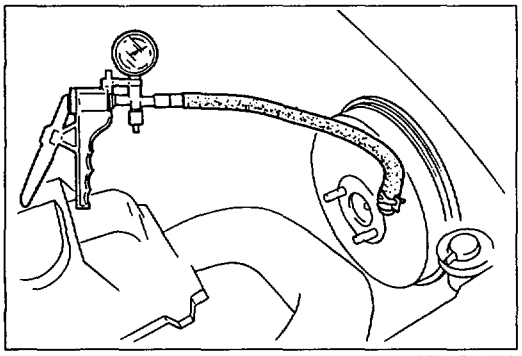
Removal note

Brake pipe

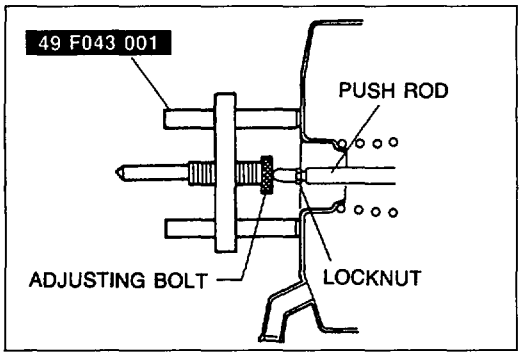
Disconnect/connect the brake pipe from/to the master cylinder with the **SST**.



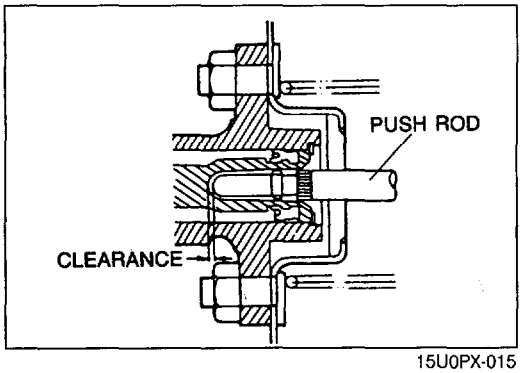
15U0PX-012



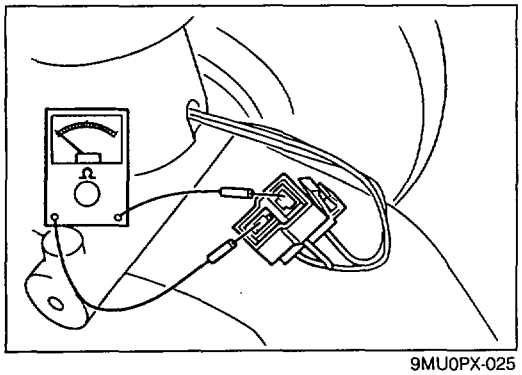
25U0PX-006



25U0PX-007



15U0PX-015



9MU0PX-025

Installation note
Push rod clearance
Measure the clearance between the push rod of the power brake unit and the piston of the master cylinder.
1. Place the **SST** atop the master cylinder. Turn the adjusting bolt until it bottoms in the piston.
2. Apply **500 mmHg (19.7 inHg)** vacuum to the power brake unit with a vacuum pump.
3. Invert the **SST** used in Step 1, and place it on the power brake unit.
4. Measure the clearance between the end of the adjusting bolt and the push rod of the power brake unit.
   If it is not **0mm (0 in)**, loosen the push rod locknut and turn the push rod to make the adjustment.

Reference
By making the above adjustment, the clearance between the push rod and piston (after installation of the brake master cylinder and the power brake unit) will be as shown in the table below.

	Clearance
When vacuum applied to unit is approx. 500 mmHg (19.7 inHg)	0.1—0.4mm (0.004—0.016 in)

Inspection
Fluid level sensor
1. Disconnect the sensor connector.
2. Connect an ohmmeter to the connector.
3. Starting with the fluid level above the MIN mark on the reservoir, verify that there is no continuity.
4. Remove the brake fluid and verify continuity when the level is below the MIN mark.
5. Replace the sensor if necessary.

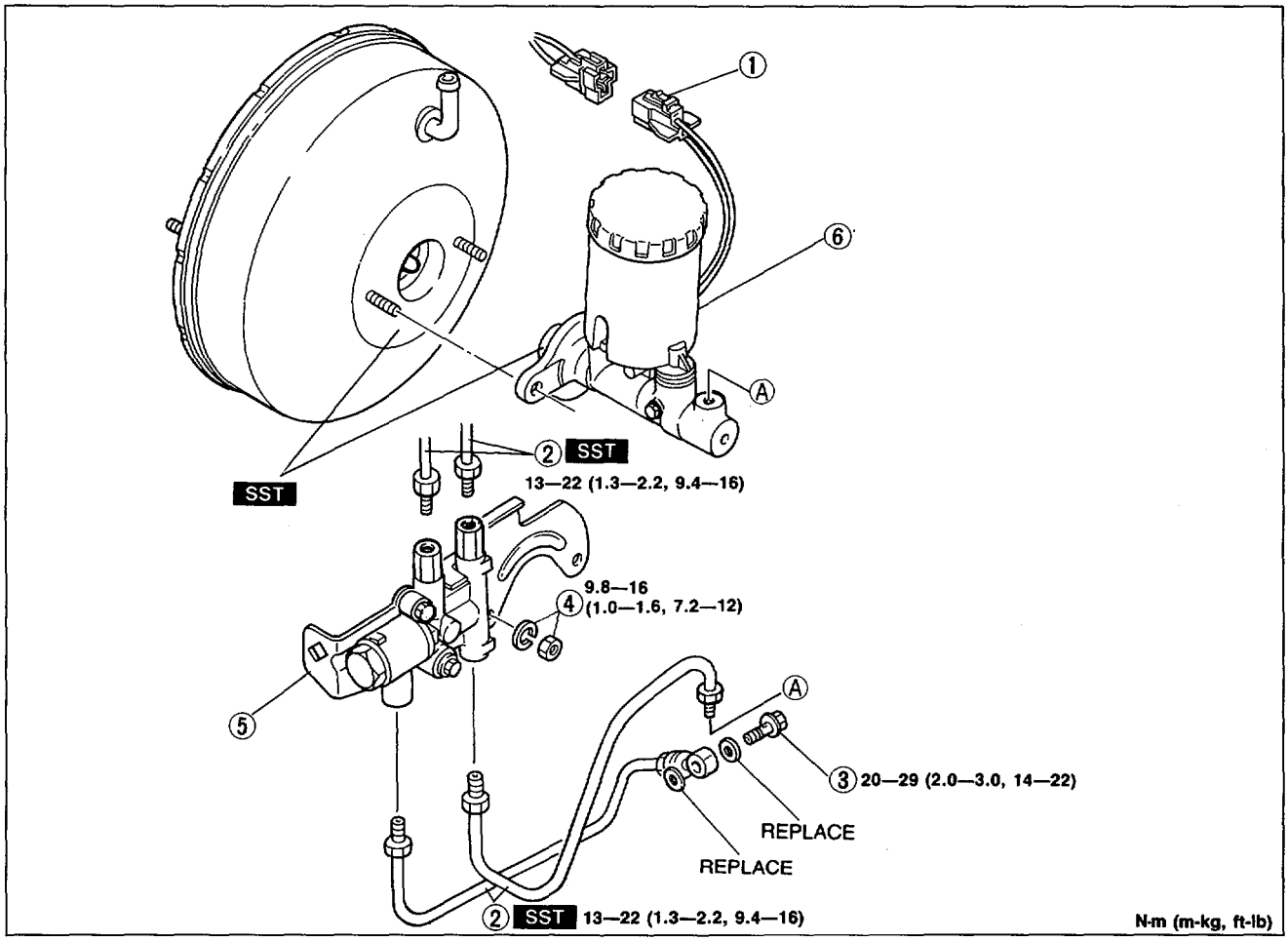
MASTER CYLINDER (ABS)

Removal / Installation / Inspection

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.
3. After installation, add brake fluid, bleed air, and check for fluid leakage.

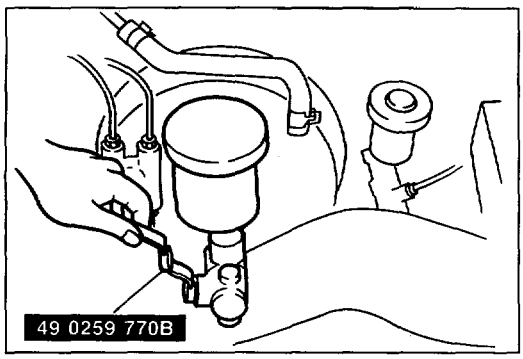
Caution

- **Brake fluid will damage painted surfaces. If it does get on a painted surface, wipe it off immediately.**



15U0PX-016

1. Fluid level sensor connector
2. Brake pipe
   Removal Note ..... page P–13
3. Connector bolt
4. Nut and washer
5. Proportioning bypass valve and bracket
6. Reservoir and master cylinder
   Installation Note ..... page P–14
   Inspection ..... page P–15
   Disassembly / Assembly / Inspection ..... page P–16

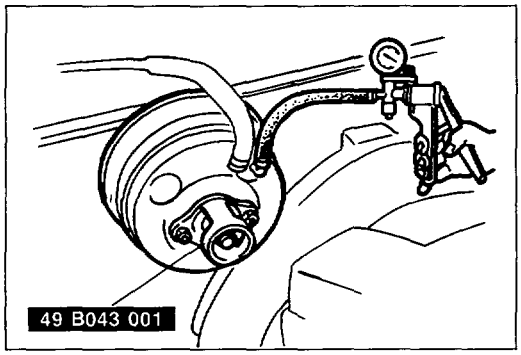


9MU0PX-020

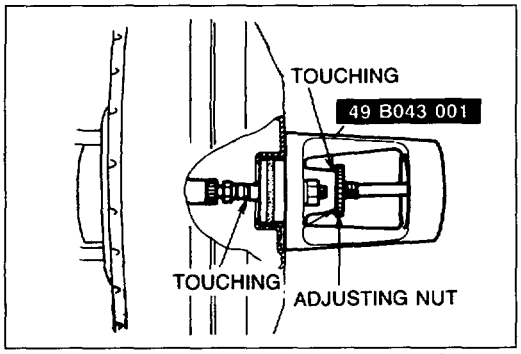
Removal note

Brake pipe

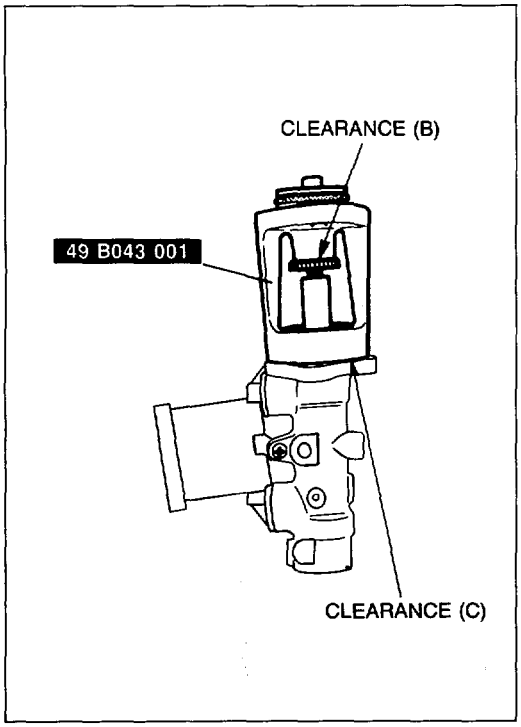
Disconnect/connect the brake pipe from/to the master cylinder with the **SST**.



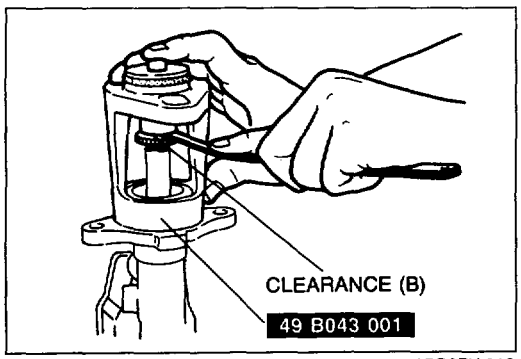
15U0PX-017



97G0PX-010



15U0PX-018



97G0PX-012

Installation note

Push rod clearance

Inspect the push rod clearance as follows.

1. Turn the nut of the **SST** clockwise to fully retract the **SST** gauge rod. Attach the **SST** to the power brake unit.

   Tightening torque:
   9.8—15.7 N·m (1.0—1.6 m-kg, 7.2—11.6 ft-lb)

2. Apply **500 mmHg (19.7 inHg)** vacuum using a vacuum pump.

3. Turn the adjusting nut of the **SST** counterclockwise until the gauge rod just contacts the push rod end of the power brake unit.
   Push lightly on the end of the gauge rod to be sure it is seated. Verify that there is no gap between the adjusting nut and **SST** body.

4. Remove the **SST** from the power brake unit without disturbing the adjusting nut. Set the **SST** onto the master cylinder as shown in the figure.

   Caution
   - **When pushing only use enough pressure to bottom the rod in the piston. If too much pressure is applied a false reading will occur.**

5. Push lightly on the end of the **SST** gauge rod to be sure it is bottomed in the master cylinder piston, and note any clearance between the **SST** body and the adjusting nut (clearance B) or between the body and the master cylinder (clearance C). Adjust the push rod as necessary as outlined in "Adjustment" below.

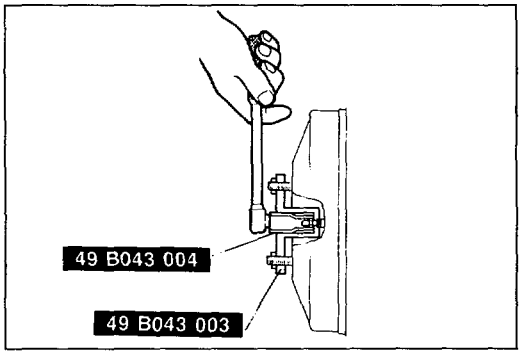
Measurement	Push rod
Clearance at (B)	Too short
Clearance at (C)	Too long
No clearance at (B) or (C)	OK

Adjustment

Note
- **The threads of the push rod are specially designed so that the bolt becomes harder to turn past a certain point to prevent loosening of the bolt. Turn the bolt only within this range when adjusting.**

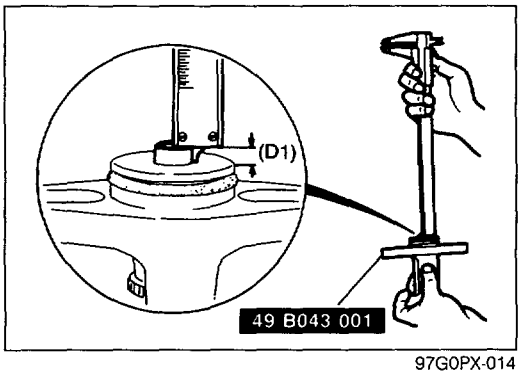
Clearance at B

1. Push lightly on the end of the **SST** gauge rod, and measure the clearance between the adjusting nut and the **SST** body.



15U0PX-019

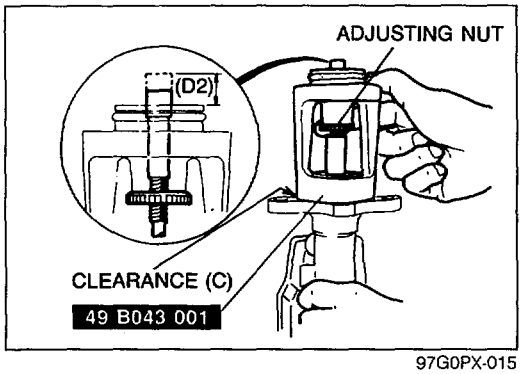
2. Using the **SST**, turn the nut to lengthen the power booster push rod an amount equal to the clearance measured at B.



97G0PX-014

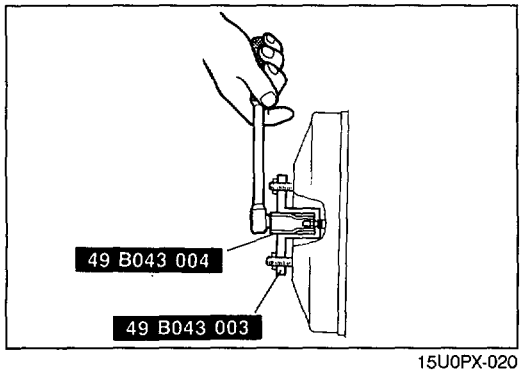
Clearance at C

1. Measure and record height D1 of the gauge rod.



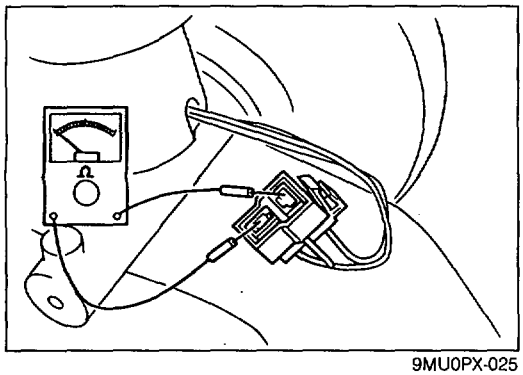
97G0PX-015

2. Turn the adjusting nut until the **SST** body sets squarely on the master cylinder. (Turn only enough for the body to touch.)
3. Measure and record height D2 of the gauge rod.



15U0PX-020

4. Subtract D1 from D2 and using the **SST**, turn the nut to shorten the power booster push rod an amount equal to the sum.



9MU0PX-025

Inspection

Fluid level sensor

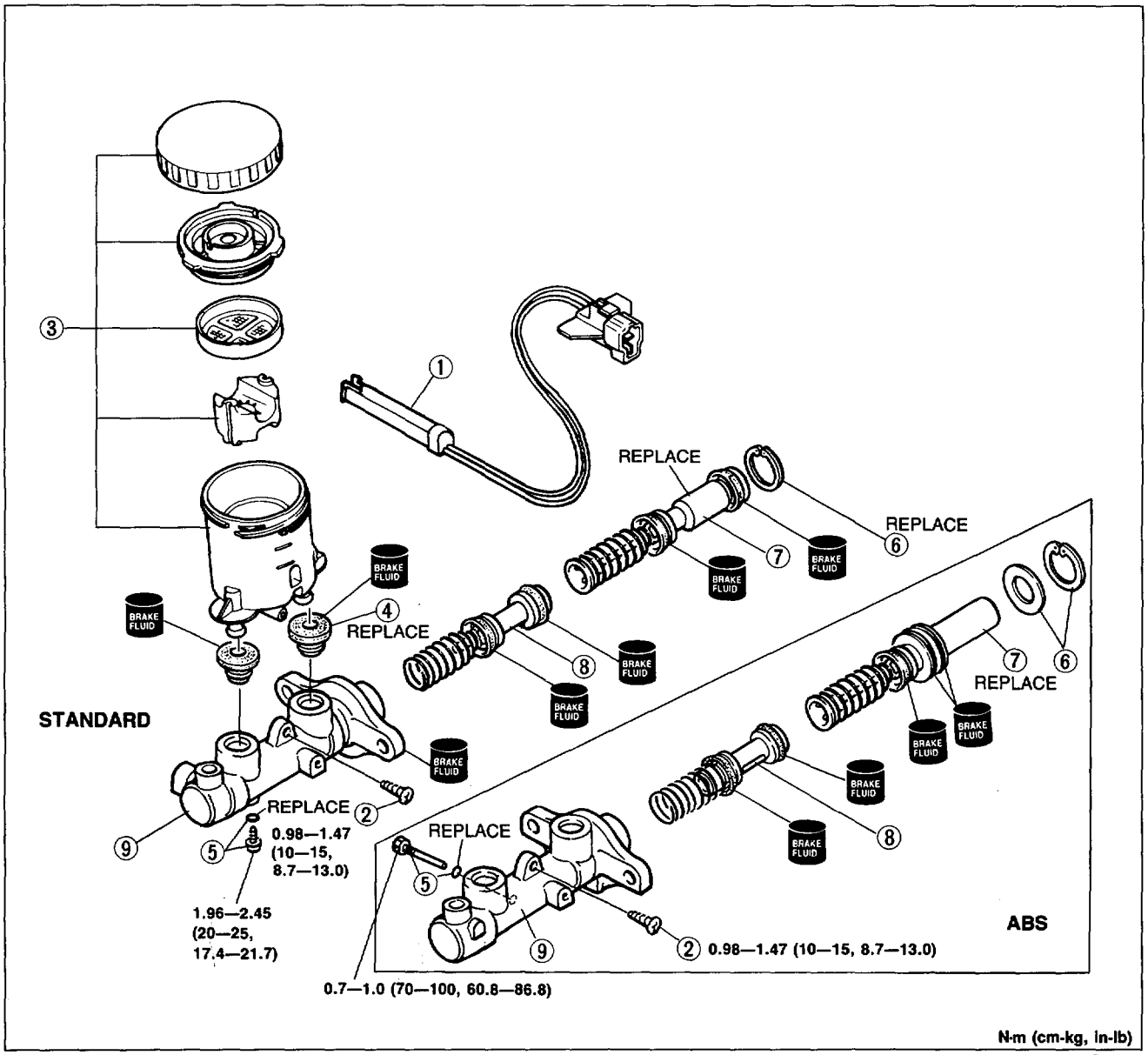
1. Disconnect the sensor connector.
2. Connect an ohmmeter to the connector.
3. Starting with the fluid level above the MIN mark on the reservoir, verify that there is no continuity.
4. Remove the brake fluid and verify continuity when the level is below the MIN mark.
5. Replace the sensor if necessary.

Disassembly / Assembly / Inspection

1. After removing the brake fluid, disassemble in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of removal, referring to **Assembly Note**.

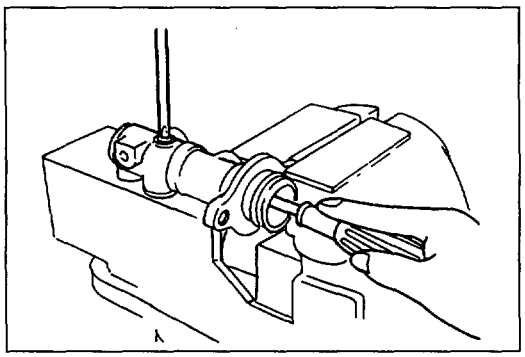
Caution

- **Secure the master cylinder flange in a vise when necessary.**
- **Replace the piston assembly if necessary.**
- **Do not let foreign material enter the cylinder, and do not scratch the inside of the cylinder or the outer surface of the piston.**



25U0PX-008

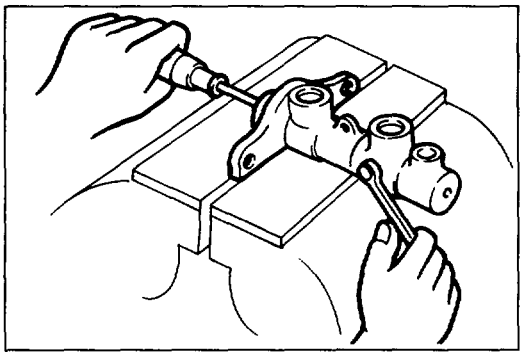
1. Fluid level sensor
   Inspection ..... page P–15
2. Screw
3. Reservoir assembly
   Inspect for damage and deformation
4. Bushings
5. Stop screw and O-ring
   Assembly Note ..... page P–17
5. Stop pin and O-ring (ABS)
6. Snap ring
6. Snap ring and spacer (ABS)
7. Primary piston assembly
   Inspect for abnormal wear, rust, and damage
8. Secondary piston assembly
   Assembly Note ..... page P–17
   Inspect for abnormal wear, rust, and damage
9. Master cylinder body
   Inspect for abnormal wear, rust, and damage



25U0PX-009

Assembly note
Stop screw and O-ring

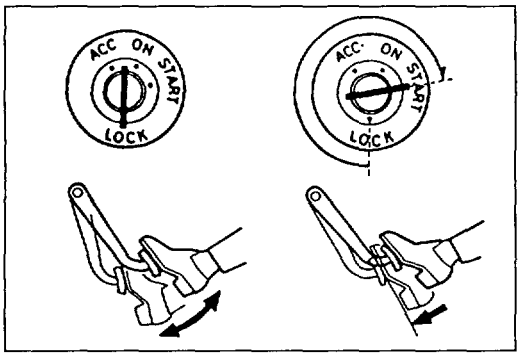
1. Push the primary piston assembly in fully.
2. Install and tighten a new O-ring and stop screw.
3. Push and release the piston to verify that it is held by the stop screw.



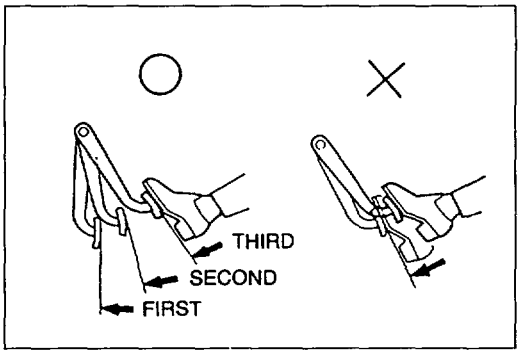
25U0PX-010

Secondary piston assembly (ABS)

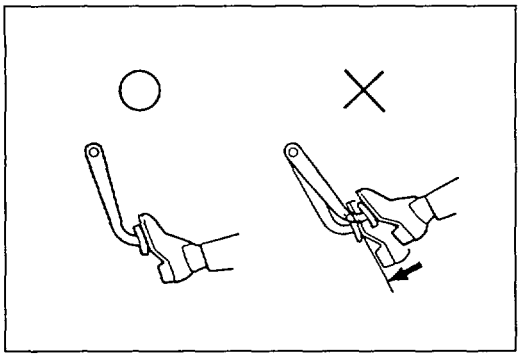
1. Install the secondary piston assembly with the piston hole facing the stop pin.
2. Install and tighten a new O-ring and stop pin.
3. Push and release the piston to verify that it is held by the stop pin.



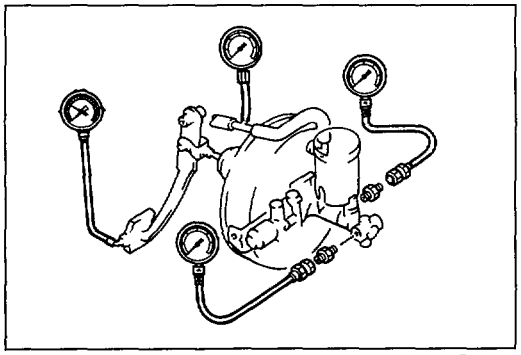
05U0PX-021



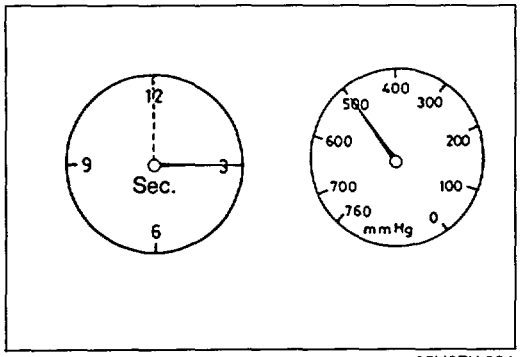
05U0PX-022



05U0PX-023



9MU0PX-033



05U0PX-024

POWER BRAKE UNIT

Quick Inspection, On-vehicle

Power brake unit function check (Simple method)

Step 1

1. With the engine stopped, depress the pedal a few times.
2. With the pedal depressed, start the engine.
3. If immediately after the engine starts the pedal moves down slightly, the unit is operating.

Step 2

1. Start the engine and let it run **1 or 2 minutes**.
2. Stop the engine.
3. Depress the pedal with the usual force.
4. If the first pedal stroke is long and becomes shorter with subsequent strokes, the unit is operating.
5. If a problem is found, inspect for damage or improper connection of the check valve or vacuum hose. Repair if necessary, and inspect it once again.

Step 3

1. Start the engine.
2. Depress the pedal with the usual force.
3. Stop the engine with the pedal depressed.
4. Hold the pedal down for **about 30 seconds**.
5. If the pedal height does not change, the unit is operating.
6. If there is a problem, check for damage or improper connection of the check valve or vacuum hose. Repair if necessary, and check once again.

If the nature of the problem is still not clear after following the 3 steps above, follow the more detailed check described in "Method using tester," below.

(Method using tester)

Connect a pressure gauge, vacuum gauge, and pedal depression force gauge as shown in the figure. After bleeding the air from the pressure gauge, conduct the test as described in the 3 steps below.

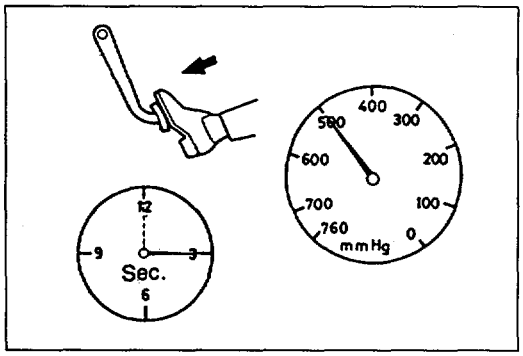
Note

- **Use commercially available gauges and pedal depression force gauge.**

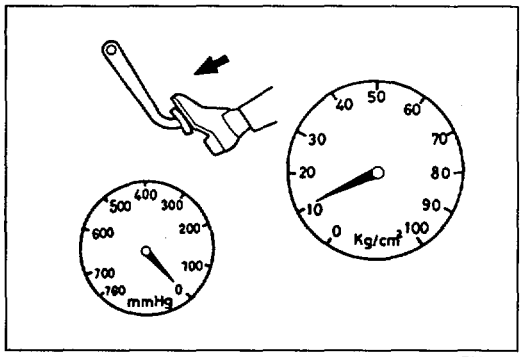
a) Checking for vacuum loss

Unloaded condition

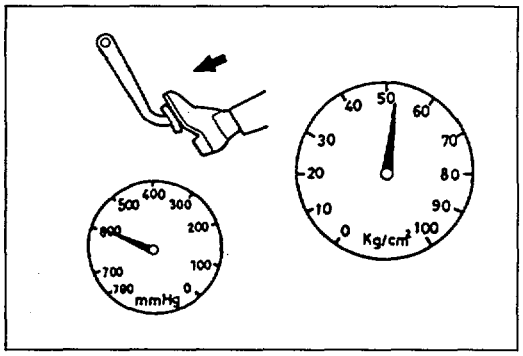
1. Start the engine.
2. Stop the engine when the vacuum gauge indicates **500 mmHg (19.7 inHg)**.
3. Observe the vacuum gauge for **15 seconds**. If the gauge indicates **475—500 mmHg (18.7—19.7 inHg)**, the unit is operating.



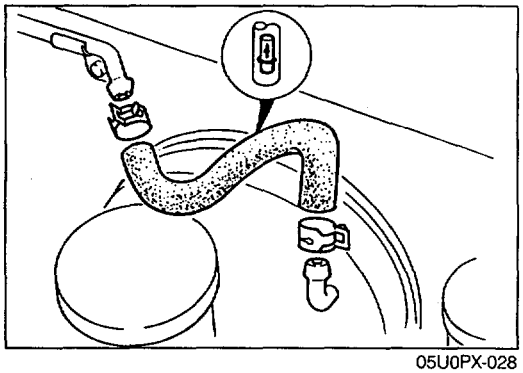
05U0PX-025



05U0PX-026



05U0PX-027



05U0PX-028

Loaded condition

1. Start the engine.
2. Depress the brake pedal with a force of **196 N (20 kg, 44 lb)**.
3. With the brake pedal depressed, stop the engine when the vacuum gauge indicates **500 mmHg (19.7 inHg)**.
4. Observe the vacuum gauge for **15 seconds**. If the gauge indicates **475—500 mmHg (18.7—19.7 inHg)**, the unit is operating.

b) Checking for hydraulic pressure

1. If with the engine stopped **(vacuum 0 mmHg [0 inHg])** the fluid pressure is within specification, the unit is operating.

Pedal force	Fluid pressure
196 N (20 kg, 44 lb)	1,079—1,177 kPa (11—12 kg/cm^2, 156—171 psi)

2. Start the engine. Depress the brake pedal when the vacuum reaches **500 mmHg (19.7 inHg)**. If the fluid pressure is within specification, the unit is operating.

Pedal force	Fluid pressure
196 N (20 kg, 44 lb)	5,199—5,494 kPa (53—56 kg/cm^2, 754—796 psi)

Inspection of Check Valve

Note

- **The check valve is pressed into the vacuum hose. There is an arrow on the hose to indicate direction of hose installation.**

Inspection

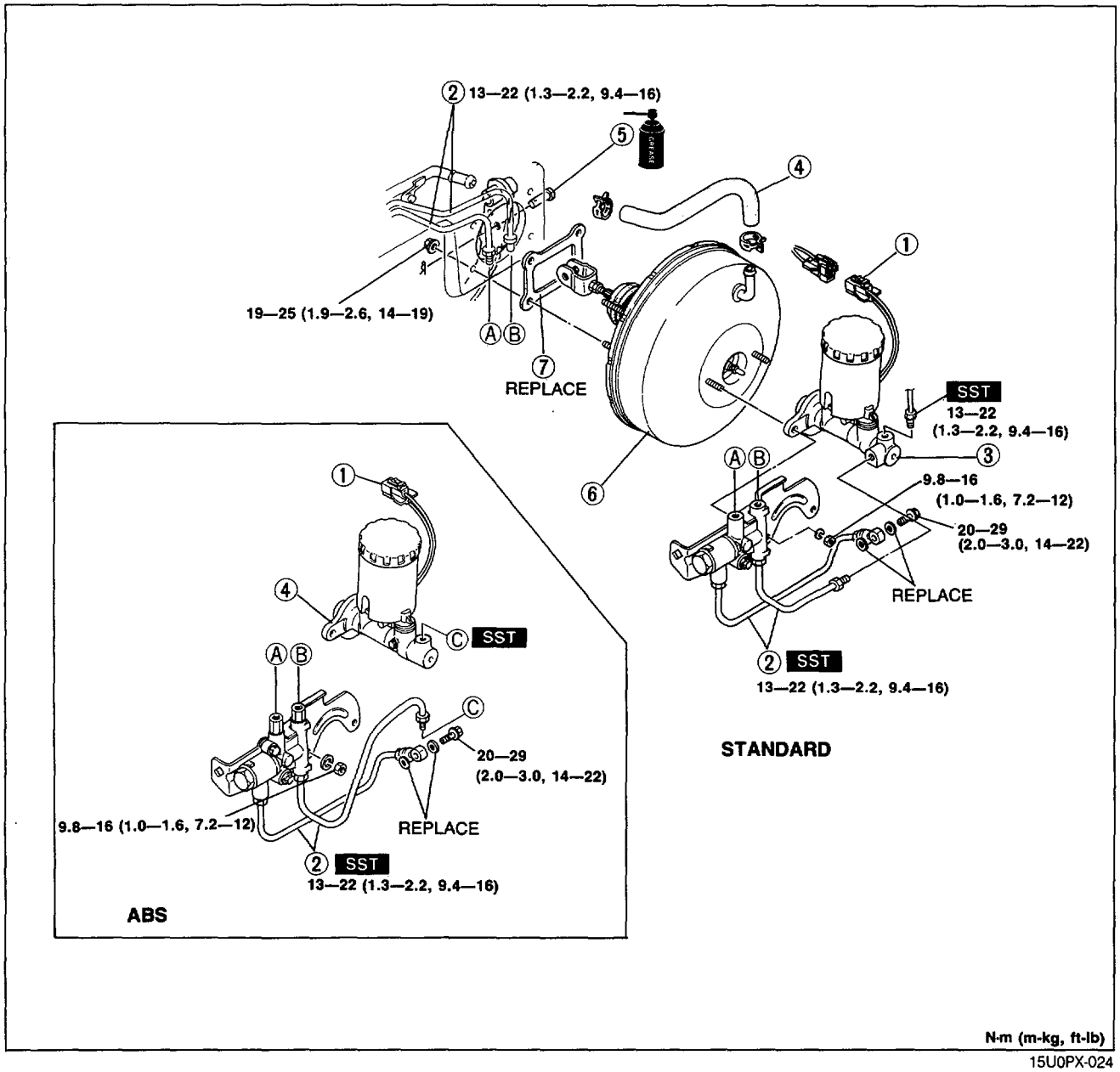
1. Disconnect the vacuum hose from the engine.
2. Apply suction and pressure to the hose from the engine side. Verify that air flows only toward the engine. If the air passes in both directions or not at all, replace the vacuum hose (along with the check valve).

Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.
3. Take the following steps after installation:
   (1) Check and adjust the push rod and piston clearance.
   (Standard: refer to page P–12 / ABS: refer to page P–14.)
   (2) Add fluid and bleed the air. (Refer to page P–7.)
   (3) Check all parts for fluid leakage.
   (4) Make an on-vehicle check of the unit. (Refer to page P–18.)
   (5) Check that the vacuum hose does not contact other parts.

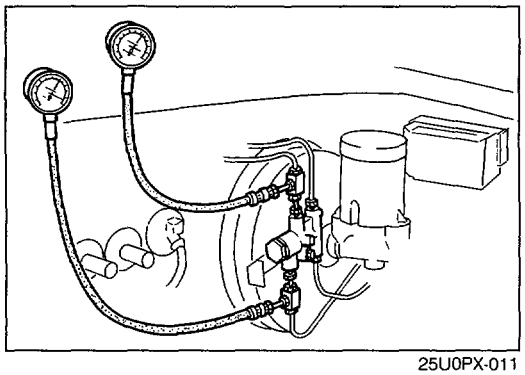
Caution

- **Apply grease to the clevis pin.**
- **Apply sealant to the gasket contact surface.**

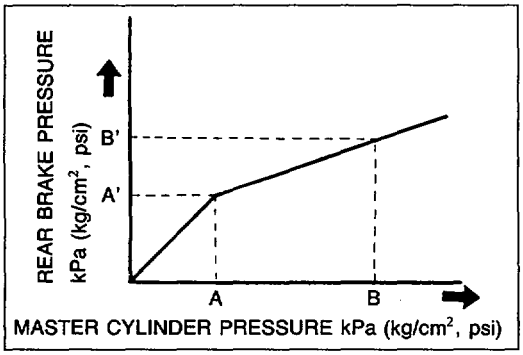


15U0PX-024

1. Fluid level sensor connector
2. Brake pipe and proportioning bypass valve
3. Master cylinder
4. Vacuum hose with check valve
5. Clevis pin
6. Power brake unit
7. Gasket



25U0PX-011



15U0PX-025

PROPORTIONING BYPASS VALVE

Inspection

1. Connect two pressure gauges [9,810 kPa (100 kg/cm², 1,422 psi)] to the pipes.
2. Measure the fluid pressure from the master cylinder and to the rear brake.

Specification

Fluid pressure kPa (kg/cm², psi)			
A	A'	B	B'
2,943 (30, 427)	2,943 (30, 427) ± 196 (2, 28)	6,867 (70, 995)	4,120 (42, 597) ± 333 (3, 43)

Caution

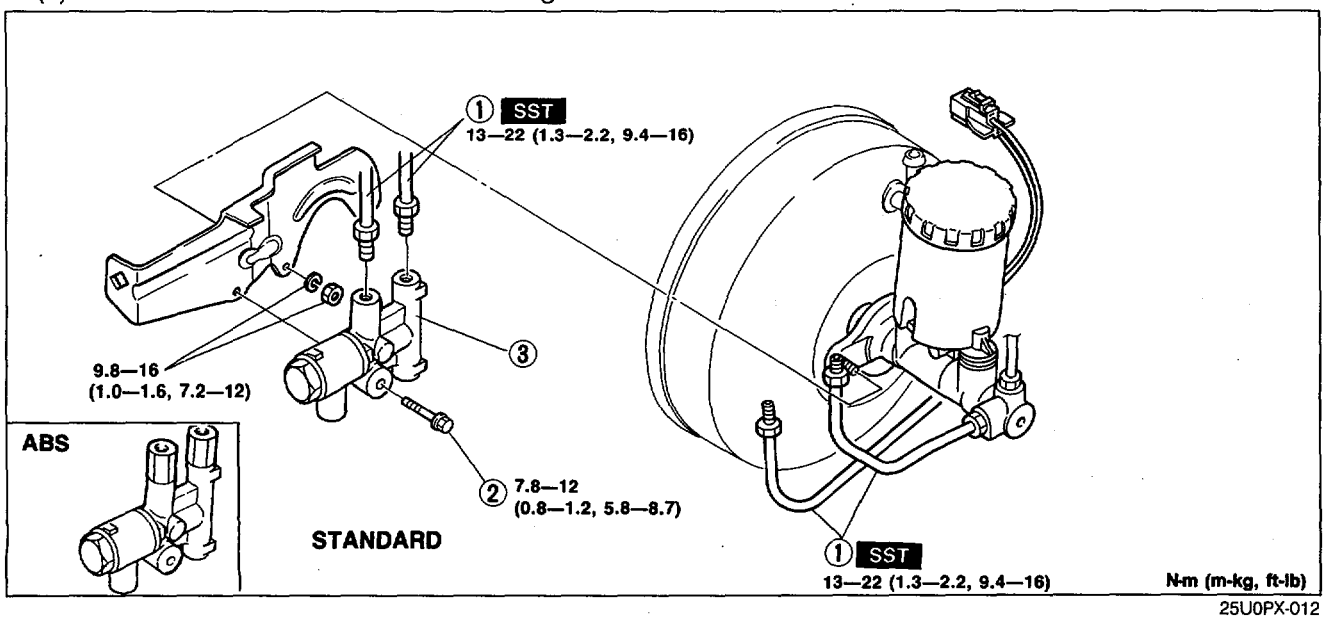
- **If not as specified, replace the valve assembly.**
- **After inspection:**
  Add brake fluid and bleed the air.
  (Refer to page P–7.)
  Check the brake lines for fluid leakage.

Replacement

Caution

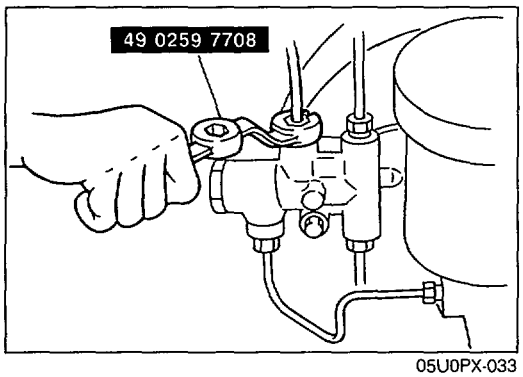
- **Brake fluid will damage painted surfaces. If it does get on a painted surface, wipe it off immediately.**

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.
3. After installation:
   (1) Add brake fluid and bleed the air. (Refer to page P–7.)
   (2) Check the brake lines for fluid leakage.



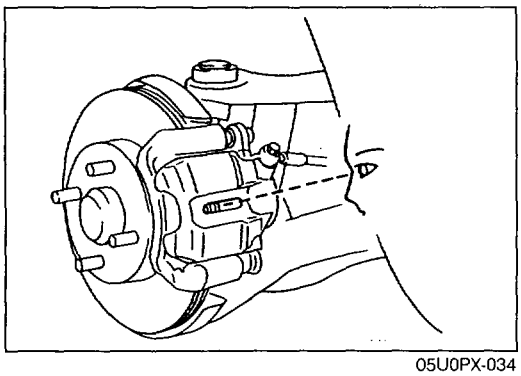
25U0PX-012

1. Brake pipe
   Removal Note..... page P–22
   Installation Note..... page P–22
2. Bolt
3. Proportioning bypass valve



05U0PX-033

Removal / Installation note
Brake pipe
Disconnect/connect the brake pipes with the **SST**.



05U0PX-034

FRONT BRAKE (DISC)

Quick Inspection, On-vehicle

Disc pad

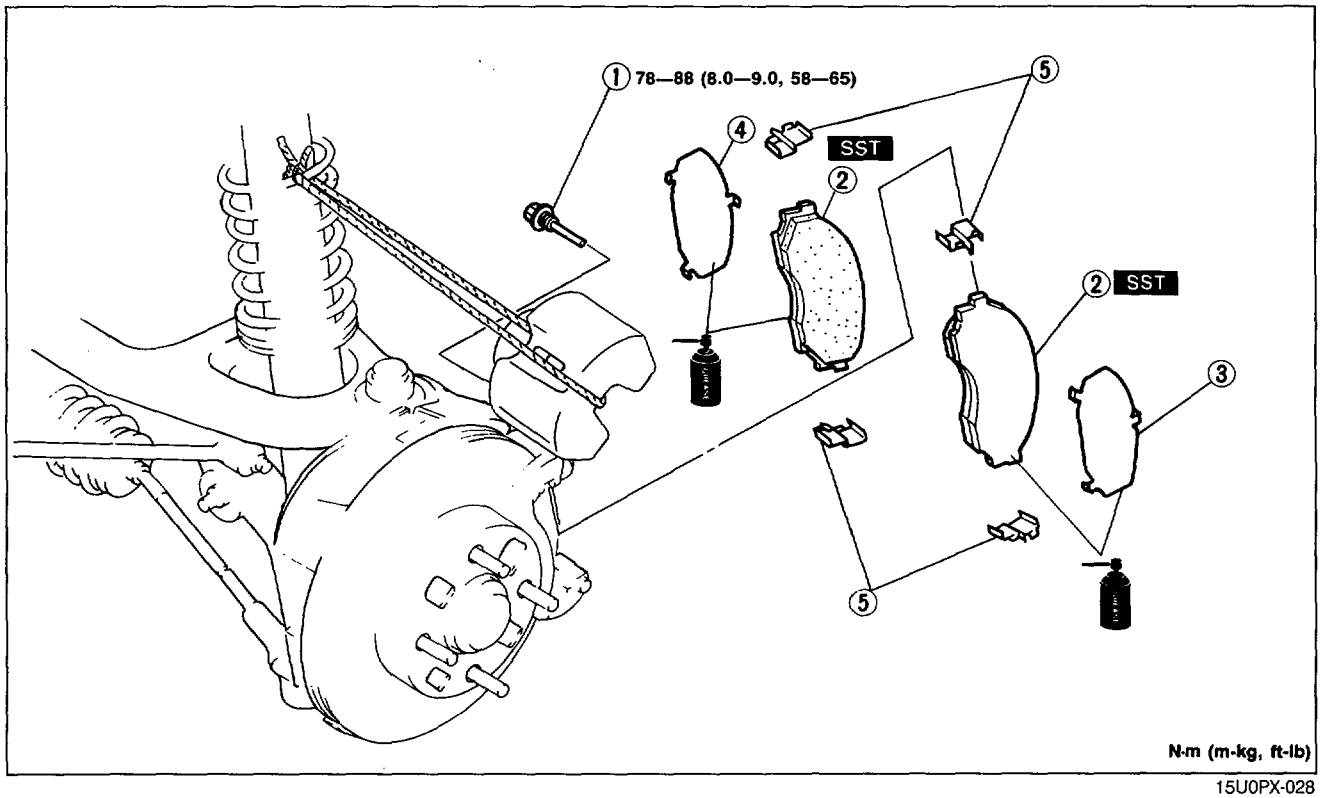
1. Jack up the front of the vehicle and support it with safety stands.
2. Remove the wheels.
3. Sight through the caliper inspection hole and verify the remaining thickness of the pad.

Thickness: 1.0mm (0.04 in) min.

Replacement

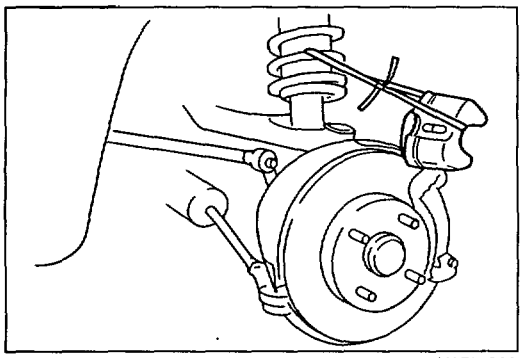
Disc pad

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.



15U0PX-028

1. Lock bolt
   Removal Note..... page P–23
2. Disc pad
   Installation Note..... page P–24
3. Outer shim
4. Inner shim
5. Guide plate

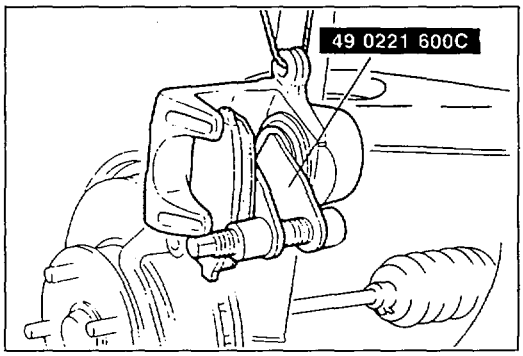


15U0PX-029

Removal note

Lock bolt

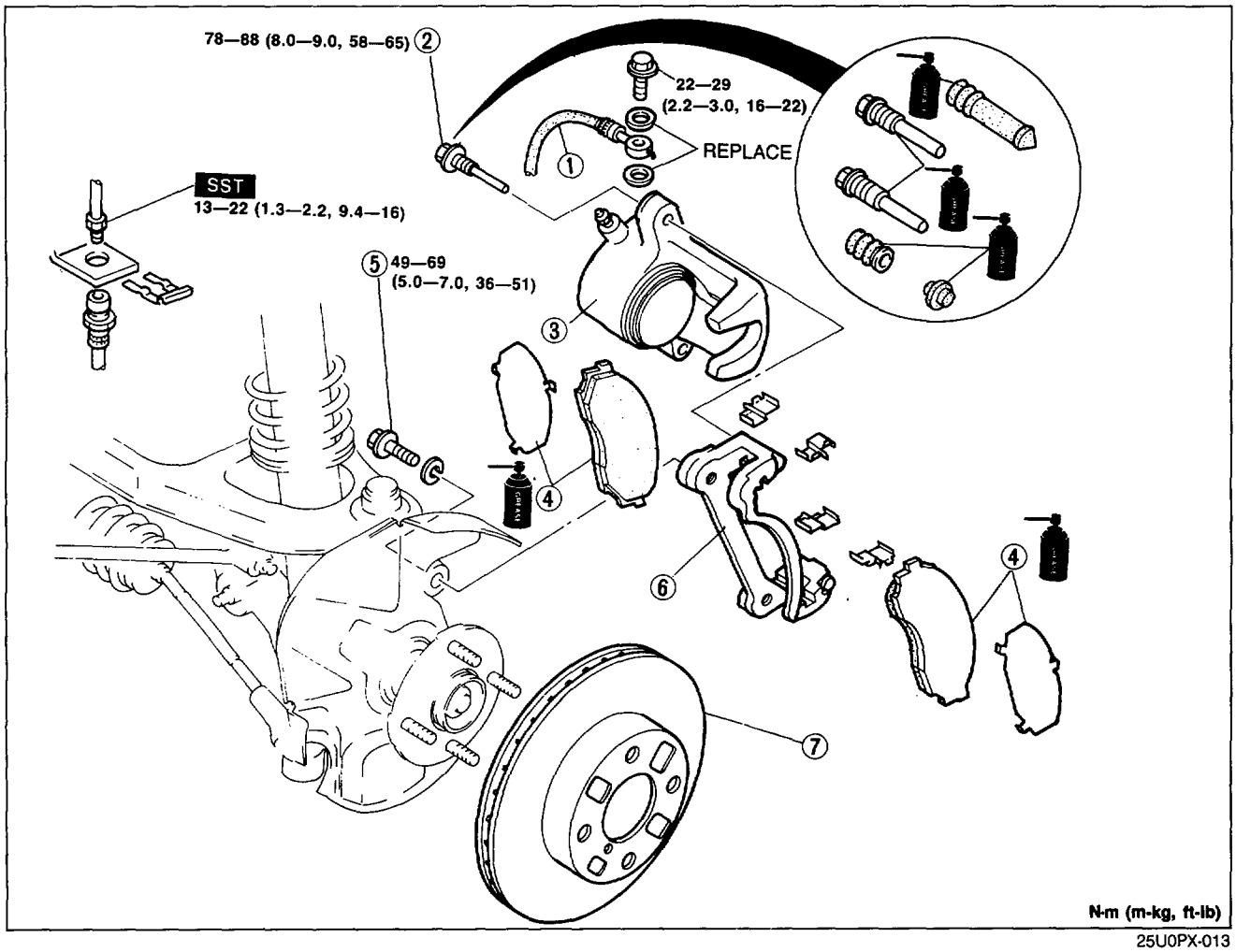
1. Remove the lower lock bolt.
2. Rotate the caliper upward and support it with a piece of rope.



15U0PX-030

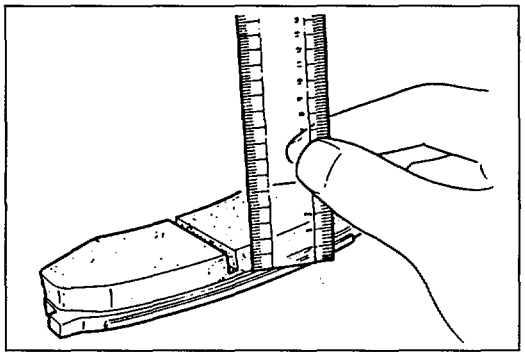
Installation note
Disc pad
1. Push the piston inward with the **SST**.
2. Install the new pads in the mounting support.

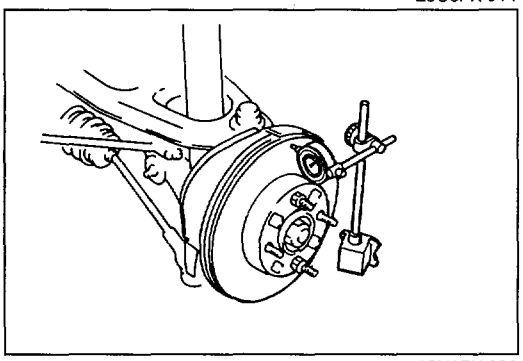
Removal / Installation
Caliper
1. Jack up the front of the vehicle and support it with safety stands.
2. Remove the wheels; then remove components in the order shown in the figure.
3. Install in the reverse order of removal.
4. Tighten all nuts and bolts to the specified torques, referring to the figure.

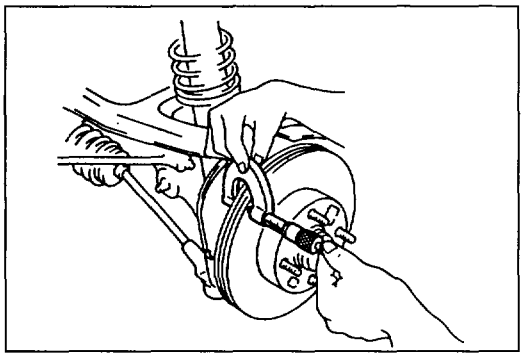


25U0PX-013

1. Brake hose
2. Connecting bolt
3. Caliper
   Disassembly / Inspection / Assembly ..... page P–26
4. Disc pad and shim
   Inspection ..... page P–25
5. Bolt
6. Mounting support
7. Disc plate
   Inspection ..... page P–25


25U0PX-014


15U0PX-033


05U0PX-041

Inspection
Check the following and repair or replace parts as necessary.

Disc pad
1. Oil or grease on facing.
2. Abnormal wear or cracks.
3. Deterioration or damage by heat.
4. Remaining lining thickness.

Thickness
Standard: 9.5mm (0.37 in)
Minimum: 1.0mm (0.04 in)

Disc plate
1. Runout.

Runout: 0.1mm (0.004 in) max.

Caution
- **Tighten the disc plate to the wheel hub with two wheel nuts.**
- **The measurement must be taken at the outer edge of the disc plate surface.**

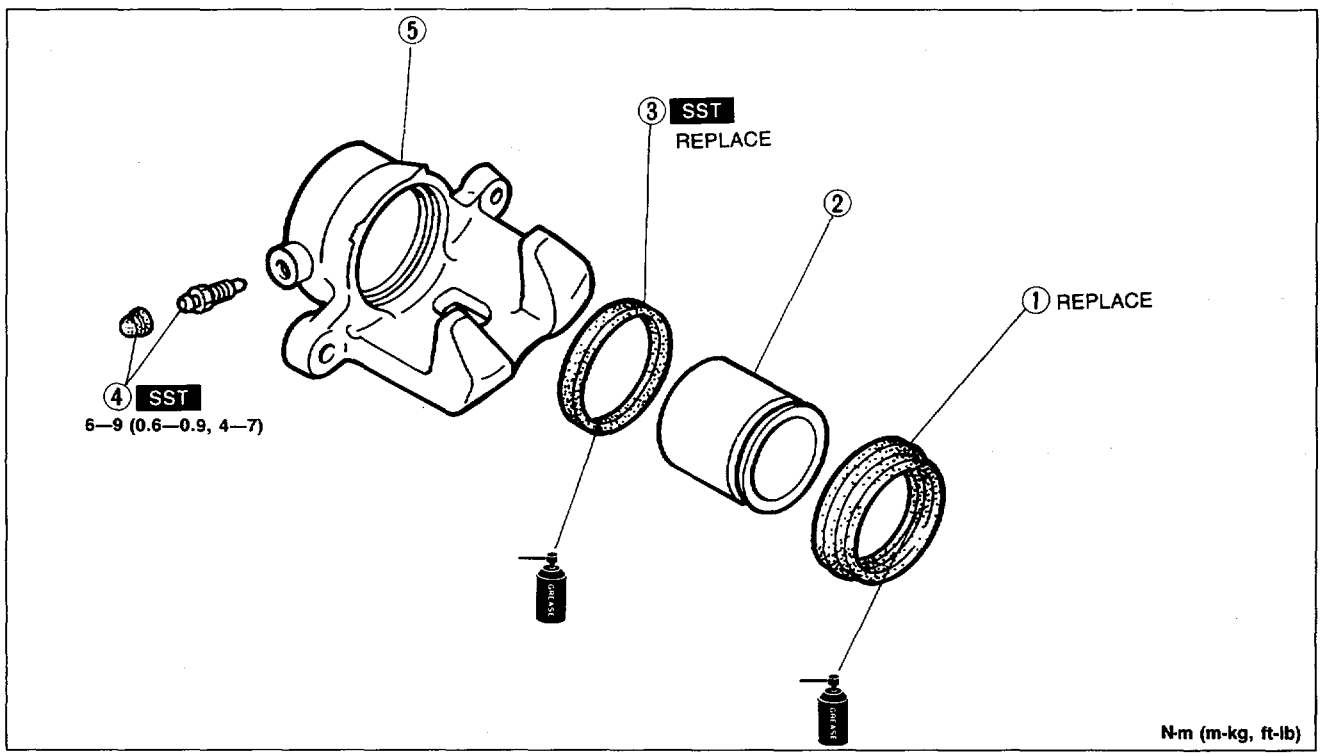
2. Wear and damage.

Thickness
Standard: 18mm (0.71 in)
Minimum: 16mm (0.63 in)

CALIPER

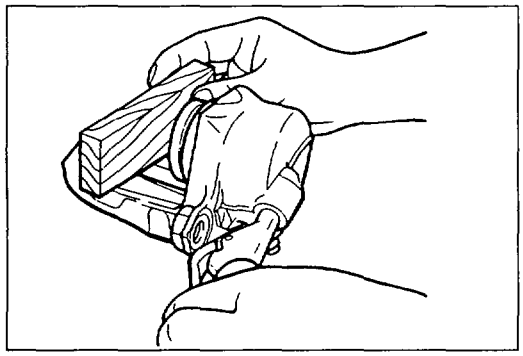
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Install in the reverse order of removal.

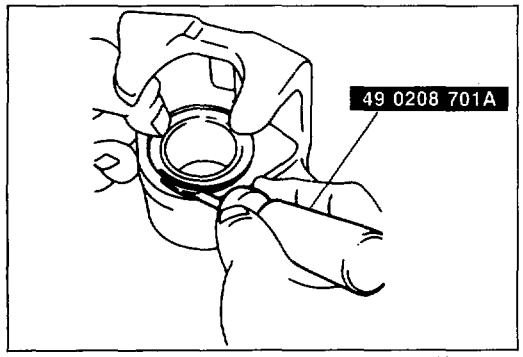


25U0PX-015

1. Dust seal
   Inspect for damage and poor sealing
2. Piston
   Disassembly Note..... page P–26
   Inspect for wear and rust
3. Piston seal
   Disassembly Note..... page P–26
4. Bleeder screw and bleeder cap
5. Caliper body
   Inspect for damage and cracks



9MU0PX-075



15U0PX-035

Disassembly note

Piston

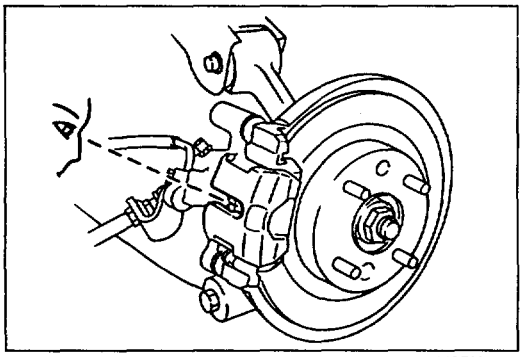
Place a piece of wood in the caliper; then blow compressed air through the hole to force the piston out of the caliper.

Caution

- **Blow the compressed air slowly to prevent the piston from popping out.**

Piston seal

Remove the piston seal with the **SST**.


05U0PX-043

REAR BRAKE (DISC)

Quick Inspection, On-vehicle

Disc pad

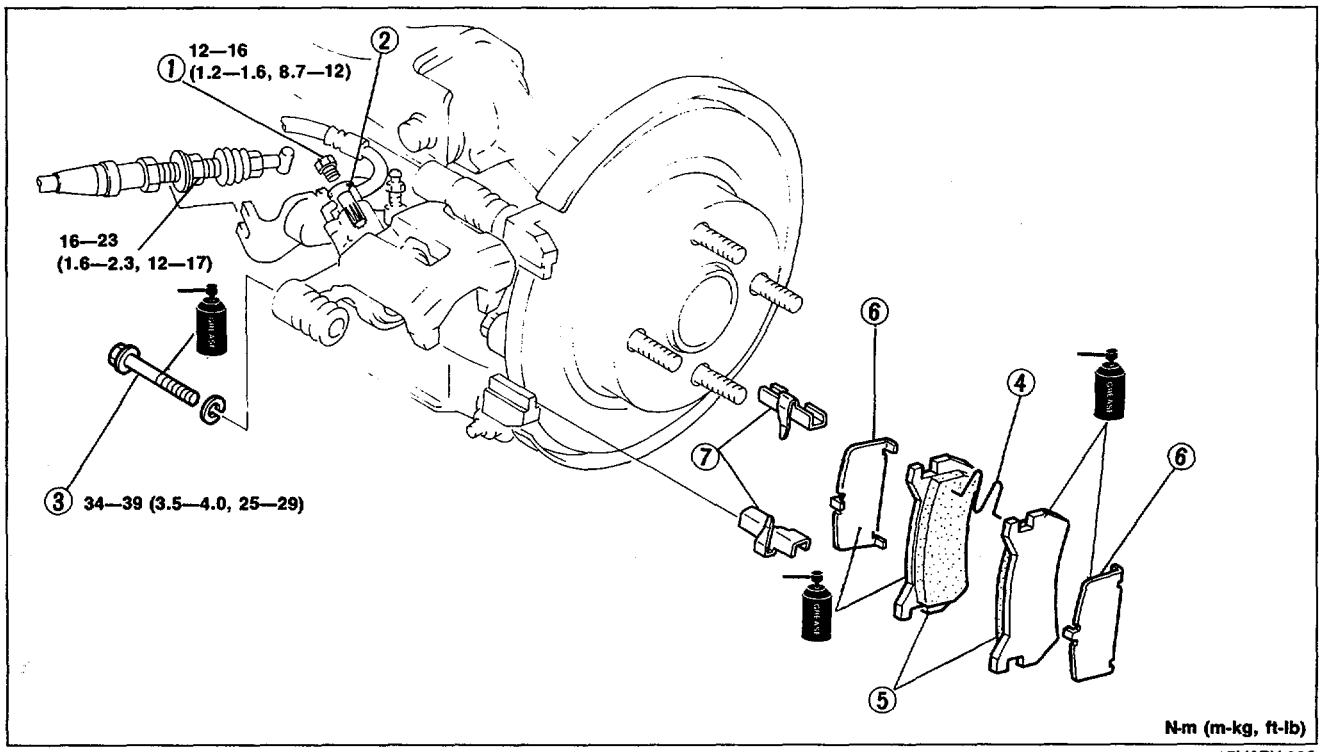
1. Jack up the rear of the vehicle and support it with safety stands.
2. Remove the wheels.
3. Sight through the caliper inspection hole and verify the remaining thickness of the pad.

Thickness: 1.0mm (0.04 in) min.

Replacement

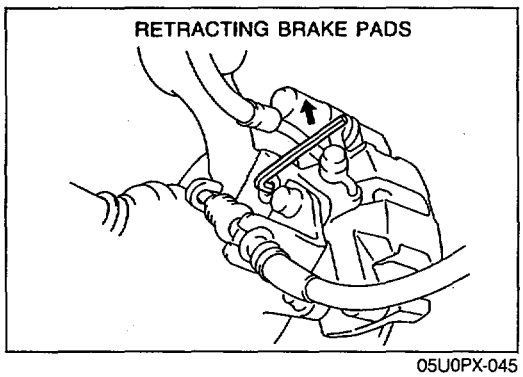
Disc pad

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.



15U0PX-036

1. Plug
2. Manual adjustment gear
   - Removal Note ..... page P–27
   - Installation Note ..... page P–28
3. Lock bolt
4. M-spring
5. Disc pad
   - Inspection ..... page P–29
6. Shim
7. Guide plate

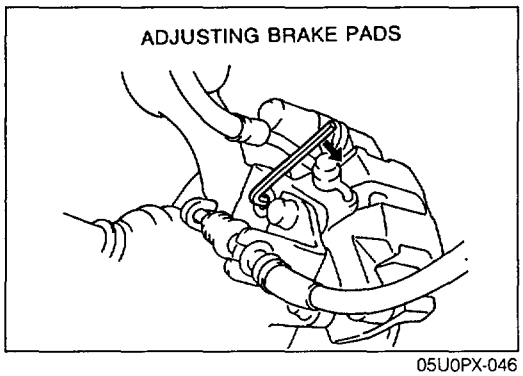


05U0PX-045

Removal note

Manual adjustment gear

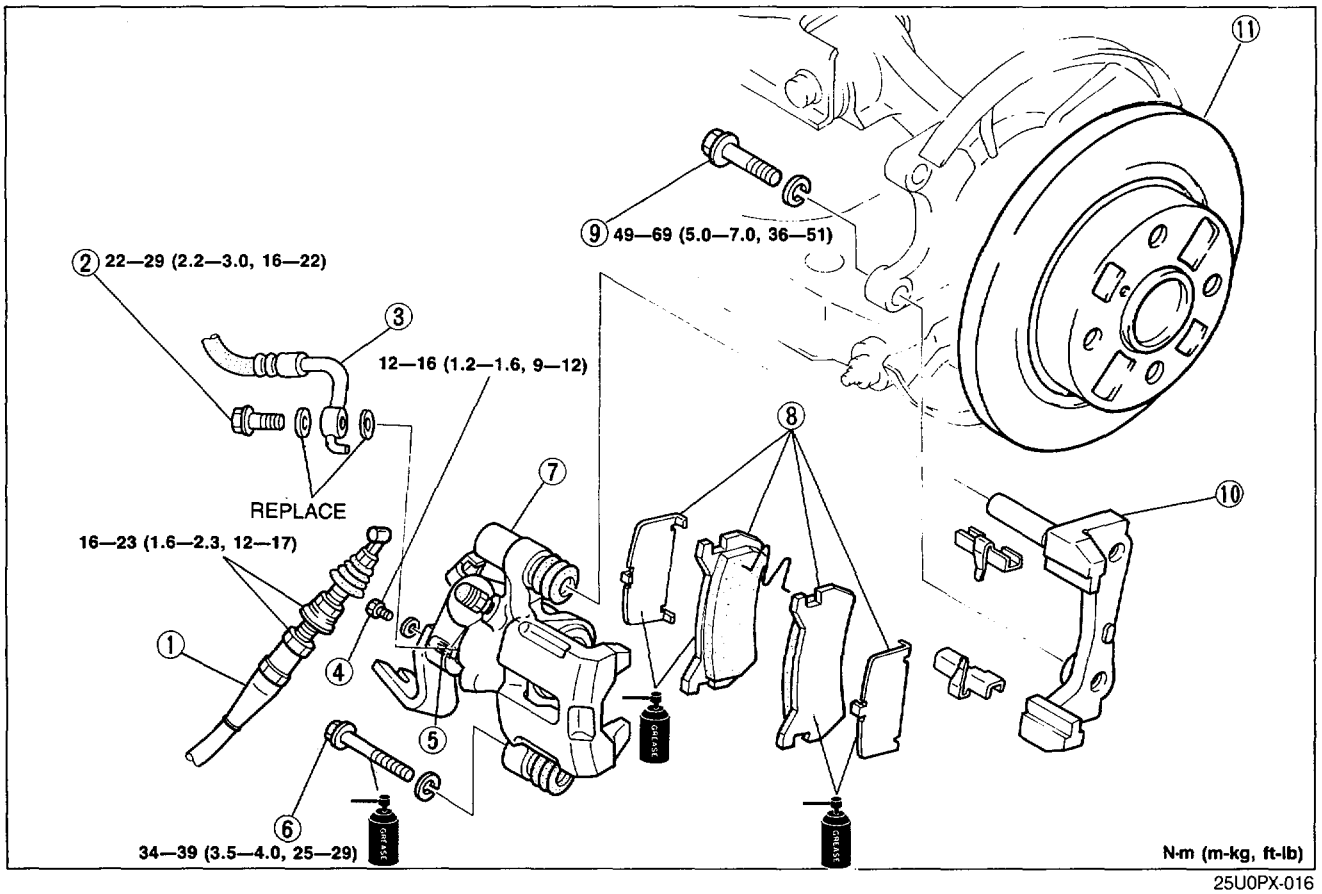
Turn the manual adjustment gear counterclockwise with an Allen wrench to pull the brake caliper piston back.



05U0PX-046

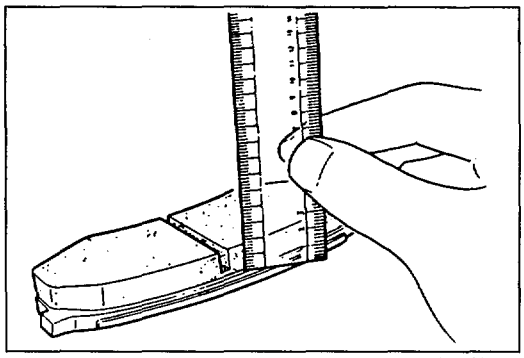
Installation note
Manual adjustment
1. Turn the manual adjustment gear clockwise until the brake pads just touch the disc plate.
2. Return the manual adjustment gear counterclockwise 1/3 turn.

Removal / Installation
Caliper
1. Jack up the rear of the vehicle and support it with safety stands.
2. Remove the wheels; then remove components in the order shown in the figure, referring to **Removal Note**.
3. Install in the reverse order of removal, referring to **Installation Note**.
4. Inspect all parts and repair or replace as necessary.
5. Tighten all nuts and bolts to the specified torques, referring to the figure.

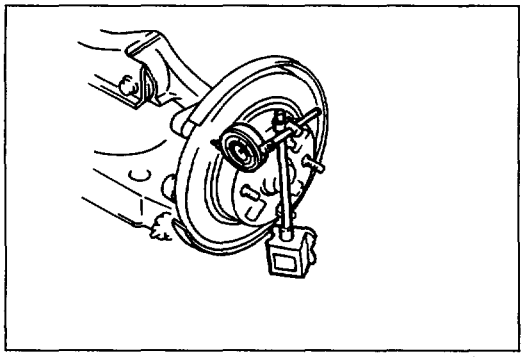


25U0PX-016

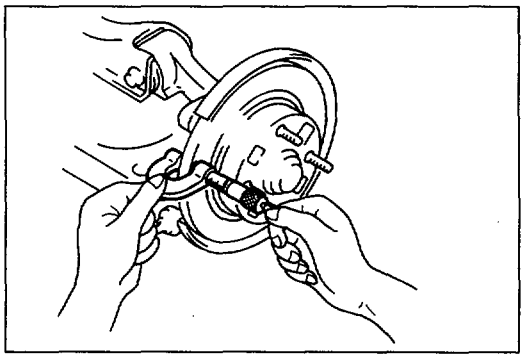
1. Parking brake cable
   Removal / Inspection / Installation ..... page P–34
2. Connecting bolt
3. Brake hose
4. Plug
5. Manual adjustment gear
   Removal Note ..... page P–27
   Installation Note ..... page P–28
6. Lock bolt
7. Caliper
   Disassembly / Inspection / Assembly ..... page P–30
8. Disc pad
   Replacement ..... page P–27
   Inspection ..... page P–29
9. Bolt
10. Mounting support
11. Disc plate
    Inspection ..... page P–29



25U0PX-017



15U0PX-038



05U0PX-050

Inspection
Check the following and repair or replace parts as necessary.

Disc pad
1. Oil or grease on facing.
2. Abnormal wear or cracks.
3. Deterioration or damage by heat.
4. Remaining lining thickness.

Specified thickness: 8.0mm (0.31 in)
Minimum : 1.0mm (0.04 in)

Disc plate
1. Runout.

Runout: 0.1mm (0.004 in) max.

Caution
- **Tighten the disc plate to the wheel hub with two wheel nuts.**
- **The measurement must be taken at the outer edge of the disc plate surface.**

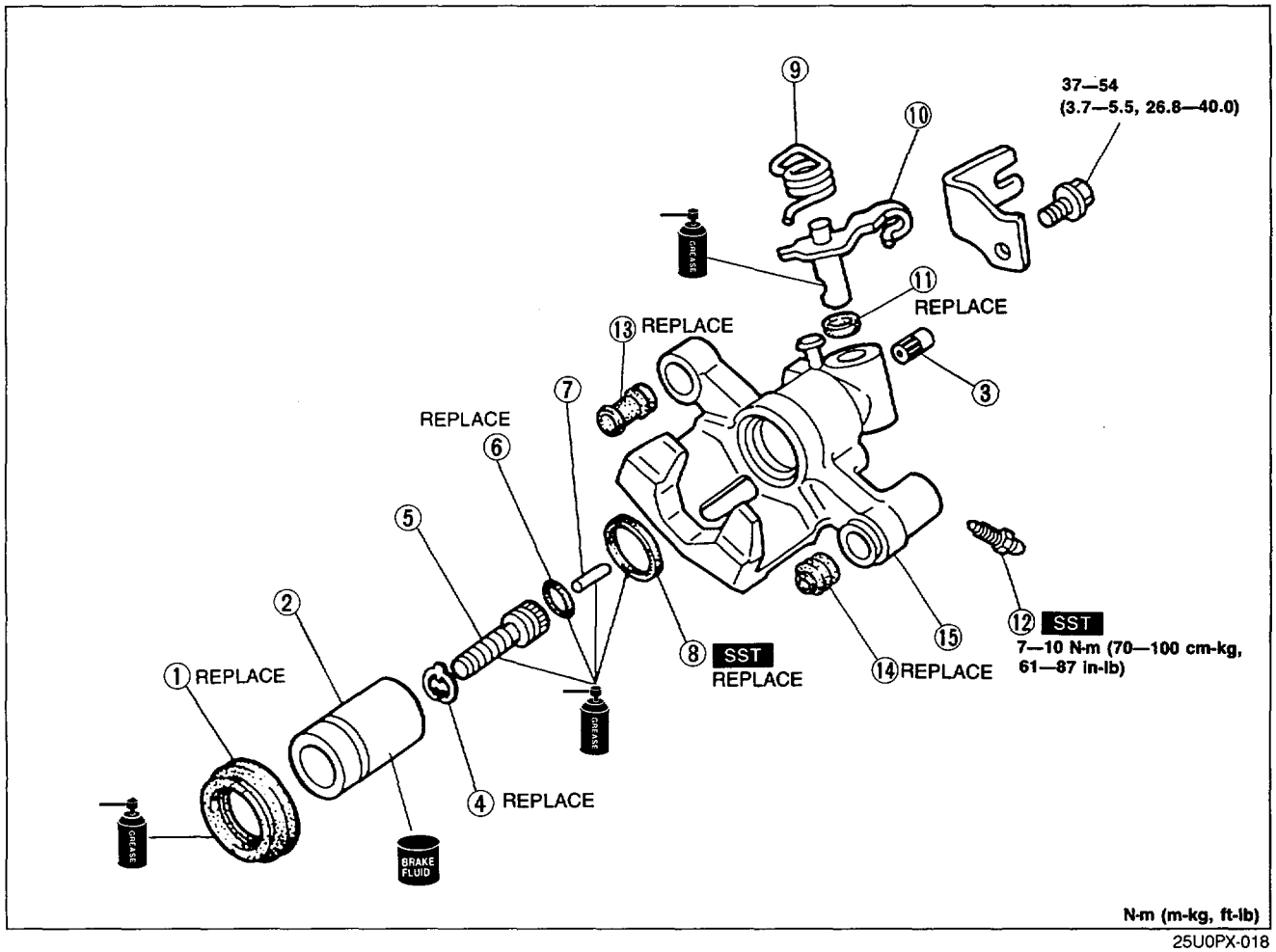
2. Wear or damage.

Thickness
Standard: 9.0mm (0.35 in)
Minimum: 7.0mm (0.28 in)

CALIPER

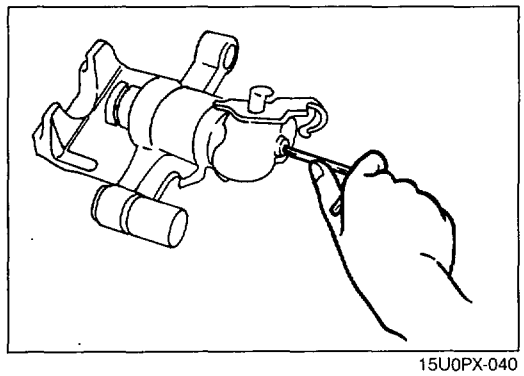
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



25U0PX-018

1. Dust seal
   Inspect for damage and poor sealing
2. Piston
   Disassembly Note..... page P–30
   Assembly Note..... page P–31
   Inspect for wear and rust
3. Manual adjustment gear
4. Snap ring
5. Adjusting bolt
6. O-ring
7. Connecting link
8. Piston seal
   Disassembly Note..... page P–31
9. Spring
10. Operating lever
11. Boot
12. Cap and bleeder screw
13. Boot
14. Boot
15. Caliper body
    Inspect for damage and cracks

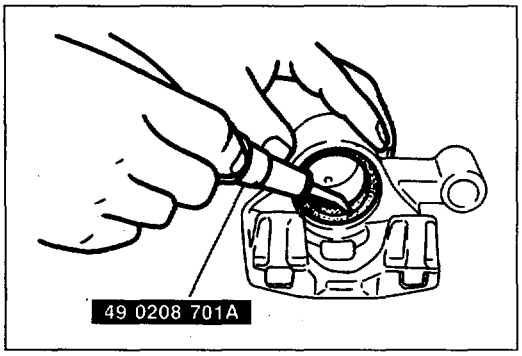


15U0PX-040

Disassembly note

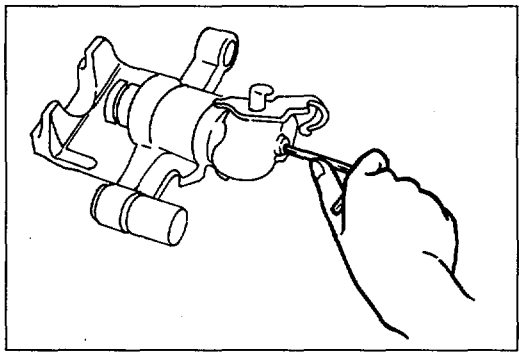
Piston

1. Turn the manual adjustment gear clockwise with an Allen wrench. (Turn the manual adjustment gear until it turns easily.)
2. Remove the piston.



86U11X-093

Piston seal
Remove the piston seal with the **SST**.



15U0PX-041

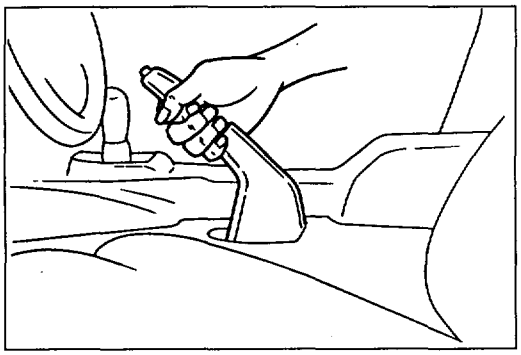
Assembly note
Piston
Insert the piston into the caliper and turn the adjustment gear counterclockwise with an Allen wrench to pull the piston in fully. (Turn the adjustment gear until it stops.)

PARKING BRAKE SYSTEM

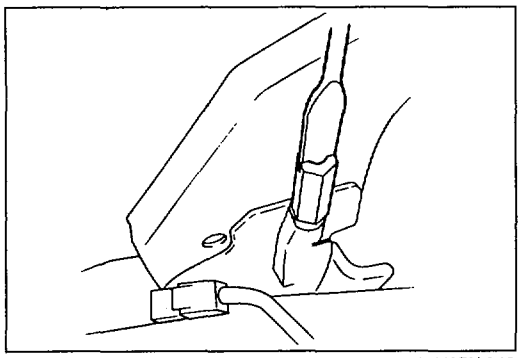
TROUBLESHOOTING GUIDE

Problem	Possible cause	Action	Page
Brakes do not release	Improper return of parking brake cable or improper adjustment	Repair or adjust	P–34
Parking brake does not hold well	Excessive lever stroke Brake cable stuck or damaged Brake fluid or oil on pads Hardening of pad surfaces or poor contact	Adjust Repair or replace Clean or replace Grind or replace	P–32 P–34 P–27,29 P–27,29

25U0PX-026



05U0PX-056



15U0PX-043

PARKING BRAKE LEVER

Inspection

1. Depress the brake pedal several times.
2. Verify that the stroke is within specification when the parking brake lever is pulled with a force of **98 N (10 kg, 22 lb)**.

Stroke: 5—7 notches

Adjustment

1. Jack up the rear of the vehicle until the wheels are free to turn and support it with stands.
2. Depress the brake pedal several times.
3. Remove the cover.
4. Turn the adjusting nut to adjust the lever stroke.
5. Check that the parking brake warning light illuminates when the brake lever is pulled one notch.

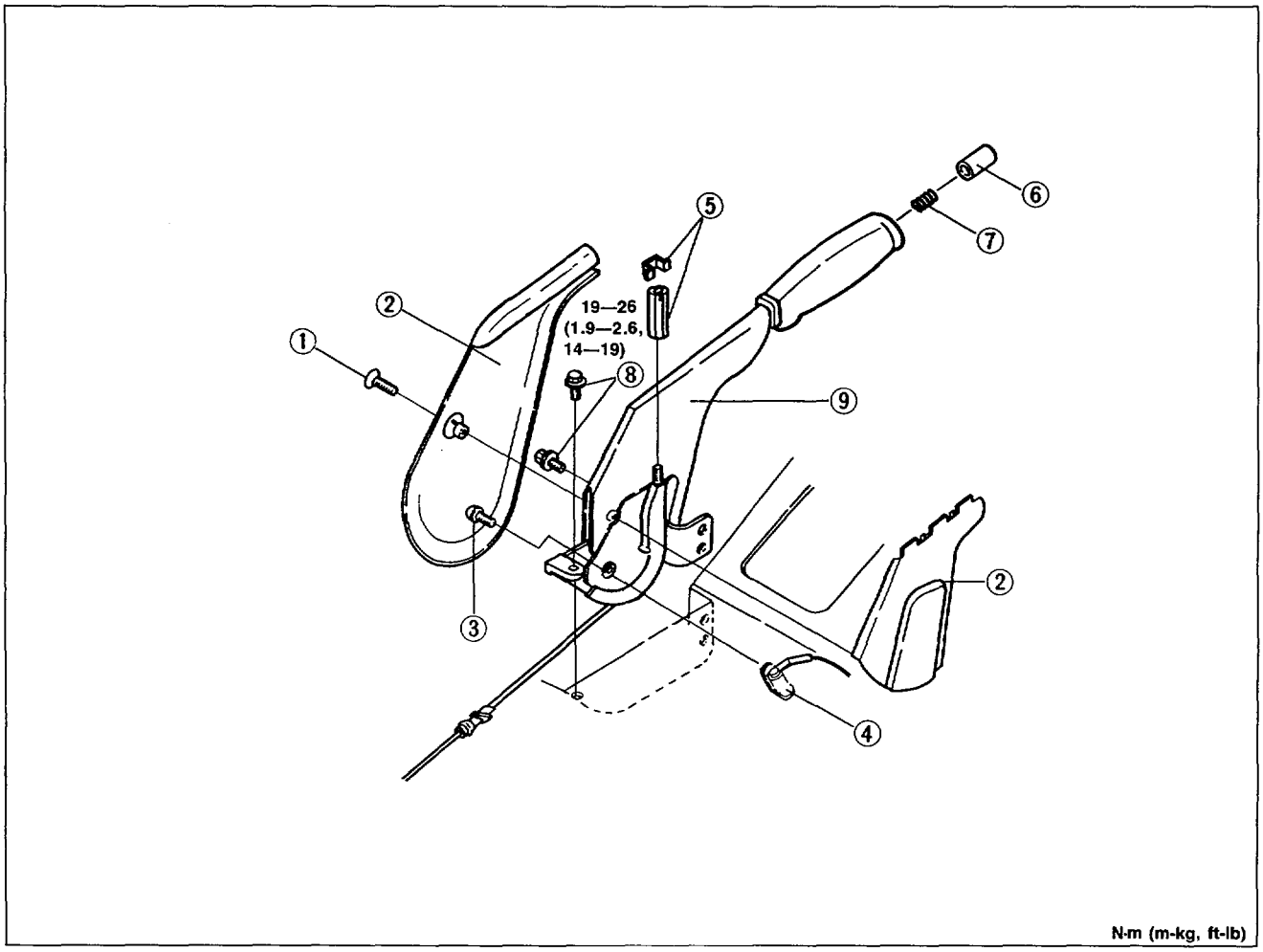
Caution

- **Verify that the brakes do not drag.**

6. Lower the vehicle.

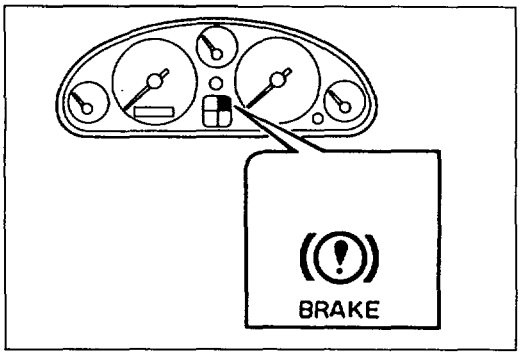
Removal / Inspection / Installation

1. Block the wheels firmly.
2. Release the parking brake.
3. Remove in the order shown in the figure.
4. Inspect all parts and repair or replace as necessary.
5. Install in the reverse order of removal, referring to **Installation Note**.
6. After installation:
   Adjust the parking lever stroke. (Refer to page P–32.)



15U0PX-044

1. Screw
2. Cover
3. Bolt
4. Parking brake switch
   Installation Note ..... page P–33
5. Adjusting nut and clip
6. Release button
7. Spring
   Inspect for weakness
8. Bolt
9. Parking brake lever
   Inspect for damage and cracks



9MU0PX-110

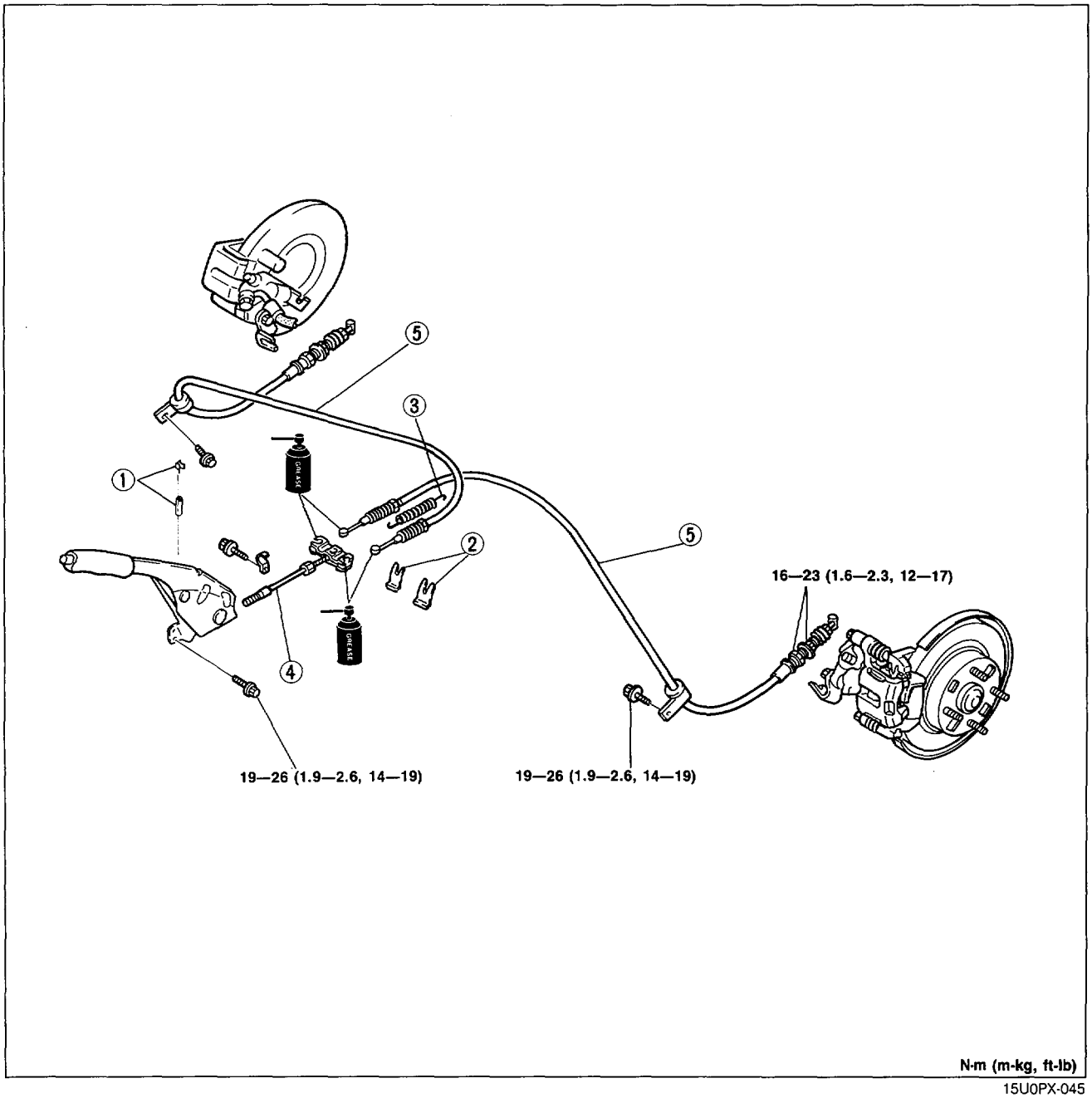
Installation note
Parking brake switch

1. Install the parking brake switch so that it contacts the parking brake lever when the lever is fully released.
2. Turn the ignition switch ON, and check that the parking brake warning lamp illuminates with the lever pulled one notch.

PARKING BRAKE CABLE

Removal / Inspection / Installation

1. Block the wheels firmly.
2. Release the parking brake.
3. Remove the parking brake lever.
4. Jack up the vehicle and support it with safety stands.
5. Remove the parking brake cable in the order shown in the figure.
6. Install in the reverse order of removal.
7. After installation:
   (1) Adjust the parking brake lever stroke. (Refer to page P–32.)
   (2) Depress the brake pedal a few times.
   (3) Verify that the rear brakes do not drag while the wheels are rotated by hand.



15U0PX-045

1. Adjusting nut and clip
2. Clip
3. Spring
   Inspect for weakness
4. Front cable
   Inspect for damage
5. Rear cable
   Inspect for damage

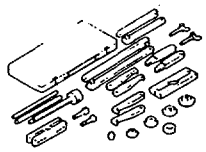
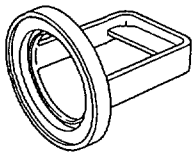
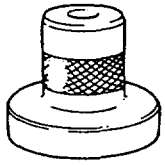
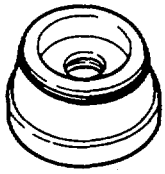
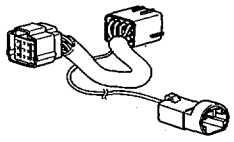
ANTI-LOCK BRAKE SYSTEM (ABS)

DESCRIPTION

1. There is the following distinctive characteristics in the ABS vehicles compared with the non-ABS vehicles. Note that it does not indicate malfunction.
   - When the brakes are applied rapidly or on a slippery road surface, the ABS will activate; the brake pedal will pulsate slightly and the vehicle and the steering wheel will vibrate slightly.
   - When the vehicle speed reaches approx. 6 km/h (3.8 mph), the pump motor sound is heared momentarily. This sound is due to the self-diagnosis of ABS.
2. By retaining or reducing the hydraulic fluid pressure in the hydraulic unit, the ABS tester is used to locate the cause of a problem within the anti-lock brake system.
   Because there is no way to check the ABS control unit itself, replace the control unit assembly only after first confirming that the other electrical parts operate normally.

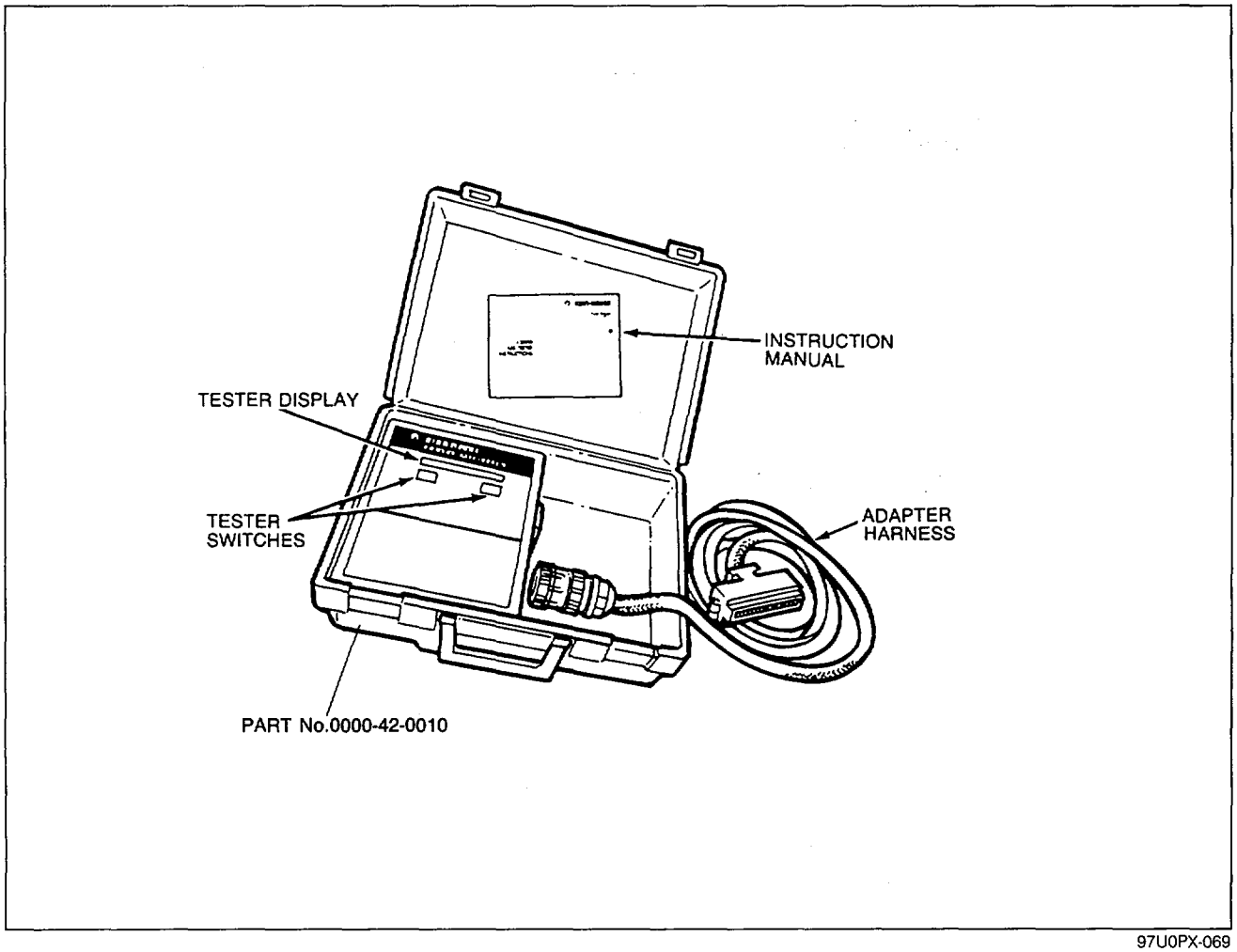
97U0PX-067

PREPARATION
SST

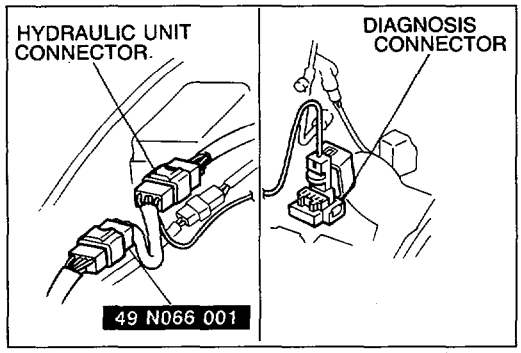
49 0259 770B Wrench, flare nut	For removal and installation of brake pipe	49 0839 425C Puller set, bearing 	For removal of sensor rotor (front)
49 H026 101A Installer, sensor rotor 	For installation of sensor rotor (rear)	49 V001 795 Installer, oil seal 	For installation of sensor rotor (front)
49 F027 007 Attachment ϕ72 	For removal of sensor rotor (front)	49 N066 001 Harness, adapter 	For connection of ABS tester

15U0PX-046

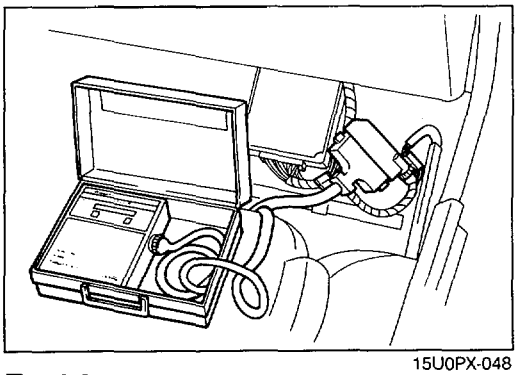
TROUBLESHOOTING GUIDE
Troubleshooting Guide with ABS Tester
ABS tester



97U0PX-069



15U0PX-047



15U0PX-048

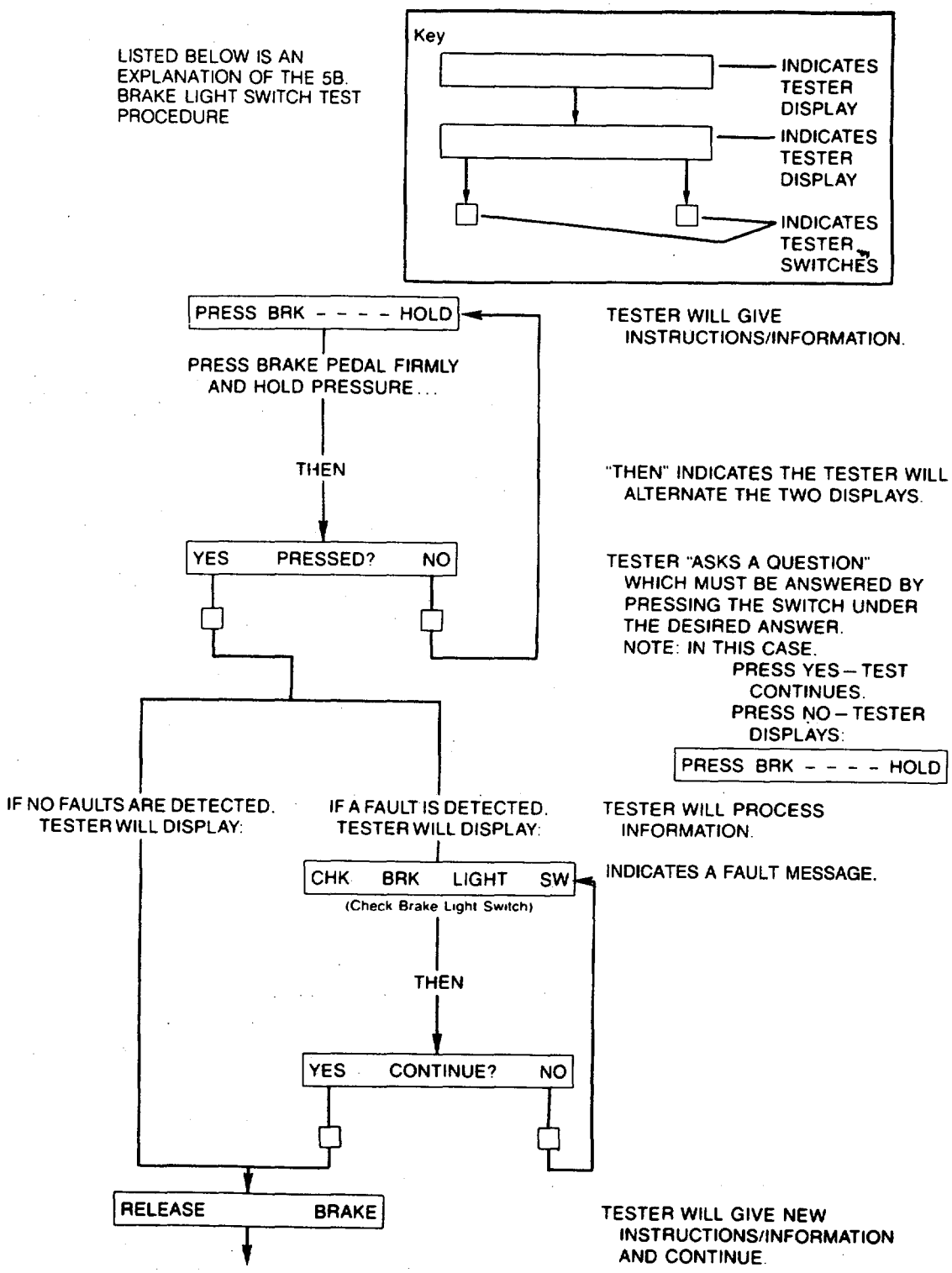
Connecting ABS tester

1. Switch the ignition switch OFF.
2. Connect the **SST** to the hydraulic unit connectors and the diagnosis connector.
3. Roll back the carpet and remove the protecter.
4. Connect the ABS tester to the control unit connector at harness side using the adaptor.

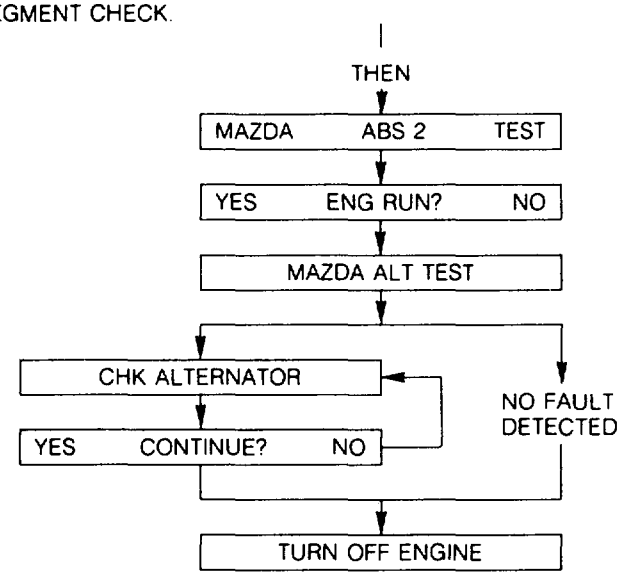
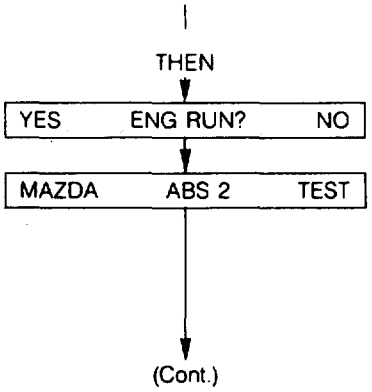
Caution

- **Do not drive with the tester connected.**

Using ABS tester



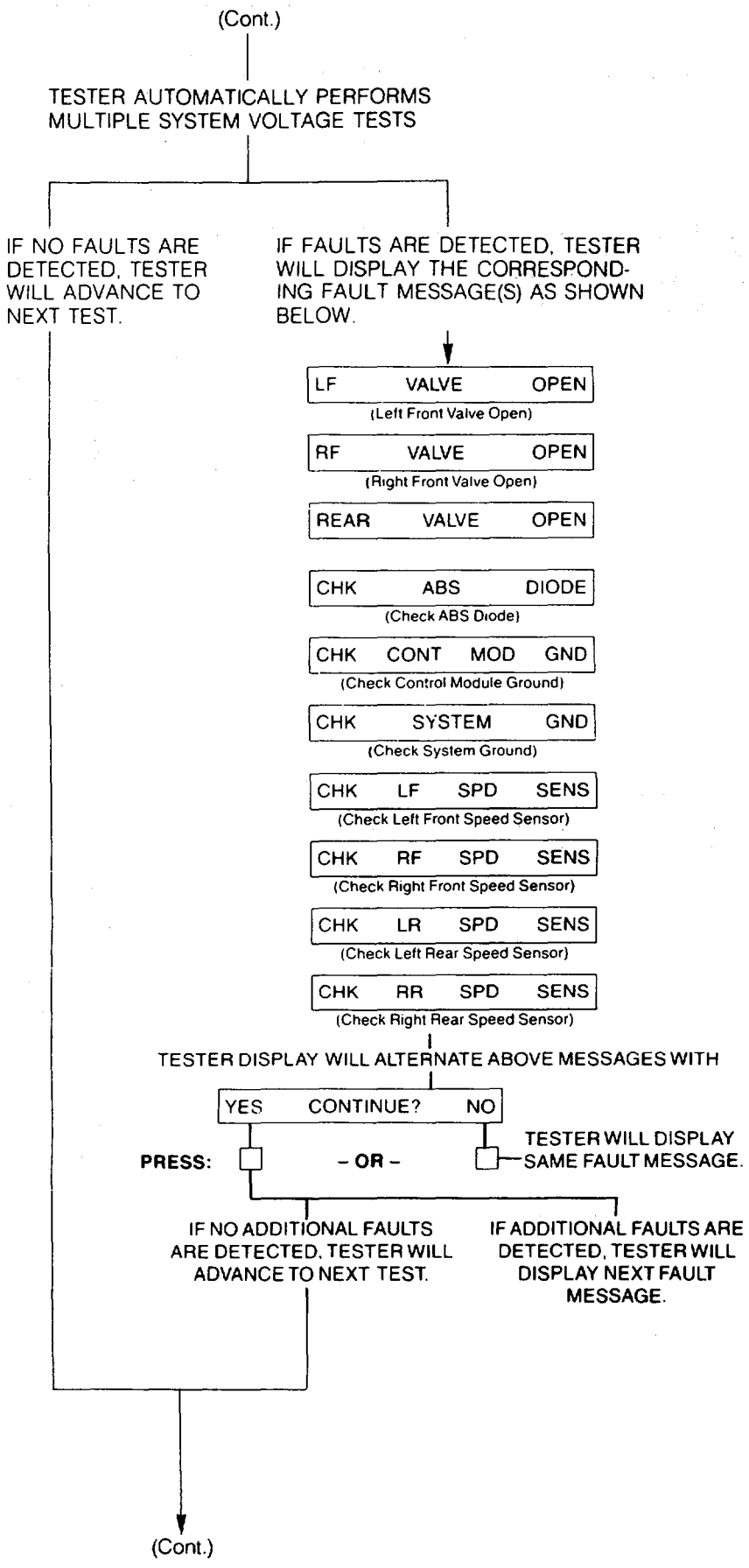
Troubleshooting procedure

ITEM	
1. CONNECTION/POWER-UP	1. LOCATE ABS CONTROL UNIT. 2. DISCONNECT CONTROL UNIT HARNESS CONNECTOR FROM CONTROL UNIT. 3. CONNECT ABS TESTER HARNESS TO CONTROL UNIT HARNESS CONNECTOR. 4. TURN IGNITION KEY TO ON POSITION.
2. ALTERNATOR TEST START ENGINE (ALTERNATOR TESTED BY RUNNING ENGINE)	TESTER WILL RAPIDLY DISPLAY SEVERAL MESSAGES DURING AN INITIAL SEGMENT CHECK. 
3. ABS SYSTEM TEST TURN IGNITION KEY ON (DO NOT RUN ENGINE)	TESTER WILL RAPIDLY DISPLAY SEVERAL MESSAGES DURING AN INITIAL SEGMENT CHECK. 

15U0PX-074

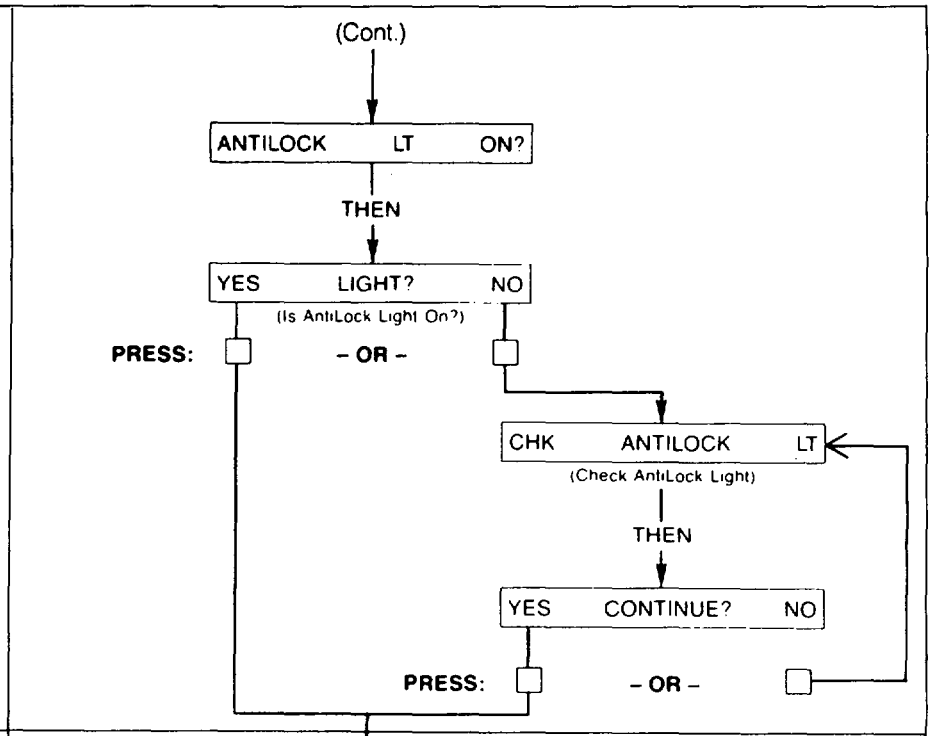
4. SYSTEM VOLTAGE CHECKS

* AFTER DISPLAY INDICATES A FAULT MESSAGE, REFER TO APPLICABLE SHOP MANUAL FOR ADDITIONAL DIAGNOSTIC INFORMATION.

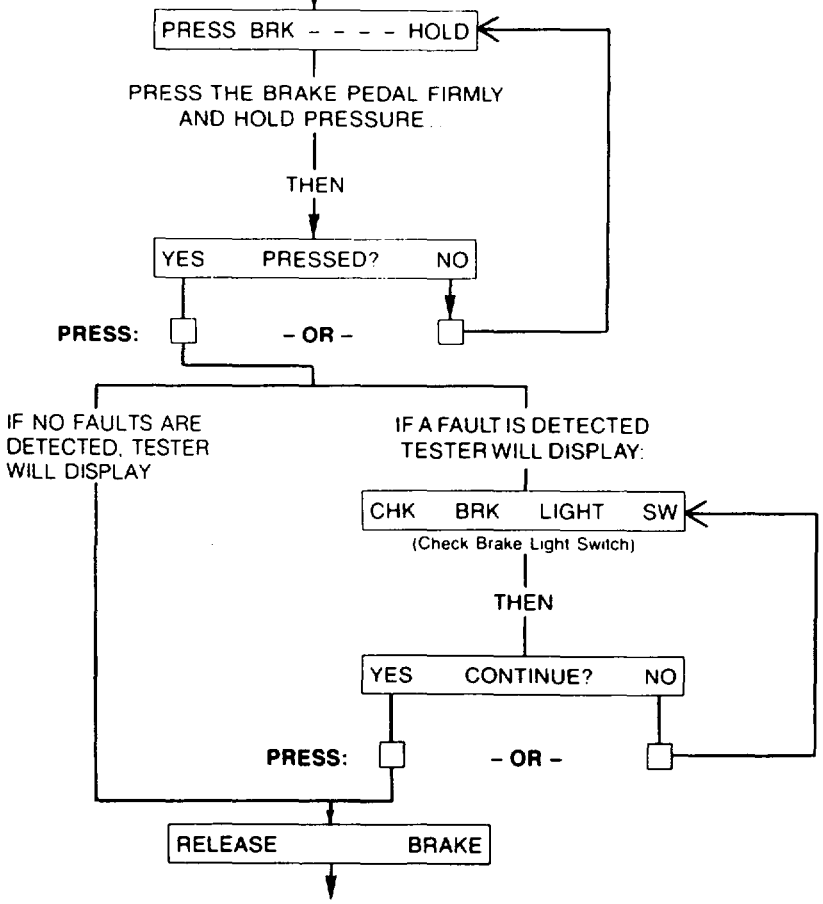


5. STATIC TESTS

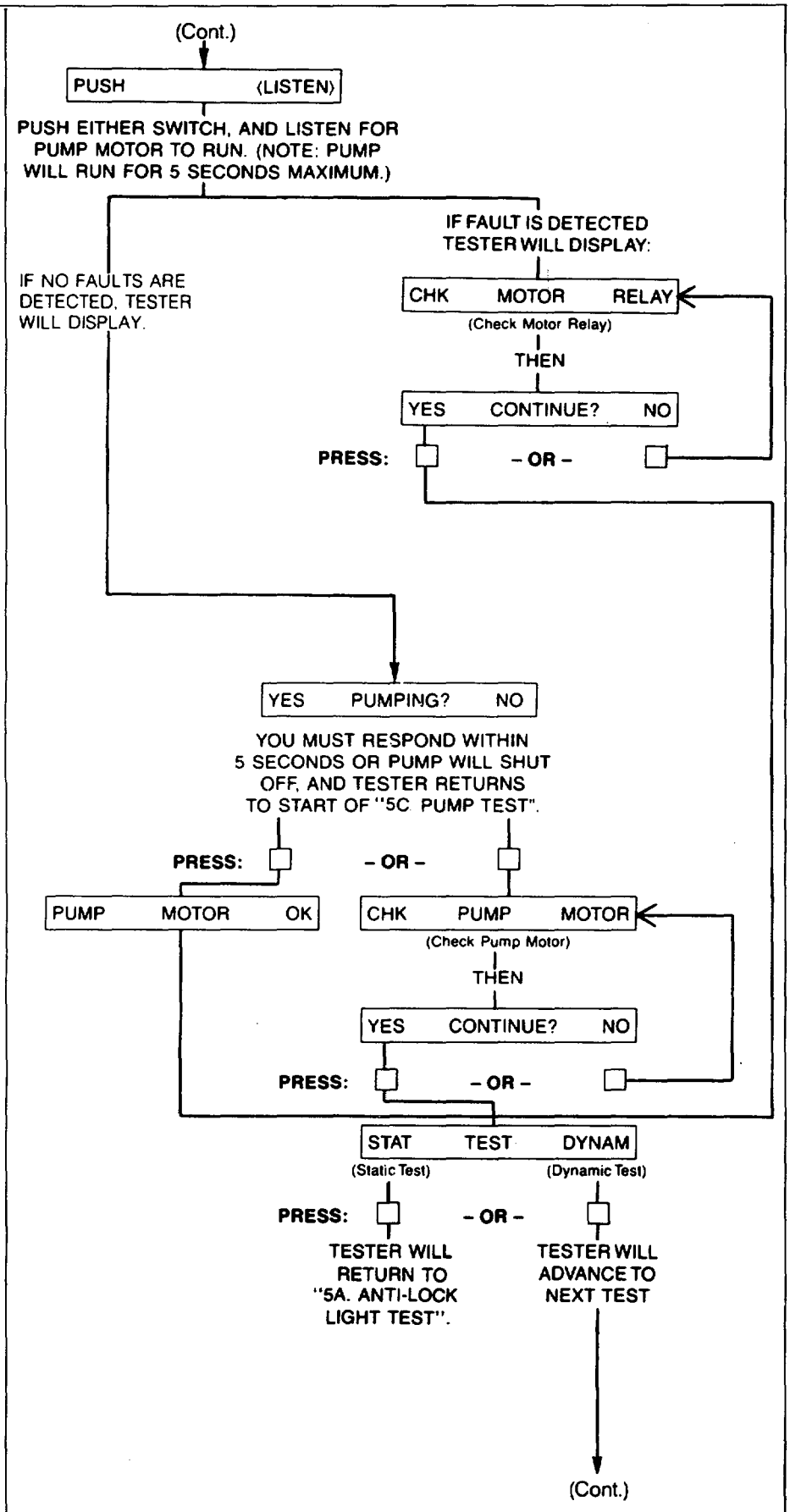
5A. ANTI-LOCK LIGHT TEST



5B. BRAKE LIGHT SWITCH TEST



5C. PUMP TEST


(Cont.)
PUSH (LISTEN)
PUSH EITHER SWITCH, AND LISTEN FOR PUMP MOTOR TO RUN. (NOTE: PUMP WILL RUN FOR 5 SECONDS MAXIMUM.)
IF FAULT IS DETECTED TESTER WILL DISPLAY:
IF NO FAULTS ARE DETECTED, TESTER WILL DISPLAY.
CHK MOTOR RELAY
(Check Motor Relay)
THEN
YES CONTINUE? NO
PRESS:
- OR -
YES PUMPING? NO
YOU MUST RESPOND WITHIN 5 SECONDS OR PUMP WILL SHUT OFF, AND TESTER RETURNS TO START OF "5C PUMP TEST".
PRESS:
- OR -
PUMP MOTOR OK
CHK PUMP MOTOR
(Check Pump Motor)
THEN
YES CONTINUE? NO
PRESS:
- OR -
STAT TEST DYNAM
(Static Test)
(Dynamic Test)
PRESS:
- OR -
TESTER WILL RETURN TO "5A. ANTI-LOCK LIGHT TEST".
TESTER WILL ADVANCE TO NEXT TEST
(Cont.)

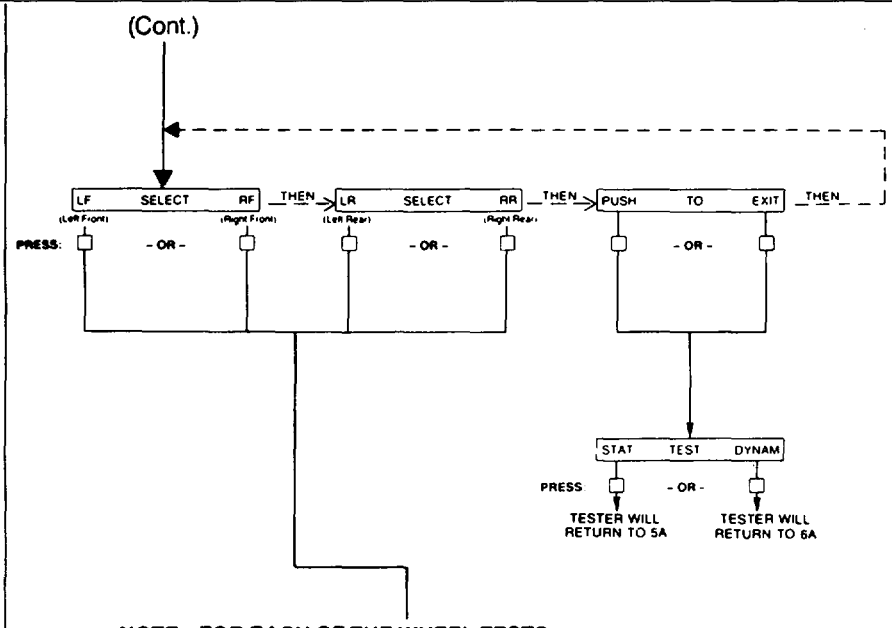
6. DYNAMIC TESTS
6A. WHEEL SELECTION OR EXIT

THESE THREE MESSAGES WILL ALTERNATE ON THE DISPLAY SCREEN AT 3 1/2 SECOND INTERVALS. NOW, SELECT ONE OF THE FOUR WHEELS TO BEGIN THE DYNAMIC TEST SEQUENCE.

OR

PRESS EITHER SWITCH UNDER "PUSH TO EXIT" DISPLAY TO RETURN TO "STAT TEST DYNAM" SELECTION.

IMPORTANT:
WHEN ENTERING THE DYNAMIC TEST SEQUENCE, YOU WILL SELECT ONE OF FOUR WHEELS TO BEGIN. WHEN YOU HAVE FINISHED WITH THAT WHEEL TEST, YOU SHOULD RETURN TO 6A "WHEEL SELECTION", TO SELECT ANOTHER WHEEL, AND REPEAT THESE TEST PROCEDURES FOR ALL FOUR WHEELS.



NOTE: FOR EACH OF THE WHEEL TESTS, IT IS NECESSARY TO RAISE THE WHEEL(S) BEING TESTED OFF THE FLOOR. (WHEN TESTING REAR WHEELS, BOTH WHEELS MUST BE RAISED OFF THE FLOOR.) AN ASSISTANT WILL BE REQUIRED TO SPIN THE WHEELS.

6B. WHEEL SENSOR TEST

SPIN __ __ TIRE

DISPLAY WILL SHOW THE WHEEL WHICH YOU SELECTED IN TEST 6A

HAVE YOUR ASSISTANT SPIN THE WHEEL INDICATED WHILE YOU WATCH THE TESTER. IF SPEED IS INCORRECT, TESTER WILL DISPLAY:

SPIN FASTER

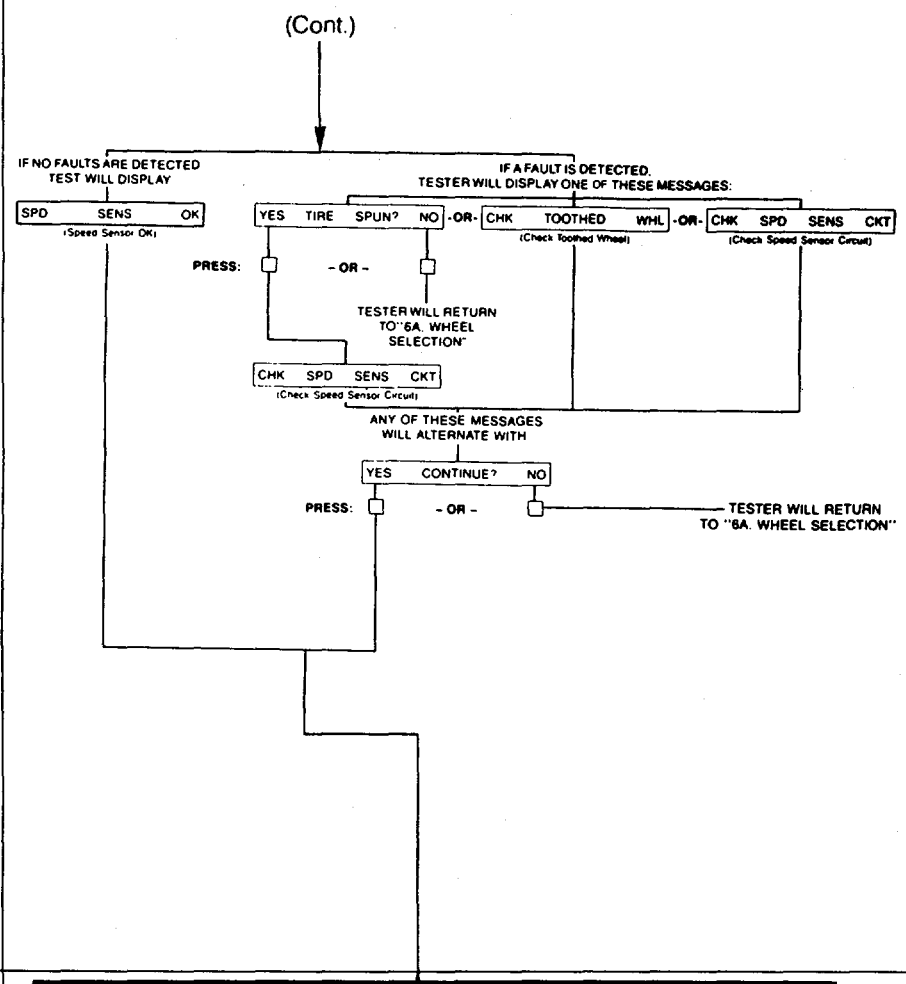
OR

SPIN SLOWER

...ADVISE YOUR ASSISTANT AS INDICATED...

(Cont.)

6B. WHEEL SENSOR TEST



6C. SOLENOID TEST

NOTE: EACH OF THE TWO SOLENOID TESTS FOR EACH WHEEL CAN BE CONDUCTED FOR A MAXIMUM OF 15 SECONDS. IF TIME LIMIT IS EXCEEDED, TESTER WILL DISPLAY:

TIMEOUT EXPIRED

THEN

TRY TEST AGAIN

PUSH TEST 1

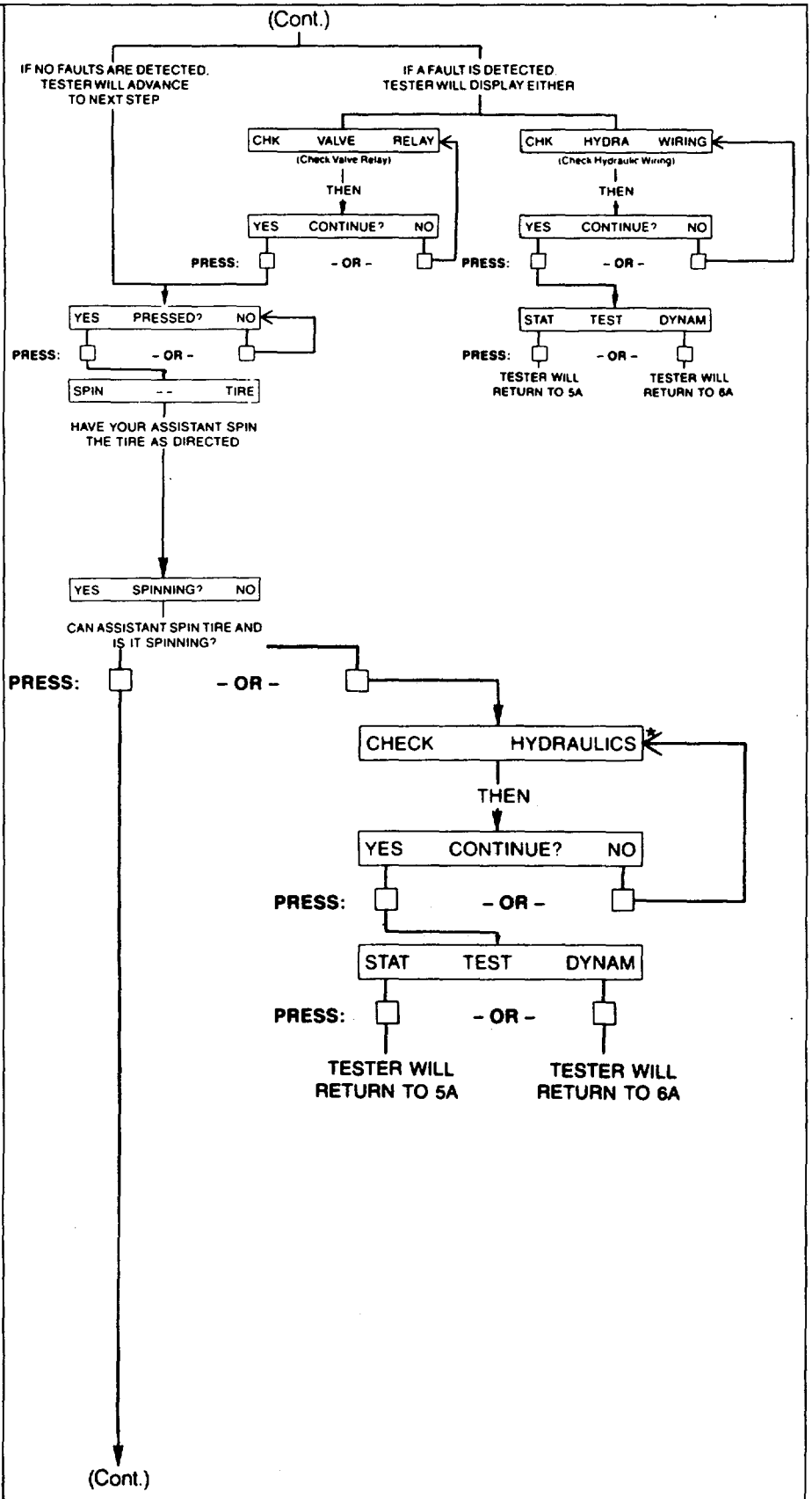
PUSH EITHER SWITCH TO START THIS TEST. TESTER WILL DISPLAY:

PRESS BRK... HOLD

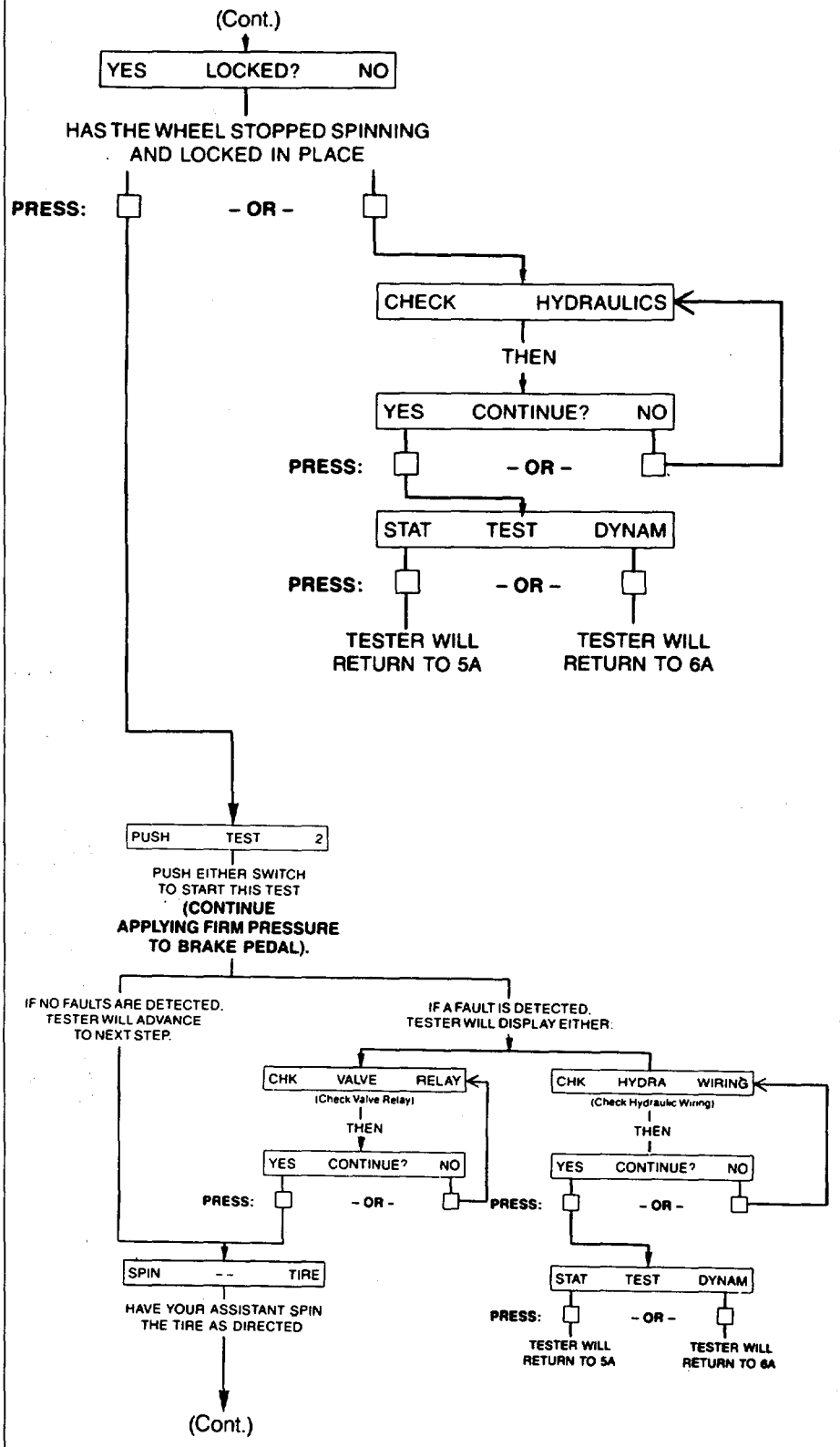
APPLY FIRM PRESSURE TO BRAKE PEDAL, AND HOLD FIRMLY THROUGH SOLENOID TEST 1 AND TEST 2.

(Cont.)

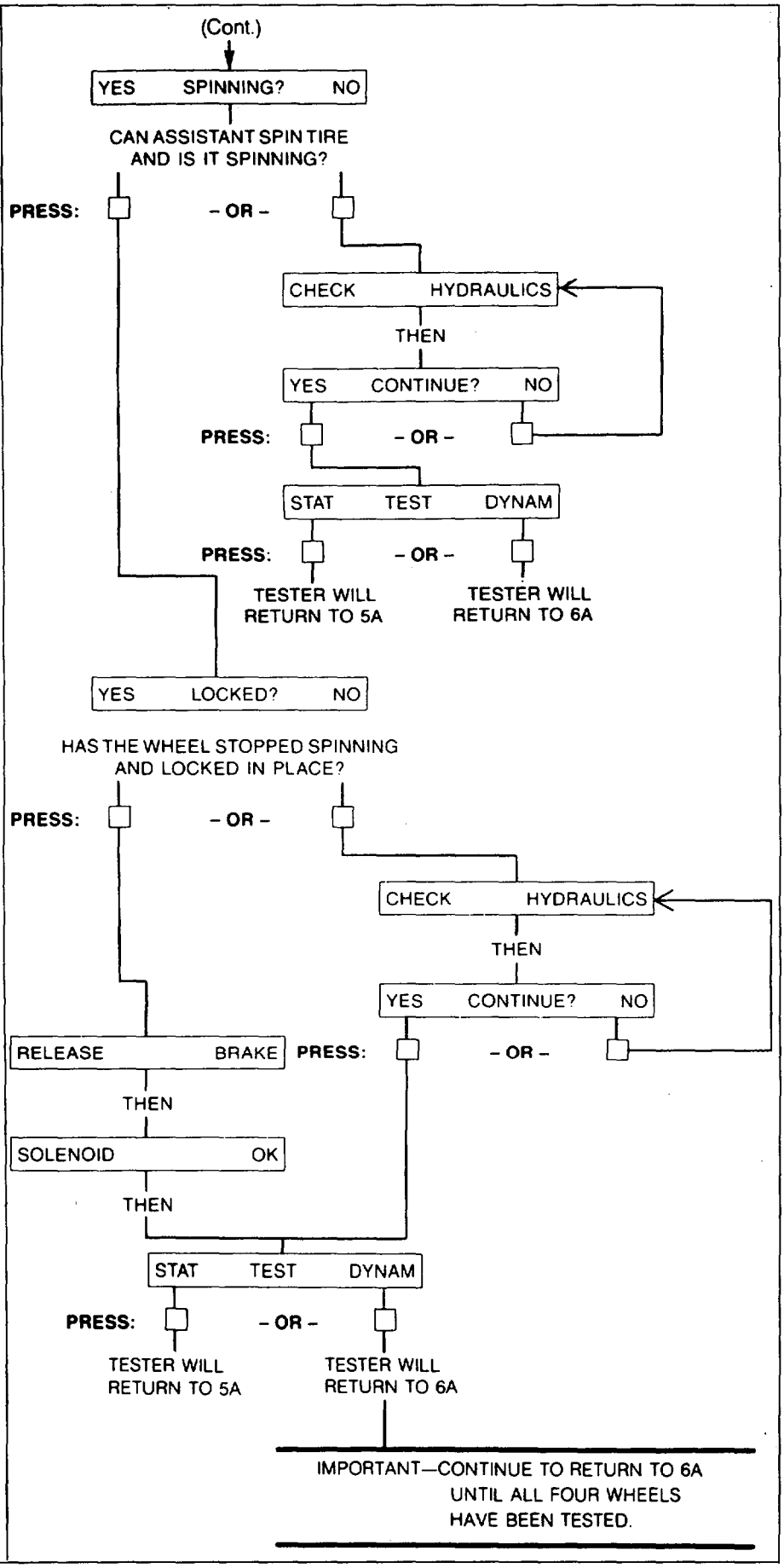
6C. SOLENOID TEST

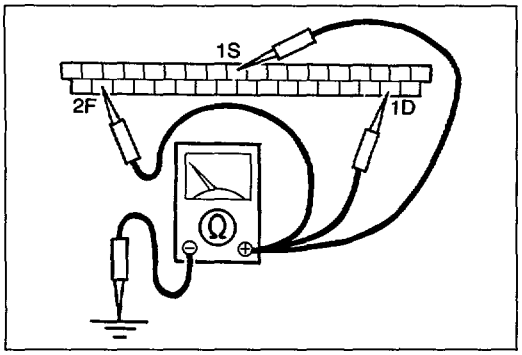


6C. SOLENOID TEST

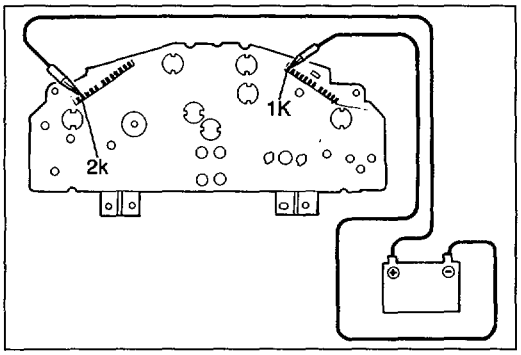


6C. SOLENOID TEST

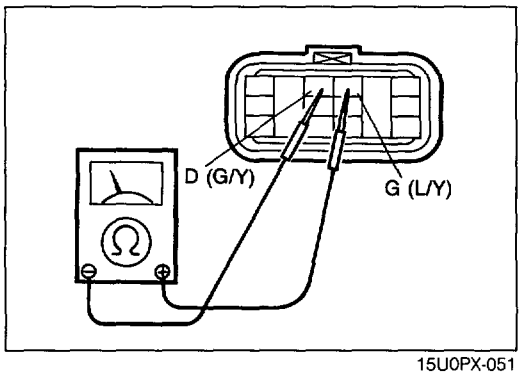




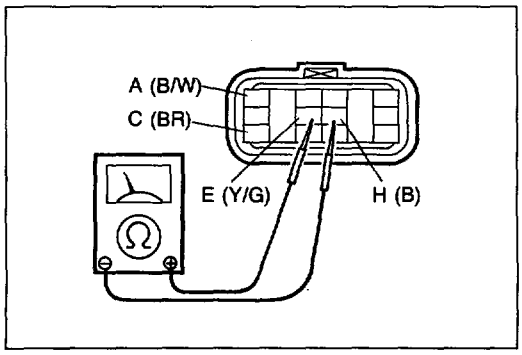
15U0PX-049



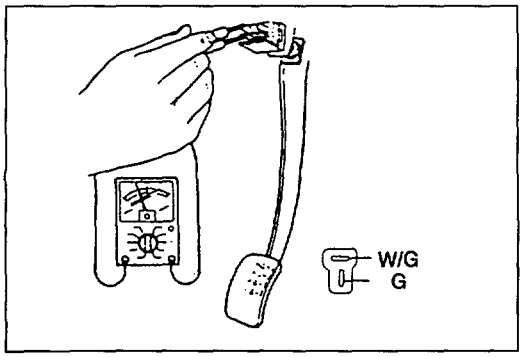
15U0PX-050



15U0PX-051



15U0PX-052



15U0PX-054

Inspection of ABS system

Check system ground

Check for an open circuit in (B) wire from terminals 1D, 1S, 2F of the control unit connector and ground.

Caution

- **When checking control unit terminals, do not use ordinary tester pins. Use only very thin pins to prevent damage to the terminals.**

Check anti-lock warning light

1. Remove the instrument cluster.
2. Connect 12V to terminal 2K (C-01) and ground to terminal 1K (C-01).
3. Check that the ABS warning light illuminates.
4. If there is no illumination, check the meter fuse, bulb, and wiring harness.
5. If OK, check the wiring harness (Warning light — Control unit — Hydraulic unit) and repair or replace as necessary.

Check ABS diode

1. Check the meter fuse, bulb, and wiring harness.
2. Check the wiring harness (Warning light — Control unit — Hydraulic unit).
3. Disconnect the hydraulic unit 12-pin connector.
4. Using an ohmmeter, check for continuity of the terminals.

Terminal	Continuity
G (L/Y) D (GY)	Yes
D (GY) G (L/Y)	No

5. If continuity is not as specified, replace the hydraulic unit.

Check front and rear valves

1. Disconnect the hydraulic unit 12-pin connector.
2. Using an ohmmeter, check for resistance of the terminals.

	Resistance (Ω)
E (Y/G)-H (B) (Rear Valve)	Approx. 1.0—1.2
C (BR)-H (B) (Right Front Valve)	Approx. 1.0—1.2
A (B/W)-H (B) (Left Front Valve)	Approx. 1.0—1.2

3. If resistance is not as specified, replace the hydraulic unit.
4. If resistance is as specified, check the wiring harness (Hydraulic unit — ABS control unit).

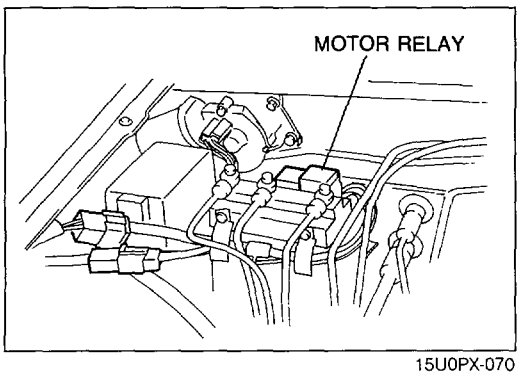
Check brake light switch

1. Disconnect the brake light switch connector.
2. Check for continuity between the terminals of the switch.

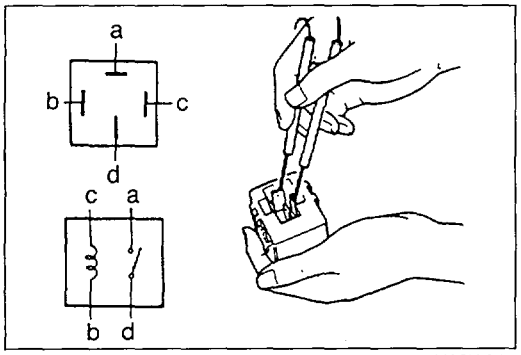
	a (W/G)	b (G)
Depressed brake pedal	O	O
Released brake pedal		

O—O: Indicates continuity

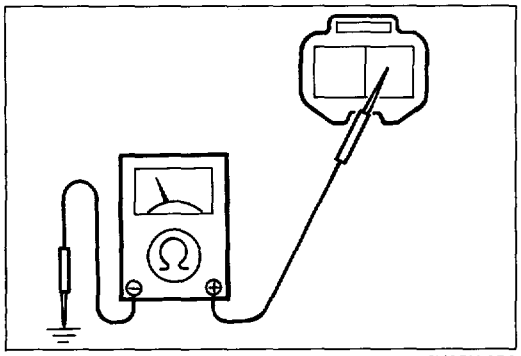
3. If the continuity is not as specified, check the STOP fuse and wiring harness (Brake light switch — Control unit).

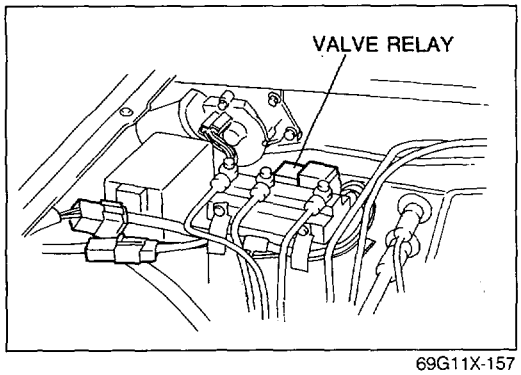


15U0PX-070

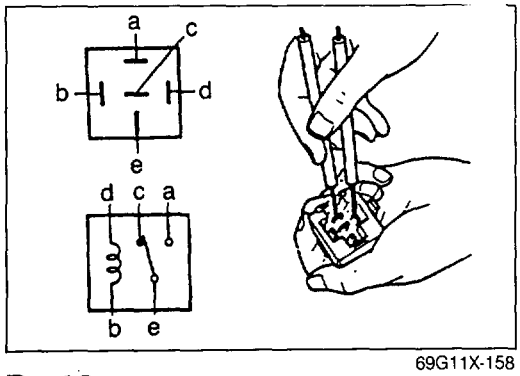


09U0PX-049


15U0PX-055



69G11X-157



69G11X-158

Check motor relay

1. Disconnect the negative battery cable.
2. Remove the motor relay.
3. Connect an ohmmeter and check for continuity at the relay terminals.

Connect to		a	b	c	d
12V	Ground				
—	—		○—○		
c	b	○			○

○—○: Indicates continuity

4. If continuity is not as specified, replace the motor relay.
5. If OK, check the wiring harness (Motor relay — Control unit main fuse [ABS 60A]).

Check pump motor

1. Disconnect the control unit 2-pin connector and check for continuity between terminal a (R/Y) wire and ground. If there is no continuity, replace the hydraulic unit.

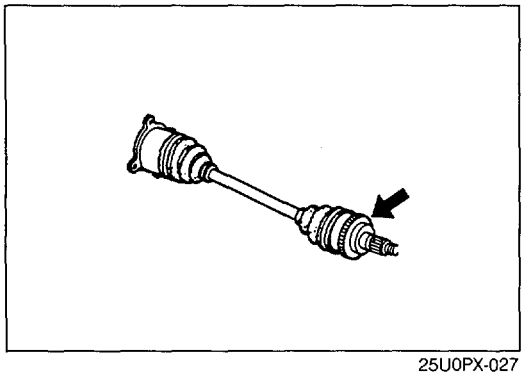
Check valve relay

1. Disconnect the negative battery cable.
2. Release the valve relay locks from the hydraulic unit and remove the valve relay.
3. Using an ohmmeter, check continuity of the relay terminals.

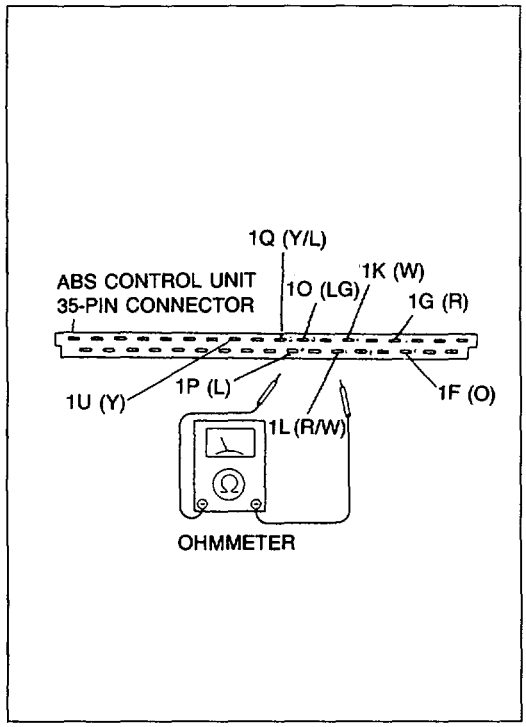
Connect to		a	b	c	d	e
12V	Ground					
—	—		○	○		○
b	d	○				○

○—○: Indicates continuity

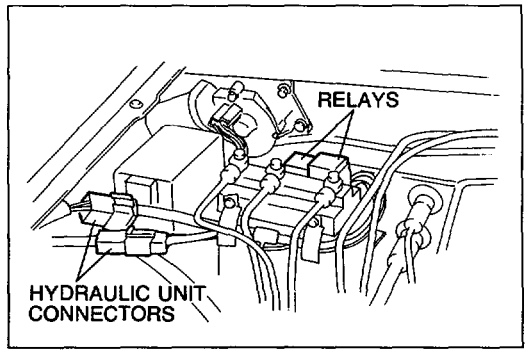
4. If continuity is not as specified, replace the valve relay.



25U0PX-027



15U0PX-056



09U0PX-076

Check rotor
Check the rotor for missing or damaged teeth and replace as necessary.

Check alternator
Refer to Section G.

Check wheel-speed sensor
1. Using an ohmmeter, check for continuity at the control unit connector terminals.

Sensor \ Terminal	1K	1G	1O	1Q	1U	1F	1L	1P
Left front	O—O							
Right front					O—O			
Left rear			O—O					
Right rear							O—O	

O—O: Indicates continuity

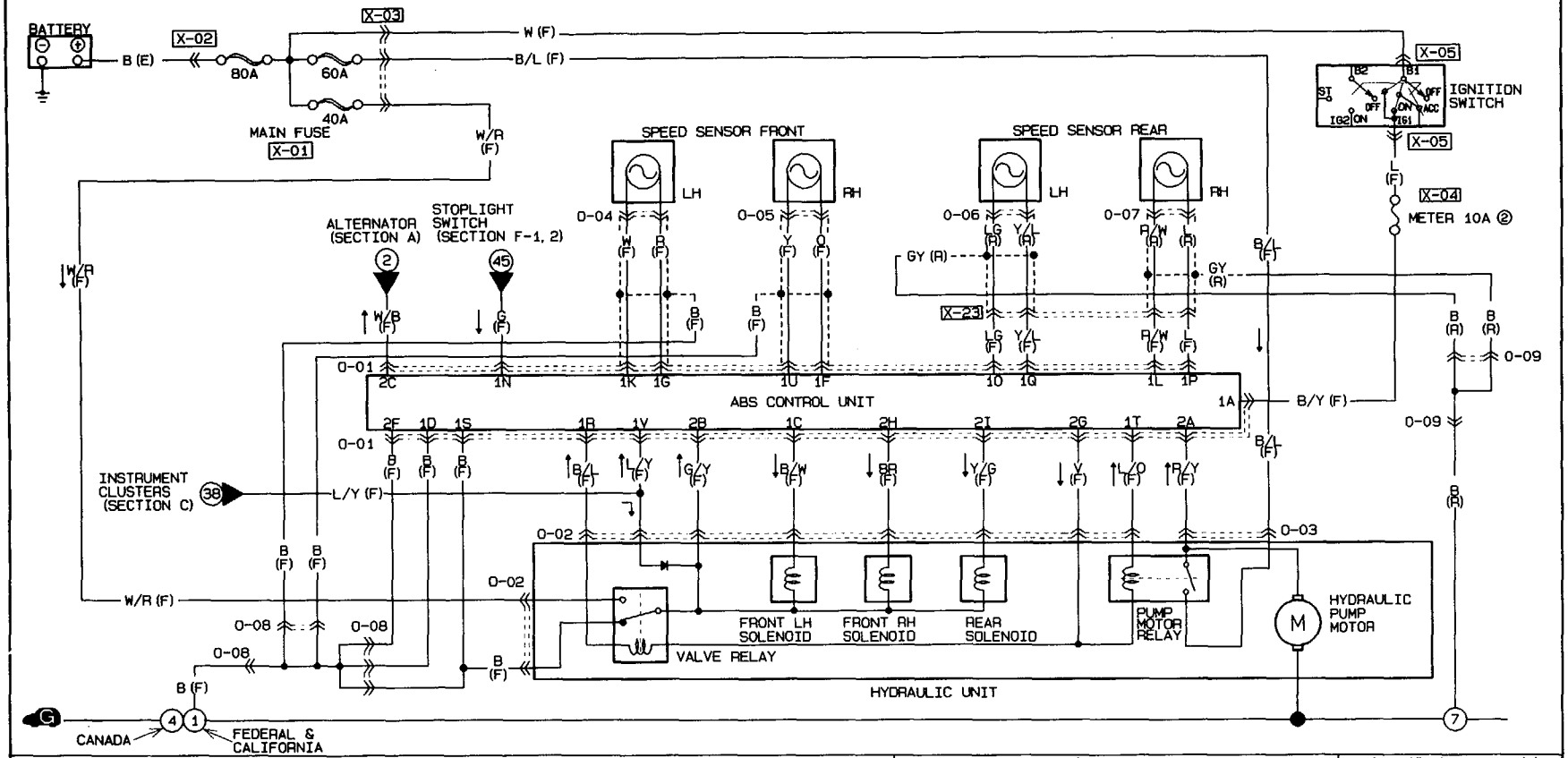
2. If the continuity is not as specified, check the wiring harness (Wheel-speed sensor — Control unit).
3. If the continuity is OK, check voltage between 1K and 1G, 1O and 1Q, 1U and 1F, and 1L and 1P while rotating the wheel one rotation per second by hand.
4. If voltage is not approx. 50 mV—60 mV, the wheel-speed sensor is faulty.
5. If voltage is approx. 50 mV—60 mV, the control unit is faulty.

Caution
- **When checking the control unit terminals, do not use ordinary tester pins. Use only very thin pins to prevent damage to the terminals.**

Check hydraulics
Check that all brake fluid connections are tight and that no fluid is leaking.

Check hydraulic unit wiring
1. Check that the hydraulic unit connectors are properly secured.
2. Check that the valve relay and motor relay are properly secured.

■ ABS (ANTI-LOCK BRAKE SYSTEM)



0-01 ABS CONTROL UNIT (F)

2I	2G	2E	2C	2A	1Y	1W	1U	1S	1Q	1O	1M	1K	1I	1G	1E	1C	1A
Y/G	V	*	W/B	R/Y	*	*	Y	B	Y/L	LG	*	W	*	R	*	B/W	B/Y
BR	B	*	G/Y	*	*	L/Y	L/O	B/L	L	G	R/W	*	*	O	B	*	
2H	2F	2D	2B	1Z	1X	1V	1T	1R	1P	1N	1L	1J	1H	1F	1D	1B	

0-02 HYDRAULIC UNIT (F)

B/W		G/Y	L/Y	L/O
B/L		Y/G	B	*
BR		W/R	V	*

0-03 HYDRAULIC UNIT (F)

B/L	R/Y

0-04 SPEED SENSOR FRONT (LH) (F)

R	W

0-05 SPEED SENSOR FRONT (RH) (F)

O	Y

0-06 SPEED SENSOR REAR (LH) (R)

Y/L	LG

0-07 SPEED SENSOR REAR (RH) (R)

L	R/W

0-08 JOINT CONNECTOR (F)

B	B	B
B	B	B

0-09 JOINT CONNECTOR (R)

*	B	B
*	*	B

09U0PX-053

HYDRAULIC UNIT

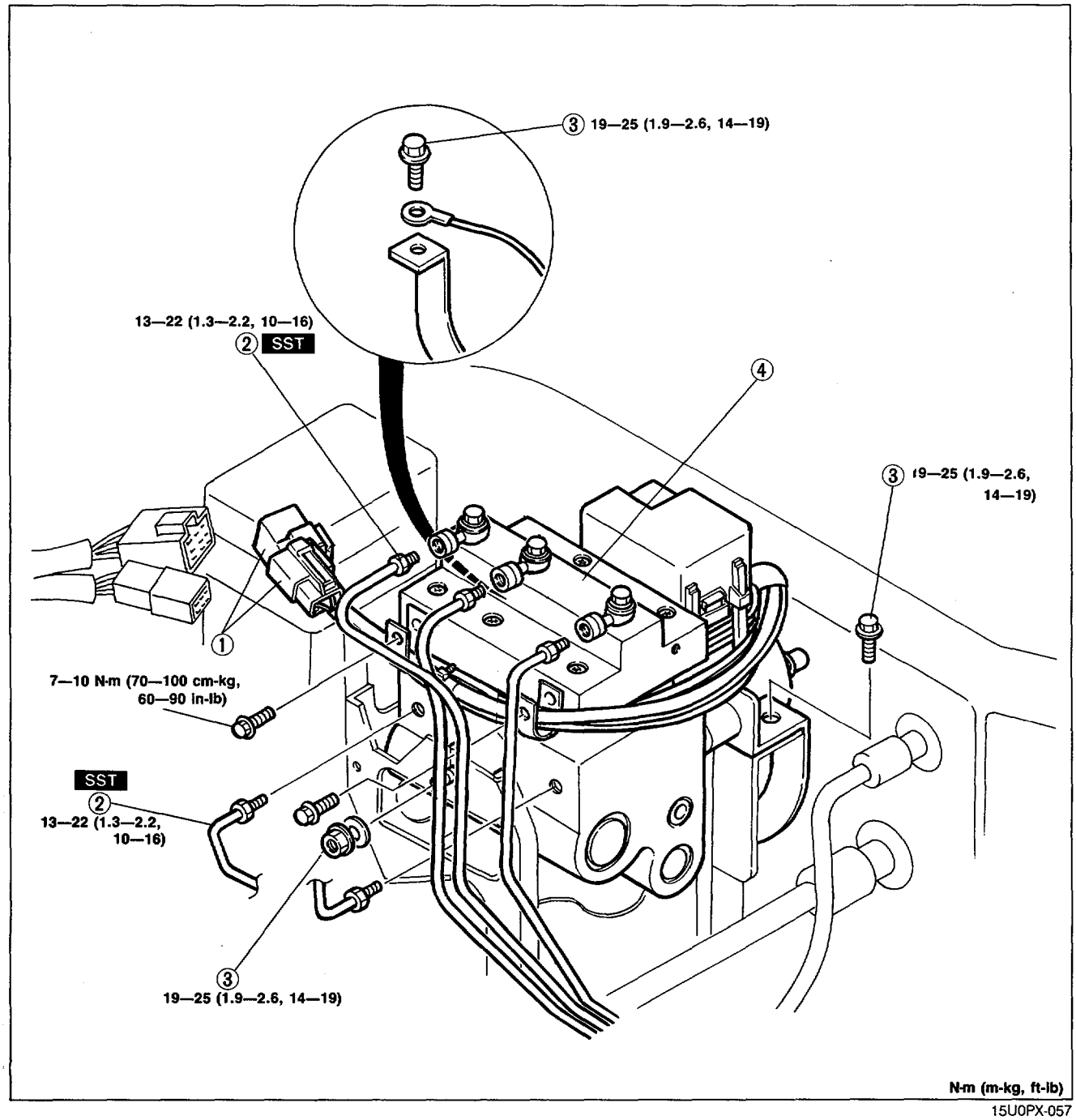
Removal / Installation

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure, referring to **Removal Note**.

Caution

- **The only serviceable parts of the hydraulic unit are the valve relay and the motor relay; if there is a failure of any other part, replace the hydraulic unit assembly.**

3. Install in the reverse order of removal, referring to **Installation Note**.
4. Add brake fluid, bleed the air, and check for fluid leakage.

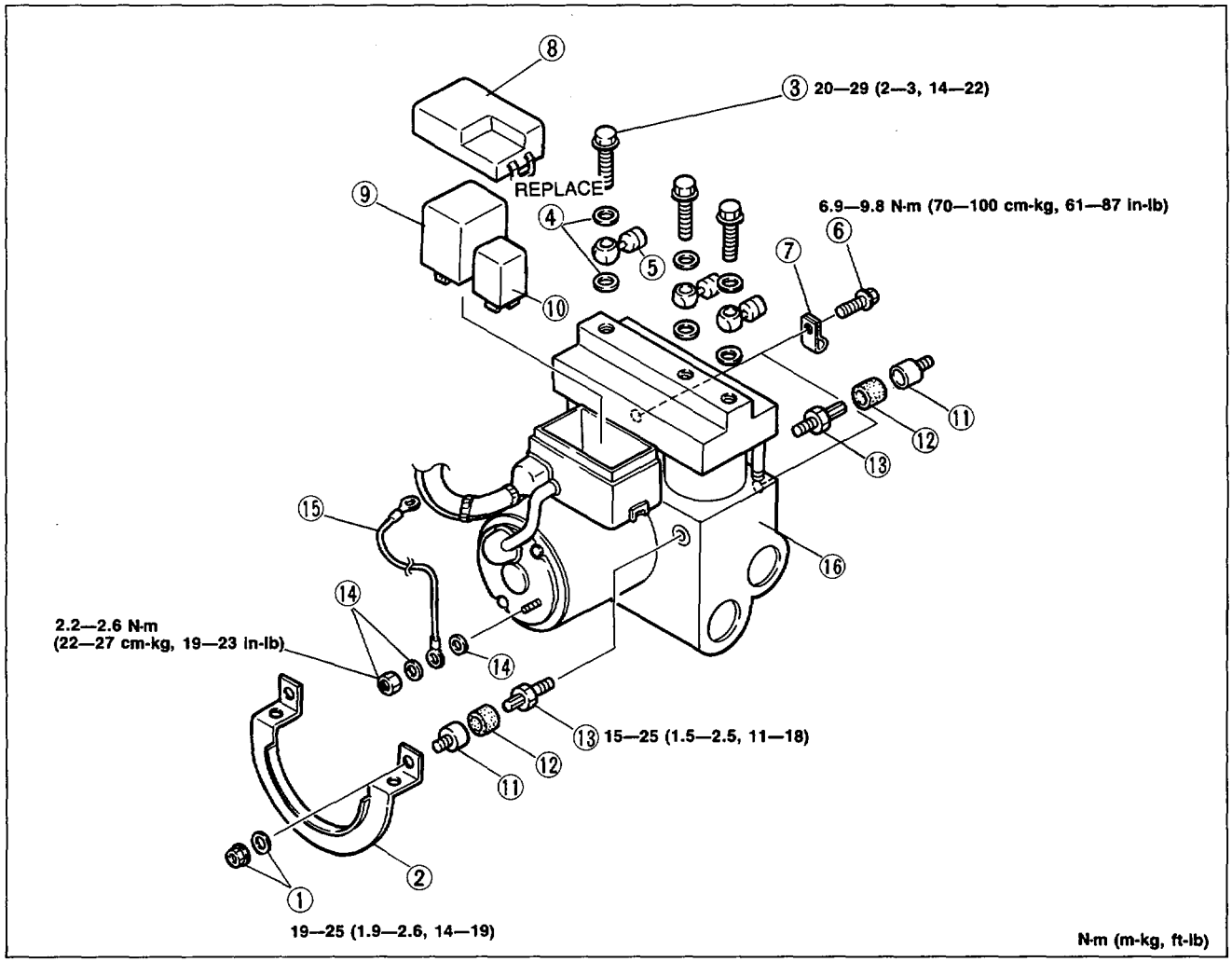


15U0PX-057

1. Connectors
2. Brake pipes
   Removal / Installation Note ..... page P–52
3. Nut bolts
4. Hydraulic unit

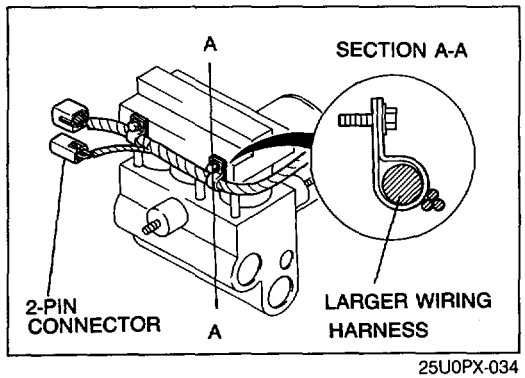
Disassembly / Assembly

1. Disassemble in the order shown in the figure.
2. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



25U0PX-028

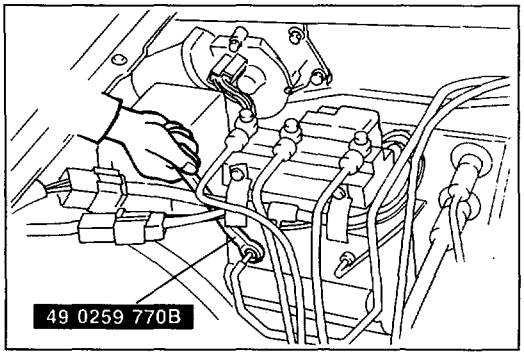
1. Nut, washer
2. ABS bracket
3. Connector bolt
4. Gasket
5. Pipe joint
6. Bolt
7. Clip
   Installation Note ..... page P–52
8. Cover
9. Motor relay
   Inspection ..... page P–54
10. Valve relay
    Inspection ..... page P–55
11. Casing
12. Mount rubber
13. Stud
14. Nut, washer
15. Ground wire
16. Hydraulic unit



25U0PX-034

Assembly note
Clip

Caution
- **Affix only the larger wiring harness in the clips.**
- **Do not affix the 2-pin connector section in the clip.**



15U0PX-058

Removal / Installation note
Brake pipes

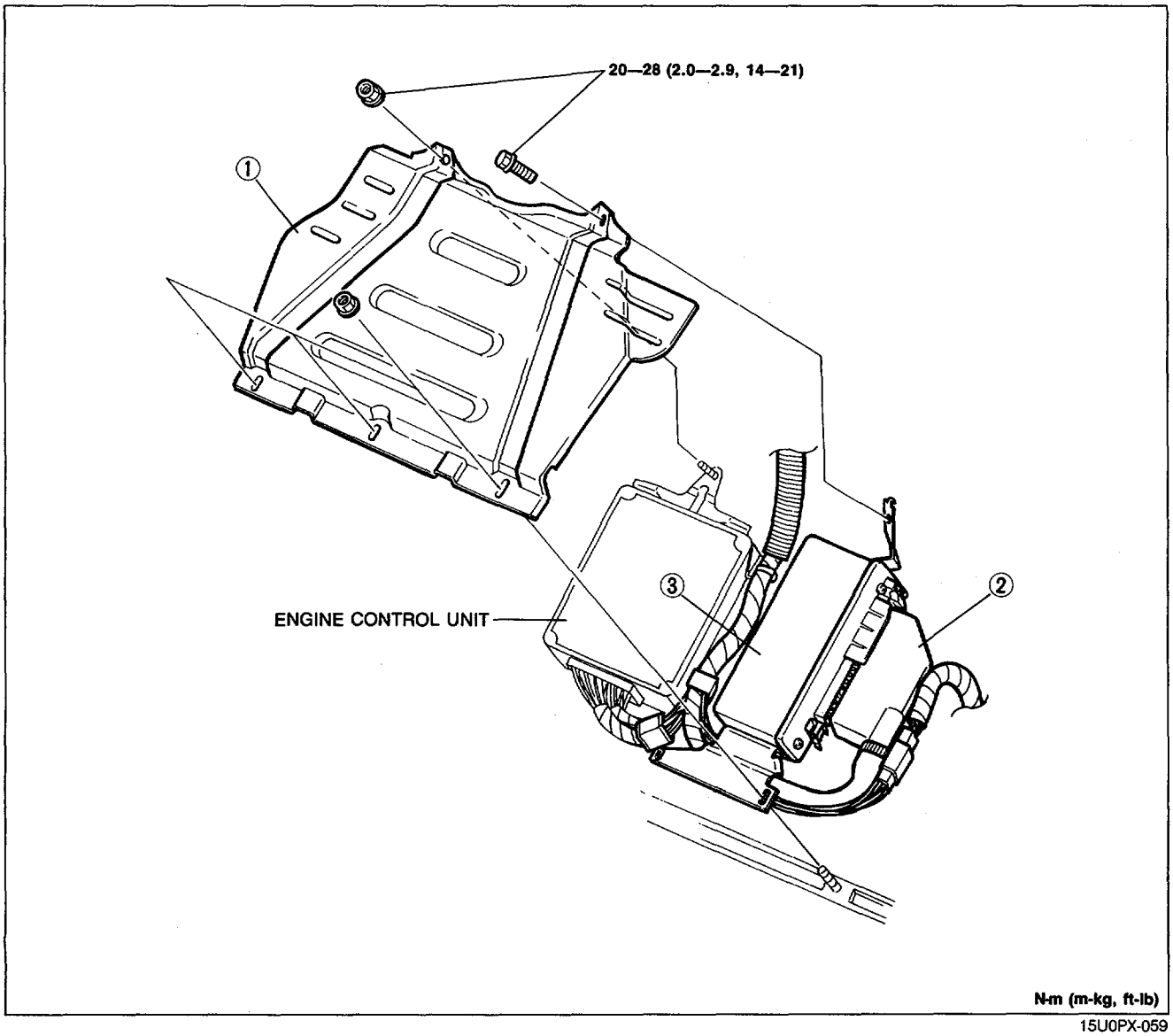
Caution
- **Be careful not to spill the brake fluid onto a painted surface.**

1. Loosen/tighten the brake pipes from/to the hydraulic unit with the **SST**.

ABS CONTROL UNIT

Removal / Installation

1. Disconnect the negative battery cable.
2. Roll back the carpet.
3. Remove in the order shown in the figure.
4. Install in the reverse order of removal.



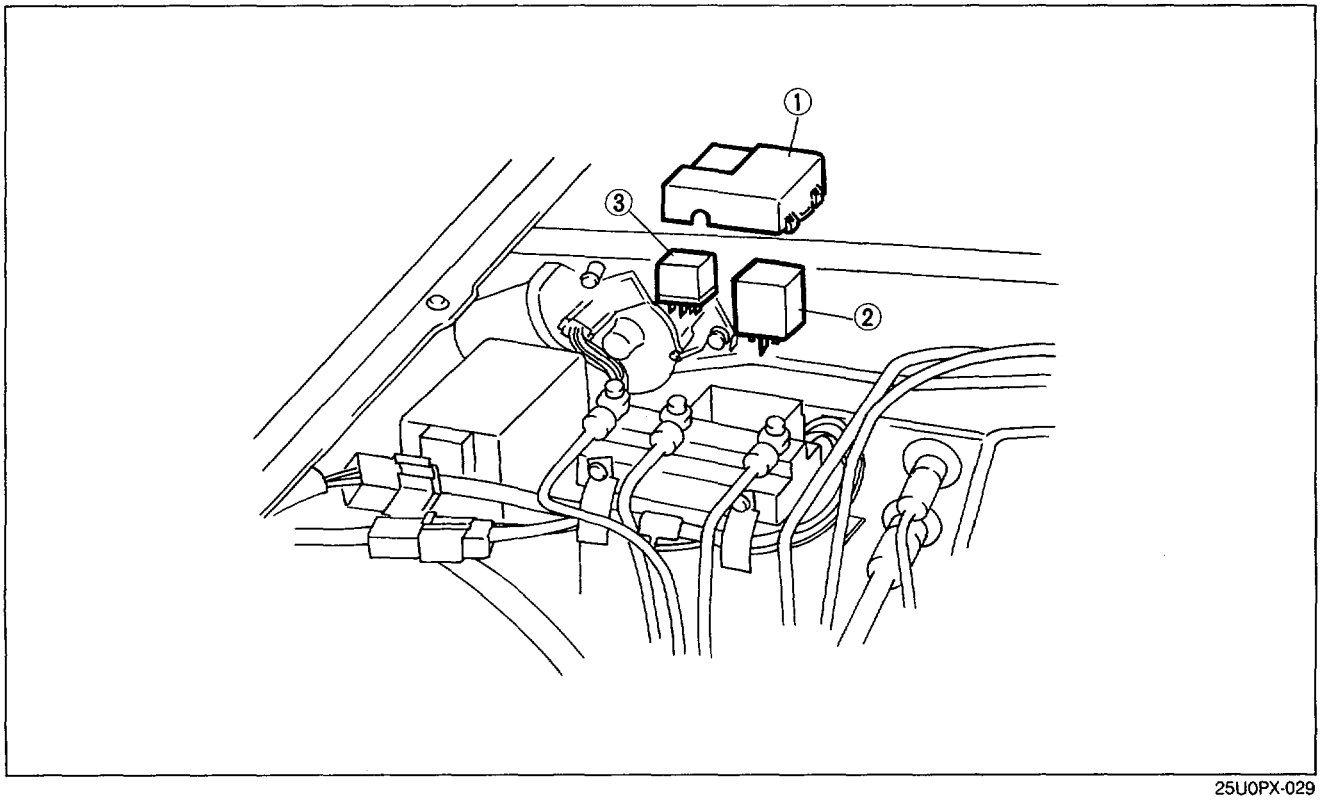
15U0PX-059

1. Protecter
2. Connector
3. ABS control unit

RELAYS

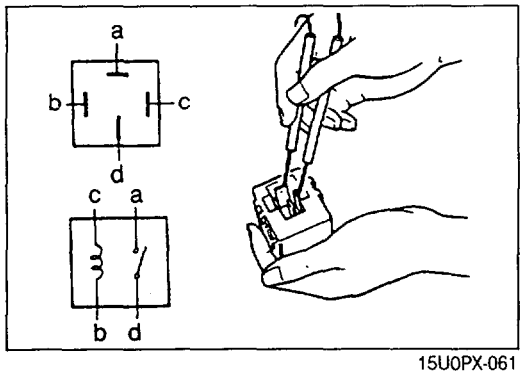
Removal / Inspection / Installation

1. Disconnect the negative battery cable.
2. Remove in the order shown.
3. Inspect all parts and replace as necessary.
4. Install in the reverse order of removal.



25U0PX-029

1. Cover
2. Motor relay
   Inspection ..... page P–54
3. Valve relay
   Inspection ..... page P–55



15U0PX-061

Inspection

Motor relay

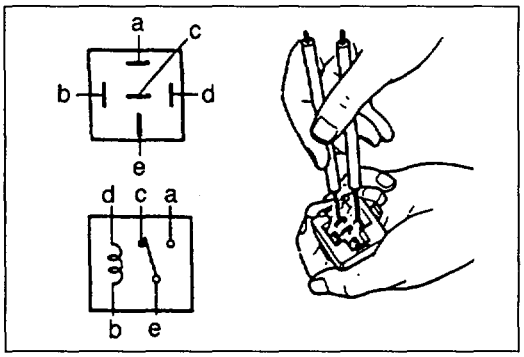
1. Disconnect the negative battery cable.
2. Release the motor relay lock from the hydraulic unit and remove the motor relay.
3. Connect an ohmmeter and check for continuity at the relay terminals.

Connect to		a	b	c	d
12V	Ground				
—	—		○—○		
c	b	○			○

○—○: Indicates continuity

4. If continuity is not as specified, replace the motor relay.
5. If OK, check the wiring harness (Motor relay — Control unit main fuse [ABS 60A]).

09U0PX-049



25U0PX-019

Valve relay

1. Disconnect the negative battery cable.
2. Release the valve relay locks from the hydraulic unit and remove the valve relay.
3. Using an ohmmeter, check continuity of the relay terminals.

Connect to		a	b	c	d	e
12V	Ground					
—	—		○	○	○	○
b	d	○				○

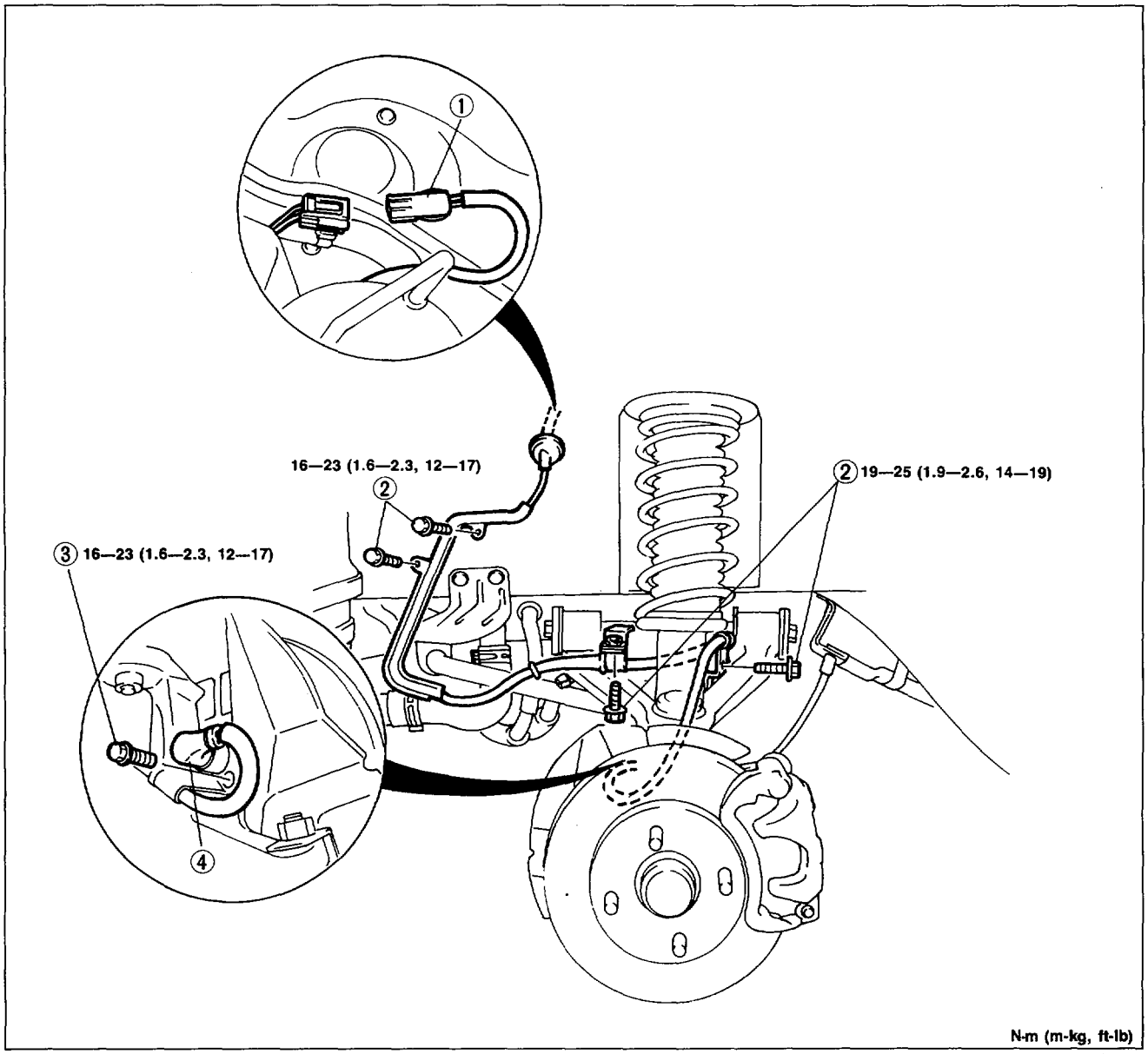
○—○: Indicates continuity

4. If continuity is not as specified, replace the valve relay.

ABS WHEEL SPEED SENSOR (FRONT)

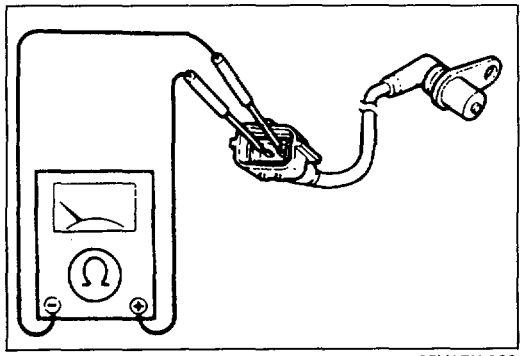
Removal / Inspection / Installation

1. Removal in the order shown in the figure.
2. Install in the reverse order of removal.



25U0PX-030

1. Connector
2. Bolts
3. Bolt
4. Wheel speed sensor
   Inspection ..... page P–56



25U0PX-020

Inspection

Wheel speed sensor

1. Measure resistance between terminals of the wheel speed sensor.

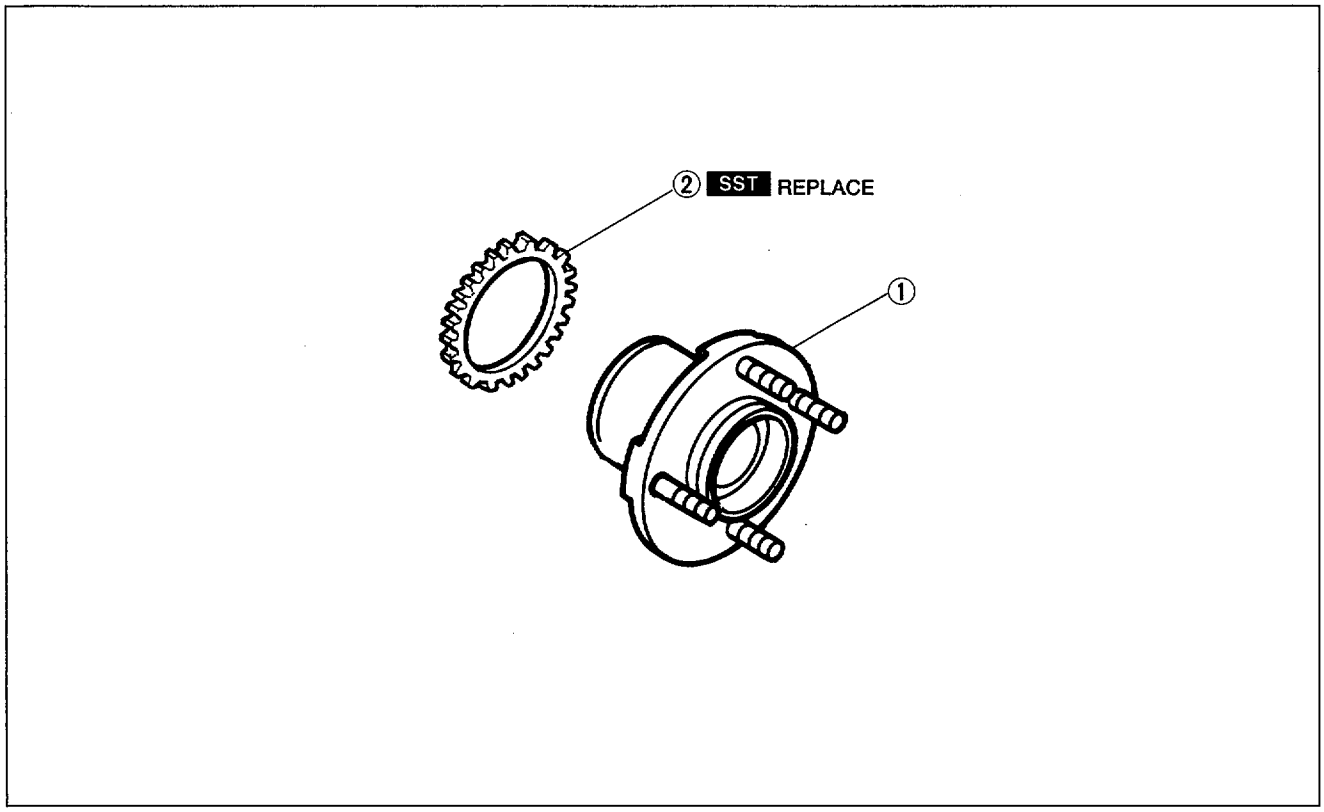
   Resistance: 1.0—1.2 kΩ

2. If not as specified, replace the wheel speed sensor.

ABS SENSOR ROTOR (FRONT)

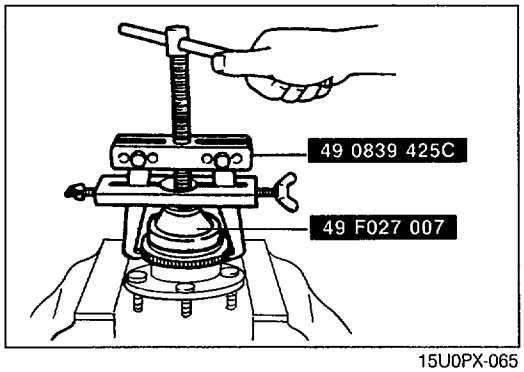
Removal / Inspection / Installation

1. Inspect the ABS sensor rotor for missing and damaged teeth.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Install in the reverse order of removal, referring to **Installation Note**.

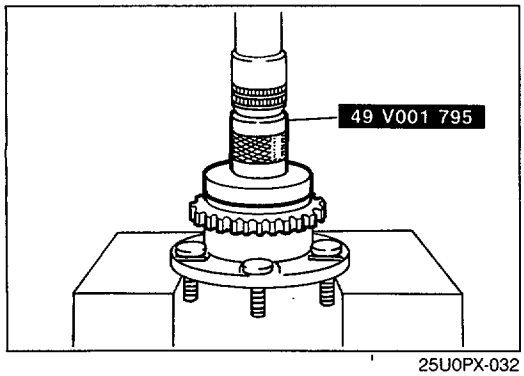


25U0PX-031

1. Wheel hub
   Removal / Installation ..... Section M
2. ABS sensor rotor
   Removal Note ..... page P–57
   Installation Note ..... page P–57



15U0PX-065



25U0PX-032

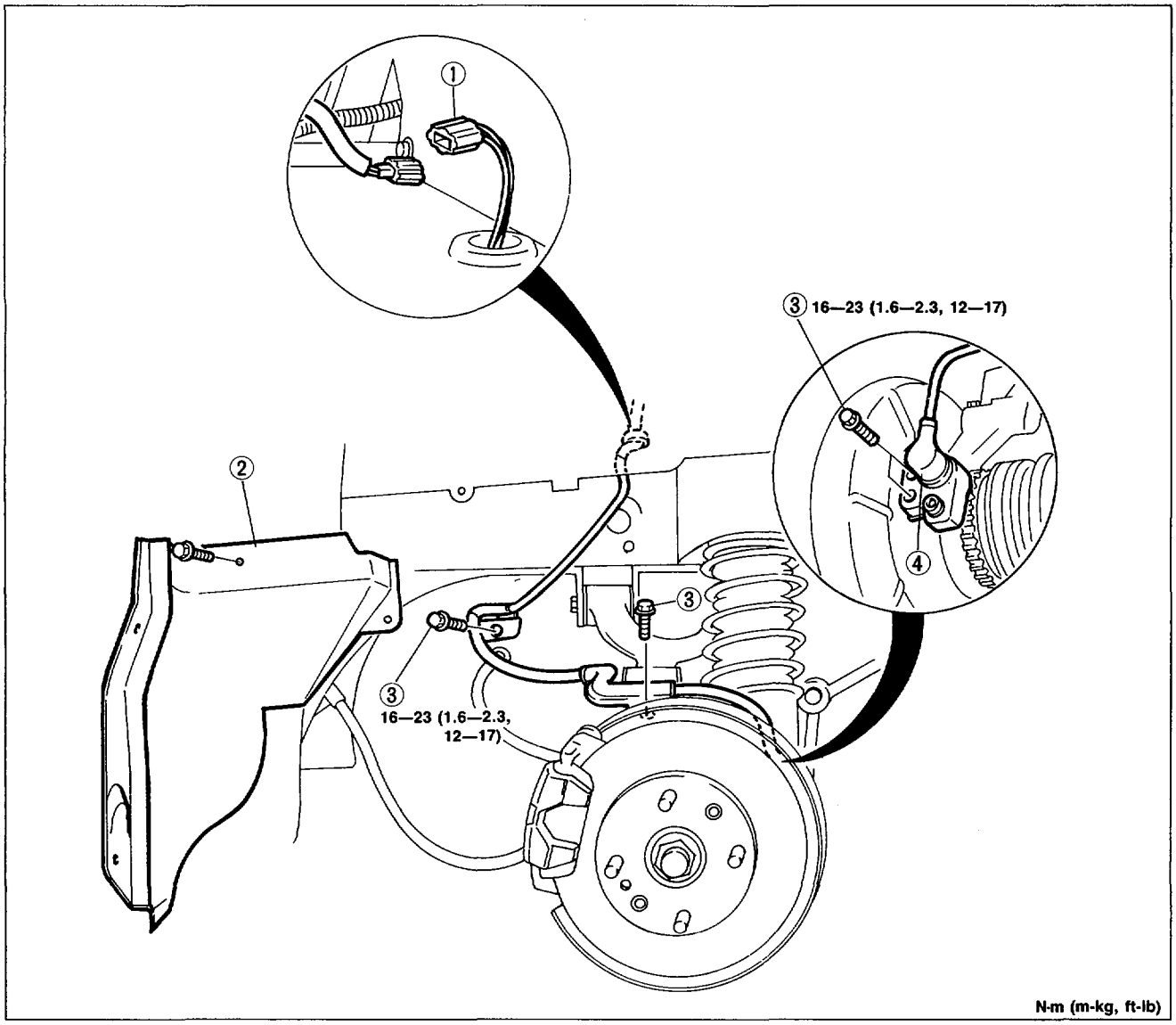
Removal note
ABS sensor rotor
1. Remove the sensor rotor from the wheel hub with the **SST**.

Installation note
ABS sensor rotor
1. Press a new sensor rotor onto the wheel hub with the **SST**.

ABS WHEEL SPEED SENSOR (REAR)

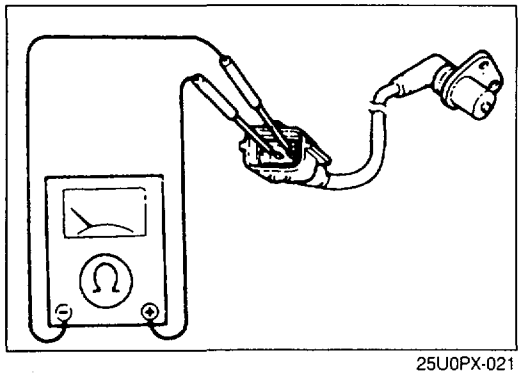
Removal / Inspection / Installation

1. Remove the filler pipe protector (left side).
2. Remove the spare tire (right side).
3. Remove in the order shown in the figure.
4. Install in the reverse order of removal.



25U0PX-033

1. Connector
2. Mud guard
3. Bolts
4. Wheel speed sensor
   Inspection ..... page P–58



25U0PX-021

Inspection

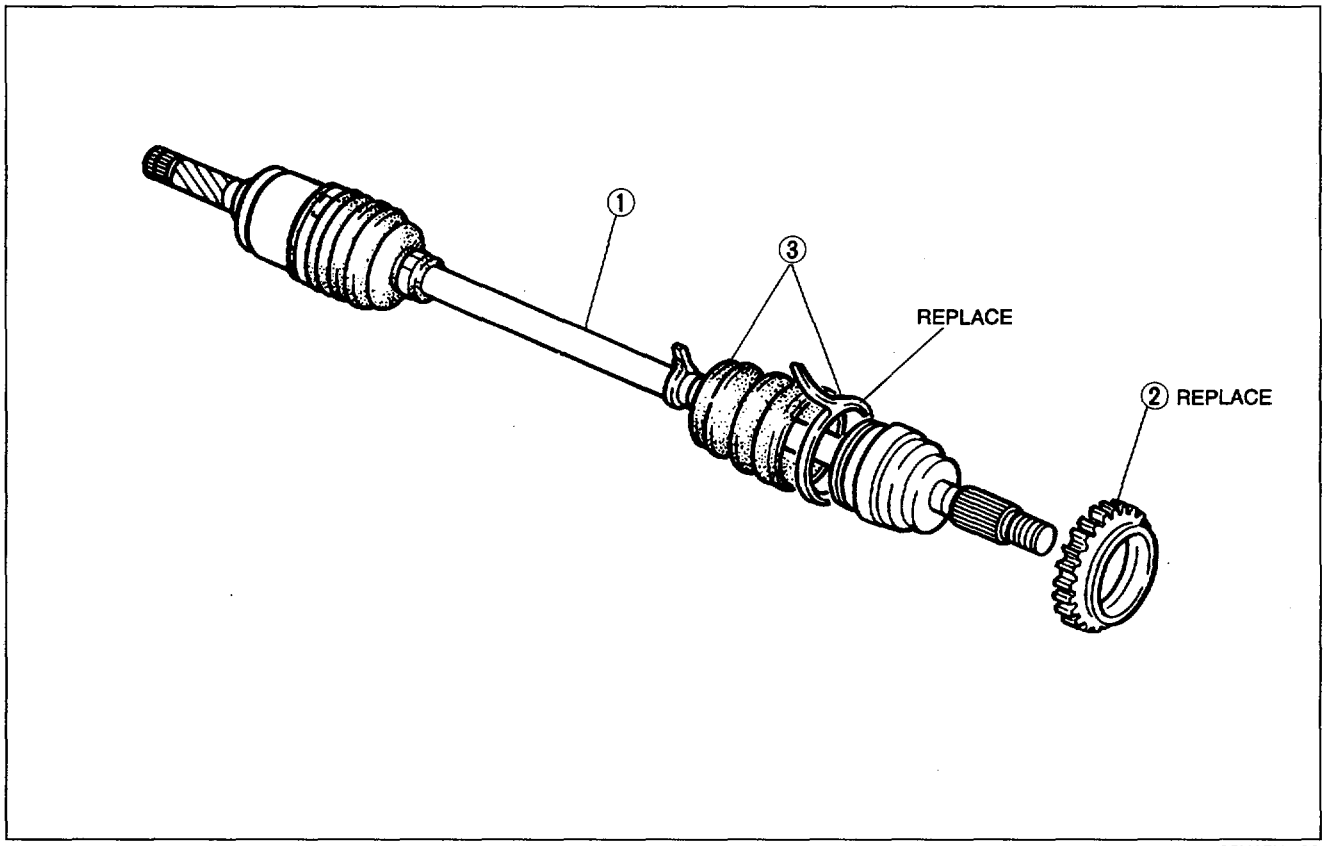
Wheel speed sensor

1. Measure resistance between terminals of the wheel speed sensor.

   Resistance: 1.0—1.2 kΩ

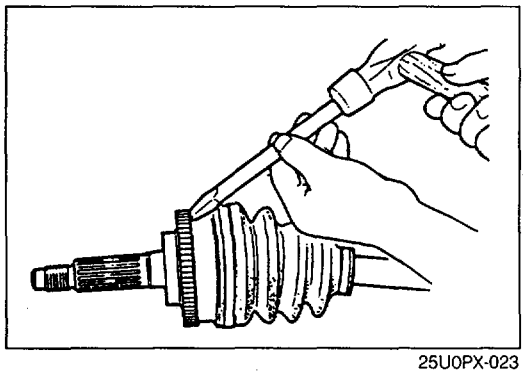
2. If not as specified, replace the wheel speed sensor.

ABS SENSOR ROTOR (REAR)
Removal / Inspection
1. Inspect the ABS sensor rotor for missing and damaged teeth.
2. Remove in the order shown in the figure, referring to **Removal Note**.



25U0PX-022

1. Drive shaft
   Removal ..... Section M
2. Sensor rotor
   Removal Note..... page P–59
3. Boot band and boot



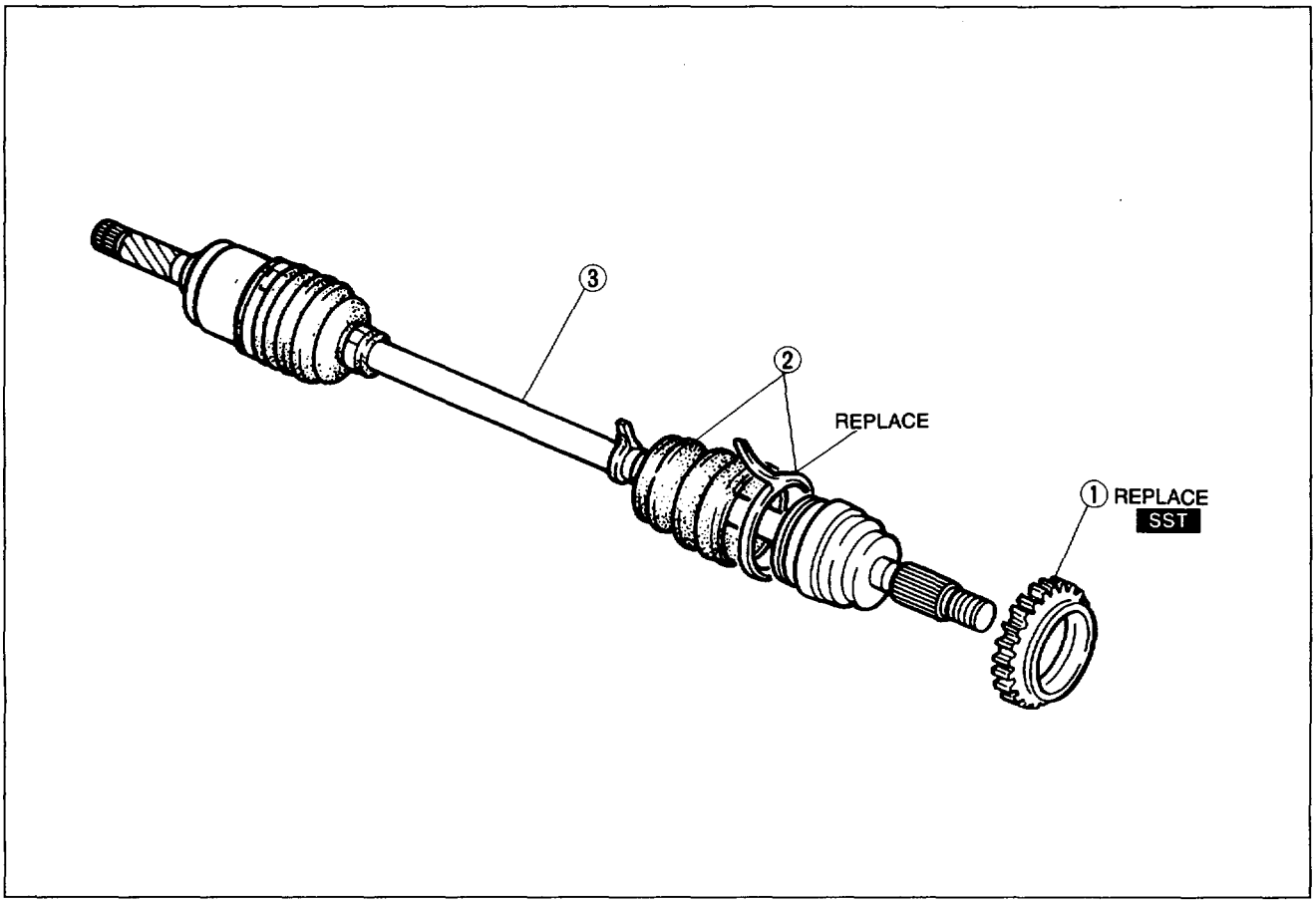
25U0PX-023

Removal note
Sensor rotor
1. Tap the sensor rotor off the drive shaft with a chisel.

Caution
- **Do not reuse the sensor rotor.**

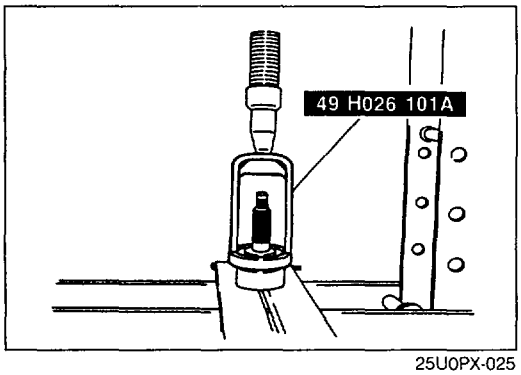
Installation

1. Install in the order shown in the figure, referring to **Installation Note**.



25U0PX-024

1. Sensor rotor
   Installation Note ..... page P–60
2. Boot and boot band
3. Drive shaft
   Installation ..... Section M



25U0PX-025

Installation note
ABS sensor rotor

1. Set a new sensor rotor on the drive shaft and press it on with the **SST**.

WHEELS AND TIRES

OUTLINE ..... **Q– 2**
SPECIFICATIONS ..... **Q– 2**
TROUBLESHOOTING GUIDE ..... **Q– 2**
WHEELS AND TIRES ..... **Q– 3**
SPECIAL NOTES ABOUT WHEELS AND TIRES ..... **Q– 3**
NOTES REGARDING TIRE REPLACEMENT. **Q– 3**
INSPECTION / ADJUSTMENT ..... **Q– 3**
REMOVAL / INSTALLATION ..... **Q– 4**
TIRE ROTATION ..... **Q– 4**
WHEEL BALANCE ADJUSTMENT ..... **Q– 5**

05U0QX-001

OUTLINE

SPECIFICATIONS

Item \ Type			Standard	Temporary spare
Wheels	Size		14×5 1/2-JJ	14×4T
	Offset	mm (in)	45 (1.77)	
	Pitch circle diameter	mm (in)	100 (3.94)	
	Material		Aluminum Alloy	Steel
Tires	Size		185/60R14 82H	T115/70D14
	Air pressure	kPa (kgf/cm^2, psi)	177 (1.8, 26)	412 (4.2, 60)

25U0QX-001

TROUBLESHOOTING GUIDE

Problem	Possible Cause	Action	Page
Excessive or irregular tire wear	Refer to page Q– 4 for details.		
Premature tire wear	Incorrect tire pressure	Adjust	Q– 3
Tire squeal	Incorrect tire pressure	Adjust	Q– 3
	Tire deterioration	Replace	—
Road noise or body vibration	Insufficient tire pressure	Adjust	Q– 3
	Unbalanced wheel(s)	Adjust	Q– 5
	Deformed wheel(s) or tire(s)	Repair or replace	—
	Irregular tire wear	Replace	—
Shake (Steering wheel vibrates up/down)	Excessive tire and wheel runout	Replace	—
	Loose lug nuts	Tighten	Q– 4
	Unbalanced wheel(s)	Adjust or replace	Q– 5
	Cracked or worn engine mount rubber	Replace	Section B
Shimmy (Steering wheel vibrates left/right)	Cracked or worn steering gear mount rubber	Replace	Section N
	Loose steering gear mounting bolts	Tighten	Section N
	Stuck or damaged steering ball joint	Replace	Section N
	Excessive tire and wheel runout	Replace	—
	Loose lug nuts	Tighten	Q– 4
	Unbalanced wheel(s)	Adjust or replace	Q– 5
	Insufficient tire pressure	Adjust	Q– 3
	Unevenly worn tires	Replace	—
	Malfunction of shock absorber	Replace	Section R
	Loose shock absorber mounting bolts	Tighten	Section R
	Struck or damaged lower arm ball joint	Replace	Section R
	Cracked or worn suspension bushings	Replace	Section R
	Damaged or worn front wheel bearing	Replace	Section M
	Improperly adjusted front wheel alignment	Adjust	Section R
Uneven (one-sided) braking	Unequal tire pressures	Adjust	Q– 3
Steering wheel doesn't return properly or pulls to either left or right	Incorrect tire pressure	Adjust	Q– 3
	Irregular tire wear (left/right)	Replace	—
	Unequal tire pressures	Adjust	Q– 3
	Different types or brands of tires mixed (left/right)	Replace	—
	Loose lug nuts	Tighten	Q– 4
General driving instability	Unequal tire pressures	Adjust	Q– 3
	Damaged or unbalanced wheel(s)	Replace or adjust	Q– 5
	Loose lug nuts	Tighten	Q– 4
Excessive steering wheel play	Loose lug nuts	Tighten	Q– 4

15U0QX-002

WHEELS AND TIRES

SPECIAL NOTES ABOUT WHEELS AND TIRES

1. Do not use wheels or tires other than the specified types.
2. Aluminum wheels are easily scratched. When washing them, use a soft cloth, never a wire brush. If the vehicle is steam cleaned, do not allow boiling water to contact the wheels.
3. If alkaline compounds (such as salt-water or road salts) get on aluminum wheels, wash them as soon as possible to prevent damage. Use only a neutral detergent.

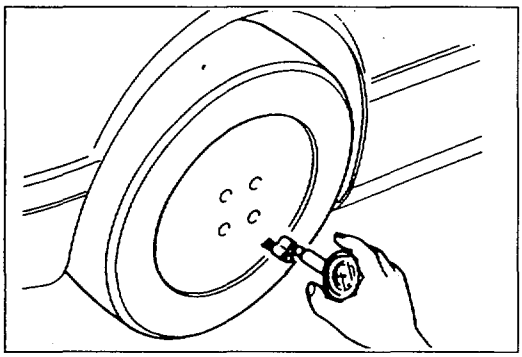
9MU0QX-004

NOTES REGARDING TIRE REPLACEMENT

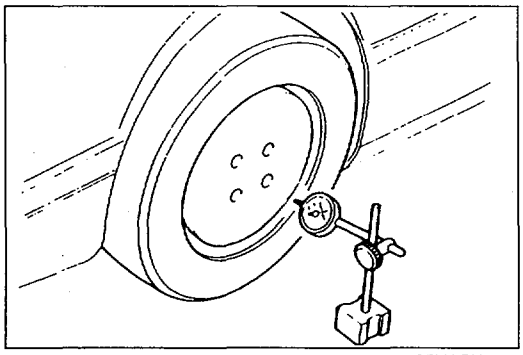
Note the following points when tires are to be removed from or mounted onto the wheels.

1. Be careful not to damage the tire bead, the rim bead, or the edge of the rim.
2. Apply a soapy solution to the tire bead and the edge of the rim.
3. Use a wire brush, sandpaper, or cloth to clean and remove all rust and dirt from the rim edge and the rim bead. For aluminum wheels, use only a cloth for this purpose; never use a wire brush or sandpaper.
4. Remove pebbles, glass, nails, and other foreign items embedded in the tire tread.
5. Be sure the air valve is installed correctly.
6. After mounting a tire onto a wheel, inflate it to 250—300 kPa (2.55—3.06 kg/cm^2, 35.55—42.66 psi). Verify that the bead is seated correctly onto the rim and that there are no air leaks. Then reduce the pressure to the specified level.
7. If a tire iron is used to change a tire on an aluminum wheel, be sure to use a piece of rubber between the iron lever and the wheel to avoid damage to the wheel. Work should be done on a rubber mat, not on a hard or rough surface.

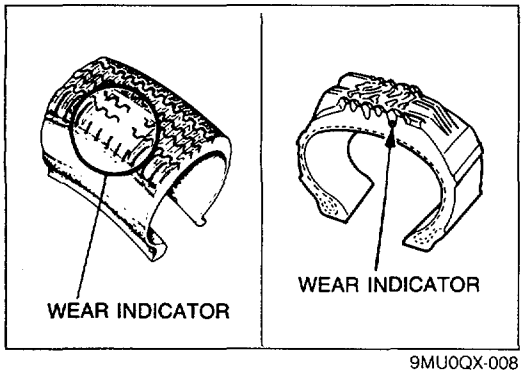
05U0QX-004



25U0QX-002



05U0QX-006



9MU0QX-008

INSPECTION / ADJUSTMENT

Check the following and adjust or replace as necessary.

1. Air pressure.
   Check the air pressure of all tires, including the spare tire, with an air pressure gauge.

   Air pressure:
   Standard tires 177 kPa (1.8 kgf/cm^2, 26 psi)
   Temporary spare tires 412 kPa (4.2 kgf/cm^2, 60 psi)

   Caution
   - **The air pressure must be measured when the tire is cold.**

2. Wheel runout.
   Set the probe of a dial indicator against the wheel, and turn the wheel one full revolution.

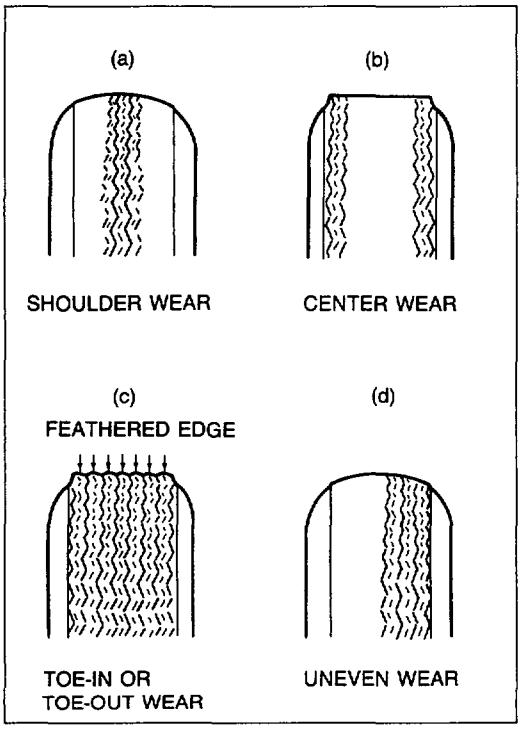
   Wheel runout: Horizontal 2.0mm (0.079 in) max.
   Vertical 1.5mm (0.059 in) max.

3. Tire wear.

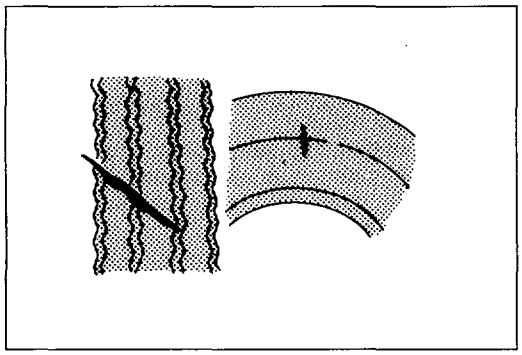
Specifications

Remaining tread
Ordinary tires: 1.6mm (0.063 in) min.
(Tire should be replaced if wear indicators are exposed.)

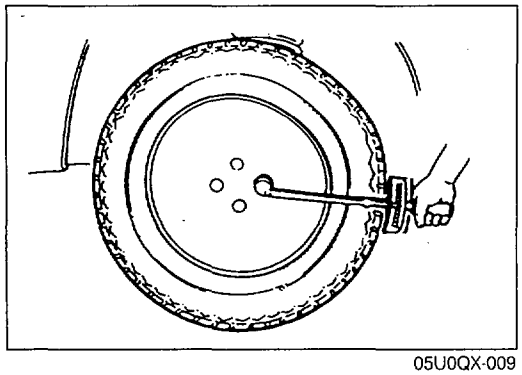
Snow tires: 50% of tread
(Tire should be replaced if wear indicators are exposed.)



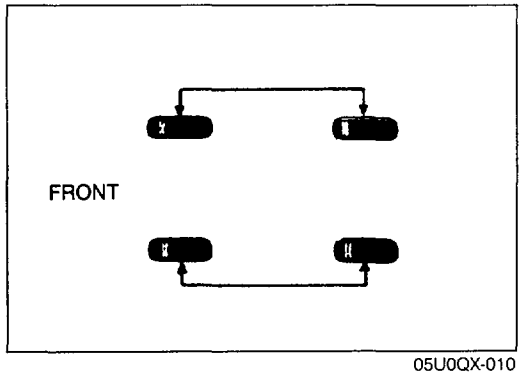
05U0QX-007



05U0QX-008



05U0QX-009



05U0QX-010

Troubleshooting guide

Abnormal tire wear patterns shown in the illustration can occur. Refer to the chart for the possible causes and actions.

	Possible cause	Action
(a)	• Underinflation (both sides worn) • Incorrect camber (one side worn) • Hard cornering • Lack of rotation	• Measure and adjust pressure • Repair or replace suspension parts • Reduce speed • Rotate tires
(b)	• Overinflation • Lack of rotation	• Measure and adjust pressure • Rotate tires
(c)	• Incorrect toe-in	• Adjust toe-in
(d)	• Incorrect camber or caster • Malfunctioning suspension • Unbalanced wheel • Out-of-round brake drum or disc • Other mechanical conditions • Lack of rotation	• Repair or replace suspension parts • Repair or replace • Balance or replace • Correct or replace • Correct or replace • Rotate tires

4. Cracks, damage, and foreign matter (such as metal pieces, nails, and stones) in the tire and cracks, deformation, and damage to the wheel.
5. Loose wheel lug nut(s).
6. Air leaking from valve stem.

REMOVAL / INSTALLATION

Tighten the lug nuts to the specified torque in a crisscross fashion.

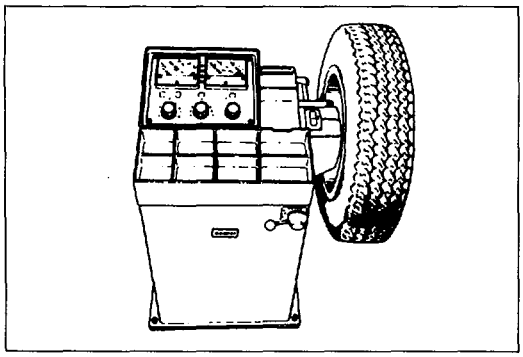
Tightening torque:
88—118 N·m (9—12 m-kg, 65—87 ft-lb)

Caution
- **The wheel-to-hub contact surfaces must be clean.**
- **Never apply oil to the nuts, bolts, or wheels, which cause looseness or seizure of the lug nuts.**

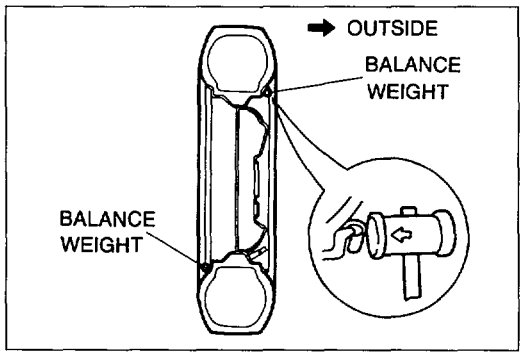
TIRE ROTATION

To prolong tire life and assure uniform tire wear, rotate the tires every 6000 km (3750 miles), sooner if irregular wear develops.

Caution
- **Do not include "TEMPORARY USE ONLY" spare tire in rotation.**
- **After rotating the tires, adjust each tire to the specified air pressure. (Refer to page Q–3.)**



9MU0QX-012



05U0QX-011

WHEEL BALANCE ADJUSTMENT

If a wheel becomes unbalanced or if a tire is replaced or repaired, the wheel must be rebalanced to within specification.

Maximum unbalance (at rim edge): 10 g (0.35 oz)

Caution

- **Do not use more than two balance weights on the inner or outer side of the wheel. if the total weight exceeds 100 g (3.5 oz), rebalance after moving the tire around on the rim.**
- **Attach the balance weights tightly so that they do not protrude more than 3mm (0.12 in) beyond the wheel edge.**
- **Select suitable balance weights for aluminum alloy wheels.**

Before beginning any service procedure, refer to Section T of this manual for airbag system warnings and cautions.

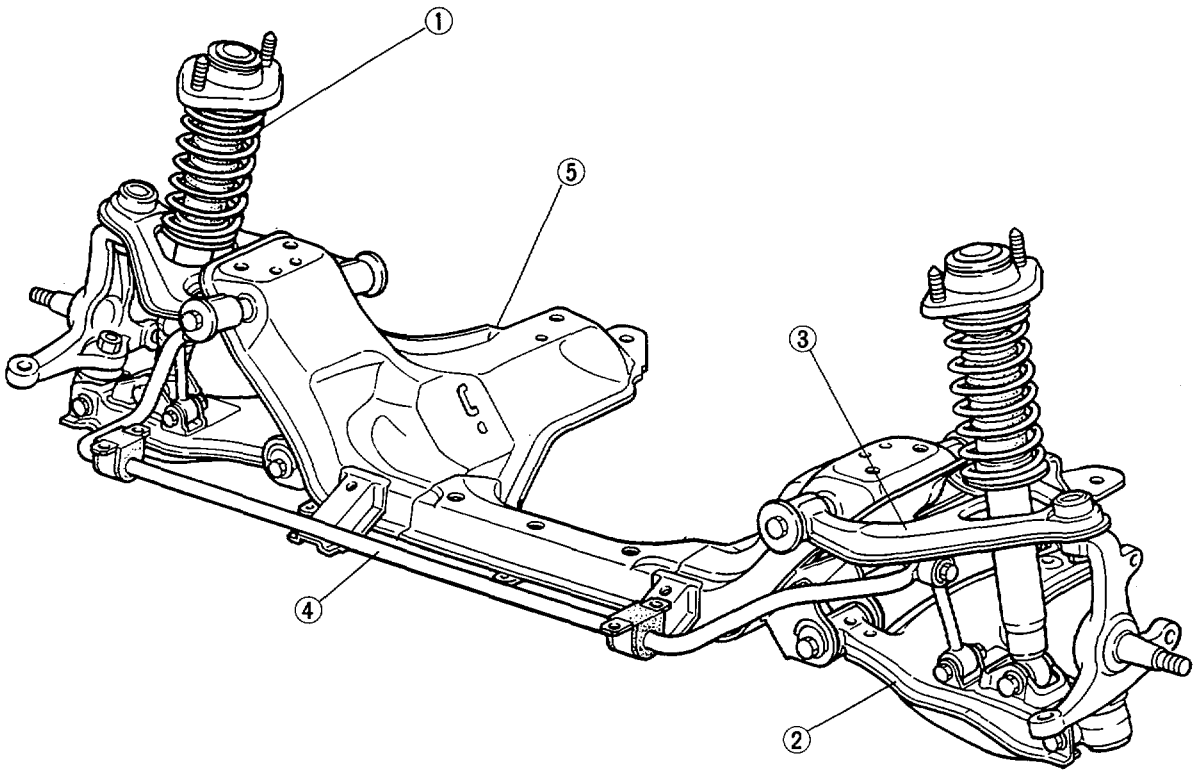
SUSPENSION

INDEX ..... **R– 2**
OUTLINE ..... **R– 4**
SPECIFICATIONS ..... **R– 4**
TROUBLESHOOTING GUIDE ..... **R– 5**
WHEEL ALIGNMENT ..... **R– 6**
PRE-INSPECTION ..... **R– 6**
FRONT WHEEL ALIGNMENT ..... **R– 6**
REAR WHEEL ALIGNMENT ..... **R– 9**
FRONT SUSPENSION (DOUBLE-WISHBONE) **R–11**
PREPARATION **R–11**
SHOCK ABSORBER AND SPRING **R–11**
LOWER ARM **R–15**
UPPER ARM **R–17**
STABILIZER **R–19**
CROSSMEMBER **R–20**
REAR SUSPENSION (DOUBLE-WISHBONE) . **R–21**
PREPARATION **R–21**
SHOCK ABSORBER AND SPRING **R–22**
LOWER ARM **R–23**
UPPER ARM **R–24**
STABILIZER **R–25**
CROSSMEMBER **R–26**

25U0RX-001

INDEX

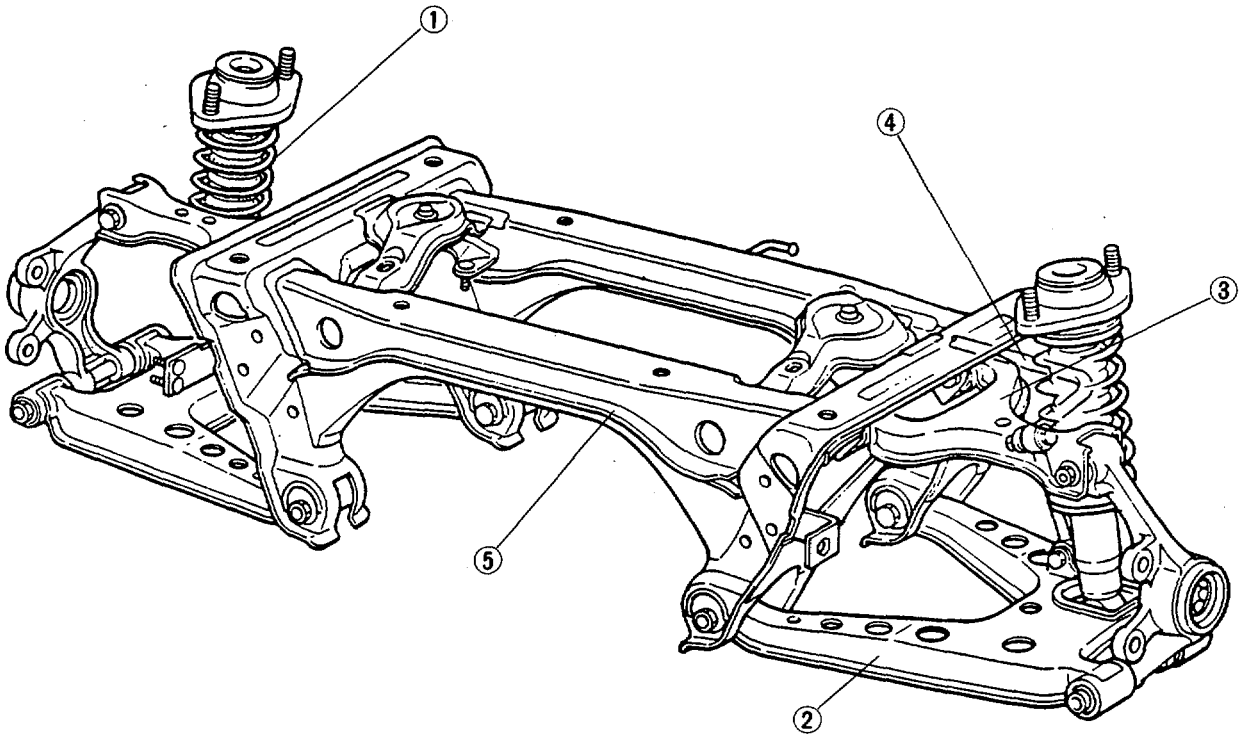
FRONT SUSPENSION



15U0RX-002

1. Shock absorber and spring
Removal / Installation ..... page R–11
Disassembly / Inspection / Assembly ..... page R–13
2. Lower arm
Removal / Inspection / Installation ..... page R–15
3. Upper arm
Removal / Inspection / Installation ..... page R–17
4. Stabilizer
Removal / Inspection / Installation ..... page R–19
5. Crossmember
Removal / Inspection / Installation ..... page R–20

REAR SUSPENSION



05U0RX-003

1. Shock absorber and spring
Removal / Installation ..... page R–22
Disassembly / Inspection / Assembly ..... page R–13
2. Lower arm
Removal / Inspection / Installation ..... page R–23
3. Upper arm
Removal / Inspection / Installation ..... page R–24
4. Stabilizer
Removal / Inspection / Installation ..... page R–25
5. Crossmember
Removal / Inspection / Installation ..... page R–26

OUTLINE

SPECIFICATIONS

Front Suspension

Item			Transmission	Specifications	
				M/T	A/T
Suspension type				Double-wishbone	
Stabilizer	Type			Torsion bar	
	Diameter		mm (in)	21 (0.83)	
Shock absorber				Cylindrical double acting, low-pressure-gas charged	
Coil spring	Identification mark color			Red	White
	Wire diameter		mm (in)	10.8 (0.43)	11.0 (0.43)
	Coil inner diameter		mm (in)	83 (3.27)	83 (3.27)
	Free length		mm (in)	282.5 (11.12)	292.5 (11.52)
	Coil number			5.91	6.32
Front wheel alignment (Unladed*1)	Total toe-in		mm (in)	3 ± 3 (0.12 ± 0.12)	
			degree	0°18' ± 18'	
	Maximum steering angle		Inner	37° 23' ± 2°	
			Outer	32° 32' ± 2°	
	Camber angle			0°24 ± 45'*2	
	Caster angle			4°26' ± 45'*3	
	Kingpin angle			11°20'	

25U0RX-002

Rear Suspension

Item			Transmission	Specifications	
				M/T	A/T
Suspension type				Double-wishbone	
Stabilizer	Type			Torsion bar	
	Diameter		mm (in)	14 (0.55)	
Shock absorber				Cylindrical double acting, low-pressure-gas charged	
Coil springs	Identification mark color			Blue	Orange
	Wire diameter		mm (in)	10.1 (0.40)	10.2 (0.40)
	Coil inner diameter		mm (in)	83 (3.27)	83 (3.27)
	Free length		mm (in)	339.5 (13.37)	347.5 (13.68)
	Coil number			7.68	7.96
Rear wheel alignment (Unladed*1)	Total toe-in		mm (in)	3 ± 3 (0.12 ± 0.12)	
			degree	0°18' ± 18'	
	Camber angle			−0°43' ± 30'	

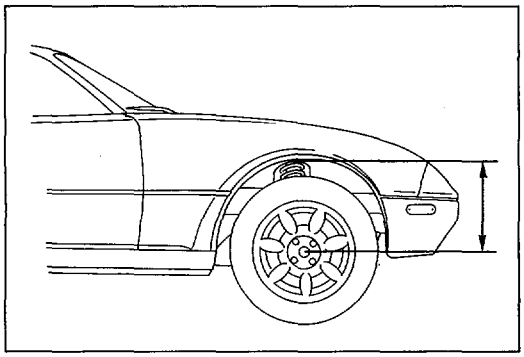
25U0RX-019

*1 Fuel tank full; radiator coolant and engine oil at specified levels; spare tire, jack, and tools in designated positions.
*2 Difference between left and right must not exceed 1°.
*3 Difference between left and right must not exceed 1°30'.

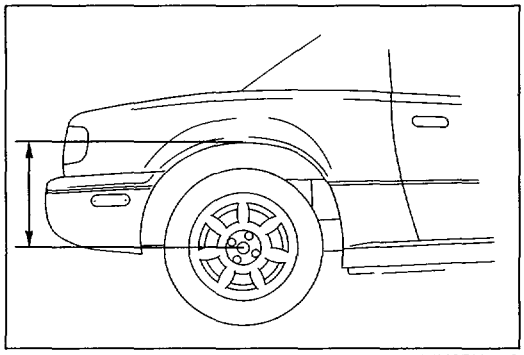
TROUBLESHOOTING GUIDE

Problem	Possible cause	Action	Page
General instability	Weak coil spring	Replace	R–13
	Malfunction of shock absorber	Replace	R–12,22
	Worn or damaged stabilizer and/or suspension arm bushings	Replace	R–16,18,19 23,24,25 Section M
	Worn or damaged upper or lower arm ball joint	Replace	R–15,17
	Improperly adjusted wheel alignment	Adjust	R– 6
Body "rolls"	Weak stabilizer	Replace	R–19,25
	Worn or damaged stabilizer and/or suspension arm bushings	Replace	R–16,18,19 23,24,25 Section M
"Heavy" steering wheel operation	Insufficiently lubricated or stuck upper arm lower arm ball joint	Replace	R–15,17
	Improperly adjusted wheel alignment	Adjust	R– 6
Steering wheel pulls to one side	Weak coil spring	Replace	R–13
	Worn or damaged stabilizer and/or suspension arm bushings	Replace	R–16,18,19 23,24,25
	Deformed upper or lower arm or knuckle	Replace	R–15,17 Section M
	Loose upper or lower arm bushing	Replace	R–16,18
Excessive steering wheel play	Worn or damaged upper or lower arm bushing	Replace	R–16,18
	Worn or damaged upper or lower arm ball joint	Replace	R–15,17
Body leans	Weak coil spring	Replace	R–13
	Weak stabilizer and/or suspension arm bushings	Replace	R–16,18,19 23,24,25 Section M
Abnormal noise from suspension system	Loose mounting component	Tighten	—
	Poorly lubricated or worn upper or lower arm ball joint	Replace	R–15,17
	Malfunction of shock absorber	Replace	R–12,22
	Worn or damaged stabilizer and/or suspension arm bushings	Replace	R–16,18,19 23,24,25 Section M
Shake (Steering wheel vibrates up/down)	Excessive tire or wheel runout	Replace	—
	Loose lug nuts	Tighten	Section Q
	Unbalanced wheel(s)	Adjust or replace	Section Q
	Cracked or worn engine mounting rubber	Replace	Section B
Shimmy (Steering wheel vibrates left/right)	Cracked or worn steering gear mounting rubber	Replace	Section N
	Loose steering gear mounting bolts	Tighten	Section N
	Stuck or damaged steering ball joint	Replace	Section N
	Excessive tire or wheel runout	Replace	—
	Loose lug nuts	Tighten	Section Q
	Unbalanced wheel(s)	Adjust or replace	Section Q
	Insufficient tire pressure	Adjust	Section Q
	Unevenly worn tires	Replace	Section Q
	Malfunction of shock absorber	Replace	R–12,22
	Loose shock absorber mounting bolts	Tighten	R–12,22
	Stuck or damaged upper or lower arm ball joint	Replace	R–15,17
	Cracked or worn suspension bushings	Replace	R–16,18,19
	Damaged or worn front wheel bearing	Replace	Section M
	Improperly adjusted front wheel alignment	Adjust	R– 6

15U0RX-005



05U0RX-007



05U0RX-008

WHEEL ALIGNMENT

PRE-INSPECTION

1. Check the tire inflations, and adjust to the recommended pressure if necessary.
2. Inspect the front wheel bearing play and correct if necessary.
3. Inspect the wheel and tire runouts.
4. Inspect the ball joints and steering linkage for excessive looseness.
5. The vehicle must be on level ground and carry no luggage or passengers.
6. Measure the height from the center of the wheel to the fender brim. The difference between left and right must not exceed **10mm (0.31 in)**, and the difference between front and rear must be **20mm ± 10mm (0.62 ± 0.31 in)**.

Caution

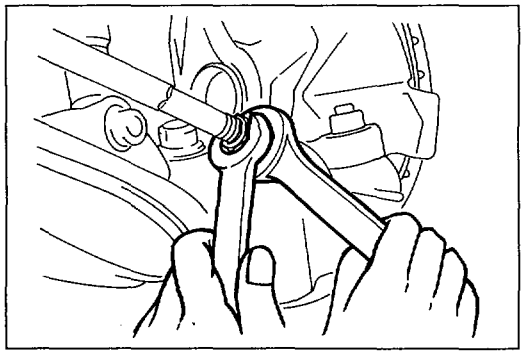
- **The proper caster and camber angle vary depending on the vehicle height. Refer to the following and to page R–9 for the specifications.**
- **Inspection and adjustment of wheel alignment must be done with the vehicle unladed*1.**

FRONT WHEEL ALIGNMENT
Specifications (Unladed*1)

Item			Specifications
Total toe-in		mm (in)	3 ± 3 (0.12 ± 0.12)
		degree	0°18' ±18'
Maximum steering angle		Inner	37°23' ± 2°
		Outer	32°32' ± 2°
Kingpin angle			11°20'
Camber angle	Height from center of wheel to fender brim mm (in)	328—337 (12.9—13.3)	–0°20' ± 45'*2
		338—347 (13.3—13.7)	0°03' ± 45'*2
		348—357 (13.7—14.1)	0°24' ± 45'*2
		358—367 (14.1—14.4)	0°44' ± 45'*2
		368—377 (14.4—14.8)	1°02' ± 45'*2
Caster angle	Height from center of wheel to fender brim mm (in)	328—337 (12.9—13.3)	5°16' ± 45'
		338—347 (13.3—13.7)	5°02' ± 45'
		348—357 (13.7—14.1)	4°49' ± 45'
		358—367 (14.1—14.4)	4°35' ± 45'
		368—377 (14.4—14.8)	4°21' ± 45'

05U0RX-009

*1 Fuel tank full; radiator coolant and engine oil at specified levels; spare tire, jack, and tools in designated positions.
*2 Difference between left and right must not exceed 1°.

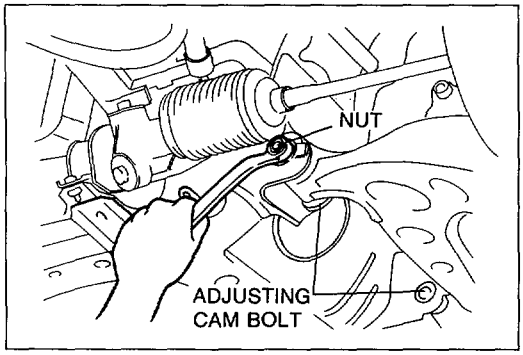


Adjustment
Maximum steering angle

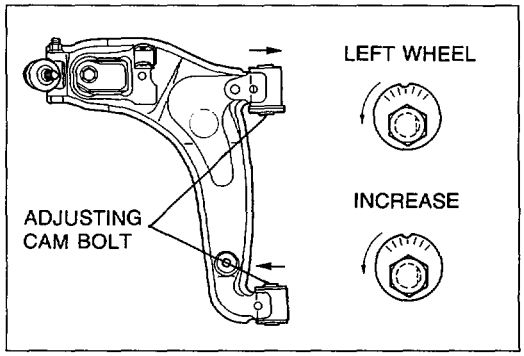
1. Remove the steering gear boot clamp.
2. Loosen the tie rod locknut.
3. Turn the tie rod to provide the correct maximum steering angle.
4. After adjustment, tighten the locknut to the specified torque.

Tightening torque:
34—39 N·m (3.5—4.0 m-kg, 25—29 ft-lb)

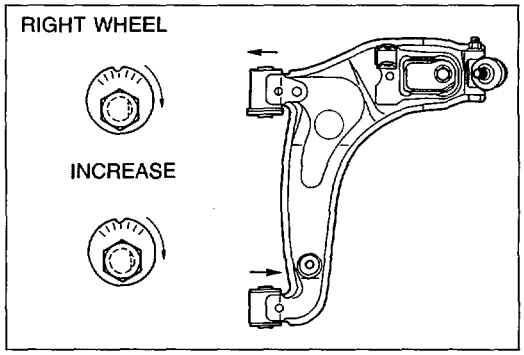
5. Adjust the toe-in. (Refer to page R–8.)
6. Verify that the boot is not twisted, and install the boot clamp.



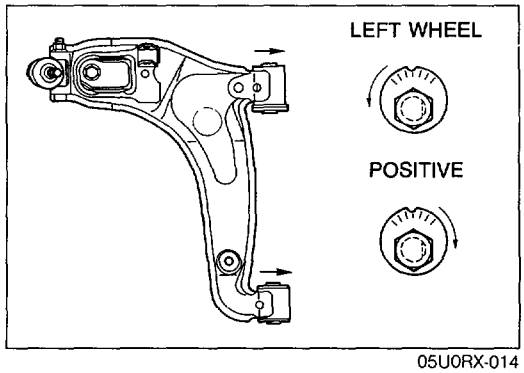
05U0RX-011



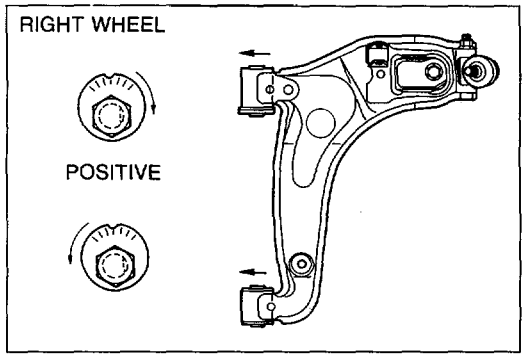
05U0RX-012



05U0RX-013



05U0RX-014



05U0RX-015

Caster

Caster is adjusted by turning the front and/or rear adjusting cam bolt at the lower arm.

Caution

- **Adjust the caster before adjusting the camber.**

1. Loosen the front and/or rear cam nut.
2. Turn the front and/or rear adjusting cam bolt to provide the correct caster angle.

Caster	Left wheel		Right wheel	
	Front cam	Rear cam	Front cam	Rear cam
Increase	Counter-clockwise	Counter-clockwise	Clockwise	Clockwise
Decrease	Clockwise	Clockwise	Counter-clockwise	Counter-clockwise

Note

- **Turning the front cam one graduation on the scale changes the caster angle about 22' and the camber about 25'. Turning the rear cam one graduation changes the caster angle about 22' and the camber about 2'.**

3. Adjust the camber and the toe-in.

R

Camber

Camber is adjusted by turning the front and rear adjusting cam bolts at the lower arm.

Caution

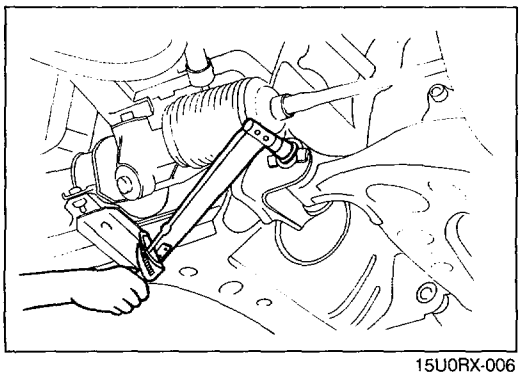
- **Adjust the camber after adjusting the caster.**

1. Loosen the front and rear cam nuts.
2. Turn the front and rear adjusting cam bolts the same amount in the opposite direction to provide the correct camber angle.

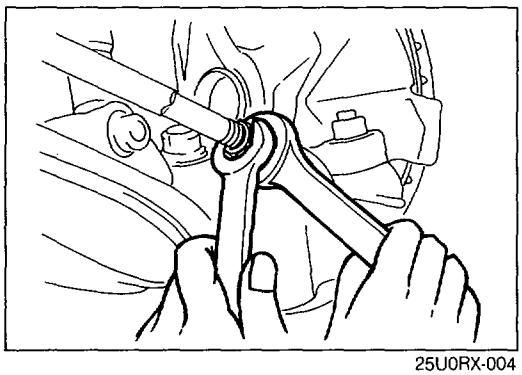
Caster	Left wheel		Right wheel	
	Front cam	Rear cam	Front cam	Rear cam
Positive	Counter-clockwise	Clockwise	Clockwise	Counter-clockwise
Negative	Clockwise	Counter-clockwise	Counter-clockwise	Clockwise

Note

- **Turning the front cam one graduation changes the camber about 25' and the caster about 22'. Turning the rear cam one graduation changes the camber about 2' and the caster about 22'.**



15U0RX-006



25U0RX-004

Note

- **If the cam cannot be turned far enough to make the adjustment, begin again at adjustment of the caster using the other cam.**

3. Tighten the nuts.

Tightening torque:
93—113 N·m (9.5—11.5 m-kg, 69—83 ft-lb)

4. Adjust the toe-in.

Toe-in

1. Remove the steering gear boot clamp.
2. Loosen the left and right tie rod locknuts, and turn the tie rods by the same amount.

Caution

- **The left and right tie rods are both right threaded. To increase the toe-in, turn the right tie rod toward the front of the vehicle, and turn the left tie rod by the same amount toward the rear.**
- **One turn of the tie rod (one side) changes the toe-in by about 7mm (0.28 in).**
- **Adjust the toe-in after adjusting the steering angle.**

3. Tighten the tie rod locknuts to the specified torque.

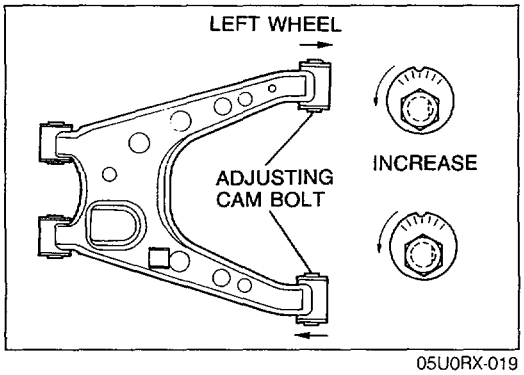
Tightening torque:
34—39 N·m (3.5—4.0 m-kg, 25—29 ft-lb)

4. Verify that the boot is not twisted, and install the boot clamp.

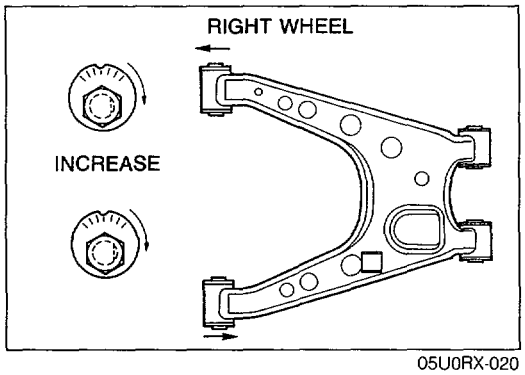
REAR WHEEL ALIGNMENT
Specifications (Unladed*)

Item			Specifications
Total toe-in		mm (in)	3 ± 3 (0.12 ± 0.12)
		degree	0°18' ±18'
Camber angle	Height from center of wheel to fender brim mm (in)	346—355 (13.6—14.0)	−1°08' ± 30'
		356—365 (14.0—14.4)	−0°54' ± 30'
		366—375 (14.4—14.8)	−0°43' ± 30'
		376—385 (14.8—15.2)	−0°35' ± 30'
		386—395 (15.2—15.6)	−0°30' ± 30'

* Fuel tank full; radiator coolant and engine oil at specified levels; spare tire, jack, and tools in designated positions. 05U0RX-018



05U0RX-019



05U0RX-020

Toe-in
Toe-in is adjusted by turning the front and/or rear adjusting cam bolt at the lower arm.

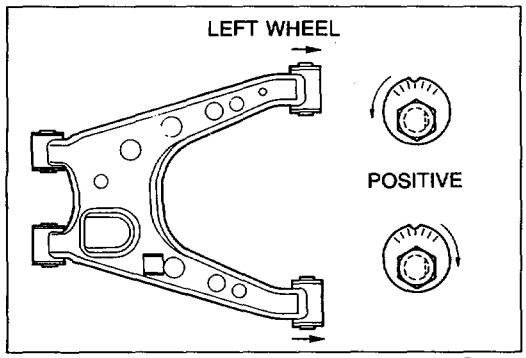
Caution
- **Adjust the toe-in before adjusting the camber.**

1. Loosen the front and/or rear cam nut.
2. Turn the front and/or rear adjusting cam bolt to provide the correct toe-in.

Toe-in	Left wheel		Right wheel	
	Front cam	Rear cam	Front cam	Rear cam
Increase	Counter-clockwise	Counter-clockwise	Clockwise	Clockwise
Decrease	Clockwise	Clockwise	Counter-clockwise	Counter-clockwise

Note
- **Turning the front cam one graduation changes the toe-in about 2.8mm (0.11 in) and the camber about 15'. Turning the rear cam one graduation changes the toe-in about 2.8mm (0.11 in) and the camber about 6'.**

3. Adjust the camber.

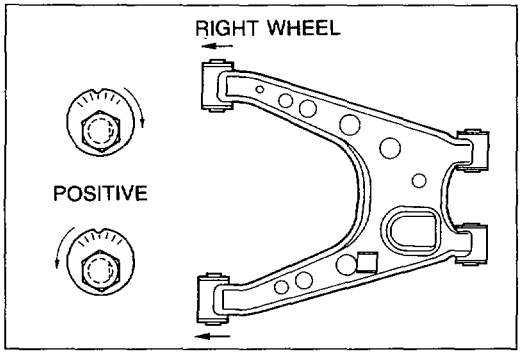


05U0RX-021

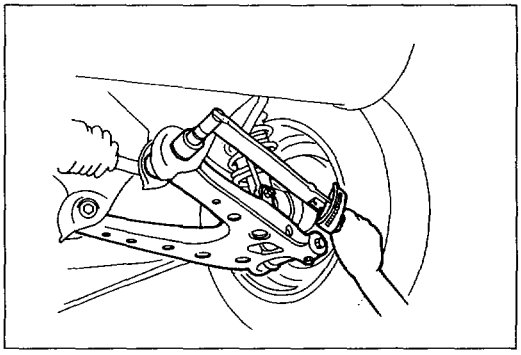
Camber
Camber is adjusted by turning the front and rear cams at the lower arm.

Caution
- **Adjust the camber after adjusting the toe-in.**

1. Loosen the front and rear cam nuts.
2. Turn the front and rear adjusting cam bolts the same amount in the opposite direction to provide the correct camber angle.



05U0RX-022



Camber	Left wheel		Right wheel	
	Front cam	Rear cam	Front cam	Rear cam
Positive	Counter-clockwise	Clockwise	Clockwise	Counter-clockwise
Negative	Clockwise	Counter-clockwise	Counter-clockwise	Clockwise

Note

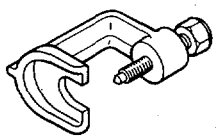
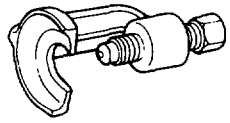
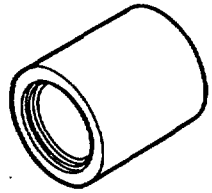
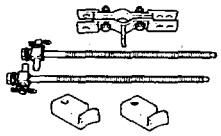
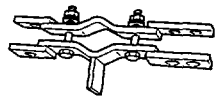
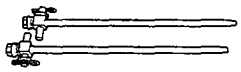
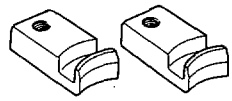
- **Turning the front cam one graduation changes the camber about 15' and the toe-in about 2.8mm (0.11 in). Turning the rear cam one graduation changes the camber about 6' and the toe-in about 2.8mm (0.11 in).**
- **If the cam cannot be turned far enough to make the adjustment, begin again at adjustment of the toe-in using the other cam.**

3. Tighten the nuts.

Tightening torque:
73—95 N·m (7.4—9.7 m-kg, 54—70 ft-lb)

FRONT SUSPENSION (DOUBLE-WISHBONE)

PREPARATION
SST

49 0727 575 Puller, socket joint 	For removal of lower arm ball joint	49 0118 850C Puller, ball joint 	For removal of upper arm ball joint
49 0180 510B Attachment, steering worm bearing preload measuring	For inspection of upper arm ball joint	49 H028 301 Installer, dust boot 	For installation of front lower arm boot
49 G034 1A0 Compressor, coil spring 	For removal and installation of coil spring	49 G034 101 Body (Part of 49 G034 1A0) 	For removal and installation of coil spring
49 G034 102 Screw (Part of 49 G034 1A0) 	For removal and installation of coil spring	49 G034 103 Arm (Part of 49 G034 1A0) 	For removal and installation of coil spring
49 0259 770B Wrench, flare nut	For removal and installation of brake pipe		

25U0RX-005

SHOCK ABSORBER AND SPRING
Removal / Installation

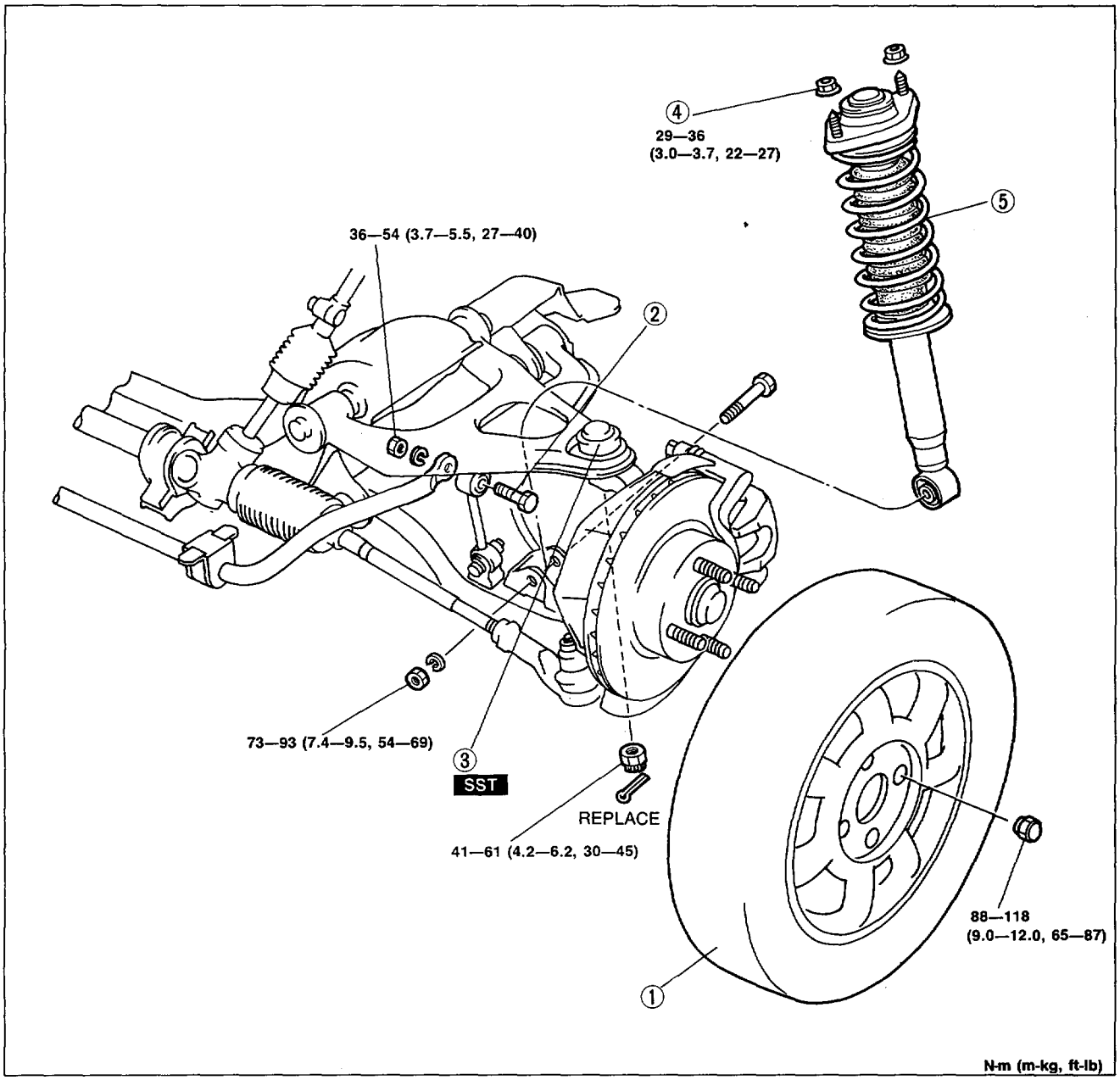
1. Jack up the front of the vehicle and support it with safety stands.
2. Remove the undercover.
3. Remove the band for the wheel speed sensor harnes.
4. Remove in the order shown in the figure, referring to **Removal Note**.
5. Inspect all parts and repair or replace as necessary.
6. Install in the reverse order of removal.
7. Install the band for the wheel speed sensor.

Note

- **Loosely tighten the shock absorber, upper arm, stabilizer control link, and stabilizer bracket bolts. Lower the vehicle and tighten all nuts and bolts to the specified torques with the vehicle unladed.**

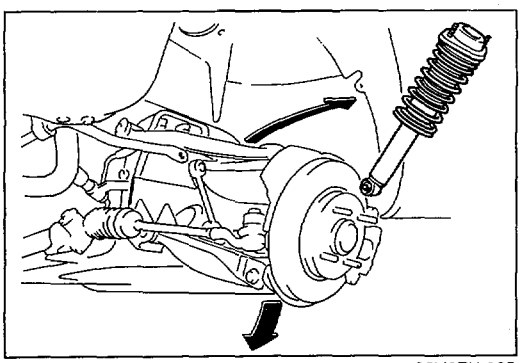
8. Adjust the front wheel alignment. (Refer to page R–6.)

25U0RX-006



25U0RX-007

1. Wheel and tire
2. Stabilizer control link bolt
3. Upper arm ball joint
   Removal Note..... page R–18
4. Mounting plate nut
5. Shock absorber and spring
   Removal Note..... page R–12
   Disassembly / Inspection / Assembly..... page R–13



05U0RX-025

Removal note
Shock absorber and spring

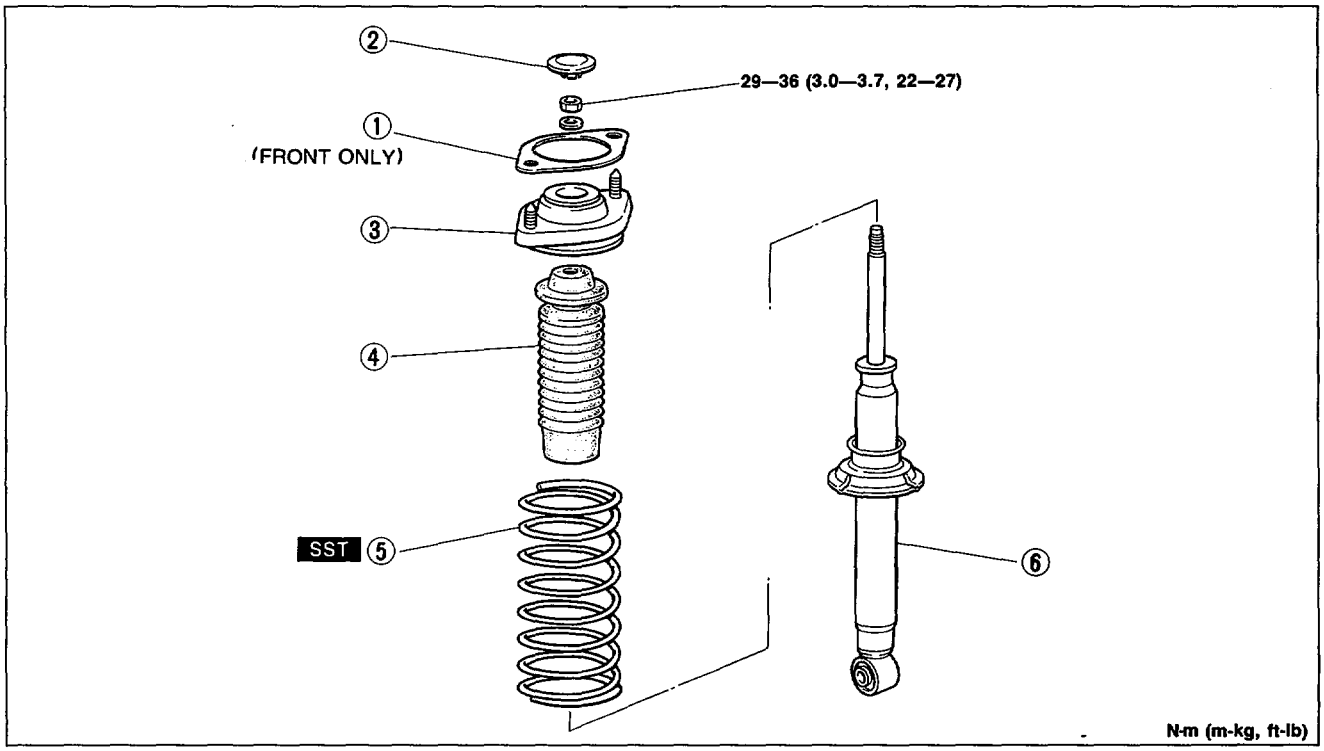
1. Loosen the lower arm bolts.
2. Lower the lower arm to remove the shock absorber.

Caution

- **Do not lower the arm excessively, which may damage the brake hose.**

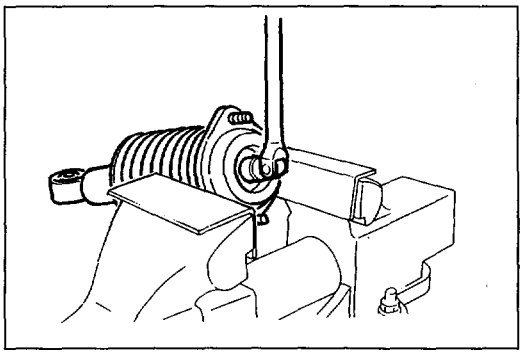
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.
4. Tighten all nuts and bolts to the specified torques, referring to the figure.

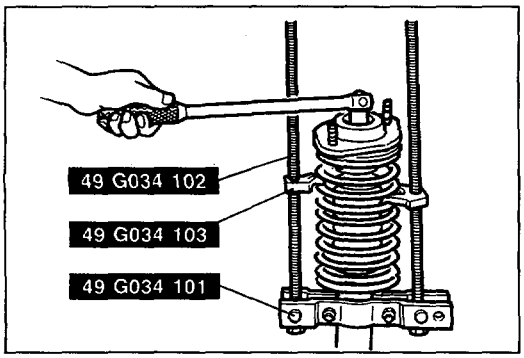


15U0RX-010

1. Sheet (front only)
2. Cap
3. Mounting plate
4. Bound stopper
   Inspect for damage
5. Coil spring
   Disassembly Note ..... page R–13
   Assembly Note ..... page R–14
6. Shock absorber
   Inspect for oil leakage and abnormal noise



05U0RX-027

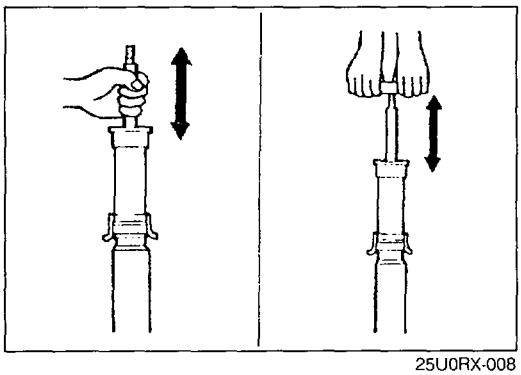


05U0RX-028

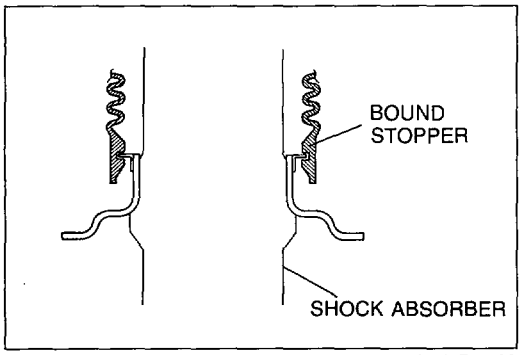
Disassembly note
Coil spring

Caution
- **Do not remove the nut.**
- **Use copper or aluminum plates in the jaws of the vise.**

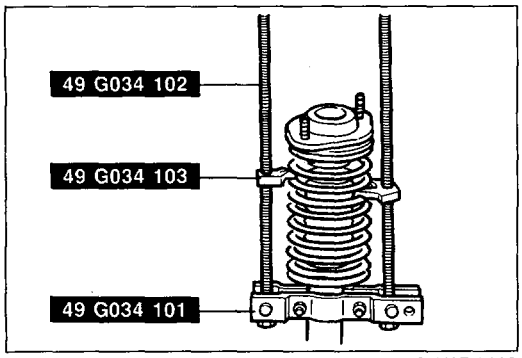
1. Loosen the piston rod upper nut several turns, but do not remove the nut.
2. Assemble the **SST**.
3. Compress the coil spring with the **SST**, and remove the upper nut.
4. Remove the coil spring.



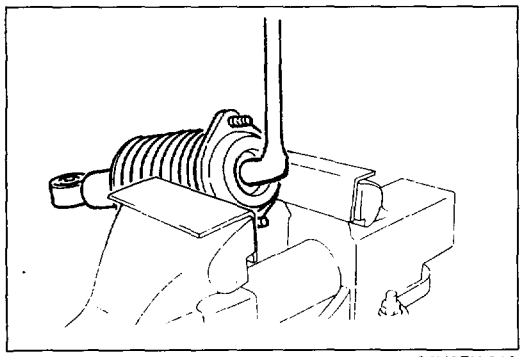
25U0RX-008



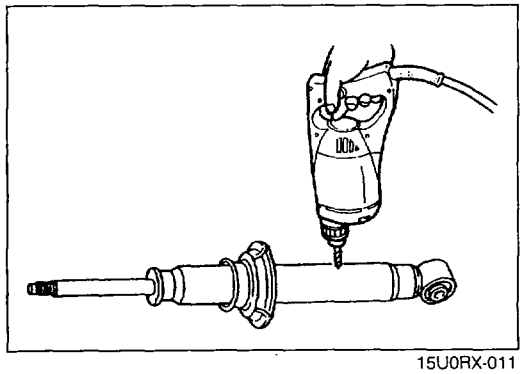
05U0RX-029



25U0RX-009



25U0RX-010



15U0RX-011

Inspection
Shock absorber
Check the following and replace if necessary.
1. Inspect for damage and oil leakage.
2. Inspect the rubber bushing for deterioration and wear.
3. Compress and extend the shock piston at least three (3) times. Verify that the operational force does not change and that there is no unusual noise.
4. (1) Compress the shock absorber piston and release it.
   (2) Verify that the piston extends fully at a normal speed.

Assembly note
Coil spring and bound stopper
1. Set the shock absorber in a vise.
2. Install the bound stopper on the shock absorber as shown.

3. Install the compressed coil spring (compressed with **SST**).
4. Install the mounting plate.
5. Loosely tighten the mounting plate nut.

6. Remove the **SST**.

Caution
- **Use copper or aluminum plates in the jaws of the vise.**

7. Secure the mounting plate in a vise.
8. Tighten the piston rod upper nut.

Tightening torque:
29—36 N·m (3.0—3.7 m-kg, 22—27 ft-lb)

Disposal of shock absorber

Caution
- **The gas in the shock absorber is color less, order less, and non-toxic.**
- **Wear safety glasses as drilling chips may be expelled by the pressurized gas.**

1. Lay the shock absorber flat.
2. Drill a hole in the shock absorber body.

Drill size: 2—3mm (0.04—0.12 in).

3. Allow the gas to escape from the shock absorber.
4. Discard the shock absorber.

LOWER ARM

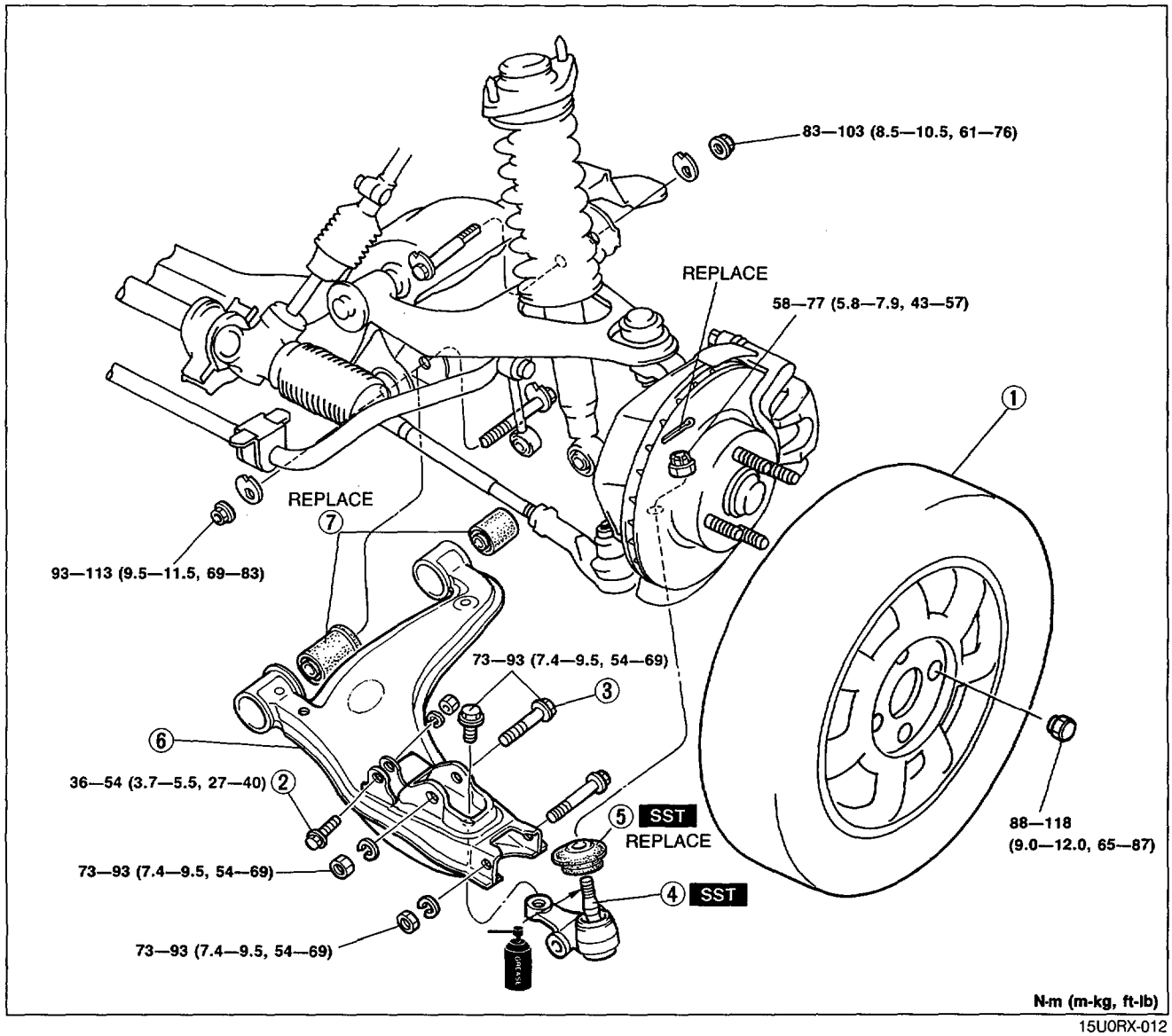
Removal / Inspection / Installation

1. Jack up the front of the vehicle and support it with safety stands.
2. Remove the undercover.
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Inspect all parts and repair or replace as necessary.
5. Install in the reverse order of removal, referring to **Installation Note**.
6. Tighten all nuts and bolts to the specified torques, referring to the figure.

Note

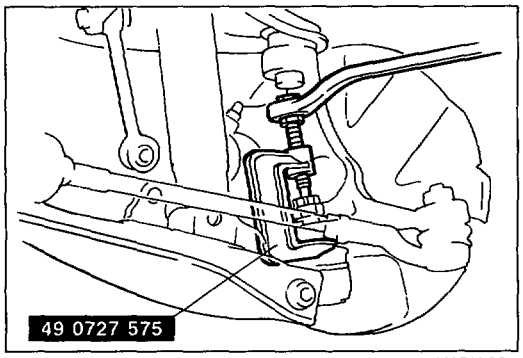
- **Loosely tighten the lower arm, shock absorber, and stabilizer control link bolts. Lower the vehicle and tighten all nuts and bolts to the specified torques with the vehicle unladed.**

7. Adjust the front wheel alignment. (Refer to page R–6.)



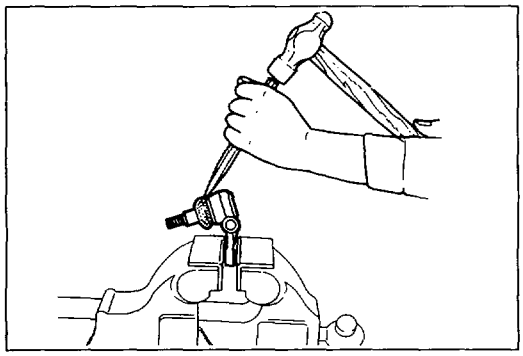
15U0RX-012

1. Wheel and tire
2. Stabilizer control link bolt
3. Shock absorber bolt
4. Lower arm ball joint
   - Removal Note..... page R–16
   - Inspection..... page R–16
5. Ball joint dust boot
   - Removal Note..... page R–16
   - Installation Note..... page R–16
6. Lower arm
   - Inspect for damage and cracks
7. Lower arm bushing (front and rear)
   - Inspect for deterioration and wear



05U0RX-033

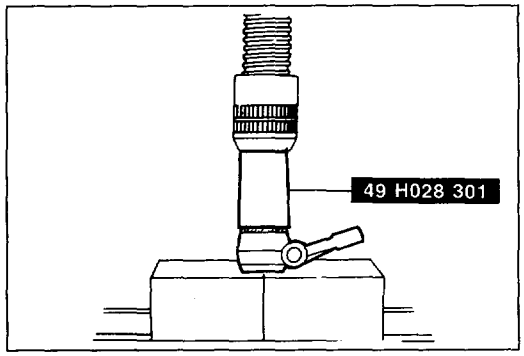
Removal note
Lower arm ball joint
Separate the ball joint from the knuckle with the **SST**.



05U0RX-034

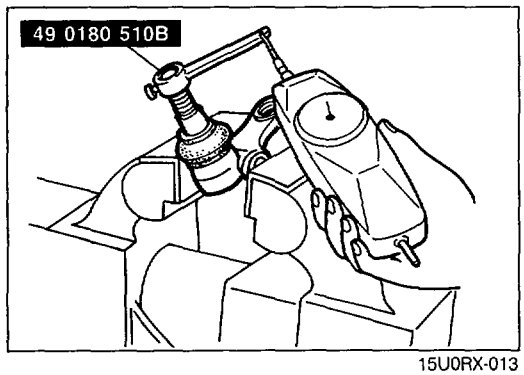
Ball joint dust boot
Remove the dust boot with a chisel.

Caution
- **Do not damage the ball joint stud.**



25U0RX-011

Installation note
Ball joint dust boot
1. Wipe away the grease on the ball joint.
2. Liberally coat the inside of the new dust boot with grease.
3. Press the dust boot onto the ball joint with the **SST**.
4. Wipe away any grease that has been expelled from the dust boot.



15U0RX-013

Inspection
Lower arm ball joint
Ball joint rotation torque
1. Shake the ball joint stud 5 times.
2. Connect the **SST** to the ball stud, and measure the rotation torque with a pull scale.

Rotation torque:
0.5—1.5 N·m (5—15 cm-kg, 4.3—13 in-lb)

Pull scale reading:
4.9—14.7 N (0.5—1.5 kg, 1.1—3.3 lb)

UPPER ARM

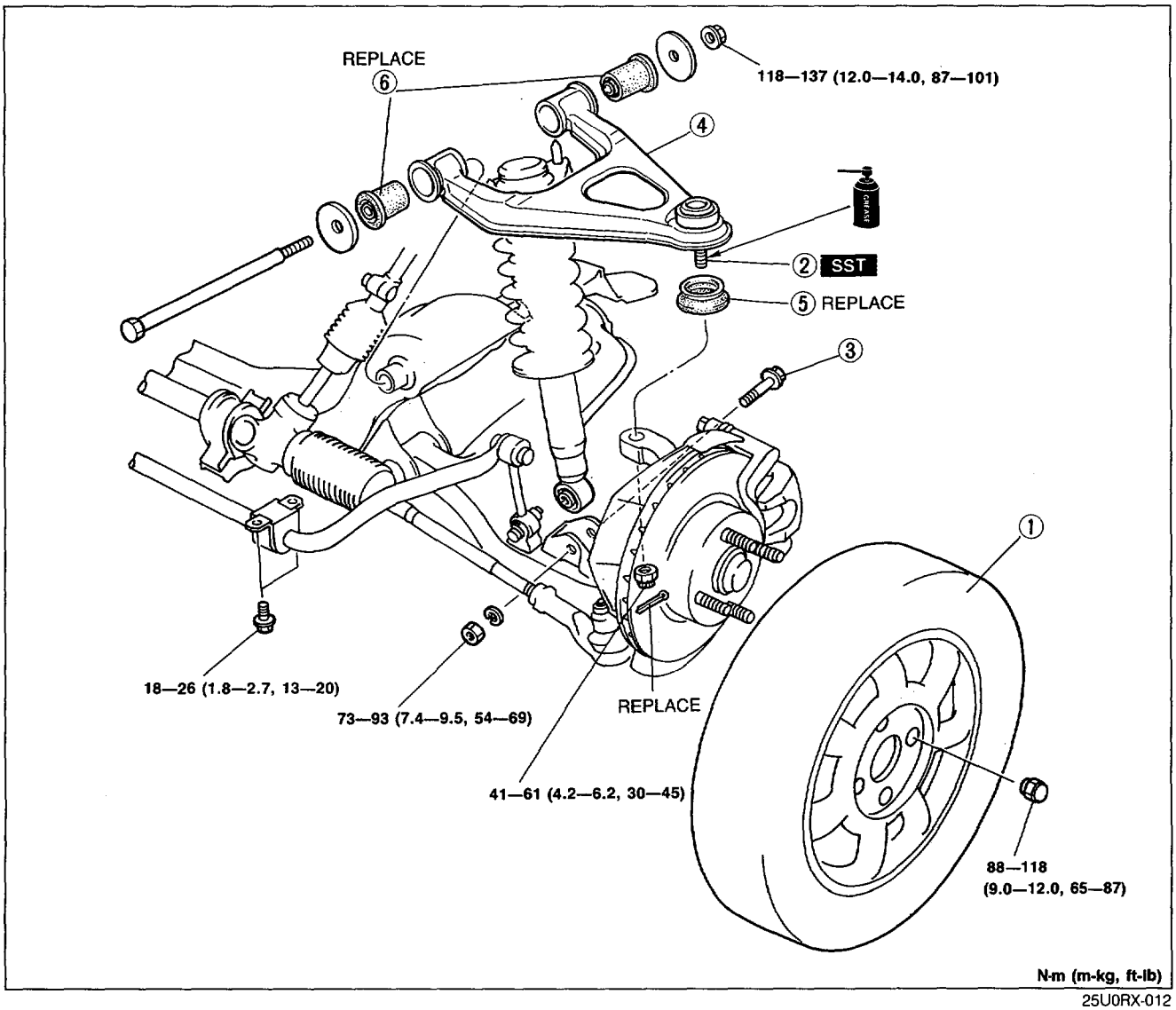
Removal / Inspection / Installation

1. Jack up the front of the vehicle and support it with safety stands.
2. Remove the undercover.
3. Remove the band for the wheel speed sensor harnes.
4. Remove in the order shown in the figure, referring to **Removal Note**.
5. Inspect all parts and repair or replace as necessary.
6. Install in the reverse order of removal, referring to **Installation Note**.
7. Install the band for the wheel speed sensor harnes.
8. Tighten all nuts and bolts to the specified torques, referring to the figure.

Note

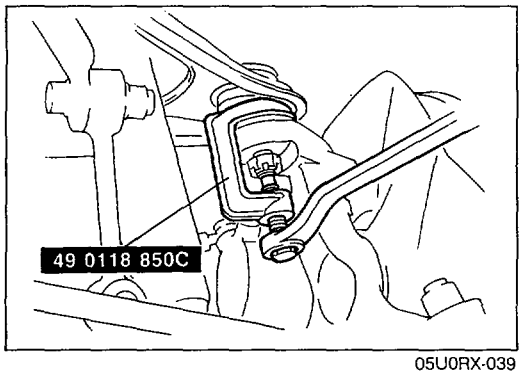
- **Loosely tighten the upper arm and shock absorber bolts. Lower the vehicle and tighten all nuts and bolts to the specified torques with the vehicle unladed.**

9. Adjust the front wheel alignment. (Refer to page R–6.)



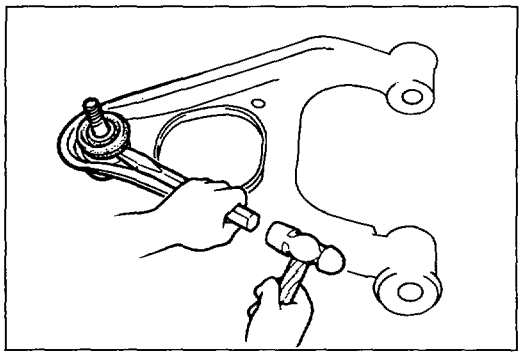
25U0RX-012

1. Wheel and tire
2. Upper arm ball joint
   Removal Note..... page R–18
3. Shock absorber bolt
4. Upper arm
   Inspect for damage and cracks
5. Ball joint dust boot
   Removal Note..... page R–18
   Installation Note..... page R–18
6. Upper arm bushing (front and rear)
   Inspect for deterioration and damage



05U0RX-039

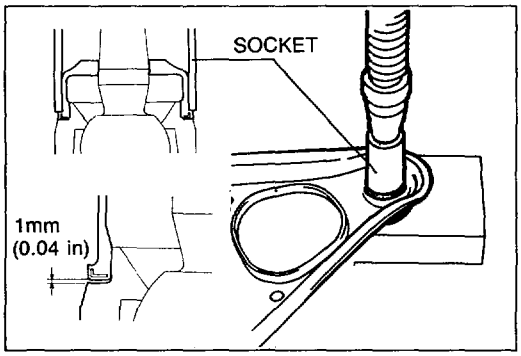
Removal note
Upper arm ball joint
Separate the upper arm ball joint from the knuckle with the **SST**.



05U0RX-040

Ball joint dust boot
Remove the dust boot with a chisel.

Caution
- **Do not damage the ball joint stud.**

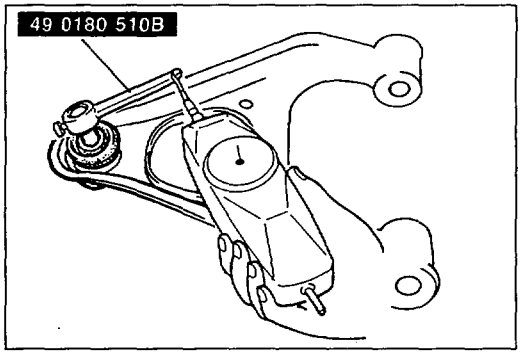


15U0RX-015

Installation note
Ball joint dust boot
1. Liberally coat the inside of the new dust boot with grease.
2. Press the dust boot on with a **30mm (1 1/8 in)** socket until the dust boot contacts the seat.

Caution
- **Install the dust boot squarely and do not press excessively; the inner metal ring will be deformed if not done correctly.**

3. Verify that the clearance between the boot and the seat is less than **1mm (0.04 in)**.



15U0RX-016

Inspection
Upper arm ball joint
Ball joint rotation torque
1. Shake the ball joint stud 5 times.
2. Connect the **SST** to the ball stud, and measure the rotation torque with a pull scale.

Rotation torque:
0.4—1.8 N·m (4—18 cm-kg, 3.5—15.6 in-lb)

Pull scale reading:
3.9—17.7 N (0.4—1.8 kg, 0.9—4.0 lb)

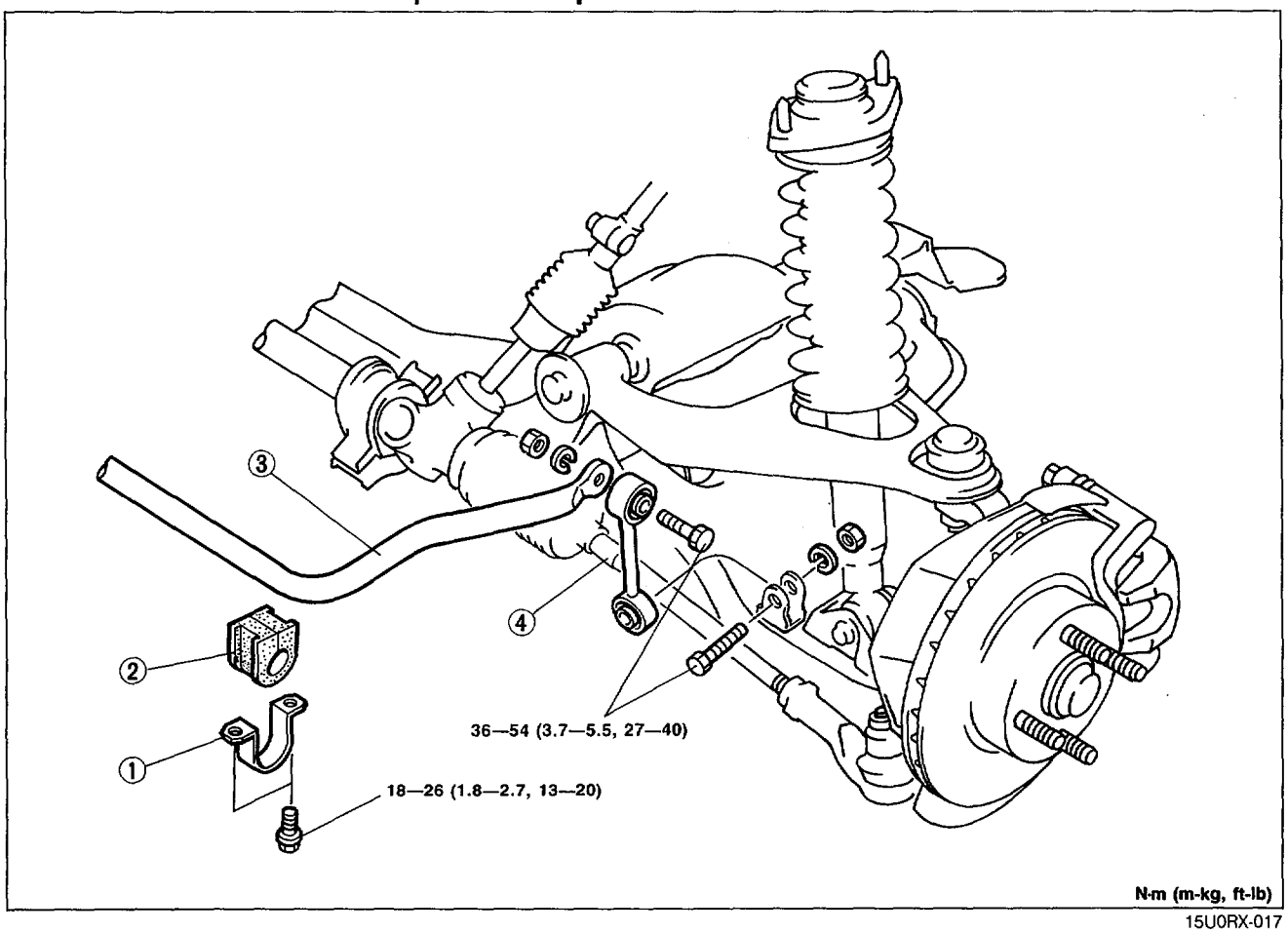
STABILIZER

Removal / Inspection / Installation

1. Jack up the front of the vehicle and support it with safety stands.
2. Remove the undercover.
3. Remove in the order shown in the figure.
4. Inspect all parts and repair or replace as necessary.
5. Install in the reverse order of removal, referring to **Installation Note**.
6. Tighten all nuts and bolts to the specified torques, referring to the figure.

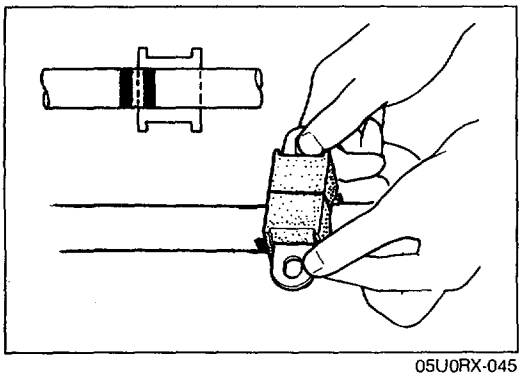
Note

- **Loosely tighten the stabilizer control link and bracket bolts. Lower the vehicle and tighten all nuts and bolts to the specified torques with the vehicle unladed.**



15U0RX-017

1. Stabilizer bracket
2. Stabilizer bushing
   Inspect for deterioration and wear
   Installation Note R–19
3. Stabilizer
   Inspect for bending and damage
4. Stabilizer control link
   Inspect for bending and damage



05U0RX-045

Installation note

Stabilizer bushing

Align the bushing with the installation mark on the stabilizer.

CROSSMEMBER

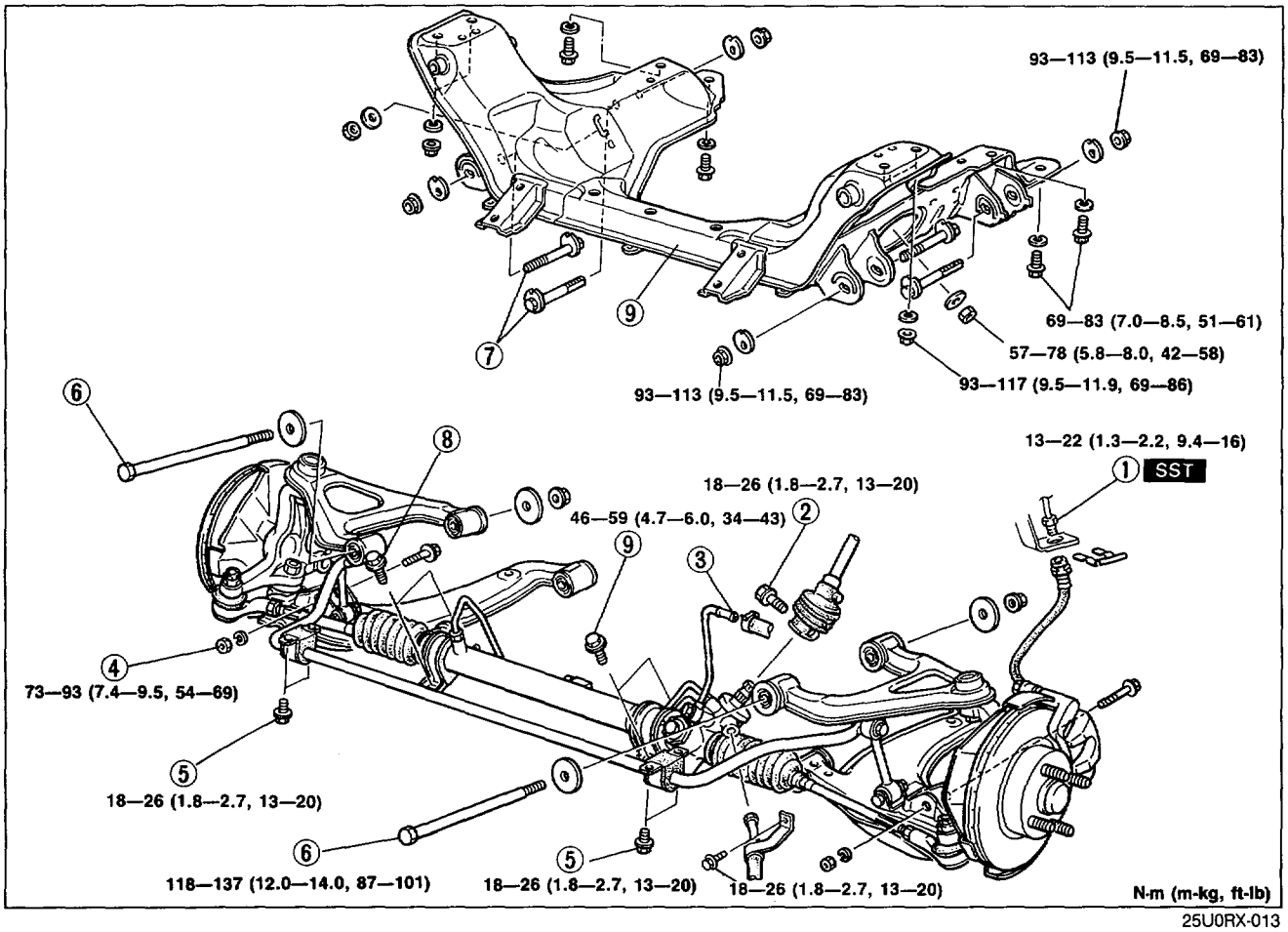
Removal / Inspection / Installation

1. Jack up the vehicle.
2. Remove the wheels and the undercover.
3. Support the engine with a hoist.
4. Remove in the order shown in the figure.
5. Inspect all parts and repair or replace as necessary.

Note

- **Use a container or rags to collect the power steering fluid when disconnecting the power steering pipes.**
- **Lower the crossmember and other suspension parts as an assembly, and then separate the parts.**
- **Loosely tighten the stabilizer bracket, upper arm, and lower arm bolts when assembling before installation. Lower the vehicle and tighten all nuts and bolts to the specified torques with the vehicle unladed.**

6. Install in the reverse order of removal.
7. Adjust the front wheel alignment. (Refer to page R–6.)
8. Bleed the air from the brake system. (Refer to Section P.)
9. Bleed the air from the Power Steering System. (Refer to Section N.)

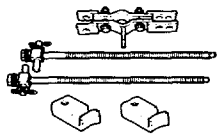
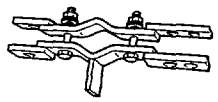
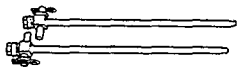
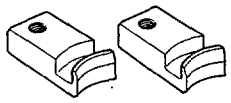


25U0RX-013

1. Brake pipe
   Removal / Installation..... Section P
2. Pinion shaft bolt
   Removal / Installation ..... Section N
3. Power steering pipe
   Removal / Installation ..... Section N
4. Shock absorber bolt
5. Stabilizer bracket bolt
6. Upper arm bolt
7. Adjusting cam bolt
8. Steering gear bracket bolt
9. Front crossmember assembly
   Inspect for damage

REAR SUSPENSION (DOUBLE-WISHBONE)

PREPARATION
SST

49 G034 1A0 Compressor, coil spring 	For removal and installation of coil spring	49 G034 101 Body (Part of 49 G030 1A0) 	For removal and installation of coil spring
49 G034 102 Screw (Part of 49 G034 1A0) 	For removal and installation of coil spring	49 G034 103 Arm (Part of 49 G034 1A0) 	For removal and installation of coil spring
49 0259 770B Wrench, flare nut	For removal and installation of brake pipe		

25U0RX-014

SHOCK ABSORBER AND SPRING

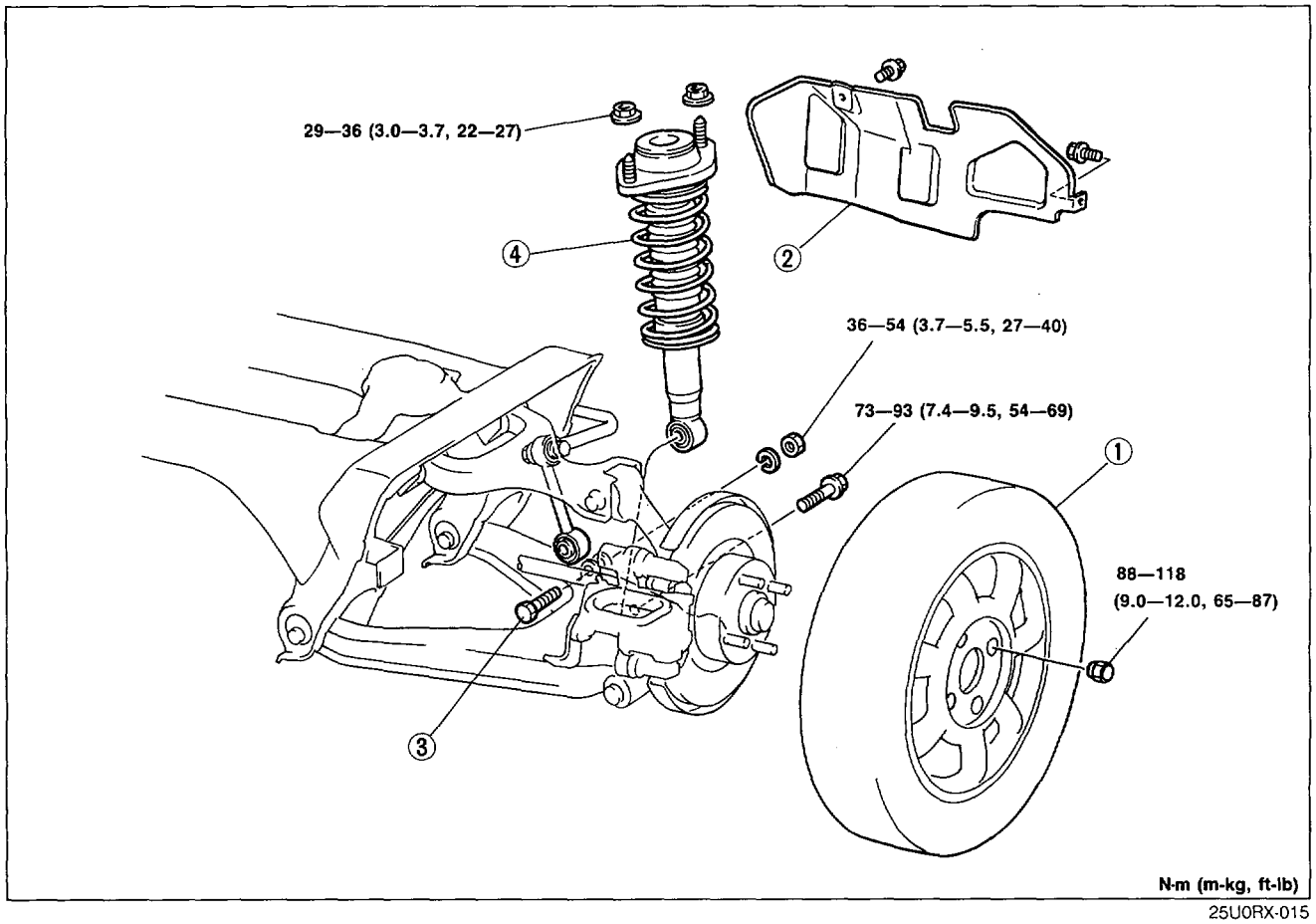
Removal / Installation

1. Jack up the front of the vehicle and support it with safety stands.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Inspect all parts and repair or replace as necessary.
4. Install in the reverse order of removal.
5. Tighten all nuts and bolts to the specified torques, referring to the figure.

Note

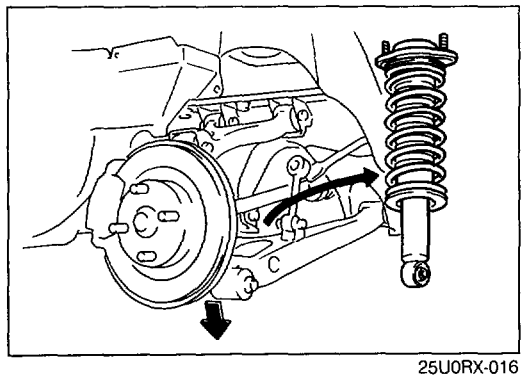
- **Loosely tighten the stabilizer control link bolt. Lower the vehicle and tighten all nuts and bolts to the specified torques with the vehicle unladed.**

6. Adjust the rear wheel alignment. (Refer to page R–9.)



25U0RX-015

1. Wheel and tire
2. Filler pipe protector (left side)
3. Stabilizer control link bolt
4. Shock absorber and spring
   Removal Note..... page R–22
   Disassembly / Inspection / Assembly..... page R–13



25U0RX-016

Removal note
Shock absorber and spring

Caution

- **Do not lower the arms excessively, which may damage the brake hose.**

1. Loosen the upper arm and Adjusting cam nuts.
2. Lower the upper and lower arms to remove the shock absorber and spring.

LOWER ARM

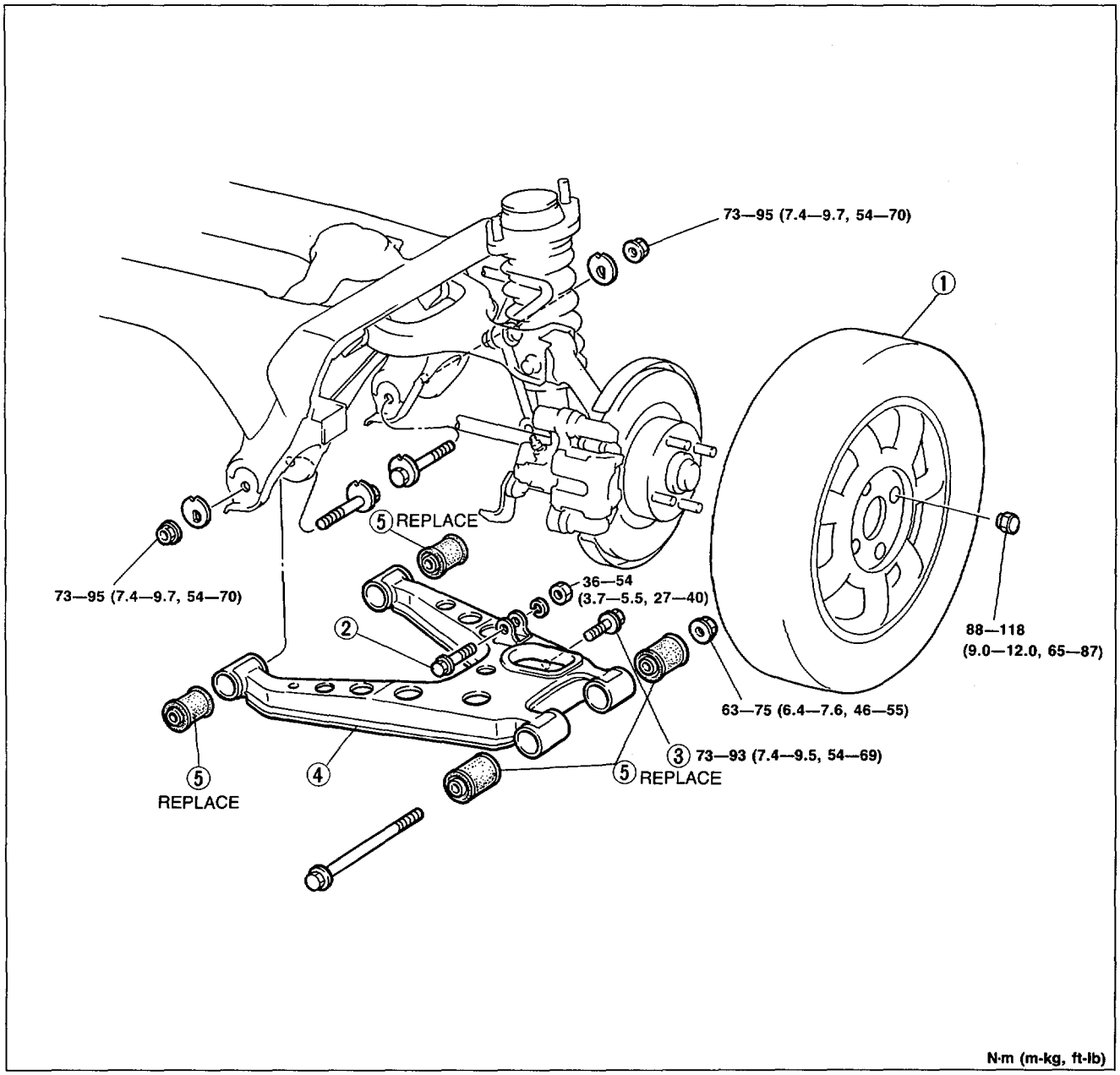
Removal / Inspection / Installation

1. Jack up the rear of the vehicle and support it with safety stands.
2. Remove in the order shown in the figure.
3. Inspect all parts and repair or replace as necessary.
4. Install in the reverse order of removal.

Note

- **Loosely tighten the lower arm, shock absorber, and stabilizer control link bolts. Lower the vehicle and tighten all nuts and bolts to the specified torques with the vehicle unladed.**

5. Adjust the rear wheel alignment. (Refer to page R–9.)



15U0RX-021

1. Wheel and tire
2. Stabilizer control link bolt
3. Shock absorber bolt
4. Lower arm
   Inspect for damage and cracks
5. Lower arm bushing
   (crossmember side and knuckle side)
   Inspect for deterioration and wear

UPPER ARM

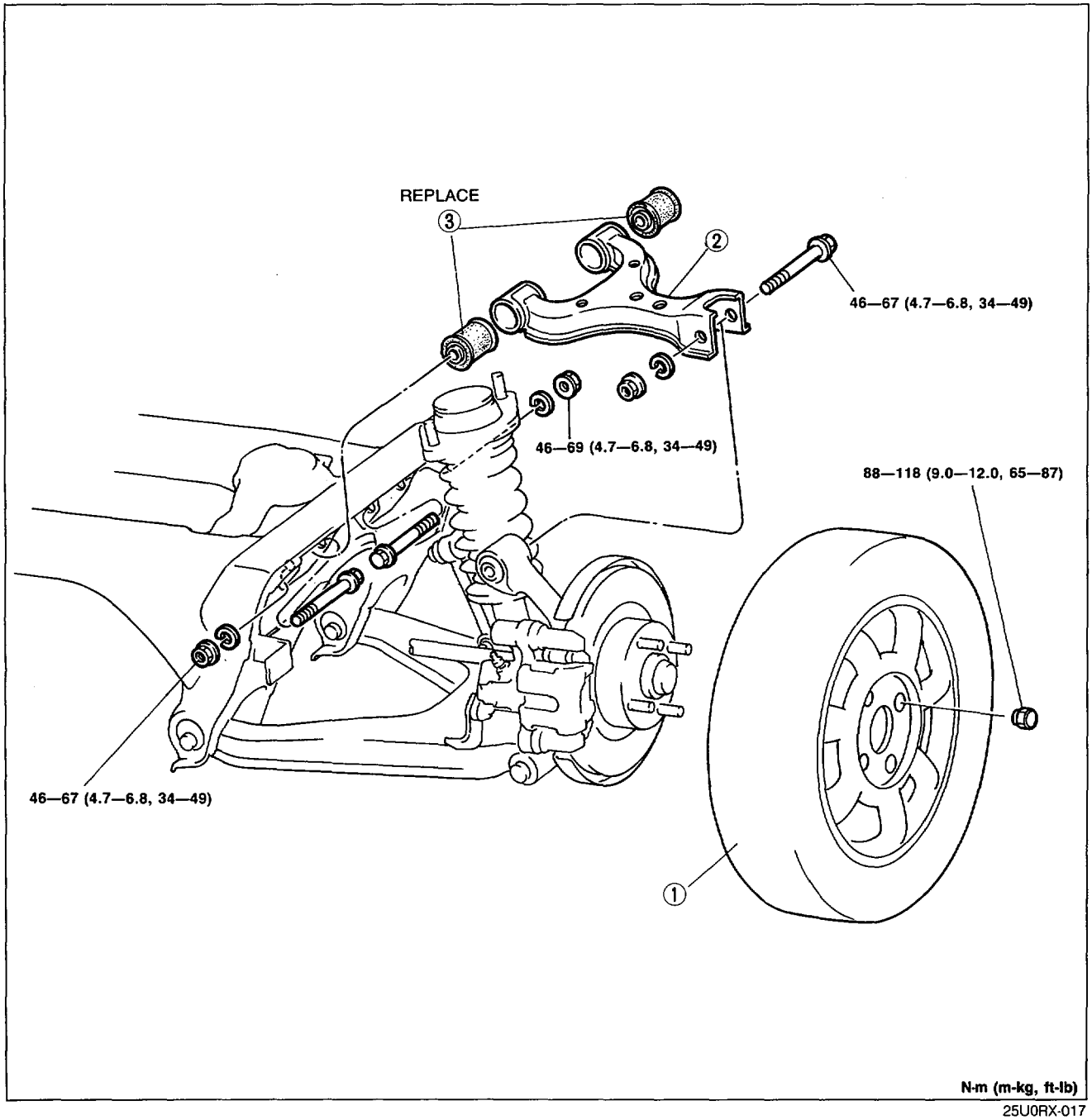
Removal / Inspection / Installation

1. Jack up the rear of the vehicle and support it with safety stands.
2. Remove in the order shown in the figure.
3. Inspect all parts and repair or replace as necessary.
4. Install in the reverse order of removal.

Note

- **Loosely tighten the upper arm bolts. Lower the vehicle and tighten all nuts and bolts to the specified torques with the vehicle unladed.**

5. Adjust the rear wheel alignment. (Refer to page R–9.)



25U0RX-017

1. Wheel and tire
2. Upper arm
   Inspect for damage and cracks
3. Upper arm bushing
   Inspect for deterioration and wear

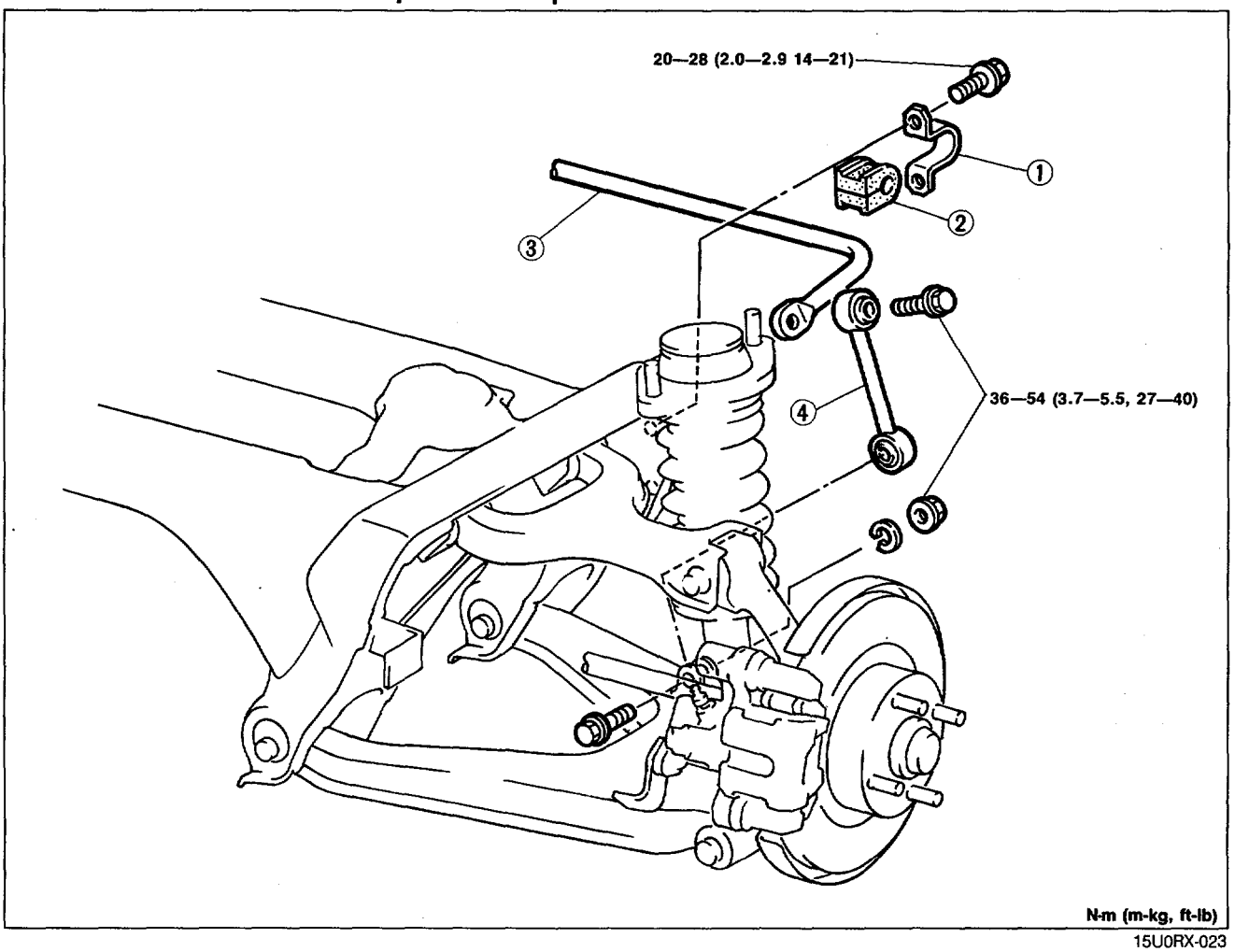
STABILIZER

Removal / Inspection / Installation

1. Jack up the rear of the vehicle and support it with safety stands.
2. Remove in the order shown in the figure.
3. Inspect all parts and repair or replace as necessary.
4. Install in the reverse order of removal, referring to **Installation Note**.

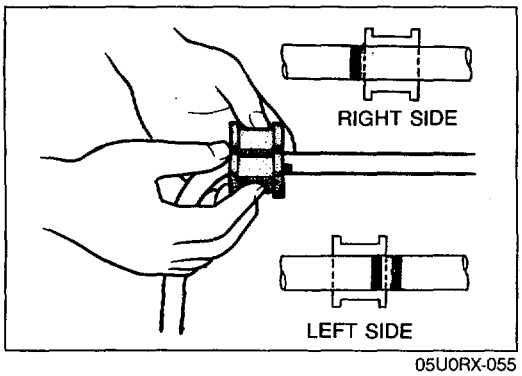
Note

- **Loosely tighten the stabilizer bracket and control link bolts. Lower the vehicle and tighten all nuts and bolts to the specified torques with the vehicle unladed.**



15U0RX-023

1. Stabilizer bracket
2. Stabilizer bushing
   Inspect for deterioration and wear
   Installation Note..... page R–25
3. Stabilizer
   Inspect for bending and damage
4. Control link
   Inspect for bending and damage



05U0RX-055

Installation note

Stabilizer bushing

Align the bushing with the installation mark on the stabilizer.

CROSSMEMBER

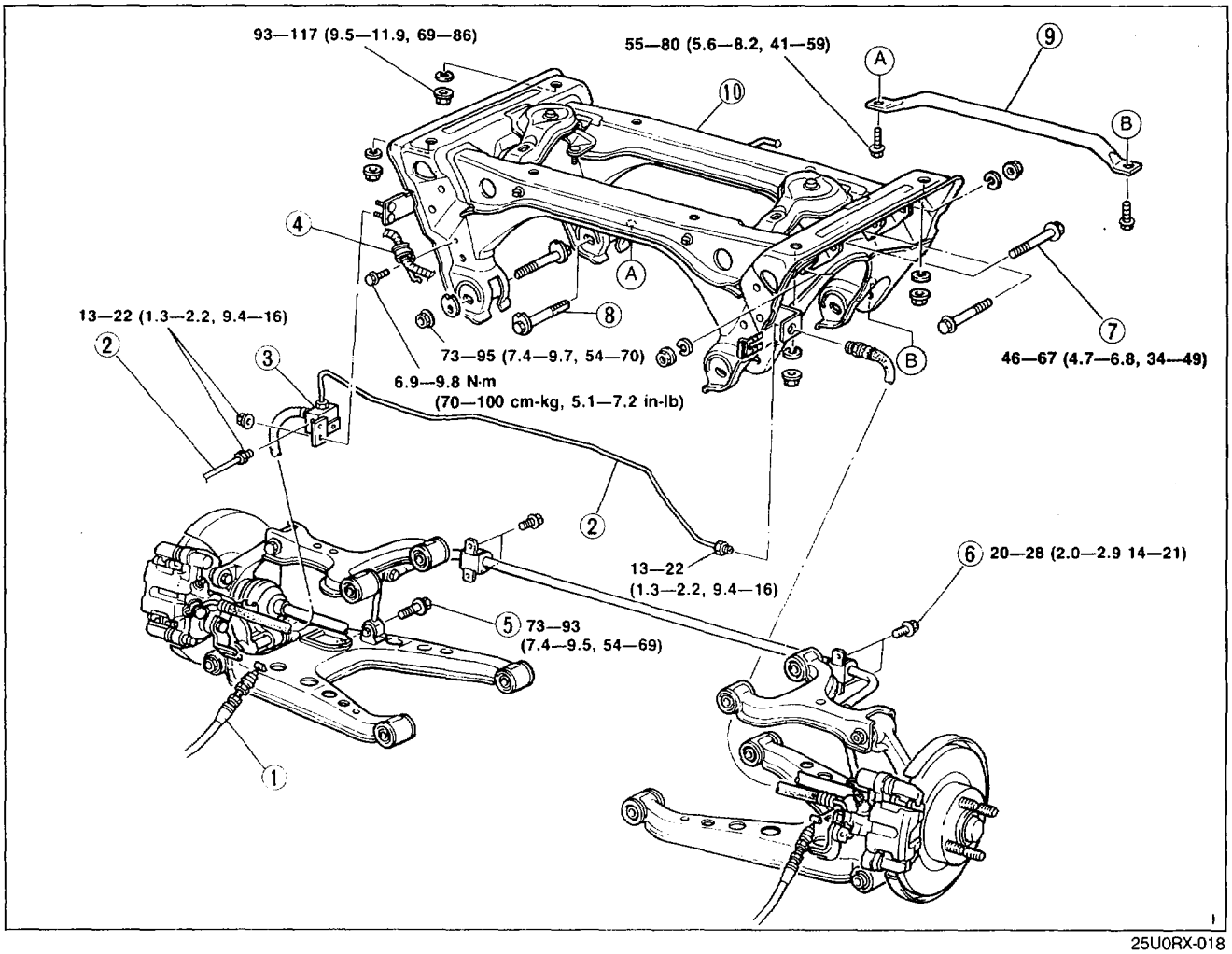
Removal / Inspection / Installation

1. Jack up the vehicle and support it with safety stands.
2. Remove the wheels and tires.
3. Remove the differential and the power plant frame. (Refer to Section M.)
4. Remove in the order shown in the figure.

Note

- **Lower the crossmember and other suspension parts as an assembly, and then separate the parts.**
- **Loosely tighten the stabilizer bracket, upper arm, and lower arm bolts when assembling before installation. Lower the vehicle and tighten all nuts and bolts to the specified torques with the vehicle unladed.**

5. Inspect parts and repair or replace as necessary.
6. Install in the reverse order of removal.
7. Adjust the rear wheel alignment. (Refer to page R–9.)
8. Bleed the air from the brake system. (Refer to Section P.)
9. Adjust the parking brake lever stroke. (Refer to Section P.)



25U0RX-018

1. Parking brake cable
   Removal / Installation ..... Section P
2. Brake pipe
   Removal / Installation ..... Section P
3. Brake pipe joint
4. Battery cable bracket
5. Shock absorber bolt
6. Stabilizer bracket
7. Upper arm bolt
8. Adjusting cam bolt
9. Performance bar
   Inspect for bending
10. Rear crossmember assembly
    Inspect for damage

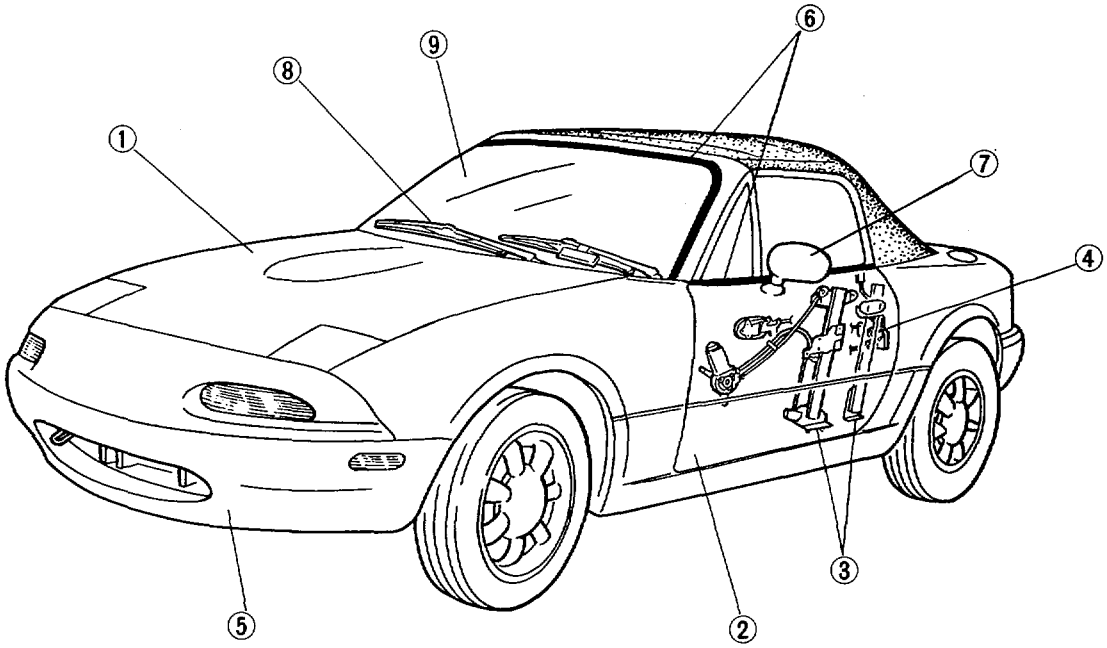
Before beginning any service procedure, refer to Section T of this manual for airbag system warnings and cautions.

BODY

INDEX ..... **S– 2**
HOOD ..... **S– 5**
COMPONENTS ..... **S– 5**
DOOR ..... **S– 7**
COMPONENTS ..... **S– 7**
WINDOW REGULATOR, GLASS, AND GUIDE ..... **S– 9**
COMPONENTS ..... **S– 9**
DOOR LOCK AND OPENER **S–15**
COMPONENTS **S–15**
TRUNK LID **S–16**
COMPONENTS **S–16**
TRUNK LID LOCK AND OPENER **S–18**
COMPONENTS **S–18**
POWER WINDOW SYSTEM **S–19**
STRUCTURAL VIEW **S–19**
TROUBLESHOOTING GUIDE **S–20**
POWER WINDOW SWITCH **S–22**
POWER WINDOW REGULATOR **S–22**
FUEL FILLER LID OPENER **S–23**
COMPONENTS **S–23**
FRONT BUMPER **S–24**
COMPONENTS **S–24**
REAR BUMPER **S–25**
COMPONENTS **S–25**
MOLDING AND GARNISH **S–27**
COMPONENTS **S–27**
DOOR MIRROR **S–30**
COMPONENTS **S–30**
WINDSHIELD WIPER AND WASHER . **S–31**
TROUBLESHOOTING GUIDE **S–31**
WIPER MOTOR **S–34**
WASHER MOTOR **S–34**
FRONT WIPER AND WASHER SWITCH **S–34**
COMPONENTS **S–35**
WINDSHIELD **S–40**
PREPARATION **S–40**
COMPONENTS **S–40**
REAR WINDOW GLASS **S–44**
PREPARATION **S–44**
COMPONENTS **S–44**
REAR WINDOW **S–48**
COMPONENTS **S–48**
DASHBOARD AND CONSOLE **S–52**
COMPONENTS **S–52**
TRIM **S–55**
COMPONENTS **S–55**
FLOORMAT **S–58**
COMPONENTS **S–58**
SEAT BELT **S–59**
COMPONENTS **S–59**
EMERGENCY LOCKING RETRACTOR **S–60**
WEBBING **S–60**
BUCKLE SWITCH **S–60**
SEAT **S–61**
COMPONENTS **S–61**
CONVERTIBLE TOP **S–63**
COMPONENTS **S–63**
REPAIR OF TOP FABRIC **S–75**
TOOLS FOR REPAIR AND REPLACEMENT CONVERTIBLE TOP **S–76**
DETACHABLE HARD TOP **S–77**
COMPONENTS **S–77**
HOW TO ADJUST CONVERTIBLE TOP/DETACHABLE HARD TOP **S–78**
UNDERBODY DIMENSIONS **S–81**
UNDERBODY PROJECTED DIMENSIONS **S–81**
UNDERBODY STRAIGHT-LINE DIMENSIONS **S–83**

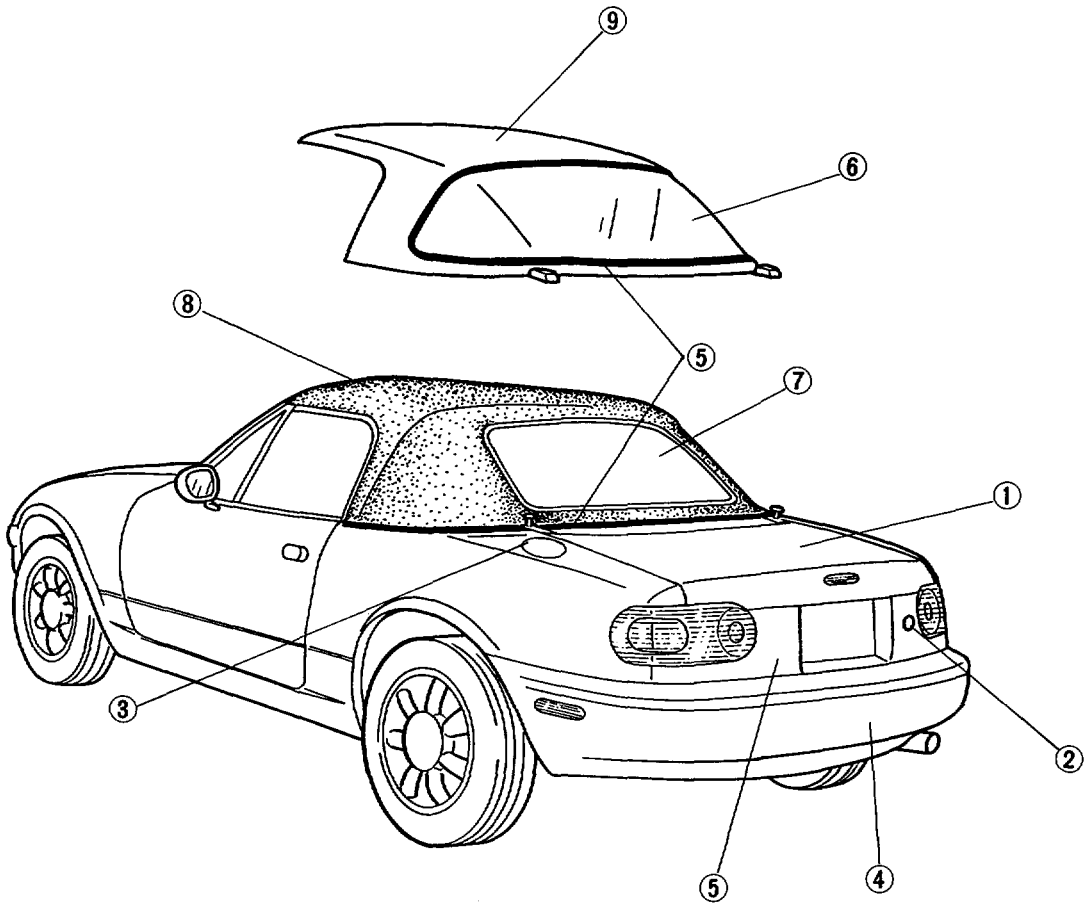
25U0SX-028

INDEX



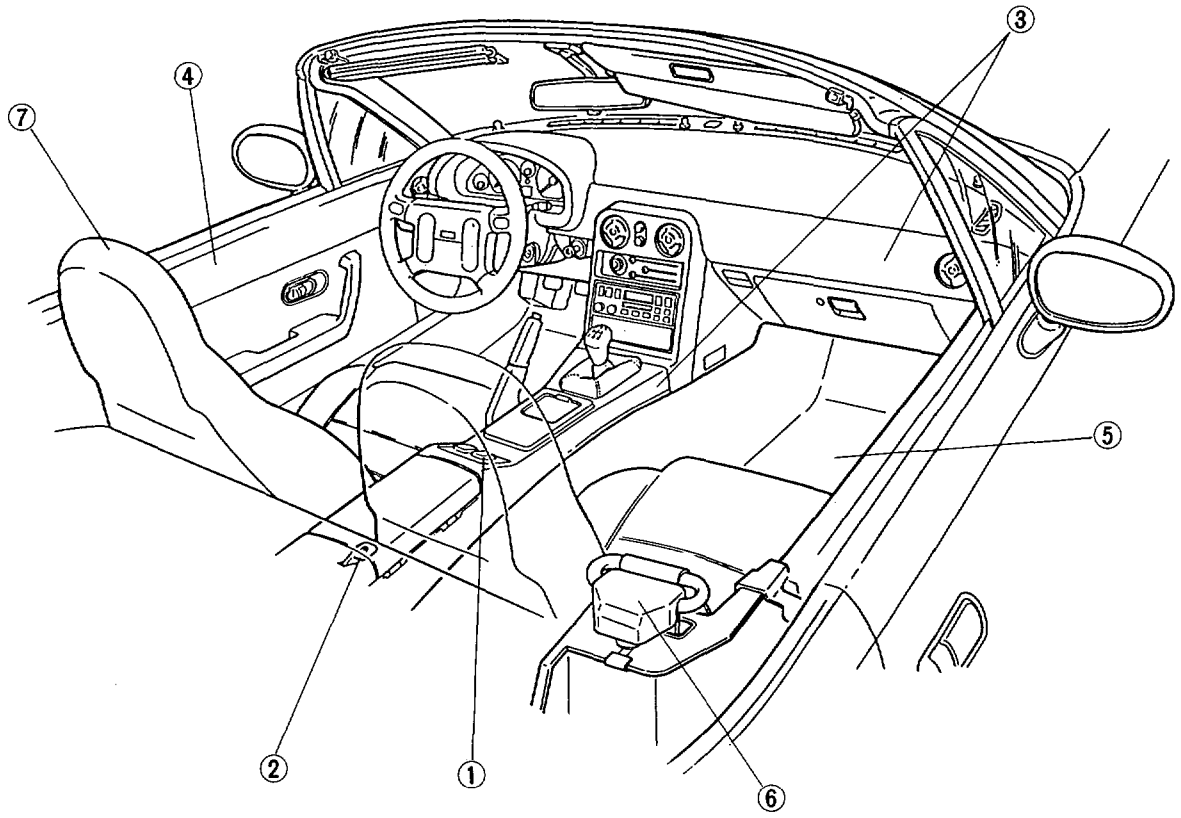
15U0SX-002

1. Hood
Removal / Installation ..... page S– 5
2. Door
Removal / Installation ..... page S– 7
Adjustment ..... page S– 8
3. Window regulator, glass, and guide
Removal / Installation ..... page S– 9
Adjustment ..... page S–10
4. Door lock and opener
Removal / Installation ..... page S–15
5. Front bumper
Removal / Installation ..... page S–24
6. Molding and garnish
Removal / Installation ..... page S–27
7. Door mirror
Removal / Installation ..... page S–30
8. Windshield wiper and washer
Troubleshooting guide ..... page S–31
Inspection ..... page S–34
Removal / Installation ..... page S–35
Disassembly / Assembly ..... page S–39
Adjustment ..... page S–38
9. Windshield
Removal / Installation ..... page S–40



15U0SX-003

1. Trunk lid
Removal / Installation ..... page S–16
Adjustment..... page S–17
2. Trunk lid lock and opener
Removal / Installation ..... page S–18
Adjustment..... page S–18
3. Fuel filler lid opener
Removal / Installation ..... page S–23
4. Rear bumper
Removal / Installation ..... page S–25
Disassembly / Assembly ..... page S–26
5. Molding and garnish
Removal / Installation ..... page S–27
6. Rear window glass (Detachable hard top)
Removal / Installation ..... page S–44
7. Rear window (Convertible top)
Removal / Installation ..... page S–48
8. Convertible top
Removal / Installation ..... page S–64
Disassembly / Assembly ..... page S–66
Repairing ..... page S–76
Adjustment..... page S–78
9. Detachable hard top
Disassembly / Assembly ..... page S–69
Adjustment..... page S–78



15U0SX-004

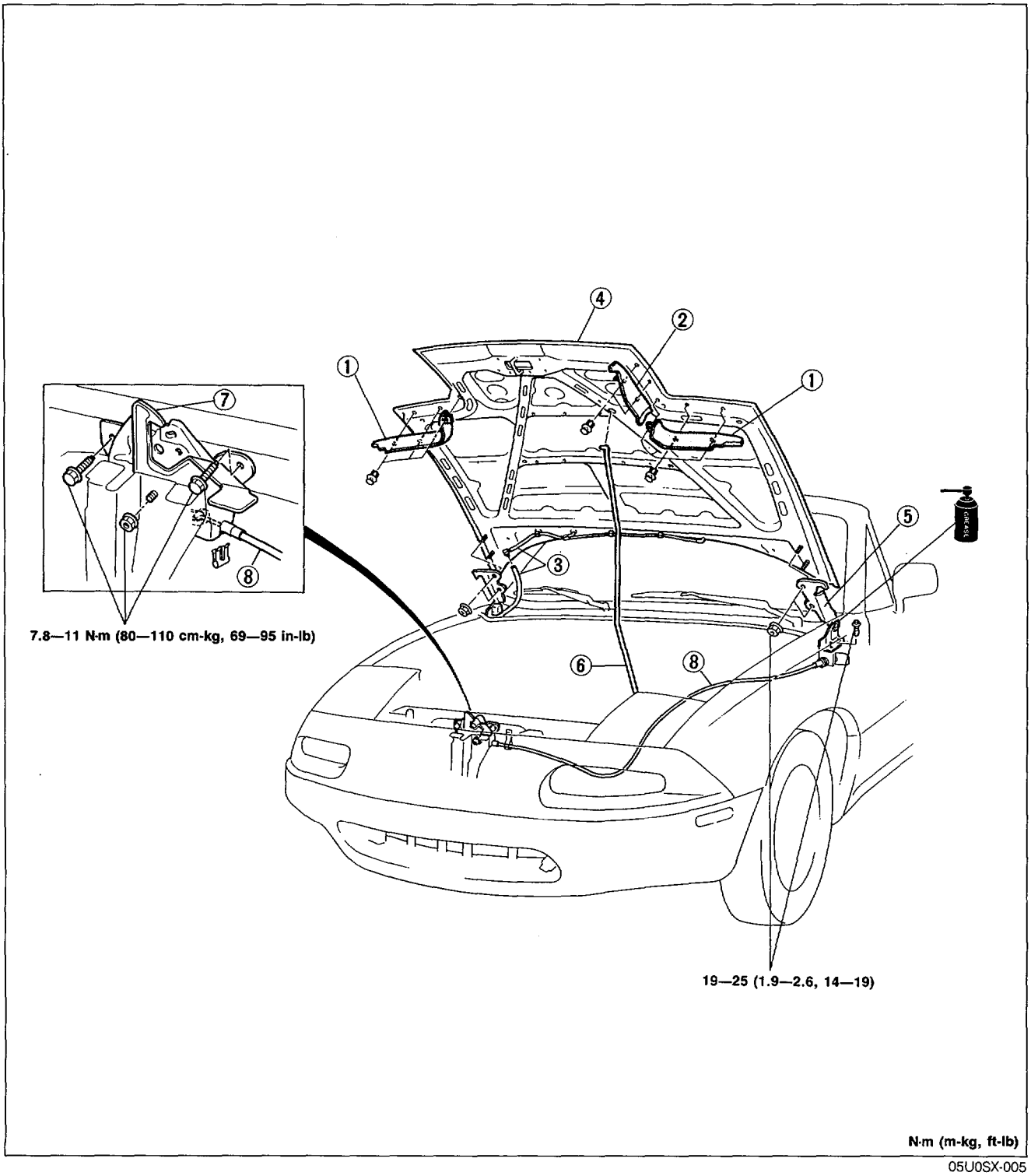
1. Power window system
Troubleshooting guide ..... page S–20
Inspection ..... page S–22
2. Fuel filler lid opener
Removal / Installation ..... page S–23
3. Dashboard and console
Removal / Installation ..... page S–52
Adjustment ..... page S–54
4. Trim
Removal / Installation ..... page S–55
5. Floormat
Removal / Installation ..... page S–58
6. Seat belt
Removal / Installation ..... page S–59
Inspection ..... page S–60
7. Seat
Removal / Installation ..... page S–61
Disassembly / Assembly ..... page S–62
Inspection ..... page S–61

HOOD

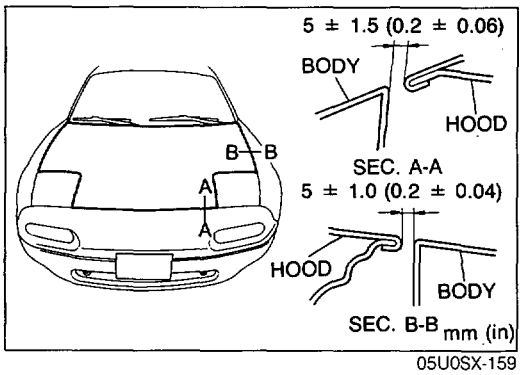
COMPONENTS

Removal / Installation

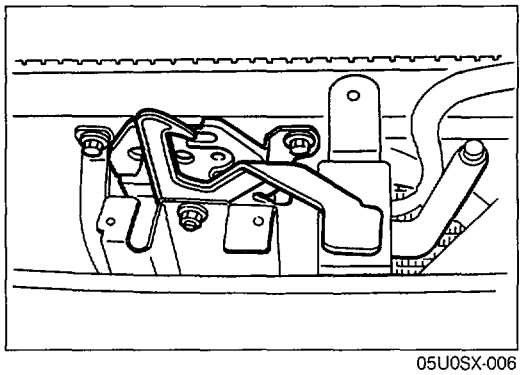
1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



1. Headlight seal
2. Side headlight seal
3. Washer pipe
4. Hood
   Adjustment ..... page S– 6
5. Hinge
6. Hood stay
7. Hood lock
   Adjustment ..... page S– 6
8. Release wire



05U0SX-159



05U0SX-006

Adjustment

Hood

Adjust the hood laterally and vertically by loosening the hood-to-hinge mounting bolts and repositioning the hood.

Hood lock

Adjust the hood lock after the hood has been aligned. Loosen the hood lock mounting bolts and nut, and align the lock with the striker on the hood.

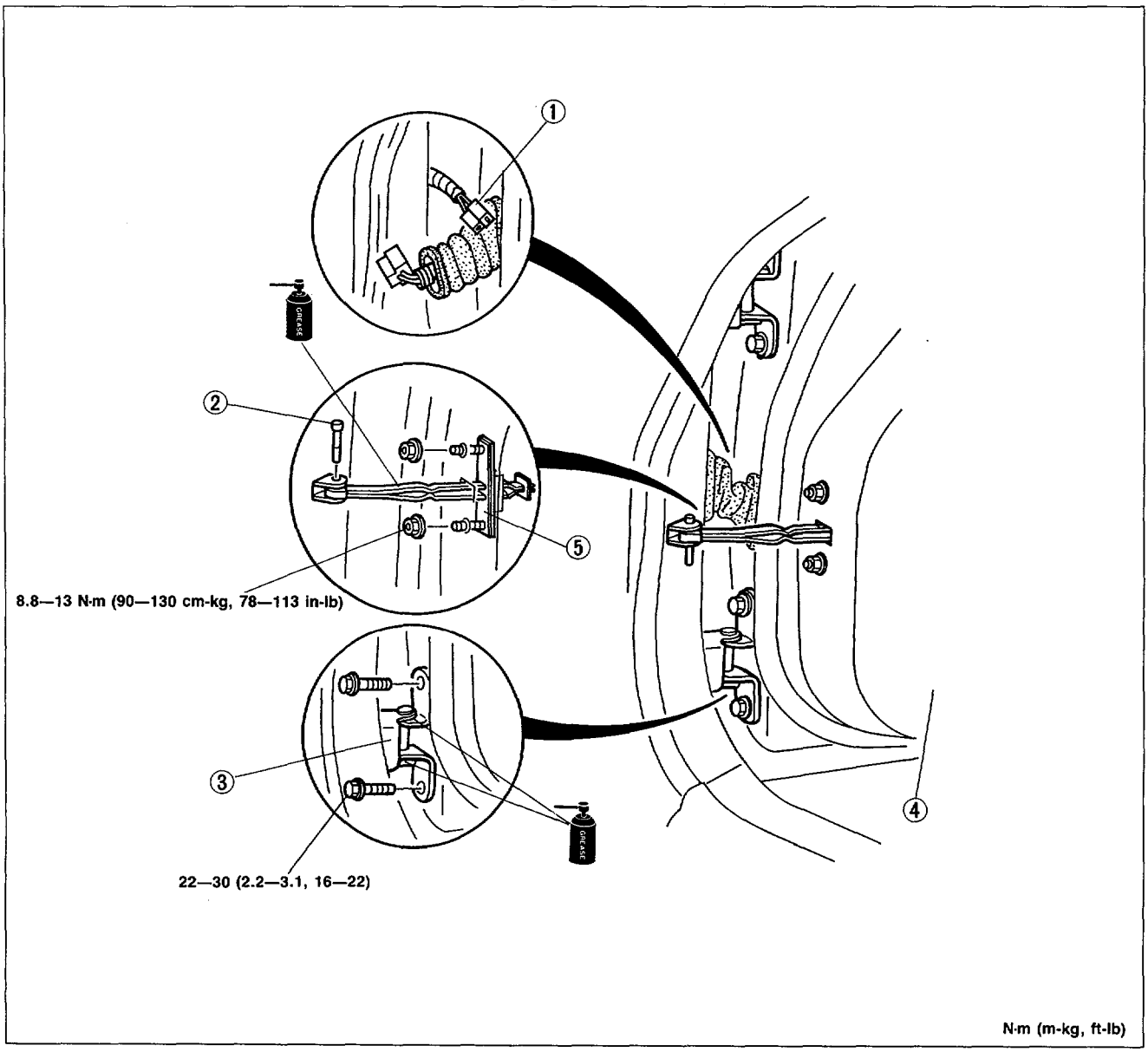
DOOR

COMPONENTS

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

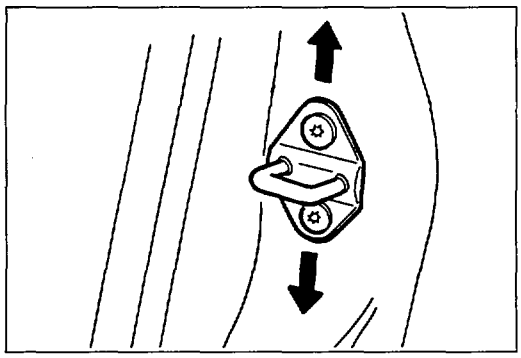
Removal / Installation
1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.

Note
- **Remove the trim and door screen for removal of the door checker. (Refer to page S–9.)**
- **Adjust the door lock striker. (Refer to page S–8.)**

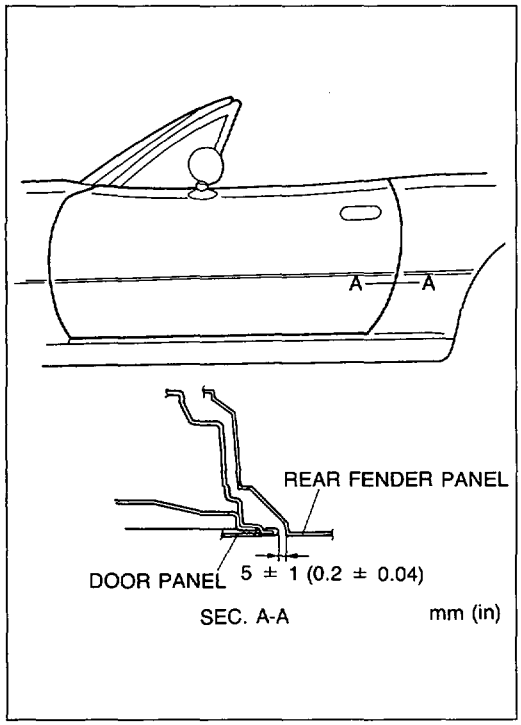


25U0SX-029

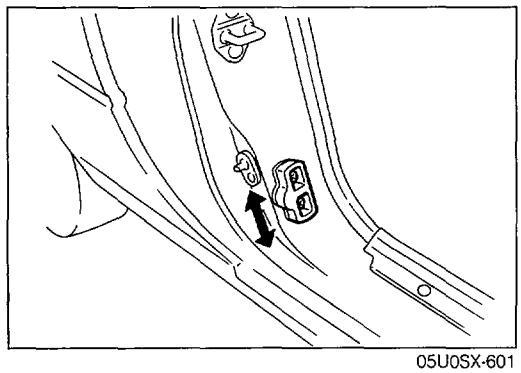
1. Harness connector
2. Checker pin
3. Hinge
4. Door
   Adjustment..... page S–8
5. Checker



05U0SX-008



05U0SX-009



05U0SX-601

Adjustment

Door lock striker

1. Verify that the door can be closed easily and whether there is any looseness. If there is a problem, loosen the striker mounting screws and adjust by moving the striker vertically.
2. Verify the rear offset of the door to the body. If there is a problem, adjust by moving the door lock striker vertically.

Tightening torque:
18—26 N·m (1.8—2.7 m-kg, 13—20 ft-lb)

Door

Loosen the hinge bolts and adjust as shown in the figure. Tighten the bolts to the specified torque.

Tightening torque:
22—30 N·m (2.2—3.1 m-kg, 16—22 ft-lb)

Door wedge

Verify the alignment of door wedge and dovetail. If there is a problem, adjust by moving the door wedge vertically.

Tightening torque
4.2—6.2 N·m (43—63 cm-kg, 37.3—54.7 in-lb)

WINDOW REGULATOR, GLASS, AND GUIDE

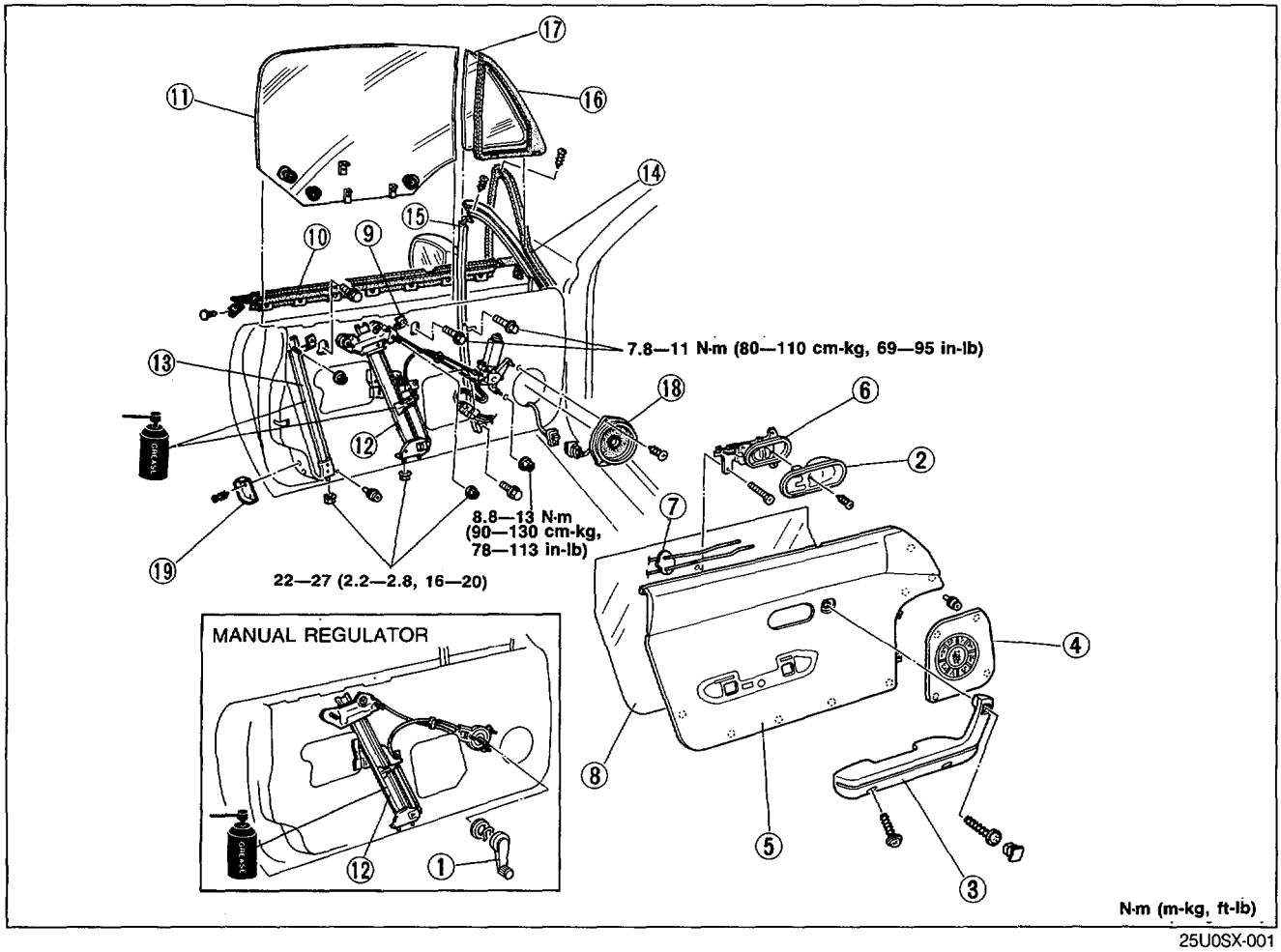
COMPONENTS

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

Removal / Installation
1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Install in the reverse order of removal, referring to **Installation Note**.

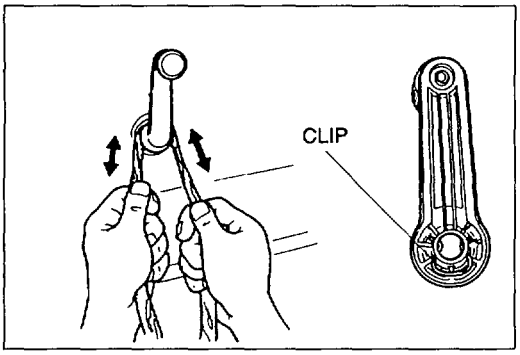
Caution
- **Remove the door screen carefully so that it may be reused.**

Note
- **Raise the door glass about 190mm (7.5 in) from fully-open position.**



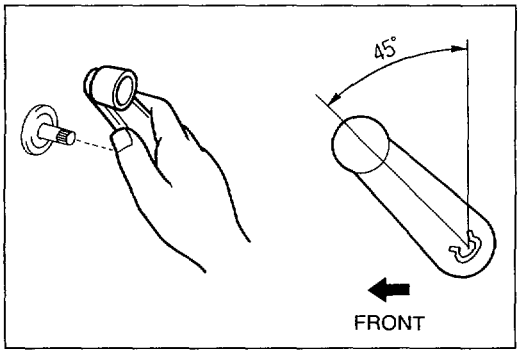
25U0SX-001

1. Regulator handle
   Removal Note .. page S–10
   Installation Note page S–10
2. Inner handle cover
3. Arm rest
4. Speaker grille
   Removal Note .. page S–57
5. Door trim
   Removal Note .. page S–57
6. Inner handle
7. Sealing pad
8. Door screen
9. Upper stop
10. Front beltline molding
    Removal Note .. page S–28
11. Door glass
    Adjustment ..... page S–10
12. Window regulator
13. Glass guide
14. Door weatherstrip
15. Division channel
16. Weatherstrip
17. Quarter glass
18. Speaker (If necessary)
19. Dovetail (If necessary)



05U0SX-011

Removal Note
Regulator handle
Remove the regulator handle clip with a rag, as shown.

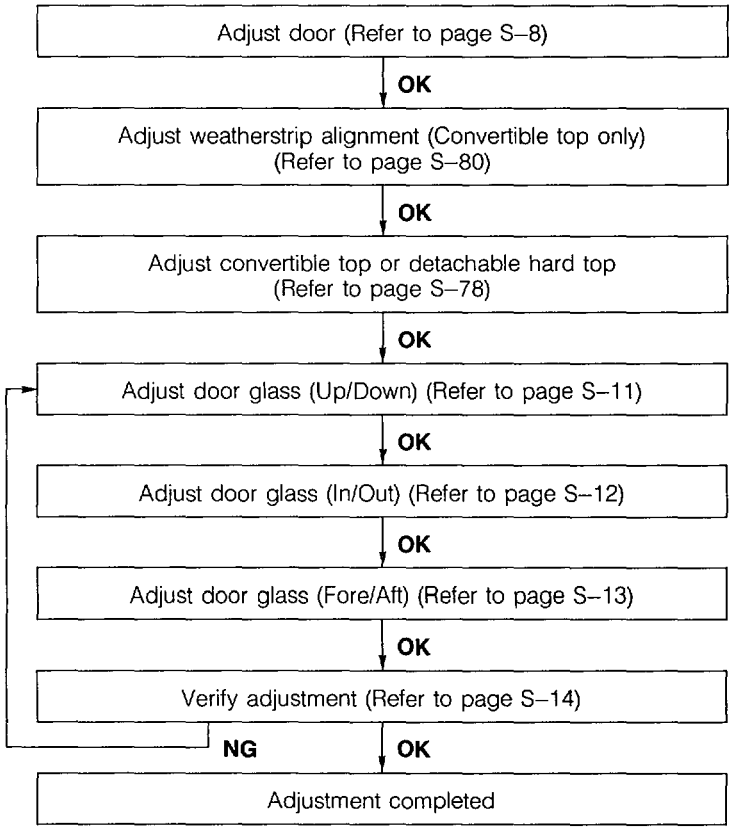


05U0SX-012

Installation Note
Regulator handle
Install the regulator handle as shown.

Note
- **With door glass at fully-closed position.**

Adjustment
Door glass
Adjustment of the door glass (convertible top and detachable hard top) is made as follows:



15U0SX-007

1. Vertical adjustment of door glass

Adjustment procedure

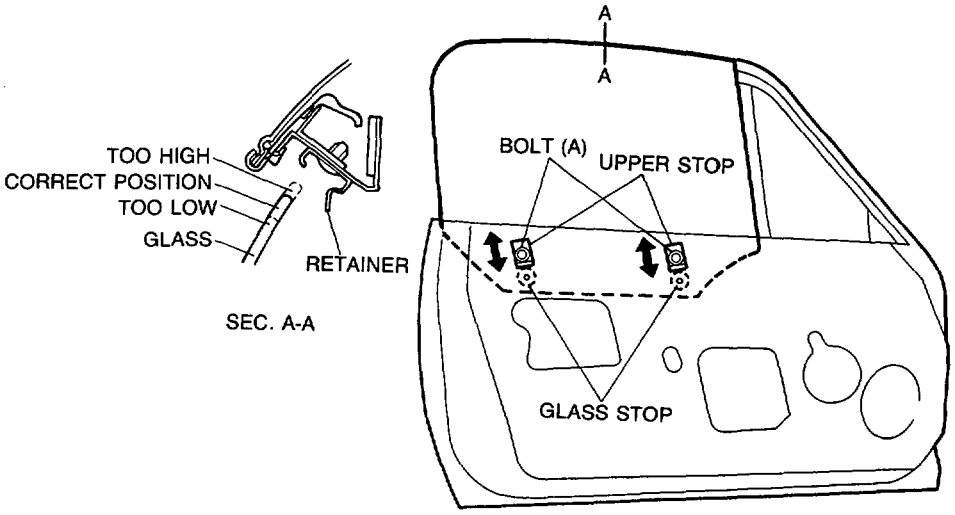
Remove the weatherstrip, and check alignment with the door glass in the fully-closed position.

(1) Loosen upper stop installation bolts (A).

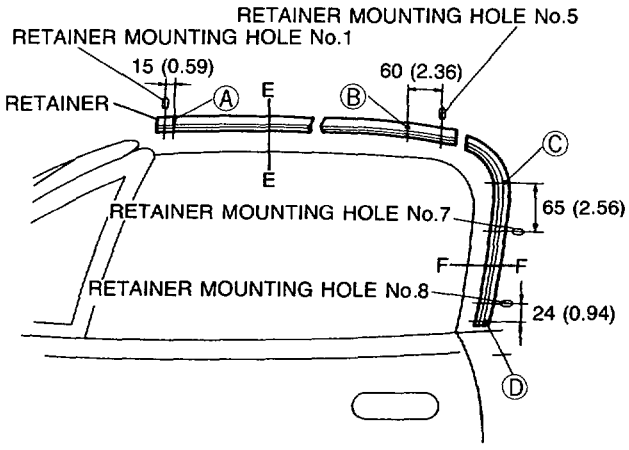
(2) Adjust by moving the upper stop up or down so that the upper edge of the door glass is in the correct position, and then tighten bolts (A).

Note

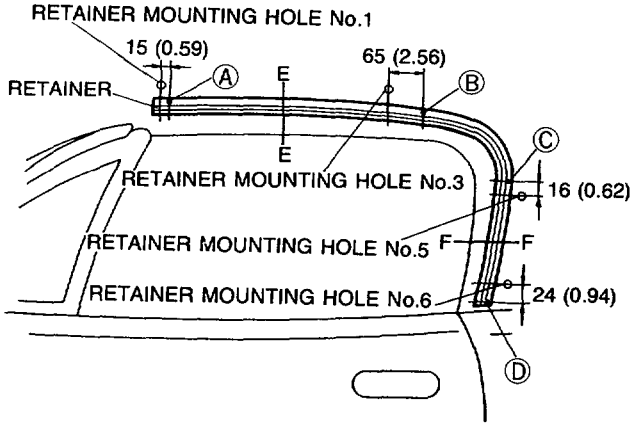
- **When the door glass is raised, both glass stop must contact the upper stop simultaneously.**
- **Before an upper stop is moved for adjustment, lower the door glass slightly.**

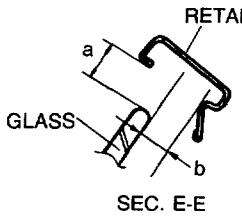


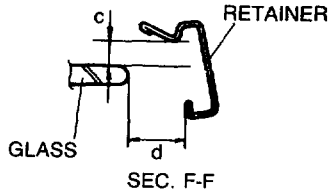
CONVERTIBLE TOP



DETACHABLE HARD TOP







	a
Ⓐ	9.4 ± 2.0 (0.37 ± 0.08)
Ⓑ	9.1 ± 2.0 (0.36 ± 0.08)

mm (in)

2. Inboard/Outboard adjustment of door glass

Adjustment procedure

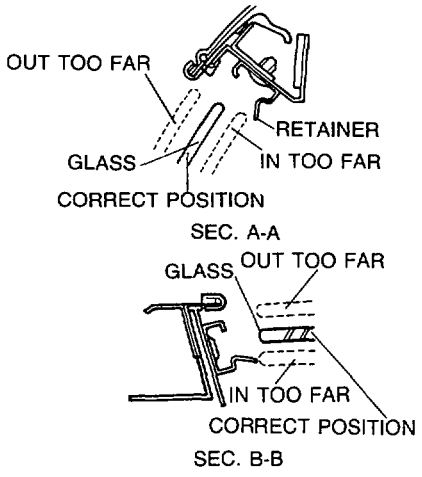
Remove the weatherstrip, and check alignment with the door glass in the fully-closed position.

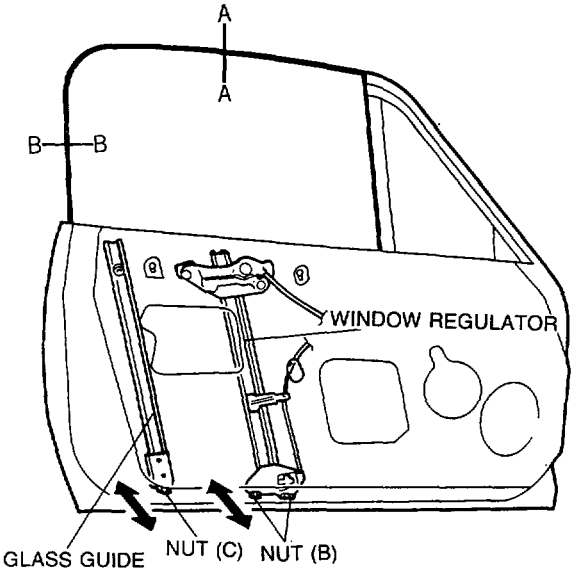
(1) Loosen window regulator installation nuts (B) and glass guide installation nut (C).

(2) Adjust by moving the window regulator and the glass guide inward or outward so that the upper and side edges of the door glass are in the correct position, and then tighten nuts (B) and (C).

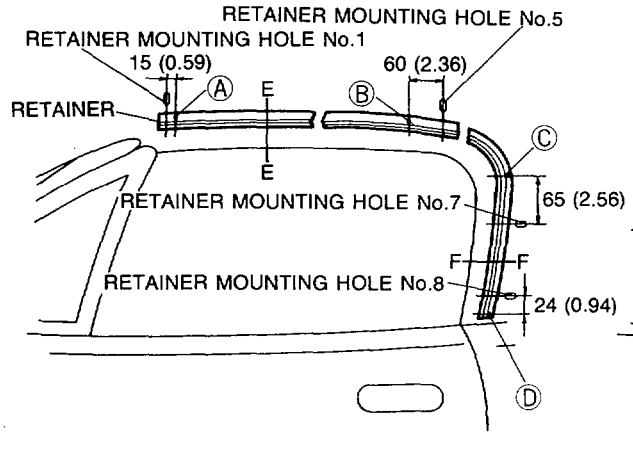
Note

- **The window regulator and the glass guide should be tightened in approximately the same position in the slotted adjustment holes.**
- **The door glass must raise and lower smoothly with the door closed.**

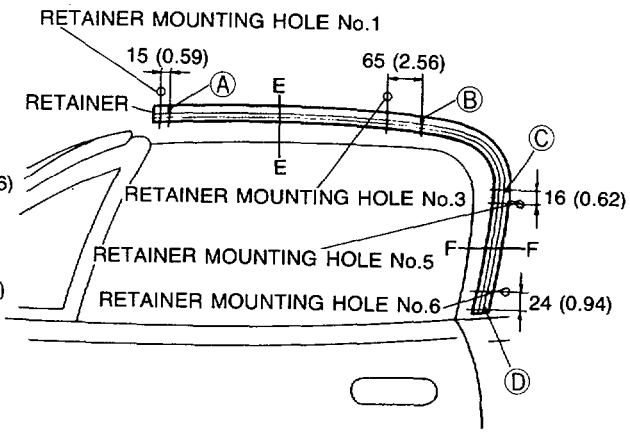


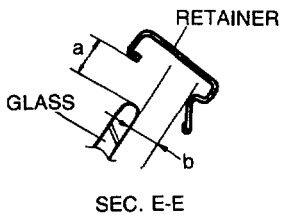


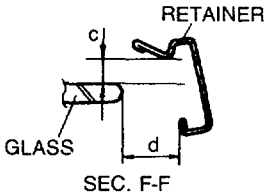
CONVERTIBLE TOP



DETACHABLE HARD TOP







	b
Ⓐ	9.3 ± 2.0 (0.37 ± 0.08)
Ⓑ	7.4 ± 2.0 (0.29 ± 0.08)

	c
Ⓒ	5.8 ± 2.0 (0.23 ± 0.08)
Ⓓ	11.1 ± 2.0 (0.44 ± 0.08)

mm (in)

05U0SX-015

3. Fore and aft adjustment of side edge of door glass

Adjustment procedure

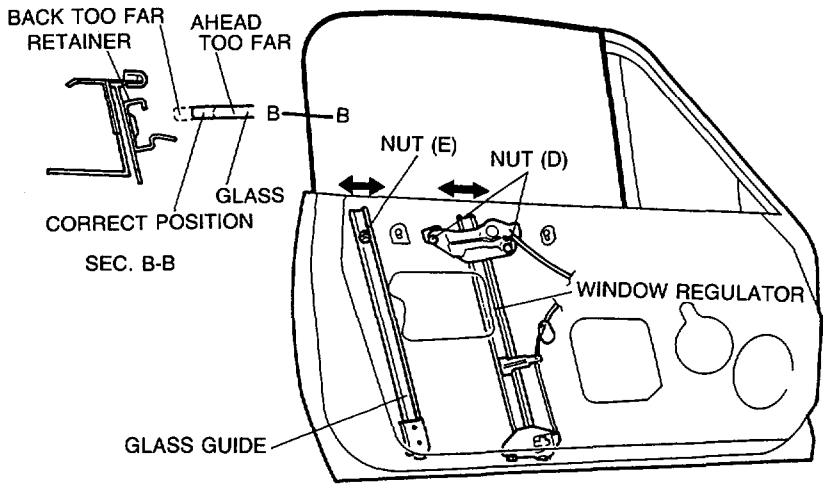
Remove the weatherstrip, and check alignment with the door glass in the fully-closed position.

(1) Loosen window regulator installation nuts (D) and glass guide installation nut (E).

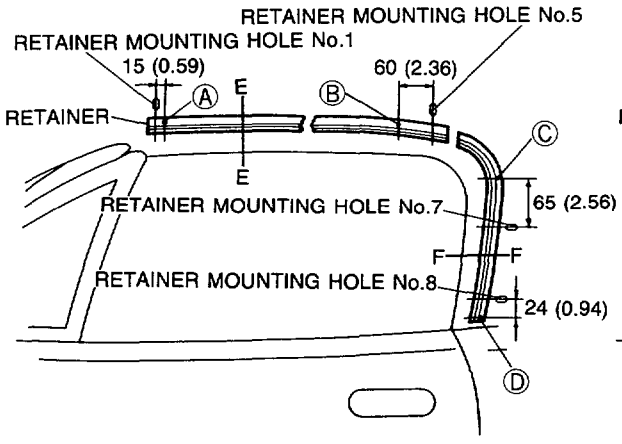
(2) Adjust by moving the window regulator and the glass guide fore or aft equally so that the side edge of the door glass is in the correct position, and then tighten the nuts (D) and (E).

Note

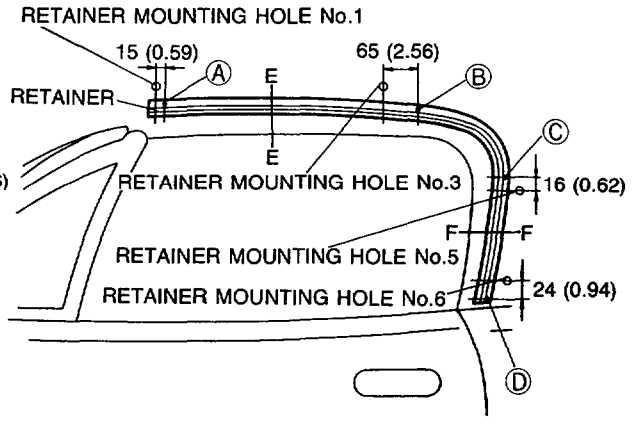
- **The window regulator and glass guide should be tightened in approximately the same position in the slotted adjustment holes.**
- **The door glass must raise and lower smoothly with the door closed.**

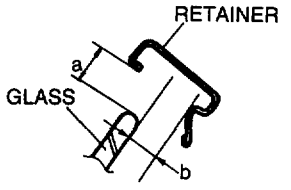


DETACHABLE HARD TOP

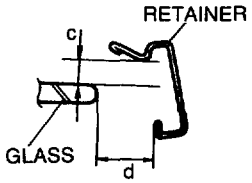


CONVERTIBLE TOP





SEC. E-E



SEC. F-F

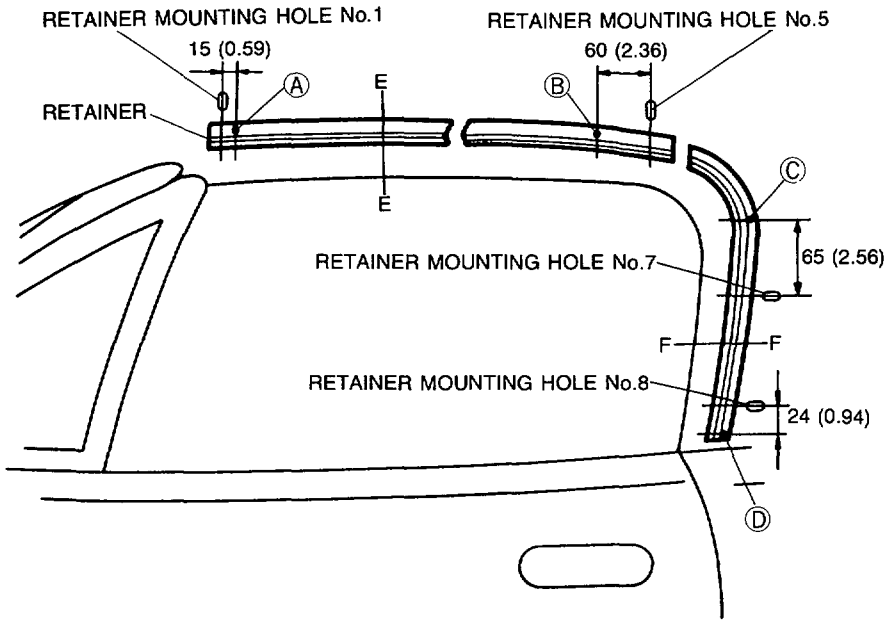
	d
©	12.5 ± 2.0 (0.49 ± 0.08)
Ⓓ	12.0 ± 2.0 (0.47 ± 0.08)

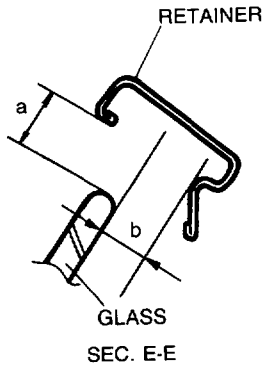
mm (in)

After completion of adjustment, verify the points below

1. Verify the following with the weatherstrip removed.
   (1) When the door glass is raised, the glass stop contact the upper stop simultaneously.
   (2) The door glass is in the correct position when fully closed.
2. Verify the following with the weatherstrip installed.
   (1) The door glass raises and lowers smoothly with the door closed.
   (2) Alignment of the weatherstrip is correct (Convertible top only).

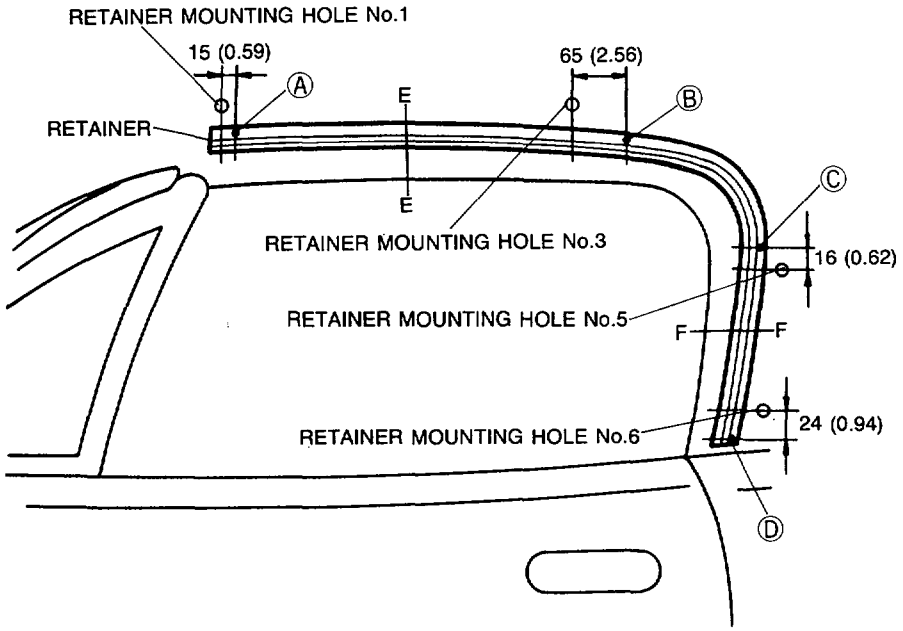
CONVERTIBLE TOP

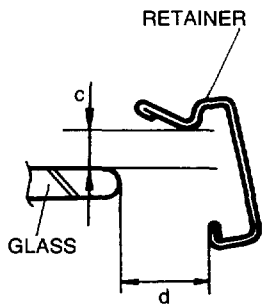




SEC. E-E

DETACHABLE HARD TOP





SEC. F-F

	a	b
Ⓐ	9.4 ± 2.0 (0.37 ± 0.08)	9.3 ± 2.0 (0.37 ± 0.08)
Ⓑ	9.1 ± 2.0 (0.36 ± 0.08)	7.4 ± 2.0 (0.29 ± 0.08)

	c	d
Ⓒ	5.8 ± 2.0 (0.23 ± 0.08)	12.5 ± 2.0 (0.49 ± 0.08)
Ⓓ	11.1 ± 2.0 (0.44 ± 0.08)	12.0 ± 2.0 (0.47 ± 0.08)

mm (in)

05U0SX-017

DOOR LOCK AND OPENER

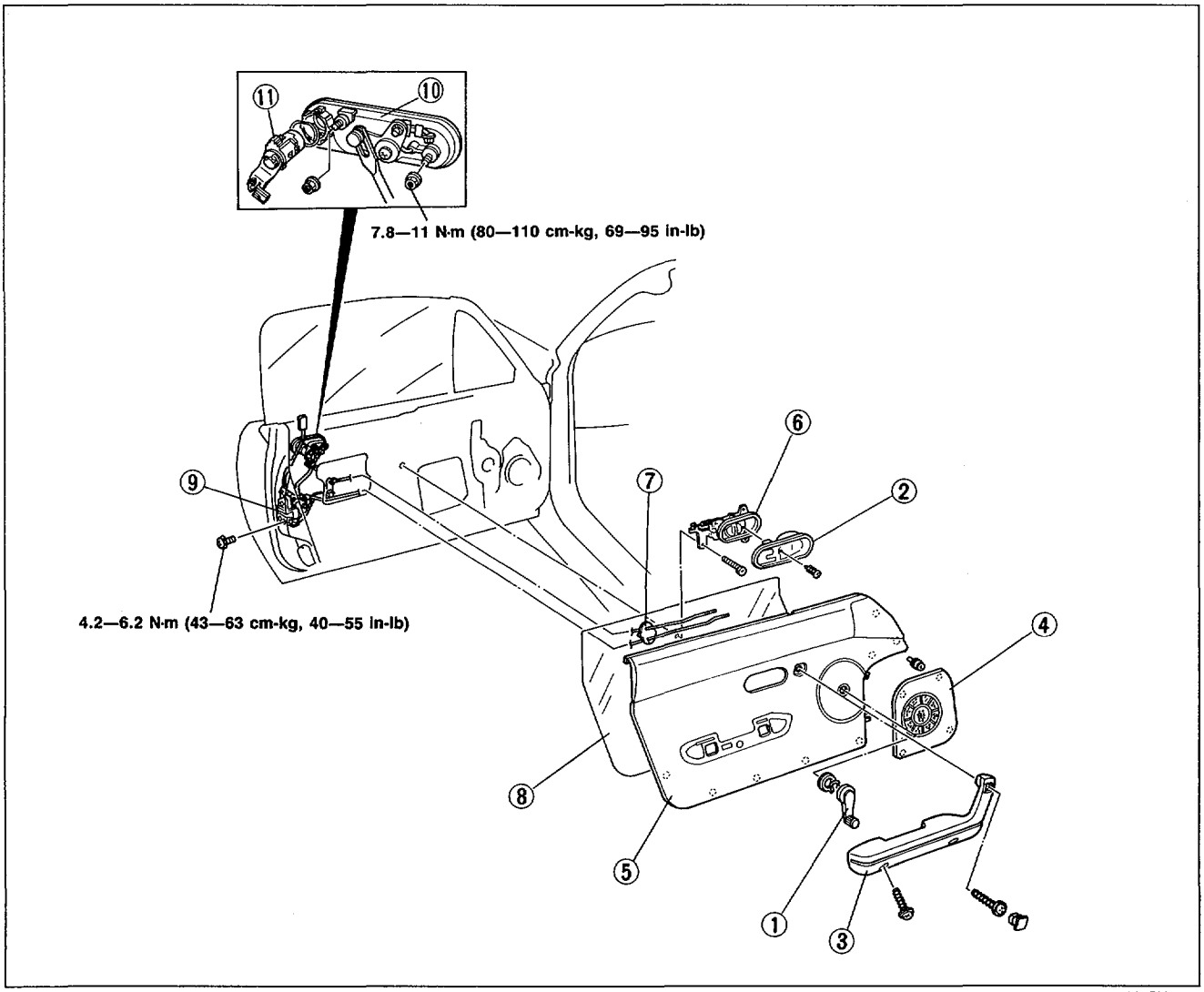
COMPONENTS

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

Removal / Installation
1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.

Caution
- **Remove the door screen carefully so that it may be reused.**

Note
- **Raise the door glass fully to remove the door lock assembly.**



25U0SX-030

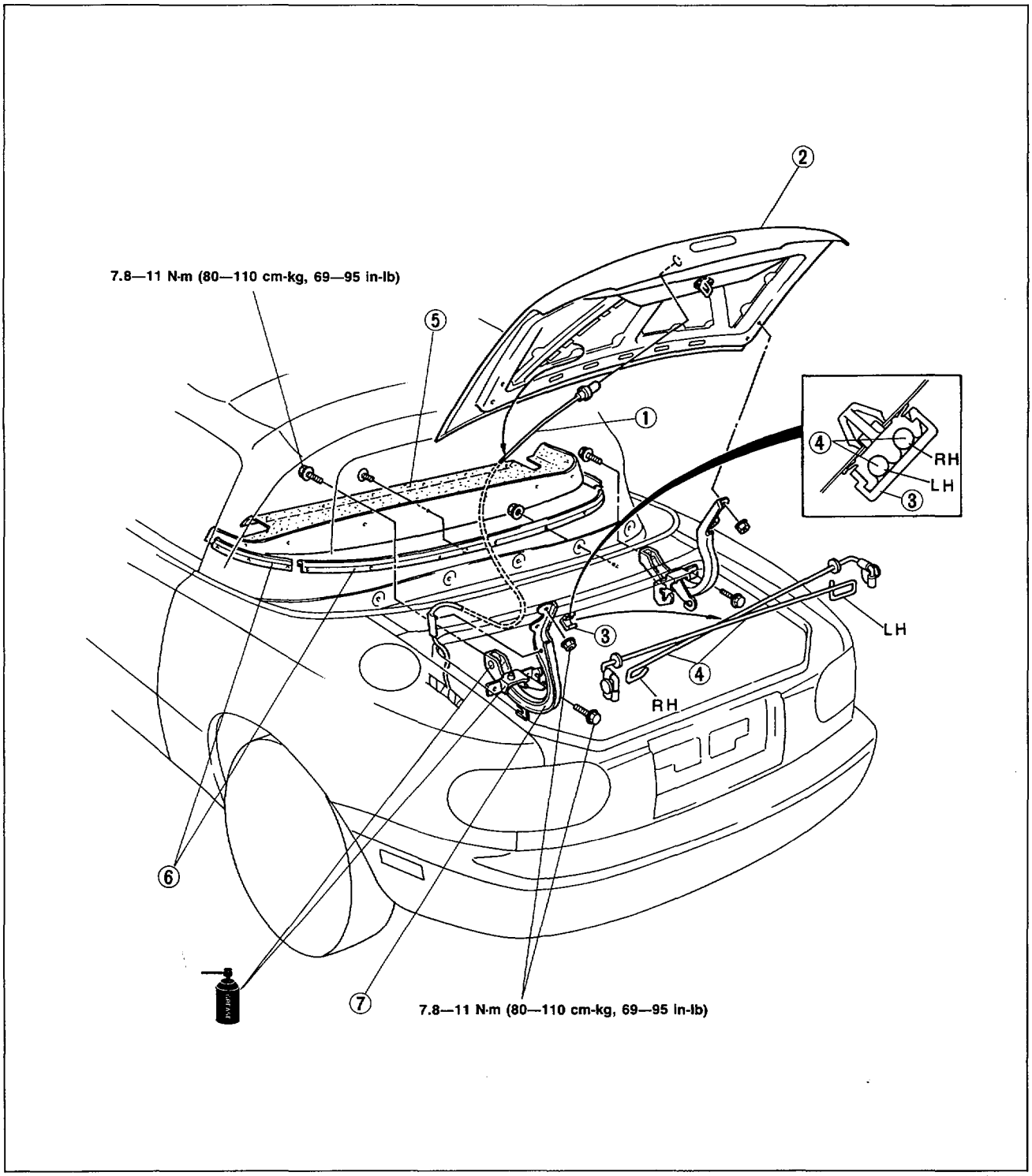
1. Regulator handle
   Removal Note .. page S–10
   Installation Note page S–10
2. Inner handle cover
3. Armrest
4. Speaker grille
   Removal Note .. page S–57
5. Door trim
   Removal Note .. page S–57
6. Inner handle
7. Sealing pad
8. Door screen
9. Door lock assembly
10. Outer handle
11. Key cylinder

TRUNK LID

COMPONENTS

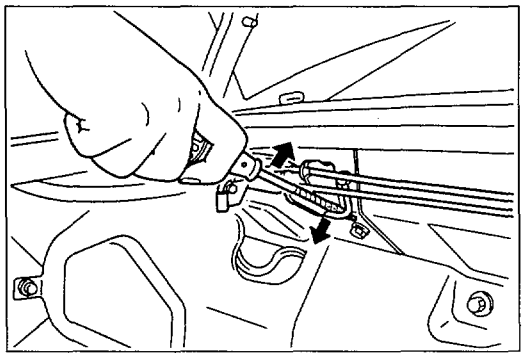
Removal / Installation

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal.

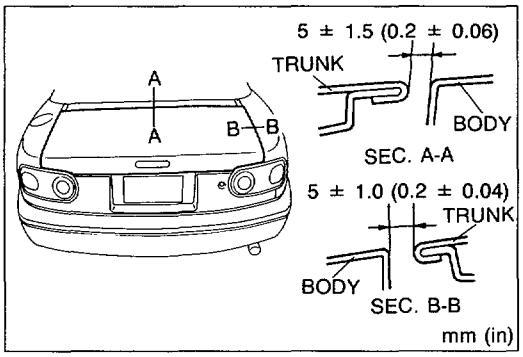


25U0SX-002

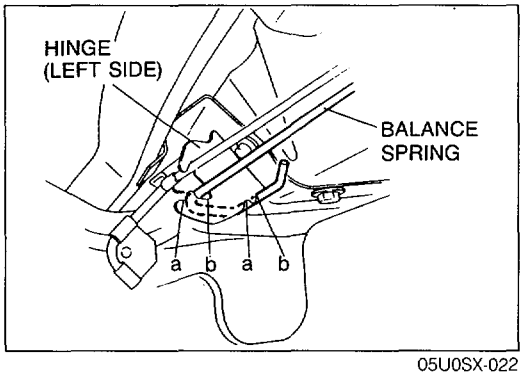
1. Wire harness
2. Trunk lid
   Adjustment ..... page S–17
3. Rod holder
4. Balance spring
   Removal Note .. page S–17
   Adjustment ..... page S–17
5. Rear package trim
6. Set plate
7. Hinge



05U0SX-020



05U0SX-021



05U0SX-022

Removal Note

Balance spring

1. Lift the balance spring with a protected screwdriver.
2. Remove the balance spring.

Warning

- **Use care when removing the balance spring; personal injury could result.**

Adjustment

Trunk lid

Loosen the trunk lid mounting nuts and adjust as shown.

Balance spring

Slide the balance spring to the desired position as described below with a protected screwdriver.

Tension \ Set position	Hinge	a	b
Standard	Left side		○
	Right side	○	
Increase	Left side	○	
	Right side	○	
Decrease	Left side		○
	Right side		○

○: Indicated position

Warning

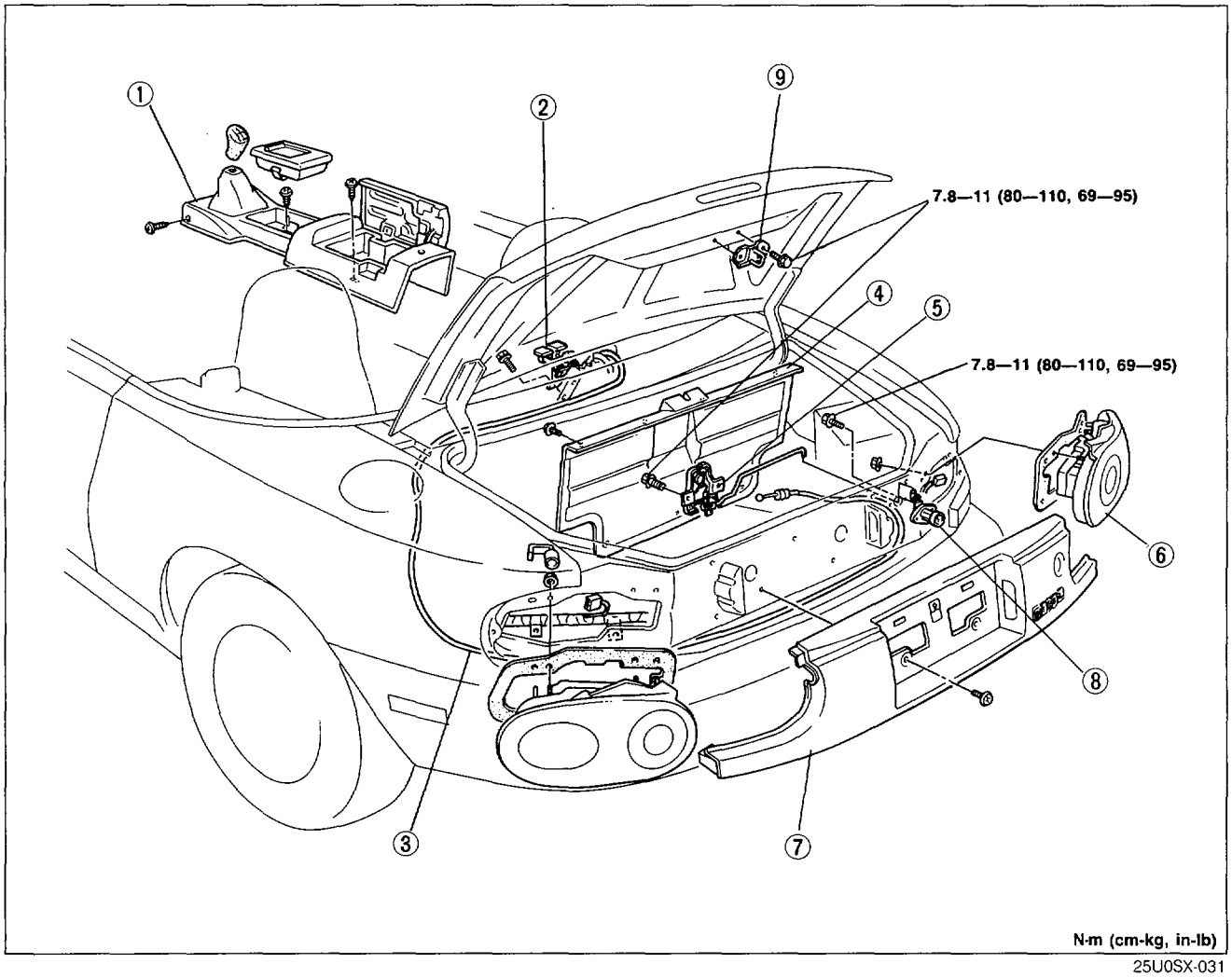
- **Use care when moving the balance spring; personal injury could result.**

TRUNK LID LOCK AND OPENER

COMPONENTS

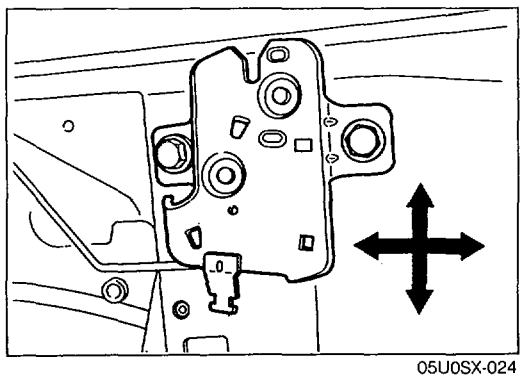
Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



25U0SX-031

1. Rear console
   Removal / Installation ..... page S–52
2. Opener lever
3. Opener cable
4. Trunk end trim
5. Trunk lid lock assembly
   Adjustment ..... below
6. Rear combination light
   Removal ..... Section T
7. Rear finisher
   Removal Note ..... page S–28
8. Key cylinder
9. Striker



05U0SX-024

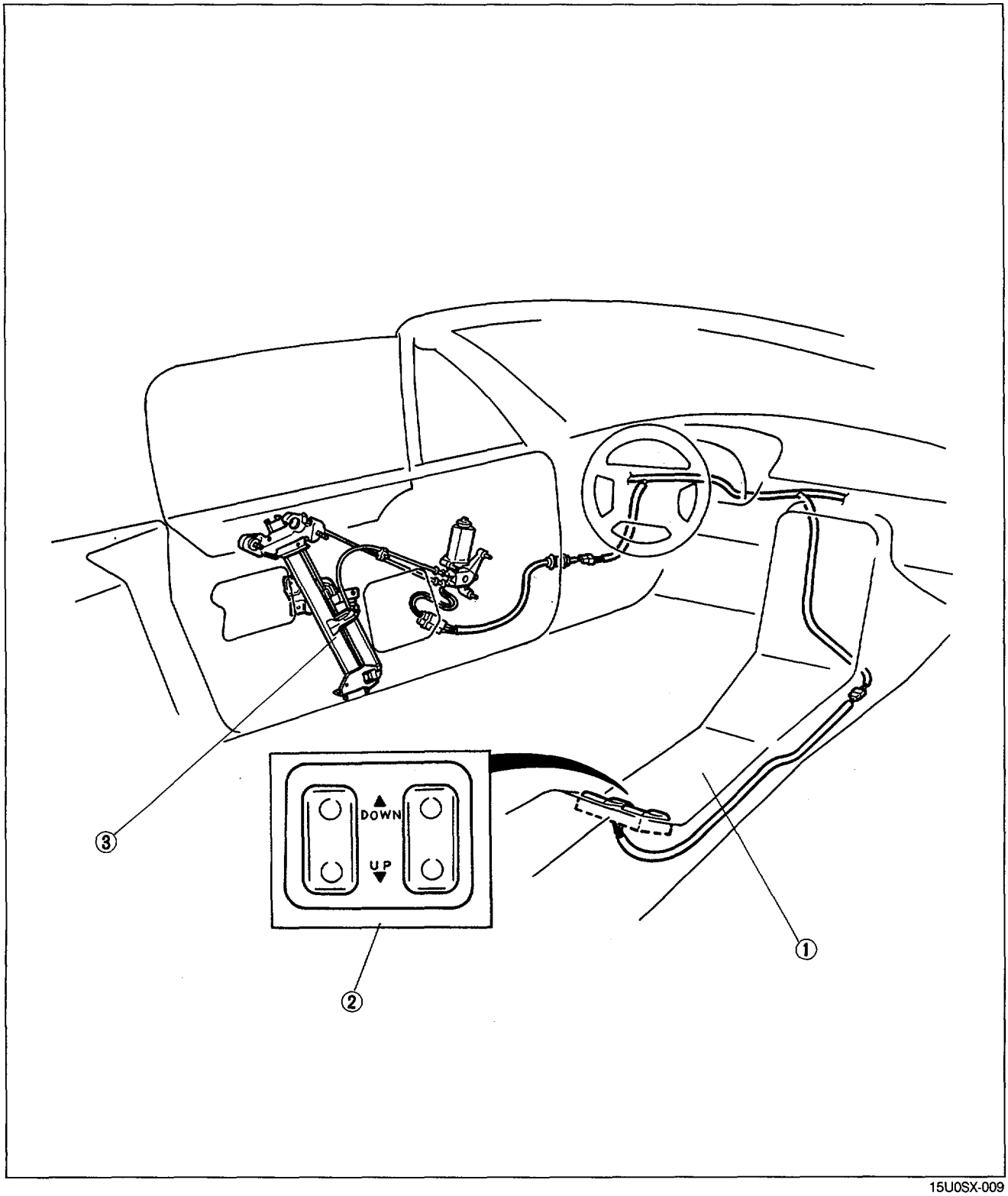
Adjustment

Trunk lid lock assembly

Verify that the trunk lid can be closed easily and whether there is any looseness. If necessary, loosen the lock assembly mounting bolts and adjust the lock assembly.

POWER WINDOW SYSTEM

STRUCTURAL VIEW

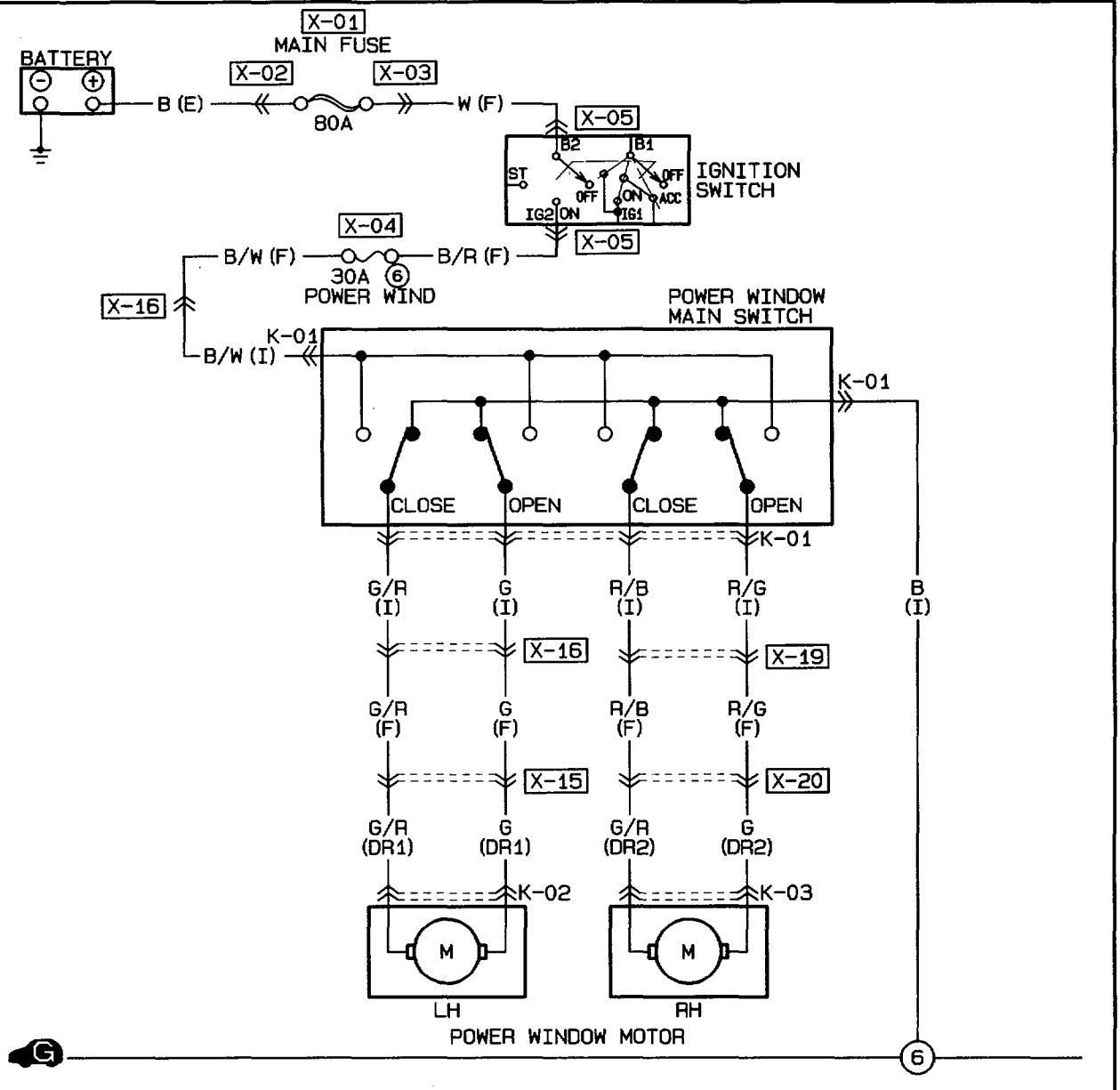


15U0SX-009

1. Rear console
   Removal / Installation ..... page S–52
2. Power window switch
   Removal / Installation ..... page S–52
   Inspection ..... page S–22
3. Power window regulator
   Removal / Installation ..... page S– 9

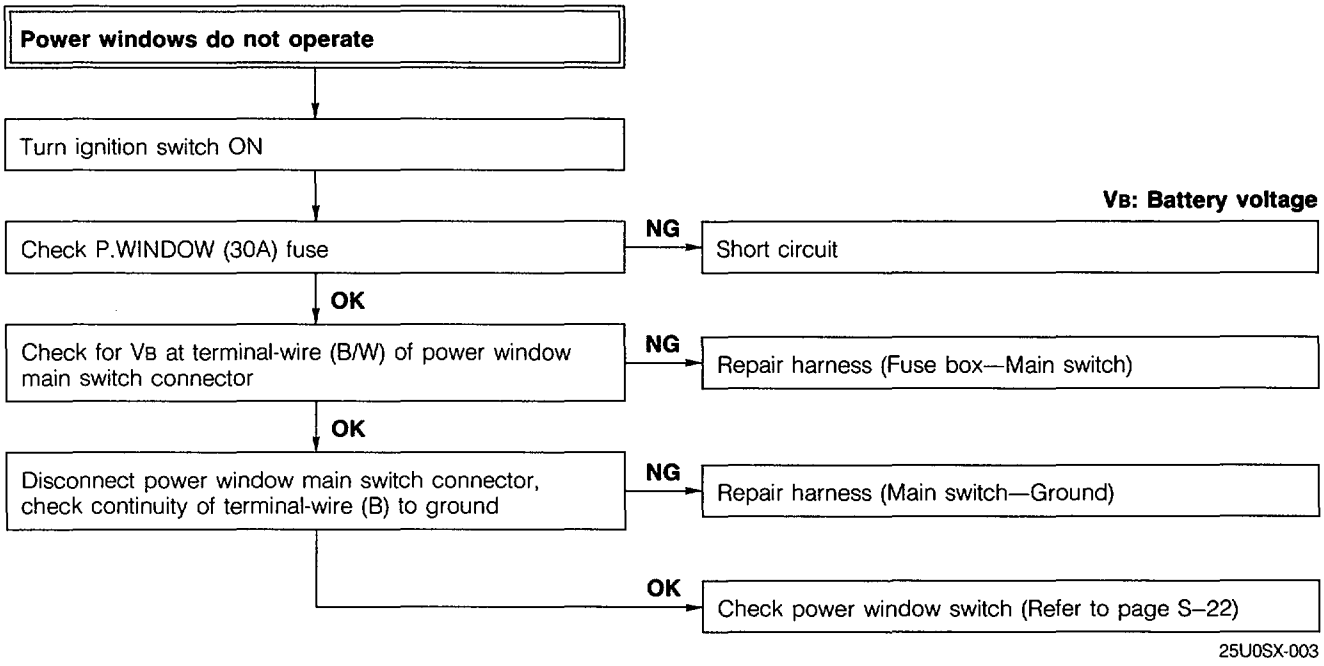
TROUBLESHOOTING GUIDE

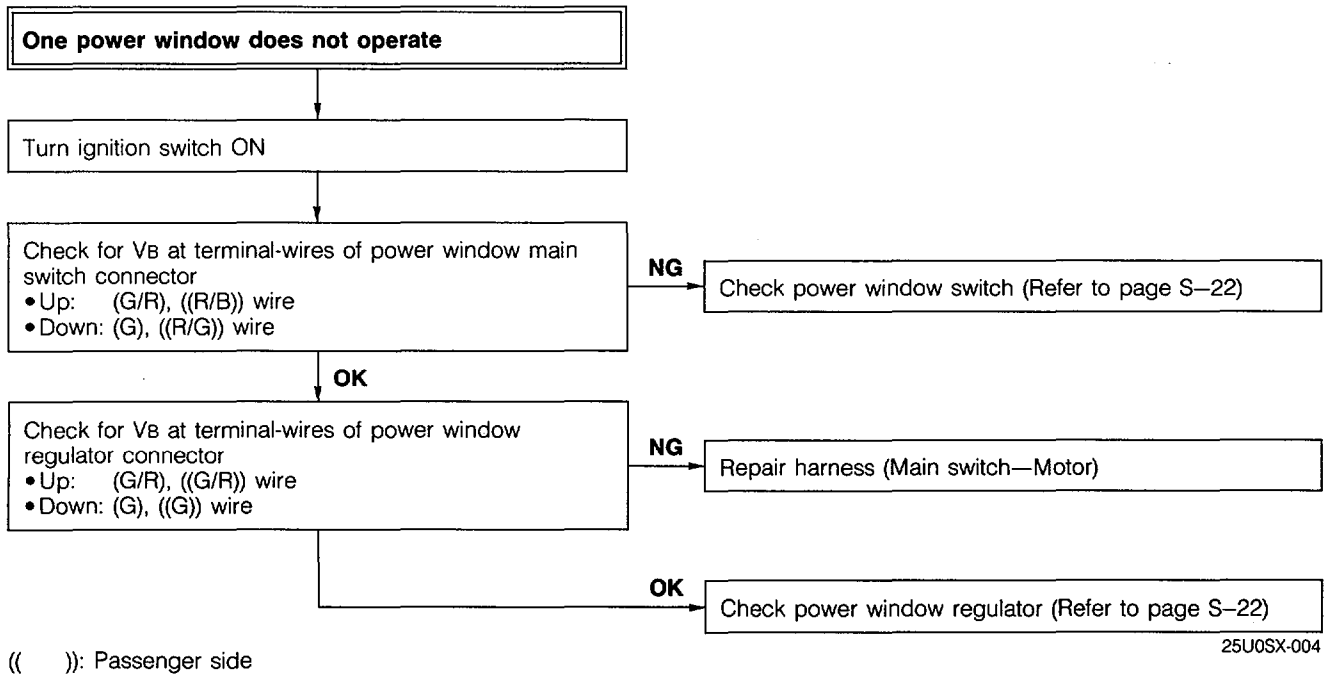
■ POWER WINDOW | K



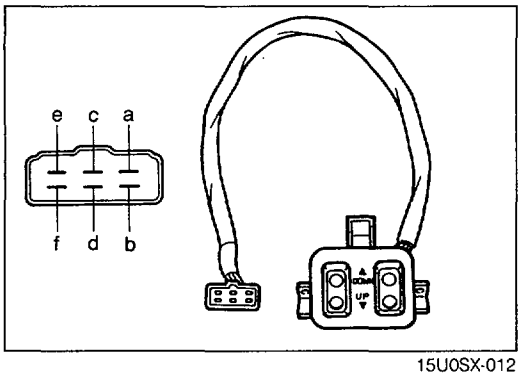
K-01 POWER WINDOW MAIN SWITCH (I)	K-02 POWER WINDOW MOTOR LH (DR1)	K-03 POWER WINDOW MOTOR RH (DR2)	
R/B, G/R, B/W R/G, G, B	G/R G	G/R G	

05U0SX-026





(( )): Passenger side



15U0SX-012

POWER WINDOW SWITCH

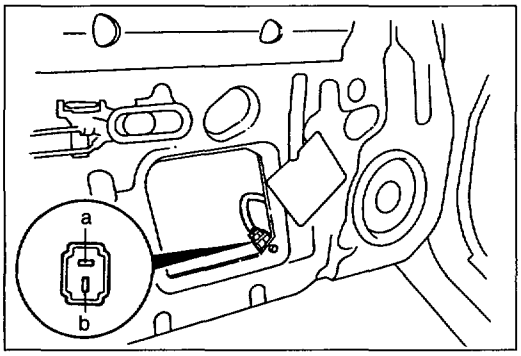
Inspection

1. Check for continuity between terminals of the switch with an ohmmeter.

Switch	Driver side				Passenger side			
Position \ Terminal	a	b	c	d	a	b	e	f
UP	○		○		○		○	
		○		○		○		○
OFF		○	○	○		○	○	○
DOWN	○			○	○			○
		○	○			○	○	

○—○: Indicates continuity

2. If not as specified, replace the switch.



25U0SX-005

POWER WINDOW REGULATOR

Inspection

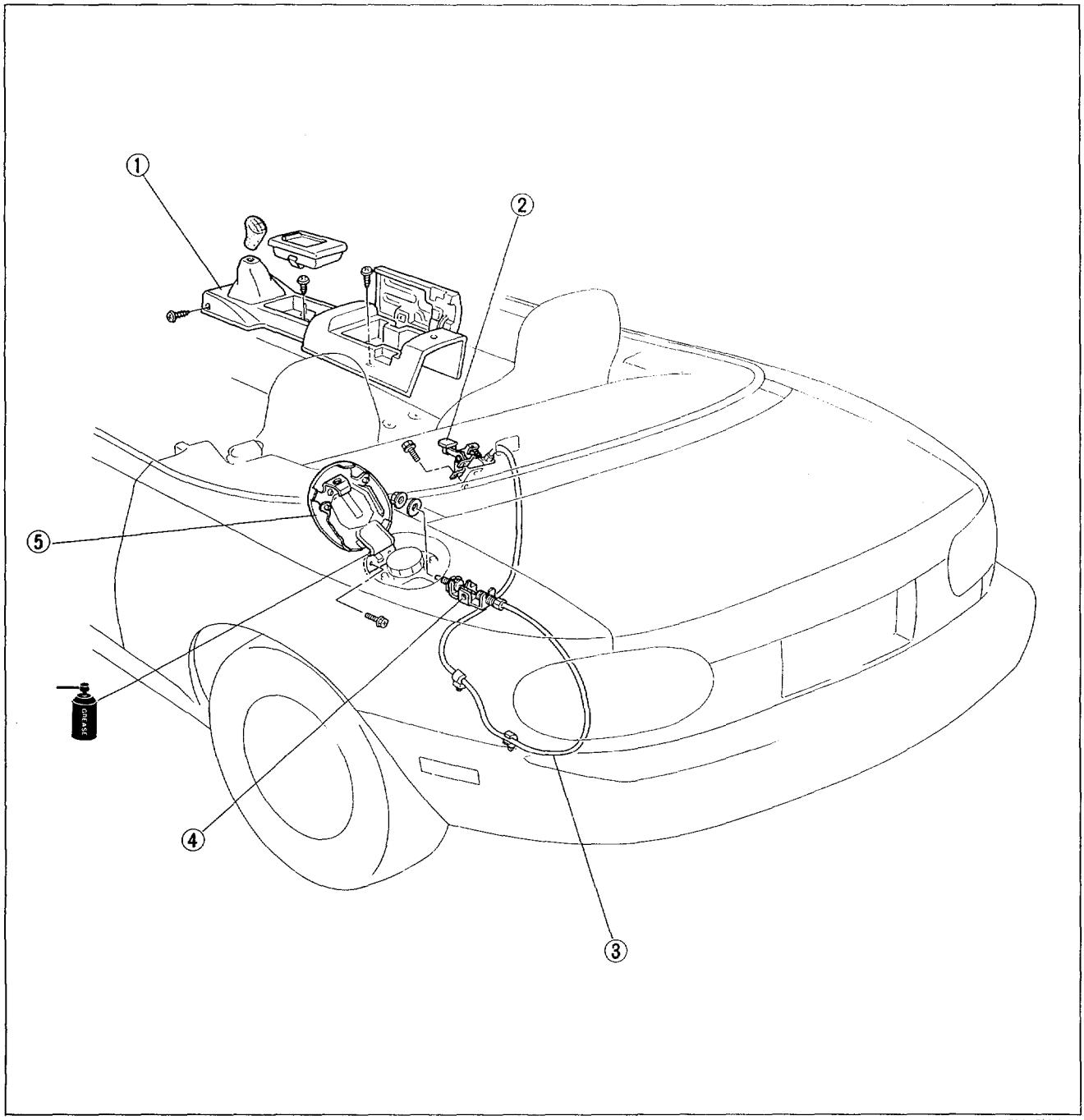
1. Connect battery voltage to terminal a and ground terminal b of the motor connector. Verify that the motor operates.
2. Reverse the above connections and check for reverse operation of the motor.
3. If not as specified, replace the motor.

FUEL FILLER LID OPENER

COMPONENTS
Removal / Installation

Note
- **Remove the rear console for removal of the opener lever.**
- **Remove the rear end mat, rear package trim and bulkhead panel for removal of the cable.**

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



15U0SX-013

1. Rear console
   Removal / Installation ..... page S–52
2. Opener lever
3. Opener cable
4. Filler lid opener
5. Filler lid

FRONT BUMPER

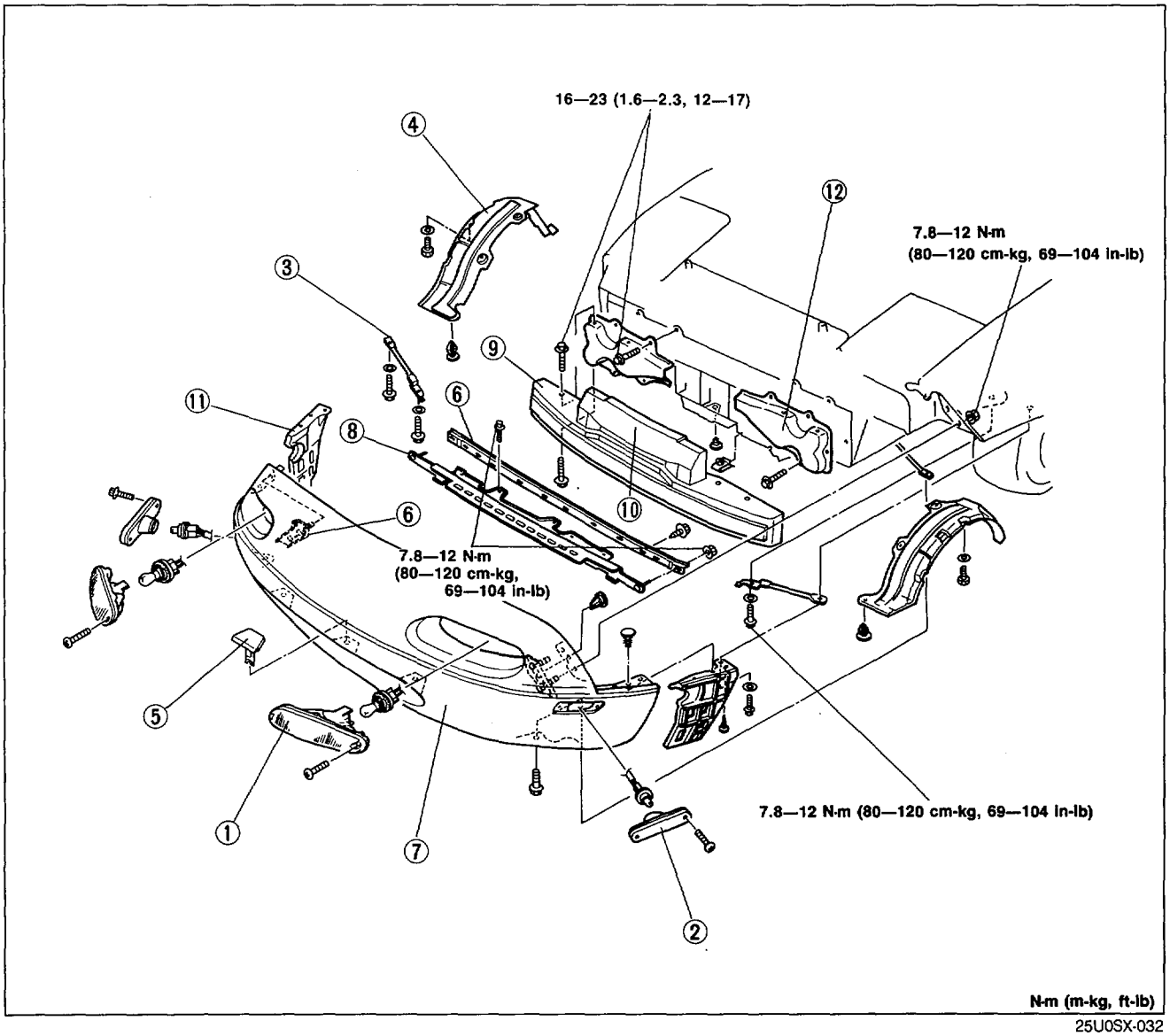
COMPONENTS

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

Removal / Installation

Note
- **Raise the headlights.**

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.



25U0SX-032

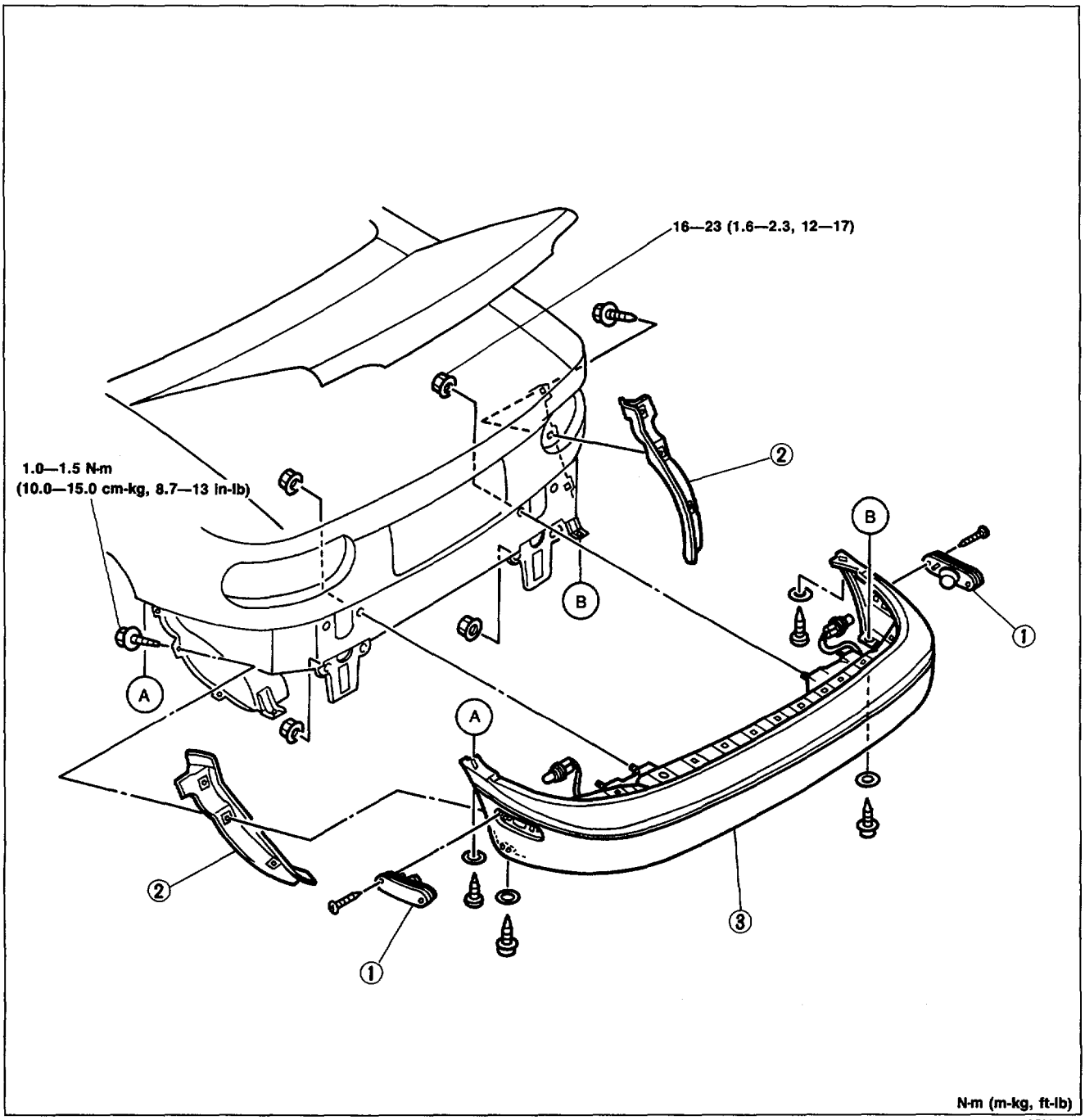
1. Front combination light
   Removal ..... page T–69
2. Front side marker light
   Removal ..... page T–77
3. Fender bracket
4. Mud guard
5. Grille cover
6. Set plate
7. Front fascia
8. Retainer
9. Bumper reinforcement
10. Spacer
11. Front bumper retainer
12. Front bumper bracket

REAR BUMPER

COMPONENTS

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

Removal / Installation
1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.

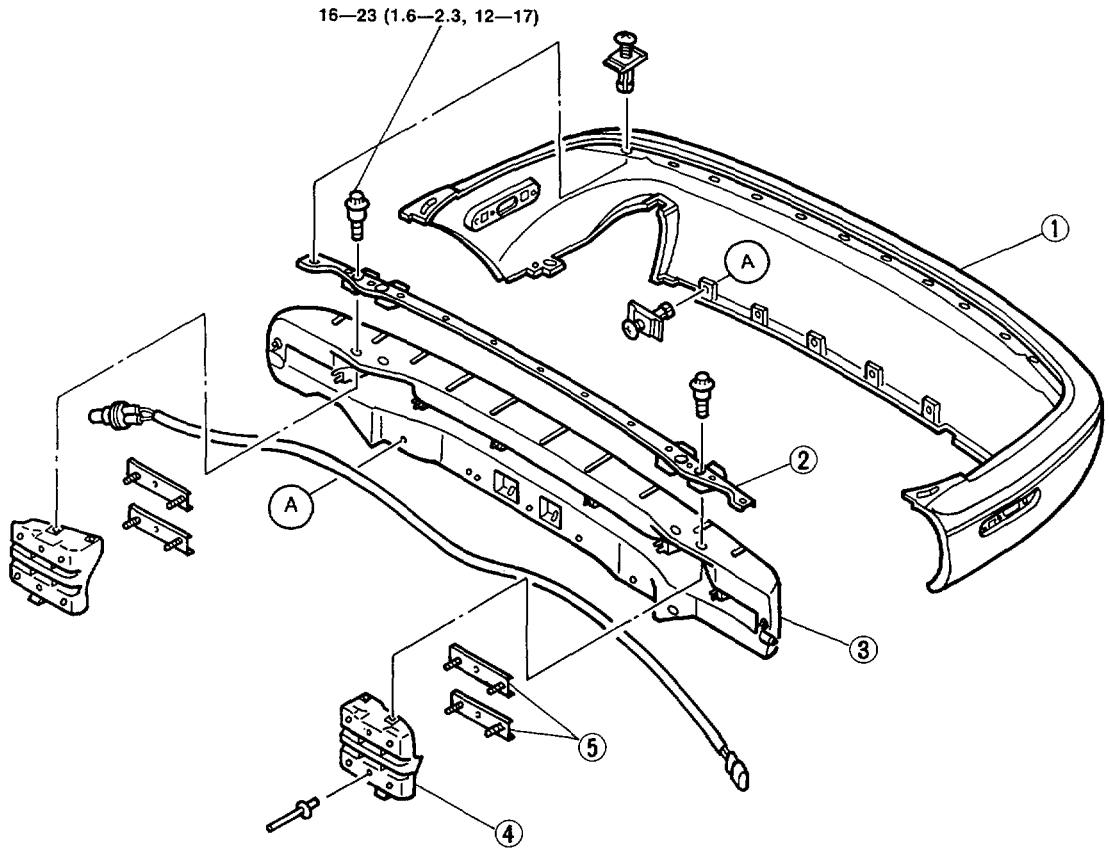


25U0SX-033

1. Rear side marker light
   Removal ..... page T–77
2. Splash shield
3. Rear bumper

Disassembly / Assembly

1. Disassemble in the order shown in the figure.
2. Assemble in the reverse order of disassembly.



N·m (m-kg, ft-lb)

05U0SX-034

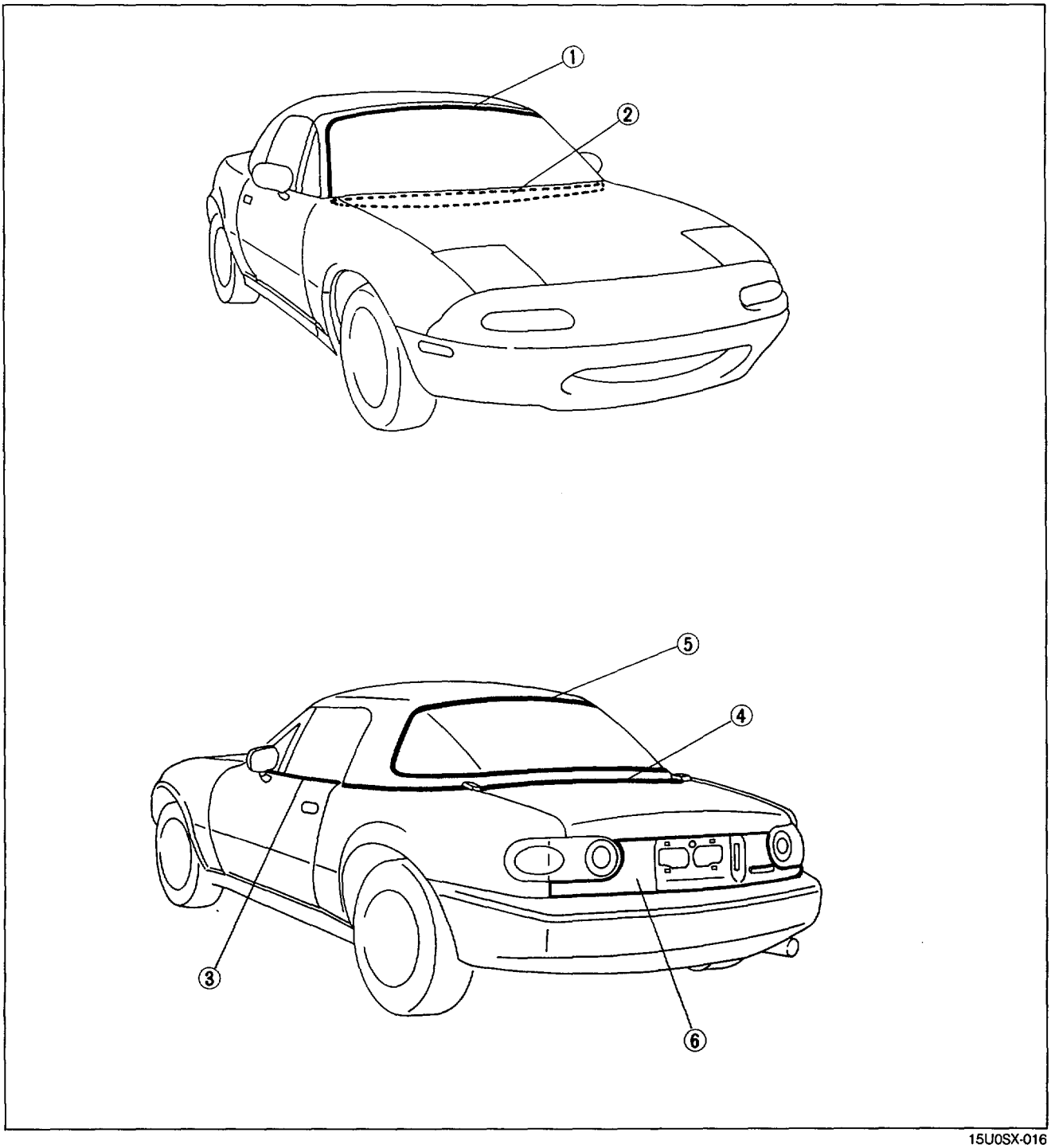
1. Rear fascia
2. Retainer
3. Bumper reinforcement
4. Bumper stay
5. Set plate

MOLDING AND GARNISH

COMPONENTS

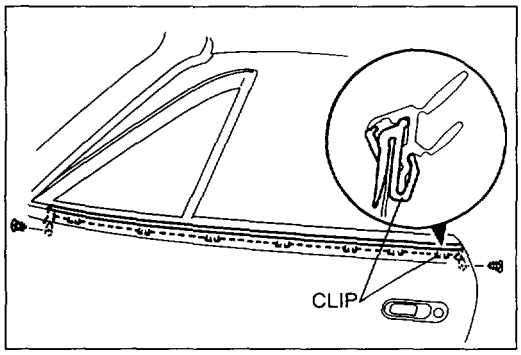
Removal / Installation

1. Remove the parts as shown.
2. Install in the reverse order of removal.

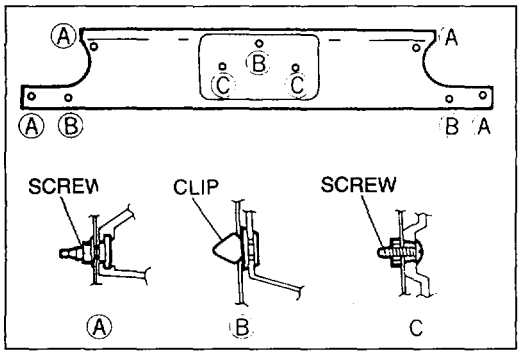


15U0SX-016

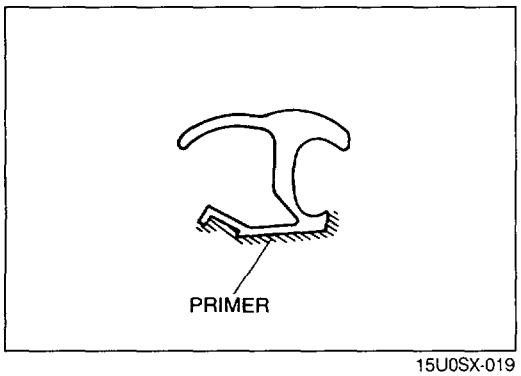
1. Windshield molding
   Installation Note ..... page S–28
2. Cowl grille
   Removal ..... page S–40
3. Front beltline molding
   Removal Note ..... page S–28
4. Beltline molding
   Removal Note ..... page S–28
5. Rear window molding (Detachable hard top)
   Installation Note ..... page S–29
6. Rear finisher
   Removal Note ..... page S–28



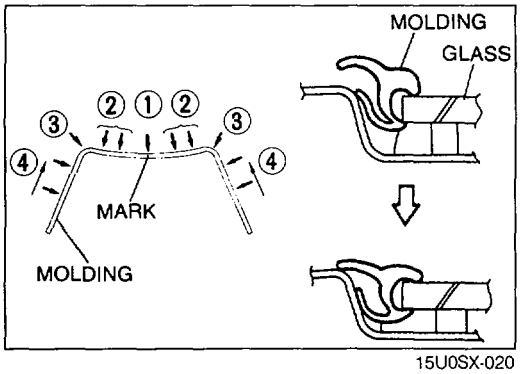
15U0SX-017



15U0SX-018



15U0SX-019



15U0SX-020

Removal Note
Front beltline molding
1. Remove the door mirror. (Refer to page S–30.)
2. Remove the front beltline molding.

Caution
- **Do not damage the body.**

Note
- **The clips are where shown in the figure.**

Rear finisher
1. Remove the rear combination light. (Refer to Section T)
2. Remove the rear finisher.

Note
- **The clips are where shown in the figure.**

Beltline molding
Remove the convertible top for removal of the beltline molding. (Refer to page S–63.)

Installation Note
Windshield molding
1. Remove the windshield. (Refer to page S–40.)
2. Install the windshield. (Refer to page S–40.)
3. Apply primer with a brush to the bonding area of the new upper molding, and allow it to dry for **approx. 30 minutes**.

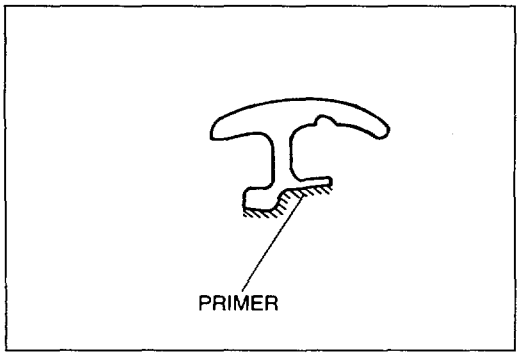
Caution
- **Keep the area free of dirt and grease. Do not touch the surface. If primer gets on the skin, remove it immediately.**

Caution
- **Lower the convertible top to prevent the glass from being pushed out by air pressure if a door is closed.**

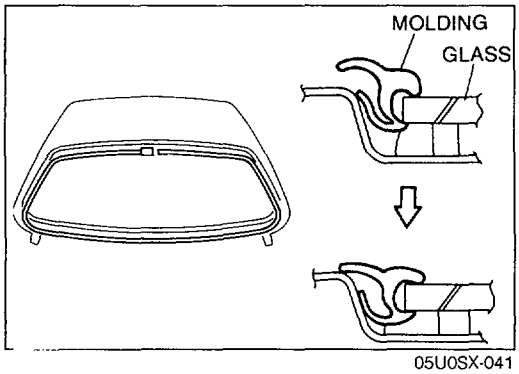
4. Align the center mark in the molding with the glass mark (①).
5. Install the upper portions of the molding into the body (②).
6. Push the corner of the molding into the body (③).
7. Push the side portions of the molding into the body, beginning from the bottom (④).
8. Check for water leaks. If a leak is found, wipe the water off well and repeat the installation.

Hardening time of repair seal

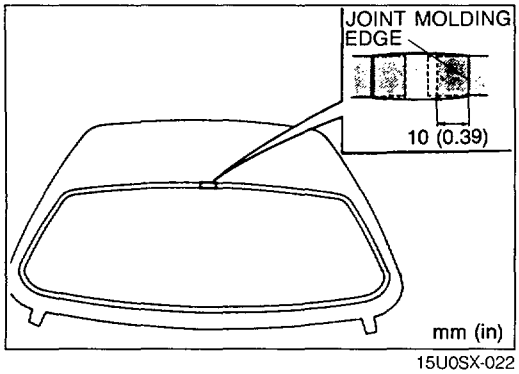
Temperature	Surface hardening time	Time required until car can be put into service
5°C (41°F)	Approx. 1.5 hr	12 hr
20°C (68°F)	Approx. 1 hr	4 hr
35°C (95°F)	Approx. 10 min	2 hr



25U0SX-006



05U0SX-041



15U0SX-022

Rear window molding (Detachable hard top)

1. Remove the rear window glass. (Refer to page S–48.)
2. Install the rear window glass. (Refer to page S–48.)
3. Apply primer with a brush to the bonding area of the new rear window molding, and allow it to dry for **approx. 30 minutes**.

Caution

- **Keep the area free of dirt and grease. Do not touch the surface. If primer gets on the skin, remove it immediately.**

4. Install the rear window molding to the glass, as shown.

5. If the molding is too long, cut the excess molding **10mm (0.39 in)** inside the joint molding edge.

Hardening time of repair seal

Temperature	Surface hardening time	Time required until car can be put into service
5°C (41°F)	Approx. 1.5 hr	12 hr
20°C (68°F)	Approx. 1 hr	4 hr
35°C (95°F)	Approx. 10 min	2 hr

6. Check for water leaks. If a leak is found, wipe the water off well and repeat the installation.

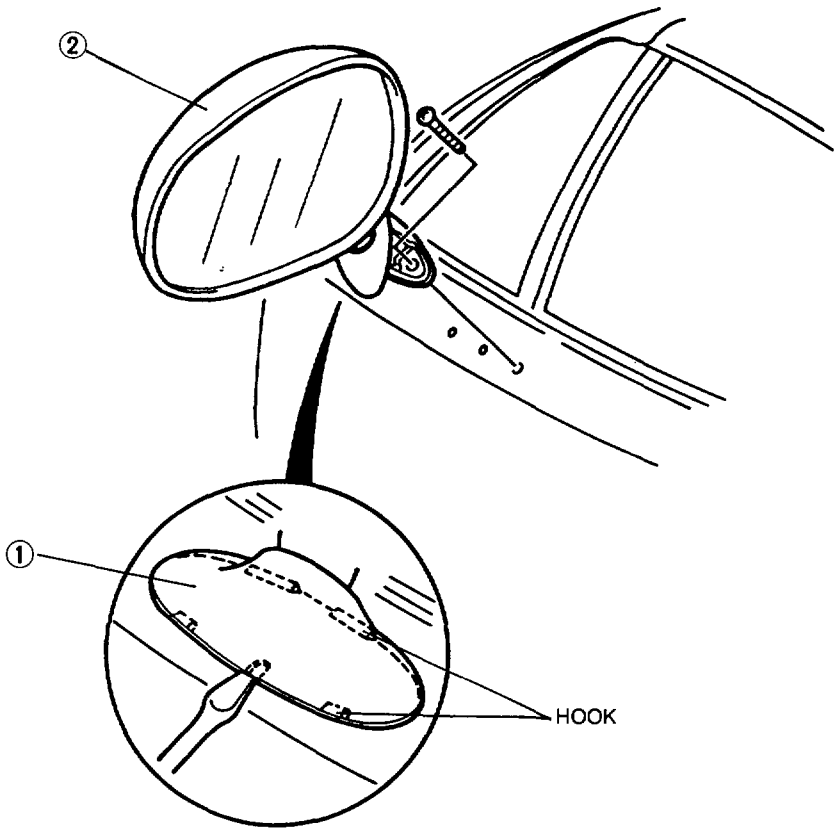
15U0SX-023

DOOR MIRROR

COMPONENTS

Removal / Installation

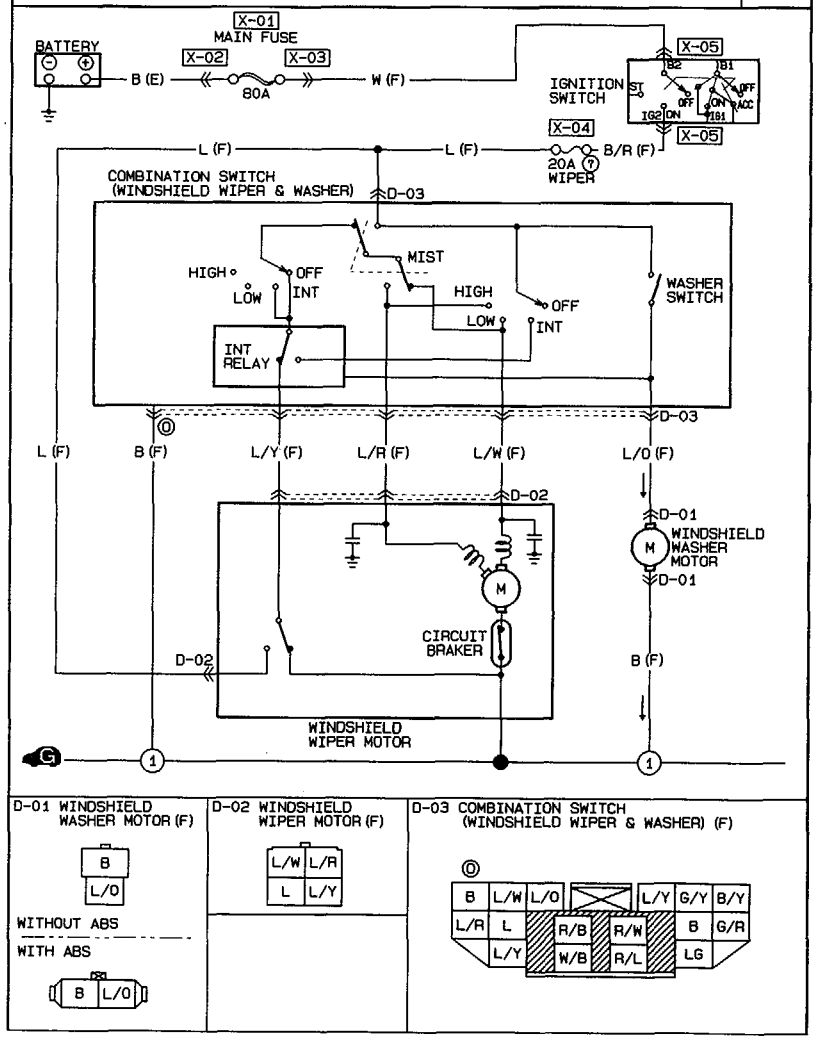
1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



05U0SX-044

1. Mirror cover
2. Rearview mirror

FEDERAL & CALIFORNIA ■ WINDSHIELD WIPER & WASHER — D-1

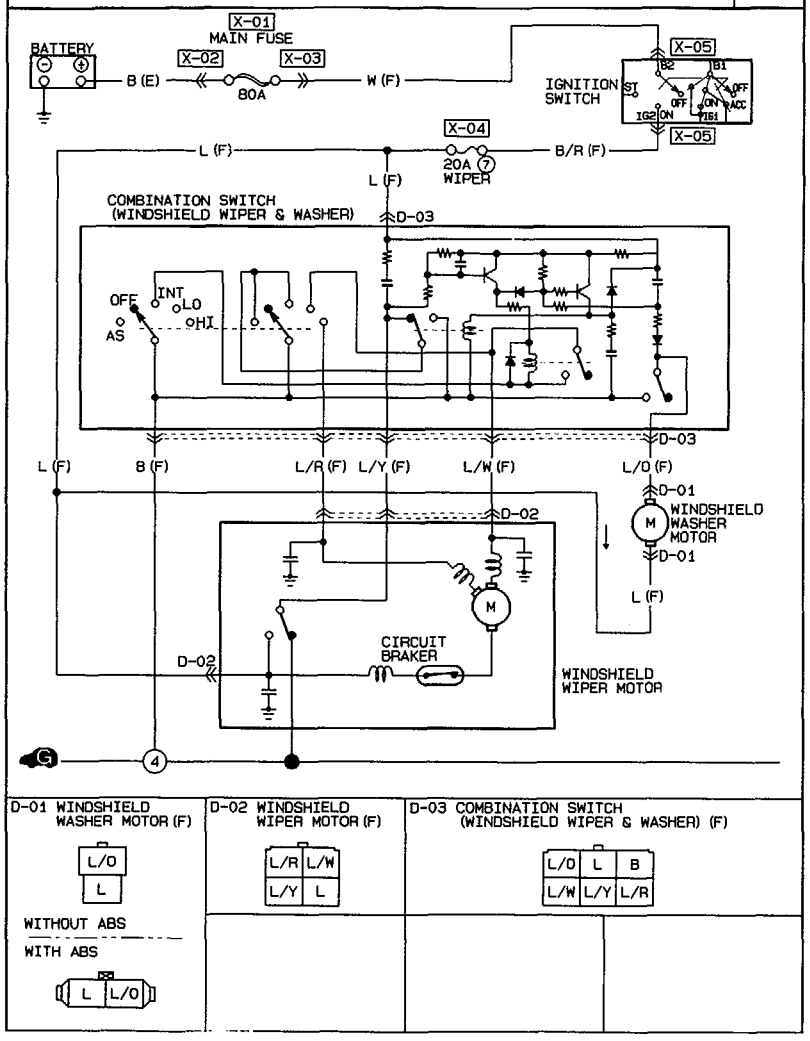


D-01 WINDSHIELD WASHER MOTOR (F)

D-02 WINDSHIELD WIPER MOTOR (F)

D-03 COMBINATION SWITCH (WINDSHIELD WIPER & WASHER) (F)

CANADA ■ WINDSHIELD WIPER & WASHER — D-2



D-01 WINDSHIELD WASHER MOTOR (F)

D-02 WINDSHIELD WIPER MOTOR (F)

D-03 COMBINATION SWITCH (WINDSHIELD WIPER & WASHER) (F)

Wiper does not operate in Lo or Hi position (For USA)

VB: Battery voltage

- Check WIPER 20A fuse — NG → Short circuit
- OK ↓
- Turn ignition switch ON
- Check for VB at terminal-wire (L) of windshield wiper switch connector — NG → Repair harness (Fuse box—Switch)
- OK ↓
- Check for VB at terminal-wires (L/R) and (L/W) of switch connector with switch, as shown
  - Lo: (L/W) VB
  - Hi : (L/R) VB
  — NG → Check windshield wiper switch (Refer to Section T)
- OK ↓
- Check for VB at terminal-wires (L/R) and (L/W) of wiper motor connector with switch, as shown
  - Lo: (L/W) VB
  - Hi : (L/R) VB
  — NG → Repair (L/W) or (L/R) wire harness (Switch—Wiper motor)
- OK ↓
- Check for continuity of motor terminal-wire (B) to ground — NG → Repair brush plate holder (Refer to page S–39)
- OK → Check wiper motor (Refer to page S–34)

25U0SX-007

Wiper does not operate in Lo or Hi position (For Canada)

- Check WIPER 20A fuse — NG → Short circuit
- OK ↓
- Turn ignition switch ON
- Check for VB at terminal-wire (L) of windshield wiper motor — NG → Repair harness (Fuse box—Moter)
- OK ↓
- Check wiper motor (Refer to page S–34) — NG → Replace wiper motor
- OK ↓
- Check for continuity of terminal-wires (L/W) and (L/R) between wiper moter connector and windshield wiper switch connector — NG → Repair harness (Wiper motor—Windshield switch)
- OK ↓
- Check for continuity of windshield wiper switch terminal-wire (B) to ground — NG → Repair harness (Windshield wiper switch—Body ground)
- OK → Check windshield wiper switch (Refer to Section T)

25U0SX-008

Wiper automatic park function does not work

Turn ignition switch ON

VB: Battery voltage

Check for VB at terminal-wire (L) of wiper motor connector

NG → Repair harness (Fuse box—Wiper motor)

OK → Check wiper motor (Refer to page S–34)

25U0SX-009

Intermittent function does not operate

Check for continuity of motor terminal-wire (B) to ground

NG → Repair brush plate holder (Refer to page S–39)

OK → Check windshield wiper switch (Refer to Section T)

25U0SX-010

One-touch function does not operate → Check windshield wiper switch (Refer to Section T)

05U0SX-050

Wiper continues to operate when switch is OFF → Check windshield wiper switch (Refer to Section T)

05U0SX-051

Washer continues to operate when switch is OFF → Check windshield washer switch (Refer to Section T)

05U0SX-052

Washer does not operate (Wiper operates OK) (For USA)

Turn ignition switch ON

Check for VB at terminal-wire (L/O) of windshield washer switch connector with washer switch ON

NG → Check windshield washer switch (Refer to Section T)

OK

Check for VB at terminal-wire (L/O) of washer motor connector with washer switch ON

NG → Repair harness (Switch—Motor)

OK

Disconnect washer motor 2-pin connector; check for continuity of terminal-wire (B) to ground

NG → Repair harness (Motor—Ground)

OK → Check washer motor (Refer to page S–34)

25U0SX-010

Washer does not operate (Wiper operates OK) (For Canada)

Turn ignition switch ON

VB: Battery voltage

Check for VB at terminal-wire (L) of windshield washer motor connector with washer switch ON — NG → Repair harness (Fuse—Motor)

OK

Check washer motor (Refer to page S–34) — NG → Replace washer motor

OK

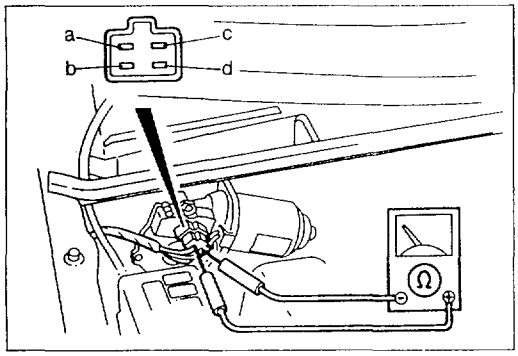
Check for continuity of terminal-wire (L/O) between washer motor and windshield wiper switch — NG → Repair harness (Motor—Switch)

OK

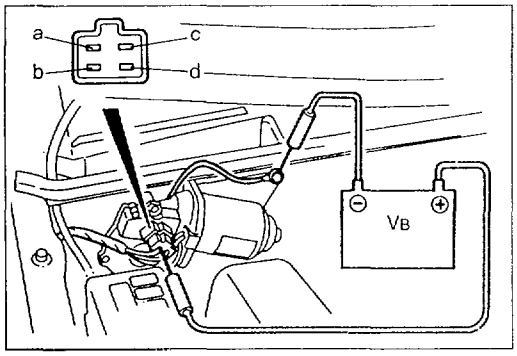
Disconnect windshield wiper switch 6-pin connector; check for continuity of terminal-wire (B) to ground — NG → Repair harness (Switch—Ground)

OK → Check windshield washer switch (Refer to Section T)

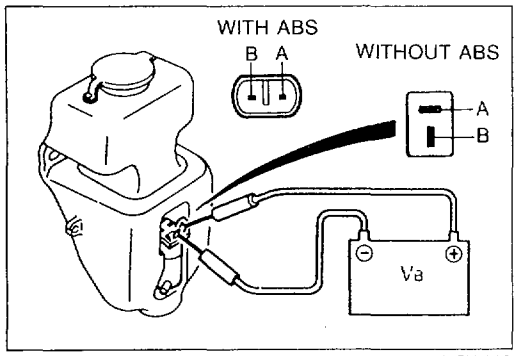
25U0SX-011



15U0SX-055



25U0SX-012



25U0SX-013

WIPER MOTOR

Inspection

Check for continuity between the terminals with the wiper in parked position.

Terminals	Continuity	Terminals	Continuity
a—b	No (Yes)	b—c	No (Yes)
a—c	Yes (Yes)	b—d	No (Yes)
a—d	Yes (Yes)	c—d	Yes (Yes)

( ): CANADA

Check operation by applying battery voltage and a ground to the terminals of the motor connector.

VB: Battery voltage

Terminal	Operation speed
VB	
a (c)	Low
c (a)	High

( ): CANADA

WASHER MOTOR

Inspection

Connect battery voltage to terminal B and a ground to terminal A, and verify that the motor operates.

FRONT WIPER AND WASHER SWITCH

Inspection

Refer to page T–23.

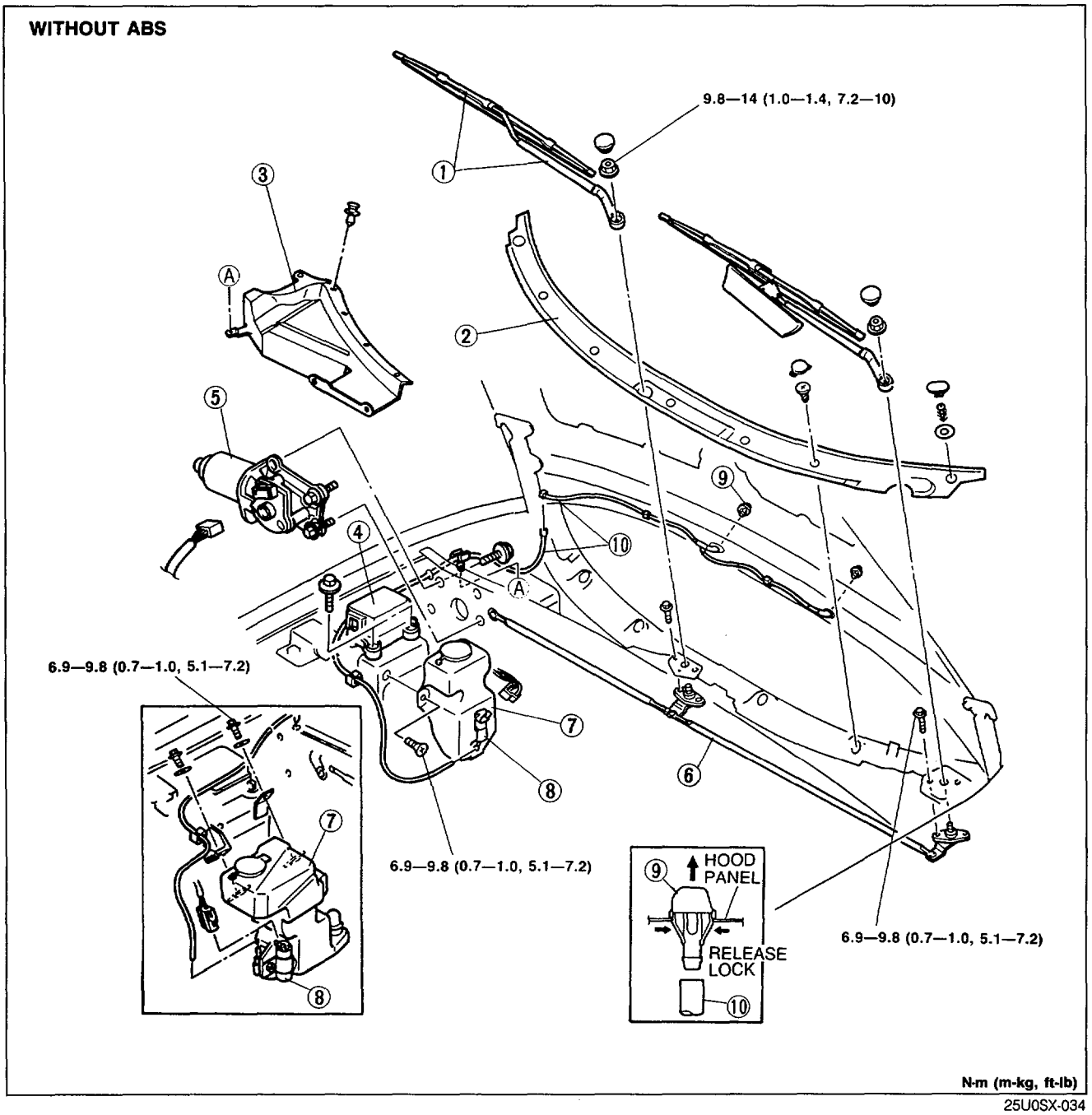
COMPONENTS

Caution

- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

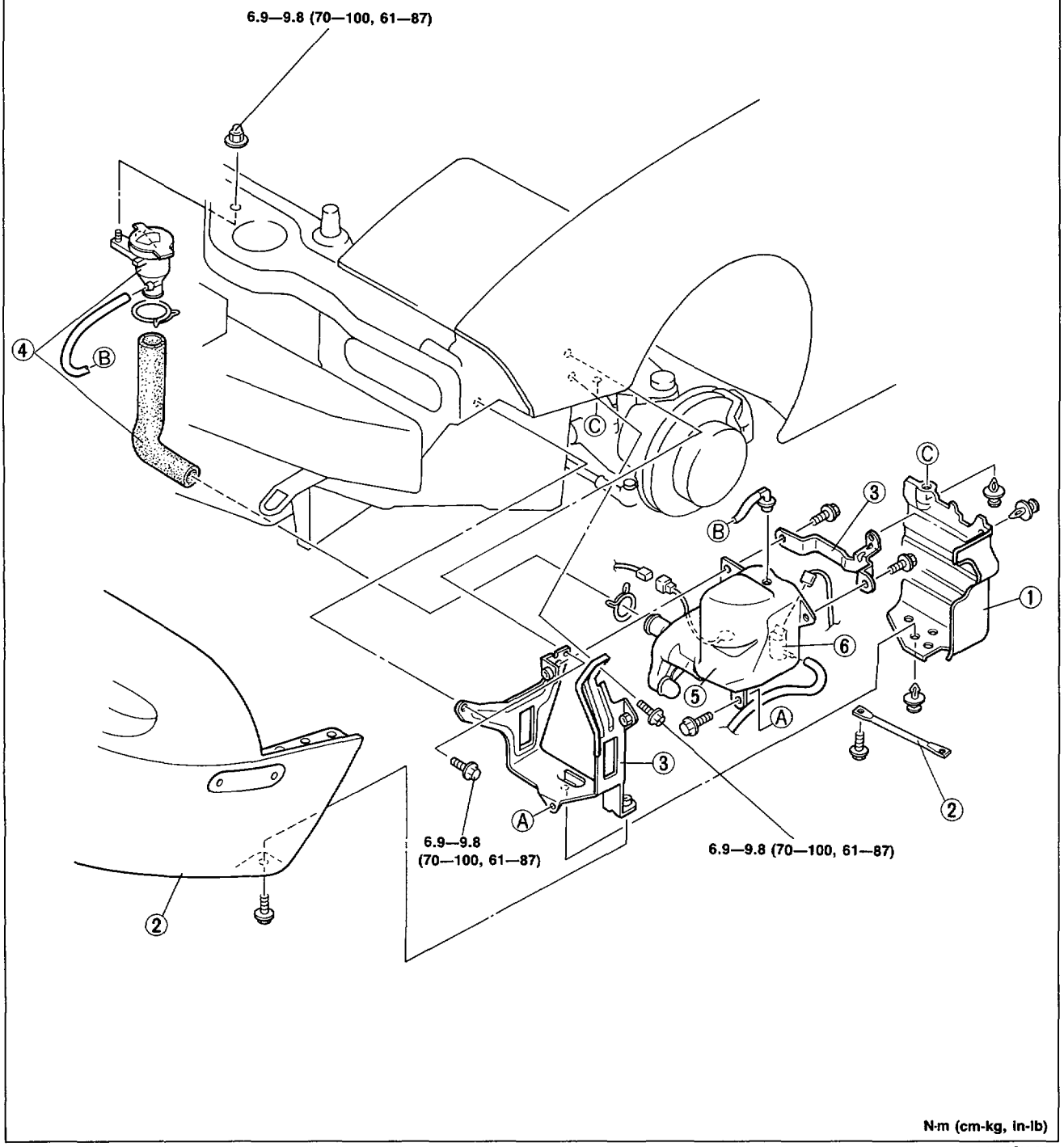
Removal / Installation

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.



1. Wiper arm and blade
   Adjustment ..... page S–38
2. Cowl grille
3. Baffle cover
4. Fuse box
5. Wiper motor
   Inspection..... page S–34
6. Wiper link
7. Washer tank
8. Washer motor
   Inspection..... page S–34
9. Washer nozzle
   Adjustment ..... page S–38
10. Washer pipe

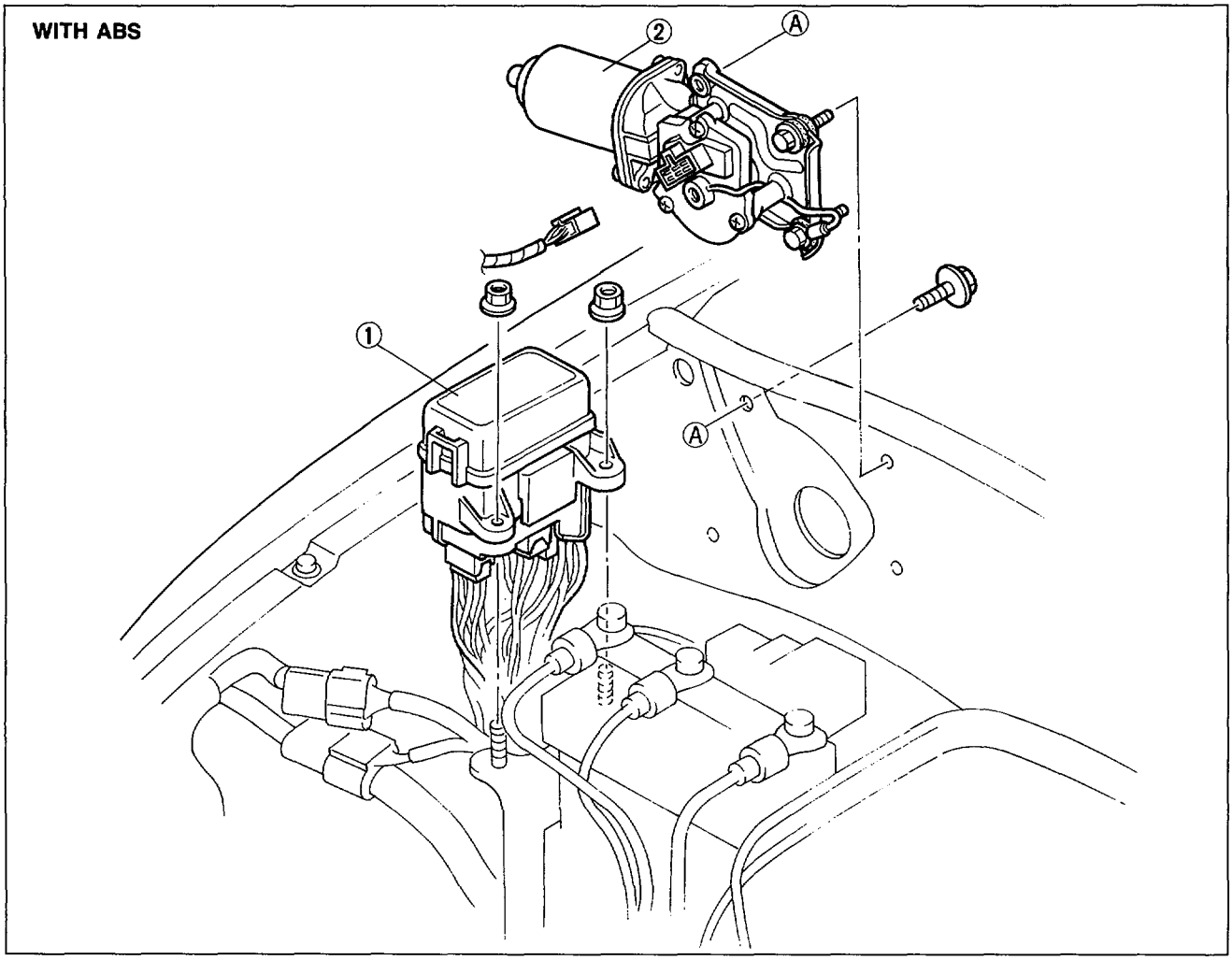
WITH ABS



15U0SX-030

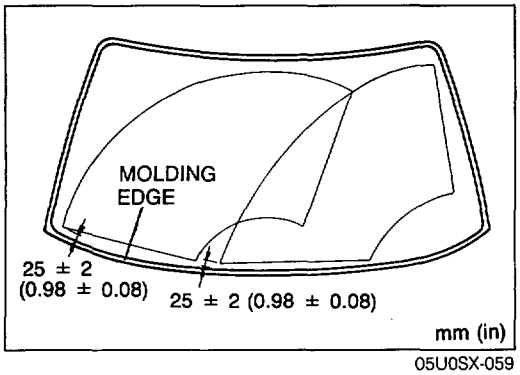
1. Washer tank cover
2. Front bumper and bracket
   Removal / Installation ..... page S–24
3. Tank bracket
4. Washer tank hose
5. Washer tank
6. Washer motor
   Inspection ..... page S–34

WITH ABS

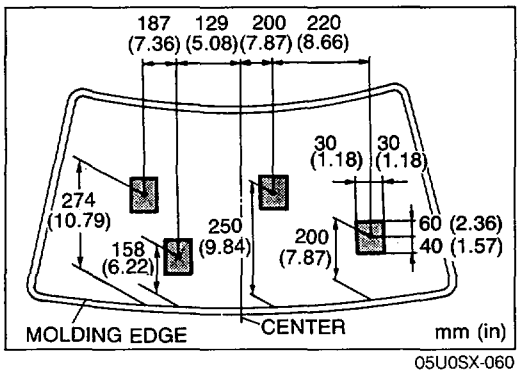


15U0SX-054

1. Main fuse box
2. Wiper motor
   Inspection ..... page S–34



05U0SX-059



05U0SX-060

Adjustment

Arm height

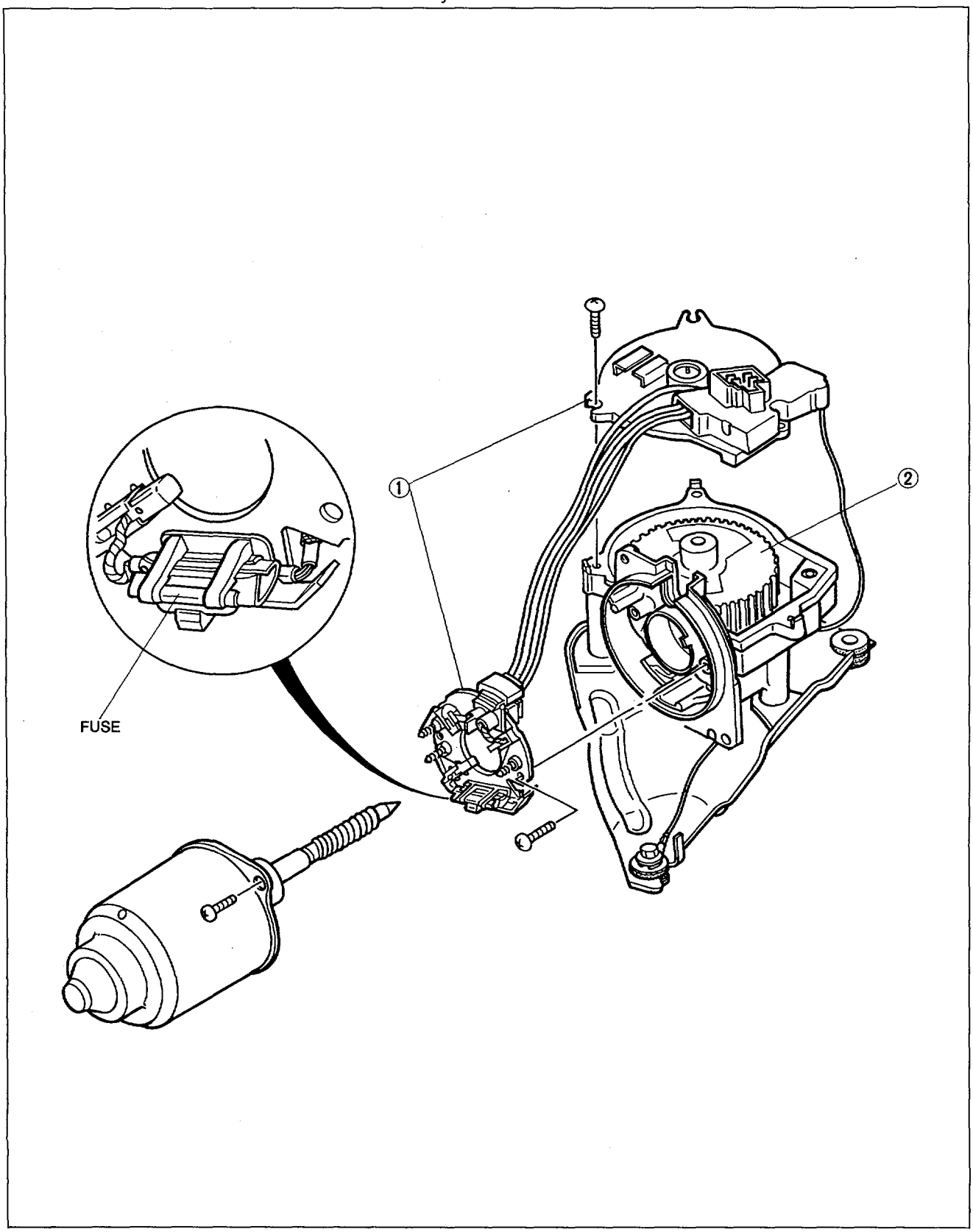
Set the arm height as shown.

Washer nozzle

Insert a needle or similar object into the nozzle hole and move the nozzle to adjust the spray direction.

Disassembly / Assembly

1. Disassemble in the order shown in the figure.
2. Assemble in the reverse order of disassembly.



05U0SX-061

1. Brush plate holder
2. Motor gear shaft

WINDSHIELD

PREPARATION
SST

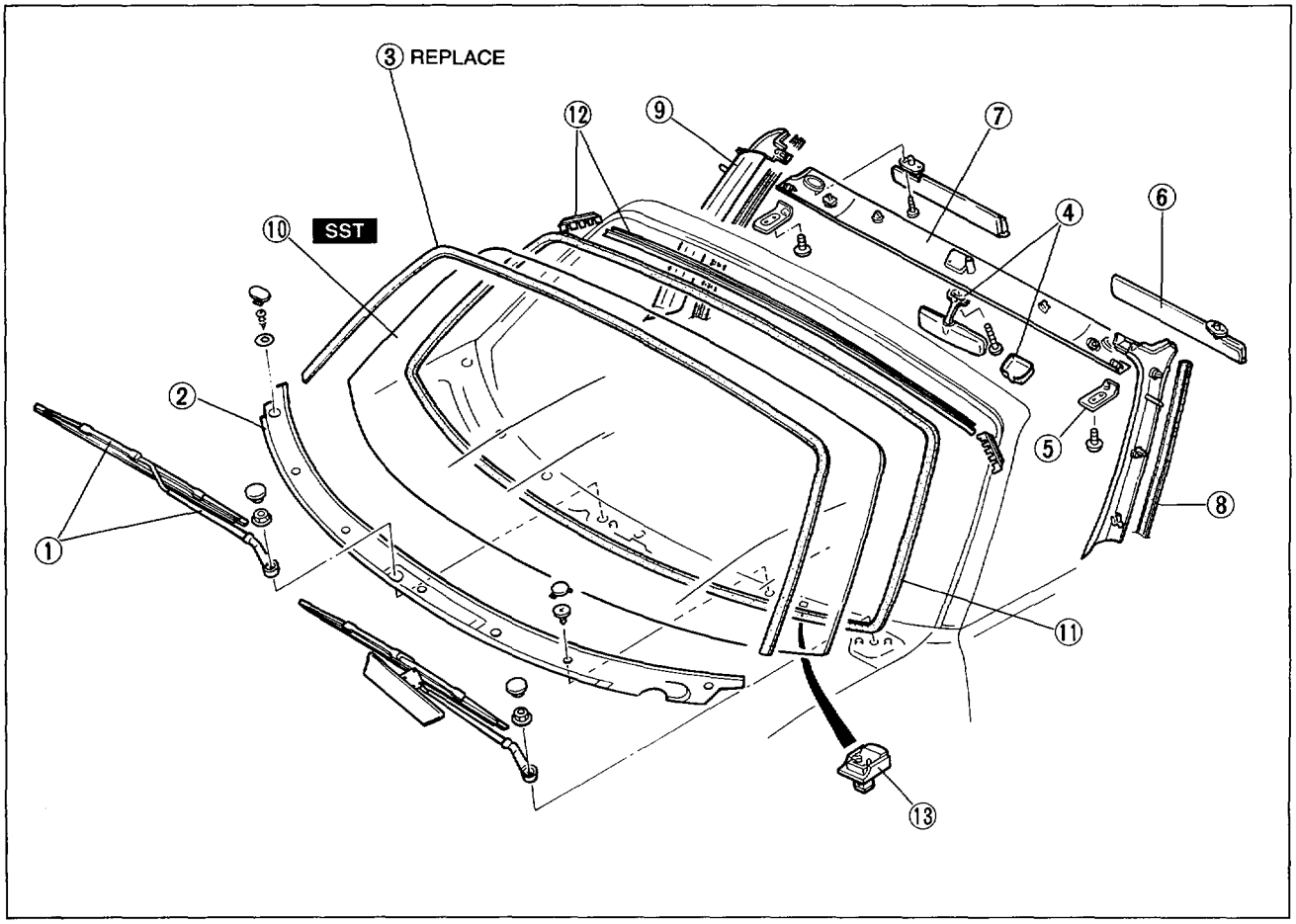
49 0305 870A Tool set, window		For removal and installation of windshield

25U0SX-014

COMPONENTS
Removal / Installation

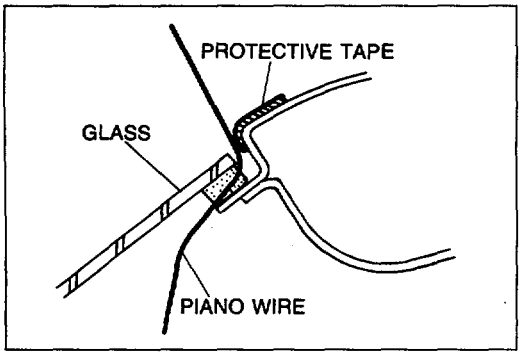
Note
- **Use the SST (49 0305 870A) to remove and install the windshield.**

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.



25U0SX-015

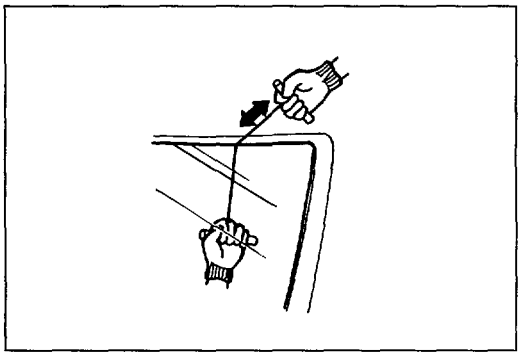
1. Wiper arm and blade
   Adjustment ..... page S–38
2. Cowl grille
3. Windshield molding
   Installation Note page S–28
4. Rearview mirror and cover
5. Striker
6. Sunvisor
7. Front header trim
   Removal Note .. page S–56
8. Weatherstrip
9. A-pillar trim
   Removal Note .. page S–56
10. Windshield
    Removal Note .. page S–41
    Installation Note page S–41
11. Dam
12. Upper protector
13. Spacer



9MU0SX-097

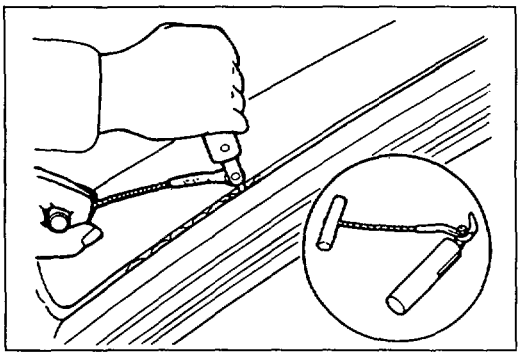
Removal Note
Windshield

1. Apply protective tape along the edge of the body to protect it from damage.
2. Using an awl, make a hole through the sealant from the inside of the vehicle.
3. Pass piano wire through the hole.


05U0SX-064

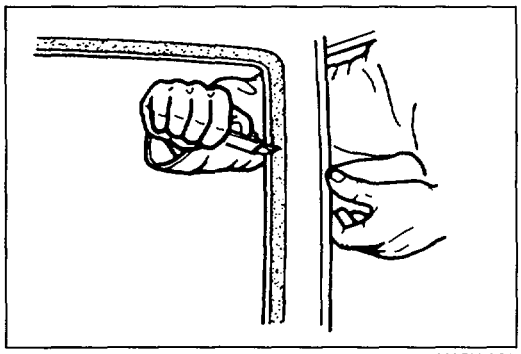
4. Wind each end of the wire around a bar.
5. Working with another person, saw through the sealant around the edge of the glass. Then remove the glass.

Caution
- **Use a long sawing action to spread the work over the whole length of wire to prevent it from breaking.**
- **Be careful that the wire does not rub on the body or dashboard.**


05U0SX-613

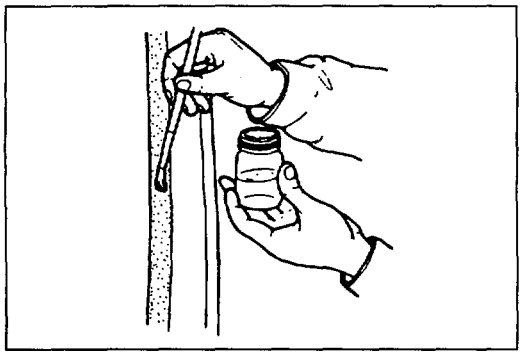
Note
- **If the glass is not to be reused, a tool like that shown in the figure may be used.**

6. Insert the blade in the sealant, and pull on the bars.


05U0SX-065

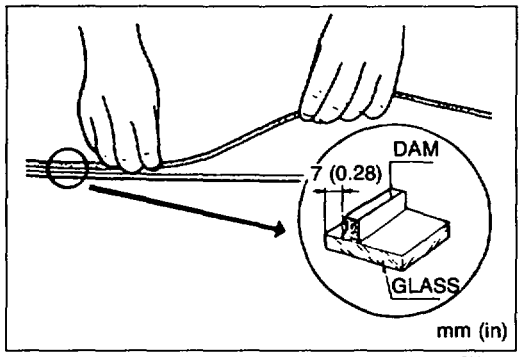
Installation Note
Windshield

1. Cut away the old sealant with a razor knife so that **1 to 2mm (0.04 to 0.08 in)** thickness of sealant remains around the circumference of the frame. If all the sealant has come off in any one place, apply some primer after degreasing, and allow it **30 minutes** to dry. Then put on new sealant to create a **2mm (0.08 in)** layer.
2. Carefully clean an area **5 cm (1.97 in)** wide around the circumference of the glass and the bond on the body.


05U0SX-160

3. Apply primer with a brush to the bonding area of the glass and the body, and allow it to dry for **approx. 30 minutes**.

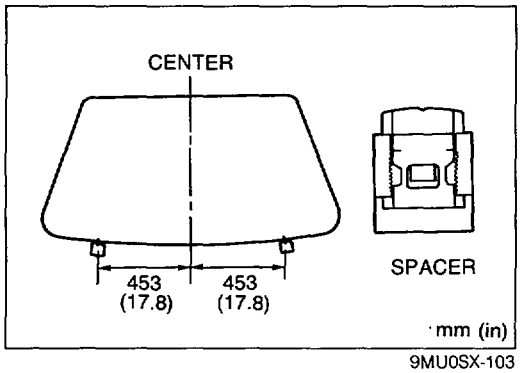
Caution
- **Keep the area free of dirt and grease. Do not touch the surface. If primer gets on the skin, remove it immediately.**



05U0SX-066

4. Bond a new dam along the circumference of the glass **7mm (0.28 in)** from the edge.

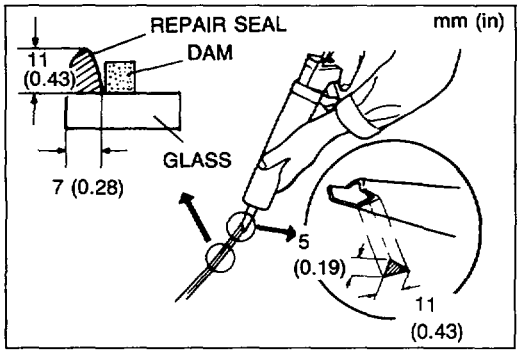
Caution
- **Bond the dam securely and allow it to dry.**



9MU0SX-103

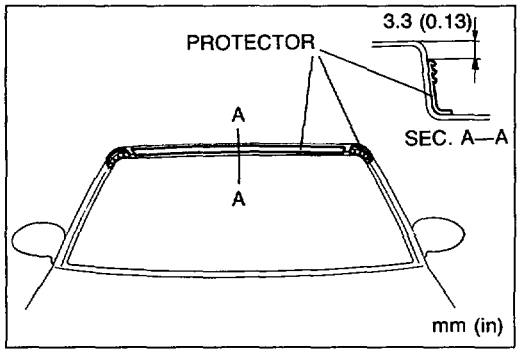
5. Install the spacers onto the body as shown.

Caution
- **Damaged spacers must be replaced.**



05U0SX-067

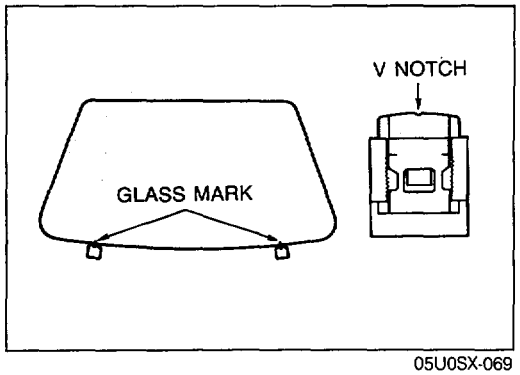
6. Prepare the nozzle of the sealant tube so that it has a flange that can run along the edge of the glass and a V from which the sealant can flow. Once the primer is dry, apply **repair seal** (B001 77 739) around the entire circumference to fill the gap between the dam and the edge of the glass with a ridge of sealant **11mm (0.43 in)** high.
Keep the bead of sealant smooth and even, reshaping it where necessary with a spatula.



05U0SX-068

7. If the protector is damaged, bond a new protector onto the body, as shown.

Caution
- **Bond the protector securely and allow it to dry.**



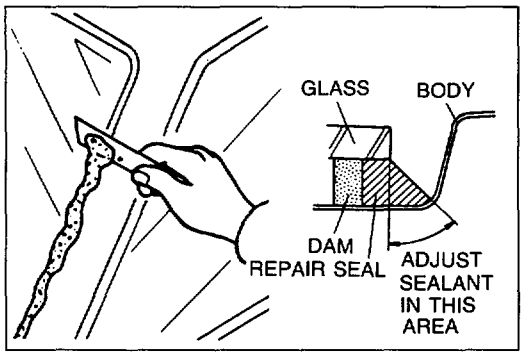
05U0SX-069

8. Install the glass, aligning the glass mark with the V notch in the spacer. Push it in lightly toward the vehicle to compress the sealant.

Caution
- **Lower the convertible top to prevent the glass from being pushed out by air pressure if a door is closed.**

Hardening time of repair seal

Temperature	Surface hardening time	Time required until car can be put into service
5°C (41°F)	Approx. 1.5 hr	12 hr
20°C (68°F)	Approx. 1 hr	4 hr
35°C (95°F)	Approx. 10 min	2 hr



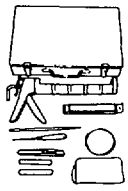
05U0SX-070

9. Use a scraper to smooth away any sealant that oozes out. Add more sealant to any points of poor contact.
10. Install a new windshield molding. (Refer to page S–28.)
11. Check for water leaks.
12. If a leak is found, wipe the water off well and remove the molding and windshield. Reinstall the windshield with new molding. (Refer to page S–28.)

25U0SX-016

REAR WINDOW GLASS (DETACHABLE HARD TOP)

PREPARATION
SST

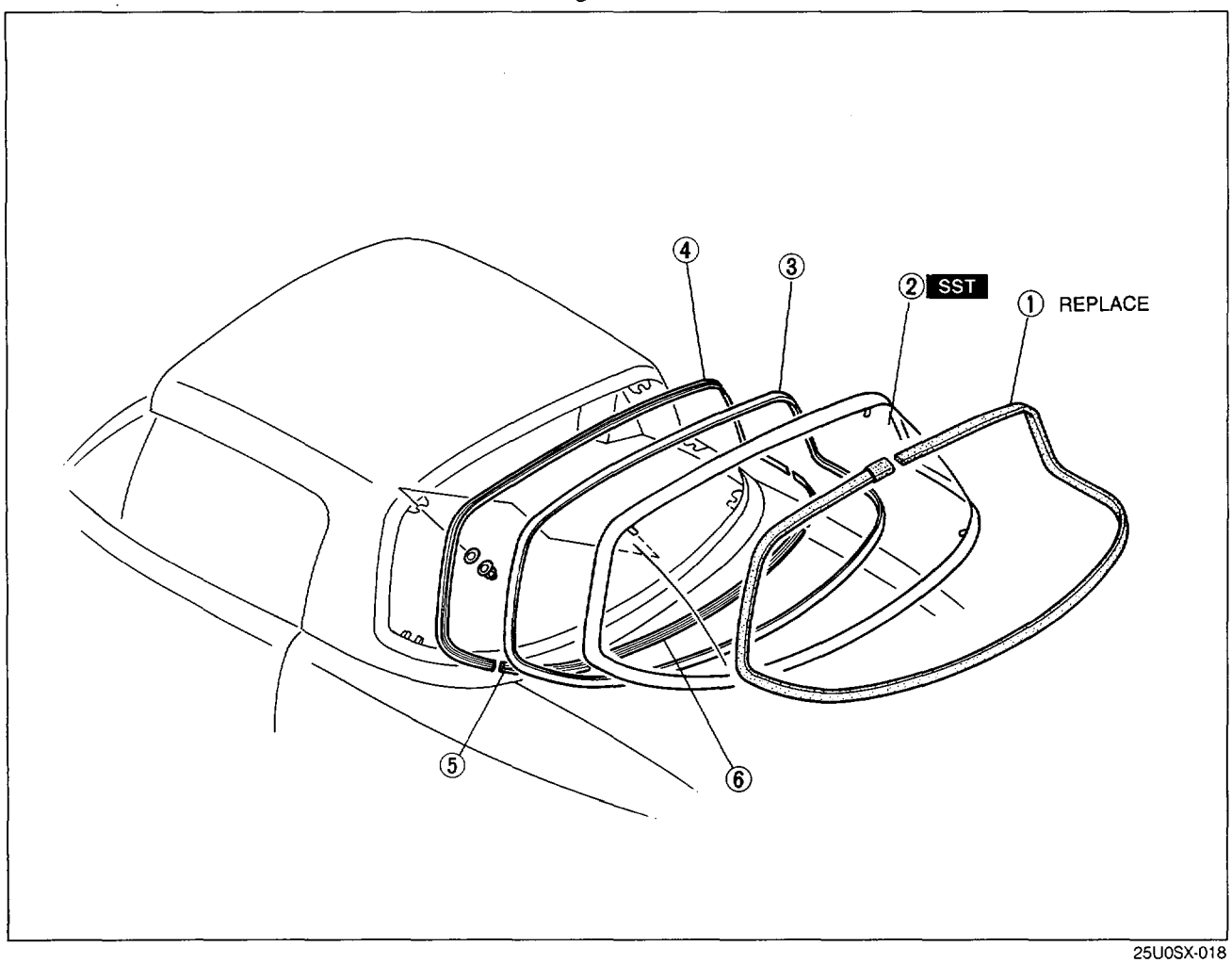
49 0305 870A Tool set, window		For removal and installation of windshield

25U0SX-017

COMPONENTS
Removal / Installation

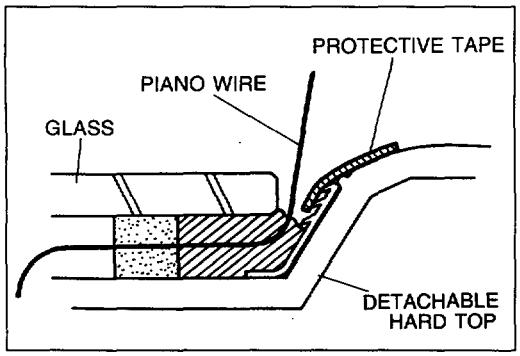
Note
- **Use the SST (49 0305 870A) to remove and install the rear window glass.**

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.

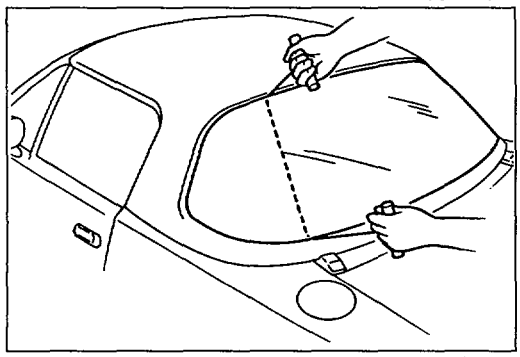


25U0SX-018

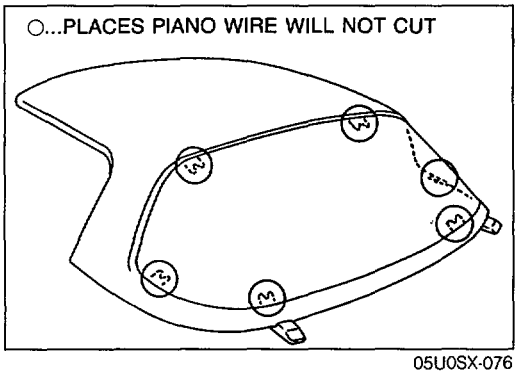
1. Rear window molding
   Installation Note ..... page S–29
2. Rear window glass
   Removal Note ..... page S–45
   Installation Note ..... page S–45
3. Dam
4. Upper protector
5. Side protector
6. Lower protector



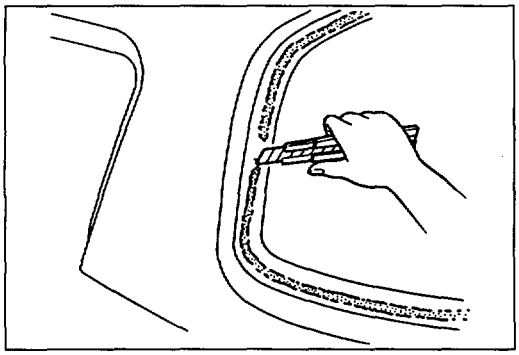
25U0SX-019



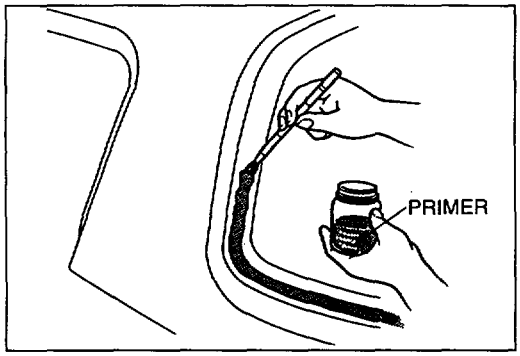
25U0SX-020



05U0SX-076



05U0SX-077



05U0SX-078

Removal Note
Rear window glass

1. Apply protective tape along the edge of the detachable hard top to protect it from damage.
2. Remove the glass mounting nuts.
3. Using an awl, make a hole through the sealant from the inside of the vehicle.
4. Pass piano wire through the hole.
5. Wind each end of the wire around a bar.
6. Saw through the sealant around the edge of the glass. Then remove the glass.

Caution

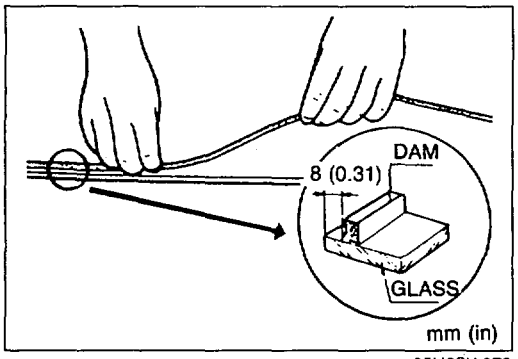
- **Use a long sawing action to spread the work over the whole length of wire to prevent it from breaking.**
- **Be careful that the wire does not rub on the detachable hard top.**
- **Use a razor knife to cut where the piano wire will not cut.**

Installation Note
Rear window glass

1. Cut away the old sealant with a razor knife so that **1 to 2mm (0.04 to 0.08 in)** thickness of sealant remains around the circumference of the frame. If all the sealant has come off in any one place, apply some primer after degreasing, and allow it **30 minutes** to dry. Then put on new sealant to create a **2mm (0.08 in)** layer.
2. Carefully clean an area **5 cm (1.97 in)** wide around the circumference of the glass and the bond on the top.
3. Apply primer with a brush to the bonding area of the glass and the top, and allow it to dry for **approx. 30 minutes**.

Caution

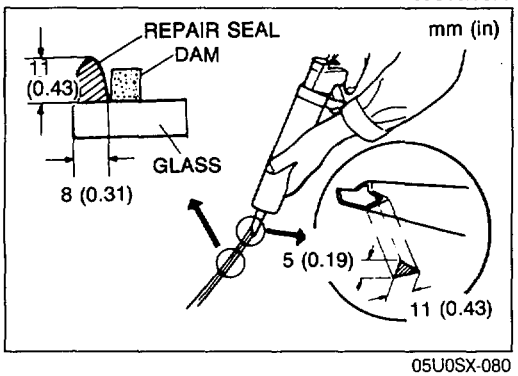
- **Keep the area free of dirt and grease. Do not touch the surface. If primer gets on the skin, remove it immediately.**



05U0SX-079

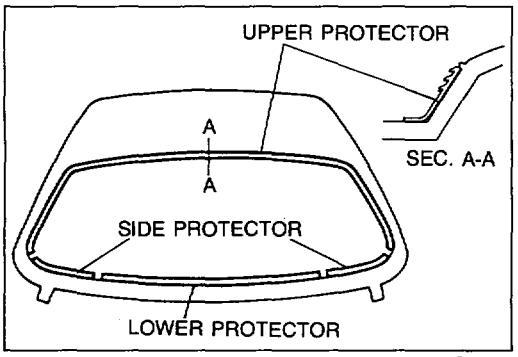
4. Bond a new dam along the circumference of the glass **8mm (0.31 in)** from the edge.

Caution
- **Bond the dam securely and allow it to dry.**



05U0SX-080

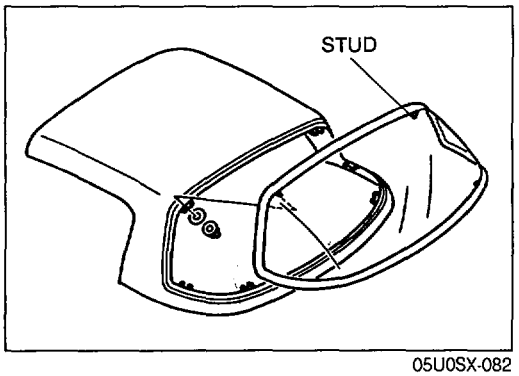
5. Prepare the nozzle of the sealant tube so that it has a flange that can run along the edge of the glass and a V from which the sealant can flow. Once the primer is dry, apply **repair seal** (B001 77 739) around the entire circumference to fill the gap between the dam and the edge of the glass with a ridge of sealant **11mm (0.43 in)** high.
Keep the bead of sealant smooth and even, reshaping it where necessary with a spatula.



25U0SX-021

6. If the protector is damaged, bond a new protector onto the detachable hard top, as shown.

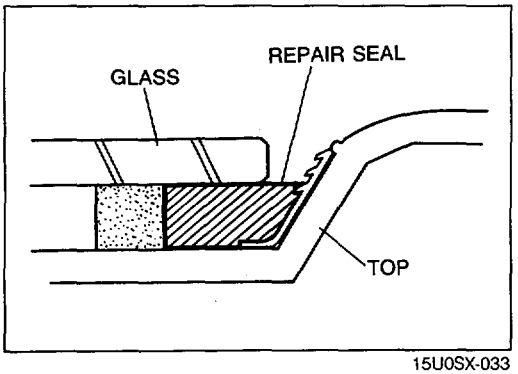
Caution
- **Bond the protector securely and allow it to dry.**



05U0SX-082

7. Align the studs of the glass with the detachable hard top and mount the glass.
8. Push the glass lightly toward the front to compress the sealant.
9. Tighten the glass mounting nuts.

Tightening torque:
2.4—3.3 N·m (24—34 cm-kg, 20.8—29.5 in-lb)



15U0SX-033

10. Use a scraper to smooth away any sealant that oozes out. Add more sealant to any points of poor contact.
11. Install the new rear window molding. (Refer to page S–29.)

Hardening time of repair seal

Temperature	Surface hardening time	Time required until car can be put into service
5°C (41°F)	Approx. 1.5 hr	12 hr
20°C (68°F)	Approx. 1 hr	4 hr
35°C (95°F)	Approx. 10 min	2 hr

12. Check for water leaks.
13. If a leak is found, wipe the water off well and remove the molding and rear window glass. Reinstall the glass with new molding. (Refer to page S–29.)

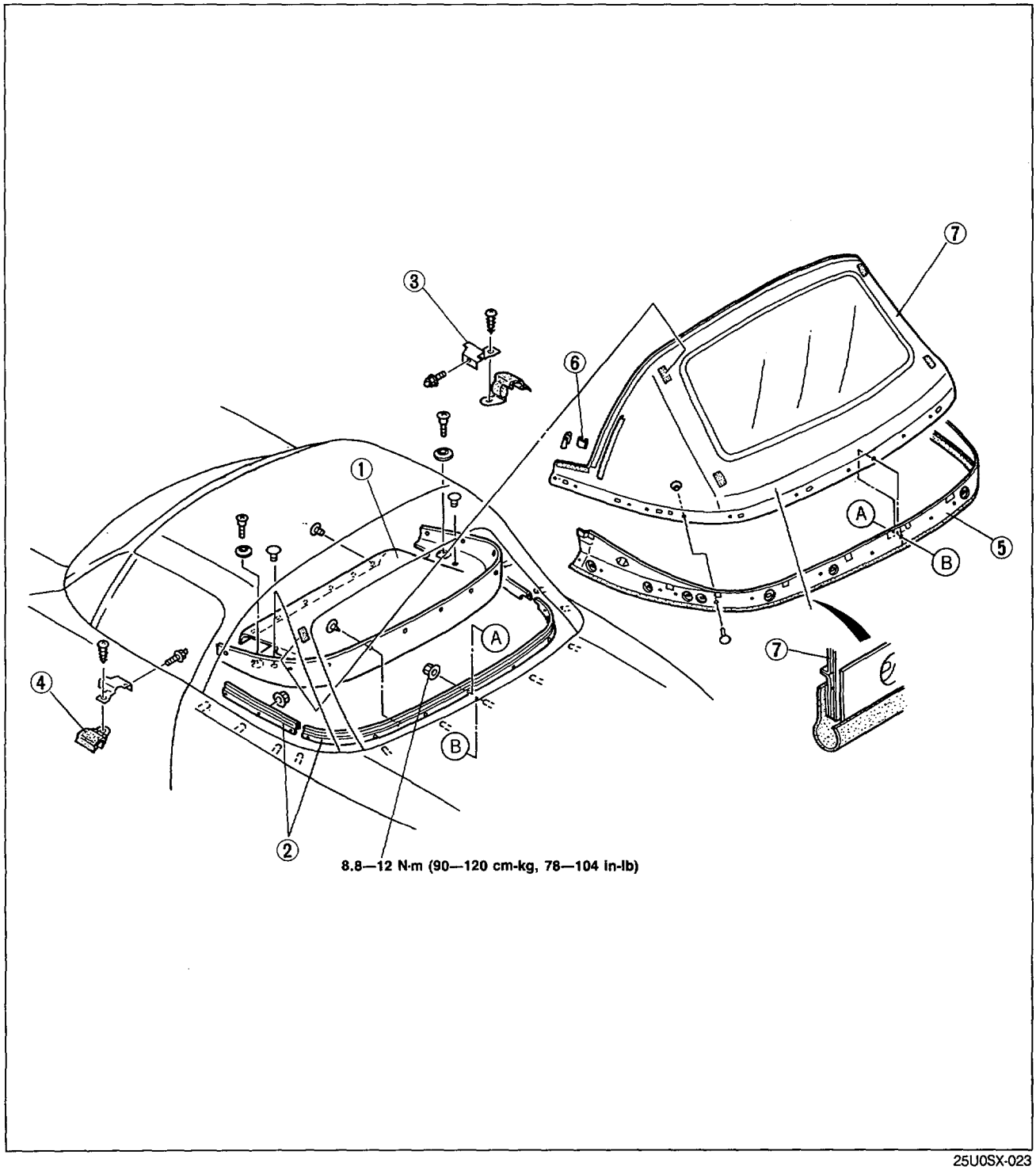
25U0SX-022

REAR WINDOW (CONVERTIBLE TOP)

COMPONENTS

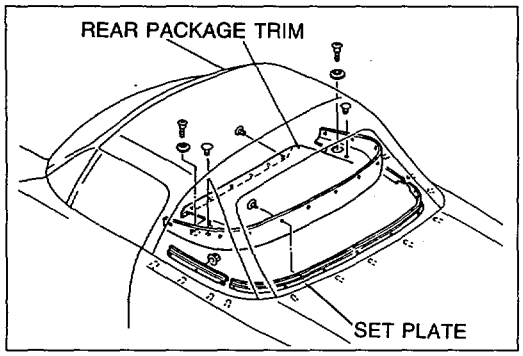
Removal / Installation

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.



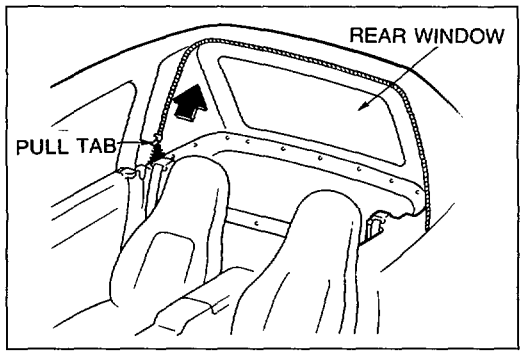
25U0SX-023

1. Rear package trim
2. Set plate
3. Beltline cover
4. Beltline protector
5. Rain rail
6. Zipper stop
7. Rear window
   - Removal Note ..... page S–49
   - Installation Note ..... page S–50



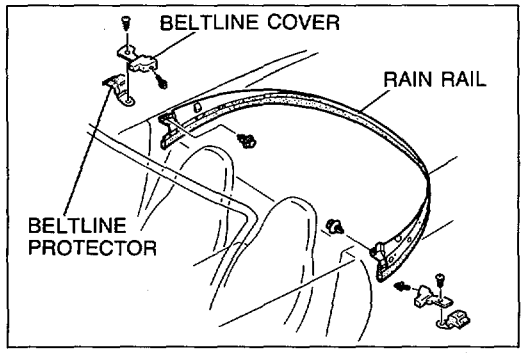
05U0SX-086

Removal Note
Rear window
1. Remove the rear package trim.
2. Remove the set plates.



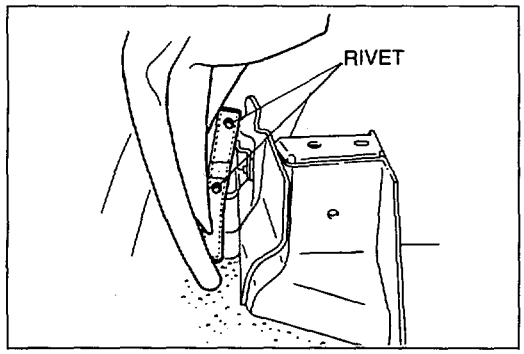
05U0SX-087

Note
- **Unzip the rear window, and lower the convertible top fully.**



05U0SX-088

3. Remove the beltline covers.
4. Remove the beltline protectors.
5. Remove the rain rail mounting fasteners from the body.



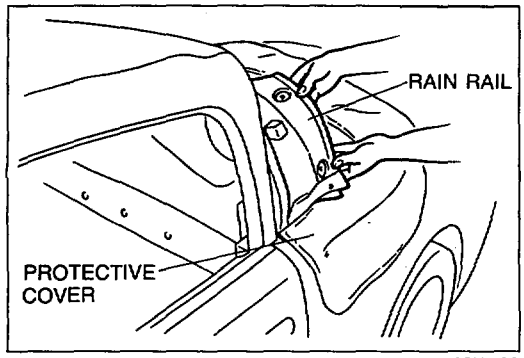
05U0SX-089

Note
- **Raise the convertible top completely.**
- **Leave the top latch assemblies in the unlocked position.**

6. Remove the rain rail from the studs.
7. Remove the rivets from the link assembly with a drill.

Drill size: ϕ4.0mm (ϕ0.16 in)

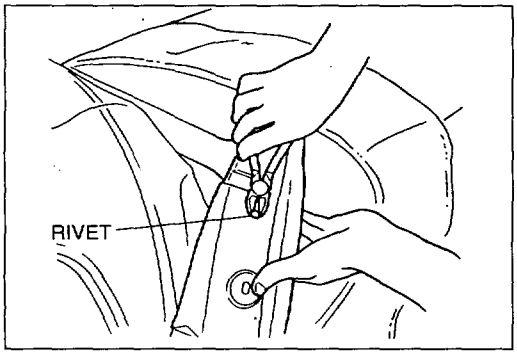
Note
- **Remove any accumulated dirt, etc.**



05U0SX-090

Caution
- **Cover the body to prevent it from damage.**

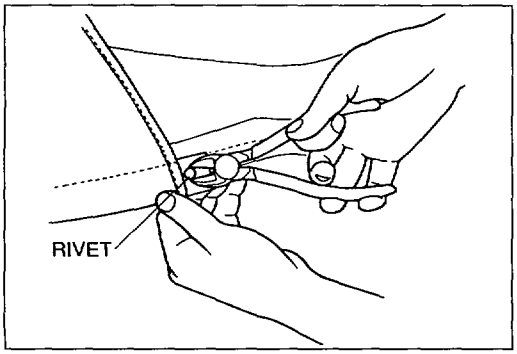
8. Remove the rain rail from the body.



05U0SX-091

9. Remove the rivets from the rain rail with a cutter, and remove the rain rail from the convertible top.

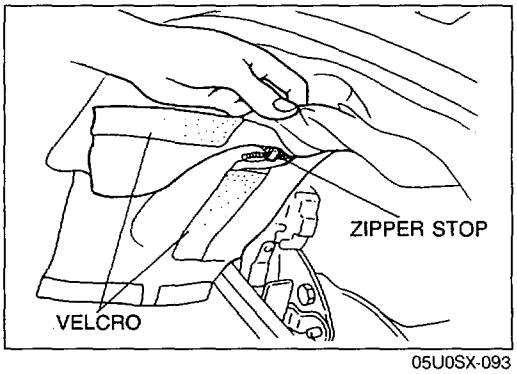
Note
- **Do not damage the rain rail.**



05U0SX-092

10. Remove the rivets from the rear window with a cutter.

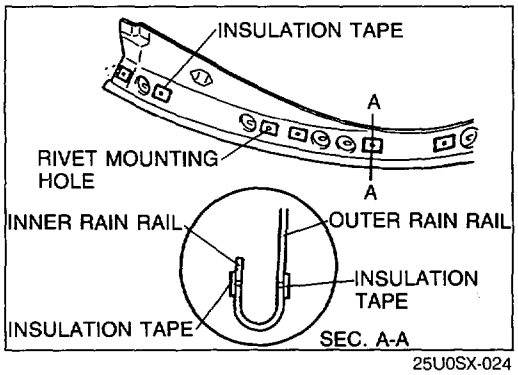
Note
- **Do not damage the rear window.**



05U0SX-093

11. Peel apart the Velcro.
12. Carefully remove the zipper stops from the rear window and top fabric, and remove the rear window.

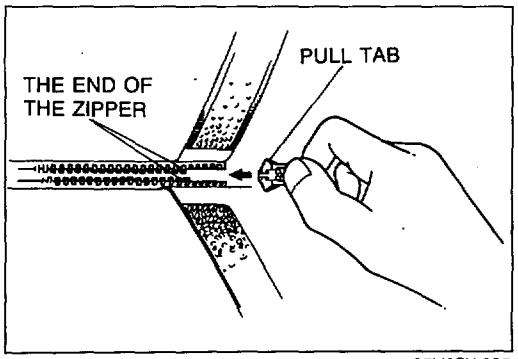
Note
- **Save the zipper stops for reuse.**



25U0SX-024

Installation Note
Rear window
1. Degrease the rain rail with ethyl alcohol.
2. Install insulation tape to the rivet mounting holes of the rain rail.

Insulation tape
Width : 20mm (0.79 in)
Height : 15mm (0.59 in)
Thickness : 3mm (0.12 in)

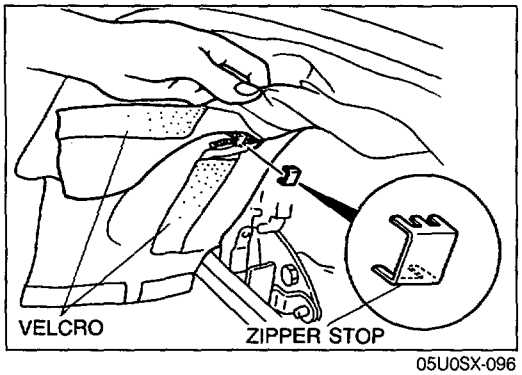


05U0SX-095

3. Align the ends of the zipper, and install the zipper pull tab.

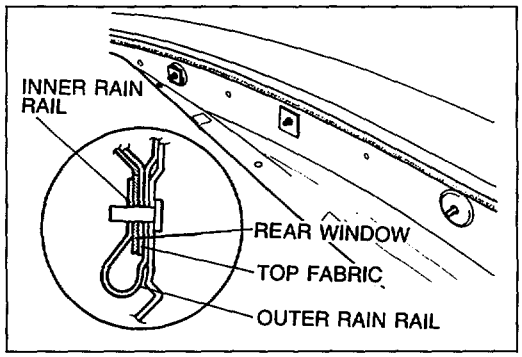
Note
- **Do not damage the rear window.**

4. Zip the rear window into place.



05U0SX-096

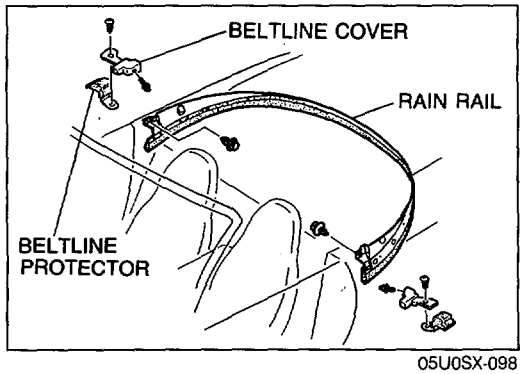
5. Install the zipper stops to the rear window and the top fabric.
6. Affix the rear window to the top fabric with the Velcro.



05U0SX-097

7. Mount the outer rain rail to the studs.
8. Mount the top fabric to the studs.
9. Mount the rear window to the studs.
10. Mount the inner rain rail to the studs.
11. Loosely install the set plates.

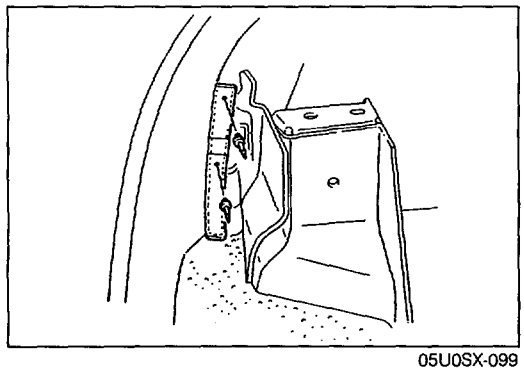
Note
- **Install the set plate beginning at the left side.**



05U0SX-098

Note
- **Unzip the rear window, and lower the convertible top fully.**

12. Install the rain rail with the fasteners.
13. Install the beltline protectors.
14. Install the beltline cover.


05U0SX-099

Note
- **Raise the convertible top completely, and lock the top latch assemblies.**
- **Zip the rear window into place.**

15. Tighten the set plate mounting nuts.

Tightening torque:
8.8—12 N·m (0.9—1.2 m-kg, 6.5—8.7 ft-lb)

16. Rivet the top fabric to the link assembly.
17. Install the rear package trim.

18. If there is any sagging of the top fabric, remove the pull tab and realign the zipper.

05U0SX-100

DASHBOARD AND CONSOLE

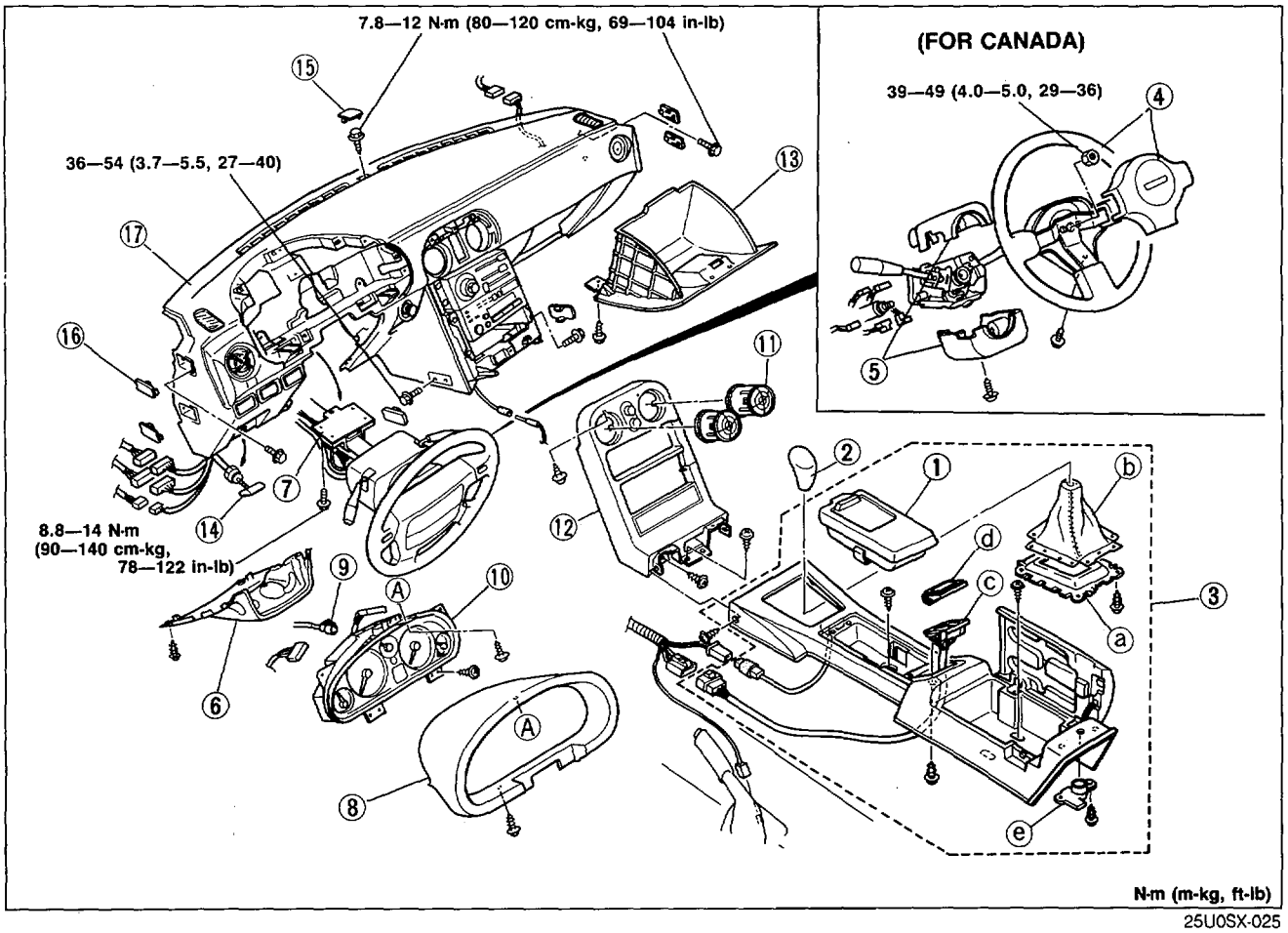
COMPONENTS

Caution
- **Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)**

Removal / Installation

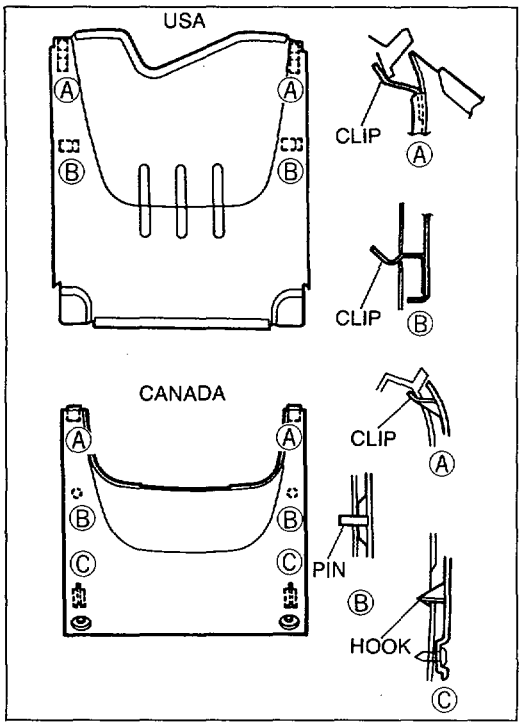
Note
- **Do not remove the steering wheel if not necessary (U.S. spec.). If it is removed, refer to Section T.**
- **Remove the control wires of the heater unit and blower unit for removal of the dashboard.**

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Install in the reverse order of removal.



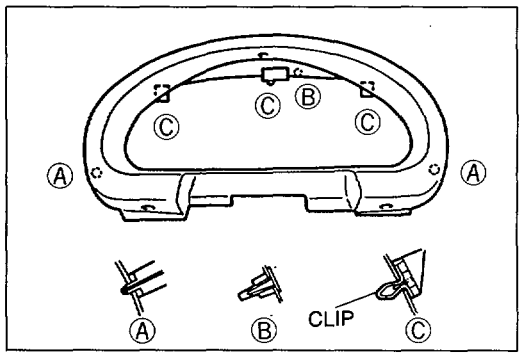
25U0SX-025

1. Ashtray
2. Change lever knob
3. Rear console assembly
   a. Back plate
   b. Shift lever boot
   c. Power window switch
   d. Cover (Without power window)
   e. Console lock assembly
4. Steering wheel and horn cap (Canada)
5. Column cover (Canada)
6. Center lower panel assembly
   Removal Note .. page S–53
7. Steering shaft
8. Meter hood assembly
   Removal Note .. page S–53
9. Speedometer cable
10. Instrument cluster
11. Center louver
    Removal Note .. page S–53
12. Center panel assembly
    Removal Note .. page S–54
13. Glove box assembly
14. Hood release knob
15. Center hole cover
16. Side cover
17. Dashboard



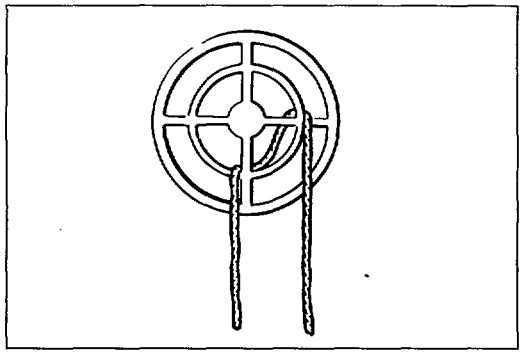
05U0SX-102

Removal Note
Center lower panel assembly
The clips are where shown.



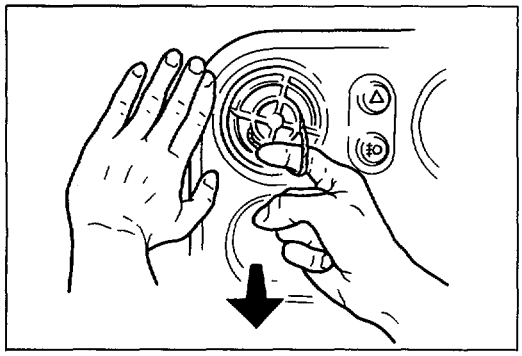
05U0SX-103

Meter hood assembly
The clips are where shown.



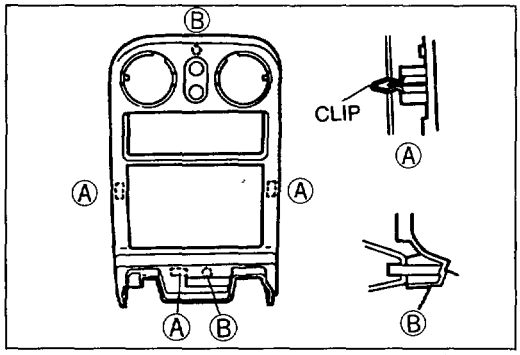
15U0SX-037

Center louver
1. Put the string through the center louver.



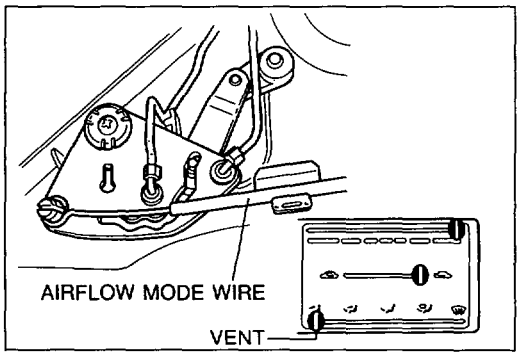
15U0SX-038

2. Pull the string straight-out while holding onto the center panel.



05U0SX-104

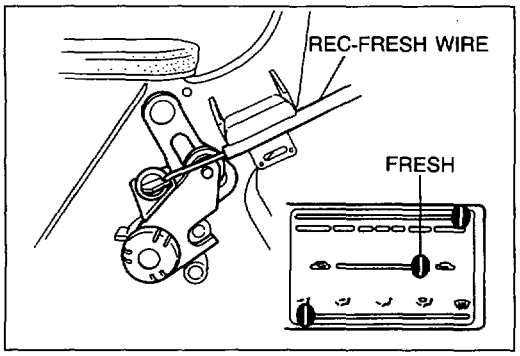
Center panel assembly
The clips are where shown.



05U0SX-105

Adjustment Note
Airflow mode wire
1. Set the airflow mode control lever to VENT position.
2. Connect and clamp the wire with the shutter lever on the heater unit at its closest point.

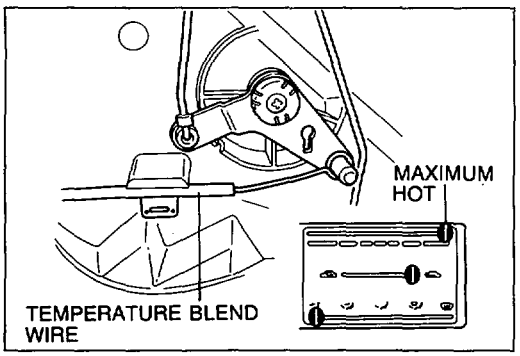
Caution
- **After installation, move the airflow mode control lever to be sure the wire is securely attached, and that it moves the full stroke from DEF to VENT.**



05U0UX-161

REC-FRESH wire
1. Set the selector lever to FRESH position.
2. Connect and clamp the wire with the shutter lever on the blower unit at its closest point.

Caution
- **After installation, move the REC-FRESH lever to be sure the wire is securely attached, and that it moves the full stroke from REC to FRESH.**



05U0SX-106

Temperature blend wire
1. Set the temperature blend lever to MAX-HOT position.
2. Connect and clamp the wire with the shutter lever on the heater unit all the way to the right.

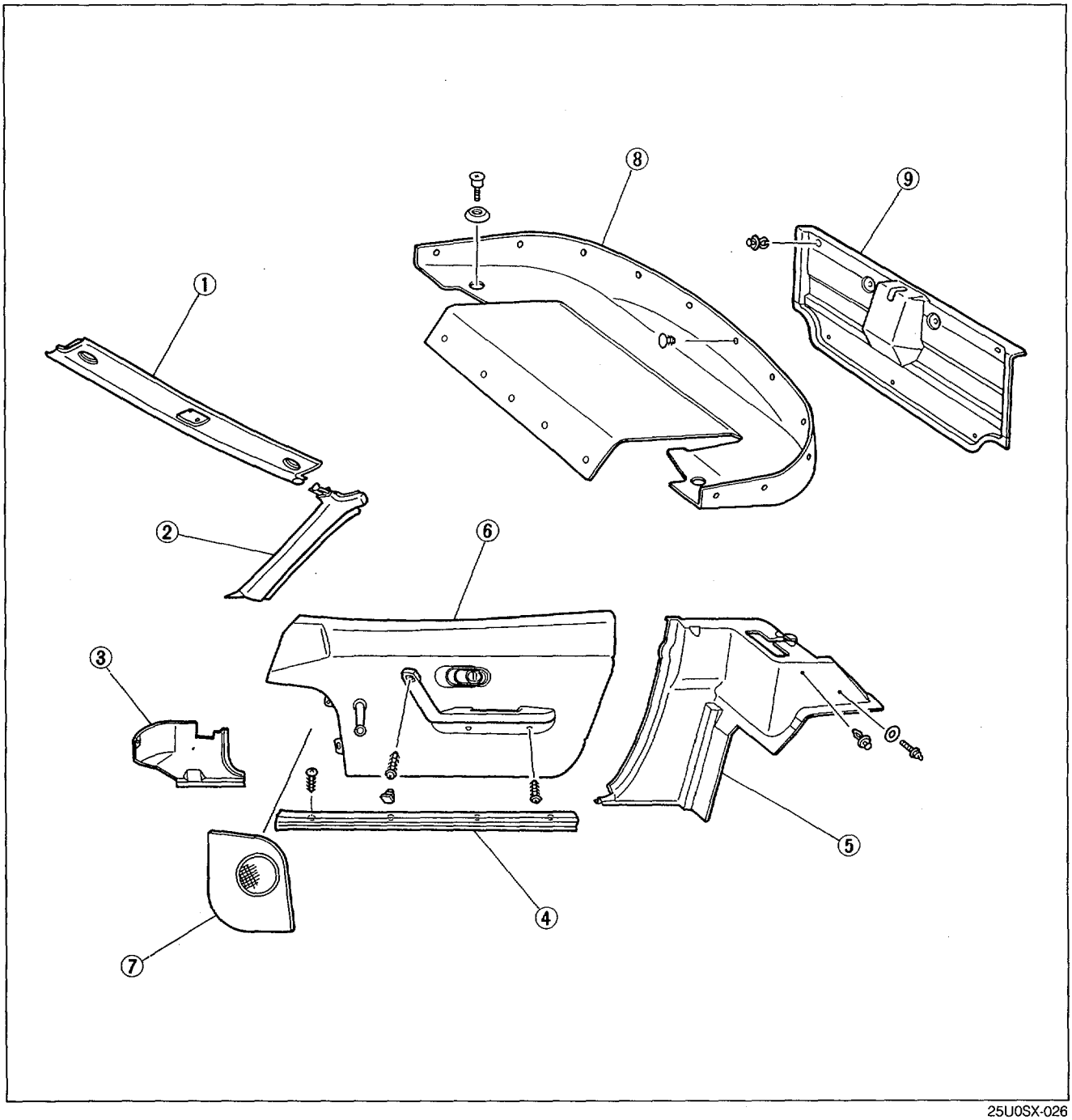
Caution
- **After installation, move the temperature blend lever to be sure the wire is securely attached, and that it moves the full stroke from HOT to COLD.**

TRIM

COMPONENTS

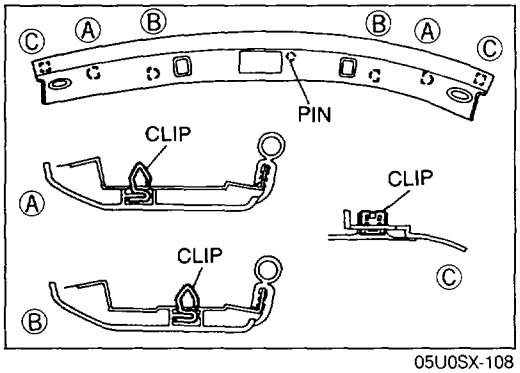
Removal / Installation

1. Remove as shown by prying out the trim clips, referring to **Removal Note**.
2. Install in the reverse order of removal.



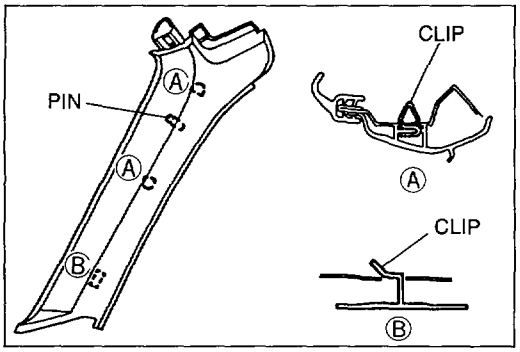
25U0SX-026

1. Front header trim
   Removal Note..... page S–56
2. A-pillar trim
   Removal Note..... page S–56
3. Front side trim
   Removal Note..... page S–56
4. Scuff plate
   Removal Note..... page S–56
5. Quarter trim
   Removal Note..... page S–56
6. Door trim
   Removal Note..... page S–57
7. Speaker grille
   Removal Note..... page S–57
8. Rear package trim
9. Trunk end trim



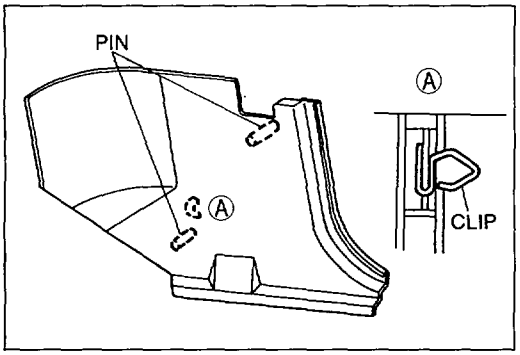
05U0SX-108

Removal Note
Front header trim
The clips and pin are where shown.



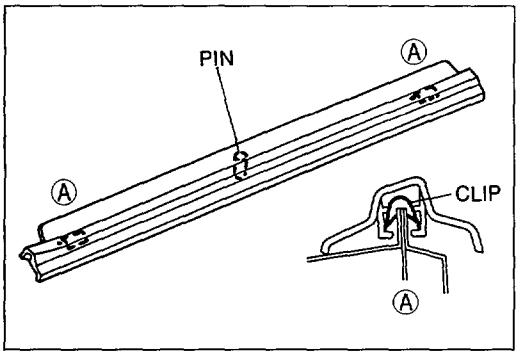
05U0SX-109

A-pillar trim
The clips and pin are where shown.



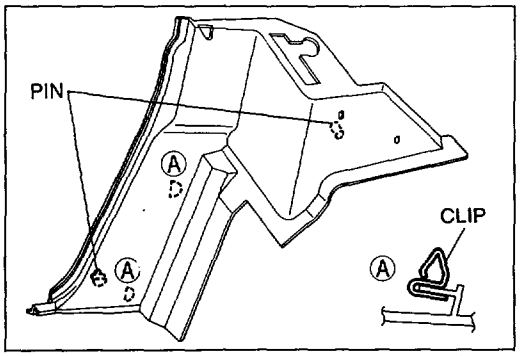
05U0SX-110

Front side trim
The clip and pins are where shown.



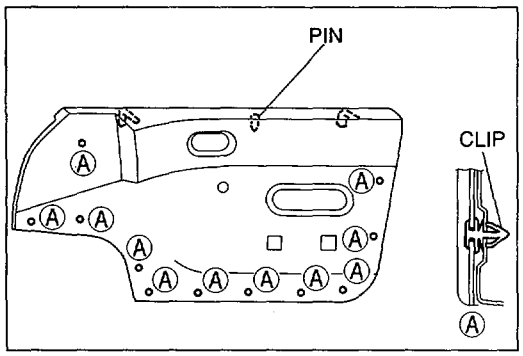
05U0SX-111

Scuff plate
The clips and pin are where shown.



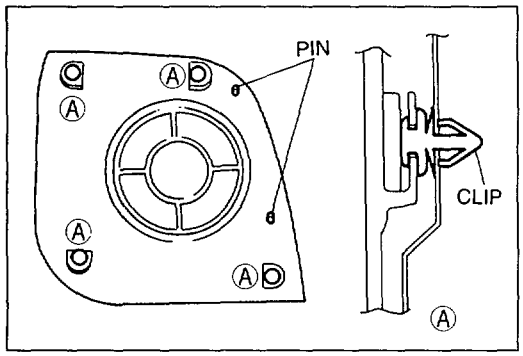
05U0SX-112

Quarter trim
The clips and pins are where shown.



05U0SX-113

Door trim
The clips and pin are where shown.



05U0SX-114

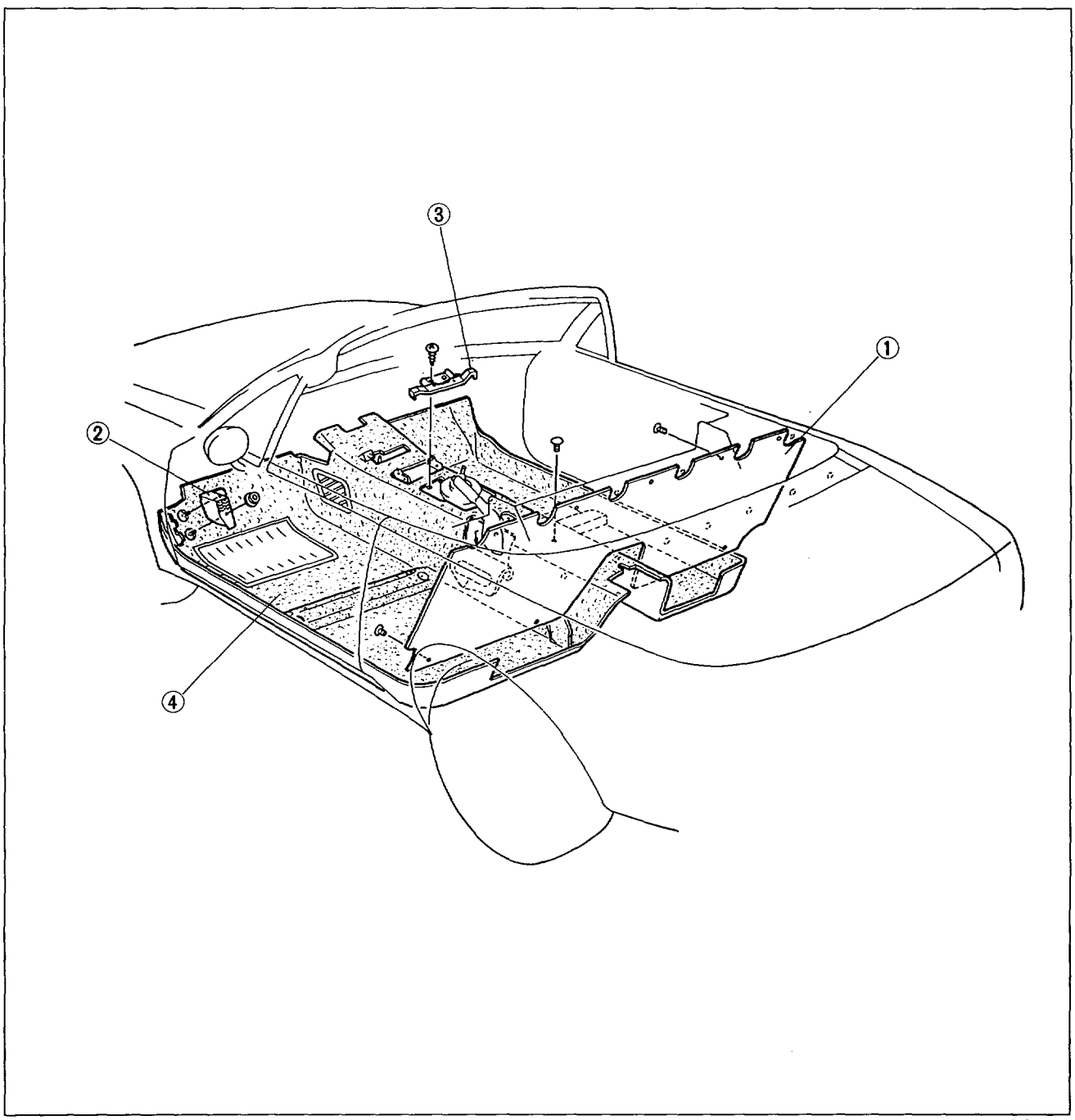
Speaker grille
The clips and pins are where shown.

FLOORMAT

COMPONENTS

Removal / Installation

1. To remove the floormat, first remove the following.
   a) Seats; (Refer to page S–61.)
   b) Dashboard; (Refer to page S–52.)
   c) Heater unit; (Refer to Section U)
   d) Front side trim, scuff plates, quarter trim, and rear package trim; (Refer to page S–55.)
   e) Front seat belts and buckles; (Refer to page S–59.)
2. Remove the remaining parts in the order shown in the figure.
3. Install in the reverse order of removal.



15U0SX-040

1. Rear end mat
2. Foot rest
3. Bracket
4. Front floormat

SEAT BELT

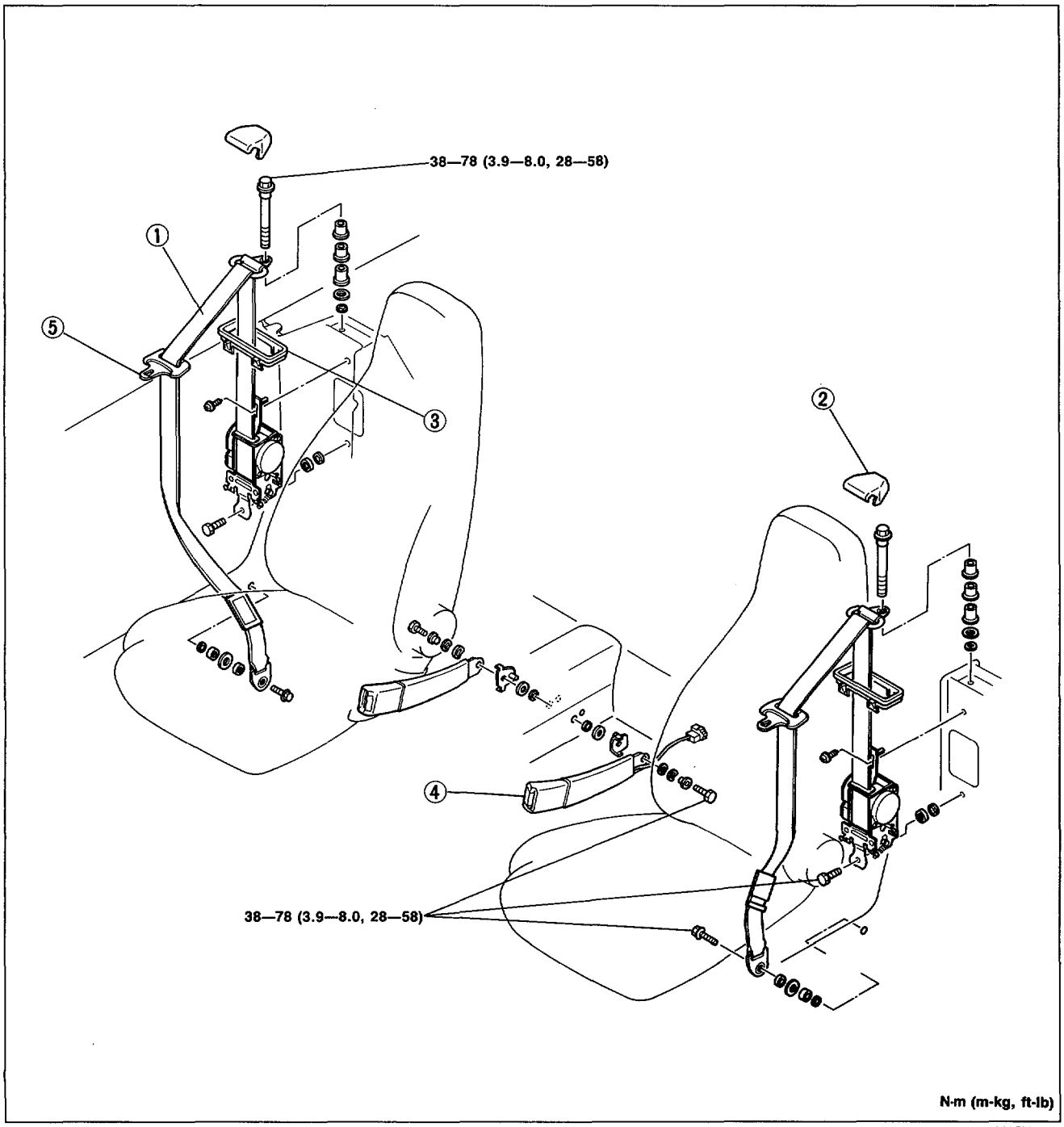
COMPONENTS

Removal / Installation

1. Remove the quarter trim for removal of the seat belt. (Refer to page S–56.)
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.

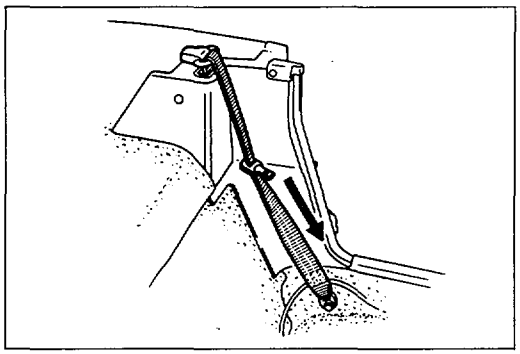
Caution

- **Do not disassemble the buckle or retractor assembly.**

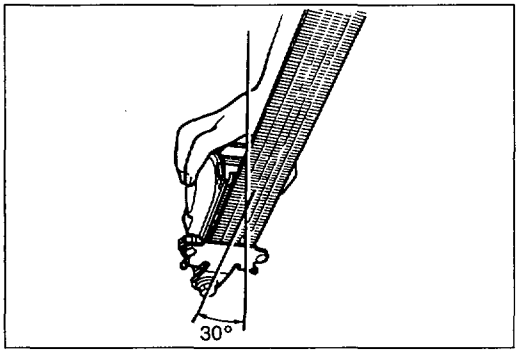


15U0SX-041

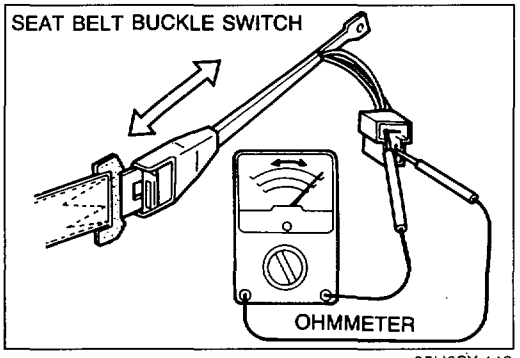
1. Seat belt
   Inspection ..... page S–60
2. Anchor cover
3. Bezel
4. Buckle
5. Tang



05U0SX-117



05U0SX-118



05U0SX-119

EMERGENCY LOCKING RETRACTOR (ELR)

Inspection

1. Verify that the belt can be pulled out smoothly, and that it moves smoothly when worn.
2. Verify that the retractor locks when the belt is quickly pulled.
3. Remove the retractor.
4. Hold the retractor as it would be installed.
5. Slowly incline the retractor while pulling out the belt.
6. Verify that the retractor locks at **approx. 30 degrees** inclination.

WEBBING

Inspection

Inspect the webbing for scars, tears, and wear and for deformation of the fittings.

BUCKLE SWITCH

Inspection

1. Disconnect the seat belt buckle switch connector.
2. Check continuity of the switch.

Seat belt	Continuity
Buckled	No
Unbuckled	Yes

3. If continuity is not as specified, replace the switch.

SEAT

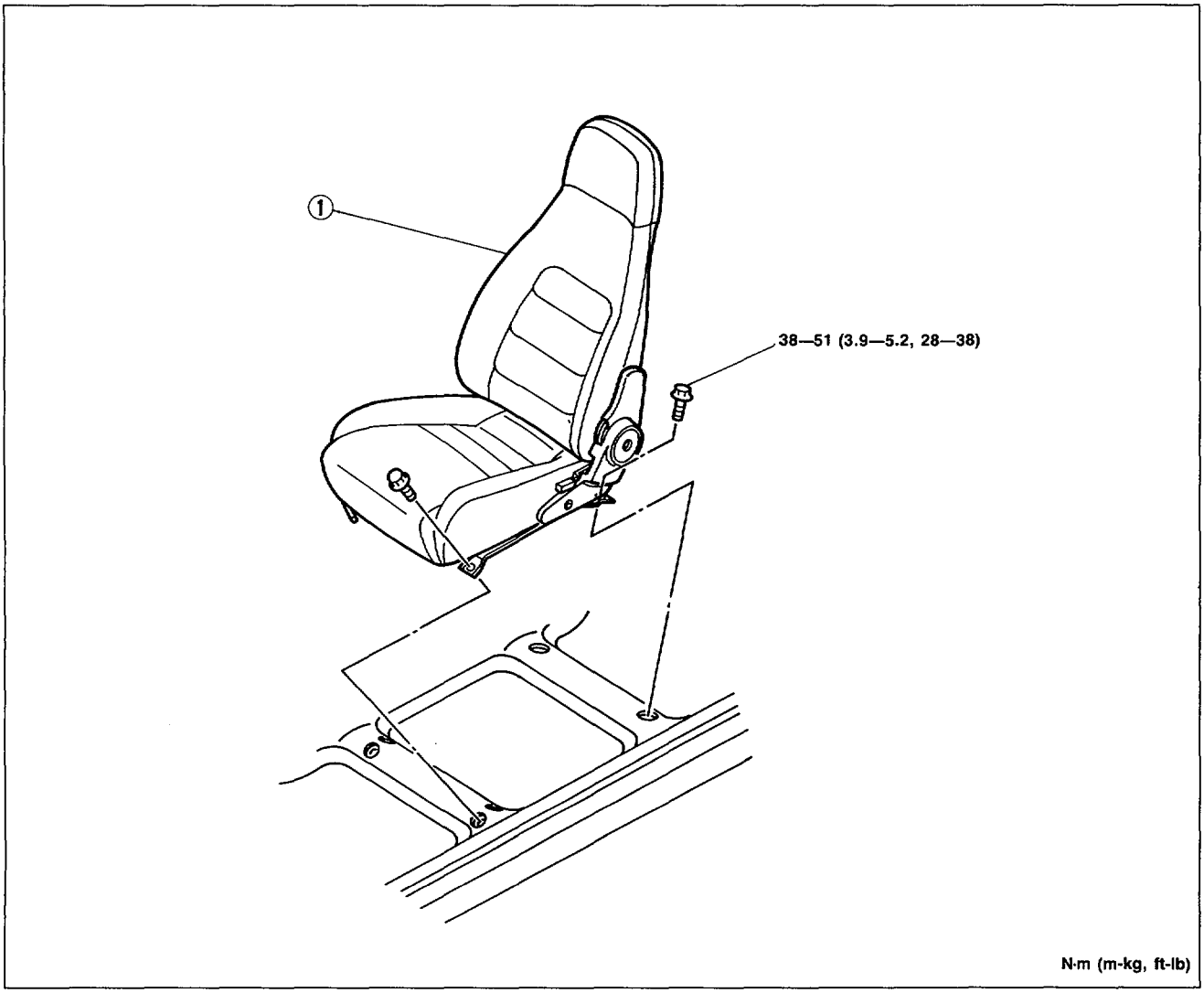
COMPONENTS

Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.

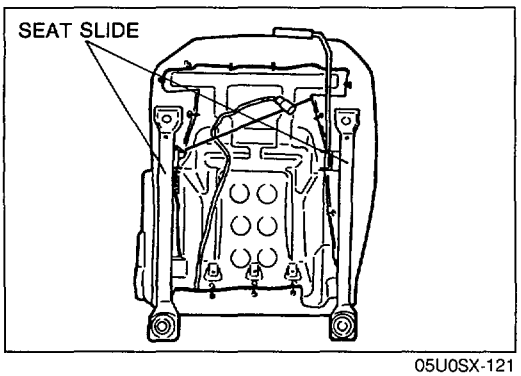
Note

- **Disconnect the headrest speaker connector for removal of the seat (with headrest speaker).**



15U0SX-042

1. Seat
   Inspection..... below



05U0SX-121

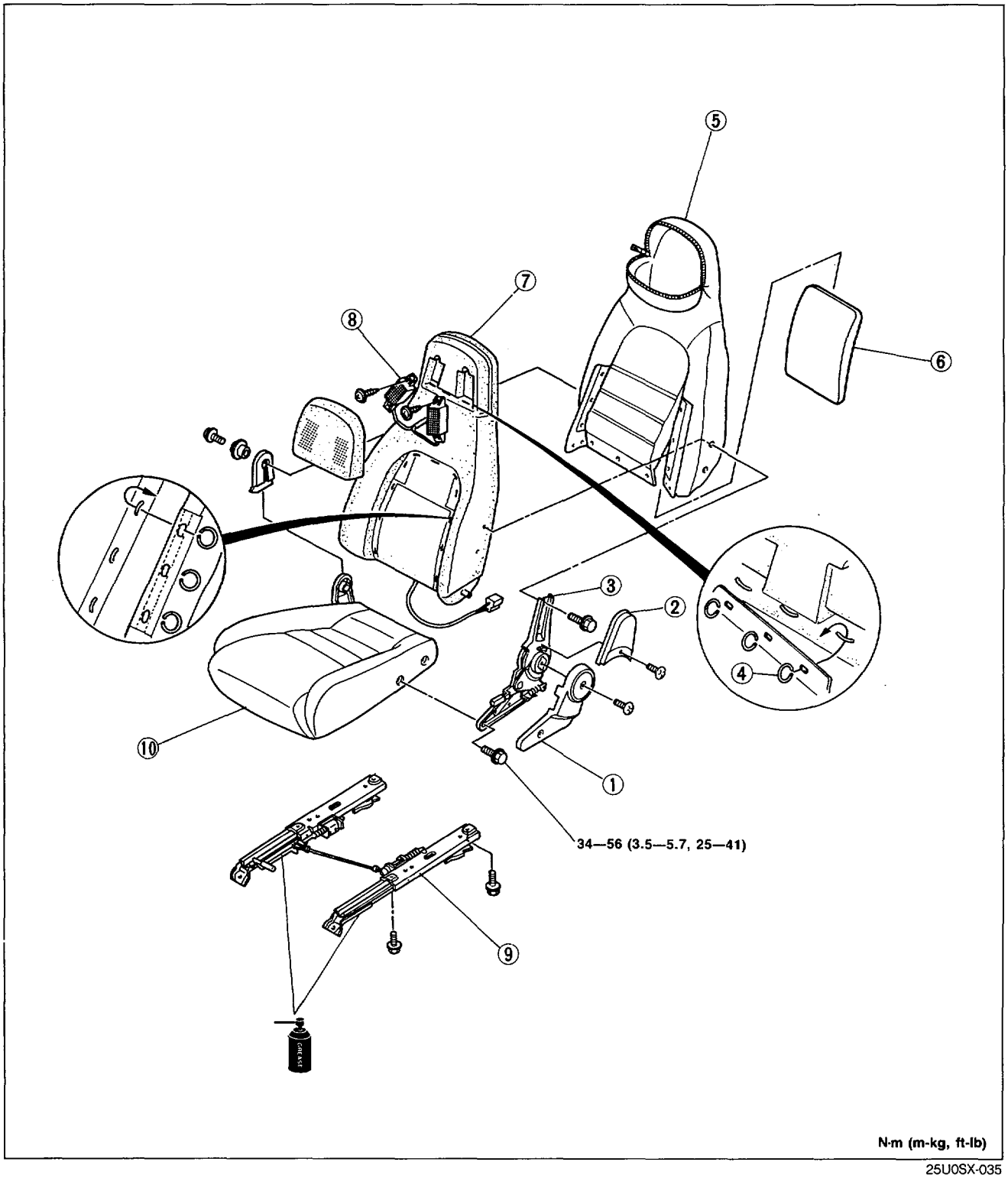
SEAT

Inspection

1. Verify that the seat adjuster lever and reclining knuckle move smoothly.
2. Check the adjustment lever for wear.
3. Check the front seat mounting bolts for looseness.
4. Check grease on the seat slides.

Disassembly / Assembly

1. Disassemble in the order shown in the figure.
2. Assemble in the reverse order of disassembly.



25U0SX-035

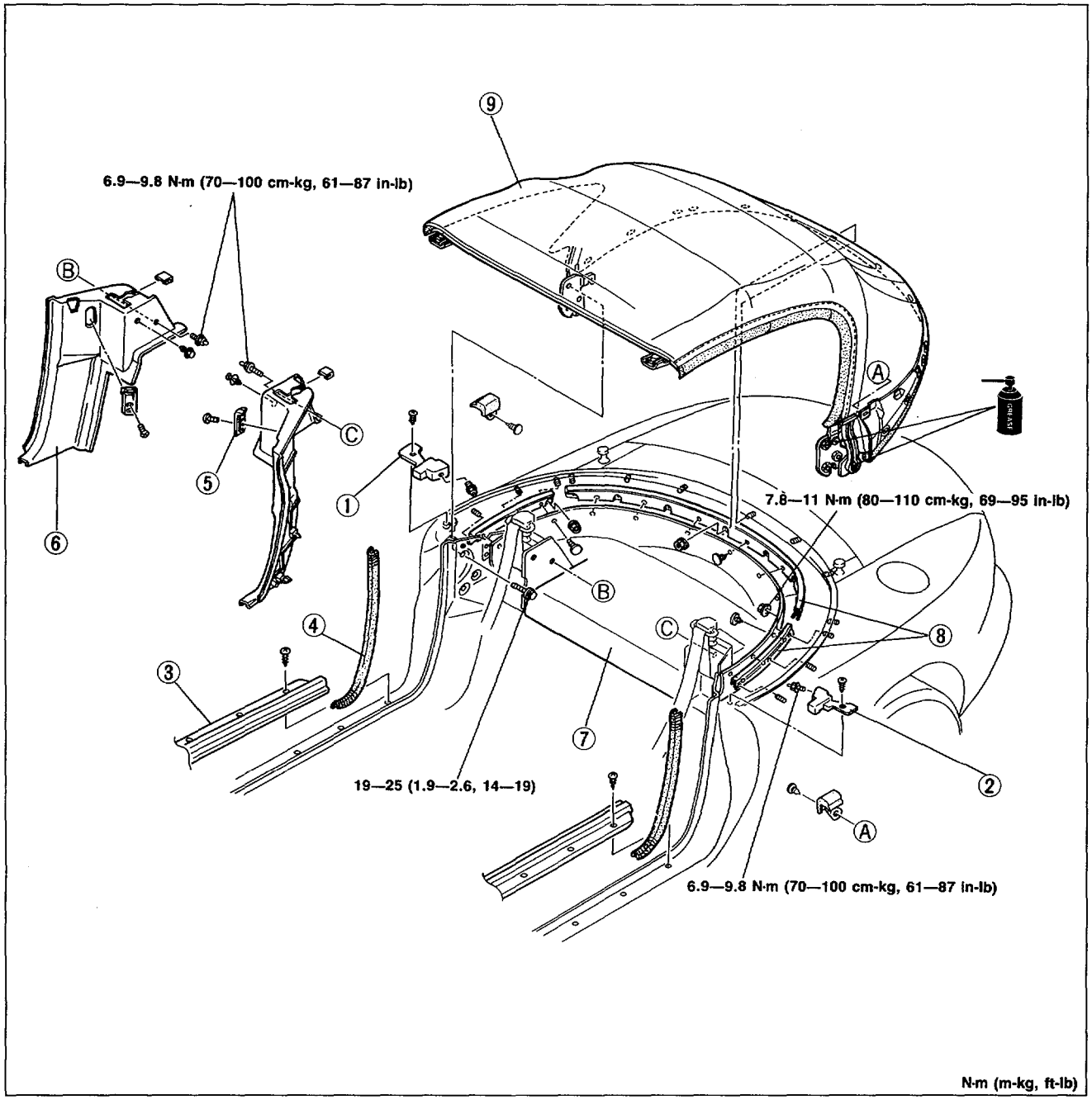
1. Reclining knuckle cover
2. Side cover
3. Reclining knuckle
4. Hog ring
5. Seatback trim
6. Pad
7. Back frame
8. Headrest speaker (If equipped)
   Inspection ..... page T–140
9. Seat slide
10. Seat cushion

CONVERTIBLE TOP

COMPONENTS
Removal / Installation

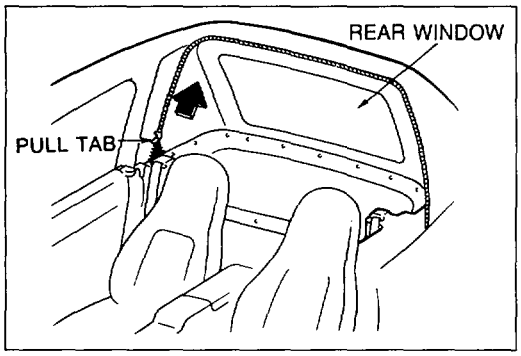
Note
- **Cover both sides of the rear window with thick cloth to protect it.**

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.



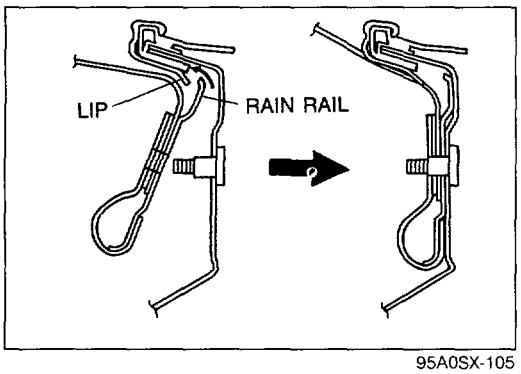
15U0SX-045

1. Beltline cover
2. Beltline protector
3. Scuff plate
   Removal Note .. page S–56
4. Seaming welt
5. Striker (If equipped)
6. Quarter trim
   Removal Note .. page S–56
7. Rear package trim
8. Set plate
9. Convertible top
   Removal Note .. page S–64
   Installation Note page S–64



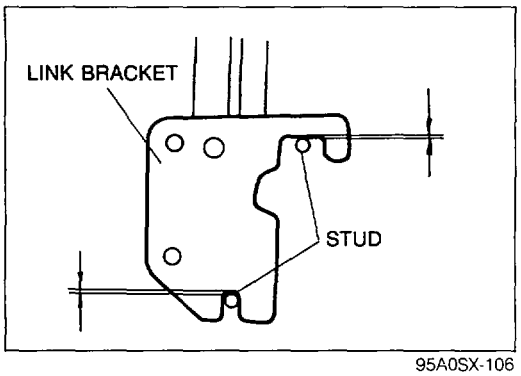
95A0SX-104

Removal Note
Convertible top
1. Unlock the top latch assemblies.
2. Unzip the rear window, and lower the convertible top fully.



95A0SX-105

Installation Note
Convertible top
1. Insert the rain rail into the beltline molding lip, and mount it over the studs.



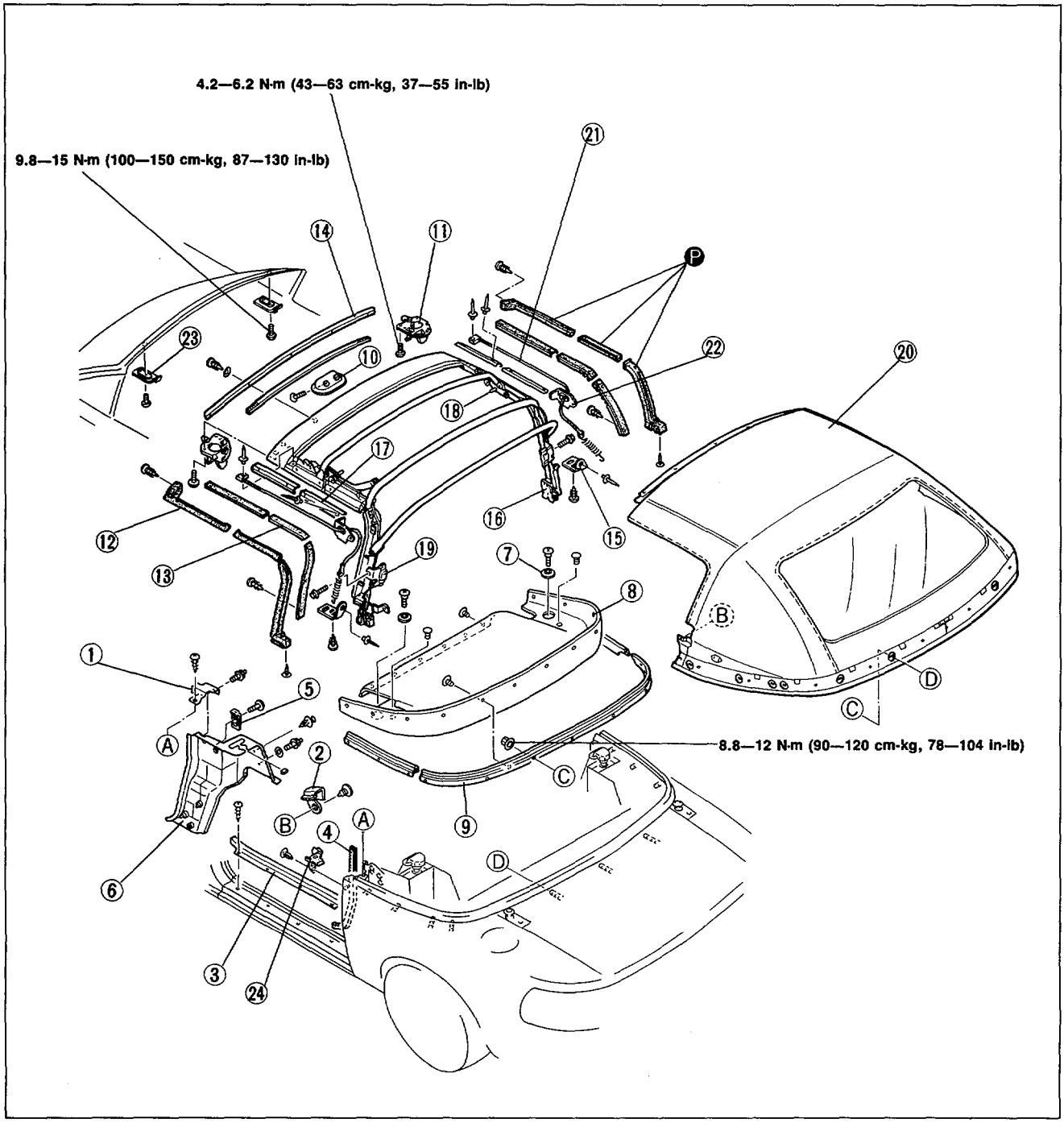
95A0SX-106

2. Align and install the link bracket over the studs with no clearance between the studs and the bracket.
3. Tighten the bolts to the specified torque.

Tightening torque:
19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)

Disassembly / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



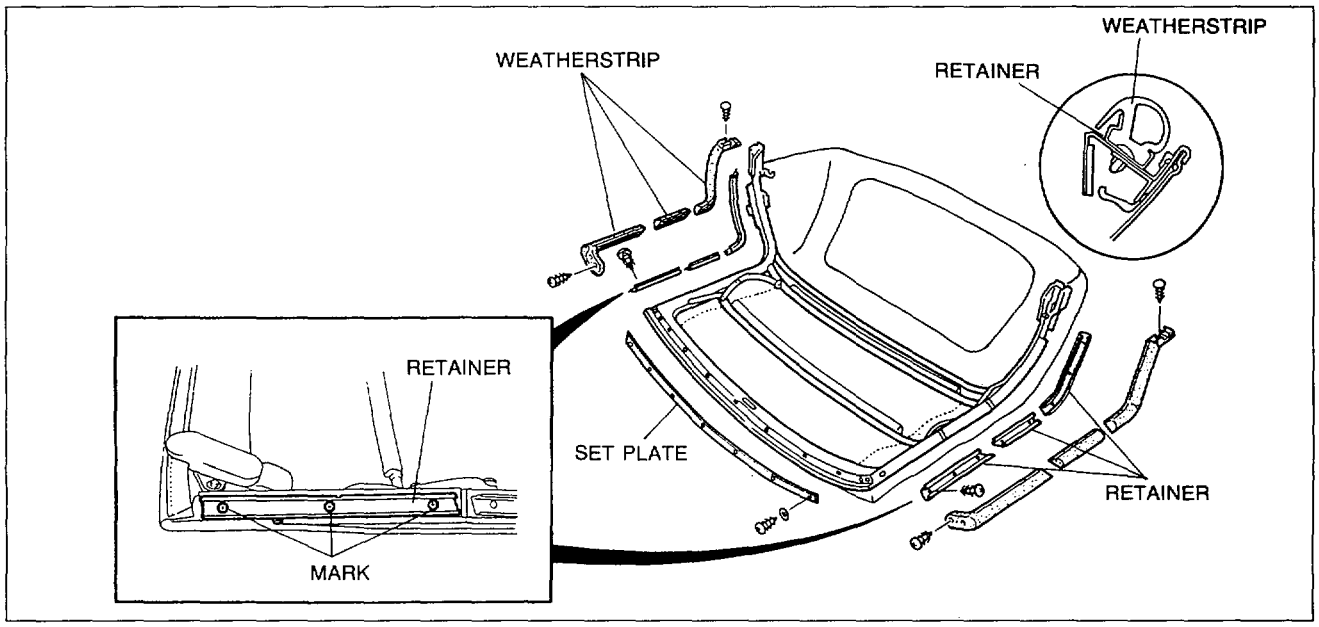
15U0SX-046

1. Beltline cover
2. Beltline protector
3. Scuff plate
4. Seaming welt
5. Striker (If equipped)
6. Quarter trim
7. Stop
8. Rear package trim
9. Set plate
10. Top handle
11. Top latch assembly
    Adjustment ..... page S–78
12. Weatherstrip
    Adjustment ..... page S–80
13. Retainer
14. Set plate
15. End plate
16. Link assembly
17. Protector
18. Link stop
19. Open stop
20. Top fabric
    Disassembly Note
    ..... page S–66
    Assembly Note. page S–70
21. Cable
22. Cable guide
23. Striker
24. Cab side weatherstrip

Disassembly Note
Top fabric
1. Remove the convertible top from the body. (Refer to page S–63.)

Note
- **Set the convertible top upside down on a work bench covered with clean, thick cloth.**
- **Mark around the retainer mounting screws with paint before removing them.**

2. Remove the set plate, weatherstrips, and retainers.

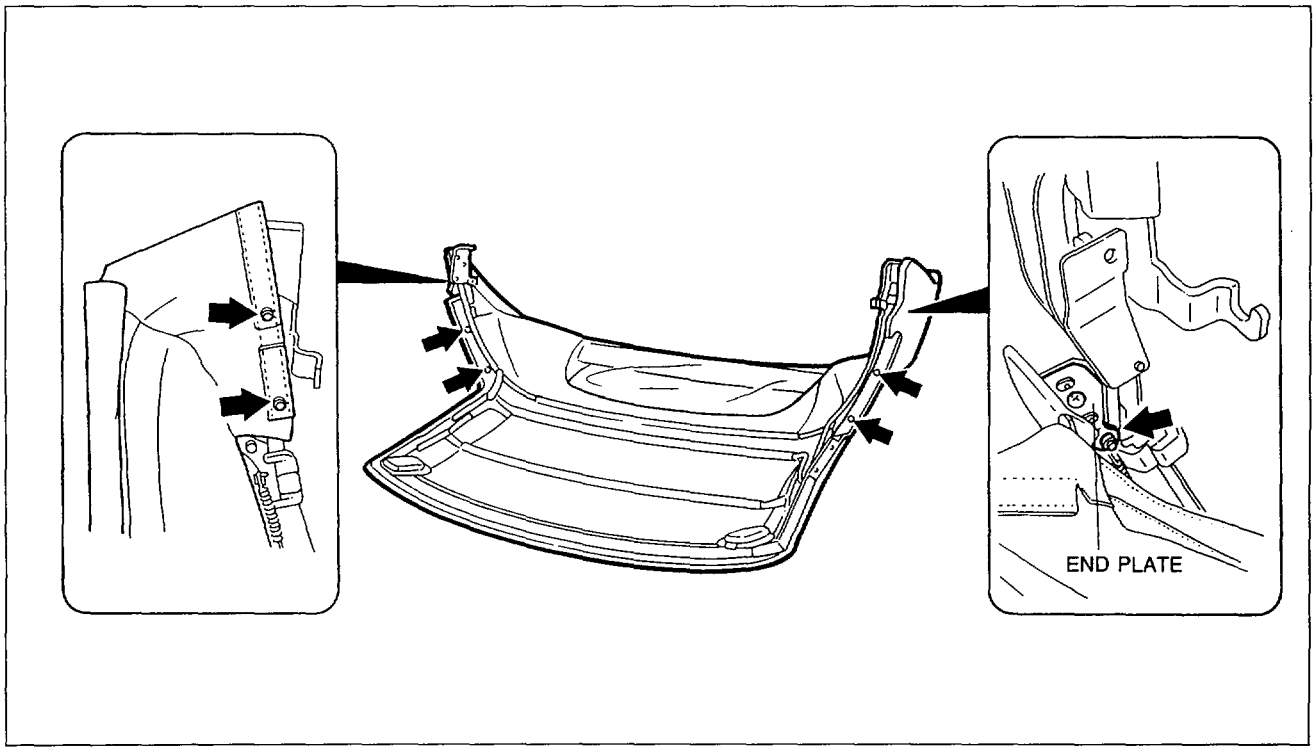


15U0SX-047

3. Remove the rivets (10 pieces) from the link assembly with a drill.

Drill size: ϕ4.0mm (ϕ0.16 in)

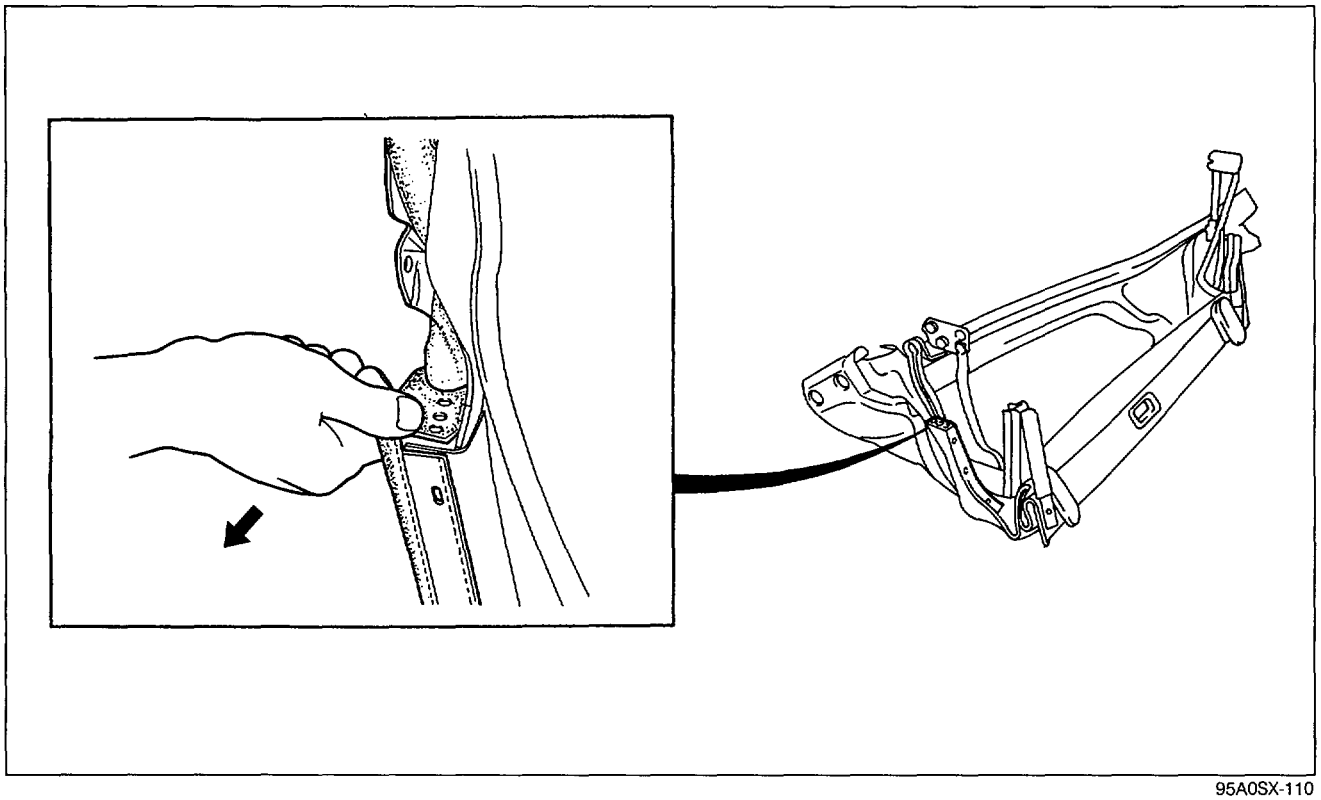
4. Remove the screws and remove the end plates from the link assembly.



95A0SX-109

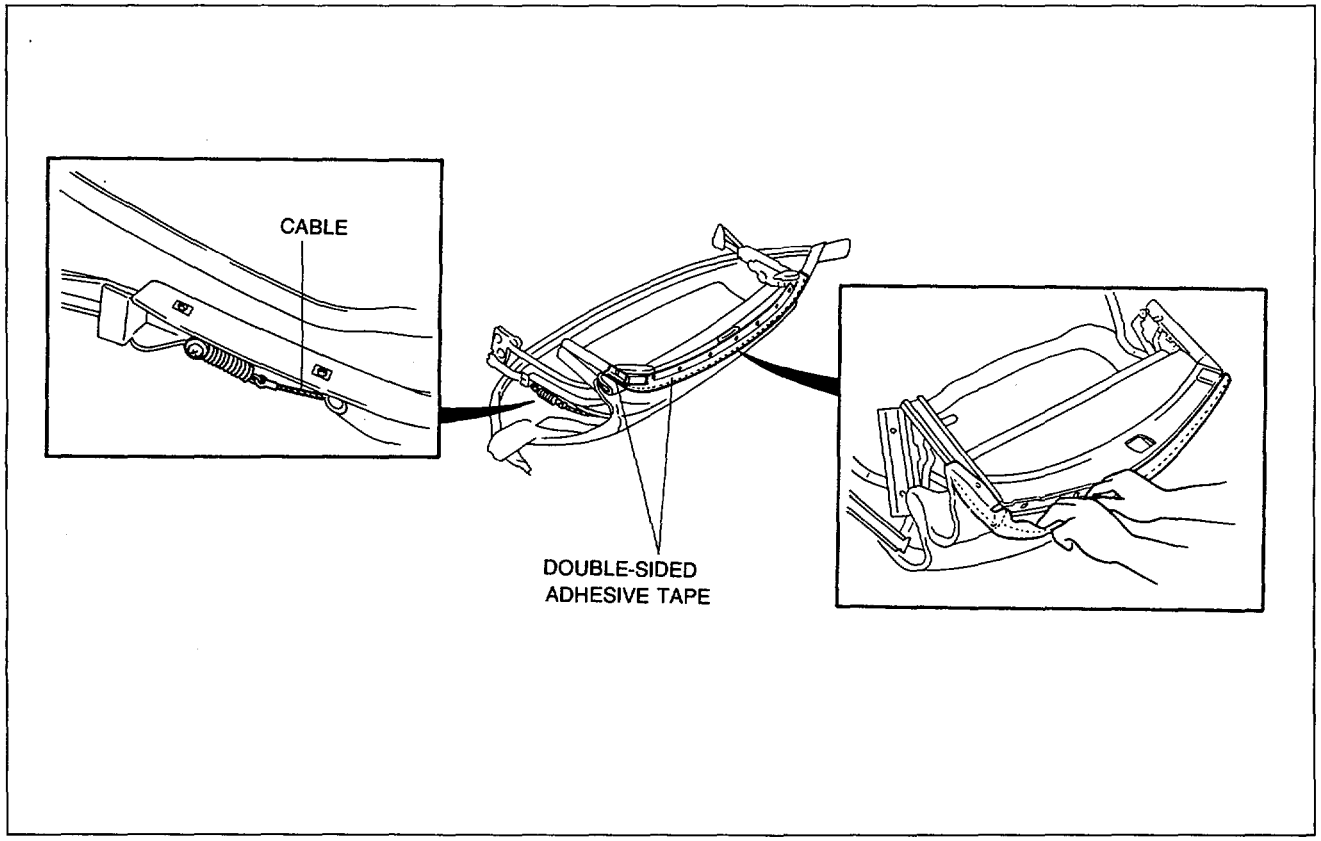
Note
- **Unzip the rear window, and fold the convertible top.**

5. Remove the top fabric from the link assembly.



95A0SX-110

6. Peel back the top fabric from the front header.
7. Remove the screws, and disconnect the cables from the rear of the link assembly.

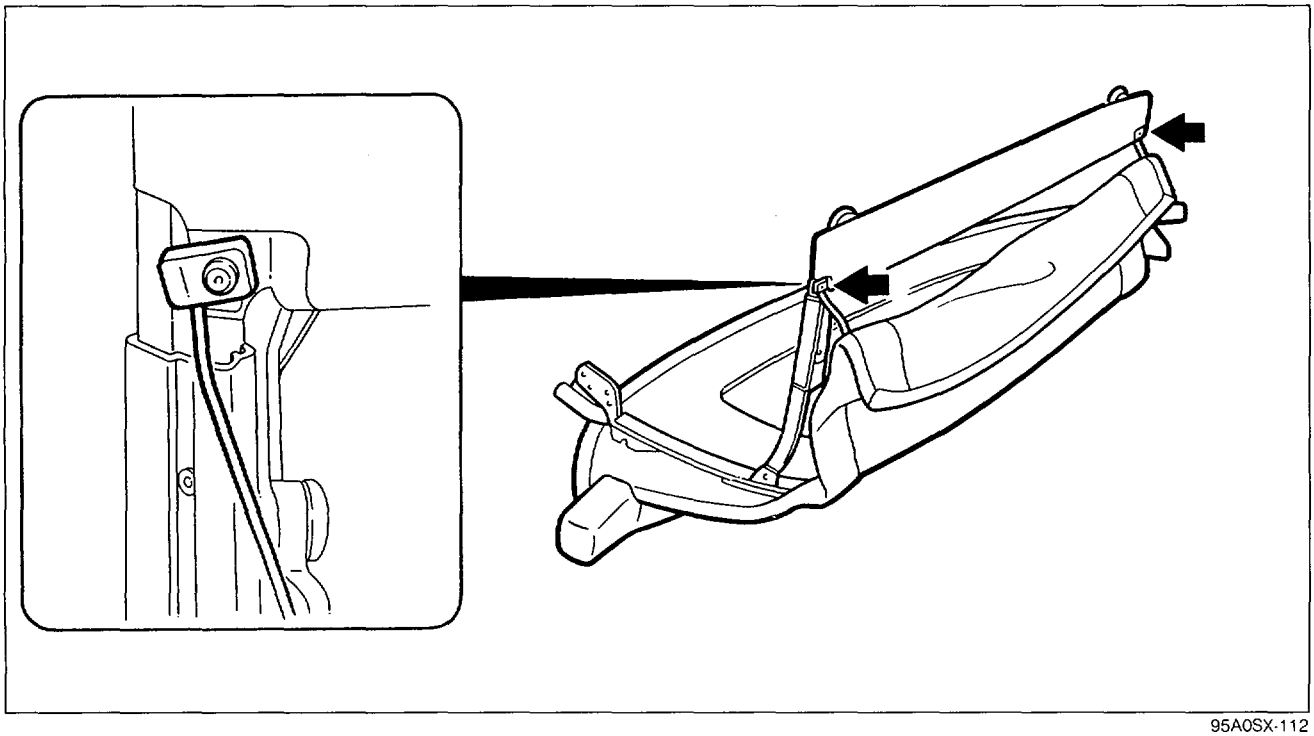


95A0SX-111

Note
- **Unfold the convertible top, and set it upright.**

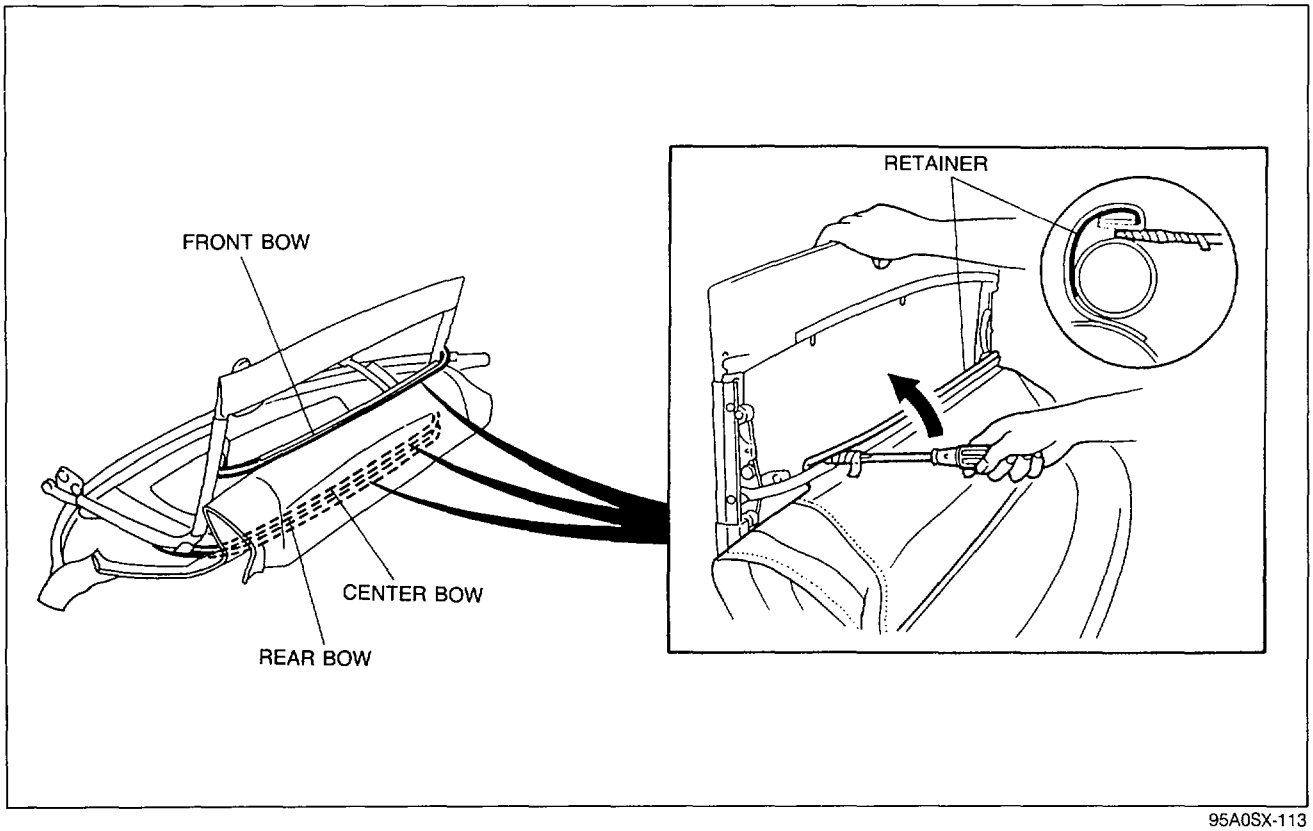
8. Remove the rivets from the link assembly with a drill.

Drill size: ϕ4.0mm (ϕ0.16 in)



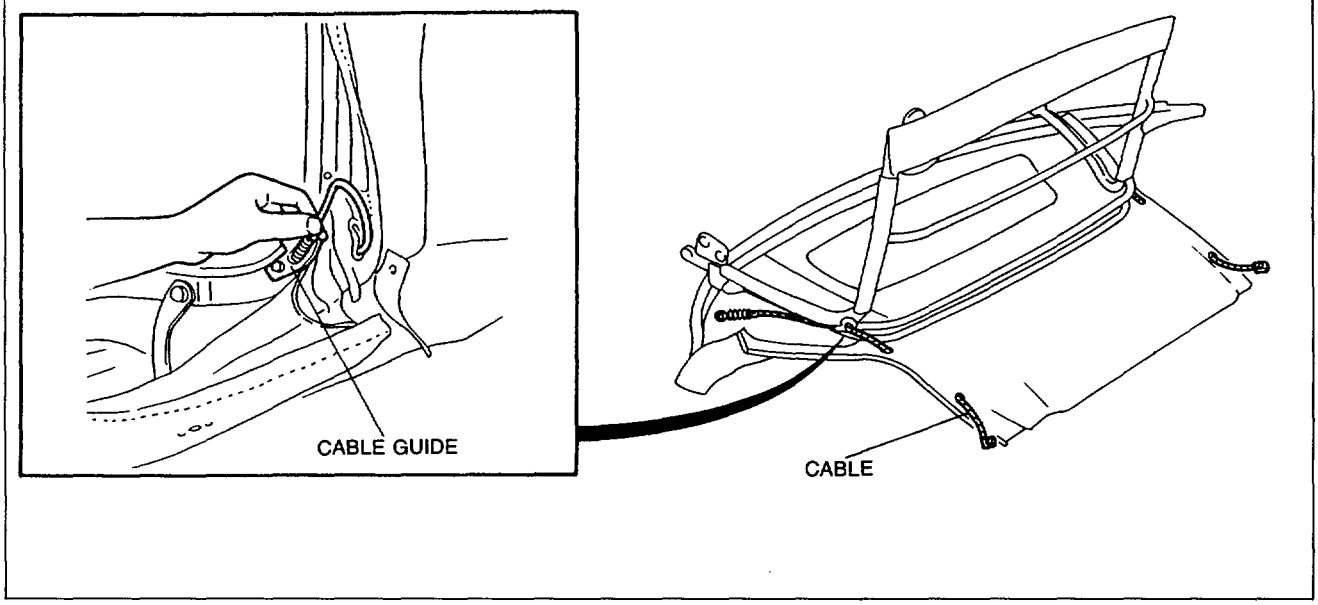
95A0SX-112

9. Peel off the Velcro at the rear bow.
10. Pry back the bow retainers with a protected screwdriver.
11. Remove the top fabric from the bow retainer.



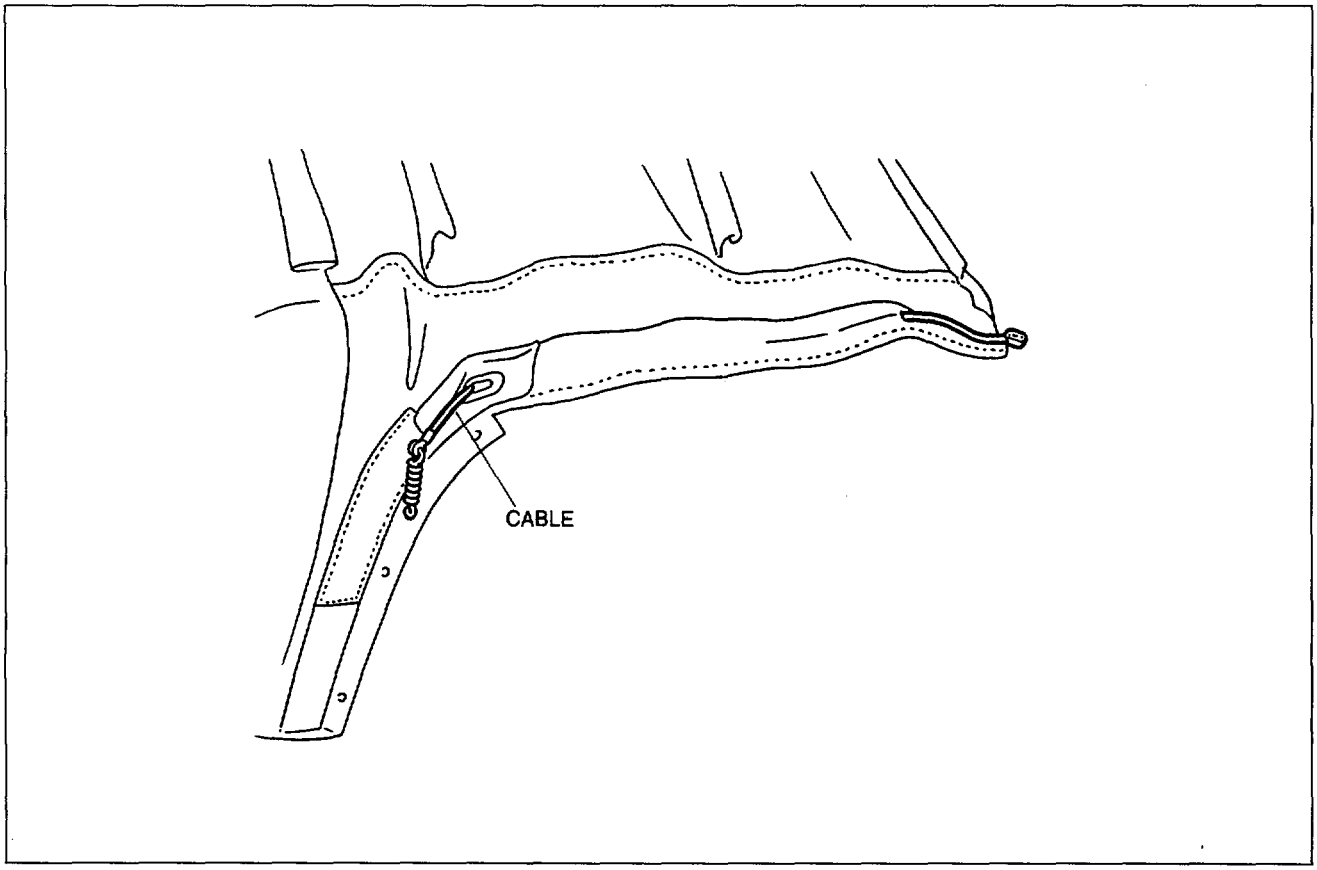
95A0SX-113

12. Remove the cables from the cable guides.
13. Remove the top fabric and cables from the link assembly.



95A0SX-114

14. Remove the cables from the top fabric.

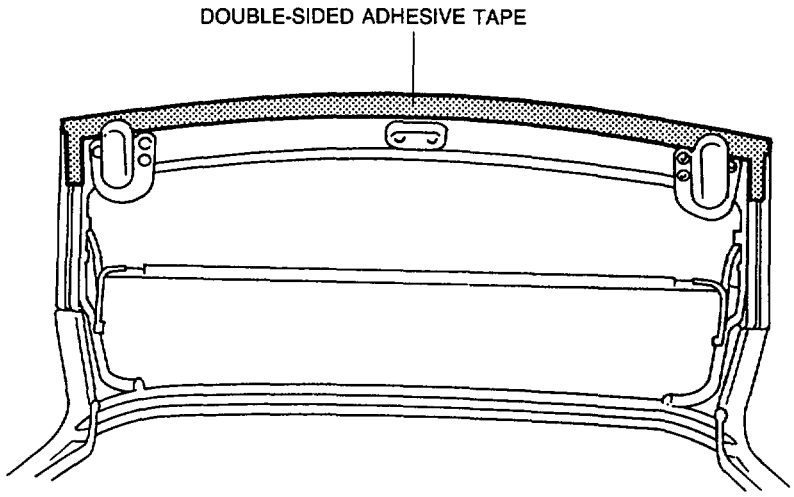


95A0SX-115

Assembly Note
Top fabric

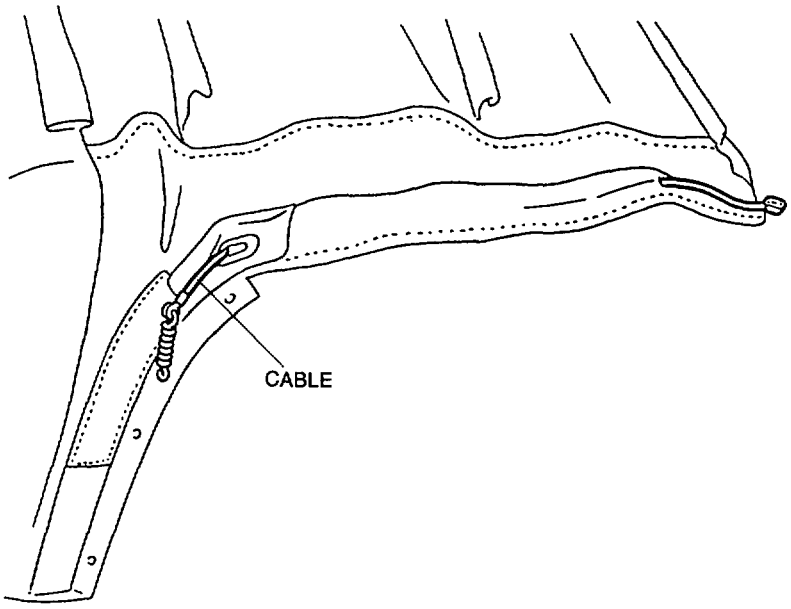
Note
- **Cover the work bench with thick cloth to prevent damaging the top fabric and rear window.**
- **Do not damage or crimp the rear window during the work.**

1. Remove the original double-sided adhesive tape from the front header.
2. Degrease the front header with ethyl alcohol.
3. Install new double-sided adhesive tape onto the front header.



95A0SX-116

4. Thread the cables into the top fabric.



95A0SX-117

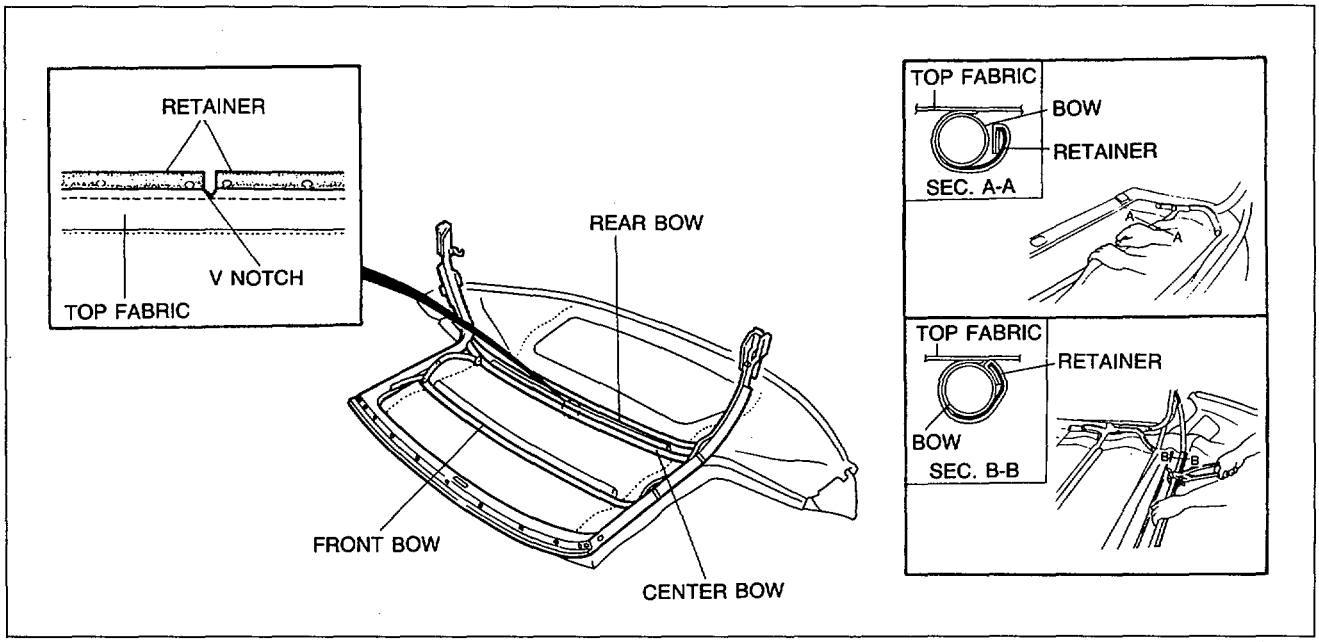
5. Place the link assembly onto the top fabric.

Note
- **Install the top fabric to the bows, beginning from the rear bow. Perform Steps 6, 7, and 8.**

6. Align the center of the retainer and the V notch in the top fabric, and roll the top fabric over the bow retainer.
7. Hang the end of the top fabric on the bow retainer.
8. Clamp the top fabric to the bow with protected water pump pliers.

Note
- **Pull the top fabric by hand to verify that it is held securely.**

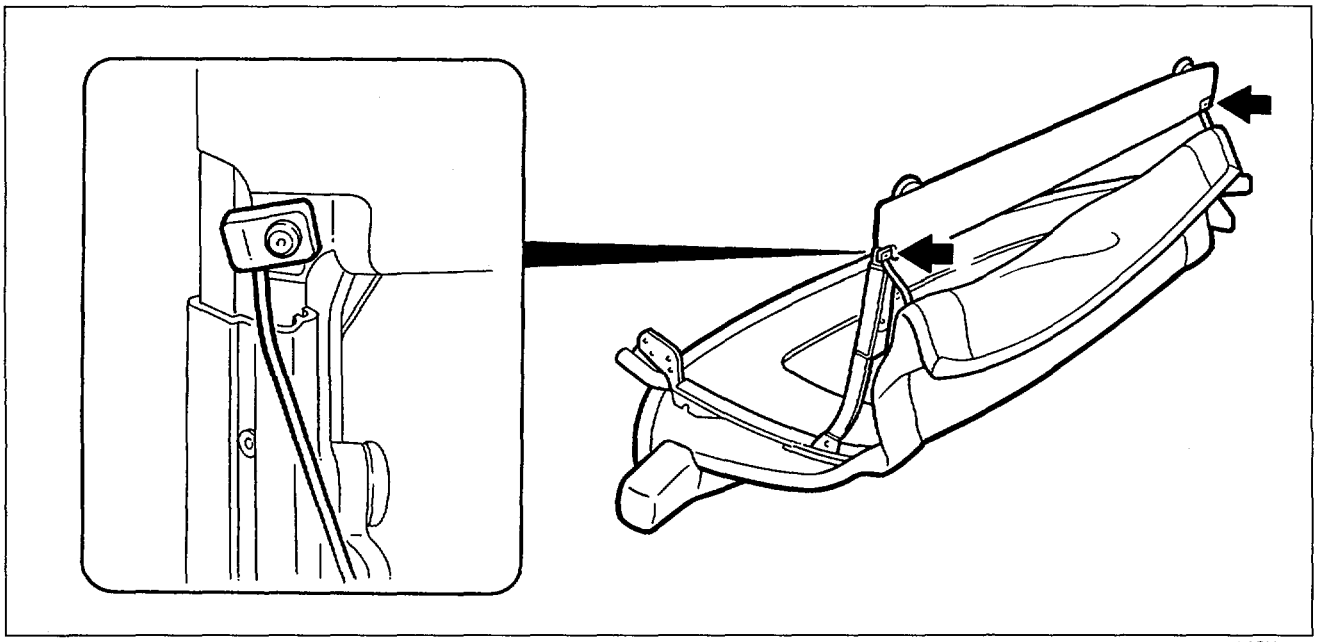
9. Affix the top fabric to the rear bow with the Velcro.



95A0SX-118

Note
- **Set the convertible top upright.**

10. Rivet the cables to the front of the link assembly.



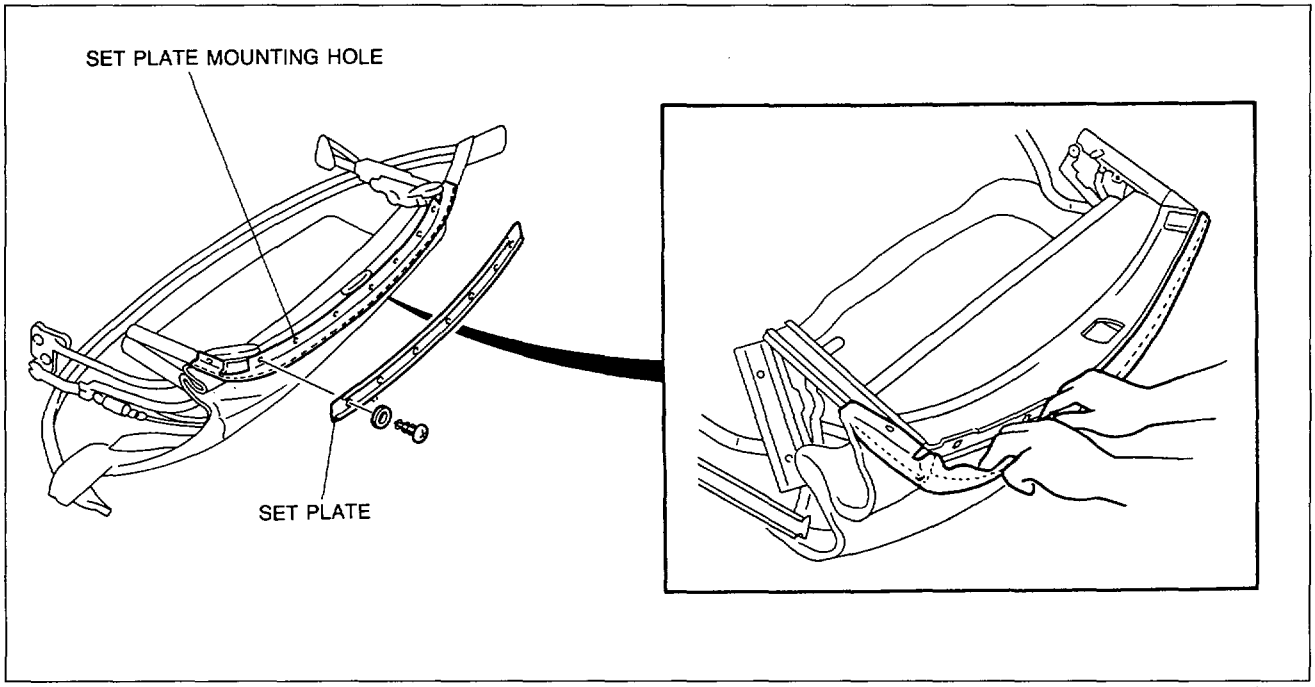
95A0SX-119

Note
- **Turn the convertible top over and fold it.**

11. Install the front of the top fabric to the front header.

Note
- **Align the set plate and top fabric with the set plate mounting holes.**

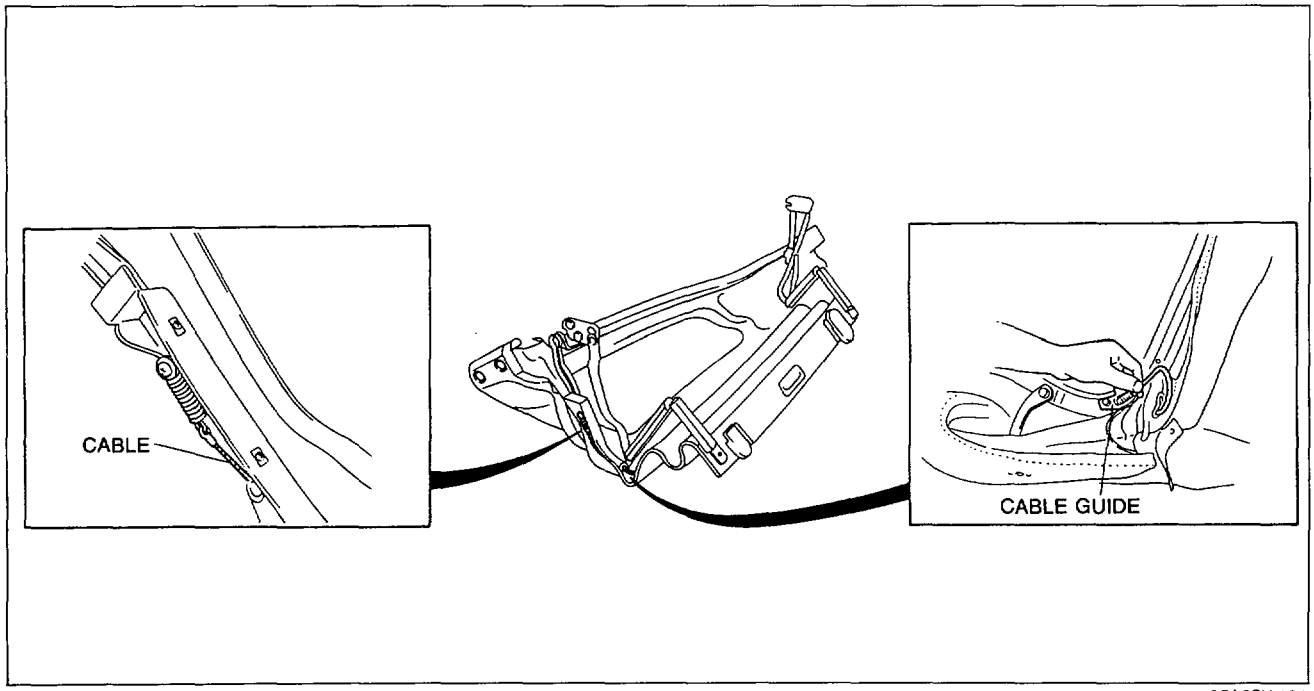
12. Install the set plate to the link assembly.



95A0SX-120

Note
- **Unfold the convertible top half-way.**

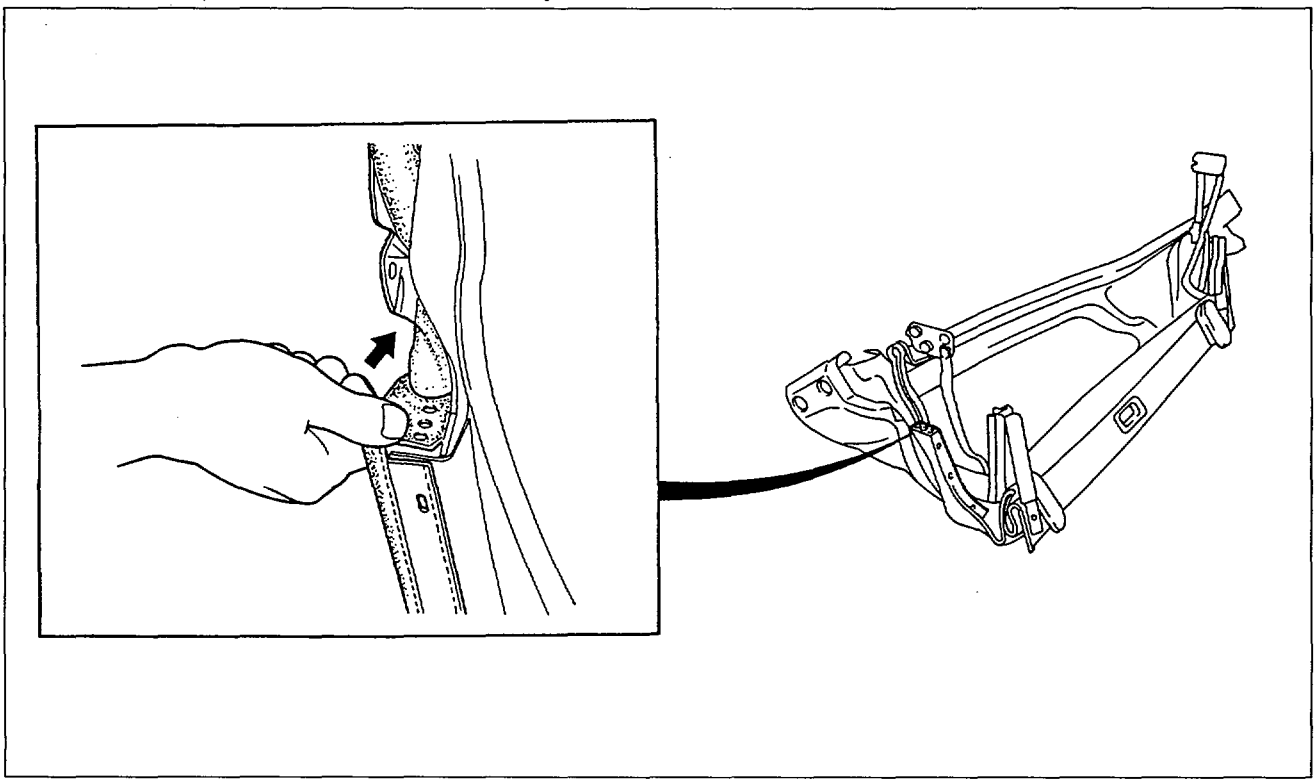
13. Pass the cables through the cable guides.
14. Install the cables to the rear of the link assembly.



95A0SX-121

Note
- **Fold the convertible top.**

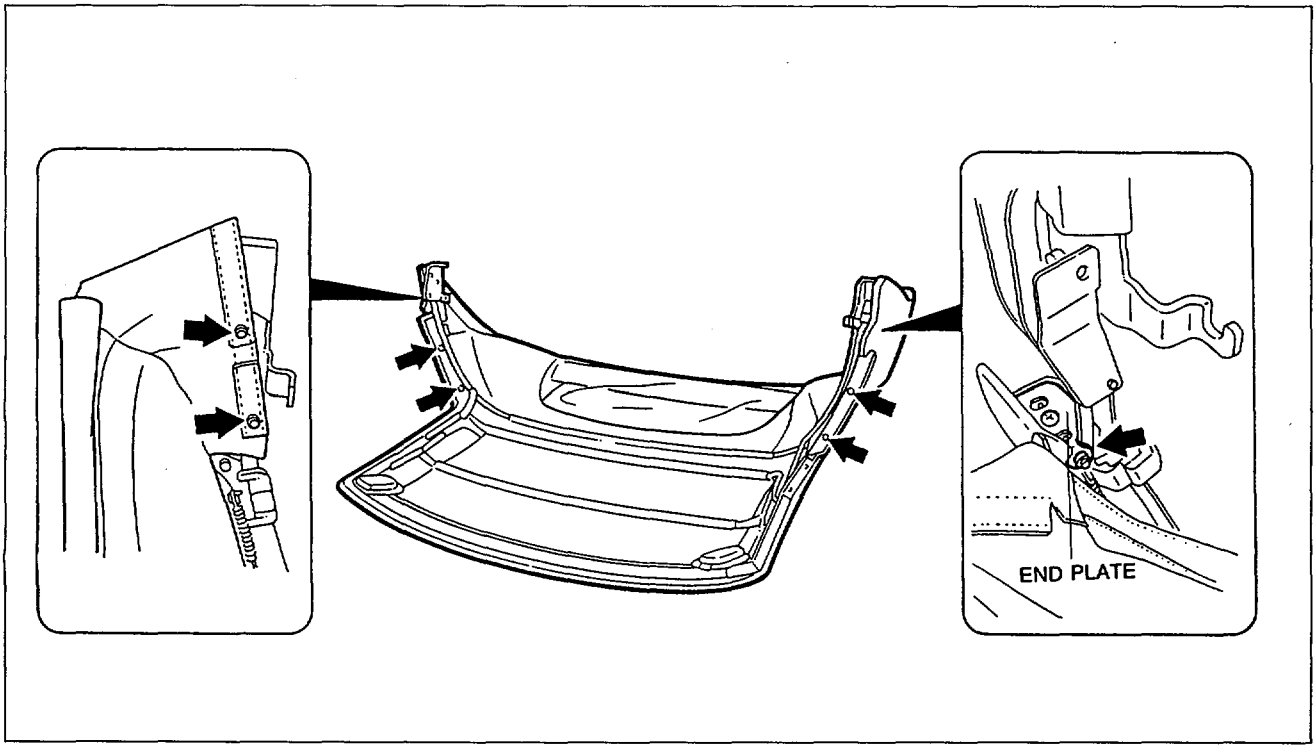
15. Install the top fabric to the link assembly.



95A0SX-122

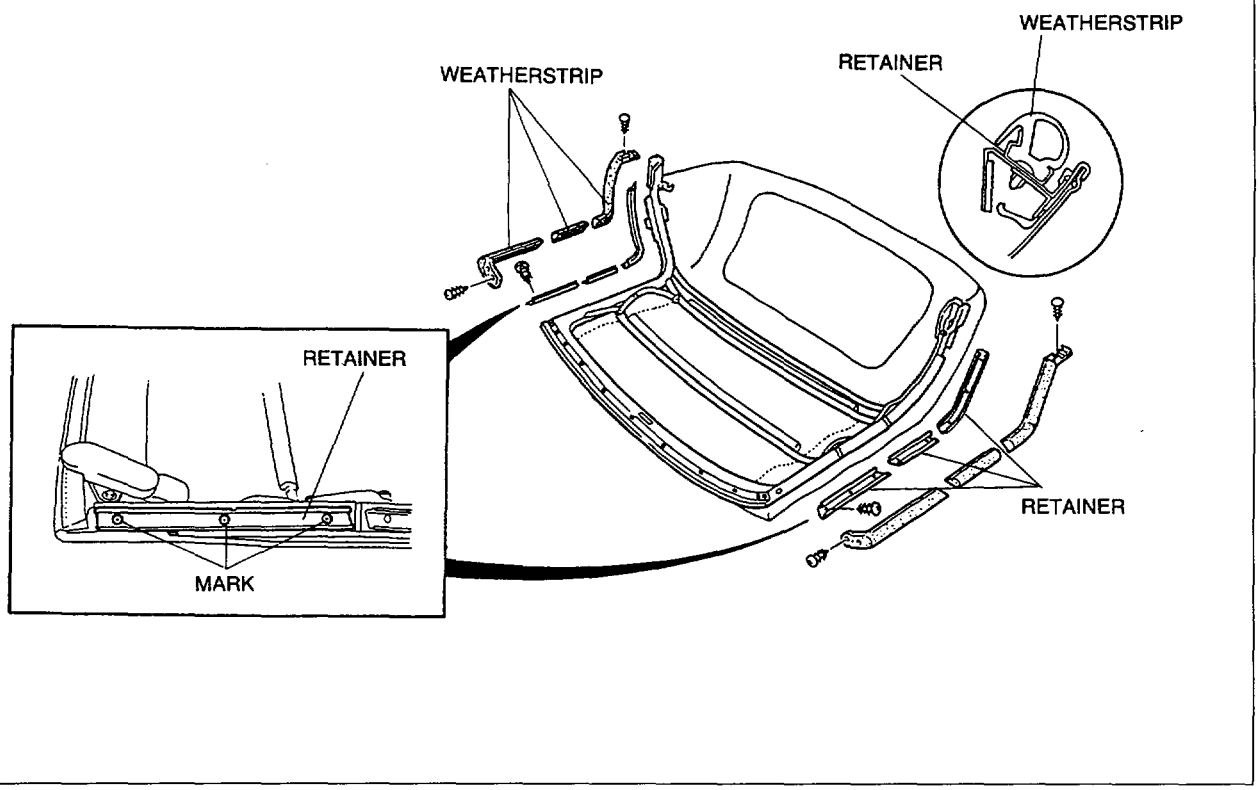
Note
- **Unfold the convertible top.**

16. Install the end plates to the link assembly.
17. Rivet the top fabric and the end plates to the link assembly.



95A0SX-123

18. Install the retainers to the link assembly, aligning the retainer marks with the retainer mounting screws.
19. Install the weatherstrips to the link assembly.
20. Install the convertible top to the body. (Refer to page S–63.)



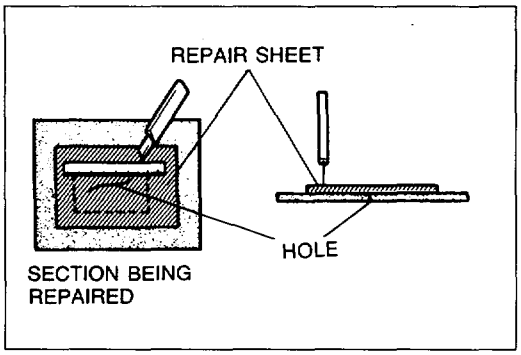
15U0SX-048

21. After installtion, verify the points below.
- Operation of convertible top.
- Damage or crimping of rear window.
- Fit with door glass.

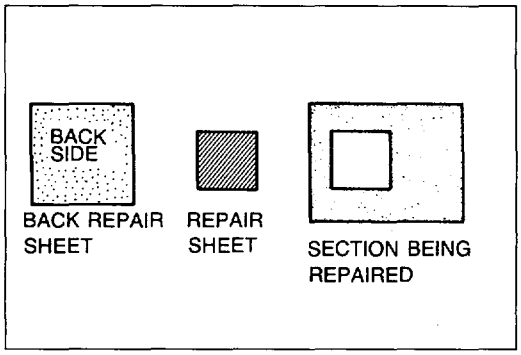
Adjustment of Convertible Top

How to adjust convertible top/detachable hard top (Refer to page S–78)

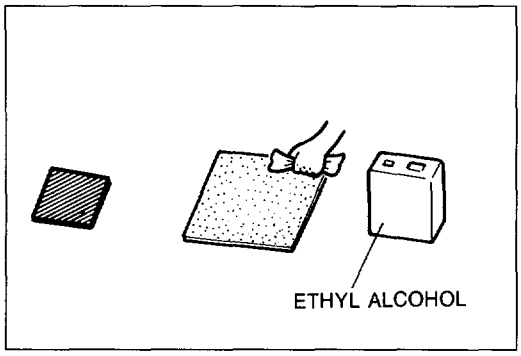
15U0SX-049



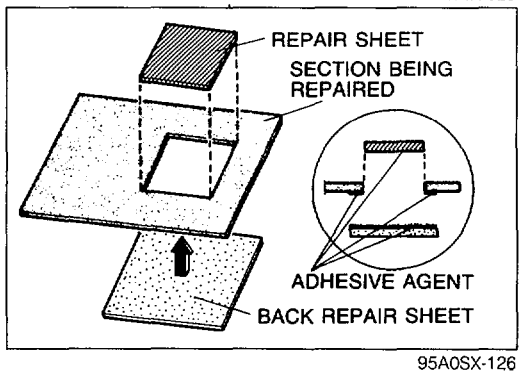
15U0SX-050



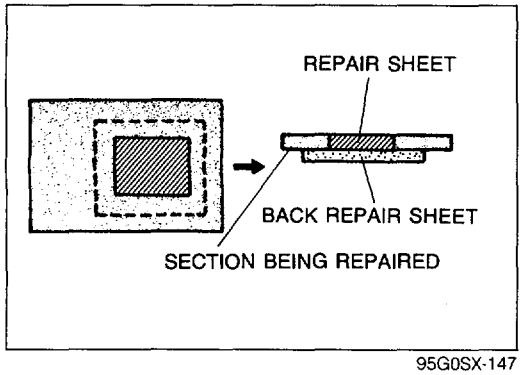
05U0SX-148



77A14X-028



95A0SX-126



95G0SX-147

REPAIR OF TOP FABRIC

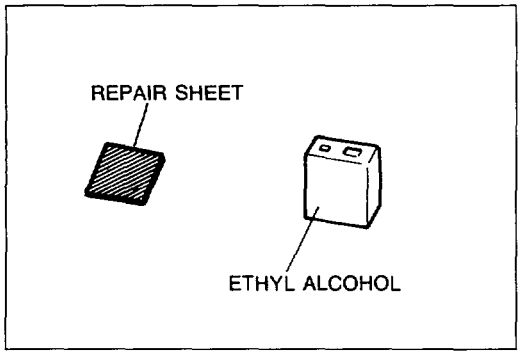
Note
- **Repairing a hole in the top fabric differs from repairing a tear in the fabric. Refer to page S–76 for tear repair.**

Repair of Hole in Top Fabric

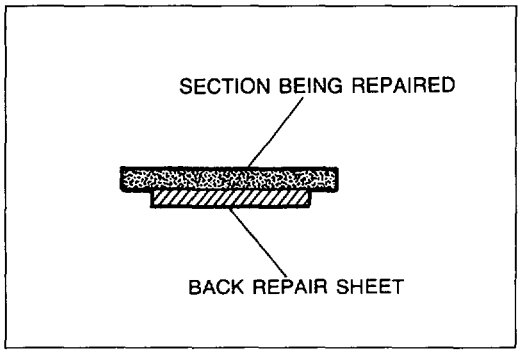
1. Place the **repair sheet** (NAY1 R1 211) over the damaged section. Cut both the top fabric and the repair sheet with a razor knife and a straightedge.
2. Cut another piece of repair sheet larger than the first for use as a back repair sheet.
3. Trim the top fabric and the repair sheets with scissors.
4. Degrease the repair sheets with ethyl alcohol.
5. Apply **adhesive agent** (K180 W0 313) or equivalent to the section being repaired, the repair sheet, and the back repair sheet.

Note
- **Apply a substantial amount of the adhesive agent to the cloth.**
- **Let stand for a few minutes.**

6. Insert the repair sheet squarely into the section of the top fabric being repaired. Then install the back repair sheet from the underside of the top.
7. Press the repair sheets firmly together.
8. Let the top fabric stand until the adhesive agent is fully dry.



95A0SX-127



95A0SX-128

Repair of Tear in Top Fabric

1. Cut a piece of **repair sheet** (NAY1 R1 211) larger than the damaged section for use as a back repair sheet.
2. Degrease the repair sheet with ethyl alcohol.
3. Apply **adhesive agent** (K180 W0 313) or equivalent to the section being repaired and the back repair sheet.

Note

- **Apply a substantial amount of the adhesive agent to the cloth.**
- **Let stand for a few minutes.**

4. Install the back repair sheet from the underside of the top.
5. Press the repair sections firmly together.
6. Let the top fabric stand until the adhesive agent is fully dry.

TOOLS FOR REPAIR AND REPLACEMENT CONVERTIBLE TOP

Adhesive agent K180 W0 313	For repairing top fabric	Drill ϕ4.0mm (ϕ0.16 in)	For removing rivet
Repair sheet NAYI R1 211	For repairing top fabric	Double-sided adhesive tape	For installing top fabric
Hand riviter	For installing top fabric	Ethyl alcohol	For cleaning repaired parts
Aluminum rivet ϕ4.0mm (ϕ0.16 in)	For installing top fabric		

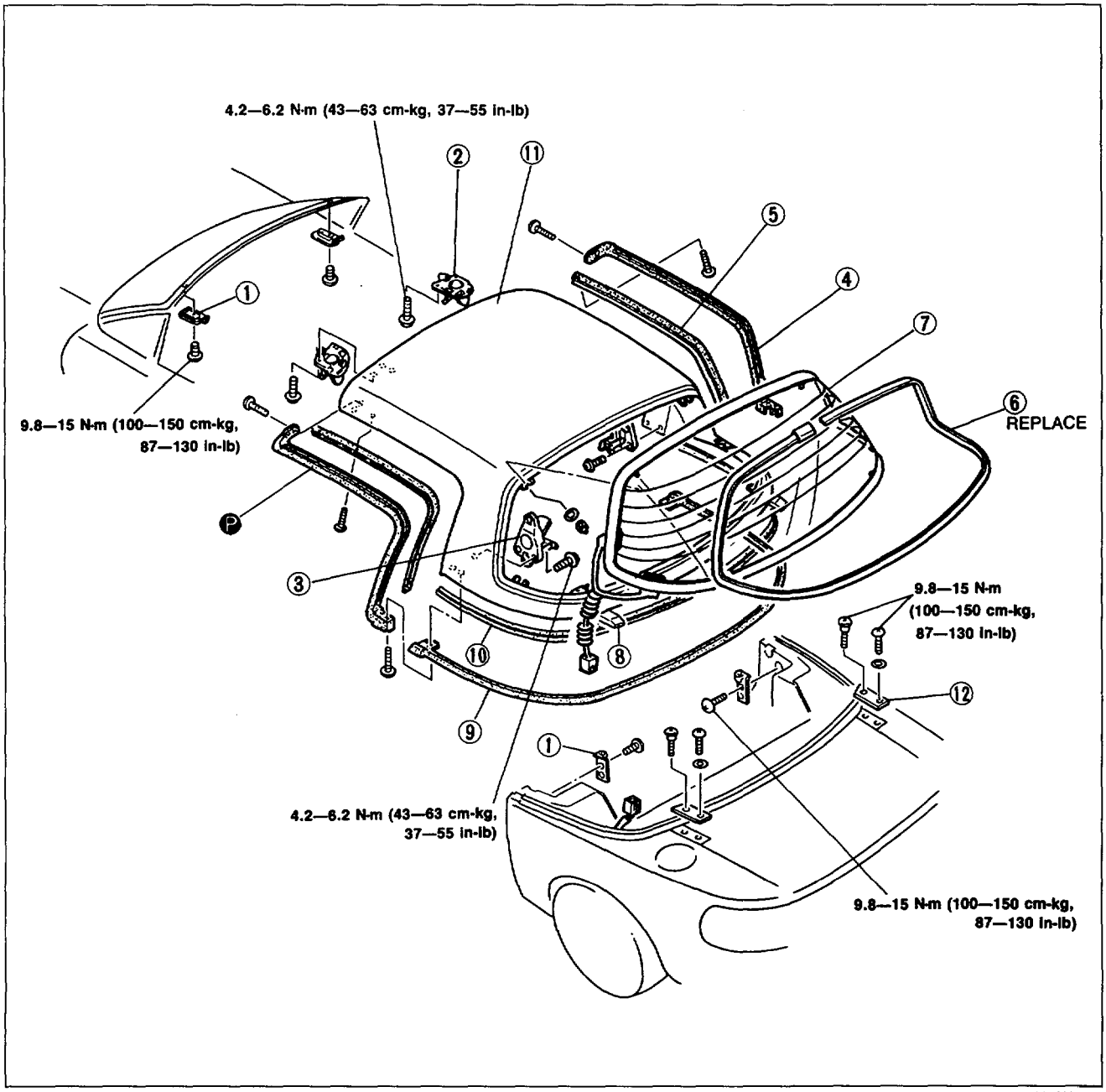
95A0SX-129

DETACHABLE HARD TOP

COMPONENTS

Disassembly / Assembly

1. Disassemble in the order shown in the figure.
2. Assemble in the reverse order of disassembly.



15U0SX-052

1. Striker
2. Top latch assembly
   Adjustment ..... page S–78
3. Side latch assembly
   Adjustment ..... page S–78
4. Weatherstrip
   Adjustment ..... page S–80
5. Retainer
6. Rear window molding
   Installation ..... page S–27
7. Rear window glass
   Removal / Insallation ..... page S–48
8. Rear deck latch assembly
   Adjustment ..... page S–79
9. Rear weatherstrip
10. Edge protector
11. Detachable hard top
12. Rear deck plate

HOW TO ADJUST CONVERTIBLE TOP/DETACHABLE HARD TOP

Adjustment

Top latch assembly (Convertible top/Detachable hard top)

The alignment of either top to the windshield header may be adjusted up, down, fore, and aft by turning the respective top latch assembly adjusting nut.

Adjustment procedure

1. Fold the protector away from the adjusting nut.
2. When the adjusting nut is turned clockwise:
   Clearance (A) and height (B) of the top become less.
3. When the adjusting nut is turned counterclockwise:
   Clearance (A) and height (B) of the top become greater.

Caution

- **Secure the adjusting nut with the protector after completing any adjustment.**

Side latch assembly (Detachable hard top)

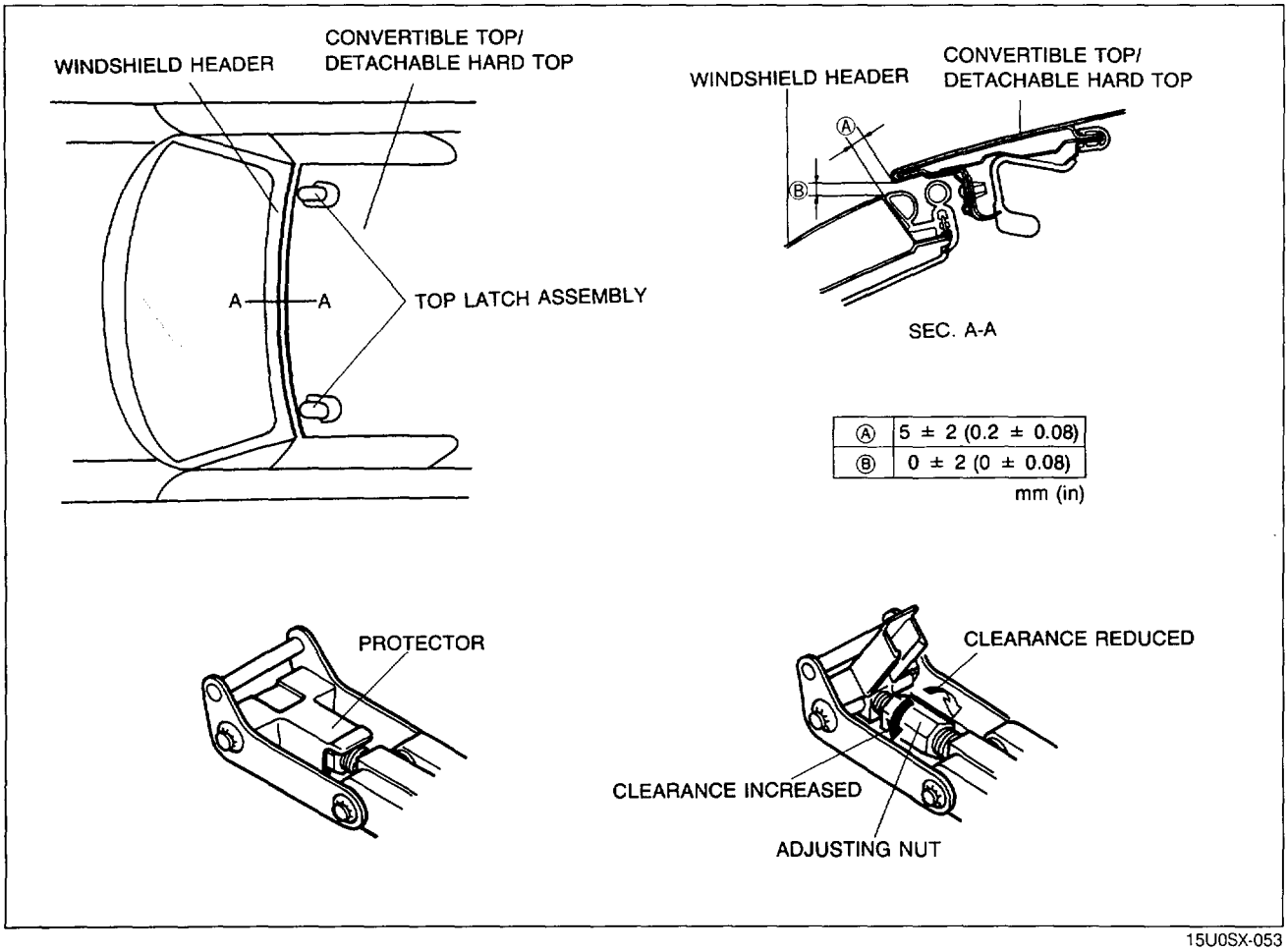
If engagement of the striker and the side latch assembly is incorrect, adjustment is made through the latch assembly adjusting nut.

Adjustment procedure

1. Fold the protector away from the adjusting nut.
2. When the adjusting nut is turned clockwise:
   Engagement of the striker and the side latch assembly becomes tighter.
3. When the adjusting nut is turned counterclockwise:
   Engagement of the striker and the side latch assembly becomes looser.

Caution

- **Secure the adjusting nut with the protector after completing any adjustment.**



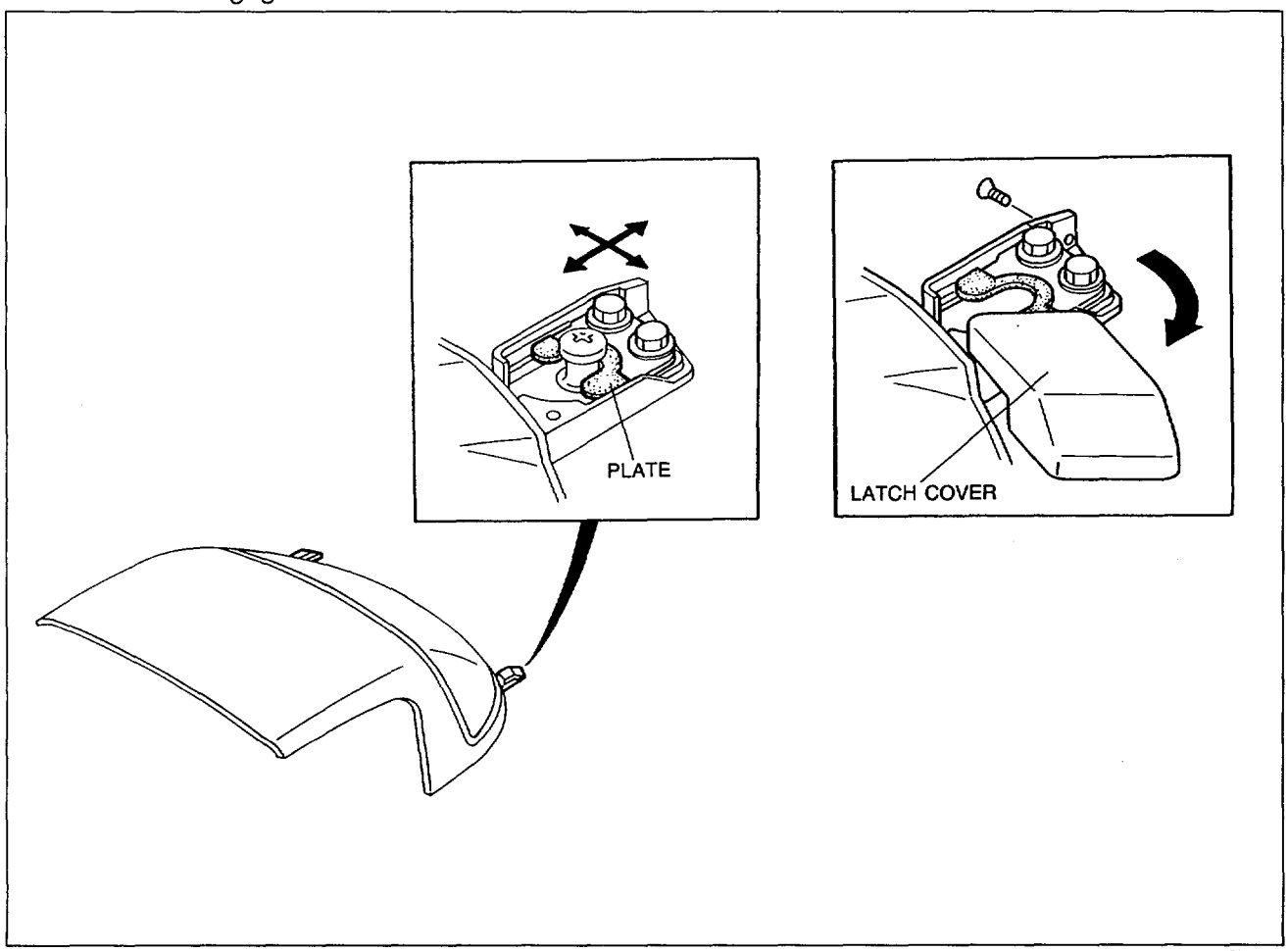
15U0SX-053

Rear deck latch assembly (Detachable hard top)
If engagement of the rear deck stud and the rear deck latch assembly is incorrect, adjustment is made through the rear deck latch assembly plate.

Adjustment procedure
1. Remove the screw, and open the latch cover.
2. Loosen the plate mounting bolts.
3. Install the detachable hard top to the body.
4. Adjust by moving the plate right, left, fore, or aft until it is tight.
5. Tighten the plate mounting bolts.

Tightening torque:
18—26 N·m (1.8—2.7 m-kg, 13—20 ft-lb)

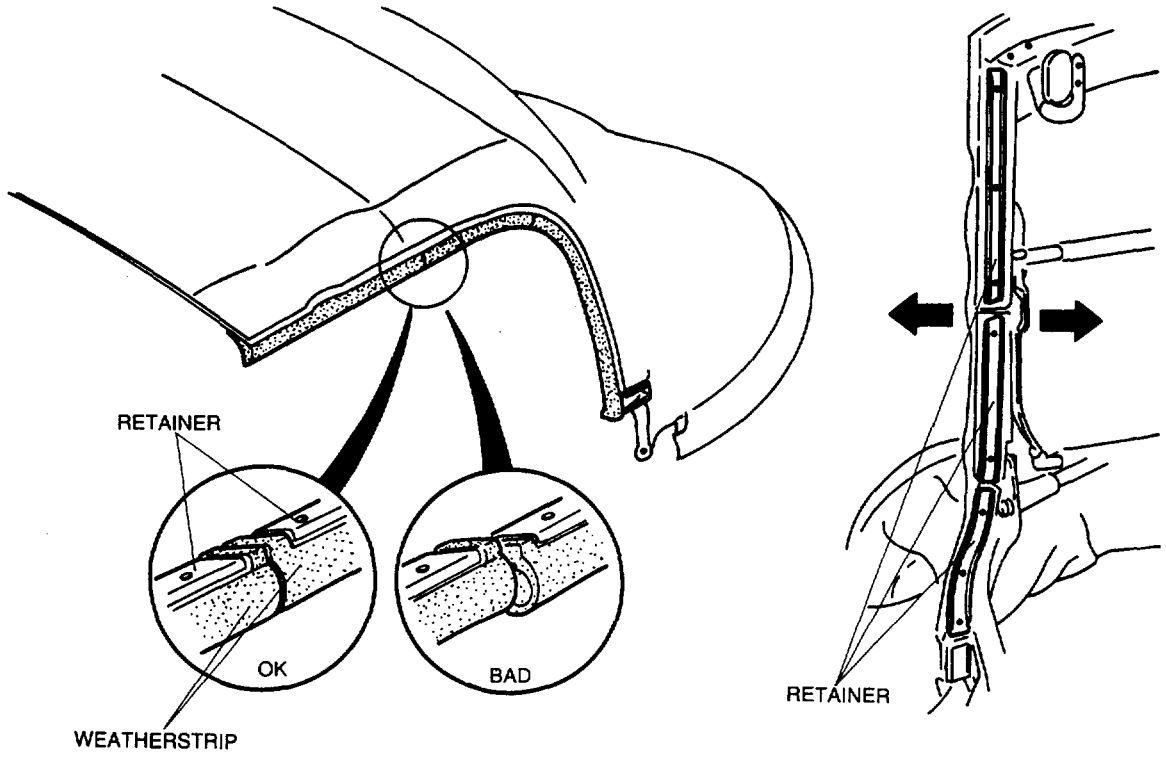
6. Close the latch cover, and install the screw.
7. Recheck the engagement.



25U0SX-027

Weatherstrip (Convertible top/Detachable hard top)
If there is any misalignment (lateral or vertical), adjust by following the steps below.

Adjustment procedure
1. Remove the weatherstrip in question.
2. Loosen the retainer screws and adjust the retainer as necessary.
3. Tighten the screws, and reinstall the weatherstrip.
4. Recheck the alignment.

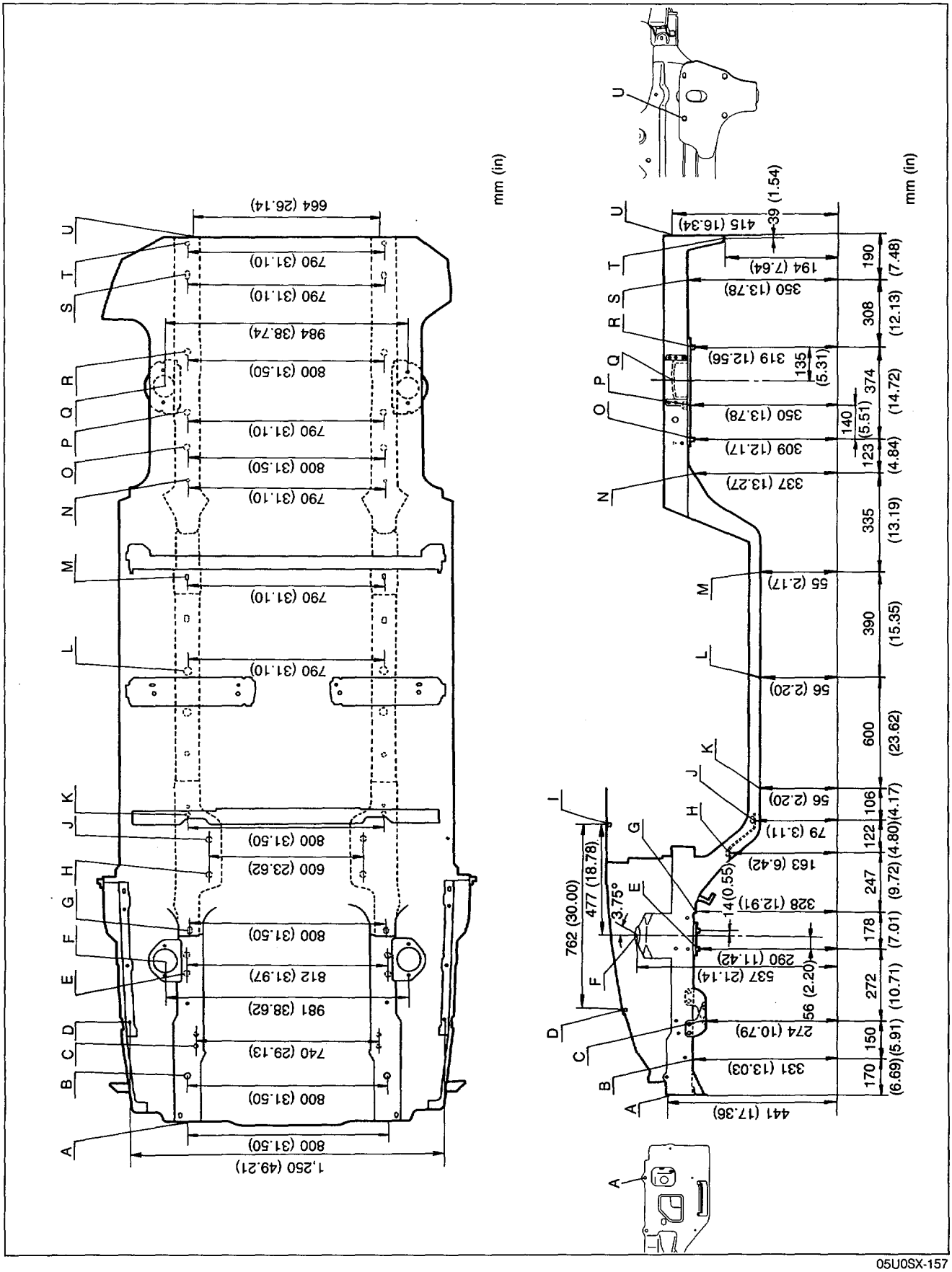


WEATHERSTRIP INSTALLATION

95A0SX-135

UNDERBODY DIMENSIONS

UNDERBODY PROJECTED DIMENSIONS



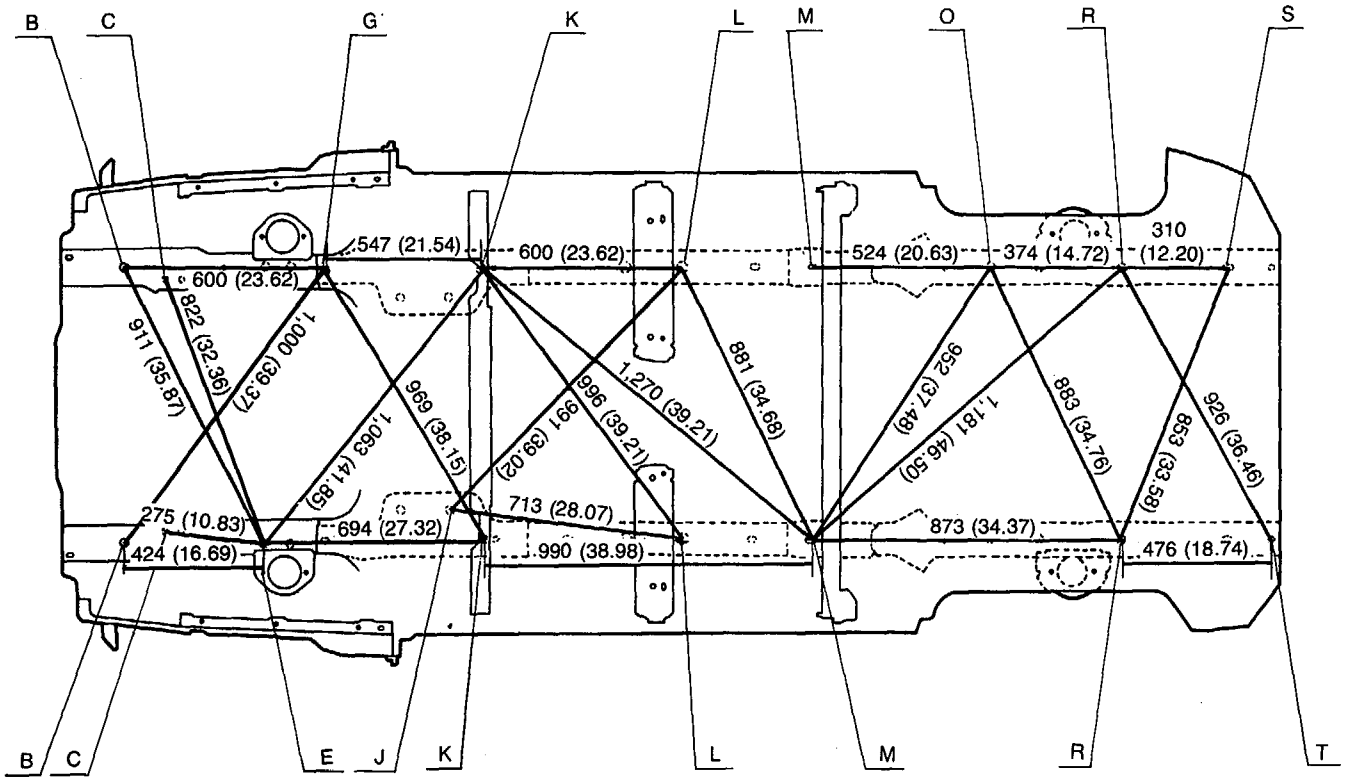
A : BUMPER BRACKET MOUNTING NUT
B : FRAME REFERENCE HOLE ϕ16 (0.63)
C : STABILIZER MOUNTING NUT
D : FRONT FENDER PANEL MOUNTING NUT
E : SUSPENSION MOUNTING BOLT
F : FRONT MOUNTING BLOCK
G : FRAME REFERENCE HOLE 12x18 (0.47x0.71)
H : CROSSMEMBER MOUNTING NUT
I : FRONT FENDER PANEL MOUNTING NUT
J : CROSSMEMBER MOUNTING NUT
K : FRAME REFERENCE HOLE ϕ12 (0.47)
L : FRAME REFERENCE HOLE ϕ20 (0.79)
M : FRAME REFERENCE HOLE 12x18 (0.47x0.71)
N : FRAME REFERENCE HOLE ϕ12 (0.47)
O : SUSPENSION MOUNTING BOLT
P : SUSPENSION MOUNTING NUT
Q : REAR MOUNTING BLOCK
R : SUSPENSION MOUNTING BOLT
S : FRAME REFERENCE HOLE 16x22 (0.63x0.87)
T : BUMPER BRACKET REFERENCE HOLE ϕ7 (0.28)
U : BUMPER MOUNTING HOLE 12x14 (0.47x0.55)

mm (in)

05U0SX-158

ALL MEASURING POINTS ARE LOCATED SYMMETRICALLY

ALL MEASURING POINTS ARE THE CENTER OF THE REFERENCE HOLE OR MOUNTING NUT AND BOLT



B : FRAME REFERENCE HOLE ϕ16 (0.63)
C : STABILIZER MOUNTING NUT
E : SUSPENSION MOUNTING BOLT
G : FRAME REFERENCE HOLE 12x18 (0.47x0.71)
J : CROSSMEMBER MOUNTING NUT
K : FRAME REFERENCE HOLE ϕ12 (0.47)
L : FRAME REFERENCE HOLE ϕ20 (0.79)
M : FRAME REFERENCE HOLE 12x18 (0.47x0.71)
O : SUSPENSION MOUNTING BOLT
R : SUSPENSION MOUNTING BOLT
S : FRAME REFERENCE HOLE 16x22 (0.63x0.87)
T : BUMPER BRACKET REFERENCE HOLE ϕ7 (0.28)

mm (in)

Before beginning any service procedure, refer to airbag system warnings and cautions in this section.

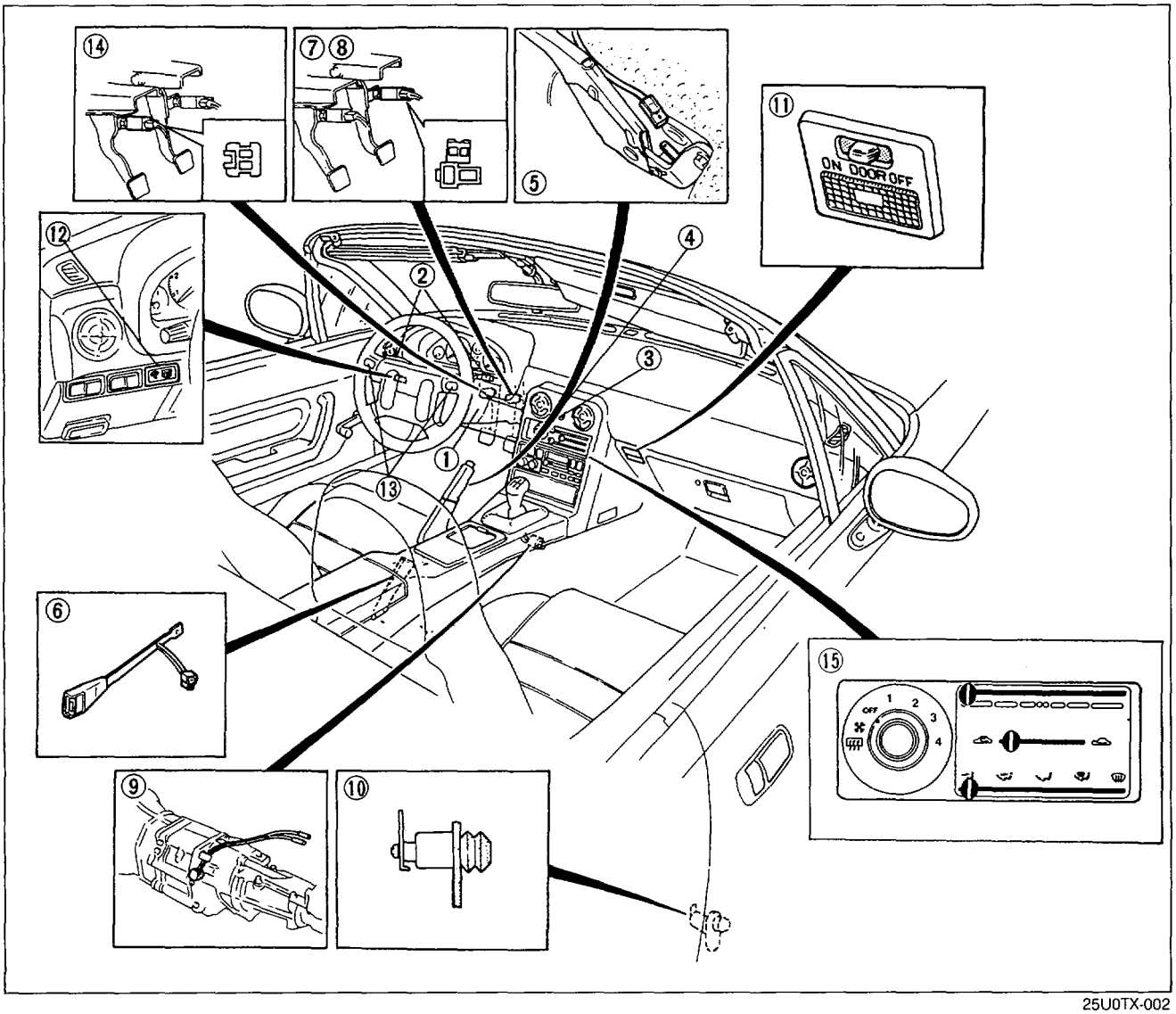
BODY ELECTRICAL SYSTEM

INDEX ..... T- 2
SWITCHES ..... T- 2
FUSES AND RELAYS ..... T- 3
LIGHTS ..... T- 4
CRUISE CONTROL SYSTEM ..... T- 5
AUDIO SYSTEM ..... T- 6
AIR BAG SYSTEM ..... T- 7
TROUBLESHOOTING ..... T- 8
OUTLINE ..... T- 9
HOW TO USE THIS SECTION ..... T- 9
ELECTRICAL TROUBLESHOOTING TOOLS ..... T- 9
GENERAL PRECAUTION ..... T- 10
ELECTRICAL SYMBOLS ..... T- 11
FUSE ..... T- 12
STRUCTURAL VIEW ..... T- 12
SPECIFICATIONS ..... T- 13
DESCRIPTION ..... T- 14
REPLACEMENT ..... T- 14
RELAY ..... T- 15
STRUCTURAL VIEW ..... T- 15
DESCRIPTION ..... T- 15
HEADLIGHT RETRACTOR RELAY ..... T- 16
TURN AND HAZARD WARNING FLASHER UNIT ..... T- 16
TIMER AND BUZZER UNIT ..... T- 17
DRL CONTROL UNIT ..... T- 18
4-TERMINAL NORMALLY OPEN RELAY ..... T- 19
SWITCH ..... T- 20
STRUCTURAL VIEW ..... T- 20
DESCRIPTION ..... T- 20
IGNITION SWITCH ..... T- 21
COMBINATION SWITCH ..... T- 21
HEADLIGHT RETRACTOR SWITCH AND HAZARD WARNING SWITCH ASSEMBLY ..... T- 25
INSTRUMENT CLUSTER ..... T- 26
STRUCTURAL VIEW ..... T- 26
DESCRIPTION ..... T- 26
CIRCUIT DIAGRAM ..... T- 27
TROUBLESHOOTING ..... T- 28
REMOVAL / INSTALLATION ..... T- 33
DISASSEMBLY / ASSEMBLY ..... T- 33
SPEEDOMETER ..... T- 34
TACHOMETER ..... T- 34
WATER TEMPERATURE GAUGE ..... T- 34
FUEL GAUGE ..... T- 35
OIL PRESSURE GAUGE ..... T- 35
PRINTED CIRCUIT ..... T- 36
SPEED SENSOR ..... T- 36
WATER THERMOSENSOR ..... T- 36
FUEL GAUGE SENDER UNIT (IN FUEL TANK) ..... T- 36
OIL PRESSURE SENSOR ..... T- 37
SPEEDOMETER CABLE ..... T- 37
WARNING LAMP AND SENDER UNIT ..... T- 38
STRUCTURAL VIEW ..... T- 38
CIRCUIT DIAGRAM ..... T- 39
TROUBLESHOOTING ..... T- 40
BRAKE FLUID LEVEL SENSOR ..... T- 43
PARKING BRAKE SWITCH ..... T- 43
SEAT BELT BUCKLE SWITCH ..... T- 43
LIGHTING SYSTEM ..... T- 44
STRUCTURAL VIEW ..... T- 44
HEADLIGHTS ..... T- 45
STOPLIGHTS ..... T- 58
TURN AND HAZARD WARNING LIGHTS ..... T- 62
BACK-UP LIGHTS ..... T- 71
TAILLIGHTS, SIDE MARKER LIGHTS, PARKING LIGHTS AND LICENSE PLATE LIGHTS ..... T- 74
DAYTIME RUNNING LIGHTS ..... T- 78
REAR COMBINATION LIGHT LENS ..... T- 83
INTERIOR LAMPS ..... T- 85
ILLUMINATION LAMPS ..... T- 89
HORN ..... T- 91
STRUCTURAL VIEW ..... T- 91
CIRCUIT DIAGRAM ..... T- 92
TROUBLESHOOTING ..... T- 93
REMOVAL / INSTALLATION ..... T- 95
REAR WINDOW DEFROSTER ..... T- 97
STRUCTURAL VIEW ..... T- 97
DESCRIPTION ..... T- 97
TROUBLESHOOTING ..... T- 98
INSPECTION T-100
REPAIRING FILAMENT T-101
CRUISE CONTROL SYSTEM T-102
STRUCTURAL VIEW T-102
CIRCUIT DIAGRAM T-103
TROUBLESHOOTING T-104
SELF-DIAGNOSTIC INSPECTION T-108
CRUISE CONTROL UNIT T-111
ACTUATOR CABLE T-112
CLUTCH SWITCH T-113
BRAKE SWITCH T-113
CRUISE CONTROL MAIN SWITCH T-113
CRUISE CONTROL SWITCH T-114
SPEED SENSOR T-114
ACTUATOR T-114
AUDIO T-115
STRUCTURAL VIEW T-115
SYSTEM DIAGRAM T-116
FEATURES T-116
FUNCTION AND OPERATING PROCEDURE T-117
TROUBLESHOOTING T-122
REMOVAL / INSTALLATION T-133
POWER ANTENNA T-136
INSPECTION T-140
CONNECTOR TERMINAL SPECIFICATIONS T-140
PANASONIC SERVICE NETWORK T-141
AIR BAG SYSTEM T-142
PREPARATION T-142
STRUCTURAL VIEW T-142
COMPONENT DESCRIPTION T-143
SYSTEM DIAGRAM T-144
SERVICE PRECAUTION T-145
CIRCUIT DIAGRAM T-148
TROUBLESHOOTING GUIDE T-149
REMOVAL / INSTALLATION T-162
INSPECTION T-169
AIR BAG MODULE DISPOSAL PROCEDURE T-172

25U0TX-001

INDEX

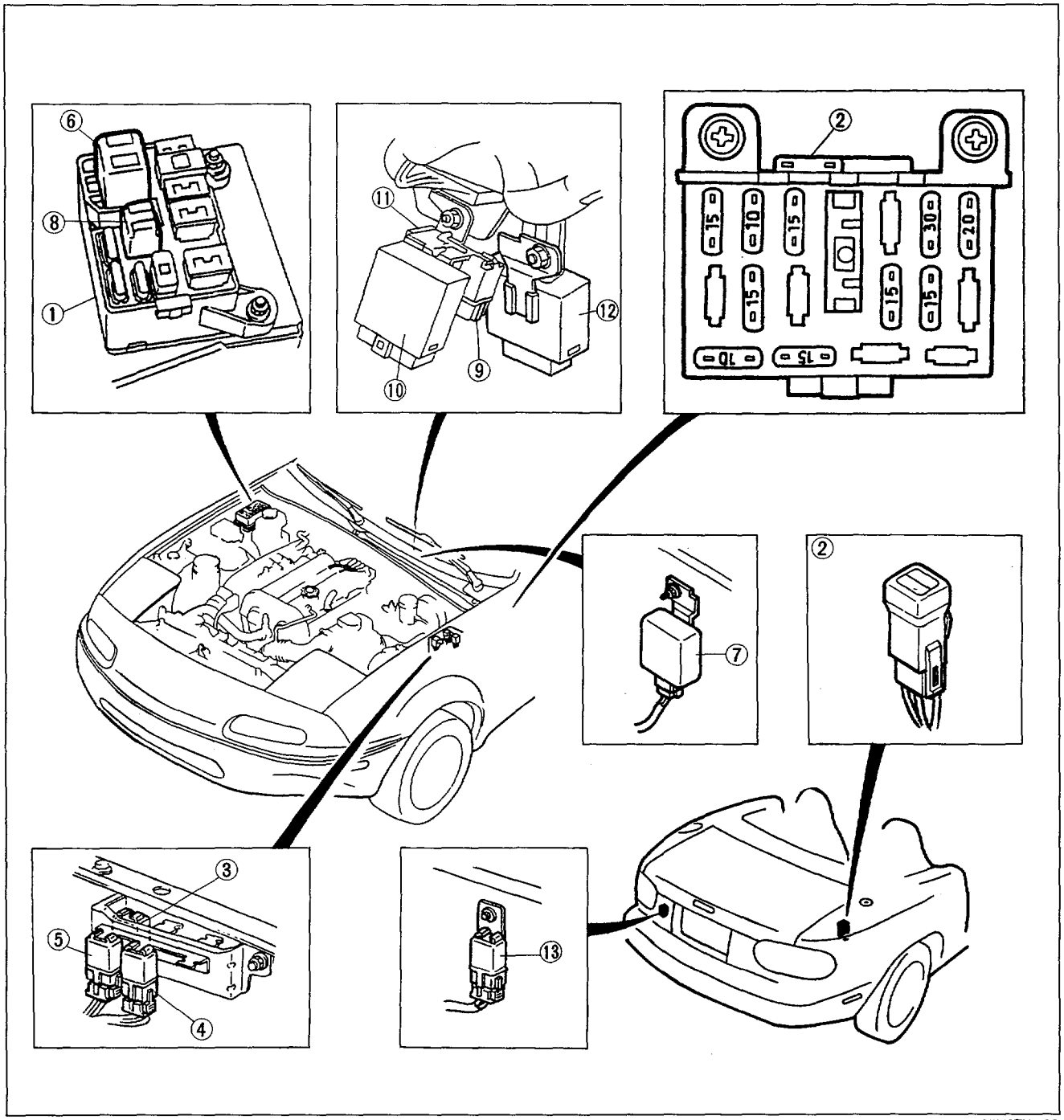
SWITCHES



25U0TX-002

1. Ignition switch
   - Inspection ..... page T–21
   - Replacement ..... page T–21
2. Combination switch
   - Removal / Installation ..... page T–21
   - Inspection ..... page T–23
3. Headlight retractor switch
   - Removal / Installation ..... page T–25
   - Inspection ..... page T–25
4. Hazard warning switch
   - Removal / Installation ..... page T–25
   - Inspection ..... page T–25
5. Parking brake switch
   - Inspection ..... page T–43
6. Seat belt buckle switch
   - Inspection ..... page T–43
7. Stoplight switch
   - Adjustment ..... page T–61
   - Inspection ..... page T–61
8. Brake switch
   - Removal / Installation ..... page T–113
   - Inspection ..... page T–113
   - Adjustment ..... page T–113
9. Back-up light switch
   - Inspection ..... page T– 73
10. Door switch
   - Inspection ..... page T– 88
11. Interior lamp switch
   - Troubleshooting ..... page T– 86
12. Panel lamp control switch
   - Inspection ..... page T– 90
13. Horn switch
   - Removal / Installation ..... page T– 95
14. Clutch switch
   - Removal / Installation ..... page T–113
   - Inspection ..... page T–113
   - Adjustment ..... page T–113
15. Rear window defroster switch ..... Section U

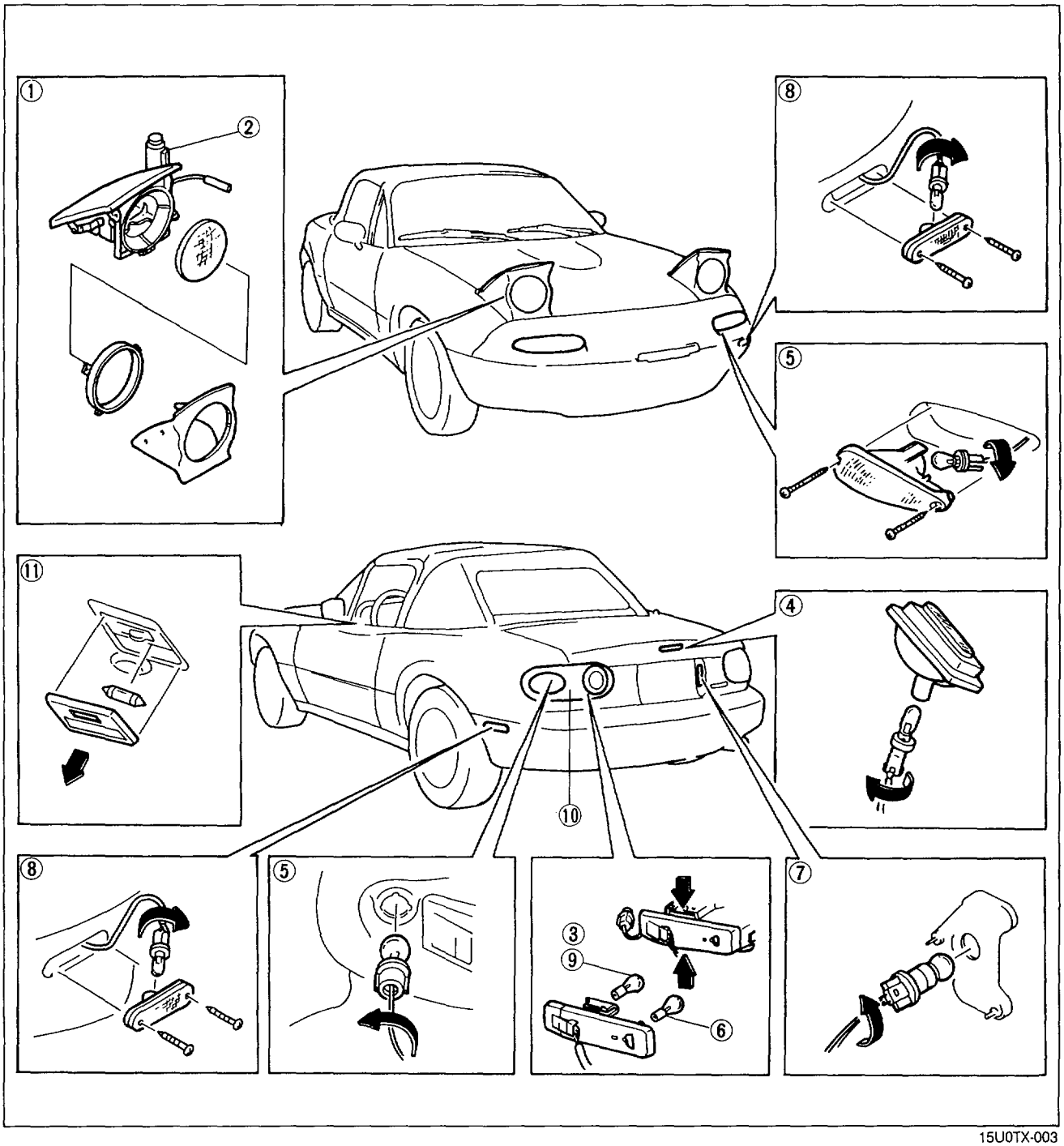
FUSES AND RELAYS



25U0TX-003

1. Main fuse block
   Fuse replacement ..... page T–14
2. Fuse box No.1 No.2
   Fuse replacement ..... page T–14
3. Headlight relay
   Inspection ..... page T–19
4. TNS relay
   Inspection ..... page T–19
5. Headlight retractor relay
   Inspection ..... page T–16
6. EGI main relay
7. Rear window defroster timer unit
8. Cooling fan relay
   Inspection ..... page T–19
9. Horn relay
   Inspection ..... page T–19
10. Turn and hazard warning flasher unit
    Inspection ..... page T–16
11. Timer and buzzer unit
    Inspection ..... page T–17
12. DRL control unit
    Inspection ..... page T–18
13. Rear window defroster relay
    Inspection ..... page T–19

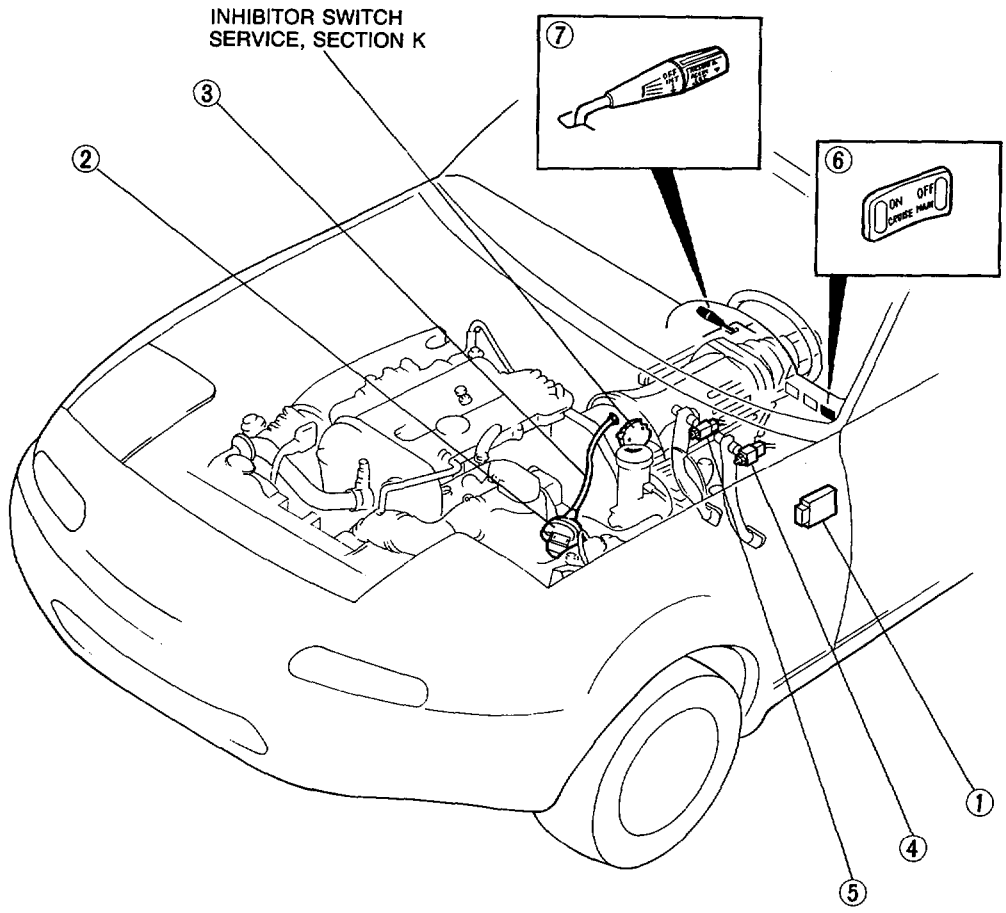
LIGHTS



15U0TX-003

1. Retractable headlight
   - Aiming ..... page T–55
   - Removal / Installation ..... page T–54
2. Headlight retractor motor
   - Removal / Installation ..... page T–54
   - Inspection ..... page T–56
3. Stoplight
   - Removal / Installation ..... page T–60
4. High-mount stoplight
   - Removal / Installation ..... page T–60
5. Turn and hazard warning light
   - Removal / Installation ..... page T–69
6. Back-up light
   - Removal / Installation ..... page T–73
7. License plate light
   - Removal / Installation ..... page T–77
8. Side marker light
   - Removal / Installation ..... page T–77
9. Taillight
   - Removal / Installation ..... page T–77
10. Rear combination light lens
    - Removal / Installation ..... page T–54
    - Replacement ..... page T–83
11. Interior lamp

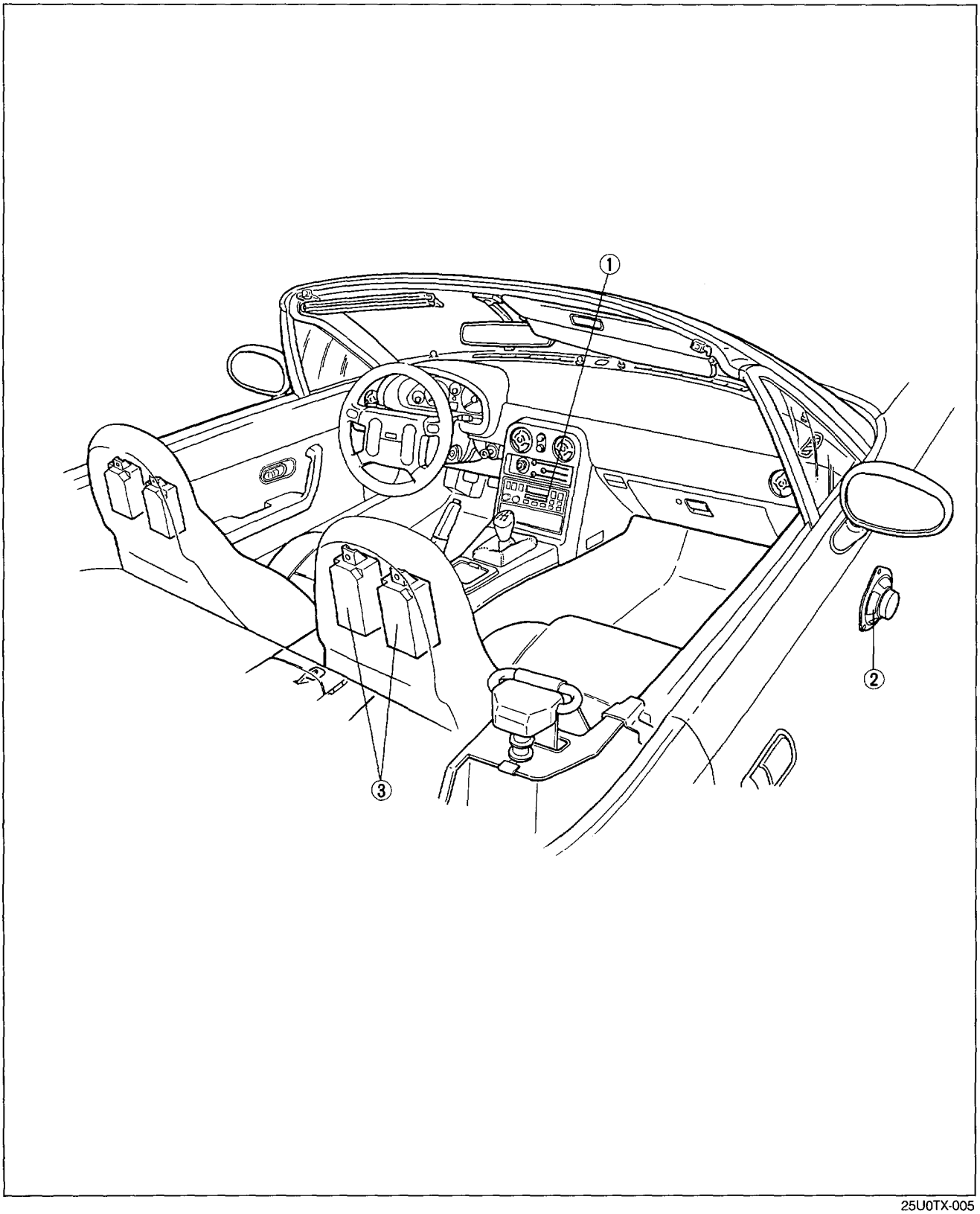
CRUISE CONTROL SYSTEM



25U0TX-004

1. Cruise control unit
   - Removal / Installation ..... page T–111
   - Inspection ..... page T–111
2. Actuator
   - Inspection ..... page T–114
   - Removal / Installation ..... page T–114
3. Actuator cable
   - Removal / Installation ..... page T–112
   - Adjustment ..... page T–112
4. Clutch switch
   - Removal / Installation ..... page T–113
   - Adjustment ..... page T–113
5. Brake switch
   - Removal / Installation ..... page T–113
   - Adjustment ..... page T–113
6. Cruise control main switch
   - Inspection ..... page T–113
7. Cruise control switch
   - Inspection ..... page T–114

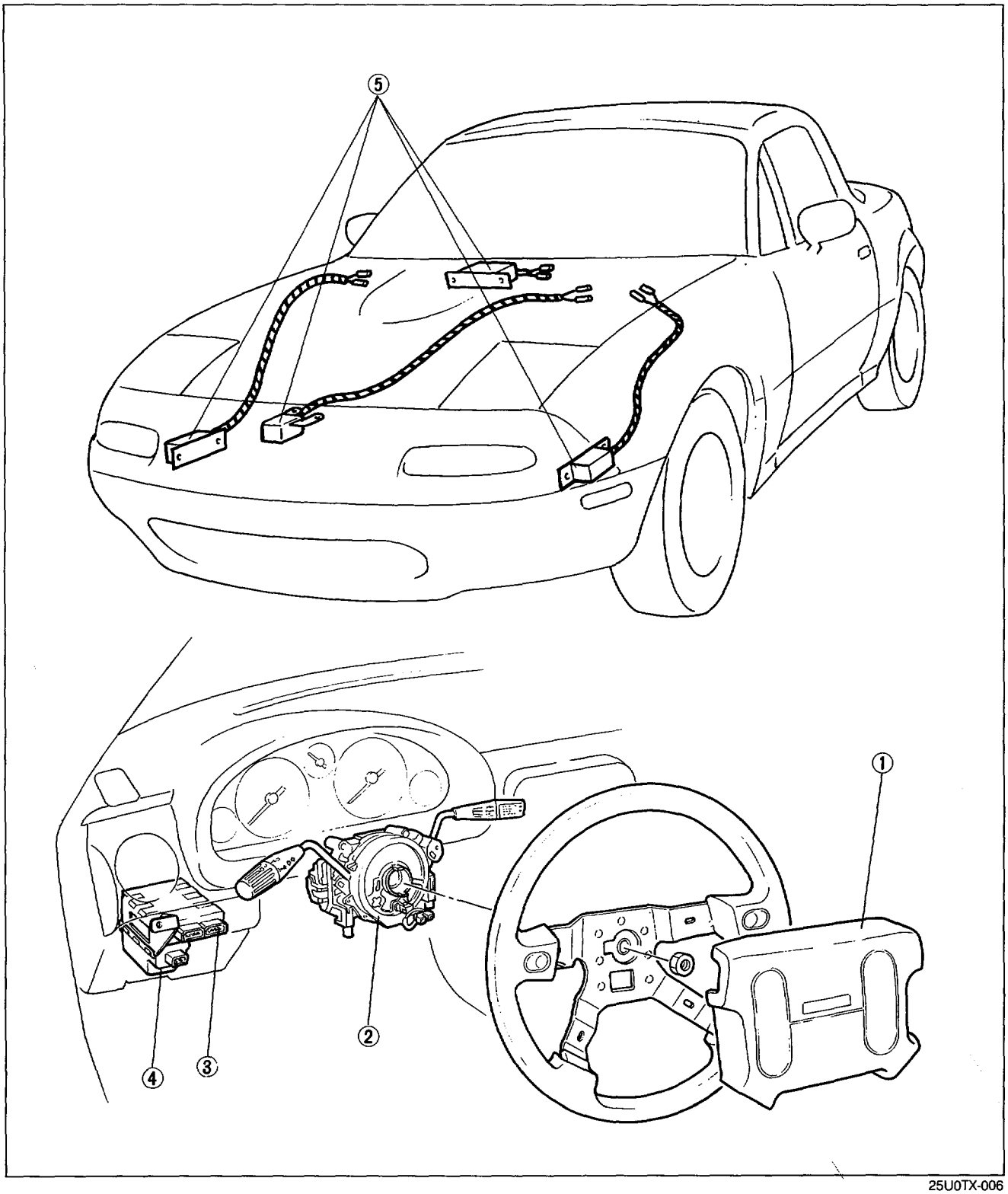
AUDIO SYSTEM



25U0TX-005

1. Audio unit
   Removal / Installation ..... page T–133
2. Door speakers
   Removal / Installation ..... page T–134
   Inspection ..... page T–140
3. Headrest speakers
   Removal / Installation ..... page T–134
   Inspection ..... page T–140

AIR BAG SYSTEM



25U0TX-006

1. Air bag module
   Removal / Installation ..... page T–162
2. Clock spring connector
   Removal / Installation ..... page T–164
   Inspection ..... page T–171
3. Diagnostic module
   Removal / Installation ..... page T–163
4. Backup battery
   Removal / Installation ..... page T–163
5. Crash sensor
   Removal / Installation ..... page T–166
   Inspection ..... page T–169

TROUBLESHOOTING

System	Symptom	Reference page
Instrument cluster	• Speedometer does not operate or indication is incorrect	T– 28
	• Tachometer does not operate	T– 29
	• Water temperature gauge does not operate	T– 30
	• Fuel gauge does not operate	T– 31
	• Oil pressure gauge does not operate	T– 32
Warning lamp and sender unit	• Brake warning lamp remains illuminated	T– 40
	• Brake warning lamp does not illuminate when parking brake is on	T– 40
	• Brake warning lamp does not illuminate when brake fluid in reservoir is below MIN	T– 41
	• O/D off indicator lamp does not illuminate when O/D off switch turned ON	T– 41
	• Seat belt warning lamp remains ON six seconds after ignition switch is turned ON (Timer function does not operate)	T– 42
	• Seat belt warning lamp does not illuminate when ignition switch is first turned ON	T– 42
Lighting system	• Headlights do not illuminate (U.S. spec.)	T– 46
	• Headlights do not illuminate (Canada spec.)	T– 48
	• Headlight does not illuminate (right or left)	T– 50
	• Headlight retractor motors do not operate (both sides)	T– 51
	• Headlight retractor motor does not operate (right or left)	T– 53
	• Stoplights do not illuminate	T– 59
	• Stoplight does not illuminate (right or left)	T– 60
	• Turn and hazard warning functions do not operate (U.S. spec.)	T– 63
	• Turn and hazard warning function do not operate (Canada spec.)	T– 65
	• Turn signal(s) flashes rapidly	T– 67
	• Hazard warning function does not operate (turn signals function normally)	T– 68
	• Back-up light(s) does not illuminate	T– 72
	• Taillights, side marker lights, and license plate lights do not illuminate (U.S. spec.)	T– 75
	• Taillights, side marker lights, and license plate lights do not illuminate (Canada spec.)	T– 76
	• Daytime running lights do not illuminate	T– 79
	• Daytime running light function does not cancel	T– 80
	• Interior lamp(s) do not illuminate	T– 86
	• Interior lamp(s) remains illuminated	T– 88
Horn	• Horn does not sound	T– 93
Cruise control system	• Vehicle speed cannot be set (Cruise control unit will not hold vehicle speed)	T–104
Audio	• Speaker(s) do not sound (System without headrest speakers)	T–122
	• Speaker(s) do not sound (System with headrest speakers)	T–124
	• Poor sound quality or noise (Radio)	T–127
	• Poor sound quality (Cassette tape player)	T–129
	• Cassette tape will not load	T–130
	• Cassette tape will not play	T–131
	• Compact disc will not load	T–132
	• Compact disc skips	T–132
Air bag system	• Air bag warning lamp flashes	T–148

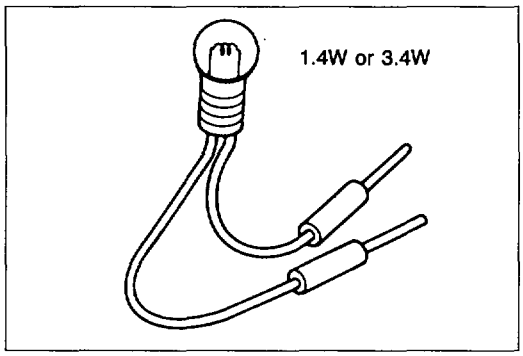
25U0TX-007

OUTLINE

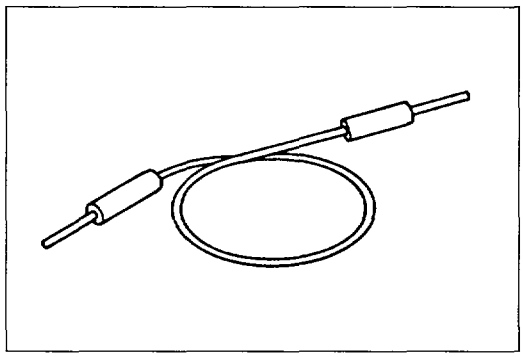
HOW TO USE THIS SECTION

Information regarding removal and installation of electrical equipment is given in **SECTION S**.
Understanding will be easier if this section is used in conjunction with the **WIRING DIAGRAMS**.

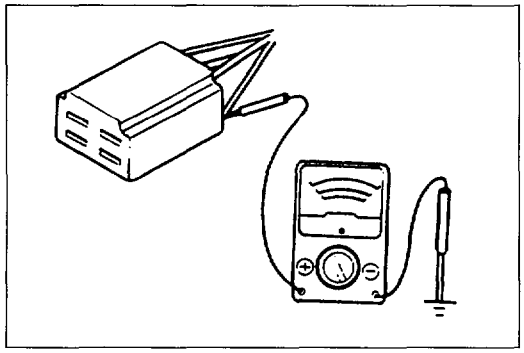
9MU0TX-008



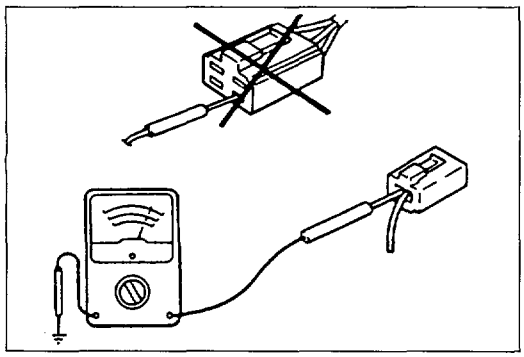
05U0TX-273



61G15X-002



69G15X-003



63U15X-005

ELECTRICAL TROUBLESHOOTING TOOLS

Test Light

The test light, as shown in the figure, uses a 12V bulb. The two leads should be connected to probes. The test light is used for simple voltage checks and to check for open circuits.

Caution

- **When checking a control unit, never use a bulb over 3.4W.**

Jumper Wire

The jumper wire is used for testing by short-circuiting switch terminals and for verifying the condition of ground connections.

Caution

- **Do not connect the jumper wire between a power source line and body ground because this may cause burning or other damage to harnesses or electronic components.**

Voltmeter

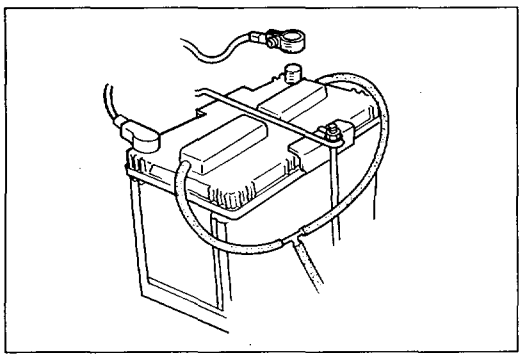
The DC voltmeter is used for measuring circuit voltage. A voltmeter with a range of 15V or more is used by connecting the positive (+) probe (red lead) to the point where voltage is to be measured and the negative (–) probe (black lead) to the body ground.

Ohmmeter

The ohmmeter is used to measure the resistance between two points in a circuit, and is also used to check for continuity and diagnosis of short circuits.

Caution

- **Do not attempt to connect the ohmmeter to any circuit to which voltage is applied because this may burn or otherwise damage the ohmmeter.**



25U0TX-008

GENERAL PRECAUTION

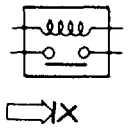
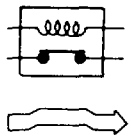
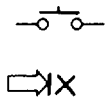
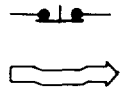
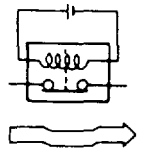
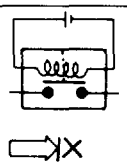
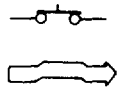
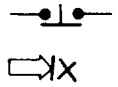
Before Disconnecting Battery Cables

The optional audio unit has an anti-theft function that is activated when the battery power is disconnected. Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)

ELECTRICAL SYMBOLS

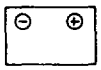
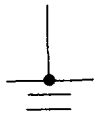
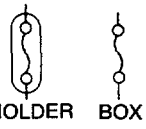
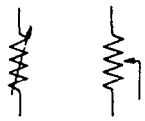
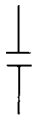
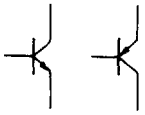
Switches and Relays

There is an NC (normally closed) and NO (normally open) indication for switches and relays that shows when no change of operation conditions has occurred.

	Relay		Switch	
	NO type relay	NC type relay	NO switch	NC switch
Not in operation (No power supply)	 STOP	 FLOW	 STOP	 FLOW
In operation (Power supply)	 FLOW	 STOP	 FLOW	 STOP

25U0TX-009

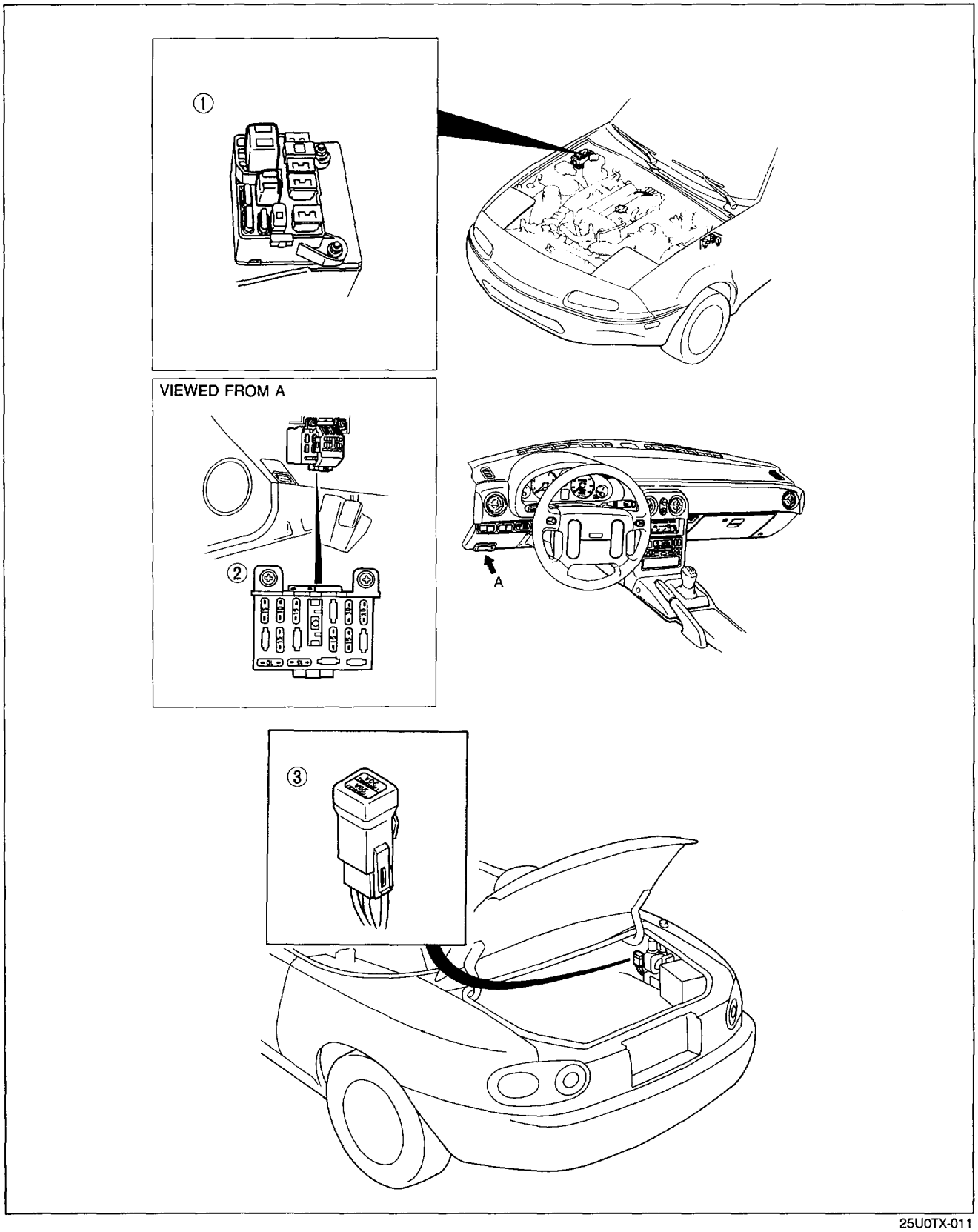
Other Electrical Symbols

		 HOLDER BOX	
BATTERY	BODY GROUND	FUSE	FUSIBLE LINK
			
MOTOR	COIL, SOLENOID	RESISTOR	VARIABLE RESISTOR
			
THERMISTOR	DIODE	CONDENSER	LIGHT
			
TRANSISTOR	SPEAKER	CIGARETTE LIGHTER	HEATER

25U0TX-010

FUSE

STRUCTURAL VIEW



25U0TX-011

1. Main fuse block
2. Fuse box No.1
3. Fuse box No.2

SPECIFICATIONS
Main Fuse Block

Fuse	Amperes	Protected circuit
HEAD	30A	Headlight relay, Headlight switch
INJ	30A	Alternator, Diagnostic module (for air bag system)
MAIN	80A	Except circuits protected in main fuse block: INJ 30A, HEAD 30A, RETRACTOR 30A
BTN	40A	TNS relay, Headlight switch
COOLING FAN	30A	EGI main relay, Cooling fan relay
(AIR BAG)	10A	Backup battery (for air bag system)
(AD FAN)	20A	A/C relay
ST SIG	10A	Inhibitor relay, Circuit-opening relay
RETRACTOR	30A	Retractable headlight motors
ABS	60A	Anti lock brake system

15U0TX-501

Fuse Box No.1

Fuse	Amperes	Protected circuit
ENGINE	15A	EGI main relay, Cooling fan relay
METER	10A	Instrument cluster, Turn signal switch, Timer and buzzer unit, Cruise control main switch
(AIR BAG)	15A	Diagnostic module
(POWER WIND)	30A	Power window switch
WIPER	20A	Blower switch, Wiper switch
TAIL	15A	Taillights, Side marker lights, License plate lights, Parking lights
STOP	15A	Stoplight switch, Horn switch, Cruise control unit
HAZARD	15A	Turn and hazard warning flasher unit
ROOM	10A	ECU, Key reminder switch, Audio unit
CIGAR	15A	Cigarette lighter, Audio unit

25U0TX-012

Fuse Box No.2

Fuse	Amperes	Protected circuit
(DEFOG)	20A	Rear window defroster
(ANTENNA)	20A	Power antenna

25U0TX-013

Fuse Color Code

Fuse amperes	Color code	Fuse type
10A	Red	Plate type
15A	Light blue	
20A	Yellow	
30A	Light green	
30A	Pink	Cartridge type
80A	Black	

05U0TX-012

DESCRIPTION

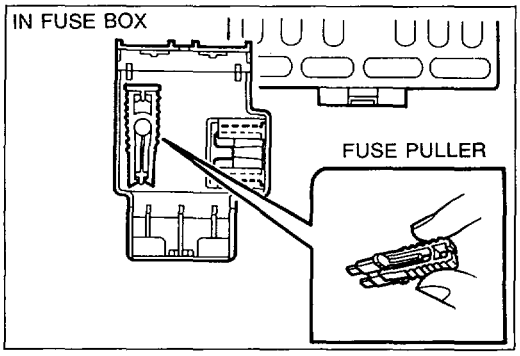
Main Fuse Block

The main fuse block is located on the right side of the engine compartment and it contains nine fuses and two relays.

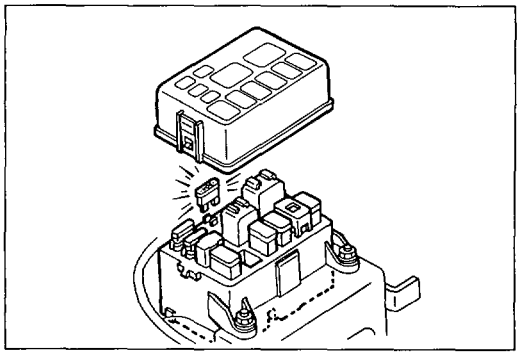
Fuse Box

The fuse block No.1 is located above the dead pedal of the driver side. The fuse box cover shows the specified fuse locations.
A circuit breaker is contained in the fuse box for protection of the heater blower motor circuit.
The fuse block No.2 is located to the side of the battery in the trunk compartment.

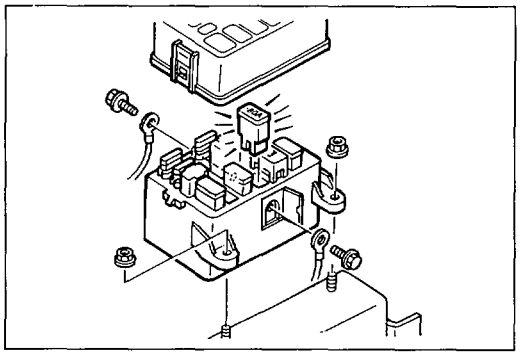
25U0TX-014



05U0TX-013



15U0TX-056



05U0TX-015

REPLACEMENT

Note

- **If a fuse again fails after it has been replaced, there is probably a short in the circuit.**
- **Check the circuit which is protected by the failed fuse, referring to the specifications table.**

Plate type

1. Disconnect the negative battery cable.
2. Replace the failed fuse with the fuse puller.
3. Reconnect the negative battery cable.

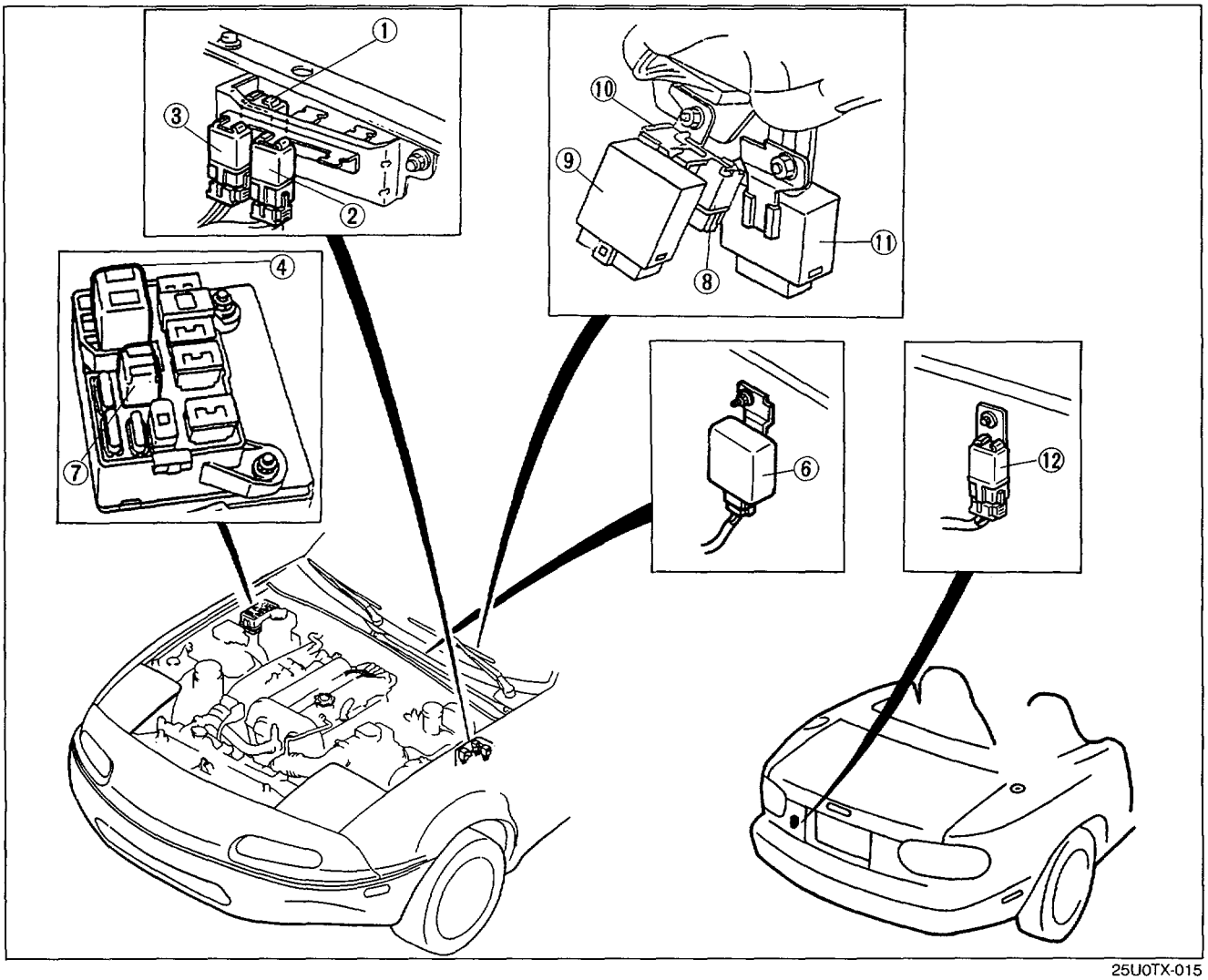
Cartridge-type

80A fuse (Black)

1. Disconnect the negative battery cable.
2. Remove the fuse block mounting nuts, and remove the service cover.
3. Remove the fuse installation bolts, and pull out the fuse.
4. Install the new fuse and the fuse installation bolts.
5. Install the main fuse block.
6. Reconnect the negative battery cable.

RELAY

STRUCTURAL VIEW



25U0TX-015

1. Headlight relay
2. TNS relay
3. Retractor relay
4. EGI main relay
5. Circuit-opening relay
6. Rear window defroster timer unit
7. Cooling fan relay
8. Horn relay
9. Turn and hazard warning flasher unit
10. Timer and buzzer unit
11. DRL control unit
12. Rear window defroster relay

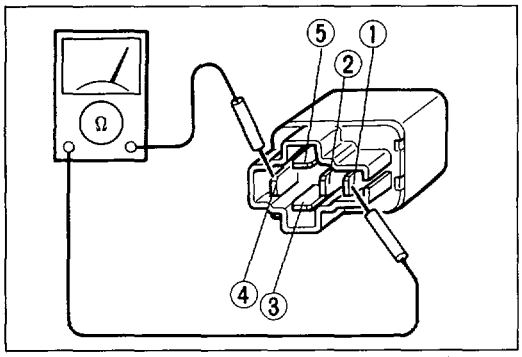
Note

- **For inspection of the following relays, refer to specified Section.**
  - **EGI main relay..... Refer to Section F**
  - **Circuit-opening relay..... Refer to Section F**
  - **A/C relay ..... Refer to Section U**

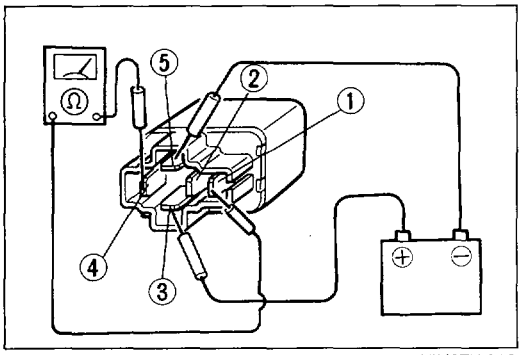
DESCRIPTION

The DRL control unit which is equipped for Canada vehicles controls the turn lights operation.
Except for conditions listed below, whenever the ignition switch is in ON or START position, front turn signal lights will illuminate to be running lights.

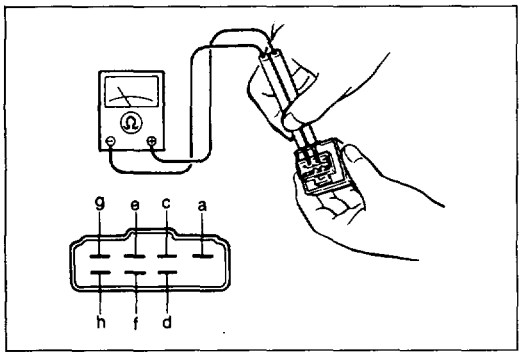
- Headlight switch ON.
- Turn signal switch ON.
- Hazard switch ON.
- Parking brake switch ON.



05U0TX-018



25U0TX-016



05U0TX-020

HEADLIGHT RETRACTOR RELAY

Inspection

1. Check continuity between terminals of the relay.

Terminal	Continuity
1—4	Yes
2—4	No
3—5	Yes

2. If not as specified, replace the retractor relay.
3. If correct, go to Step 4.
4. Apply battery voltage to terminal 3 and ground terminal 5. Check continuity between terminals of the relay.

Terminal	Continuity
1—4	No
2—4	Yes

5. If not as specified, replace the retractor relay.

TURN AND HAZARD WARNING FLASHER UNIT

Inspection

1. Check continuity between terminals of the flasher unit.

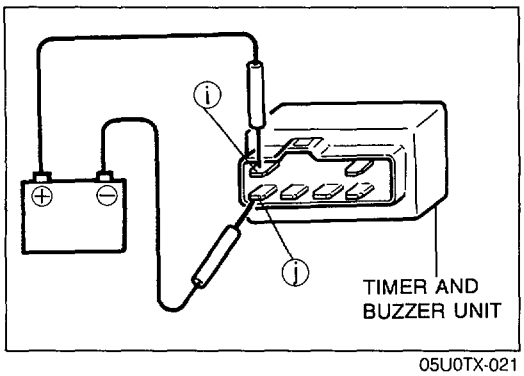
Note

- **Set the ohmmeter to ×1000Ω range.**

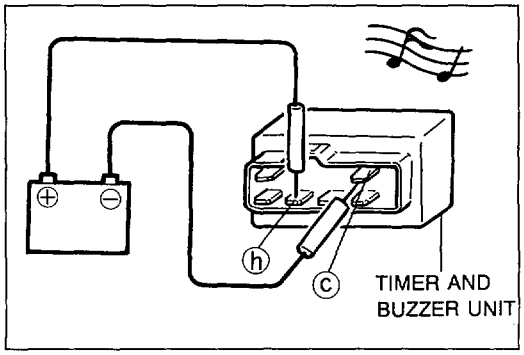
Terminal +	Terminal −	Continuity	Terminal +	Terminal −	Continuity	Terminal +	Terminal −	Continuity
a	c	X	d	e	X	f	g	X
a	d	X	d	f	X	f	h	X
a	e	O	d	g	X	g	a	X
a	f	O	d	h	X	g	c	X
a	g	X	e	a	X	g	d	X
a	h	X	e	c	X	g	e	X
c	a	O	e	d	X	g	f	X
c	d	O	e	f	X	g	h	X
c	e	O	e	g	X	h	a	O
c	f	O	e	h	X	h	c	O
c	g	O	f	a	X	h	d	O
c	h	O	f	c	X	h	e	O
d	a	X	f	d	X	h	f	O
d	c	X	f	e	X	h	g	O

O: Indicates continuity X: No continuity

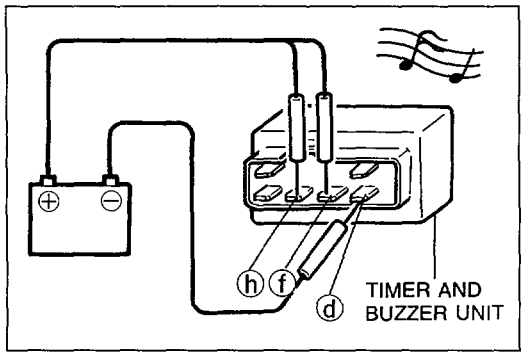
2. If not as specified, replace the flasher unit.



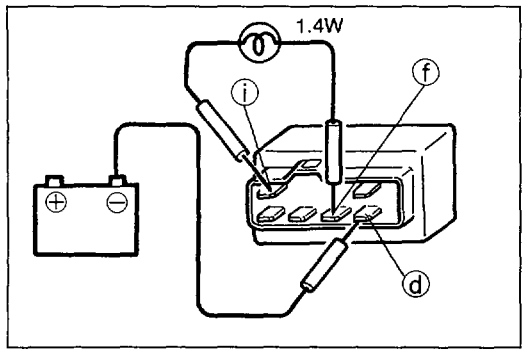
05U0TX-021



25U0TX-017



25U0TX-018



05U0TX-024

TIMER AND BUZZER UNIT
Inspection

Note
- **While performing the following tests, apply 12V to terminal i and ground terminal j.**

Key remainder alarm test
1. Apply battery voltage to terminal h and ground terminal c, and check if the buzzer sounds.

VB: Battery voltage

Terminal		Buzzer sounds
VB	Ground	
h	c	Yes

2. If the buzzer does not sound, replace the timer and buzzer unit.

Seat belt alarm test
1. Apply battery voltage to terminals f and h and ground terminal d, and check if the buzzer sounds for **approx. 6 sec.**.

VB: Battery voltage

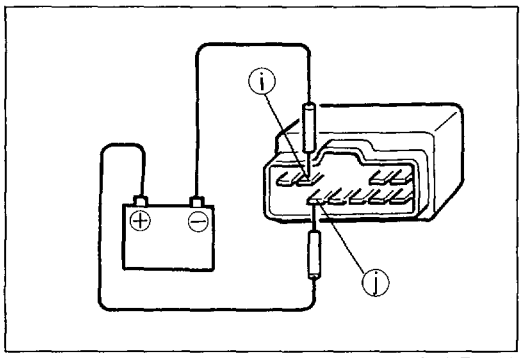
Terminal		Buzzer sounds
VB	Ground	
f and h	d	Approx. 6 sec.

2. If not as specified, replace the timer and buzzer unit.

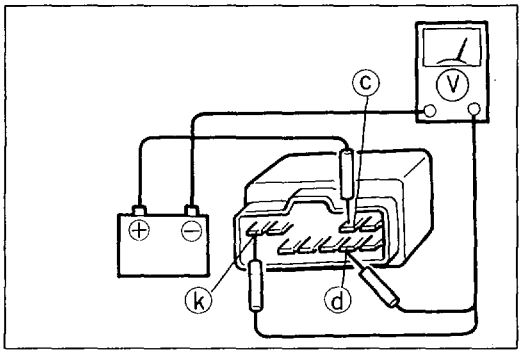
Seat belt warning lamp timer
1. Connect a test light (1.4W) between terminals i and f.
2. Ground terminal d, and check that the test light illuminates for **Approx. 6 sec.**.

Terminal	Test light illuminates
Test light between i and f	
d grounded	Approx. 6 sec.

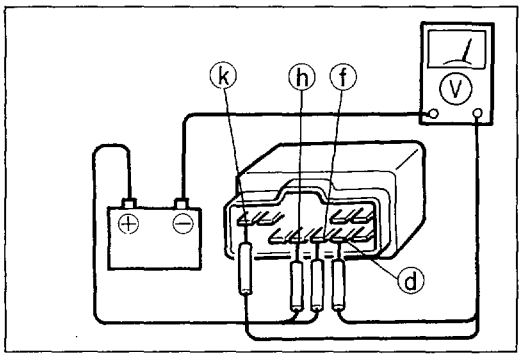
3. If not as specified, replace the timer and buzzer unit.



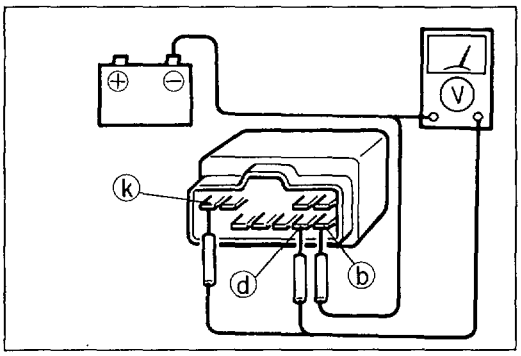
25U0TX-019



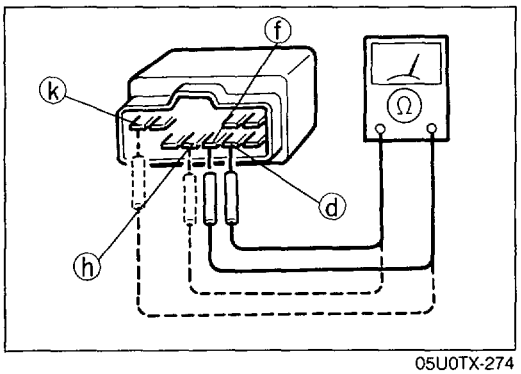
25U0TX-020



25U0TX-021



25U0TX-022



05U0TX-274

DRL CONTROL UNIT

Inspection

Voltage test

Note

- **While performing the following voltage tests, apply battery voltage to terminal j and ground terminal i.**

1. Apply battery voltage to terminal c, and measure the voltage at terminals d and k.

VB: Battery voltage

Terminal	Voltage
d	VB
k	VB

2. If not as specified, replace the DRL unit.

3. Remove the battery voltage from terminal c.
4. Apply battery voltage to terminals f and h, and measure the voltage at terminals d and k.

VB: Battery voltage

Terminal	Voltage
d	VB
k	VB

5. If not as specified, replace the DRL unit.

6. Remove the battery voltage from terminals f and h.
7. Ground terminal b, and measure the voltage at terminals d and k.

VB: Battery voltage

Terminal	Voltage
d	VB
k	VB

8. If not as specified, replace the DRL unit.

Continuity test

1. Check for continuity between terminals of the DRL unit.

Terminal	Continuity
d—f	Yes
h—k	Yes

2. If not as specified, replace the DRL unit.

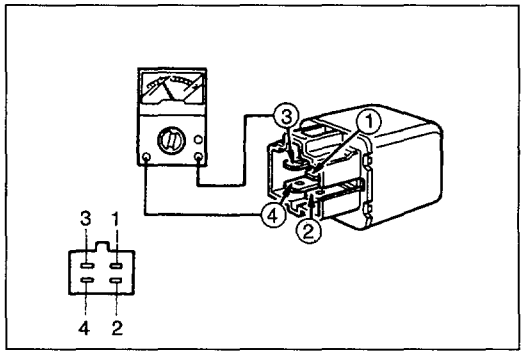
4-TERMINAL NORMALLY OPEN RELAY (NO RELAY)

Inspection

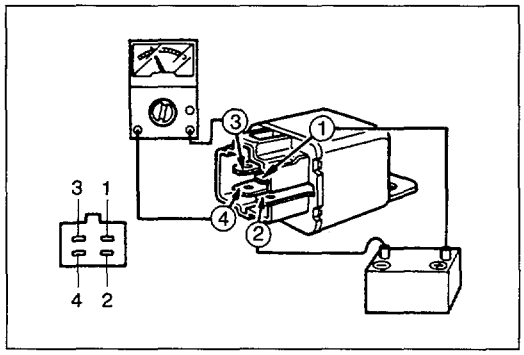
The relays listed below are 4-terminal normally open (NO) relays.

- Horn relay
- Headlight relay
- Rear window defroster relay
- TNS relay
- Cooling fan relay

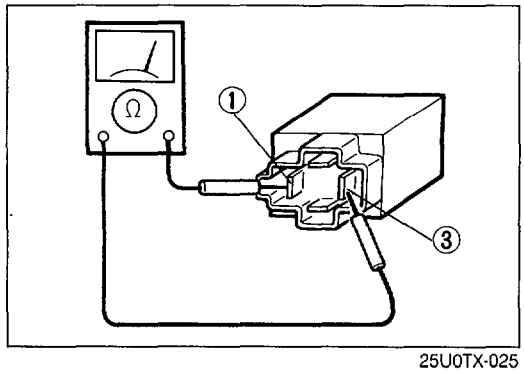
25U0TX-023



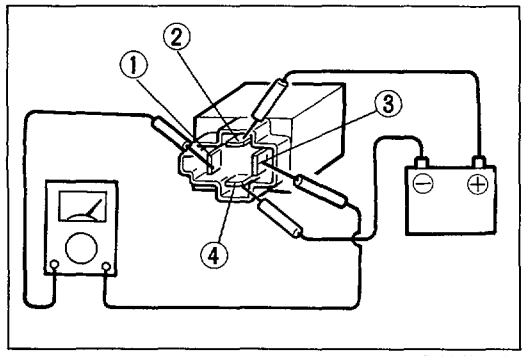
05U0TX-275



25U0TX-024



25U0TX-025



25U0TX-026

Headlight relay and cooling fan relay

1. Check continuity between terminals 3 and 4.

Terminal	Continuity
3—4	No

2. If not as specified, replace the relay.
3. If correct, go to Step 4.

4. Apply battery voltage to terminal 1 and ground terminal 2. Check for continuity between terminals 3 and 4.

Terminal	Continuity
3—4	Yes

5. If not as specified, replace the relay.

Horn relay, TNS relay and Rear window defroster relay

1. Check continuity between terminals 1 and 3.

Terminal	Continuity
1—3	No

2. If not as specified, replace the relay.
3. If correct, go to Step 4.

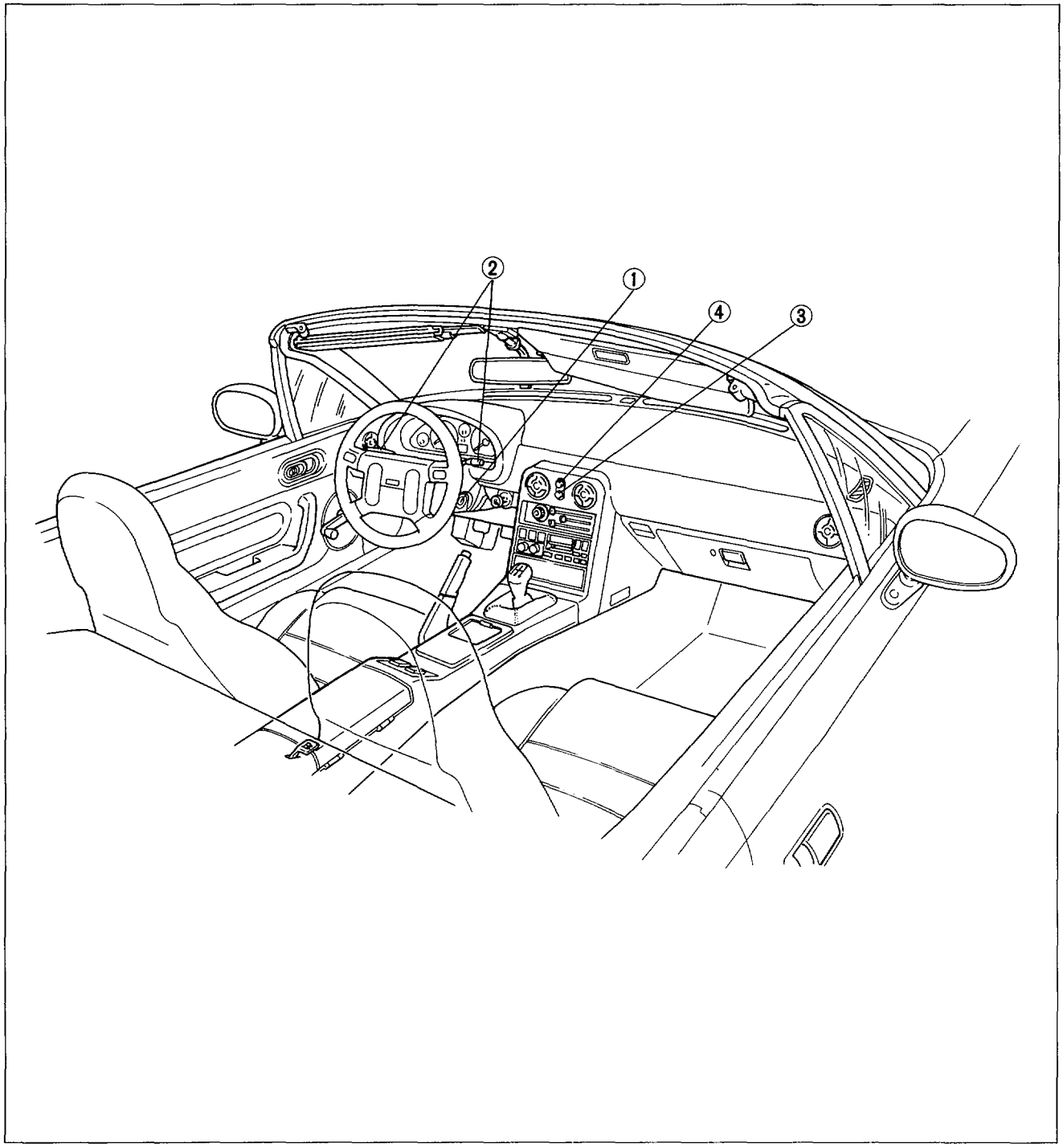
4. Apply battery voltage to terminal 2 and ground terminal 4. Check for continuity between terminals 1 and 3.

Terminal	Continuity
1—3	Yes

5. If not as specified, replace the relay.

SWITCH

STRUCTURAL VIEW



05U0TX-030

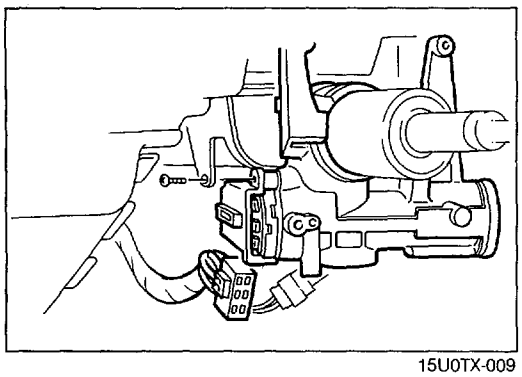
1. Ignition switch
2. Combination switch
3. Headlight retractor switch
4. Hazard warning switch

DESCRIPTION

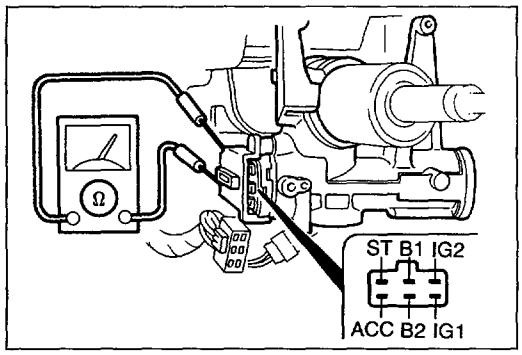
Combination Switch (U.S. spec.)

The combination switch equipped for U.S. specification vehicles includes a clock spring type electrical connector for supplying electrical current to the air bag module and horn switches.
When installing the combination switch, make sure the clock spring connector is properly aligned. If it is not, it may be broken or the steering wheel may not turn fully. (Refer to page T–22.)

05U0TX-031



15U0TX-009



05U0TX-033

IGNITION SWITCH

Replacement

1. Disconnect the negative battery cable.
2. Remove the column covers.
3. Remove the screw and the ignition switch.
4. Install in the reverse order of removal.

Inspection

1. Check continuity between terminals of the switch.

Position	Terminal							
	B1	B2	ACC	IG1	IG2	ST	K1	K2
LOCK							○—○	
ACC	○——		○				○—○	
ON	○—	○—	○—	○—	○		○—○	
START	○—	○—		○—		○	○—○	

○—○: Indicates continuity

2. If not as specified, replace the combination switch.

COMBINATION SWITCH

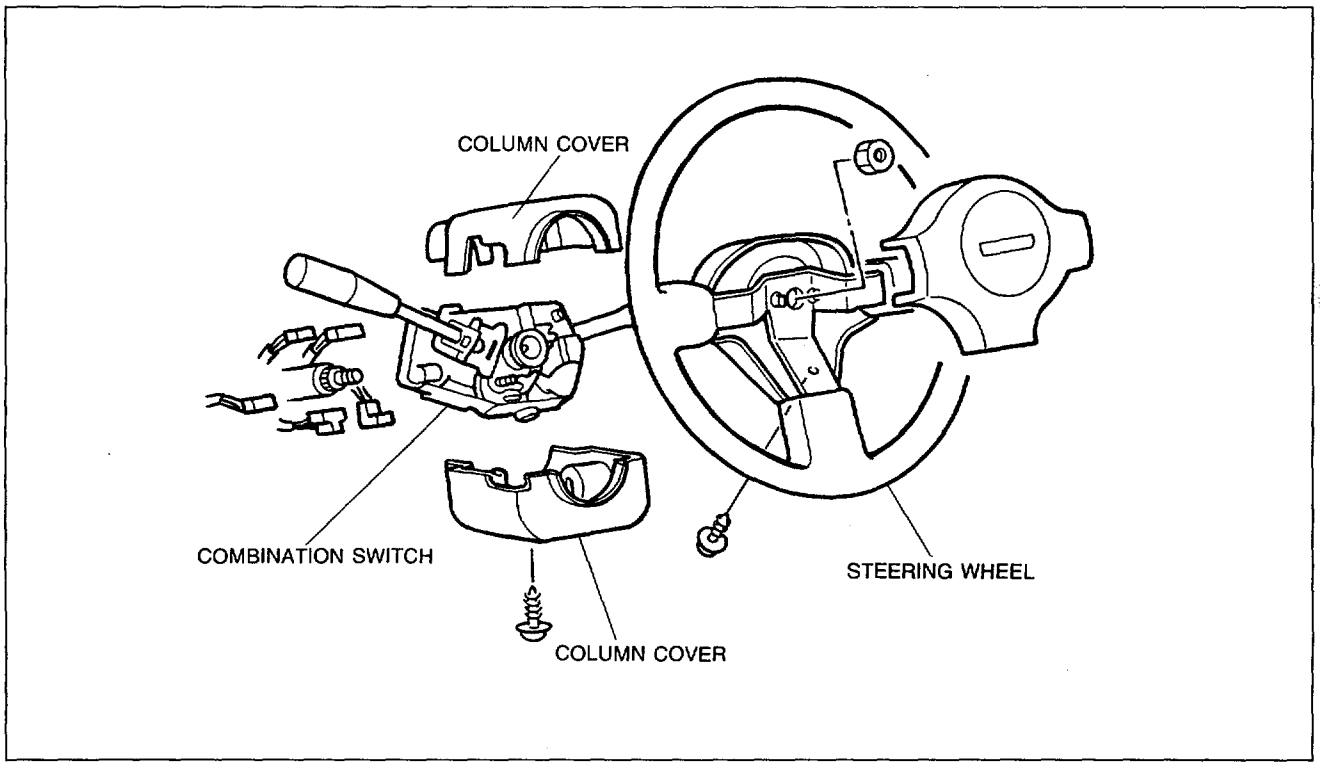
Removal / Installation

Caution (U.S. spec.)

- **Before removing the clock spring connector, disconnect the negative battery cable.**
- **Before installing the steering wheel, reset the clock spring connector. (Refer to page T–22.)**

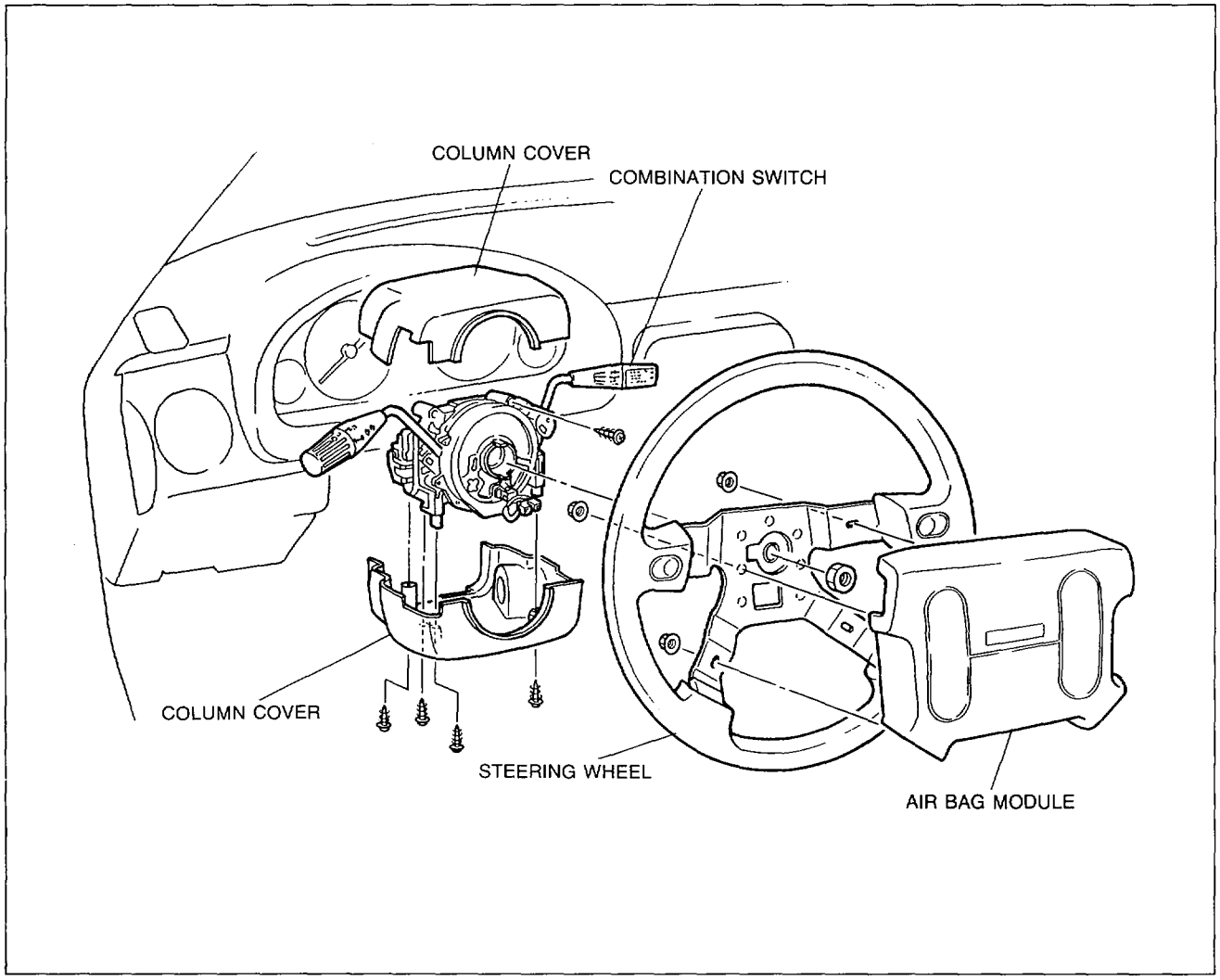
Remove and install as shown in the figure.

Canada spec.

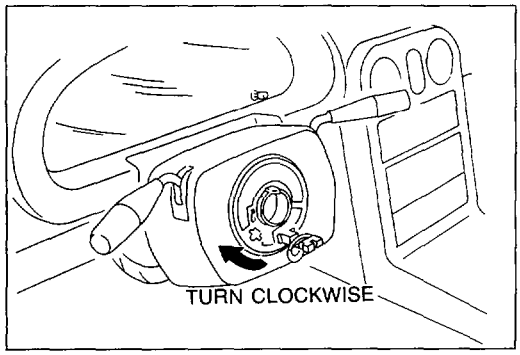


05U0TX-034

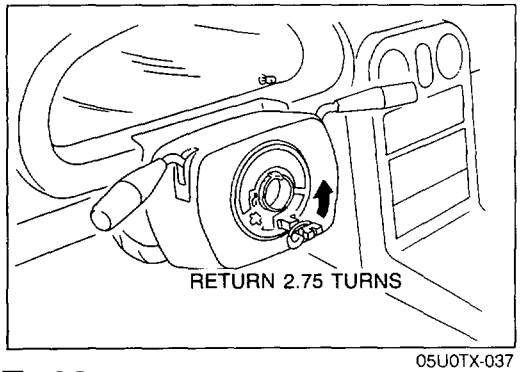
U.S. spec.



05U0TX-035



15U0TX-010



05U0TX-037

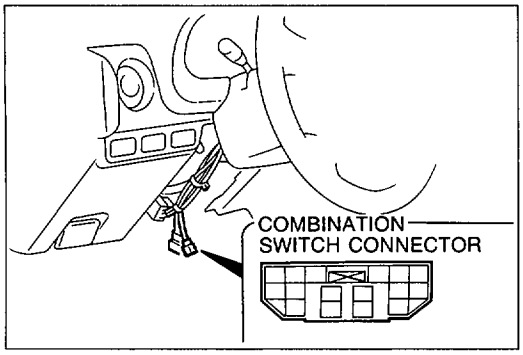
Clock spring connector adjustment

1. Set the front wheels straight ahead.
2. Turn the clock spring connector clockwise until it stops.

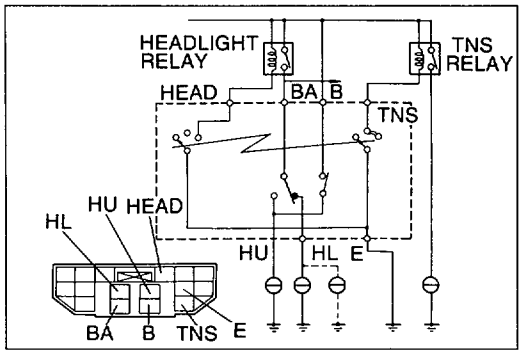
Caution

- **Do not force the front wheels straight ahead.**

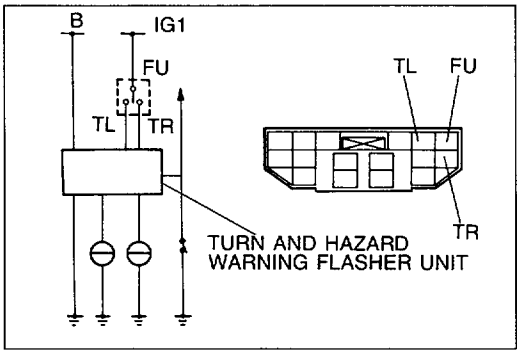
3. Return the connector 2.75 turns.
4. Align the marks on the clock spring connector and the outer housing.



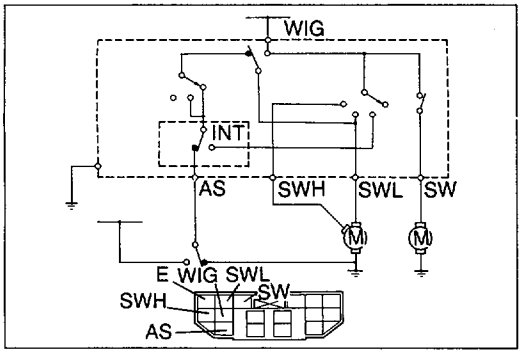
05U0TX-038



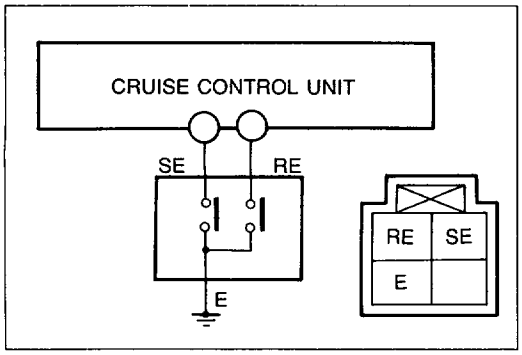
05U0TX-039



05U0TX-040



05U0TX-041



05U0TX-042

Inspection

U.S. spec.

1. Disconnect the negative battery cable.
2. Remove the knee protector.
3. Disconnect the combination switch connector.
4. Check the continuity or the resistance between the terminals described with an ohmmeter.
5. If the continuity or resistance is not as specified, replace the combination switch as an assembly.

Lights, dimmer, and passing switch

Position		Terminal						
		E	HL	HU	TNS	HEAD	BA	B
Headlight	Low beam	○				○		
		○			○			
			○				○	
	High beam	○				○		
		○			○			
				○			○	
Passing				○				○
Tail, Parking		○			○			

○—○: Indicates continuity

Turn signal switch

Switch	Terminal		
	FU	TL	TR
Left	○	○	
Right	○		○

○—○: Indicates continuity

Windshield wiper and washer switch

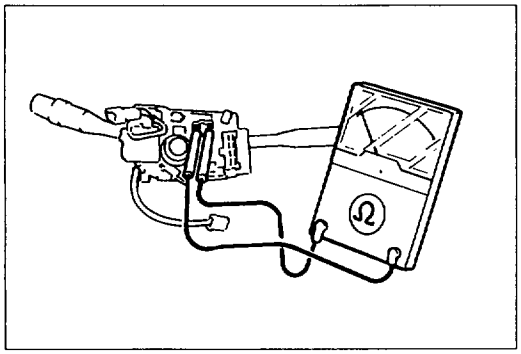
Position	Terminal (One touch)	AS	WIG	SWL	SWH	INT	SW
Wiper switch	OFF	○		○			
	ON		○	○			
	INT	○		○			
			○			○	
	I (Low)		○	○			
	II (High)		○		○		
Washer switch ON			○				○

○—○: Indicates continuity

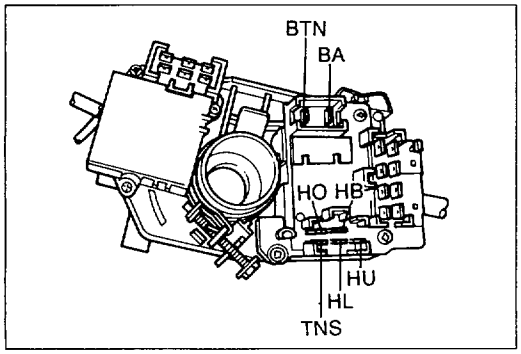
Cruise control switch

Position	Terminal		
	SE	RE	E
SET/COAST	○		○
RESUME/ACCEL		○	○

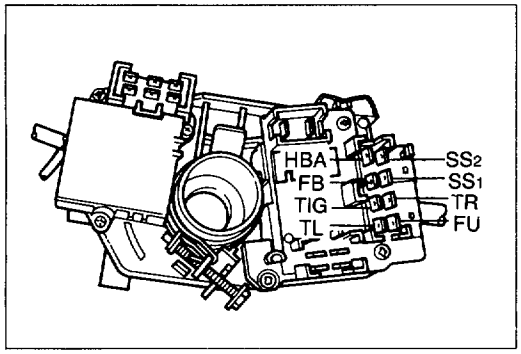
○—○: Indicates continuity



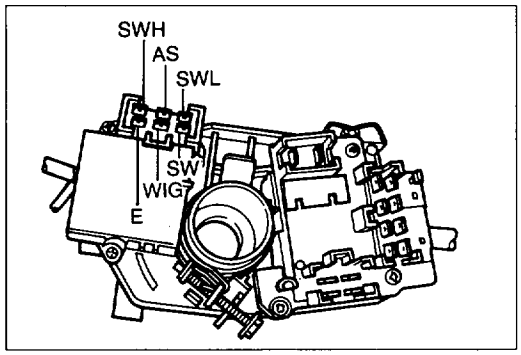
05U0TX-043



9MU0TX-046



9MU0TX-047



05U0TX-044

Canada spec.

1. Check the continuity or resistance between the terminals described.
2. If the continuity or resistance is not as specified, replace the combination switch.

Lights, dimmer, and passing switch

Position \ Terminal		HB	HL	HU	BA	BTN	TNS
Headlight	Low beam	○—○			○	○—○	
	High beam	○		○	○	○—○	
Passing				○—○			
Tail, Parking						○—○	

○—○: Indicates continuity

Turn signal switch

Position \ Terminal	FU	TL	TR
Left	○	○	
Right	○		○

○—○: Indicates continuity

Windshield wiper and washer switch

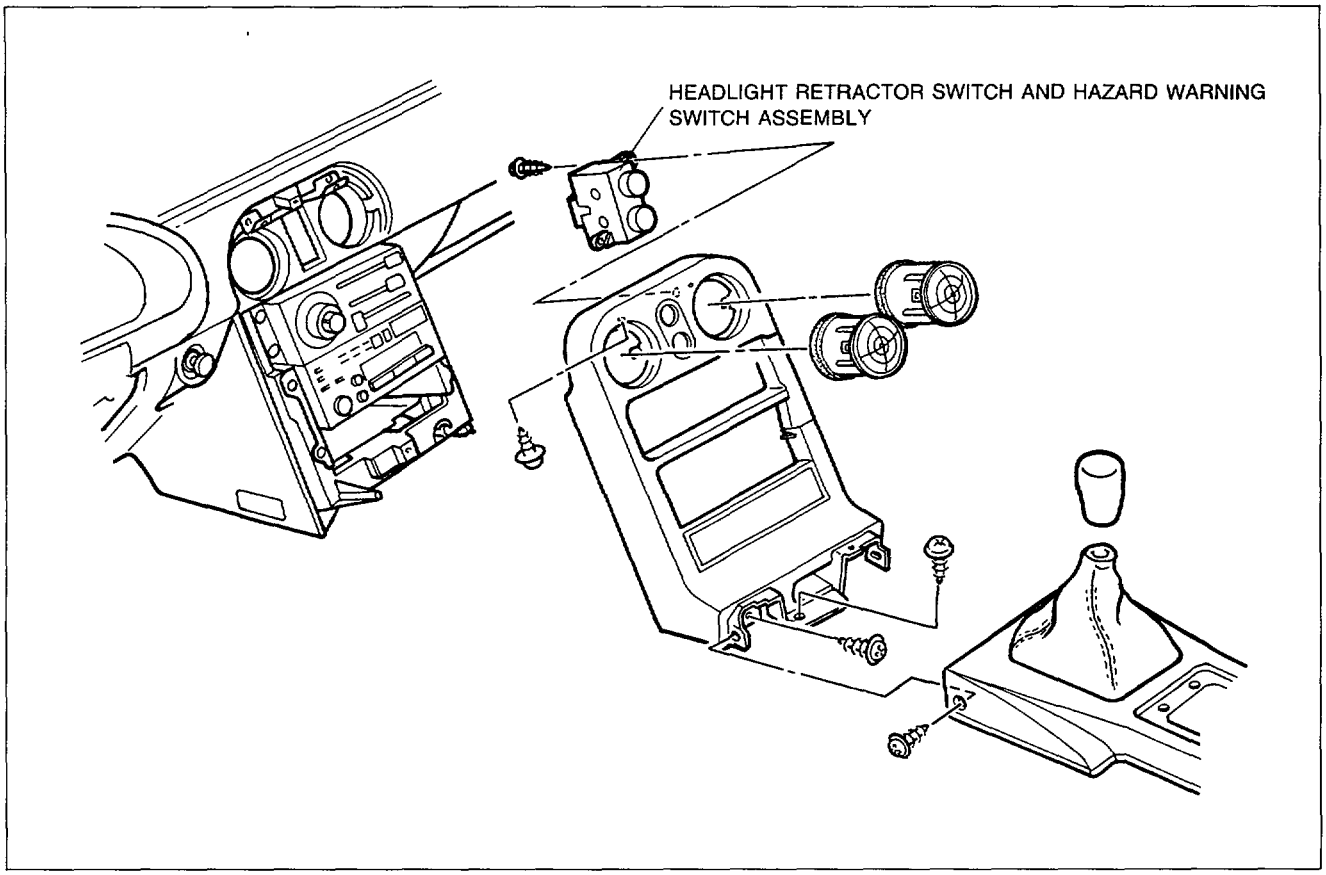
Position \ Terminal		One touch	AS	WIG	SWL	SWH	E	SW
Wiper switch	OFF	OFF	○		○			
		ON			○		○	
	INT				○		○	
	I (Low)				○		○	
	II (High)					○	○	
Washer switch ON							○—○	

○—○: Indicates continuity

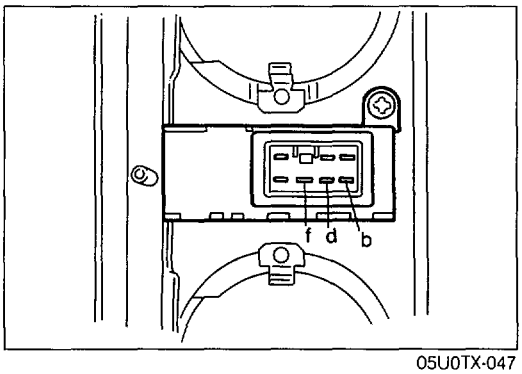
HEADLIGHT RETRACTOR SWITCH AND HAZARD WARNING SWITCH ASSEMBLY

Removal / Installation

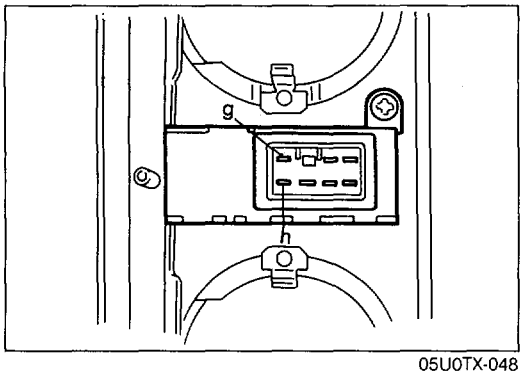
Remove and install as shown in the figure



05U0TX-046



05U0TX-047



05U0TX-048

Inspection

Headlight retractor switch

1. Remove the retractor switch.
2. Check for continuity between terminals of the switch.

Switch	Terminal		
	b	d	f
Off	○		○
On		○	○

○—○: Indicates continuity

3. If not as specified, replace the retractor and hazard switch as an assembly.

Hazard warning switch

1. Remove the hazard switch.
2. Check continuity between terminals of the switch.

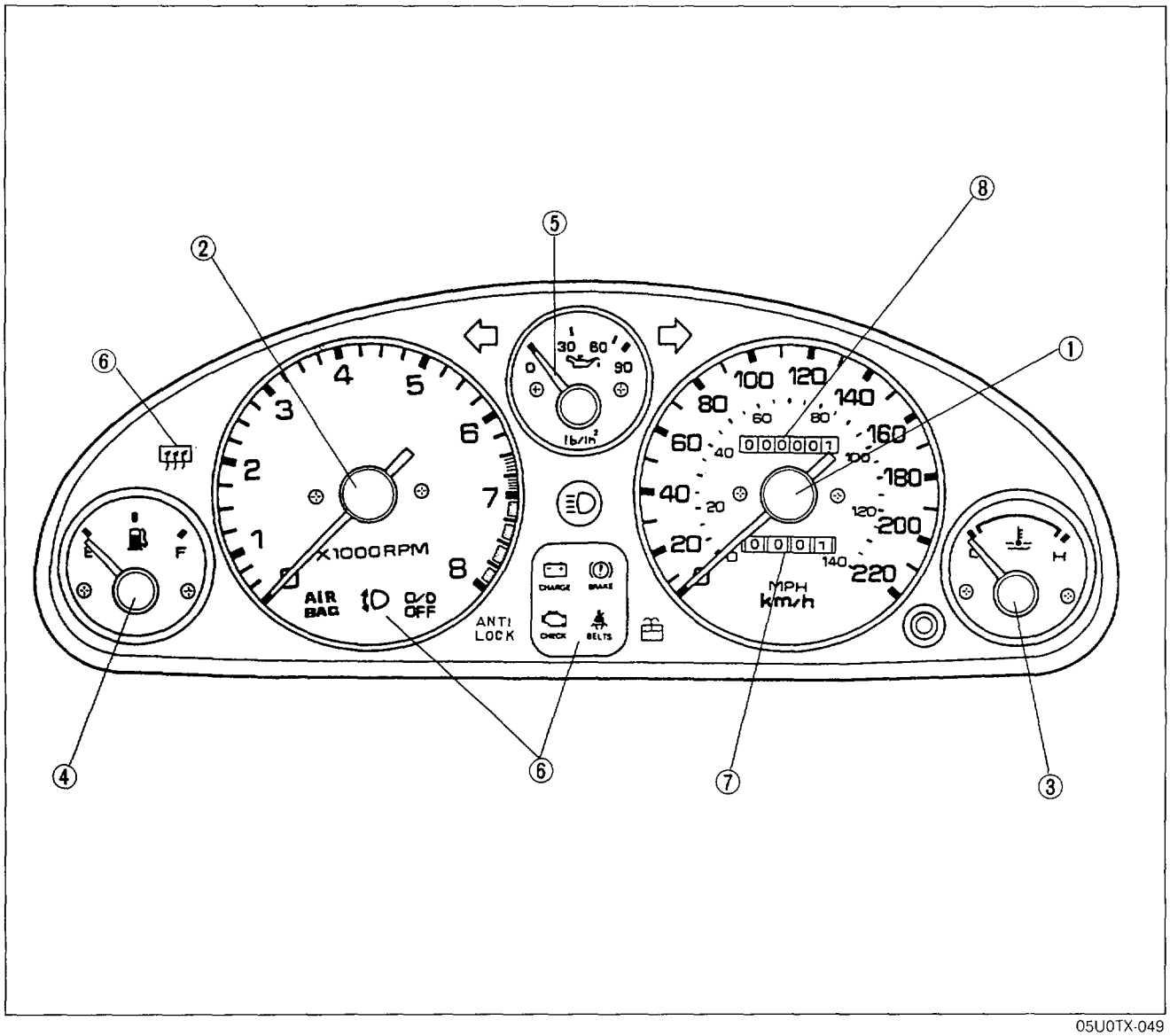
Switch	Terminal	
	g	h
On	○	○
Off		

○—○: Indicates continuity

3. If not as specified, replace the hazard and retractor switch as an assembly.

INSTRUMENT CLUSTER (METER)

STRUCTURAL VIEW



05U0TX-049

1. Speedometer
2. Tachometer
3. Water temperature gauge
4. Fuel gauge
5. Oil pressure gauge
6. Warning and indicator lamps
7. Trip meter
8. Odometer

DESCRIPTION

Speedometer

Two scales are shown on the speedometer face. The main scale for U.S. specification vehicles is MPH (0—130 MPH); the main scale for Canada specification vehicles is KM/H (0—210 KM/H). The odometer indication is the same as the main scale.

Tachometer

The tachometer has a RED STRIPED ZONE (6,500—7,000 rpm) that indicates momentary allowable engine speed. The engine should not be operated in the RED ZONE (7,000—8,000 rpm).

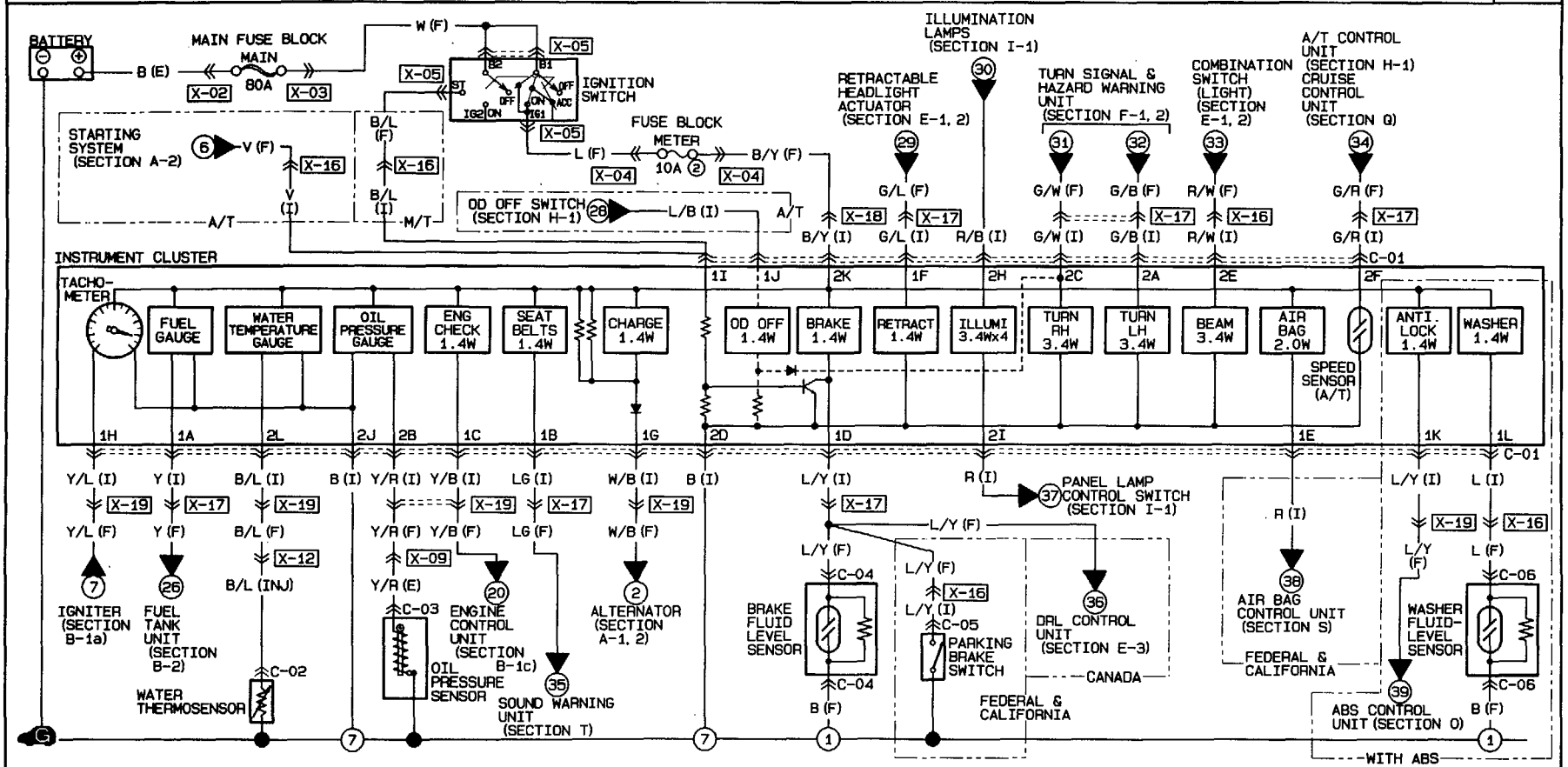
Fuel Gauge

The fuel gauge continues to indicate the amount of fuel remaining in the fuel tank after the ignition switch has been turned OFF.

05U0TX-050

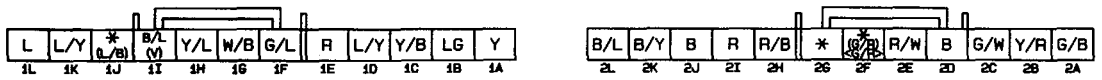
■ INSTRUMENT CLUSTER

C

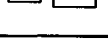


C-01 INSTRUMENT CLUSTER (I)

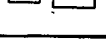
( ) ... A/T
< > ... WITH CRUISE CONTROL



C-02 WATER THERMOSENSOR (INJ)



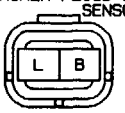
C-03 OIL PRESSURE SENSOR (E)



C-04 BRAKE FLUID LEVEL SENSOR (F)

C-05 PARKING BRAKE SWITCH (I)

C-06 WASHER FLUID-LEVEL SENSOR (F)

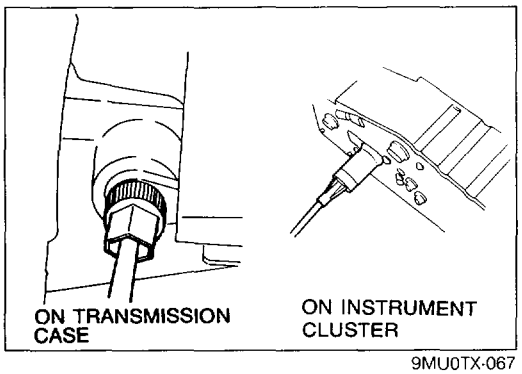


WITH ABS

TROUBLESHOOTING

Symptom: Speedometer does not operate or indication is incorrect.

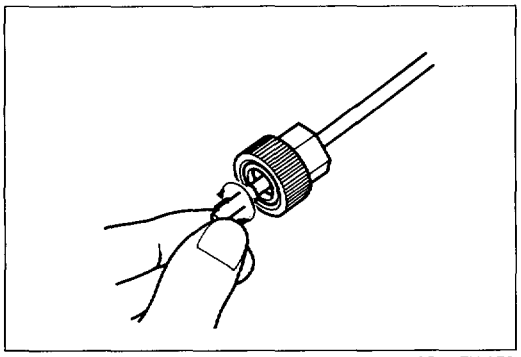
05U0TX-278



9MU0TX-067

Step 1

1. Verify that the speedometer cable is connected properly.
2. If the connections are OK, go to Step 2.



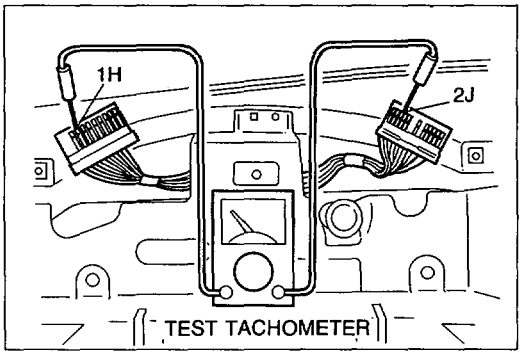
05U0TX-279

Step 2 — Check speedometer cable

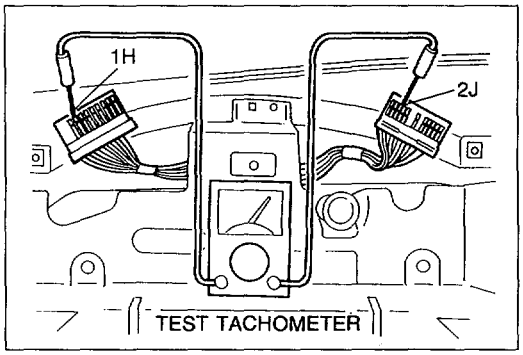
1. Disconnect the speedometer cable from the instrument cluster and transmission case.
2. Verify that the cable and gear spin easily when turned by hand.
3. If the cable or gear is stiff, replace as necessary.
4. If the speedometer cable and gear are OK, replace the speedometer.

Symptom: Tachometer does not operate.

9MU0TX-069



05U0TX-280



9MU0TX-071

Step 1 — Preparation

1. Remove the instrument cluster. (Refer to page T–33.)
2. Connect a test tachometer between terminals 1H and 2J of the harness side connector.

Step 2

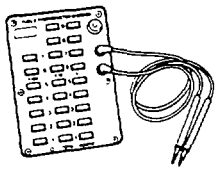
1. Start the engine.
2. Check that the test tachometer indicates engine speed.

Indicates rpm	Action
Yes	Replace tachometer
No	Repair wiring harness (Instrument cluster — Igniter)

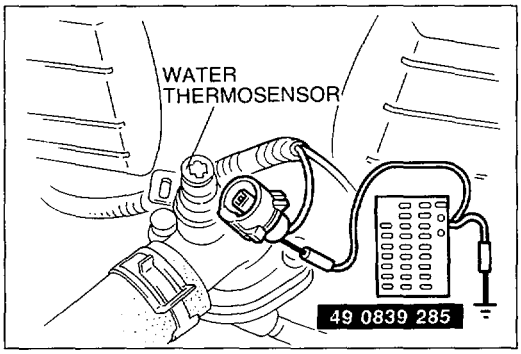
Symptom: Water temperature gauge does not operate.

05U0TX-466

Preparation
SST

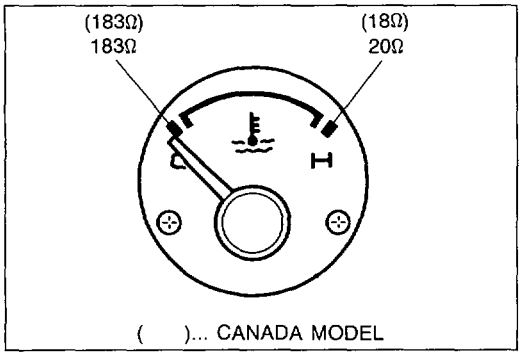
49 0839 285 Checker, fuel and thermometer		For inspection of gauges

05U0TX-052



05U0TX-456

Step 1
1. Disconnect the connector from the water thermosensor.
2. Connect the red lead of the **SST** to the connector, and the black lead to a body ground.

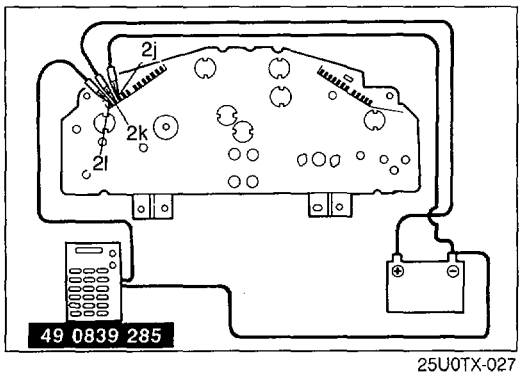


05U0TX-457

3. Set the **SST** to the resistance values shown in the figure.
4. Turn the ignition switch ON, and check that the needle indicates the correct values.

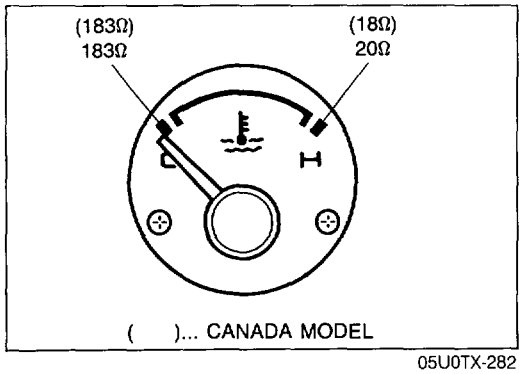
Gauge displays correct	Action
Yes	Replace water thermosensor
No	Go to Step 2

Caution
- **Continue the above checks for at least two minutes each to correctly judge the condition.**
- **The allowable indication error is twice the width of the needle.**



25U0TX-027

Step 2
1. Remove the instrument cluster. (Refer to page T–33.)
2. Apply battery voltage to terminal 2k and ground terminal 2j.
3. Connect the red lead of the **SST** to terminal 2l and the black lead to a ground.



05U0TX-282

4. Set the **SST** to the resistance values shown in the figure.
5. Verify that the needle indicates the correct values.

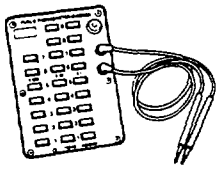
Indicates correct	Action
Yes	Repair wiring harness (Instrument cluster — Water thermosensor)
No	Replace water temperature gauge

Caution
- **Continue the above checks for at least two minutes each to correctly judge the condition.**
- **The allowable indication error is twice the width of the needle.**

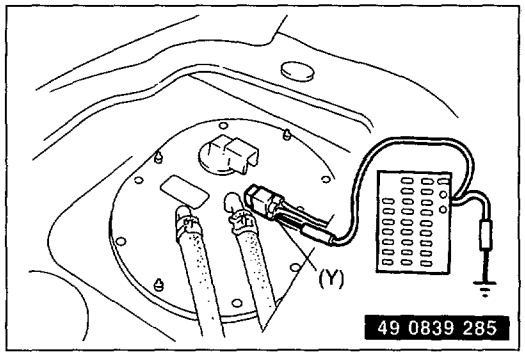
Symptom: Fuel gauge does not operate.

05U0TX-467

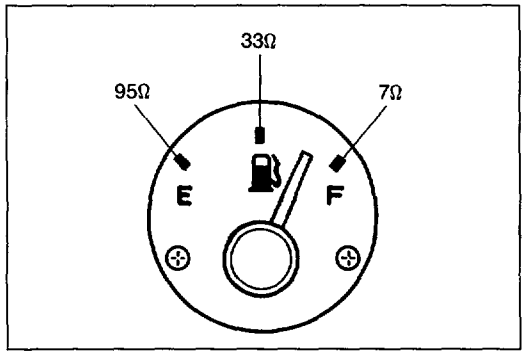
Preparation
SST

49 0839 285 Checker, fuel and thermometer		For inspection of gauges

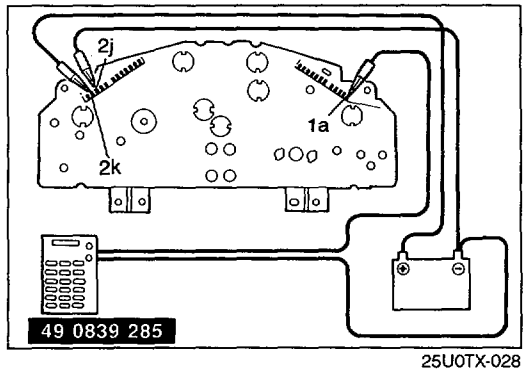
05U0TX-052



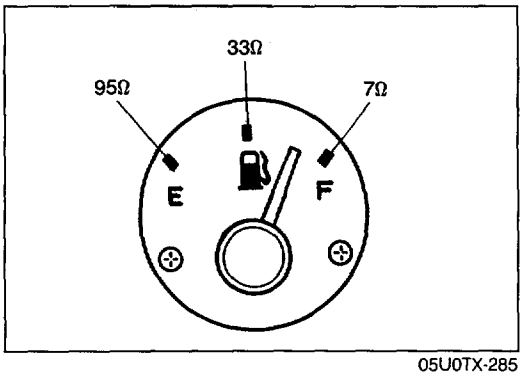
05U0TX-283



9MU0TX-079



25U0TX-028



05U0TX-285

Step 1
1. Disconnect the connector from the fuel tank sender unit.
2. Connect the red lead of the **SST** to terminal-wire (Y) and the black lead to a body ground.
3. Set the **SST** to the resistance values shown in the figure.
4. Turn the ignition switch ON, and verify that the needle indicates the correct values.

Indicates correct	Action
Yes	Replace fuel gauge sender unit (in fuel tank)
No	Go to Step 2

Caution
- **Continue the above checks for at least two minutes each to correctly judge the condition.**
- **The allowable indication error is twice the width of the needle.**

Step 2
1. Remove the instrument cluster. (Refer to page T–33.)
2. Apply battery voltage to terminal 2k and ground terminal 2j.
3. Connect the red lead of the **SST** to terminal 1a and the black lead to a ground.
4. Set the **SST** to the resistance values shown in the figure.
5. Verify that the needle indicates the correct values.

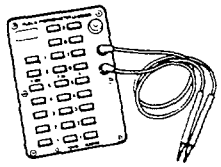
Indicates correct	Action
Yes	Repair wiring harness (Instrument cluster — fuel gauge sender unit)
No	Replace fuel gauge

Caution
- **Continue the above checks for at least two minutes each to correctly judge the condition.**
- **The allowable indication error is twice the width of the needle.**

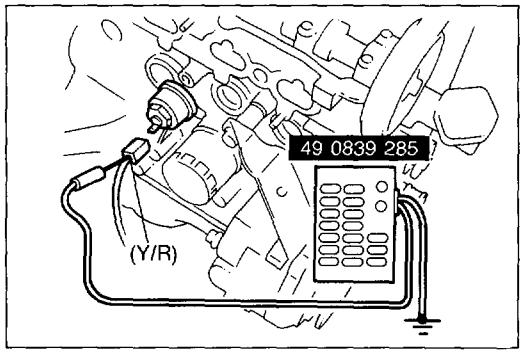
Symptom: Oil pressure gauge does not operate.

05U0TX-468

Preparation
SST

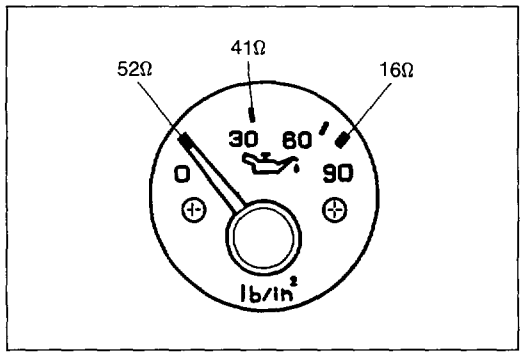
49 0839 285 Checker, fuel and thermometer		For inspection of gauges

05U0TX-052



05U0TX-055

Step 1
1. Disconnect the connector from the oil pressure sensor.
2. Connect the red lead of the **SST** to terminal-wire (Y/R) and the black lead to a body ground.

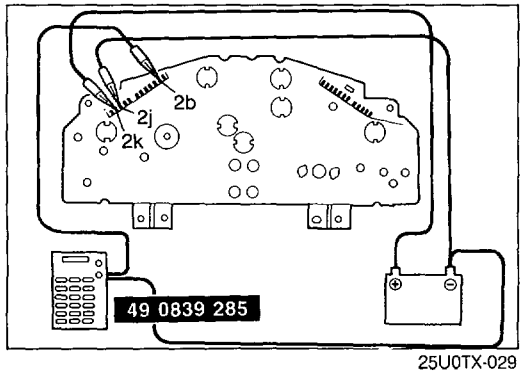


05U0TX-056

3. Set the **SST** to the resistance values shown in the figure.
4. Turn the ignition switch ON, and verify that the needle indicates the correct values.

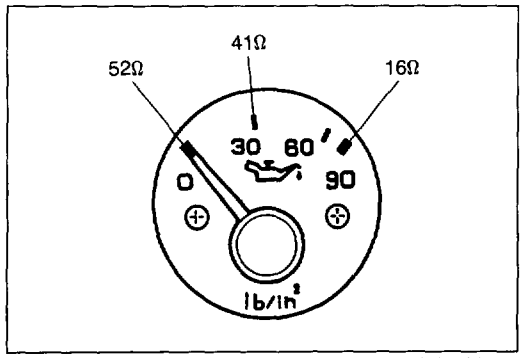
Indicates correct	Action
Yes	Replace oil pressure sensor
No	Go to Step 2

Caution
- **Continue the above checks for at least two minutes each to correctly judge the condition.**
- **The allowable indication error is twice the width of the needle.**



25U0TX-029

Step 2
1. Remove the instrument cluster. (Refer to page T–33.)
2. Apply battery voltage to terminal 2k and ground terminal 2j.
3. Connect the red lead of the **SST** to terminal 2b and the black lead to a ground.



05U0TX-057

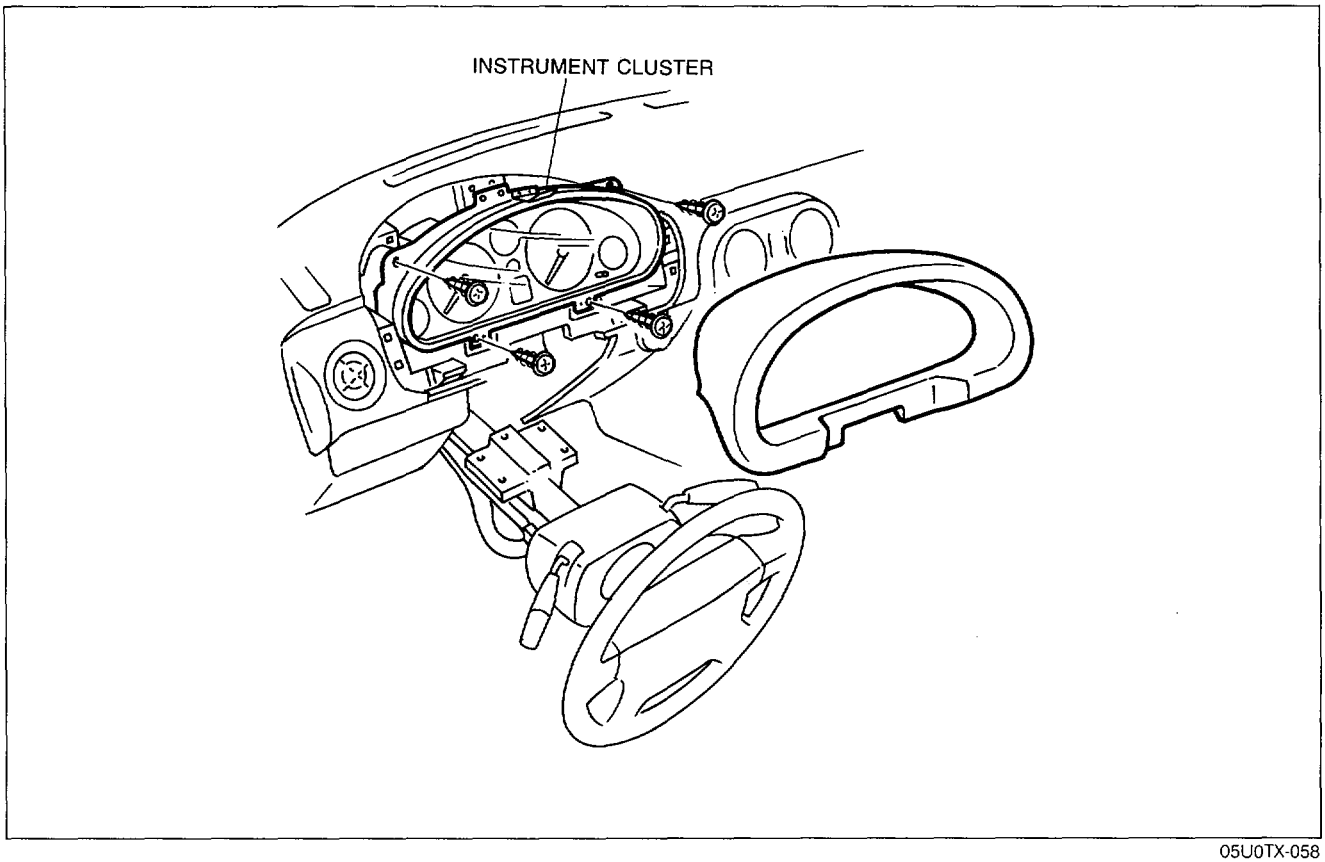
4. Set the **SST** to the resistance values shown in the figure.
5. Verify that the needle indicates the correct values.

Indicates correct	Action
Yes	Repair wiring harness (Instrument cluster — oil pressure sensor)
No	Replace oil pressure gauge

Caution
- **Continue the above checks for at least two minutes each to correctly judge the condition.**
- **The allowable indication error is twice the width of the needle.**

REMOVAL / INSTALLATION

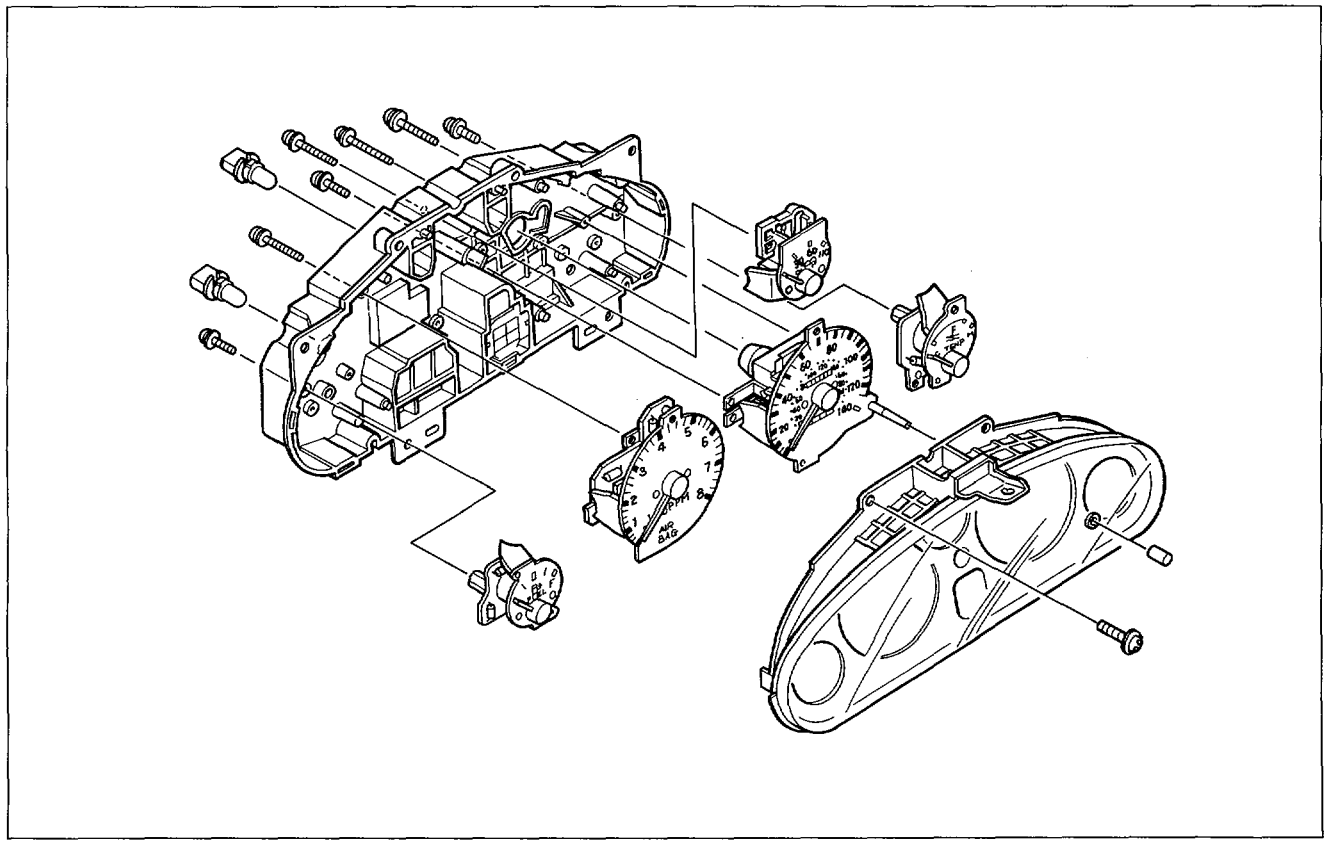
Remove and install as shown in the figure.



05U0TX-058

DISASSEMBLY / ASSEMBLY

Disassemble and assemble as shown in the figure.



05U0TX-059

Standard indication (km/h)	Allowable range (km/h)
40	40— 43
80	80— 84
120	120—126

Standard indication (mph)	Allowable range (mph)
30	30—32
50	50—53
80	80—84

05U0TX-060

Standard Indication (rpm)	Allowable range (rpm)
2,000	1,850—2,150
3,000	2,760—3,280
4,000	3,700—4,300
5,000	4,640—5,360

05U0TX-061

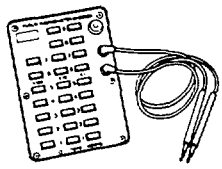
SPEEDOMETER
Inspection
1. Using a speedometer tester, check the speedometer for allowable indication error, and check the operation of the odometer. Replace if necessary.
2. Check the speedometer for fluctuation and/or abnormal noise.

Caution
- **If significant fluctuation occurs or the speedometer does not move at all, remove the speedometer cable. If it is normal, replace the speedometer assembly.**
- **Tire wear and improper inflation will increase speedometer error.**

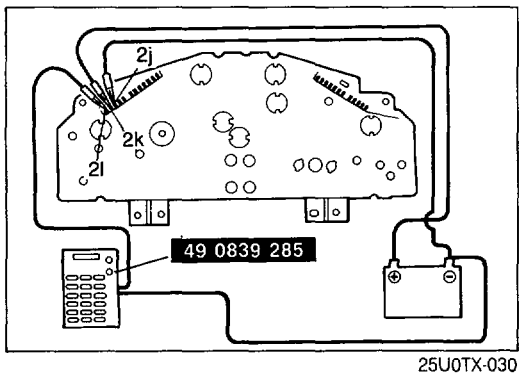
TACHOMETER
Inspection
1. Connect a test tachometer to the engine, and start the engine.
2. Check the tachometer for allowable indication error. Replace if necessary.

Caution
- **When removing or installing the tachometer, do not drop it or subject it to sharp shocks.**

WATER TEMPERATURE GAUGE
Inspection
Preparation
SST

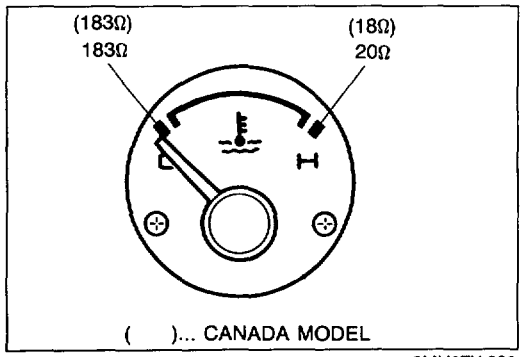
49 0839 285 Checker, fuel and thermometer		For inspection of gauges

05U0TX-062



25U0TX-030

1. Remove the instrument cluster. (Refer to page T–33.)
2. Apply battery voltage to terminal 2k and ground terminal 2j.
3. Connect the red lead of the **SST** to terminal 2l and the black lead to a ground.

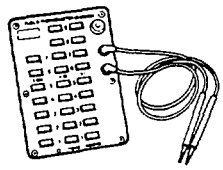


9MU0TX-089

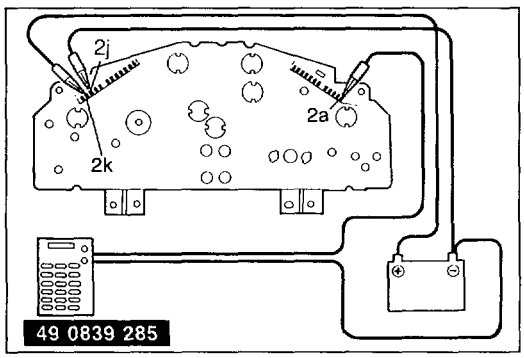
4. Set the **SST** to the resistance values shown in the figure.
5. Turn the ignition switch ON, and verify that the needle indicates the correct values.

Caution
- **Continue the above checks for at least two minutes each to correctly judge the condition.**
- **The allowable indication error is twice the width of the needle.**

FUEL GAUGE
Inspection
Preparation
SST

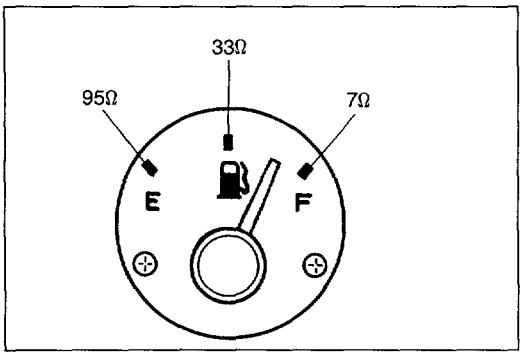
49 0839 285 Checker, fuel and thermometer		For inspection of gauges

05U0TX-064



25U0TX-031

1. Remove the instrument cluster. (Refer to page T–33.)
2. Apply battery voltage to terminal 2k and ground terminal 2j.
3. Connect the red lead of the **SST** to terminal 1a and the black lead to a ground.

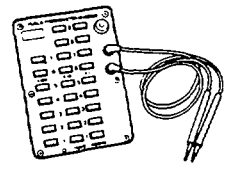


9MU0TX-087

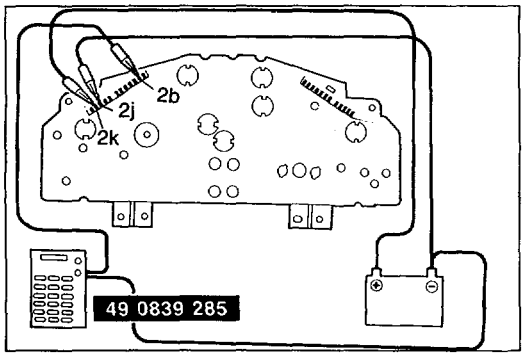
4. Set the **SST** to the resistance values shown in the figure.
5. Verify that the needle indicates the correct values.

Caution
- **Continue the above checks for at least two minutes each to correctly judge the condition.**
- **The allowable indication error is twice the width of the needle.**

OIL PRESSURE GAUGE
Inspection
Preparation
SST

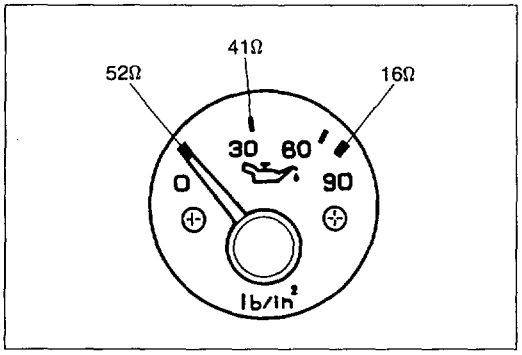
49 0839 285 Checker, fuel and thermometer		For inspection of gauges

05U0TX-066



25U0TX-032

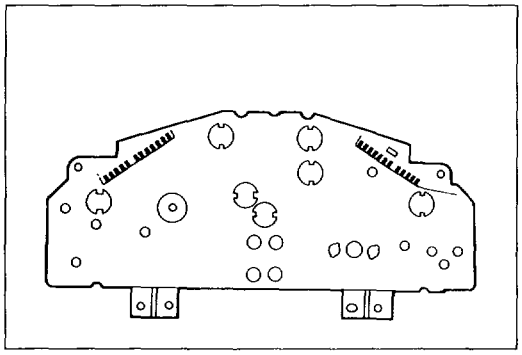
1. Remove the instrument cluster. (Refer to page T–33.)
2. Apply battery voltage to terminal 2k and ground terminal 2j.
3. Connect the red lead of the **SST** to terminal 2b and the black lead to a ground.



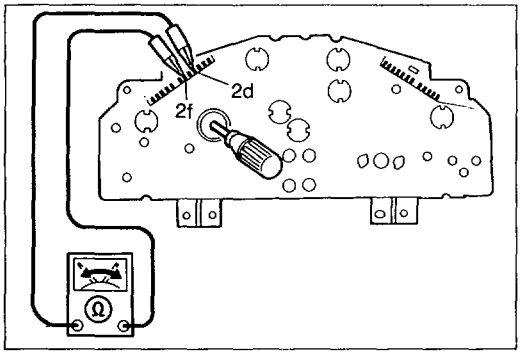
9MU0TX-087

4. Set the **SST** to the resistance values shown in the figure.
5. Verify that the needle indicates the correct values.

Caution
- **Continue the above checks for at least two minutes each to correctly judge the condition.**
- **The allowable indication error is twice the width of the needle.**


05U0TX-067

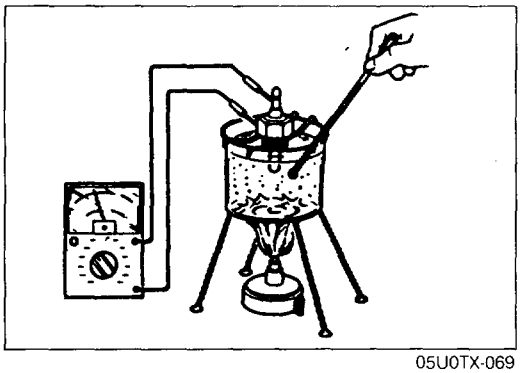
PRINTED CIRCUIT
Inspection
1. Remove the instrument cluster. (Refer to page T–33.)
2. Check the printed circuit for damage or oxidization.
3. If necessary, replace the printed circuit.



05U0TX-287

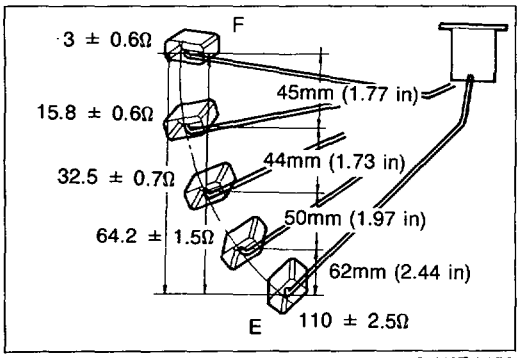
SPEED SENSOR
Inspection
1. Remove the instrument cluster.
2. Check continuity between terminals 2d and 2f while rotating the speedometer cable shaft.
3. If the correct number of pulsations fail to occur during each shaft rotation, replace the speed sensor. (Refer to page T–33.)

Pulsation: 4/shaft rotation


05U0TX-069

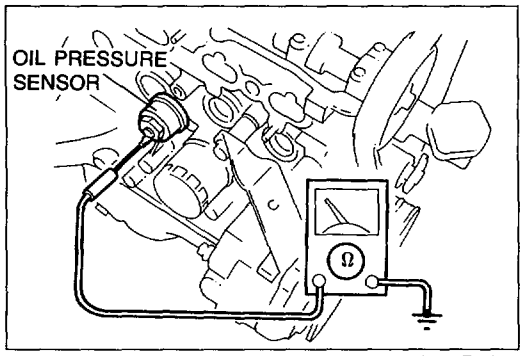
WATER THERMOSENSOR
Inspection
1. Remove the sensor.
2. Place the sensor and a thermometer in water.
3. Heat the water gradually, and measure the resistance of the sensor with an ohmmeter.
4. If the resistance is not as specified, replace the sensor.

Resistance: 190—260Ω at 50°C (122°F)

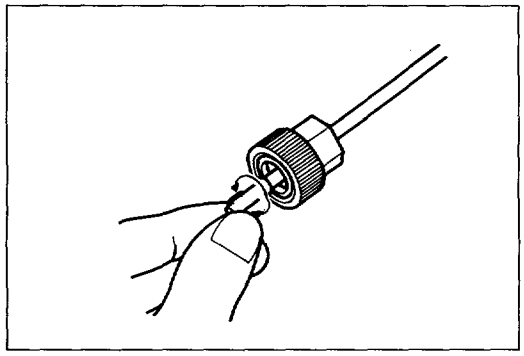


05U0TX-070

FUEL GAUGE SENDER UNIT (IN FUEL TANK)
Inspection
1. Remove the fuel tank gauge sender unit. (Refer to Section F.)
2. Disconnect the fuel gauge sender unit connector.
3. Check resistance between terminals a and b while slowly moving the unit arm from point F to point E.
4. If not correct, replace the fuel gauge sender unit.



05U0TX-071



05U0TX-072

OIL PRESSURE SENSOR

Inspection

1. Disconnect the oil pressure sensor connector.
2. Measure resistance between the oil pressure sensor and a body ground as shown.

Condition	Resistance
Engine stopped	110—130Ω
Engine running	13— 55Ω

3. If not as specified, replace the oil pressure sensor.

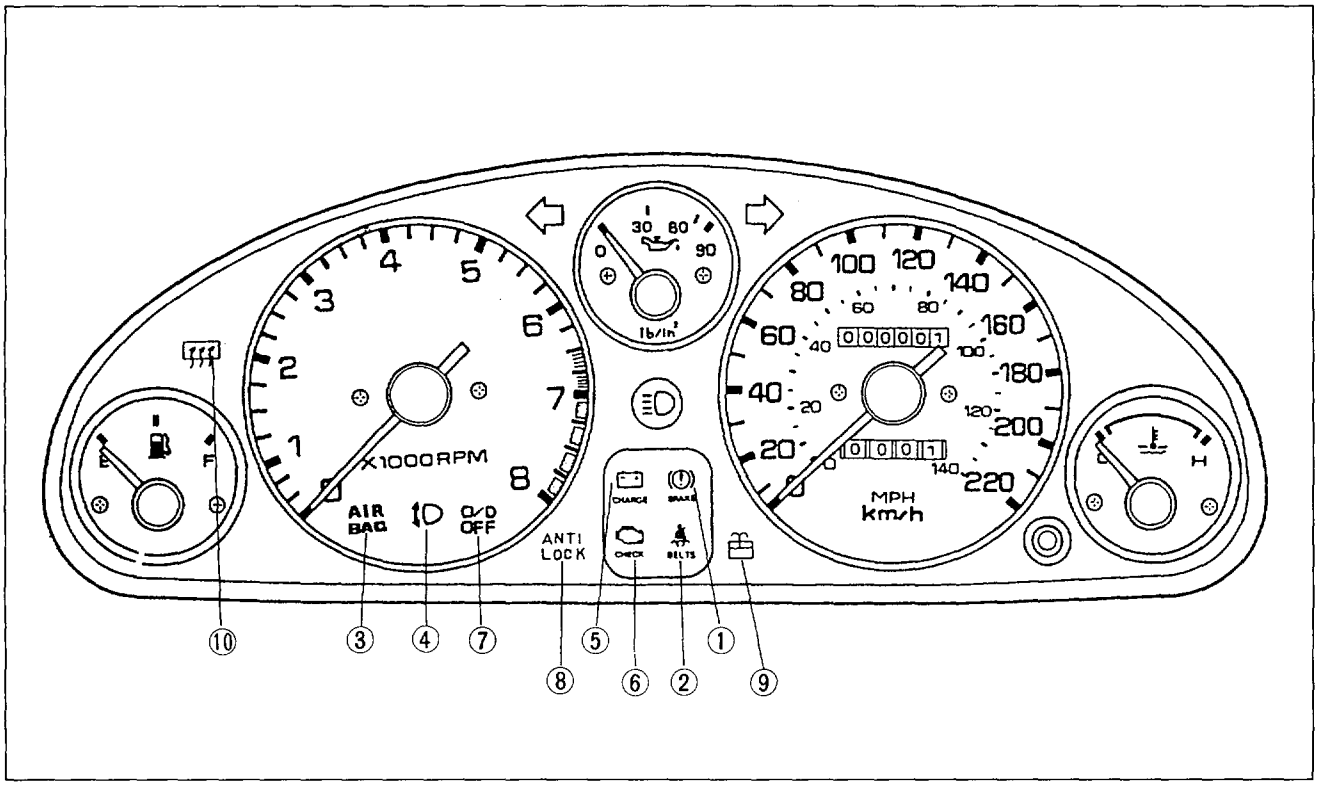
SPEEDOMETER CABLE

Inspection

1. Disconnect the speedometer cable from the instrument cluster and transmission case.
2. Verify that the cable and gear spin easily when turned by hand.
3. If the cable or gear is stiff, replace as necessary.

WARNING LAMP AND SENDER UNIT

STRUCTURAL VIEW



25U0TX-033

1. Brake warning lamp
2. Seat belt warning lamp
3. Air bag warning lamp
4. Headlight retractor motor indicator lamp
5. Alternator warning lamp
6. MIL (Malfunction indicator lamp)
7. O/D OFF indicator lamp
8. Anti-lock brake system warning lamp
9. Washer level indicator lamp
10. Rear window defroster indicator lamp

Note

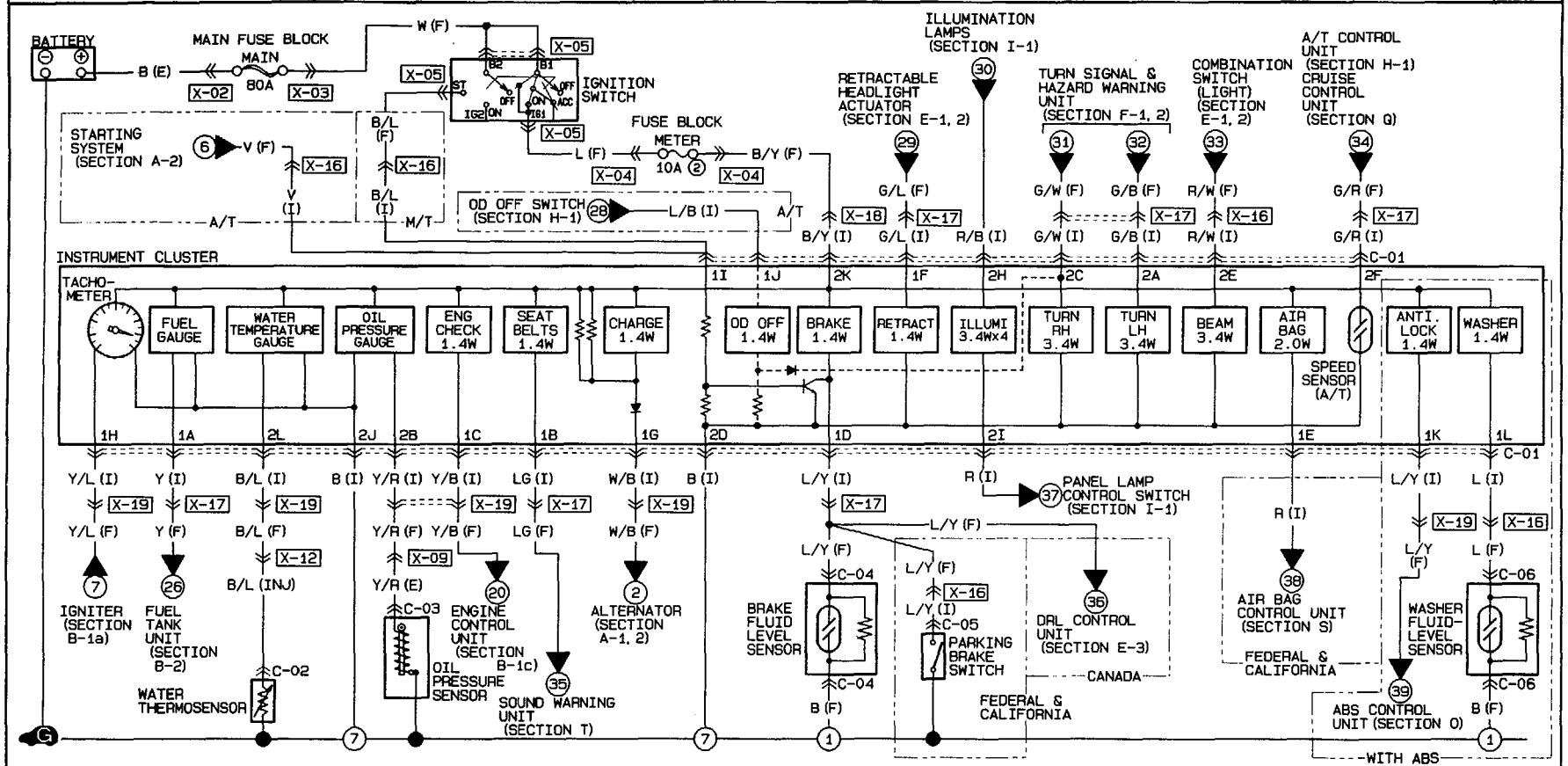
- **Refer to the following tables concerning warning lamps information.**

Warning indicator lamp	Reference page and Section
Air bag	T–150
Headlight retractor	T–53
Alternator	Section G
MIL (Malfunction indicator lamp)	Section F
O/D OFF	Section K
Anti-lock brake system	Section P
Washer level	T–43

25U0TX-034

■ INSTRUMENT CLUSTER

C



C-01 INSTRUMENT CLUSTER (I)

( ) ... A/T
< > ... WITH CRUISE CONTROL

1L	1K	1J	1I	1H	1G	1F	1E	1D	1C	1B	1A
L	L/Y	* (L/B)	B/L (V)	Y/L	W/B	G/L	R	L/Y	Y/B	LG	Y

2L	2K	2J	2I	2H	2G	2F	2E	2D	2C	2B	2A
B/L	B/Y	B	R	R/B	* (G/B) <G/R>		R/W	B	G/W	Y/R	G/B

C-02 WATER THERMOSENSOR (INJ)

B/L

C-03 OIL PRESSURE SENSOR (E)

Y/R

C-04 BRAKE FLUID LEVEL SENSOR (F)

L/Y
B

C-05 PARKING BRAKE SWITCH (I)

L/Y

C-06 WASHER FLUID-LEVEL SENSOR (F)

L B

WITH ABS

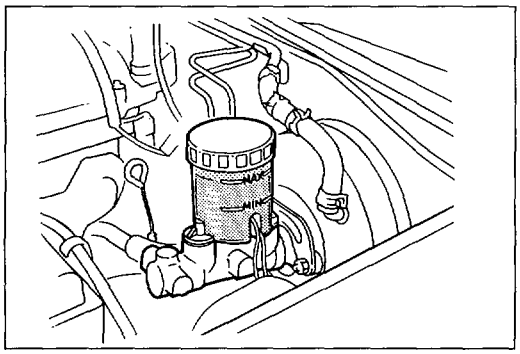
TROUBLESHOOTING

Note
- **Check the METER 10A fuse in the fuse box before troubleshooting. If normal, refer to the following troubleshooting.**

Brake Warning Lamp

Symptom: Brake warning lamp remains illuminated.

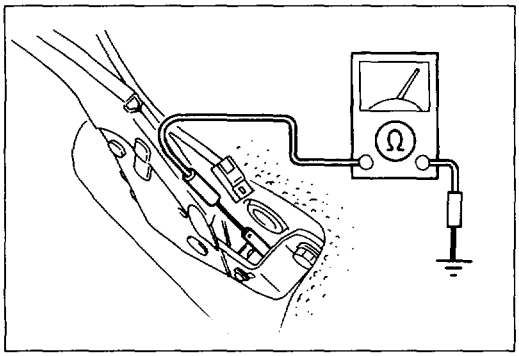
05U0TX-288



05U0TX-289

Step 1 — Check brake fluid level
Check brake fluid level.

Brake fluid level	Action
Below MIN	Check brake system (Refer to Section P)
Above MIN	Go to Step 2

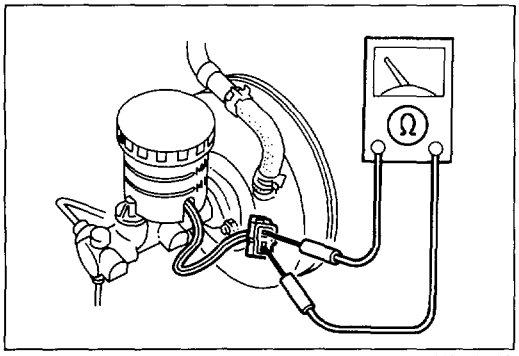


05U0TX-075

Step 2 — Check parking brake switch
1. Disconnect the parking brake switch connector.
2. Check continuity between the terminal of the switch and a body ground.

Lever	Continuity
Pulled one notch	Yes
Released	No

3. If not as specified, adjust or replace the parking brake switch. (Refer to Section P.)
4. If the switch is OK, go to Step 3.



05U0TX-290

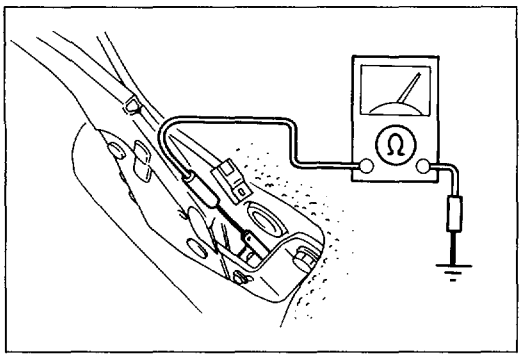
Step 3 — Check brake fluid level sensor
1. Check continuity of the sensor.

Brake fluid level	Continuity
Below MIN	Yes
Above MIN	No

2. If not as specified, replace the level sensor.
3. If the sensor is OK, repair the wiring harness.

Symptom: Brake warning lamp does not come on when parking brake is on. (Ignition switch ON)

9MU0TX-101



05U0TX-291

Remedy

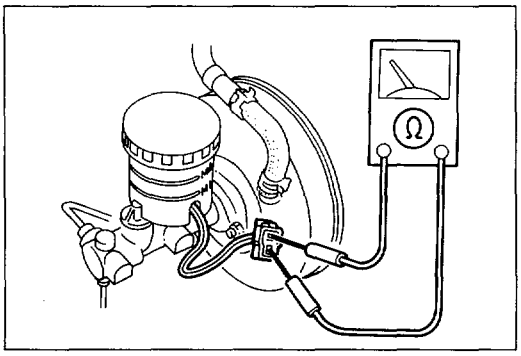
1. Disconnect the parking brake switch connector.
2. Check continuity between the terminal of the switch and a body ground.

Lever	Continuity
Pulled one notch	Yes
Released	No

3. If not as specified, adjust or replace the parking brake switch.
4. If the switch is OK, repair the wiring harness.

Symptom: Brake warning lamp does not come on when brake fluid in reservoir tank is below MIN.

05U0TX-292



05U0TX-293

Remedy

1. Disconnect the brake fluid level sensor connector.
2. Check continuity of the brake fluid level sensor.

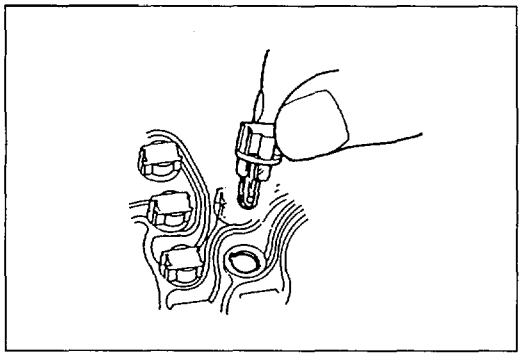
Brake fluid level	Continuity
Below MIN	Yes
Above MIN	No

3. If not as specified, replace the level sensor.
4. If the sensor is OK, repair the wiring harness.

O/D OFF Indicator Lamp

Symptom: O/D off indicator lamp does not illuminate when O/D off switch turned ON.

15U0TX-012



15U0TX-013

Step 1

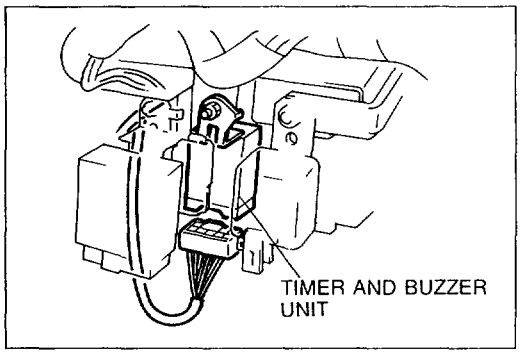
1. Check the bulb of the O/D off indicator lamp.
2. If the bulb is burned out, replace it.

Seat Belt Warning Lamp

Note
- **The seat belt warning lamp is controlled by the timer and buzzer unit.**

Symptom: Seat belt warning lamp remains on six seconds after ignition switch is turned ON. (Timer function does not operate.)

05U0TX-076



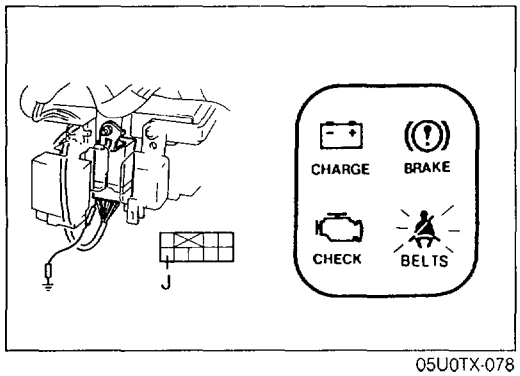
05U0TX-077

Remedy
1. Disconnect the timer and buzzer unit connector.
2. Turn the ignition switch ON, and verify that the seat belt warning lamp illuminates.

Warning lamp illuminates	Action
No	Replace timer and buzzer unit
Yes	Repair wiring harness (Instrument cluster — timer and buzzer unit)

Symptom: Seat belt warning lamp does not illuminate when ignition switch is first turned ON.

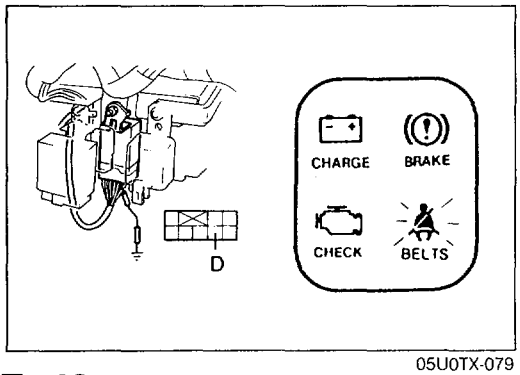
05U0TX-294



05U0TX-078

Step 1
1. Ground terminal J of the timer and buzzer unit connector.
2. Turn the ignition switch ON, and verify that the seat belt warning lamp illuminates.

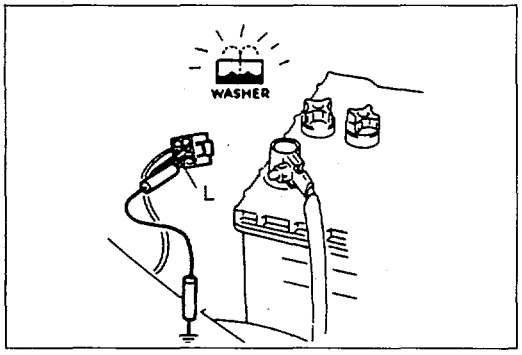
Warning lamp illuminates	Action
No	Go to Step 2
Yes	Repair wiring harness (Timer and buzzer unit—body ground)



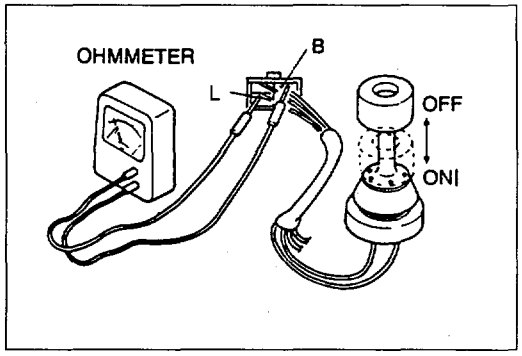
05U0TX-079

Step 2
1. Ground terminal D of the timer and buzzer unit connector.
2. Turn the ignition switch ON, and verify that the seat belt warning lamp illuminates.

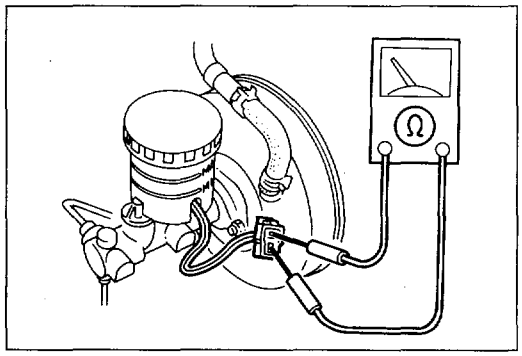
Warning lamp illuminates	Action
Yes	Replace timer and buzzer unit
No	Check bulb of seat belt warning lamp If bulb is OK, repair wiring harness (Instrument cluster—timer and buzzer unit)



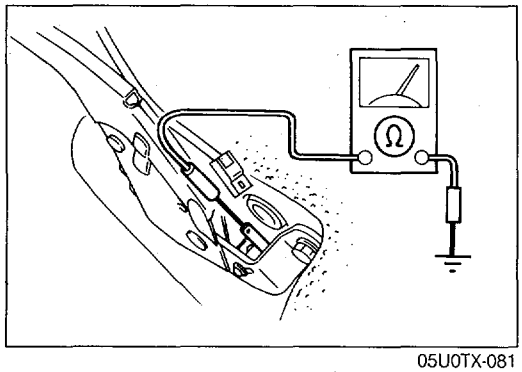
15U0TX-014



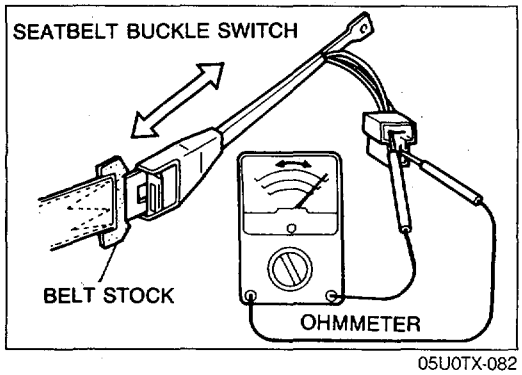
15U0TX-015



05U0TX-080



05U0TX-081



05U0TX-082

Washer Level Indicator

1. Disconnect the connector from the washer level sensor.
2. Jump terminal-wire L (harness side) to a body ground.
3. Start the engine and check that the WASHER indicator illuminates.
4. If there is no illumination, check the bulb, wiring harness, and sensor. Replace or repair as necessary.

Washer Level Sensor

1. Connect the sensor connector (sensor side) to an ohmmeter.
2. Move the sensor float up and down.
3. Verify that there is continuity when the float is at the lowest point.

BRAKE FLUID LEVEL SENSOR

Inspection

1. Check continuity of the sensor.

Float level	Continuity
Below MIN	Yes
Above MIN	No

2. If continuity is not as specified, replace the level sensor.

PARKING BRAKE SWITCH

Inspection

1. Disconnect the parking brake switch connector.
2. Check for continuity between the switch connector and a body ground.

Lever	Continuity
Pulled one notch	Yes
Released	No

3. If continuity is not as specified, adjust or replace the parking brake switch.

SEAT BELT BUCKLE SWITCH

Inspection

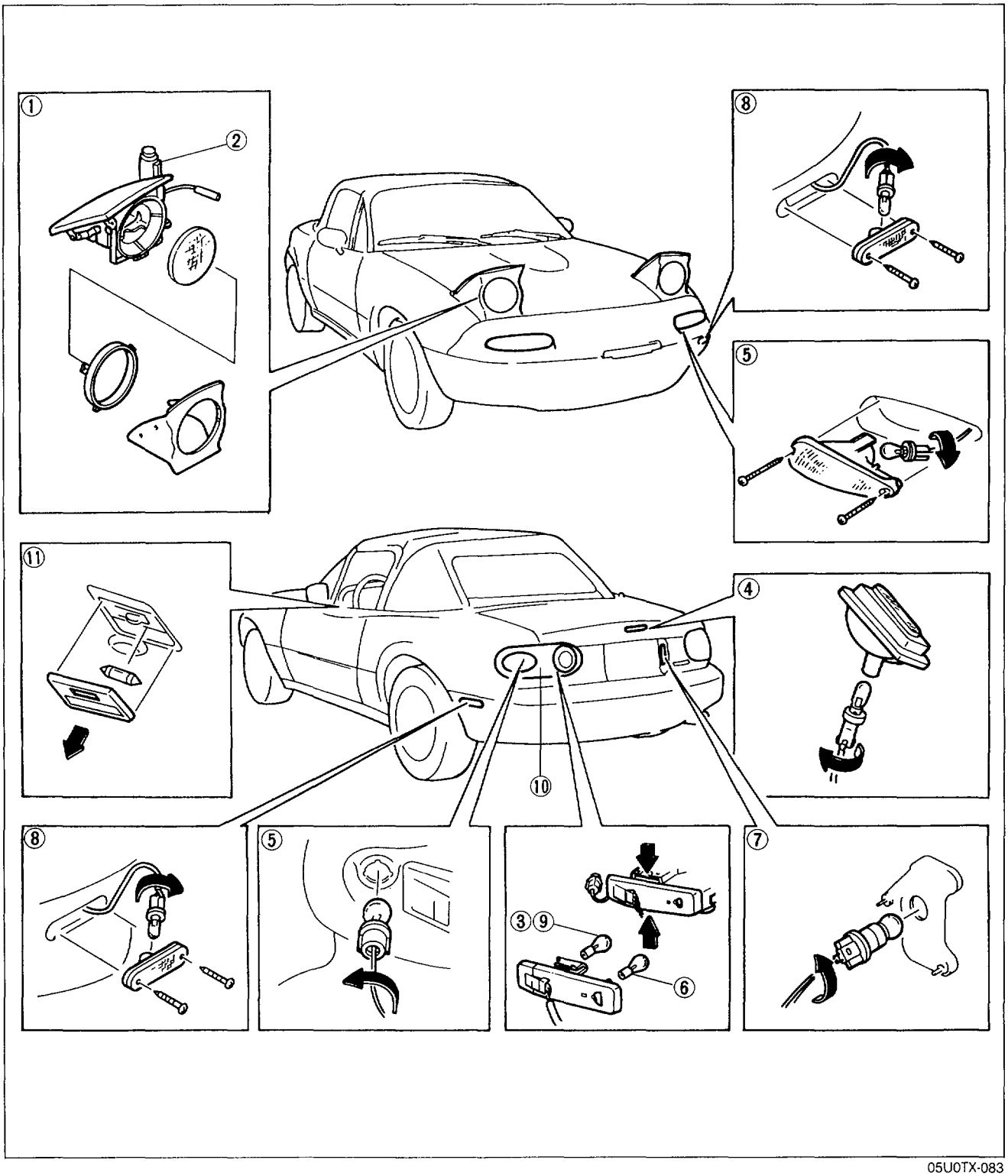
1. Disconnect the seat belt buckle switch connector.
2. Check continuity of the switch.

Seat belt	Continuity
Seat belt buckled	No
Seat belt unbuckled	Yes

3. If continuity is not as specified, replace the buckle switch.

LIGHTING SYSTEM

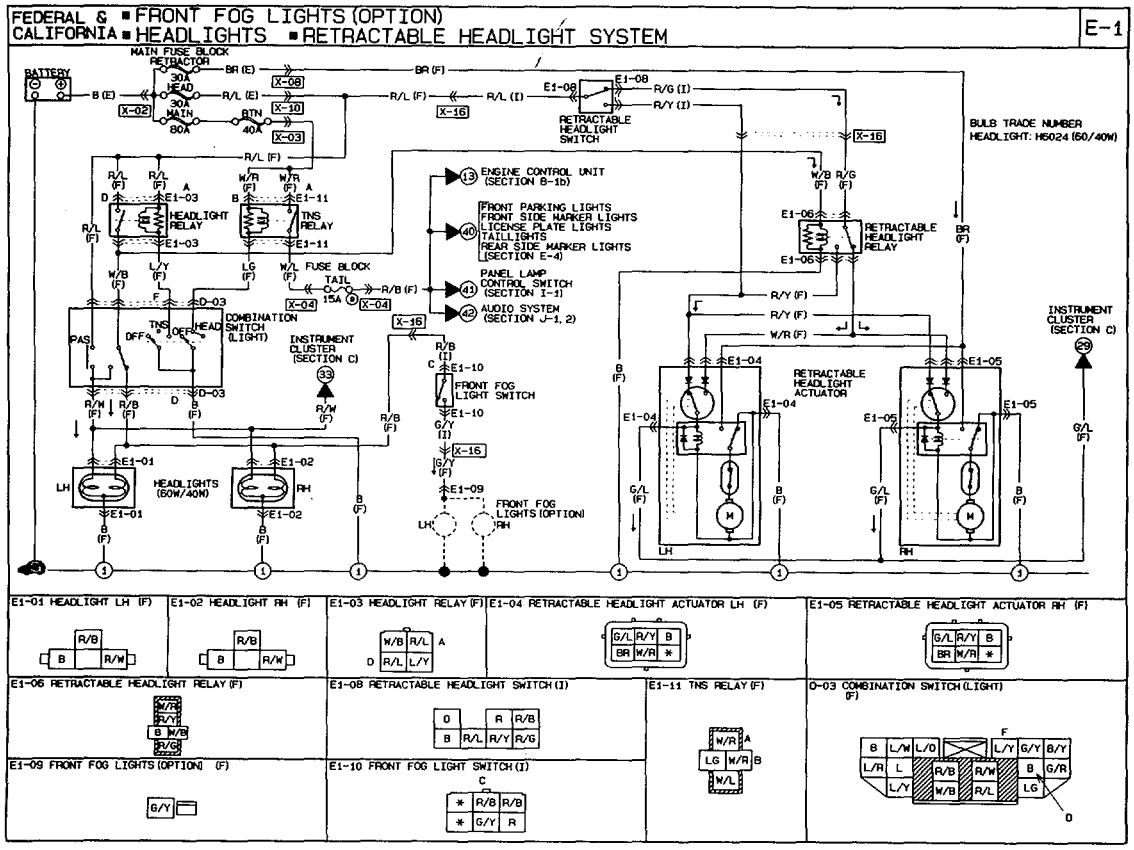
STRUCTURAL VIEW

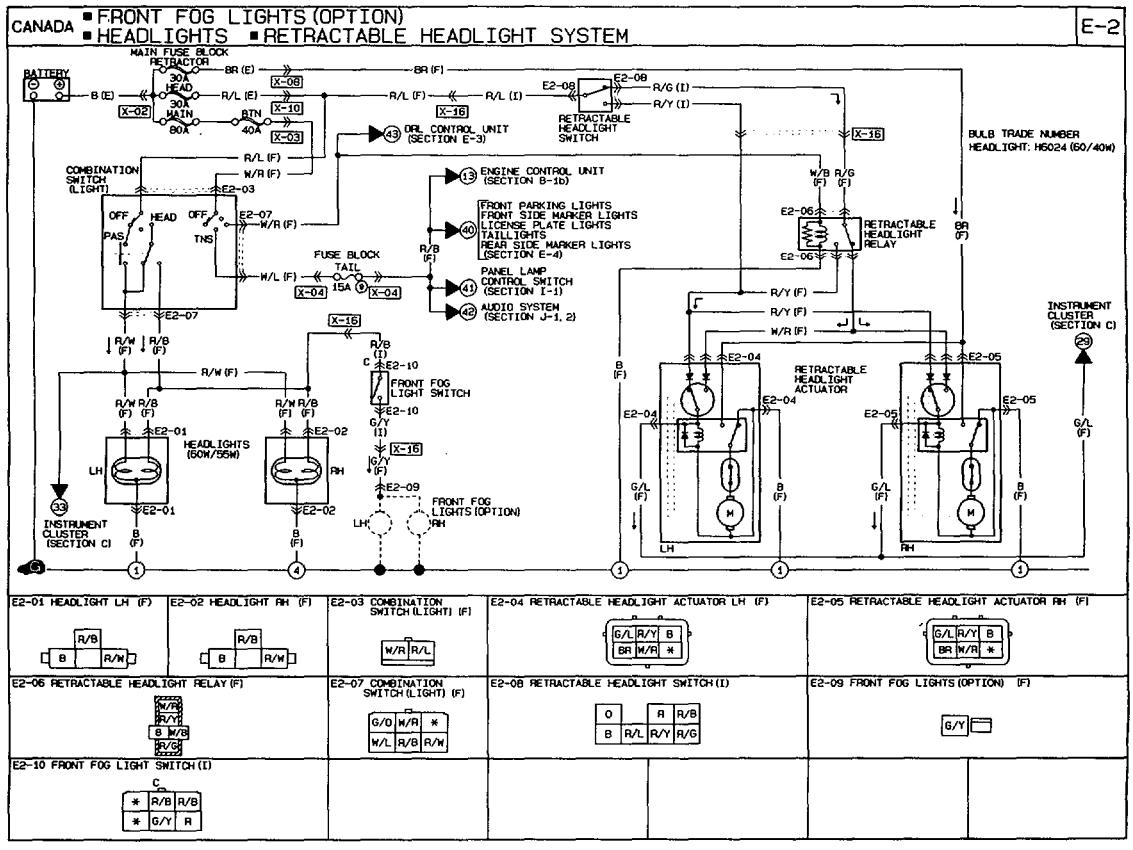


05U0TX-083

1. Retractable headlight
2. Headlight retractor motor
3. Stoplight
4. High-mount stoplight
5. Turn and hazard warning light
6. Back-up light
7. License plate light
8. Side marker light
9. Taillight
10. Rear combination light lens
11. Interior lamp

HEADLIGHTS
Circuit Diagram





Description

The headlight system consists of two halogen headlights mounted on retractable mechanisms, a headlight switch in the combination switch, and a retractor switch between the center ventilation outlets.
When the headlight switch is rotated to the second position, the headlights are activated and the headlight retractor motors lift the headlights. If only the retractor switch is turned ON, the headlights will raise to the upright position, but all lights will be off.
An emergency manual retractor knob is located atop each headlight retractor motor.

Warning

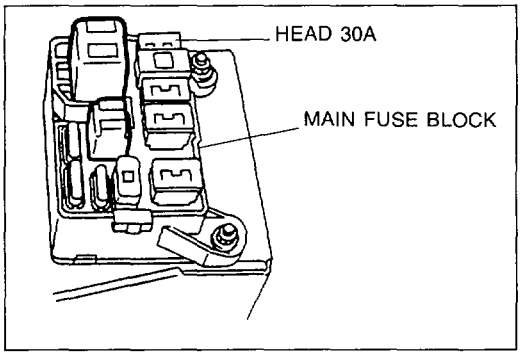
- **When using the manual control knob, the negative battery cable must be disconnected to prevent accidental movement of the headlight and possible injury.**

05U0TX-085

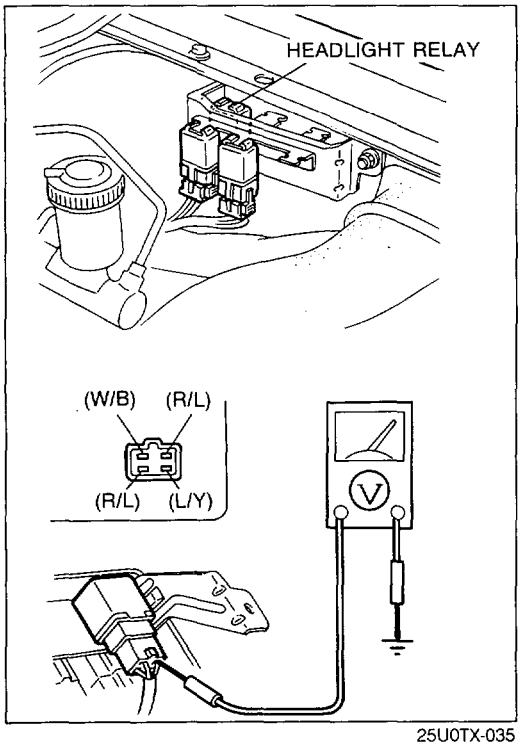
Troubleshooting

Symptom: Headlights do not operate. (U.S. spec.)

05U0TX-086



05U0TX-295



25U0TX-035

Step 1

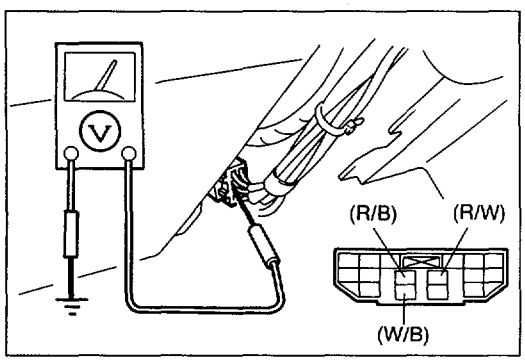
1. Check HEAD 30A fuse in the main fuse block.
2. If the fuse is burned, replace it. Check and repair the wiring harness, if necessary.
3. If the fuse is OK, go to Step 2.

Step 2

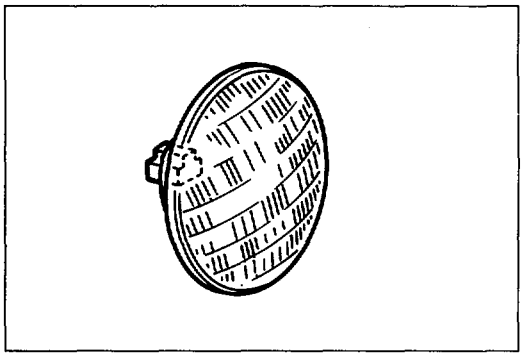
1. Turn the headlight switch ON.
2. Measure the voltage at the following terminal-wires of the headlight relay connector.

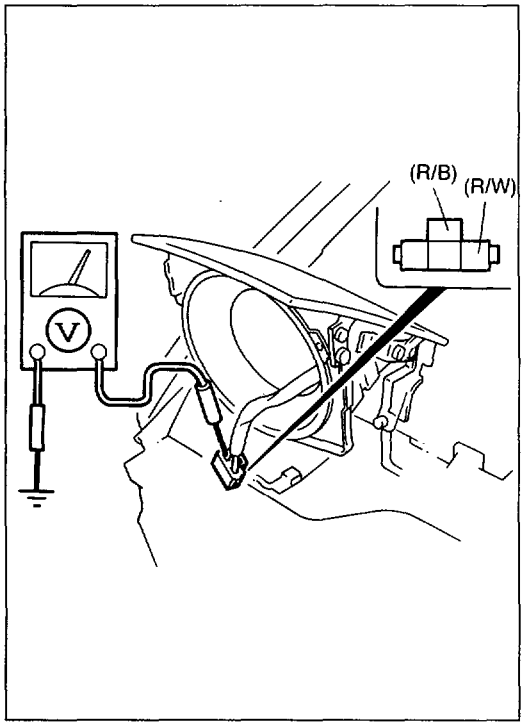
VB: Battery voltage

Terminal-wire	Voltage	Action
(W/B)	VB	Go to Step 3
	0V	Next check wire (L/Y)
(L/Y)	VB	Go to Step 6
	0V	Next check wire (R/L)
(R/L: Terminal A)	VB	Next check wire (R/L)
	0V	Repair wire (R/L) (HEAD 30A—Headlight relay)
(R/L: Terminal D)	VB	Replace headlight relay
	0V	Repair wire (R/L) (HEAD 30A—Headlight relay)

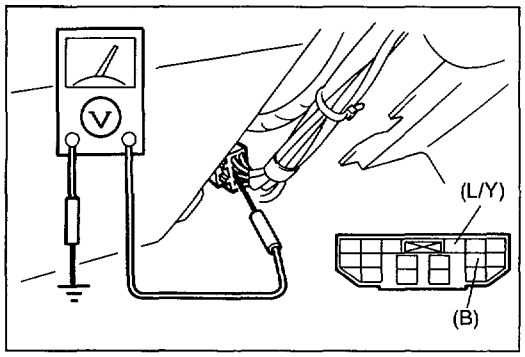


25U0TX-036


05U0TX-089



25U0TX-037



25U0TX-038

Step 3
1. Turn the headlight switch ON.
2. Measure the voltage at the following terminal-wires of the headlight switch connector.

VB: Battery voltage

Wire	Headlight switch	Voltage	Action
(W/B)	—	VB	Next check wire (R/B)
		0V	Repair wire (W/B) (Headlight relay—Headlight switch)
(R/B)	Low beam	VB	Go to Step 4
		0V	Replace headlight switch
(R/W)	High beam	VB	Go to Step 4
		0V	Replace headlight switch

Step 4
1. Check the headlight bulbs.
2. If a bulb is burned, replace it.
3. If the bulbs are OK, go to Step 5.

Step 5
1. Disconnect the headlight connectors.
2. Turn the headlight switch ON, and measure the voltage at the following terminal-wires as shown.

VB: Battery voltage

Headlight	Wire	Headlight switch	Voltage	Remedical Action
Left	(R/B)	Low beam	VB	Repair ground wire (B)
			0V	Repair wire (R/B) (Headlight switch—Headlight)
	(R/W)	High beam	VB	Repair ground wire (B)
			0V	Repair wire (R/W) (Headlight switch—Headlight)
Right	(R/B)	Low beam	VB	Repair ground wire (B)
			0V	Repair wire (R/W) (Headlight switch—Headlight)
	(R/W)	High beam	VB	Repair ground wire (B)
			0V	Repair wire (R/W) (Headlight switch—Headlight)

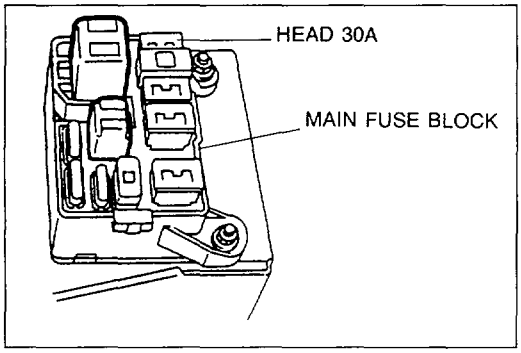
Step 6
1. Turn the headlight switch ON.
2. Measure the voltage at the following terminal-wires of the headlight switch connector (in the combination switch).

VB: Battery voltage

Wire	Voltage	Action
(L/Y)	VB	Next check wire (B)
	0V	Repair wire (L/Y) (Headlight relay—Headlight switch)
(B)	VB	Repair ground wire (B)
	0V	Replace headlight switch

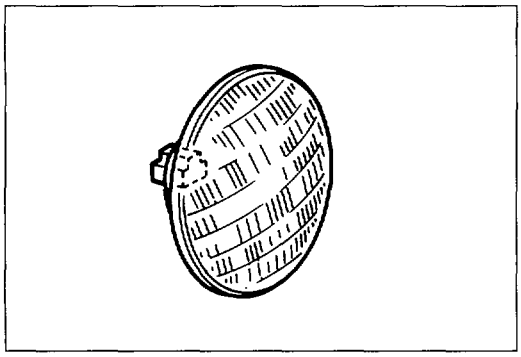
Symptom: Headlights do not operate. (Canada spec.)

05U0TX-092



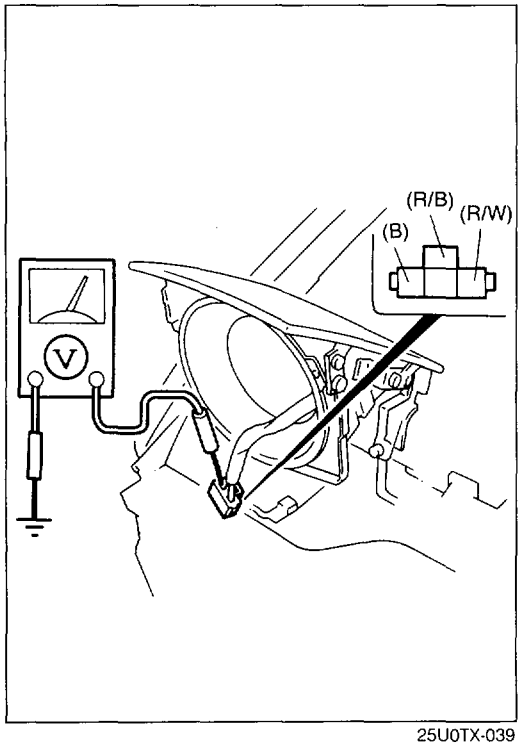
05U0TX-296

Step 1
1. Check HEAD 30A fuse in the main fuse block.
2. If the fuse is burned, replace it. Check and repair the wiring harness, if necessary.
3. If the fuse is OK, go to Step 2.



05U0TX-297

Step 2
1. Check the headlight bulbs.
2. If a bulb is burned, replace it.
3. If the bulbs are OK, go to Step 3.

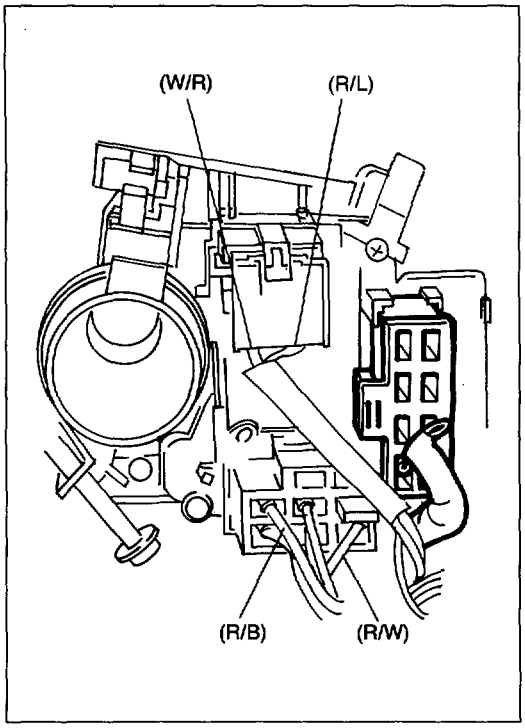


25U0TX-039

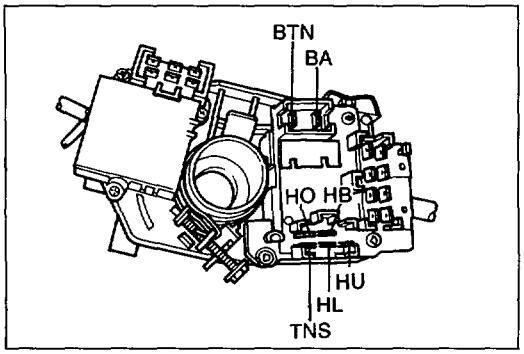
Step 3
1. Turn the headlight switch ON.
2. Disconnect the headlight connector, and measure the voltage at the following terminal-wires as shown.

VB: Battery voltage

Headlight	Wire	Headlight switch	Voltage	Action
Left	(R/W)	High beam	VB	Next, check wire (R/B)
			0V	Go to Step 4
	(R/B)	Low beam	VB	Next, check wire (B)
			0V	Go to Step 4
	(B)	Any position	0V	Next, check right side
			VB	Repair ground wire (B)
Right	(R/W)	High beam	VB	Next, check wire (R/B)
			0V	Go to Step 4
	(R/B)	Low beam	VB	Next, check wire (B)
			0V	Go to Step 4
	(B)	Any position	0V	Check for poor connection of headlight connector
			VB	Go to Step 4



25U0TX-040



05U0TX-300

Step 4

1. Reconnect the headlight connector.
2. Remove the column cover.
3. Measure the voltage at the following terminal-wires of the headlight switch connectors (in the combination switch) as shown.

VB: Battery voltage

Wire	Headlight switch	Voltage	Action
(R/L)	Any position	VB	Next, check wire (W/R)
		0V	Repair wire (R/L) (HEAD 30A fuse—Headlight switch)
(W/R)	Any position	VB	Next, check wire (R/W)
		0V	Repair wire (W/R) (BTN 40A fuse—Headlight switch)
(R/W)	ON (High beam)	VB	Next, check wire (R/B)
		0V	Go to Step 5
(R/B)	ON (Low beam)	VB	Check for poor connection of headlight switch connector
		0V	Go to Step 5

Step 5 — Headlight switch inspection

1. Disconnect the headlight switch connectors.
2. Check for continuity between terminals as shown with an ohmmeter.

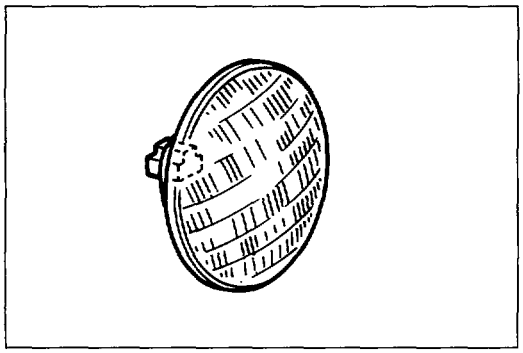
Position		Terminal					
		HB	HL	HU	BA	BTN	TNS
Headlight	Low beam	○—○			○	○—○	
	High beam	○—○		○	○	○—○	
Parking				○—○			
Tail, Parking						○—○	

○—○: Indicates continuity

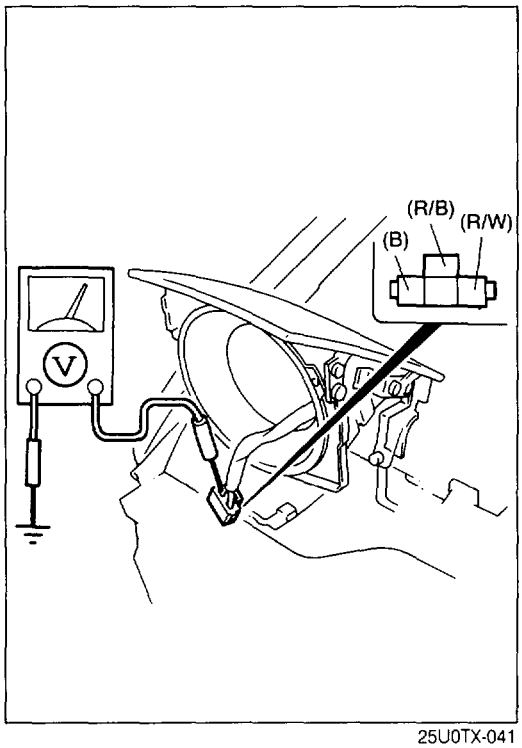
3. If not as specified, replace the headlight switch.
4. If correct, check for a poor connection in the system.

Symptom: Headlight does not operate (right or left).

05U0TX-093



05U0TX-094



25U0TX-041

Step 1
1. Check the headlight bulbs.
2. If a bulb is burned replace it.
3. If the bulbs are OK, go to Step 2.

Step 2
1. Disconnect the headlight connectors of the faulty side.
2. Turn the headlight switch ON, and measure the voltage at the following terminal-wires as shown.

VB: Battery voltage

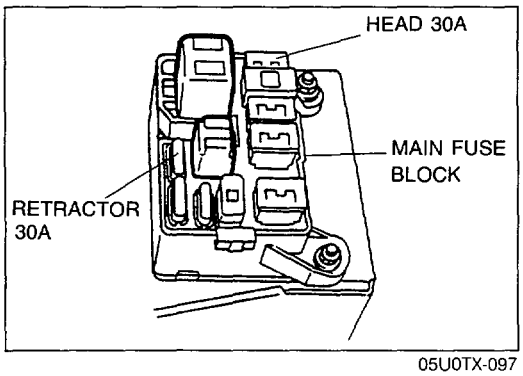
Headlight	Wire	Headlight switch	Voltage	Action
Left	(R/B)	Low beam	VB	Repair ground wire (B)
			0V	Repair wire (R/B) (Headlight switch—Headlight)
	(R/W)	High beam	VB	Repair ground wire (B)
			0V	Repair wire (R/W) (Headlight switch—Headlight)
Right	(R/B)	Low beam	VB	Repair ground wire (B)
			0V	Repair wire (R/B) (Headlight switch—Headlight)
	(R/W)	High beam	VB	Repair ground wire (B)
			0V	Repair wire (R/W) (Headlight switch—Headlight)

Symptom: Headlight retractor motors do not operate (both sides).

Note
- **Before troubleshooting verify the symptom by activating the headlight switch and retractor switch.**
- **Check the system using the appropriate troubleshooting below.**

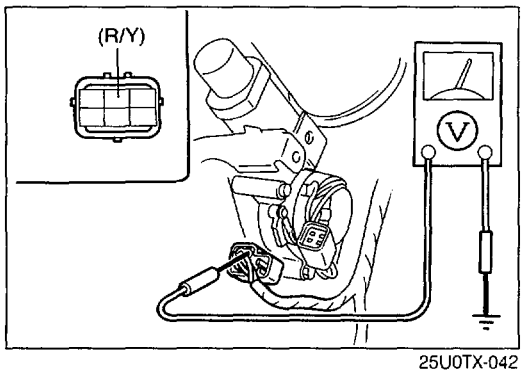
Switch	Retractor motor(s) operate	Action
Headlight switch ON	Yes	Begin troubleshooting from Step 5
	No	Next, turn ON retractor switch
Retractor switch ON	Yes	Begin troubleshooting from Step 4
	No	Begin troubleshooting from Step 1

05U0TX-096



05U0TX-097

Step 1
1. Check RETRACT 30A and HEAD 30A fuses in the main fuse block.
2. If a fuse is burned, replace it. Check and repair the wire harness, if necessary.
3. If the fuses are OK, go to Step 2.

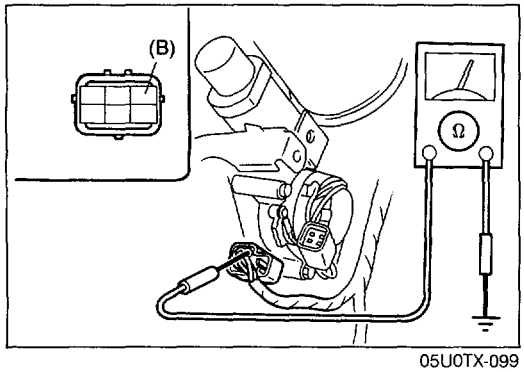


25U0TX-042

Step 2
1. Retract the headlights fully using the manual knobs.
2. Disconnect the retractor motor connectors.
3. Turn on the headlight switch and retractor switch.
4. Measure the voltage at the following terminal-wires of the retractor motor connectors.

VB: Battery voltage

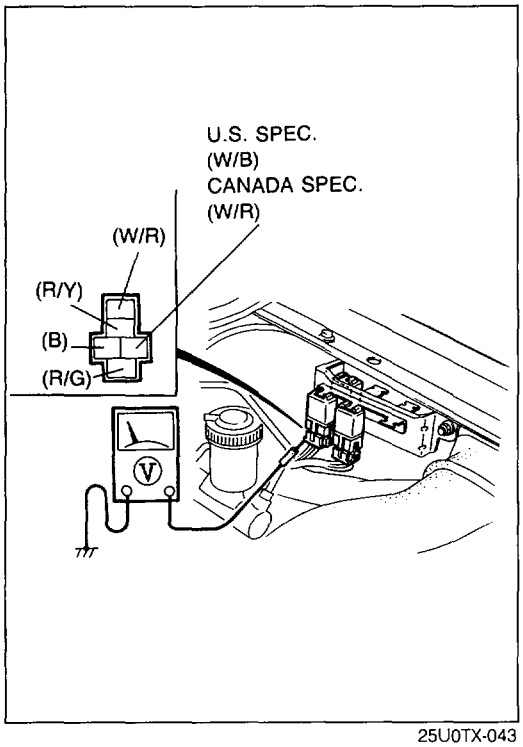
Retractor motor	Wire	Voltage	Action
Left and Right	(R/Y)	VB	Go to Step 3
		0V	Go to Step 4



05U0TX-099

Step 3
1. Disconnect the retractor motor connectors.
2. Check for continuity between terminal-wire (B) of the retractor motor connectors and a body ground.

Retractor motor	Continuity	Action
Left and Right	No	Repair wire (B)
	Yes	Check retractor motor (Refer to page T–56)



25U0TX-043

Step 4

1. Turn off the retractor switch.
2. Turn on the headlight switch.
3. Measure the voltage at the following terminal-wires of the retractor relay connector.

U.S. spec.

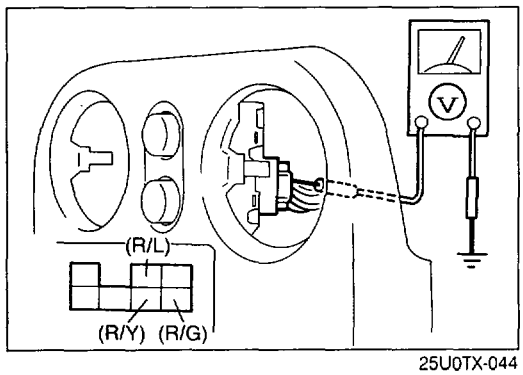
VB: Battery voltage

Wire	Voltage	Action
(R/G)	VB	Next check wire (W/B)
	0V	Go to Step 5
(W/B)	VB	Next check wire (B)
	0V	Repair wire (W/B) (Headlight relay—Retractor relay)
(B)	VB	Repair ground wire (B)
	0V	Next check wire (R/Y)
(R/Y)	VB	Repair wire (R/Y) (Retractor relay—Retractor motor)
	0V	Replace retractor relay

Canada spec.

VB: Battery voltage

Wire	Voltage	Action
(R/G)	VB	Next check wire (W/R)
	0V	Go to Step 5
(W/R)	VB	Next check wire (B)
	0V	Repair wire (W/R) (Headlight switch—Retractor relay)
(B)	VB	Repair ground wire (B)
	0V	Next check wire (R/Y)
(R/Y)	VB	Repair wire (R/Y) (Retractor relay—Retractor motor)
	0V	Replace retractor motor



25U0TX-044

Step 5

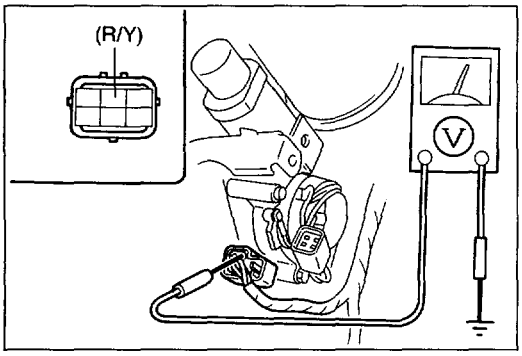
Measure the voltage at the terminal-wires of the retractor switch.

VB: Battery voltage

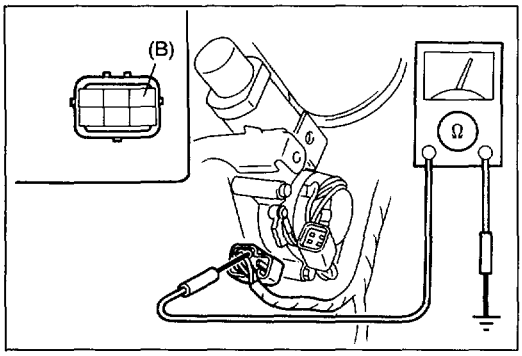
Wire	Retractor switch	Voltage	Action
(R/L)	Any position	VB	Next check wire (R/G) and (R/Y)
		0V	Repair wire (R/L) (Retract 30A—Retractor switch)
(R/G)	OFF	VB	Repair wire (R/G) (Retractor switch—Retractor motor)
		0V	Replace retractor switch
(R/Y)	ON	VB	Repair wire (R/Y) (Retractor switch—Retractor motor)
		0V	Replace retractor switch

Symptom: Headlight retractor motor does not operate (one side).

05U0TX-102



25U0TX-045



05U0TX-104

Step 1

1. Retract the not working headlight fully using the manual knob.
2. Disconnect the retractor motor connector of the faulty side.
3. Turn on the headlight switch and retractor switch.
4. Check the voltage at the following terminal-wires of the retractor motor connector.

VB: Battery voltage

Wire	Voltage	Action
(R/Y)	VB	Go to Step 2
	0V	Repair wire (R/Y) (Retractor relay—Retractor motor)

Step 2

Check for continuity between terminal-wire (B) of the faulty retractor motor connector and a body ground.

Continuity	Action
No	Repair wire (B)
Yes	Check retractor motor (Refer to page T–56)

Note

- **A retractor indicator lamp is included in the instrument cluster. The indicator lamp illuminates when the retractor motor is operating and should go out when the headlights are fully raised or retracted.**
  If the indicator lamp remains on, it may be due to pebbles, pieces of ice, etc. lodged between the headlight and the vehicle body. This should be corrected by the following procedure.

1. Turn the ignition switch OFF.

Caution

- **Obtain the code number and deactive the audio anti-theft function before disconnecting the battery. (Refer to page T–120.)**

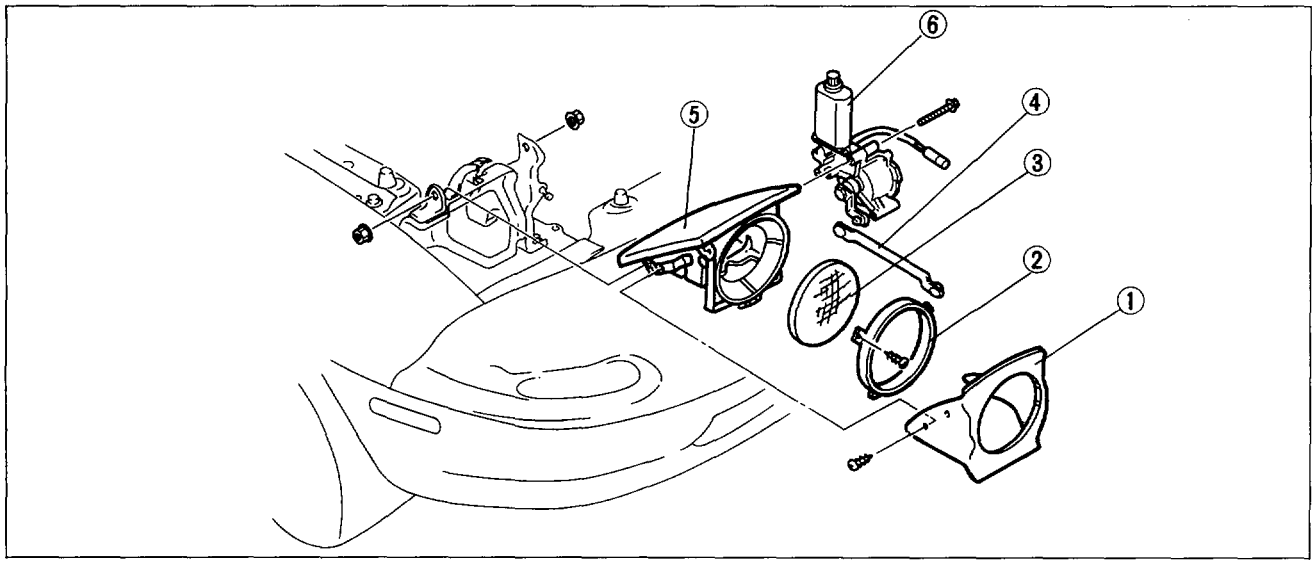
2. Disconnect the negative battery cable or remove RETRACTOR 30A fuse in the main fuse block.
3. Raise or lower the headlight by turning the emergency retractor knob.
4. Remove the obstruction.
5. After verifying that the headlight switch and the retractor switch are OFF, reconnect the negative battery cable.
6. Verify operation of the headlight retractor and the retractor indicator lamp.

25U0TX-046

Removal / Installation
Remove and install as shown in the figure.

Caution
- **Do not turn the adjusting screws during removal and installation.**

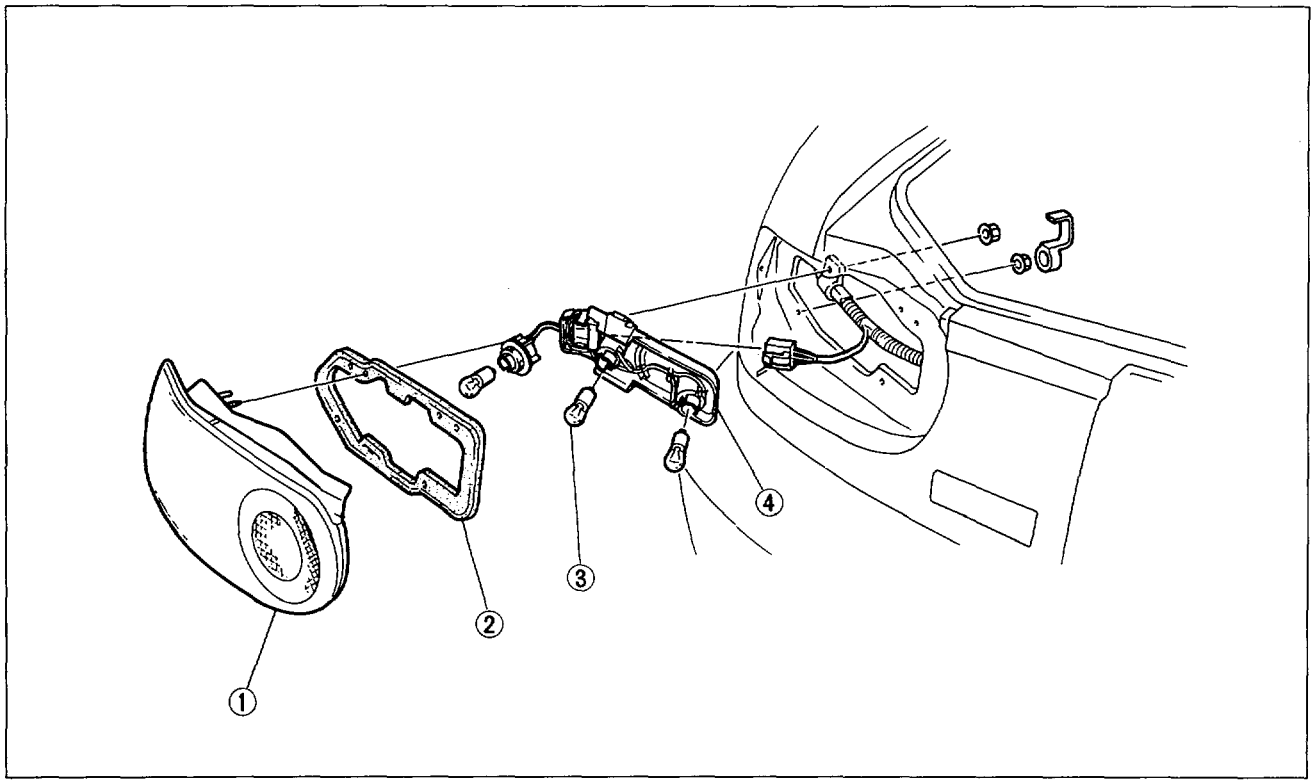
Headlight



15U0TX-017

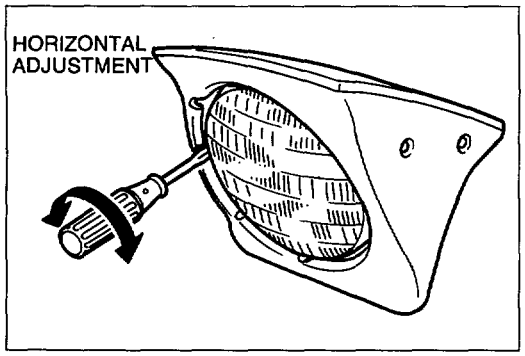
1. Bezel
2. Headlight housing
3. Headlight
4. Motor link
5. Retractor hinge
6. Retractor motor

Rear Combination Light

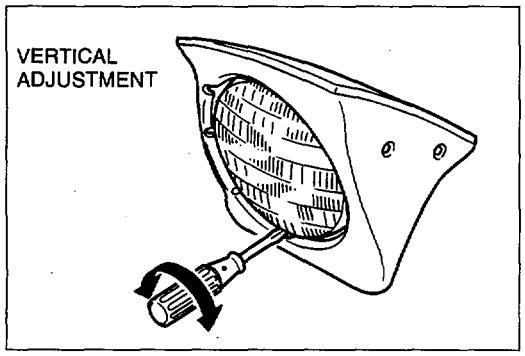


15U0TX-018

1. Lens
2. Gasket
3. Bulb
4. Bracket



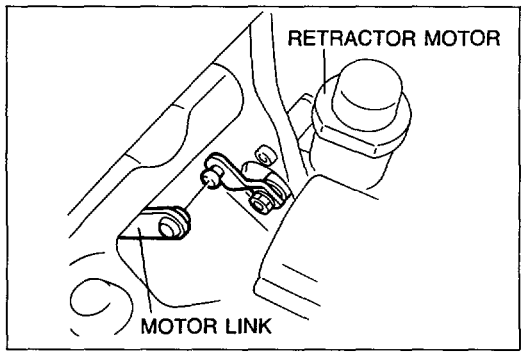
05U0TX-106



Adjustment

Headlight aiming

1. Adjust the tire air pressure to specification.
2. Turn on the retractor switch to raise the retractable headlights.
3. Position the unloaded vehicle on a flat, level surface.
4. Adjust the headlights to meet local regulations by turning the two adjusting screws.



05U0TX-107

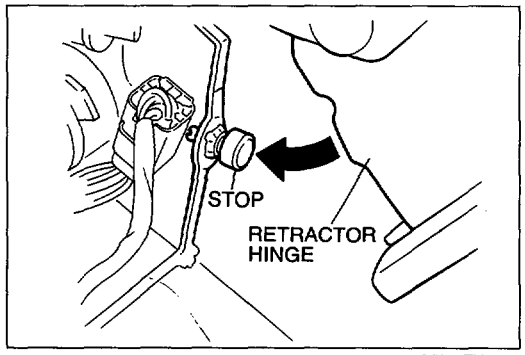
Retractor hinge

1. Begin with the headlights fully retracted.

Caution

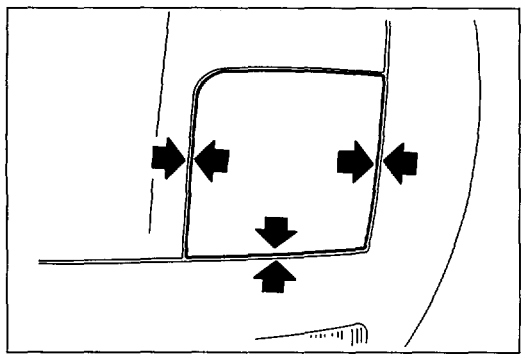
- **Before disconnecting the negative battery cable, verify the ID code number of audio anti-theft function.**
- **If not, an audio unit may not operate after reconnecting the negative battery cable.**

2. Disconnect the negative battery cable.
3. Disconnect the motor link.



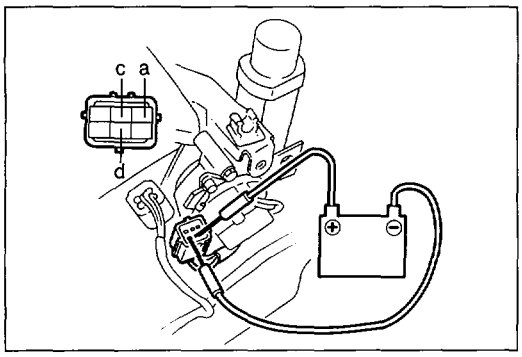
05U0TX-108

4. Lower the retractor hinge until the hinge is stopped by the stop.



05U0TX-109

5. Adjust the stop so that the headlight lid is flush with the fender and hood.



25U0TX-047

Inspection

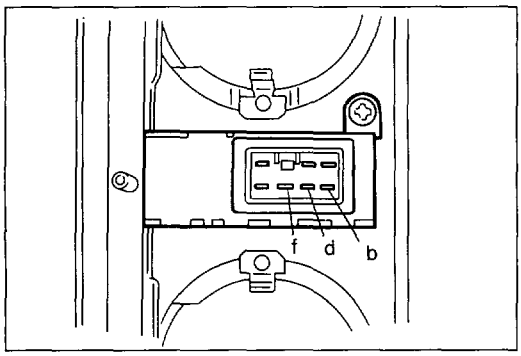
Retractor motor

1. Disconnect the motor link.
2. Disconnect the retractor motor connector.
3. Connect battery voltage to terminal f and ground terminal a of the motor connector.
4. Check the motor operation when connecting battery voltage as shown.

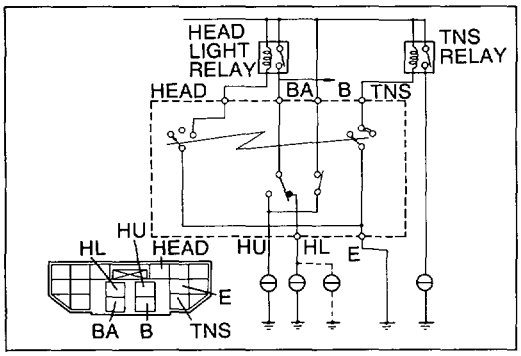
VB: Battery voltage

Terminal		Motor operation
VB	Ground	
c	a	Motor rotates to raised position
d	a	Motor rotates to retracted position

5. If not as specified, replace the retractor motor.



05U0TX-111



05U0TX-112

Retractor switch

1. Remove the retractor switch.
2. Check for continuity between terminals of the switch.

Switch	Terminal		
	b	d	f
Off	○		○
On		○	○

○—○: Indicates continuity

3. If not as specified, replace the retractor switch.

Headlight switch

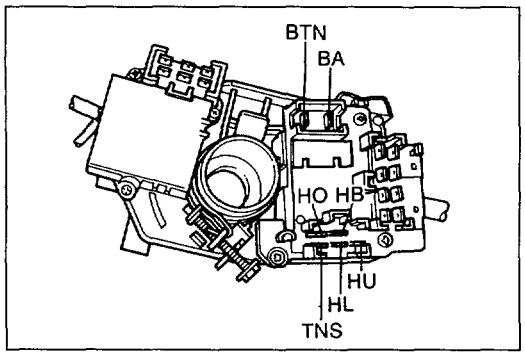
U.S. spec.

1. Remove the knee protector.
2. Disconnect the combination switch connector.
3. Check for continuity between terminals of the switch.

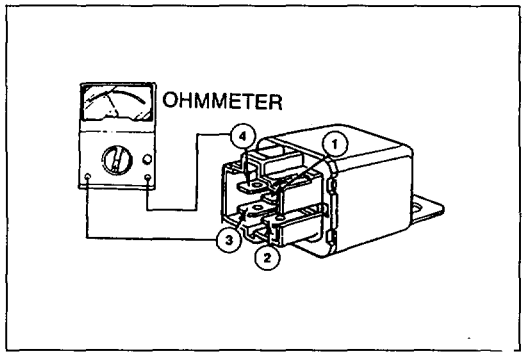
Position		Terminal						
		E	HL	HU	TNS	HEAD	BA	B
Headlight	Low beam	○				○		
		○			○			
			○				○	
	High beam	○				○		
		○			○			
				○			○	
Passing				○				○
Tail, Parking		○			○			

○—○: Indicates continuity

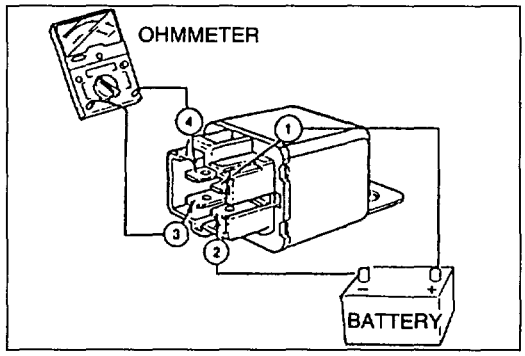
4. If not as specified, replace the combination switch as an assembly.



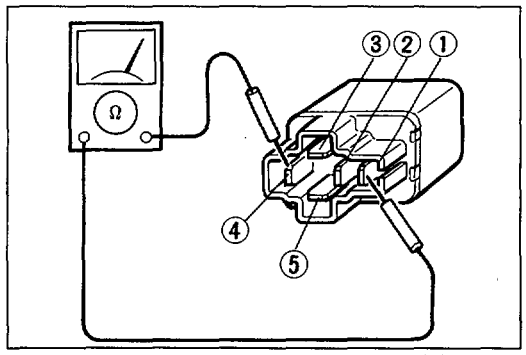
05U0TX-113



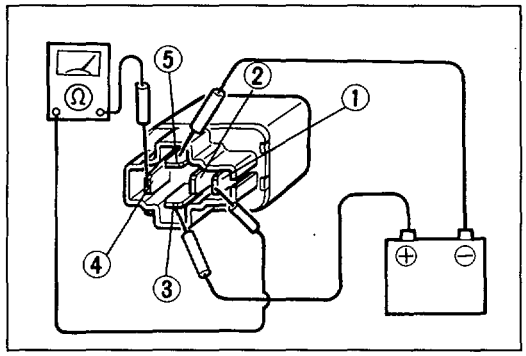
05U0TX-114



25U0TX-048



05U0TX-116



25U0TX-049

Canada spec.

1. Remove the column cover and disconnect the headlight switch connectors.
2. Check for continuity between terminals of the switch.

Position		Terminal					
		HB	HL	HU	BA	BTN	TNS
Headlight	Low beam	○	○—○		○	○	○—○
	High beam	○		○	○—○	○	○—○
Passing				○	○—○		
Tail, Parking						○	○—○

○—○: Indicates continuity

Headlight relay (U.S. spec.)

1. Check continuity between terminals 3 and 4.

Terminal	Continuity
3—4	No

2. If not as specified, replace the headlight relay.
3. If correct, go to Step 4.

4. Apply battery voltage to terminal 1 and ground terminal 2. Check for continuity between terminals 3 and 4.

Terminal	Continuity
3—4	Yes

5. If not as specified, replace the headlight relay.

Headlight retractor relay

1. Check continuity between terminals of the relay.

Terminal	Continuity
1—4	Yes
2—4	No
3—5	Yes

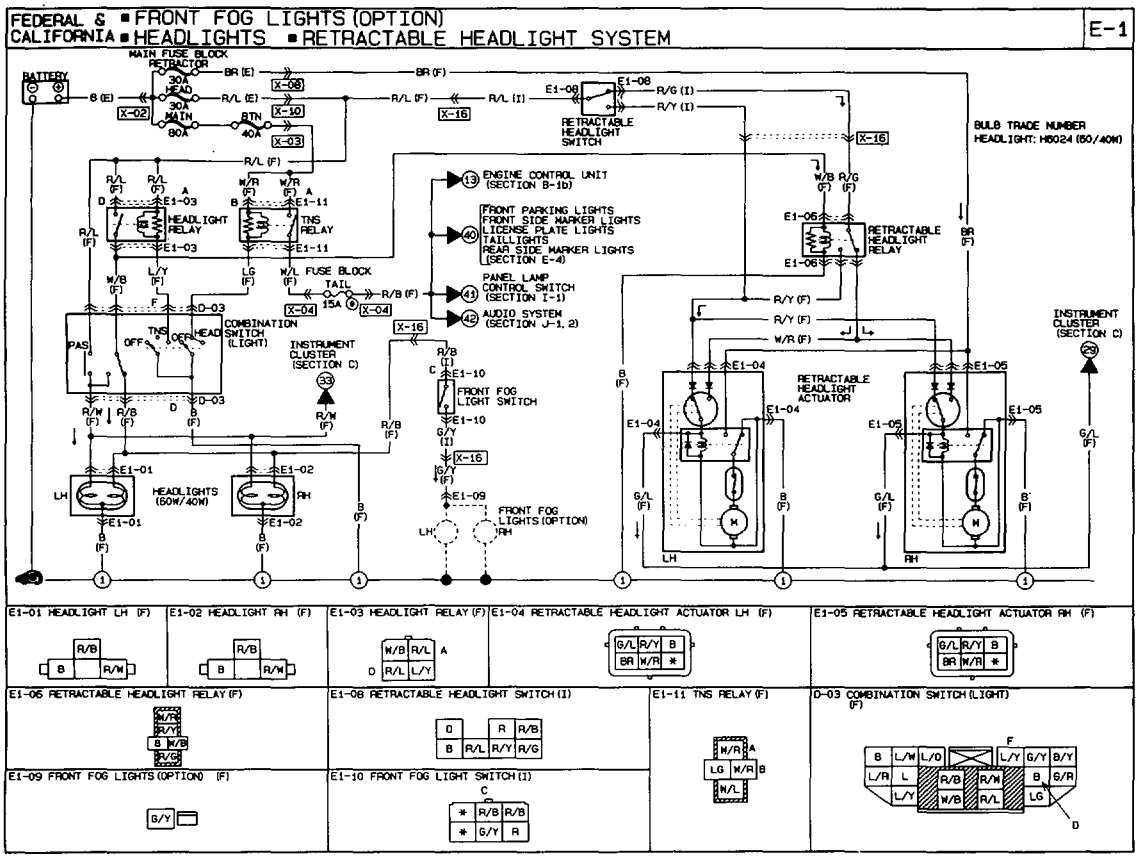
2. If not as specified, replace the retractor relay.
3. If correct, go to Step 4.

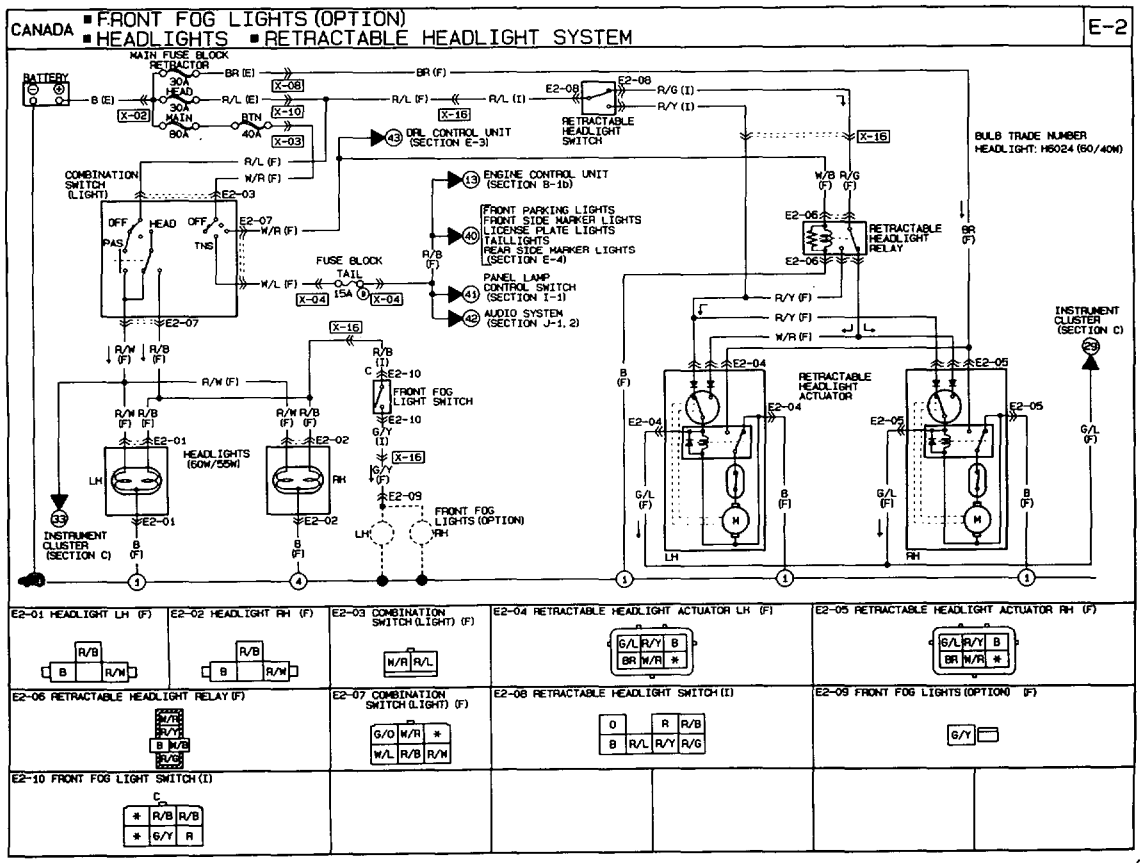
4. Apply battery voltage to terminal 3 and ground terminal 5. Check continuity between terminals of the relay.

Terminal	Continuity
1—4	No
2—4	Yes

5. If not as specified, replace the retractor relay.

STOPLIGHTS
Circuit Diagram



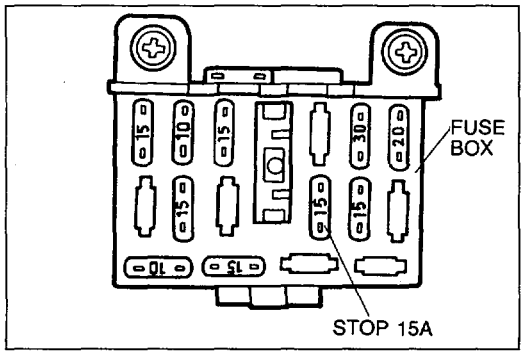


05U0TX-118

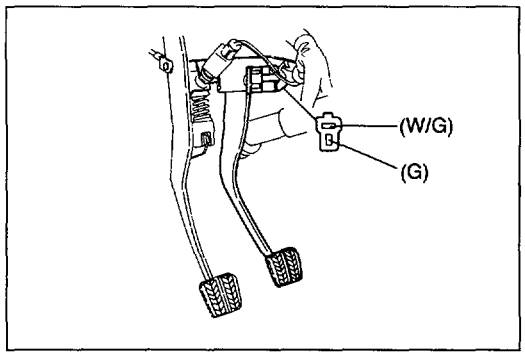
Troubleshooting

Symptom: Stoplights do not operate (all).

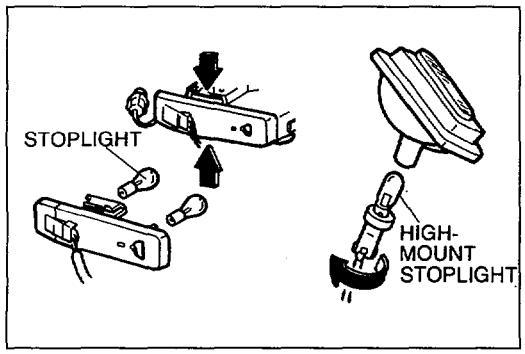
05U0TX-119



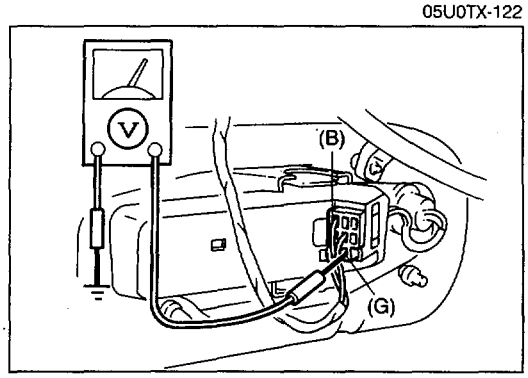
05U0TX-120



25U0TX-050



05U0TX-122



25U0TX-051

Step 1
Check STOP 15A fuse in the fuse box.
If the fuse is burned, replace it. Check and repair the wire harness, if necessary.
If the fuse is OK, go to Step 2.

Step 2
Measure the voltage at the following terminal-wires of the stoplight switch connector.

VB: Battery voltage

Inspection condition	Wire	Voltage	Action
Constant	(W/G)	VB	Next check wire (G)
		0V	Repair wire (W/G) (STOP 15A fuse—Stoplight switch)
Brake pedal depressed	(G)	VB	Go to Step 3
		0V	Check stoplight switch

Step 3
Check the stoplight bulbs.
If a bulb is burned replace it.
If the bulbs are OK, go to Step 4.

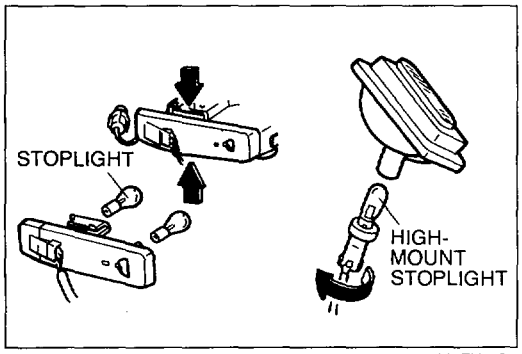
Step 4
Measure the voltage at the following terminal-wires of the right and left stoplight connectors.

VB: Battery voltage

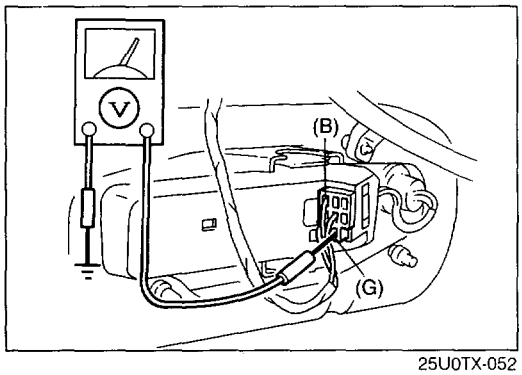
Inspection condition	Wire	Voltage	Action
Brake pedal depressed	(G)	VB	Next check wire (B)
		0V	Repair wire (G) (Stoplight switch—Stoplight)
	(B)	VB	Repair ground wire (B)
		0V	Check for poor connection of connectors

Symptom: Stoplights does not operate (one only).

05U0TX-124



05U0TX-125



25U0TX-052

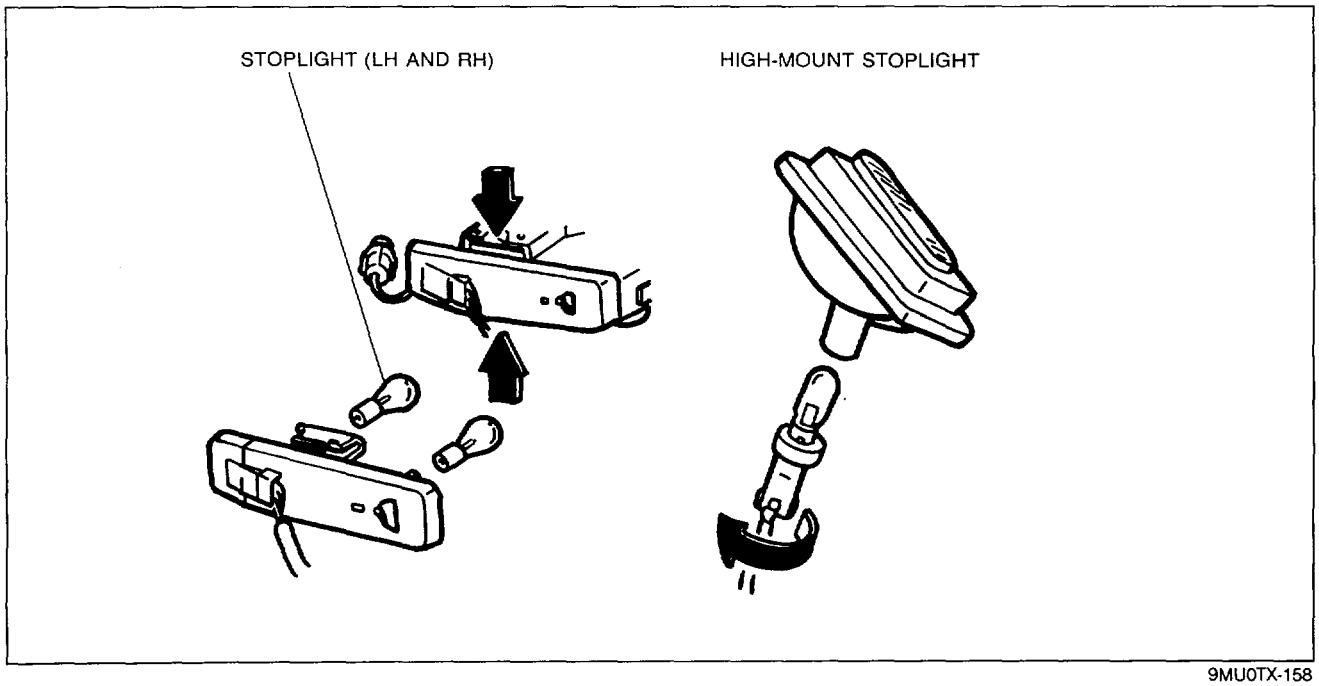
Step 1
Check the stoplight bulb of the faulty side.
If a bulb is burned replace it.
If the bulb is OK, go to Step 2.

Step 2
Measure the voltage at the following terminal-wires of the faulty stoplight connector.

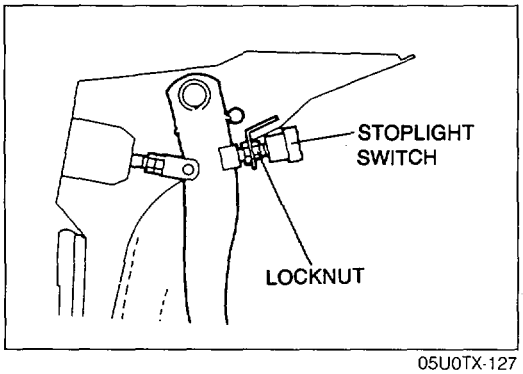
V_B: Battery voltage

Inspection condition	Wire	Voltage	Action
Brake pedal depressed	(G)	V_B	Next check wire (B)
		0V	Repair wire (G) (Stoplight switch—Stoplight)
	(B)	V_B	Repair ground wire (B)
		0V	Check for poor connection of connectors

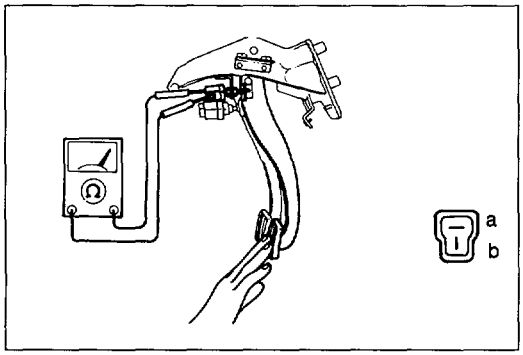
Removal / Installation
Remove and install as shown in the figure.



9MU0TX-158



05U0TX-127



05U0TX-128

Adjustment
Stoplight switch
1. Adjust the brake pedal height. (Refer to Section P.)
2. Disconnect the stoplight switch connector.
3. Loosen the stoplight switch locknut.
4. Turn the stoplight switch until it contacts the pedal arm. Turn an additional 1/2 turn.
5. Tighten the locknut.

Locknut tightening torque:
14—18 N·m (1.4—1.8 m-kg, 120—156 in-lb)

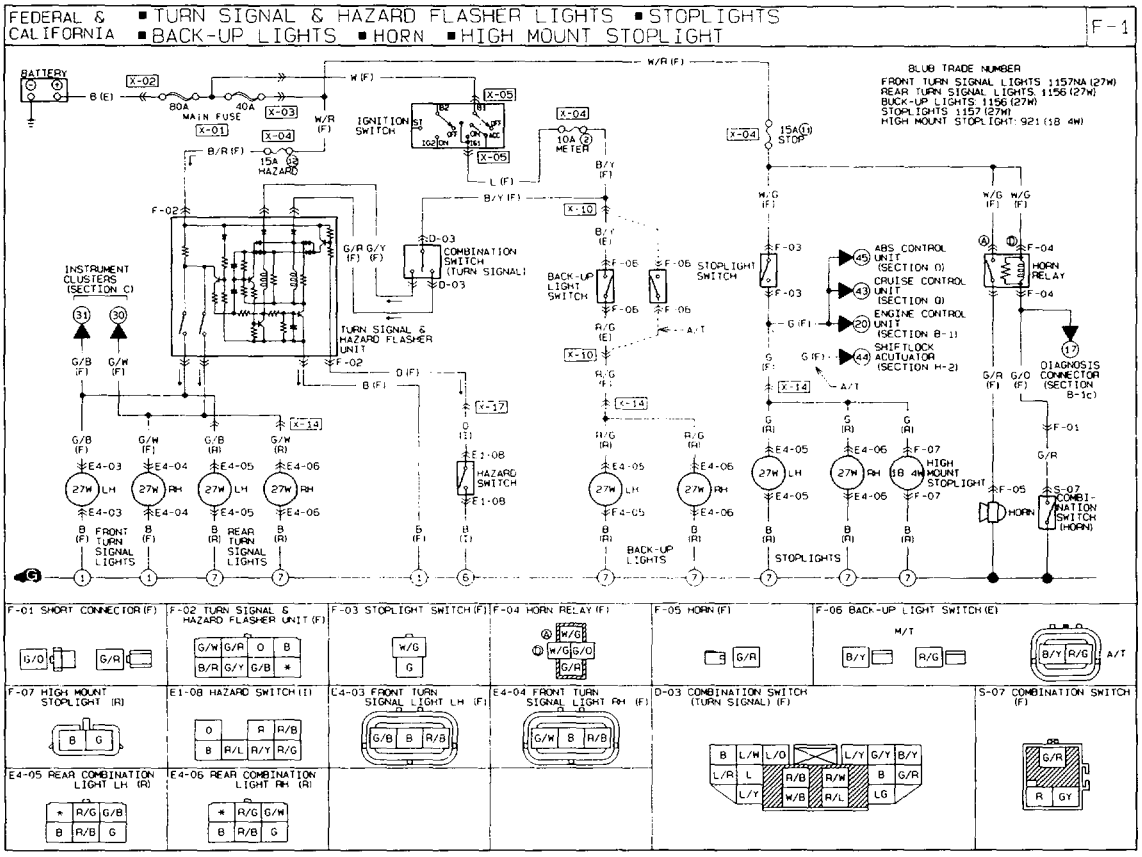
Inspection
Stoplight switch
1. Disconnect the stoplight switch connector.
2. Check continuity between terminals of the switch.

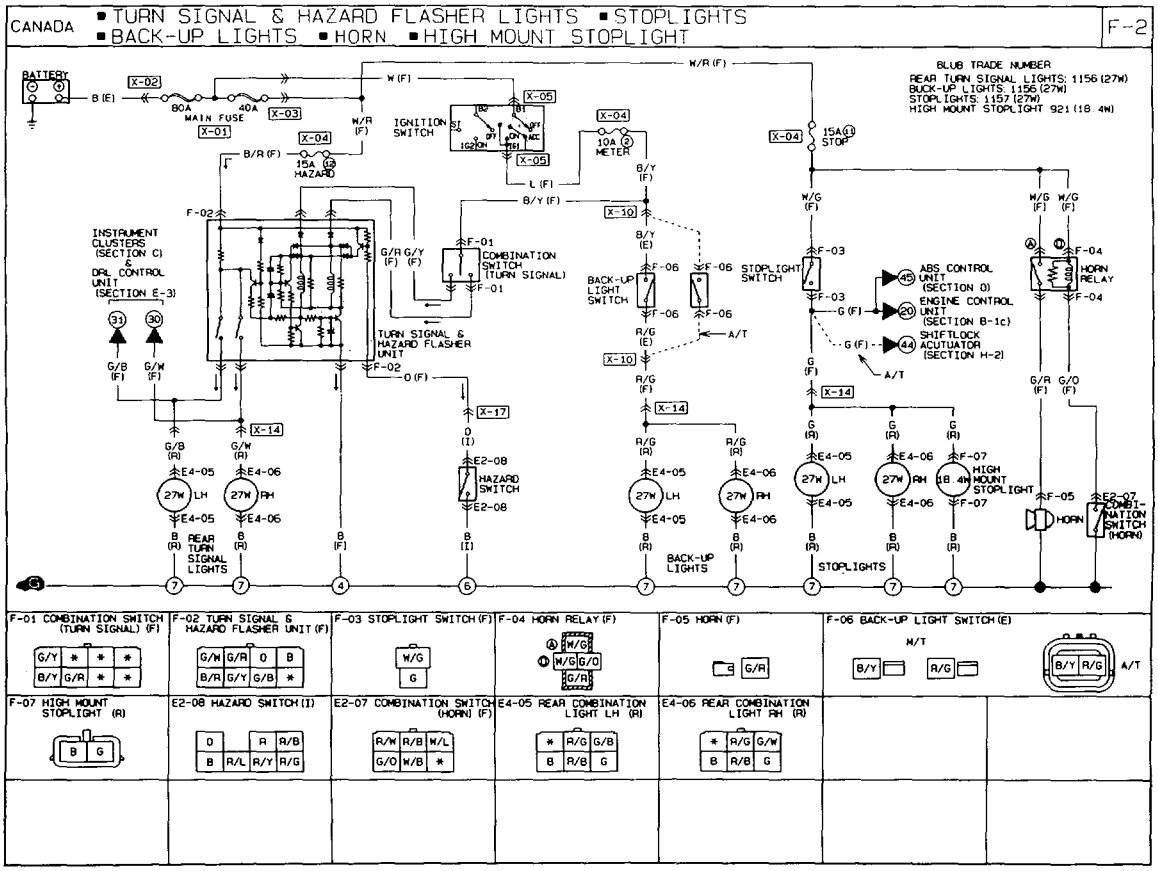
Inspection condition	Terminal	
	a	b
Brake pedal depressed	O	O
Brake pedal released		

O——O: Indicates continuity

3. If not as specified, replace the stoplight switch.

TURN AND HAZARD WARNING LIGHTS
Circuit Diagram



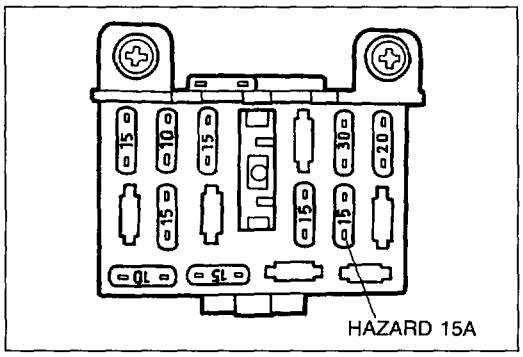


05U0TX-129

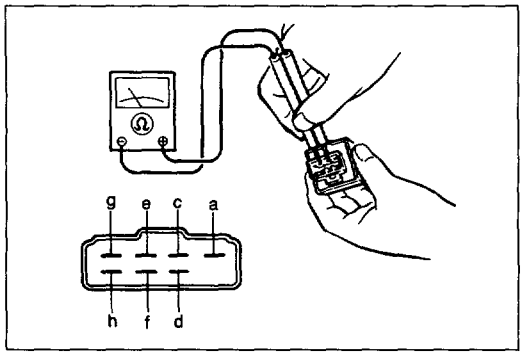
Troubleshooting

Symptom: Turn and hazard warning lights do not operate (U.S. spec.)

05U0TX-130



05U0TX-301



05U0TX-302

Step 1

1. Check HAZARD 15A fuse in the fuse box.
2. If the fuse is burned replace it. Check and repair the wire harness, if necessary.
3. If the fuse is OK, go to Step 2.

Step 2 — Check turn and hazard warning flasher unit

1. Remove the turn and hazard warning flasher unit.
2. Check continuity between terminals of the unit with an ohmmeter.

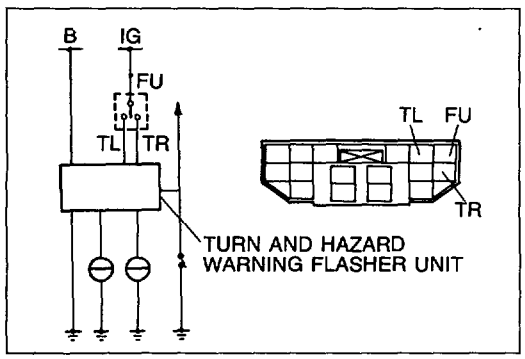
Note

- **Set the ohmmeter to $\times 1000\Omega$ range.**

Terminal +	Terminal −	Continuity	Terminal +	Terminal −	Continuity	Terminal +	Terminal −	Continuity
a	c	X	d	e	X	f	g	X
a	d	X	d	f	X	f	h	X
a	e	○	d	g	X	g	a	X
a	f	○	d	h	X	g	c	X
a	g	X	e	a	X	g	d	X
a	h	X	e	c	X	g	e	X
c	a	○	e	d	X	g	f	X
c	d	○	e	f	X	g	h	X
c	e	○	e	g	X	h	a	○
c	f	○	e	h	X	h	c	○
c	g	○	f	a	X	h	d	○
c	h	○	f	c	X	h	e	○
d	a	X	f	d	X	h	f	○
d	c	X	f	e	X	h	g	○

○: Indicates continuity X: No continuity

3. If not as specified, replace the flasher unit.
4. If the flasher unit is OK, reconnect the connector and go to Step 3.



05U0TX-131

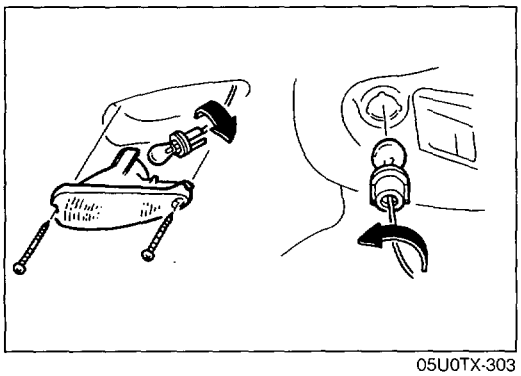
Step 3

1. Remove the knee protector, then disconnect the turn signal switch connector.
2. Check continuity between terminals of the switch.

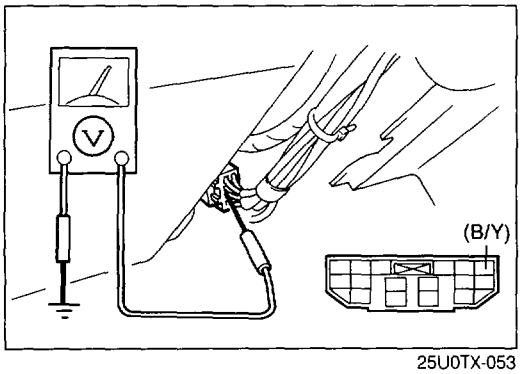
Position \ Terminal	FU	TL	TR
Left	○	○	
Right	○		○

○—○: Indicates continuity

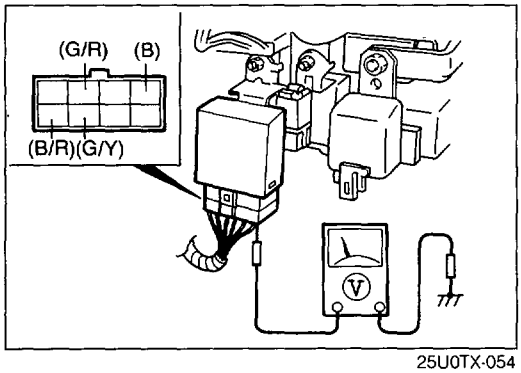
3. If not as specified, replace the turn signal switch.
4. If the turn signal switch is OK, reconnect the connector and go to Step 4.



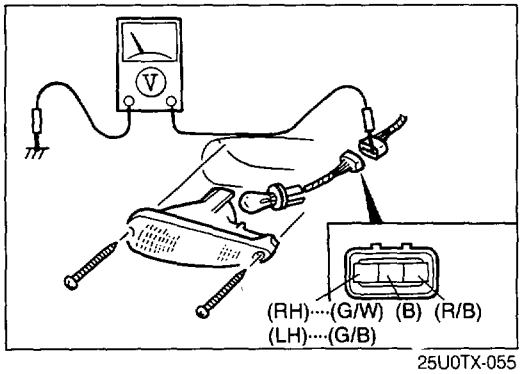
05U0TX-303



25U0TX-053



25U0TX-054



25U0TX-055

Step 4
1. Check the bulbs.
2. If a bulb is burned, replace it.
3. If the bulbs are OK, go to Step 5.

Step 5
1. Turn the ignition switch ON.
2. Measure the voltage at terminal-wire (B/Y) of the turn signal switch connector.

VB: Battery voltage

Wire	Voltage	Action
(B/Y)	VB	Go to Step 6
	0V	Repair wiring harness (HAZARD 15A fuse — Turn signal switch)

Step 6
Measure the voltage at the terminal-wires of the turn and hazard warning flasher unit connector.

VB: Battery voltage

Wire	Condition	Voltage	Action
(B)	Constant	VB	Repair wire harness (Flasher unit — Body ground)
		0V	Next, check wire (G/R)
(G/R)	Turn signal switch right position	VB	Next, check wire (G/Y)
		0V	Repair wire harness (Turn signal switch — Flasher unit)
(G/Y)	Turn signal switch left position	VB	Next, check wire (B/R)
		0V	Repair wire harness (Turn signal switch — Flasher unit)
(B/R)	Constant	VB	Go to Step 7
		0V	Repair wire harness (HAZARD 15A fuse — Flasher unit)

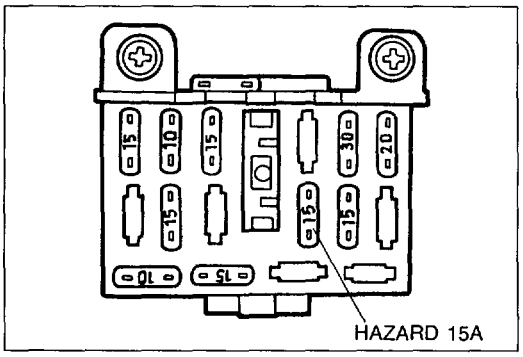
Step 7
1. Disconnect the turn signal light connectors.
2. Measure the voltage at the terminal-wires of the turn signal light connectors as shown.

VB: Battery voltage

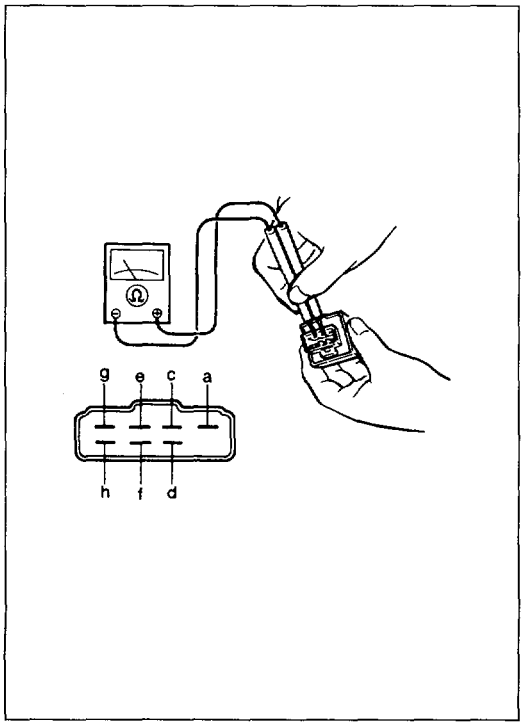
Light	Wire	Condition	Voltage	Action
Front RH	(G/W)	Turn signal switch right position	VB	Repair wire harness (Bulb — Body ground)
			0V	Repair wire harness (Flasher unit — Bulb)
Rear RH			VB	Repair wire harness (Bulb — Body ground)
			0V	Repair wire harness (Flasher unit — Bulb)
Front LH	(G/B)	Turn signal switch left position	VB	Repair wire harness (Bulb — Body Ground)
			0V	Repair wire harness (Flasher unit — Bulb)
Rear LH			VB	Repair wire harness (Bulb — Body ground)
			0V	Repair wire harness (Flasher unit — Bulb)

Symptom: Turn and hazard warning lights do not operate (Canada spec.).

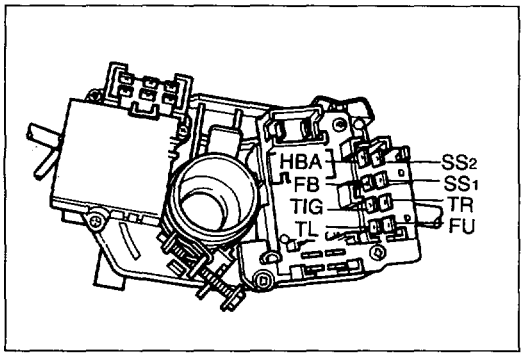
05U0TX-133



05U0TX-306



05U0TX-307



9MU0TX-166

Step 1
1. Check HAZARD 15A fuse in the fuse box.
2. If the fuse is burned, replace it. Check and repair the wire harness, if necessary.
3. If the fuse is OK, go to Step 2.

Step 2 — Check turn and hazard warning flasher unit
1. Remove the turn and hazard warning flasher unit.
2. Check continuity between terminals of the unit with an ohmmeter.

Note
- **Set the ohmmeter to ×1000Ω range.**

Terminal +	Terminal −	Continuity	Terminal +	Terminal −	Continuity	Terminal +	Terminal −	Continuity
a	c	X	d	e	X	f	g	X
a	d	X	d	f	X	f	h	X
a	e	O	d	g	X	g	a	X
a	f	O	d	h	X	g	c	X
a	g	X	e	a	X	g	d	X
a	h	X	e	c	X	g	e	X
c	a	O	e	d	X	g	f	X
c	d	O	e	f	X	g	h	X
c	e	O	e	g	X	h	a	O
c	f	O	e	h	X	h	c	O
c	g	O	f	a	X	h	d	O
c	h	O	f	c	X	h	e	O
d	a	X	f	d	X	h	f	O
d	c	X	f	e	X	h	g	O

O: Indicates continuity X: No continuity

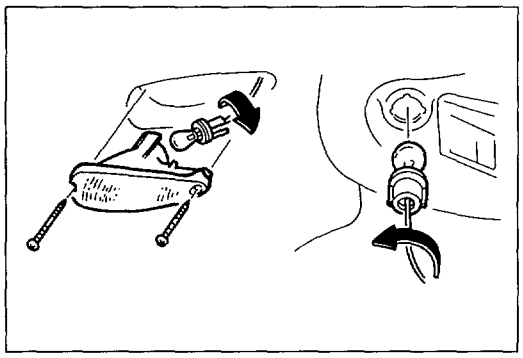
3. If not as specified, replace the flasher unit.
4. If the flasher unit is OK, reconnect the connector and go to Step 3.

Step 3 — Check turn signal switch
1. Remove the column cover, then disconnect the turn signal switch connector.
2. Check for continuity between terminals of the switch.

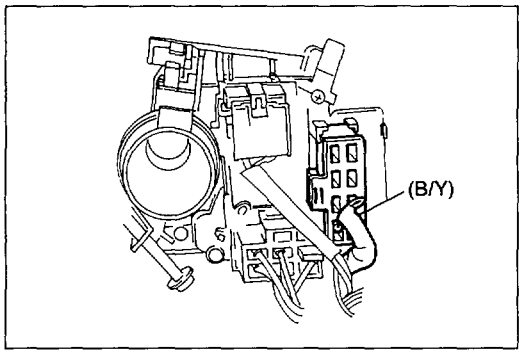
Terminal \ Position	FU	TL	TR
Left	O	O	
Right	O		O

O——O: Indicates continuity

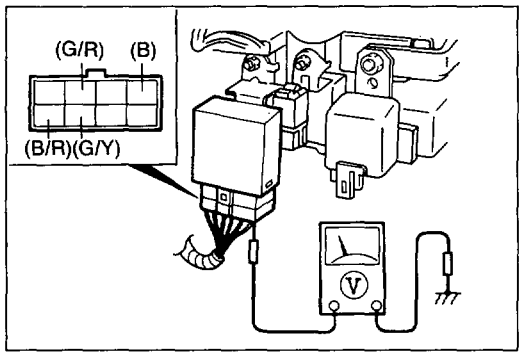
3. If not as specified, replace the turn signal switch.
4. If the turn signal switch is OK, reconnect the connector and go to Step 4.



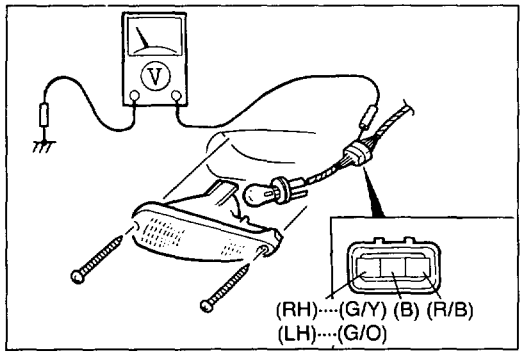
05U0TX-308



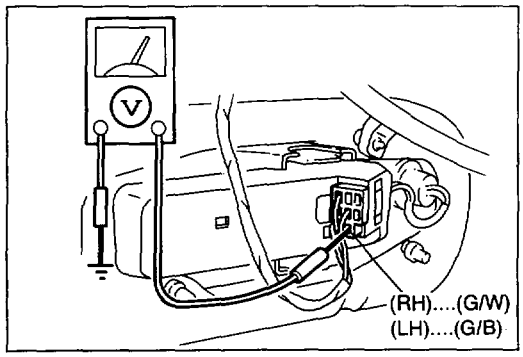
25U0TX-056



25U0TX-057



25U0TX-058



Step 4
1. Check the bulbs.
2. If a bulb is burned, replace it.
3. If the bulbs are OK, go to Step 5.

Step 5
1. Turn the ignition switch ON.
2. Measure the voltage at terminal-wire (B/Y) of the turn signal switch connector.

VB: Battery voltage

Wire	Voltage	Action
(B/Y)	VB	Go to Step 6
	0V	Repair wire harness (HAZARD 15A fuse — Turn signal switch)

Step 6
Measure the voltage at the terminal-wires of the turn and hazard warning flasher unit connector.

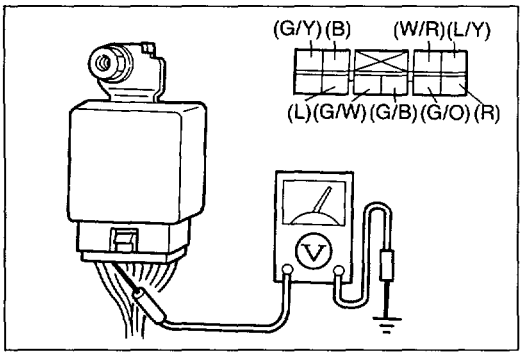
VB: Battery voltage

Wire	Condition	Voltage	Action
(B)	Constant	VB	Repair wire harness (Flasher unit — Body ground)
		0V	Next, check wire (G)
(G/R)	Turn signal switch right position	VB	Next, check wire (G/R)
		0V	Repair wire harness (Turn signal switch — Flasher unit)
(G/Y)	Turn signal switch left position	VB	Next, check wire (Y/G)
		0V	Repair wire harness (Turn signal switch — Flasher unit)
(B/R)	Constant	VB	Go to Step 7
		0V	Repair wire harness (HAZARD 15A fuse — Flasher unit)

Step 7
Measure the voltage at the terminal-wires of the turn signal light connectors as shown.

VB: Battery voltage

Light	Wire	Condition	Voltage	Action
Front RH	(G/Y)	Turn signal switch right position	VB	Repair wire harness (Bulb — Body ground)
			0V	Go to Step 8
Rear RH	(G/W)		VB	Repair wire harness (Bulb — Body ground)
			0V	Repair wire harness (Flasher unit — Bulb)
Front LH	(G/O)	Turn signal switch left position	VB	Repair wire harness (Bulb — Body Ground)
			0V	Go to Step 8
Rear LH	(G/B)		VB	Repair wire harness (Bulb — Body ground)
			0V	Repair wire harness (Flasher unit — Bulb)



25U0TX-059

Step 8

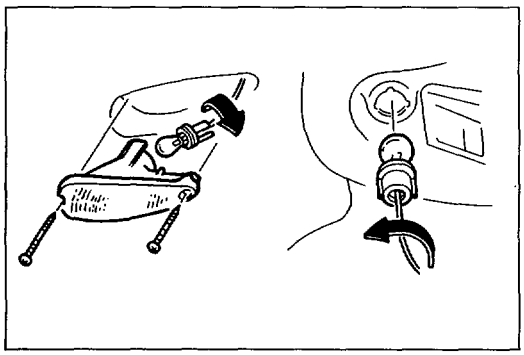
Measure the voltage at the terminal-wires of the DRL connector as shown.

VB: Battery voltage

Wire	Condition	Voltage	Action
(G/W)	Turn signal switch right position	VB	Next, check wire (G/Y)
		0V	Repair wire (G/W) (Flasher unit—DRL unit)
(G/Y)		VB	Repair wire (G/Y) (DRL unit—Bulb)
		0V	Check DRL unit (Refer to page T–18)
(G/B)	Turn signal switch left position	VB	Next, check wire (G/O)
		0V	Repair wire (G/O) (Flasher unit—DRL unit)
(G/O)		VB	Repair wire (G/O) (DRL unit—Bulb)
		0V	Check DRL unit (Refer to page T–18)

Symptom: Turn signal(s) flashes rapidly.

9MU0TX-175



9MU0TX-176

Remedy

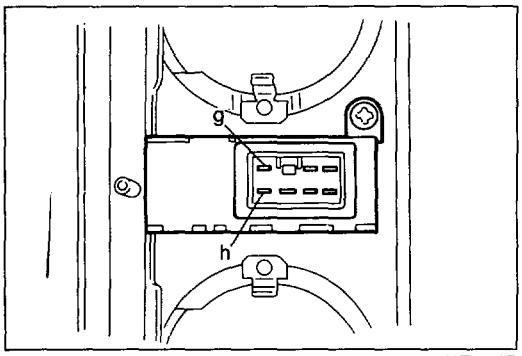
Check the bulbs and the wiring harness between each bulb and the body ground (rapidly flashing side).

Note

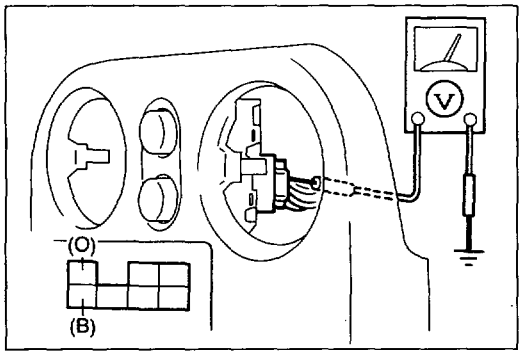
- **Rapid flashing is a flasher unit function to warn of a bad bulb or an open circuit.**

**Symptom: Hazard warning function does not operate.
(Turn signals function normally.)**

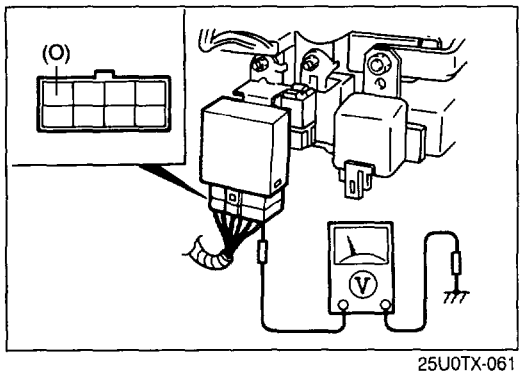
05U0TX-310



05U0TX-137



25U0TX-060



25U0TX-061

Step 1 — Check hazard warning switch.

1. Remove the hazard warning switch.
2. Check continuity between terminals of the switch.

Switch	Terminal	
	g	h
ON	○———	———○
OFF		

○——○: Indicates continuity

3. If not as specified, replace the right cluster switch assembly.
4. If the cluster switch is OK, go to Step 2.

Step 2

Measure the voltage at the terminal-wires of the hazard warning switch connector as shown.

VB: Battery voltage

Wire	Voltage	Action
(O)	VB	Next, check wire (B)
	0V	Go to Step 3
(B)	VB	Repair wire harness (Hazard warning switch — Body ground)
	0V	Replace turn and hazard flasher unit

Step 3

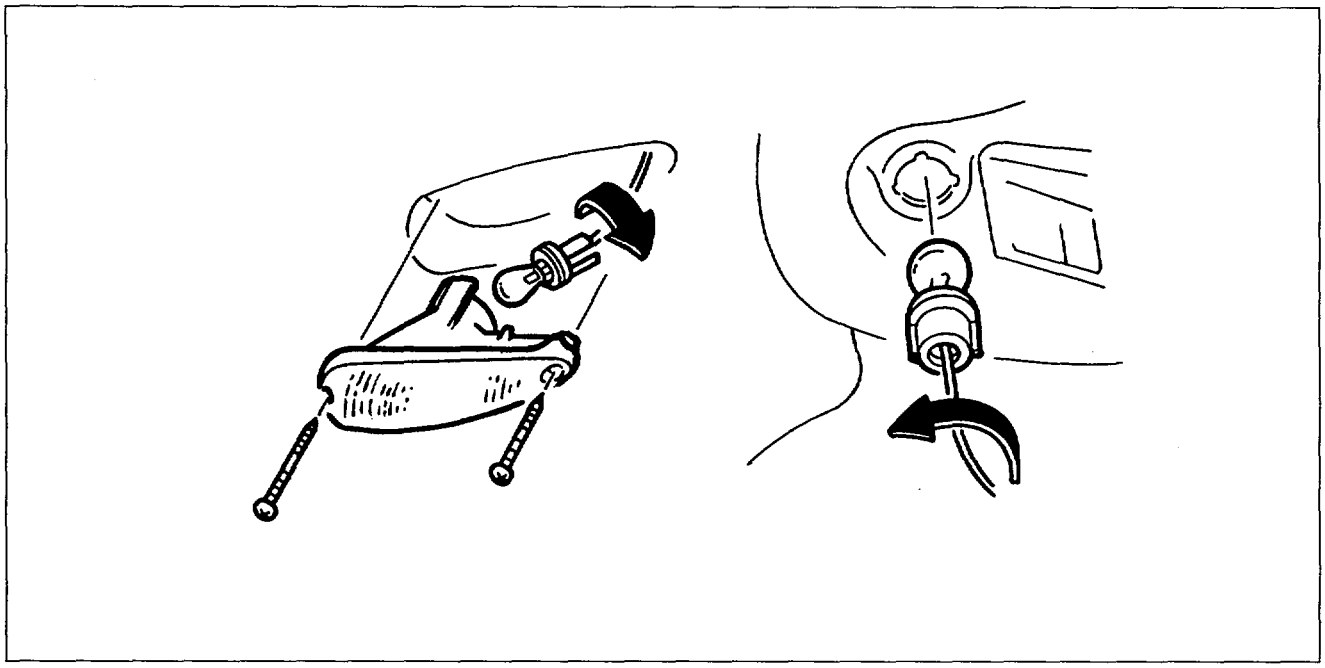
Check the voltage at terminal-wire (O) of the turn and hazard flasher unit connector.

VB: Battery voltage

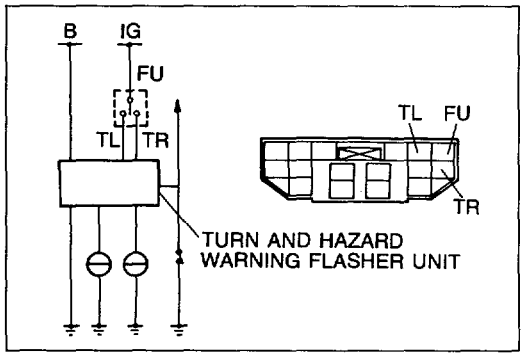
Wire	Voltage	Action
(O)	VB	Repair wire harness (Flasher unit — Hazard warning switch)
	0V	Replace turn and hazard flasher unit

Removal / Installation

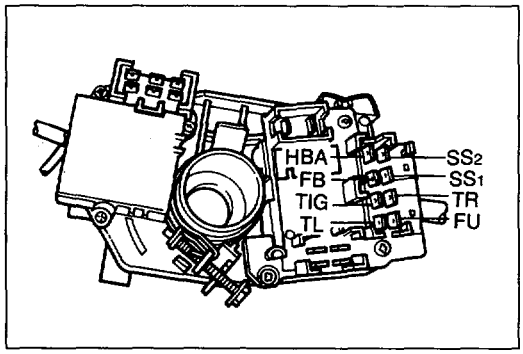
Remove and install as shown in the figure.



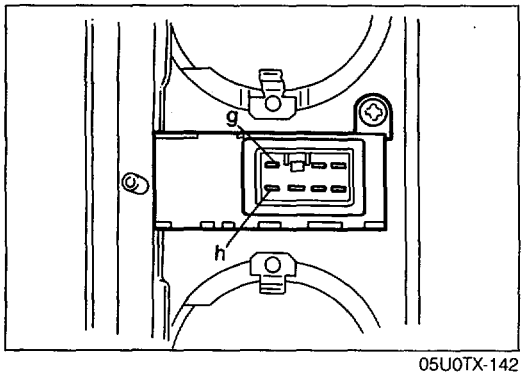
05U0TX-139



05U0TX-140



05U0TX-141



05U0TX-142

Inspection

Turn signal switch

(U.S. spec.)

1. Remove the knee protector.
2. Disconnect the combination switch connector.
3. Check continuity between terminals of the switch.

Switch	Terminal		
	FU	TL	TR
Left	○	○	
Right	○		○

○—○: Indicates continuity

4. If not as specified, replace the combination switch as an assembly.

(Canada spec.)

1. Remove the column cover, then disconnect the turn signal switch connector.
2. Check for continuity between terminals of the switch.

Terminal / Position	FU	TL	TR
Left	○	○	
Right	○		○

○—○: Indicates continuity

3. If not as specified, replace the turn signal switch.

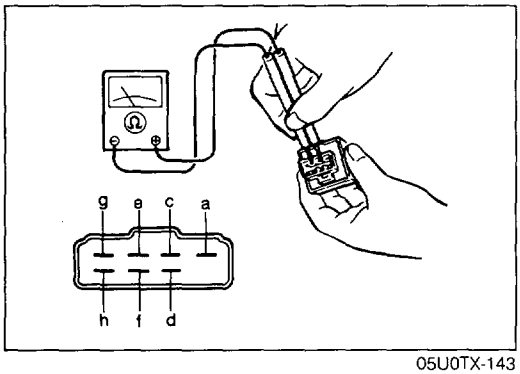
Hazard warning switch

1. Remove the hazard switch.
2. Check continuity between terminals of the switch.

Switch	Terminal	
	g	h
On	○	○
Off		

○—○: Indicates continuity

3. If not as specified, replace the hazard switch and retractor switch as an assembly.



05U0TX-143

Turn and hazard warning flasher unit

1. Check continuity between terminals of the flasher unit.

Note

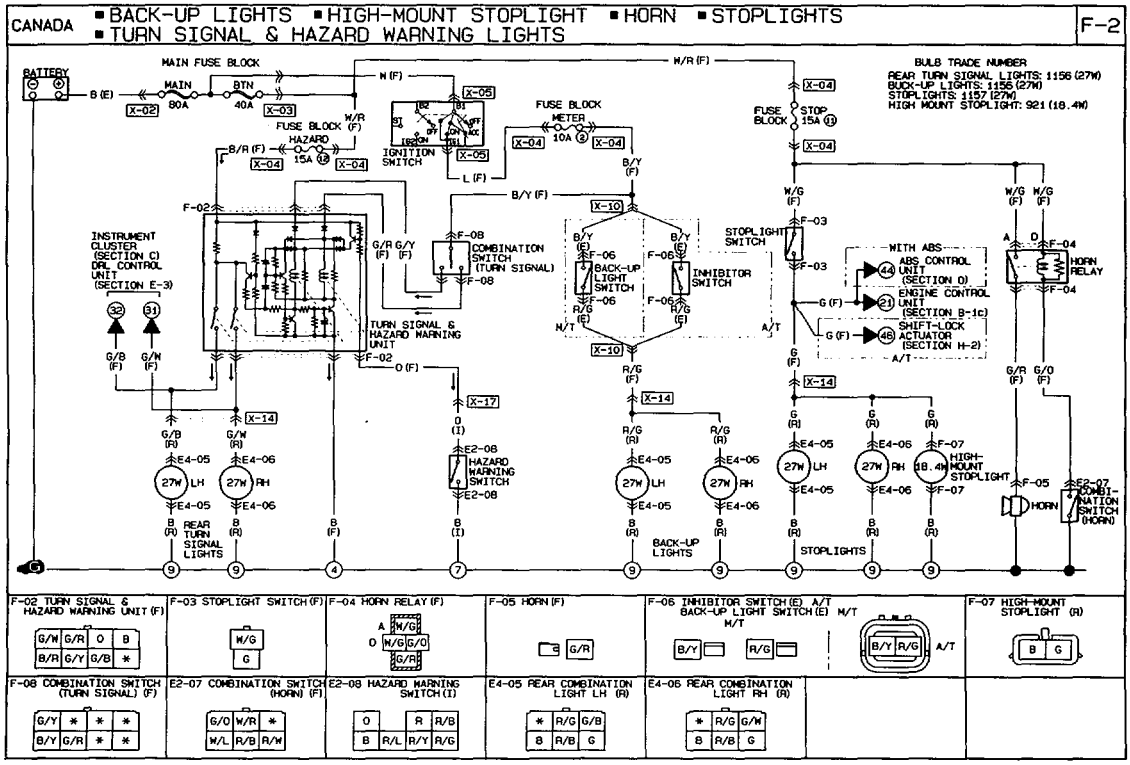
- **Set the ohmmeter to ×1000Ω range.**

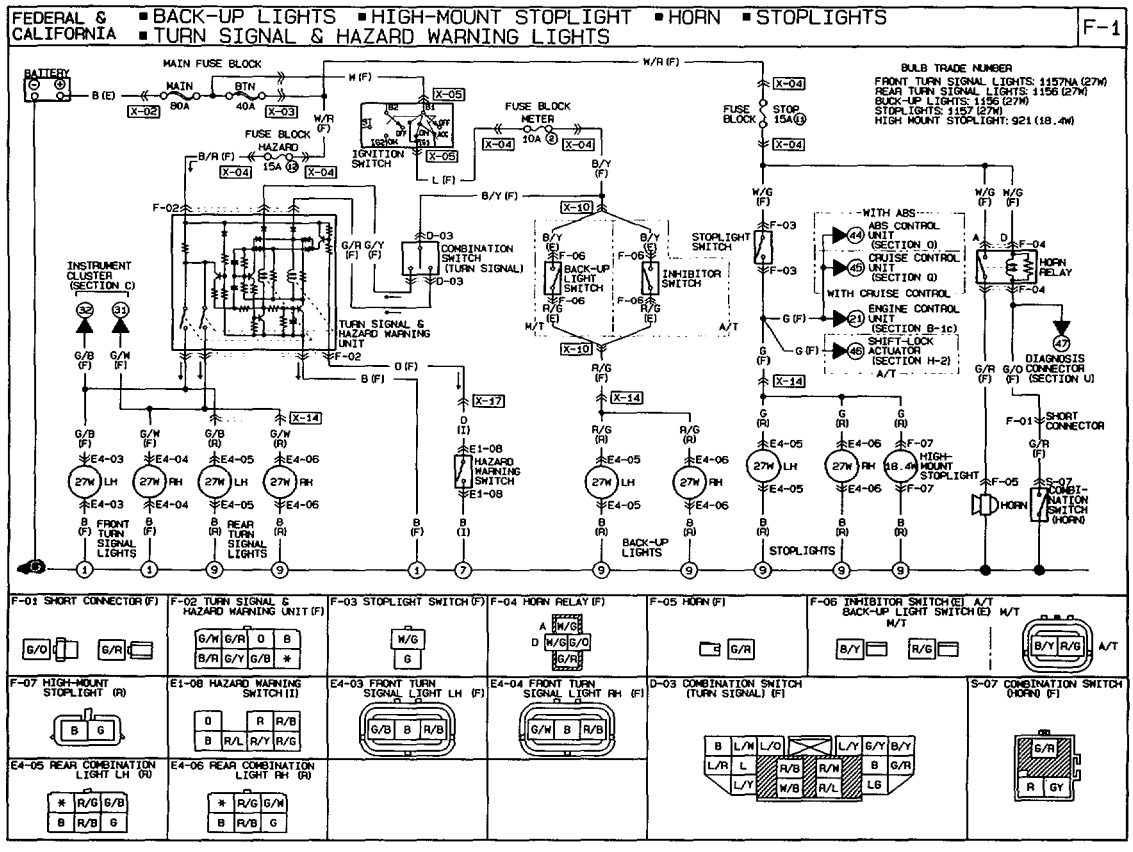
Terminal +	Terminal −	Continuity	Terminal +	Terminal −	Continuity	Terminal +	Terminal −	Continuity
a	c	X	d	e	X	f	g	X
a	d	X	d	f	X	f	h	X
a	e	○	d	g	X	g	a	X
a	f	○	d	h	X	g	c	X
a	g	X	e	a	X	g	d	X
a	h	X	e	c	X	g	e	X
c	a	○	e	d	X	g	f	X
c	d	○	e	f	X	g	h	X
c	e	○	e	g	X	h	a	○
c	f	○	e	h	X	h	c	○
c	g	○	f	a	X	h	d	○
c	h	○	f	c	X	h	e	○
d	a	X	f	d	X	h	f	○
d	c	X	f	e	X	h	g	○

○: Indicates continuity X: No continuity

2. If not as specified, replace the flasher unit.

BACK-UP LIGHTS
Circuit Diagram

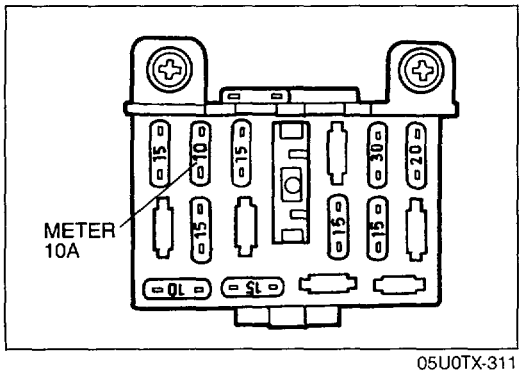




Troubleshooting

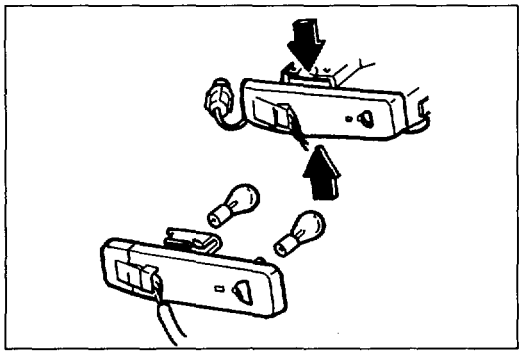
Symptom: Back-up light(s) does not operate.

9MU0TX-185



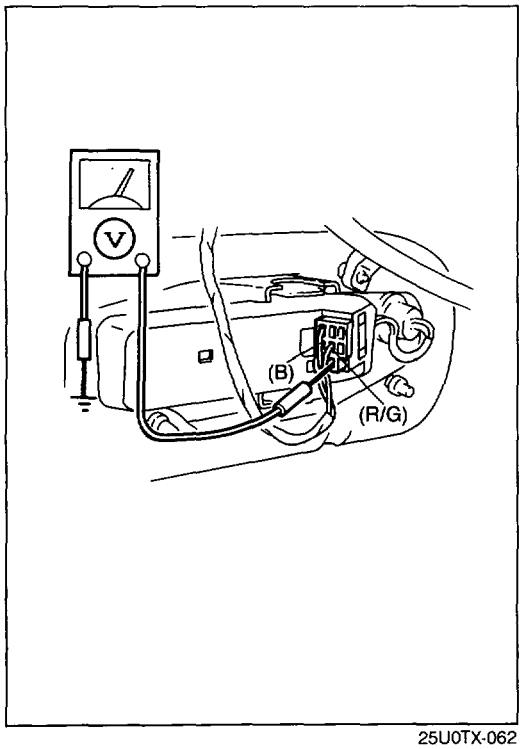
05U0TX-311

Step 1
Check METER 10A fuse.
If the fuse is burned, replace it. Check and repair the wire harness, if necessary.
If the fuse is OK, go to Step 2.



05U0TX-313

Step 2
Check the back-up light bulbs.
If a bulb is burned, replace it.
If the bulbs are OK, go to Step 3.

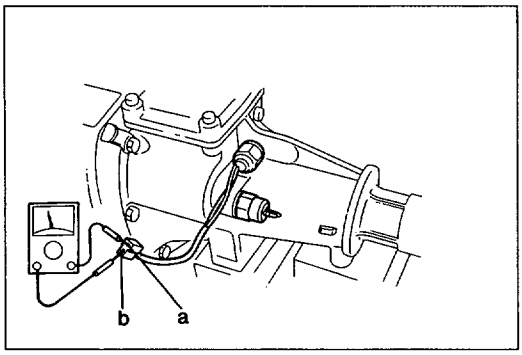


25U0TX-062

Step 3
1. Turn the ignition switch ON, and shift the transmission to reverse.
2. Measure the voltage at the terminal-wires of the back-up light connectors.

VB: Battery voltage

Back-up light	Wire	Voltage	Action
Left	(R/G)	VB	Next, check wire (B)
		0V	Go to Step 4
	(B)	VB	Repair ground wire (B)
		0V	Check for poor connection of back-up light connector
Right	(R/G)	VB	Next, check wire (B)
		0V	Go to Step 4
	(B)	VB	Repair ground wire (B)
		0V	Check for poor connection of back-up light connector



05U0TX-145

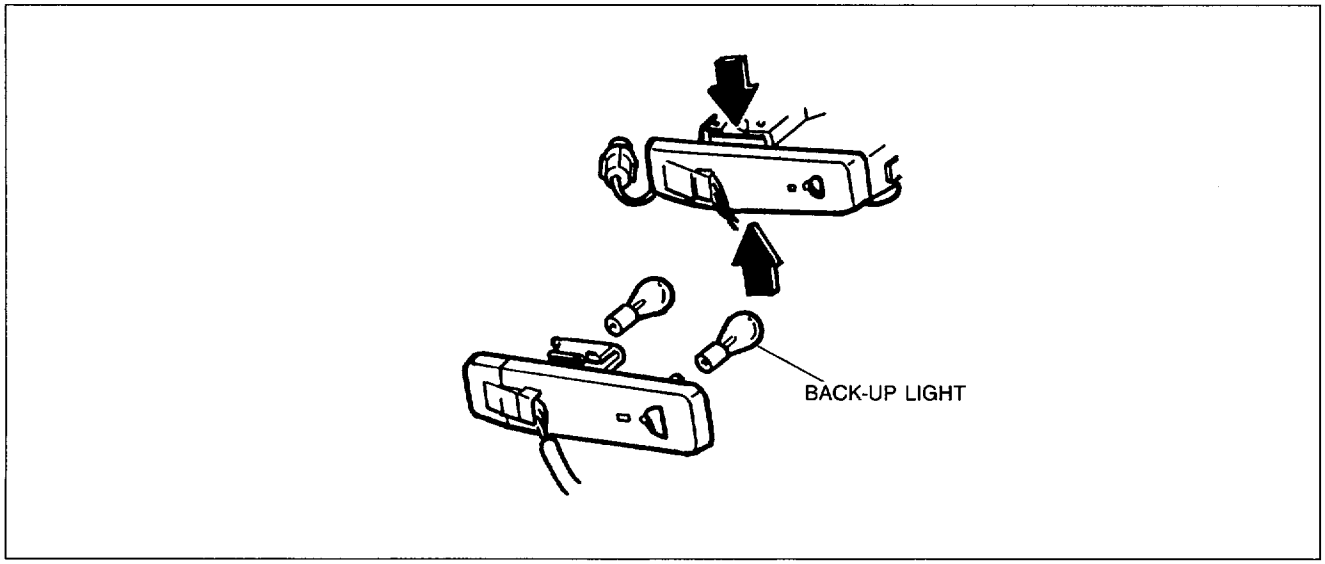
Step 4

1. Disconnect the back-up light switch connectors.
2. Check continuity between terminals of the switch with the transmission in reverse.

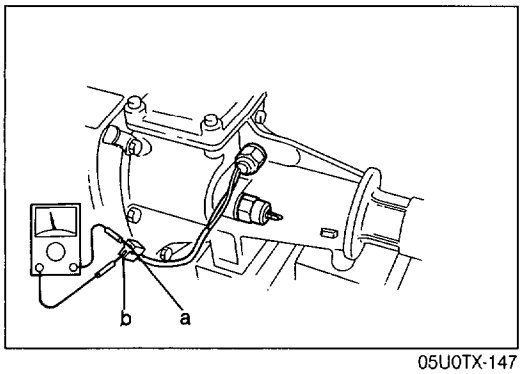
Continuity	Action
Yes	Repair wire harness (METER 10A fuse — Back-up light switch — Back-up light)
No	Replace switch

Removal / Installation

Remove and install as shown in the figure.



05U0TX-146



05U0TX-147

Inspection

Back-up light switch

1. Disconnect the back-up light switch connectors.
2. Check continuity between terminals of the switch as shown.

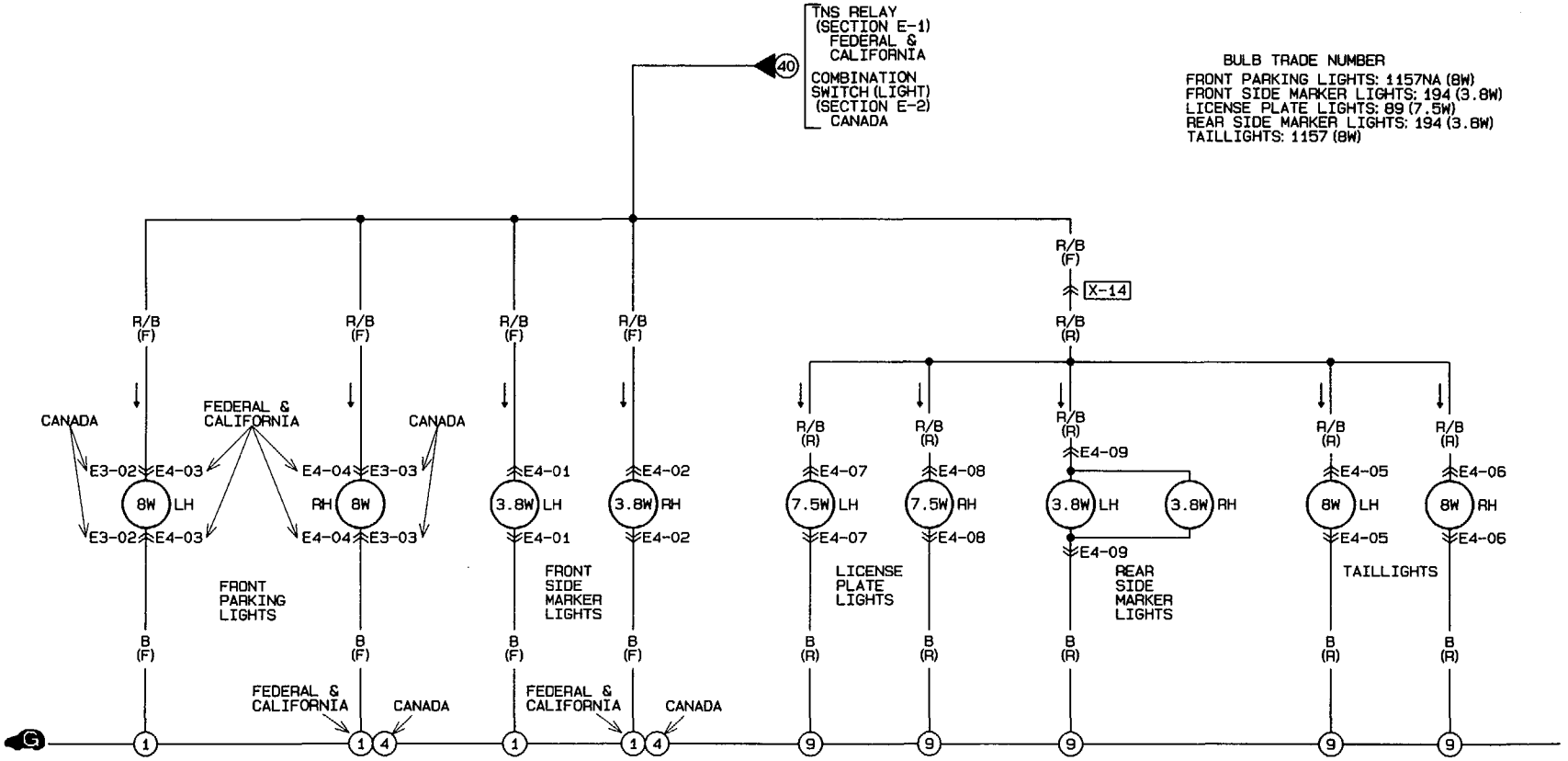
Transmission	Continuity
Reverse	Yes
Others	No

3. If not as specified, replace the switch.

TAILLIGHTS, SIDE MARKER LIGHTS, PARKING LIGHTS AND LICENSE PLATE LIGHTS
Circuit Diagram

■ FRONT PARKING LIGHTS ■ FRONT SIDE MARKER LIGHTS
■ LICENSE PLATE LIGHTS ■ TAILLIGHTS ■ REAR SIDE MARKER LIGHTS

E-4

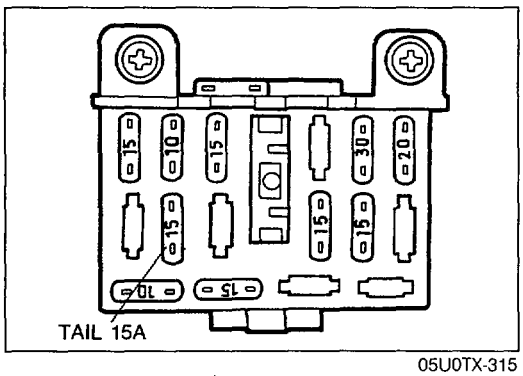


E4-01 FRONT SIDE MARKER LIGHT LH (F) B R/B	E4-02 FRONT SIDE MARKER LIGHT RH (F) B R/B	E3-02 FRONT PARKING E4-03 LIGHT LH (F) (G/O) G/B B R/B	E3-03 FRONT PARKING E4-04 LIGHT RH (F) (G/Y) G/W B R/B	E4-05 TAILLIGHT LH (R) * R/G G/B B R/B G	E4-06 TAILLIGHT RH (R) * R/G G/W B R/B G	E4-07 LICENSE PLATE LIGHT LH (R) B R/B
E4-08 LICENSE PLATE LIGHT RH (R) B R/B	E4-09 REAR SIDE MARKER LIGHTS (R) B R/B	( ) . . . CANADA	( ) . . . CANADA			

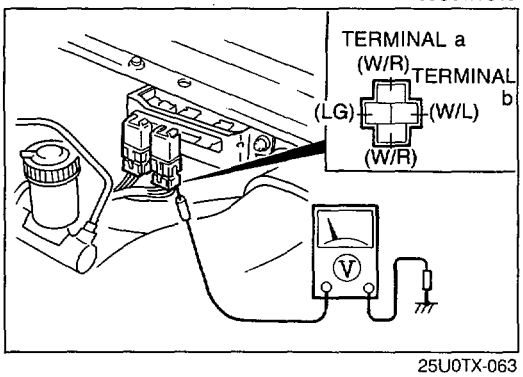
Troubleshooting

Symptom: No lights illuminate (taillights, side marker lights, and license plate lights). (U.S. spec.)

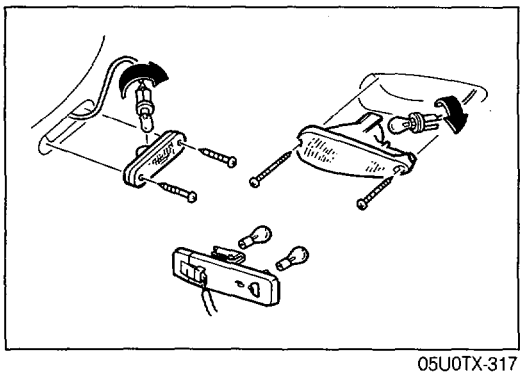
05U0TX-314



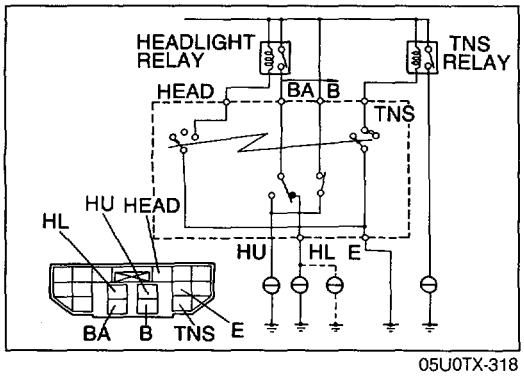
05U0TX-315



25U0TX-063



05U0TX-317



05U0TX-318

Step 1
1. Check TAIL 15A.
2. If the fuse is burned, replace it. Check and, if necessary, repair the wiring harness.
3. If the fuses are OK, go to Step 2.

Step 2
1. Turn the headlight switch ON.
2. Measure the voltage at the following terminal wires of the TNS relay connector.

VB: Battery voltage

Wire	Voltage	Action
(W/L)	VB	Go to Step 3
	0V	Next check wire (LG)
(LG)	VB	Go to Step 4
	0V	Next check wire (W/R: Terminal a)
(W/R) Terminal a	VB	Next check wire (W/R: Terminal b)
	0V	Repair wire (W/R) (TAIL 15A fuse — TNS relay)
(W/R) Terminal b	VB	Replace TNS relay
	0V	Repair wire (W/R) (TAIL 15A fuse — TNS relay)

Step 3
1. Check the bulbs of each light.
2. If the bulb is burned, replace the bulb.
3. If the bulbs are OK, repair wiring harness between the TNS relay and the body ground of each light.

Step 4
1. Disconnect the negative battery cable.
2. Remove the knee protector.
3. Disconnect the combination switch connector.
4. Check continuity between the following terminals of the combination switch.

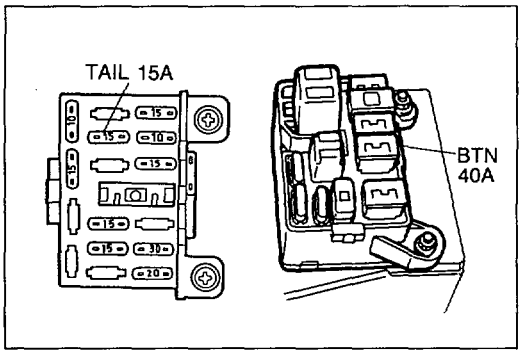
Position		Terminal						
		E	HL	HU	TNS	HEAD	BA	B
Headlight	Low beam	○			○	○		
		○			○		○	
	High beam	○				○		
		○			○			
				○			○	
Passing				○				○
Taillights, Parking		○			○			

○—○: Indicates continuity

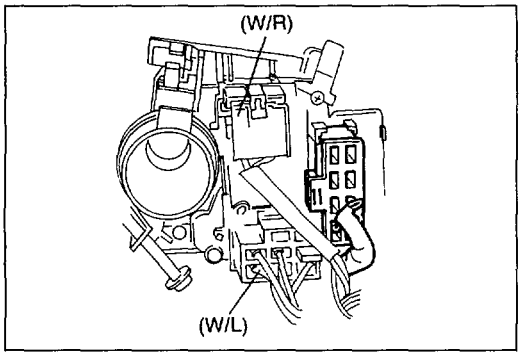
5. If not as specified, replace the combination switch.
6. If correct, repair the wiring harness. (TNS relay — combination switch)

Symptom: No lights illuminate (taillights, side marker lights, and license plate lights). (Canada spec.)

05U0TX-319



05U0TX-320



25U0TX-064

Step 1

1. Check 15A and A fuses.
2. If the fuse is burned, replace it. Check and, if necessary, repair the wiring harness.
3. If the fuses are OK, go to Step 2.

Step 2

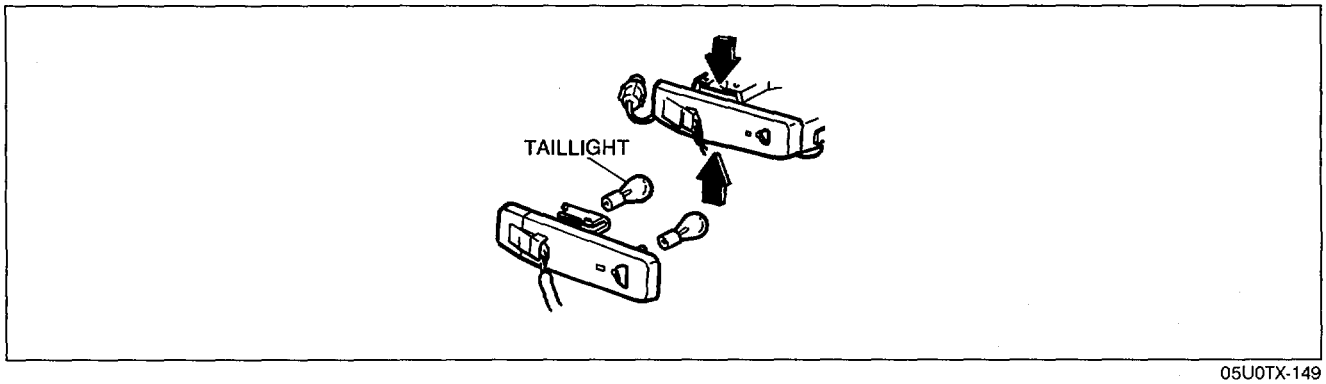
1. Turn the headlight switch ON.
2. Measure the voltage at the following terminal-wires of the combination switch connector.

VB: Battery voltage

Wire	Voltage	Action
(W/R)	VB	Next check wire (W/L)
	0V	Repair wire (W/R) (TAIL 15A fuse — combination switch)
(W/L)	VB	Repair the wiring harness (Combination switch — body ground of each light)
	0V	Replace headlight switch

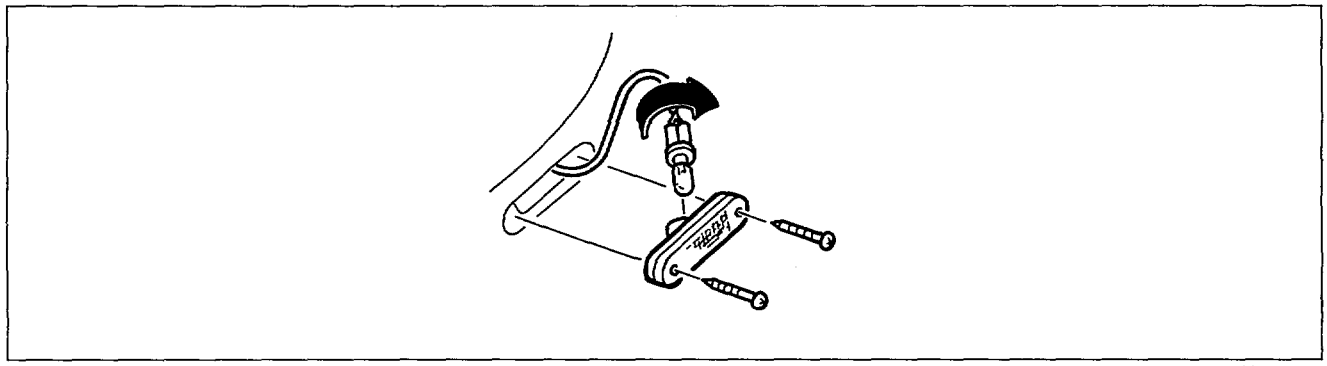
Removal / Installation
Remove and install as shown in the figures.

Taillights



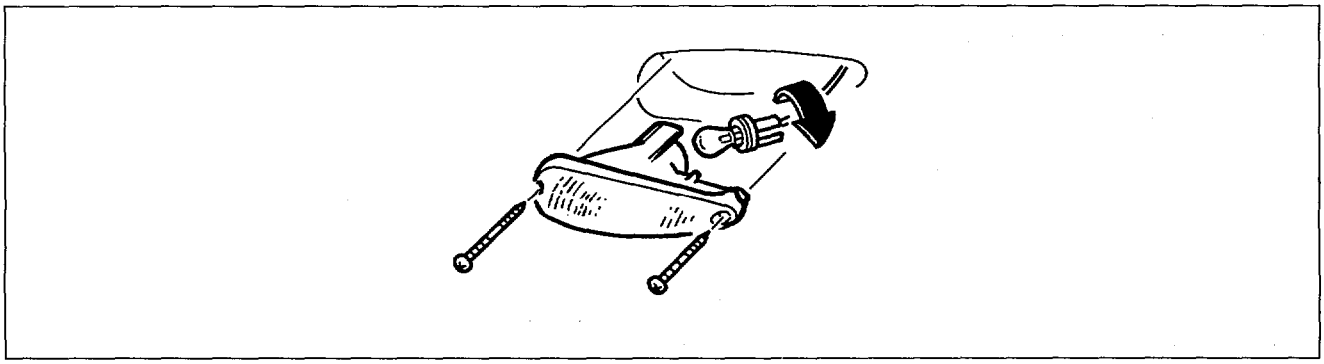
05U0TX-149

Side marker lights



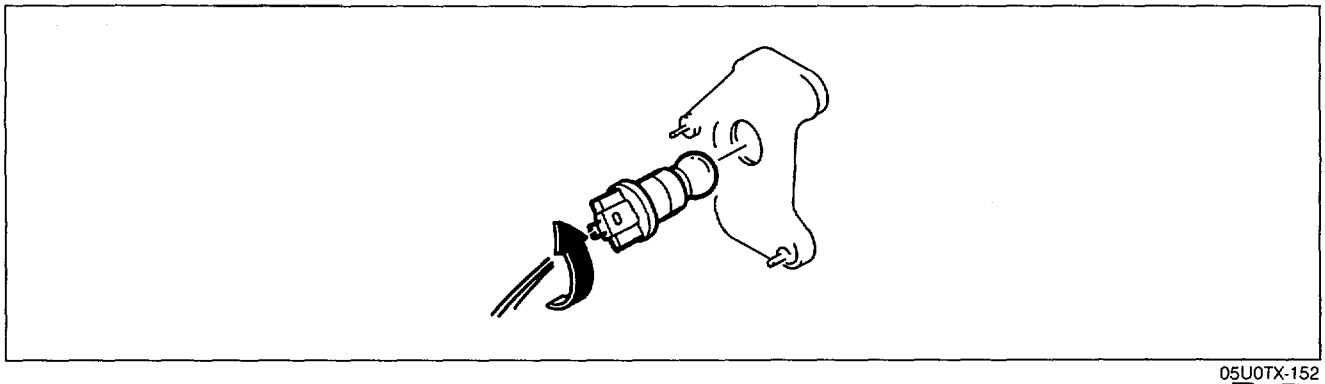
05U0TX-150

Parking lights



05U0TX-151

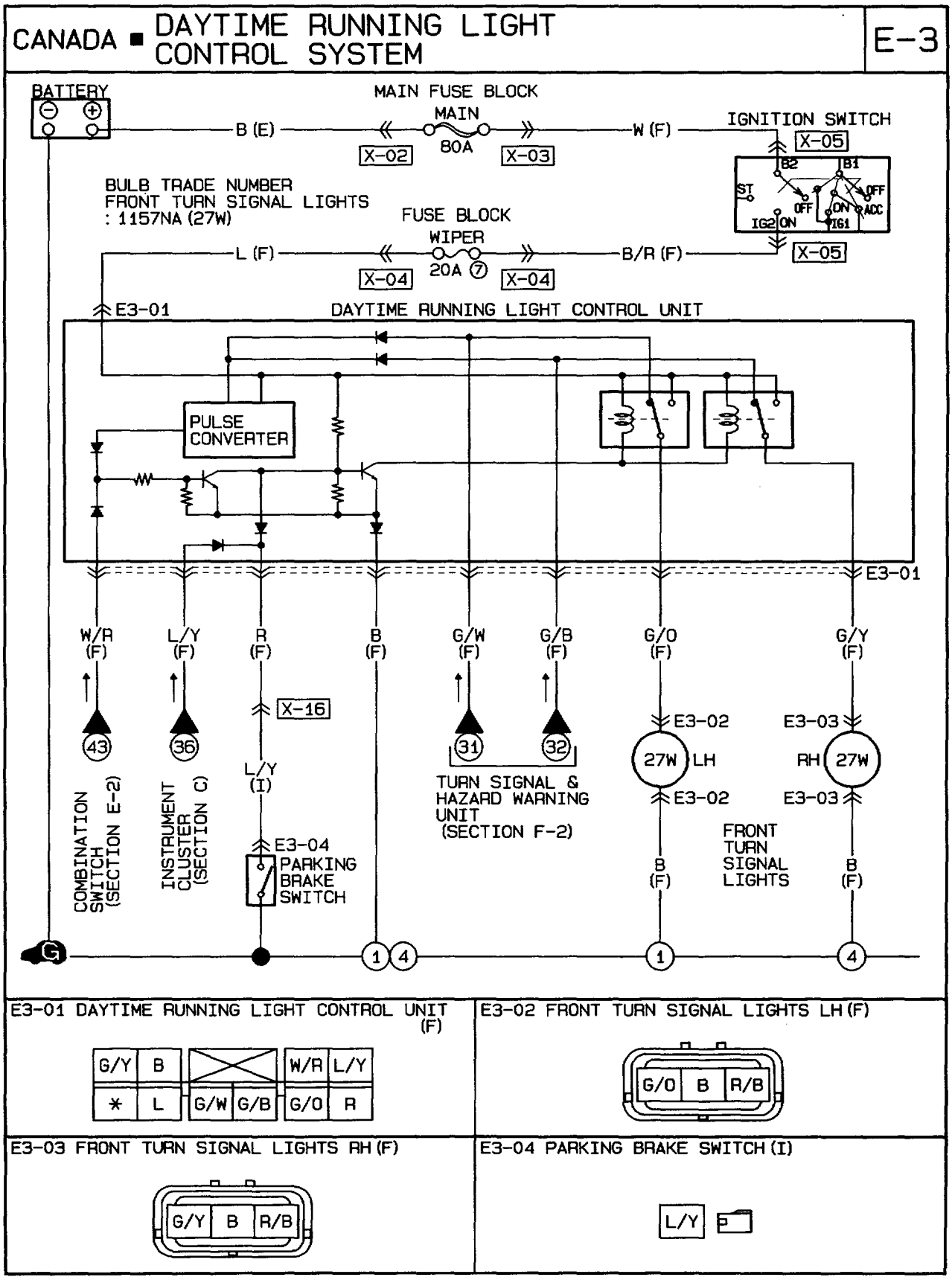
License plate lights



05U0TX-152

DAYTIME RUNNING LIGHTS (DRL) (Canada spec.)

Circuit Diagram

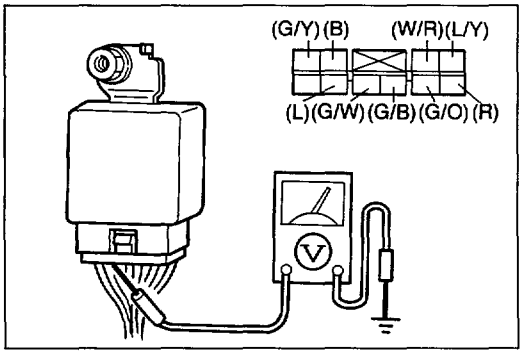


05U0TX-155

Symptom: Daytime running lights (DRL) do not operate. (Turn signals function normally.)

DRL operate with engine running and following switches are off:
- **Headlight switch**
- **Turn signal switch (Selected turn signal light flashes, other light remains illuminated)**
- **Hazard warning switch**
- **Parking brake switch (Parking brake released)**

15U0TX-502



05U0TX-157

Step 1

Warning
- **Position the vehicle on a flat surface and block the wheels to prevent vehicle movement.**

1. Turn on the ignition switch.
2. Measure the voltage at the following terminal-wires of the DRL unit.
3. If correct, replace the DRL unit.

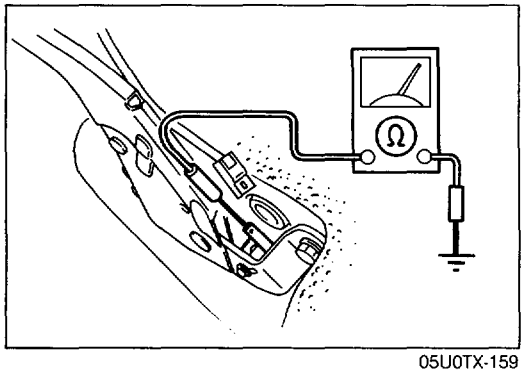
VB: Battery voltage

Wire	Connected to	Test condition	Specification	Action
(L)	WIPER 20A fuse	Constant	VB	Repair wire (L) (WIPER 20A—DRL unit)
(B)	Ground	Constant	0V	Repair wire (B) (DRL unit—Body ground)
(R)	Parking brake switch	Parking brake released	VB	Go to Step 2
(W/R)	Headlight switch	Headlight switch off	0V	Go to Step 3

25U0TX-065

Step 2

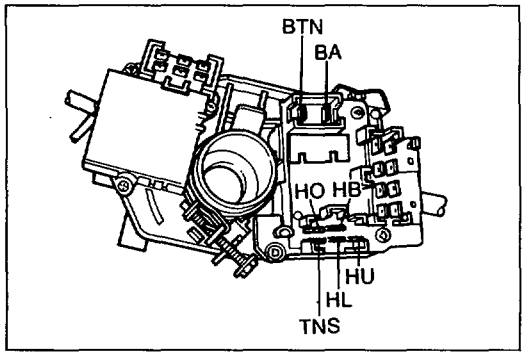
1. Disconnect the parking brake switch connector.
2. Check continuity between the terminal of the switch and a body ground.



05U0TX-159

Parking brake lever	Continuity
Pulled one notch	Yes
Released	No

3. If not as specified, adjust or replace the parking brake switch.
4. If correct, repair wires (R) and (L/Y). (Parking brake switch — DRL unit)



05U0TX-160

Step 3

1. Remove the column cover and disconnect the connectors of the headlight switch.
2. Check continuity between the terminals of the headlight switch connector.

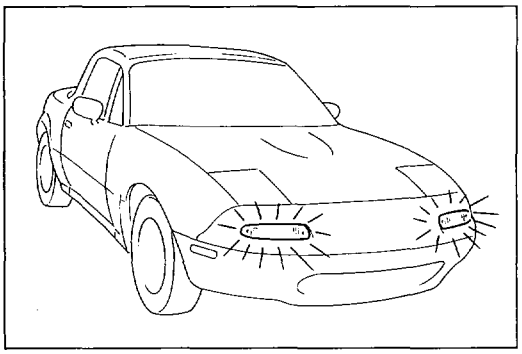
Position	Terminal	
	BTN	TNS
Headlight switch ON	O	O
Headlight switch OFF		

O——O: Indicates continuity

3. If not as specified, replace the headlight switch.
4. If correct, repair wire (W/R). (Headlight switch — DRL unit)

Symptom: Daytime running lights (DRL) function does not cancel.

05U0TX-161



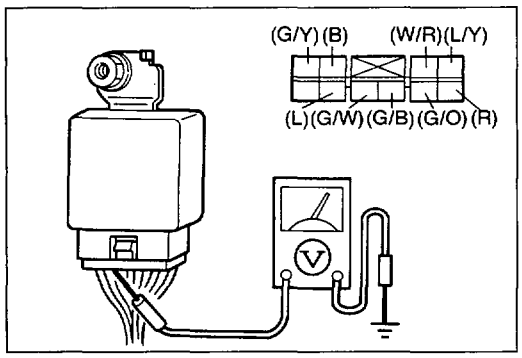
05U0TX-162

Step 1

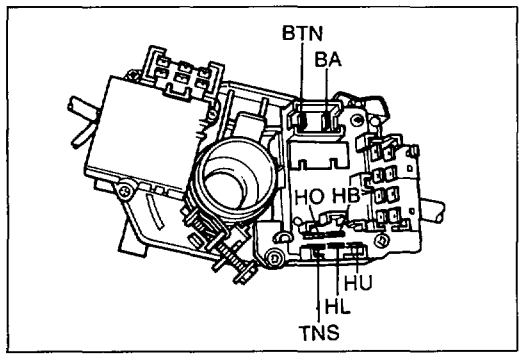
1. Turn the ignition switch ON.
2. Verify the symptom by operating the following switches; the DRL should cancel. Go to the specified Step.
   - Headlight switch.
   - Hazard warning switch.
   - Turn signal switch.
   - Parking brake switch (lever pulled one notch).

Symptom: DRL function not canceled when	Next Step
Headlight switch ON	Step 2
Hazard warning switch ON	Step 4
Turn signal switch ON	Step 4
Parking brake switch ON	Step 5

05U0TX-163



25U0TX-066



05U0TX-165

Step 2

1. Turn on the ignition switch.
2. Turn on the headlight switch.
3. Check the voltage at the terminal-wire (W/R) of the DRL unit connector.

VB: Battery voltage

Wire	Voltage
(W/R)	VB

4. If not as specified, go to Step 3.
5. If correct, replace the DRL unit.

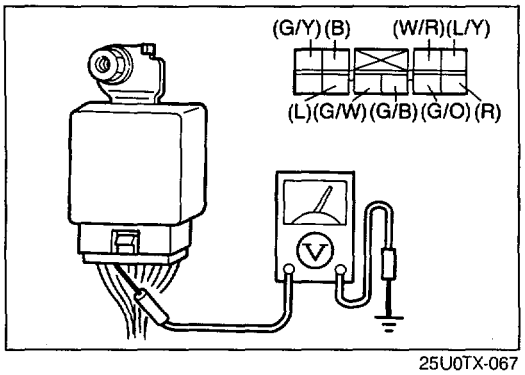
Step 3

1. Remove the column cover and disconnect the connectors of the headlight switch.
2. Check continuity between the terminals of the headlight switch connector.

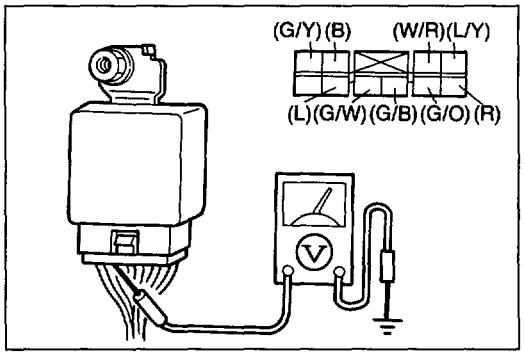
Position	Terminal	
	BTN	TNS
Headlight switch ON	O	O
Headlight switch OFF		

O——O: Indicates continuity

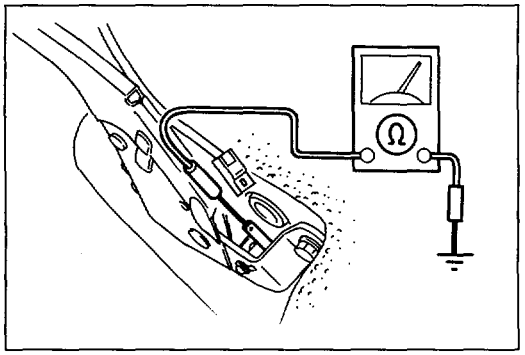
3. If not as specified, replace the headlight switch.
4. If correct repair wire (W/R). (Headlight switch — DRL unit)



25U0TX-067



05U0TX-167



05U0TX-168

Step 4
1. Turn on the ignition switch.
2. Turn on the headlight switch.
3. Check the voltage at the following terminal-wires of the DRL unit connector.

VB: Battery voltage

Wire	Voltage
(G/B)	Cycles VB and 0V
(G/W)	Cycles VB and 0V

4. If not as specified, repair the wire harness. (Turn and hazard warning flasher unit — DRL unit)
5. If correct, replace the DRL unit.

Step 5
1. Turn on the ignition switch.
2. Pull the parking brake lever more than one notch.
3. Check the voltage at terminal-wire (R) of the DRL unit connector.

Wire	Voltage
(R)	0V

4. If not as specified, go to Step 6.
5. If correct, replace the DRL unit.

Step 6
1. Disconnect the parking brake switch connector.
2. Check continuity between the terminal of the switch and a body ground.

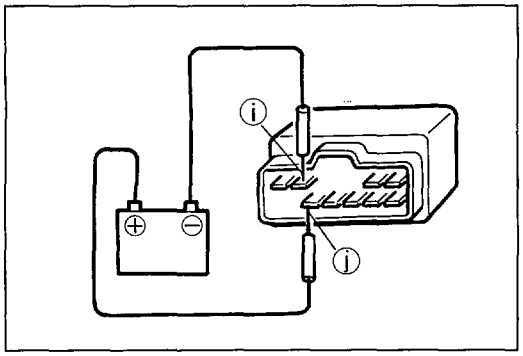
Parking brake lever	Continuity
Pulled one notch	Yes
Released	No

3. If not as specified, adjust or replace the parking brake switch.
4. If correct, repair wires (R) and (L/Y). (Parking brake switch — DRL unit)

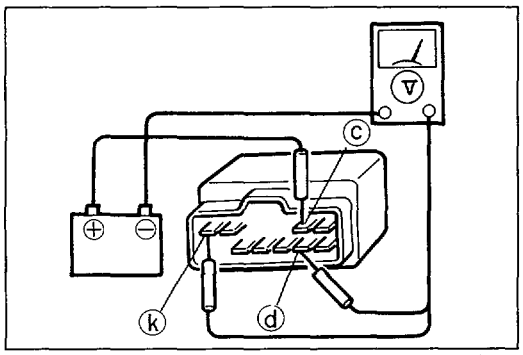
Removal / Installation
Refer to the following pages:

Item	Reference page
Headlight switch (in combination switch)	T–23
Hazard warning switch	T–25
Turn signal switch (in combination switch)	T–23
Daytime running lights (Front turn signal lights)	T–69

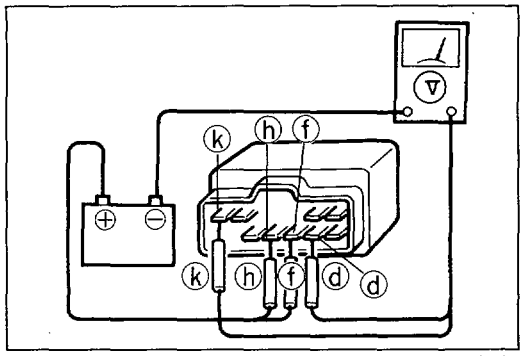
05U0TX-169



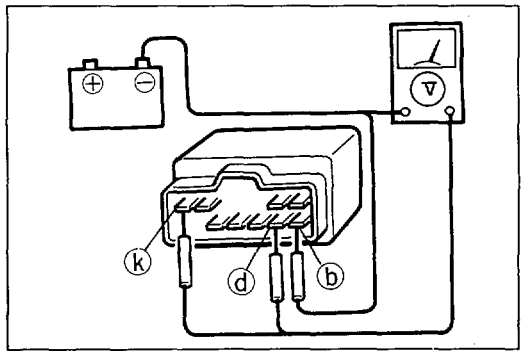
05U0TX-322



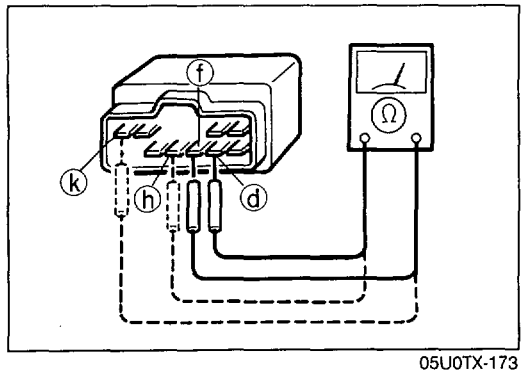
25U0TX-068



25U0TX-069



25U0TX-070



05U0TX-173

Inspection
DRL unit

Note
- **While performing the following inspection, apply 12V to terminal j and ground terminal i.**

1. Apply 12V to terminal c, and measure the voltage at terminals d and k.

VB: Battery voltage

Terminal	Voltage
d	VB
k	VB

2. If not as specified, replace the DRL unit.
3. Remove 12V from terminal c.
4. Apply 12V to terminals f and h, and measure the voltage at terminals d and k.

VB: Battery voltage

Terminal	Voltage
d	VB
k	VB

5. If not as specified, replace the DRL unit.
6. Remove 12V from terminals f and h.
7. Ground terminal b, and check the voltage at terminals d and k.

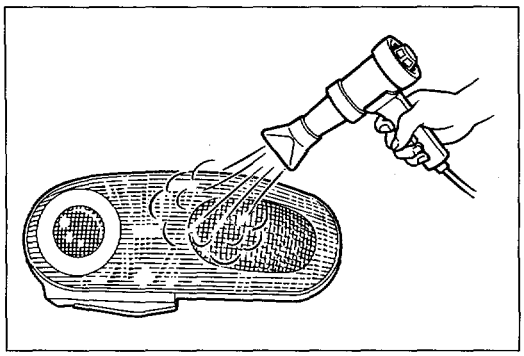
VB: Battery voltage

Terminal	Voltage
d	VB
k	VB

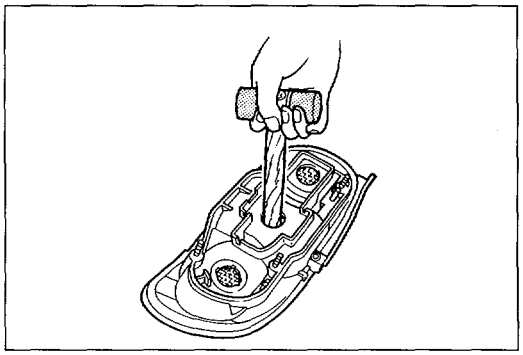
8. If not as specified, replace the DRL unit.
9. Check for continuity between terminals of the DRL unit.

Terminal	Continuity
d—f	Yes
h—k	Yes

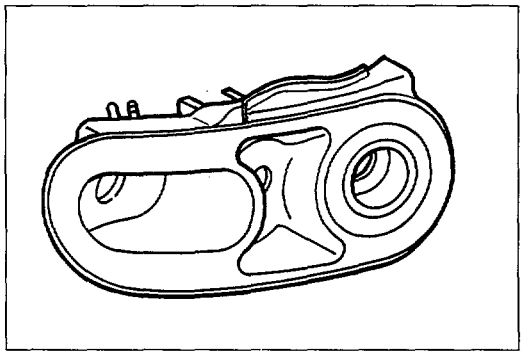
10. If not as specified, replace the DRL unit.



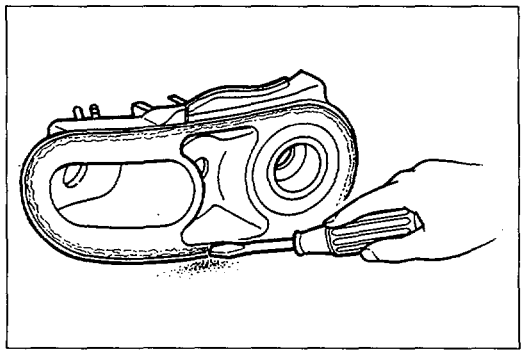
05U0TX-174



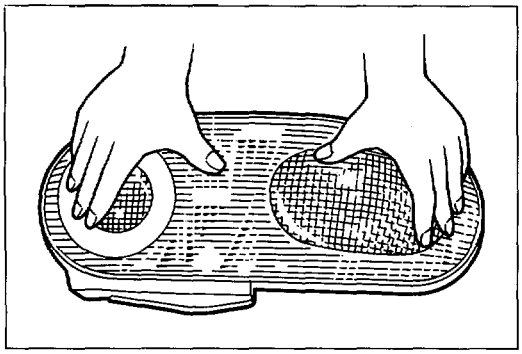
76U14X-034



05U0TX-323



86U14X-079



86U14X-080

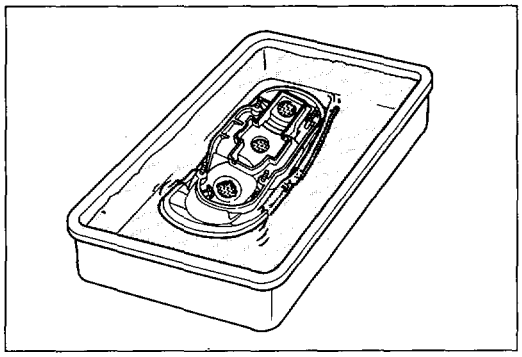
REAR COMBINATION LIGHT LENS

Replacement of Rear Combination Light Lens

1. Use a hot air blower to soften the "hot melt" (bonding agent) around the lens.
2. Remove the lens from the light housing by pushing the rear of the lens with a hammer handle or round bar.
3. Heat the light housing, and remove the "hot melt" and any fragments of the lens.

Note
- **The "hot melt" should be reused if possible.**
- **If the "hot melt" can be reused, the Step 4 is unnecessary.**

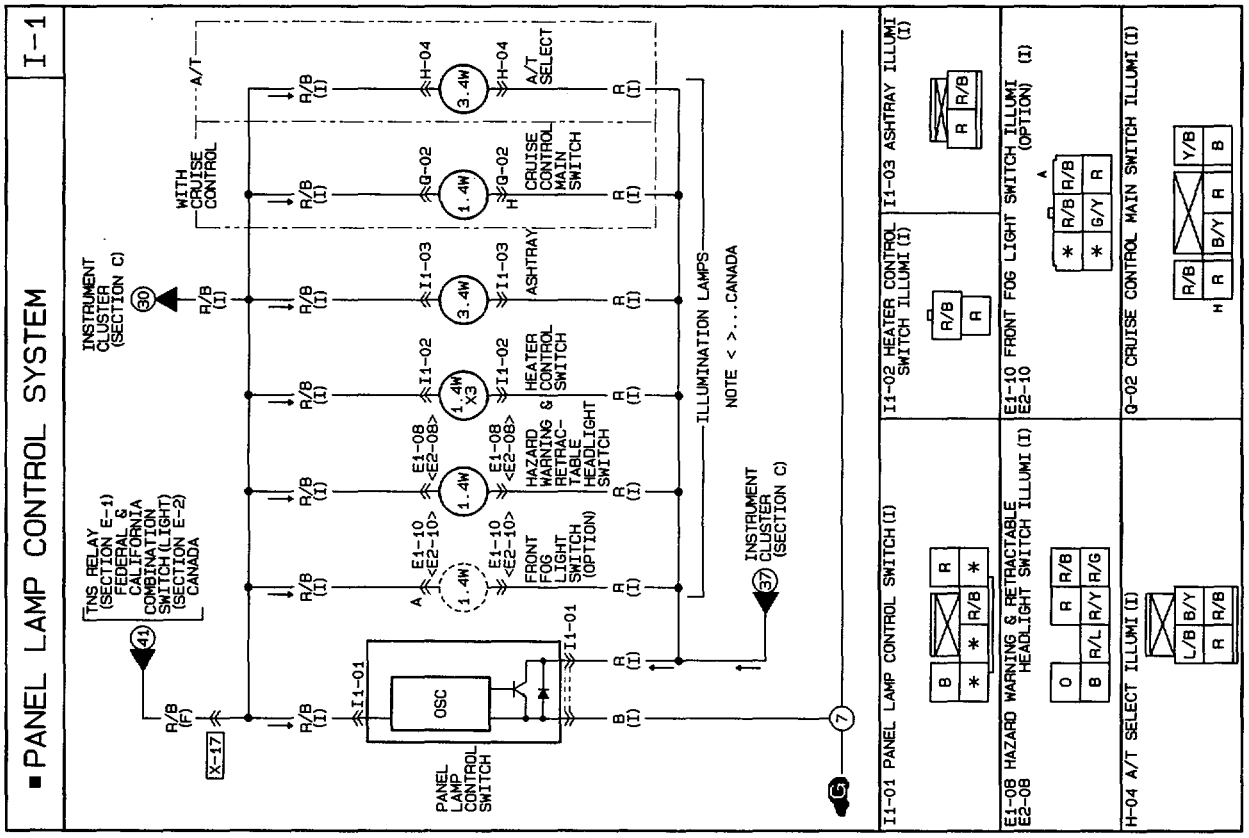
4. Put **Uni-sealer** (8531 77 739) adhesive in the light housing groove.
5. Fit the new lens onto the light housing. Press the lens firmly so that it will adhere.

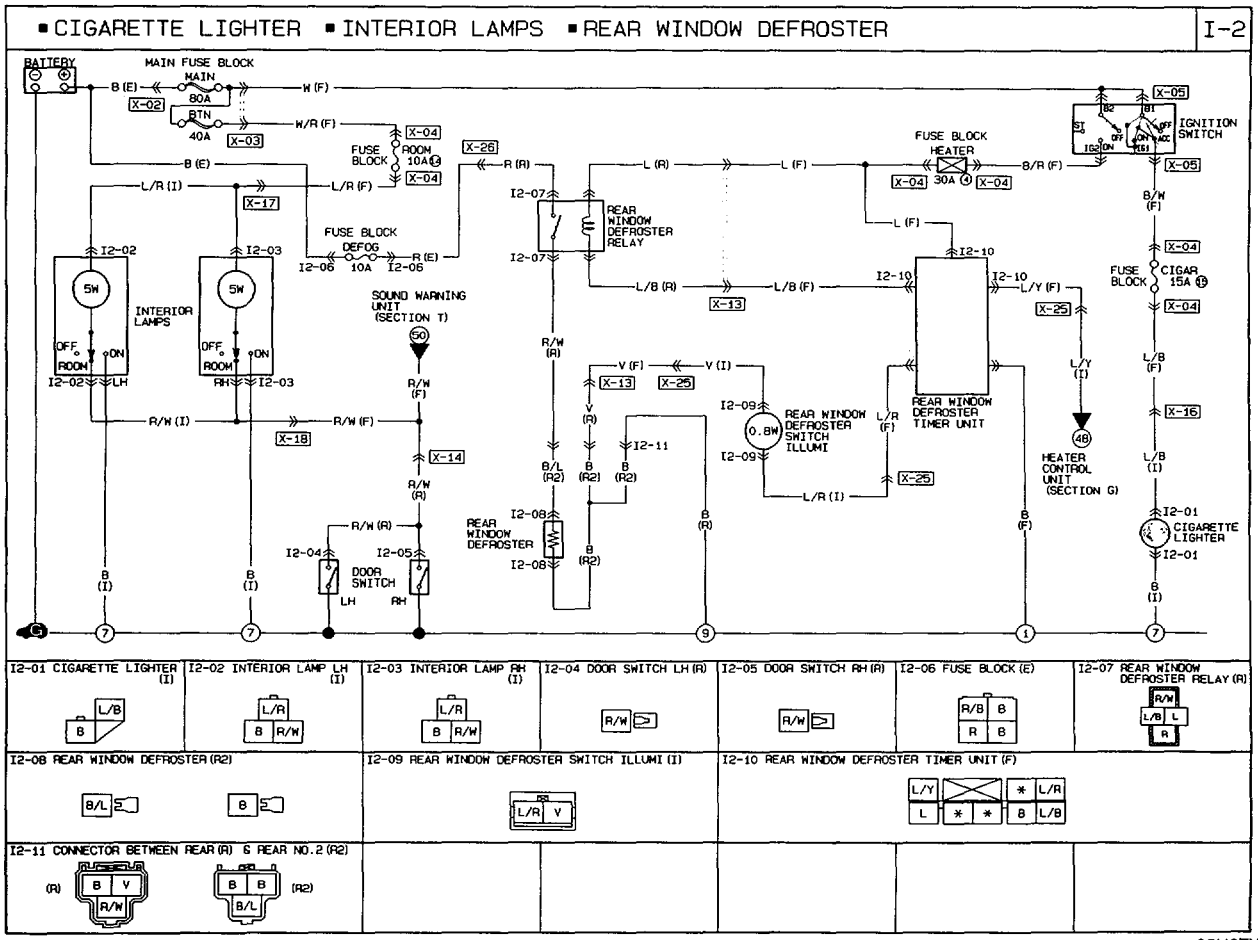


76U14X-038

6. Immerse the combination light in water to check for leaks.

INTERIOR LAMPS
Circuit Diagram

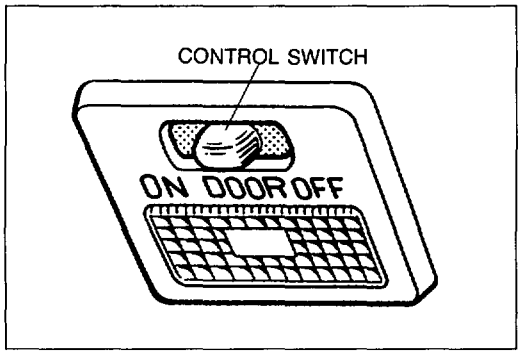




Troubleshooting

Symptom: Interior lamp(s) do not illuminate.

05U0TX-176



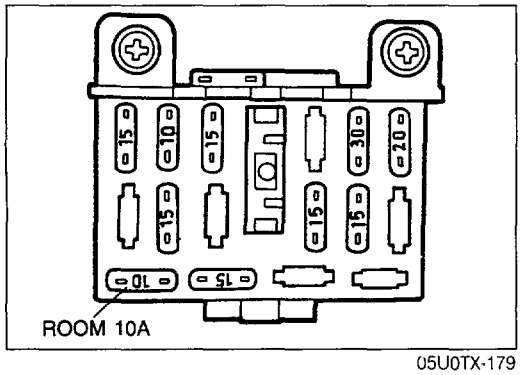
05U0TX-177

Step 1

Verify the trouble symptom by operating the control switch and opening the doors. Go to the specified Step.

Symptom	Go to
Interior lamp(s) do not illuminate when control switches are in any position	Step 2
Interior lamp(s) illuminate when control switches are in ON position, but do not illuminate with door open when switches are in DOOR position	Step 5
Interior lamp(s) illuminate when control switches are in DOOR position, but do not illuminate when switches are in ON position	Step 7

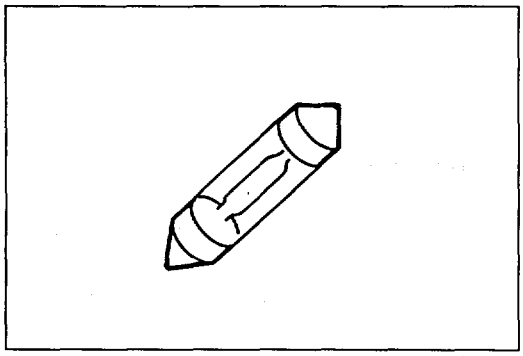
05U0TX-178



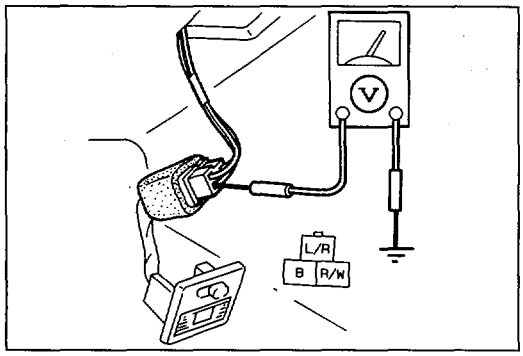
05U0TX-179

Step 2

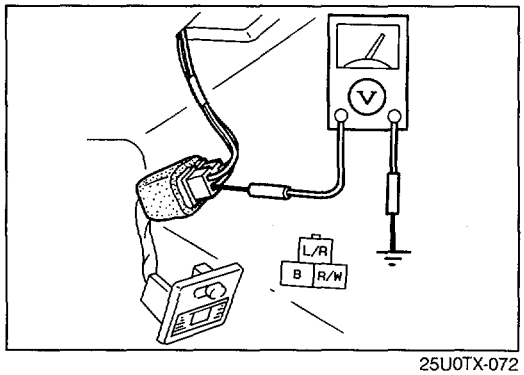
1. Check the ROOM 10A fuse.
2. If the fuse is burned, replace it. Check and repair the wire harness if necessary.
3. If the fuse is OK, go to Step 3.



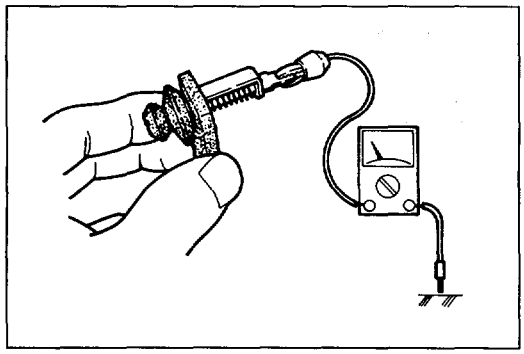
05U0TX-180



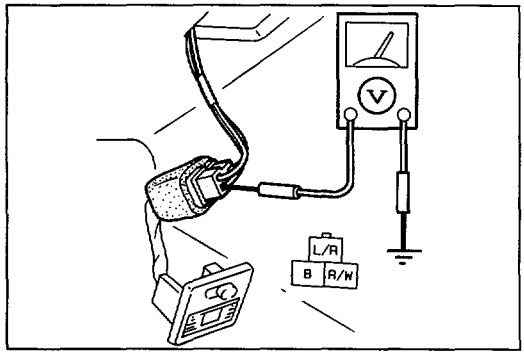
25U0TX-071



25U0TX-072



05U0TX-183



25U0TX-073

Step 3
1. Check the bulb of each lamp.
2. If a bulb is burned, replace it.
3. If the bulbs are OK, go to Step 4.

Step 4
1. Set the control switches to ON position.
2. Measure the voltage at the following terminal-wires of each interior lamp connector.

VB: Battery voltage

Wire	Voltage	Action
(L/R)	VB	Next check wire (B)
	0V	Repair wire (L/R) (ROOM 10A fuse—Interior lamp)
(B)	VB	Repair wire (B) (Interior lamp—Body ground)
	0V	Replace interior lamp assembly

Step 5
1. Open both doors, and set the control switches to DOOR position.
2. Measure the voltage at terminal-wire (R/W) of each interior lamp connector.

VB: Battery voltage

Wire	Voltage	Action
(R/W)	VB	Go to Step 6
	0V	Replace interior lamp assembly

Step 6
1. Disconnect the door switch connector, and check continuity of each switch.

Switch	Continuity
Pushed	No
Released	Yes

2. If not as specified, replace the door switch.
3. If the switches are OK, repair wire (R/W). (Interior lamp-Door switch)

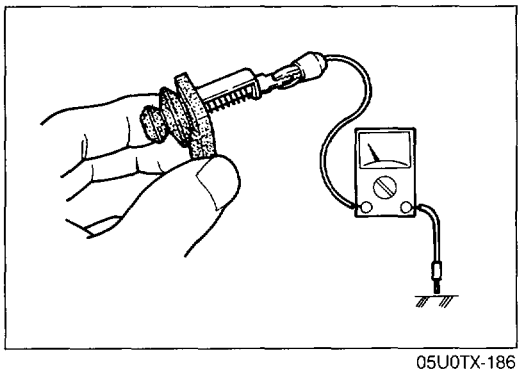
Step 7
1. Set the control switches to ON position.
2. Measure the voltage at terminal-wire (B) of the interior lamp connector.

VB: Battery voltage

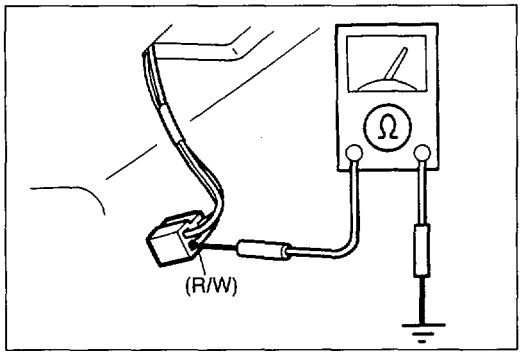
Wire	Voltage	Action
(B)	VB	Repair wire (B) (Interior lamp—Body ground)
	0V	Replace interior lamp assembly

Symptom: Interior lamp(s) remains illuminated with doors closed. (Control switch: DOOR position)

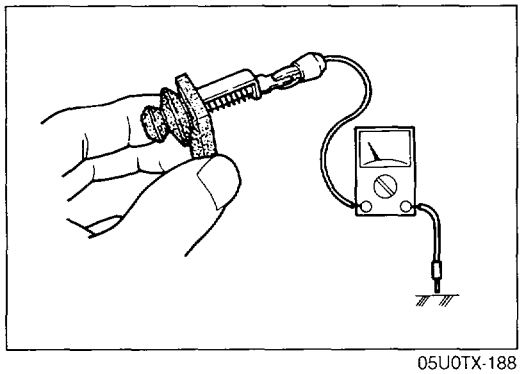
05U0TX-185



05U0TX-186



05U0TX-187



05U0TX-188

Step 1

1. Disconnect the door switch connectors, and check continuity of each switch as shown.

Switch	Continuity
Pushed	No
Released	Yes

2. If not as specified, replace the door switch.
3. If the switches are OK go to Step 2.

Step 2

1. Close both doors.
2. Disconnect the interior lamp connectors, and check continuity between terminal-wire (R/W) and a body ground.

Wire	Continuity	Action
(R/W)-Body ground	Yes	Repair wire (R/W) (Interior lamp—Door switch)
	No	Replace interior lamp assembly

Inspection

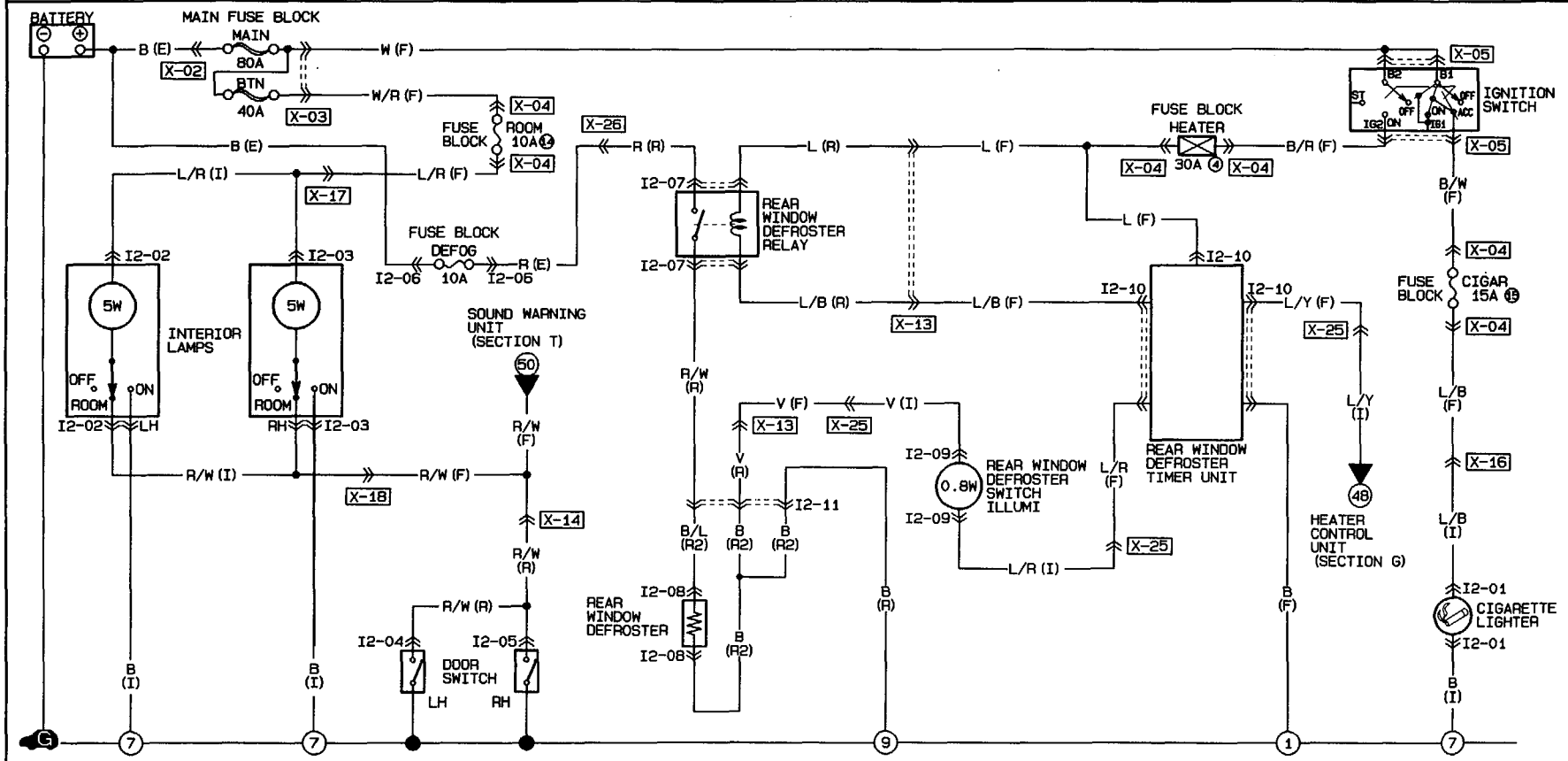
Door switch

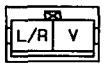
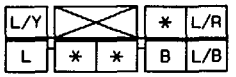
1. Disconnect the door switch connector, and check continuity of the switch as shown.

Switch	Continuity
Pushed	No
Released	Yes

2. If not as specified, replace the door switch.

■ CIGARETTE LIGHTER ■ INTERIOR LAMPS ■ REAR WINDOW DEFROSTER I-2

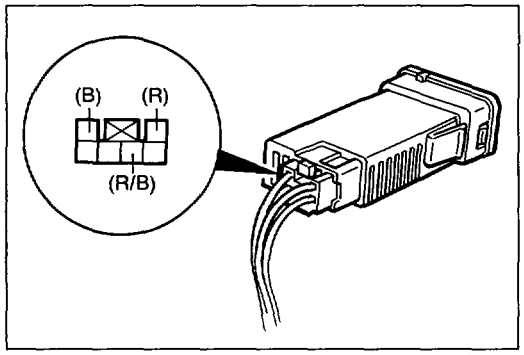


I2-01 CIGARETTE LIGHTER (I)	I2-02 INTERIOR LAMP LH (I)	I2-03 INTERIOR LAMP RH (I)	I2-04 DOOR SWITCH LH (R)	I2-05 DOOR SWITCH RH (R)	I2-06 FUSE BLOCK (E)	I2-07 REAR WINDOW DEFROSTER RELAY (R)
I2-08 REAR WINDOW DEFROSTER (R2)		I2-09 REAR WINDOW DEFROSTER SWITCH ILLUMI (I)		I2-10 REAR WINDOW DEFROSTER TIMER UNIT (F)		
						
I2-11 CONNECTOR BETWEEN REAR (R) & REAR NO.2 (R2)						

Troubleshooting

Symptom: Illumination lamp control does not operate.

05U0TX-325



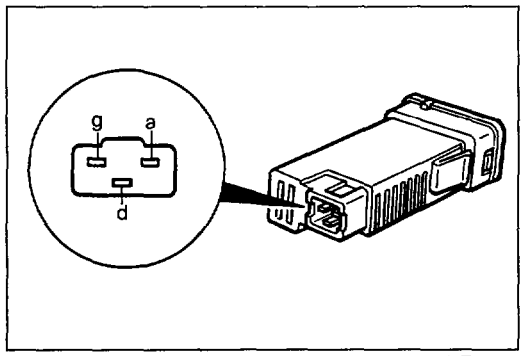
25U0TX-074

Remedy

1. Turn the headlight switch ON.
2. Set the panel lamp control switch to Max. position.
3. Measure the voltage at the following terminal wires of the panel lamp control switch connector.

VB: Battery voltage

Wire	Voltage	Action
(B)	0V	Next check wire (R/B)
	Other 0V	Repair wire (B) (Panel lamp control switch — Body ground)
(R/B)	VB	Next check wire (R)
	0V	Repair wire (R/B) (TAIL 15A fuse — Panel lamp control switch)
(R)	0V	Repair wiring harness (Panel lamp control switch — Each lamp)
	Other 0V	Replace panel lamp control switch



25U0TX-075

Inspection

Panel lamp control switch

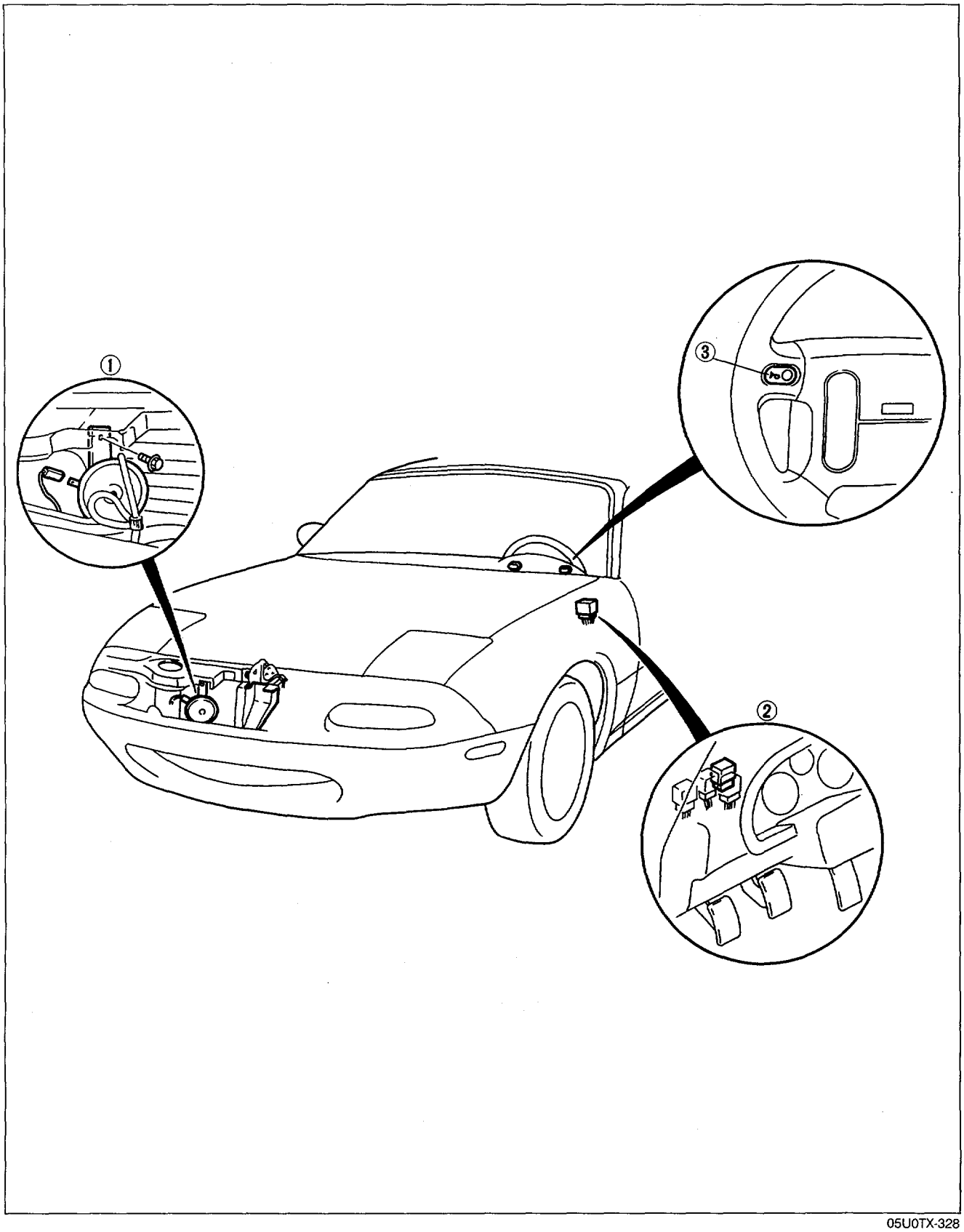
1. Remove the panel lamp control switch.
2. Apply battery voltage to terminal d and ground terminal g.
3. Check that the voltage at terminal a changes linearly when turning the control switch.

Switch	Voltage
Min. position	10V
Max. position	0V

4. If not as specified, replace the panel lamp control switch.

HORN

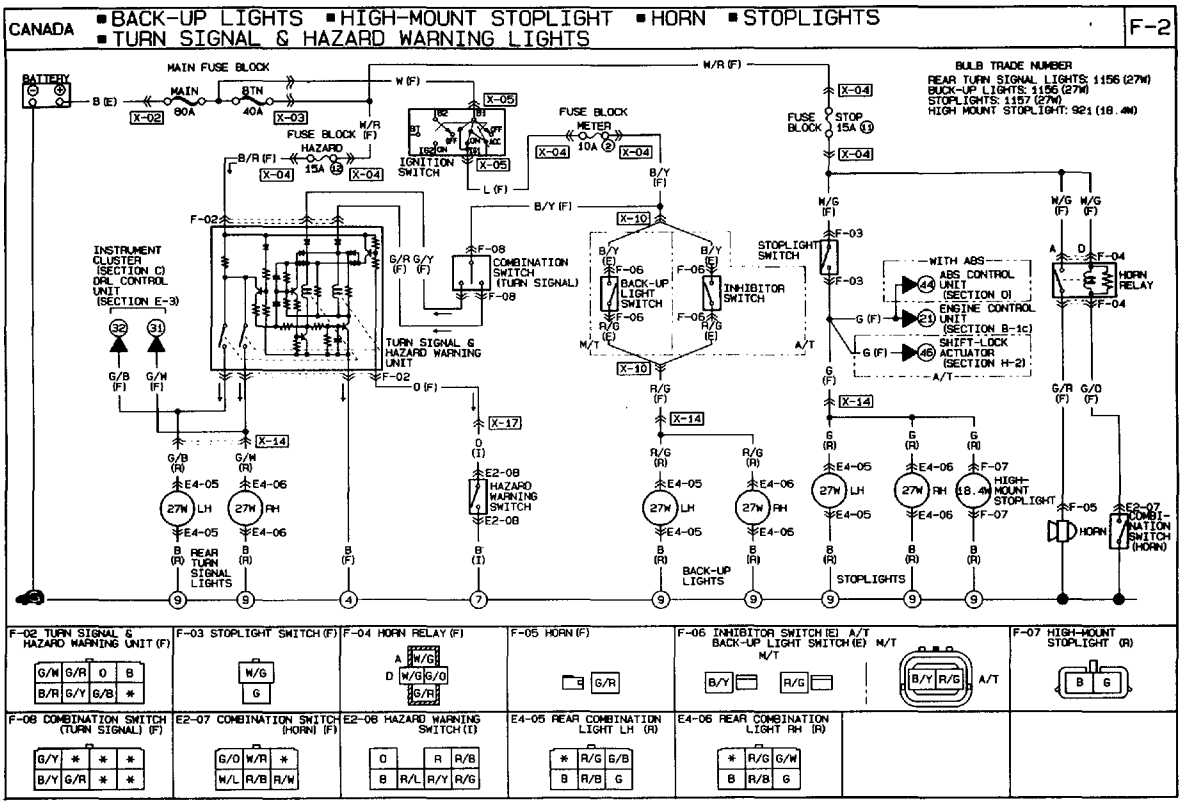
STRUCTURAL VIEW

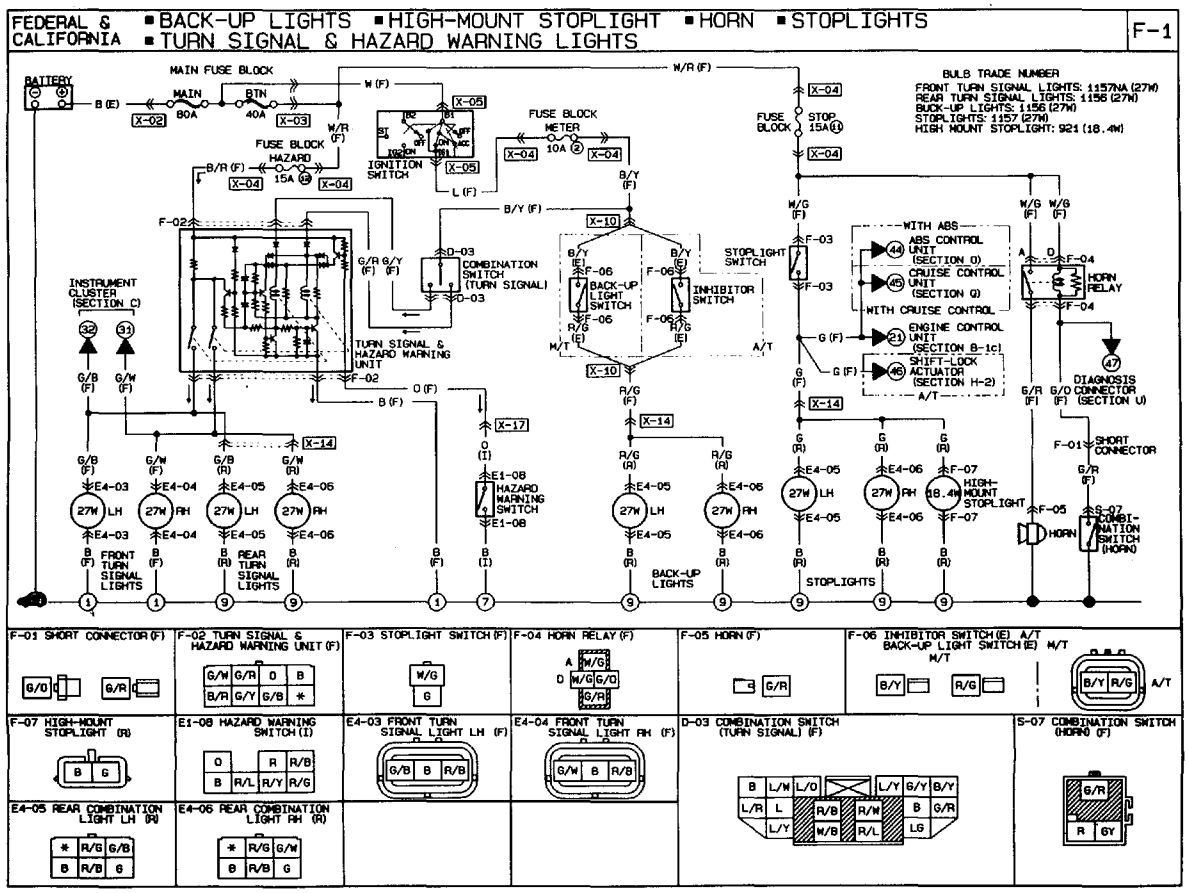


05U0TX-328

1. Horn
2. Horn relay
3. Horn switch

CIRCUIT DIAGRAM

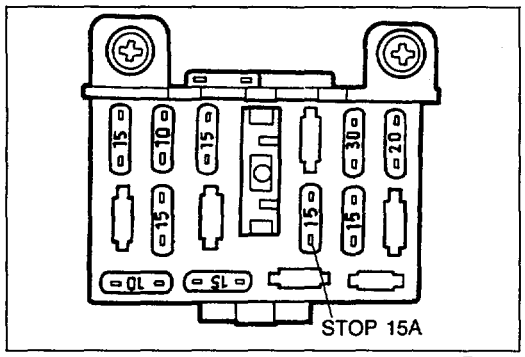




TROUBLESHOOTING

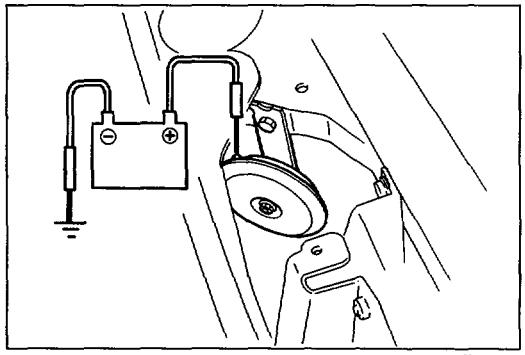
Symptom: Horn does not sound.

05U0TX-191



05U0TX-192

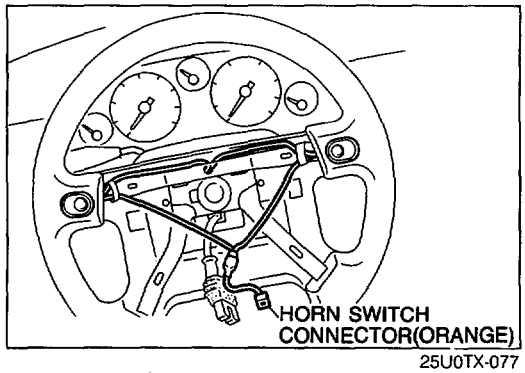
Step 1
1. Check the STOP 15A fuse.
2. If the fuse is burned, replace it. Check and repair the wire harness, if necessary.
3. If the fuse is OK, go to Step 2.



25U0TX-076

Step 2
1. Disconnect the horn connector.
2. Apply battery voltage to the horn, and check if the horn sounds.
3. If the horn sounds, go to Step 3.
4. If the horn does not sound, replace the horn.

Step 3
1. Remove the knee protector.
2. Ground the terminal wire (G/O) of the horn relay connector.
3. If the horn sounds, go to Step 4.
4. If the horn does not sound, go to Step 6.



25U0TX-077

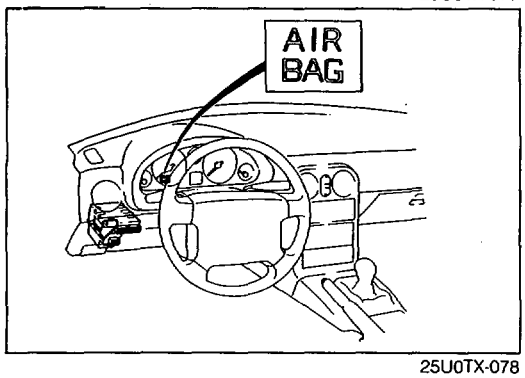
Step 4
U.S. spec.

Warning
- **Before removal of the air bag module, the negative battery cable must be disconnected to prevent accidental deployment.**

1. Remove the air bag module. (Refer to page T–162.)
2. Check continuity between the terminal of the horn switch connector and the steering shaft.

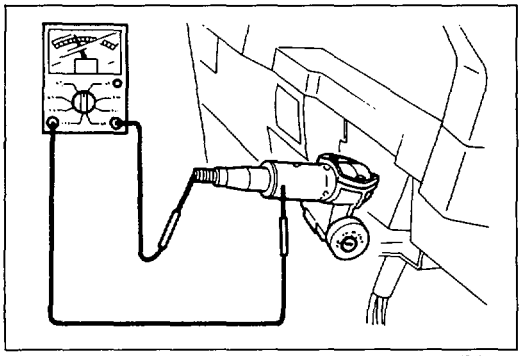
Horn switch	Continuity
ON	Yes
OFF	No

3. If not as specified, replace the horn switch and steering wheel as an assembly.
4. If correct, go to Step 5.

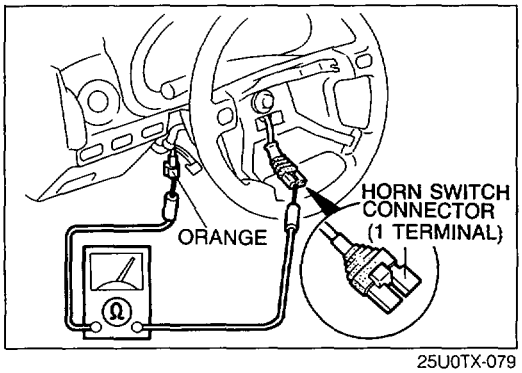


25U0TX-078

Warning
- **After installing of the air bag module, verify that the air bag system is operating normally by monitoring the air bag warning lamp. (Refer to page T–150.)**



05U0TX-196



25U0TX-079

Canada spec.

1. Remove the steering shaft.
2. Check continuity between the horn conductor plate and the serration gear part.

Horn switch	Continuity
ON	Yes
OFF	No

3. If not as specified, replace the horn switch and steering wheel as an assembly.
4. If correct, repair wire (G/O) (Horn relay — horn switch).

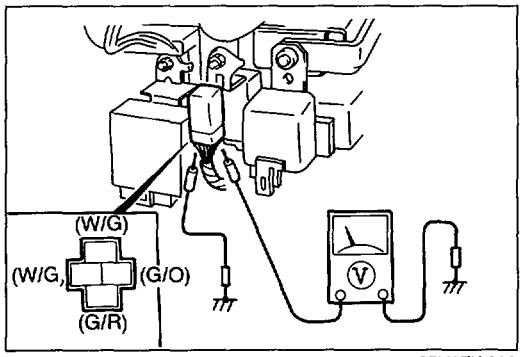
Step 5

1. Remove the knee protector.
2. Disconnect the clock spring connector.
3. Check continuity of the clock spring connector as shown in the figure.

Continuity	Action
Yes	Repair wire (G/O) (Horn relay — Clock spring connector)
No	Replace combination switch assembly

Warning

- **After installation of the air bag module, verify that the air bag system is operating normally by monitoring the air bag warning lamp. (Refer to page T–150.)**



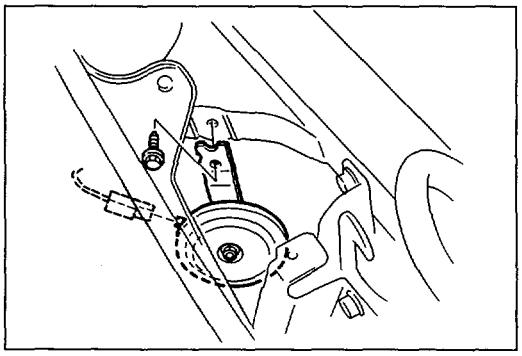
25U0TX-080

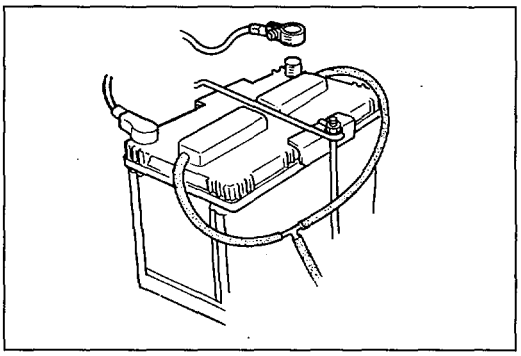
Step 6

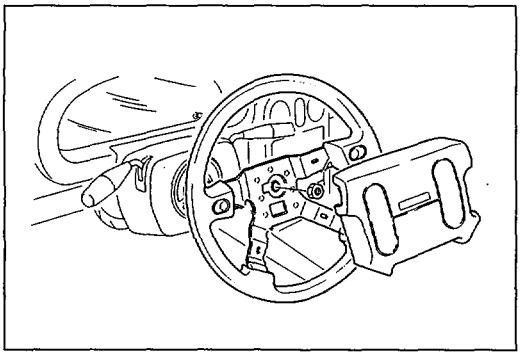
1. Ground the terminal wire (G/O) of the horn relay connector.
2. Measure the voltage at the following terminal wires of the horn relay connector.

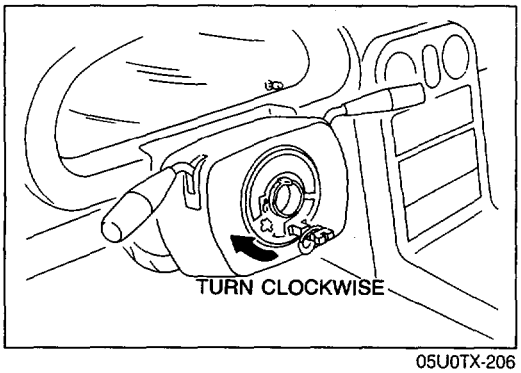
VB: Battery voltage

Wire	Voltage	Action
(G/W) Terminal A	VB	Next check wire (G/W) of terminal D
	0V	Repair wire (G/W) (STOP 15A fuse — Horn relay)
(G/W) Terminal D	VB	Next check wire (G/R)
	0V	Repair wire (G/W) (STOP 15A fuse — Horn relay)
(G/R)	VB	Repair wire (G/R) (Horn relay — Horn)
	0V	Replace horn relay

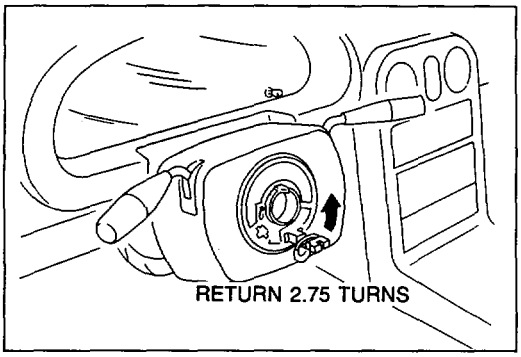

05U0TX-203


05U0TX-204


05U0TX-205



05U0TX-206



05U0TX-207

REMOVAL / INSTALLATION

Horn

Remove and install as shown in the figure.

Horn Switch

U.S. spec.

Warning

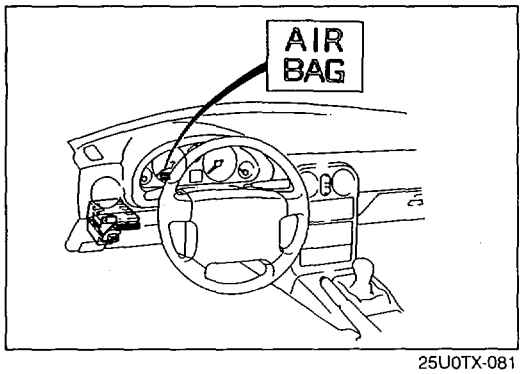
- **Before removal of the air bag module, the negative battery cable must be disconnected to prevent accidental deployment of the air bag.**

1. Disconnect the negative battery cable.
2. Remove the air bag module, then remove the steering wheel assembly.

Warning

- **When carrying an air bag module, make sure the trim cover is pointed away from your body to prevent injury in the event of an accidental deployment.**
- **When placing an air bag module on any surface place it with the trim cover upward. This will reduce the motion of the module if it is accidentally deployed.**

3. Before installation of the steering wheel reset the clock spring connector as follows:
   (1) Set the front wheels straight ahead.
   (2) Turn the clock spring connector clockwise until it stops.
   (3) Return 2.75 turns.
   (4) Align the marks (counterclockwise) on the clock spring connector and the outer housing.



25U0TX-081

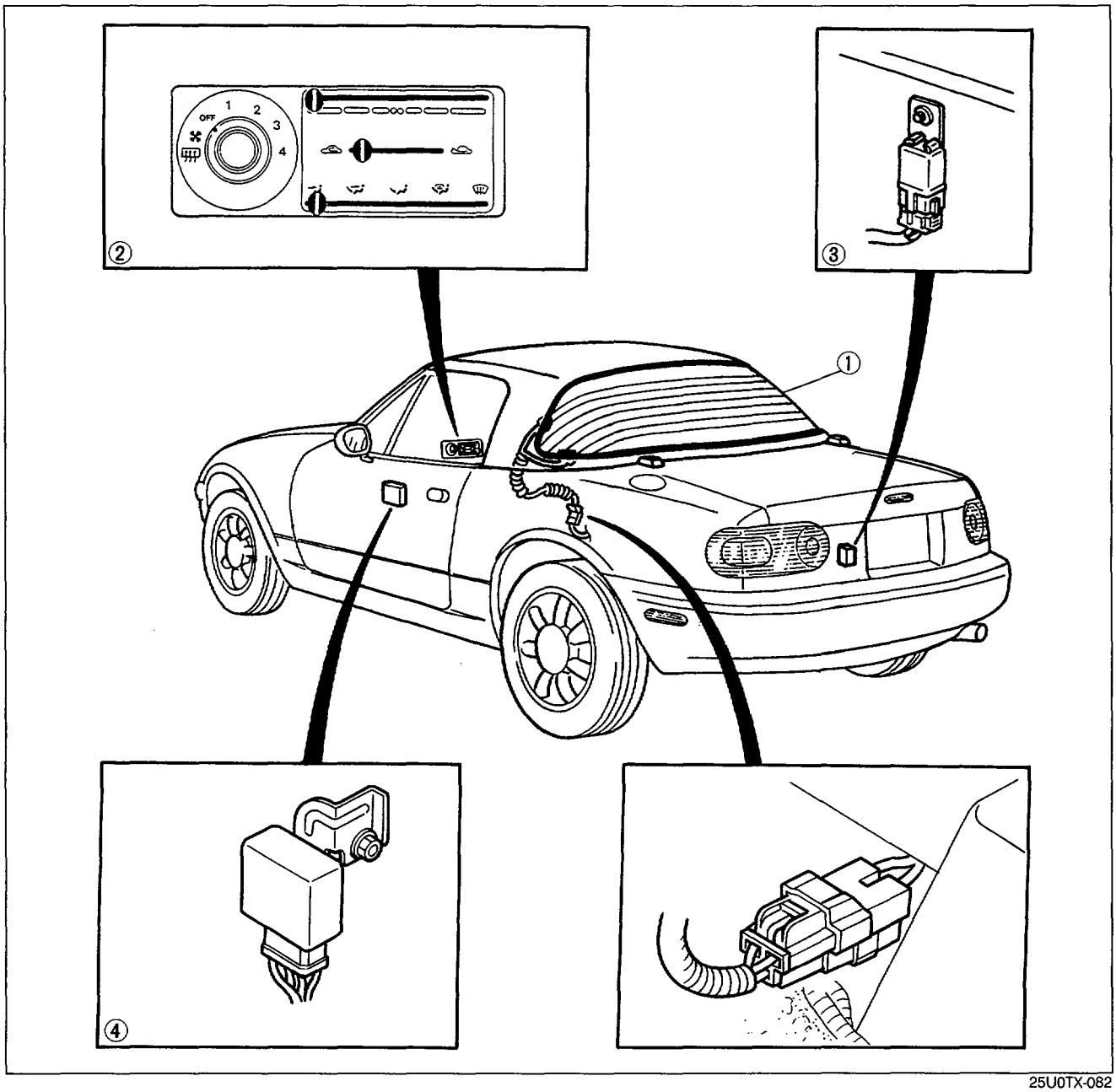
4. Install the steering wheel and the air bag module.

Warning

- **After installation of the air bag module, verify that the air bag system is operating normally by monitoring the air bag warning lamp.**
  (Refer to page T–150.)

REAR WINDOW DEFROSTER

STRUCTURAL VIEW



25U0TX-082

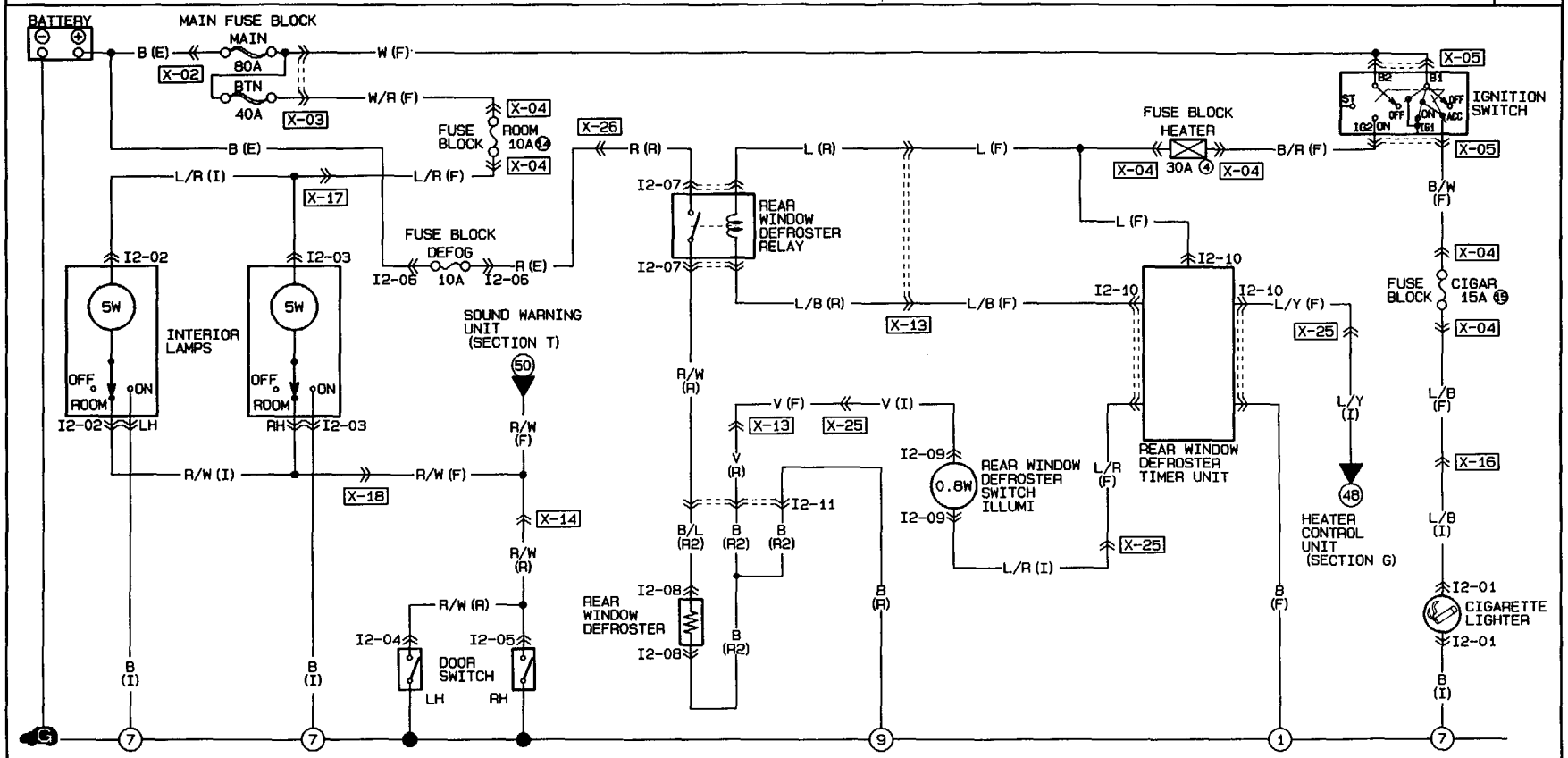
1. Rear window defroster
2. Rear window defroster switch
3. Rear window defroster relay
4. Rear window defroster timer unit

DESCRIPTION

The rear window defroster switch is included in the heater control switch assembly.

25U0TX-083

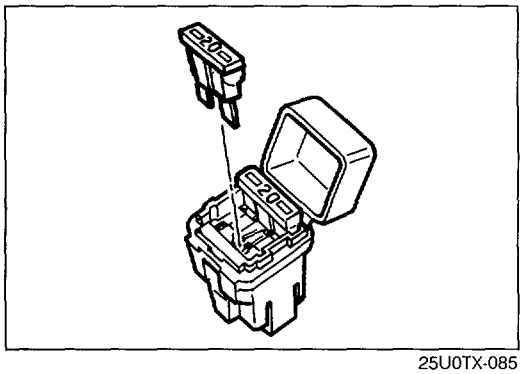
■CIGARETTE LIGHTER ■INTERIOR LAMPS ■REAR WINDOW DEFROSTER I-2



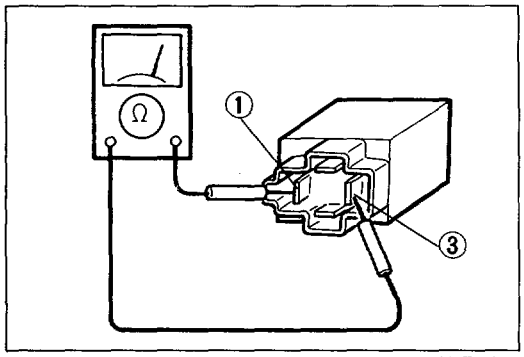
I2-01 CIGARETTE LIGHTER (I)	I2-02 INTERIOR LAMP LH (I)	I2-03 INTERIOR LAMP RH (I)	I2-04 DOOR SWITCH LH (R)	I2-05 DOOR SWITCH RH (R)	I2-06 FUSE BLOCK (E)	I2-07 REAR WINDOW DEFROSTER RELAY (R)
I2-08 REAR WINDOW DEFROSTER (R2)		I2-09 REAR WINDOW DEFROSTER SWITCH ILLUMI (I)		I2-10 REAR WINDOW DEFROSTER TIMER UNIT (F)		
I2-11 CONNECTOR BETWEEN REAR (R) & REAR NO.2 (R2)						

Symptom: Rear window defroster does not operate.

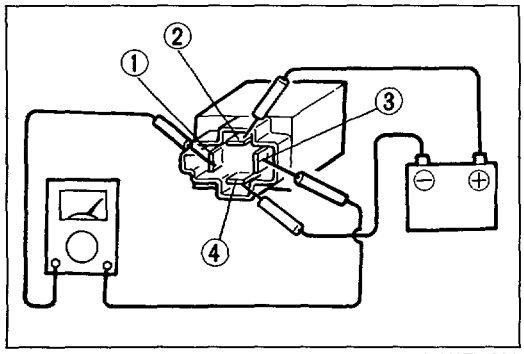
9MU0TX-232



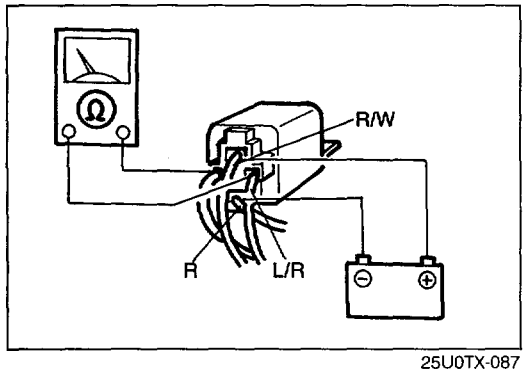
25U0TX-085



9MU0TX-234



25U0TX-086



25U0TX-087

Step 1
Check that the following fuses are OK.

Fuse	Amperage	Location
R.DEF	10A	Fuse box No.2
HEATER	30A	Main fuse block

If all the fuses are OK, go to Step 2.
If a fuse is burned out, replace it. Check and repair the wire harness, if necessary.

Step 2 — Check the rear window defroster relay
1. Remove the rear window defroster relay from the relay box.
2. Check continuity between terminals 3 and 4.

Continuity	Action
Yes	Replace relay
No	Go to Step 2—3

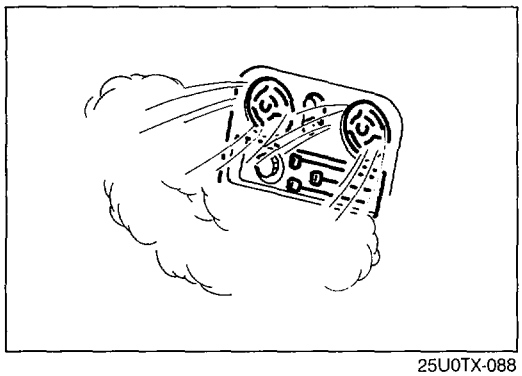
3. Apply battery voltage to terminal 1 and ground terminal 2. Check continuity between terminals 3 and 4.

Continuity	Action
No	Replace relay
Yes	Relay OK, go to Step 3

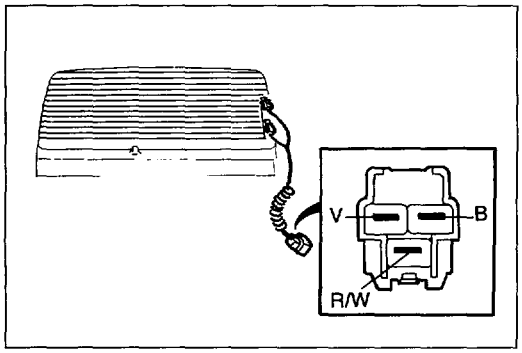
Step 3
1. Turn the ignition switch ON.
2. Turn the rear window defroster switch ON.
3. Check the voltage at the terminal-wires of the rear window defroster relay connector.

VB: Battery voltage

Wire	Voltage	Action
(L/B)	VB	Next, check voltage at wire (B/W)
	0V	Repair wire harness (HEATER fuse—Relay)
(R)	VB	Next, check voltage at wire (W/Y)
	0V	Repair wire harness (DEFOG fuse—Relay)
(R/W)	VB	Go to Step 4
	0V	Go to Step 5



25U0TX-088



25U0TX-089

Step 4
Check if the heater operates in the first position.

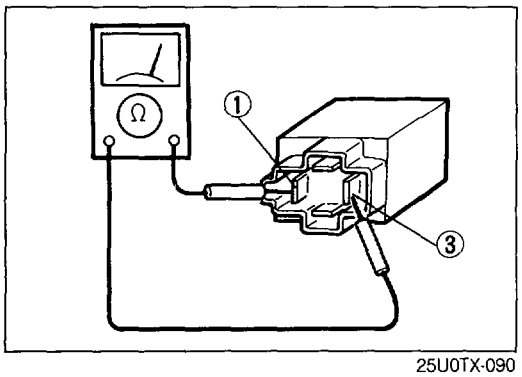
Operation	Action
OK	Go to step 5
NG	Repair wiring harness (heater switch—rear window defroster timer unit)

Step 5
Check the voltage at the rear window defroster connectors.

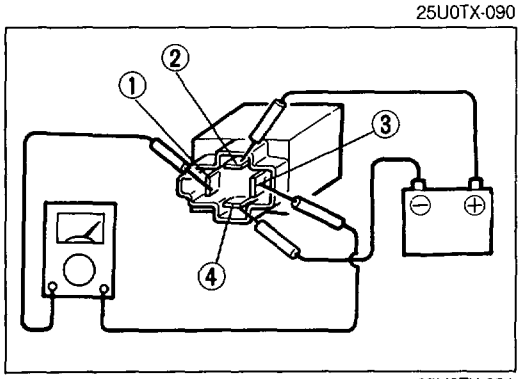
VB: Battery voltage

Wire	Voltage	Action
(V)	VB	Next, check voltage at wire (R/W)
	0V	Repair wiring harness (Defroster—Defroster timer unit)
(R/W)	VB	Next, check voltage at wire (B)
	0V	Repair wire harness (Relay—Defroster)
(B)	VB	Repair wire harness (Defroster—Body ground)
	0V	Repair defroster filament

If all above-mentioned parts are normal, replace the rear window defroster timer unit.



25U0TX-090



25U0TX-091

INSPECTION

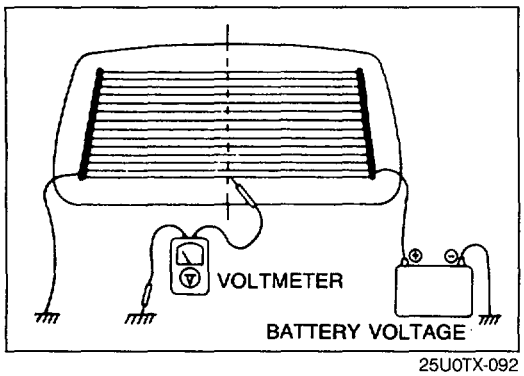
Rear Window Defroster Relay

1. Remove the rear window defroster relay from the relay box.
2. Check continuity between terminals 3 and 4.

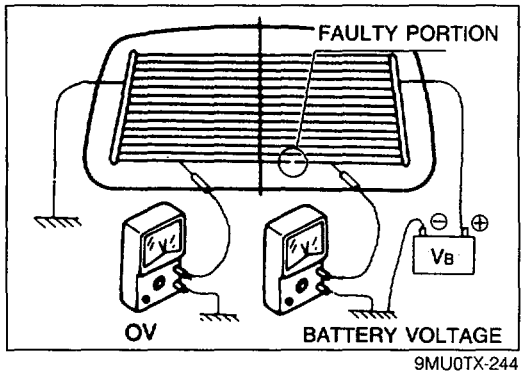
Continuity	Action
Yes	Replace relay
No	Go to Step 3

3. Apply battery voltage to terminal 1 and ground terminal 2. Check continuity between the terminals 3 and 4.

Continuity	Action
Yes	Relay OK
No	Replace relay



25U0TX-092



9MU0TX-244

Rear Window Defroster Switch
(Refer to Section U.)

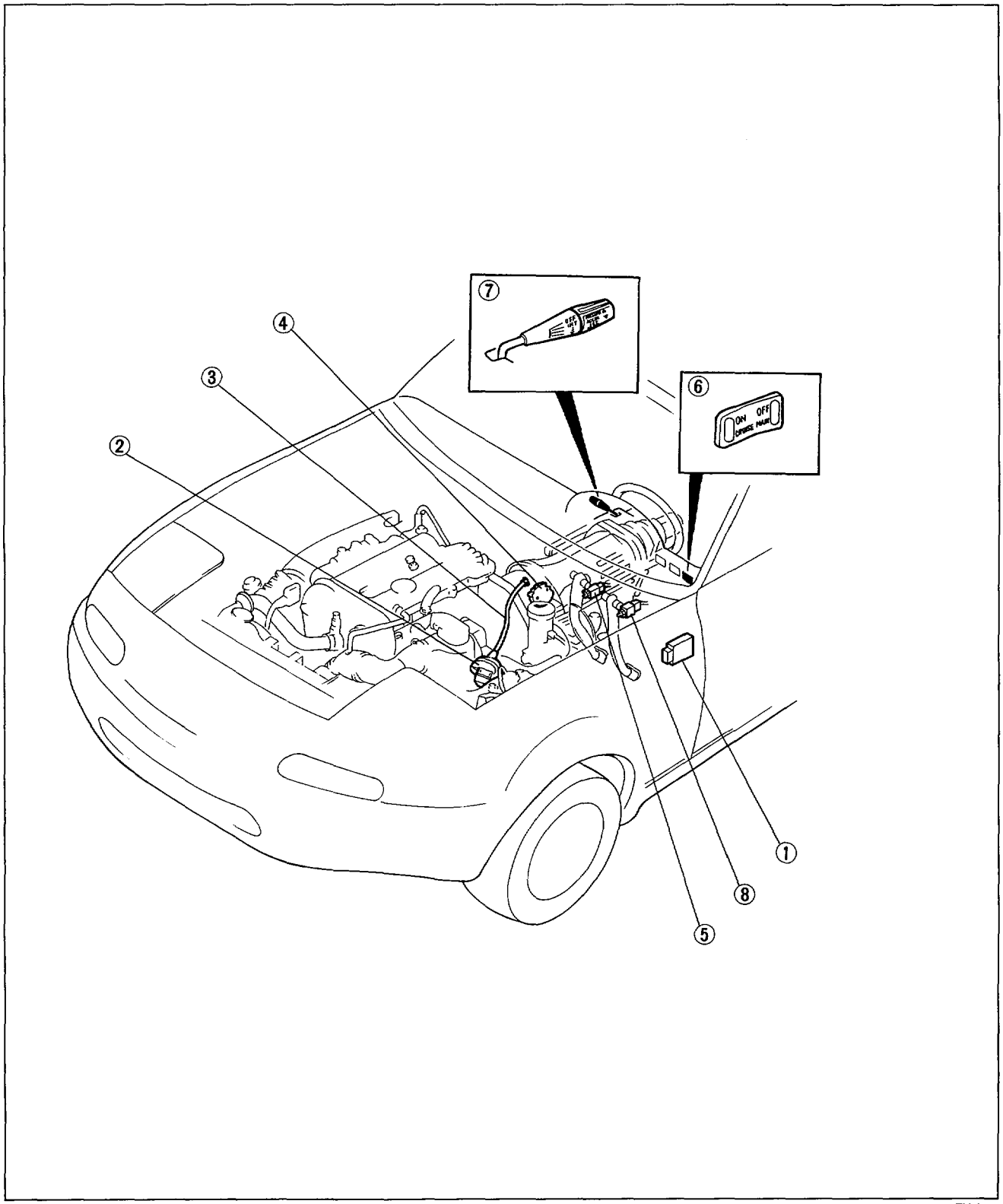
Defroster Filament
1. Turn the rear window defroster switch ON.
2. Connect the (+) terminal of a voltmeter to the center of each filament and the (–) terminal to the body. The standard voltage at the center of each filament is **approx. 6V**. If the meter indication is high, there is a short circuit between the center and the grounded side of the filament.
   If the indication is low or zero, the fault is between the center and positive side.

REPAIRING FILAMENT
1. Use paint thinner or ethyl alcohol to clean the damage section of the filament.
2. Apply tape to both sides of the damaged section of filament.
3. Using a small brush or marking pen, apply silver paint (part no. 2835 77 600) or equivalent to the damaged section.
4. Let the paint set for **24 hours at 20°C (68°F)** to let it dry completely. (If a blow dryer is used to heat it to 60°C (140°F), it can be dried in about 30 minutes.)

Note
- **Do not use the rear window defroster until the paint is dry.**
- **Do not use gasoline or similar solvents to clean the damaged section.**

CRUISE CONTROL SYSTEM

STRUCTURAL VIEW

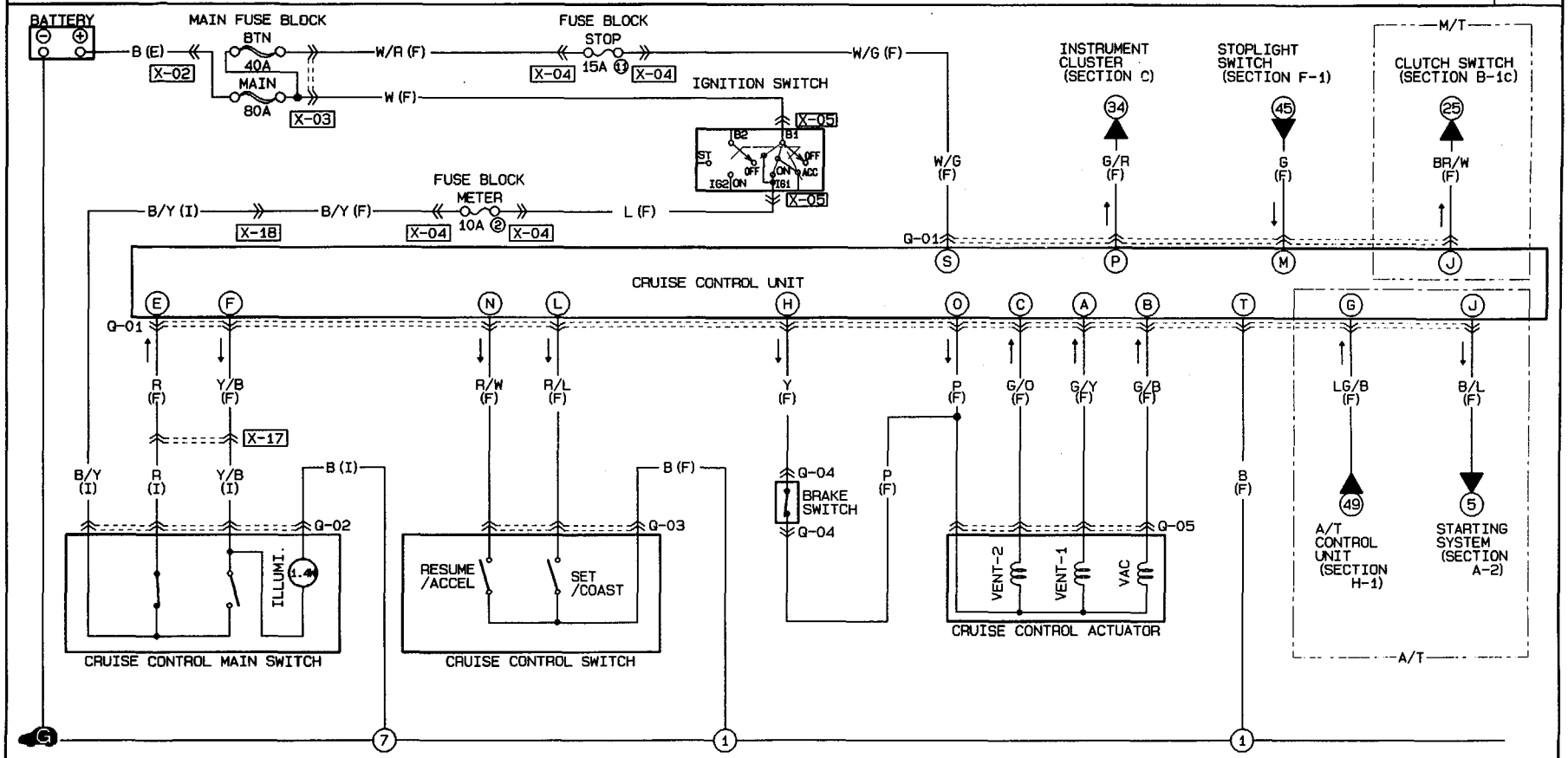


15U0TX-022

1. Cruise control unit
2. Actuator
3. Actuator cable
4. Inhibitor switch
5. Brake switch
6. Cruise control main switch
7. Cruise control switch
8. Clutch switch

FEDERAL & CALIFORNIA ■ CRUISE CONTROL SYSTEM

Q



Q-01 CRUISE CONTROL UNIT (F)

S	Q	O	M		G	E	C	A
W/G	*	P	G		* (LG/B)	R	G/O	G/Y
B	*	G/R	R/W	R/L	BR/W (B/L)	Y	Y/B	*	G/B
T	R	P	N	L	J	H	F	D	B

( )...A/T

Q-02 CRUISE CONTROL MAIN SWITCH (I)

R/B		Y/B
R	B/Y	R	B

Q-03 CRUISE CONTROL SWITCH (F)

R/W	R/L
B	*

Q-04 BRAKE SWITCH (F)

P	Y

Q-05 CRUISE CONTROL ACTUATOR (F)

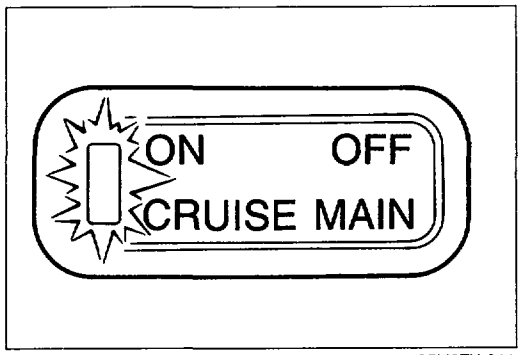
P	G/O
G/Y	G/B

TROUBLESHOOTING

Symptom: Vehicle speed cannot be set. (Cruise control unit will not hold vehicle speed.)

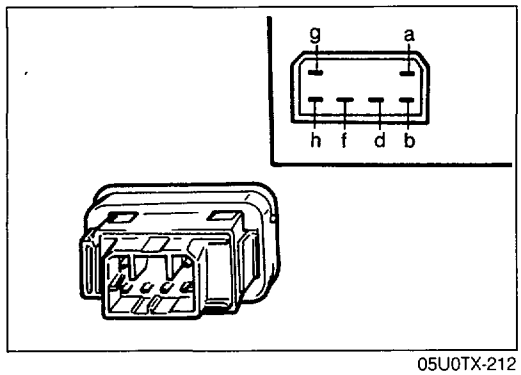
Note
- **Before troubleshooting of the system, verify the following items:**
  1. **Is system being correctly used by customer?**
  2. **Is fuse OK?**
     Check the fuse. If the fuse is burned, replace it. Check the wire harness for a short circuit.

05U0TX-330



05U0TX-211

Step 1
1. Turn the ignition switch ON.
2. Turn the cruise control main switch ON.
3. Check that the main switch indicator lamp comes ON.
4. If the lamp does not come ON, go to Step 2.
5. If the lamp comes ON, go to Step 3.



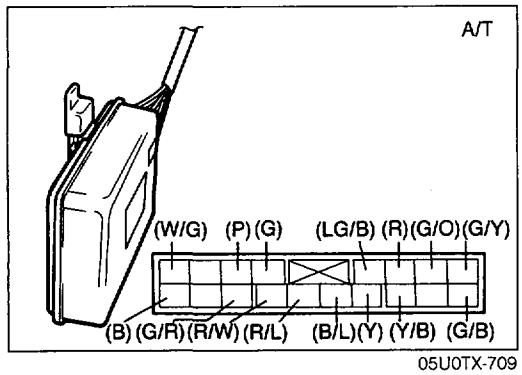
05U0TX-212

Step 2
1. Check continuity between terminals of the cruise control main switch.

Position	Terminals					
	a	b	d	f	g	h
Neutral			○—○		○—○	
Off					○—○	
On	○—	—○	—○	—○	○—	—○
		○—		—○		

○—○: Indicates continuity

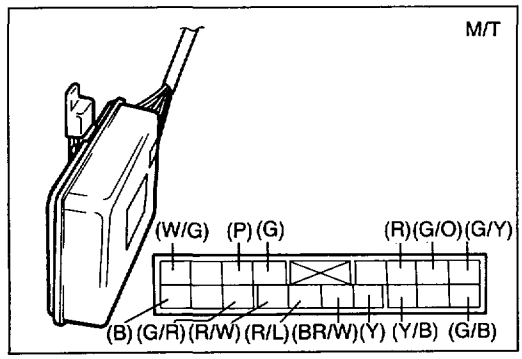
2. If not as specified, replace the switch.
3. If the switch is OK, repair the wire harness.
   (METER 10A fuse — Cruise control main switch — Ground)



05U0TX-709

Step 3
1. Measure the voltage at the following terminal-wires of the cruise control unit connector.
2. If all terminal voltage are OK, replace the cruise control unit.

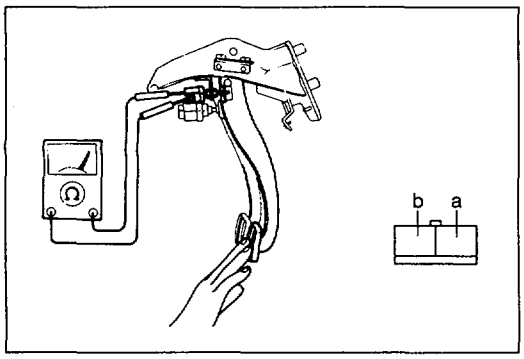
Note
- **When checking j terminal, disconnect the EGI control unit connector.**



VB: Battery voltage

Terminal	Wire color	Connected to	Test condition	Specification	Action
a	(G/Y)	Actuator	Main switch off	0V	Go to Step 8
			Main switch on	9V	
b	(G/B)	Actuator	Main switch off	0V	
			Main switch on	9V	
c	(G/O)	Actuator	Main switch off	0V	
			Main switch on	9V	
e	(R)	Main switch	Main switch off	VB	Repair wire (R) (Main switch—Cruise control unit)
			Main switch off	0V	
f	(Y/B)	Main switch	Main switch off	0V	Repair wire (Y/B) (Main switch—Cruise control unit)
			Main switch on	VB	
g	(LG/B)	AT control unit	Ignition switch off	0V	Go to Section K
			Ignition switch on	VB	
h	(Y)	Brake switch	Brake pedal depressed	0V	Go to Step 4
			Brake pedal released	9V	
j	(B/L)	Inhibitor switch	Shift to "N" or "P" range	0V	Go to Section K
			Shift to other range	5V	
	(BR/W)	Clutch switch	Clutch pedal depressed	0V	Go to Step 5
			Clutch pedal released	VB	
l	(R/L)	Cruise control switch (Set switch and coast switch)	Main switch ON	VB	Go to Step 6
			While turning set switch after main switch ON	0V	
m	(G)	Stoplight switch	Brake pedal depressed	VB	Go to Step 7
			Brake pedal released	0V	
n	(R/W)	Cruise control switch (Resume switch and accel switch)	Main switch ON	VB	Go to Step 6
			While turning resume switch after main switch ON	0V	
o	(P)	Actuator	Main switch OFF	0V	Go to Step 8
			Main switch ON	9V	
p	(G/R)	Speed sensor	While rotating rear tires	Run out between 0—5V	Go to Step 9
s	(W/G)	Battery	Constant	VB	Repair wire (W/G)
t	(B)	Ground	Constant	0V	Repair wire (B)

25U0TX-093



05U0TX-215

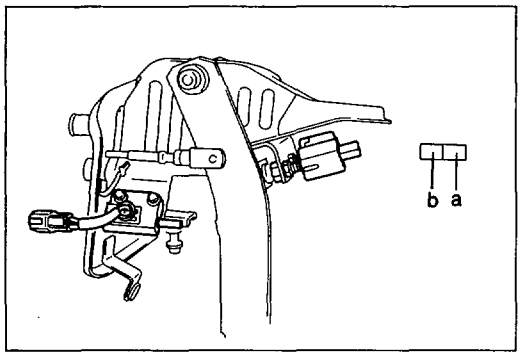
Step 4 — Inspection of brake switch

1. Disconnect the brake switch connector.
2. Check continuity between terminals of the switch.

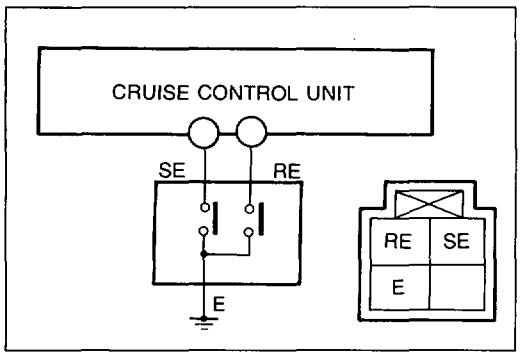
Pedal position	Terminal	
	a	b
Pedal released	○	○
Pedal depressed		

○—○: Indicates continuity

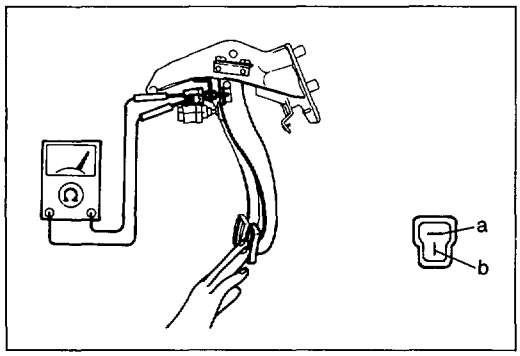
3. If not as specified, replace the brake switch.
4. If the switch is OK, repair the wire harness. (Fuse — Brake switch — Control unit)



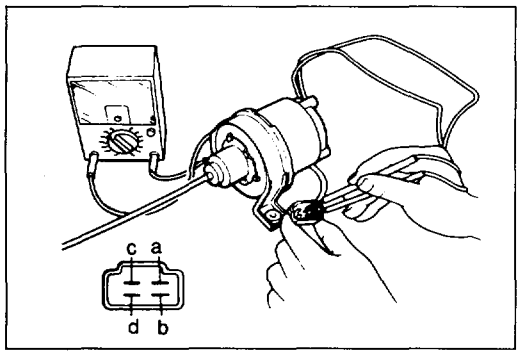
05U0TX-331



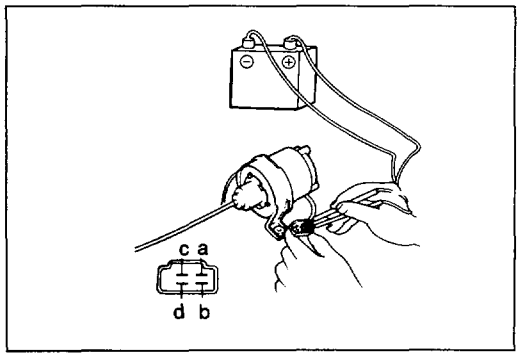
05U0TX-216



05U0TX-217



05U0TX-218



25U0TX-094

Step 5 — Inspection of clutch switch

1. Disconnect the clutch switch connector.
2. Check continuity between terminals of the switch.

Pedal position	Terminal	
	a	b
Pedal released		
Pedal depressed	○——○	

○——○: Indicates continuity

3. If not as specified, replace the clutch switch.
4. If the switch is OK, repair the wire harness (Fuse — Clutch switch — Control unit).

Step 6 — Inspection of cruise control switch

1. Remove the knee protector and disconnect the combination switch connector.
2. Check continuity between terminals of the combination switch connector.

Switch	Terminal		
	SE	RE	E
SET/COAST	○		○
RESUME/ACCEL		○	○

○——○: Indicates continuity

3. If not as specified, replace the cruise control switch.
4. If the switch is OK, repair the wire harness. (Cruise control switch — Control unit)

Step 7 — Inspection of stoplight switch

1. Disconnect the stoplight switch.
2. Check continuity between terminals of the switch.

Pedal position	Terminal	
	a	b
Pedal released		
Pedal depressed	○——○	

○——○: Indicates continuity

3. If not as specified, replace the stoplight switch.
4. If the switch is OK, repair the wire harness. (Cruise control unit — Stoplight switch)

Step 8 — Inspection of actuator

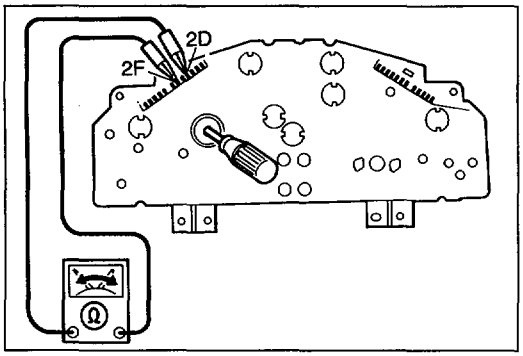
1. Measure the actuator solenoid resistance using an ohmmeter.

Check terminals	Resistance
c — a	Approx. 25 to 55Ω
c — b	
c — d	

2. If not as specified, replace the actuator.
3. If continuity is OK, go to Step 8—4.
4. Disconnect the actuator cable from the accelerator pedal.
5. Run the engine at idle speed.
6. Apply battery voltage to the following terminals, and check actuator operation.

Order	Terminal condition				Operation of control cable
	a	b	c	d	
1	Ground	Ground	Power	Ground	Puil
2	Ground	—	Power	Ground	Hold
3	Ground	—	Power	—	Extend
4	—	—	—	—	Release

7. If not as specified, replace the actuator.



05U0TX-219

Step 9 — Inspection of speed sensor

1. Remove the instrument cluster.
2. Check continuity between terminals 2D and 2F while rotating the speedometer cable.
3. If there are not four pulses per shaft rotation, replace the speed sensor. (Refer to page T–33.)
4. If there are four pulses per rotation, check the wire harness (Instrument cluster — Control unit).
5. If the wiring is OK, replace the cruise control unit.

SELF-DIAGNOSTIC INSPECTION

Self-diagnostic Function

The Self-diagnostic function intergrated within the cruise control unit diagnoses the condition of the cruise control system.
Condition/operation codes are indicated by flashing of the test light connected to the control unit. (Refer to condition code numbers on pages T–109, 110.) This operation continues until canceled.

25U0TX-095

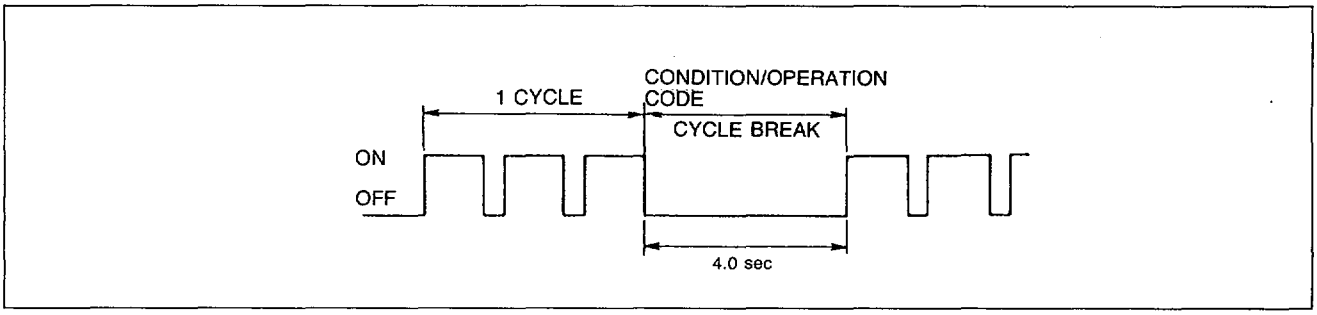
Principle of Code Cycle

Condition and operation codes are determined by flashing of the test light connected to the control unit as shown below.

03U0TX-140

1. Code cycle break

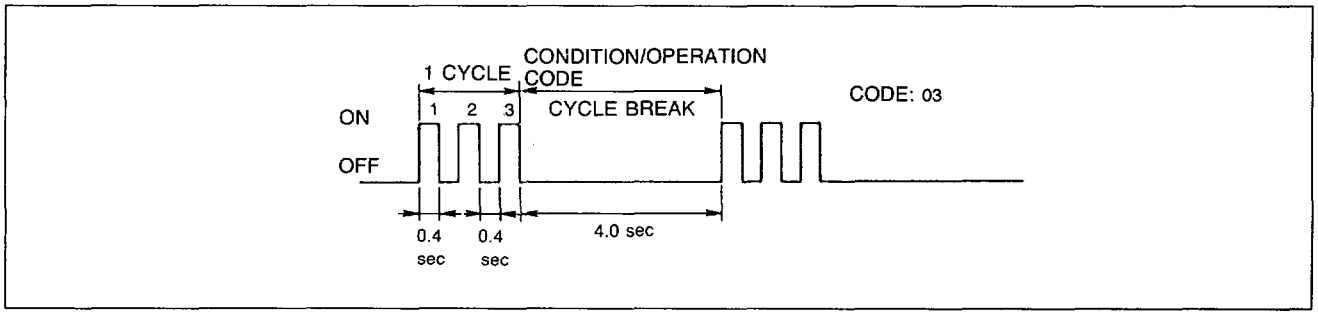
The time between condition/operation code cycles is 4.0 seconds (the time the lamp is off).



97U0TX-188

2. Second digit of condition/operation code (ones position)

The digit in the ones position of the condition/operation code represents the number of times the lamp is on 0.4 second during one cycle.

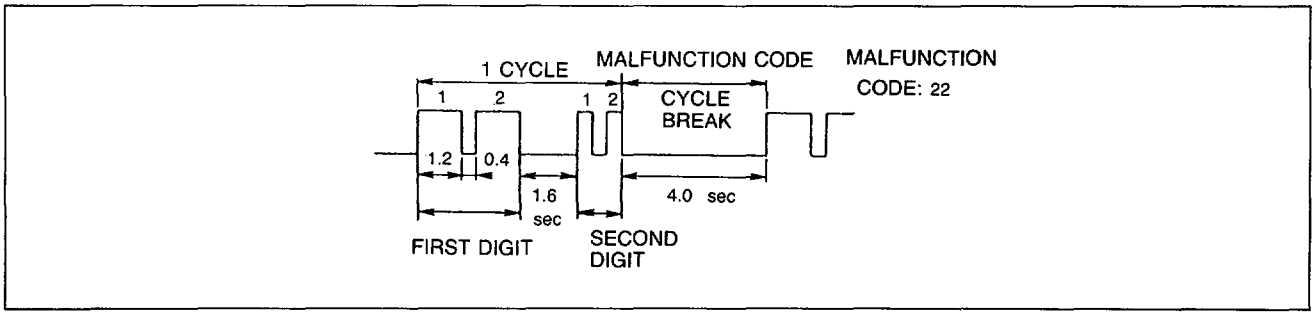


97U0TX-189

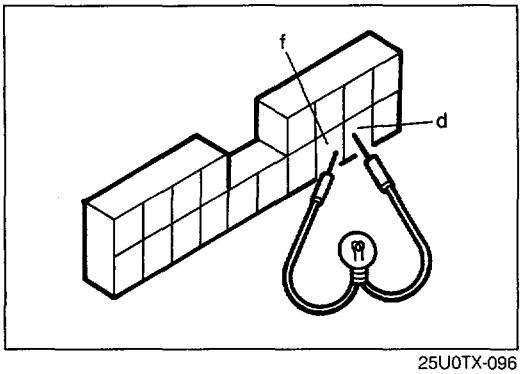
3. First digit of condition/operation code (tens position)

The digit in the tens position of the condition/operation code represents the number of times the lamp is on 1.2 seconds during one cycle.

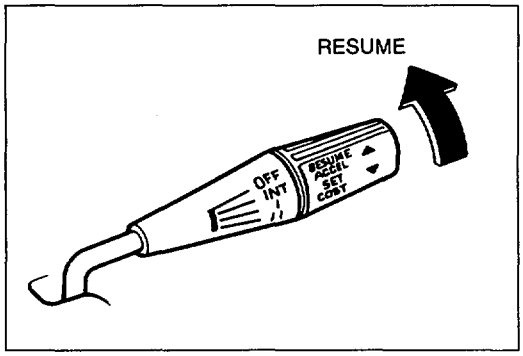
The lamp remains off for 1.6 seconds between the long and short flashes.



97U0TX-190



25U0TX-096



25U0TX-097

Inspection Procedure
Self-diagnosis of malfunction

1. Locate the cruise control connector.
2. Connect a 1.4W test light between terminals d and f, with connector attached to control unit.

Note
- **There is no wire in terminal d of the connector. Push the test light through the connector and touch the corresponding pin on the control unit.**

3. Turn the ignition switch to ON.
4. Turn the cruise control on by pressing the MAIN switch. (The MAIN indicator lamp will come ON.)
5. Press and hold the RESUME/ACCEL switch for more than three seconds.
6. The test light will illuminate for 3 seconds and go out for 2 seconds.
7. The self-diagnostic system is activated and the test light will flash if a problem is present.
8. Make note of the condition code number(s). (Refer to the chart at the bottom of the page.)
9. After retrieving the code(s), drive the vehicle at more than 16 km/h (10 mph), or press the MAIN switch to deactivate self-diagnosis. (The MAIN indicator lamp will go OFF.)

Note
- **The cruise control system will not operate when in the self-diagnosis mode.**

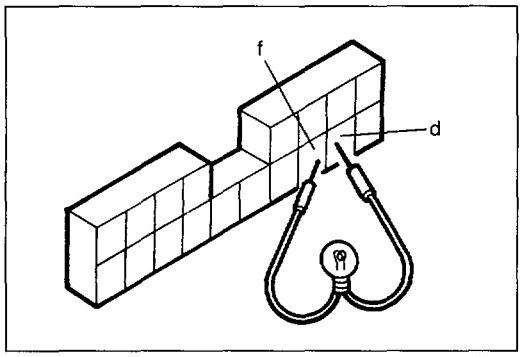
Condition Code Numbers
Self-diagnosis of malfunction

The test light will flash if a malfunction is present.

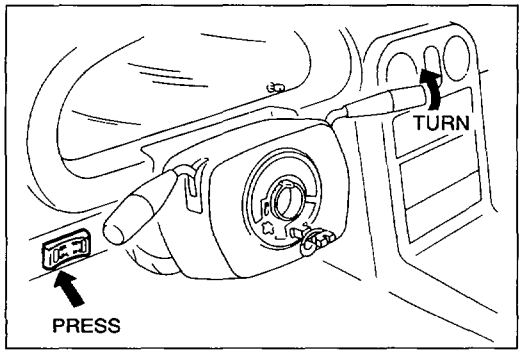
Pattern of output signal (Test light)	Code No.	Possible Cause	Action
ON / OFF	01	Defective wiring (Actuator—Cruise control unit, Stoplight switch—Cruise control unit) Defective actuator Defective stoplight switch (For cruise)	Repair harness Inspect actuator (Refer to page T–114) Inspect stoplight switch (Refer to page T–113)
ON / OFF	05	STOP fuse blown Defective wiring (Fuse — Cruise control unit)	Replace fuse Repair harness
ON / OFF	07	Both stoplight switches (for vehicle and cruise) are ON simultaneously	Inspect stoplight switches (Refer to pages T–113 and T–61)
ON / OFF	11	Defective SET/COAST, or RESUME/ ACCEL switch	Inspect cruise control switch (Refer to page T–114)
ON / OFF	15	Defective cruise control unit	Go to troubleshooting (Refer to page T–104)

25U0TX-098

Note
- **If there is more than one malfunction, the code numbers will be indicated in numerical order.**



25U0TX-099



25U0TX-100

Inspection Procedure
Quick inspection of cruise control system
1. Locate the cruise control connector.
2. Connect a 1.4W test light between terminals d and f, with connector attached to control unit.

Note
- **There is no wire in terminal d of the connector. Push the test light through the connector and touch the corresponding pin on the control unuit.**

3. Turn the ignition switch to ON.
4. Verify that the MAIN switch is OFF. (The MAIN indicator lamp is OFF.)
5. Turn the RESUME/ACCEL switch and the MAIN switch simultaneously to activate the system inspection. (The MAIN indicator lamp will come ON.)
6. Operate each switch as described below and verify the operation codes.
7. Press the MAIN switch to deactivate the system inspection. (The MAIN indicator lamp will go OFF.)

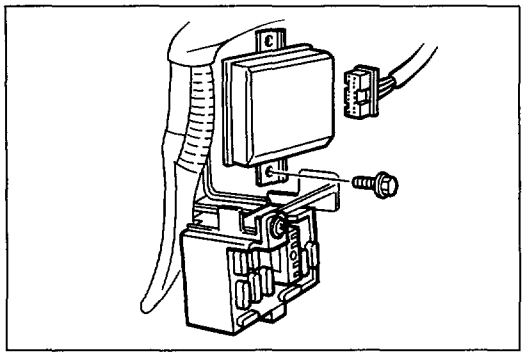
Note
- **The cruise control system will not operate when in the self-diagnosis mode.**

Operation Code Numbers
Inspection of cruise control system
The test light will flash if the system is operating correctly. If the light fails to flash, inspect the system as shown.

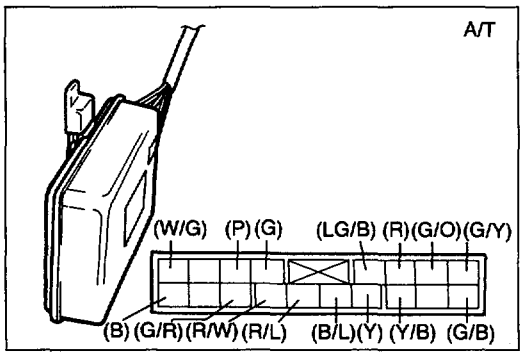
Note
- **Shift the selector lever to D or R range before performing the inspection. (For ATX)**

Procedure	Pattern of output signal (Test light)	Code No.	Action to inspect
Press SET/COAST switch	ON / OFF	21	Inspect cruise control switch (Refer to page T–114)
Press RESUME/ACCEL switch	ON / OFF	22	Inspect cruise control switch (Refer to page T–114)
Depress brake pedal	ON / OFF	31	Inspect stoplight switches (Refer to page T–113 and T–61)
Turn ignition switch to ON and shift the selector lever to P or N range (For ATX) Depress clutch pedal (For MTX)	ON / OFF	35	Inspect inhibitor switch (Refer to Section K) or clutch switch (Refer to Section F)
Drive vehicle above 40 km/h (25 mph)	ON / OFF	37	Inspect speed sensor or wire harness

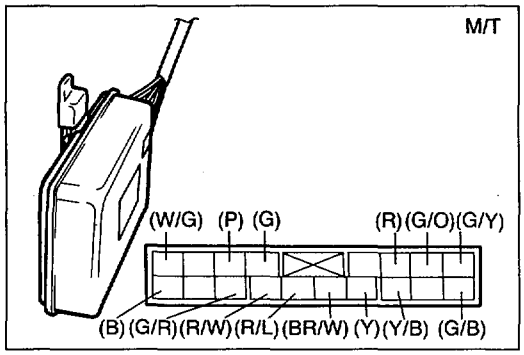
25U0TX-101



9MU0TX-268



05U0TX-333



CRUISE CONTROL UNIT

Removal

1. Remove the passenger side kick panel.
2. Remove the nut and the control unit.

Installation

Install in the reverse order of removal.

Inspection

1. Check the terminal voltages of the control unit.
2. If the terminal voltages are correct, replace the control unit.

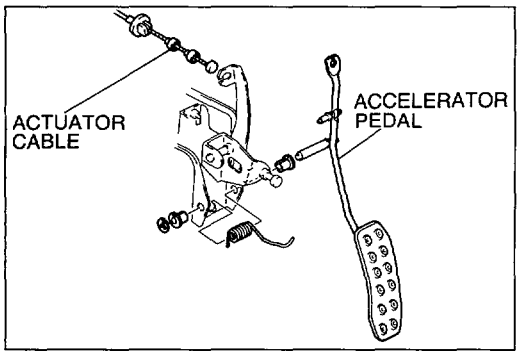
VB: Battery voltage

Terminal	Wire color	Connected to	Test condition	Specification	Action
a	(G/Y)	Actuator	Main switch off	0V	Check actuator (Refer to page T–114)
			Main switch on	9V	
b	(G/B)	Actuator	Main switch off	0V	
			Main switch on	9V	
c	(G/O)	Actuator	Main switch off	0V	
			Main switch on	9V	
e	(R)	Main switch	Main switch off	VB	Check main switch (Refer to page T–113)
			Main switch off	0V	
f	(Y/B)	Main switch	Main switch off	0V	
			Main switch on	VB	
g	(LG/B)	AT control unit	Ignition switch off	0V	Check AT control unit (Refer to page K–29)
			Ignition switch on	VB	
h	(Y)	Brake switch	Brake pedal depressed	0V	Check brake switch (Refer to page T–113)
			Brake pedal released	9V	
j	(B/L)	Inhibitor switch	Shift to "N" or "P" range	0V	Check inhibitor switch (Refer to page K–24)
			Shift to other range	5V	
	(BR/W)	Clutch switch	Clutch pedal depressed	0V	Check clutch switch (Refer to page T–113)
			Clutch pedal released	VB	

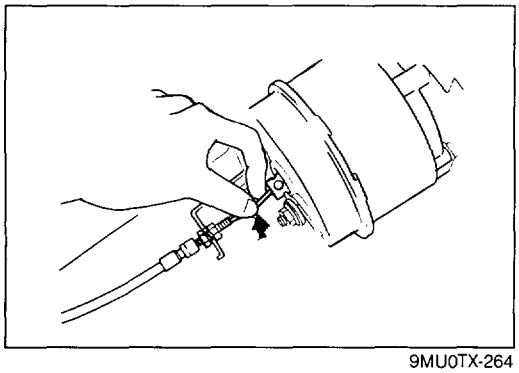
VB: Battery voltage

Terminal	Wire color	Connected to	Test condition	Specification	Action
l	(R/L)	Cruise control switch (Set switch and coast switch)	Main switch ON	VB	Check cruise control switch (Refer to page T–114)
			While turning set switch after main switch ON	0V	
m	(G)	Stoplight switch	Brake pedal depressed	VB	Check stoplight switch (Refer to page T–61)
			Brake pedal released	0V	
n	(R/W)	Cruise control switch (Resume switch and accel switch)	Main switch ON	VB	Check cruise control switch (Refer to page T–114)
			While turning resume switch after main switch ON	0V	
o	(P)	Actuator	Main switch OFF	0V	Check actuator (Refer to page T–114)
			Main switch ON	9V	
p	(G/R)	Speed sensor	While rotating rear tires	Run out between 0—5V	Check speed sensor (Refer to page T–114)
s	(W/G)	Battery	Constant	VB	Repair wire
t	(B)	Ground	Constant	0V	Repair wire

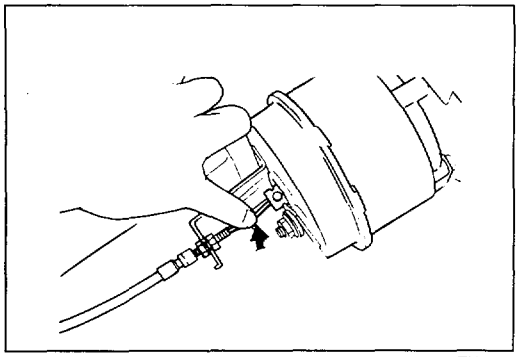
25U0TX-102



9MU0TX-263



9MU0TX-264



9MU0TX-265

ACTUATOR CABLE

Removal

1. Disconnect the actuator cable from the accelerator pedal.
2. Remove the clamp at the inside of the firewall.
3. Disconnect the actuator cable from the actuator.
4. Remove the clamps and the actuator cable.

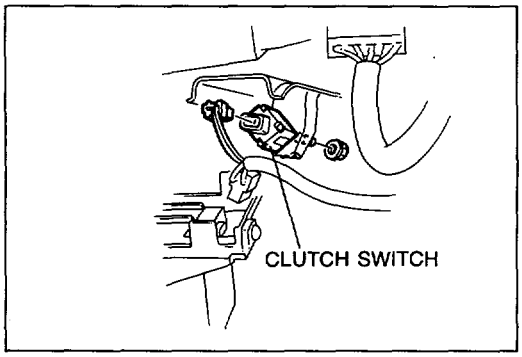
Installation

Install in the reverse order of removal.

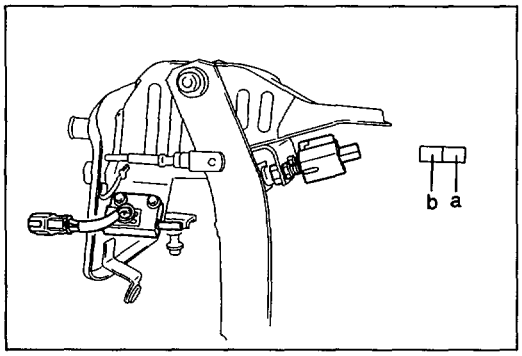
Adjustment

Remove the clamp and adjust the nut so that actuator cable free play is as shown when the cable is pressed lightly.

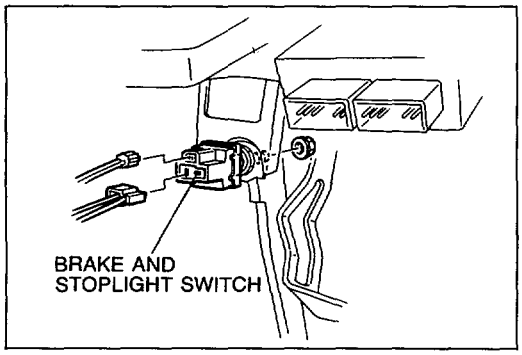
Cable play: 1—3mm (0.04—0.12 in)



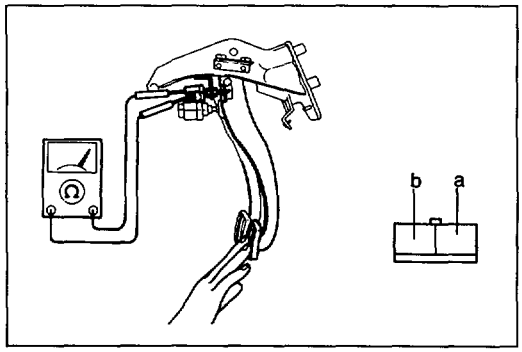
05U0TX-460



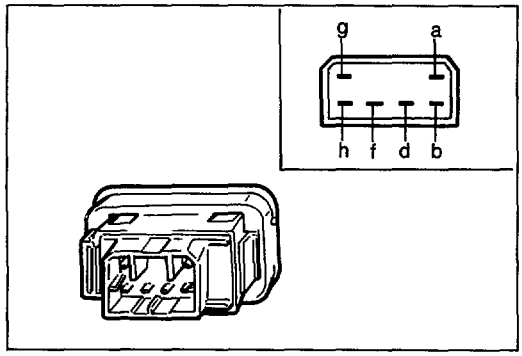
05U0TX-229



05U0TX-461



05U0TX-230



05U0TX-231

CLUTCH SWITCH

Removal

Loosen the locknut and remove the switch.

Installation

Install in the reverse order of removal.

Adjustment

Adjust the switch to set the specified pedal height.

Pedal height: 175—185mm (6.89—7.82 in)
Pedal free play: 0.6—3.1mm (0.02—0.12 in)

Inspection

1. Disconnect the clutch switch connector.
2. Check continuity between terminals of the switch.

Pedal position	Terminal	
	a	b
Pedal released		
Pedal depressed	O——	——O

O——O: Indicates continuity

3. If not as specified, replace the clutch switch.

BRAKE SWITCH

Removal

Loosen the locknut and remove the switch.

Installation

Install in the reverse order of removal.

Adjustment

Adjust the switch to set the specified pedal height.

Pedal height: 171—181mm (6.93—7.13 in)
Pedal free play: 4—7mm (0.16—0.28 in)

Inspection

1. Disconnect the brake switch connector.
2. Check continuity between terminals of the switch.

Pedal position	Terminal	
	a	b
Pedal released	O——	——O
Pedal depressed		

O——O: Indicates continuity

3. If not as specified, replace the brake switch.
4. If the switch is OK, repair the wire harness (Fuse — Brake switch — Control unit).

CRUISE CONTROL MAIN SWITCH

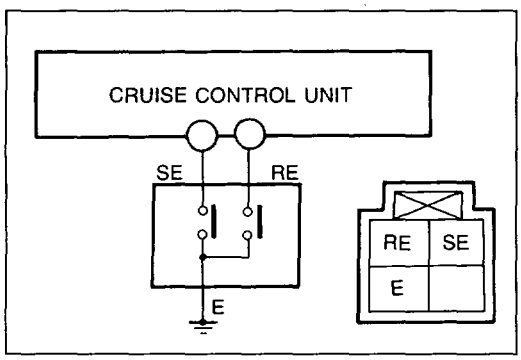
Inspection

1. Check continuity between terminals of the cruise control main switch.

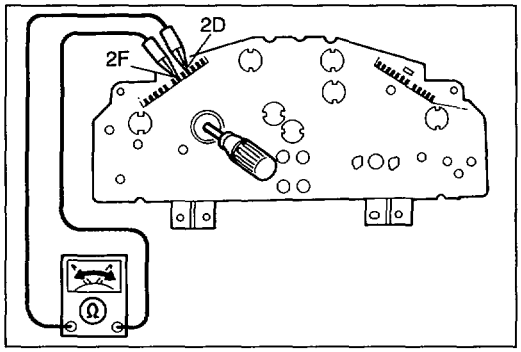
Position	Terminal					
	a	b	d	f	g	h
Neutral			O——	——O	O——	——O
Off					O——	——O
On	O——	——O	O——	——O	O——	——O

O——O: Indicates continuity

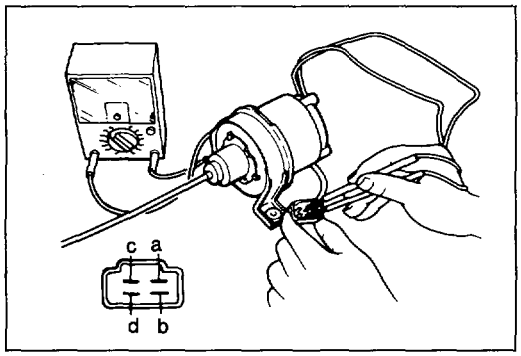
2. If not as specified, replace the cruise control main switch.



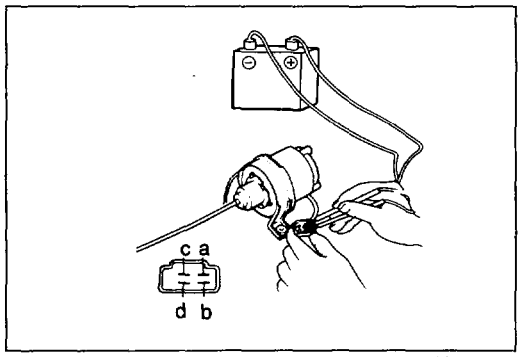
05U0TX-232



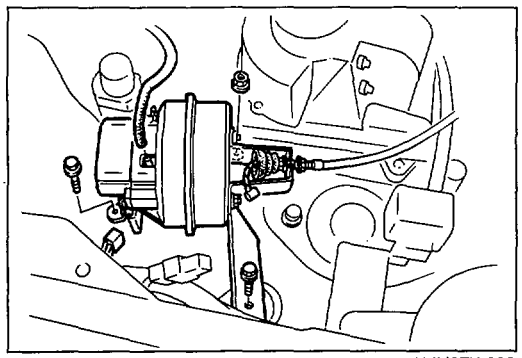
05U0TX-233



05U0TX-227



05U0TX-459


9MU0TX-262

CRUISE CONTROL SWITCH

Inspection

1. Remove the knee protector and disconnect the combination switch connector.
2. Check continuity between terminals of the combination switch connector.

Switch	Terminal		
	SE	RE	E
SET/COAST	○		○
RESUME/ACCEL		○	○

○—○: Indicates continuity

3. If not as specified, replace the cruise control switch.

SPEED SENSOR

Inspection

1. Remove the instrument cluster.
2. Check continuity between terminals 1L and 2A while rotating the speedometer cable.
3. If there are not four pulses per shaft rotation, replace the speed sensor. (Refer to page T–33.)

ACTUATOR

Inspection

1. Measure the actuator solenoid resistance using an ohmmeter.

Check terminals	Resistance
c — a	Approx. 25 to 55Ω
c — b	
c — d	

2. If not as specified, replace the actuator.
3. Disconnect the actuator cable from the accelerator pedal.
4. Run the engine at idle speed.
5. Apply battery voltage to the following terminals, and check the actuator operation.

Order	Terminal condition				Operation of control cable
	a	b	c	d	
1	Ground	Ground	Power	Ground	Pull
2	Ground	—	Power	Ground	Hold
3	Ground	—	Power	—	Extend
4	—	—	—	—	Release

6. If not as specified, replace the actuator.

Removal

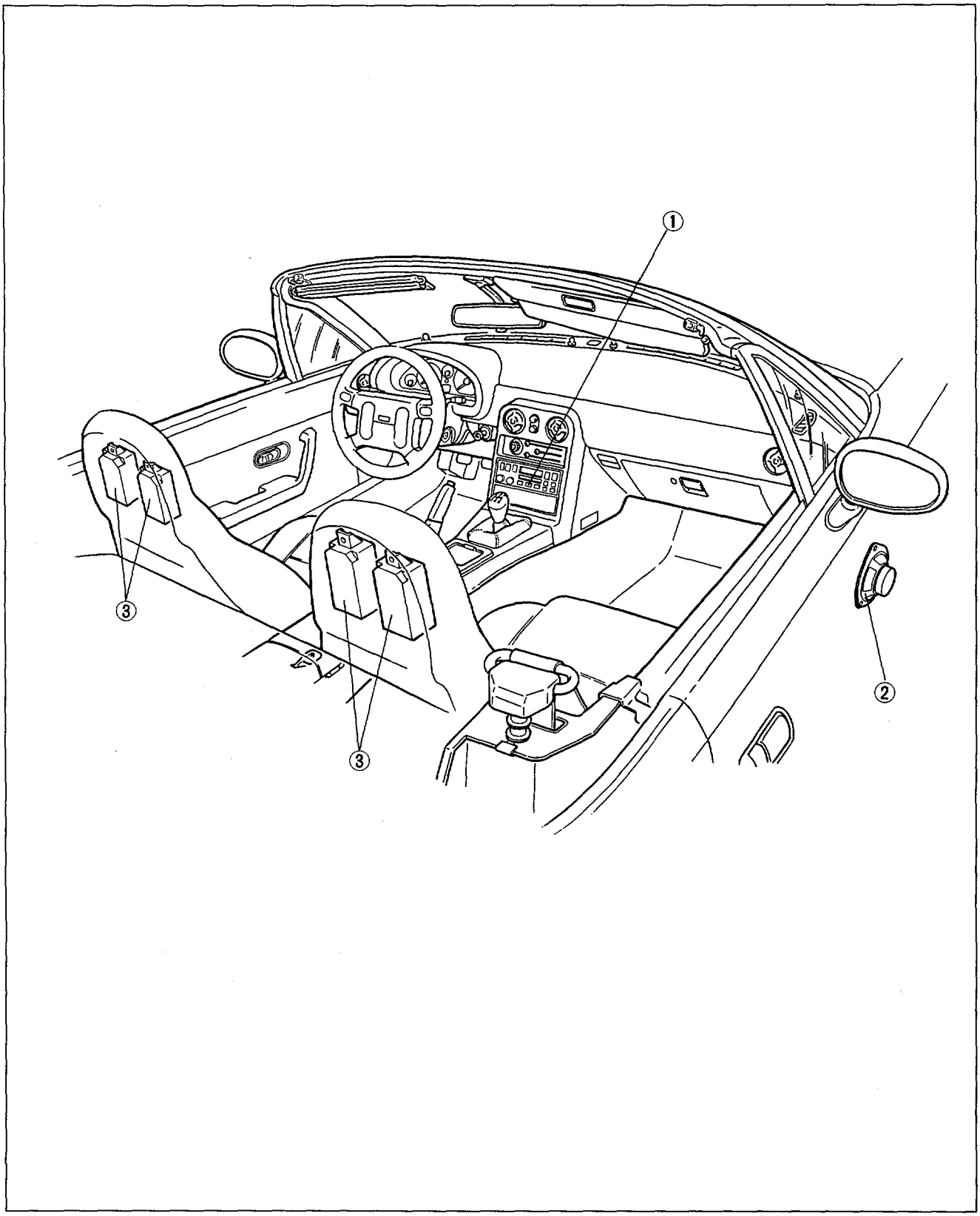
1. Disconnect the accelerator cable and vacuum hose from the actuator.
2. Remove the bolt and nuts and the actuator.

Installation

Install in the reverse order of removal.

AUDIO

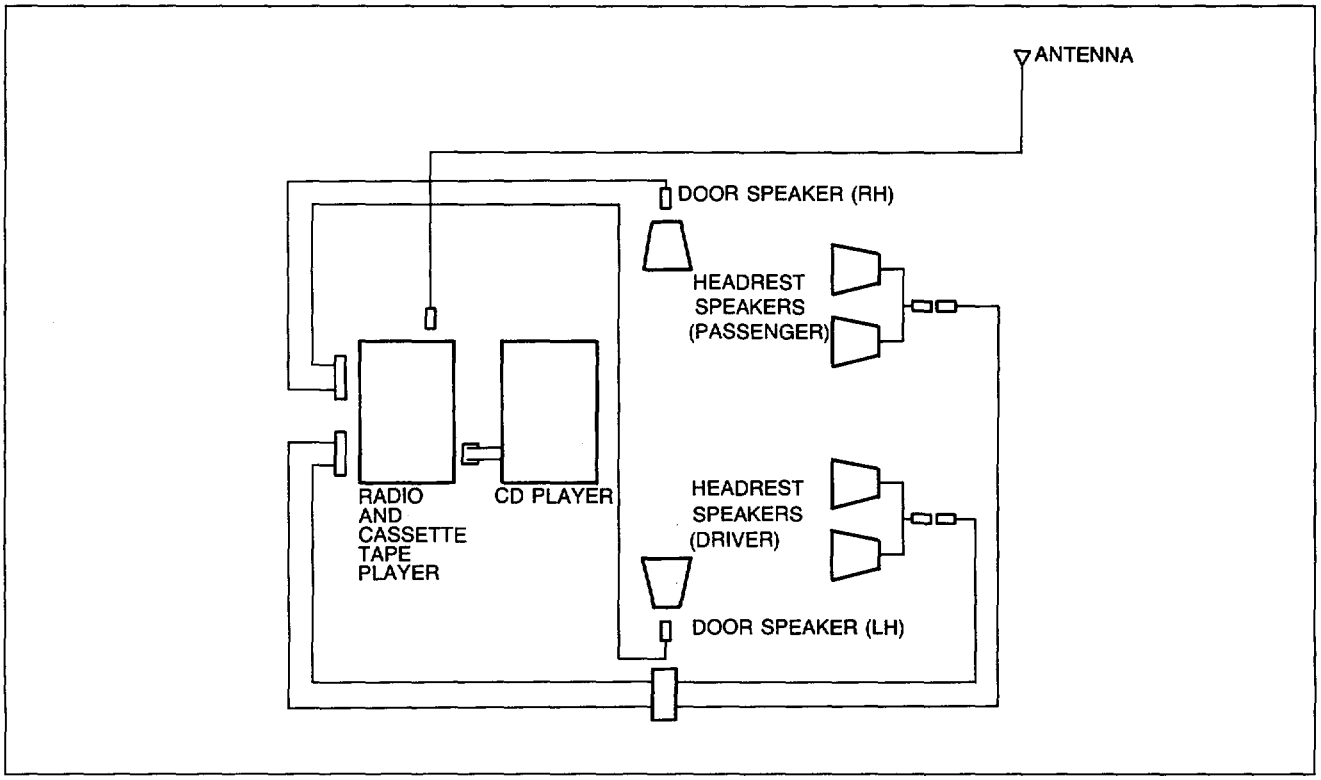
STRUCTURAL VIEW



05U0TX-234

1. Audio unit
2. Door speakers
3. Headrest speakers

SYSTEM DIAGRAM



05U0TX-235

FEATURES

This new audio system was developed especially for the Mazda MX-5 Miata.
The main features are described below.

1. Anti-theft System

To deter theft of the audio unit, the system is designed to accept a code number that makes the audio unit inoperable if it is removed from the vehicle and then reconnected without inputting the correct code number.
When the anti-theft system is activated, the unit will not operate and code will flash on the display until the correct code is entered.

Caution

- **If the vehicle's battery is disconnected, the anti-theft system is activated.**
- **Three consecutive errors in inputting a code number to a unit that has had the anti-theft system activated will render the unit completely inoperable. It must then be replaced.**

2. Headrest Speaker

Headrest speakers are available.

3. Preset Memory

A total of 18 broadcasting stations on AM, FM1, and FM2 bands can be quickly and easily set.

4. Automatic Memory

By using the automatic memory function, which is independent from the preset memory, station selections can be easily made in an area where the broadcasting station frequencies are not known.

5. Clock

The clock display is incorporated within the audio display.

6. Metal Tape Automatic Detection

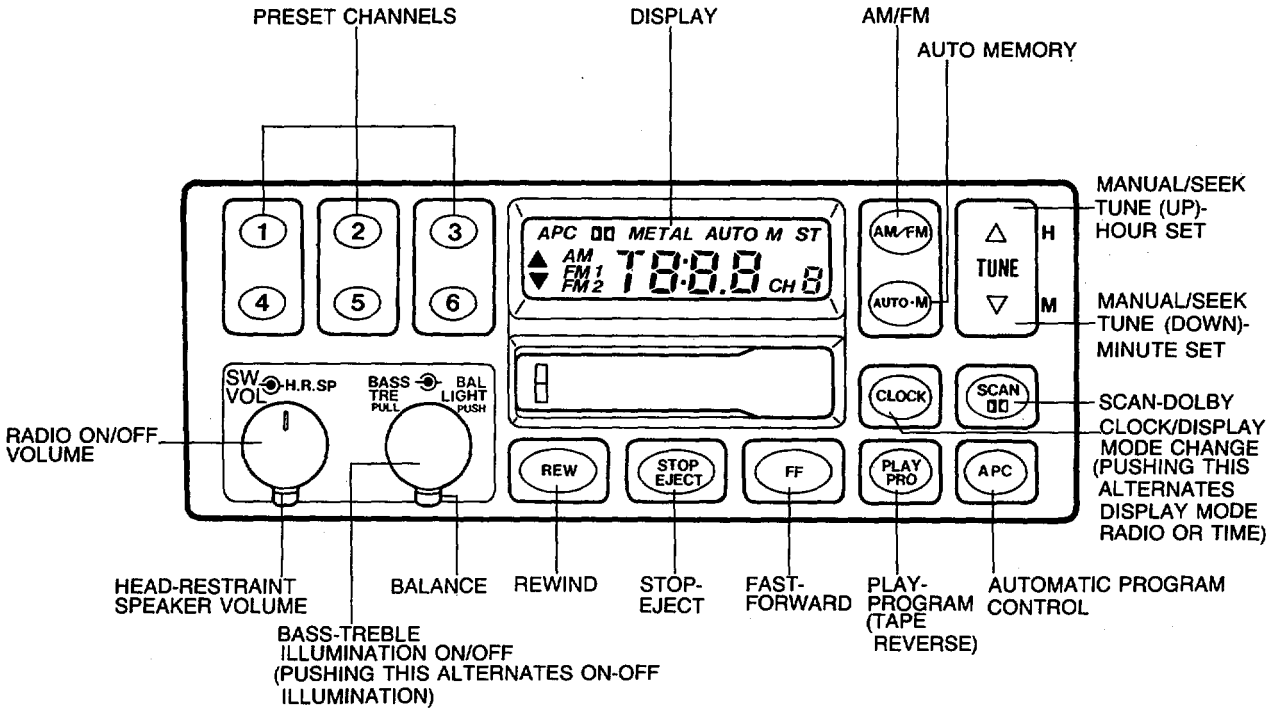
The tape player automatically detects the use of metal tape and automatically internal adjustments for metal tape playback. The word "METAL" is shown on the display.

7. Illumination Lamps

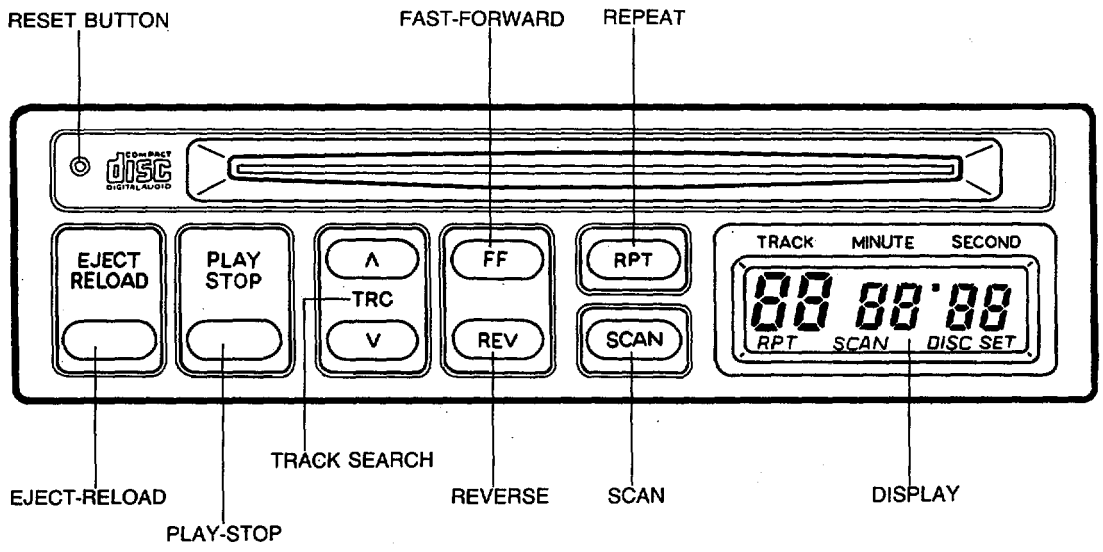
The unit's illumination can be switched ON or OFF as desired.

FUNCTION AND OPERATING PROCEDURE

RADIO AND CASSETTE TAPE PLAYER



COMPACT DISC (CD) PLAYER



Note
- **Five seconds after completing an operation that is shown on the display, the indicator returns to clock mode.**

Radio

Function	Operation and procedure	Display
To turn radio ON or OFF	• Press VOLUME to turn ON • Press VOLUME again to turn OFF	AM, FM1, or FM2 and frequency will be displayed
To adjust volume	• Turn VOLUME to adjust	
Treble control	• Pull BASS/TREBLE • For more highs, turn BASS/TREBLE clockwise • For less highs, turn BASS/TREBLE counterclockwise	
Bass control	• Press BASS/TREBLE • For more lows, turn BASS/TREBLE clockwise • For less lows, turn BASS/TREBLE counterclockwise	
Balance control	• To shift sound to left, turn BALANCE clockwise • To shift sound to right, turn BALANCE counterclockwise	
Headrest speaker control	• To increase volume, turn H.R.SP clockwise	
Band selector	• To choose either AM or FM, press AM/FM (Pressing AM/FM alternates AM, FM1 and FM2)	AM, FM1 or FM2 and frequency will be displayed
Manual tuning	• To manually tune station, press △ for higher frequency and press ▽ for lower frequency	
Seek tuning	• To seek tune station, press △ or ▽ for more than one second	
Scan tuning	• Press SCAN to automatically sample strong stations (Scanning stops at each station for about five seconds) • To hold station, press SCAN again during five second interval	
Channel preset tuning	To set frequency • To select band, press AM/FM • To set station, press one channel number, and hold it until beep is heard To tune preset channel • Press desired channel preset button	
Auto memory tuning	To set frequency • Press and hold AUTO M for about two seconds To tune auto memory station • Press and release AUTO M	

05U0TX-237

Cassette Tape Player

Function	Operation and procedure	Display
Playing/Stopping tape	• Insert cassette tape through cassette slot, open-edge to right (System automatically switches to tape operation) • At end of tape, system will automatically reverse tape play • To stop tape play during playback without ejecting it, press STOP/EJECT (Tape will be in pause mode) • To restart tape play, press STOP/EJECT again • To play tape directly from radio/compact disc mode, press PLAY/PRO (while tape is inserted)	
Ejecting tape/Fast forward/ Rewind	• To eject tape, press STOP/EJECT • To fast forward tape, push FF; to stop it, press STOP/EJECT or PLAY/PRO • To rewind tape, press REW; to stop it, press STOP/EJECT or PLAY/PRO	
APC (Automatic program control)	• To search for beginning of present or next program, press APC then FF (for next program) or REW (for present)	

Cassette Tape Player (cont'd)

Function	Operation and procedure	Display
Tape direction change	• To change tape-playing direction, press PLAY/PRO	
Dolby B noise reduction	• Press when using tape encoded with Dolby NR	

05U0TX-238

Compact Disc (CD) Player

Caution

- **The CD player cannot play 8 cm (3.1 in) CDs. The smaller CD may dislodge from the adapter and damage the disc or the player. Use only standard 12 cm (4.7 in) CDs.**

Function	Operation and procedure	Display
Disc insert	• Push disc, label-side up, into slot. Auto-loading mechanism will take over to set disc and begin play **Note** **There will be short lapse of time between time disc is set and play begins. This is because period of time is necessary for disc player to read digital signal on disc. When CD is pressed while disc is being played, play will pause. Play will resume when CD is pressed again**	
Stopping/Playing CD	• To stop CD play during playback without ejecting it, press PLAY/STOP (CD will be in pause mode) • To start playing CD again, press PLAY/STOP again • To play loaded CD directly from radio or tape mode, press PLAY/STOP	
Ejecting/Reloading CD	• To eject CD, press EJECT/RELOAD • To reload ejected CD, press EJECT/RELOAD again	
Fast forward/reverse	• To fast forward program, press FF • To reverse program, press REW	
Repeat play	• To listen to program repeatedly, press RPT during play of selection to be repeated	
Music scan	• To scan play, press SCAN • To cancel scan play, press SCAN again	
Track search	• To search program tracks, press ∧ (for forward) or ∨ (for reverse)	

05U0TX-239

Clock

Note

- **The clock can be set while radio or tape/CD player is ON.**

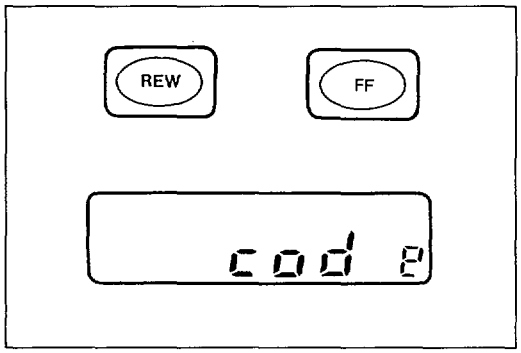
Function	Operation and procedure
Time display	Time is normally displayed. Pushing CLOCK will automatically display current radio frequency or mode for approx. five seconds before reverting to time mode.
Setting clock	To adjust time, press CLOCK for approx. two seconds, current time will flash To advance hours, press △ , to advance minutes, press ▽ **Note** **If time is not adjusted while clock's current time is flashing (If neither △ nor ▽ is pressed) and CLOCK is pressed second time, minutes will be set to 00.** **If clock's current time setting is within latter part of hour (from 30 to 59 min) hour setting will automatically advance one hour.** To resume normal display, press CLOCK again

05U0TX-240

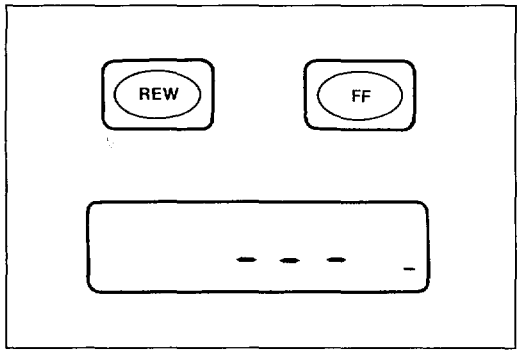
Anti-theft System

Note

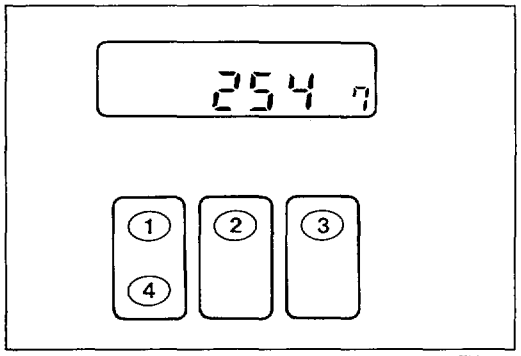
- **The anti-theft system is activated if the electrical power source is ever disconnected from the audio unit. When the system is activated, the audio unit will not operate when reconnected to a power supply, and CODE will flash on the display until the correct code number is entered. If the anti-theft system is activated, reset the unit as described; refer to "If anti-theft system is activated".**
- **The anti-theft system is activated in the following conditions:**
  1. **Negative battery cable is disconnected.**
  2. **Battery is discharged.**
  3. **Audio unit connectors are disconnected.**



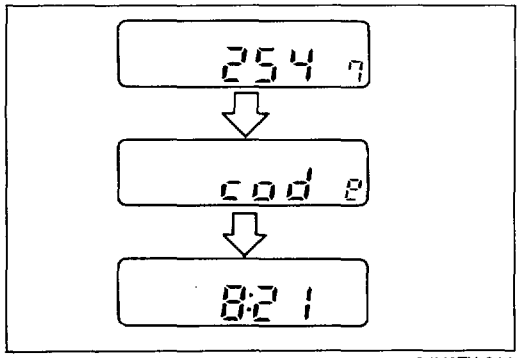
05U0TX-242



05U0TX-243



05U0TX-244



05U0TX-245

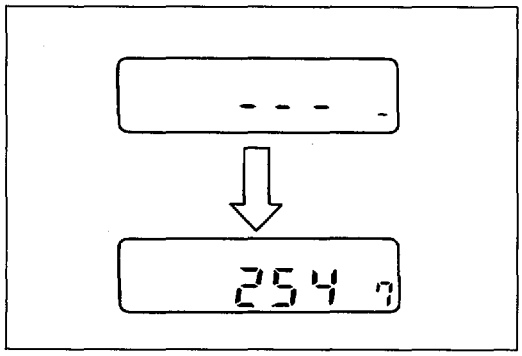
05U0TX-241

Setting procedure

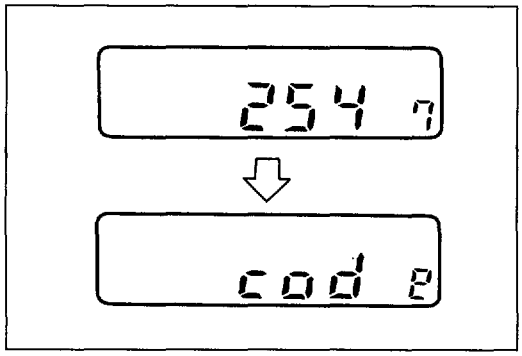
1. Turn the audio unit off with the ignition switch ACC.
2. Push REW and FF simultaneously for approximately 2 seconds until CODE is on the display.
3. Again push REW and FF while CODE is displayed (within 10 seconds). The display will exhibit bars.

   Note
   - **Record the personal code number before attempting to input it.**
4. While the bars are displayed, input the personal code number by pressing preset channel buttons 1, 2, 3 and 4. Press 1 for the first digit, 2 for the second, 3 for the third, and 4 for the last digit.
   ex. Setting 2547
   Press 1 three times, 2 six times. 3 five times and 4 eight times.

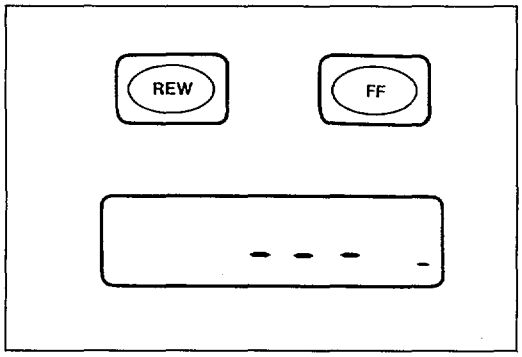
   Note
   - **If the display returns to time while inputting, begin from the Step 1.**
5. With the code number displayed, press REW and FF approximately 2 seconds until a beep is heard and CODE begins to flash.
6. After approximately 5 seconds, the display will change to time. This indicates the system is set.



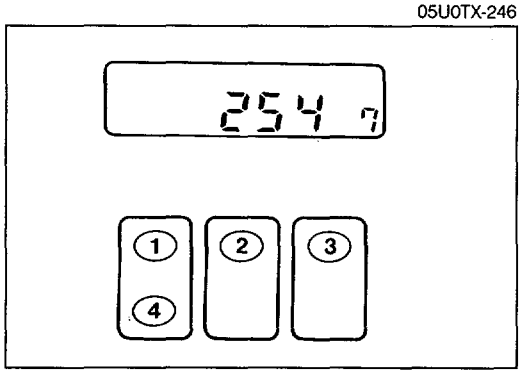
05U0TX-334



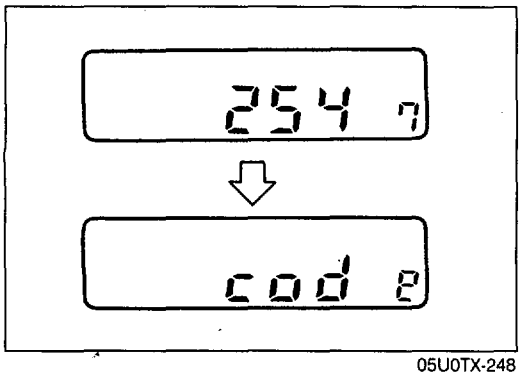
05U0TX-335



05U0TX-246



05U0TX-247



05U0TX-248

Canceling code number

1. Begin with the audio unit off and the ignition switch in ACC position (time displayed).
2. Press REW and FF simultaneously for approximately 2 seconds until CODE is displayed and flashes.
3. Again press REW and FF while CODE is flashing (within 10 seconds). The display will exhibit bars.
4. While the bars are displayed, input the current code number as described in setting procedure Step 4. (2547, for example).
5. With the code number on the display, press REW and FF for approximately 2 seconds until a beep is heard and CODE appears.
   After 5 seconds, CODE will disappear and the clock mode will appear. This indicates the code number is canceled.

Note

- **If Error appears on the display, begin from Step 1.**

If anti-theft system is activated

Note

- **If the anti-theft system is activated, CODE appear on the display until previous code number is inputted.**

To deactivate anti-theft system

1. Push REW and FF until bars are displayed.
2. While bars are displayed, input the code number as described in setting procedure.
3. Push REW and FF approximately 2 seconds until a beep is heard and CODE is displayed. CODE will flash for 5 seconds then disappears to indicate that the system is operable.
4. If Err (error) appears, try again from Step 1.

Note

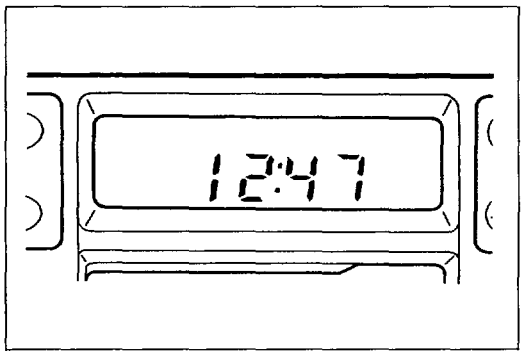
- **Three consecutive error will activate the anti-theft system, and the audio unit will be completely inoperable.**
- **Have the audio unit changed at listed panasonic service Co.**

TROUBLESHOOTING

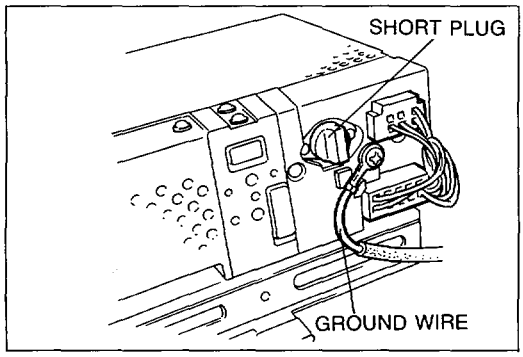
Symptom: Speaker(s) do not operate.
(Without headrest speakers.)

Note
- **Before troubleshooting, verify that the customer is using the audio system correctly. If not, advise or instruct him/her the proper operating procedure. (Refer to page T–117.)**

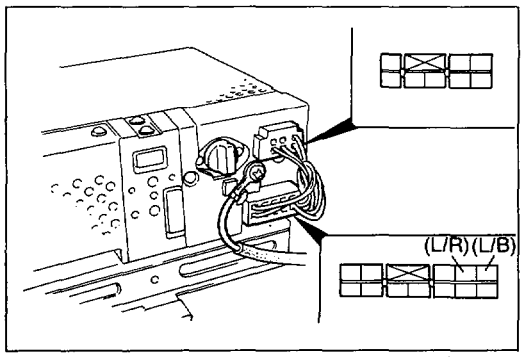
25U0TX-103



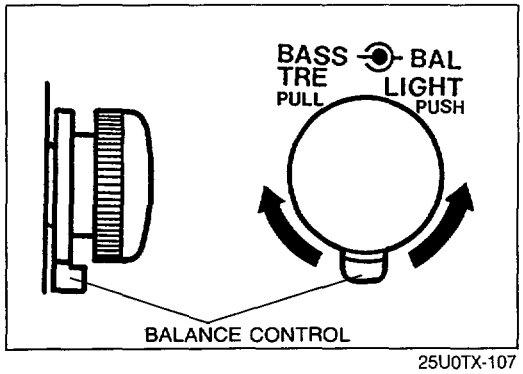
25U0TX-104



25U0TX-105



25U0TX-106



25U0TX-107

Step 1
Check if the anti-theft system has been activated. Turn the ignition switch to ACC and note the display.

Display	Action
CODE flashes	Deactive anti-theft system (Refer to page T–121.) **Note** **If CODE appears when ignition switch is turned to ACC from OFF go to Step 2.**
Err flashes	Have audio unit changed at a Panasonic service company
Clock	Go to Step 4
No indication	Go to Step 2

Step 2
1. Remove the audio unit. (Refer to page T–132.)
2. Check the connections of the ground wire and the short plug.
3. If a connection is poor or loose, repair or replace it.
4. If the connections are OK, go to Step 3.

Step 3
1. Turn the ignition switch to ACC.
2. Measure the voltage at the following terminal-wires of the audio unit connector.

VB: Battery voltage

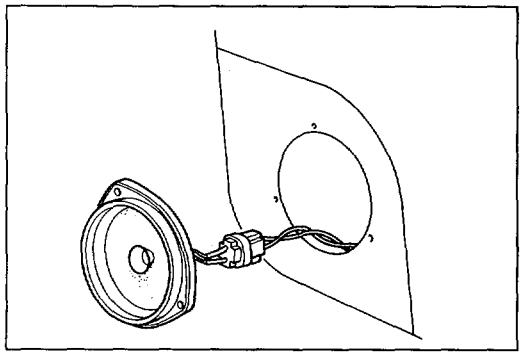
Wire	Voltage	Action
(L/B)	VB	Next, check wire (L/R)
	0V	Check CIGAR 15A fuse If CIGAR 15A fuse is OK, repair wiring harness (CIGAR 15A fuse — Audio unit)
(L/R)	VB	Replace audio unit
	0V	Check ROOM 10A fuse If ROOM 10A fuse is OK, repair wiring harness (ROOM 10A fuse — Audio unit)

Step 4
Locate the faulty speaker(s) by using the balance control.
1. Turn the ignition switch to ACC.
2. Play a prerecorded tape, and set the volume to the center position.
3. Set the balance control as shown in Table 1. (page T–123.)
   Check operation of each speaker.
4. From results of Table 1 testing, go to the next step.

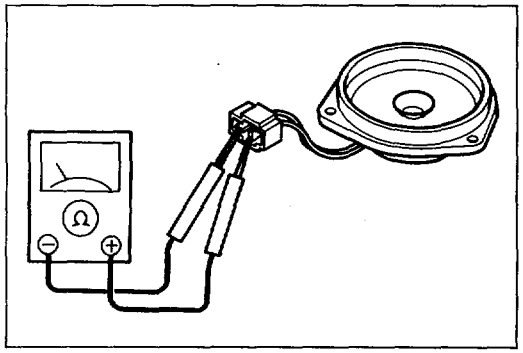
Table 1

Speaker	Balance	Speaker operates	Judgement	Next Step
Left door	Left	Yes	Left door speaker circuit OK	—
		No	Left door speaker circuit faulty	Step 5
Right door	Right	Yes	Right door speaker circuit OK	—
		No	Right door speaker circuit faulty	Step 5

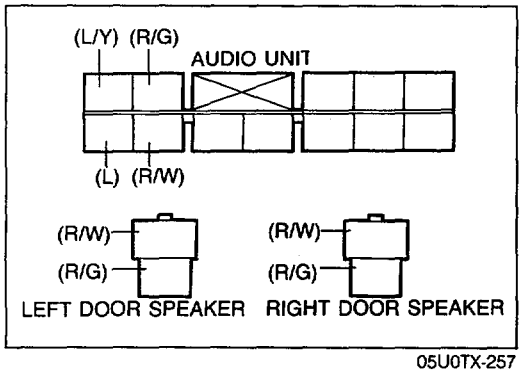
05U0TX-254



05U0TX-255



05U0TX-256



05U0TX-257

Step 5
1. Remove the faulty door speaker cover and speaker installation screws.
2. Check if the speaker is properly connected.
3. If necessary, repair or reconnect the connector.
4. If the connection is OK, go to Step 6.

Step 6
1. Disconnect the connector from the suspected faulty speaker.
2. Measure resistance between terminals of the speaker.

   Resistance: 4Ω

3. If not as specified, replace the speaker.
4. If the resistance is OK, go to Step 7.

Step 7
1. Disconnect the 12-pin connector of the audio unit.
2. Disconnect both door speakers.
3. Check for continuity of the following wires of the door speakers wire harness.

Connectors	Wire	Continuity
Audio unit — Left door speaker	(R/W)	Yes
	(R/G)	Yes
Audio unit — Right door speaker	(L)	Yes
	(L/Y)	Yes

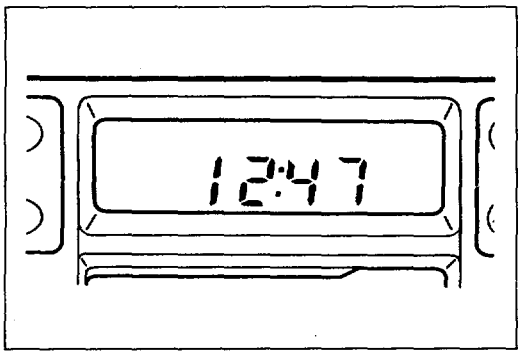
4. If not as specified, repair the faulty wiring.
5. If the wiring is OK, replace the audio unit.

Symptom: Speaker(s) do not operate (With headrest speakers.)

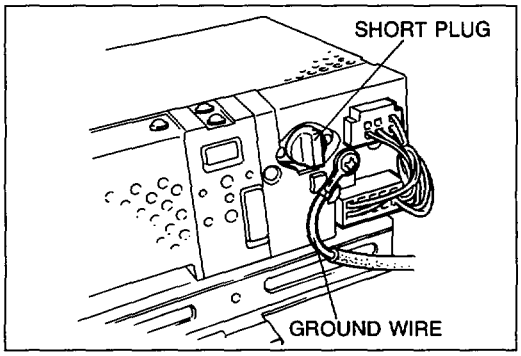
Note

- **Before troubleshooting, verify that the customer is using the audio system correctly. If not, advise or instruct him/her in the proper operating procedure. (Refer to page T–117.)**

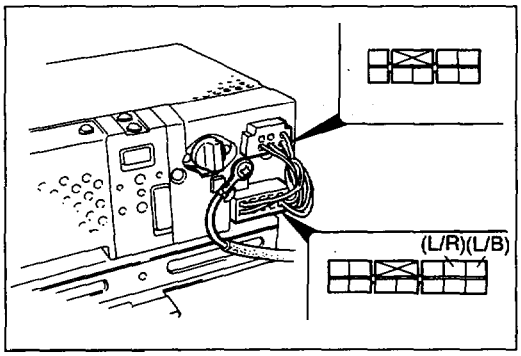
25U0TX-108



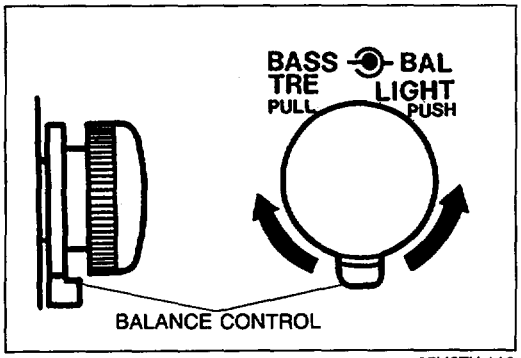
25U0TX-109



25U0TX-110



25U0TX-111



25U0TX-112

Step 1

Check if the anti-theft system has been activated. Turn the ignition switch to ACC and note the display.

Display	Action
CODE flashes	Deactive anti-theft system (Refer to page T–121.) **Note** **If CODE appears when ignition switch is turned to ACC from OFF go to Step 2.**
Err flashes	Have audio unit changed at a Panasonic service company
Clock	Go to Step 4
No indication	Go to Step 2

Step 2

1. Remove the audio unit. (Refer to page T–133.)
2. Check the connections of the ground wire and the short plug.
3. If a connection is poor or loose, repair or replace it.
4. If the connections are OK, go to Step 3.

Step 3

1. Turn the ignition switch to ACC.
2. Measure the voltage at the following terminal-wires of the audio unit connector.

VB: Battery voltage

Wire	Voltage	Action
(L/B)	VB	Next, check wire (L/R)
	0V	Check CIGAR 15A fuse If CIGAR 15A fuse is OK, repair wiring harness (CIGAR 15A fuse — Audio unit)
(L/R)	VB	Replace audio unit
	0V	Check ROOM 10A fuse If ROOM 10A fuse is OK, repair wiring harness (ROOM 10A fuse — Audio unit)

Step 4

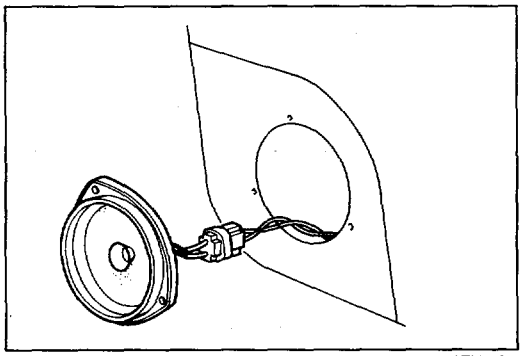
Locate the faulty speaker(s) by using the headrest speaker volume, and balance control.

1. Turn the ignition switch to ACC.
2. Play a prerecorded tape, and set the volume to the center position.
3. Set the head restraint speaker volume, and balance controls as shown in Table 2 (page T–125). Check operation of each speaker.
4. From results of Table 2 testing, go to the next step.

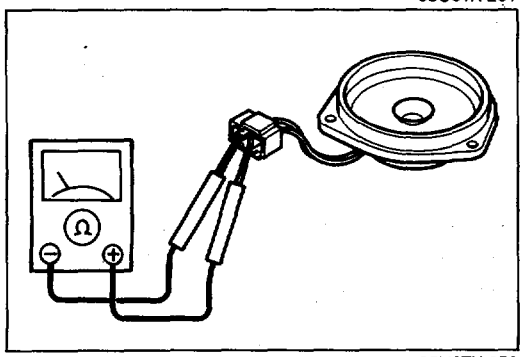
Table 2

Speaker	Balance	Head restraint speaker volume	Speaker operates	Judgement	Next Step
Left door	Left	Min	Yes	Left door speaker circuit OK	—
			No	Left door speaker circuit faulty	Step 5
Right door	Right	Min	Yes	Right door speaker circuit OK	—
			No	Right door speaker circuit faulty	Step 5
Left headrest (Driver seat)	—	Max	Yes	Left headrest speaker circuit (driver seat) OK	—
			No	Left headrest speaker circuit (driver seat) faulty	Step 8
Right headrest (Driver seat)	—	Max	Yes	Right headrest speaker circuit (driver seat) OK	—
			No	Right headrest speaker circuit (driver seat) faulty	Step 8
Left headrest (Passenger seat)	—	Max	Yes	Left headrest speaker circuit (passenger seat) OK	—
			No	Left headrest speaker circuit (passenger seat) faulty	Step 8
Right headrest (Passenger seat)	—	Max	Yes	Right headrest speaker circuit (passenger seat) OK	—
			No	Right headrest speaker circuit (passenger seat) faulty	Step 8

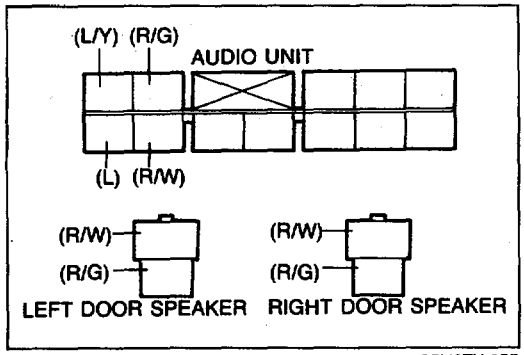
05U0TX-260



05U0TX-261



05U0TX-256



05U0TX-257

Step 5
1. Remove the faulty door speaker cover and speaker installation screws.
2. Check if the speaker is properly connected.
3. If necessary, repair or reconnect the connector
4. If the connection is OK, go to Step 6.

Step 6
1. Disconnect the connector from the suspected faulty speaker.
2. Measure resistance between terminals of the speaker.

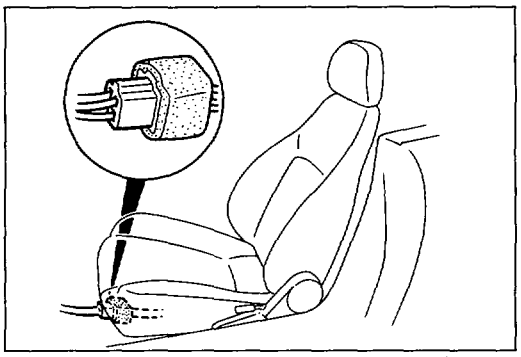
   Resistance: 4Ω

3. If not as specified, replace the speaker.
4. If the resistance is OK, go to Step 7.

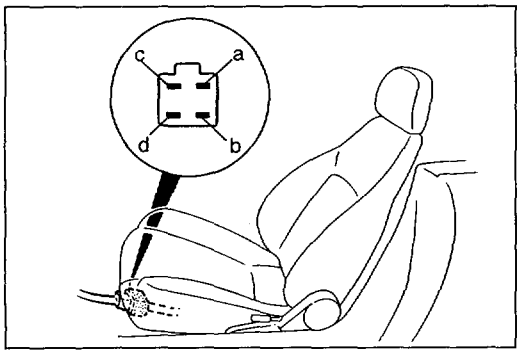
Step 7
1. Disconnect the 12-pin connector of the audio unit.
2. Disconnect both door speakers.
3. Check for continuity of the following wires of the door speakers wire harness.

Connectors	Wire	Continuity
Audio unit — Left door speaker	(R/W)	Yes
	(R/G)	Yes
Audio unit — Right door speaker	(L)	Yes
	(L/Y)	Yes

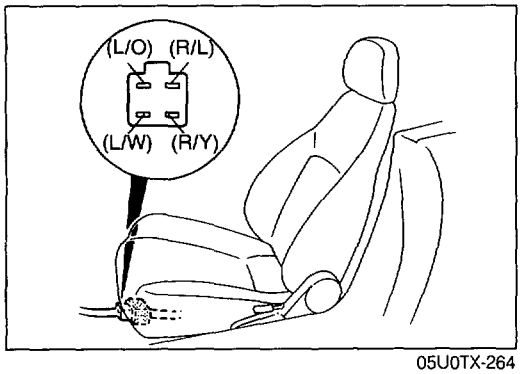
4. If not as specified, repair the faulty wiring.
5. If the wiring is OK, replace the audio unit.



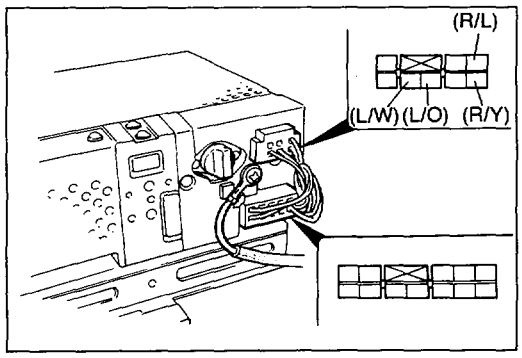
05U0TX-262



05U0TX-263



05U0TX-264



Step 8

1. Check if the headrest speaker connector is properly connected.
2. If necessary, repair or reconnect the connector.
3. If the connection is OK, go to Step 9.

Step 9

1. Disconnect the headrest speaker connector.
2. Measure resistance between terminals of the headrest speaker connector as shown.

Terminal	Resistance
a—b	4Ω
c—d	

3. If not as specified, replace the speaker.
4. If the resistance is OK, go to Step 10.

Step 10

1. Disconnect the 8-pin connector of the audio unit.
2. Disconnect both headrest speaker connectors.
3. Check for continuity of the following wires of the headrest speakers wire harness.

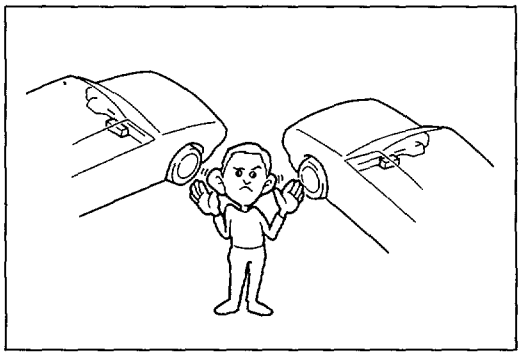
Connectors	Wire	Continuity
Audio unit — Driver seat headrest speakers	(R/Y)	Yes
	(R/L)	Yes
	(L/W)	Yes
	(L/O)	Yes
Audio unit — Passenger seat headrest speakers	(R/Y)	Yes
	(R/L)	Yes
	(L/W)	Yes
	(L/O)	Yes

4. If not as specified, repair the faulty wiring.
5. If the wiring is OK, replace the audio unit.

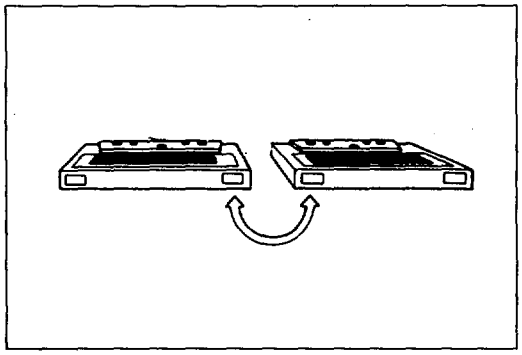
Radio

Symptom: Poor sound quality or noise

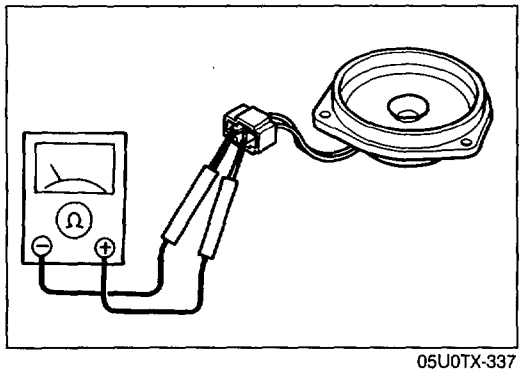
05U0TX-462



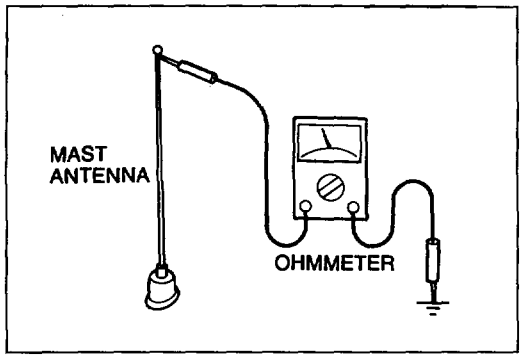
25U0TX-113



9MU0TX-391



05U0TX-337



9MU0TX-393

Step 1
1. Tune to the strongest AM station using the automatic memory function. (Refer to page T–118.)
2. If the automatic memory function does not operate, go to Step 4.
3. Compare sound quality with that of another vehicle that has the same type audio unit.
4. If the sound quality is inferior to the other unit, go to Step 2.
5. If the sound quality is the same as the other unit, the system is OK.

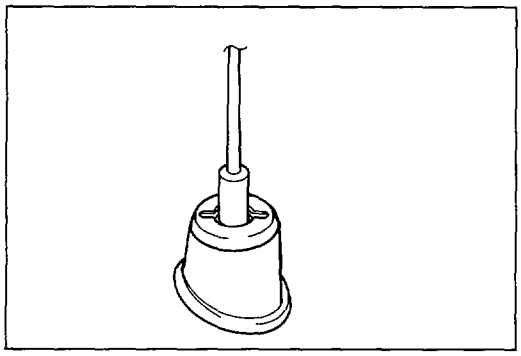
Step 2
1. Play a known good cassette tape, and compare the sound quality with another vehicle that has the same type audio unit.
2. If the sound quality is inferior to the other unit, the malfunction may be in the speaker circuit. Go to Step 3.
3. If the sound quality is same as the other unit, the malfunction may be in the antenna circuit. Go to Step 4.

Step 3
1. Check for damage to the speakers.
2. Check for proper connection of speaker connectors.
3. Disconnect the speaker connectors, and measure resistance of each speaker.

   Resistance: 4Ω

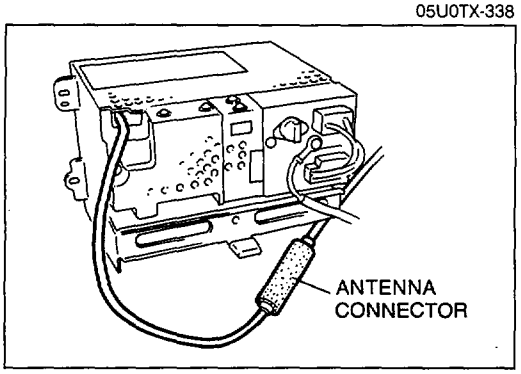
4. If a speaker has incorrect resistance or is damaged, replace it.
5. If the speakers are OK, replace the audio unit.

Step 4
1. Check that there is no continuity (infinite ohms) between the mast antenna and a body ground.
2. If there is continuity, replace the antenna.
3. If there is no continuity, go to Step 5.



05U0TX-338

Step 5
1. Check for proper tightness of the antenna mounting nut.
2. If the nut is loose, tighten it.
3. If the nut is tight, go to Step 6.



05U0TX-339

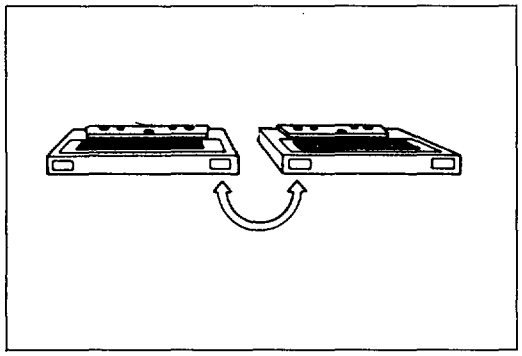
Step 6
1. Remove the audio unit.
2. Check for proper connection of the antenna connector.
3. If necessary, repair or reconnect it.
4. If the connection if OK, replace the audio unit..

Cassette Tape Player

Symptom: Poor sound quality.

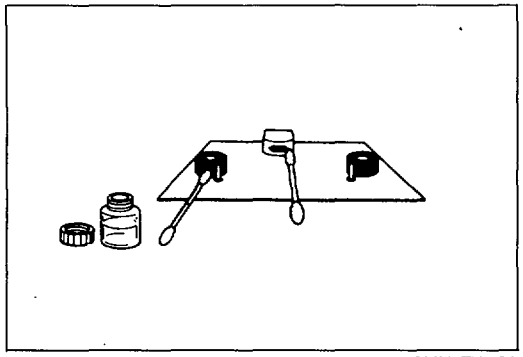
Note
- **Before troubleshooting, verify that the customer is using the audio system correctly. If not, instruct him/her in the proper operating procedure. (Refer to page T–118.)**
- **If a speaker(s) do not operate, refer to "Speaker(s) do not operate". (pages T–122 or 124).**

25U0TX-114



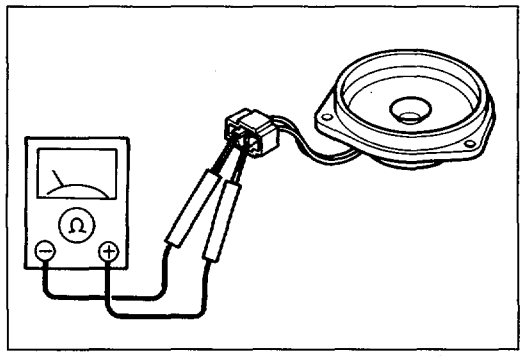
05U0TX-340

Step 1
1. Play a known good tape, and check the sound quality.
2. If sound quality is normal, the previous tape is defective. The system is OK.
3. If sound quality is still poor, go to Step 2.



9MU0TX-380

Step 2
1. Check for oxide or dirt on the head, capstan, and pinchroller.
2. If oxide or dirt is found, clean the parts with a head cleaner.
3. If there is no oxide or dirt, go to Step 3.

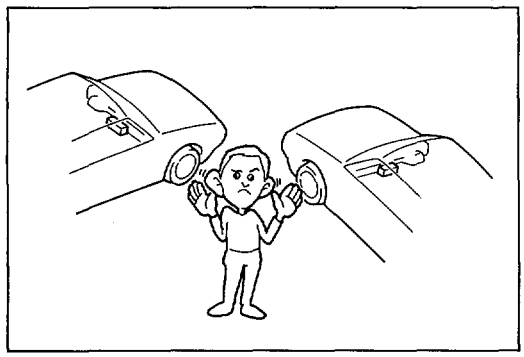


05U0TX-341

Step 3
1. Check for damage to the speakers.
2. Check for proper connection of the speaker connectors.
3. Disconnect all speaker connectors, and measure resistance of each speaker.

   Resistance: 4Ω

4. If a speaker has incorrect resistance or is damaged, replace it.
5. If the speakers are OK, go to Step 4.

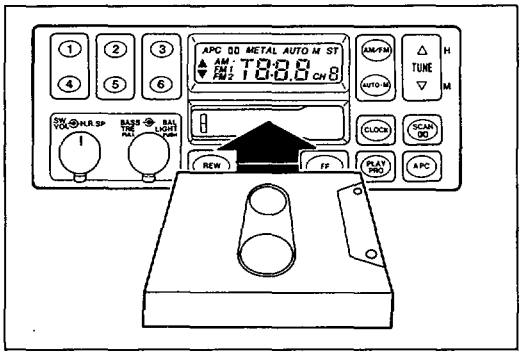


9MU0TX-382

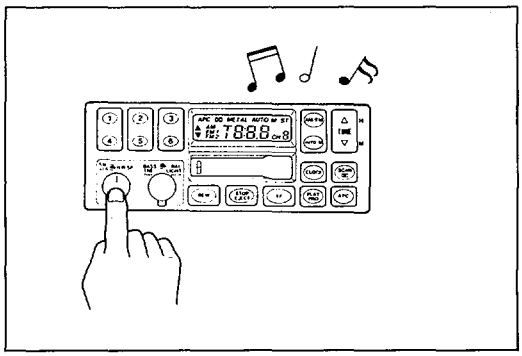
Step 4
1. Compare sound quality with that of another vehicle that has the same type of audio system.
2. If the sound quality is inferior to the other unit, replace the audio unit.

Symptom: Cassette tape will not load.

05U0TX-342



9MU0TX-384



25U0TX-115

Step 1

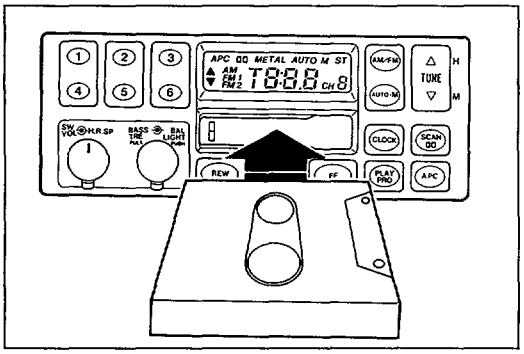
1. Check if a known good cassette tape will load.
2. If the tape loads, the previous tape is defective. The system is OK.
3. If the tape will not load, go to Step 2.

Step 2

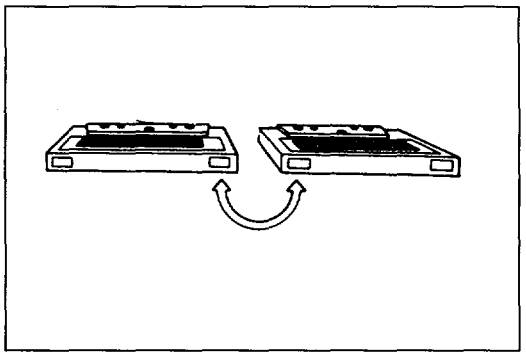
1. Check if radio operation is OK.
2. If radio operation is OK, replace the audio unit.
3. If the radio do not operate, there is a defect in the power supply circuit. (Refer to "Speaker(s) do not operate", pages T–122 or 124.)

Symptom: Cassette tape will not play.

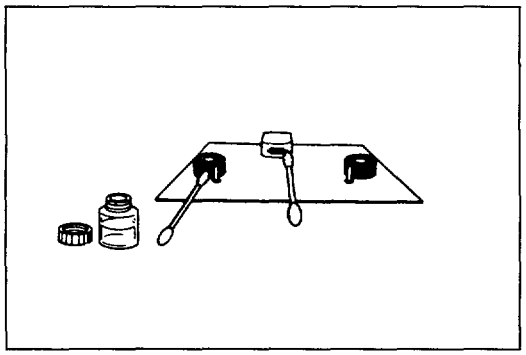
9MU0TX-386



25U0TX-116



15U0TX-057



25U0TX-117

Step 1
1. Check if cassette tape will load.
2. If cassette tape will not load, see, "Cassette tape will not load". (Refer to page T–130.)
3. If cassette tape loads, go to Step 2.

Step 2
1. Play a known good tape, and check the sound quality.
2. If the sound quality is normal, the previous tape is defective. The system is OK.
3. If the sound quality is still poor, go to Step 3.

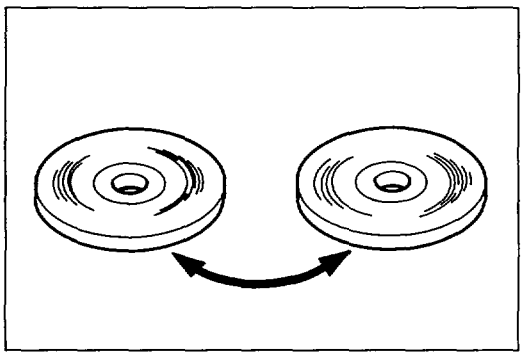
Step 3
1. Check for oxide or dirt on the head, capstan, and pinchroller.
2. If oxide or dirt is found, clean the parts with a head cleaner.
3. If after cleaning the parts, the tape still does not play, refer to "Speaker(s) do not operate", pages T–122 or 124.

Compact Disc Player

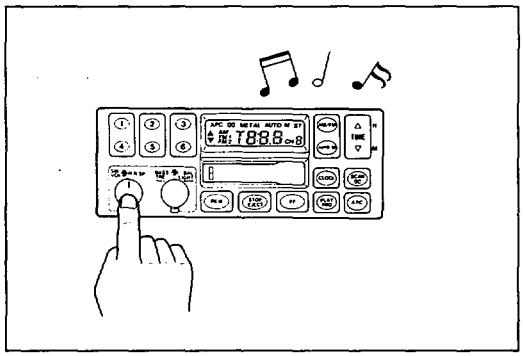
Symptom: Compact disc will not load.

Note
- **When a damaged or dirty compact disc is loaded, the audio unit detects such, and ejects the compact disc.**

9MU0TX-405



9MU0TX-406



25U0TX-118

Step 1
1. Check if a known good compact disc will load.
2. If the compact disc will load, the system is OK.
3. If the compact disc will not load, go to Step 2.

Step 2
1. Check if the radio operates normally.
2. If the radio operates normally, replace the audio unit.
3. If the radio does not operate there is defective in the power supply circuit. (Refer to "Speaker(s) does not sound", pages T–122 or 124.)

Symptom: Compact disc skips.

05U0TX-344

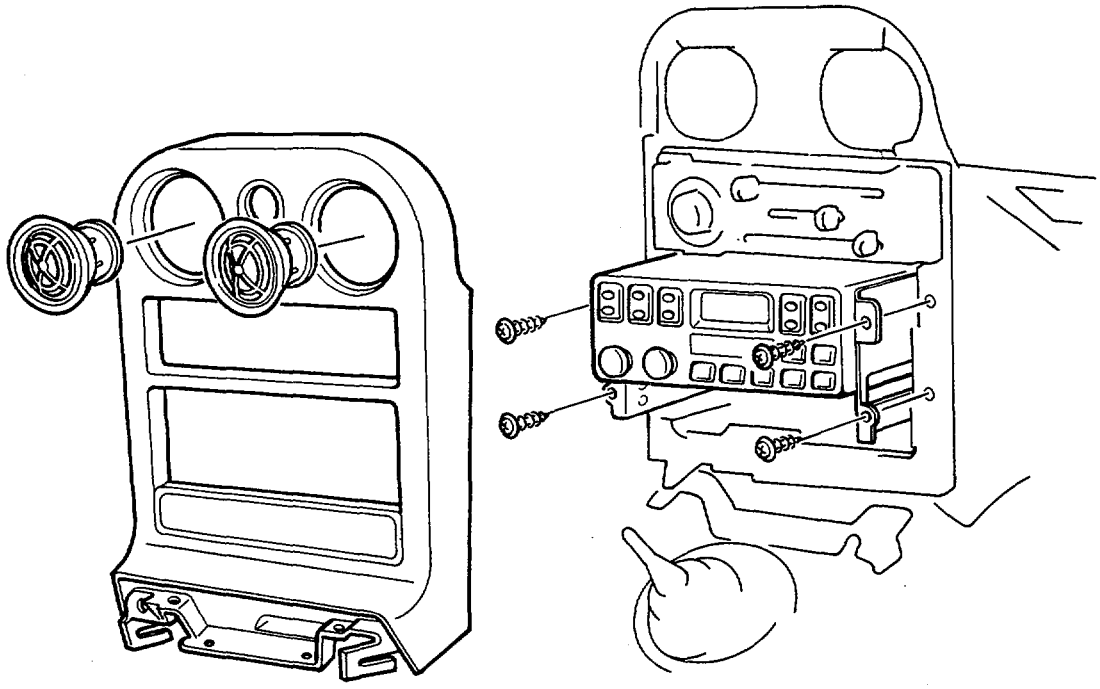
Note
- **Compact disc skipping may be hard to recreate because it is a result of the vehicle encountering sharp road shocks. This is a normal condition if skipping happens only infrequently.**

Remedy
1. Check with the driver if skipping occurs often.
2. If it occurs often, check that the audio unit is properly installed.
   (1) If the audio unit is not installed properly, remedy it.
   (2) If the audio unit is installed properly, replace the audio unit.

REMOVAL / INSTALLATION

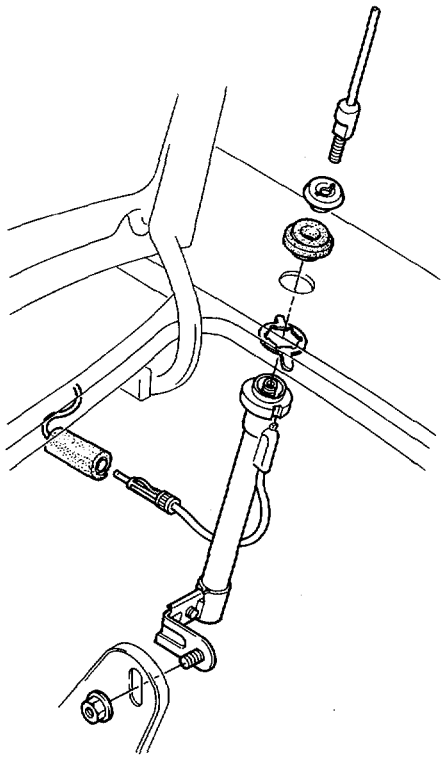
Remove and install as shown in the figure.

AUDIO UNIT

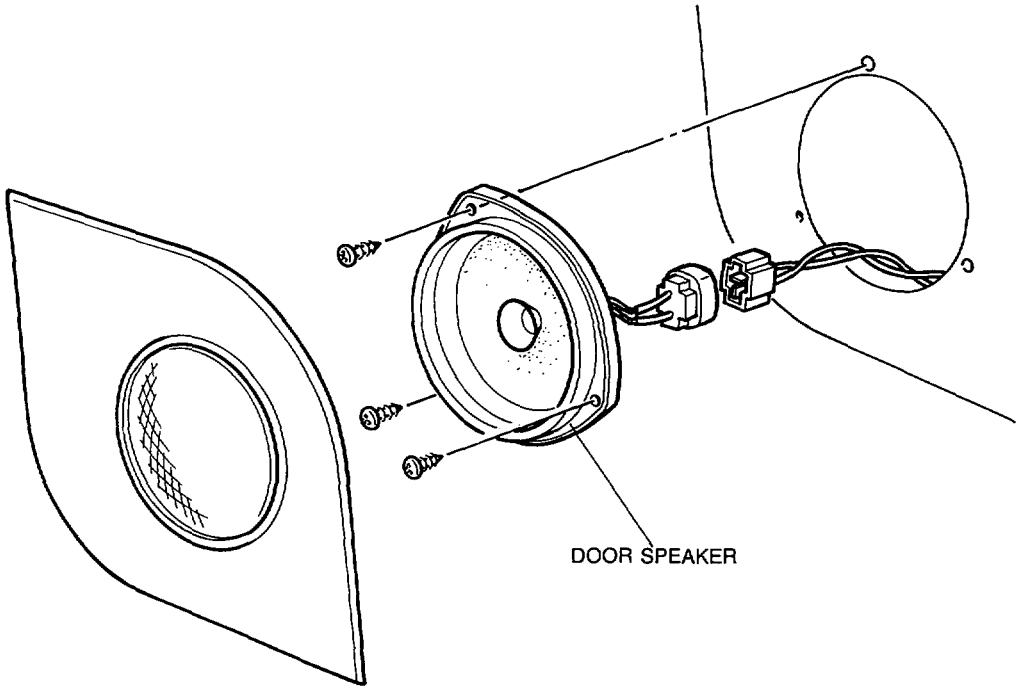


05U0TX-269

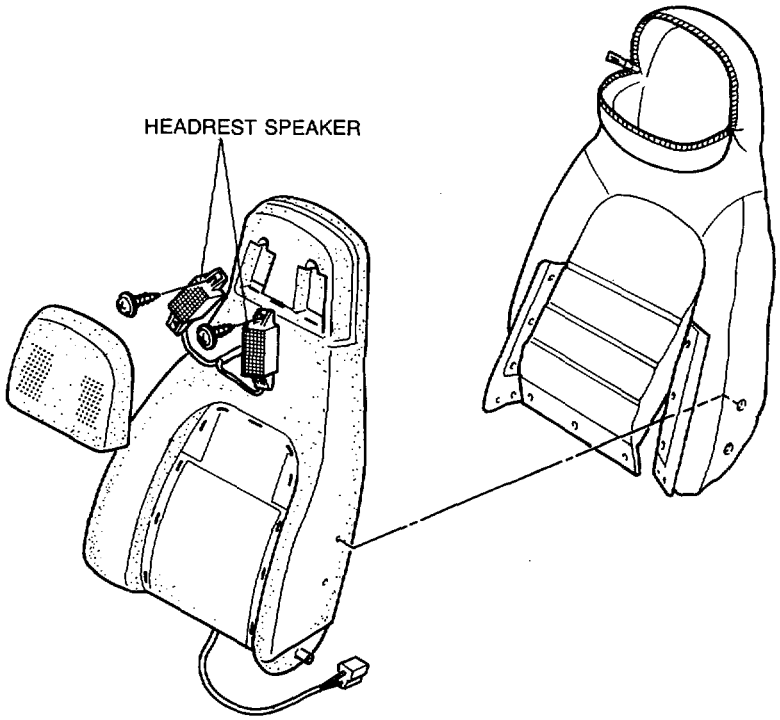
MANUAL ANTENNA



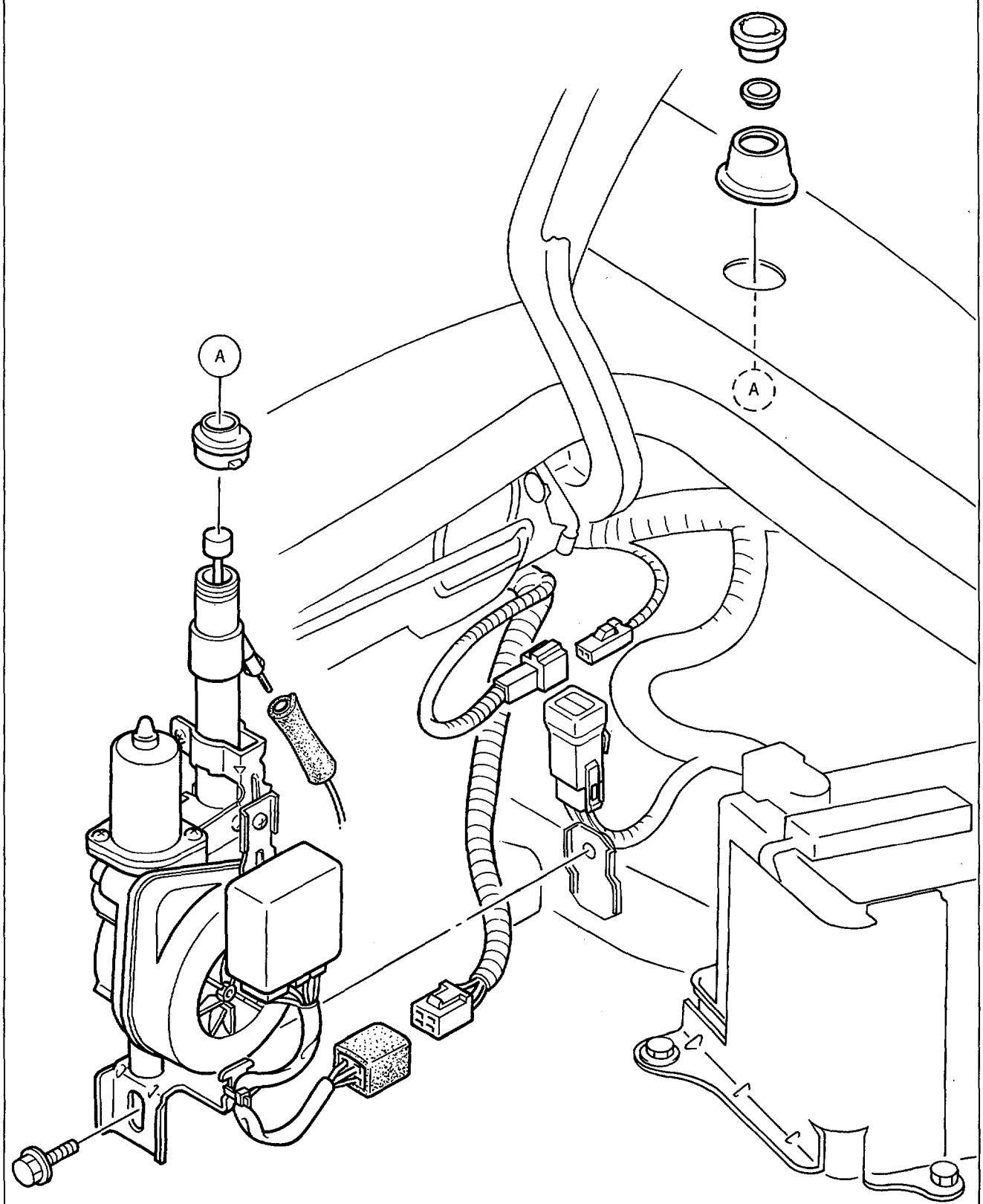
DOOR SPEAKERS



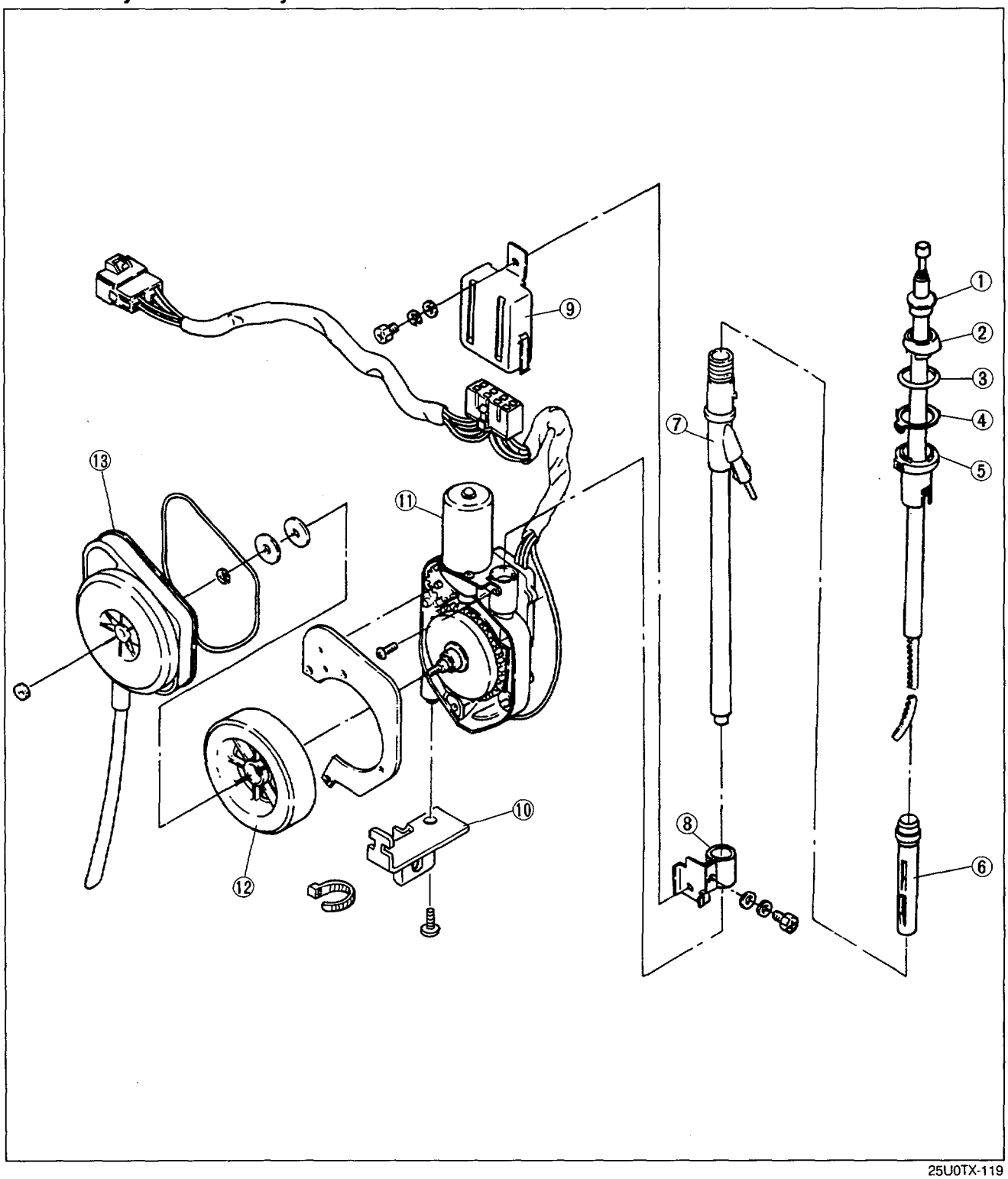
HEADREST SPEAKERS



POWER ANTENNA



POWER ANTENNA
Disassembly and Assembly

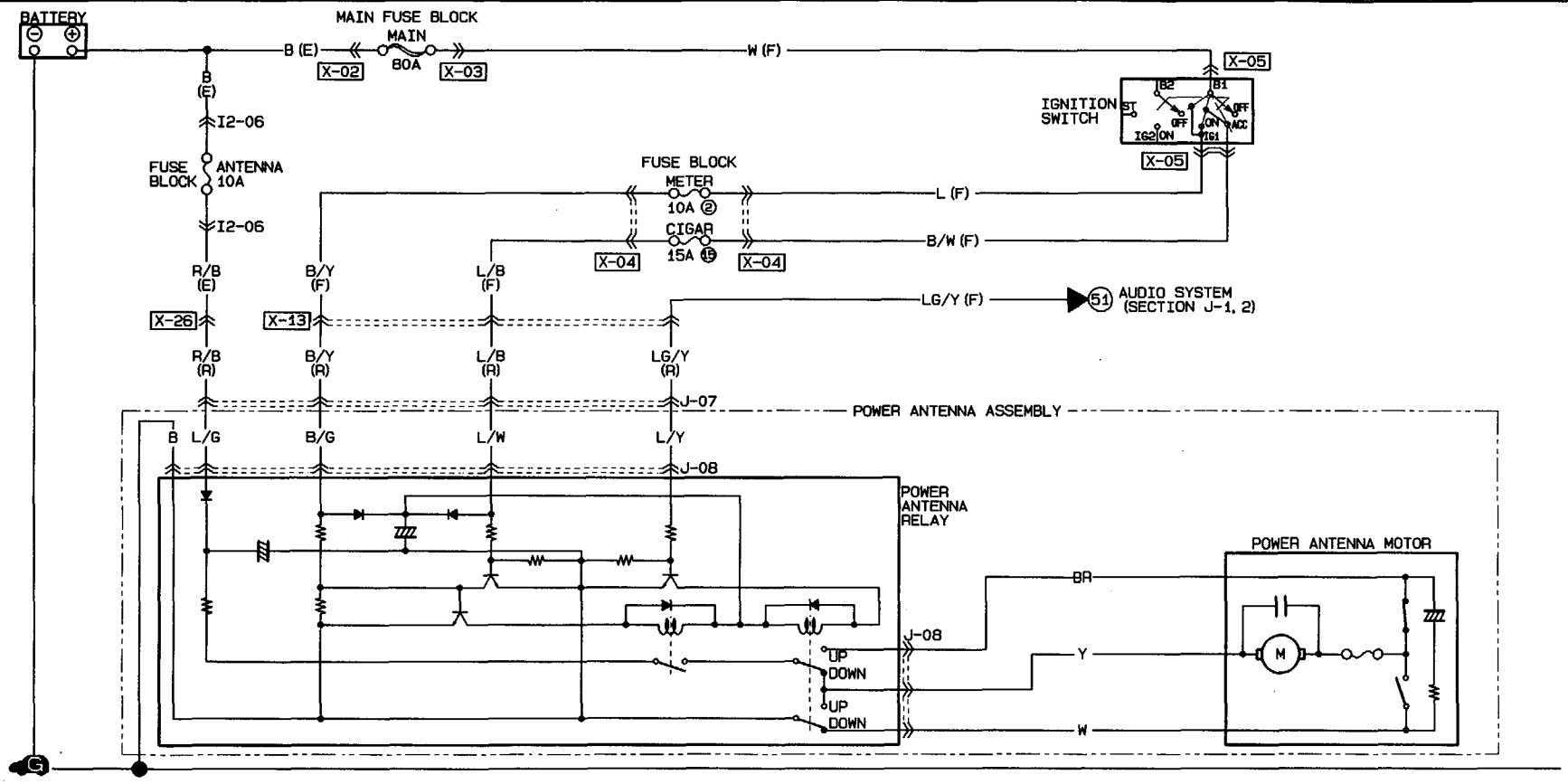


25U0TX-119

1. Mounting nut
2. Base
3. Base pad
4. Ground plate
5. Ground base
6. Rod insulator
7. Mast assembly
8. Relay bracket
9. Antenna relay
10. Bracket
11. Motor drive unit
12. Drive mechanism
13. Drive mechanism cover

■ POWER ANTENNA

J-3



J-07 CONNECTOR BETWEEN REAR (R) & POWER ANTENNA ASSEMBLY

(R)

L/B	LG/Y
B/Y	R/B

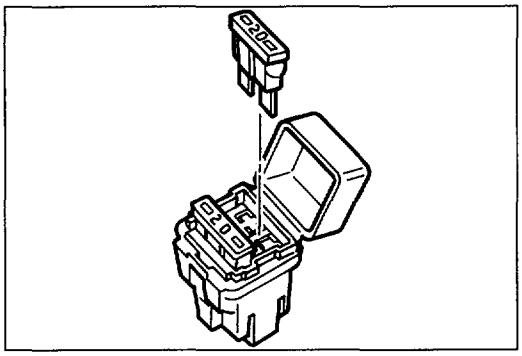
L/Y	L/W
L/G	B/G

J-08 POWER ANTENNA RELAY

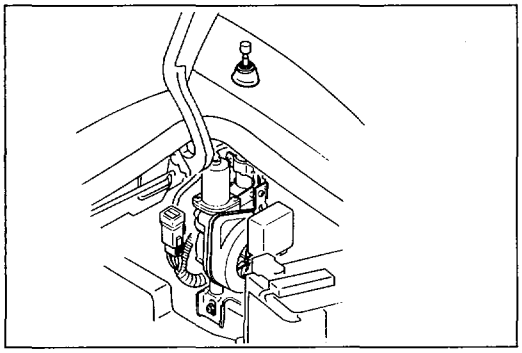
B/G	BR			W	L/Y
L/W	Y	B		*	L/G

I2-06 FUSE BLOCK (E)

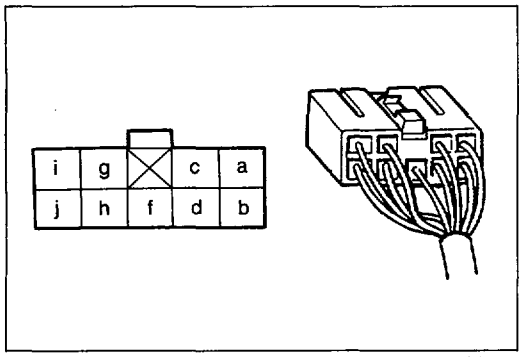
R/B	B
R	B



25U0TX-121



25U0TX-122



25U0TX-123

Inspection

Fuse

If the antenna fails to raise or lower, make the following checks:
1. Check the antenna fuse (10A).
2. Replace fuse after checking and repairing wiring harness.

Power antenna

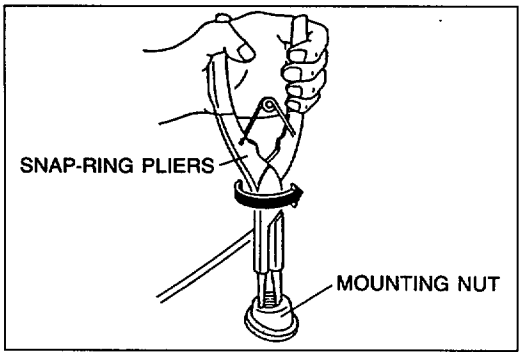
Check for continuity between the terminals of the power antenna relay. If there is no continuity, replace the relay.

Battery		Terminal									
Pos.	Neg.	A	B	C	D	E	F	G	H	I	J
—	—	○			○						
—	—								○	○	
J	F	○		○							
					○					○	
B	F	○		○							
					○					○	

If the antenna does not function even though there is continuity, the problem may be either in the wiring harness or in the audio component assembly.

Apply battery voltage to the terminals and check the operation.

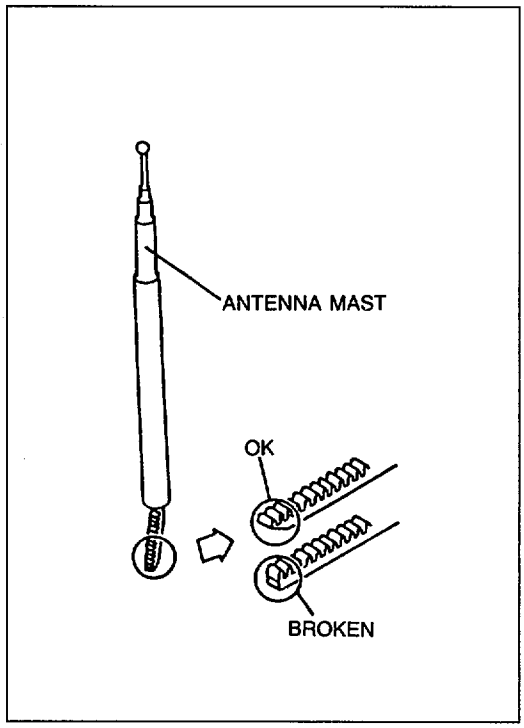
Battery		Function of antenna
Pos.	Neg.	
d	a	UP
a	b	DOWN



19G0TX-629

Antenna Mast
Removal / Installation

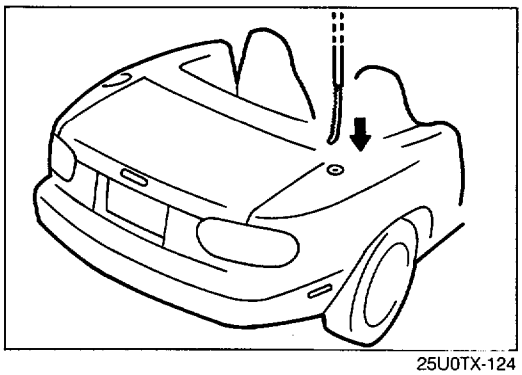
1. Using snap-ring pliers, remove the mounting nut.



97U0TX-159

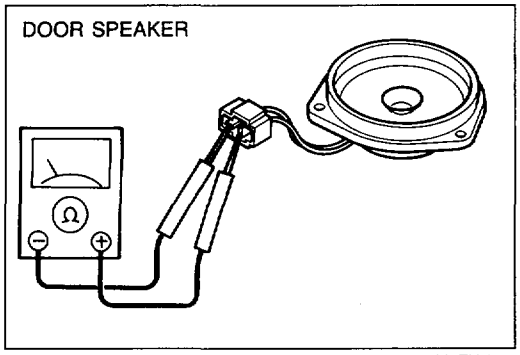
2. With the ignition switch in the "ACC" or "ON" position, turn the radio switch "ON". At the same time, pull the antenna mast out and remove.

Caution
- **Check the plastic rack end for damage.**
- **If the rack end is kinked at a sharp angle or broken off as shown, the broken piece may be left inside the motor. Replace the motor in this case.**

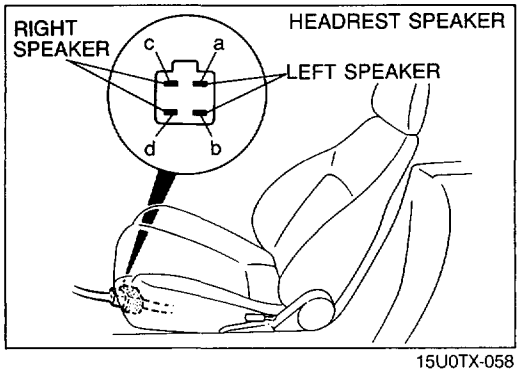


25U0TX-124

3. With the ignition switch in the "ACC" or "ON" position and the radio "ON", feed the rack of the new mast into the motor with toothed side facing toward the front of the vehicle. Turn the radio switch "OFF". While the motor is retracting the rack, feed the mast into the motor.
4. Reinstall the mounting nut.
5. With the ignition switch in the "ACC" or "ON" position, turn the radio "ON" and "OFF" a few times and check to see that the antenna operates smoothly.



05U0TX-270



15U0TX-058

INSPECTION

Door Speakers

1. Disconnect the connector from the suspected faulty speaker.
2. Measure resistance between terminals of the speaker.

Resistance: 4Ω

3. If not as specified, replace the speaker.

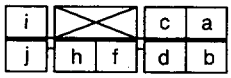
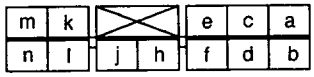
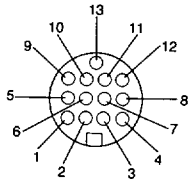
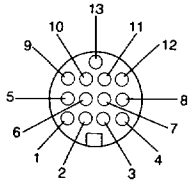
Headrest Speakers

1. Disconnect the headrest speaker connector.
2. Measure resistance between the terminals of the headrest speaker connector as shown.

Terminal	Resistance
a—b	4Ω
c—d	

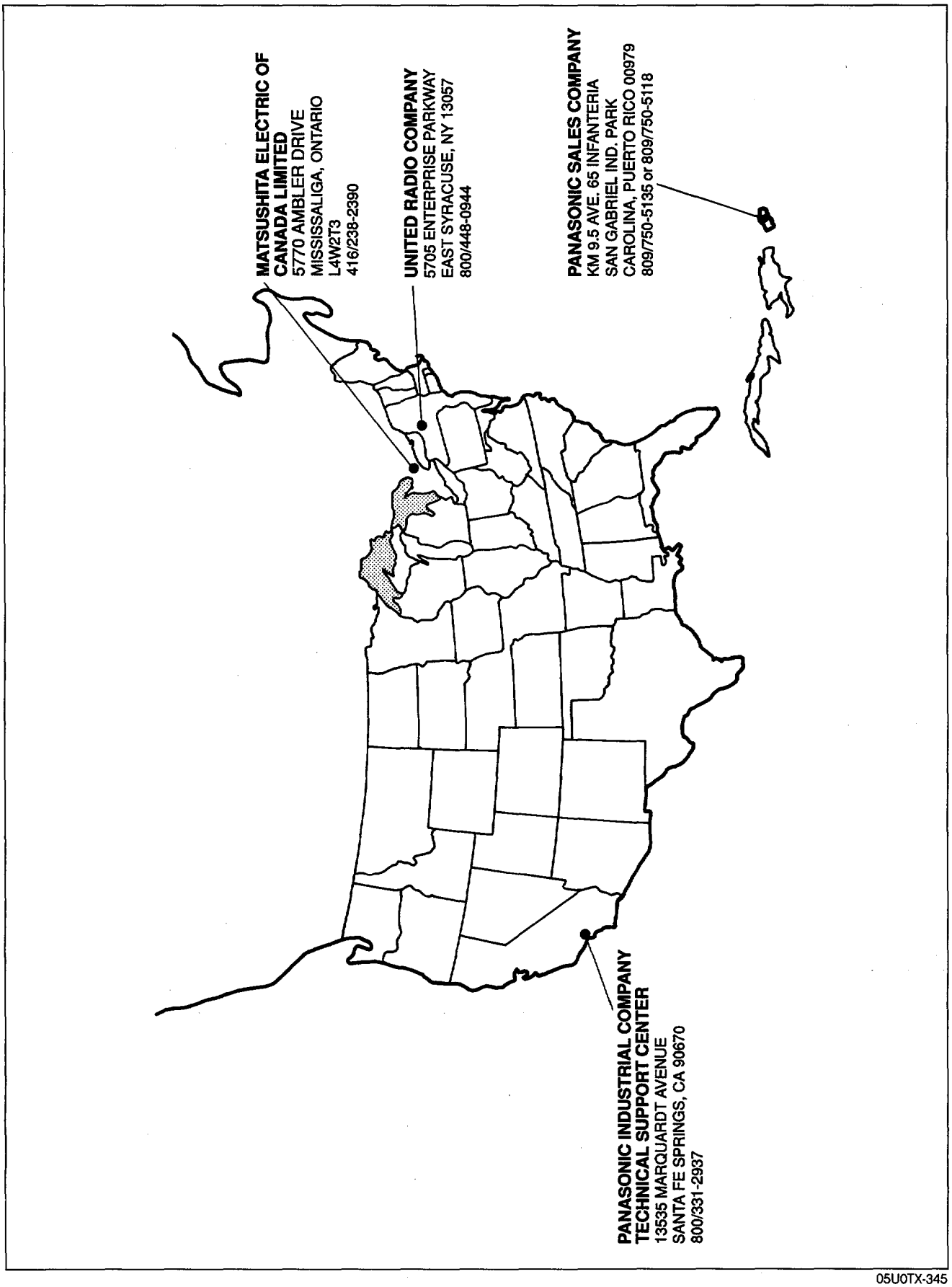
3. If not as specified, replace the speaker.

CONNECTOR TERMINAL SPECIFICATIONS

Component	Connector	Terminal
Audio unit		a : Headrest speaker left ⊕ b : Headrest speaker left ⊖ c : NC d : NC f : Headrest speaker right ⊕ h : Headrest speaker right ⊖ i : NC j : NC
		a : ACC b : NC c : +B d : NC e : TNS (for illumination lamps) f : NC h : NC j : NC k : Door speaker left ⊕ l : Door speaker left ⊖ m : Door speaker right ⊕ n : Door speaker right ⊖
		1 : Left signal 2 : Left signal 3 : Right signal 4 : Right signal 5 : Signal ground 6 : Illumination signal 7 : ACC 8 : +B 9 : Amp control signal 10 : NC 11 : NC 12 : NC 13 : NC
Compact disc player		1 : Left signal 2 : Left signal 3 : Right signal 4 : Right signal 5 : Signal ground 6 : Illumination signal 7 : ACC 8 : +B 9 : Amp control signal 10 : NC 11 : NC 12 : NC 13 : NC

05U0TX-271

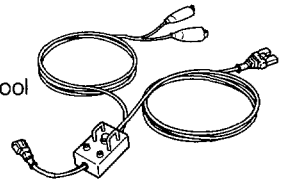
PANASONIC SERVICE NETWORK



05U0TX-345

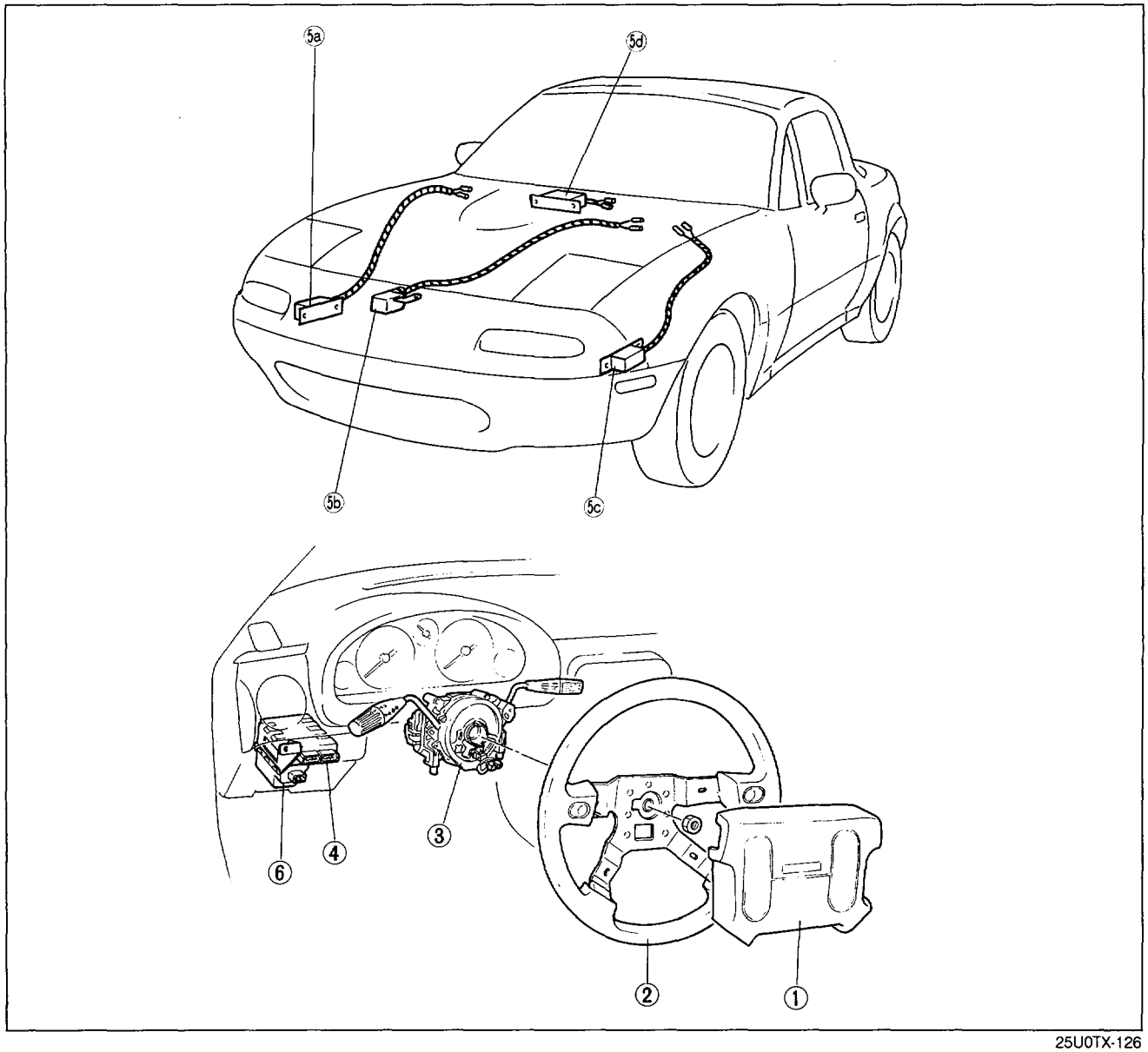
AIR BAG SYSTEM

PREPARATION
SST

49 H066 002 Deployment tool 	For air bag module disposal

25U0TX-125

STRUCTURAL VIEW



25U0TX-126

1. Air bag module
2. Steering wheel
3. Clock spring connector
4. Diagnostic module
5. Crush sensor
   a. D-sensor (RH)
   b. D-sensor (CNT)
   c. D-sensor (LH)
   d. S-sensor
6. Backup battery

The MX-5 Miata is equipped with a driver side supplementary air bag system, a first for Mazda vehicles. The air bag system is designed to provide increased accident protection for the driver when used in conjunction with the provided seat belt system. For optimum protection, the seat belts should be used by all vehicles occupants.

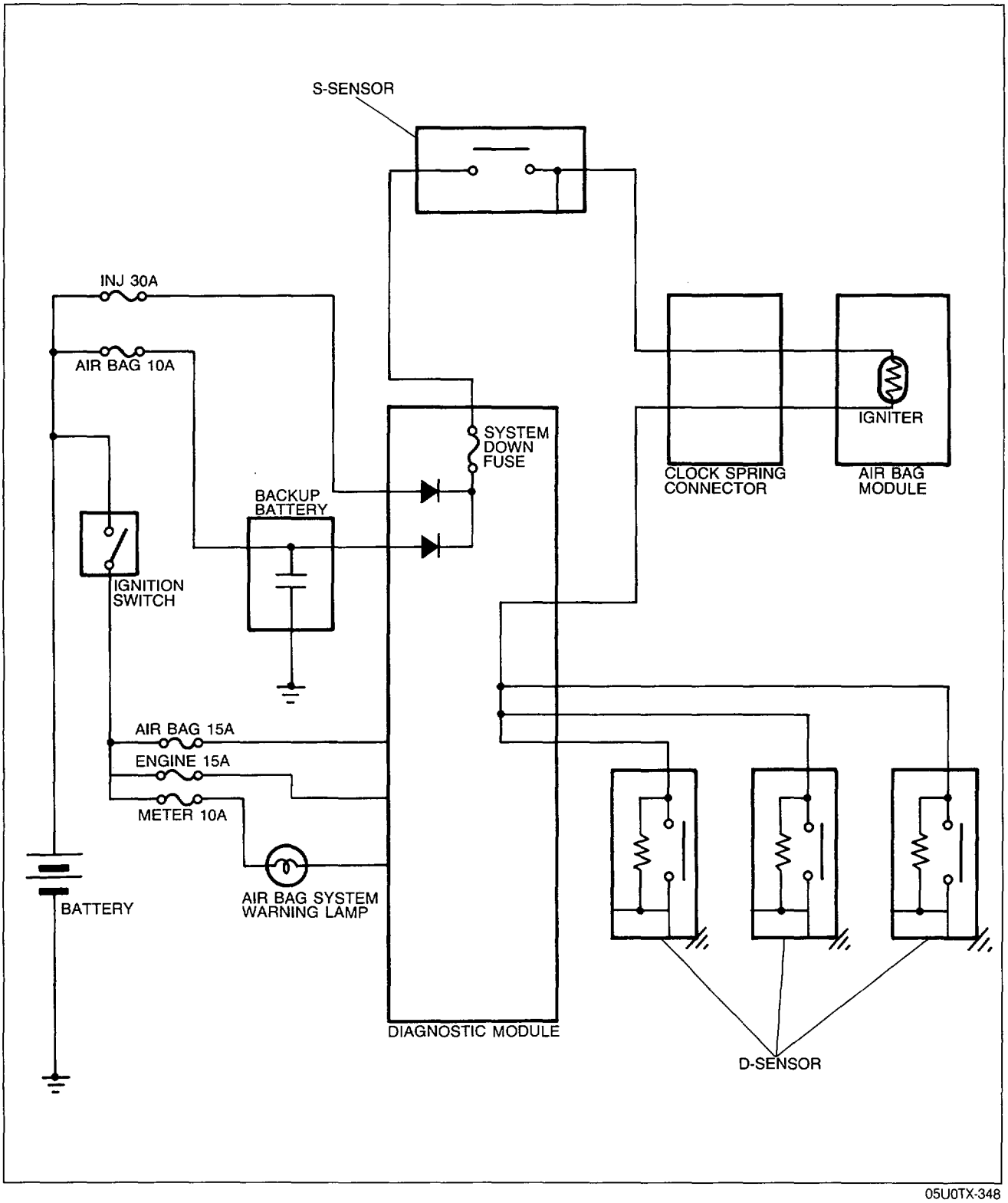
25U0TX-127

COMPONENT DESCRIPTIONS

Component	Function	Remarks
Air bag system warning lamp	Lamp illuminates or flashes when problem or failure occurs in air bag system	Located in instrument cluster
Air bag module	Deploys air bag when current flows to integrated igniter	Air bag fills to volume of about 60 liters (15.9 US gal, 13.2 Imp gal)
Backup battery	Provides sufficient power to operate air bag system if battery power lost during crash	
Clock spring connector	Ensures uninterrupted electrical circuit to air bag module while allowing rotation of steering wheel	One of part of combination switch
Crash sensor	Detects frontal impact and completes circuit to send signal to air bag module	
	Two types of sensors used	
Diagnostic module	Monitors electrical system components and circuit	
	Indicates problem or failure in system by illuminating air bag system warning lamp	

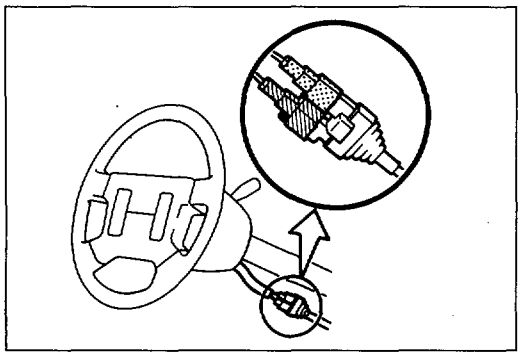
05U0TX-347

SYSTEM DIAGRAM

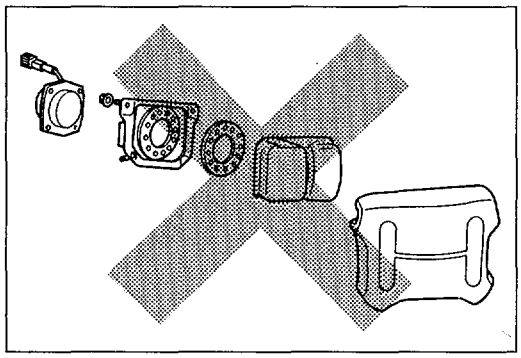


05U0TX-348

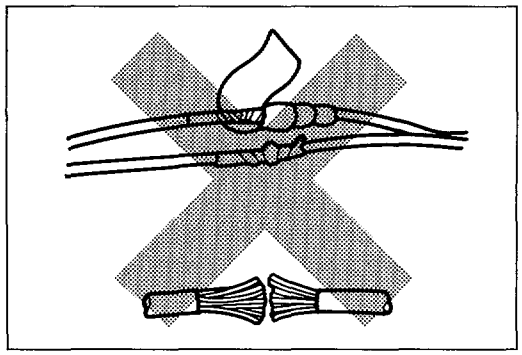
The system diagram is as shown in figure. The battery, S-sensor, air bag module, and D-sensors are connected is series via diagnostic module.
When the S-sensor and one of the D-sensors are activated (closed) simultaneously, electric current flows to trigger the igniter in the air bag module.
The backup battery supplies the current to trigger the igniter if the battery or fuses fail during a collision.
The diagnostic module is fitted to monitor the system for failures. It warns the driver of such by illuminating or flashing the air bag warning lamp.



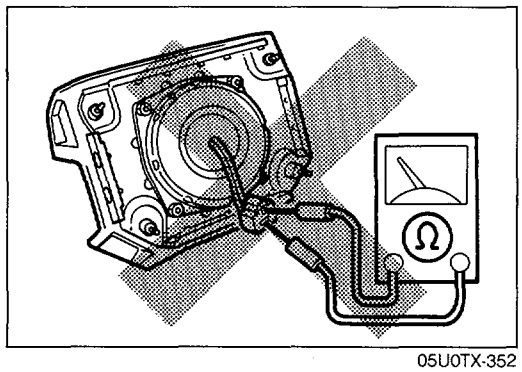
15U0TX-044



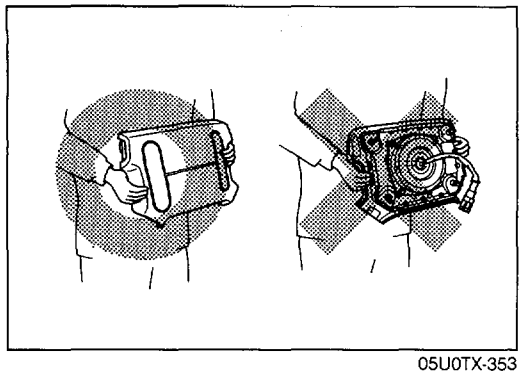
05U0TX-350



05U0TX-351



05U0TX-352



05U0TX-353

SERVICE PRECAUTION

1. BEFORE COMPONENT REPLACEMENT

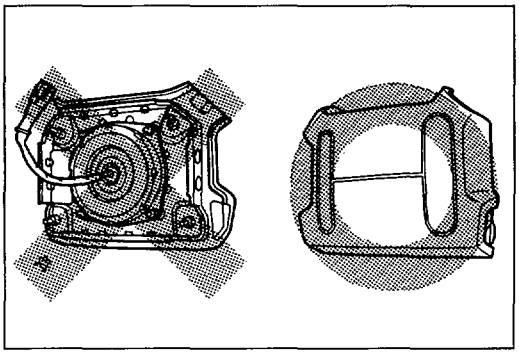
- **Obtain the code number and deactivate the audio anti-theft function before disconnecting the battery. (Refer to page T–115.)**
- **Before replacement of any air bag system component or before disconnecting any connector of the system, first disconnect the negative battery cable; then disconnect the clock spring connectors (orange and blue).**

2. PROHIBITION OF COMPONENT DISASSEMBLY AND WIRE HARNESS REPAIR

- **The components of the air bag system are not intended to be disassembled for service. If a component failure is detected by the diagnostic module, replace the suspected component after checking the connections and the wire harness. Do not disassemble any component.**
- **If an open circuit is found by a continuity test, replace the wire harness. Do not try to repair the wiring.**

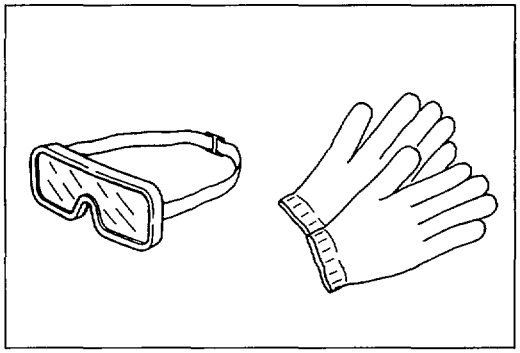
3. HANDLING OF AIR BAG MODULE

- **Do not use an ohmmeter for inspection of the air bag module. It may cause an accidental deployment of the air bag.**
- **When carrying a live (unactivated) air bag module, make sure the trim cover is pointed away from your body to prevent personal injury in the event of an accidental deployment.**



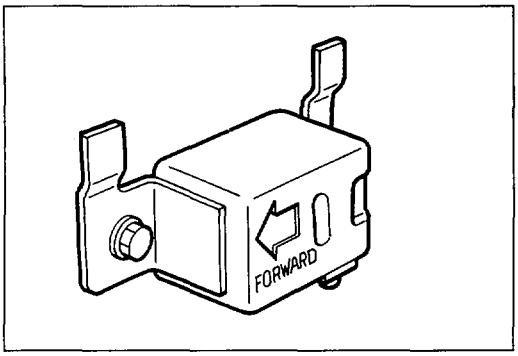
05U0TX-354

- When placing a live air bag module on any surface, always face the trim cover upward to reduce the motion of the module if it is accidentally deployed.



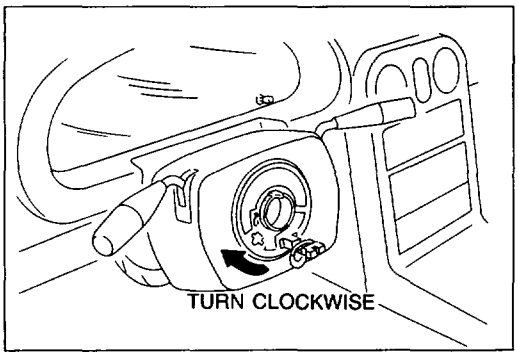
15U0TX-045

- When handling a deployed air bag module, wear gloves and safety glasses, because the deployed air bag module may contain deposits of sodium hydroxide, a caustic by-product of the gas generant combustion.
- When an air bag module is to be disposed following the proper procedure recommended for the specific situation. (Refer to page T–162.)



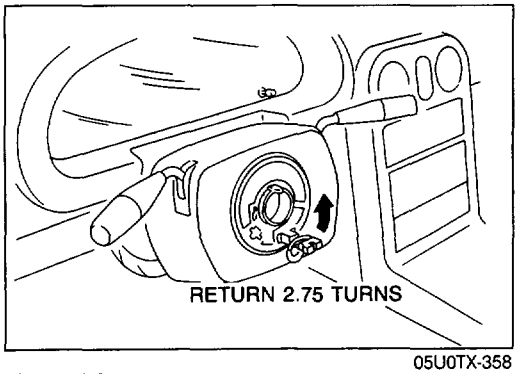
05U0TX-356

4. CRASH SENSOR INSTALLATION
   - Crash sensor orientation is very important for proper operation. If a vehicle is involved in a collision where its front sheet metal is damaged, inspect the body structure at the sensor mounting area for deformation. If damaged, restore to its original shape.
   - When installing a crash sensor, be sure to tighten the mounting bolts to the specified torque because the sensor is grounded through the crash sensor's mounting plate.



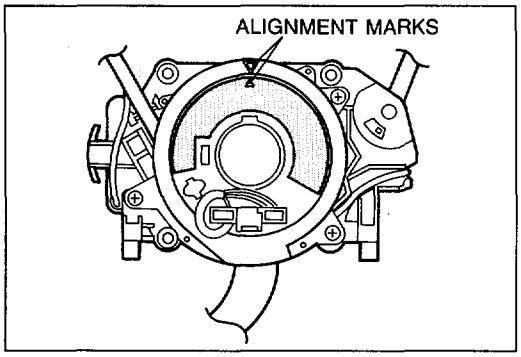
05U0TX-357

5. ADJUSTMENT OF CLOCK SPRING CONNECTOR
   - Whenever the steering wheel is removed, before reinstalling it, set the clock spring connector as follows:
     1. Set the front wheels straight ahead.
     2. Turn the clock spring connector clockwise until it stops. (Do not force it.)



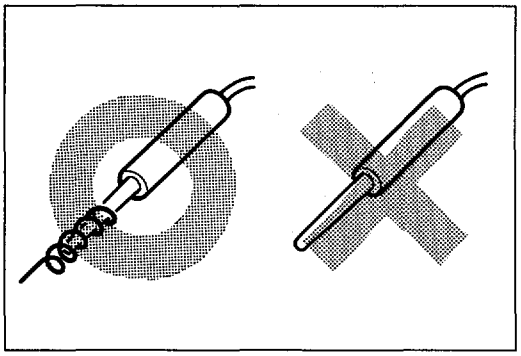
05U0TX-358

3. Return the connector 2.75 turns.



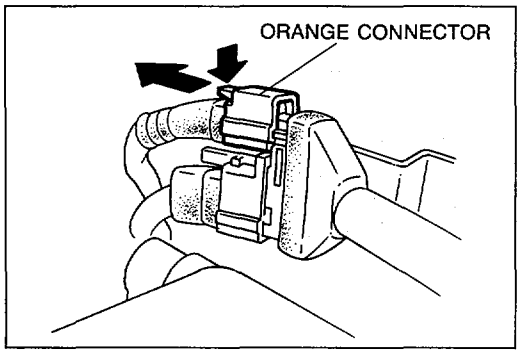
05U0TX-359

4. Align the marks on the clock spring connector and the outer housing.



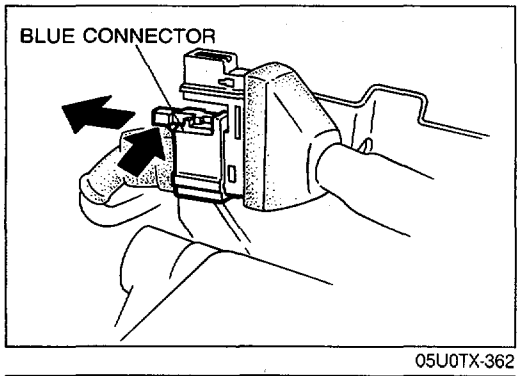
05U0TX-360

6. When Using Test Lead
   - When using a test lead for testing, use a fine needle to prevent damage to the terminal.



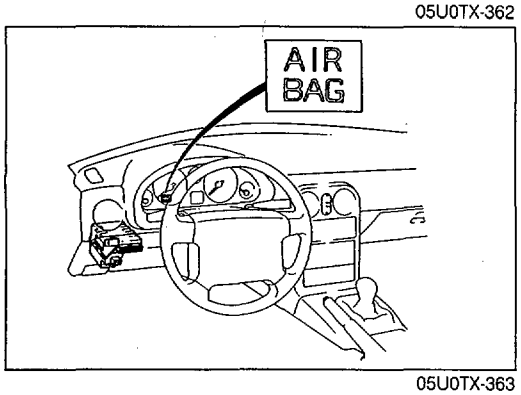
05U0TX-361

7. Disconnecting Double Lock Type Connector
   - The connectors in the air bag system use a double lock type connector.
   - These connectors are disconnected as below.
     1) Press the orange knob and disconnect the orange connector.



05U0TX-362

     2) Press the blue knob and disconnect the blue connector.
     3) Connect the connectors in the reverse order of disconnecting.

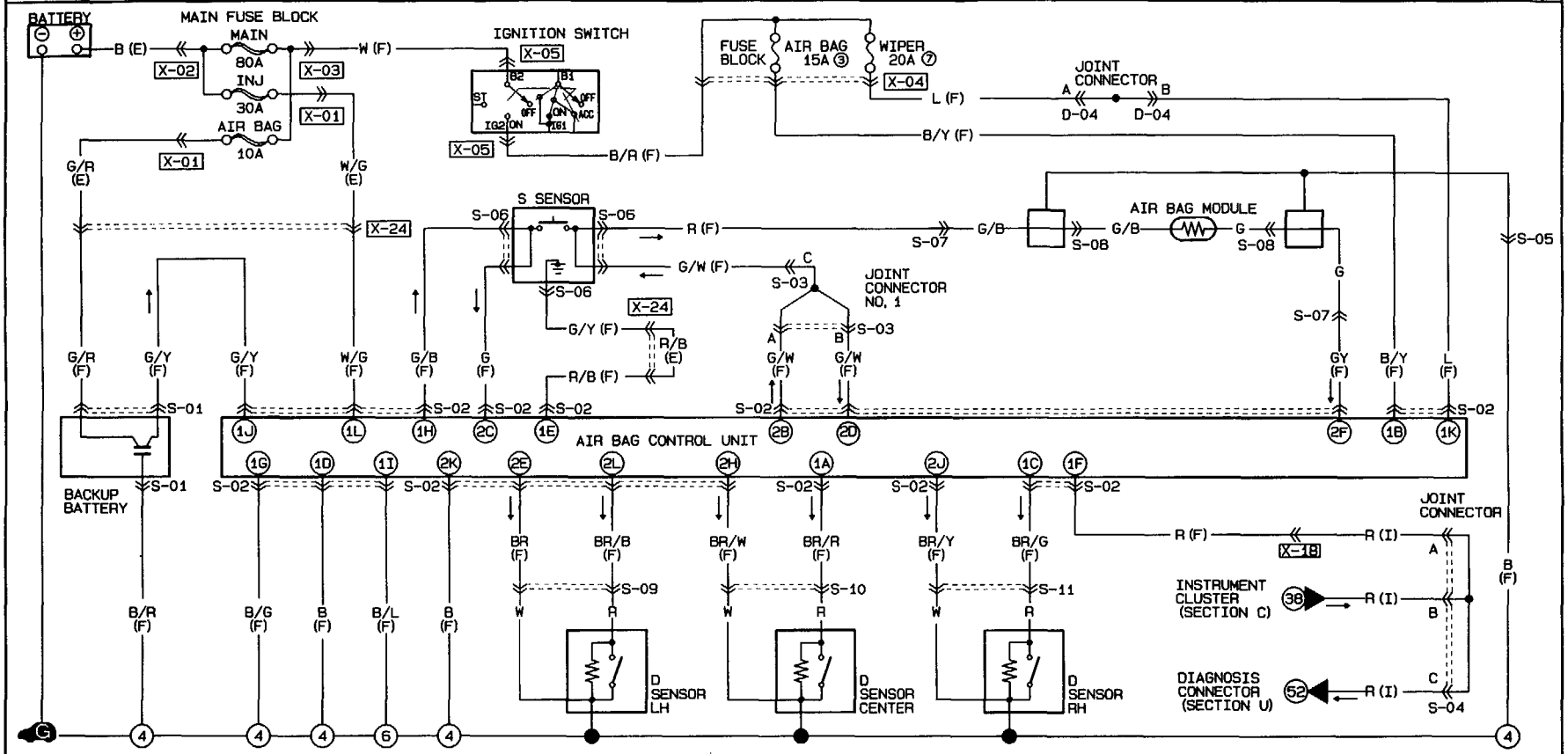


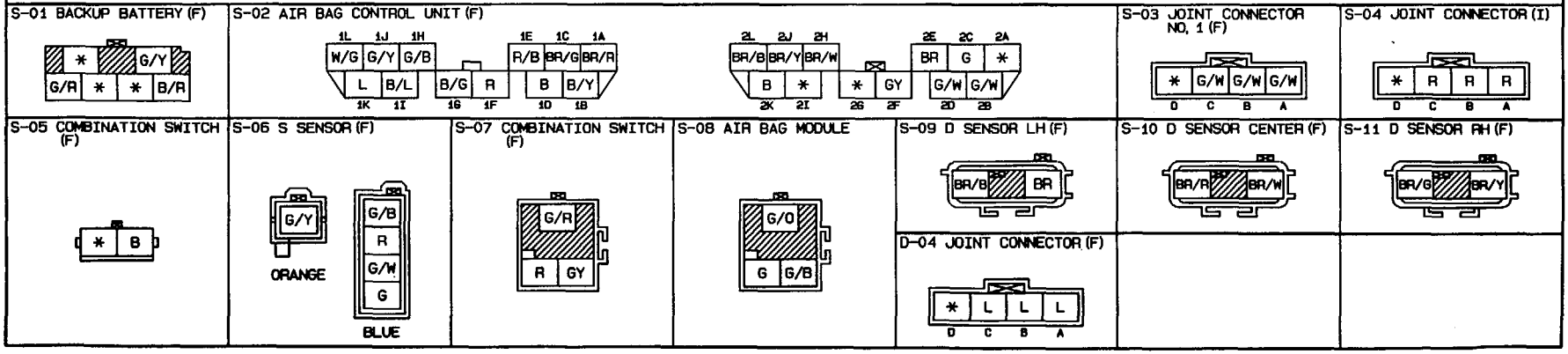
05U0TX-363

8. After System Service
   - After system service verify system operation by checking with the air bag system warning lamp. If the system is operating normally, the warning lamp will come on when the ignition switch is turned ON, then go off after approximately 6 seconds.
   - Check if the horn sounds. If the horn does not sound, remove the air bag module and check the connections of the air bag module and horn switch connectors.

FEDERAL & CALIFORNIA ■ AIR BAG CONTROL SYSTEM

S



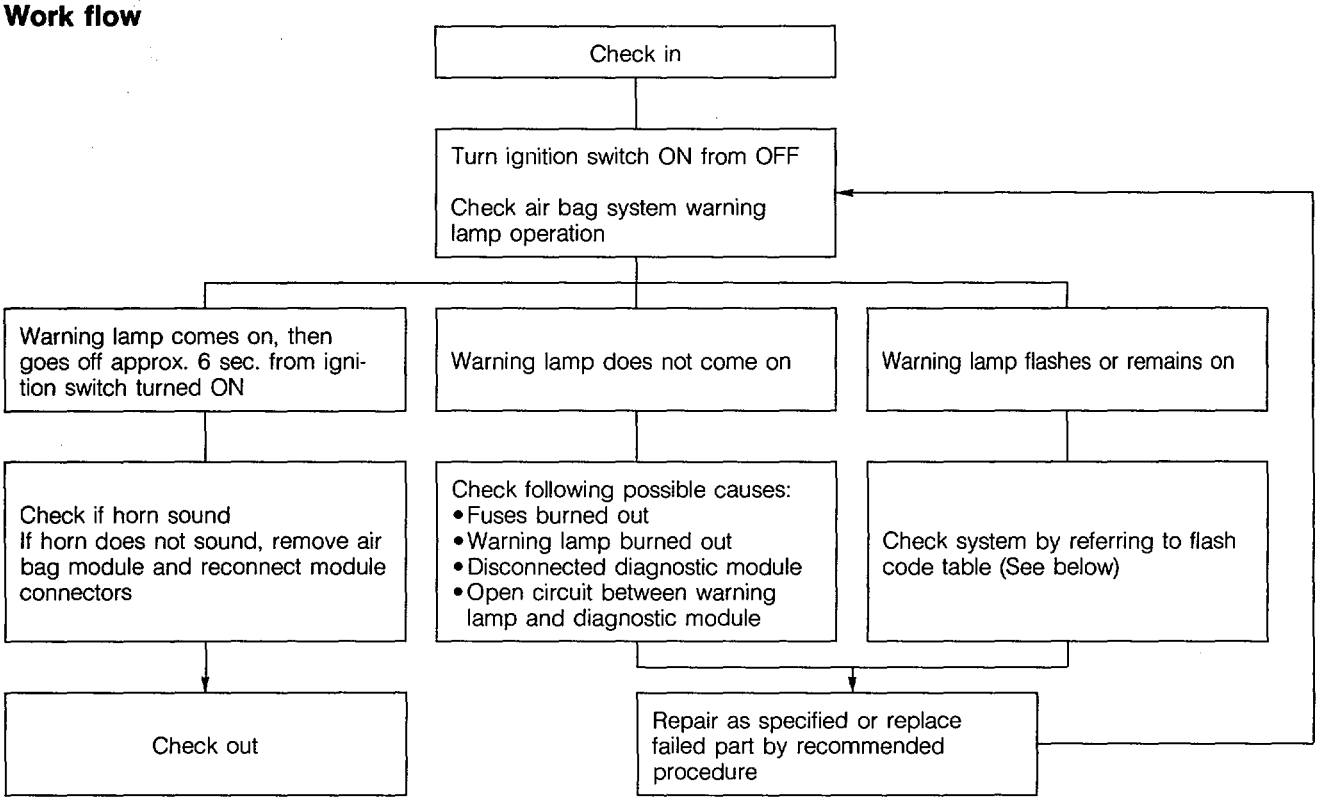


TROUBLESHOOTING GUIDE

Troubleshooting Procedure

Troubleshooting of the air bag system is performed using the coded flashing of the air bag system warning lamp. The number of times the the warning lamp flashes is based on the type of fault being detected. Codes are prioritized in such a way that if two or more faults occur at the same time, the highest priority fault indication will dominate until corrected.

Work flow



Note

- **When the ignition switch is turned ON, an audible alarm may be heard. If so, it indicates a simultaneous warning lamp failure and a problem in the air bag system.**

05U0TX-365

Flash code table

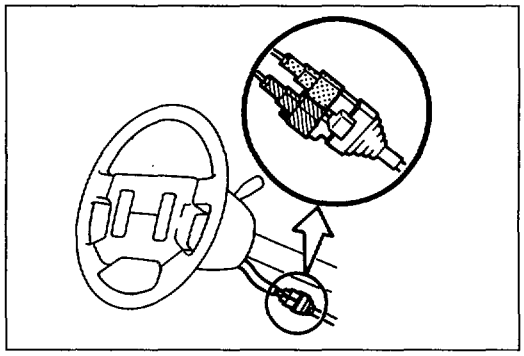
Priority	Flash code	Possible cause	Flowchart No.
1	Remains ON	Faulty diagnostic module or poor connection of diagnostic module connector	1 (See page T–151)
2	Flashes three times	Open circuit or poor connection of power source circuit	2 (See page T–152)
3	Flashes five times	Faulty D-sensor (D-sensor remains ON)	3 (See page T–154)
4	Flashes ten times	Faulty diagnostic module (System-down fuse burned)	4 (See page T–155)
5	Flashes four times	Faulty S-sensor	5 (See page T–156)
6	Flashes six times	Faulty air bag module or poor connection of clock spring connector	6 (See page T–158)
7	Flashes seven times	Poor ground of wiring harness	8 (See page T–161)
8	Flashes eight times	Poor ground of D-sensor	7 (See page T–160)
9	Flashes nine times	Open circuit between diagnostic module and D-sensor	3 (See page T–154)
10	Flashes two times	Poor ground of all D-sensors	7 (See page T–160)

25U0TX-128

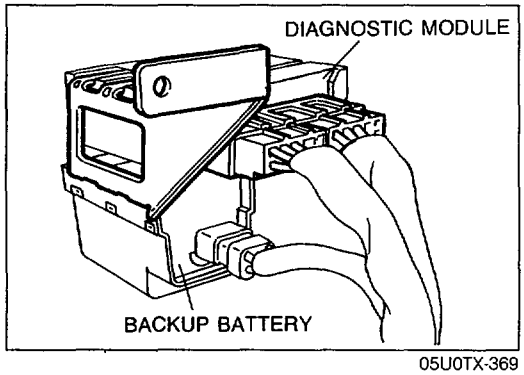
Flowchart No.	• Fault indication ..... Warning lamp remains ON • Possible cause ..... Faulty diagnostic module or poor connection of diagnostic module connector
1	

25U0TX-129

Caution
- **Before troubleshooting, read SERVICE PRECAUTION on page T–145.**



05U0TX-368



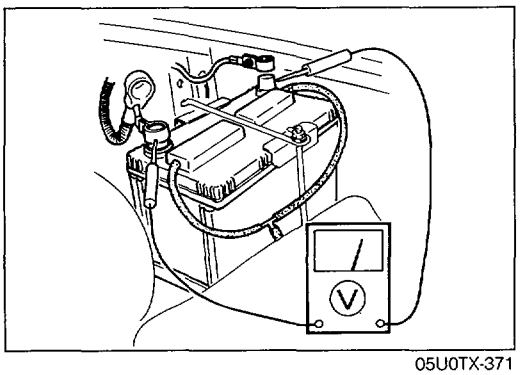
05U0TX-369

Remedy
1. Disconnect the negative battery cable.
2. Remove the knee protector, and disconnect the clock spring connectors (Orange and blue).
3. Check for proper connection of the diagnostic module connectors.
4. If the connector is loose or disconnected, reconnect it.
5. If the connection is OK, replace the diagnostic module.

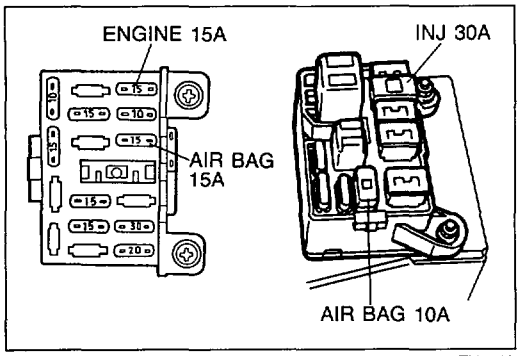
Flowchart No.	• Fault indication ..... Warning lamp flashes three times • Possible cause ..... Open circuit or poor connection of power source circuit
2	

25U0TX-130

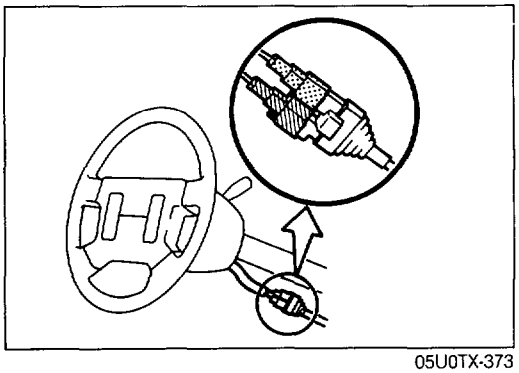
Caution
- **Before troubleshooting, read SERVICE PRECAUTION on page T–145.**



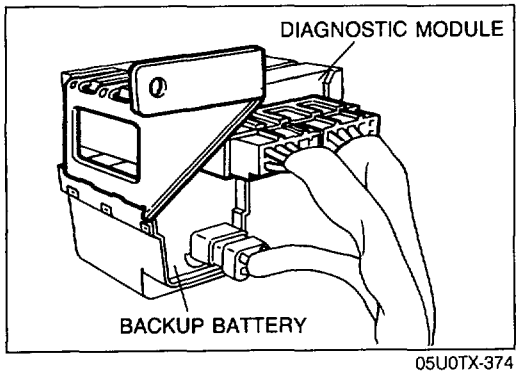
05U0TX-371



05U0TX-372



05U0TX-373



05U0TX-374

Step 1
Measure the battery voltage.

Battery voltage	Action
More than 9V	Go to Step 2
Less than 9V	Charge battery by recommended procedure (Refer to Section G)

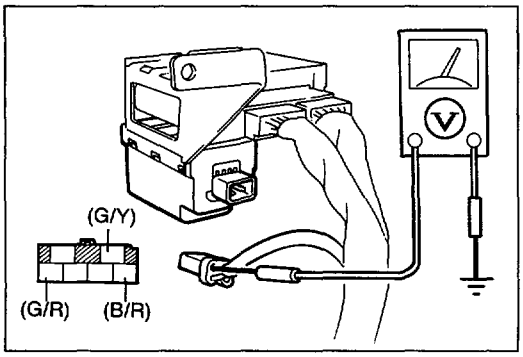
Step 2
1. Check the following fuses.

Fuse	Location
INJ 30A	Main fuse block
AIR BAG 15A	Fuse box
AIR BAG 10A	Main fuse block
ENGINE 15A	Fuse box

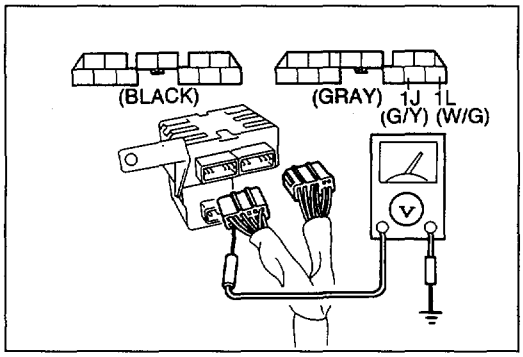
2. If a fuse burned, replace it.
3. If the fuses are OK, go to Step 3.

Step 3
1. Disconnect the negative battery cable.
2. Remove the knee protector, and disconnect the clock spring connectors (Orange and blue).

3. Check for proper connection of the backup battery connector.
4. If the connector is loose or disconnected, reconnect it.
5. If the connection is OK, go to Step 4.



25U0TX-131



25U0TX-132

Step 4

1. Disconnect the backup battery connector.
2. Reconnect the negative battery cable.
3. Measure the voltage at terminal-wire (G/R) of the backup battery connector.

VB: Battery voltage

Wire	Voltage	Action
(G/R)	VB	Go to Step 5
	0V	Replace wire harness assembly

Step 5

1. Disconnect the negative battery cable.
2. Disconnect the diagnostic module connector.
3. Reconnect the negative battery cable.
4. Measure the voltage at the terminal-wires of the diagnostic module connector.

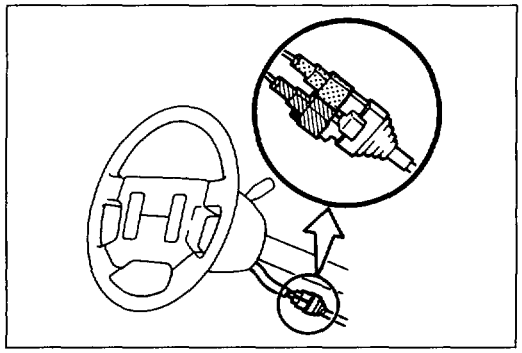
VB: Battery voltage

Terminal-wire	Voltage	Action
1L (W/G)	VB	Next, check terminal-wire 1J (G/Y)
	0V	Replace wire harness assembly
1J (G/Y)	VB	Replace diagnostic module
	0V	Replace wire harness assembly

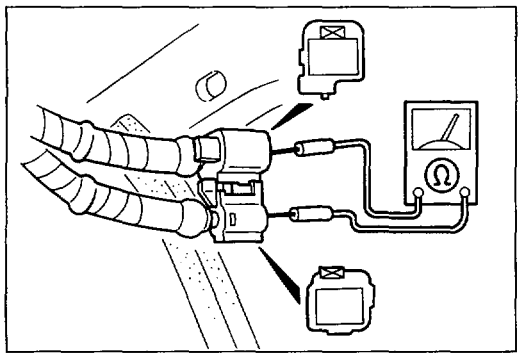
Flowchart No.	
3	• **Fault indication ..... Warning lamp flashes five times or nine times** • **Possible cause ..... Faulty D-sensor (CNT, LH or RH)**

25U0TX-133

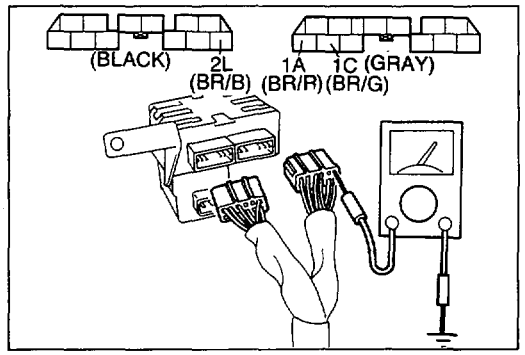
Caution
- **Before troubleshooting, read SERVICE PRECAUTION on page T–145.**



05U0TX-378



05U0TX-379



05U0TX-380

Step 1
1. Disconnect the negative battery cable.
2. Remove the knee protector, and disconnect the clock spring connectors (Orange and blue).

3. Disconnect all D-sensor (CNT, LH and RH) connectors, and measure the resistance of each sensor.

   Resistance: Approx. 1.2 kΩ

4. If not as specified, replace the sensor.
5. If correct, go to Step 2.

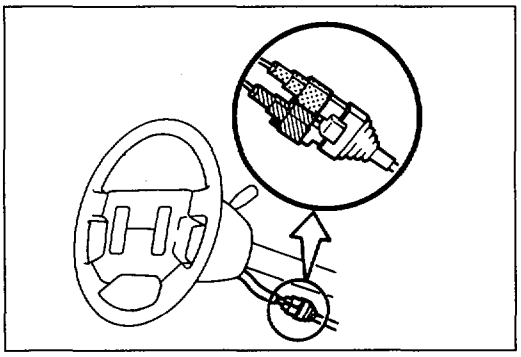
Step 2
1. Reconnect all D-sensor connectors.
2. Disconnect the diagnostic module connector.
3. Measure the resistance between the following terminal-wire of the diagnostic module connector and a body ground.

Terminal-wire	Resistance	Action
1C (BR/G)	Approx. 1.2 kΩ	Next, check terminal-wire 1A (BR/R)
	Other 1.2 kΩ	Replace wire harness
1A (BR/R)	Approx. 1.2 kΩ	Next, check terminal-wire 2L (BR/B)
	Other 1.2 kΩ	Replace wire harness
2L (BR/B)	Approx. 1.2 kΩ	Replace diagnostic module
	Other 1.2 kΩ	Replace wire harness

Flowchart No.	
4	• **Fault indication ..... Warning lamp flashes ten times** • **Possible cause ..... Faulty diagnostic module (System down fuse burned)**

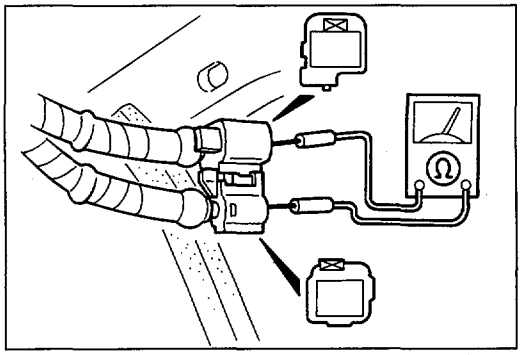
25U0TX-134

Caution
- **Before troubleshooting, read SERVICE PRECAUTION on page T–145.**



05U0TX-382

Step 1
1. Disconnect the negative battery cable.
2. Remove the knee protector, and disconnect the clock spring connectors (Orange and blue).

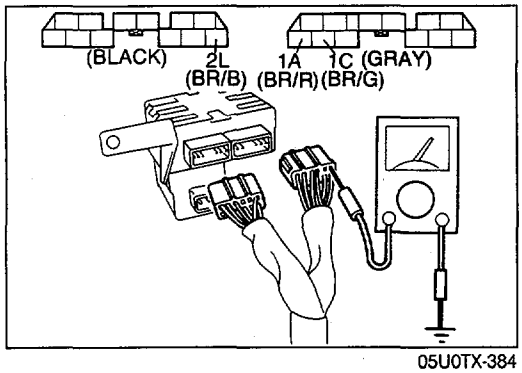


05U0TX-383

3. Disconnect all D-sensor (CNT, LH and RH) connectors, and measure the resistance of each sensor.

   Resistance: Approx. 1.2 kΩ

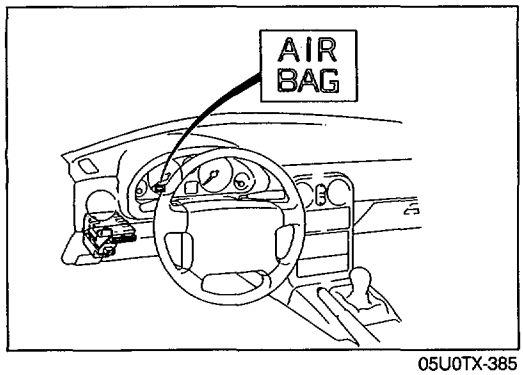
4. If not as specified, replace the sensor, then go to Step 3.
5. If correct, go to Step 2.



05U0TX-384

Step 2
1. Reconnect all D-sensor connectors.
2. Disconnect the diagnostic module connector.
3. Measure the resistance between the following terminal-wires of the diagnostic module connector and a body ground.

Terminal-wire	Resistance	Action
1C (BR/G)	Approx. 1.2 kΩ	Next, check terminal-wire 1A (BR/R)
	Other 1.2 kΩ	Replace wire harness, then go to Step 3
1A (BR/R)	Approx. 1.2 kΩ	Next, check terminal-wire 2L (BR/B)
	Other 1.2 kΩ	Replace wire harness, then go to Step 3
2L (BR/B)	Approx. 1.2 kΩ	Go to Step 3
	Other 1.2 kΩ	Replace wire harness, then go to Step 3



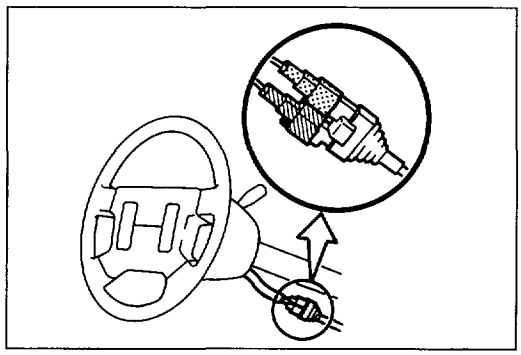
05U0TX-385

Step 3
1. Reconnect the diagnostic module connector.
2. Reconnect the clock spring connector.
3. Reconnect the negative battery cable.
4. Turn the ignition switch ON, and monitor the warning lamp operation.
5. If the warning lamp flashes ten times again, replace the diagnostic module.

Flowchart No.	• Fault indication ..... Warning lamp flashes four times • Possible cause ..... Faulty S-sensor
5	

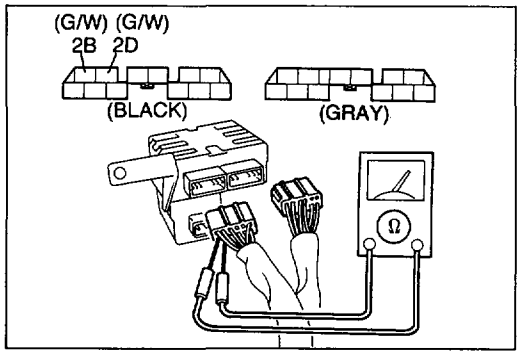
25U0TX-135

Caution
- **Before troubleshooting, read SERVICE PRECAUTION on page T–145.**



05U0TX-387

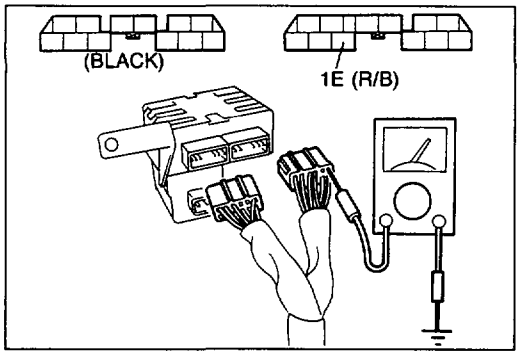
Step 1
1. Disconnect the negative battery cable.
2. Remove the knee protector, and disconnect the clock spring connectors (Orange and blue).



05U0TX-388

3. Disconnect the diagnostic module connector.
4. Check continuity between terminal-wires of the diagnostic module connector.

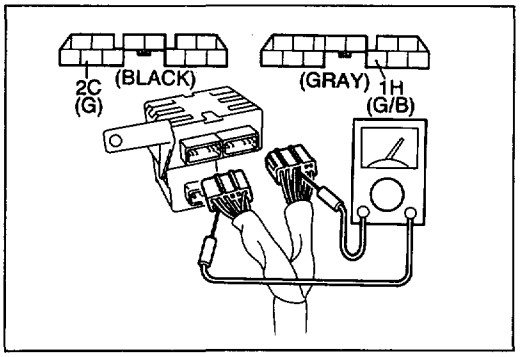
Terminal-wire	Continuity	Action
2B (G/W)— 2D (G/W)	Yes	Go to Step 2
	No	Replace wire harness



05U0TX-389

Step 2
1. Disconnect the diagnostic connector.
2. Check continuity between terminal-wire of diagnostic module connector and a body ground.

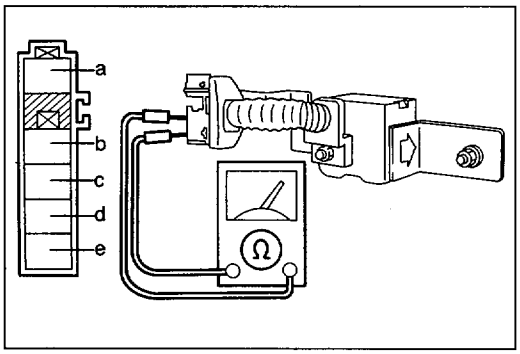
Terminal-wire	Continuity	Action
1E (R/B)— Body ground	Yes	Go to Step 3
	No	Go to Step 5



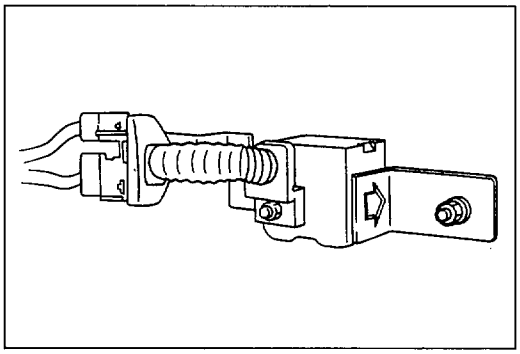
05U0TX-390

Step 3
1. Disconnect the diagnostic module connectors.
2. Check continuity between terminal-wires of the diagnostic module connector.

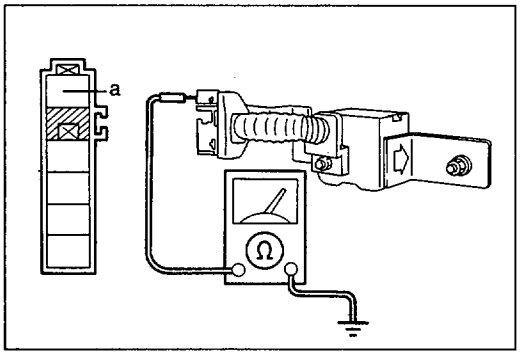
Terminal-wire	Continuity	Action
1H (G/B)— 2C (G)	Yes	Go to Step 7
	No	Go to Step 4



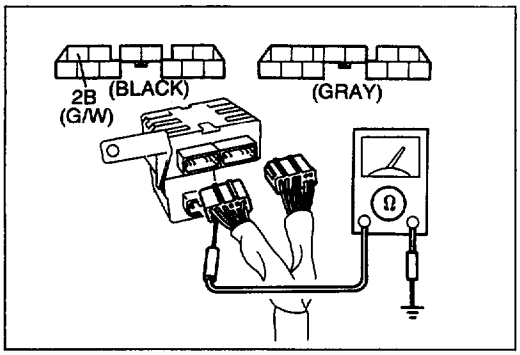
05U0TX-391



05U0TX-392



05U0TX-393



05U0TX-610

Step 4
1. Disconnect the S-sensor connectors.
2. Check continuity between terminals of the sensor.

Terminal	Continuity	Action
(b)—(e)	Yes	Replace wire harness
	No	Replace S-sensor

Step 5
1. Verify that the S-sensor is installed properly.
2. If the installation is poor, clean the mounting and tighten the bolts.
3. If correct, go to Step 6.

Step 6
1. Disconnect the S-sensor connectors.
2. Check continuity between terminal of the sensor and a body ground.

Terminal	Continuity	Action
(a)— Body ground	Yes	Replace wire harness
	No	Replace S-sensor

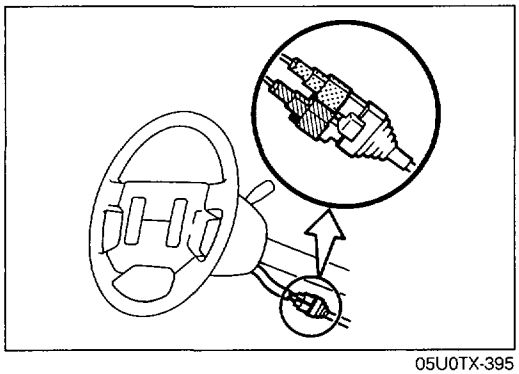
Step 7
1. Disconnect the diagnostic connector.
2. Check continuity between terminal-wire of diagnostic module connector and a body ground.

Terminal-wire	Continuity	Action
2B (G/W)— Body ground	Yes	Replace wire harness
	No	Go to Step 5

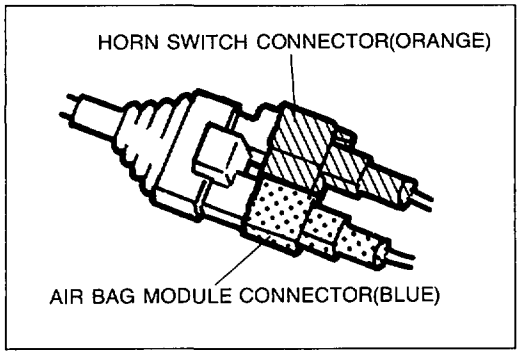
Flowchart No.	• Fault indication ..... Warning lamp flashes six times • Possible cause ..... Faulty air bag module or poor connection of clock spring connector
6	

25U0TX-136

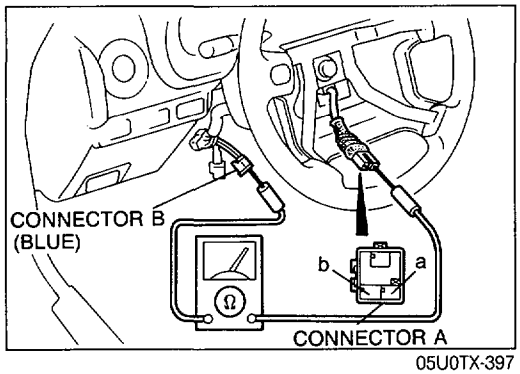
Caution
- **Before troubleshooting, read SERVICE PRECAUTION on page T–145.**



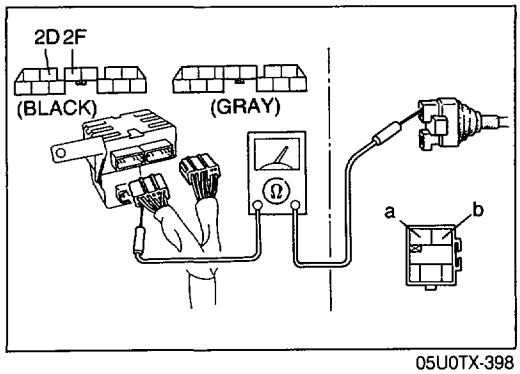
05U0TX-395



05U0TX-396



05U0TX-397



05U0TX-398

Step 1
1. Disconnect the negative battery cable.
2. Check for proper connection of the clock spring connectors (Orange and blue).
3. If a connector is loose or disconnected, reconnect it.
4. If the connections are OK, go to Step 2.

Step 2
1. Remove the air bag module installation nuts.
2. Verify that the air bag module connector is properly connected.
3. If the connector is loose or disconnected, reconnect it.
4. If the connection is OK, go to Step 3.

Step 3
1. Disconnect the air bag module and clock spring connector.
2. Check continuity between terminals of the clock spring connectors (blue) as shown.

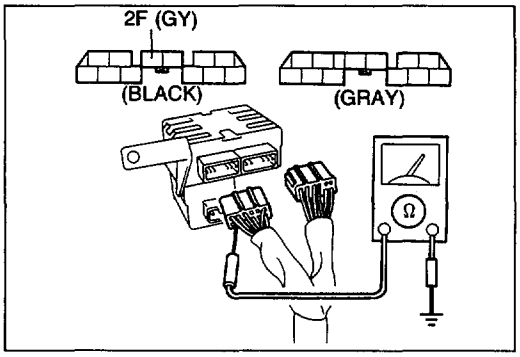
Terminals		Continuity
Connector A	Connector B	
a	A	Yes
b	B	Yes

3. If not as specified, replace the clock spring connector.

Step 4
1. Disconnect the diagnostic module connector.
2. Check continuity between the diagnostic module connector and the clock spring connector (wire harness side) as shown.

Terminal-wire	Continuity
(Diagnostic module) — (Clock spring connector)	
(2D : G/W)—(a : R)	Yes
(2F : G/Y)—(b : G/Y)	Yes

3. If not as specified, replace the wire harness assembly.
4. If correct, go to Step 5.



05U0TX-399

Step 5

1. Check continuity between terminal-wire 2F (GY) of the diagnostic module connector and a body ground.

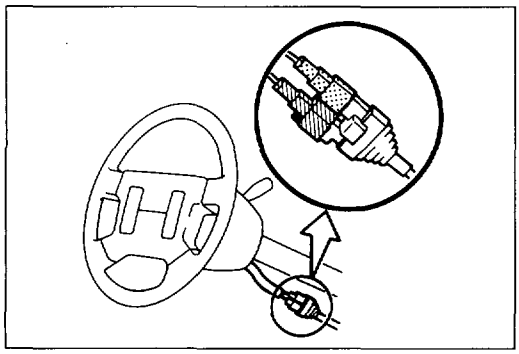
Terminal-wire	Continuity
2F (GY)—Body ground	No

2. If not as specified, replace the wire harness assembly.
3. If correct, replace the air bag module.

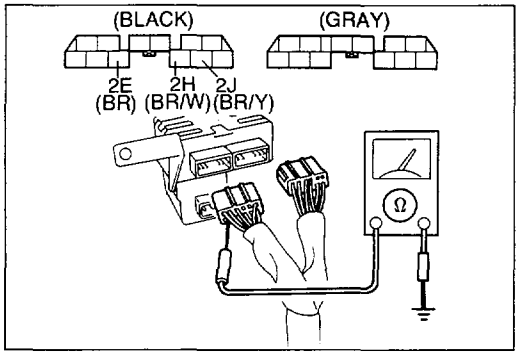
Flowchart No.	
7	• **Fault indication ..... Warning lamp flashes two times or eight times** • **Possible cause ..... Poor ground of D-sensor**

25U0TX-137

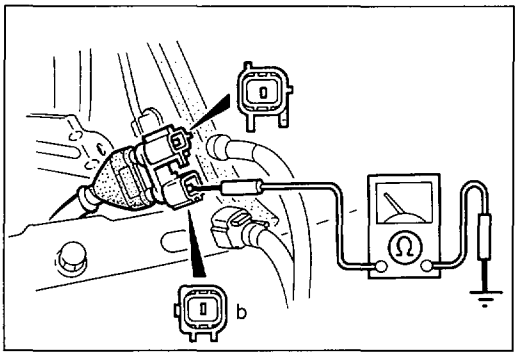
Caution
- **Before troubleshooting, read SERVICE PRECAUTION on page T–145.**



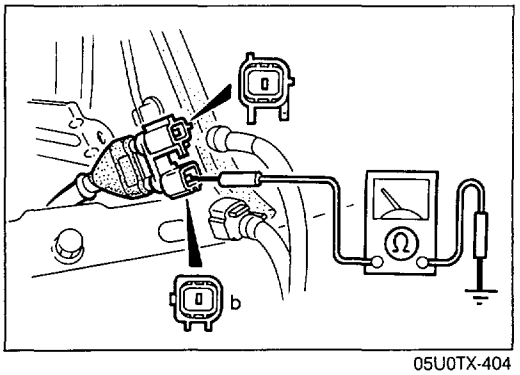
05U0TX-401



05U0TX-402



05U0TX-403



05U0TX-404

Step 1
1. Disconnect the negative battery cable.
2. Remove the knee protector, and disconnect the clock spring connectors (Orange and blue).
3. Disconnect the diagnostic module connector.
4. Check continuity between the following terminals of the diagnostic module connector and a body ground.

Terminal-wire	Continuity	Action
2J (BR/Y)—Body ground	Yes	Next, check between 2H (BR/W) and body ground
	No	Go to Step 2
2H (BR/W)—Body ground	Yes	Next, check between 2E (BR) and body ground
	No	Go to Step 3
2E (BR)—Body ground	Yes	Replace diagnostic module
	No	Go to Step 4

Step 2
1. Disconnect the D-sensor (RH) connectors, and check continuity between terminals of the sensor connectors and a body ground.

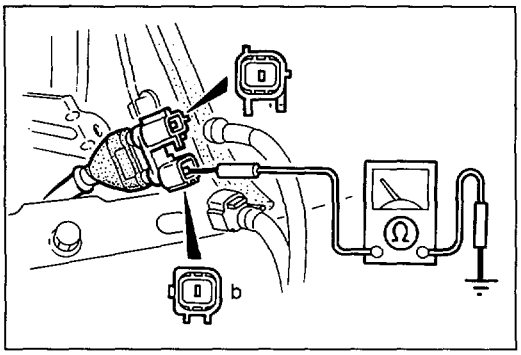
Terminal	Continuity
b—Body ground	Yes

2. If not as specified, go to Step 5.
3. If correct, replace the wire harness assembly.

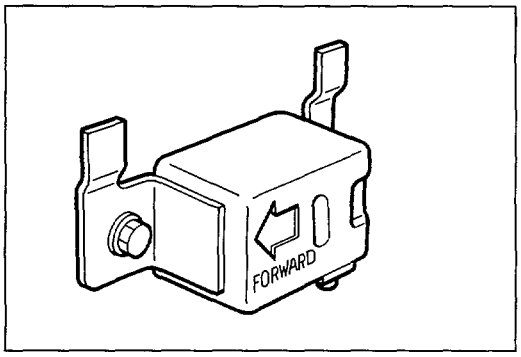
Step 3
1. Disconnect the D-sensor (CNT) connectors, and check continuity between terminals of the sensor connector and a body ground.

Terminal	Continuity
b—Body ground	Yes

2. If not as specified, go to Step 5.
3. If correct, replace the wire harness assembly.



05U0TX-405



05U0TX-406

Step 4

1. Disconnect the D-sensor (LH) connectors, and check continuity between terminals of the sensor connector and a body ground.

Terminal	Continuity
b—Body ground	Yes

2. If not as specified, go to Step 5.
3. If correct, replace the wire harness assembly.

Step 5

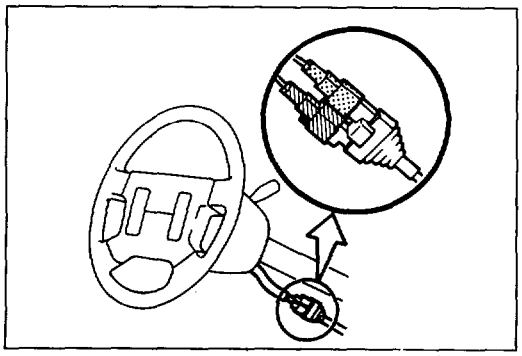
1. Check that all D-sensors (CNT, LH and RH) are properly installed.
2. If an installation bolt is loose, tighten it.
3. If correct, replace the faulty D-sensor.

Flowchart No.	
8	• **Fault indication ..... Warning lamp flashes seven times** • **Possible cause ..... Poor ground of wiring harness**

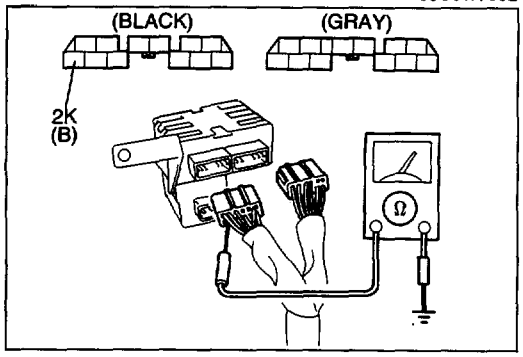
25U0TX-138

Caution

- **Before troubleshooting, read SERVICE PRECAUTION on page T–145.**



05U0TX-602

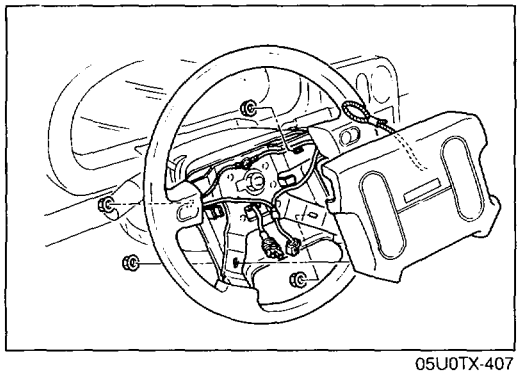


05U0TX-603

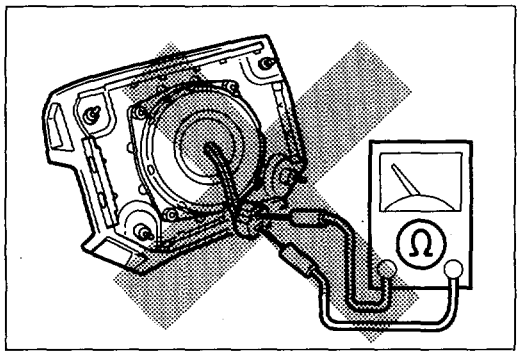
Remedy

1. Disconnect the negative battery cable.
2. Remove the knee protector, and disconnect the clock spring connectors (Orange and blue).
3. Disconnect the diagnostic module connector.
4. Check continuity between the following terminals of the diagnostic module connector and a body ground.

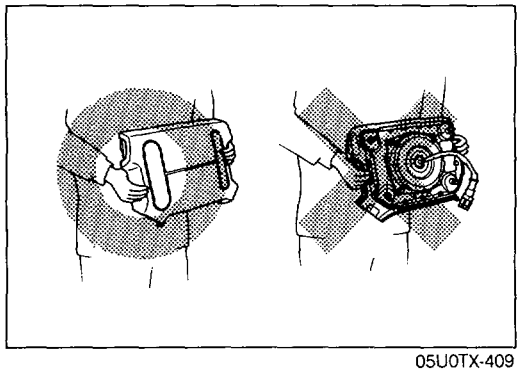
Terminal-wire	Continuity	Action
2K (B)—Body ground	Yes	Replace diagnostic module
	No	Replace wining harness



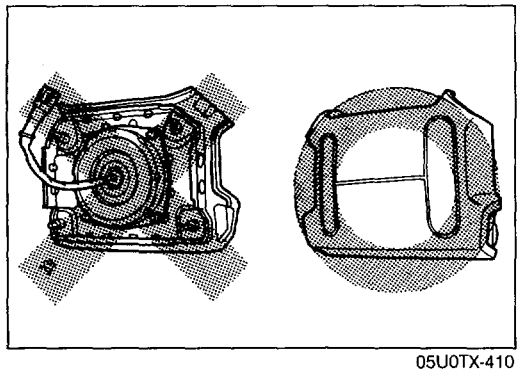
05U0TX-407



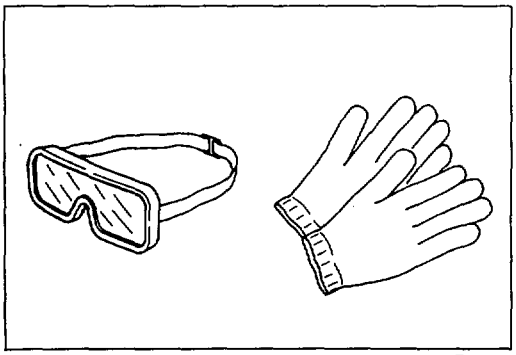
05U0TX-408



05U0TX-409



05U0TX-410



05U0TX-411

REMOVAL / INSTALLATION

Air Bag Module

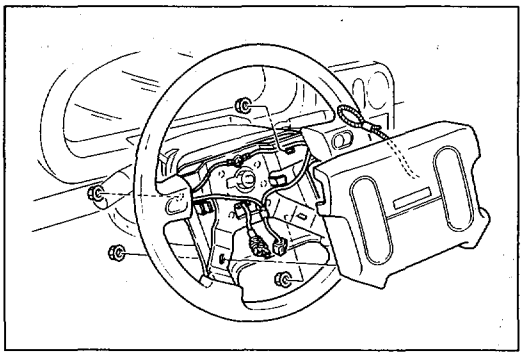
1. Disconnect the negative battery cable.
2. Remove the nuts and remove the air bag module.

Caution

- **Do not try to disassemble the air bag module. The air bag module must only be replaced as an assembly.**
- **Do not use an ohmmeter for inspection of the air bag module. It may cause an accidental deployment of the air bag.**
- **When carrying a live (unactivated) air bag module, make sure the trim cover is pointed away from your body to prevent personal injury in the event of an accidental deployment.**
- **When placing a live air bag module on any surface, always face the trim cover upward to reduce the motion of the module if it is accidentally deployed.**
- **When handling a deployed air bag module, wear gloves and safety glasses, because the deployed air bag module may contain deposits of sodium hydroxide, a caustic by-product of the gas generant combustion.**

- **When an air bag module is to be disposed of, it must be disposed following the proper procedure recommended for the specific situation.**

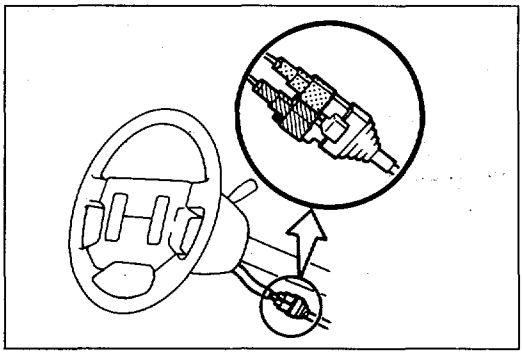
05U0TX-412



25U0TX-139

3. Install in the reverse order of removal.

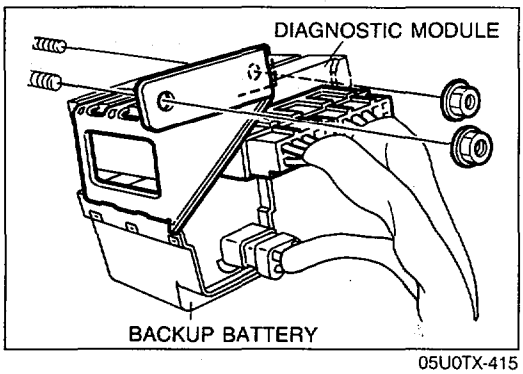
Tightening torque:
39—59 N·m (4.0—6.0 m-kg, 29—13 ft-lb)



05U0TX-414

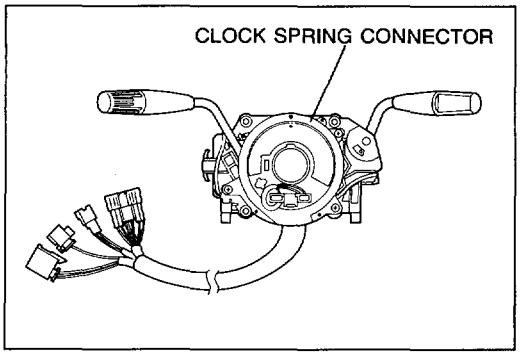
Diagnosis Module and Backup Battery

1. Disconnect the negative battery cable.
2. Remove the knee protector, and disconnect the clock spring connectors (Orange and blue).

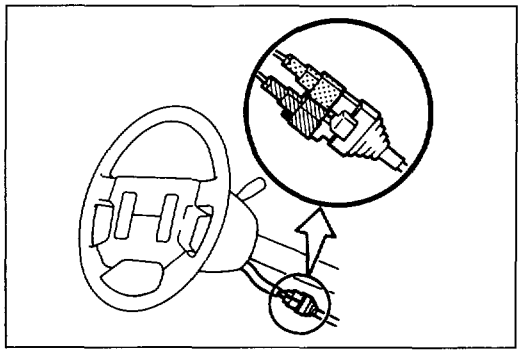


05U0TX-415

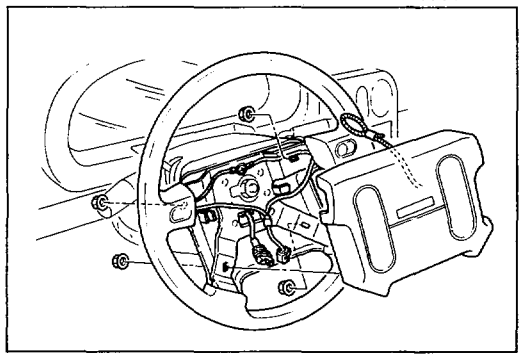
3. Disconnect the diagnostic module and backup battery connectors.
4. Remove the nuts and remove the diagnostic module and backup battery as an assembly.
5. Install the diagnostic module and backup battery in the reverse order of removal.



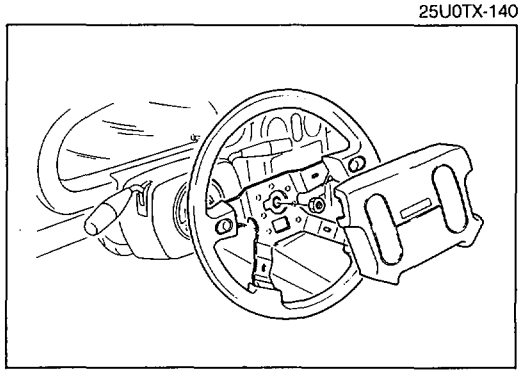
05U0TX-416



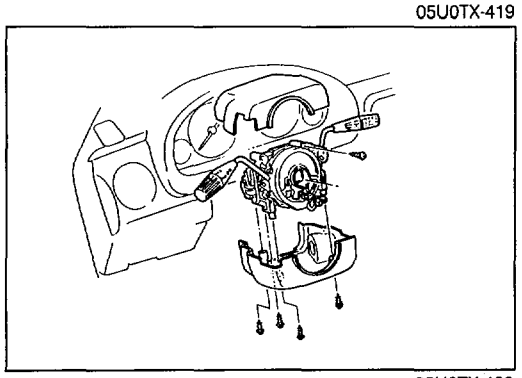
05U0TX-417



25U0TX-140



05U0TX-419



05U0TX-420

Clock Spring Connector Assembly

Note

- **The clock spring connector assembly is part of the combination switch. When replacing the clock spring connector assembly, replace it with the combination switch as an assembly.**

1. Disconnect the negative battery cable.
2. Remove the knee protector, and disconnect the clock spring and combination switch connectors.
3. Remove the nuts and remove the air bag module. (Refer to page T–162.)

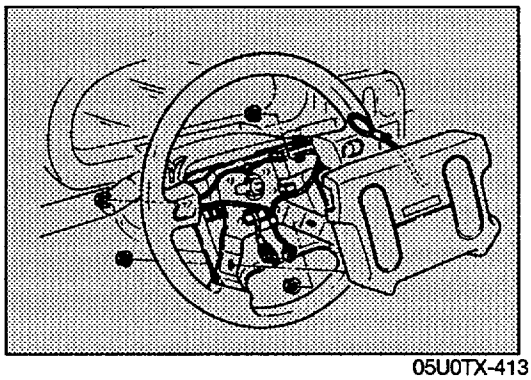
Caution

- **Do not strike the steering shaft with a hammer; the collapsible shaft may collapse.**

4. Remove the nut and remove the steering wheel with a steering wheel puller.
5. Remove the screws and column cover.
6. Loosen the screws and remove the clock spring connector assembly with the combination switch.

- **When an air bag module is to be disposed of, it must be disposed following the proper procedure recommended for the specific situation.**

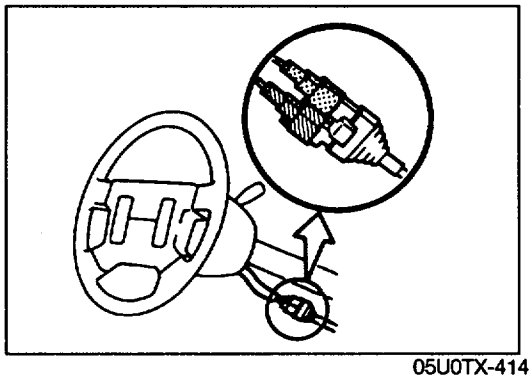
05U0TX-412



05U0TX-413

3. Install in the reverse order of removal.

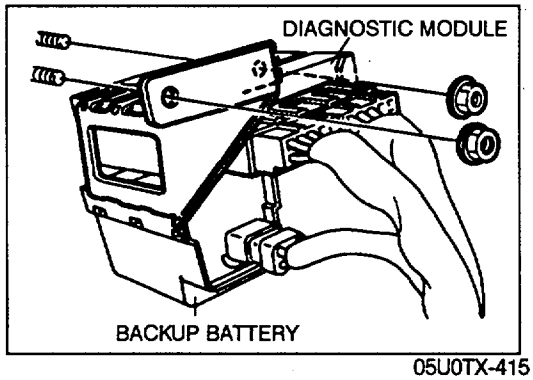
Tightening torque:
4.0-5.8 N•m (40-60cm-kg, 35-52 in-lb)



05U0TX-414

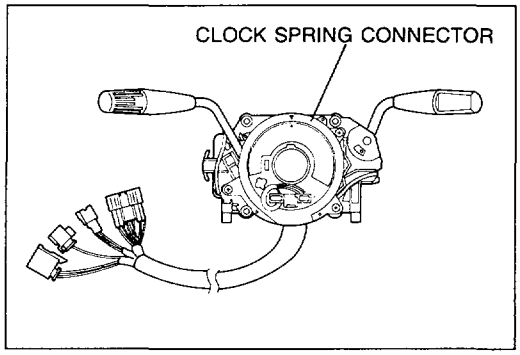
Diagnosis Module and Backup Battery

1. Disconnect the negative battery cable.
2. Remove the knee protector, and disconnect the clock spring connectors (Orange and blue).

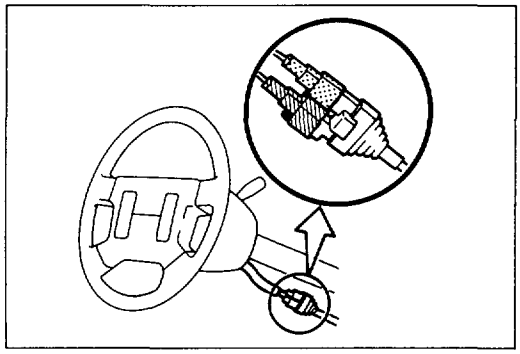


05U0TX-415

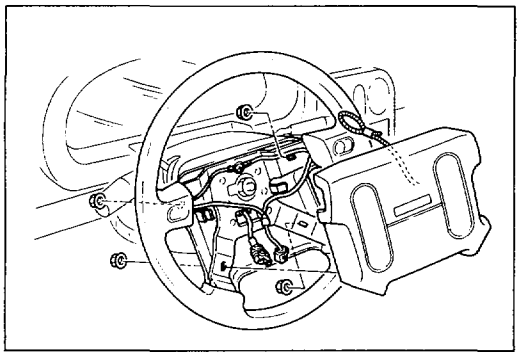
3. Disconnect the diagnostic module and backup battery connectors.
4. Remove the nuts and remove the diagnostic module and backup battery as an assembly.
5. Install the diagnostic module and backup battery in the reverse order of removal.



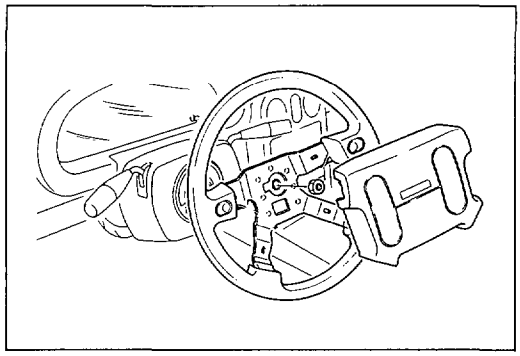
05U0TX-416



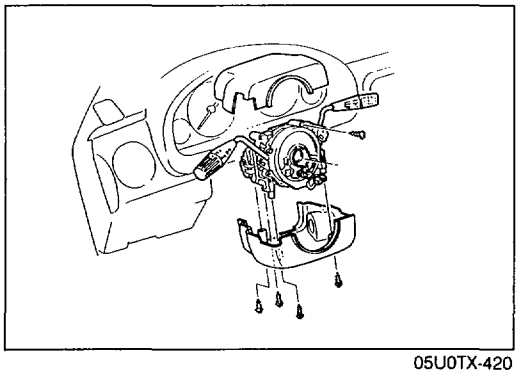
05U0TX-417



25U0TX-140



05U0TX-419



05U0TX-420

Clock Spring Connector Assembly

Note

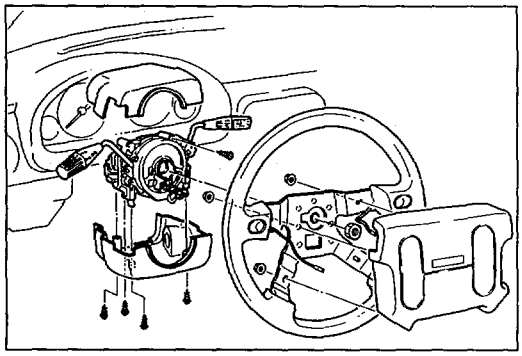
- **The clock spring connector assembly is part of the combination switch. When replacing the clock spring connector assembly, replace it with the combination switch as an assembly.**

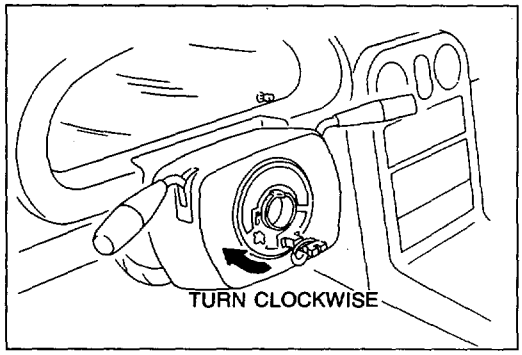
1. Disconnect the negative battery cable.
2. Remove the knee protector, and disconnect the clock spring and combination switch connectors.
3. Remove the nuts and remove the air bag module. (Refer to page T–162.)

Caution

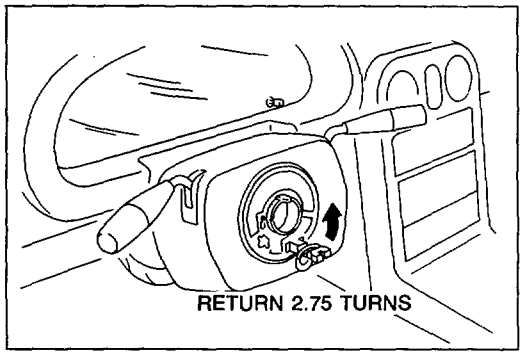
- **Do not strike the steering shaft with a hammer; the collapsible shaft may collapse.**

4. Remove the nut and remove the steering wheel with a steering wheel puller.
5. Remove the screws and column cover.
6. Loosen the screws and remove the clock spring connector assembly with the combination switch.

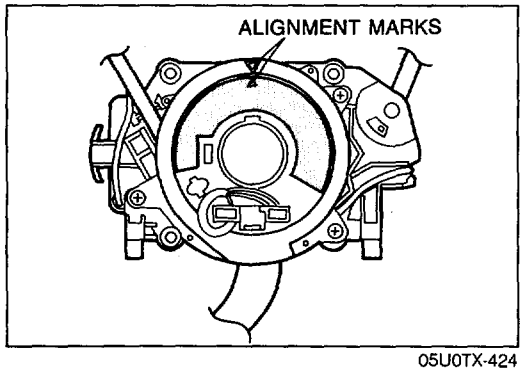

05U0TX-421



05U0TX-422



05U0TX-423



05U0TX-424

7. Install the clock spring connector assembly and combination switch in the reverse order of removal, referring to **Installation Note**.

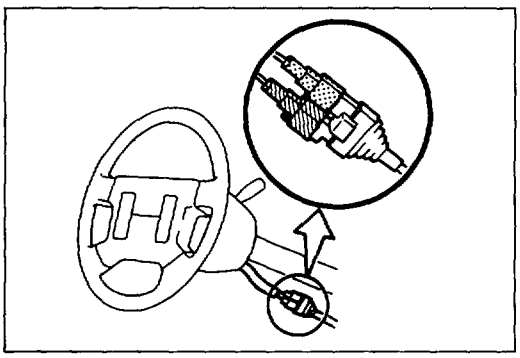
Installation note

- **Before installing the steering wheel, set the clock spring connector as follows:**
  1) Set the front wheels straight ahead.

2) Turn the clock spring connector clockwise until it stops. (Do not force it.)

3) Return the connector 2.75 turns.

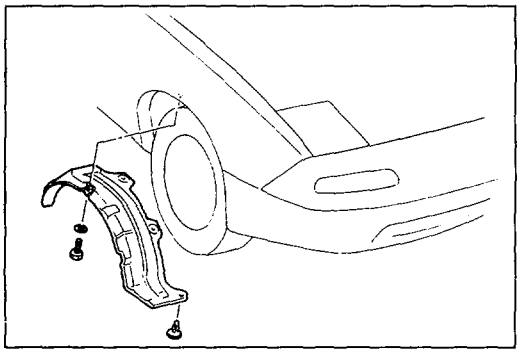
4) Align the marks (counterclockwise) on the clock spring connector and the outer housing.



05U0TX-425

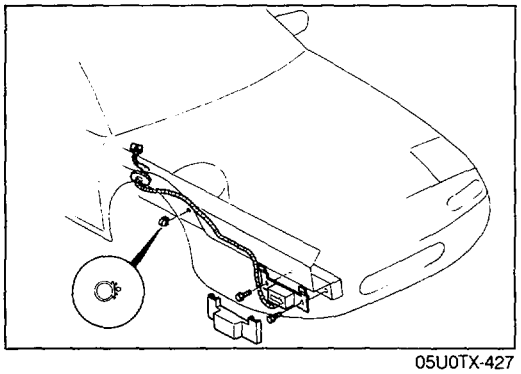
D-sensor (RH)

1. Disconnect the negative battery cable.
2. Remove the knee protector, and disconnect the clock spring connectors (Orange and blue).
3. Remove the nuts and the main fuse block.
4. Disconnect the D-sensor (RH) connectors.



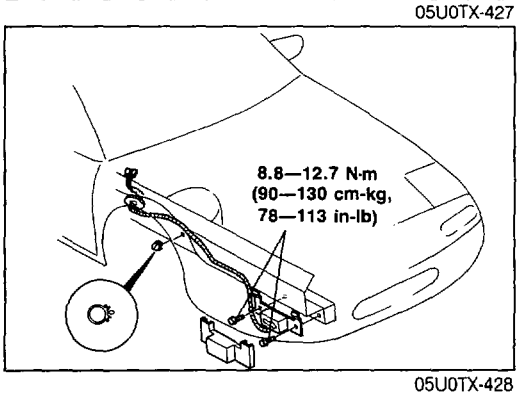
05U0TX-426

5. Remove the undercover.



05U0TX-427

6. Remove the clips and remove the bolts and the D-sensor (RH).



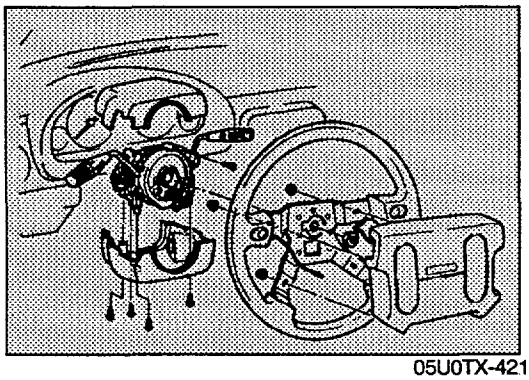
05U0TX-428

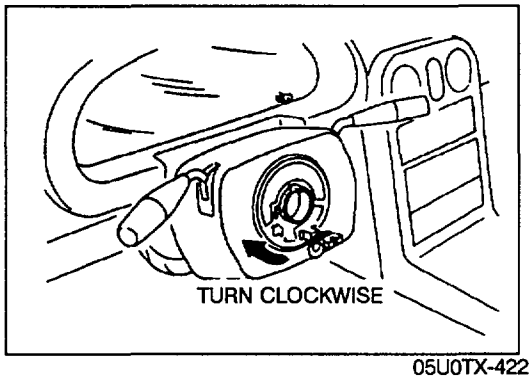
7. Install the D-sensor (RH), in the reverse order of removal, referring to the **Installation Note**.

Installation note

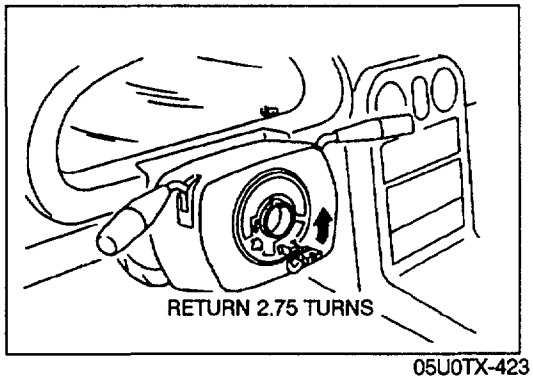
- **Position the sensor with the arrow toward the front of the vehicle.**
- **Tighten the mounting bolts to the specific torque.**

Tightening torque:
8.8—12.7 N·m (90—130 cm-kg, 78—113 in-lb)

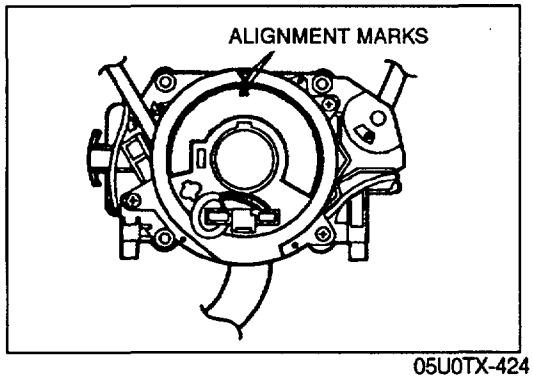

05U0TX-421



05U0TX-422



05U0TX-423



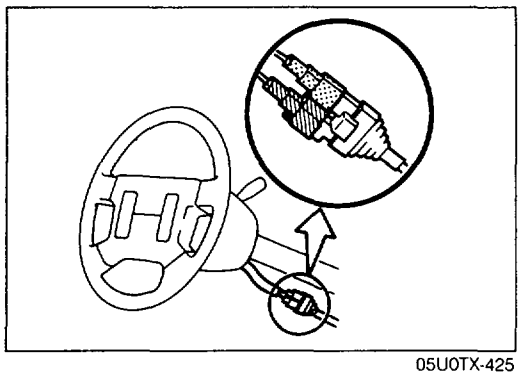
05U0TX-424

7. Install the clock spring connector assembly and combination switch in the reverse order of removal, referring to **Installation Note**

Air bag nut torque:
4.0-5.8 N•m (40-60 cm-kg, 35-52 in-lb)

Installation note

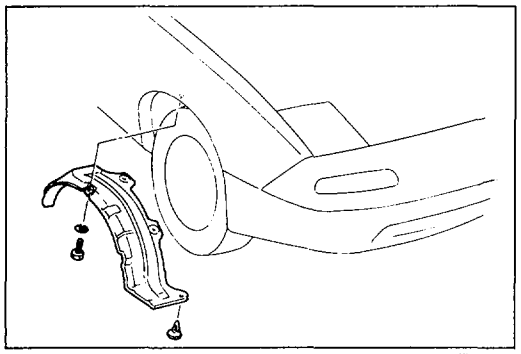
- **Before installing the steering wheel, set the clock spring connector as follows**
  1) Set the front wheels straight ahead.
  2) Turn the clock spring connector clockwise until it stops. (Do not force it.)
  3) Return the connector 2.75 turns.
  4) Align the marks (counterclockwise) on the clock spring connector and the outer housing.



05U0TX-425

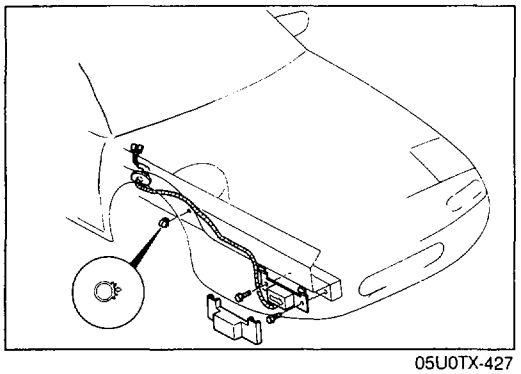
D-sensor (RH)

1. Disconnect the negative battery cable.
2. Remove the knee protector, and disconnect the clock spring connectors (Orange and blue).
3. Remove the nuts and the main fuse block.
4. Disconnect the D-sensor (RH) connectors.



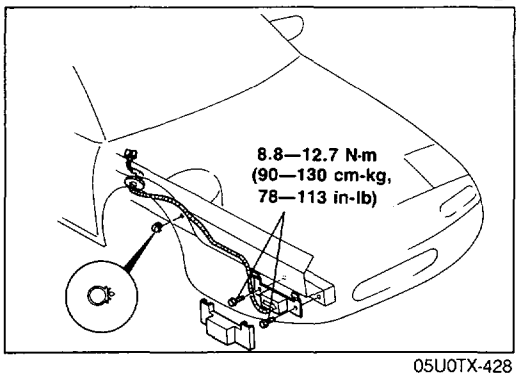
05U0TX-426

5. Remove the undercover.



05U0TX-427

6. Remove the clips and remove the bolts and the D-sensor (RH).



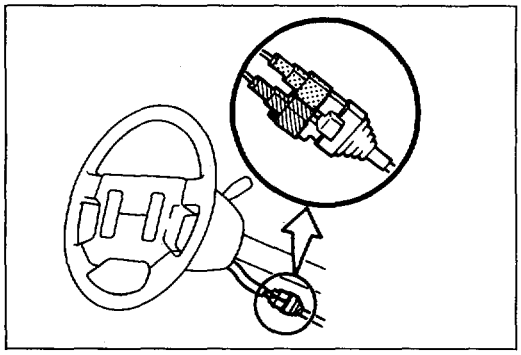
05U0TX-428

7. Install the D-sensor (RH), in the reverse order of removal, referring to the **Installation Note**.

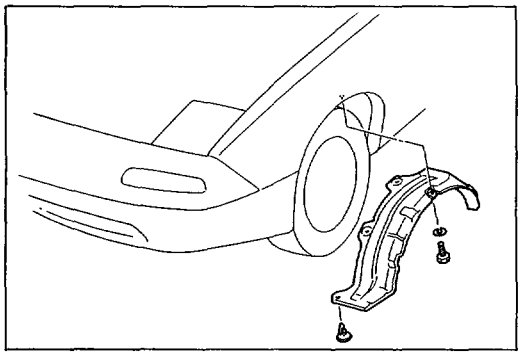
Installation note

- **Position the sensor with the arrow toward the front of the vehicle.**
- **Tighten the mounting bolts to the specific torque.**

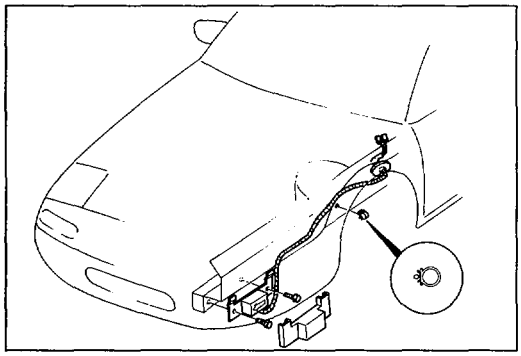
Tightening torque:
8.8—12.7 N·m (90—130 cm-kg, 78—113 in-lb)



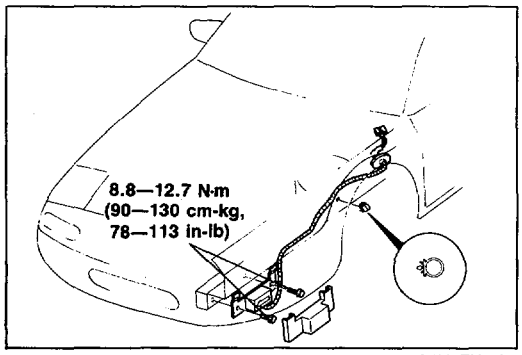
05U0TX-429



05U0TX-430



05U0TX-431



05U0TX-432

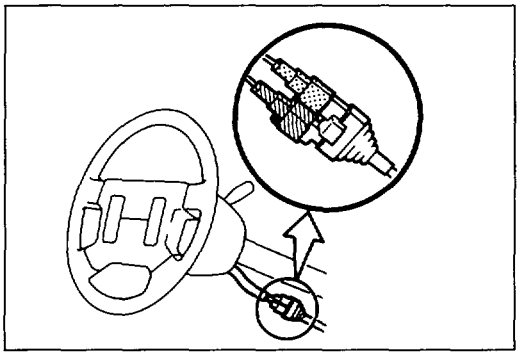
D-sensor (LH)

1. Disconnect the negative battery cable.
2. Remove the knee protector, and disconnect the clock spring connectors (Orange and blue).
3. Remove the bolts and the relay box.
4. Disconnect the D-sensor (LH) connectors.
5. Remove the undercover.
6. Remove the clips and remove the bolts and the D-sensor (LH).
7. Install the D-sensor (LH), in the reverse order of removal, referring to the **Installation Note**.

Installation note

- **Position the sensor with the arrow toward the front of the vehicle.**
- **Tighten the mounting bolts to the specific torque.**

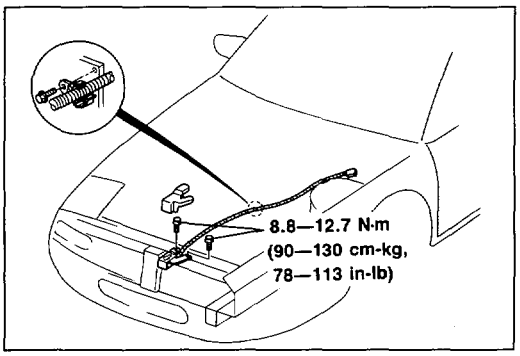
Tightening torque:
8.8—12.7 N·m (90—130 cm-kg, 78—113 in-lb)



05U0TX-433

D-sensor (CNT)

1. Disconnect the negative battery cable.
2. Disconnect the D-sensor (CNT) connectors.



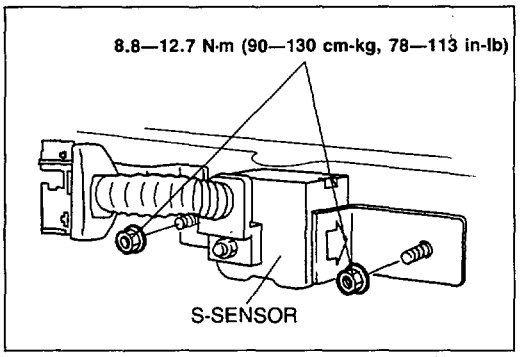
05U0TX-434

3. Remove the wiring clips.
4. Remove the bolts and the D-sensor (CNT).
5. Install the D-sensor (CNT) in the reverse order of removal, referring to the **Installation Note**.

Installation note

- **Position the sensor with the arrow toward the front of the vehicle.**
- **Tighten the mounting bolts to the specified torque.**

Tightening torque:
8.8—12.7 N·m (90—130 cm-kg, 78—113 in-lb)



05U0TX-435

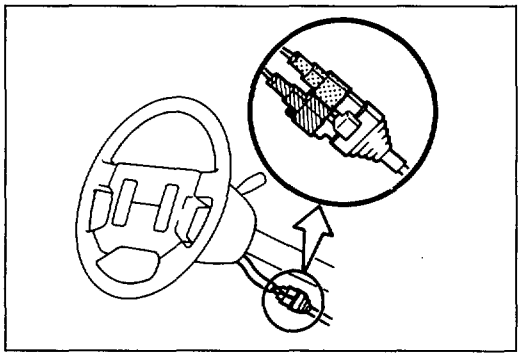
S-sensor

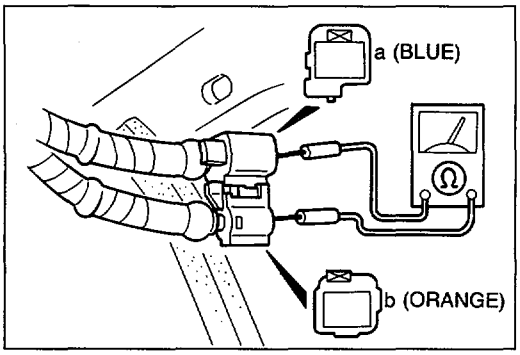
1. Disconnect the negative battery cable.
2. Remove the instrument panel. (Refer to Section S.)
3. Disconnect the S-sensor connectors.
4. Remove the bolts and S-sensor.
5. Install the S-sensor in the reverse order of removal, referring to the **Installation Note**.

Installation note

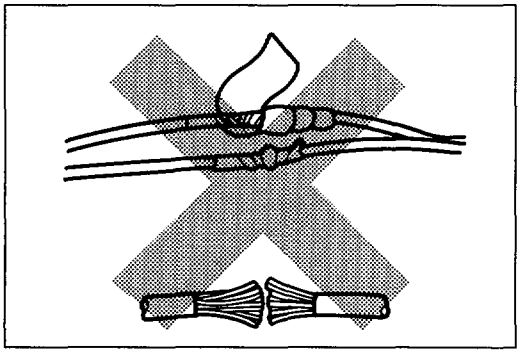
- **Position the sensor with the arrow toward the front of the vehicle.**
- **Tighten the mounting bolts to the specified torque.**

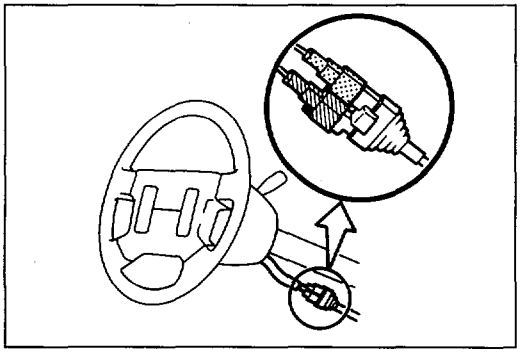
Tightening torque:
8.8—12.7 N·m (8.8—12.7 cm-kg, 78—113 in-lb)

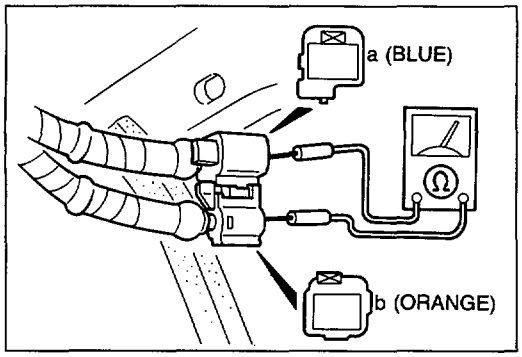

05U0TX-436



05U0TX-437


05U0TX-438


05U0TX-439



05U0TX-440

INSPECTION

D-sensor (LH)

1. Disconnect the negative battery cable.
2. Remove the knee protector, and disconnect the clock spring connectors (Orange and blue).
3. Remove the bolts and the relay box.
4. Disconnect the D-sensor (LH) connector.

Caution
- **Do not connect an ohmmeter to the harness side connector.**
  Connect the ohmmeter to the sensor side connectors only.

5. Measure resistance between the terminals of the sensor connectors.

Terminals	Resistance
a (blue)—b (orange)	Approx. 1.2 kΩ

6. If not as specified, replace the sensor.

Caution
- **Do not try to repair the wire harness.**

D-sensor (RH)

1. Disconnect the negative battery cable.
2. Remove the knee protector, and disconnect the clock spring connectors (Orange and blue).
3. Remove the bolts and the main fuse block.
4. Disconnect the D-sensor (RH) connector.

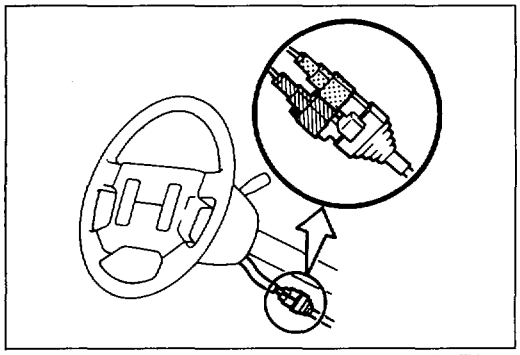
Caution
- **Do not connect an ohmmeter to the harness side connector.**
  Connect the ohmmeter to the sensor side connectors only.

5. Measure resistance between the terminals of the sensor connectors.

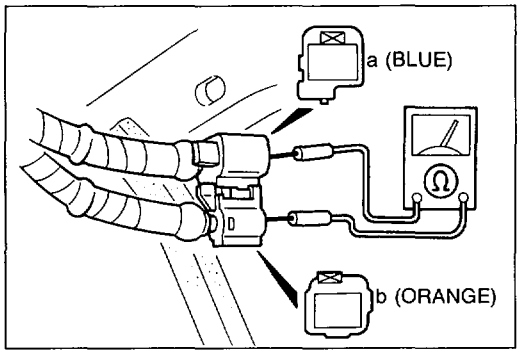
Terminals	Resistance
a (blue)—b (orange)	Approx. 1.2 kΩ

6. If not as specified, replace the sensor.

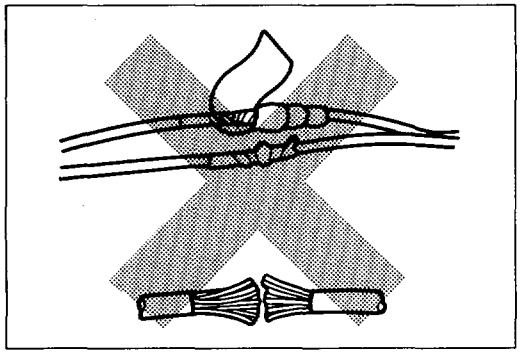
Caution
- **Do not try to repair the wire harness.**



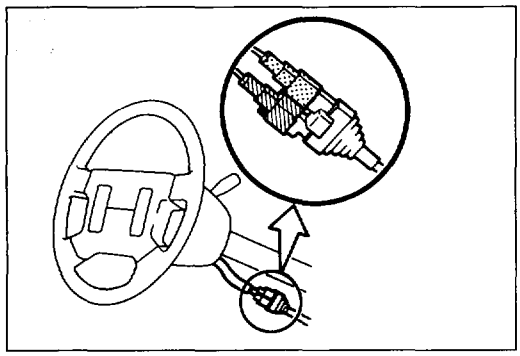
05U0TX-441



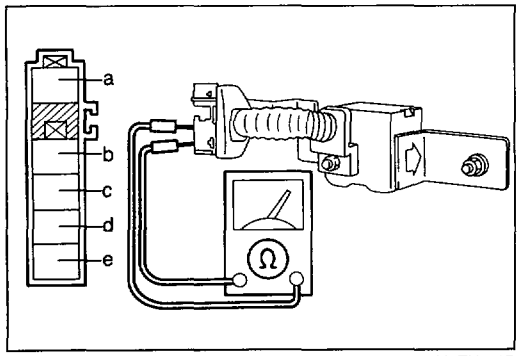
05U0TX-442



05U0TX-443



05U0TX-444



05U0TX-445

D-sensor (CNT)

1. Disconnect the negative battery cable.
2. Remove the knee protector, and disconnect the clock spring connectors (Orange and blue).
3. Disconnect the D-sensor (CNT) connectors.

Caution

- **Do not connect an ohmmeter to the harness side connector.**
  Connect the ohmmeter to the sensor side connectors only.

4. Measure resistance between the terminals of the sensor connectors.

Terminals	Resistance
a (blue)—b (orange)	Approx. 1.2 kΩ

5. If not as specified, replace the sensor.

Caution

- **Do not try to repair the wire harness.**

S-sensor

1. Disconnect the negative battery cable.
2. Remove the knee protector, and disconnect the clock spring connectors (Orange and blue).
3. Remove the instrument panel assembly.
4. Disconnect the S-sensor connectors.

Caution

- **Do not connect an ohmmeter to the harness side connector.**
  Connect the ohmmeter to the sensor side connectors only.

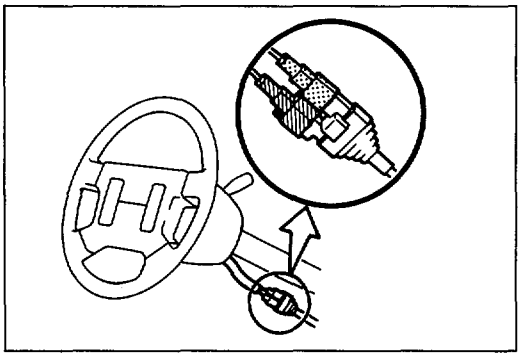
5. Check resistance between the terminals of the sensor connectors.

Terminals	Continuity
b—e	Yes
c—d	Yes
b—c	No

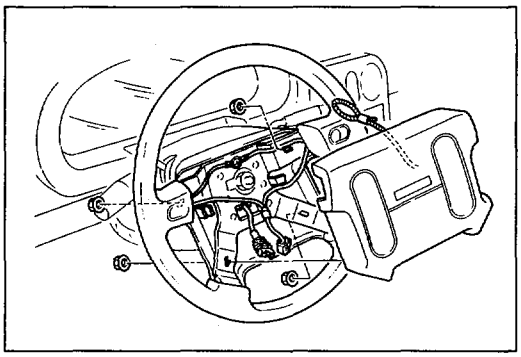
6. If not as specified, replace the sensor.

Caution

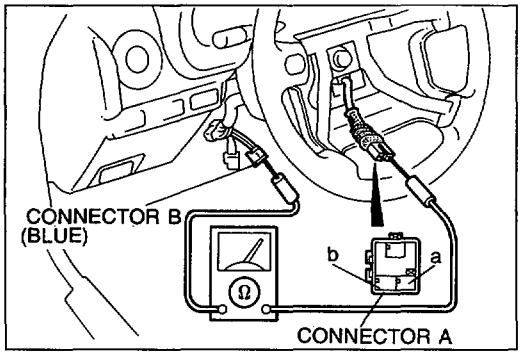
- **Do not try to repair the wire harness.**



05U0TX-446



05U0TX-447



05U0TX-448

Clock Spring Connector Assembly

1. Disconnect the negative battery cable.
2. Remove the knee protector and disconnect the clock spring connectors (Orange and blue).
3. Remove the nuts and remove the air bag module.
4. Check continuity between terminals of the clock spring connectors (blue) as shown.

Terminals		Continuity
Connector A	Connector B	
a	A	Yes
b	B	Yes

5. If not as specified, replace the clock spring connector.

Note

- **The clock spring connector assembly is part of the combination switch. When replacing the clock spring connector assembly, replace it with combination switch as an assembly.**

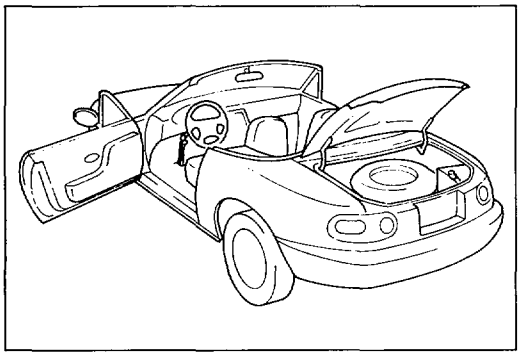
AIR BAG MODULE DISPOSAL PROCEDURE

- Before a vehicle with an undeployed air bag module is scrapped, the air bag **must be deployed** following the procedure shown below.
- If the **SST** necessary for deployment of the air bag module is not available, consute the nearest Mazda representative for assistance.
- Never dispose of a live air bag module.
- When disposing of a previously deployed or self deployed air bag module, observe the following procedures.

Cautions on Air Bag Module Disposal

1. Before dispose of an undeployed air bag module, be sure to deploy it following "Procedure" shown below.
2. Deployment must be done in a safe, open space, avoiding strong winds.
3. Use the **SST (deployment tool)** for deployment and stand at least 6 m (20 ft) away from the air bag module during deployment as it deploys with a loud sound.
4. Do not touch the air bag module for at least 15 minutes after deployment; it is very hot.
5. Do not pour water on the deployed air bag module.
6. When handling a deployed air bag module, wear gloves and safety glasses.
7. Place the deployed air bag module in a vinyl bag and seal it for disposal.
8. Wash your hands after the disposal operation is finished.

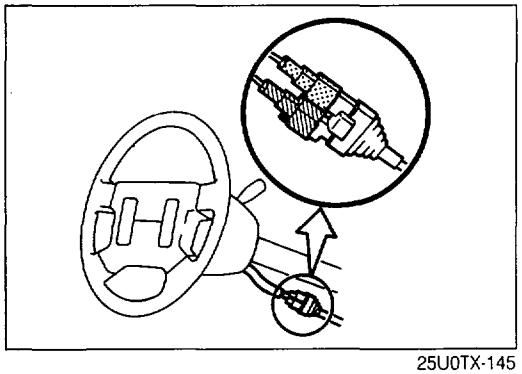
25U0TX-143



25U0TX-144

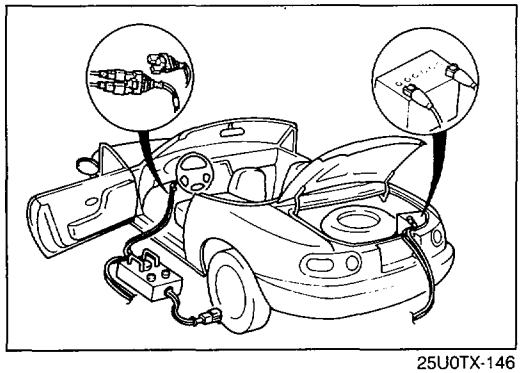
Procedure

1. Locate the vehicle in a safe, open space, and open all of the vehicle's doors.
2. Disconnect the negative battery cable.



25U0TX-145

3. Verify that the air bag module is firmly mounted to the steering wheel.
4. Remove the lower panel and the lap duct.
5. Disconnect the clock spring connector.

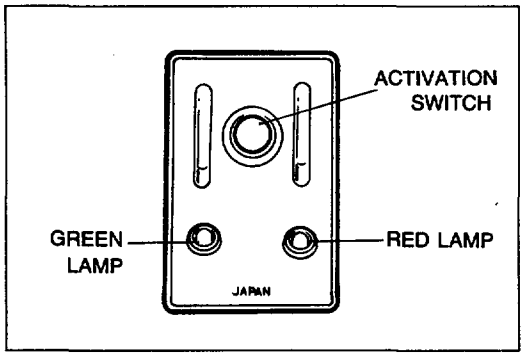


25U0TX-146

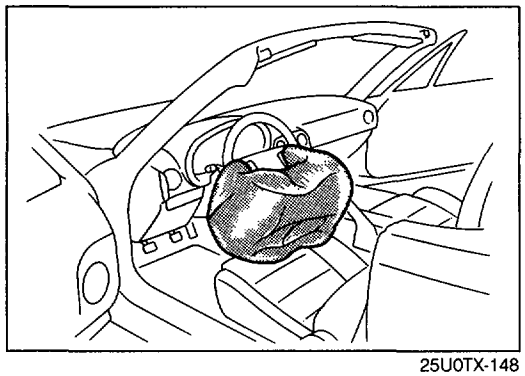
Caution

- **Before connecting the SST (deployment tool), be sure to inspect it for proper operation. (Refer to page T–176.)**

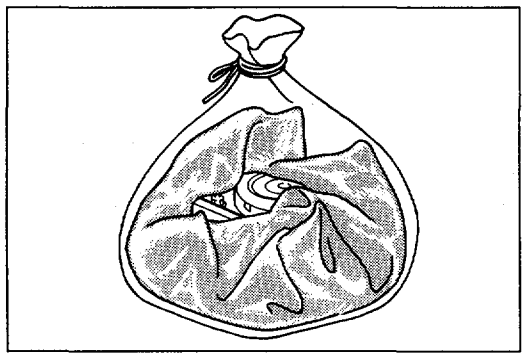
6. Connect the **SST** to the clock spring connector as shown in the figure.



25U0TX-147



25U0TX-148



25U0TX-149

7. Connect the **SST** to the battery. (Connect the red clip to the positive battery terminal and the black clip to the negative battery terminal.)
8. Verify that the red lamp of the **SST** illuminates.

Warning
- **Before pressing the switch of the SST, verify that all persons are clear of the vehicle.**
- **Stand at least 6 m (20 ft) away from the air bag module during deployment as it deploys with a loud sound.**

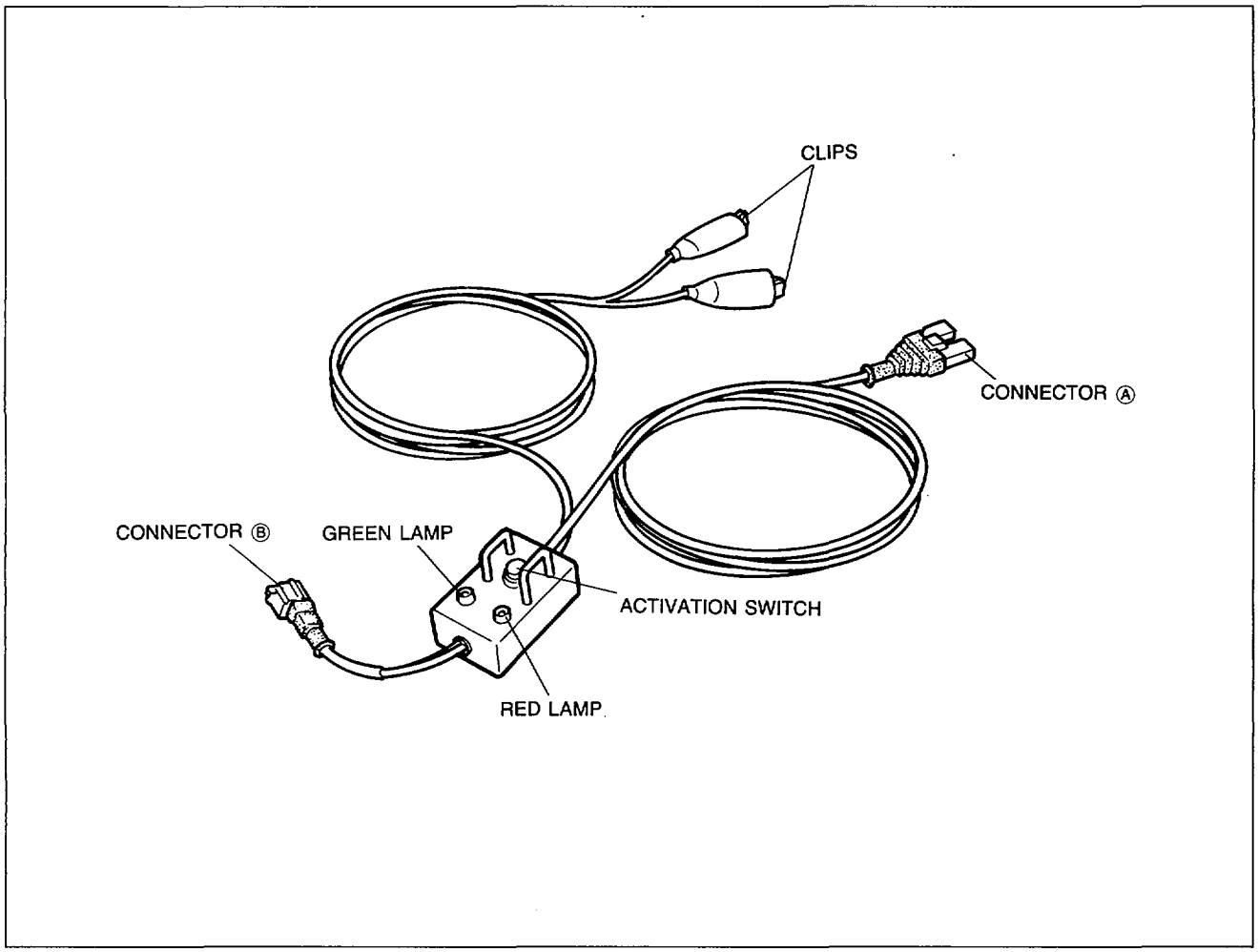
9. Press the switch of the **SST** and deploy the air bag.

Disposal of deployed air bag module
Wrap the deployed air bag module in a vinyl bag, seal it, then dispose of it.

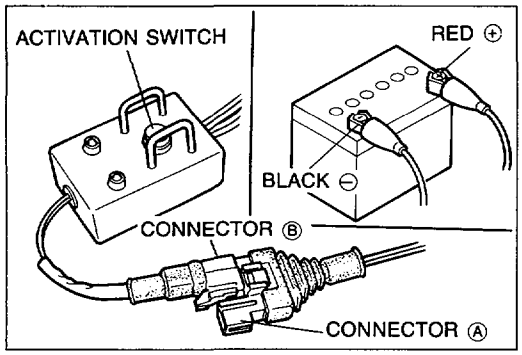
Caution
- **Do not touch the deployed air bag module for at least 15 minutes; it is very hot.**
- **Do not pour water on the deployed air bag module.**
- **When handling the deployed air bag module wear gloves and safety glasses.**
- **Wash your hands after the disposal operation is finished.**

Inspection of SST (Deployment/Tool)

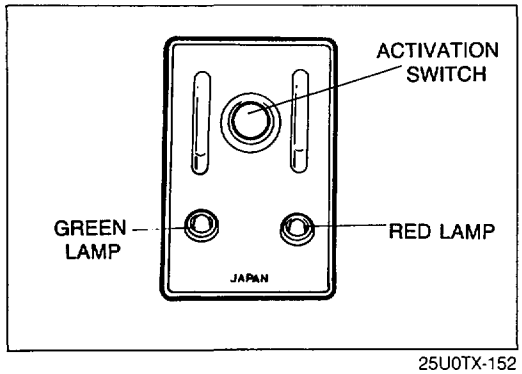
- Use the **SST (deployment tool)** to deploy a live air bag module before disposing of it.
- Before connecting the **SST** to the clock spring connector, inspect operation of the **SST**.



25U0TX-150



25U0TX-151



25U0TX-152

Inspection procedure

1. Connect the **SST** to the battery.
   Connect the red clip to the positive battery terminal and the black clip to the negative battery terminal.
   Verify that the green lamp of the **SST** illuminates.
2. Connect connectors A and B of the **SST** as shown in the figure. Verify that the red lamp of the **SST** illuminates.
3. Press the activation switch.
   Note the condition of the lamps.

Lamp	SST
Green lamp ON	Normal
Red lamp ON	No good

4. If the **SST** was judged no good, do not use it.

Before beginning any service procedure, refer to Section T of this manual for airbag system warnings and cautions.

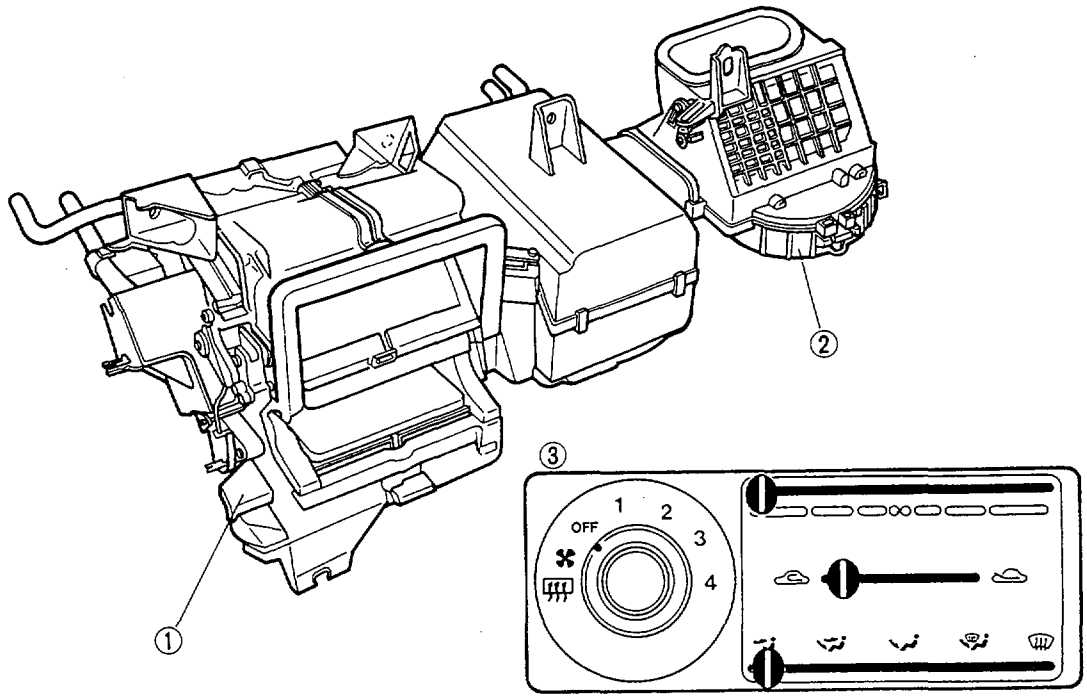
HEATER AND AIR CONDITIONER SYSTEMS

INDEX ..... **U– 2**
HEATER ..... **U– 2**
AIR CONDITIONER ..... **U– 3**
TROUBLESHOOTING GUIDE ..... **U– 4**
CIRCUIT DIAGRAM ..... **U– 4**
ELECTRICAL TROUBLESHOOTING TOOLS. **U– 6**
GENERAL PRECAUTION ..... **U– 6**
HEATER **U–18**
STRUCTURAL VIEW **U–18**
HEATER UNIT **U–19**
BLOWER UNIT **U–21**
HEATER CONTROL SWITCH ASSEMBLY **U–23**
AIR CONDITIONER **U–26**
PREPARATION **U–26**
STRUCTURAL VIEW **U–26**
REFRIGERANT SYSTEM **U–27**
REFRIGERANT SYSTEM OPERATION PROCEDURE **U–28**
COOLING UNIT **U–34**
CONDENSER AND RECEIVER/DRIER **U–37**
REFRIGERANT LINES **U–39**
CONDENSER FAN **U–40**
A/C RELAY **U–41**
REFRIGERANT PRESSURE SWITCH **U–41**
COMPRESSOR **U–42**

25U0UX-019

INDEX

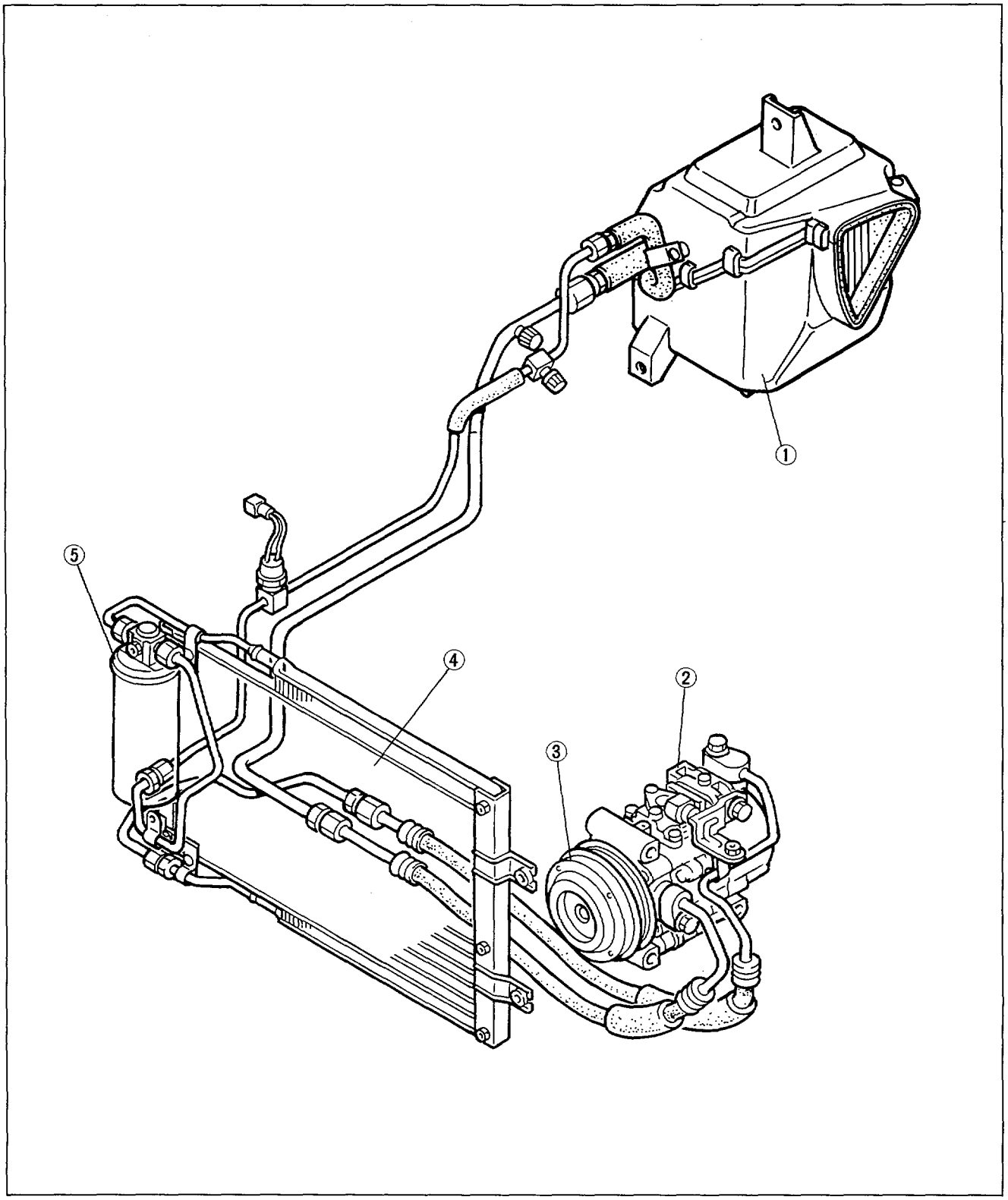
HEATER



15U0UX-002

1. Heater unit
Removal/Installation..... page U–19
Disassembly/Assembly..... page U–20
Inspection..... page U–20
2. Blower unit
Removal/Installation..... page U–21
Disassembly/Assembly..... page U–22
Inspection..... page U–22
3. Heater control switch assembly
Removal/Installation..... page U–23
Disassembly/Assembly..... page U–24
Inspection..... page U–25
Adjustment..... page U–25

AIR CONDITIONER

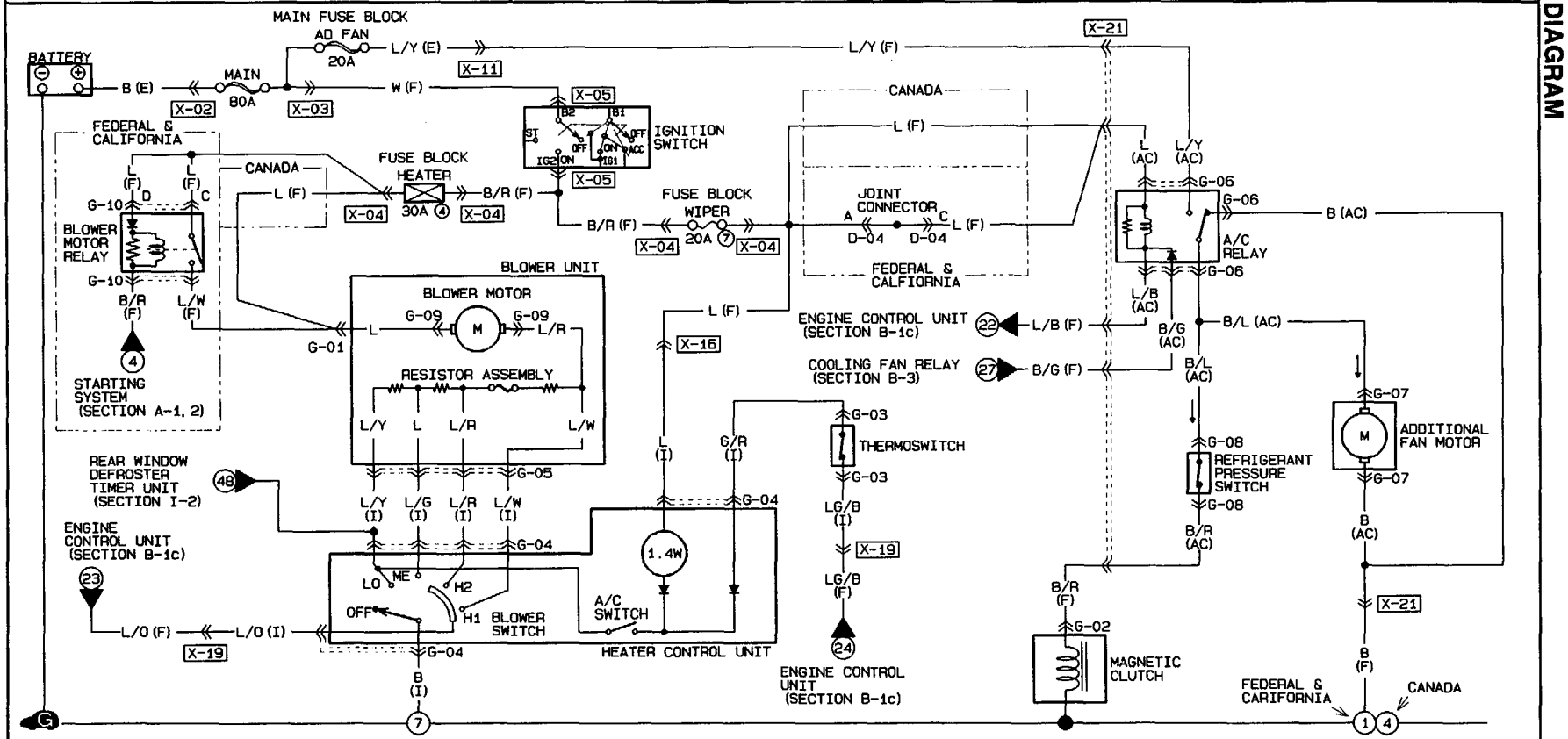


25U0UX-020

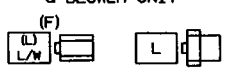
1. Cooling unit
   Removal / Installation..... page U–34
   Disassembly / Assembly..... page U–35
2. Compressor
   Removal / Installation..... page U–42
3. Magnetic clutch
   Disassembly / Assembly..... page U–43
4. Condenser
   Removal / Installation..... page U–37
5. Receiver / drier
   Removal / Installation..... page U–37

■ HEATER & AIR CONDITIONER

G



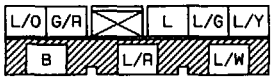
G-01 FRONT (F) & BLOWER UNIT



G-02 MAGNETIC CLUTCH (F)

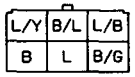
G-03 THERMOSWITCH (I)

G-04 HEATER CONTROL UNIT (I)

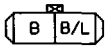


G-05 INSTRUMENT PANEL (I) & BLOWER UNIT

G-06 A/C RELAY (AC)



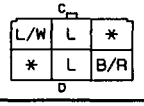
G-07 ADDITIONAL FAN MOTOR (AC)



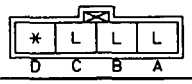
G-08 REFRIGERANT PRESSURE SWITCH (AC)

G-09 BLOWER MOTOR

G-10 BLOWER MOTOR RELAY (F)

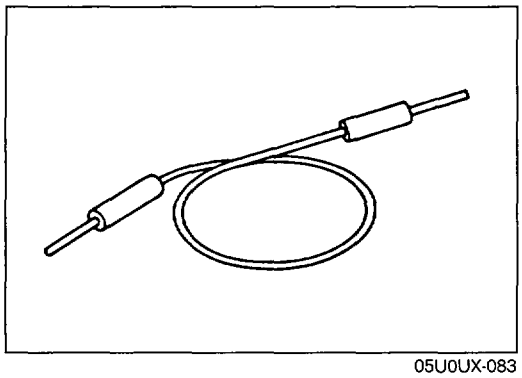


D-04 JOINT CONNECTOR (F)

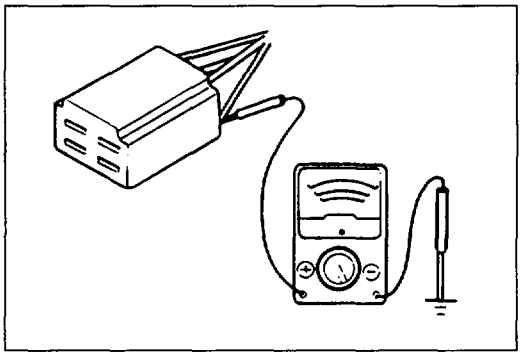


Symptom	Reference page
Blower motor does not operate	U–7
Magnetic clutch does not operate	U–9
Additional (condenser) fan does not operate	U–11
Insufficient cooling No cooling Intermittent cooling	U–12

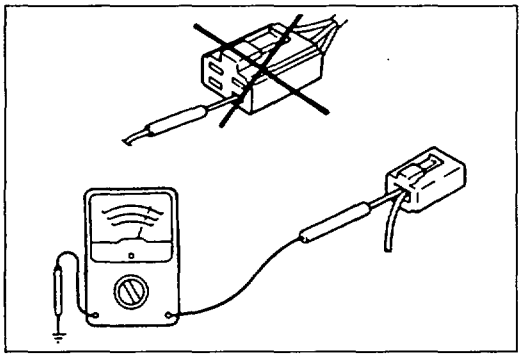
05U0UX-005



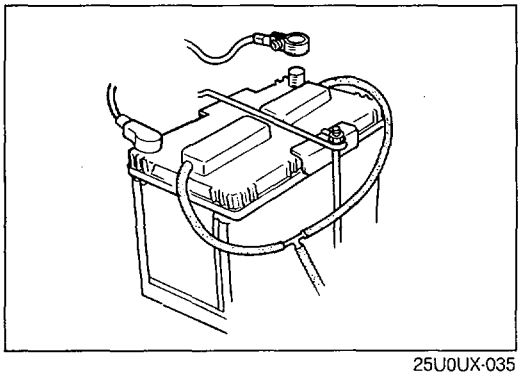
05U0UX-083



9MU0UX-009



9MU0UX-010



25U0UX-035

ELECTRICAL TROUBLESHOOTING TOOLS

Jumper Wire

The jumper wire is used for testing by short-circuiting switch terminals and to verify the condition of ground connections.

Caution

- **Do not connect the jumper wire between a power source and a body ground. Doing so may cause burning or other damage to harnesses and electronic components.**

Voltmeter

The DC voltmeter is used for measurement of circuit voltage. A voltmeter with a range of 15V or more must be used. It is used by connecting the positive (+) probe (red lead) to the point where voltage is to be measured and connecting the negative (–) probe (black lead) to a body ground.

Ohmmeter

The ohmmeter is used to measure the resistance between two points in a circuit, to check for continuity, and to diagnose short circuits.

Caution

- **Never connect the ohmmeter to any circuit to which voltage is applied. Doing so may burn or otherwise damage the ohmmeter.**

GENERAL PRECAUTION

Before Disconnecting Battery Cables

The optional audio unit has an anti-theft function that is activated when the battery power is disconnected. Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to page T–120.)

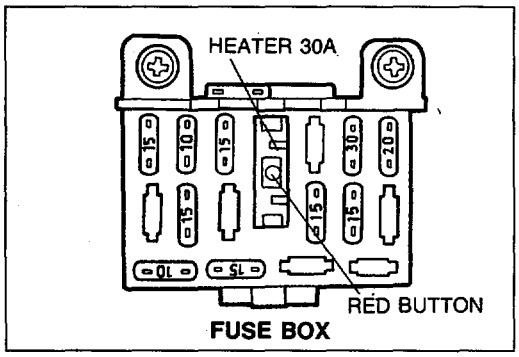
Symptom: Blower motor does not operate.

Normal operation of blower motor

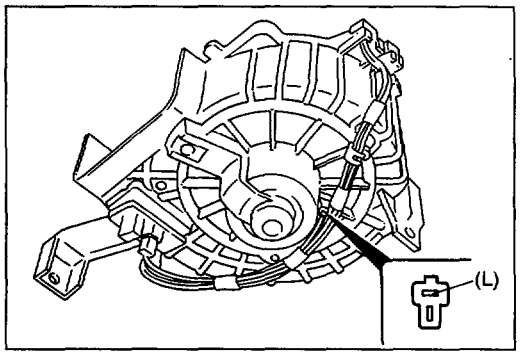
Blower motor speed is controlled by the blower switch and a resistor assembly in the blower unit. When the blower switch is in the OFF position, the motor ground circuit is open and the blower motor does not operate. When the switch is in the first (Low) position, current flow from the blower motor is restricted by the three resistors in the resistor assembly, and the blower motor turns at low speed.

Changing the blower switch to the second (Mid), third (High), or fourth (Super-high) position causes the circuit resistance to decrease, and the blower motor speed becomes correspondingly faster.

05U0UX-006



05U0UX-082



25U0UX-001

Step 1

1. Check the circuit breaker.

Circuit breaker	Amperage	Location
HEATER	30A	Fuse box

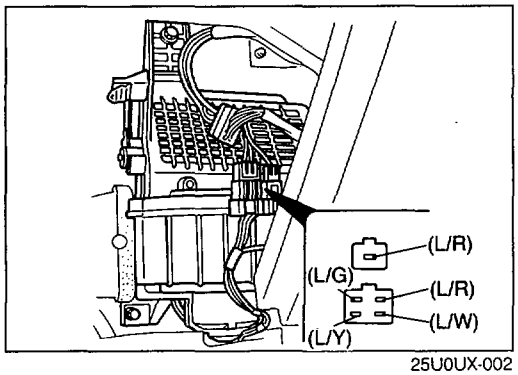
2. If the reset button is not out, go to Step 2.
3. If the reset button is out, check for a short circuit in the harness. Repair as necessary; then depress the reset button to reset the circuit breaker.

Step 2

1. Turn the ignition switch ON.
2. Turn the blower switch to the fourth position.
3. Measure the voltage at terminal-wire (L) of the blower motor connector.

VB: Battery voltage

Wire	Voltage	Action
(L)	VB	Go to Step 3
	0V	Repair wire harness (Circuit breaker—Blower motor)

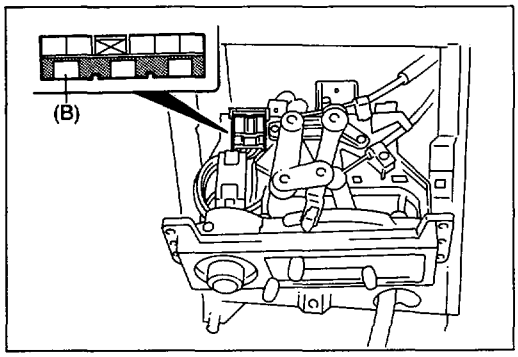


25U0UX-002

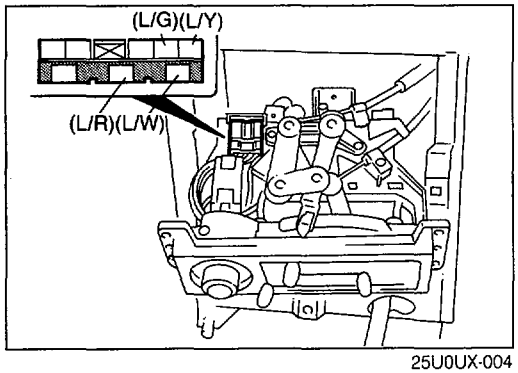
Step 3
1. Turn the ignition switch ON.
2. Turn the blower switch and A/C switch OFF.
3. Measure the voltage at the terminal-wires of the resistor assembly.

VB: Battery voltage

Wire	Voltage	Action
(L/R) (1-pin connector)	VB	Next, check wire (L/W)
	0V	Replace blower motor
(L/W)	VB	Next, check wire (L/R)
	0V	Replace resistor assembly
(L/R) (4-pin connector)	VB	Next, check wire (L/G)
	0V	Replace resistor assembly
(L/G)	VB	Next, check wire (L/Y)
	0V	Replace resistor assembly
(L/Y)	VB	Go to Step 4
	0V	Replace resistor assembly



25U0UX-003



25U0UX-004

Step 4
1. Turn the ignition switch ON.
2. Turn the blower switch to the fourth position.
3. Measure the voltage at terminal-wire (B) of the blower switch connector.

VB: Battery voltage

Wire	Voltage	Action
(B)	0V	Go to Step 5
	VB	Repair wire harness (Blower switch—Body ground)

Step 5
1. Turn the ignition switch ON.
2. Turn the blower switch and A/C switch OFF.
3. Measure the voltage at the terminal-wires of the blower switch connector.

VB: Battery voltage

Wire	Voltage	Action
(L/W)	0V	Repair wire harness (Resistor assembly—Blower switch)
	VB	Next, check wire (L/R)
(L/R)	0V	Repair wire harness (Resistor assembly—Blower switch)
	VB	Next, check wire (L/G)
(L/G)	0V	Repair wire harness (Resistor assembly—Blower switch)
	VB	Next, check wire (L/Y)
(L/Y)	0V	Repair wire harness (Resistor assembly—Blower switch)
	VB	Replace blower switch

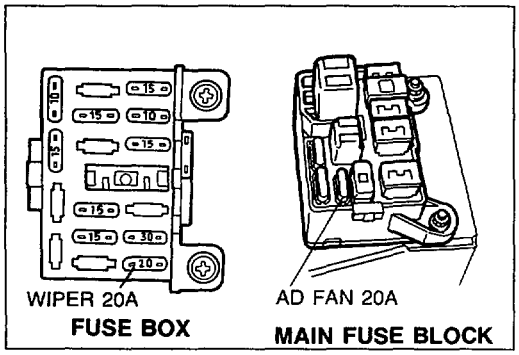
Symptom: Magnetic clutch does not operate.

Note
- **If the blower motor also does not operate, see "Blower motor does not operate"; page U–7.**

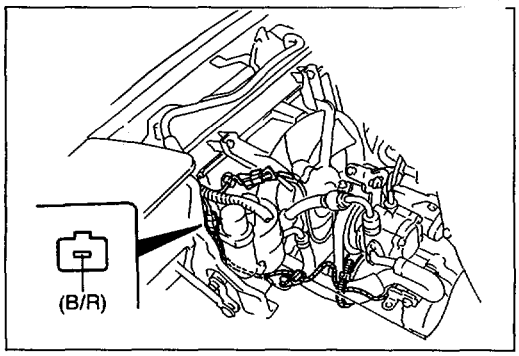
Normal operation of magnetic clutch
The magnetic clutch is supplied with battery voltage as shown:
1. A/C and blower switches are turned ON.
2. ECU receives signal that A/C and blower switches are ON and creates ground circuit.
3. A/C relay is magnetized and contact is closed.
4. Battery voltage is applied to magnetic clutch and clutch locks.

Note
- **The ECU also controls the additional fan and magnetic clutch operation depending on engine load. (Refer to Section F.)**

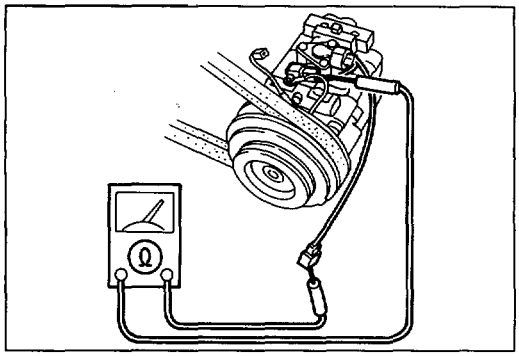
05U0UX-011



05U0UX-084



25U0UX-005



05U0UX-013

Step 1
1. Check the following fuses.

Fuse	Amperage	Location
WIPER	20A	In fuse box
AD FAN	20A	In main fuse block

2. If the fuses are OK, go to Step 2.
3. If a fuse is burned, check for a short circuit in the harness before replacing it.

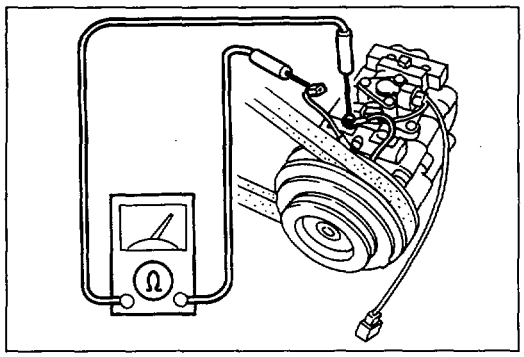
Step 2
1. Run the engine at idle.
2. Turn the A/C switch and blower switch ON.
3. Measure the voltage at terminal-wire (B/R) of the magnetic clutch connector.

VB: Battery voltage

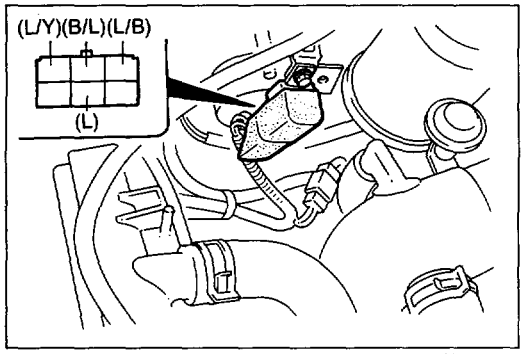
Wire	Voltage	Action
(B/R)	VB	Go to Step 3
	0V	Go to Step 5

Step 3
1. Disconnect the thermoswitch connector.
2. Check for continuity of the thermoswitch.

Continuity	Action
Yes	Go to Step 4
No	Replace thermoswitch



05U0UX-014



25U0UX-006

Step 4
1. Disconnect the magnetic clutch connector.
2. Check for continuity between the magnetic clutch connector and a body ground.

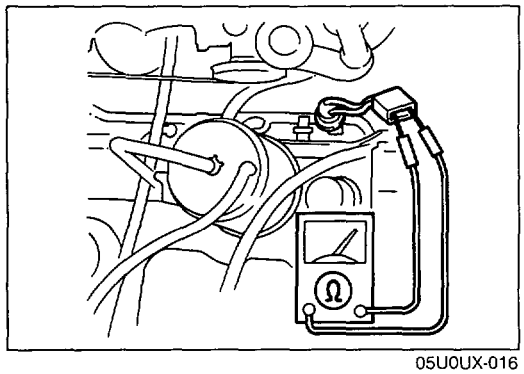
Note
- **Set the ohmmeter to x1,000 range.**

3. If there is no continuity, replace the magnetic clutch.
4. If there is continuity, adjust the magnetic clutch clearance or check the compressor for internal trouble.

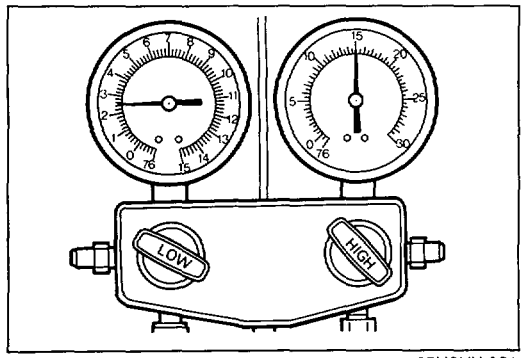
Step 5
1. Start the engine.
2. Turn the blower and A/C switches ON.
3. Measure the voltage at the following terminal-wires of the A/C relay connector.

VB: Battery voltage

Wire	Voltage	Action
(B/L)	VB	Go to Step 6
	0V	Next, check wire (L/Y)
(L/Y)	VB	Next, check wire (L/G)
	0V	Repair wire (L/G) (AD FAN 20A fuse—A/C relay)
(L)	VB	Next, check wire (L/B)
	0V	Repair wire (L/G) (WIPER 20A fuse—A/C relay)
(L/B)	VB	Check ECU terminal voltage
	0V	Replace A/C relay



05U0UX-016



25U0UX-021

Step 6
1. Disconnect the refrigerant pressure switch connector.
2. Check continuity of the refrigerant pressure switch.

Continuity	Action
Yes	Repair wiring harness (A/C relay—Refrigerant pressure switch—Magnetic clutch)
No	Go to Step 7

Step 7
1. Measure the refrigerant pressure. (Refer to page U–33.)

Normal pressure
Low-pressure side:
147—294 kPa (1.5—3.0 kg/cm^2, 21—43 psi)
High-pressure side:
1,177—1,619 kPa (12.0—16.5 kg/cm^2, 171—235 psi)

2. If not as specified, check the refrigerant system by referring to the troubleshooting information on page U–13.
3. If correct, replace the refrigerant pressure switch.

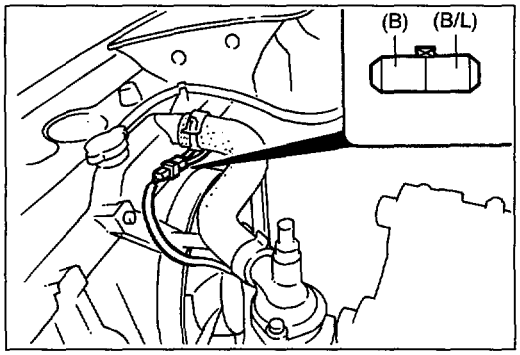
Symptom: Additional (condenser) fan does not operate.

Note
- **If the magnetic clutch also does not operate, see "Magnetic clutch does not operate"; page U–9.**

Normal operation of additional fan
The additional fan is supplied with battery voltage as shown:
1. A/C and blower switches are turned ON.
2. ECU receives signal that A/C and blower switches are ON and creates ground circuit.
3. A/C relay is magnetized and contact is closed.
4. Battery voltage is applied to additional fan and fan operates.

Note
- **The ECU also controls the additional fan and magnetic clutch operation depending on engine load. (Refer to Section F.)**

05U0UX-018



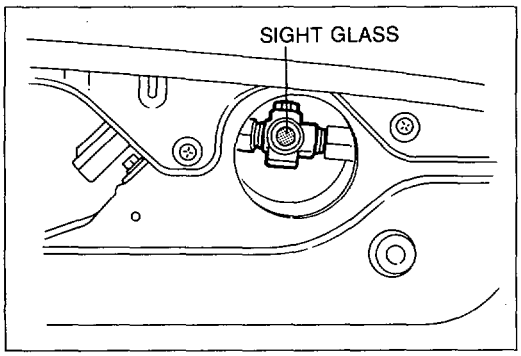
25U0UX-007

Remedy
1. Measure the voltage at the terminal-wire(s) of the additional fan.

VB: Battery voltage

Wire	Voltage	Action
(B/L)	VB	Next, check wire (B)
	0V	Repair wire (B/L) (A/C relay—Additional fan)
(B)	VB	Repair wire (B) (Additional fan—Body ground)
	0V	Replace additional fan

Symptom: Insufficient cooling.
No cooling.
Intermittent cooling.

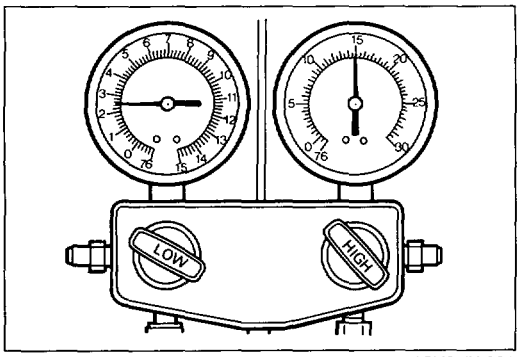


05U0UX-020

Step 1 Checking refrigerant charge
1. Run the engine at a fast idle.
2. Operate the air conditioner at maximum cooling for a few minutes.
3. Observe the sight glass to determine the amount of refrigerant and the related action as shown below.

Item	Symptom	Amount of refrigerant	Action
1	Bubbles present in sight glass	Insufficient refrigerant	Check refrigerant pressure, go to Step 2
2	No bubbles present in sight glass	Too much or proper amount of refrigerant	Turn air conditioner OFF, and watch bubbles (Refer to Items 3 and 4)
3	Immediately after air conditioner turned off, refrigerant in sight glass stays clear	Too much refrigerant	Check refrigerant pressure, go to Step 2
4	When air conditioner turned OFF, refrigerant foams, and then sight glass becomes clear	Proper amount of refrigerant	Refrigerant amount normal

9MU0UX-073

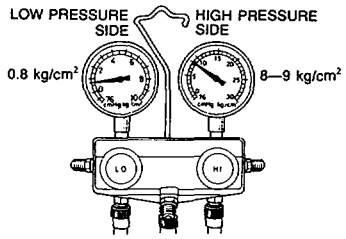
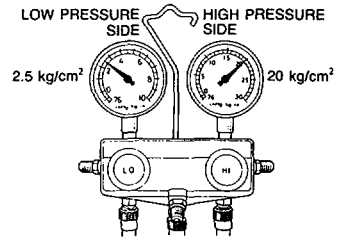
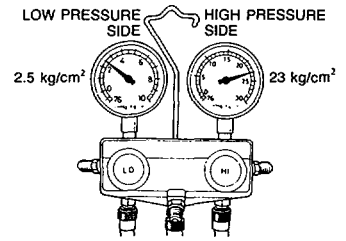
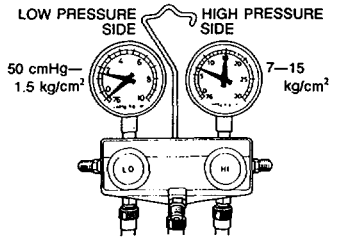
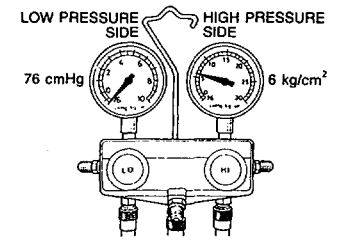
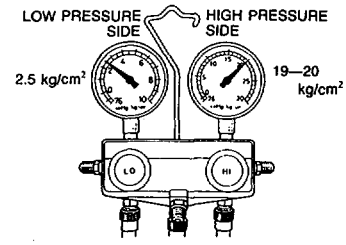
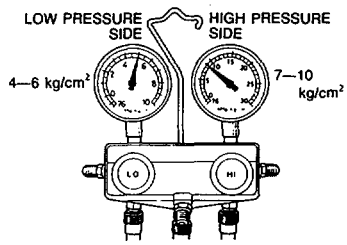


05U0UX-021

Step 2 Checking refrigerant pressure
1. Connect the A/C manifold gauge set.
2. Operate the engine at 2,000 rpm and set the air conditioner to maximum cooling.
3. Measure the refrigerant pressure.

Normal pressure
Low-pressure side:
147—294 kPa (1.5—3.0 kg/cm^2, 21—43 psi)
High-pressure side:
1,177—1,619 kPa (12.0—16.5 kg/cm^2, 171—235 psi)

4. If the pressures are not as specified, refer to the chart on the next page and check the system.

Measured pressure		Possible cause	Action
	Low side: Below 78.5 kPa (0.8 kg/cm², 11.4 psi) High side: 785—883 kPa (8—9 kg/cm², 114—128 psi)	Insufficient refrigerant	Case 1 (Refer to page U–14)
	Low side: Above 245 kPa (2.5 kg/cm², 35.6 psi) High side: Above 1,962 kPa (20 kg/cm², 284 psi)	Excessive refrigerant or insufficient condenser cooling	Case 2 (Refer to page U–15)
	Low side: Above 245 kPa (2.5 kg/cm², 35.6 psi) High side: Above 2,256 kPa (23 kg/cm², 327 psi)	Air in system	Case 3 (Refer to page U–15)
	Low side: 50 cmHg (2.0 inHg) of Vacuum—147 kPa (1.5 kg/cm², 21.3 psi) High side: 687—1,472 kPa (7—15 kg/cm², 100—213 psi)	Moisture in system	Case 4 (Refer to page U–16)
	Low side: 76 cmHg (3.0 inHg) of Vacuum High side: Below 589 kPa (6 kg/cm², 85 psi)	No refrigerant circulation	Case 5 (Refer to page U–16)
	Low side: Above 245 kPa (2.5 kg/cm², 35.6 psi) High side: 1,864—1,962 kPa (19—20 kg/cm², 270—284 psi)	Expansion valve stuck open	Case 6 (Refer to page U–17)
	Low side: 392—589 kPa (4—6 kg/cm², 57—85 psi) High side: 687—981 kPa (7—10 kg/cm², 100—142 psi)	Faulty compressor	Case 7 (Refer to page U–17)

Case 1: Insufficient refrigerant

Measured pressure

Low-pressure side: Less than 78.5 kPa (0.8 kg/cm^2, 11.4 psi)

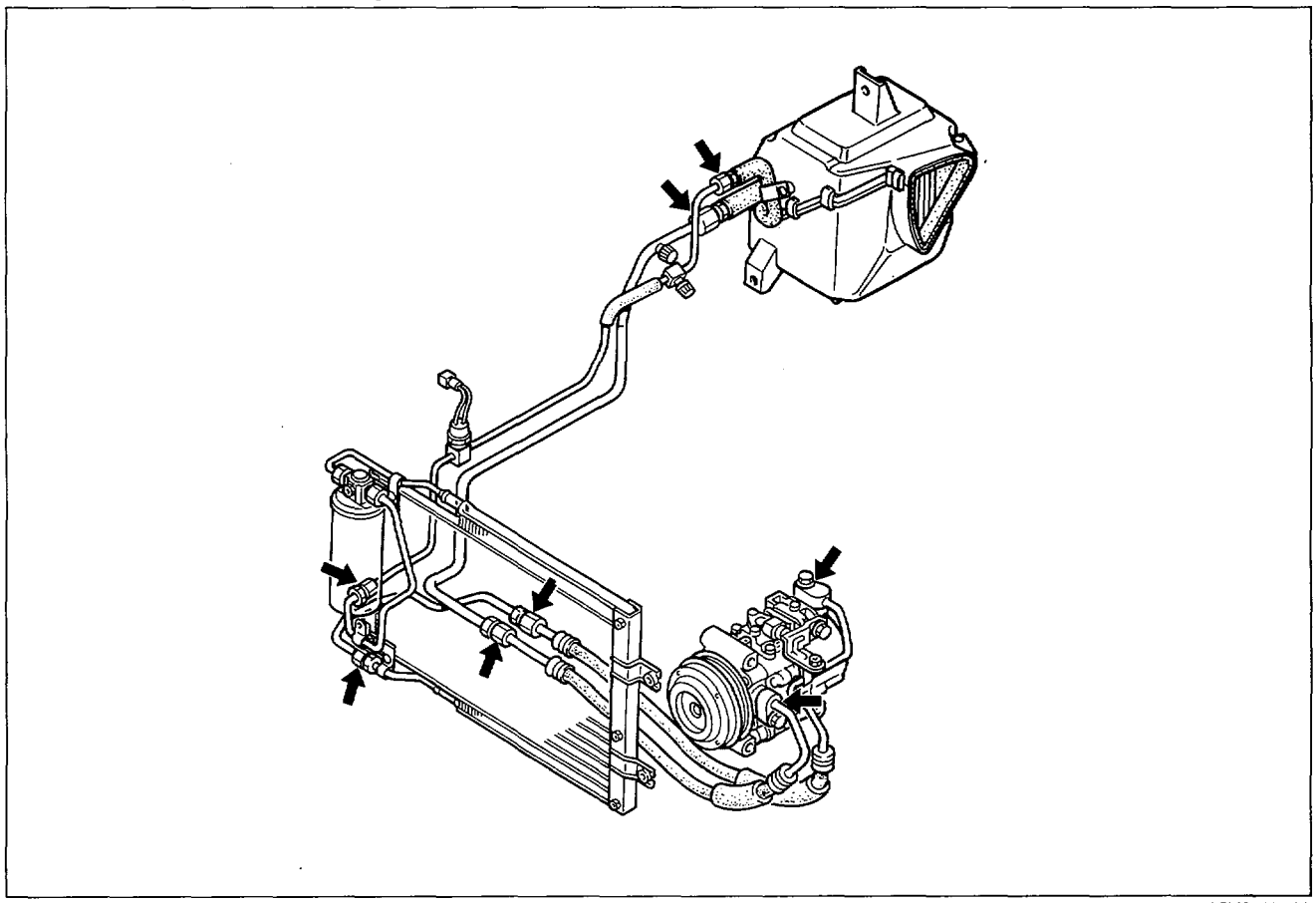
High-pressure side: 785—883 kPa (8—9 kg/cm^2, 114—128 psi)

Condition

- **Outlet air from vents not cold.**
- **Bubbles seen in sight glass.**

Step 1

1. Check for oil stains on the pipes, hoses and other parts. (Refer to illustration below.)
2. If oil staining is found at the connection of pipes or hoses, replace the O-ring; then, evacuate, charge, and test the system.
3. If oil staining is not found, go to Step 2.



05U0UX-023

Step 2

1. Check for leakage from the following connections with a gas leak tester.
   - Inlet and outlet of condenser.
   - Inlet and outlet of receiver/drier.
   - Inlet and outlet of compressor.
   - Sight glass.
   - Inlet and outlet of cooling unit.
2. If leakage is evident, go to Step 3.
3. If leakage cannot be found, evacuate, charge, and test the system. (System OK, but refrigerant leaked gradually over time.)

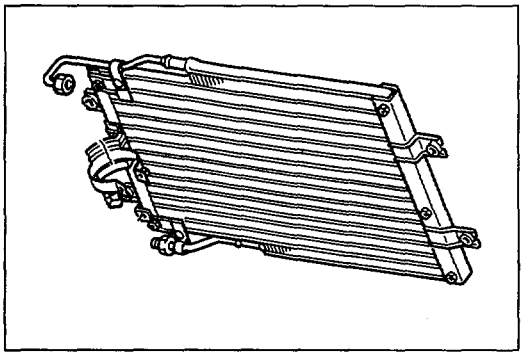
Step 3

1. Check tightening torque of the connection where leak was detected.
2. If the connection is loose, tighten the connection to the specified torque; then evacuate, charge, and test the system.
3. If the connection is properly tightened, replace the O-ring; then evacuate, charge, and test the system.

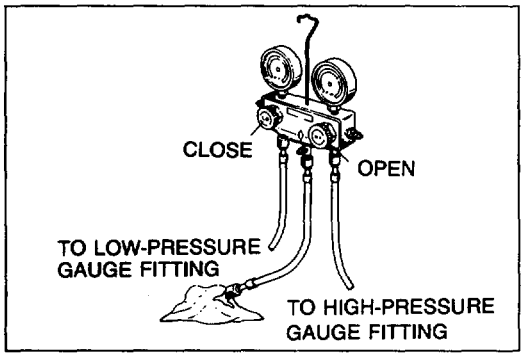
Case 2: Excessive refrigerant or insufficient condenser cooling
Measured pressure
Low-pressure side: Above 245 kPa (2.5 kg/cm^2, 35.6 psi)
High-pressure side: Above 1,962 kPa (20 kg/cm^2, 284 psi)
Condition
Insufficient cooling

Note
- **If the condenser fan does not operate when the air conditioner is operating, see "Additional (condenser) fan does not operate"; page U–11, before proceeding.**

05U0UX-024



9MU0UX-084



05U0UX-025

Step 1
1. Check the condenser for bent fins or damage. Repair or replace if necessary.
2. If the condenser is OK, go to Step 2.

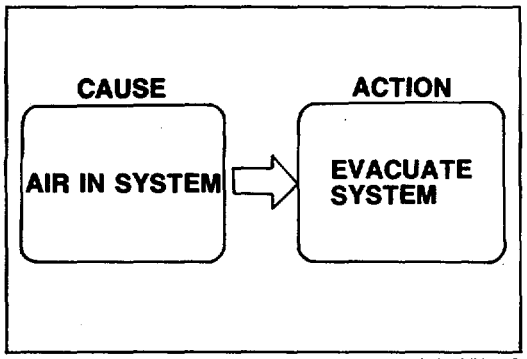
Step 2
1. Discharge the excessive refrigerant. (Refer to page U–28.)

Warning
- **Always wear gloves and eye protection when discharging the refrigerant.**

2. Verify that the refrigerant pressure is normal.

Case 3: Air in system
Measured pressure
Low-pressure side: Above 245 kPa (2.5 kg/cm^2, 35.6 psi)
High-pressure side: Above 2,256 kPa (23 kg/cm^2, 327 psi)
Condition
Insufficient cooling

05U0UX-085

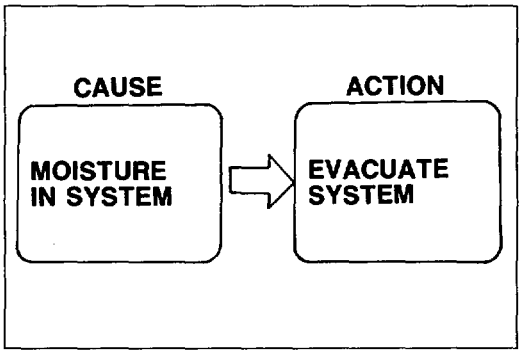


25U0UX-022

Step 1
Discharge the refrigeration system. (Refer to page U–28.)
Step 2
Evacuate the system to remove all air from it. (Refer to page U–28.)
Step 3
Charge the system with refrigerant. (Refer to page U–29.)
Step 4
After charging, measure the refrigerant pressure. (Refer to page U–33.)
Step 5
If low- and high-pressure sides are still too high, replace the receiver/drier.

Case 4: Moisture in system
Measured pressure
Low-pressure side: 50 cmHg (2.0 inHg): [Vacuum]
High-pressure side: 687—1,472 kPa (7—15 kg/cm^2, 100—213 psi)
Condition
Intermittent cooling
(Moisture in refrigeration system freezes in expansion valve and causes temporary blocking. After time, ice melts and condition returns to normal.)

05U0UX-086

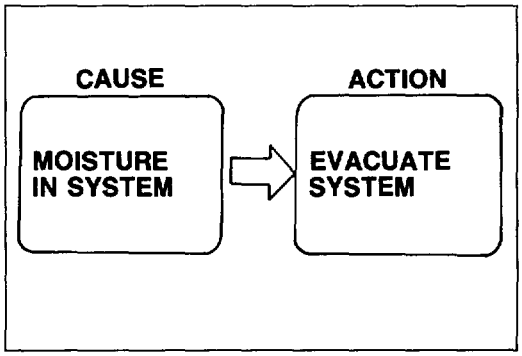


25U0UX-008

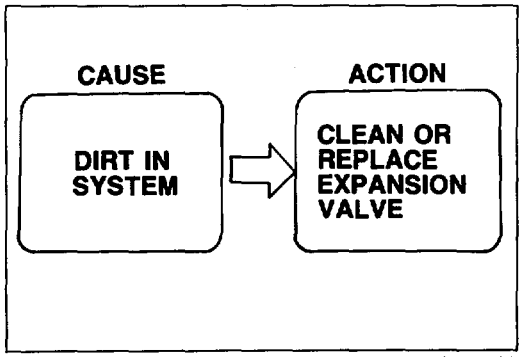
Step 1
Discharge the refrigeration system. (Refer to page U–28.)
Step 2
Evacuate the system to remove all air and moisture from it. (Refer to page U–28.)
Step 3
Charge the system with refrigerant. (Refer to page U–29.)
Step 4
After charging, measure the refrigerant pressure. (Refer to page U–33.)
Step 5
If low- and high-pressure sides are still too high, replace the receiver/drier.

Case 5: No refrigerant circulation
Measured pressure
Low-pressure side: 76 cmHg (3.0 inHg) [Vacuum]
High-pressure side: Below 589 kPa (6 kg/cm^2, 85 psi)
Condition
Refrigerant flow obstructed by moisture or dirt, causing freezing or blockage of expansion valve

05U0UX-087



25U0UX-009



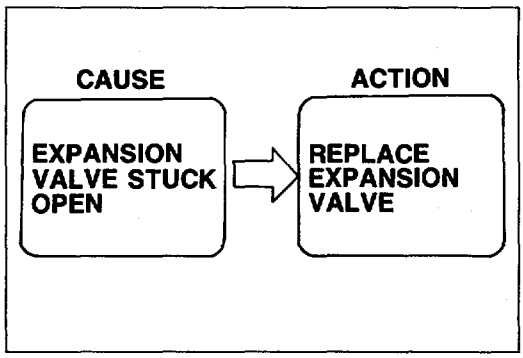
25U0UX-023

Step 1
Turn the air conditioner OFF for about 10 minutes. Turn the air conditioner ON to determine whether the blockage is due to moisture or dirt.
a) If caused by moisture
System will operate normally after being OFF for 10 minutes. (Ice melts and relieves blockage.)
Refer to "Moisture in system"; page U–16.
b) If caused by dirt
System remains abnormal after being OFF 10 minutes.
Go to Step 2.

Step 2
1. Remove the expansion valve. (Refer to page U–35.)
2. Blow out the dirt with compressed air.
3. If unable to remove the dirt, replace the expansion valve.
4. Evacuate, charge, and test the system.

Case 6: Expansion valve stuck open
Measured pressure
Low-pressure side: Above 245 kPa (2.5 kg/cm^2, 35.6 psi)
High-pressure side: 1,864—1,962 kPa (19—20 kg/cm^2, 270—284 psi)
Condition
Insufficient cooling

05U0UX-088

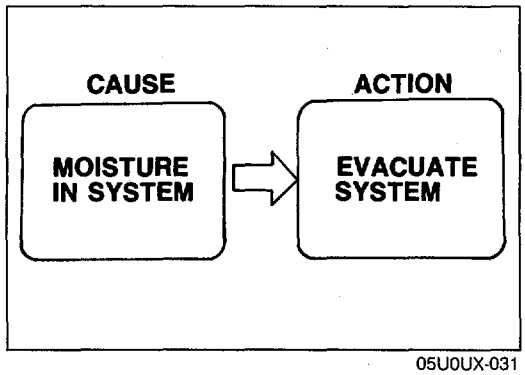


25U0UX-024

1. Check whether there is frost or heavy dew on the suction pipe (between cooling unit and compressor).
2. If neither is found, refer to "Excessive refrigerant or insufficient condenser cooling"; page U–15.
3. If either is found, replace the expansion valve. (Refer to page U–35.)

Case 7: Faulty compressor
Measured pressure
Low-pressure side: 392—589 kPa (4—6 kg/cm^2, 57—85 psi)
High-pressure side: 687—981 kPa (7—10 kg/cm^2, 100—142 psi)
Condition
No cooling

05U0UX-089

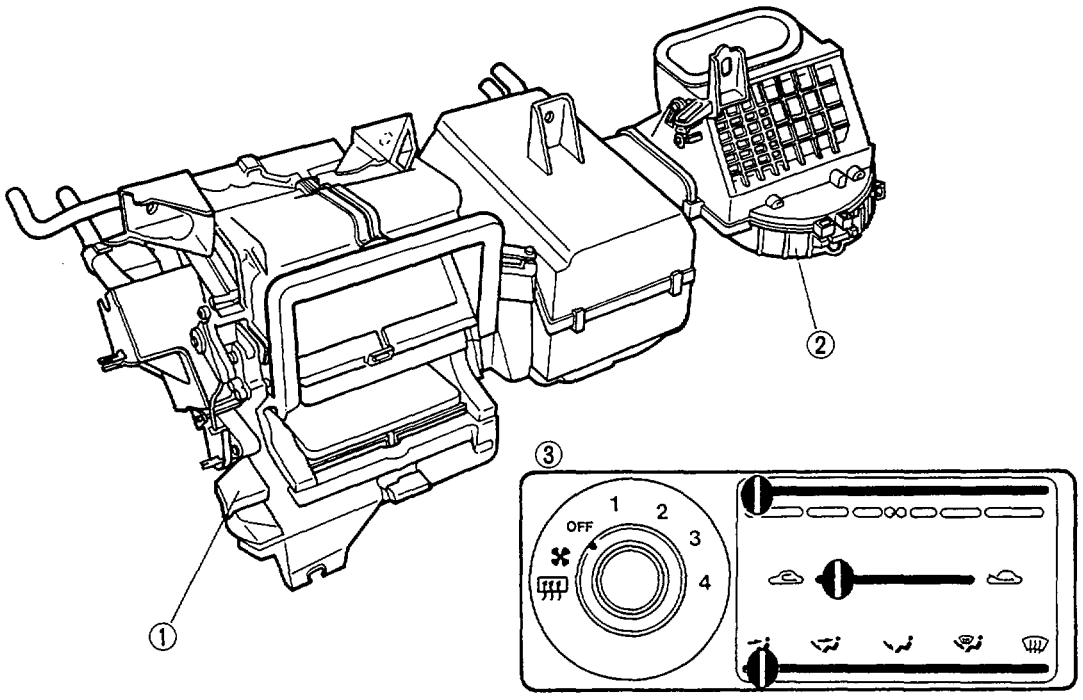


05U0UX-031

1. Run the engine at a first idle.
2. Verify that the magnetic clutch is ON when the A/C switch and blower switch are ON.
3. If the magnetic clutch remains OFF, refer to "Magnetic clutch does not operate"; page U–9.

HEATER

STRUCTURAL VIEW



15U0UX-005

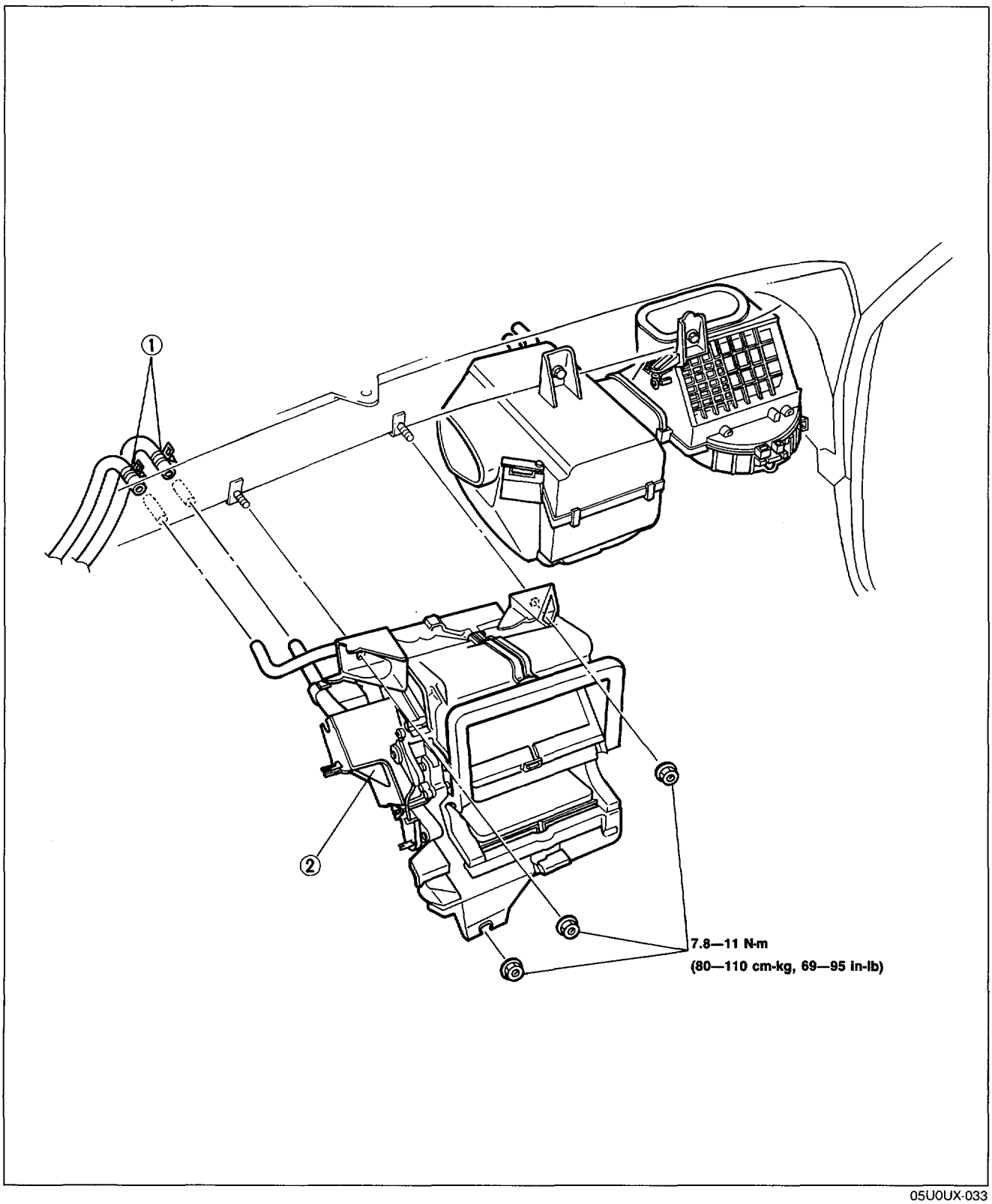
1. Heater unit
   - Removal / Installation..... page U–19
   - Disassembly / Assembly..... page U–20
   - Inspection..... page U–20
2. Blower unit
   - Removal / Installation..... page U–21
   - Disassembly / Assembly..... page U–22
   - Inspection..... page U–22
3. Heater control switch assembly
   - Removal / Installation..... page U–23
   - Disassembly / Assembly..... page U–24
   - Inspection..... page U–25
   - Adjustment..... page U–25

Note
- **Refer to Section E for engine coolant flow.**

HEATER UNIT

Removal / Installation

1. Remove the dashpanel. (Refer to Section S.)
2. Remove the heater unit as shown in the figure.
3. Install the heater unit in the reverse order of removal.
4. Install the dashpanel.

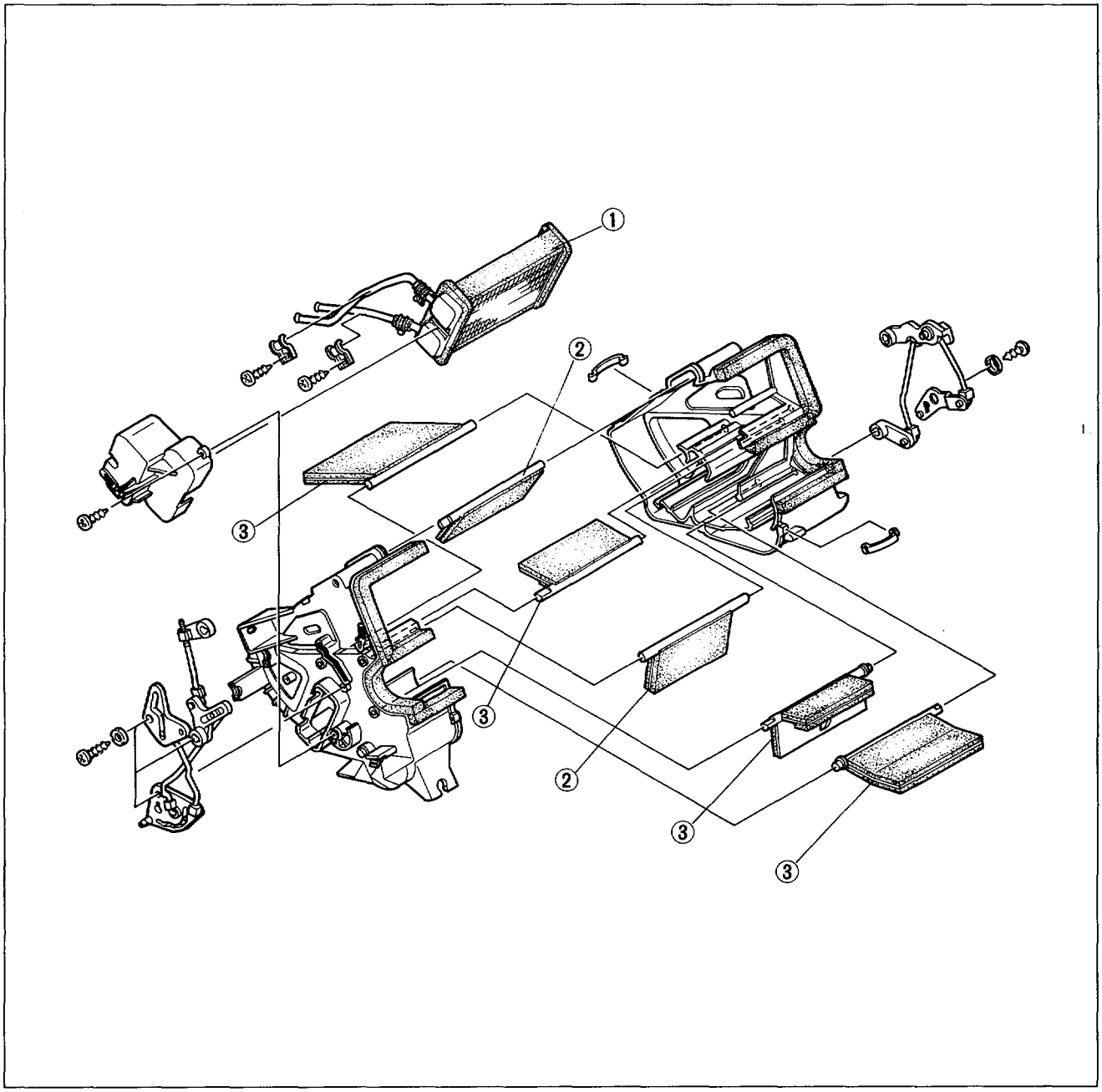


05U0UX-033

1. Heater hose
2. Heater unit

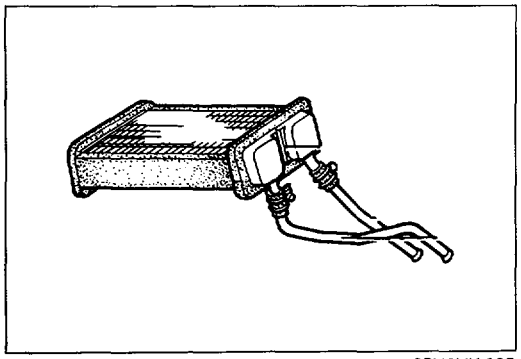
Disassembly / Assembly

Disassemble and assemble as shown in the figure.



05U0UX-034

1. Heater core
2. Temperature blend door
3. Airflow mode door



05U0UX-035

Inspection

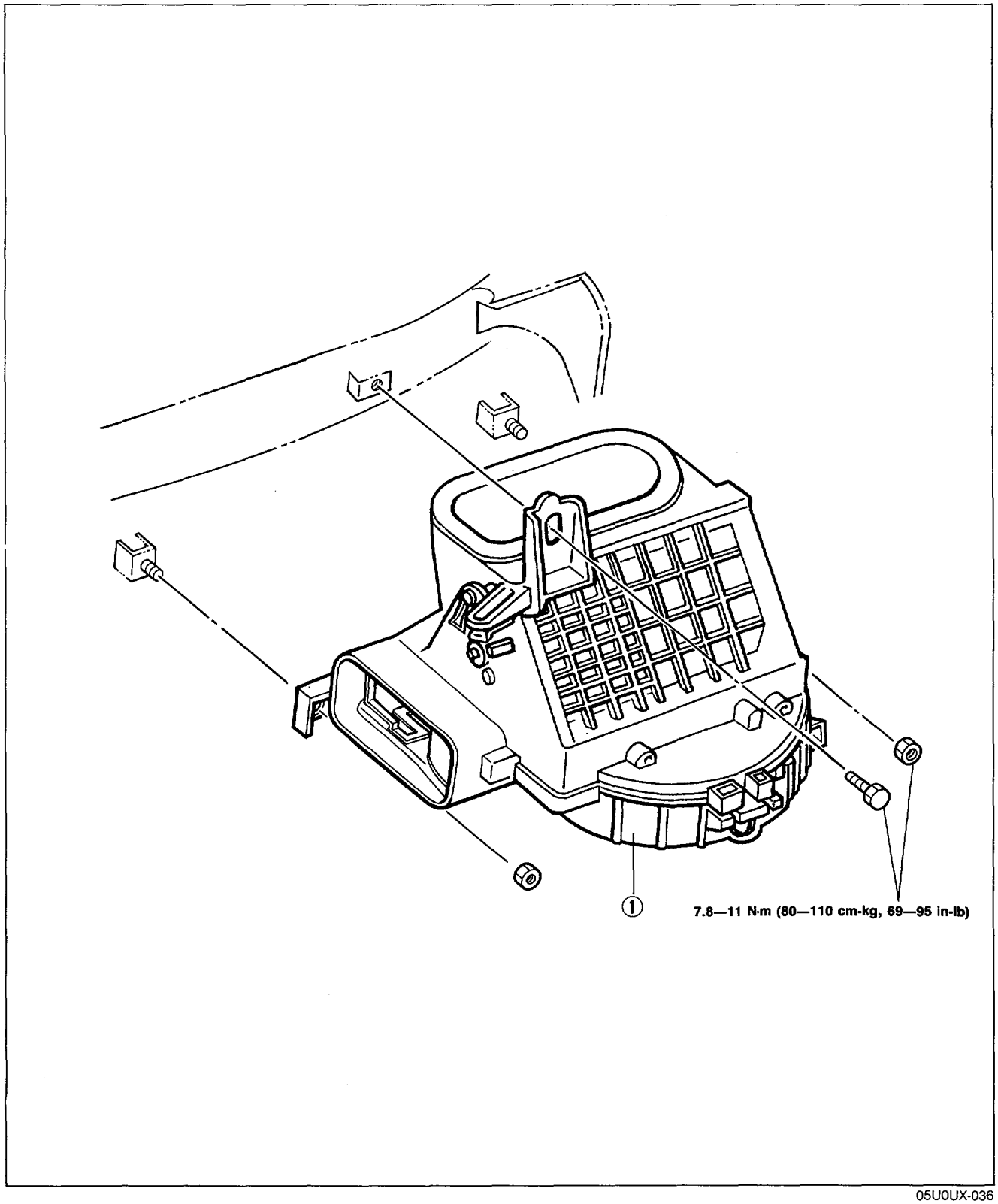
Heater core

1. Check the heater core fins for blockage.
2. If the fins are clogged, clean them.
3. Check the fittings for cracks or other damage. Replace the heater core if necessary.

BLOWER UNIT

Removal / Installation

1. Remove the glove box.
2. Remove the blower unit as shown in the figure.
3. Install the blower unit in the reverse order of removal.
4. Install the glove box.

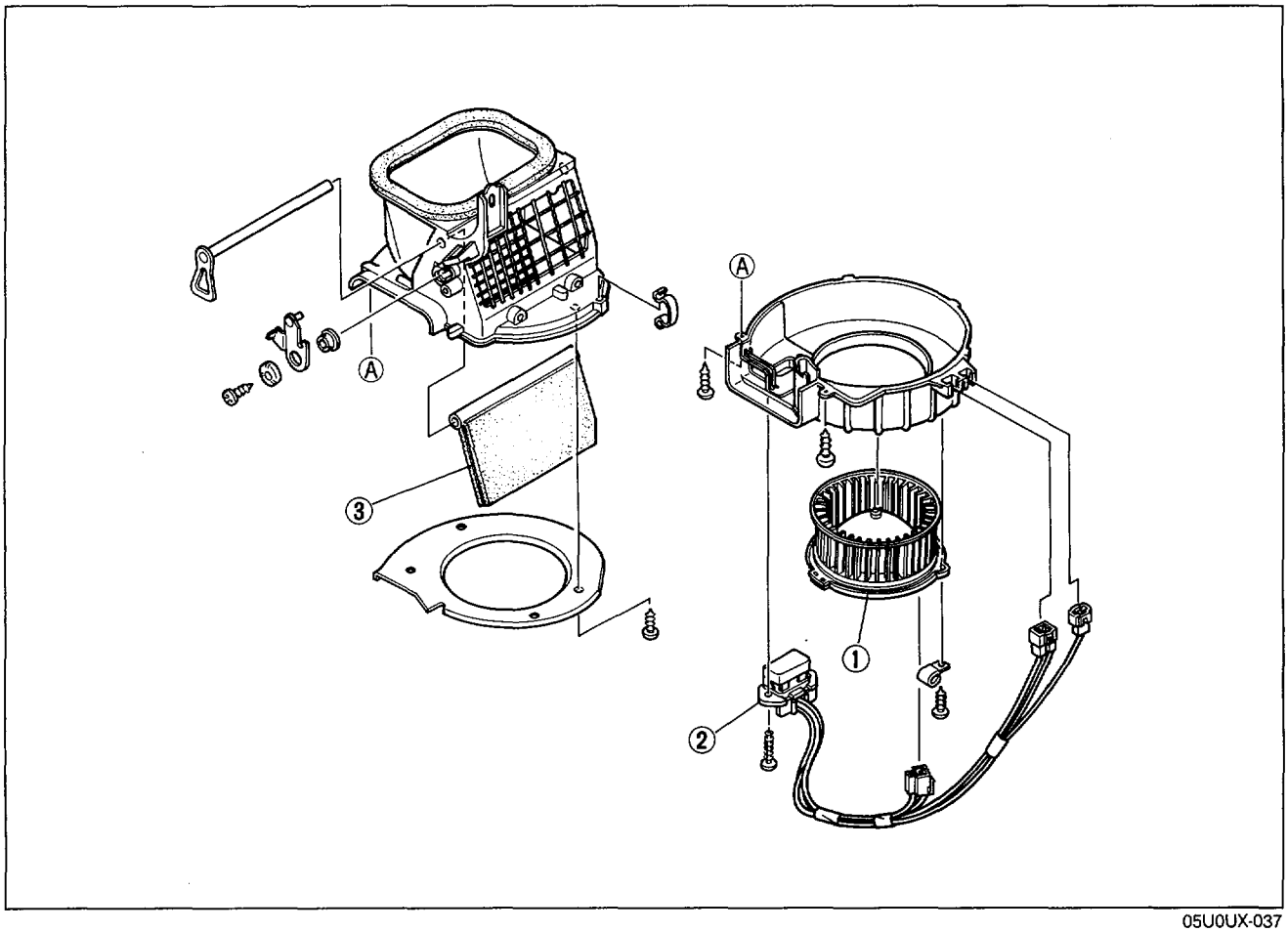


05U0UX-036

1. Blower unit

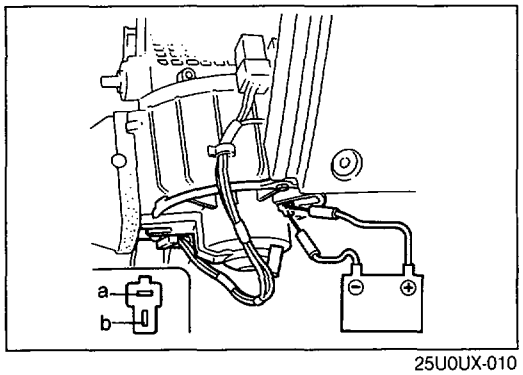
Disassembly / Assembly

Disassemble and assemble as shown in the figure.

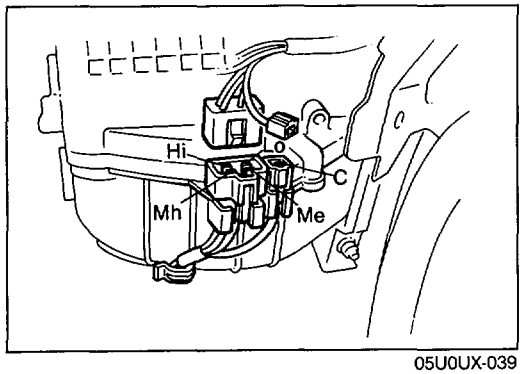


05U0UX-037

1. Blower motor
2. Resistor assembly
3. REC-FRESH door



25U0UX-010



05U0UX-039

Inspection

Blower motor

1. Verify that the blower motor runs when connecting battery voltage to terminal a and grounding terminal b.
2. If the blower motor does not run, replace it.

Resistor assembly

1. Check for continuity between terminals of the resistor assembly.

Terminals	Continuity
C—Lo	Yes
C—Me	Yes
C—Mh	Yes
C—Hi	Yes

Note

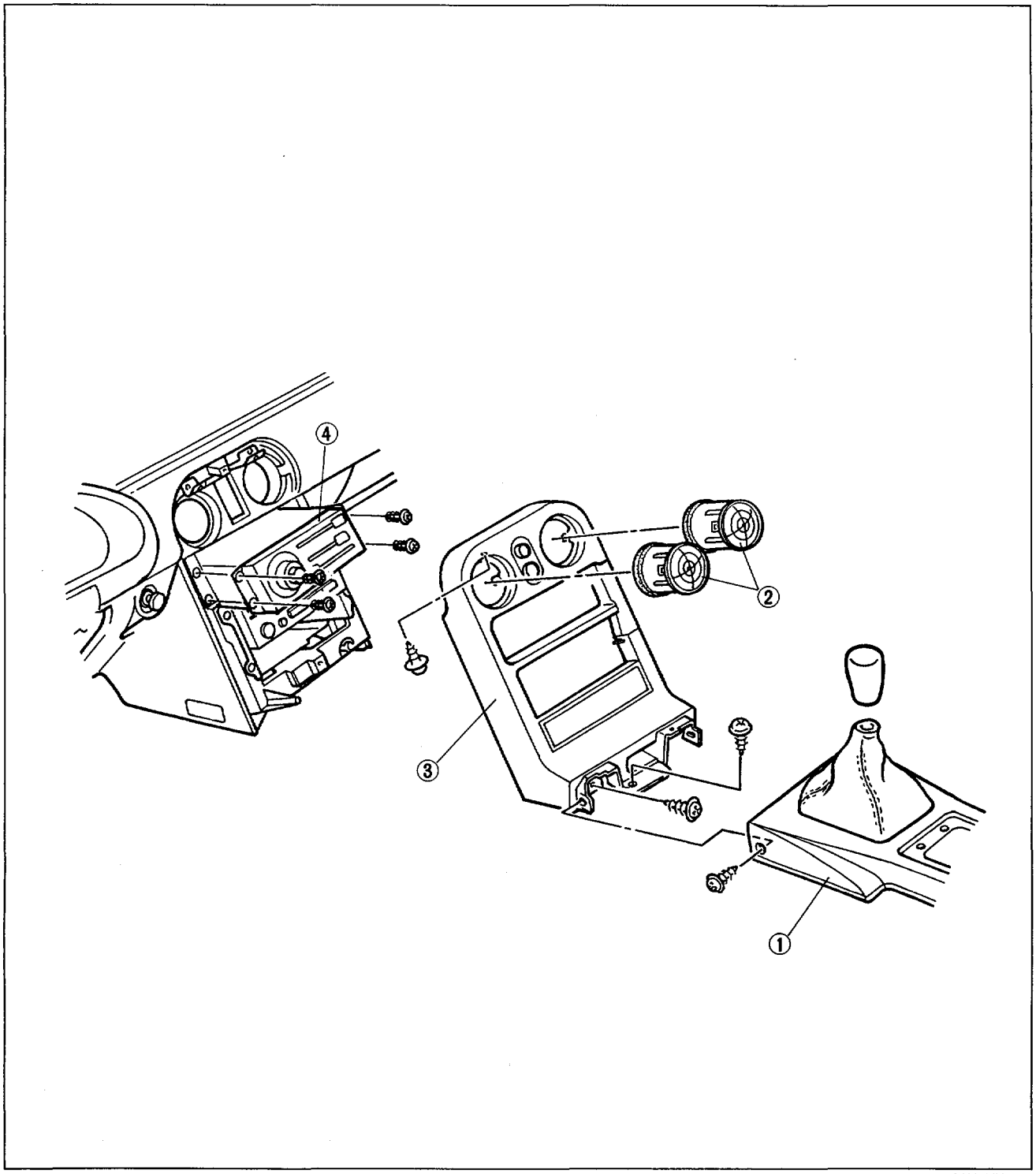
- **Set the ohmmeter to the ×1,000 range.**

2. If not as specified, replace the resistor assembly.

HEATER CONTROL SWITCH ASSEMBLY

Removal / Installation

Remove and install as shown in the figure.



25U0UX-011

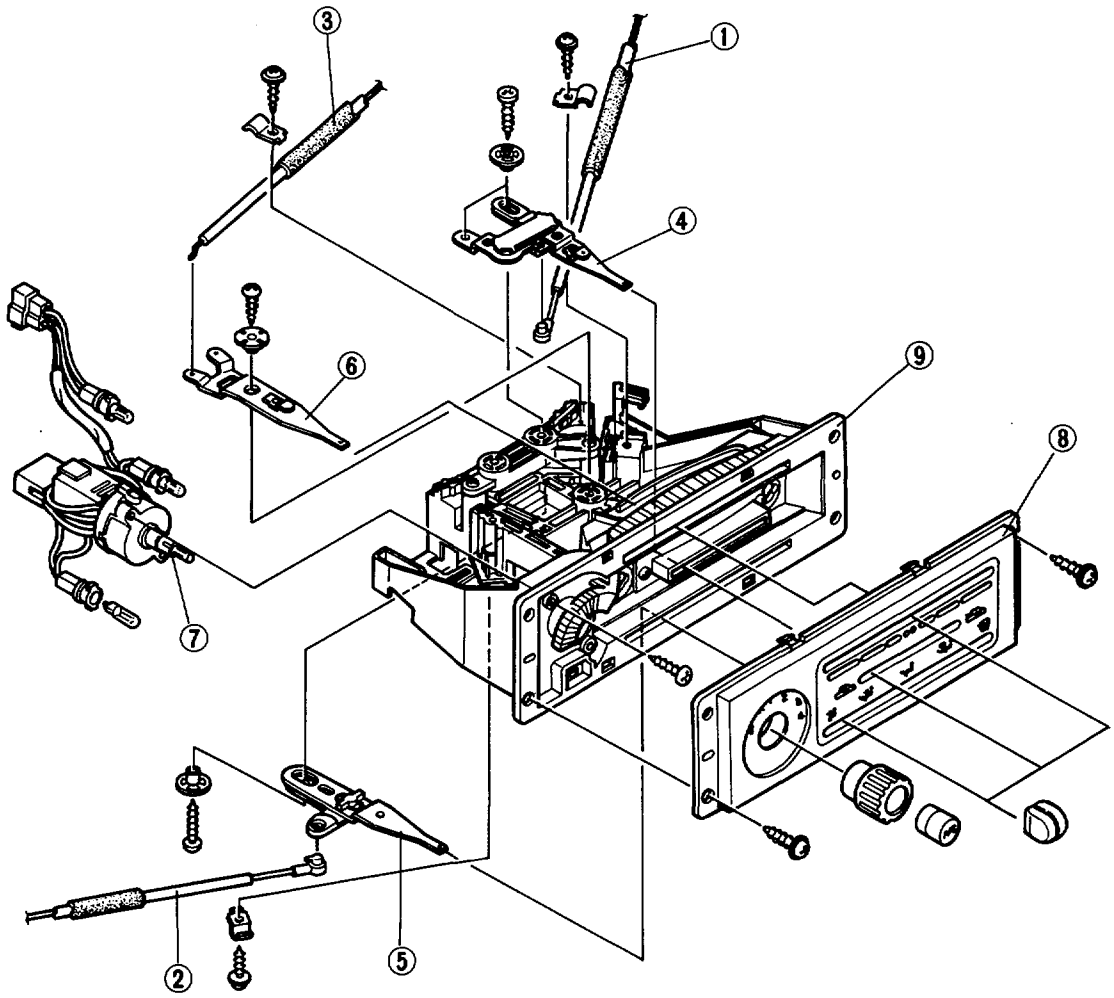
1. Center console
2. Vent outlet
3. Center panel assembly
4. Rec-Fresh wire

Installation note

- **When installing the heater control switch assembly, adjust the airflow mode, temperature blend, and Rec-Fresh wires. (Refer to page U–25.)**

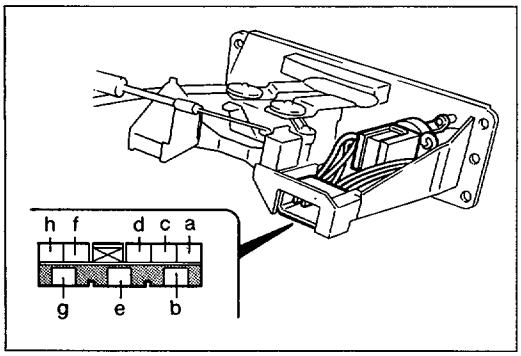
Disassembly / Assembly

Disassemble and assemble as shown in the figure.



05U0UX-041

1. Rec-Fresh wire
2. Airflow mode wire
3. Temperature blend wire
4. Rec-Fresh lever
5. Airflow mode lever
6. Temperature blend lever
7. Blower and A/C switch
8. Panel
9. Switch body



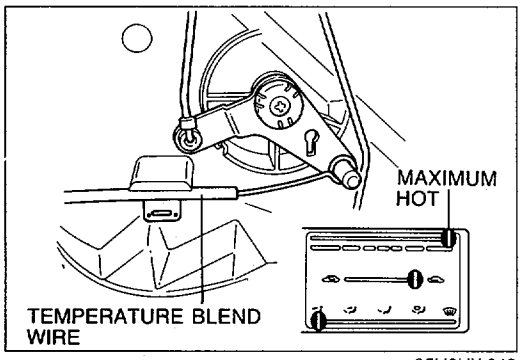
05U0UX-042

Inspection
Blower and A/C switch
1. Check continuity between terminals of the switch.

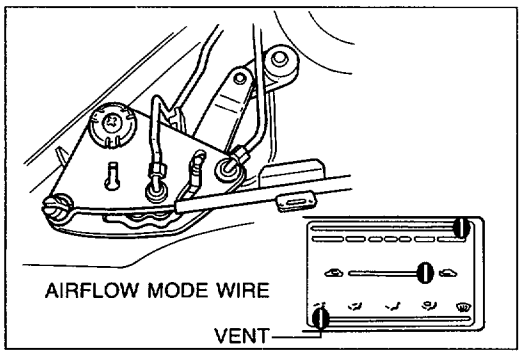
Position		Terminal							
		a	b	c	d	e	f	g	h
Blower switch	OFF								
	First	○						○	
	Second			○				○	○
	Third					○		○	○
	Fourth		○					○	○
A/C switch	OFF								
	ON	○		◀	○				
		○			◀		○		

○—○ : Indicates continuity
○—◀—○ : Indicates diode

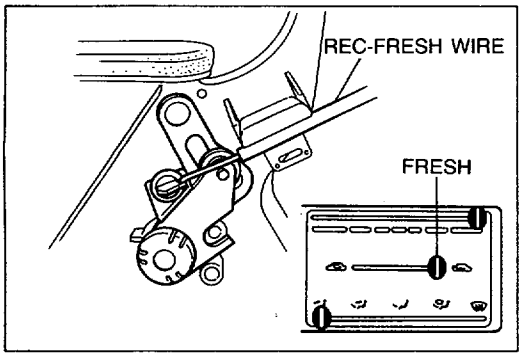
2. If not as specified, replace the switch.



05U0UX-043



9MU0UX-232



05U0UX-044

Adjustment
Temperature blend wire
1. Set the temperature blend lever to maximum hot position.
2. Connect and clamp the wire with the shutter lever on the heater unit all the way to the right.

Caution
- **After installation, move the temperature blend lever to be sure the wire is securely attached and that it moves the full stroke from HOT to COLD.**

Airflow mode wire
1. Set the airflow mode control lever to VENT position.
2. Connect and clamp the wire with the shutter lever on the heater unit at its closest point.

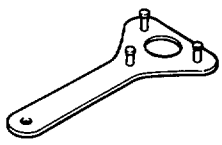
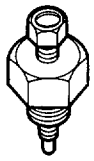
Caution
- **After installation, move the airflow mode control lever to be sure the wire is securely attached and that it moves the full stroke from DEF to VENT.**

Rec-Fresh wire
1. Set the Rec-Fresh lever to FRESH position.
2. Connect and clamp the wire with the shutter lever on the blower unit at its closest point.

Caution
- **After installation, move the Rec-Fresh lever to be sure the wire is securely attached and that it moves the full stroke from REC to FRESH.**

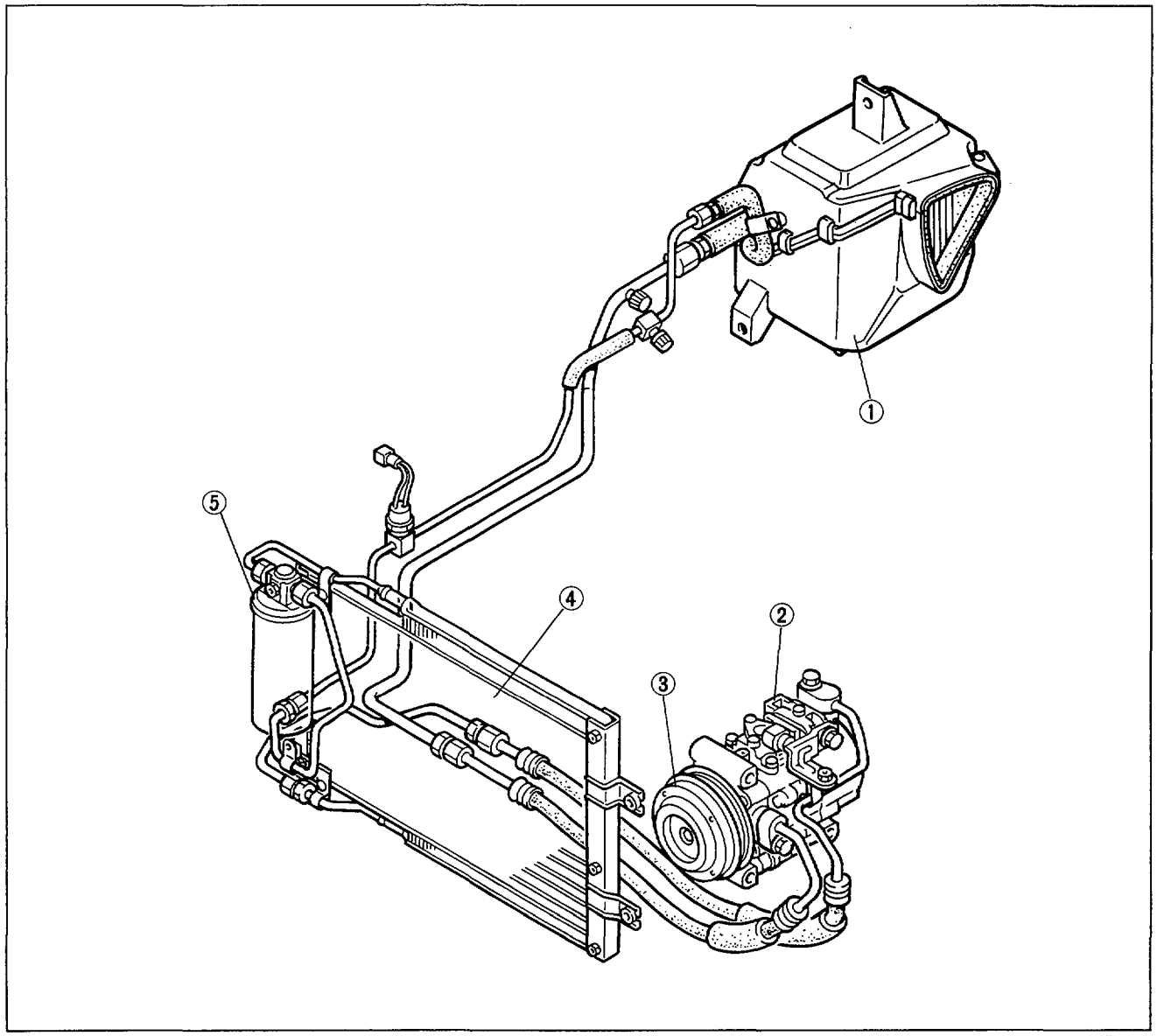
AIR CONDITIONER

PREPARATION
SST

00007-10331 Stopper, magnetic clutch 	For removal and installation of magnetic clutch	4992-02-020 Pressure plate remover 	For removal of pressure plate

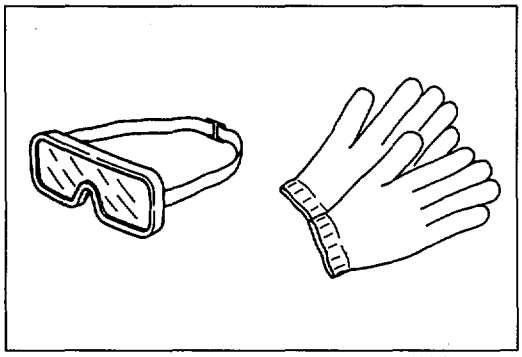
15U0UX-006

STRUCTURAL VIEW



25U0UX-025

1. Cooling unit
   Removal / Installation..... page U–34
   Disassembly / Assembly..... page U–35
2. Compressor
   Removal / Installation..... page U–42
3. Magnetic clutch
   Disassembly / Assembly..... page U–43
4. Condenser
   Removal / Installation..... page U–37
5. Receiver / drier
   Removal / Installation..... page U–37

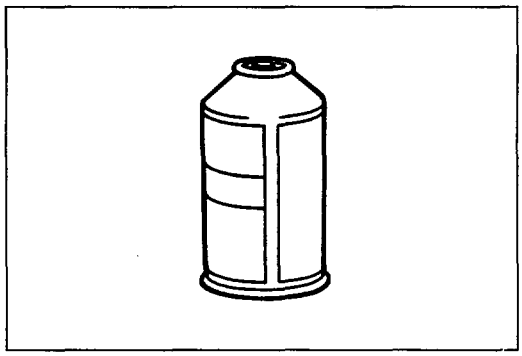


9MU0UX-125

REFRIGERANT SYSTEM

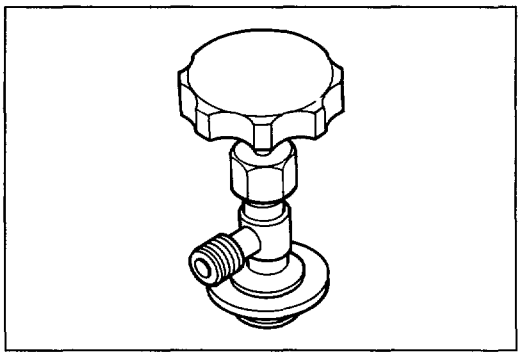
Safety Precaution

1. R-12 liquid refrigerant is highly volatile. A drop of it on the skin could result in localized frostbite. When handling the refrigerant, be sure to wear gloves.
2. If the refrigerant splashes into the eyes, wash them with clean water immediately. Always wear goggles or glasses to protect the eyes.



05U0UX-090

3. The R-12 container is a highly pressurized vessel. Never subject it to high heat, and be sure that the temperature where it is stored is below **52°C (125.6°F)**.
4. A halide leak detector is often used to check an A/C system for refrigerant leakage. Remember that R-12, upon coming into contact with the flame, produces phosgene, a toxic gas. Always provide adequate ventilation.

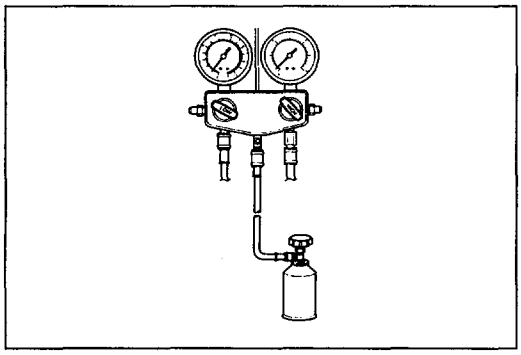


9MU0UX-127

Basic Procedure of Refrigerant System Service

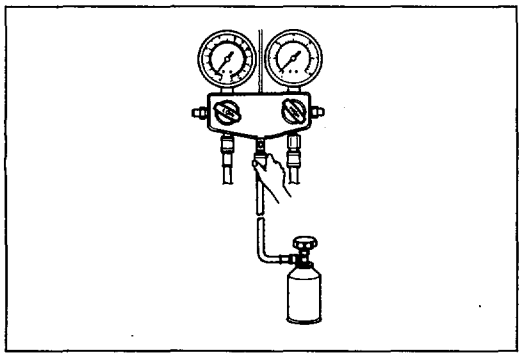
Refrigerant container service valve

1. Turn the handle fully counterclockwise before connecting the valve to the refrigerant container.
2. Turn the outlet valve counterclockwise until it reaches its highest position.



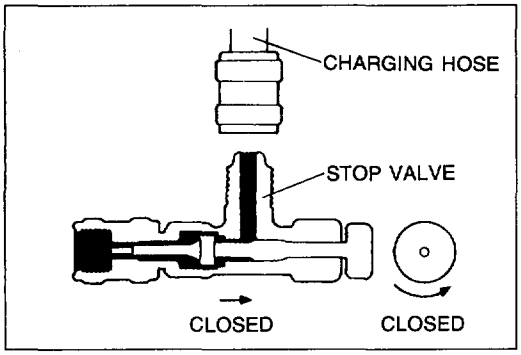
9MU0UX-128

3. Turn the outlet valve fully clockwise by hand. Connect the center hose to the valve fitting.
4. Turn the handle clockwise to puncture the sealed can.
5. Turn the handle fully counterclockwise to fill the center hose. Do not open the high- or low-pressure manual valves.

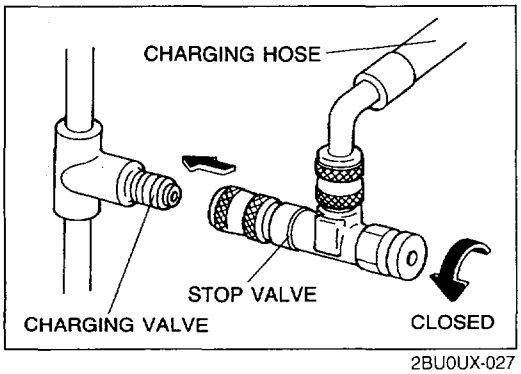


15U0UX-008

6. Loosen the hose nut connected to the center fitting of the manifold gauge. Allow air to escape, then retighten the nut.



2BU0UX-026



2BU0UX-027

REFRIGERANT SYSTEM OPERATION PROCEDURE

Manifold gauge set/stop valve installation

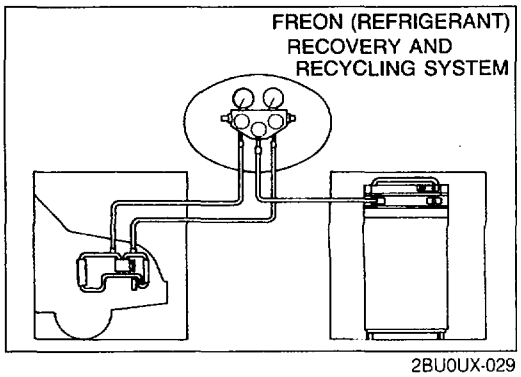
Caution
a) Connect all charging hoses via stop valves to avoid venting the refrigerant remaining in the hoses into the atomosphere.
b) Do not disconnect the stop valve from the charging hose when there is refrigerant remaining in the hose.

1. Turn the knob counterclockwise to close the stop valve.
2. Install the stop valve to the end of the charging hose of the manifold gauge set.

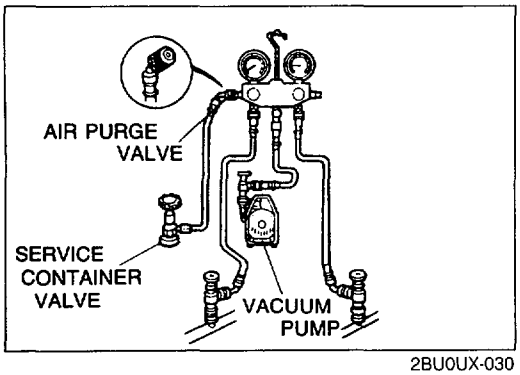
Caution
Verify that high- and low-pressure side valves of the manifold gauge set are fully closed before connecting the charging hose and stop valve to the refrigerant system service valve.

3. Connect high- and low-pressure side charging hoses and stop valves to the refrigerant system service valves.

2BU0UX-028



2BU0UX-029



2BU0UX-030

Refrigerant recovery operation

Remove the refrigerant from the refrigerant system by using a freon (refrigerant) recovery and recycling system.

Caution
a) Never vent the refrigerant into the atomosphere.
b) When using a freon recovery and recycling system, follow the operation instructions provided by the equipment manufacturer.

Evacuation/airtightness test

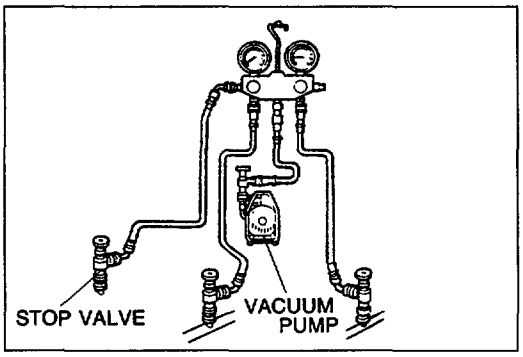
1. Connect the manifold gauge set and stop valves to the refrigerant system service valves.
2. Connect the center hose of the manifold gauge set to the vacuum pump inlet.
3. Prepare as follows according to the charging method.

Charging from service container

Connect the charging hose and service container valve to the manifold gauge set air purge valve.

Caution
a) Connect the charging hose to the air purge valve via its tap pin side.
b) Do not disconnect the charging hose or the service container valve until the charging operation is completed.
c) Do not open the service container valve when not used.

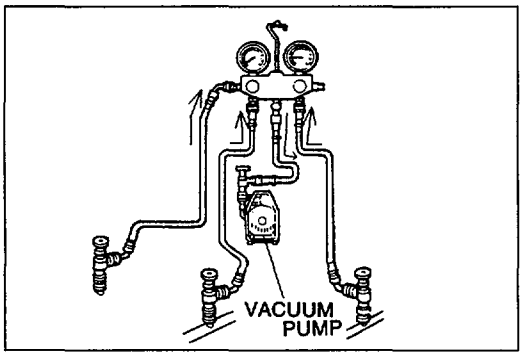
2BU0UX-031



2BU0UX-032

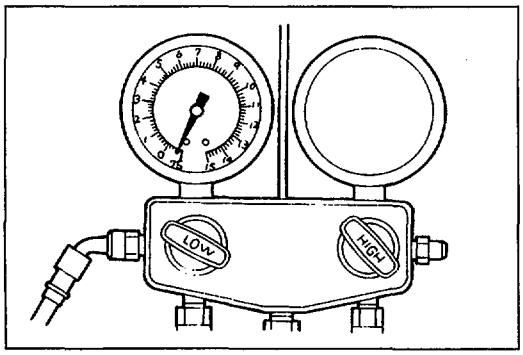
Charging from freon recovery and recycling system
Connect the charging hose and stop valve to the manifold gauge set air purge valve.

Caution
a) Connect the charging hose to the air purge valve via its tap pin side.
b) Do not disconnect the charging hose or stop valve until the charging operation is completed.
c) Do not open the stop valve when hot used.



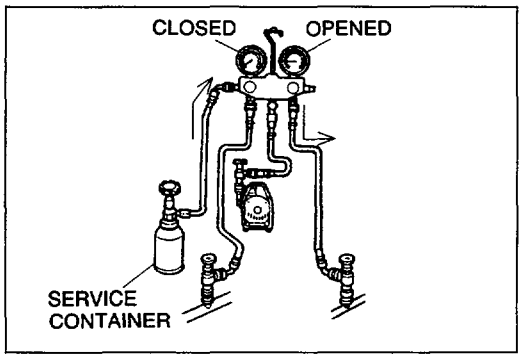
25U0UX-026

4. Start the vacuum pump and open the high- and low-pressure side valves of the manifold gauge set.
5. Start the pump and let it operate for 15 minutes.
6. Check high- and low-pressure side gauge readings. When both of them are at 750 mmHg or more, close the manifold gauge set valves.
7. Stop the vacuum pump and wait for about 5 minutes.
8. Verify that the low-pressure side gauge reading does not change.

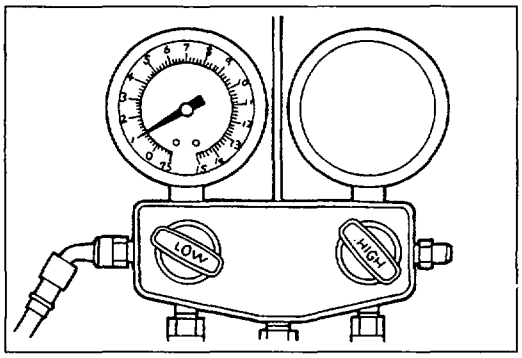


25U0UX-027

9. If the reading changes, retighten the piping connections and repeat the evacuation operation.
10. If not changed, check for leaks (see below) and charge the system.



2BU0UX-034



2BU0UX-035

Leak test

1. Carry out the system evacuation and airtightness test as described above.
2. Prepare as follows according to charging method.

Charging from service container

Connect the refrigerant service container to the service container valve (which is connected to the manifold gauge set air purge valve) and open the service container.

Charging from freon recovery and recycling system

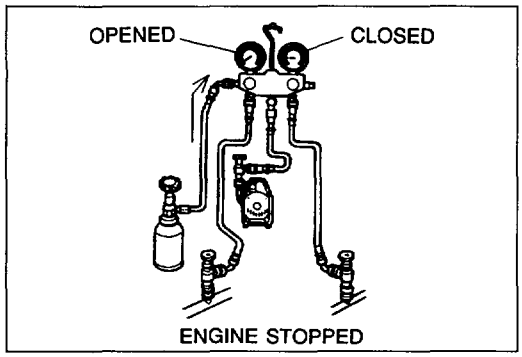
Connect the charging valve of the system to the stop valve (which is connected to the manifold gauge air purge valve).

3. Open the high-pressure side valve of the manifold gauge set. Charge the system until the low-pressure side gauge indicates 98.1 kPa (1 kg/cm^2, 14.22 psi).
4. Close the high-presure side valve.
5. Check for leaks at the system piping joints by using a gas leak tester.
6. If leaks are found, check the O-rings and tightening torques at the joints. Replace or retighten as necessary. (Refer to page U–39.)
7. If no leaks are found, fully charge the system.

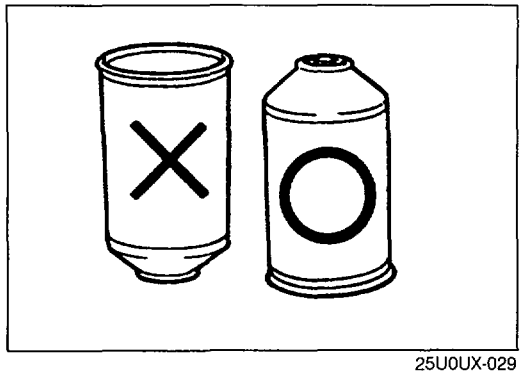
Caution

- **Carry out the leak test in an well-vertilated but still air area because it is affected by moving air.**

25U0UX-030



25U0UX-028



25U0UX-029

Initial charging from service container

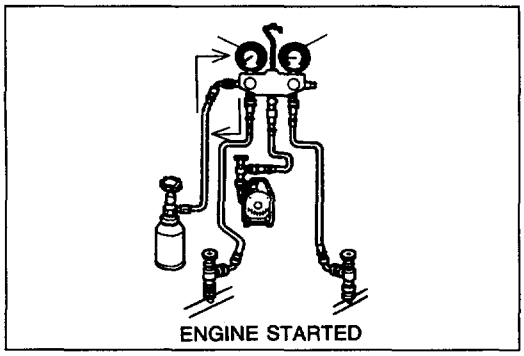
1. Carry out the system evacuation, airtightness test, and leak test.
2. Start the engine and actuate the A/C compressor.

Caution

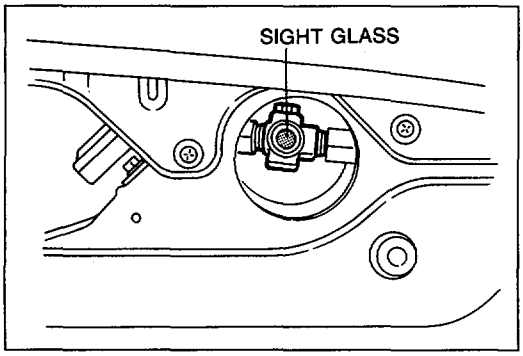
- **Do not turn the service container upside down while charging when the engine is running.**
- **Do not open the high-pressure side valve while the engine is running.**

3. Open the low-pressure side valve of the manifold gauge set and charge the system to specification.

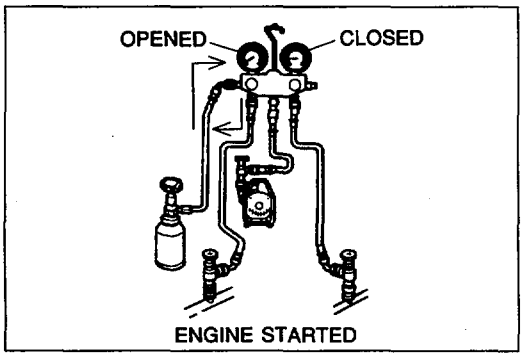
Specified total refrigerant amount: 800 g (28.24 oz)



25U0UX-031



25U0UX-032



25U0UX-033

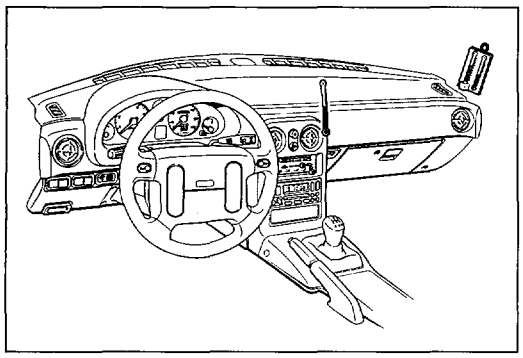
4. Close the low-pressure side valve.
5. Stop the engine.
6. Close the stop valves and the service container valve.

Caution
- **Do not disconnect the stop valves or the service container valve from the charging hoses when there is refrigerant remaining in the hoses.**

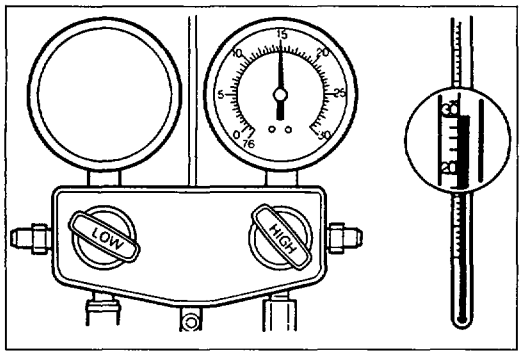
Refilling

Caution
- **Do not overcharge the system.**
- **Note the sight glass during refilling the refrigerant. Stop charging when no bubbles are observed in the glass. (Refer to page U–33.)**
- **Care must be taken when the ambient temperature is low. The bubbles may not be present even if the refrigerant amount is insufficient.**

1. Connect the manifold gauge set to the refrigerant system charging valve. (Refer to page U–28.)
2. Start the engine.
3. Open the low-pressure side valve of the manifold gauge set and charge the system as necessary.
4. Note the sight glass, and when no bubbles can be seen, close the low-pressure side valve.
5. Stop the engine.
6. Close the stop valves and service container valve. Disconnect the stop valves quickly.



05U0UX-049



05U0UX-050

Performance test

After finishing repairs, conduct a performance test of the air conditioning system as follows.

1. Connect the manifold gauge set. (Refer to page U–28.)
2. Start the engine and keep the engine speed at **1,500 rpm**.
3. Operate the air conditioner at maximum cooling.
4. Open all windows and doors.
5. Place a dry-bulb thermometer in the center ventilator outlet.
6. Place a dry and wet thermometer close to the blower inlet.
7. Wait until the air conditioner outlet temperature stabilizes.

Stabilized condition

Blower inlet temperature: 25—35°C (77—95°F)
High-pressure side:
1,177—1,619 kPa (12.0—16.5 kg/cm^2, 171—235 psi)

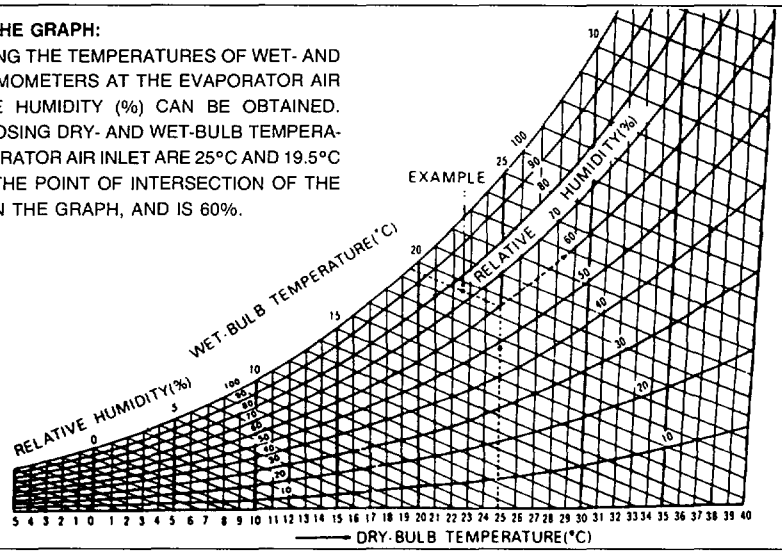
Note

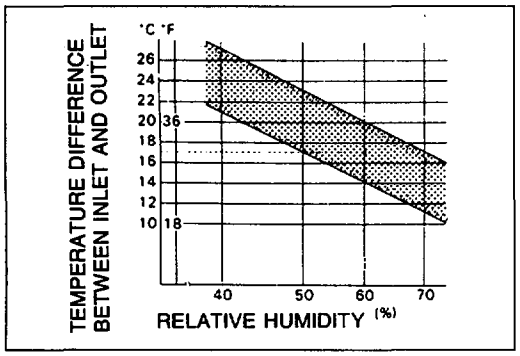
- **If the high-pressure side becomes too high, pour cool water on the condenser. If it is too low, cover the front of the condenser.**

8. After the air conditioner stabilizes, read the dry and wet thermometer at the air inlet.
9. Calculate the relative humidity from the chart below by comparing the wet- and dry-bulb readings.

05U0UX-051

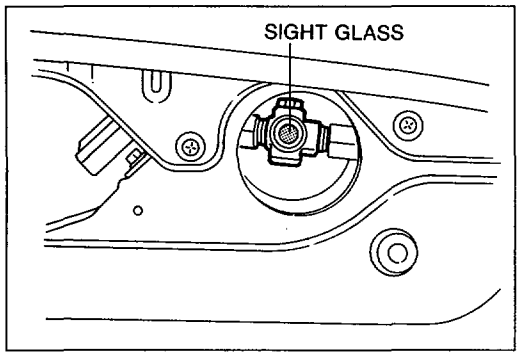
HOW TO READ THE GRAPH:
AFTER MEASURING THE TEMPERATURES OF WET- AND DRY-BULB THERMOMETERS AT THE EVAPORATOR AIR INLET, RELATIVE HUMIDITY (%) CAN BE OBTAINED. EXAMPLE: SUPPOSING DRY- AND WET-BULB TEMPERATURES AT EVAPORATOR AIR INLET ARE 25°C AND 19.5°C RESPECTIVELY THE POINT OF INTERSECTION OF THE DOTTED LINES IN THE GRAPH, AND IS 60%.





96U16X-103

10. Read the dry thermometer at the air outlet, and calculate the difference between the inlet dry bulb and outlet dry bulb temperatures.
11. Verify that the intersection of the relative humidity and temperature difference is in the shaded zone.



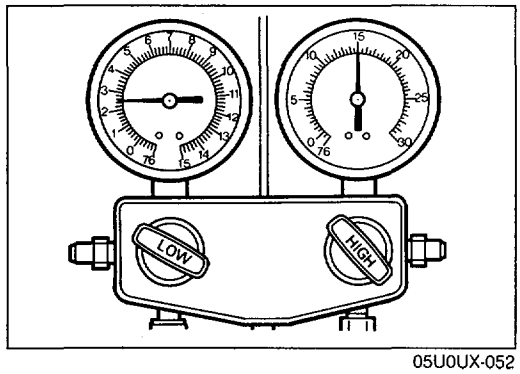
9MU0UX-139

Checking refrigerant charge

1. Run the engine at a fast idle.
2. Operate the air conditioner at maximum cooling for a few minutes.
3. Determine the amount of refrigerant as shown below by observing the sight glass.

Item	Symptom	Amount of refrigerant	Action
1	Bubbles present in sight glass	Insufficient refrigerant	Check refrigerant pressure
2	No bubbles present in sight glass	Too much or proper amount of refrigerant	Turn air conditioner OFF, and watch bubbles (Refer to Items 3 and 4)
3	Immediately after air conditioner turned OFF, refrigerant in sight glass stays clear	Too much refrigerant	Check refrigerant pressure
4	When air conditioner turned OFF, refrigerant foams, and then sight glass becomes clear	Proper amount of refrigerant	Refrigerant amount normal

25U0UX-012



05U0UX-052

Checking refrigerant pressure

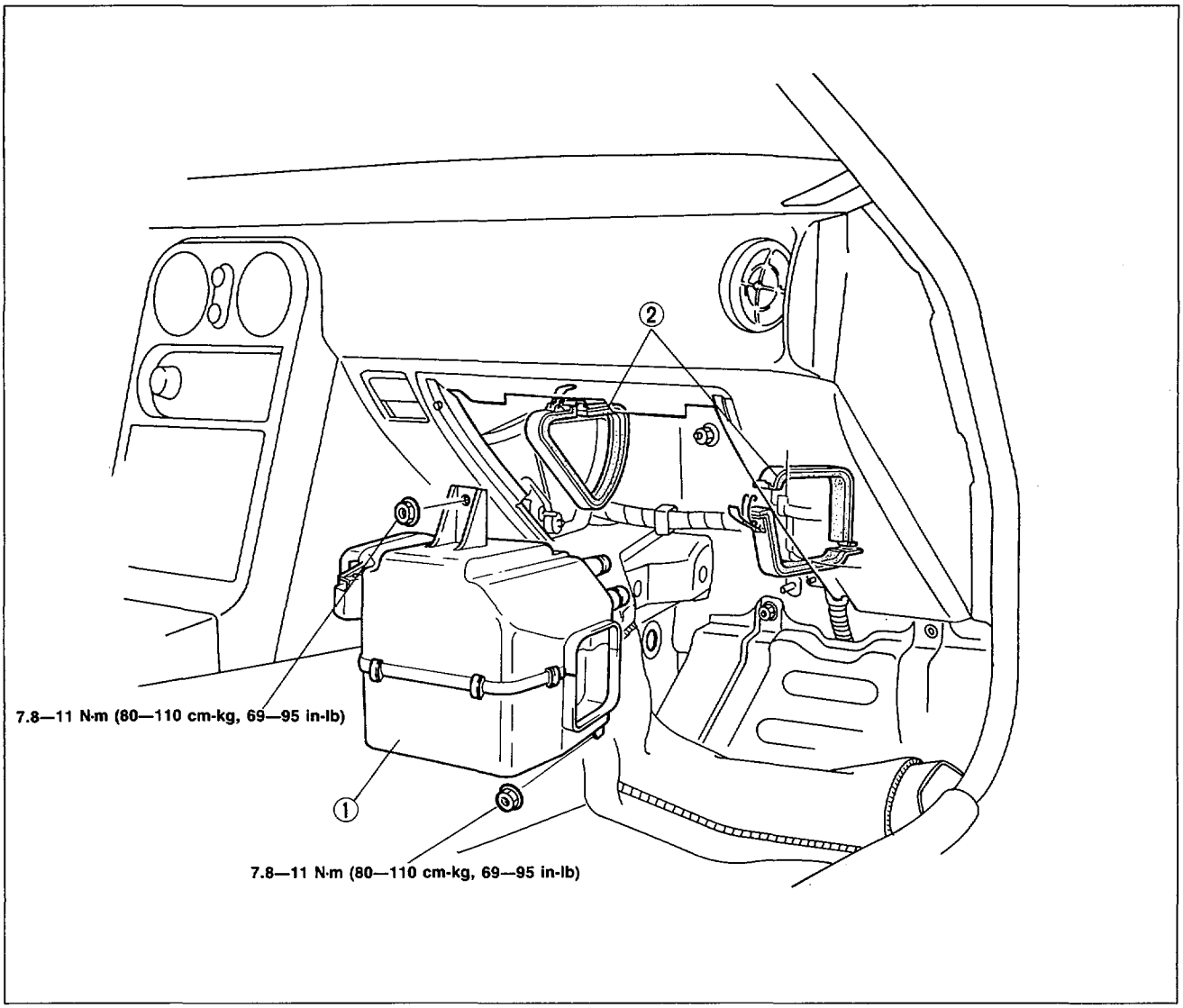
1. Connect the manifold gauge set. (Refer to page U–28.)
2. Operate the engine at 1,500 rpm and set the air conditioner to maximum cooling.
3. Measure the low- and high-pressure sides.

Normal pressure
Low-pressure side:
147—294 kPa (1.5—3.0 kg/cm^2, 21—43 psi)
High-pressure side:
1,177—1,619 kPa
(12.0—16.5 kg/cm^2, 171—235 psi)

COOLING UNIT

Removal / Installation

1. Discharge the refrigerant system. (Refer to page U–28.)
2. Remove the cooling unit as shown in the figure, referring to **Removal Note**.
3. Install the cooling unit in the reverse order of removal, referring to **Installation Note**.
4. Charge the refrigerant system. (Refer to page U–29.)



05U0UX-053

1. Cooling unit
2. Sealing plate

Removal note

- **Immediately plug all open fittings to keep moisture out of the system.**

Installation note

- **Position the cooling unit so that its connections match those of the heater unit and the blower unit.**
- **Apply clean compressor oil to the O-rings before connecting the fittings.**
- **Do not apply compressor oil to the fitting nuts.**
- **If the evaporator is replaced, add compressor oil to the compressor.**

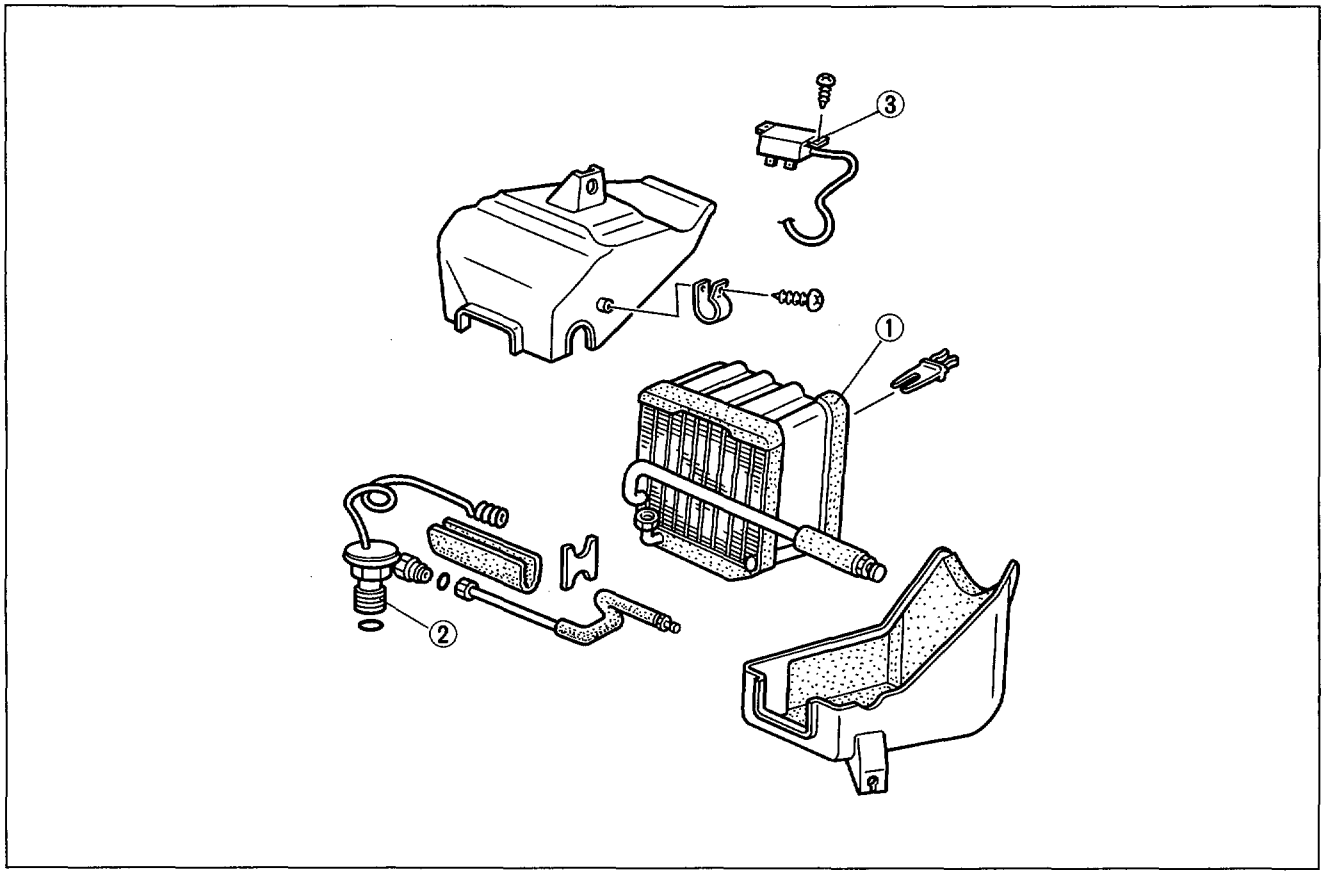
Compressor oil: 50 cc (3.05 cu in)

- **Tightening torque**
  - **Inlet pipe : 9.8—20 N·m (1.0—2.0 m-kg, 7.2—14 ft-lb)**
  - **Outlet pipe : 20—29 N·m (2.0—3.0 m-kg, 14—22 ft-lb)**

05U0UX-054

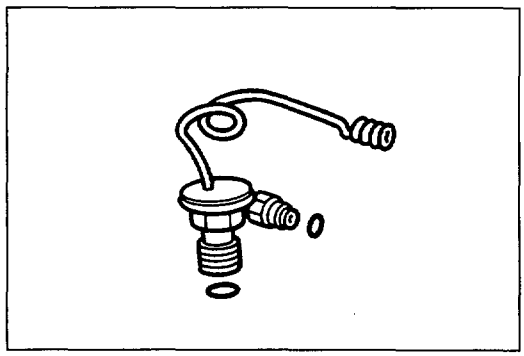
Disassembly / Assembly

Disassemble and assemble as shown in the figure.



05U0UX-055

1. Evaporator
2. Expansion valve
3. Thermoswitch



25U0UX-013

Replacement

Expansion valve

Note

- **Before replacement of the expansion valve, carefully check the refrigeration system, referring to the troubleshooting information on page U–13.**

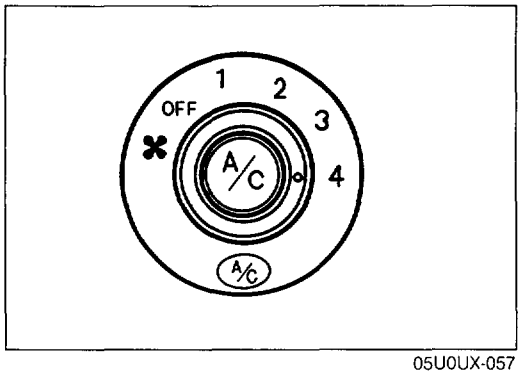
1. Remove the cooling unit. (Refer to page U–34.)
2. Disassemble the cooling unit. Remove the evaporator and expansion valve as an assembly.
3. Disconnect the inlet and outlet pipes.
4. Remove the capillary tube from the outlet pipe and remove the expansion valve.
5. Install in the reverse order of removal, noting the following.

Note

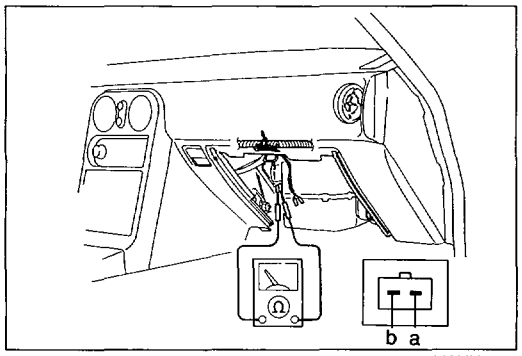
- **Apply clean compressor oil to the O-rings before connecting the fittings.**
- **Do not apply compressor oil to the fitting nuts.**

Tightening torque

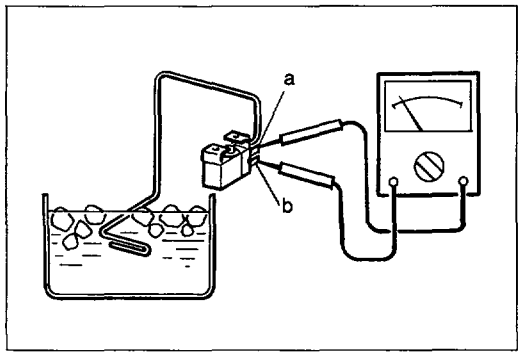
Inlet pipe:
12—15 N·m (1.2—1.5 m-kg, 8.7—11 ft-lb)
Outlet pipe:
29—34 N·m (3.0—3.5 m-kg, 22—25 ft-lb)



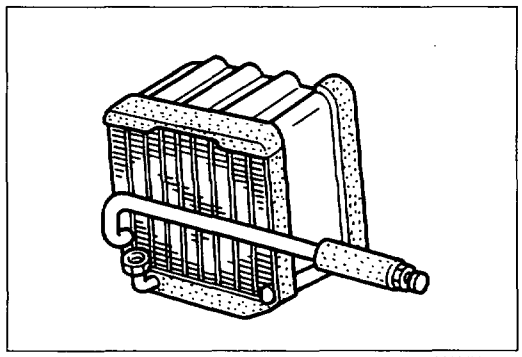
05U0UX-057



05U0UX-058



05U0UX-059



05U0UX-060

On-vehicle Inspection

Thermoswitch

1. Remove the glove box.
2. Run the engine at idle.
3. Turn OFF the A/C switch and set the blower switch to the highest position to operate the blower fan for a few minutes.
4. After a few minutes, turn OFF the blower switch and stop the engine.
5. Disconnect the thermoswitch connector and check for continuity between terminals of the switch.

Terminals	Continuity
a—b	Yes

6. If not as specified, replace the thermoswitch.

Note

- **The thermoswitch contacts will be open if the evaporator temperature is below 0°C (32°F).**

Inspection

Thermoswitch

1. Immerse the sensing bulb in a container of ice water.
2. Check continuity between terminals of the switch as specified.

Terminals	Temperature	Continuity
a—b	Above 0°C (32°F)	Yes
	Below 0°C (32°F)	No

3. If not as specified, replace the thermoswitch.

Evaporator

1. Check the evaporator fins for blockage. If the fins are clogged, clean them with compressed air.

Caution

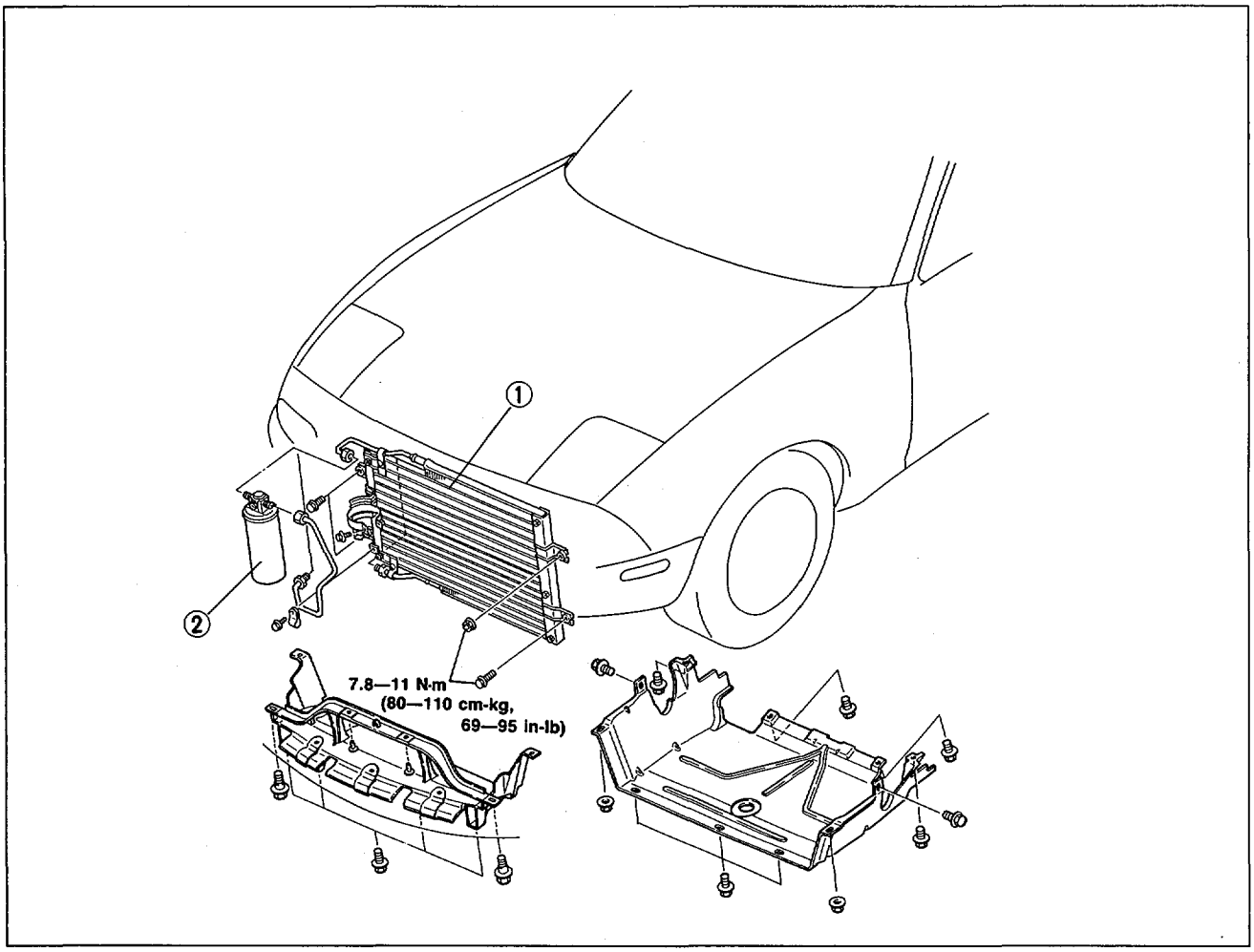
- **Never use water to clean the evaporator.**

2. Check the fittings for cracks and other damage. Replace the evaporator if necessary.

CONDENSER AND RECEIVER/DRIER

Removal / Installation

1. Raise the front of the vehicle at least 300mm (11.8 in) and support it on safety stands.
2. Discharge the refrigerant system. (Refer to page U–28.)
3. Remove the splash shield and air guide.
4. Remove the condenser and receiver/drier as an assembly as shown in the figure, referring to **Removal Note**.
5. Install the condenser and receiver/drier in the reverse order of removal, referring to **Installation Note**.
6. Install the air guide and splash shield.
7. Charge the refrigerant system. (Refer to page U–29.)



05U0UX-061

1. Condenser
2. Receiver/Drier

Removal note

- **Immediately plug any open fittings to keep moisture out of the system.**

Installation note

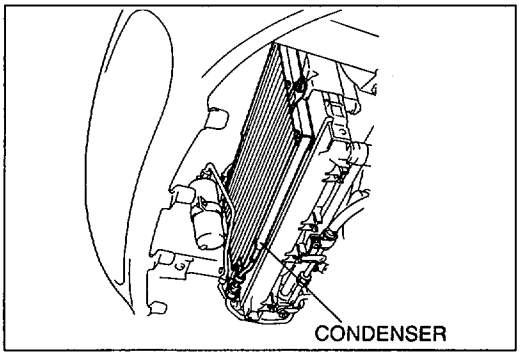
- **Apply clean compressor oil to the O-rings before connecting the fittings.**
- **Do not apply compressor oil to the fitting nuts.**
- **If the condenser or receiver/drier is replaced, add the specified amount of compressor oil.**

Replaced part	Compressor oil amount
Condenser	30 cc (1.83 cu in)
Receiver/drier	10 cc (0.61 cu in)

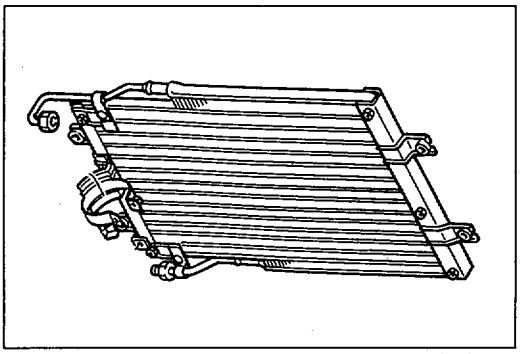
Tightening torque

Receiver/drier inlet and outlet: 9.8—20 N·m (1.0—2.0 m-kg, 7.2—14 ft-lb)
Condenser inlet : 15—25 N·m (1.5—2.5 m-kg, 11—18 ft-lb)

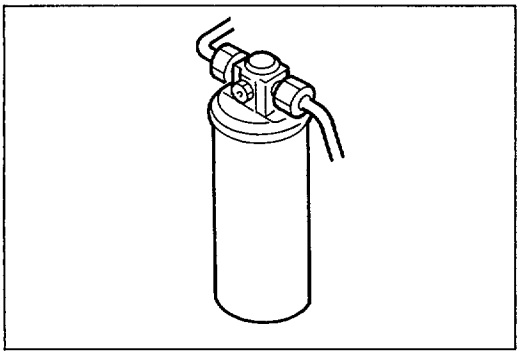
05U0UX-062



05U0UX-063



9MU0UX-190



05U0UX-064

On-vehicle Inspection

Condenser

1. Check for oil stains on the condenser or fittings.
2. If staining is found at a fitting, replace the O-ring at the fitting.
3. Charge the system and check for leaks.
4. If leakage is found at a fitting or the condenser, replace parts as necessary.

5. Check the condenser for the following and repair or replace as necessary.
   (1) Cracks or damage.
   (2) Bent fins.
   (3) Distorted or damaged condenser inlet or outlet.

Receiver/drier

1. Check for oil stains on the fittings.
2. If staining is found, replace the O-ring at the fitting.
3. Charge the system and check for leaks.
4. If leakage is found, check and replace the receiver/drier or piping.

REFRIGERANT LINES

On-vehicle Inspection

Check for leakage at connections by using a gas leak tester. Repair or replace as necessary.

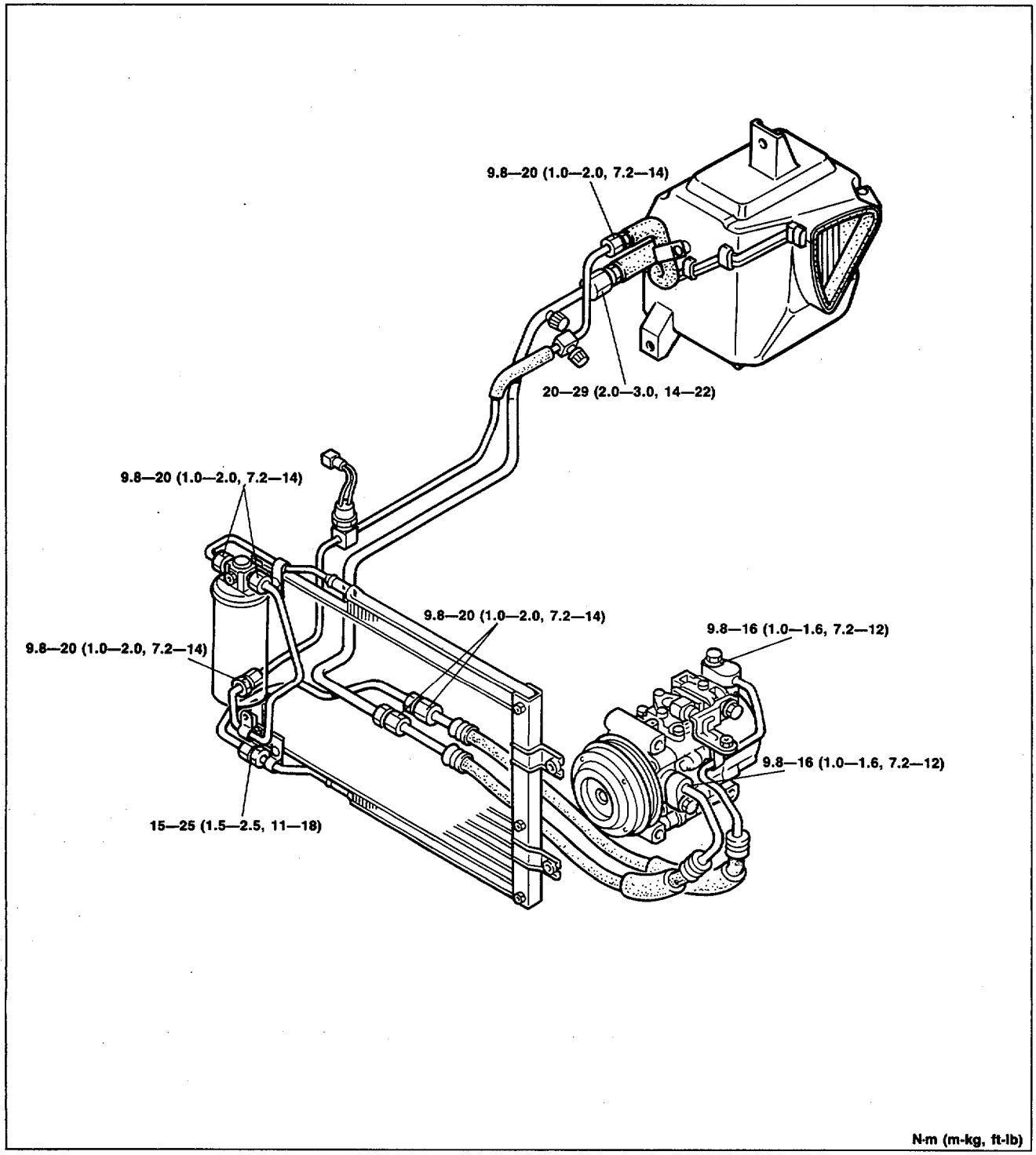
Replacement

1. Discharge the refrigerant system. (Refer to page U–28.)
2. Replace the faulty pipe or hose.

Note

- **Immediately plug any open fittings to keep moisture out of the system.**

3. Evacuate, charge, and test the refrigerant system.

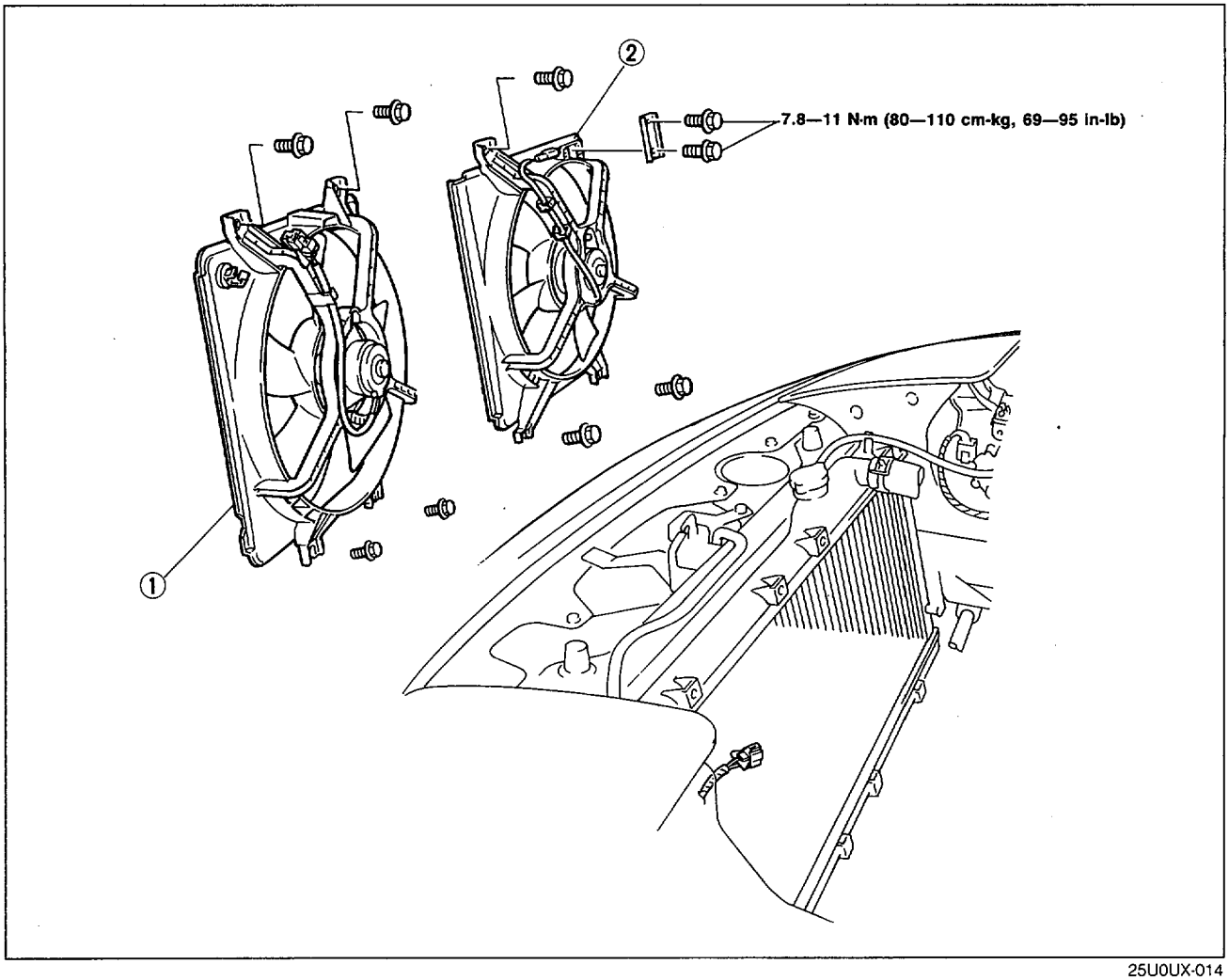


15U0UX-009

CONDENSER FAN
Removal / Installation

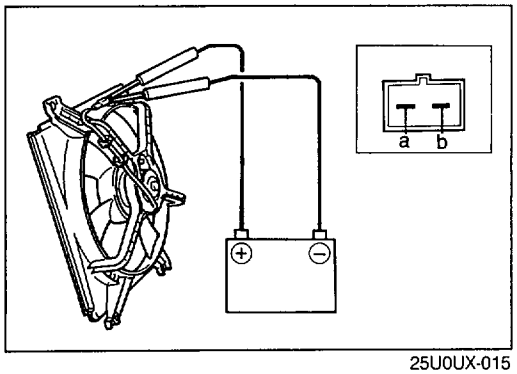
Caution
- **Obtain the code number and deactivate the audio anti-theft function before disconnecting the battery cable.**

1. Disconnect the negative battery cable.
2. Disconnect the cooling fan connector.
3. Remove the bolts and cooling fan.
4. Remove the condenser fan as shown in the figure.
5. Install the condenser fan in the reverse order of removal.



25U0UX-014

1. Cooling fan
2. Condenser fan

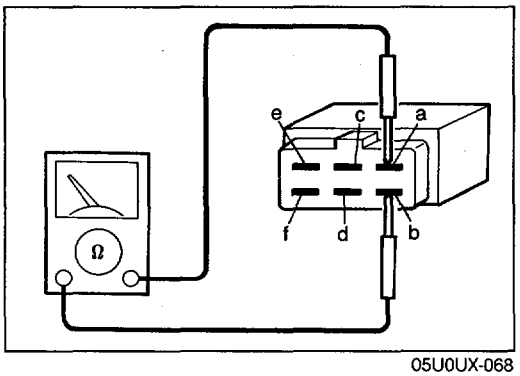


25U0UX-015

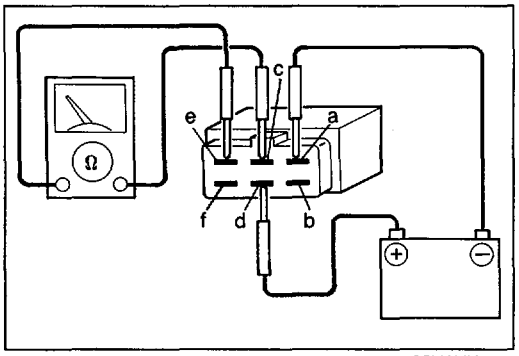
Inspection
1. Disconnect the condenser fan connector.
2. Verify that the condenser fan motor runs when connecting battery voltage to terminal a and grounding terminal b.

VB: Battery voltage

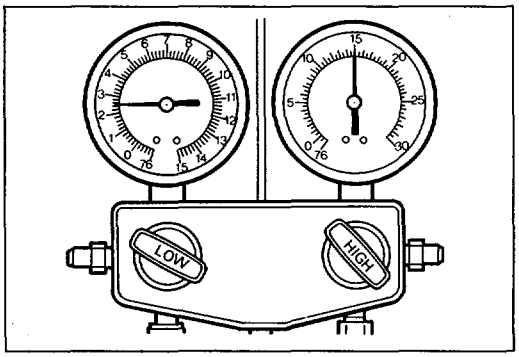
Connection		Motor operation
VB	Ground	
a	b	Yes



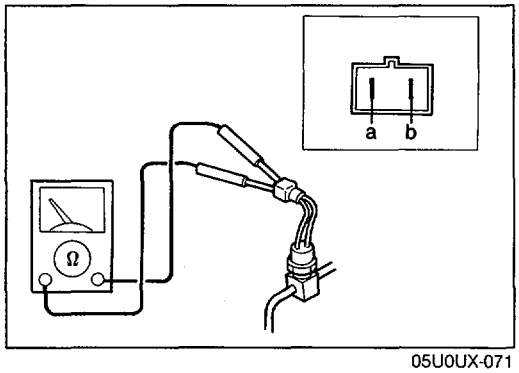
05U0UX-068



25U0UX-016



05U0UX-070



05U0UX-071

A/C RELAY

Inspection

1. Check continuity between terminals of the relay.

	Terminals					
	a	b	c	d	e	f
Continuity	○—◀—○					
	○		○			
			○	▶	○	
			○			○

○—○ : Indicates continuity
○—◀—○ : Indicates diode

2. If not as specified, replace the relay.
3. If correct, go to the next step.
4. Apply battery voltage to terminal d and ground terminal a.
5. Check continuity between terminals of the relay.

	Terminals		
	c	e	f
Continuity	○	○	

○—○ : Indicates continuity

6. If not as specified, replace the relay.

REFRIGERANT PRESSURE SWITCH

Inspection

1. Turn the ignition switch OFF.
2. Connect the manifold gauge set and measure the high-pressure side refrigerant pressure.

   High-pressure side:
   Above 216 kPa (2.2 kg/cm^2, 31.2 psi)

3. If not as specified, check the refrigerant system. (Refer to page U–12.)

4. If correct, go to the next step.
5. Disconnect the refrigerant pressure switch connector.
6. Check for continuity of the switch.

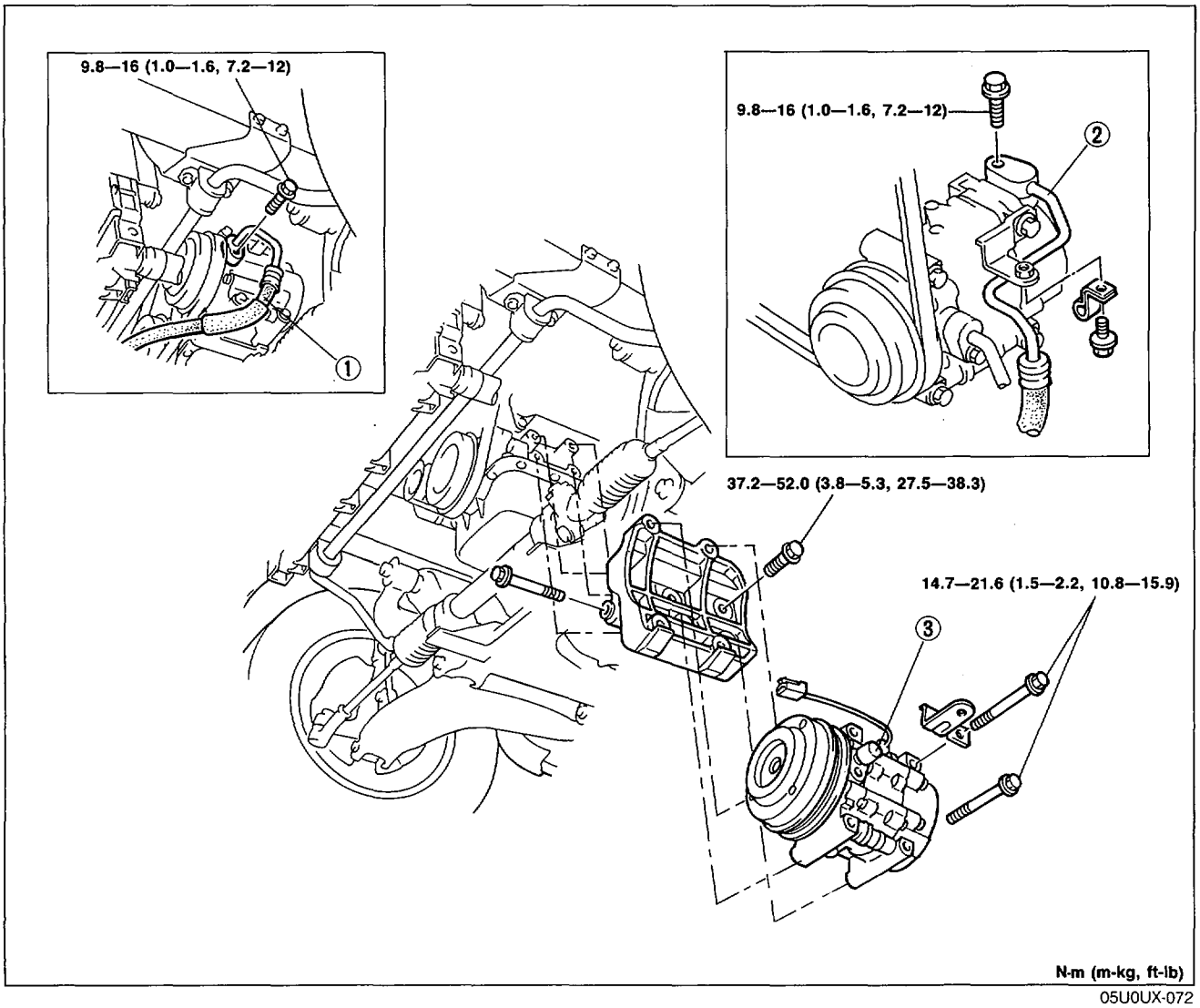
Terminals	Continuity
a—b	Yes

7. If not as specified, replace the switch and the suction pipe.

COMPRESSOR

Removal / Installation

1. Raise the front of the vehicle at least 300mm (11.8 in) and support it with safety stands.
2. Discharge the refrigerant system. (Refer to page U–28.)
3. Remove the splash shield and air guide.
4. Remove the compressor as shown in the figure, referring to **Removal Note**.
5. Install the compressor in the reverse order of removal, referring to **Installation Note**.
6. Install the air guide and splash shield.
7. Charge the refrigerant system. (Refer to page U–29.)



05U0UX-072

1. Suction hose
2. Discharge hose
3. Compressor

Removal note

- **Immediately plug any open fittings to keep moisture out of the system.**

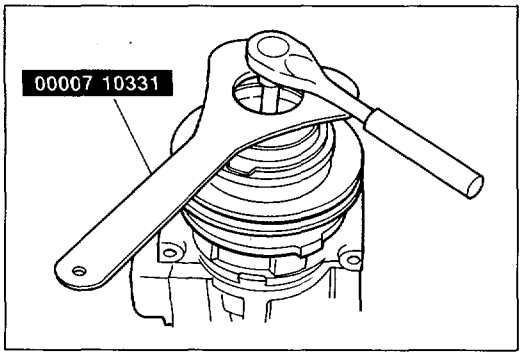
Installation note

- **Apply clean compressor oil to the O-rings before connecting the fittings.**
- **Do not apply compressor oil to the fitting nuts.**
- **Adjust the belt tension to specification. (Refer to page U–50.)**

Tightening torque

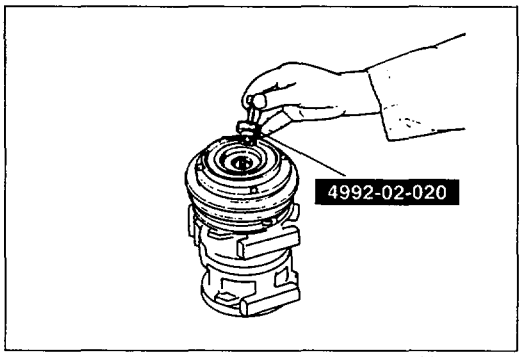
Compressor inlet and outlet: 9.8—16 N·m (1.0—1.6 m-kg, 7.2—12 ft-lb)
Compressor mounting bolt : 14.7—21.6 N·m (1.5—2.2 m-kg, 10.8—15.9 ft-lb)

25U0UX-034



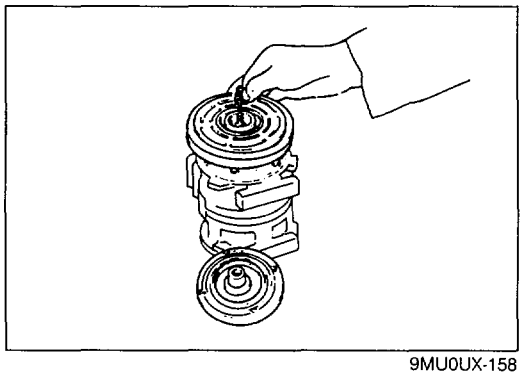
05U0UX-074

Disassembly / Assembly
Magnetic clutch
1. Hold the clutch with the **SST** and remove the shaft nut.



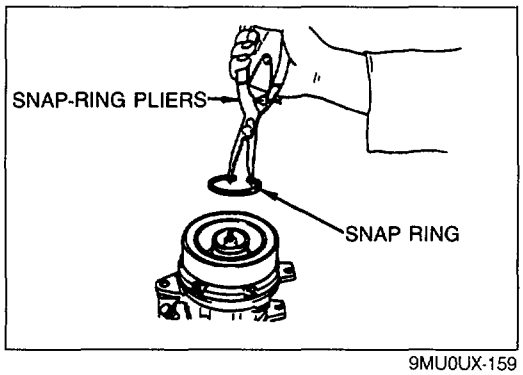
9MU0UX-157

2. Remove the pressure plate with the **SST**.



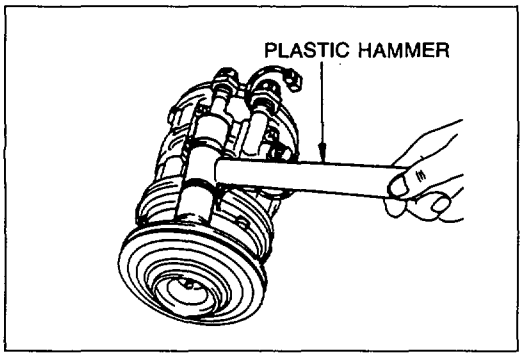
9MU0UX-158

3. Remove the shims.



9MU0UX-159

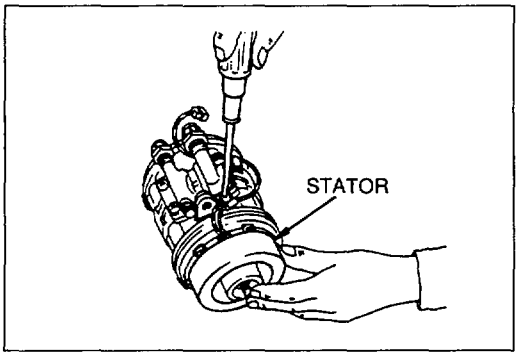
4. Remove the snap ring.



05U0UX-075

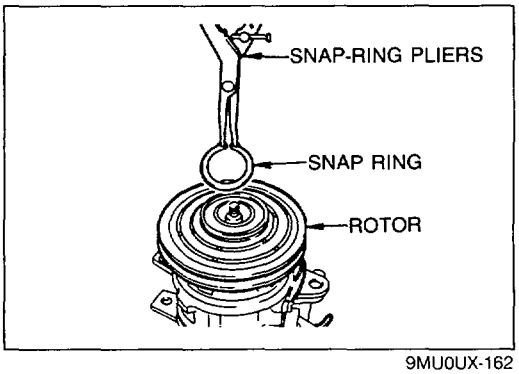
5. Remove the rotor by tapping it with a plastic hammer.

Note
- **Do not damage the pulley when tapping the rotor.**



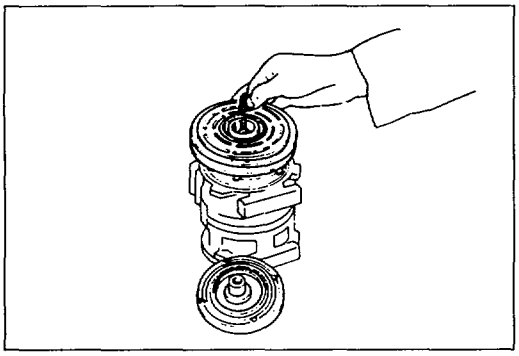
05U0UX-076

6. Disconnect the stator wires from the compressor housing.



9MU0UX-162

7. Remove the snap ring and the stator.



15U0UX-010

8. Assemble in the reverse order of disassembly, referring to **Assembly note**.

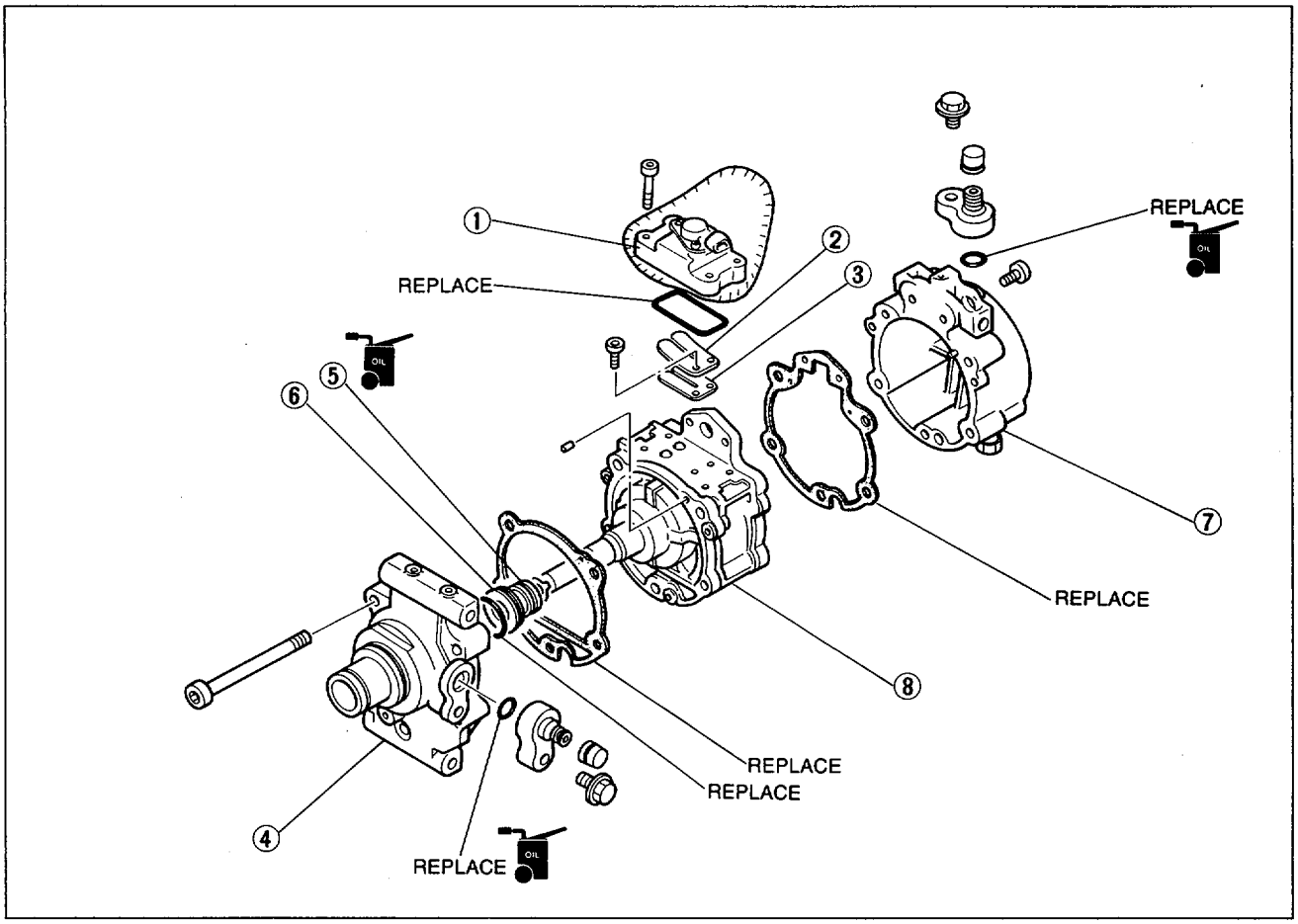
Assembly note

- **Adjust the clearance between the pressure plate and the rotor after referring to the table and selecting the proper shims.**

  Standard clearance: 0.4—0.6mm (0.016—0.024 in)

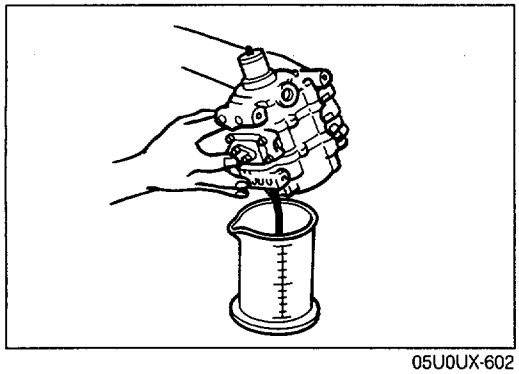
Thickness
0.10mm (0.004 in)
0.30mm (0.012 in)
0.50mm (0.020 in)

Compressor



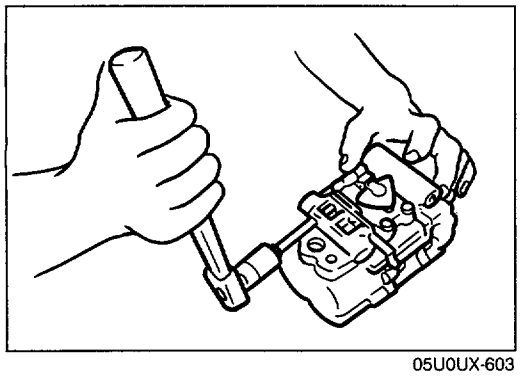
05U0UX-601

1. Discharge valve body
2. Discharge valve plate
3. Discharge valve
4. Front housing
5. Shaft seal
6. Shaft seal plate
7. Rear housing
8. Compressor body



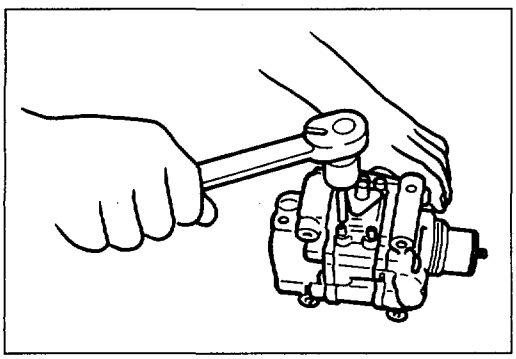
05U0UX-602

1. Measuring of compressor oil amount
   Measure the amount of the compressor oil which is in the compressor.



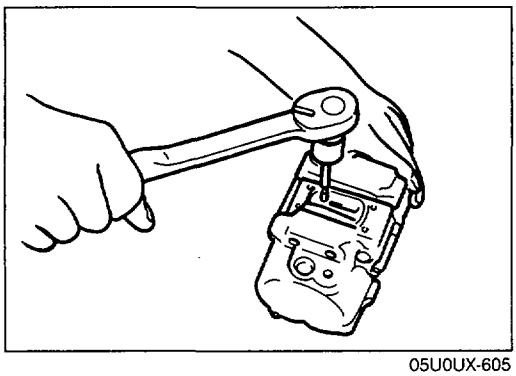
05U0UX-603

2. Removal of discharge valve body
   1) Remove the discharge valve body installation through bolts.



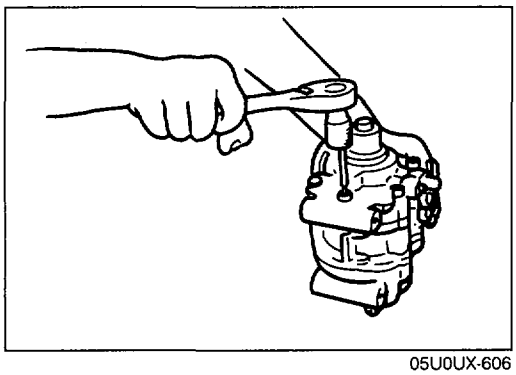
05U0UX-604

2) Remove the discharge valve installation bolts and discharge valve body.



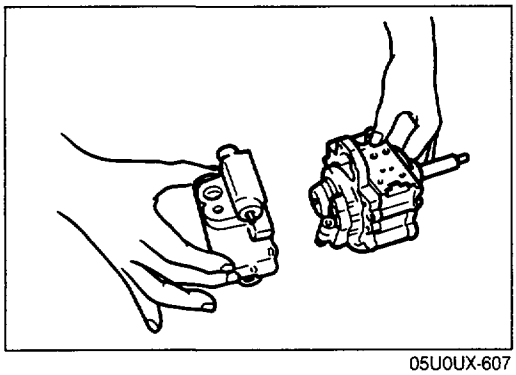
05U0UX-605

3. Removal of discharge valve
Remove the bolts, discharge valve plate and discharge valve.



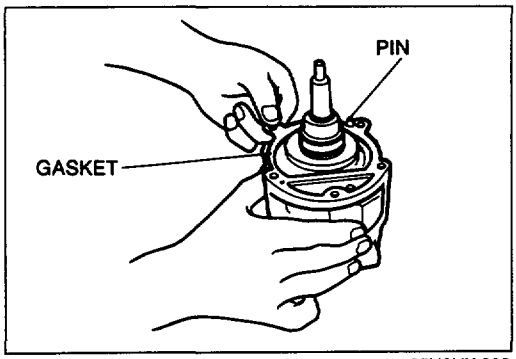
05U0UX-606

4. Removal of front and rear housings
1) Remove the through bolts and front housing.



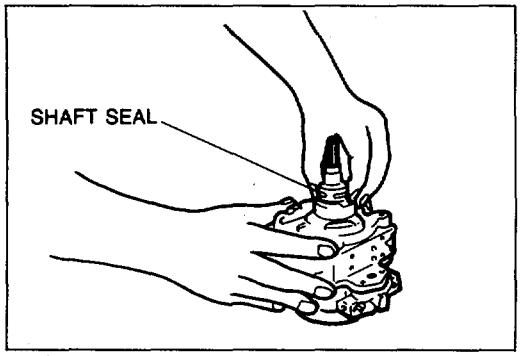
05U0UX-607

2) Remove the rear housing.



05U0UX-608

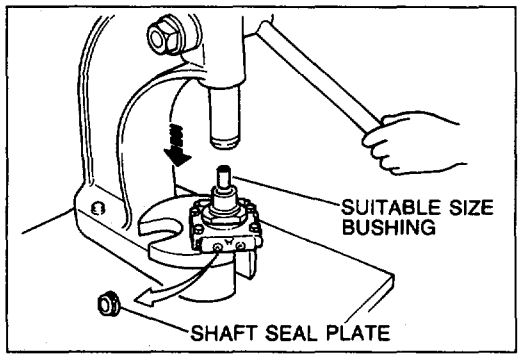
3) Remove the pin and gaskets.



25U0UX-017

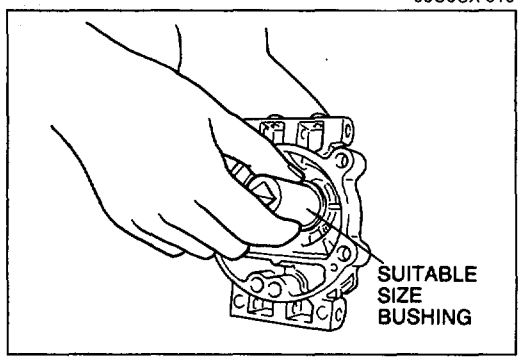
5. Removal of shaft seal
   Remove the shaft seal from the shaft.

   Caution
   - **Do not disassemble the compressor body.**



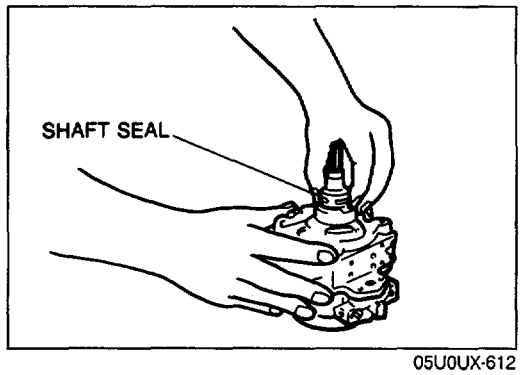
05U0UX-610

6. Removal of shaft seal plate
   Remove the shaft seal plate using a suitably sized bushing.



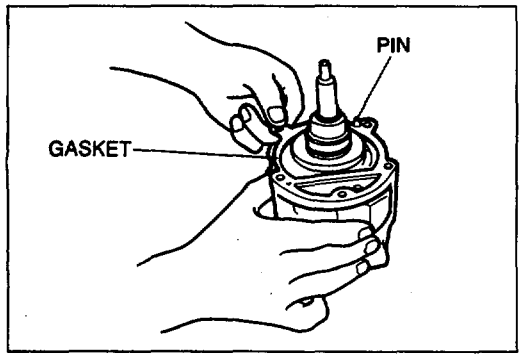
05U0UX-611

7. Installation of shaft seal plate
   Install the shaft seal plate using suitably sized bushing.



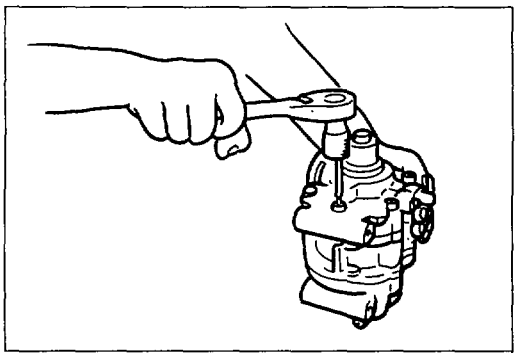
05U0UX-612

8. Installation of shaft seal
   1) Lubricate the shaft seal with the compressor oil.
   2) Install the shaft seal on the shaft.

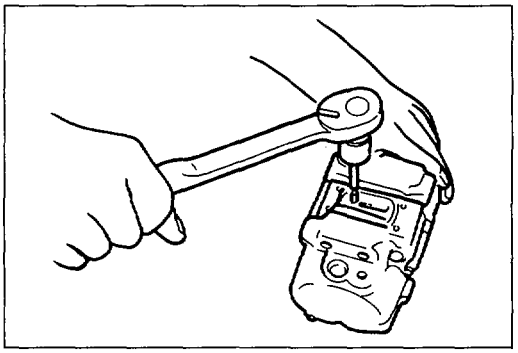


05U0UX-613

9. Installation of front and rear housings
   1) Install the new gaskets and pin on the compressor body.

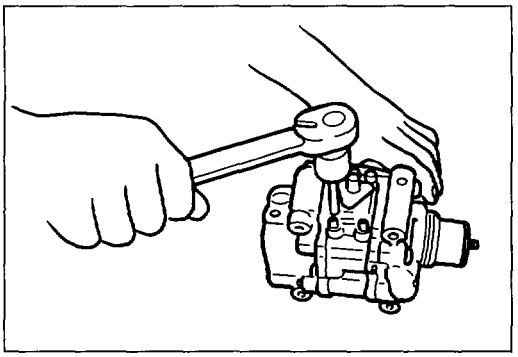

05U0UX-614

2) Install the front and rear housings and tighten the through bolts loosely.

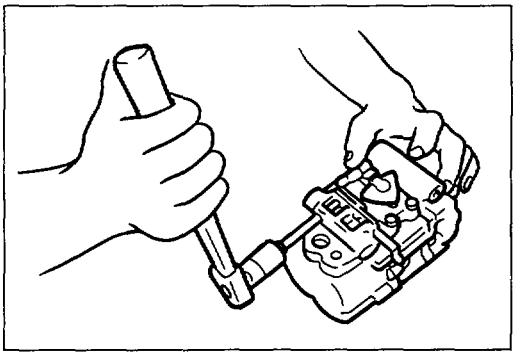

05U0UX-615

10. Installation of discharge valve
Install the discharge valve and discharge valve plate and tighten the bolts.

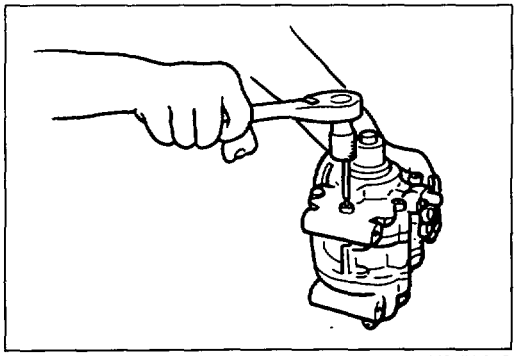
Tightening torque: 4.6 N·m (47 cm-kg, 41 in-lb)


05U0UX-616

11. Installation of discharge valve body
1) Install the discharge valve body and tighten the bolts loosely.

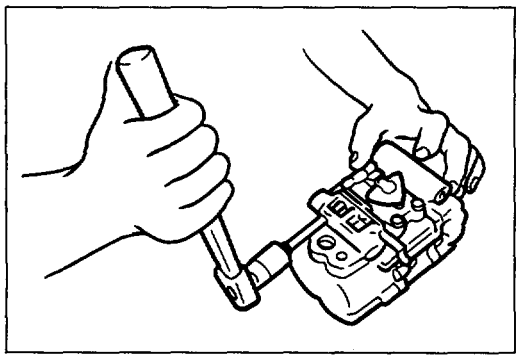

05U0UX-617

2) Tighten the discharge valve installation through bolts loosely.


05U0UX-618

12. Tightening of bolts
1) Tighten the through bolts.

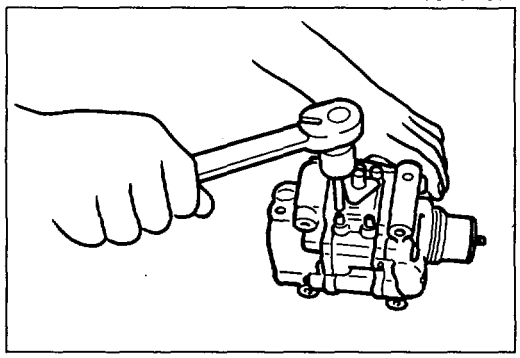
Tightening torque: 25.5 N·m (260 cm-kg, 226 in-lb)



05U0UX-619

2) Tighten the discharge valve body installation through bolts.

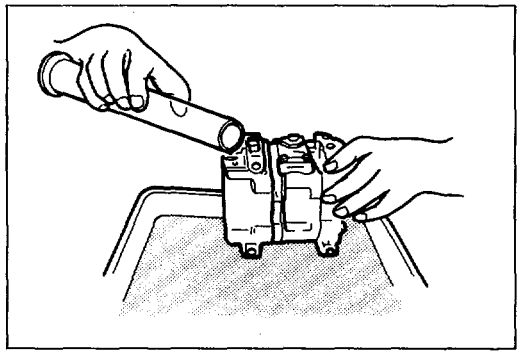
Tightening torque: 10.8 N·m (110 cm-kg, 95.5 in-lb)



05U0UX-620

3) Tighten the discharge valve body installation bolts.

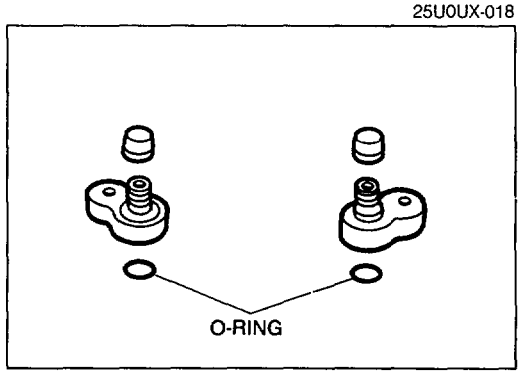
Tightening torque: 10.8 N·m (110 cm-kg, 95.5 in-lb)



25U0UX-018

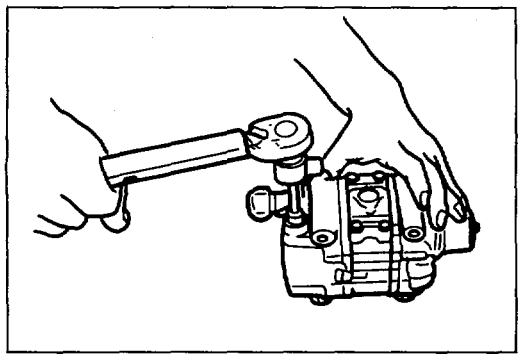
13. Pour compressor oil
Pour compressor oil into the compressor.

Compressor oil:
MAZDA Part number NA02 61 K39 or equivalent
Compressor oil amount:
Same amount as drained, plus 20 cc (1.2 cu in)



05U0UX-622

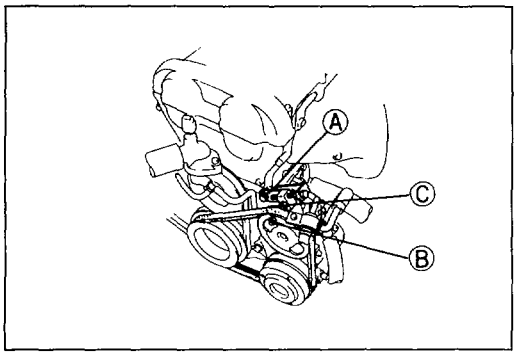
14. Installation of service valve
1) Apply the compressor oil to the new O-rings.



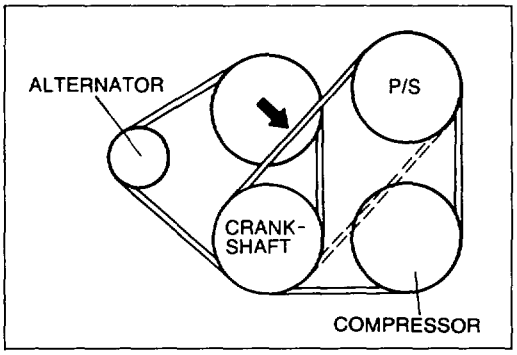
05U0UX-623

2) Install the service valves to the compressor and tighten the installation bolts.

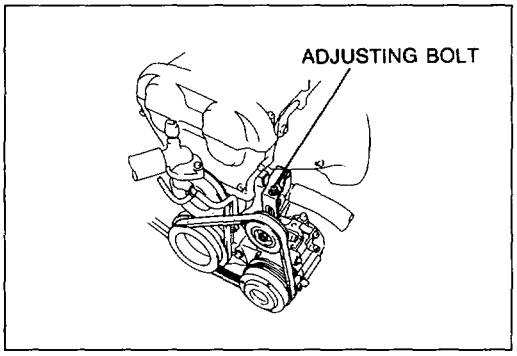
Tightening torque: 12.3 N·m (125 cm-kg, 109 in-lb)



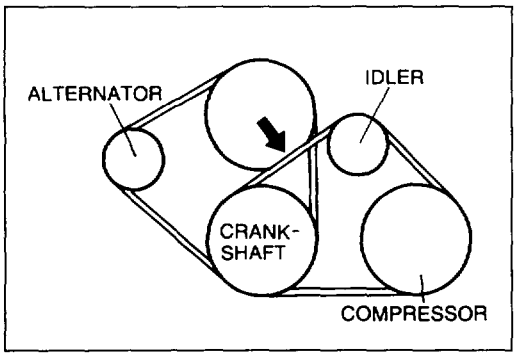
05U0UX-078



05U0UX-079



05U0UX-080



05U0UX-081

Adjustment
Drive belt
(With P/S)

1. Loosen P/S oil pump bolts Ⓐ and Ⓑ and nut Ⓒ.
2. Adjust the belt tension and deflection to specification by turning adjusting bolt Ⓓ.
3. Tighten bolts Ⓐ and Ⓑ and nut Ⓒ.

Tightening torque
Ⓐ : 31—46 N·m (3.2—4.7 m-kg, 23—34 ft-lb)
Ⓑ : 36—54 N·m (3.7—5.5 m-kg, 27—40 ft-lb)
Ⓒ : 19—25 N·m (1.9—2.6 m-kg, 14—19 ft-lb)

	Specification	
	New	Used
Tension	491—589 N (50—60 kg, 110—132 lb)	422—491 N (43—50 kg, 95—110 lb)
Deflection when applying moderate pressure 98 N (10 kg, 22 lb)	8.0—9.0mm (0.31—0.35 in)	9.0—10.0mm (0.35—0.39 in)

(Without P/S)

1. Loosen the locknut.
2. Adjust the belt tension and deflection to specification by turning the adjusting bolt.

Tightening torque:
37—52 N·m (3.8—5.3 m-kg, 27—38 ft-lb)

	Specification	
	New	Used
Tension	491—589 N (50—60 kg, 110—132 lb)	422—491 N (43—50 kg, 95—110 lb)
Deflection when applying moderate pressure 98 N (10 kg, 22 lb)	8.0—9.0mm (0.31—0.35 in)	9.0—10.0mm (0.35—0.39 in)

TECHNICAL DATA

MEASUREMENTS ..... TD– 2
ENGINE ..... TD– 2
LUBRICATION SYSTEM ..... TD– 4
COOLING SYSTEM ..... TD– 5
FUEL AND EMISSION CONTROL SYSTEMS TD– 6
ENGINE ELECTRICAL SYSTEM ..... TD– 7
CLUTCH ..... TD– 7
MANUAL TRANSMISSION ..... TD– 8
AUTOMATIC TRANSMISSION ..... TD– 9
PROPELLER SHAFT TD–11
FRONT AND REAR AXLES TD–11
STEERING SYSTEM TD–12
BRAKING SYSTEM TD–12
WHEELS AND TIRES TD–13
SUSPENSION TD–13
BODY ELECTRICAL SYSTEM TD–14
HEATER AND AIR CONDITIONING SYSTEM TD–14
STANDARD BOLT AND NUT TIGHTENING TORQUE TD–14

15UTDX-001

A. MEASUREMENTS

Item			Measurements
Overall length		mm (in)	3,948 (155.4)
Overall width		mm (in)	1,676 (65.9)
Overall height		mm (in)	1,224 (48.2)
Wheelbase		mm (in)	2,266 (89.2)
Tread	Front	mm (in)	1,410 (55.5)
	Rear	mm (in)	1,428 (56.2)

B. ENGINE

Item \ Engine/Transmission			B6 DOHC	
			M/T	A/T
Type			Gasoline, 4-cycle	
Cylinder arrangement and number			In-line, 4-cylinders	
Combustion chamber			Pentroof	
Valve system			DOHC, belt-driven 16 valves	
Bore × Stroke		mm (in)	78.0 × 83.6 (3.07 × 3.29)	
Total piston displacement		cc (cu in)	1,597 (97.42)	
Compression ratio			9.4	9.0
Compression pressure kPa (kg/cm², psi)-rpm	Standard		1,324 (13.5, 192)-300	
	Minimum		932 (9.5, 135)-300	
	Maximum difference between each cylinder		196 (2.0, 28)	
Valve timing	IN	Open BTDC	5°	5°
		Close ABDC	51°	40°
	EX	Open BBDC	53°	55°
		Close ATDC	15°	5°
Valve clearance		mm (in) IN	0: Maintenance-free	
		EX	0: Maintenance-free	
Cylinder head				
Height		mm (in)	133.8—134.0 (5.268—5.276)	
Distortion		mm (in)	0.15 (0.006) max.	
Grinding		mm (in)	0.20 (0.008) max.	
Cylinder head-to-HLA clearance		mm (in) Standard	0.025—0.066 (0.0010—0.0026)	
		Maximum	0.18 (0.0071)	
Valve and valve guide				
Valve head diameter		mm (in) IN	30.9—31.1 (1.217—1.224)	
		EX	26.1—26.3 (1.028—1.035)	
Valve head margin thickness		mm (in) IN	0.9 (0.035)	
		EX	1.0 (0.039)	
Valve face angle		IN	45°	
		EX	45°	
Valve length mm (in)	IN	Standard	105.29 (4.1452)	
		Minimum	104.79 (4.1256)	
	EX	Standard	105.39 (4.1492)	
		Minimum	104.89 (4.1295)	
Valve stem diameter		mm (in) IN	5.970—5.985 (0.2350—0.2356)	
		EX	5.965—5.980 (0.2348—0.2354)	
Guide inner diameter		mm (in)	6.01—6.03 (0.2366—0.2374)	
Valve stem-to-guide clearance		mm (in) IN	0.025—0.060 (0.0010—0.0024)	
		EX	0.030—0.065 (0.0012—0.0026)	
		Maximum	0.20 (0.008)	
Guide projection (Height "A")		mm (in) IN	16.8—17.4 (0.661—0.685)	
		EX	16.8—17.4 (0.661—0.685)	
Valve seat				
Seat angle		IN	45°	
		EX	45°	

Item \ Engine/Transmission			B6 DOHC	
			M/T	A/T
Seat contact width		mm (in)	0.8—1.4 (0.031—0.055)	
Seat sinking		mm (in) Standard	43.5 (1.713)	
		Maximum	45.0 (1.772)	
Valve spring				
Free length		mm (in) IN	48.1 (1.893)	
		EX	48.3 (1.902)	
Minimum length		IN	40.0 with a set load of 23.3 $^{+1.75}_{-1.17}$ kg	
		EX	40.0 with a set load of 18.6 $^{+1.4}_{-0.93}$ kg	
Out-of-square		mm (in) IN	1.68 (0.0661) max.	
		EX	1.69 (0.0665) max.	
Setting load/height		N (kg, lb)/mm (in) IN	217—246 (22.1—25.1, 48.6—55.2)/40.0 (1.575)	
		EX	174—196 (17.7—20.0, 38.9—44.0)/40.0 (1.575)	
Camshaft				
Cam height	IN	mm (in) Standard	40.888 (1.6098)	39.984 (1.5741)
		Minimum	40.688 (1.6019)	39.784 (1.5662)
	EX	Standard	40.889 (1.6098)	40.888 (1.6097)
		Minimum	40.689 (1.6019)	40.688 (1.6018)
Journal diameter		mm (in) Standard (No.1—No.5)	25.940—25.965 (1.0213—1.0222)	
		Out-of-round	0.03 (0.001) max.	
Camshaft bearing oil clearance		mm (in) Standard (No.1—No.5)	0.035—0.081 (0.0014—0.0032)	
		Maximum	0.15 (0.006)	
Camshaft runout		mm (in)	0.03 (0.0012) max.	
Camshaft end play		mm (in) Standard	0.07—0.19 (0.0028—0.0075)	
		Maximum	0.20 (0.008)	
Cylinder block				
Height		mm (in)	221.5 (8.720)	
Distortion		mm (in)	0.15 (0.006) max.	
Grinding		mm (in)	0.20 (0.008) max.	
Cylinder bore diameter mm (in)	Standard size		78.006—78.013 (3.0711—3.0714)	
	0.25 (0.010) oversize		78.256—78.263 (3.0809—3.0812)	
	0.50 (0.020) oversize		78.506—78.513 (3.0908—3.0911)	
Cylinder bore taper and out-of-round		mm (in)	0.019 (0.0007) max.	
Piston				
Piston diameter Measured at 90° to pin bore axis and 16.5mm (0.650 in) below oil ring groove mm (in)	Standard size		77.954—77.974 (3.0690—3.0698)	
	0.25 (0.010) oversize		78.211—78.217 (3.0792—3.0794)	
	0.50 (0.020) oversize		78.461—78.467 (3.0890—3.0892)	
Piston-to-cylinder clearance		mm (in) Standard	0.039—0.052 (0.0015—0.0020)	
		Maximum	0.15 (0.006)	
Piston ring				
Thickness		mm (in) Top	1.47—1.49 (0.0579—0.0587)	
		Second	1.47—1.49 (0.0579—0.0587)	
End gap (Measured in cylinder)		mm (in) Top	0.15—0.30 (0.006—0.012)	
		Second	0.3—0.45 (0.012—0.018)	
		Oil (rail)	0.20—0.70 (0.008—0.028)	
		Maximum	1.0 (0.039)	
Ring groove width in piston		mm (in) Top	1.52—1.54 (0.0598—0.0606)	
		Second	1.52—1.54 (0.0598—0.0606)	
		Oil	4.02—4.04 (0.1583—0.1591)	
Piston ring-to-ring groove clearance		mm (in) Top	0.03—0.07 (0.0012—0.0028)	
		Second	0.03—0.07 (0.0012—0.0028)	
		Maximum	0.15 (0.006)	
Piston pin				
Diameter		mm (in)	19.987—19.993 (0.7869—0.7871)	
Piston-to-piston pin clearance		mm (in)	−0.005—0.013 (−0.0002—0.0005)	
Connecting rod bush-to-piston pin clearance		mm (in)	0.010—0.027 (0.0004—0.0011)	

Item \ Engine/Transmission			B6 DOHC	
			M/T	A/T
Connecting rod and connecting rod bearing				
Length (Center to center) mm (in)			132.85—132.95 (5.230—5.234)	
Bending mm (in)			0.075 (0.0030) max./50 (1.97)	
Small end bore (Bush inner diameter) mm (in)			20.003—20.014 (0.7875—0.7880)	
Big end bore mm (in)			48.000—48.016 (1.8898—1.8904)	
Big end width mm (in)			21.838—21.890 (0.8598—0.8618)	
Connecting rod side clearance mm (in)		Standard	0.110—0.262 (0.0043—0.0103)	
		Maximum	0.30 (0.012)	
Crankshaft				
Crankshaft runout mm (in)			0.04 (0.0016) max.	
Main journal diameter mm (in)	Standard size	Standard	49.938—49.956 (1.9661—1.9668)	
		Minimum	49.904 (1.9647)	
	0.25 (0.010) undersize	Standard	49.704—49.708 (1.9568—1.9570)	
		Minimum	49.652 (1.9548)	
	0.50 (0.020) undersize	Standard	49.454—49.458 (1.9470—1.9472)	
		Minimum	49.402 (1.9450)	
	0.75 (0.030) undersize	Standard	49.204—49.208 (1.9372—1.9373)	
		Minimum	49.152 (1.9351)	
Main journal taper and out-of-round mm (in)			0.05 (0.0020) max.	
Crankpin diameter mm (in)	Standard size	Standard	44.940—44.956 (1.7693—1.7699)	
		Minimum	44.908 (1.7680)	
	0.25 (0.010) undersize	Standard	44.690—44.706 (1.7594—1.7601)	
		Minimum	44.658 (1.7582)	
	0.50 (0.020) undersize	Standard	44.440—44.456 (1.7496—1.7502)	
		Minimum	44.408 (1.7483)	
	0.75 (0.030) undersize	Standard	44.190—44.206 (1.7398—1.7404)	
		Minimum	44.158 (1.7385)	
Crankpin taper and out-of-round mm (in)			0.05 (0.0020) max.	
Main bearing				
Main journal bearing oil clearance mm (in)		Standard	0.018—0.036 (0.0007—0.0014)	
		Maximum	0.10 (0.004)	
Available undersize bearing mm (in)			0.25 (0.010), 0.50 (0.020), 0.75 (0.030)	
Crankpin bearing				
Crankpin bearing oil clearance mm (in)		Standard	0.028—0.068 (0.0011—0.0027)	
		Maximum	0.10 (0.004)	
Available undersize bearing mm (in)			0.25 (0.010), 0.50 (0.020), 0.75 (0.030)	
Thrust bearing				
Crankshaft end play mm (in)		Standard	0.080—0.282 (0.0031—0.0111)	
		Maximum	0.30 (0.012)	
Bearing width mm (in)	Standard size		2.500—2.550 (0.0984—0.1004)	
	0.25 (0.010) oversize		2.625—2.675 (0.1033—0.1053)	
	0.50 (0.020) oversize		2.750—2.800 (0.1083—0.1102)	
	0.75 (0.030) oversize		2.875—2.925 (0.1132—0.1152)	
Timing belt				
Belt deflection mm (in)/98 N (10 kg, 22 lb)			9.0—11.5 (0.35—0.45)	

D. LUBRICATION SYSTEM

Item \ Engine		B6 DOHC
Lubricating method		Force-fed
Oil pump		
Type		Trochoid gear
Relief pressure kPa (kg/cm^2, psi)		343—441 (3.5—4.5, 50—64)
Oil pressure kPa (kg/cm^2, psi)	1,000 rpm	196—294 (2.0—3.0, 28—43)
	3,000 rpm	294—392 (3.0—4.0, 43—57)

Item \ Engine			B6 DOHC
Inner rotor tooth tip to outer rotor clearance mm (in)		Standard	0.02—0.16 (0.0008—0.0063)
		Maximum	0.20 (0.0079)
Outer rotor to body clearance mm (in)		Standard	0.09—0.18 (0.0035—0.0071)
		Maximum	0.22 (0.0087)
Side clearance mm (in)		Standard	0.03—0.11 (0.0012—0.0043)
		Maximum	0.14 (0.0055)
Oil filter			
Type			Full-flow, paper element
Relief pressure differential kPa (kg/cm², psi)			78—118 (0.8—1.2, 11—17)
Engine oil			
Capacity liters (US qt, Imp qt)		Total (dry engine)	3.6 (3.8, 3.2)
		Oil pan	3.2 (3.4, 2.8)
		Oil filter	0.17 (0.18, 0.15)
Grade			API Service SG energy conserving II (ECII)
Viscosity number	Above −25°C (−13°F)		SAE 10W-30
	Below 0°C (32°F)		SAE 5W-30

E. COOLING SYSTEM

Item \ Engine	B6 DOHC
Cooling method	Water-cooled, forced circulation
Water pump	
Type	Centrifugal, V-belt driven
Impeller diameter mm (in)	75 (2.95)
Number of impeller blades	6
Speed ratio	1 : 1.05
Water seal type	Unified mechanical seal
Thermostat	
Type	Wax, two-stage
Opening temperature °C (°F)	Sub: 83.5—86.5 (182—188), Main: 86.5—89.5 (188—193)
Full-open temperature °C (°F)	100 (212)
Full-open lift mm (in)	Sub: 1.5 (0.06) min., Main: 8.0 (0.31) min.
Radiator	
Type	Corrugated fin
Cap valve opening pressure kPa (kg/cm², psi)	74—103 (0.75—1.05, 11—15)
Cooling circuit checking pressure kPa (kg/cm², psi)	103 (1.05, 15)
Cooling fan	
Type	Electric
Number of blades	5
Outer diameter mm (in)	320 (12.6)
Switching temperature OFF → ON °C (°F)	97 (207)
Capacity W-V	70-12
Current A	5.3—6.5
Coolant	
Capacity liters (US qt, Imp qt)	6.0 (6.3, 5.3)

Item \ Engine		B6 DOHC		
	Coolant protection	Volume percentage %		Specific gravity at 20°C (68°F)
		Water	Coolant	
Antifreeze solution	Above −16°C (3°F)	65	35	1.054
	Above −26°C (−15°F)	55	45	1.066
	Above −40°C (−40°F)	45	55	1.078

F. FUEL AND EMISSION CONTROL SYSTEMS

Item			Specification
Idle speed	rpm		850 ± 50 *
Ignition timing	BTDC		10° ± 1° (M/T) *, 8° ± 1° (A/T) *
Throttle body			
Type			Horizontal draft
Throat diameter	mm (in)		55 (2.2)
Dashpot			
Adjustment speed	rpm		2,500 ± 150
Airflow meter			
Resistance Ω	E_2 ↔ Vs	Fully closed	200—600
		Fully open	20—1,000
	E_2 ↔ Vc		200—400
	E_2 ↔ THA_A (Intake air thermosensor)	−20°C (−4°F)	13,600—18,400
		20°C (68°F)	2,210—2,690
		60°C (140°F)	493—667
	E_1 ↔ Fc	Fully closed	∞
		Fully open	0
Fuel pump			
Type			Impeller (in-tank)
Output pressure	kPa (kg/cm², psi)		441—589 (4.5—6.0, 64—85)
Fuel filter			
Type	Low-pressure side		Nylon element
	High-pressure side		Paper element
Pressure regulator			
Type			Diaphragm
Regulating pressure	kPa (kg/cm², psi)		265—314 (2.7—3.2, 38—46)
Injector			
Type			High-ohmic
Type of drive			Voltage
Resistance	Ω		12—16 (at 20°C, 68°F)
ISC valve (Solenoid valve [Idle speed control])			
Solenoid resistance	Ω		11—13 (at 20°C, 68°F)
Circuit opening relay			
Resistance Ω		STA — E_1	21—43
		B — Fc	109—226
		B — F_P	∞
Solenoid valve (Purge control)			
Solenoid resistance	Ω		23—27 (at 20°C, 68°F)
Crank angle sensor			
Type			Optical pickup
Water thermosensor			
Resistance kΩ		−20°C (−4°F)	14.6—17.8
		20°C (68°F)	2.2—2.7
		80°C (176°F)	0.29—0.35
Air valve			
Opening temperature	°C (°F)		Below 40 (104)
Fuel tank			
Capacity	liters (US gal, Imp gal)		45 (11.9, 9.9)

*....with system selector (49 B019 9A0) test switch at SELF TEST

Item	Specification
Air cleaner	
Element type	Oil permeated
Accelerator cable	
Free play mm (in)	1—3 (0.039—0.118)
Fuel	
Specification	Unleaded regular (RON 87 or higher)

G. ENGINE ELECTRICAL SYSTEM

Item \ Engine			B6 DOHC
Battery	Voltage V		12, Negative ground
	Type and capacity (5-hour rate)		S46A24L(S) (32Ah) Maintenance-free
Dark current *1 mA			20.0
Alternator	Type		A.C.
	Output V-A		12-60 (M/T), 12-65 (A/T)
	Regulator type		Transistorized (built-in IC regulator)
	Regulated voltage		14.3—14.9
	Brush length mm (in)	Standard	21.5 (0.85)
		Minimum	8 (0.31)
	Drive belt tension mm (in)	New	8—9 (0.31—0.35)
		Used	9—10 (0.35—0.39)
Starter	Type		Direct
	Output V-kW		12-0.95
	Brush length mm (in)	Standard	17.0 (0.67)
		Minimum	11.5 (0.45)
Ignition system	Type		Electronic spark advance (ESA)
	Spark advance control		Engine control unit controls sparks advance
Ignition timing BTDC			9°—11° (M/T)*2, 7°—9° (A/T)*2
Ignition coil	Type		Molded
	Primary coil winding kΩ		0.78—0.94
	Secondary coil winding kΩ		11.2—15.2
Spark plug	Type		NGK: BKR5E-11 (Standard...M/T), BKR6E-11, BKR7E-11 — NIPPONDENSO: K16PR-U11, K20PR-U11 (Standard...M/T, A/T), K22PR-U11
	Plug gap mm (in)		1.0—1.1 (0.039—0.043)
	Firing order		1—3—4—2

*1 Dark current is the constant flow of current while the ignition switch is OFF.
(i.e. engine control unit, audio etc.)
*2...with system selector (49 B019 9A0) test switch of SELF TEST

H. CLUTCH

Item \ Engine		B6 DOHC
Clutch control		Hydraulic
Clutch pedal		
Type		Suspended
Pedal ratio		6.13
Full stroke mm (in)		120 (4.72)
Height (with carpet) mm (in)		175—185 (6.89—7.28)
Free play mm (in)		0.6—3.1 (0.02—0.12)
Distance to carpet when clutch fully disengaged mm (in)	Minimum	68 (2.68)
Flywheel		
Runout limit mm (in)		0.2 (0.008)
Clutch disc		
Type		Single dry plate

Item \ Engine			B6 DOHC
Runout limit		mm (in)	0.7 (0.028)
Wear limit		mm (in)	0.3 (0.012) from rivet head
Outer diameter		mm (in)	200 (7.87)
Inner diameter		mm (in)	130 (5.12)
Facing thickness	mm (in)	Flywheel side	3.5 (0.14)
		Pressure plate side	3.5 (0.14)
Clutch cover			
Type			Diaphragm spring
Set load		N (kg, lb)	4,022 (410, 902)

J. MANUAL TRANSMISSION

Item \ Transmission			M-type (M5M-D)
Gear ratio	1st		3.136
	2nd		1.888
	3rd		1.330
	4th		1.000
	5th		0.814
	Reverse		3.758
Oil capacity		liters (US qt, Imp qt)	2.0 (2.1, 1.8)
Mainshaft	Runout mm (in)	Maximum	0.03 (0.0012)
	Clearance between mainshaft and gear (or bush) mm (in)	Wear limit	0.15 (0.006)
Reverse idle gear	Clearance between reverse idle gear bushing and shaft mm (in)	Wear limit	0.15 (0.006)
Shift fork and rod	Clearance between shift fork and clutch sleeve mm (in)	Wear limit	0.5 (0.020)
	Clearance between shift rod gate and control lever mm (in)	Wear limit	0.8 (0.032)
Synchronizer ring	Clearance between synchronizer ring and side of gear when fitted mm (in)	Standard	1.5 (0.059)
		Wear limit	0.8 (0.032)
Shift rod (5th/Reverse) spring	Free length	mm (in)	75 (2.953)
Detent ball spring (1st/2nd)	Free length	mm (in)	22.5 (0.886)
Detent ball spring (3rd/4th)	Free length	mm (in)	22.5 (0.886)
Detent ball spring (5th/Reverse)	Free length	mm (in)	17.0 (0.669)
Lubricant	Above 10°C (50°F)		API Service GL-4 or GL-5 SAE 80W-90
	All seasons		API Service GL-4 or GL-5 SAE 75W-90

K. AUTOMATIC TRANSMISSION (HYDRAULICALLY-CONTROLLED)

Item \ Transmission			N4A-HL
Torque converter stall torque ratio			1.9 : 1
Gear ratio	1st		2.841
	2nd		1.541
	3rd		1.000
	OD (4th)		0.720
	Reverse		2.400
Automatic transmission fluid (ATF)	Type		Dexron®II or M-III
	Capacity liters (US qt, Imp qt)	Total	6.7 (7.1, 5.9)
		Oil pan	4.0 (4.2, 3.5)
Engine stall speed rpm		D, 2, 1, and R ranges	2,600—3,000
Time lag sec.		N → D range	0.5—1.0
		N → R range	0.5—1.0
Line pressure kPa (kg/cm², psi)	At idle	D and 1 ranges	294—392 (3.0—4.0, 43—57)
		2 range	1,020—1,138 (10.4—11.6, 148—166)
		R range	697—834 (7.1—8.5, 101—121)
	At stall	D and 1 ranges	932—1,128 (9.5—11.5, 135—164)
		2 range	981—1,177 (10.0—12.0, 142—171)
		R range	2,246—2,541 (22.9—25.9, 326—369)
Governor pressure kPa (kg/cm², psi)	Vehicle speed: 30 km/h (19 mph)		78—137 (0.8—1.4, 11—20)
	Vehicle speed: 55 km/h (34 mph)		157—235 (1.6—2.4, 23—34)
	Vehicle speed: 85 km/h (53 mph)		334—432 (3.4—4.4, 48—63)
	Cutback point	Atmospheric pressure	108—167 (1.1—1.7, 16—24)
		200 mmHg (7.87 inHg)	59—118 (0.6—1.2, 9—17)
Oil pump	Body clearance mm (in)	Standard	0.02—0.04 (0.0008—0.0016)
		Maximum	0.08 (0.0031)
	Tip clearance mm (in)	Standard	0.14—0.21 (0.0055—0.0083)
		Maximum	0.25 (0.0098)
	Side clearance mm (in)	Standard	0.05—0.20 (0.0020—0.0079)
		Maximum	0.25 (0.0098)
Drum support	Seal ring and groove clearance mm (in)	Standard	0.04—0.16 (0.0016—0.0063)
		Maximum	0.40 (0.016)
Direct clutch	Number of drive/driven plates		2/2
	Drive plate thickness mm (in)	Standard	1.6 (0.063)
		Minimum	1.4 (0.055)
	Clutch clearance mm (in)		0.2 (0.008) max.
	Side plate size mm (in)		0.4 (0.016), 0.6 (0.024), 0.8 (0.031), 1.0 (0.039), 1.2 (0.047)
	End play mm (in)		0.5—0.8 (0.020—0.031)
	Thrust washer size mm (in)		1.3 (0.051), 1.5 (0.059), 1.7 (0.067), 1.9 (0.075), 2.1 (0.083), 2.3 (0.091), 2.5 (0.098), 2.7 (0.106)
OD planetary gear unit	Pinion clearance mm (in)	Standard	0.2—0.7 (0.008—0.028)
		Maximum	0.8 (0.031)
	Total end play mm (in)		0.25—0.50 (0.0098—0.0197)
	Bearing race size mm (in)		1.2 (0.047), 1.4 (0.055), 1.6 (0.063), 1.8 (0.071), 2.0 (0.079), 2.2 (0.087)
Front clutch	Number of drive/driven plates		4/5
	Drive plate thickness mm (in)	Standard	1.6 (0.063)
		Minimum	1.4 (0.055)
	Clutch clearance mm (in)		0.9—1.1 (0.035—0.043)
	Retaining plate size mm (in)		5.6 (0.220), 5.8 (0.228), 6.0 (0.236), 6.2 (0.244), 6.4 (0.252), 6.6 (0.260), 6.8 (0.268), 7.0 (0.276)
	End play mm (in)		0.5—0.8 (0.020—0.031)
	Thrust washer size mm (in)		1.3 (0.051), 1.5 (0.059), 1.7 (0.067), 1.9 (0.075), 2.1 (0.083), 2.3 (0.091), 2.5 (0.098), 2.7 (0.106)

Item \ Transmission			N4A-HL
Rear clutch	Number of drive/driven plates		6/6
	Drive plate thickness mm (in)	Standard	1.6 (0.063)
		Minimum	1.4 (0.055)
	Clutch clearance mm (in)		0.8—1.0 (0.031—0.039)
	Retaining plate size mm (in)		6.2 (0.244), 6.4 (0.252), 6.6 (0.260), 6.8 (0.268), 7.0 (0.276), 7.2 (0.283), 7.4 (0.291), 7.6 (0.299)
	Total end play mm (in)		0.25—0.50 (0.0098—0.0197)
	Bearing race size mm (in)		1.2 (0.047), 1.4 (0.055), 1.6 (0.063), 1.8 (0.071), 2.0 (0.079), 2.2 (0.087)
Low and reverse brake	Number of drive/driven plates		4/4
	Drive plate thickness mm (in)	Standard	2.0 (0.079)
		Minimum	1.8 (0.071)
	Clutch clearance mm (in)		0.8—1.05 (0.031—0.041)
	Retaining plate size mm (in)		7.8 (0.307), 8.0 (0.315), 8.2 (0.323), 8.4 (0.331), 8.6 (0.339), 8.8 (0.346)
Front planetary gear	Pinion clearance mm (in)	Standard	0.2—0.7 (0.008—0.028)
		Maximum	0.8 (0.031)
Rear planetary gear	Pinion clearance mm (in)	Standard	0.2—0.7 (0.008—0.028)
		Maximum	0.8 (0.031)
Parking gear (oil distributor)	Seal ring and groove clearance mm (in)	Standard	0.04—0.16 (0.0016—0.0063)
		Maximum	0.40 (0.0157)

Spring specifications

Spring \ Item		Outer dia. mm (in)	Free length mm (in)	No. of coil	Wire dia. mm (in)
Control valve	Second lock	5.55 (0.219)	33.5 (1.319)	18.0	0.55 (0.022)
	Pressure regulator	11.7 (0.461)	43.0 (1.692)	15.0	1.2 (0.047)
	Down shift	5.55 (0.219)	21.9 (0.862)	14.0	0.55 (0.022)
	Throttle back-up	7.3 (0.287)	36.0 (1.417)	16.0	0.8 (0.031)
	3-4 shift	6.6 (0.260)	30.3 (1.193)	14.6	0.8 (0.031)
	2-3 shift	6.4 (0.252)	39.2 (1.543)	20.0	0.7 (0.028)
	1-2 shift	6.65 (0.262)	26.9 (1.059)	12.2	0.65 (0.026)
	Pressure modifier	8.6 (0.339)	15.5 (0.610)	7.5	0.6 (0.024)
	3-2 timing	7.5 (0.295)	23.2 (0.913)	11.0	0.8 (0.031)
	Throttle relief	6.5 (0.256)	26.8 (1.055)	16.0	0.9 (0.035)
	Orifice check	5.0 (0.197)	15.5 (0.610)	12.0	0.23 (0.009)
Governor valve	Primary	8.75 (0.344)	21.8 (0.858)	7.0	0.45 (0.018)
	Secondary	9.25 (0.364)	26.7 (1.051)	9.0	0.75 (0.030)
Oil pump	Lockup control	5.5 (0.217)	25.0 (0.984)	15.0	0.7 (0.028)
Drum support	OD accumulator	16.0 (0.630)	40.4 (1.591)	9.8	2.6 (0.102)
	OD cancel	4.95 (0.195)	23.0 (0.906)	14.8	0.65 (0.026)
Band servo	OD	26.8 (1.055)	47.0 (1.850)	8.4	2.9 (0.114)
	2ND	28.25 (1.112)	37.0 (1.457)	5.4	3.5 (0.138)
Direct, front, and rear clutches		8.0 (0.315)	30.5 (1.201)	14.5	1.3 (0.051)
Low and reverse brake		—	5.9—6.2 (0.232—0.244)	—	—
Parking rod		7.2 (0.283)	32.0 (1.260)	14.0	0.7 (0.028)

Vehicle speed at gearshift table

Range	Throttle condition (Manifold vacuum)	Shifting	Vehicle speed km/h (mph)
D	Fully opened	$D_1 \rightarrow D_2$	50—56 (31—35)
		$D_2 \rightarrow D_3$	93—99 (58—61)
		OD→D_3	Above 93 (58)
		$D_3 \rightarrow D_2$	87—93 (54—58)
		$D_2 \rightarrow D_1$	37—43 (23—27)
	Half throttle 200 mmHg (7.87 inHg)	$D_1 \rightarrow D_2$	17—23 (11—14)
		$D_2 \rightarrow D_3$	25—31 (16—19)
		$D_3 \rightarrow$ OD	44—50 (27—31)
		Lockup ON (OD)	66—72 (41—45)
		Lockup OFF (OD)	60—66 (37—41)
		OD→D_3	27—33 (17—20)
		$D_3 \rightarrow D_2$	9—15 (6— 9)
		$D_2 \rightarrow D_1$	9—15 (6— 9)
	Fully closed	$D_1 \rightarrow D_2$	12—18 (7—11)
		$D_2 \rightarrow D_3$	22—28 (14—17)
		$D_3 \rightarrow$ OD	41—47 (25—29)
		OD→D_3	27—33 (17—20)
		$D_3 \rightarrow D_2$	9—15 (6— 9)
		$D_2 \rightarrow D_1$	9—15 (6— 9)
1	—	$1_2 \rightarrow 1_1$	38—44 (24—27)

L. PROPELLER SHAFT

Item	Specification
Max. permissible run-out mm (in)	0.4 (0.016)

M. FRONT AND REAR AXLES

Item			Specifications
Front axle	Type		Double-wishbone
	Bearing		Angular ball bearing
	Wheel bearing play mm (in)	Maximum	0.05 (0.002)
Rear axle	Type		Double-wishbone
	Bearing		Angular ball bearing
	Wheel bearing play mm (in)	Maximum	0.05 (0.002)
Differential	Type		Standard
	Reduction gear		Hypoid gear
	Reduction ratio		4.300
	Differential gear		Straight-bevel gear
	Ring gear size mm (in)		162.16 (6.38)
	Oil	Grade	API service GL-5
		Viscosity	Above −18°C (0°F): SAE 90 Below −18°C (0°F): SAE 80W
		Capacity liter (Us qt, Imp qt)	0.65 (0.69, 0.57)
	Drive pinion preload (without oil seal) N·m (cm-kg, in-lb)		0.3—0.7 (3—7, 2.6—6.1)
	Backlash mm (in)	Side gear and pinion gear	0—0.1 (0—0.004)
		Final gear	0.09—0.11 (0.0035—0.0043)
	Length (Pilot section to pilot section) mm (in)		150.20 $^{+0}_{-0.063}$ (5.913 $^{+0}_{-0.0025}$)

N. STEERING SYSTEM

Item \ Type		Manual steering	Power steering
Steering wheel			
Outer diameter	mm (in)	370 (14.6)	
Free play	mm (in)	0—30 (0—1.18)	
Wheel effort	N (kg, lb)	4.9—29.4 (0.5—3.0, 1.1—6.6)	23.5—35.3 (2.4—3.6, 5.3—8.0)
Lock-to-lock	turns	3.36	2.8
Steering Shaft			
Shaft type		Collapsible, non-tilt	
Joint type		2-cross joint	
Power steering system			
Power assist type		Engine speed sensing	
Gear type		Rack-and-pinion	
Gear ratio		∞ (infinite)	
Rack stroke	mm (in)	121.0 (4.76)	
Power steering fluid		ATF Dexron®II or M-III	
Fluid capacity	liter (US qt, Imp qt)	0.8 (0.85, 0.70)	
Fluid pressure	kPa (kg/cm^2, psi)	7,603—8,339 (77.5—85.0, 1,102—1,209)	

P. BRAKING SYSTEM

Item			Specifications
Brake pedal	Height (with carpet)	mm (in)	171—181 (6.73—7.13)
	Free play	mm (in)	4—7 (0.16—0.28)
	Reserve travel (without carpet, clearance when pedal is depressed at 589 N (60 kg, 132 lb))	mm (in)	95 (3.74)
Master cylinder	Type		Tandem
	Bore	mm (in)	22.22 (0.87)
	Fluid type		SAEJ1703 or FMVSS116, DOT-3
Front brake (Disc)	Type		Disc
	Thickness of pad	Standard	9.5 (0.37)
	mm (in)	Limit	1.0 (0.04)
	Thickness of disc plate	Standard	18.0 (0.71)
	mm (in)	Limit	16.0 (0.63)
	Disc plate runout	mm (in)	0.1 (0.004) max.
	Wheel cylinder bore	mm (in)	51.1 (2.01)
Rear brake (Disc)	Type		DISC
	Thickness of pad	Standard	8.0 (0.31)
	mm (in)	Limit	1.0 (0.04)
	Thickness of disc plate	Standard	9 (0.35)
	mm (in)	Limit	7 (0.28)
	Wheel cylinder bore	mm (in)	31.75 (1.25)
Parking brake	Lever notches [Pulled at 98 N (10 kg, 22 lb)]		5—7
Power brake unit	Type		Single diaphragm
	Diameter	mm (in)	214 (8.0)
	Push rod-to-piston clearance	mm (in)	When vacuum applied to the unit is approx. 500 mmHg (19.7 inHg) 0.1—0.4mm (0.004—0.016 in)
	Fluid pressure per treading force	kPa (kg/cm^2, psi)/N (kg, lb)	1,079—1,177 (11—12, 156—171)/196 (20, 44) at 0 mmHg (0 inHg) min. 5,199—5,494 (53—56, 754—796)/196 (20, 44) at 500 mmHg (19.7 inHg) min.
Rear wheel hydraulic control system	Type		PBV
	Bend portion (Rear brake pressure)	kPa (kg/cm^2, psi)	2,943 (30, 427)

Q. WHEELS AND TIRES

Item \ Type			Standard	Temporary spare
Wheel	Size		14×5 1/2-JJ	14×4T
	Offset	mm (in)	45 (1.77)	
	Pitch circle diameter	mm (in)	100 (3.94)	
	Material		Aluminum alloy	Steel
Tire	Size		P185/60R14 82H	T115/70D14
	Air pressure	kPa (kg/cm^2, psi)	179 (1.8, 26)	415 (4.2, 60)
Wheel and tire	Runout limit mm (in)	Horizontal	2.0 (0.079)	
		Vertical	1.5 (0.059)	
	Maximum unbalance (at rim edge)	g (oz)	10 (0.35)	

R. SUSPENSION

Item \ Transmission			M/T	A/T
Front suspension				
Type			Double-wishbone	
Stabilizer	Type		Torsion bar	
	Diameter	mm (in)	21 (0.82)	
Shock absorbers			Cylindrical double-acting, low-pressure gas charged	
Coil springs	Identification color		Red	White
	Wire diameter	mm (in)	10.8 (0.43)	11.0 (0.43)
	Coil inner diameter	mm (in)	83 (3.27)	83 (3.27)
	Free length	mm (in)	282.5 (11.12)	292.5 (11.52)
	Coil number		5.91	6.32
Rear suspension				
Type			Double-wishbone	
Stabilizer	Type		Torsion bar	
	Diameter	mm (in)	14 (0.55)	
Shock absorbers			Cylindrical double-acting, low-pressure gas charged	
Coil springs	Identification color		Blue	Orange
	Wire diameter	mm (in)	10.1 (0.40)	10.2 (0.40)
	Coil inner diameter	mm (in)	83 (3.27)	83 (3.27)
	Free length	mm (in)	339.5 (13.37)	347.5 (13.68)
	Coil number		7.68	7.96
Wheel alignment				
Front wheel alignment (Unladed*1)	Total toe-in	mm (in)	3 ± 3 (0.12 ± 0.12)	
		degree	0°18' ± 18'	
	Maximum steering angle	Inner	37°23' ± 2°	
		Outer	32°32' ± 2°	
	Camber angle		0°24' ± 45'*2	
	Caster angle		4°26' ± 45'*3	
	King pin angle		11°20'	
Rear wheel alignment (Unladed*1)	Total toe-in	mm (in)	3 ± 3 (0.12 ± 0.12)	
		degree	0°18' ± 18'	
	Camber angle		−0°43' ± 30'*2	

*1 Fuel tank full; radiator coolant and engine oil at specified level, and spare tire, jack, and tools in designated position.
*2 Difference between left and right must not exceed 1°.
*3 Difference between left and right must not exceed 1°30'.

T. BODY ELECTRICAL SYSTEM

Item	Wattage (Bulb trade number)
Instrument cluster lamps	
Beam	3.4
Turn (LH and RH)	3.4
Illumination	3.4
Engine check	1.4
Brake	1.4
Charge	1.4
Belts	1.4
Air bag	1.4
Retractor	1.4
O/D off	1.4
Anti lock	1.4
Washer	1.4
Rear window defroster	1.4
Exterior lights	
Headlights	60/40
Front turn signal/parking lights	27/8 (1157 NA)
Front side marker lights	3.8 (194)
License plate lights	7.5
Rear turn signal lights	27 (1156)
Rear side marker lights	3.8 (194)
Stop/taillights	27/8 (1157)
Back-up lights	27 (1156)
High-mount stoplight	18.4 (921)
Interior lamps	5
Illumination lamps	
Ash tray	3.4
Heater control switch panel	1.4
A/C switch	1.4
Hazard switch	1.4
Cruise control main switch	1.4

U. HEATER AND AIR CONDITIONING SYSTEM

Item		Specifications
Refrigerant amount	g (oz)	800 (28.24)
Compressor oil amount	cc (cc in)	80—100 (4.88—6.1)
Refrigerant normal pressure	kPa (kg/cm^2, psi)	Low pressure: 147—294 (1.5—3.0, 21—43) High pressure: 1,177—1,619 (12.0—16.5, 171—235)

STANDARD BOLT AND NUT TIGHTENING TORQUE

Diameter mm (in)	Pitch mm (in)	4T			6T			8T		
		N·m	m-kg	ft-lb	N·m	m-kg	ft-lb	N·m	m-kg	ft-lb
6 (0.236)	1 (0.039)	4.2—6.2	0.43—0.63	3.1—4.6	6.9—9.8	0.7—1.0	5.0—7.2	7.8—11.8	0.8—1.2	5.8—8.8
8 (0.315)	1.25 (0.049)	9.8—14.7	1.0—1.5	7.2—10.8	16—23	1.6—2.3	12—17	18—26	1.8—2.7	13—20
10 (0.394)	1.25 (0.049)	20—28	2.0—2.9	14—21	31—46	3.2—4.7	23—34	36—54	3.7—5.5	27—40
12 (0.472)	1.5 (0.059)	34—50	3.5—5.1	25—37	55—80	5.6—8.2	41—59	63—93	6.4—9.5	46—69
14 (0.551)	1.5 (0.059)	—	—	—	75—103	7.7—10.5	56—76	102—137	10—14	75—101
16 (0.630)	1.5 (0.059)	—	—	—	116—157	12—16	85—116	156—211	16—22	115—156
18 (0.709)	1.5 (0.059)	—	—	—	167—225	17—23	123—166	221—299	23—31	163—221
20 (0.787)	1.5 (0.059)	—	—	—	231—314	24—32	171—231	308—417	31—43	227—307
22 (0.866)	1.5 (0.059)	—	—	—	314—423	32—43	231—312	417—564	43—58	307—416
24 (0.945)	1.5 (0.059)	—	—	—	475—546	41—56	298—403	536—726	55—74	396—536

SPECIAL TOOLS

GENERAL INFORMATION ..... ST- 2
ENGINE ..... ST- 3
CLUTCH AND MANUAL TRANSMISSION ... ST- 4
AUTOMATIC TRANSMISSION ..... ST- 5
DIFFERENTIAL ..... ST- 5
FRONT AND REAR AXLES ..... ST- 7
STEERING SYSTEM ..... ST- 7
BRAKING SYSTEM ..... ST- 9
FRONT AND REAR SUSPENSIONS ST-10
CHECKERS AND OTHER EQUIPMENT ST-10

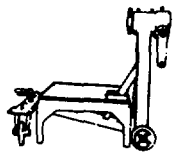
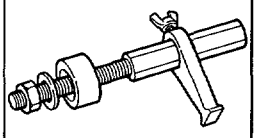
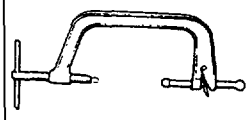
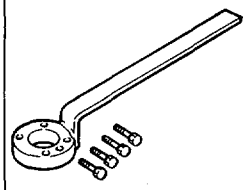
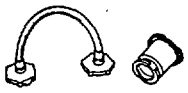
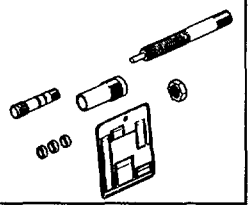
25USTX-001

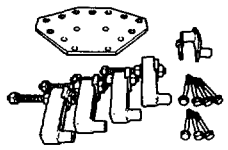
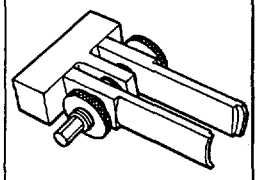
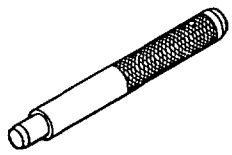
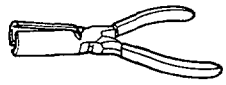
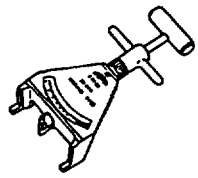
GENERAL INFORMATION

The letters A and B in the priority column indicate the degree of importance of each tool.
A.....Indispensable
The tools ranked A in this list are indispensable for performing operations satisfactorily, easily, safely, and efficiently. It is, therefore, advisable that all service shops have these tools.
B.....Selective
The tools ranked B are not as necessary as tools ranked A, but all service shops should have them to perform repairs more easily and efficiently.

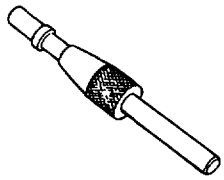
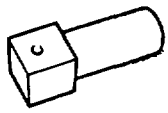
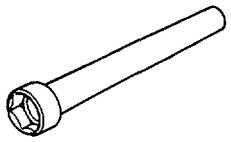
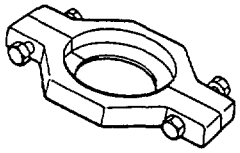
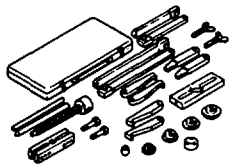
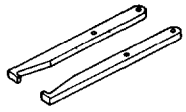
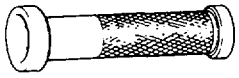
25USTX-001

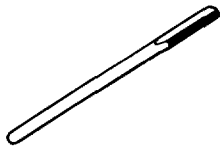
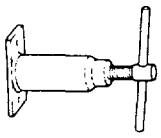
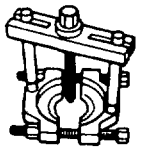
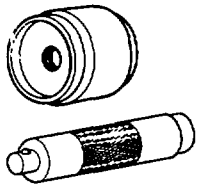
ENGINE

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 0107 680A Engine stand	A	
49 E011 1A0 Brake set, ring gear	A	
49 0636 100A Arm, valve spring lifter	A	
49 D011 102 Lock tool, crankshaft	A	
49 9200 145 Adapter set, radiator cap tester	A	
49 0187 280 Oil pressure gauge	A	
49 L012 0A0 Installer set, valve seal & valve guide	A	

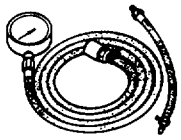
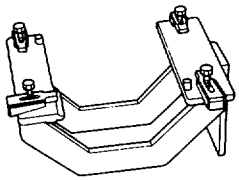
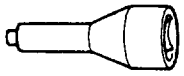
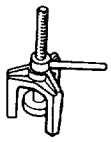
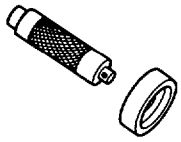
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 L010 1A0 Hanger set, engine stand	A	
49 B012 0A2 Pivot	A	
49 B012 005 Remover & installer, valve guide	A	
49 0221 061A Remover & installer, piston pin	B	
49 S120 170 Remover, valve seal	A	
49 9200 020 V-ribbed belt tension gauge	A	
—	—	—

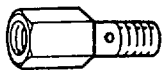
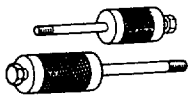
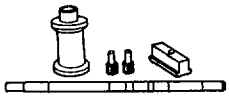
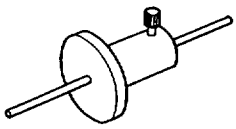
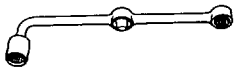
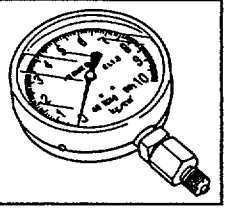
CLUTCH AND MANUAL TRANSMISSION

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 SE01 310A Centering tool, clutch disc	A	
49 0259 440 Holder, mainshaft	A	
49 1243 465A Wrench, mainshaft lock nut	A	
49 0636 145 Puller, fan pulley boss	A	
49 0839 425C Puller set, bearing	A	
49 H017 101 Hook	A	
49 0180 321A Installer, main drive gear bearing	A	

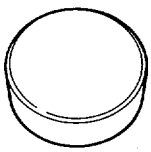
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 0259 770B Wrench, flare nut	A	
49 0187 451A Guide, interlock pin assembly	B	
49 0862 350 Guide, shift fork assembly	B	
49 0500 330 Installer, bearing	A	
49 0305 430 Pusher, main drive shaft	A	
49 0710 520 Puller, bearing	A	
49 B025 0A0 Installer, dust seal	A	

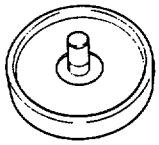
AUTOMATIC TRANSMISSION

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 0378 400A Gauge set, oil pressure	A	
49 H019 002 Adapter	A	
49 U019 0A0A Hanger set, transmission	A	
49 0378 346 Hexhead wrench	A	
49 0378 375 Compressor, clutch spring	A	
49 G030 795 Installer, oil seal	A	

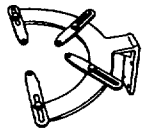
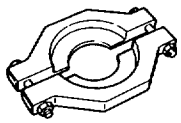
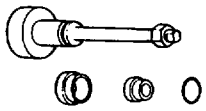
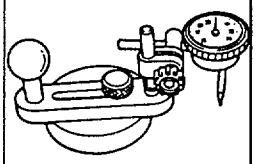
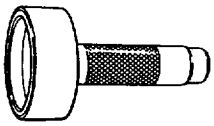
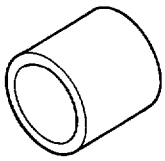
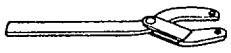
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 H075 406 Adapter	A	
49 0378 390 Puller, oil pump	A	
49 S019 0A0 Centering tool set	A	
49 G032 355 Adjust gauge	B	
49 0877 435 Special wrench	A	
49 B019 901 Gauge, oil pressure	A	

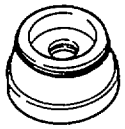
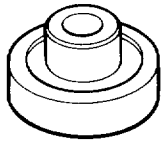
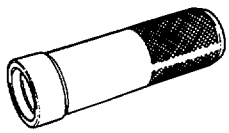
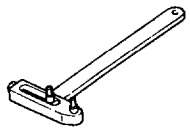
DIFFERENTIAL

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 N027 001 Gauge block	A	

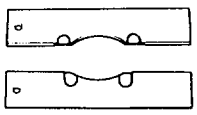
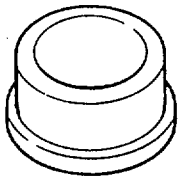
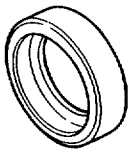
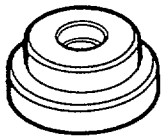
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 N034 213 Installer, rubber bushing	A	

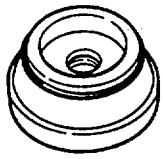
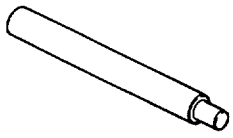
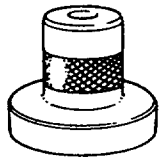
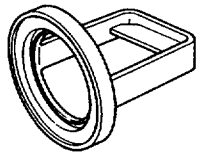
DIFFERENTIAL (CONT'D)

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 M005 561 Hanger, differential carrier	A	
49 H027 002 Remover, bearing	A	
49 8531 565 Pinion model	A	
49 0727 570 Gauge body, pinion height	A	
49 B001 795 Installer, oil seal	A	
49 U027 003 Installer, oil seal	A	
49 S120 710 Holder, coupling flange	A	

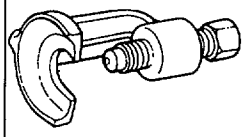
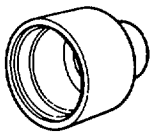
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 F027 005 Attachment ϕ62	A	
49 H033 101 Remover, bearing	A	
49 F401 331 Body	A	
49 F401 336B Attachment B	A	
49 F401 337A Attachment C	A	
49 0259 720 Adjustment wrench, side bearing	B	
—	—	—

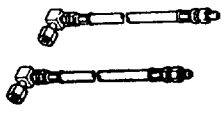
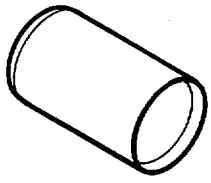
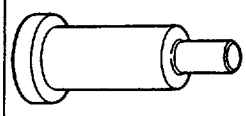
FRONT AND REAR AXLES

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 F026 103 Puller, wheel hub	A	
49 F027 009 Attachment ϕ68 & ϕ77	A	
49 G033 107 Installer, dust cover	A	
49 G030 727 Attachment A	A	

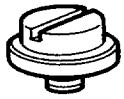
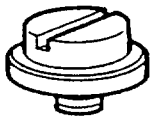
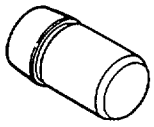
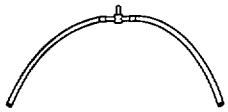
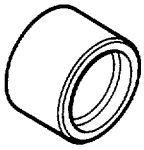
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 F027 007 Attachment ϕ72	A	
49 G033 102 Handle	A	
49 V001 795 Installer, oil seal	A	
49 H026 101A Sensor rotor installer	A	

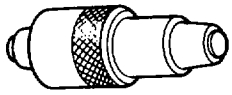
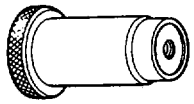
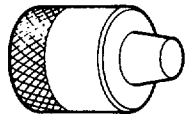
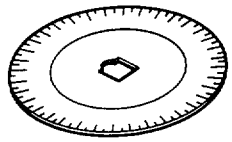
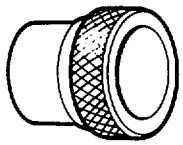
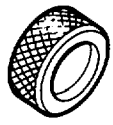
STEERING SYSTEM

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 0118 850C Puller, ball joint	A	
49 1243 785 Installer, dust boot	A	
49 B032 302 Adapter, power steering gauge	A	

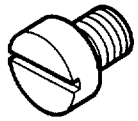
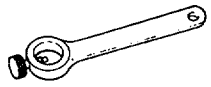
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 H002 671 Adapter, power steering gauge	A	
49 D032 310 Protector, pinion shaft	A	
49 B032 305 Holder, power stearing pump	A	

STEERING SYSTEM (CONT'D)

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 1232 670A Gauge set, power steering	A	
49 N032 303 Back-up ring & oil seal remover body	A	
49 D032 302 Attachment	A	
49 N032 302 Guide, oil seal	A	
49 N032 304 Protecter, oil seal	A	
49 N032 305 Protector, Back-up ring & oil seal	A	
49 G032 317 Hose	A	
49 D032 306 Support block	A	

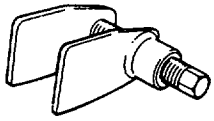
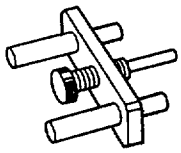
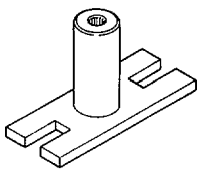
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 D032 304 Installer, oil seal & Bearing	A	
49 D032 301 Oil seal & bearing installer body	A	
49 D032 305 Remover, oil seal & bearing	A	
49 D032 316 Protractor	A	
49 D032 315 Seal ring former & guide	A	
49 G032 319 Adopter	A	
49 D032 313 Seal ring former	A	
49 N032 301 Oil seal protector body	A	

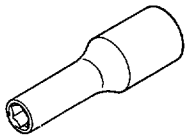
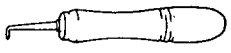
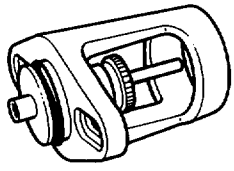
STEERING SYSTEM (CONT'D)

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 F032 303 Handle	A	
49 D032 303 Attachment	A	
49 0180 510B Attachment, preload measuring	B	

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 D032 307 Remover, oil seal & bearing	A	
49 H032 321A Hexagon wrench (Except P/S)	A	
—	—	—

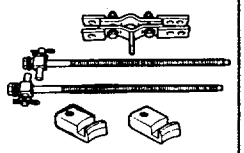
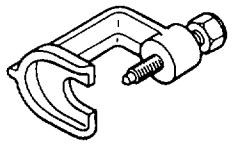
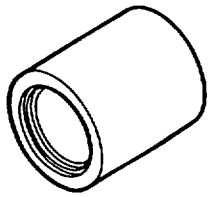
BRAKING SYSTEM

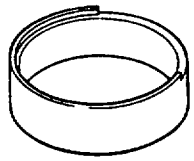
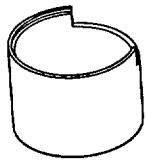
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 0221 600C Expand tool, disc brake	A	
49 F043 001 Adjust gauge	A	
49 B043 003 Lock tool, turning	A	

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 B043 004 Wrench, socket	A	
49 0208 701A Air out tool, boot	A	
49 B043 001 Adjust gauge	A	

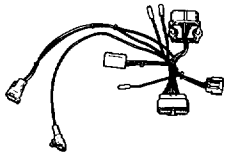
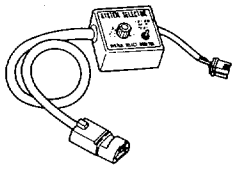
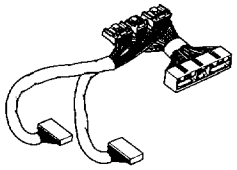
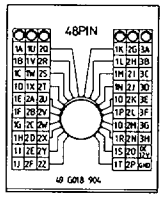
ST

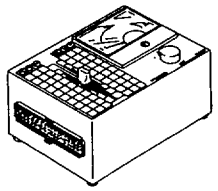
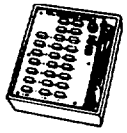
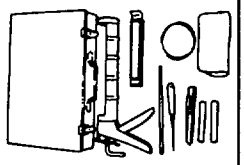
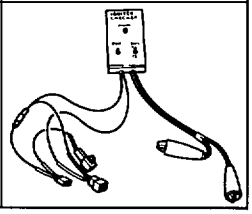
FRONT AND REAR SUSPENSIONS (CONT'D)

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 G034 1A0 Compressor, coil spring	A	
49 0727 575 Puller, ball joint	B	
49 H028 301 Installer, dust boot	A	

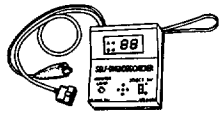
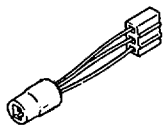
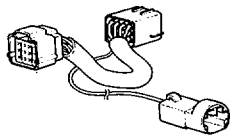
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 N028 201 Support block	A	
49 B034 201 Support block	A	
—	—	—

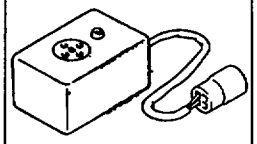
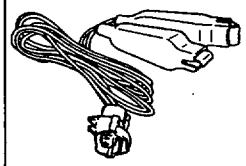
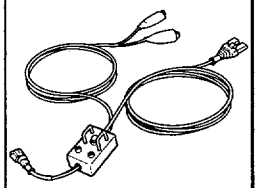
CHECKERS AND OTHER EQUIPMENT

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 N018 001 Adapter harness (Igniter checker)	A	
49 B019 9A0 System Selector	A	
49 G018 903 Adapter harness (Engine Signal Monitor)	A	
49 G018 904 Sheet (Engine Signal Monitor)	A	

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 9200 162 Engine Signal Monitor	A	
49 0839 285 Checker, fuel and thermometer	A	
49 0305 870A Tool set, window	A	
49 F018 002 Igniter Checker	A	

CHECKERS AND OTHER EQUIPMENT (CONT'D)

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 H018 9A1 Self-Diagnosis Checker	A	
49 9200 166 Adapter, throttle sensor	A	
49 N066 001 Harness, adaptor	A	
49 G050 1A0 Remover, sealant	A	

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 9200 165 Tester, throttle sensor	A	
49 L018 901 Injector, checker	A	
49 H066 002 Tool, deployment	A	
—	—	—

PARTS INDEX

A

ABS CONTROL UNIT P–52
ABS SENSOR ROTOR (FRONT) P–56
ABS SENSOR ROTOR (REAR) P–57
ABS WHEEL SPEED SENSOR (FRONT) P–55
ABS WHEEL SPEED SENSOR (REAR) P–58
A/C RELAY U–39
ACCELERATOR PEDAL AND CABLE F–96
ACTUATOR CABLE T–107
AIR BAG MODULE T–130,150,160
AIR VALVE F–98
AIRFLOW METER F–135
ALTERNATOR G–10
AUDIO T–115
AUTOMATIC TRANSMISSION K–1
- 2ND BAND SERVO K–70
- CONNECTING SHELL AND FRONT PLANETARY GEAR UNIT K–83
- CONTROL VALVE BODY K–100
- DIRECT CLUTCH K–56
- DRUM SUPPORT, ACCUMULATOR AND OD CASE K–65
- EXTENSION HOUSING K–97
- FRONT CLUTCH K–73
- GOVERNOR K–94
- LOW AND REVERSE BRAKE K–89
- OD BAND SERVO K–62
- OD CONNECTING SHELL AND OD PLANETARY GEAR UNIT K–54
- OIL PUMP K–49
- OIL SEAL K–99
- REAR CLUTCH K–78
- REAR PLANETARY GEAR UNIT K–85
- TORQUE CONVERTER K–49
- UPPER VALVE BODY K–103
- VACUUM DIAPHRAGM K–109

B

BACK-UP LIGHT SWITCH T–71
BATTERY G–8
BLOWER UNIT U–21
BRAKE FLUID P–8
BRAKE PEDAL P–8
BRAKE SWITCH T–113

C

CALIPER P–26
CATALYTIC CONVERTER F–122
CHARCOAL CANISTER F–120
CIRCUIT OPENING RELAY F–110
CLOCK SPRING CONNECTOR ... T–130,152,159
CLUTCH COVER H–17
CLUTCH DISC H–17
CLUTCH FLUID H–4
CLUTCH MASTER CYLINDER H–7
CLUTCH PEDAL H–5
CLUTCH RELEASE CYLINDER H–12
CLUTCH SWITCH F–140,T–108
COMPRESSOR U–42
CONDENSER U–37
CONDENSER FAN U–40
CONVERTIBLE TOP S–63
COOLING UNIT U–34
CRANK ANGLE SENSOR F–134
CRUISE CONTROL MAIN SWITCH T–113
CRUISE CONTROL SWITCH T–114
CRUISE CONTROL UNIT T–111

D

DASHBOARD AND CONSOLE S–52
DASHPOT F–121
DETACHABLE HARD TOP S–77
DIFFERENTIAL M–23
DIFFERENTIAL OIL M–25
DOOR S–7
DOOR LOCK AND OPENER S–15
DOOR MIRROR S–30
DRIVE BELT G–13
DRIVESHAFT M–17

E

ENGINE B–1
- BEARING B–58
- CAMSHAFT B–52
- CONNECTING ROD B–57
- CRANKSHAFT B–58
- CYLINDER BLOCK (EXTERNAL PARTS) B–43,54,66
- CYLINDER BLOCK (INTERNAL PARTS) B–45,54,61
- CYLINDER HEAD B–40,48,70
- CYLINDER HEAD GASKET B–16
- DRIVE BELT B–5
- ENGINE COOLANT B–5
- ENGINE OIL B–5
- FRONT OIL SEAL B–24
- HLA B–7,20,54
- OIL JET B–55
- PISTON B–56
- PISTON PIN B–56
- PISTON RING B–56
- PULLEY B–59
- REAR OIL SEAL B–26
- TENSIONER SPRING B–59
- TENSIONER,IDLER B–59
- TIMING BELT B–12,38,59,74

PARTS INDEX

ENGINE CONTROL UNIT (ECU) F–127
ENGINE COOLANT E–4
ENGINE OIL D–5
ENGINE SPEED SENSING
POWER STEERING N–18
DRIVE BELT N–37
POWER STEERING FLUID N–22
POWER STEERING OIL PUMP N–33
STEERING GEAR AND LINKAGE N–25
STEERING WHEEL AND COLUMN ... N–8,24

F

FAN MOTOR E–12
FAN RELAY E–14
FLOORMAT S–58
FLYWHEEL H–18
FRONT AXLE M–5
FRONT BRAKE (DISC) P–23
FRONT BUMPER S–24
FRONT SUSPENSION R–11
CROSSMEMBER R–20
LOWER ARM R–15
SHOCK ABSORBER AND SPRING R–11
STABILIZER R–19
UPPER ARM R–17
FUEL FILLER LID OPENER S–23
FUEL FILTER F–106
FUEL PUMP F–107
FUEL TANK F–104
FUEL VAPOR VALVE F–120
FUSE T–12

H

HEATER CONTROL SWITCH ASSEMBLY .. U–23
HEATER UNIT U–19
HIGH-TENSION LEAD G–20
HOOD S–5
HORN T–91
HYDRAULIC UNIT P–51

I

IGNITER G–20
IGNITION COIL G–19
IGNITION SWITCH T–21
INJECTOR F–112
INSTRUMENT CLUSTER T–26
FUEL GAUGE T–35
OIL PRESSURE GAUGE T–37
OIL PRESSURE SENSOR T–37
PRINTED CIRCUIT T–36
SPEEDOMETER T–34
SPEEDOMETER CABLE T–37
TACHOMETER T–34
WATER TEMPERATURE GAUGE T–34
WATER THERMOSENSOR T–36
INTAKE MANIFOLD F–95
INTERIOR LAMPS T–85
ISC VALVE F–99

M

MAIN RELAY (FUEL INJECTOR RELAY) .. F–140
MANUAL STEERING N–4
BOOT N–6
STEERING GEAR AND LINKAGE N–12
STEERING WHEEL AND COLUMN N–8
MANUAL TRANSMISSION J–1
TRANSMISSION J–9
TRANSMISSION OIL J–8
MASTER CYLINDER (ABS) P–13
MASTER CYLINDER (STANDARD) P–11
MOLDING AND GARNISH S–27
REAR FINISHER S–27

N

NEUTRAL SWITCH F–141

O

OIL FILTER D–5
OIL PAN D–6
OIL PUMP (ENGINE) D–9
OXYGEN SENSOR F–139

P

PARKING BRAKE CABLE P–34
PARKING BRAKE LEVER P–32
PCV VALVE F–117
PILOT BEARING H–18
POWER BRAKE UNIT P–18
POWER PLANT FRAME (PPF) M–27,J–10
POWER STEERING PRESSURE SWITCH .. F–141
POWER WINDOW MOTOR S–22
POWER WINDOW SWITCH S–22
PRESSURE REGULATOR F–111
PROPELLER SHAFT L–2
PROPORTIONING BYPASS VALVE (PBV) ... P–21

R

RADIATOR E–7
RADIATOR CAP E–6
REAR AXLE M–10

PARTS INDEX

REAR BRAKE (DISC) P–27
REAR BUMPER S–25
REAR SUSPENSION R–21
  CROSSMEMBER R–26
  LOWER ARM R–23
  SHOCK ABSORBER AND SPRING R–22
  STABILIZER R–25
  UPPER ARM R–24
REAR WINDOW S–48
REAR WINDOW GLASS S–44
RECEIVER/DRIER U–37
REFRIGERANT PRESSURE SWITCH U–41
RELAY T–15
  4-TERMINAL NORMALLY OPEN RELAY T–19
  DAYTIME RUNNING LIGHTS (DRL) UNIT T–18
  HEADLIGHT RETRACTOR RELAY T–16
  TIMER AND BUZZER UNIT T–17
  TURN AND HAZARD WARNING FLASHER UNIT T–16
RELEASE BEARING H–17

S

SEAT S–61
SEAT BELT S–59
SOLENOID VALVE (PURGE CONTROL) ... F–119
SPARK PLUG G–18
SPEED SENSOR T–109
STARTER G–22
STARTER INTERLOCK SWITCH (M/T) G–27
STOPLIGHT SWITCH T–61
SWITCH T–20
  COMBINATION SWITCH T–21
  HEADLIGHT RETRACTOR SWITCH AND HAZARD WARNING SWITCH T–25
  IGNITION SWITCH T–21

T

THERMOSTAT E–8
THREE-WAY CHECK VALVE (A/T) F–119
THROTTLE BODY F–94
THROTTLE SENSOR F–136
TRIM S–55
TRUNK LID S–16
TRUNK LID LOCK AND OPENER S–18
TWO-WAY CHECK VALVE F–119

W

WARNING LAMP AND SENDER UNIT T–38
  BRAKE FLUID LEVEL SENSOR T–43
  PARKING BRAKE SWITCH T–43
  SEAT BELT BUCKLE SWITCH T–43
WATER PUMP E–9
WATER THERMOSENSOR F–136
WATER THERMOSWITCH E–13
WHEELS AND TIRES Q–3
WINDOW REGULATOR S–9
WINDSHIELD S–40
WINDSHIELD WIPER AND WASHER S–31

Wiring Diagram

FOREWORD

This wiring diagram incorporates the wiring schematics of the basic vehicle and available optional equipment. Actual vehicle wiring may vary slightly depending on optional equipment or local specifications, or both. All information in this booklet is based on information available at the time of printing. Mazda Motor Corporation reserves the right to make changes without previous notice.

Mazda Motor Corporation
HIROSHIMA, JAPAN

Z

CONTENTS

GENERAL INFORMATION	GI
GROUND POINT	Y
ELECTRICAL WIRING SCHEMATIC	W
SYSTEM CIRCUIT DIAGRAM/ CONNECTOR DIAGRAM/ ROUTING DIAGRAM	A~V
COMMON CONNECTORS	X
PARTS LOCATION	PL
INDEX	PI

Z

WIRING COLOR CODE

Color	Code	Color	Code
Blue	L	Natural	N
Black	B	Orange	O
Brown	BR	Pink	P
Dark Blue	DL	Red	R
Dark Green	DG	Purple	PU
Green	G	Tan	T
Gray	GY	White	W
Light Blue	LB	Yellow	Y
Light Green	LG	Violet	V

SYSTEM INDEX

SYSTEM	SECTION
A/T CONTROL SYSTEM	H-1
ABS (ANTI-LOCK BRAKE SYSTEM)	O
FEDERAL & CALIFORNIA	
AIR BAG CONTROL SYSTEM	S
AUDIO SYSTEM (TYPE1)	J-1
AUDIO SYSTEM (TYPE2,3)	J-2
BACK-UP LIGHTS	
CANADA	F-2
FEDERAL & CALIFORNIA	F-1
CHARGING SYSTEM	
A/T	A-2
M/T	A-1
CIGARETTE LIGHTER	I-2
COMMON CONNECTOR LIST	X-1,2
COOLING FAN SYSTEM	B-3
FEDERAL & CALIFORNIA	
CRUISE CONTROL SYSTEM	Q
CANADA	
DAYTIME RUNNING LIGHT CONTROL SYSTEM	E-3
DIAGNOSIS CONNECTOR	U
ELECTRICAL WIRING SCHEMATIC	
CANADA	W-2
FEDERAL & CALIFORNIA	W-1
ENGINE CONTROL SYSTEM	B-1a,1b,1c
FRONT FOG LIGHTS (OPTION)	
CANADA	E-2
FEDERAL & CALIFORNIA	E-1
FRONT PARKING LIGHTS	E-4
FRONT SIDE MARKER LIGHTS	E-4
FUEL CONTROL SYSTEM	B-2
GENERAL INFOMATION	GI
GROUND POINTS	
CANADA	Y-2
FEDERAL & CALIFORNIA	Y-1
HEADLIGHTS	
CANADA	E-2
FEDERAL & CALIFORNIA	E-1

SYSTEM	SECTION
HEATER & AIR CONDITIONER	G
HIGH-MOUNT STOPLIGHT	
CANADA	F-2
FEDERAL & CALIFORNIA	F-1
HORN	
CANADA	F-2
FEDERAL & CALIFORNIA	F-1
IGNITION SYSTEM	B-1a
INSTRUMENT CLUSTER	C
INTERIOR LAMPS	I-2
LICENSE PLATE LIGHTS	E-4
PANEL LAMP CONTROL SYSTEM	I-1
PARTS INDEX	PI
PARTS LOCATION	PL
POWER ANTENNA	J-3
POWER WINDOW	K
REAR SIDE MARKER LIGHTS	E-4
REAR WINDOW DEFROSTER	I-2
RETRACTABLE HEADLIGHT SYSTEM	
CANADA	E-2
FEDERAL & CALIFORNIA	E-1
A/T	
SHIFTLOCK SYSTEM	H-2
SOUND WARNING SYSTEM	T
STARTING SYSTEM	
A/T	A-2
M/T	A-1
STOPLIGHTS	
CANADA	F-2
FEDERAL & CALIFORNIA	F-1
TAILLIGHTS	E-4
TURN SIGNAL & HAZARD WARNING LIGHTS	
CANADA	F-2
FEDERAL & CALIFORNIA	F-1
WINDSHIELD WIPER & WASHER	
CANADA	D-2
FEDERAL & CALIFORNIA	D-1

GENERAL INFORMATION

Wiring Diagrams

Contents of wiring diagrams..... GI-2
Using wiring diagrams..... GI-2

Reading Wiring Diagrams

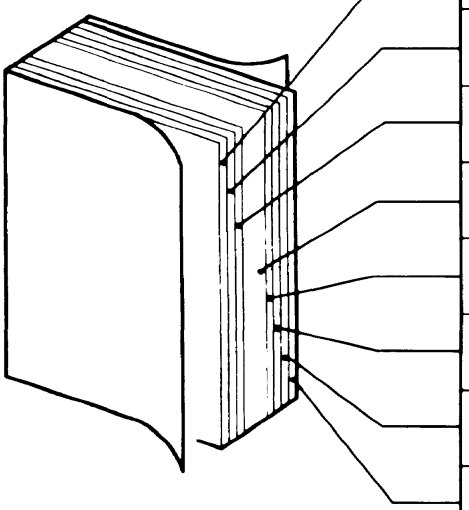
Ground points..... GI-3
System circuit diagram/connector diagram GI-4
Routing diagram GI-6
Harness symbols..... GI-7
Symbols GI-8
Logic symbols GI-10
Abbreviations used in this booklet..... GI-10

Troubleshooting

Precautions to take when servicing an electrical system GI-11
Handling connectors GI-12
Using electrical measuring equipment GI-13
Measuring voltage..... GI-14
Measuring continuity/resistance..... GI-15
Finding short circuits GI-16

Contents of wiring diagrams

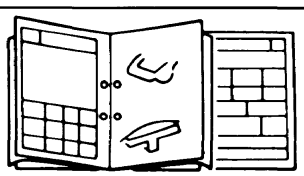
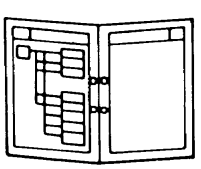
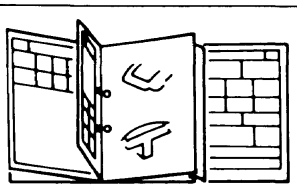
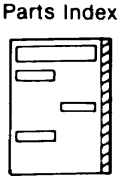
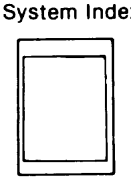
• This document comprises the 8 groups shown below. The main components are summarized in the components location diagram at the end of the document.



GI	**General Information**	A how-to on using and reading wiring diagrams, using test equipment, checking harnesses and connectors, and finding trouble spots
Y	**Ground points**	Ground routes from and to the battery
W	**Electrical wiring schematics**	Shows main fuses and other fuses for each system
A~V	**Circuit diagrams for individual systems**	Shows circuit and connector diagrams and component and connector location diagrams
X	**Common connectors**	Shows connectors common throughout system
JB	**Joint box complete wiring system**	Shows internal circuits and connectors
PL	**Parts location**	Shows location of major electrical parts
PI	**Index**	Gives page number of circuit diagram for each component

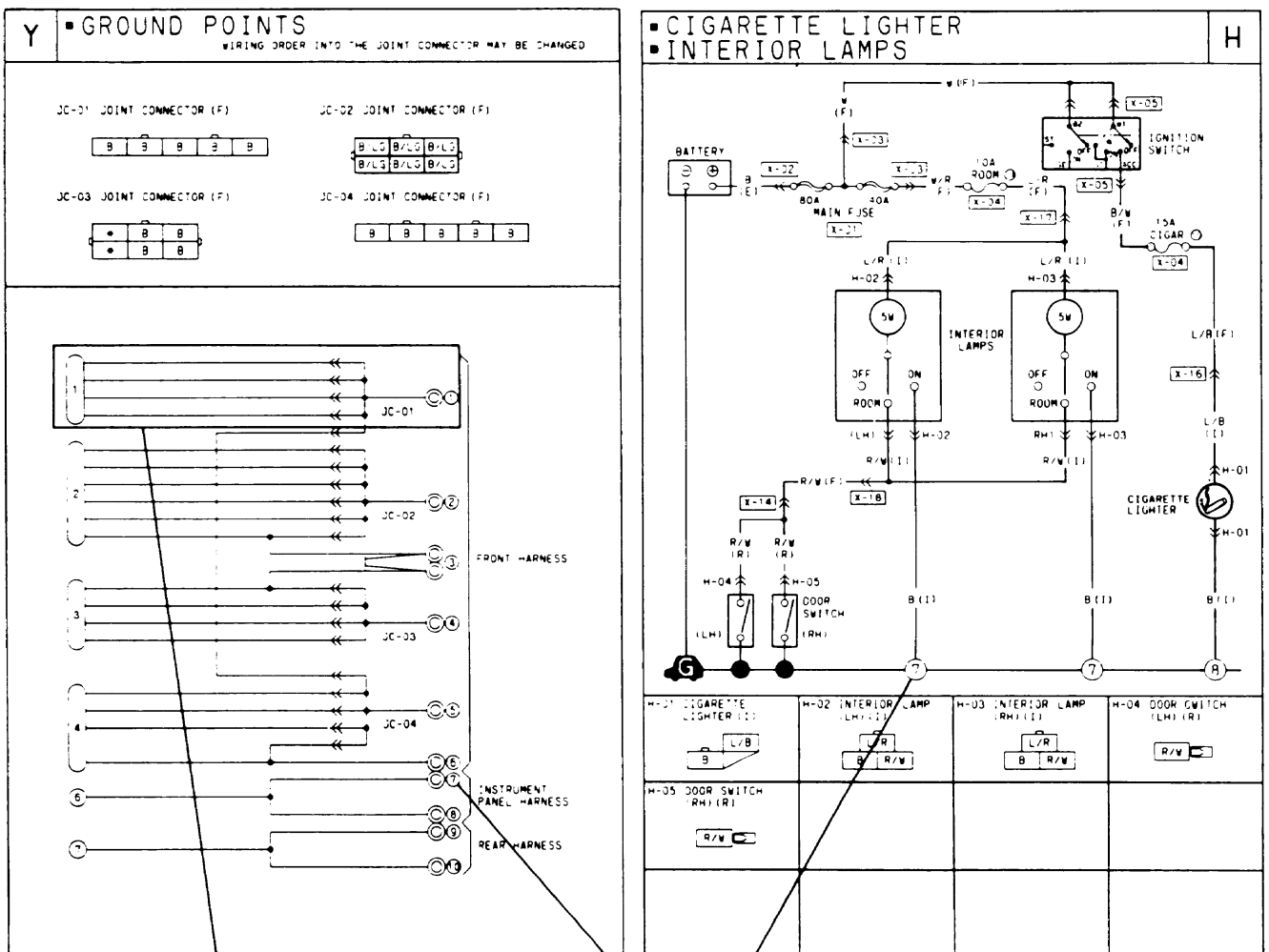
Using wiring diagrams

• The use of the wiring diagram depends on its application.

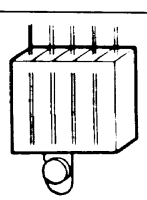
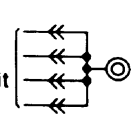
Application	Use	Application	Use
For checking circuits of individual systems	 Open to page with circuit diagram and harness routing to be used and fold out common connector diagram or joint box diagram.	For checking fuse connections	 Open to electrical wiring schematic.
For checking ground circuit of individual systems	 Open to page with ground point diagram and fold out common connector diagram or joint box diagram.	For finding page numbers of systems and components	Parts Index  or System Index  Open to parts index or system index.

Ground points

- This shows ground points of the harness.



Ground indication

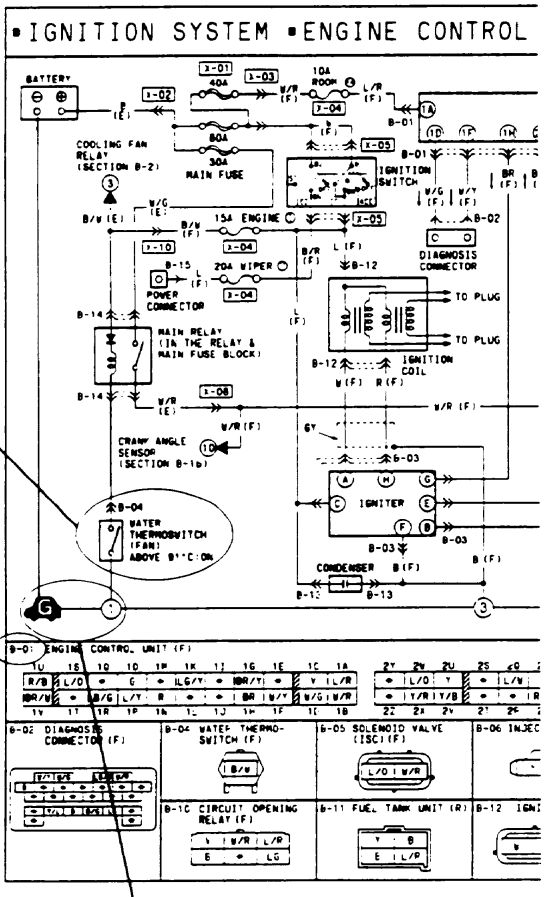
On vehicle	Indication
	To circuit 

On circuit diagrams and ground points

The ground connection numbers in system circuit diagrams correspond to those in the ground point diagram.

System circuit diagram/connector diagram

- These show the circuits for each system, from the power supply to the ground. The power supply side is on the upper part of the page, the ground side on the lower part. The diagrams describe circuits with the ignition switch off.
  Below is an explanation of the various points in the diagram.



Indicates operating conditions for switches.

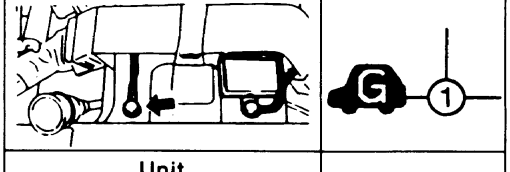
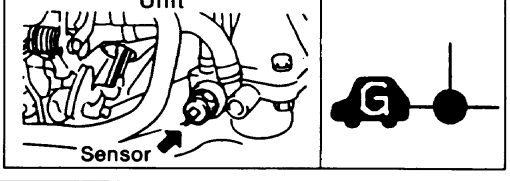
Connector code

The prefix letter indicates the system in which the connector is used.

- JB: Joint box connections
- X : Common connectors
- A : Charging system/starting system connectors
- B : Engine control system connectors
- C : Gauge control system connectors
- D : Wiper system connectors
- E : Lighting system connectors
- F : Signal system connectors
- G : Air-conditioning system connectors
- H : Transmission control system connectors
- I : Interior lamp system connectors
- J : Audio/radio connectors
- K : Power window/power door lock system connectors
- L : Remote control mirror system connectors
- M : Sliding sunroof system connectors
- N : Power steering/4-wheel steering system connectors
- O : Anti-lock brake system connectors
- P : Power seat/seat heater system connectors
- Q : Auto cruise control system connectors
- R : Auto adjusting suspension system connectors
- S : Passive shoulder belt control/air bag system connectors
- T : Others
- Y : Ground connector

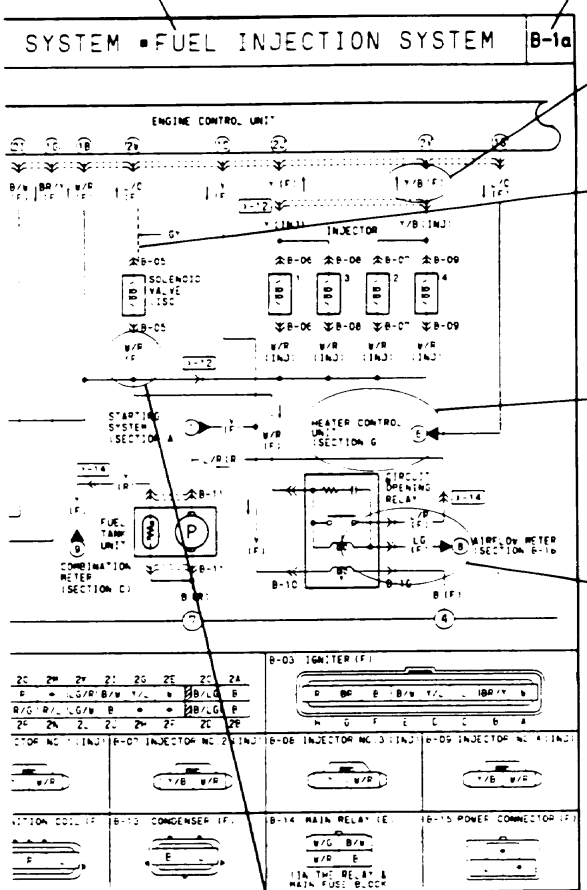
Ground numbers

A harness ground is represented differently than a unit ground.

Types of grounds	Symbol
Harness	
Unit	

System name

System code



Current symbol

Current flows in the direction of the arrow.

Indicates shielded wire.*

*Shielded wire:
Prevents signal disturbances from electrical interference.
Wire is covered by a metal meashing for grounding.

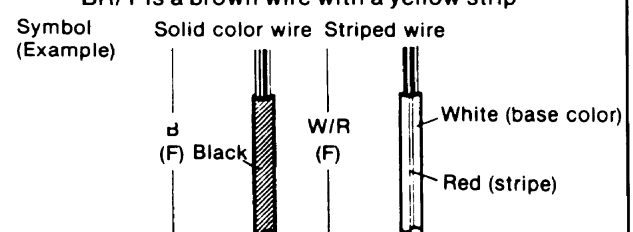
The number indicates that the circuit continues to the related system diagram.

Wire color code (harness symbol)

- Two-color wires are indicated by a two-letter symbol. The first indicates the base color of the wire, the second the color of the stripe.

For example:

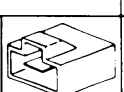
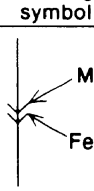
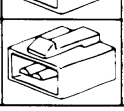
W/R is a white wire with a red strip
BR/Y is a brown wire with a yellow strip



- The harness symbol is in ( ) following the harness symbols (refer to GI-7.).

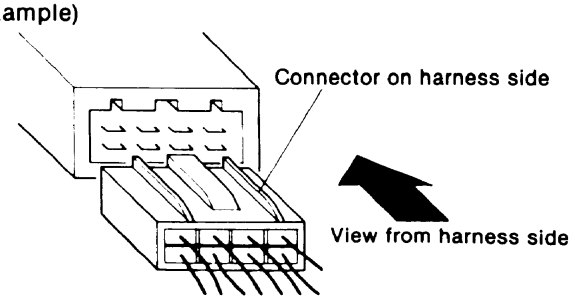
Connector symbols

- Male and female connectors are represented as follows in the circuit and connector diagrams.

		Circuit diagram symbol	Connector diagram symbol
Male			
Female			

- Like connectors are linked by dashed lines between the connector symbols.
- Connector diagrams show connectors on the harness side. The terminal indicates the view from the harness side.

(Example)



- Colors for connectors except milk-white are given in locations.
- Unused terminals are indicated by * .

Routing diagram

- The routing diagram shows where electrical components are on the system circuit diagram by call out line and connector symbols.
- Specified values are listed beside the routing diagram or on the following page.

Connector symbol

Shows the system that uses the connector.

(Example)

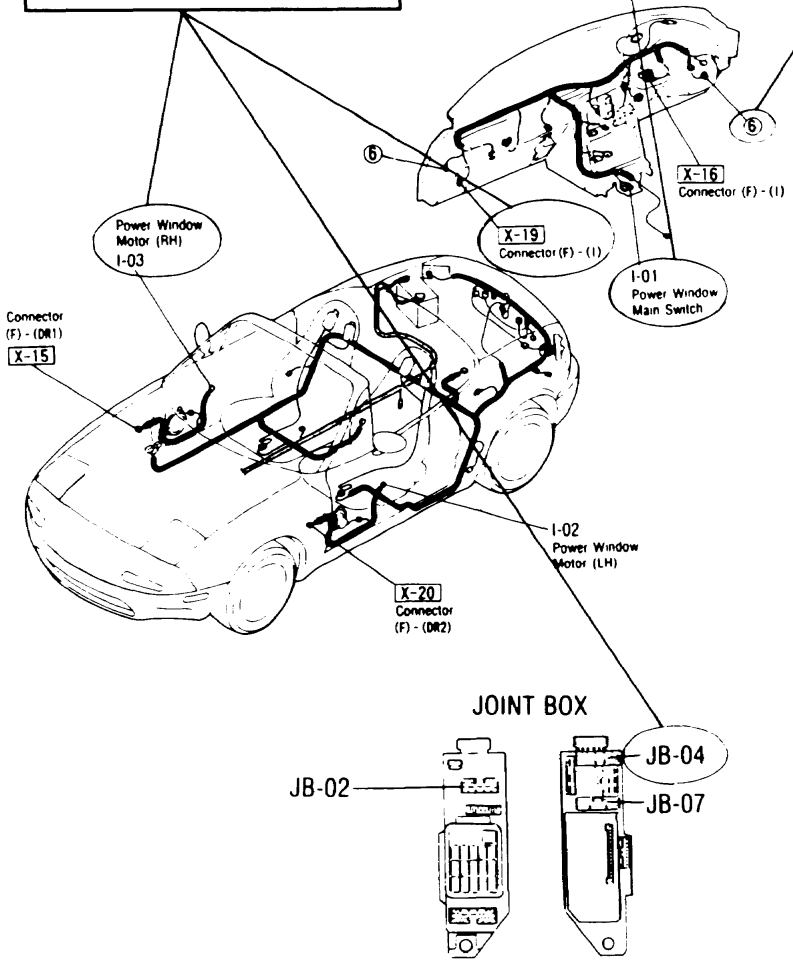
Connector	Symbol
Joint box	JB-04
Common connectors	X-19
System connectors	I-03

Component name

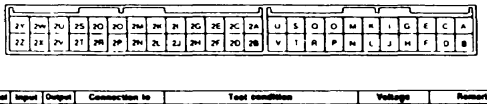
Shows the names of components in routing diagrams.

Ground symbol

Shows the ground in system diagrams.



Engine control unit terminal (unit side)

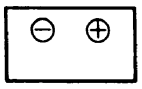
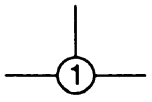
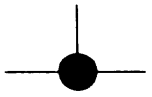
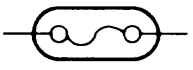
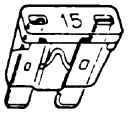
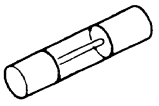
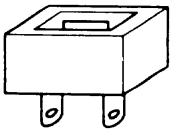
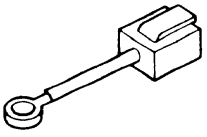
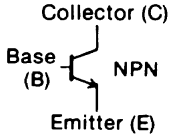
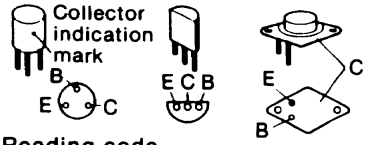
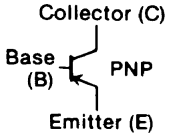
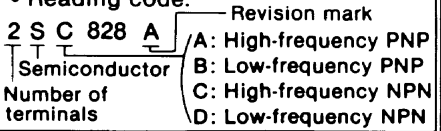


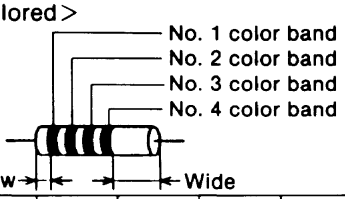
Terminal	Input	Output	Connection to	Test condition	Voltage	Remark
1K	O		Diagnosis Connector	At System Selector test switch "O_2 MONITOR"	Approx. 12V	
				At System Selector test switch "SELF TEST"	Approx. 0V	
1N	O		Throttle sensor (Idle point)	Accelerator pedal released	Approx. 0V	Ignition switch ON
				Accelerator pedal depressed	Approx. 12V	
1O	O		Stoplight switch	Brake pedal released	0V	
				Brake pedal depressed	Approx. 12V	
1P	O		P/S pressure switch	Ignition switch ON	Approx. 12V	
				P/S ON (at idle)	0V	
				P/S OFF (at idle)	Approx. 12V	
1R	O		Fan switch	Fan operating (Engine coolant temperature over 97°C (207°F) or diagnosis connector terminal TFA grounded)	Approx. 0V	
				Fan not operating (Idle)	Approx. 12V	
1U	O		Headlight switch	Headlights ON (Tail, parking, low beam or high beam)	Approx. 12V	
				Headlights OFF	Approx. 0V	
1V	O		Neutral or clutch switch	Neutral position or clutch pedal depressed	Approx. 10V	
				Other conditions	Approx. 12V	
2A	–	–	Ground (Injector)	Constant	0V	
2B	–	–	Ground (Output)	Constant	0V	
2C	–	–	Ground (CPU)	Constant	0V	
2D	–	–	Ground (Input)	Constant	0V	
2E	O		Crank angle sensor (Ne signal)	Ignition switch ON	Approx. 0V or 5V	
				Idle	Approx. 12V	
2G	O		Crank angle sensor (G signal)	Ignition switch ON	Approx. 0V or 5V	
				Idle	Approx. 1.5V	
2J	O		Ground	Constant	0V	
2K		O	Airflow meter	Constant	4.5–5.5V	
2L	O		Throttle sensor (Power transistor)	Accelerator pedal released	Approx. 5V	
				Accelerator pedal fully depressed	Approx. 0V	
2M	O		Oxygen sensor	Ignition switch ON	0V	
				Idle (Cold engine)	0V	
				Idle (After warm up)	0 – 1V	
				Increase engine speed (After warm up)	0.5 – 1V	
				Deceleration	0 – 0.4V	
2O	O		Airflow meter	Ignition switch ON	Approx. 3.8V	
				Idle	Approx. 3.3V	
2P	O		Airflow sensor (Intake air thermosensor)	At 20°C (68°F)	Approx. 2.5V	
2Q	O		Water thermosensor	Engine coolant temperature 20°C (68°F)	Approx. 2.5V	
				After warm up	Approx. 0.4V	

Specified values

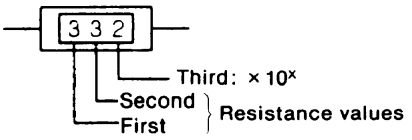
Shows values for determining whether an electrical component is good.

Symbols

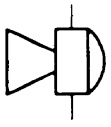
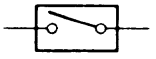
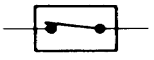
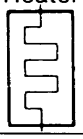
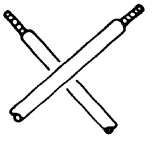
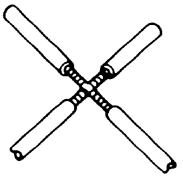
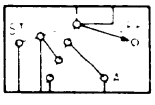
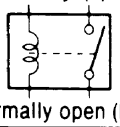
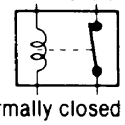
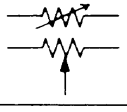
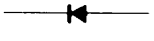
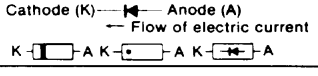
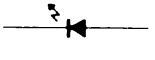
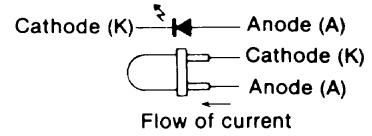
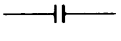
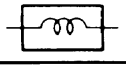
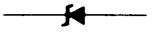
Symbol	Meaning
Battery 	• Generates electricity through chemical reaction. • Supplies direct current to circuits.
Ground (1) 	• Connecting point to vehicle body or other ground wire where current flows from positive to negative terminal of battery. • Ground (1) indicates a ground point to body through wire harness. • Ground (2) indicates point where component is grounded directly to body. Remarks • Current will not flow through a circuit if ground is faulty.
Ground (2) 	
Fuse (1) (box)	• Melts when current flow exceeds that specified for circuit, interrupts current flow. Precautions • Do not replace with fuses exceeding specified capacity.
Fuse (2)  (Cartridge)	<Blade type>  <Tube type> 
Main fuse/ Fusible link	<Cartridge type>  <Fusible link> 
Transistor (1) 	• Electrical switching component. • Turns on when voltage is applied to the base (B). 
Transistor (2) 	• Reading code. 
Lamp	• Emits light and generates heat when current flows through filament.

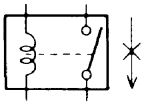
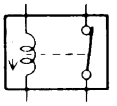
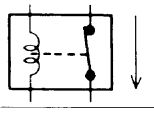
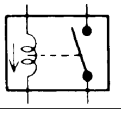
Symbol	Meaning
Resistance	• A resistor with a constant value. • Mainly used to protect electrical components in circuits by maintaining rated voltage. • Reading resistance values. <Colored> 

Color	No. 1	No. 2	No. 3	No. 4
	Resistance values		Multiplier	Tolerance
Black	0	0	$\times 10^0$	
Brown	1	1	$\times 10^1$	
Red	2	2	$\times 10^2$	
Orange	3	3	$\times 10^3$	
Yellow	4	4	$\times 10^4$	
Green	5	5	$\times 10^5$	
Blue	6	6	$\times 10^6$	
Purple	7	7	$\times 10^7$	
Grey	8	8	$\times 10^8$	
White	9	9	$\times 10^9$	
Gold			$\times 10^{-1}$	±5%
Silver			$\times 10^{-2}$	±10%
—				±20%

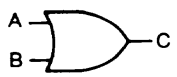
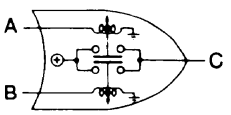
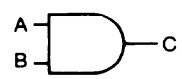
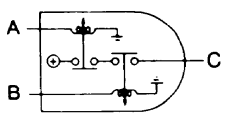
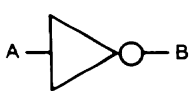
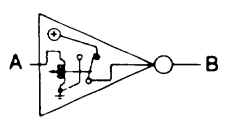
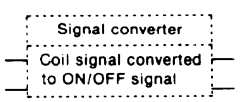
<Numerical> 

Motor	• Converts electrical energy into mechanical energy.
Pump	• Pulls in and discharges gases and liquids.
Cigarette lighter	• Electrical coil that generates heat.

Symbol	Meaning	Symbol	Meaning
Horn 	• Generates sound when current flows.	Switch (1)  Normally open (NO)	• Allows or breaks current flow by opening and closing circuits.
Speaker		Switch (2)  Normally closed (NC)	
Heater 	• Generates heat when current flows.	Harness (Not connected) (Connected)	• Unconnected intersecting harness.  • Connected intersecting harness. 
Speed sensor	• Movement of magnet in speedometer turns contact within sensor on and off.		
Ignition switch 	• Turning ignition key switches circuit to operate various component.		
Relay (1)  Normally open (NO)	• Current flowing through coil produces electromagnetic force causing contact to open or close.		
Relay (2)  Normally closed (NC)			
Sensor (variable) 	• Resistance changes with other components operation.	Diode 	• Known as a semiconductor rectifier, the diode allows current flow in one direction only. 
Sensor (thermistor)	• Resistance changes with temperature.	Light-emitting diode (LED) 	• A diode that lights when current flows. • Unlike ordinary bulbs, the diode does not generate heat when lit. 
Capacitor 	• Component that temporarily stores electrical charge.		
Solenoid 	• Current flowing through coil generates electromagnetic force to operate plungers.	Reference diode (Zener diode) 	• Allows current to flow in one direction up to a certain voltage; allows current to flow in the other direction once that voltage is exceeded.

	No current to coil	Current to coil
Normally open relay (NO)	 No flow	 Flow
Normally closed relay (NC)	 Flow	 No flow

Logic symbols

Types of logic symbols	Operation	Expressing output	Simple relay circuits
OR 	Input to A or B will produce output at C.	Low electrical potential (L) at A and B→no output (L) at C High electrical potential (H) at A or B→output (H) at C	
AND 	Input to A and B will produce output at C.	High electrical potential (H) at A and B→output (H) at C Low electrical potential (L) at A or B→no output (L) at C	
INV 	No input to A will produce an output at B. An input to A will not produce an output at B.	Low electrical potential (L) at A→no ground (H) B High electrical potential (H) at A→grounds (L) B	
PROCESS	Simplified representation of complex functions within circuit describes main function. 1. Signal detector for engine control unit, cooling unit, and tachometer. 2. Signal converter for turn and hazard flasher unit and igniter unit.		(Examples) Igniters 

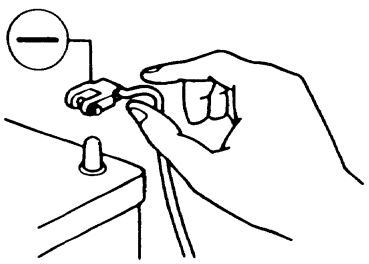
Abbreviations used in this booklet

A	Ampere
AAS	Autoadjusting Suspension
ABS	Antilock Brake System
ACV	Air Control Valve
AE	Acoustic Equilibration
AIS	Air Injection System
ALL	Automatic Load Leveling
AS	Autostop
ASV	Air Supply Valve
A/C	Air Conditioner
A/F	Air Fuel
A/R	Auto Reverse
A/T	Automatic Transmission
ACC	Accessory
ACCEL	Accelerator
ADD	Additional
ALT	Alternator
AM	Amplitude Modulation
AMP	Amplifier
ANT	Antenna
ATP	Atmospheric Pressure
ATX	Automatic Transaxle
B	Battery
BAC	Bypass Air Control Valve
B/L	Bilevel
CPU	Central Processing Unit
CSD	Cold Start Device
CARB	Carburetor
CCT	Circuit
CIGAR	Cigarette
COMBI	Combination
CON	Conditioner
CONT	Control
DOHC	Double-Overhead Camshaft
DEF	Defroster
EC-AT	Electronic Controlled Automatic Transmission Electrically Control Automatic Transaxle
ECPS	Electronically Controlled Power Steering
ECU	Engine Control Unit
EGI	Electronic Gasoline Injection
EGR	Exhaust Gas Recirculation
ELR	Emergency Locking Retractor
ELEC	Electric
ETR	Electronic Tuner
EXH	Exhaust
F	Front
FICB	Fast-Idle Cam Breaker
FL	Front Left
FR	Front Right
F/B	Feedback
F/I	Fuel Injector
FM	Frequency Modulation
GEN	Generator
HEI	High-Energy Ignition
H/D	Heater/Defroster
HEAT	Heater
HI	High
ISC	Idle-Speed Control
IG	Ignition
ILLUMI	Illumination
INT	Intermittent
JB	Joint Box
LH	Left Hand
LCD	Liquid Crystal Display
LO	Low
LW	Low Wave
M	Motor
MIL	Malfunction Indicator Lamp
MTR	Mechanical Tuning Radio
M/T	Manual Transmission
MID	Middle
MIN	Minute
MIX	Mixture
MPX	Multiplex
MTX	Manual Transaxle
MW	Middle Wave
NC	Normally Closed
NO	Normally Open
OD	Overdrive
OFF	Switch Off
ON	Switch On
P	Power
PRCV	Pressure Regulator Control Solenoid Valve
PTC	Positive Temperature Coefficient Heater
P/S	Power Steering
PRG	Purge Solenoid Valve
QSS	Quick-Start System
R	Rear
RH	Right Hand
RL	Rear Left
RPM	Revolutions Per Minute
RR	Rear Right
REC	Recirculation
SOL	Solenoid
ST	Start
SW	Short Wave
SW	Switch
TCV	Twin Scroll Turbocharger Solenoid Valve
TICS	Triple Induction Control System
TEMP	Temperature
TR	Transistor
TWS	Total Wiring System
V	Volt
VRIS	Variable Resonance Induction System
VENT	Ventilation
VOL	Volume
W	Watt(s)

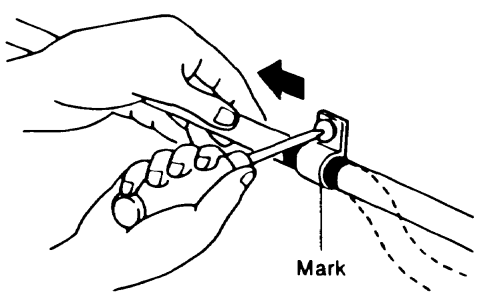
Precautions to take when servicing an electrical system

- Note the following items when servicing the electrical system.
- Do not alter the wiring or electrical equipment in any way; this may damage the vehicle or cause a fire from short-circuiting a circuit or overloading it.

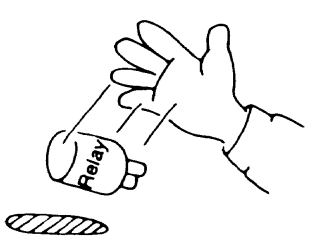
- The negative (−) battery cable must be removed first and installed last.



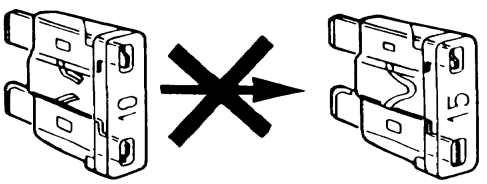
Caution
- Be sure that the ignition and other switches are off before disconnecting or connecting the battery cables.
  Failure to do so may damage the semiconductor components.
- Secure harnesses with provided clamps to take up slack.



Caution
- Clamp all harnesses near vibrating components (for example, the engine) to remove slack and to prevent contact resulting from vibration.
- Do not handle electrical components roughly or drop them.



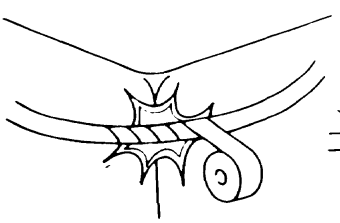
- Do not replace with fuses exceeding specified capacity.



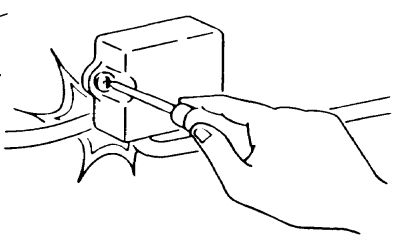
10A 15A

Caution
- Replacing a fuse with one of a larger capacity than designated may damage components or cause a fire.

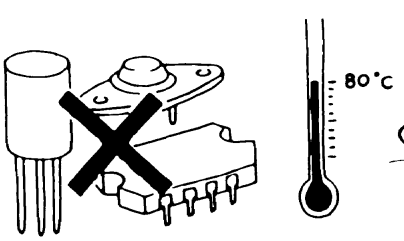
- Tape areas of the harness that may rub or bump against sharp edges to protect it from damage.



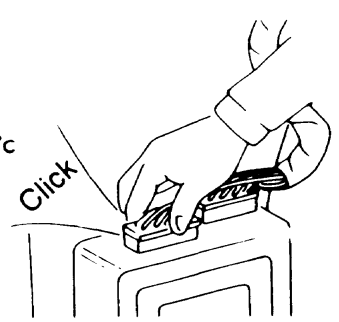
- When mounting components, be sure the harness is not caught or damaged.



- Disconnect heat-sensitive parts (for example, relays and ECU) when performing maintenance (such as welding) where temperatures may exceed 80°C (176°F).

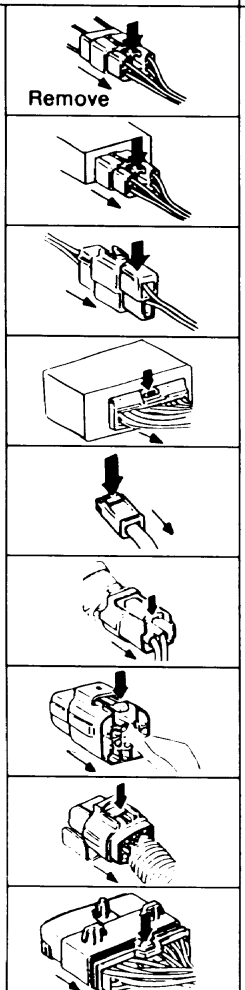
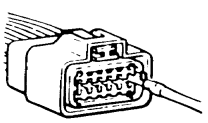
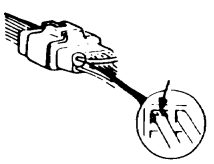
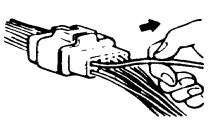
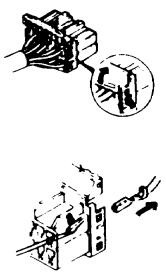
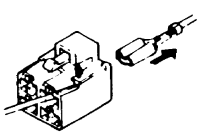
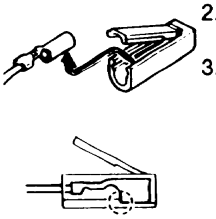
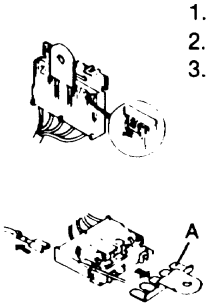
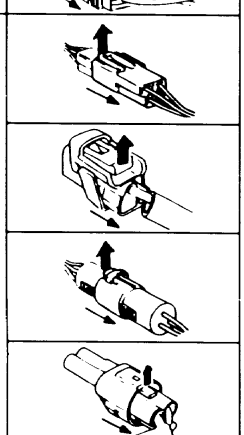


- Make sure that the connectors are securely connected when installed.

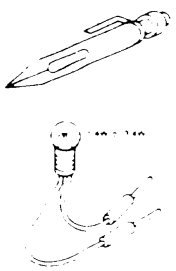
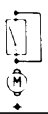
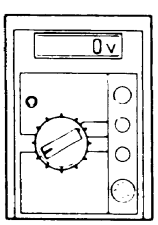
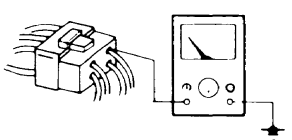
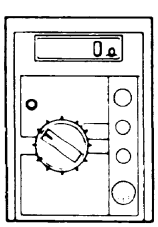
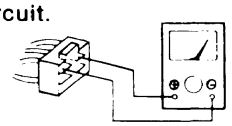
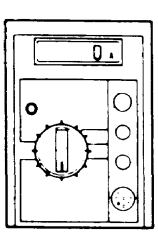
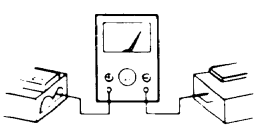


Handling connectors

Caution
- Be sure to grasp the connectors, not the wires, when disconnecting them.

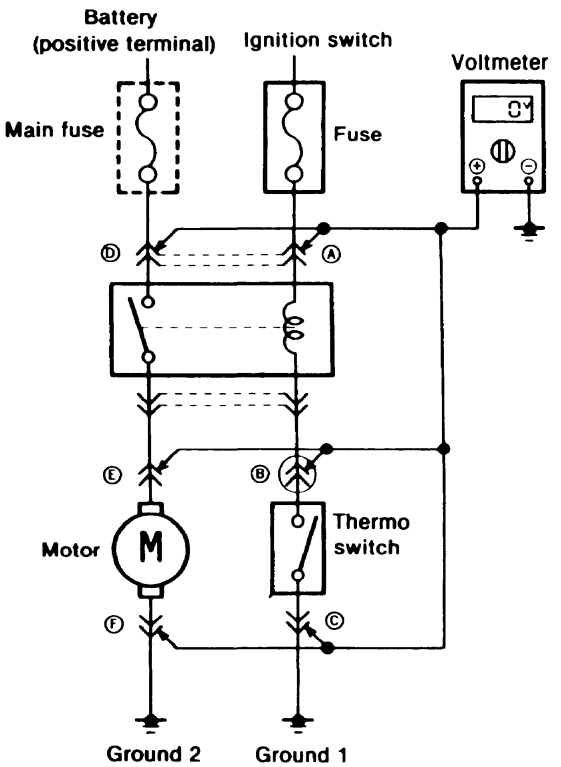
Connector removal	Checking connector contacts	Checking for loose terminals	Replacing terminal
Push type 	Caution Improperly engaged connectors will cause poor terminal contact.  When using a matching male terminal, make sure there is no looseness in the female terminal.	Caution A loose terminal will cause poor terminal contact.  Make sure the terminals are not pushed out of the connector when engaged.  Pull lightly on individual wires to check that they are secured in the terminal.	<CPU connector> 1. Raise the rear cover. 2. Lift the tab with a thin piece of metal and remove the terminal.  <General connector> Lift the tab with a thin piece of metal and remove the terminal.  <Round connectors> 1. Raise the cover. 2. Lift the terminal to remove it. 3. Make sure the terminal is securely mounted in the connector when installing.  <Common ground connectors> 1. Raise the cover. 2. Remove A. 3. Lift the tab with a thin piece of metal and remove the terminal. 
Pull-up type 			
Spring type 			

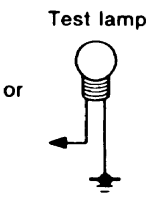
Using electrical measuring equipment

Equipment	Use	Operation	Handling precautions
Test lamp 	Test to find open or shorted circuits.	• Connect the test lamp between the circuit being measured and a ground. • The lamp will light if the circuit is energized to the point tested.	• Test lamps use 12V 1.4W or 3.4W bulbs or light-emitting diodes (LEDs). Using a large-capacity bulb may damage the CPU.
Jumper wire	Used to create a temporary circuit.	• Connect the jumper wire between the terminals of a circuit to bypass a switch. 	• Do not connect the jumper wire from the power source line to a ground; this may cause burning or other damage to harnesses or electronic components.
Voltmeter 	Used for measuring the voltage of a circuit to locate possible opens or shorts.	• Connect the positive (+) probe to the point where voltage is to be measured and the negative (−) probe to a ground. 	• Connect the voltmeter in parallel with the circuit. • Set the range to the desired voltage. • Use the service hole when measuring the voltage at the diagnosis connector. • Tie a thin wire to the positive (+) probe to access narrow terminals.
Ohmmeter 	Used to find opens and shorts in the circuit, to confirm continuity and to measure resistance.	• Zero the ohmmeter. • Verify that voltage is not applied to the circuit. • Connect the probes between two points in a circuit. 	• Zero the meter after switching to the measuring range. • Before using the ohmmeter, make sure the ignition switch is off or the negative (−) battery cable is disconnected to prevent burning or otherwise damaging the ohmmeter.
Ammeter 	Used to check alternator output, current supplied to the starter, and dark current within a circuit. Note Dark current is the constant flow of current while the ignition switch is OFF.	• Connect the ammeter in series with the circuit by touching the positive (+) probe to the power-side terminal and the negative (−) probe to the ground-side terminal. 	• Set the range to the desired amperage. • Connect the ammeter in series with the circuit. The ammeter may be burned or otherwise damaged if it is connected in parallel.

Measuring voltage

Checks





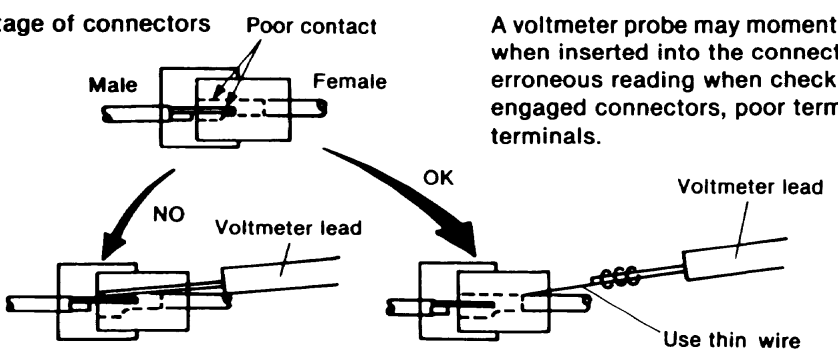
1. Connect a voltmeter or test lamp to the measuring points.

Measuring points	Circuit operation (normal)					
	Ignition switch: OFF		Ignition switch: ON			
			Thermo switch: OFF		Thermo switch: ON	
Ⓐ	0V	×	12V	○	12V	○
Ⓑ	0V	×	12V	○	0V	×
Ⓒ	0V	×	0V	×	0V	×
Ⓓ	12V	○	12V	○	12V	○
Ⓔ	0V	×	0V	×	12V	○
Ⓕ	0V	×	0V	×	0V	×

○ : Test lamp ON
× : Test lamp OFF

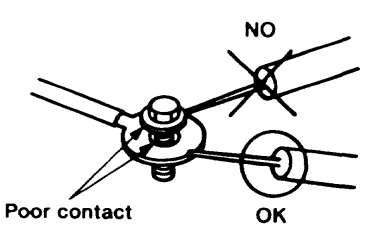
Precautions during checks

Measuring voltage of connectors



A voltmeter probe may momentarily connect a terminal when inserted into the connector and give an erroneous reading when checking for improperly engaged connectors, poor terminal contacts, or loose terminals.

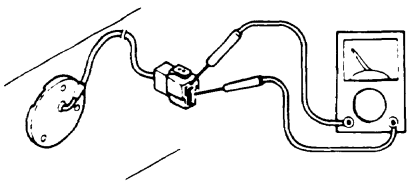
Measuring voltage of ground unit



Touch the voltmeter probe to the ground wire when checking the ground circuit.

Measuring continuity/resistance

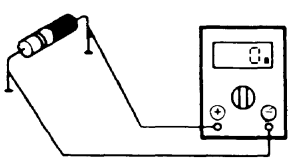
Checking switches



Touch the ohmmeter probes to the switch terminals to check continuity.

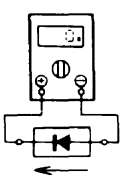
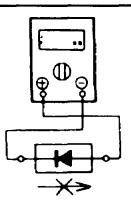
Caution
Verify the operating state of the switch before checking continuity because readings vary accordingly.

Checking diodes

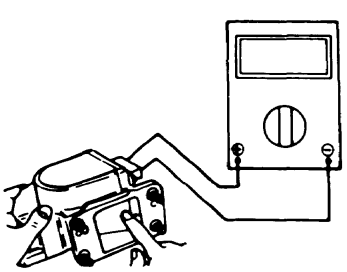


Note
The negative (−) probe of the ohmmeter is connected to the positive terminal of the internal ohmmeter battery, the positive (+) probe to the negative terminal of the battery.

Continuity is checked according to the direction of the positive (+) and negative (−) probes of the ohmmeter in the circuit containing the diode.

Connection	Continuity
	Yes
	No

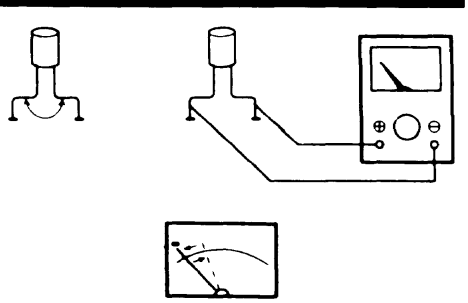
Checking sensors and solenoid valves



Connect the ohmmeter probes to the sensor or solenoid valve terminals to check resistance.

Caution
Verify the operating state of the sensor before checking resistance because readings vary accordingly.

Checking condensers

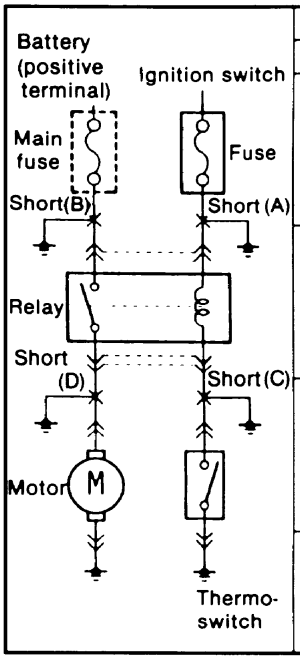


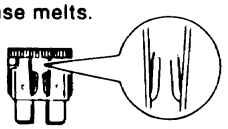
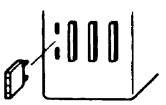
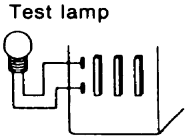
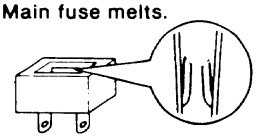
1. Short between the terminals with a jumper wire to discharge the capacitor.
2. Set the ohmmeter range to × 10kΩ and connect it to the capacitor terminals.
3. The capacitor is good if the needle of the ohmmeter swings once and returns to its original position.

Finding short circuits

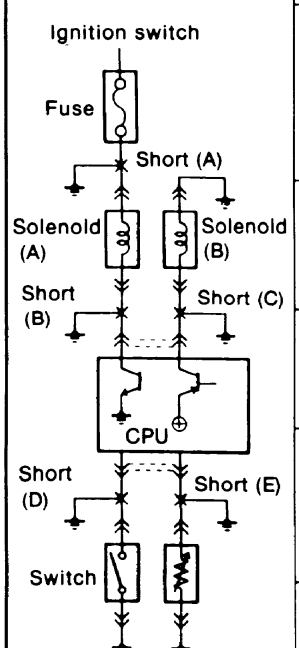
Shorts occur between the power (positive) and ground (negative) sides of a circuit. Therefore, finding a short circuit requires determining how the circuit is routed.

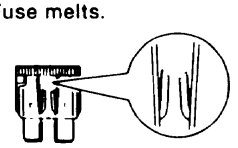
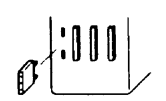
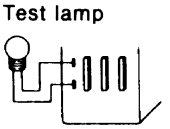
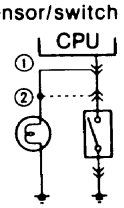
Circuits not connected to control unit



Examples		Finding short circuit
Short location	**Symptom**	
Short (A)	• Fuse melts. 	 Test lamp  1. Remove the fuse and main fuse of the circuit. 2. Disconnect all connectors of electrical components in the circuit. 3. Attach a voltmeter or test lamp to the fuse box and reconnect each connector, beginning nearest the power source. 4. Check the voltmeter reading or test lamp as the connectors are connected.
Short (B)	• Main fuse melts. 	
Short (C)	• The motor operates regardless of whether the thermoswitch is ON or OFF when the ignition switch is ON. • The fuse is not melted.	A short has occurred where the voltmeter reading changes or the test lamp comes on.
Short (D)	• The main fuse melts when the ignition switch and thermoswitch are ON and the relay is operating.	

Circuits connected to control unit



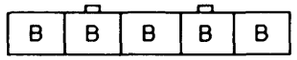
Examples		Finding short circuit
Short location	**Symptom**	
Short (A)	• Fuse melts. 	 Test lamp  1. Remove the fuse and main fuse of the circuit. 2. Disconnect all connectors of electrical components in the circuit. 3. Attach a voltmeter or test lamp to the fuse box and reconnect each connector, beginning nearest to the power source. 4. Check the voltmeter reading or test lamp as the connectors are connected.
Short (B)	• Solenoid A operates when the ignition switch is ON.	
Short (C)	• The CPU transistor burns out when the ignition switch is turned ON.	A short has occurred where the voltmeter reading changes or the test lamp comes on.
Short (D)	• The CPU thinks the switch is ON because the same conditions exist as when the switch is ON.	Sensor/switch  1. Attach the test lamp or voltmeter to the CPU connector. 2. Connect to the switch/ sensor connector. 3. Check the voltmeter reading or test lamp.
Short (E)	• The CPU senses the sensor to be 0Ω because the same conditions exist as when the resistance value is 0Ω. • The CPU equipped with the self-diagnosis function outputs the code.	A short has occurred where the voltmeter reads 0V or the test lamp goes out.

FEDERAL & CALIFORNIA ■ GROUND POINTS

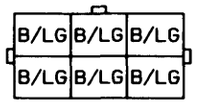
Y-1

WIRING ORDER INTO THE JOINT CONNECTOR MAY BE CHANGED

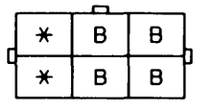
JC-01 JOINT CONNECTOR (F)



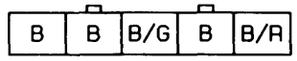
JC-02 JOINT CONNECTOR (F)



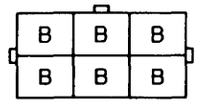
JC-03 JOINT CONNECTOR (F)



JC-04 JOINT CONNECTOR (F)

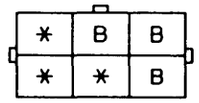


JC-05 JOINT CONNECTOR (F)



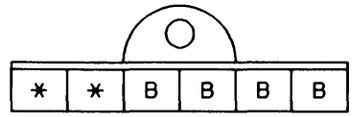
WITH ABS

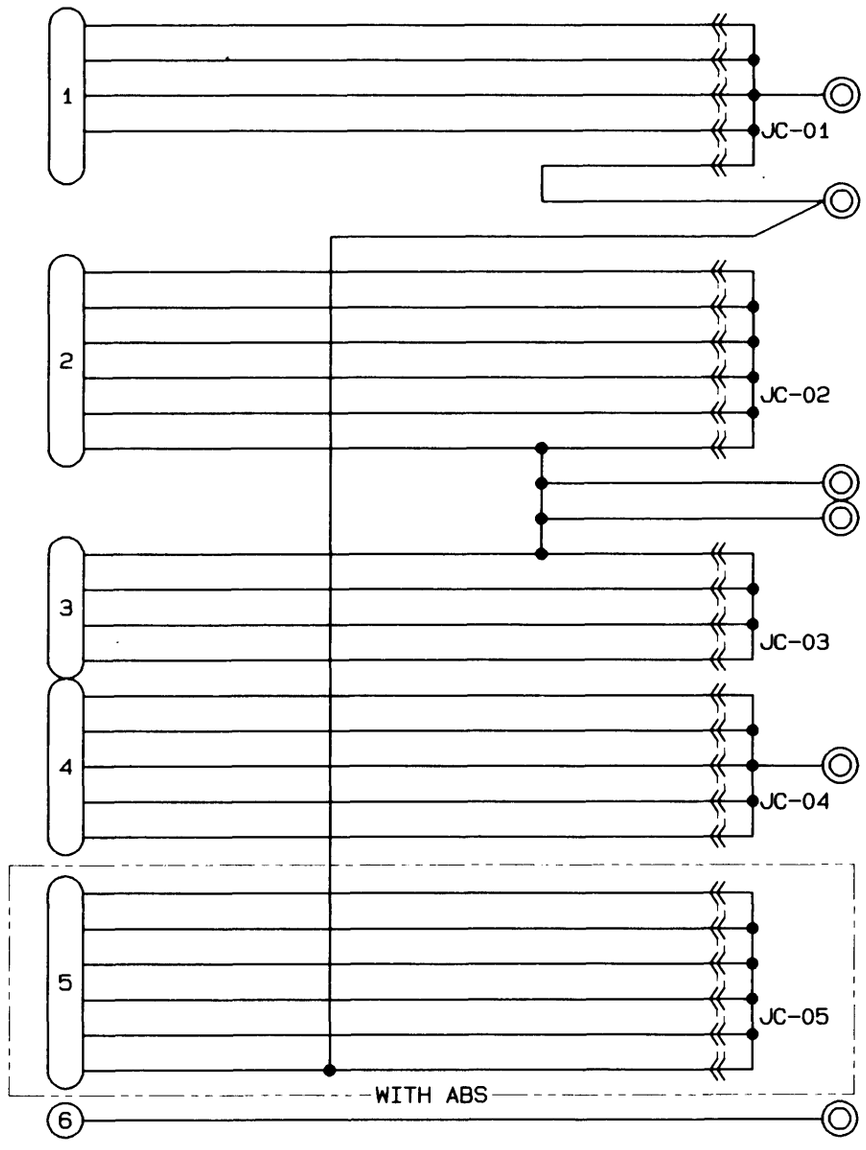
JC-06 JOINT CONNECTOR (R)

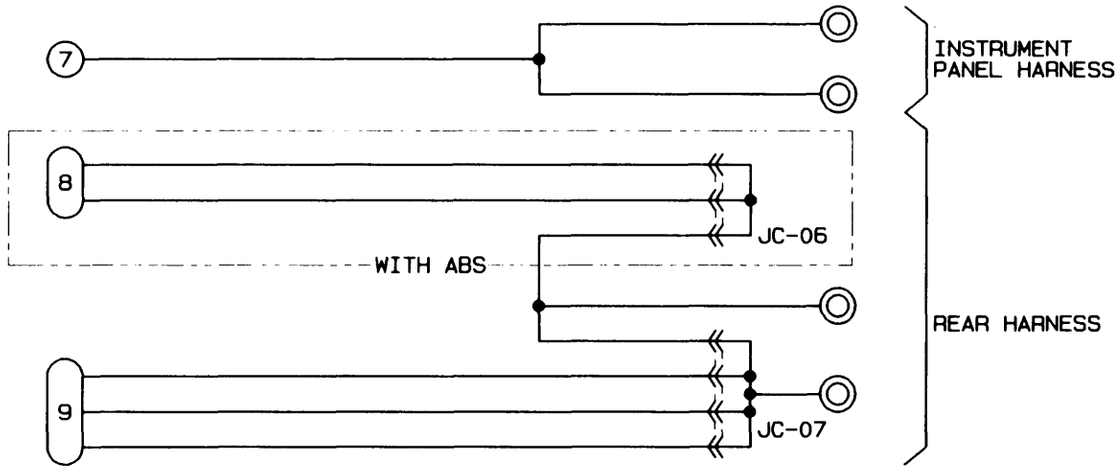


WITH ABS

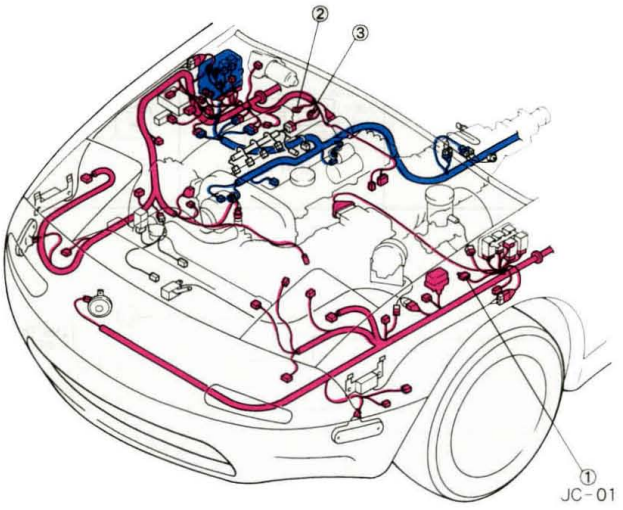
JC-07 JOINT CONNECTOR (R)

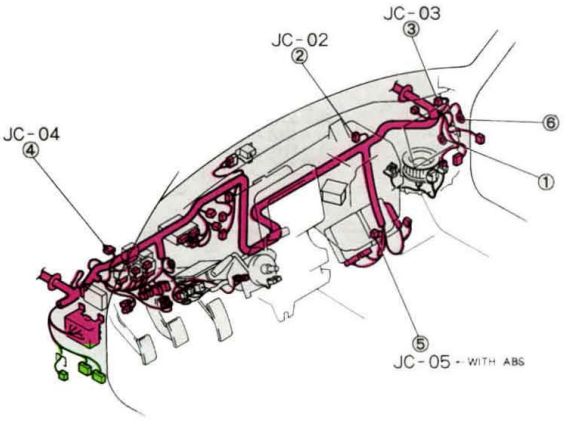


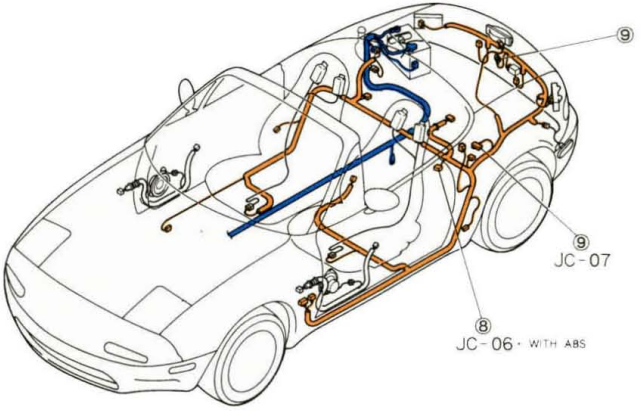


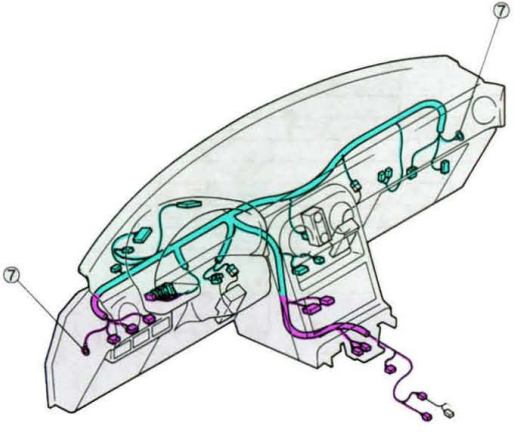


Y-1


②
③
①
JC-01


JC-03
③
JC-02
②
⑥
JC-04
④
①
⑤
JC-05 · WITH ABS


⑨
⑨
JC-07
⑧
JC-06 · WITH ABS

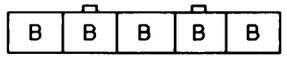

⑦
⑦

CANADA ■ GROUND POINTS

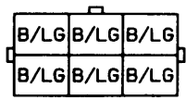
Y-2

WIRING ORDER INTO THE JOINT CONNECTOR MAY BE CHANGED

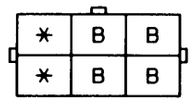
JC-01 JOINT CONNECTOR (F)



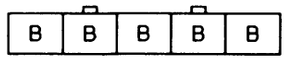
JC-02 JOINT CONNECTOR (F)



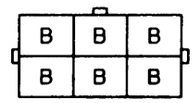
JC-03 JOINT CONNECTOR (F)



JC-04 JOINT CONNECTOR (F)

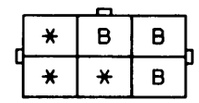


JC-05 JOINT CONNECTOR (F)



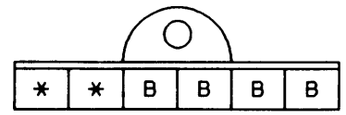
WITH ABS

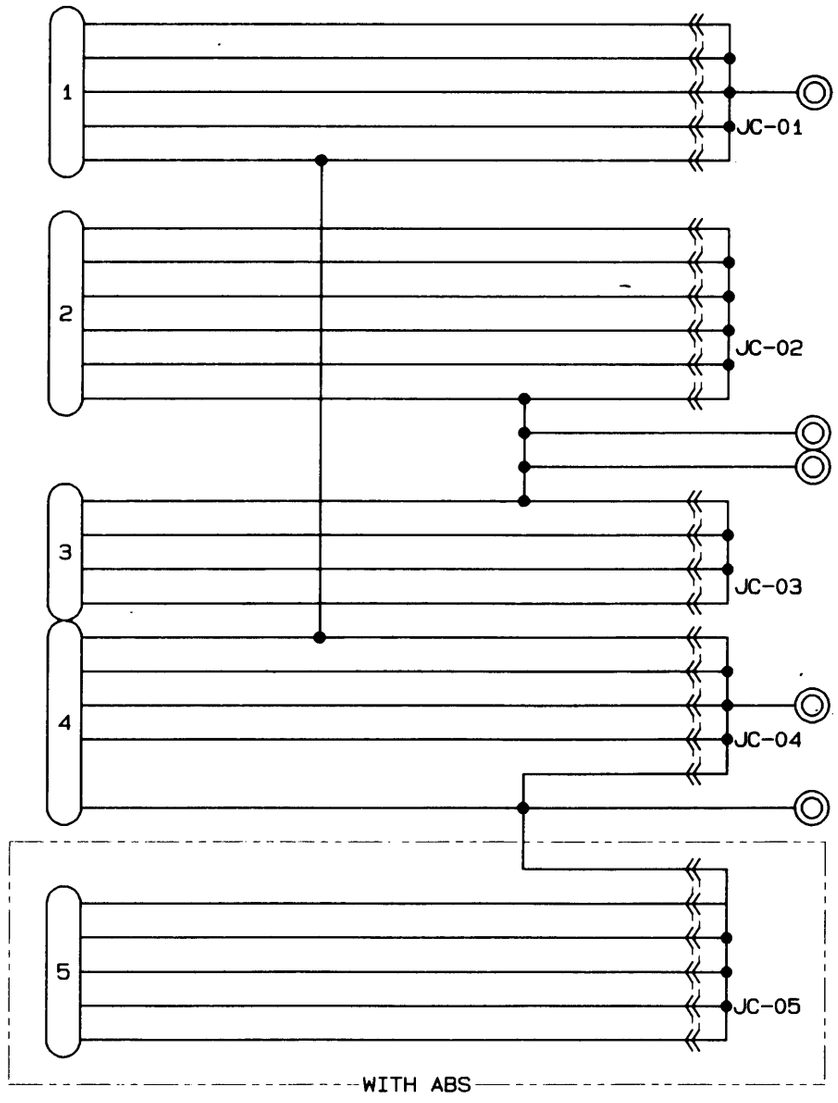
JC-06 JOINT CONNECTOR (R)

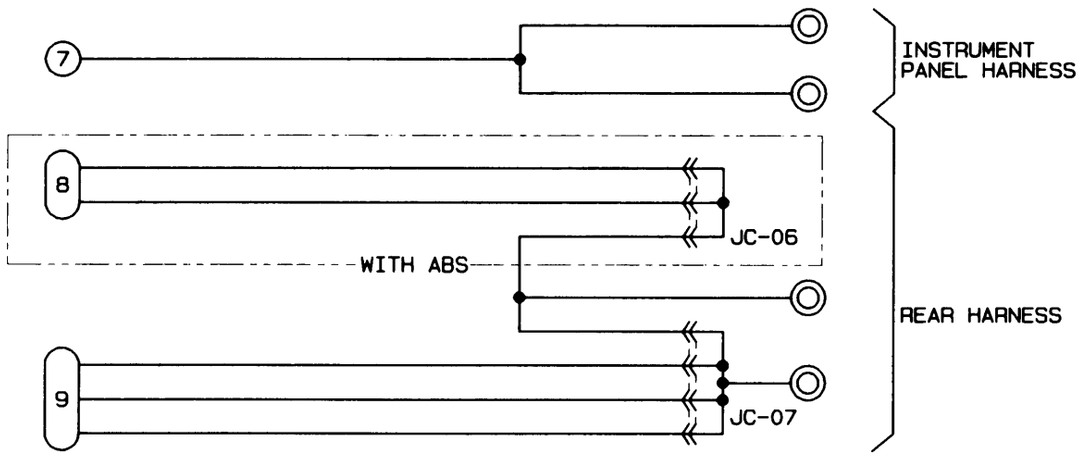


WITH ABS

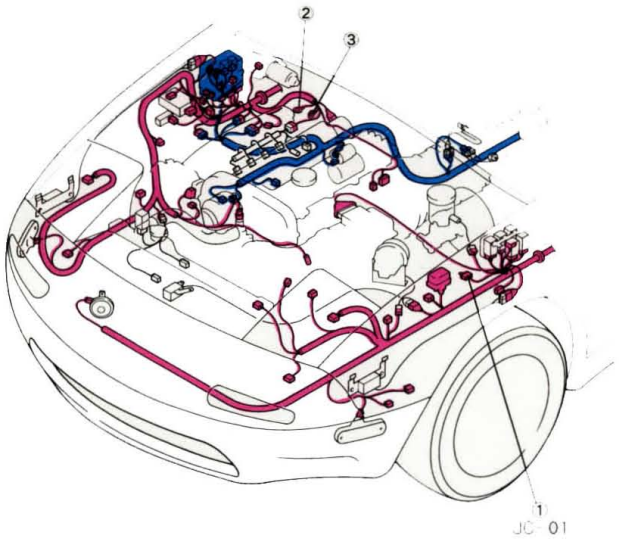
JC-07 JOINT CONNECTOR (R)

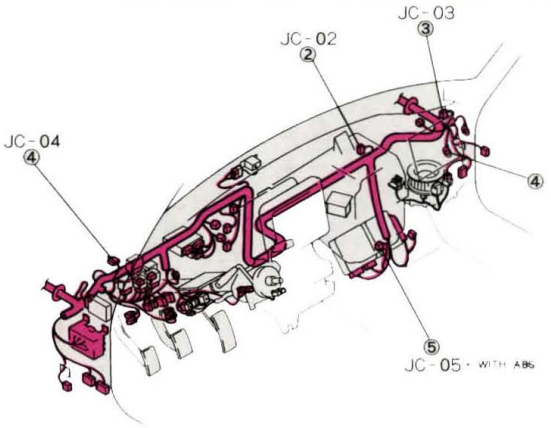


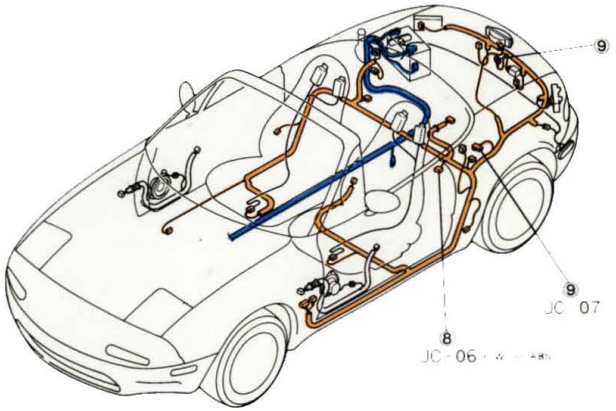


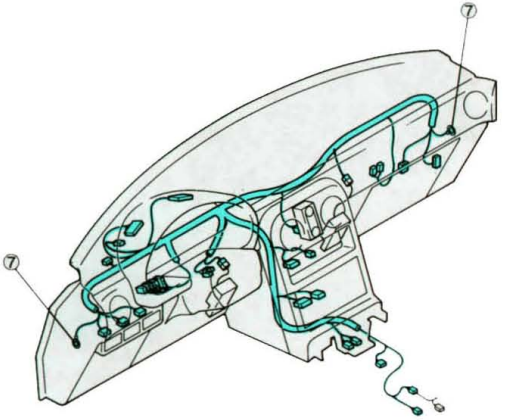


Y-2


2
3
1
JC-01


JC-03
3
JC-02
2
JC-04
4
4
5
JC-05 : WITH ABS


9
9
JC-07
8
JC-06 : W/O ABS

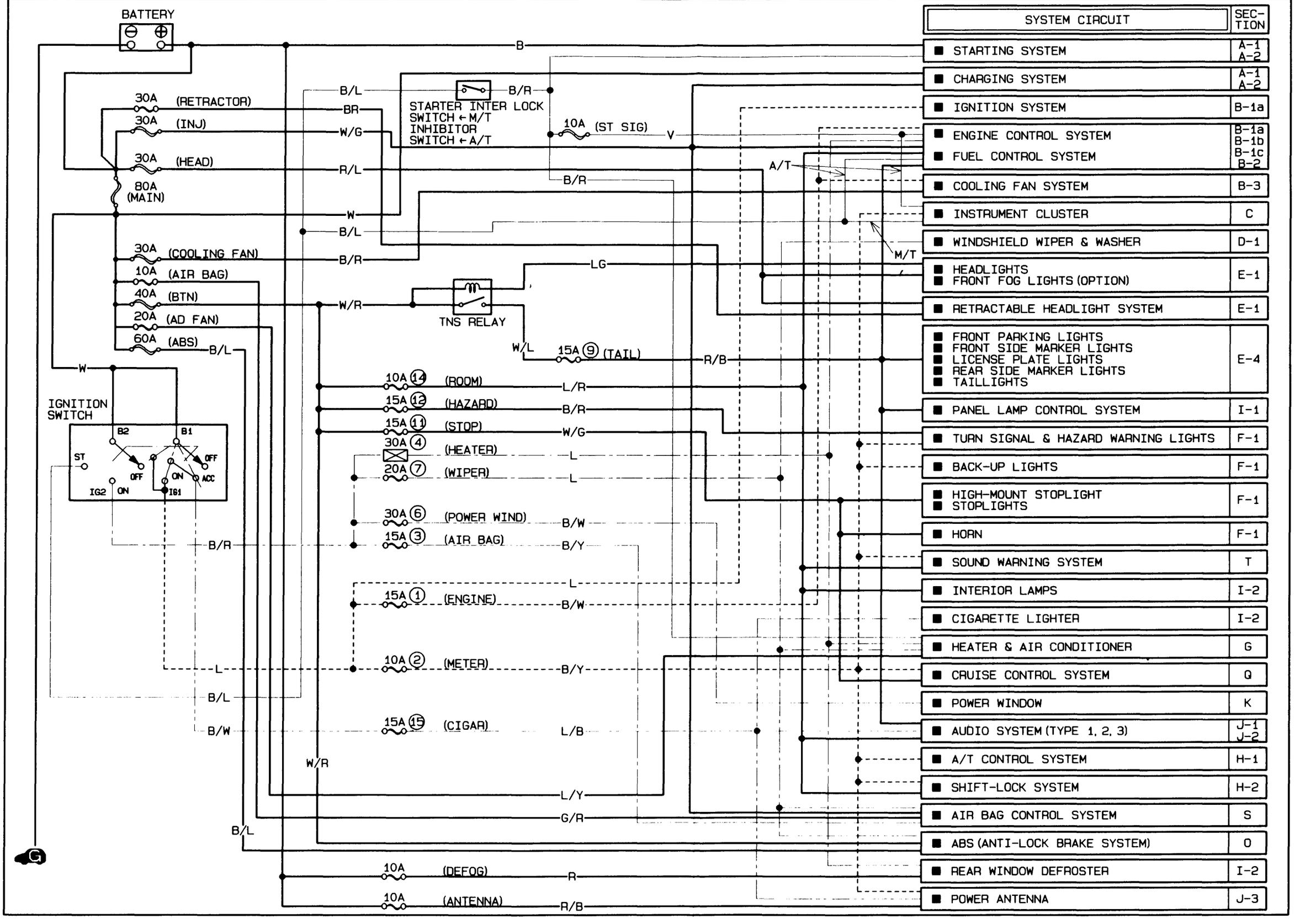

7
7

W

FEDERAL & CALIFORNIA ■ ELECTRICAL WIRING SCHEMATIC

NOTE:
——— CURRENT FROM BATTERY
- - - - - - - - CURRENT FROM IG1 TERMINAL OF IGNITION SWITCH
— — — — CURRENT FROM IG2 TERMINAL OF IGNITION SWITCH
— — — — CURRENT FROM ACC TERMINAL OF IGNITION SWITCH
——— OTHERS

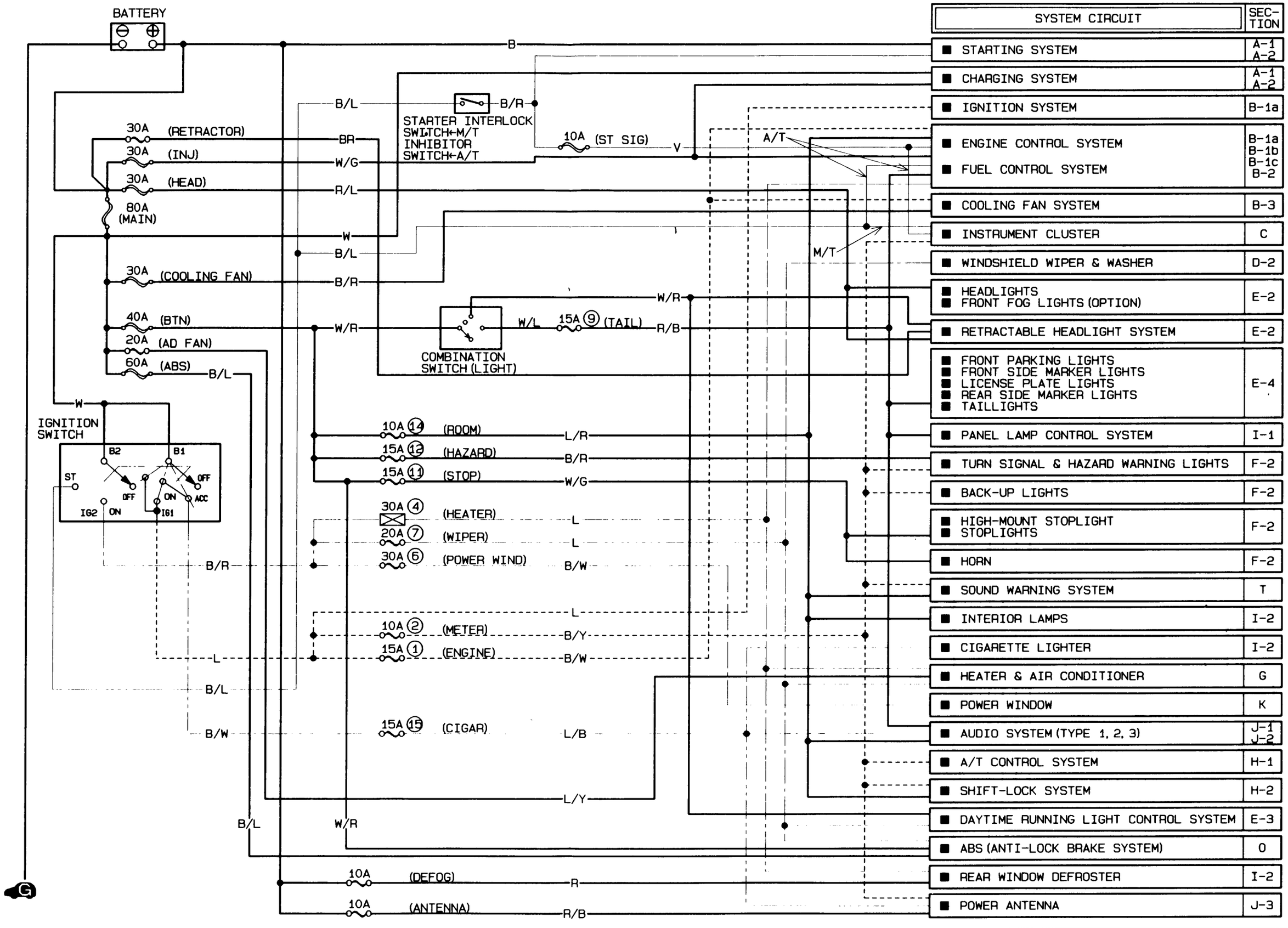
W-1



SYSTEM CIRCUIT	SECTION
■ STARTING SYSTEM	A-1 A-2
■ CHARGING SYSTEM	A-1 A-2
■ IGNITION SYSTEM	B-1a
■ ENGINE CONTROL SYSTEM ■ FUEL CONTROL SYSTEM	B-1a B-1b B-1c B-2
■ COOLING FAN SYSTEM	B-3
■ INSTRUMENT CLUSTER	C
■ WINDSHIELD WIPER & WASHER	D-1
■ HEADLIGHTS ■ FRONT FOG LIGHTS (OPTION)	E-1
■ RETRACTABLE HEADLIGHT SYSTEM	E-1
■ FRONT PARKING LIGHTS ■ FRONT SIDE MARKER LIGHTS ■ LICENSE PLATE LIGHTS ■ REAR SIDE MARKER LIGHTS ■ TAILLIGHTS	E-4
■ PANEL LAMP CONTROL SYSTEM	I-1
■ TURN SIGNAL & HAZARD WARNING LIGHTS	F-1
■ BACK-UP LIGHTS	F-1
■ HIGH-MOUNT STOPLIGHT ■ STOPLIGHTS	F-1
■ HORN	F-1
■ SOUND WARNING SYSTEM	T
■ INTERIOR LAMPS	I-2
■ CIGARETTE LIGHTER	I-2
■ HEATER & AIR CONDITIONER	G
■ CRUISE CONTROL SYSTEM	Q
■ POWER WINDOW	K
■ AUDIO SYSTEM (TYPE 1, 2, 3)	J-1 J-2
■ A/T CONTROL SYSTEM	H-1
■ SHIFT-LOCK SYSTEM	H-2
■ AIR BAG CONTROL SYSTEM	S
■ ABS (ANTI-LOCK BRAKE SYSTEM)	O
■ REAR WINDOW DEFROSTER	I-2
■ POWER ANTENNA	J-3

W-2 CANADA ■ ELECTRICAL WIRING SCHEMATIC

NOTE:
——— CURRENT FROM BATTERY
- - - - - - - - CURRENT FROM IG1 TERMINAL OF IGNITION SWITCH
——— — — CURRENT FROM IG2 TERMINAL OF IGNITION SWITCH
——— — — CURRENT FROM ACC TERMINAL OF IGNITION SWITCH
——— OTHERS

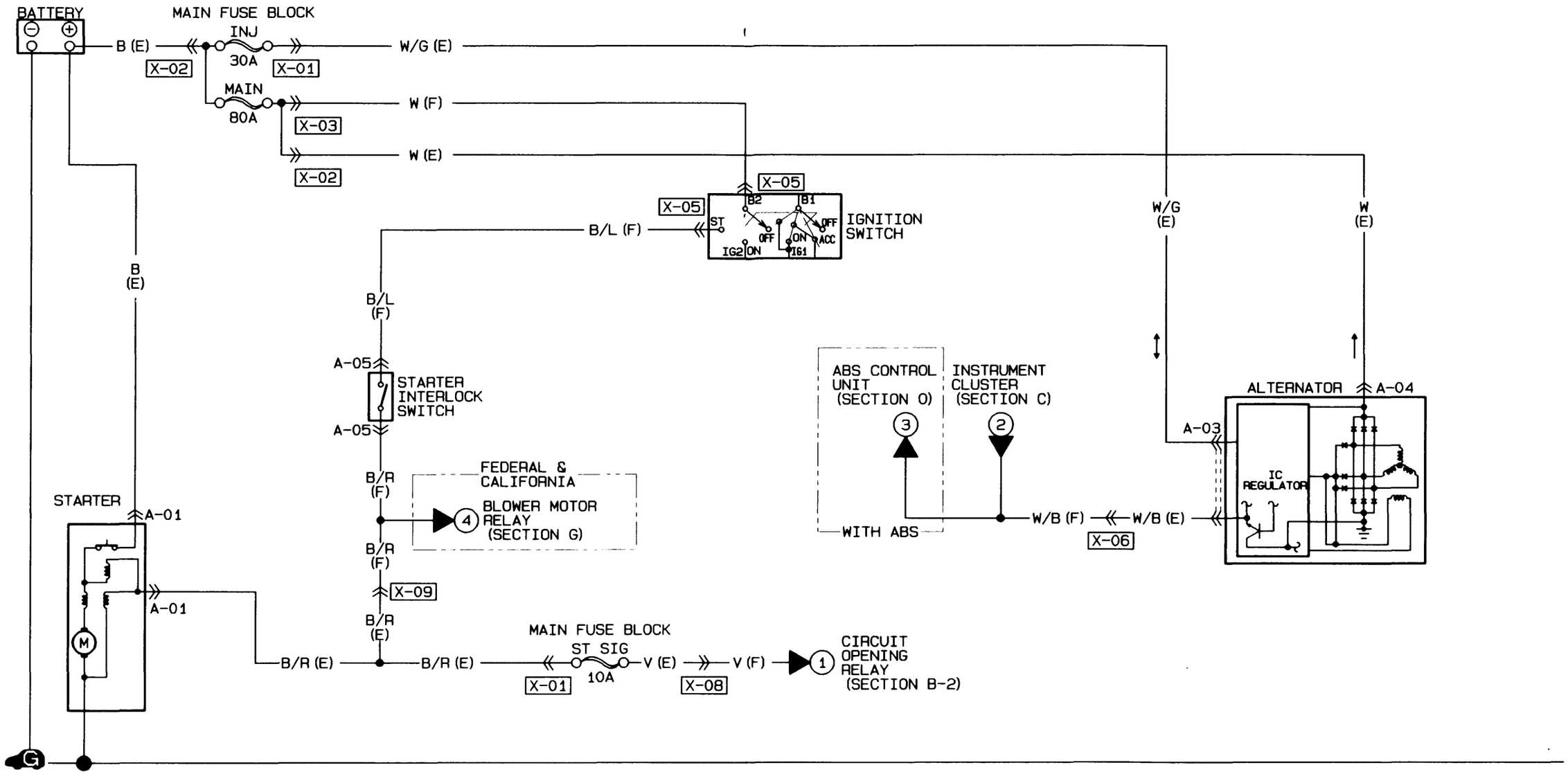


SYSTEM CIRCUIT	SECTION
■ STARTING SYSTEM	A-1 A-2
■ CHARGING SYSTEM	A-1 A-2
■ IGNITION SYSTEM	B-1a
■ ENGINE CONTROL SYSTEM ■ FUEL CONTROL SYSTEM	B-1a B-1b B-1c B-2
■ COOLING FAN SYSTEM	B-3
■ INSTRUMENT CLUSTER	C
■ WINDSHIELD WIPER & WASHER	D-2
■ HEADLIGHTS ■ FRONT FOG LIGHTS (OPTION)	E-2
■ RETRACTABLE HEADLIGHT SYSTEM	E-2
■ FRONT PARKING LIGHTS ■ FRONT SIDE MARKER LIGHTS ■ LICENSE PLATE LIGHTS ■ REAR SIDE MARKER LIGHTS ■ TAILLIGHTS	E-4
■ PANEL LAMP CONTROL SYSTEM	I-1
■ TURN SIGNAL & HAZARD WARNING LIGHTS	F-2
■ BACK-UP LIGHTS	F-2
■ HIGH-MOUNT STOPLIGHT ■ STOPLIGHTS	F-2
■ HORN	F-2
■ SOUND WARNING SYSTEM	T
■ INTERIOR LAMPS	I-2
■ CIGARETTE LIGHTER	I-2
■ HEATER & AIR CONDITIONER	G
■ POWER WINDOW	K
■ AUDIO SYSTEM (TYPE 1, 2, 3)	J-1 J-2
■ A/T CONTROL SYSTEM	H-1
■ SHIFT-LOCK SYSTEM	H-2
■ DAYTIME RUNNING LIGHT CONTROL SYSTEM	E-3
■ ABS (ANTI-LOCK BRAKE SYSTEM)	0
■ REAR WINDOW DEFROSTER	I-2
■ POWER ANTENNA	J-3

A~V

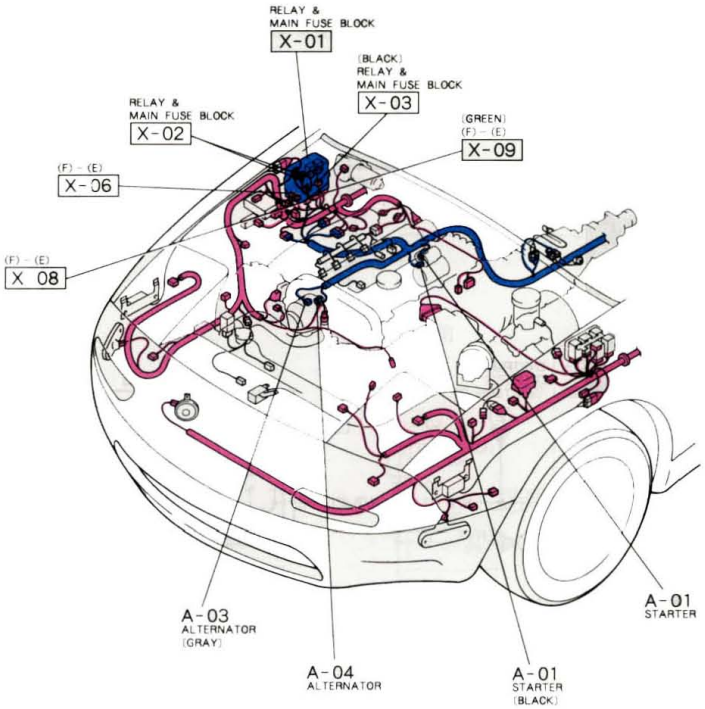
M/T ■ CHARGING SYSTEM ■ STARTING SYSTEM

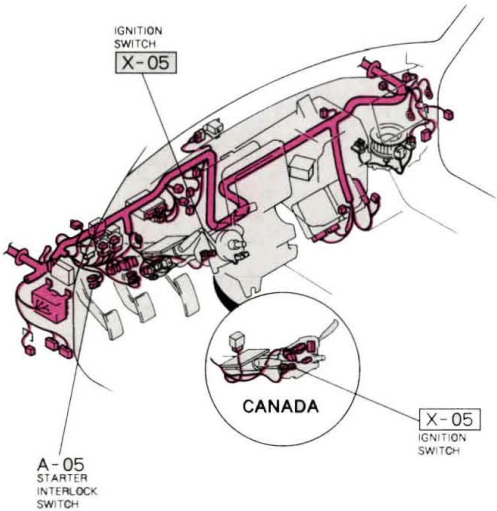
A-1



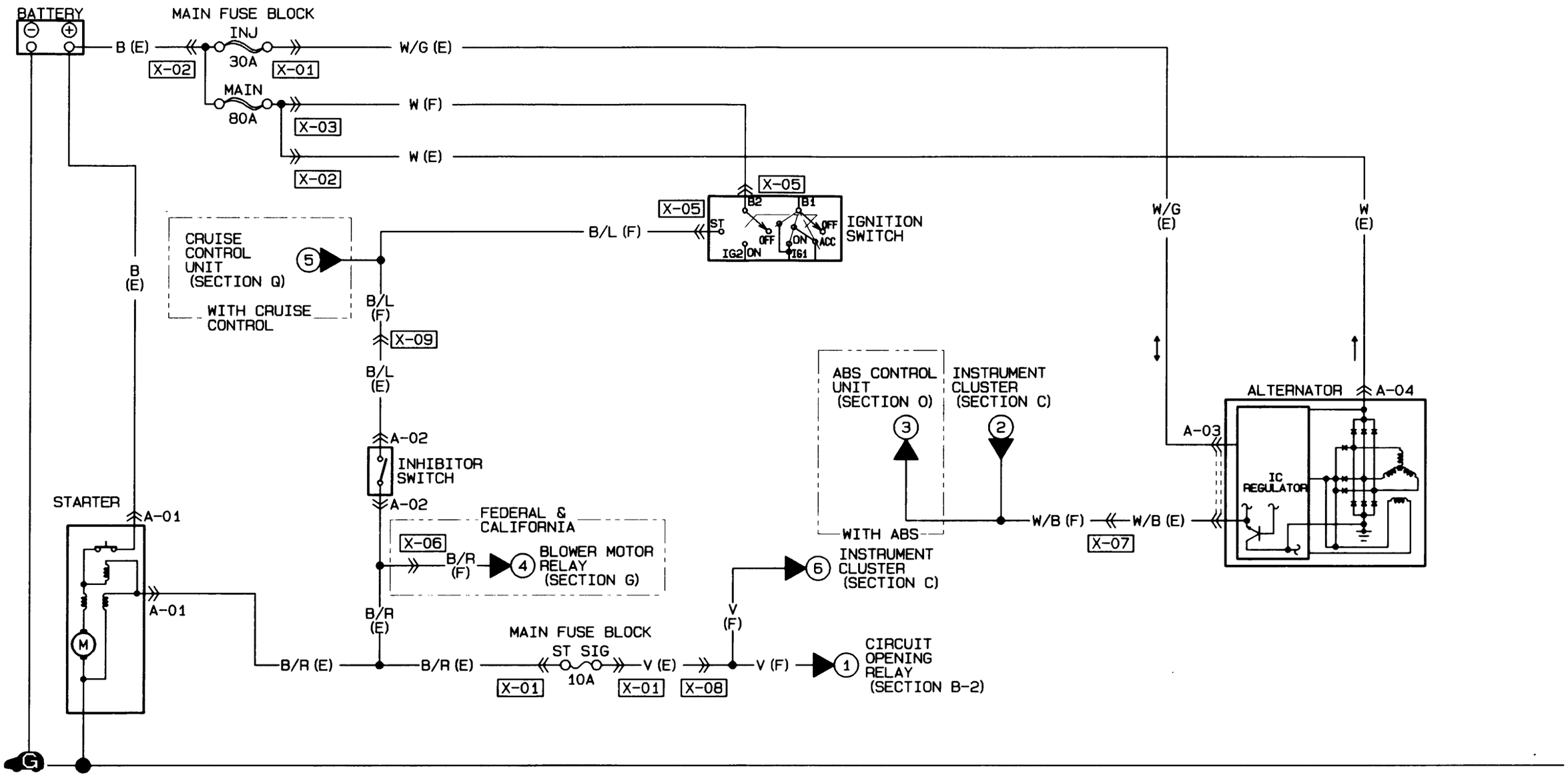
A-01 STARTER (E)	A-03 ALTERNATOR (E)	A-04 ALTERNATOR (E)	A-05 STARTER INTERLOCK SWITCH (F)			
B B/R	W/G W/B	W	B/R B/L			

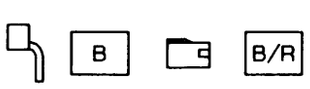
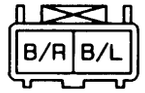
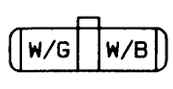
A-1


RELAY & MAIN FUSE BLOCK
X-01
(BLACK) RELAY & MAIN FUSE BLOCK
X-03
RELAY & MAIN FUSE BLOCK
X-02
(GREEN) (F) - (E)
X-09
(F) - (E)
X-06
(F) - (E)
X-08
A-03 ALTERNATOR (GRAY)
A-04 ALTERNATOR
A-01 STARTER (BLACK)
A-01 STARTER

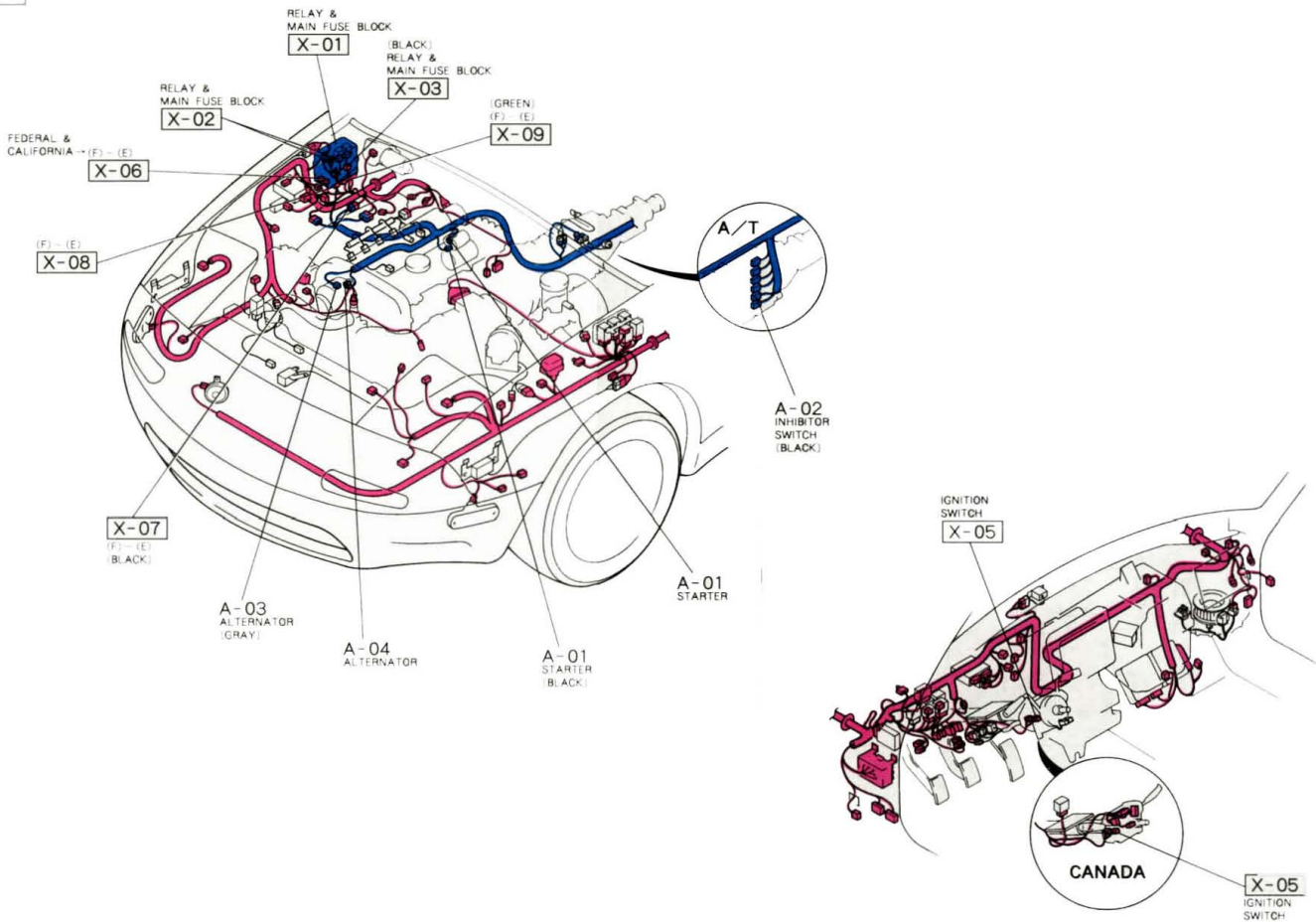

IGNITION SWITCH
X-05
CANADA
X-05 IGNITION SWITCH
A-05 STARTER INTERLOCK SWITCH

A/T ■ CHARGING SYSTEM ■ STARTING SYSTEM



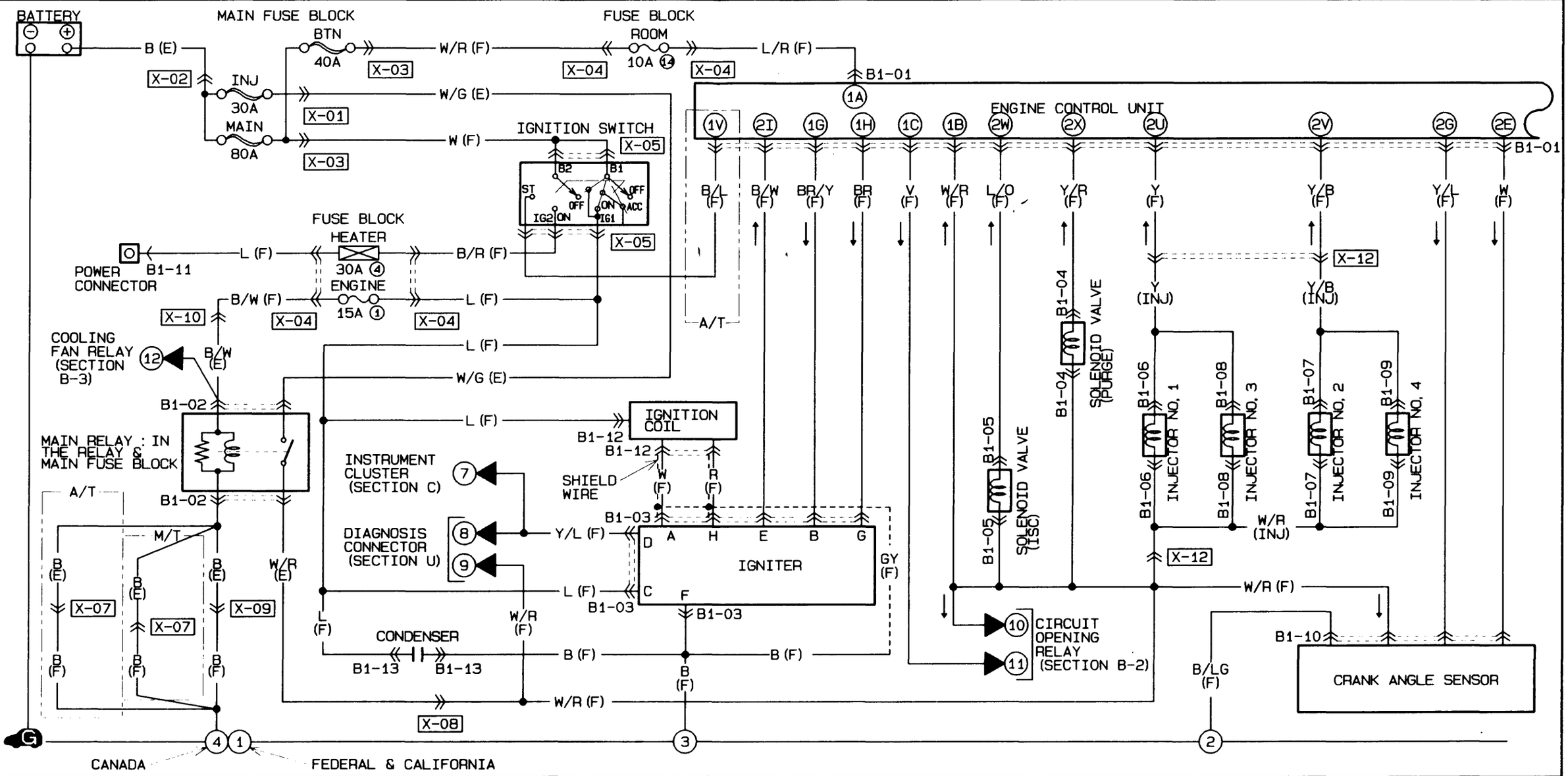
A-01 STARTER (E)	A-02 INHIBITOR SWITCH (E)	A-03 ALTERNATOR (E)	A-04 ALTERNATOR (E)			
						

A-2


RELAY & MAIN FUSE BLOCK
X-01
(BLACK)
RELAY & MAIN FUSE BLOCK
X-03
RELAY & MAIN FUSE BLOCK
X-02
(GREEN)
(F) - (E)
X-09
FEDERAL & CALIFORNIA → (F) - (E)
X-06
(F) - (E)
X-08
A/T
A-02
INHIBITOR SWITCH
(BLACK)
X-07
(F) - (E)
(BLACK)
A-03
ALTERNATOR
(GRAY)
A-04
ALTERNATOR
A-01
STARTER
(BLACK)
A-01
STARTER
IGNITION SWITCH
X-05
CANADA
X-05
IGNITION SWITCH

■ ENGINE CONTROL SYSTEM ■ IGNITION SYSTEM

B-1a



B1-01 ENGINE CONTROL UNIT (F)

1U	1S	1Q	1O	1M	1K	1I	1G	1E	1C	1A
R/B	L/O	LG/B	G	*	LG/Y	*	BR/Y	Y/B	V	L/R
BR/W [B/L]	*	B/G	* <L/Y>	R	*	L/B	BR	W/Y	W/G	W/R

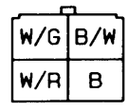
1V	1T	1R	1P	1N	1L	1J	1H	1F	1D	1B

2Y	2W	2U	2S	2Q	2O	2M	2K	2I	2G	2E	2C	2A
*	L/O	Y	*	L/W	R	* [R/B]	LG/R	B/W	Y/L	W	B/LG	B
* [LG]	Y/R	Y/B	*	*	R/G	R/L	LG/W [B]	*	R/W [B]	*	B/LG	B

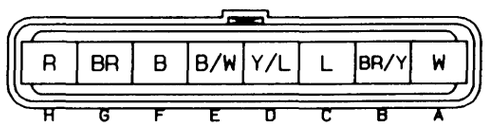
2Z	2X	2V	2T	2R	2P	2N	2L	2J	2H	2F	2D	2B

( ) . . . CANADA < > . . . WITH POWER STEERING [ ] . . . A/T

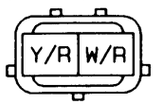
B1-02 MAIN RELAY: IN THE RELAY & MAIN FUSE BLOCK (E)



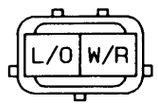
B1-03 IGNITER (F)



B1-04 SOLENOID VALVE (PURGE) (F)

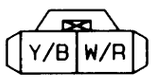


B1-05 SOLENOID VALVE (ISC) (F)



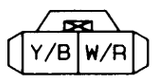
B1-06 INJECTOR NO. 1 (INJ)

B1-07 INJECTOR NO. 2 (INJ)

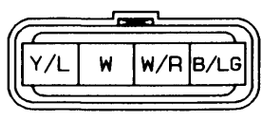


B1-08 INJECTOR NO. 3 (INJ)

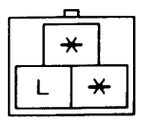
B1-09 INJECTOR NO. 4 (INJ)



B1-10 CRANK ANGLE SENSOR (F)

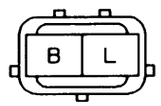


B1-11 POWER CONNECTOR (F)

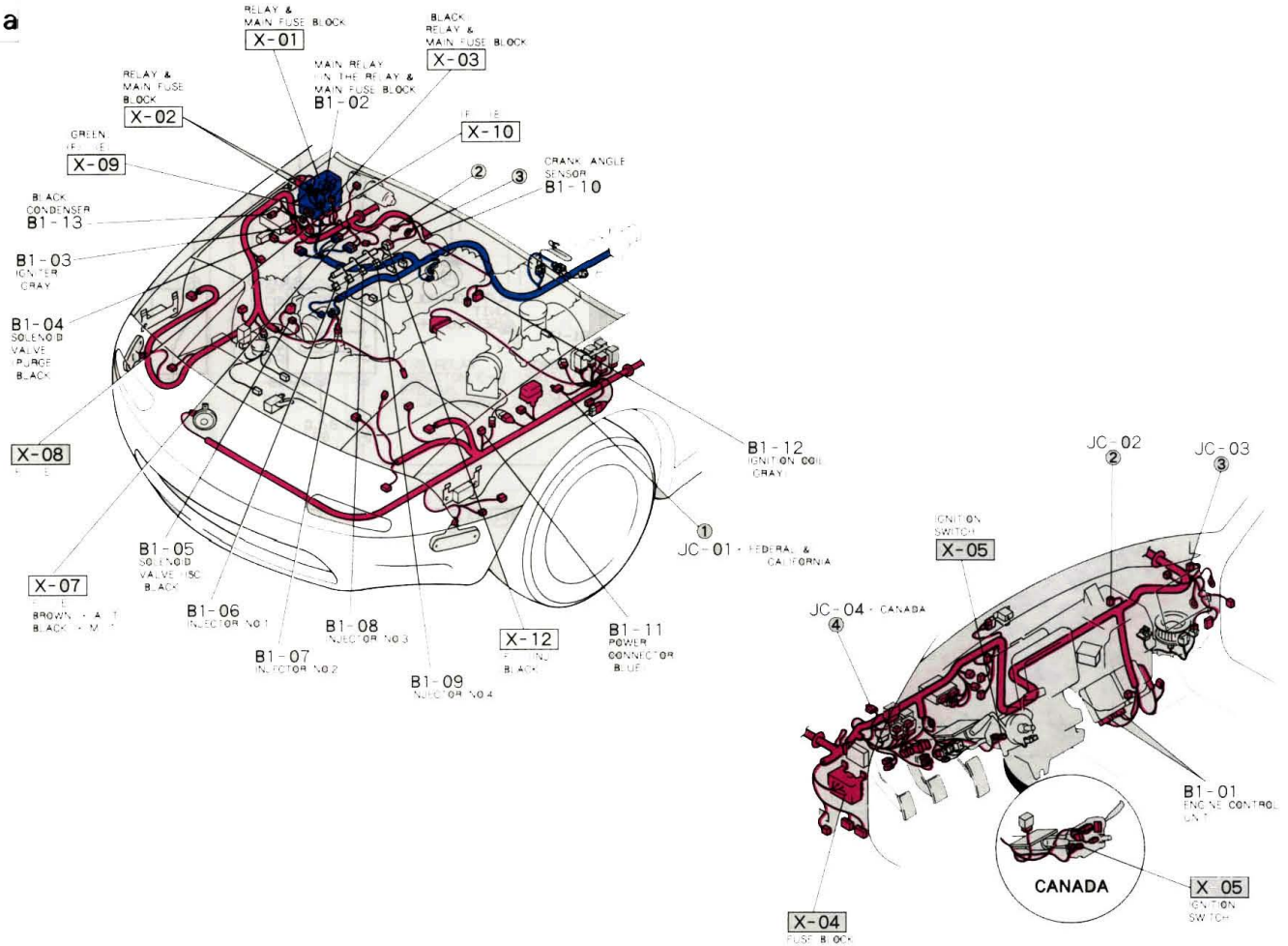


B1-12 IGNITION COIL (F)

B1-13 CONDENSER (F)

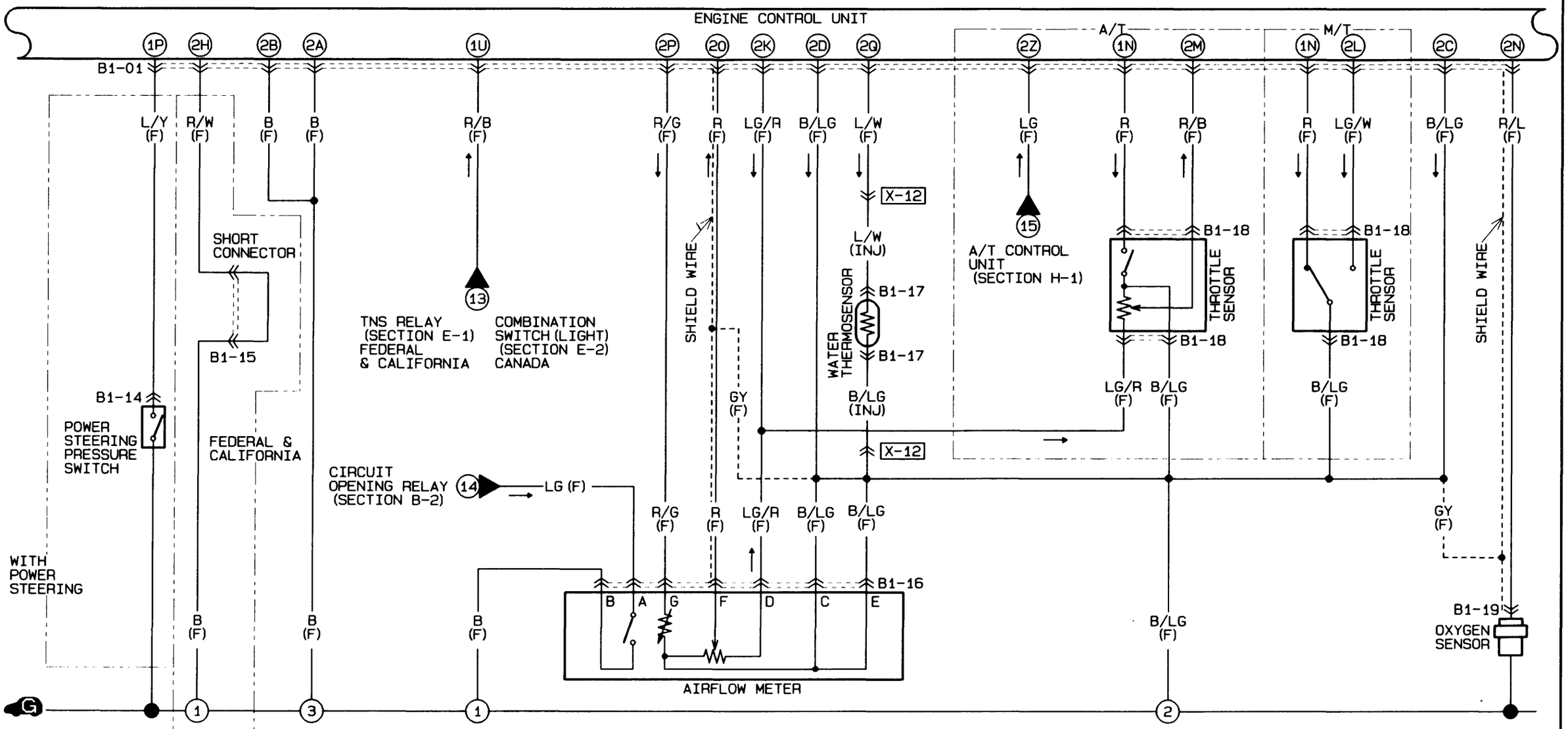


B-1a


RELAY & MAIN FUSE BLOCK
X-01
BLACK RELAY & MAIN FUSE BLOCK
X-03
MAIN RELAY IN THE RELAY & MAIN FUSE BLOCK
B1-02
RELAY & MAIN FUSE BLOCK
X-02
X-10
GREEN
X-09
CRANK ANGLE SENSOR
B1-10
BLACK CONDENSER
B1-13
B1-03
IGNITER
GRAY
B1-04
SOLENOID VALVE PURGE
BLACK
X-08
B1-12
IGNITION COIL
GRAY
JC-01 - FEDERAL & CALIFORNIA
B1-05
SOLENOID VALVE ISC
BLACK
X-07
BROWN - A/T
BLACK - M/T
B1-06
INJECTOR NO.1
B1-08
INJECTOR NO.3
B1-07
INJECTOR NO.2
B1-09
INJECTOR NO.4
X-12
BLACK
B1-11
POWER CONNECTOR
BLUE
JC-02
JC-03
IGNITION SWITCH
X-05
JC-04 - CANADA
B1-01
ENGINE CONTROL UNIT
CANADA
X-05
IGNITION SWITCH
X-04
FUSE BLOCK

■ ENGINE CONTROL SYSTEM

B-1b



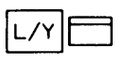
B1-01 ENGINE CONTROL UNIT (F)

1U	1S	1Q	1O	1M	1K	1I	1G	1E	1C	1A
R/B	L/O	LG/B	G	*	LG/Y	*	BR/Y	Y/B	V	L/R
BR/W [B/L]	*	B/G	* <L/Y>	R	*	L/B	BR	W/Y	W/G	W/R
1V	1T	1R	1P	1N	1L	1J	1H	1F	1D	1B

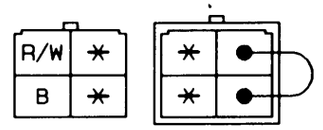
2Y	2W	2U	2S	2Q	2O	2M	2K	2I	2G	2E	2C	2A
* [LG]	L/O	Y	*	L/W	R	* [R/B]	LG/R	B/W	Y/L	W	B/LG	B
* [LG]	Y/R	Y/B	*	*	R/G	R/L	LG/W	*	R/W	*	B/LG	B
2Z	2X	2V	2T	2R	2P	2N	2L	2J	2H	2F	2D	2B

( ) . . . CANADA < > . . . WITH POWER STEERING [ ] . . . A/T

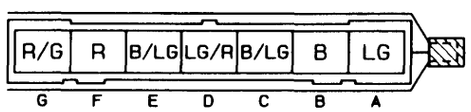
B1-14 POWER STEERING PRESSURE SWITCH (F)



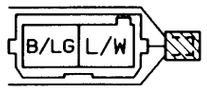
B1-15 SHORT CONNECTOR (F)



B1-16 AIRFLOW METER (F)

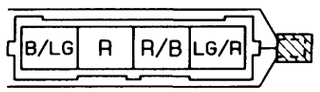


B1-17 WATER THERMOSENSOR (INJ)

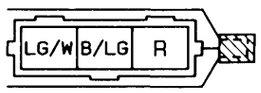


B1-18 THROTTLE SENSOR (F)

A/T

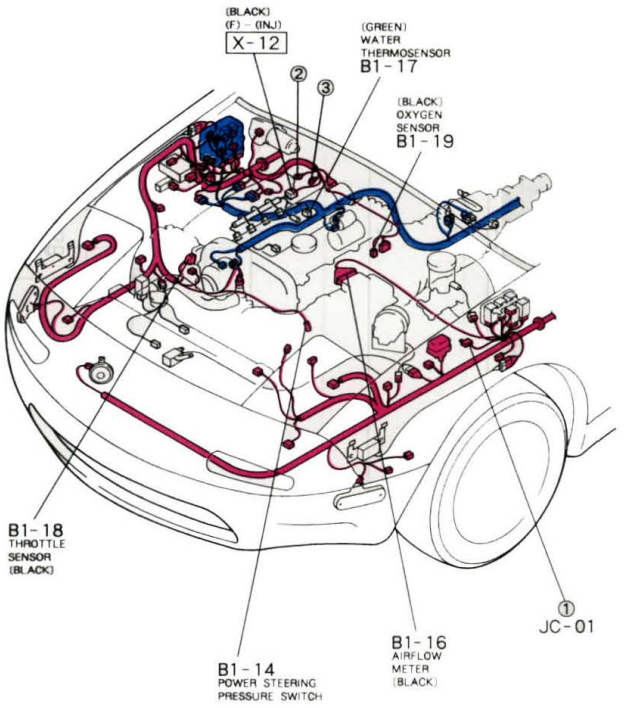


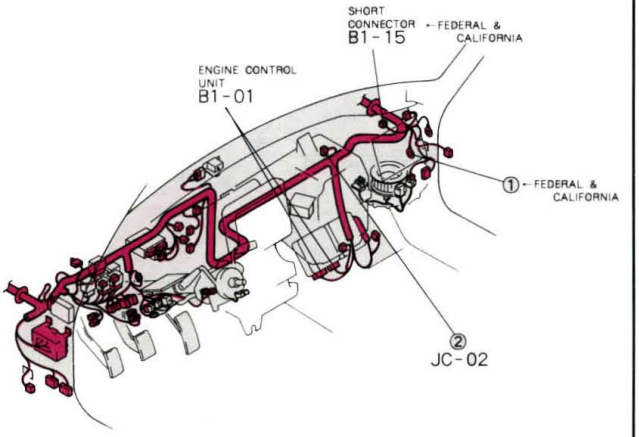
M/T



B1-19 OXYGEN SENSOR (F)

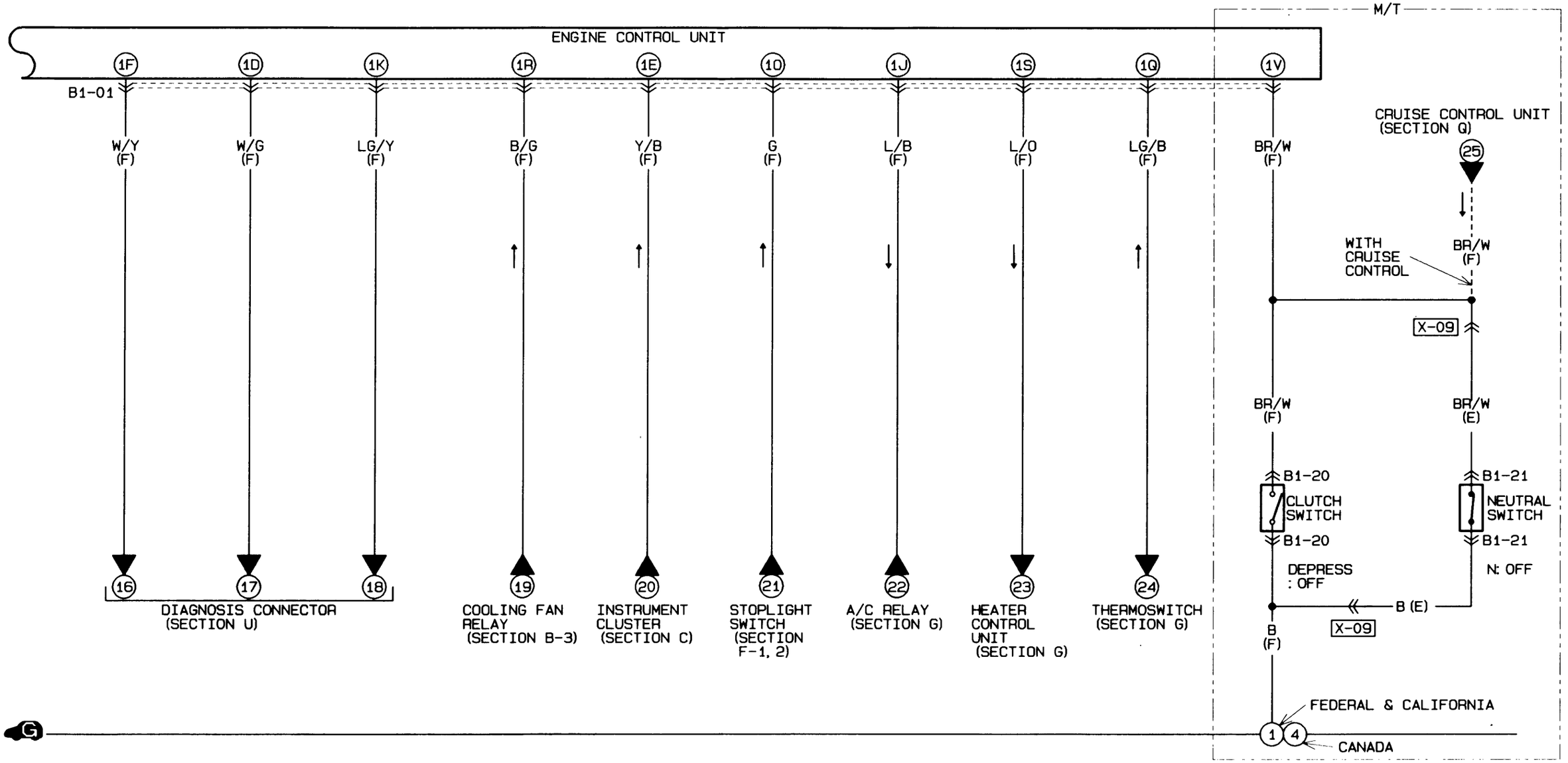
B-1b


(BLACK)
(F) – (INJ)
X-12
(GREEN)
WATER
THERMOSENSOR
B1-17
(BLACK)
OXYGEN
SENSOR
B1-19
B1-18
THROTTLE
SENSOR
(BLACK)
B1-14
POWER STEERING
PRESSURE SWITCH
B1-16
AIRFLOW
METER
(BLACK)
JC-01


SHORT
CONNECTOR
B1-15
← FEDERAL &
CALIFORNIA
ENGINE CONTROL
UNIT
B1-01
← FEDERAL &
CALIFORNIA
JC-02

■ ENGINE CONTROL SYSTEM

B-1c



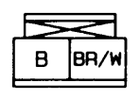
B1-01 ENGINE CONTROL UNIT (F)

1U	1S	1Q	1O	1M	1K	1I	1G	1E	1C	1A
R/B	L/O	LG/B	G	*	LG/Y	*	BR/Y	Y/B	V	L/R
BR/W [B/L]	*	B/G	* <L/Y>	R	*	L/B	BR	W/Y	W/G	W/R
1V	1T	1R	1P	1N	1L	1J	1H	1F	1D	1B

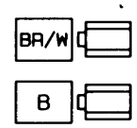
2Y	2W	2U	2S	2Q	2O	2M	2K	2I	2G	2E	2C	2A
*	L/O	Y	*	L/W	R	* [R/B]	LG/R	B/W	Y/L	W	B/LG	B
* [LG]	Y/R	Y/B	*	*	R/G	R/L	LG/W [X]	*	R/W (X0)	*	B/LG	B
2Z	2X	2V	2T	2R	2P	2N	2L	2J	2H	2F	2D	2B

( ) . . . CANADA < > . . . WITH POWER STEERING [ ] . . . A/T

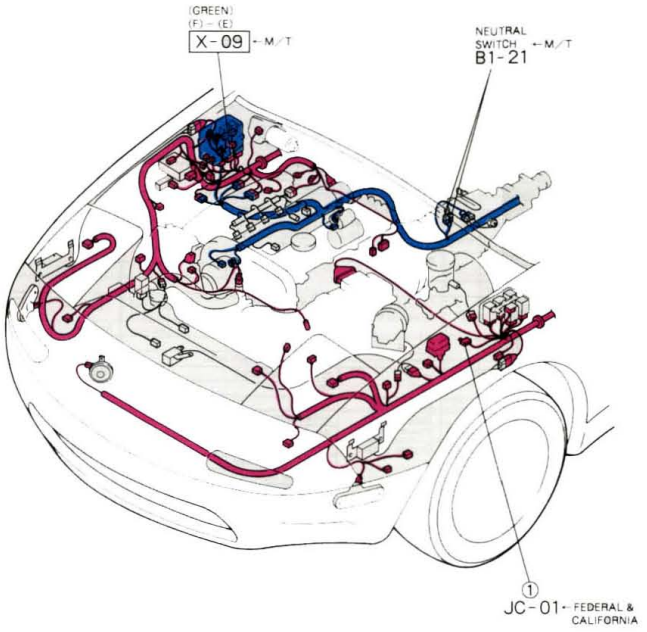
B1-20 CLUTCH SWITCH (F)

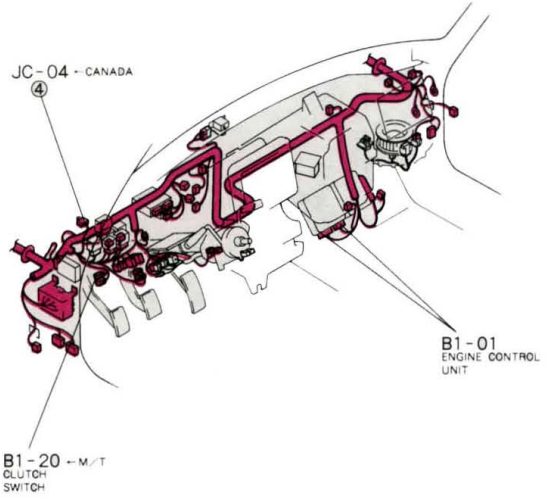


B1-21 NEUTRAL SWITCH (E)



B-1c


(GREEN)
(F) – (E)
X-09 ← M/T
NEUTRAL
SWITCH ← M/T
B1-21
① JC-01 ← FEDERAL & CALIFORNIA


JC-04 ← CANADA
④
B1-01
ENGINE CONTROL
UNIT
B1-20 ← M/T
CLUTCH
SWITCH

Terminal Voltage

M / T

VB: Battery voltage

Terminal	Input	Output	Connection to	Test condition	Voltage	Remark
1A	—	—	Battery	Constant	VB	For backup
1B	○		Main relay	Ignition switch OFF	0V	
				Ignition switch ON	VB	
1C	○		Ignition switch (Start position)	While cranking	Approx. 10V	
				Ignition switch ON	0V	
1D		○	Self-Diagnosis Checker (Monitor lamp)	Test switch at "SELF-TEST" Lamp illuminated for 3 sec. after ignition switch OFF→ON	4.5—5.5V	With Self-Diagnosis Checker and System Selector
				Lamp not illuminated after 3 sec.	VB	
				Test switch at "O_2 MONITOR" at idle Monitor lamp illuminated	4.5—5.5V	
				Test switch at "O_2 MONITOR" at idle Monitor lamp not illuminated	VB	
1E		○	Malfunction indicator lamp	Lamp illuminated for 3 sec. after ignition switch OFF→ON	Below 2.5V	With System Selector test switch at "SELF-TEST"
				Lamp not illuminated after 3 sec.	VB	
				Lamp illuminated	Below 2.5V	
				Lamp not illuminated	VB	
1F		○	Self-Diagnosis Checker (Code number)	Buzzer sound for 3 sec. after ignition switch OFF→ON	Below 2.5V	• With Self-Diagnosis Checker and System Selector • With System Selector test switch at "SELF-TEST"
				Buzzer not sounded after 3 sec.	VB	
				Buzzer sounded	Below 2.5V	
				Buzzer not sounded	VB	
1G		○	Igniter	Ignition switch ON	0V	
				Idle	Approx. 0.2V	
1H		○	Igniter	Ignition switch ON	0V	
				Idle	Approx. 0.2V	
1I	—	—	—	—	—	—
1J		○	A/C relay	Ignition switch ON	VB	
				A/C switch ON at idle	Below 2.5V	
				A/C switch OFF at idle	VB	
1K	○		Diagnosis connector	System Selector test switch at "O_2 MONITOR"	VB	
				System Selector test switch at "SELF-TEST"	0V	
1L	—	—	—	—	—	—
1M	—	—	—	—	—	—
1N	○		Throttle sensor (Idle point)	Accelerator pedal released	0V	Ignition switch ON
				Accelerator pedal depressed	VB	
1O	○		Stoplight switch	Brake pedal released	0V	
				Brake pedal depressed	VB	
1P	○		P/S pressure switch	Ignition switch ON	VB	
				P/S ON (at idle)	0V	
				P/S OFF (at idle)	VB	
1Q	○		A/C switch	A/C switch ON (Ignition switch ON)	Below 2.5V	Blower motor ON
				A/C switch OFF (Ignition switch ON)	VB	
1R	○		Fan switch	Fan operating (Engine coolant temperature over 97°C (207°F) or diagnosis connector terminal TFA grounded)	0V	
				Fan not operating (Idle)	VB	

VB: Battery voltage

Terminal	Input	Output	Connection to	Test condition	Voltage	Remark
1S	○		Blower control switch	Blower control switch at mid, high or super high position	Approx. 0V	Ignition switch ON
				Blower control switch OFF or low	Approx. 12V	
1T	—	—	—	—	—	
1U	○		Headlight switch	Headlights ON (Tail, parking, low beam/ high beam)	Approx. 12V	
				Headlights OFF	0V	
1V	○		Neutral or clutch switch	Neutral position or clutch pedal depressed	0V	
				Other conditions	VB	
2A	—	—	Ground (Injector)	Constant	0V	
2B	—	—	Ground (Output)	Constant	0V	
2C	—	—	Ground (CPU)	Constant	0V	
2D	—	—	Ground (Input)	Constant	0V	
2E	○		Crank angle sensor (Ne-signal)	Ignition switch ON	0V or 5V	
				Idle	Approx. 2V	
2F	—	—	—	—	—	—
2G	○		Crank angle sensor (G-signal)	Ignition switch ON	0V or 5V	
				Idle	Approx. 1.5V	
2H	○		Ground	Constant	0V	
			Open	Federal and Canada spec	Approx. 2V	
2I	○		Igniter	Ignition switch ON	Below 0.5V	
				Idle	Approx. 1V	
2K		○	Airflow meter	Constant	4.5—5.5V	
2L	○		Throttle sensor (Power terminal)	Accelerator pedal released	Approx. 5V	
				Accelerator pedal fully depressed	0V	
2N	○		Oxygen sensor	Ignition switch ON	0V	
				Idle (Cold engine)	0V	
				Idle (After warm-up)	0—1V	
				Increase engine speed (After warm-up)	0.5—1V	
				Deceleration	0—0.4V	
2O	○		Airflow meter	Ignition switch ON	Approx. 3.8V	
				Idle	Approx. 3.3V	
2P	○		Airflow sensor (Intake air thermosensor)	At 20°C (68°F)	Approx. 2.5V	
2Q	○		Water thermosensor	Engine coolant temperature 20°C (68°F)	Approx. 2.5V	
				After warm-up	Approx. 0.4V	
2R	—	—	—	—	—	—
2S	—	—	—	—	—	—
2T	—	—	—	—	—	—
2U		○	Injector (Nos.1, 3) (Nos.2, 4)	Ignition switch ON	VB	* Engine Signal Monitor Green and red lights flash
				Idle	Approx. 12V*	
2V		○		Deceleration from 3,000 rpm to 1,900 rpm (After warm-up)	Approx. 12V	
2W		○	ISC valve	Ignition switch ON	Approx. 7V	
				Idle	Approx. 9V	
2X		○	Solenoid valve (Purge control)	Ignition switch ON	VB	
				Idle	VB	
2Y	—	—	—	—	—	—

Terminal Voltage

A / T

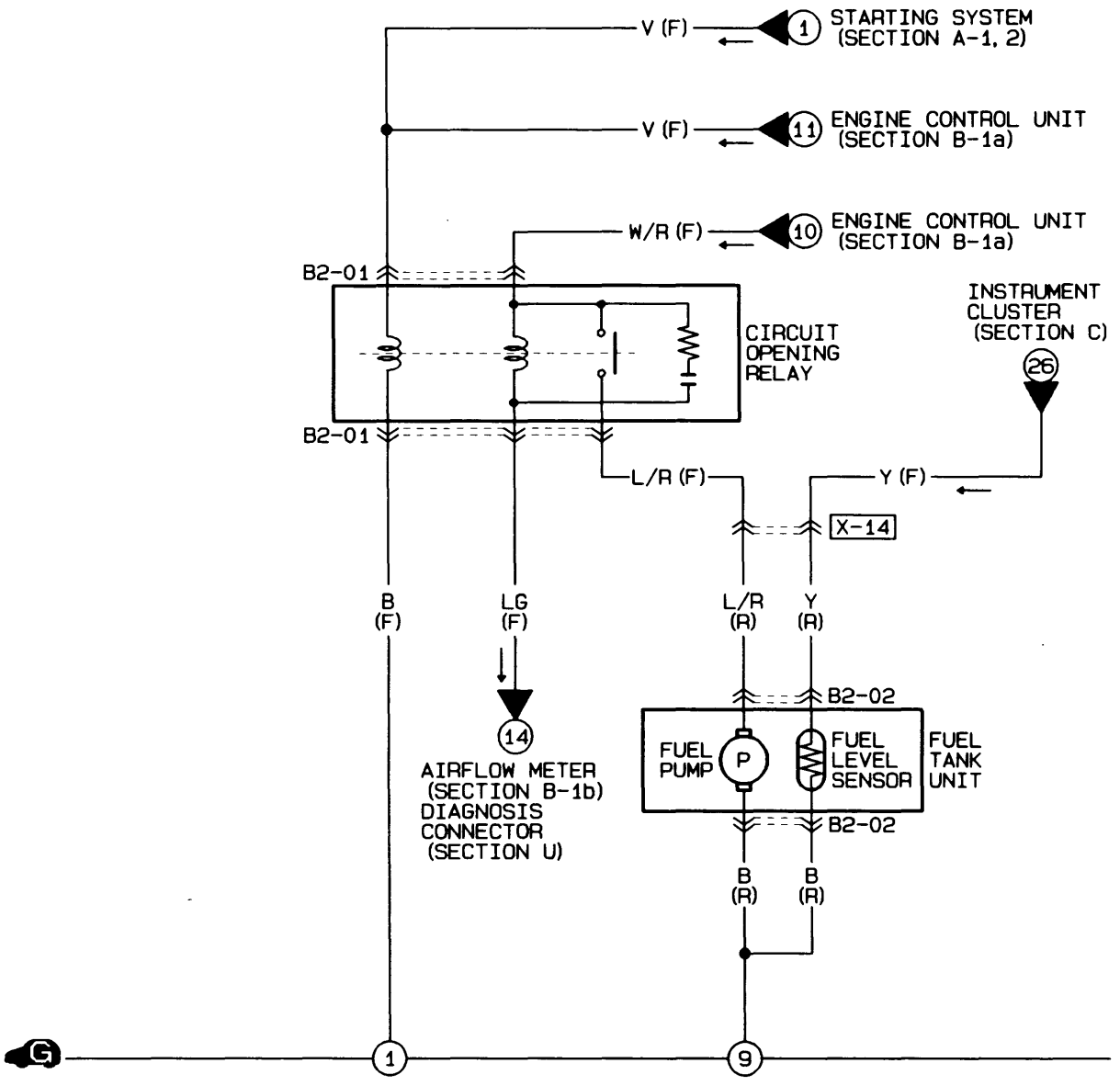
VB: Battery voltage

Terminal	Input	Output	Connection to	Test condition	Voltage	Remark
1A	—	—	Battery	Constant	VB	For backup
1B	○		Main relay	Ignition switch OFF	0V	
				Ignition switch ON	VB	
1C	○		Ignition switch (Start position)	While cranking	Approx. 10V	
				Ignition switch ON	0V	
1D		○	Self-Diagnosis Checker (Monitor lamp)	Test switch at "SELF-TEST" Lamp illuminated for 3 sec. after ignition switch OFF→ON	4.5—5.5V	With Self-Diagnosis Checker and System Selector
				Lamp not illuminated after 3 sec.	VB	
				Test switch at "O_2 MONITOR" at idle Monitor lamp illuminated	4.5—5.5V	
				Test switch at "O_2 MONITOR" at idle Monitor lamp not illuminated	VB	
1E		○	Malfunction indicator lamp	Lamp illuminated for 3 sec. after ignition switch OFF→ON	Below 2.5V	With System Selector test switch at "SELF-TEST"
				Lamp not illuminated after 3 sec.	VB	
				Lamp illuminated	Below 2.5V	
				Lamp not illuminated	VB	
1F		○	Self-Diagnosis Checker (Code number)	Buzzer sound for 3 sec. after ignition switch OFF→ON	Below 2.5V	• With Self-Diagnosis Checker and System Selector • With System Selector test switch at "SELF-TEST"
				Buzzer not sounded after 3 sec.	VB	
				Buzzer sounded	Below 2.5V	
				Buzzer not sounded	VB	
1G		○	Igniter	Ignition switch ON	0V	
				Idle	Approx. 0.2V	
1H		○	Igniter	Ignition switch ON	0V	
				Idle	Approx. 0.2V	
1I	—	—	—	—	—	—
1J		○	A/C relay	Ignition switch ON	VB	
				A/C switch ON at idle	Below 2.5V	
				A/C switch OFF at idle	VB	
1K	○		Diagnosis connector	System Selector test switch at "O_2 MONITOR"	VB	
				System Selector test switch at "SELF-TEST"	0V	
1L	—	—	—	—	—	—
1M	—	—	—	—	—	—
1N	○		Throttle sensor (Idle point)	Accelerator pedal released	0V	Ignition switch ON
				Accelerator pedal depressed	VB	
1O	○		Stoplight switch	Brake pedal released	0V	
				Brake pedal depressed	VB	
1P	○		P/S pressure switch	Ignition switch ON	VB	
				P/S ON (at idle)	0V	
				P/S OFF (at idle)	VB	
1Q	○		A/C switch	A/C switch ON (Ignition switch ON)	Below 2.5V	Blower motor ON
				A/C switch OFF (Ignition switch ON)	VB	
1R	○		Fan switch	Fan operating (Engine coolant temperature over 97°C (207°F) or diagnosis connector terminal TFA grounded)	0V	
				Fan not operating (Idle)	VB	

VB: Battery voltage

Terminal	Input	Output	Connection to	Test condition	Voltage	Remark
1S	○		Blower control switch	Blower control switch at mid, high or super high position	Approx. 0V	Ignition switch ON
				Blower control switch OFF or low	Approx. 12V	
1T	—	—	—	—	—	
1U	○		Headlight switch	Headlights ON (Tail, parking, low beam/ high beam)	Approx. 12V	
				Headlights OFF	0V	
1V	○		Inhibitor switch	N or P range	0V	
				Other conditions	VB	
2A	—	—	Ground (Injector)	Constant	0V	
2B	—	—	Ground (Output)	Constant	0V	
2C	—	—	Ground (CPU)	Constant	0V	
2D	—	—	Ground (Input)	Constant	0V	
2E	○		Crank angle sensor (Ne-signal)	Ignition switch ON	0V or 5V	
				Idle	Approx. 2V	
2F	—	—	—	—	—	—
2G	○		Crank angle sensor (G-signal)	Ignition switch ON	0V or 5V	
				Idle	Approx. 1.5V	
2H	○		Ground	Constant	0V	
			Open	Federal and Canada spec	Approx. 2V	
2I	○		Igniter	Ignition switch ON	Below 0.5V	
				Idle	Approx. 1V	
2K		○	Airflow meter	Constant	4.5—5.5V	
2M	○		Throttle sensor	Accelerator pedal released	Approx. 0.5V	
				Accelerator pedal fully depressed	Approx. 4.0V	
2N	○		Oxygen sensor	Ignition switch ON	0V	
				Idle (Cold engine)	0V	
				Idle (After warm-up)	0—1V	
				Increase engine speed (After warm-up)	0.5—1V	
				Deceleration	0—0.4V	
2O	○		Airflow meter	Ignition switch ON	Approx. 3.8V	
				Idle	Approx. 3.3V	
2P	○		Airflow sensor (Intake air thermosensor)	At 20°C (68°F)	Approx. 2.5V	
2Q	○		Water thermosensor	Engine coolant temperature 20°C (68°F)	Approx. 2.5V	
				After warm-up	Approx. 0.4V	
2R	—	—	—	—	—	—
2S	—	—	—	—	—	—
2T	—	—	—	—	—	—
2U		○	Injector (Nos.1, 3) (Nos.2, 4)	Ignition switch ON	VB	* Engine Signal Monitor: Green and red lights flash
				Idle	Approx. 12V*	
2V		○		Deceleration from 3,000 rpm to 1,900 rpm (After warm-up)	Approx. 12V	
2W		○	ISC valve	Ignition switch ON	Approx. 7V	
				Idle	Approx. 9V	
2X		○	Solenoid valve (Purge control)	Ignition switch ON	VB	
				Idle	VB	
2Y	—	—	—	—	—	—
2Z		○	4A/T control unit	Ignition switch ON	0V	

■ FUEL CONTROL SYSTEM B-2



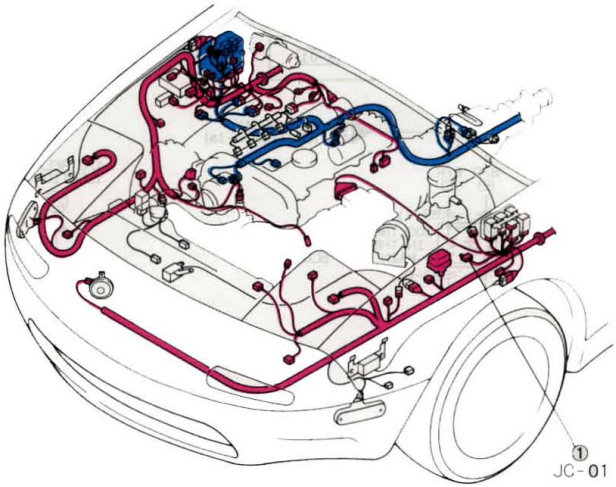
B2-01 CIRCUIT OPENING RELAY (F)

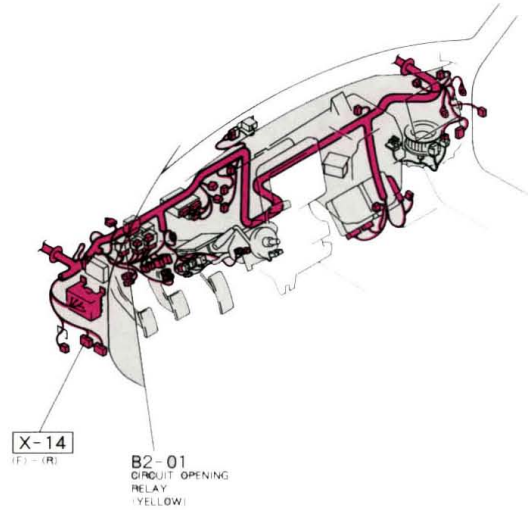
V	W/R	L/R
B	*	LG

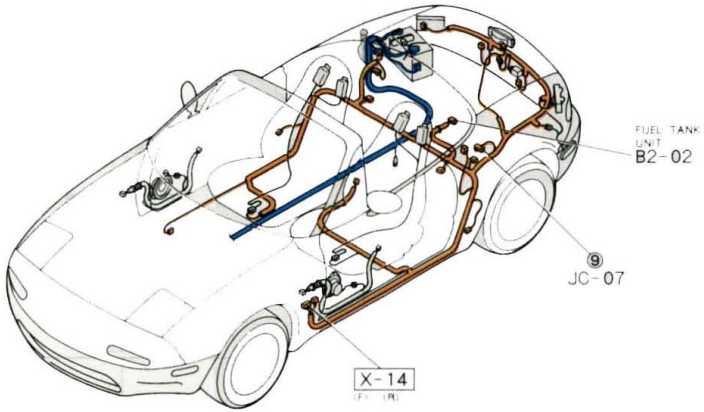
B2-02 FUEL TANK UNIT (R)

Y	B
B	L/R

B-2

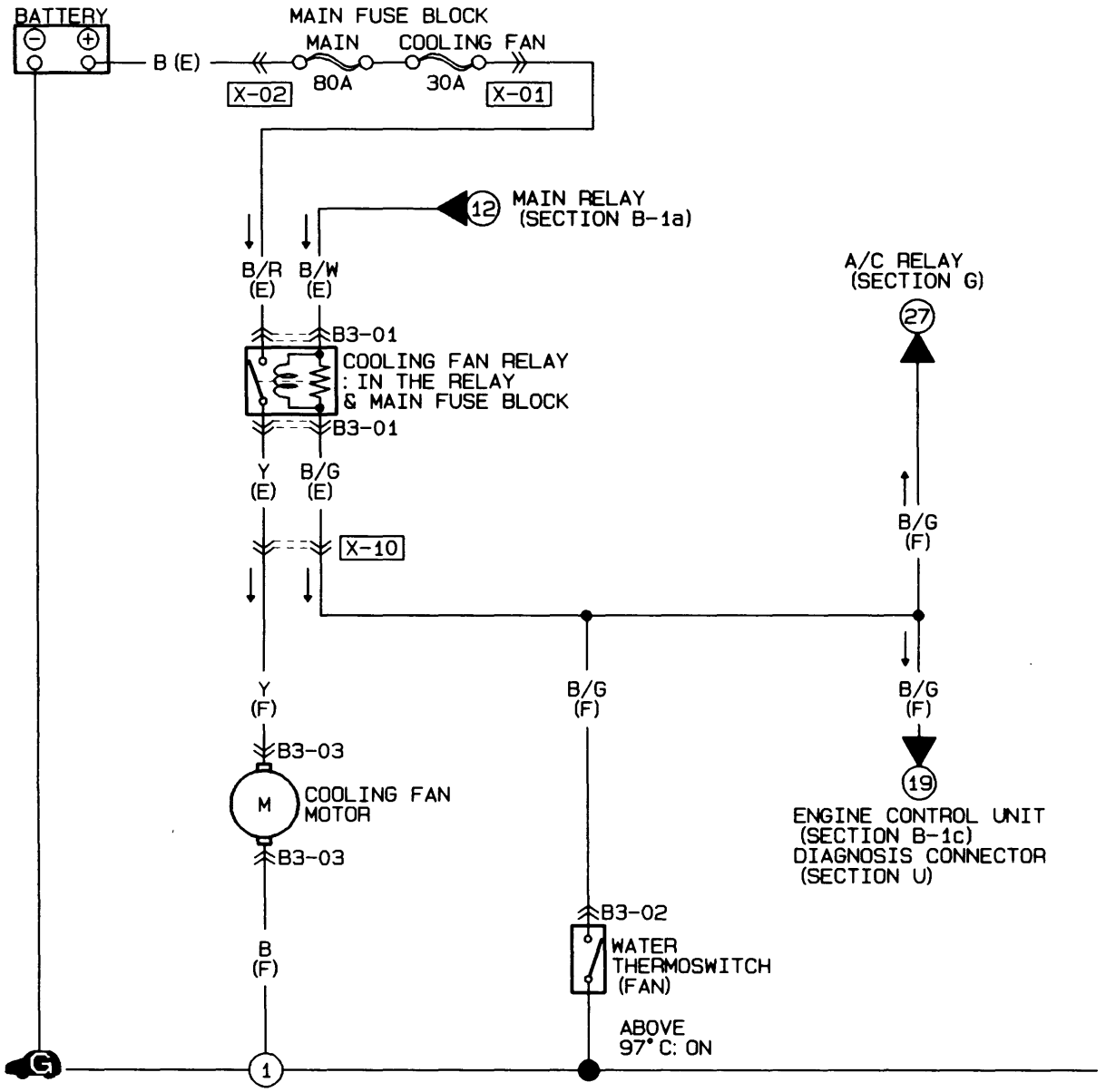

①
JC-01


X-14
(F) - (R)
B2-01
CIRCUIT OPENING
RELAY
(YELLOW)

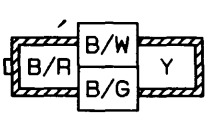

FUEL TANK
UNIT
B2-02
⑨
JC-07
X-14
(F) - (R)

■ COOLING FAN SYSTEM

B-3

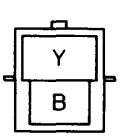


B3-01 COOLING FAN RELAY (E)
: IN THE RELAY & MAIN FUSE BLOCK

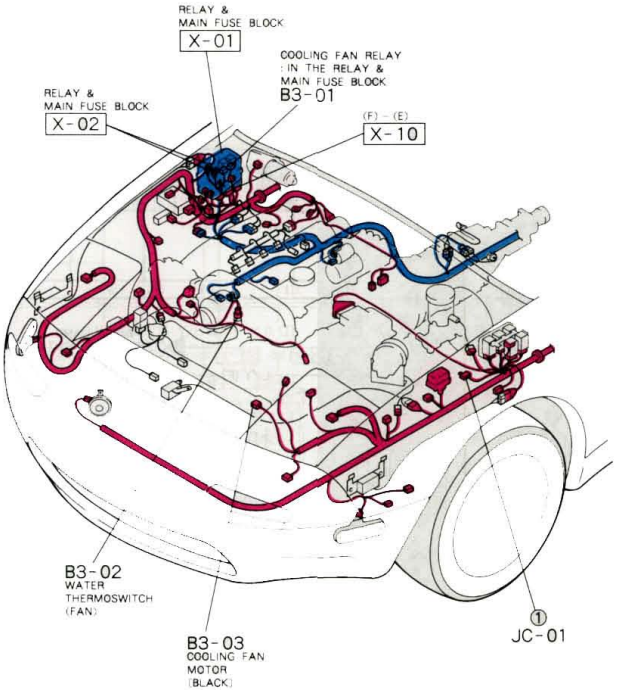


B3-02 WATER THERMOSWITCH (FAN) (F)

B3-03 COOLING FAN MOTOR (F)

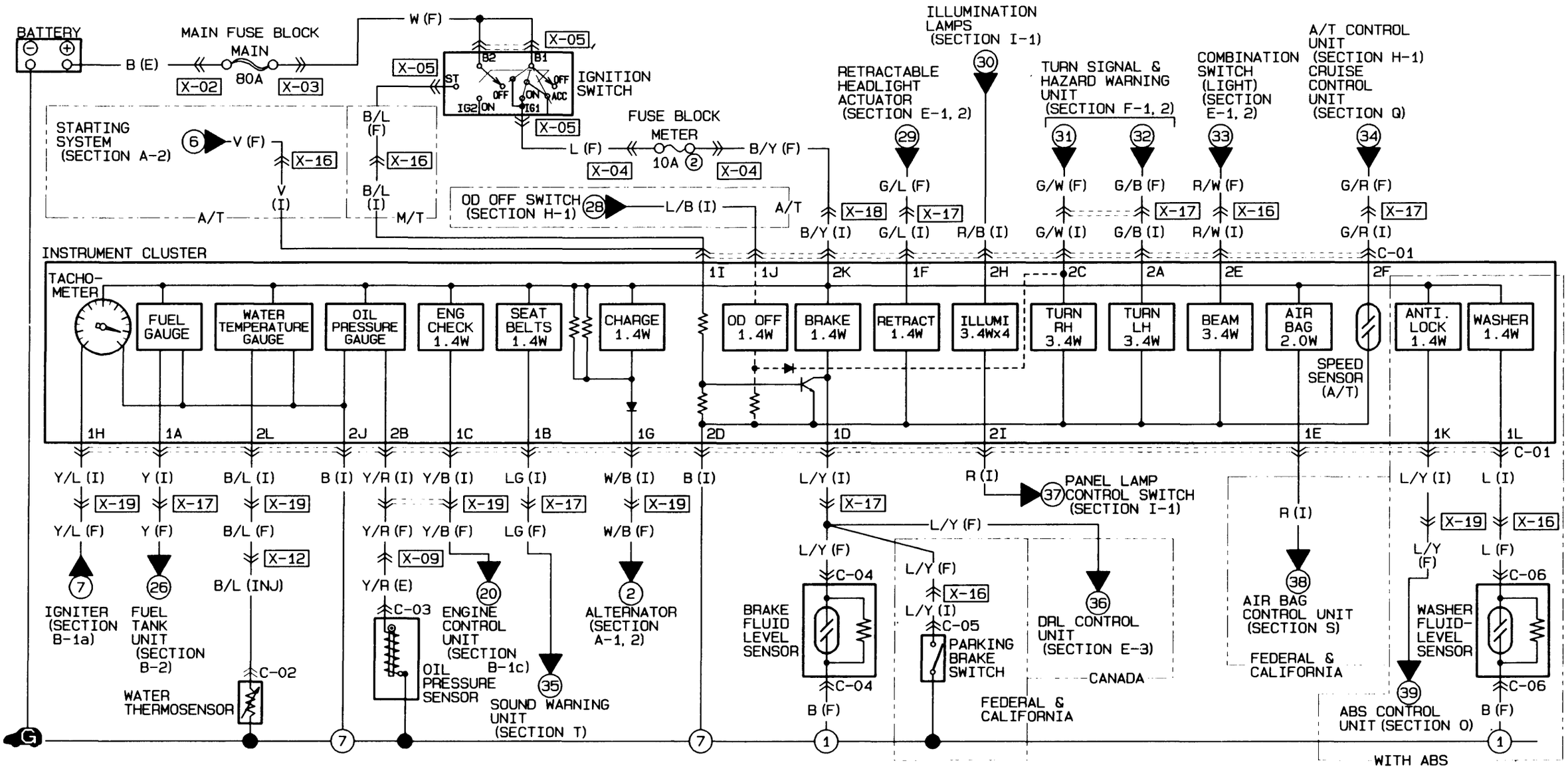


B-3


RELAY &
MAIN FUSE BLOCK
X-01
COOLING FAN RELAY
: IN THE RELAY &
MAIN FUSE BLOCK
B3-01
RELAY &
MAIN FUSE BLOCK
X-02
(F) - (E)
X-10
B3-02
WATER
THERMOSWITCH
(FAN)
B3-03
COOLING FAN
MOTOR
(BLACK)
①
JC-01

■ INSTRUMENT CLUSTER

C



C-01 INSTRUMENT CLUSTER (I)

( ) . . . A/T
< > . . . WITH CRUISE CONTROL

L	L/Y	✳ (L/B)	B/L (V)	Y/L	W/B	G/L	R	L/Y	Y/B	LG	Y
1L	1K	1J	1I	1H	1G	1F	1E	1D	1C	1B	1A

B/L	B/Y	B	R	R/B	✳	(G/B) <G/R>	R/W	B	G/W	Y/R	G/B
2L	2K	2J	2I	2H	2G	2F	2E	2D	2C	2B	2A

C-02 WATER THERMOSENSOR (INJ)

B/L

C-03 OIL PRESSURE SENSOR (E)

Y/R

C-04 BRAKE FLUID LEVEL SENSOR (F)

L/Y
B

C-05 PARKING BRAKE SWITCH (I)

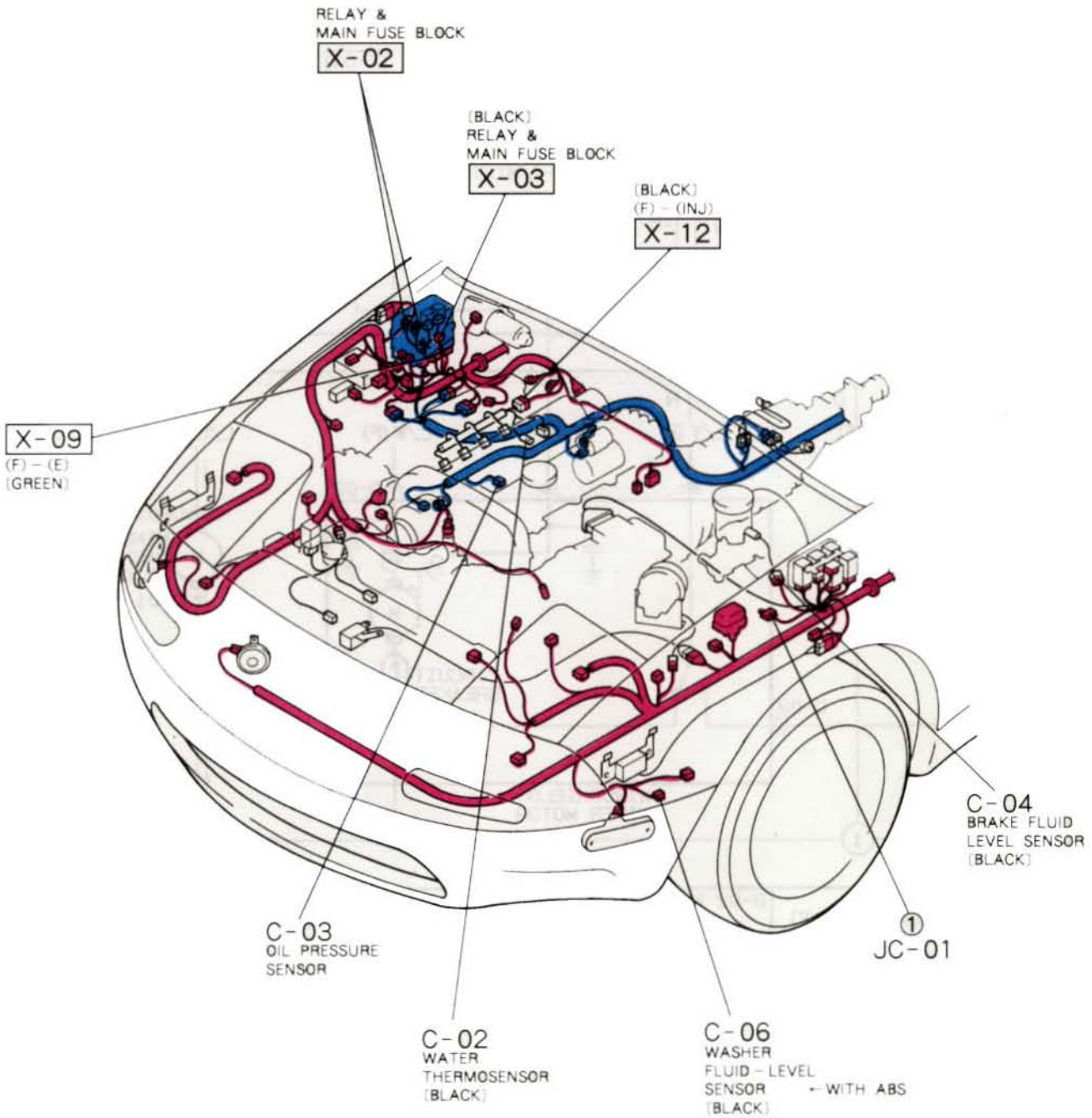
L/Y

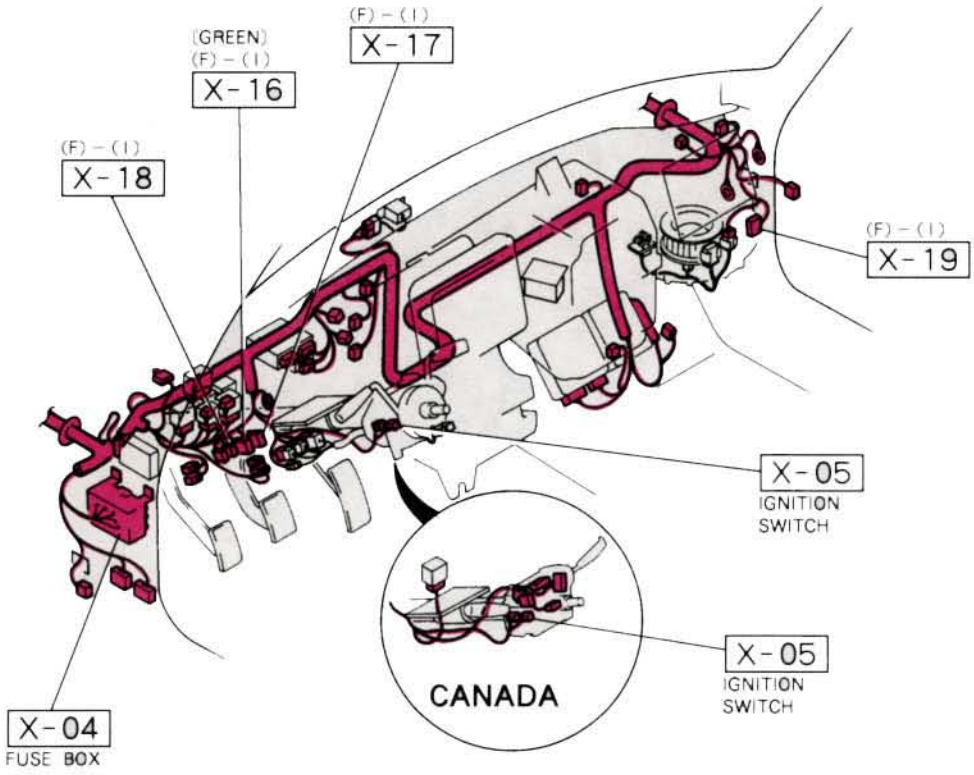
C-06 WASHER FLUID-LEVEL SENSOR (F)

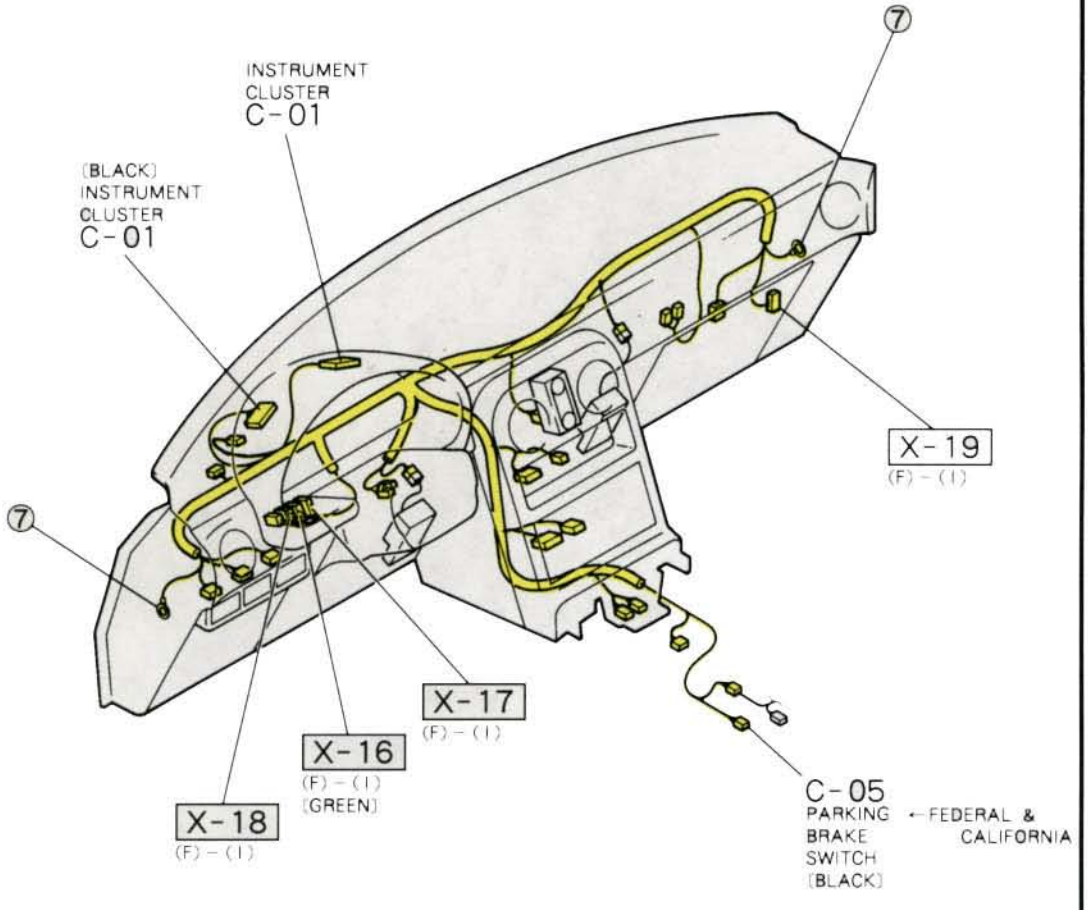
L B

WITH ABS

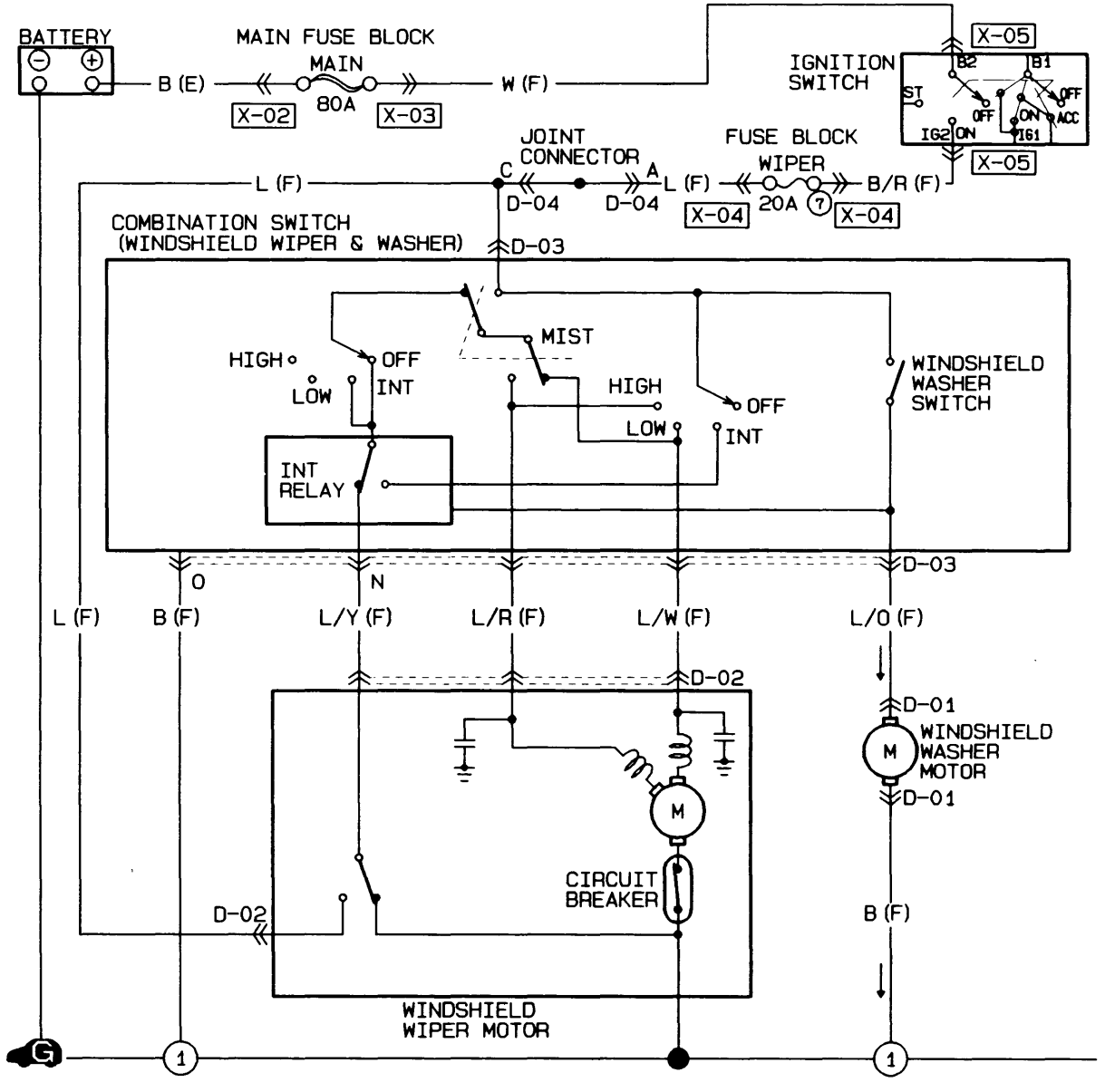
C


RELAY &
MAIN FUSE BLOCK
X-02
(BLACK)
RELAY &
MAIN FUSE BLOCK
X-03
(BLACK)
(F) - (INJ)
X-12
X-09
(F) - (E)
(GREEN)
C-04
BRAKE FLUID
LEVEL SENSOR
(BLACK)
C-03
OIL PRESSURE
SENSOR
C-02
WATER
THERMOSENSOR
(BLACK)
C-06
WASHER
FLUID - LEVEL
SENSOR ← WITH ABS
(BLACK)
① JC-01

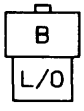

(F) – (I)
X-17
(GREEN)
(F) – (I)
X-16
(F) – (I)
X-18
(F) – (I)
X-19
X-05
IGNITION
SWITCH
X-05
IGNITION
SWITCH
CANADA
X-04
FUSE BOX


⑦
INSTRUMENT
CLUSTER
C-01
(BLACK)
INSTRUMENT
CLUSTER
C-01
X-19
(F) – (I)
⑦
X-17
(F) – (I)
X-16
(F) – (I)
(GREEN)
X-18
(F) – (I)
C-05
PARKING
BRAKE
SWITCH
(BLACK)
← FEDERAL &
CALIFORNIA

FEDERAL & CALIFORNIA ■ WINDSHIELD WIPER & WASHER D-1

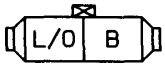


D-01 WINDSHIELD WASHER MOTOR (F)

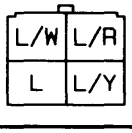


WITHOUT ABS

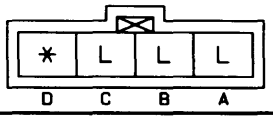
WITH ABS



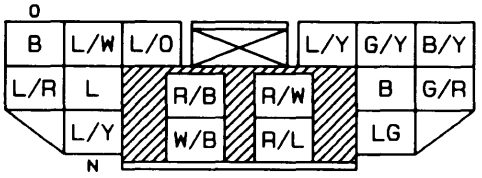
D-02 WINDSHIELD WIPER MOTOR (F)



D-04 JOINT CONNECTOR (F)

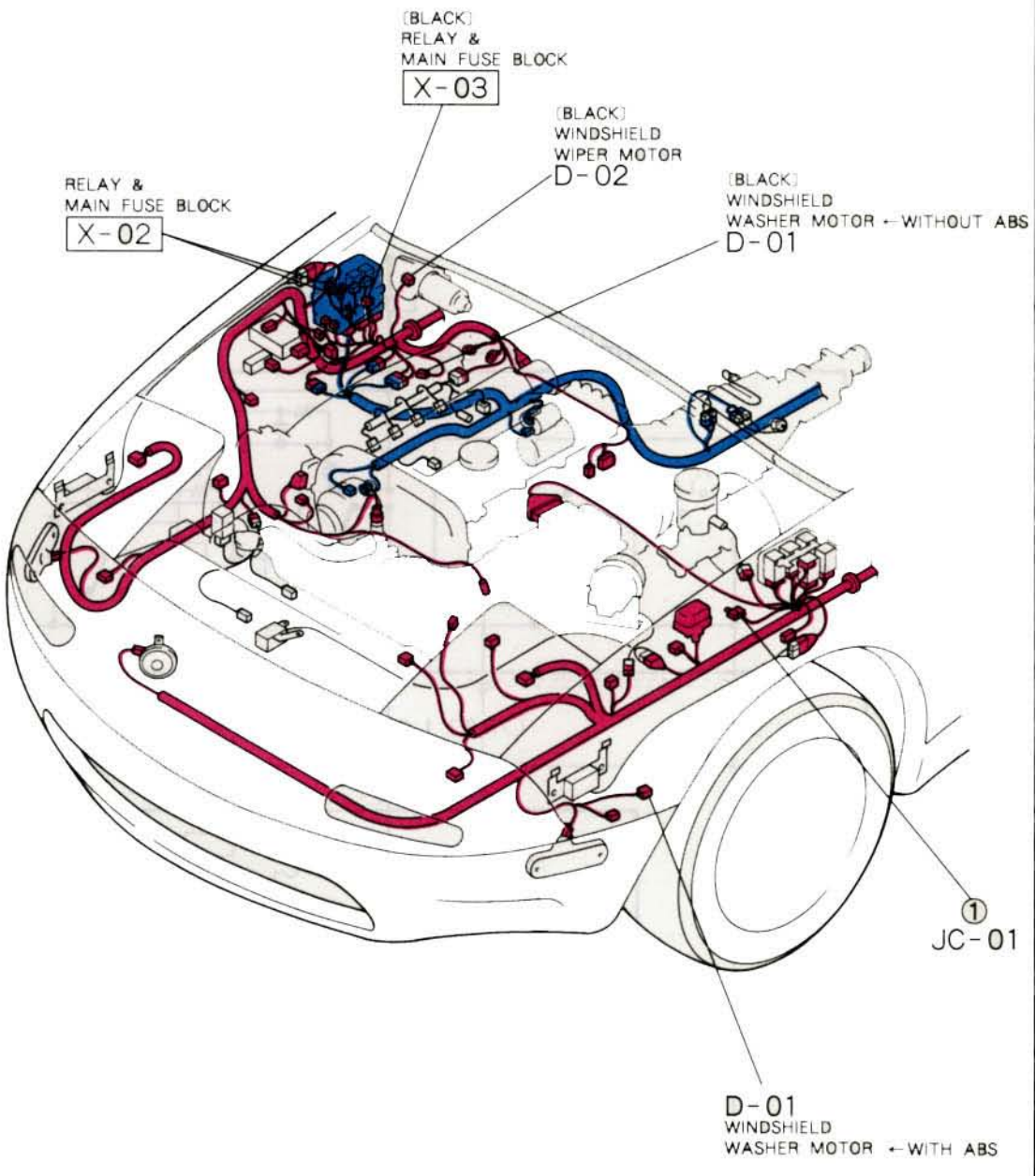


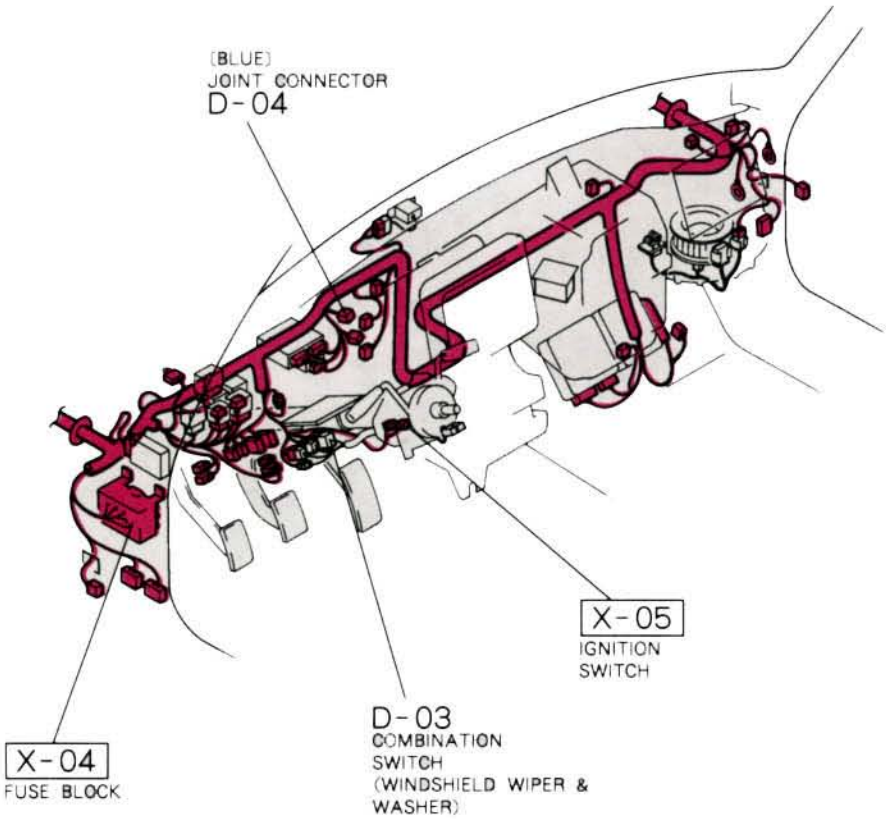
D-03 COMBINATION SWITCH (WINDSHIELD WIPER & WASHER) (F)



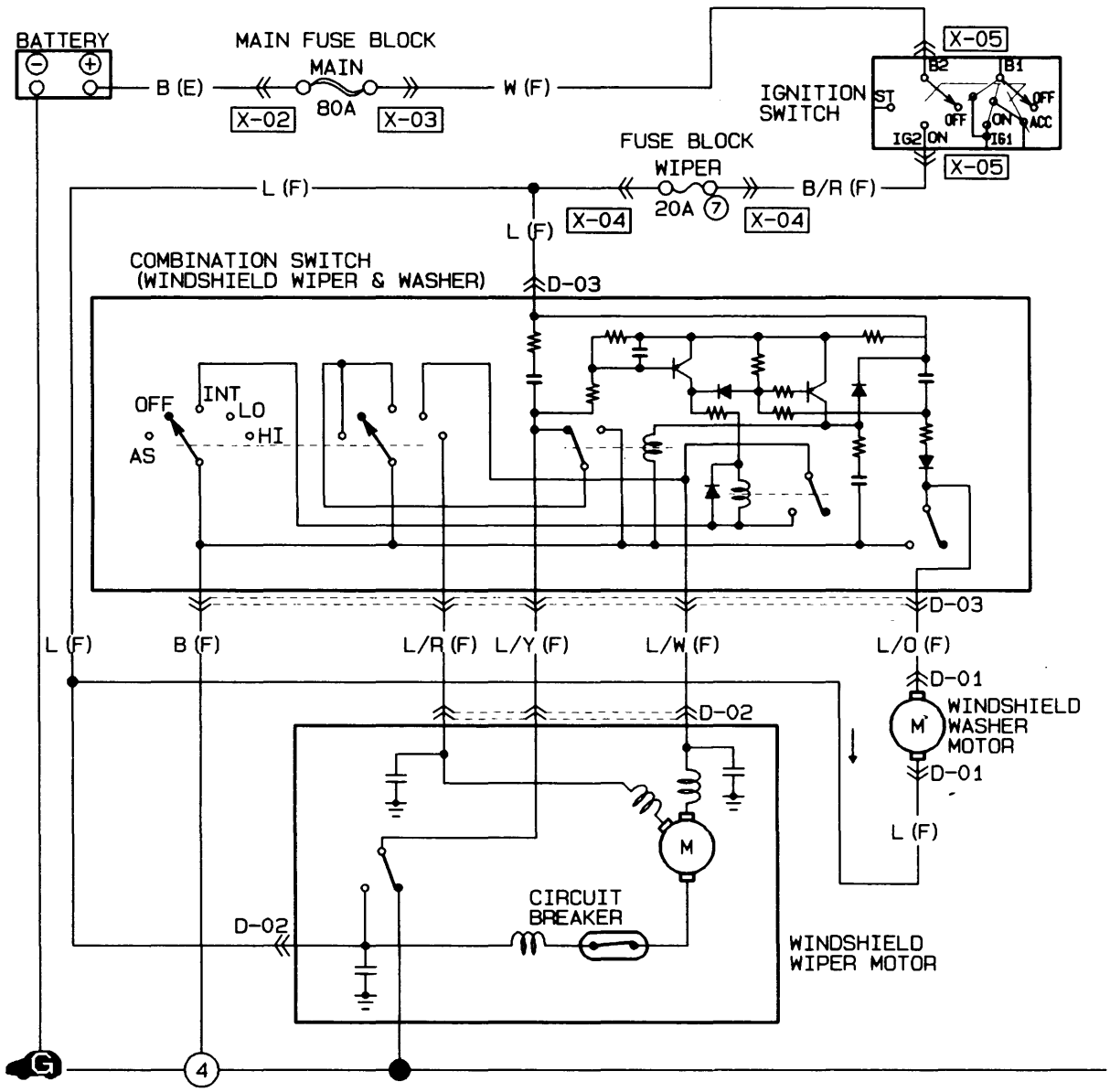
HARNESS COLOR : FRONT INSTRUMENT PANEL REAR

D-1

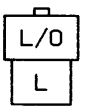



(BLUE)
JOINT CONNECTOR
D-04
X-05
IGNITION
SWITCH
D-03
COMBINATION
SWITCH
(WINDSHIELD WIPER &
WASHER)
X-04
FUSE BLOCK

CANADA ■ WINDSHIELD WIPER & WASHER — D-2

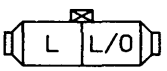


D-01 WINDSHIELD WASHER MOTOR (F)

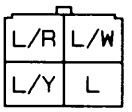


WITHOUT ABS

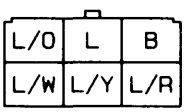
WITH ABS



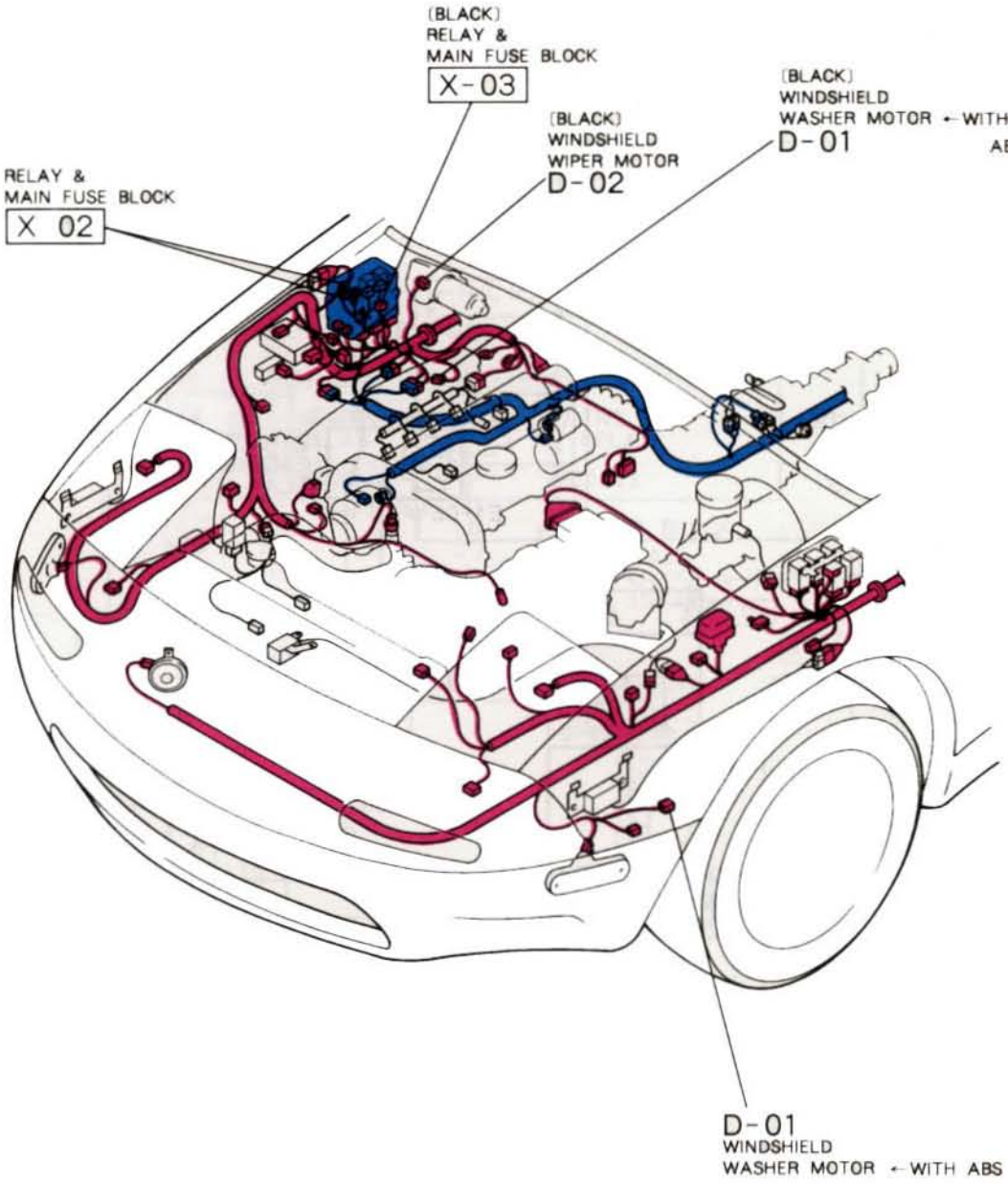
D-02 WINDSHIELD WIPER MOTOR (F)

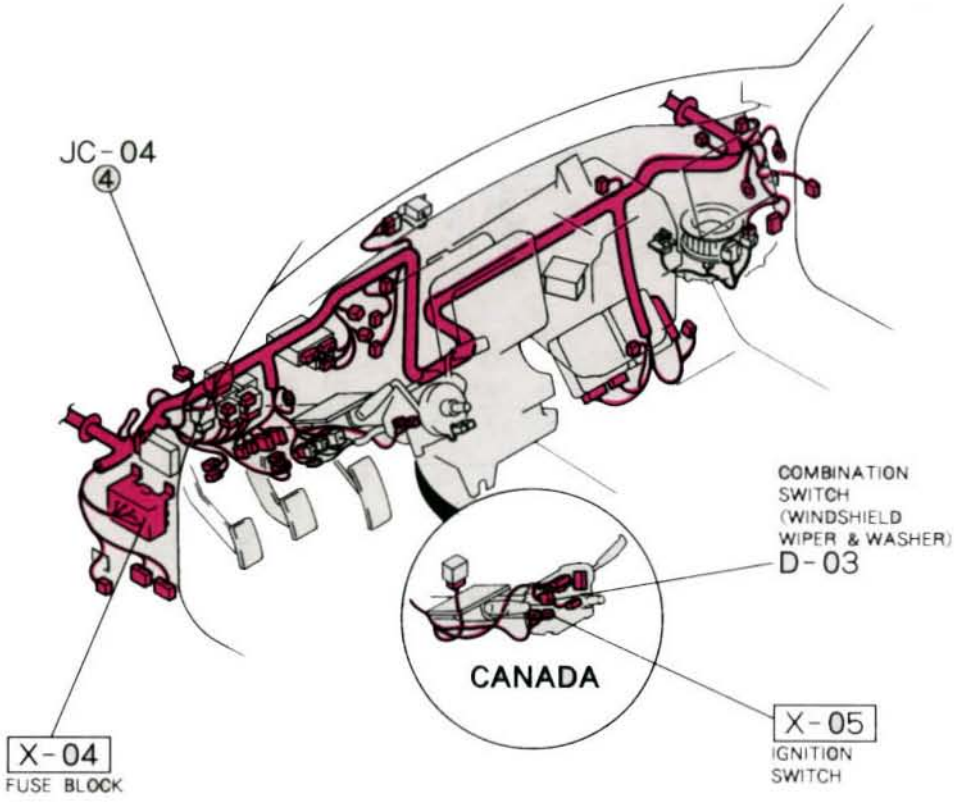


D-03 COMBINATION SWITCH (WINDSHIELD WIPER & WASHER) (F)



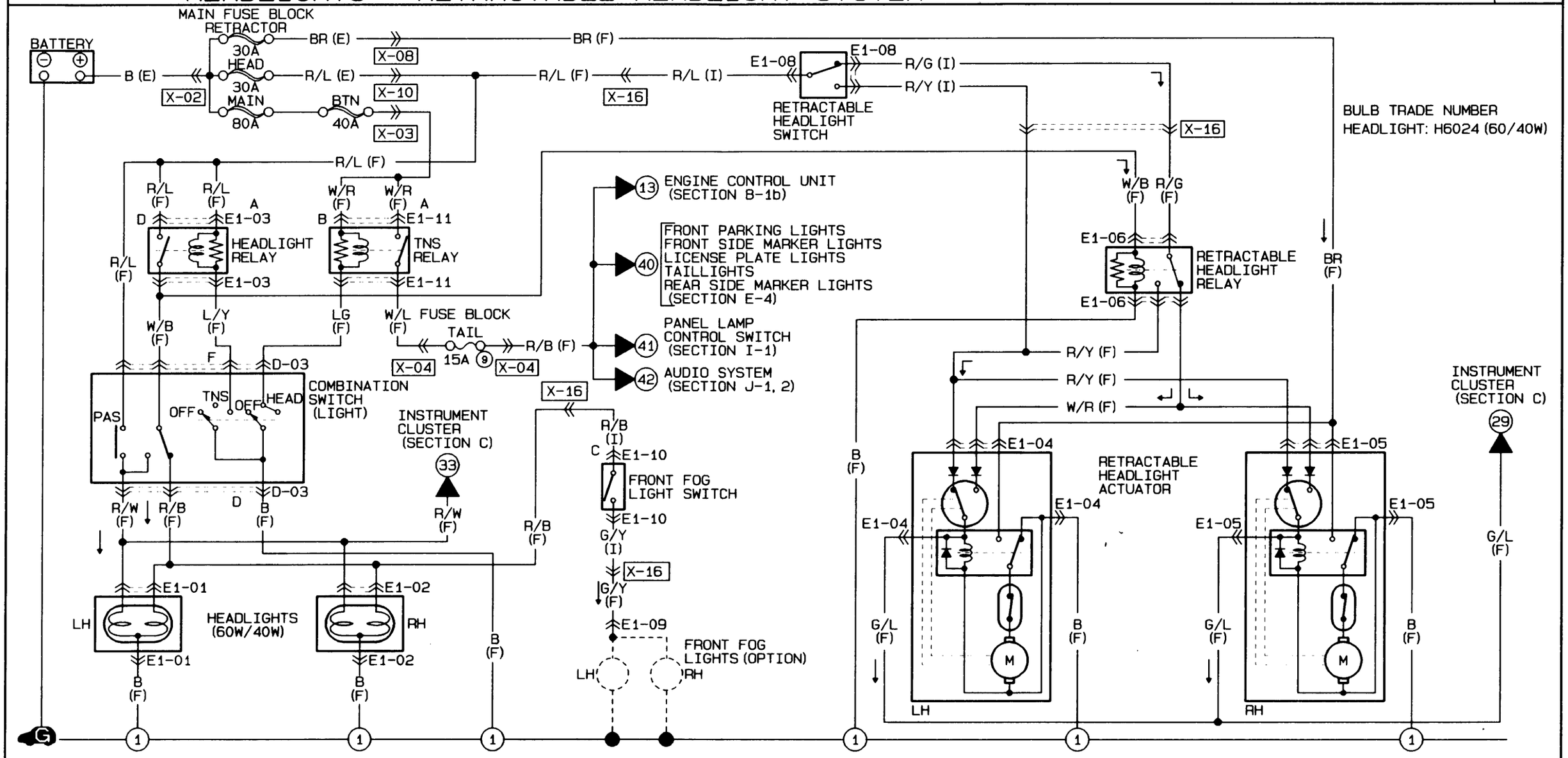
D-2


(BLACK)
RELAY &
MAIN FUSE BLOCK
X-03
(BLACK)
WINDSHIELD
WASHER MOTOR ← WITHOUT ABS
D-01
(BLACK)
WINDSHIELD
WIPER MOTOR
D-02
RELAY &
MAIN FUSE BLOCK
X 02
D-01
WINDSHIELD
WASHER MOTOR ← WITH ABS

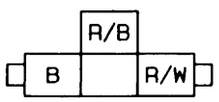

JC-04
4
COMBINATION
SWITCH
(WINDSHIELD
WIPER & WASHER)
D-03
CANADA
X-04
FUSE BLOCK
X-05
IGNITION
SWITCH

FEDERAL & CALIFORNIA ■ FRONT FOG LIGHTS (OPTION) ■ HEADLIGHTS ■ RETRACTABLE HEADLIGHT SYSTEM

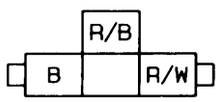
E-1



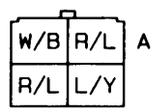
E1-01 HEADLIGHT LH (F)



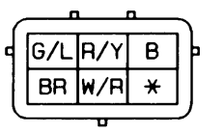
E1-02 HEADLIGHT RH (F)



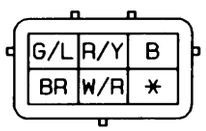
E1-03 HEADLIGHT RELAY (F)



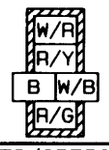
E1-04 RETRACTABLE HEADLIGHT ACTUATOR LH (F)



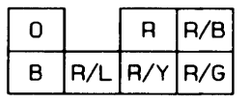
E1-05 RETRACTABLE HEADLIGHT ACTUATOR RH (F)



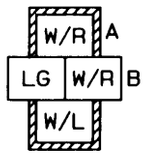
E1-06 RETRACTABLE HEADLIGHT RELAY (F)



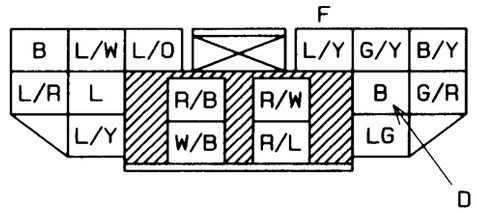
E1-08 RETRACTABLE HEADLIGHT SWITCH (I)



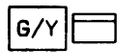
E1-11 TNS RELAY (F)



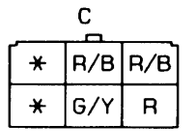
D-03 COMBINATION SWITCH (LIGHT) (F)



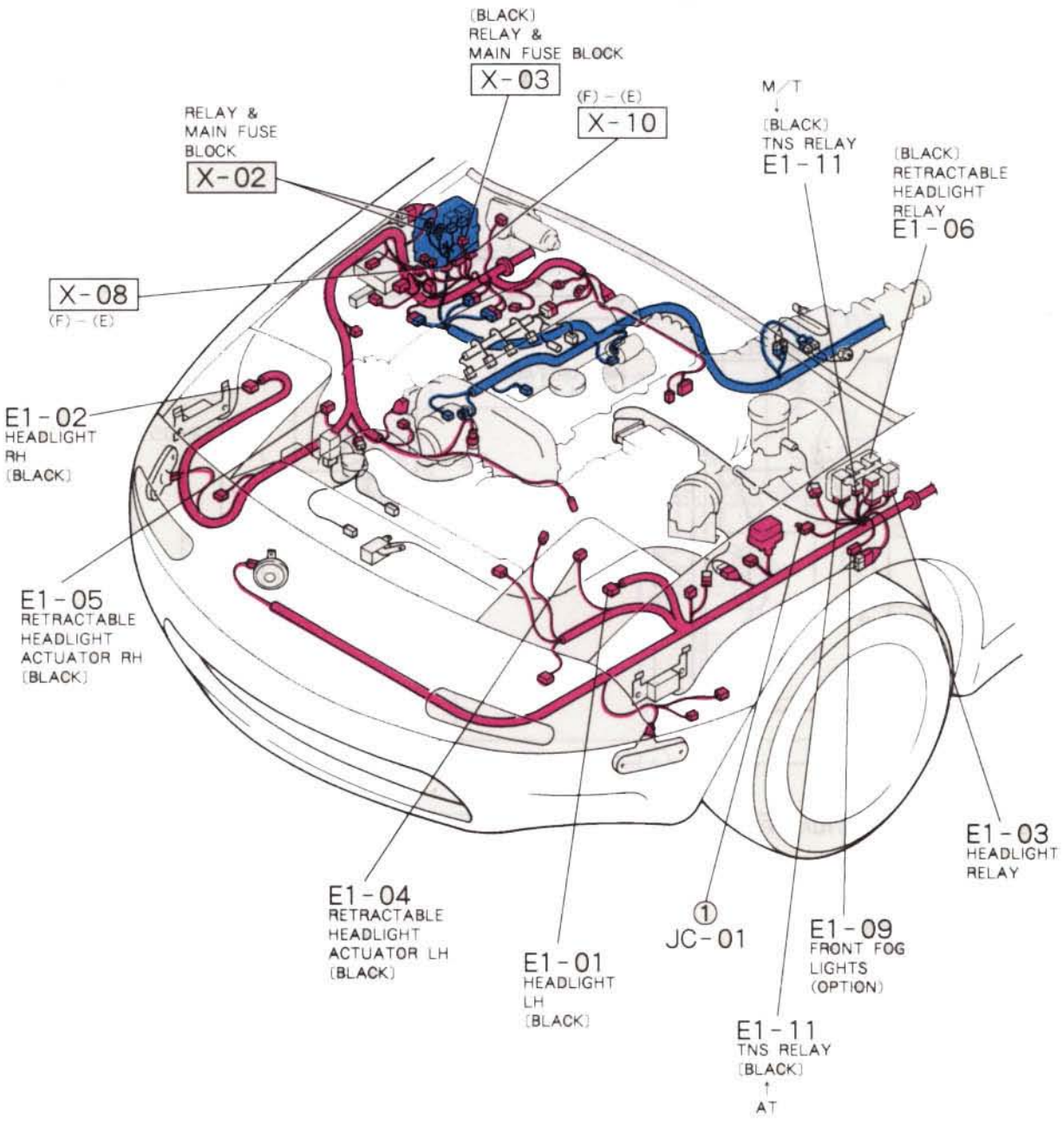
E1-09 FRONT FOG LIGHTS (OPTION) (F)

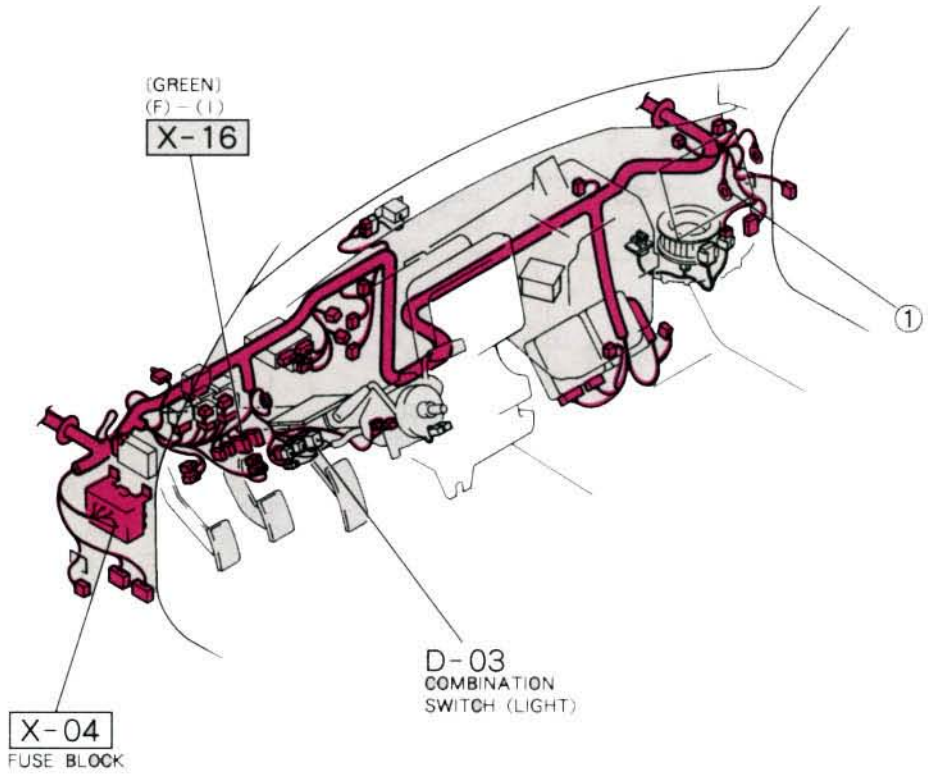


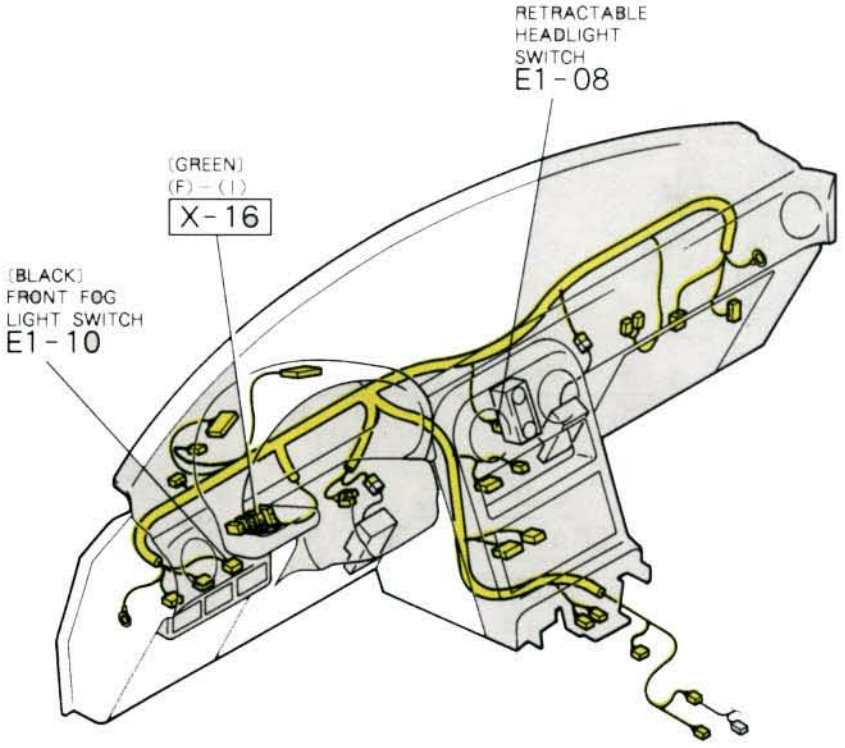
E1-10 FRONT FOG LIGHT SWITCH (I)



E-1

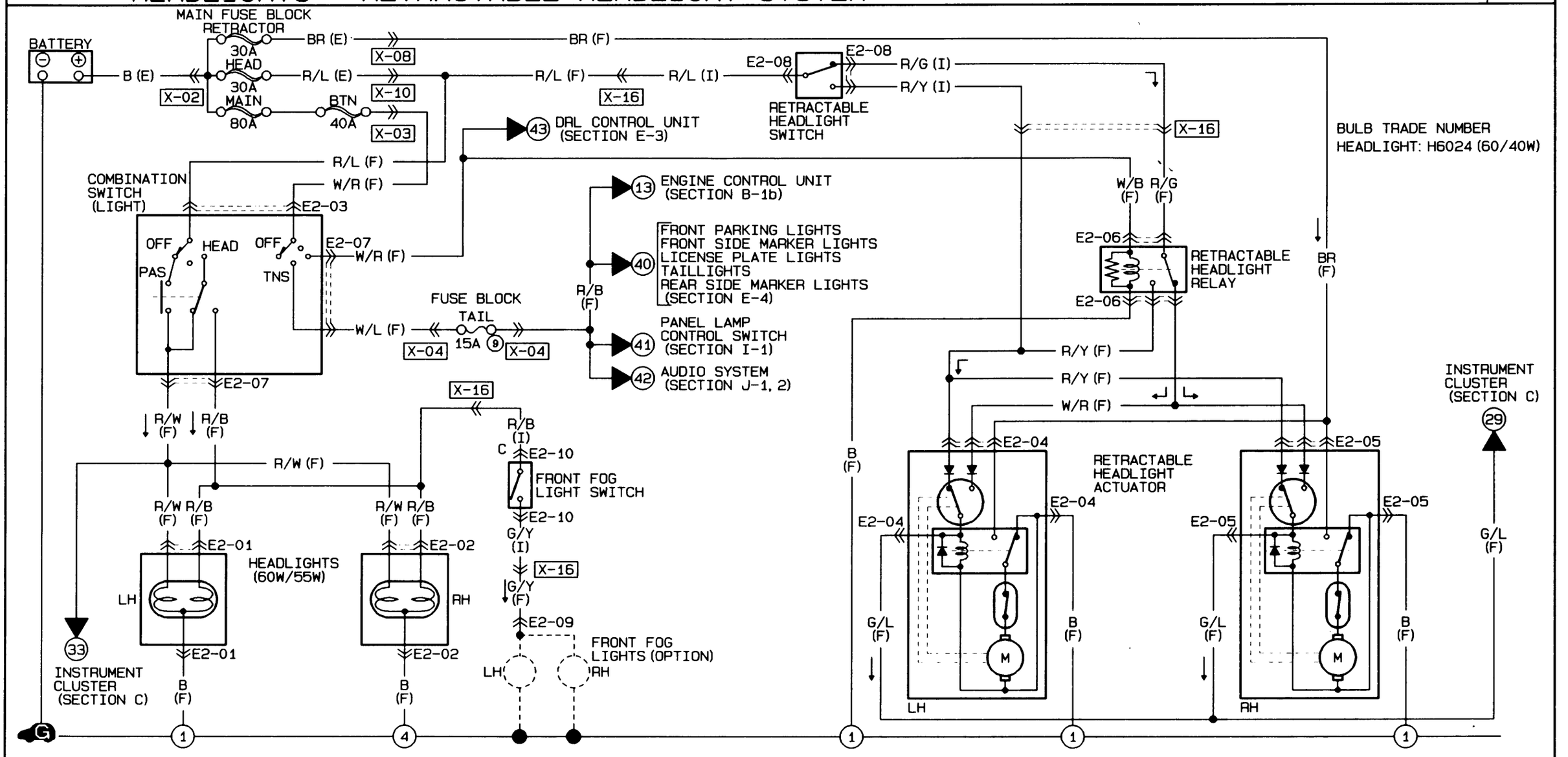

(BLACK)
RELAY &
MAIN FUSE BLOCK
X-03
(F) - (E)
X-10
M/T
(BLACK)
TNS RELAY
E1-11
(BLACK)
RETRACTABLE
HEADLIGHT
RELAY
E1-06
RELAY &
MAIN FUSE
BLOCK
X-02
X-08
(F) - (E)
E1-02
HEADLIGHT
RH
(BLACK)
E1-05
RETRACTABLE
HEADLIGHT
ACTUATOR RH
(BLACK)
E1-03
HEADLIGHT
RELAY
E1-04
RETRACTABLE
HEADLIGHT
ACTUATOR LH
(BLACK)
E1-01
HEADLIGHT
LH
(BLACK)
① JC-01
E1-09
FRONT FOG
LIGHTS
(OPTION)
E1-11
TNS RELAY
(BLACK)
AT


(GREEN)
(F) – (I)
X-16
①
D-03
COMBINATION
SWITCH (LIGHT)
X-04
FUSE BLOCK

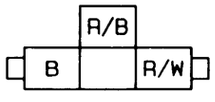

RETRACTABLE
HEADLIGHT
SWITCH
E1-08
(GREEN)
(F) – (I)
X-16
(BLACK)
FRONT FOG
LIGHT SWITCH
E1-10

CANADA ■ FRONT FOG LIGHTS (OPTION) ■ HEADLIGHTS ■ RETRACTABLE HEADLIGHT SYSTEM

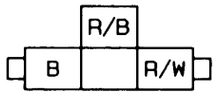
E-2



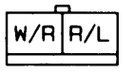
E2-01 HEADLIGHT LH (F)



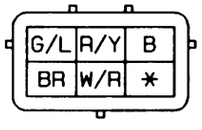
E2-02 HEADLIGHT RH (F)



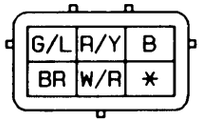
E2-03 COMBINATION SWITCH (LIGHT) (F)



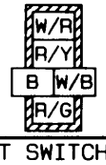
E2-04 RETRACTABLE HEADLIGHT ACTUATOR LH (F)



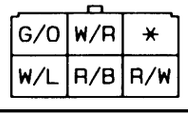
E2-05 RETRACTABLE HEADLIGHT ACTUATOR RH (F)



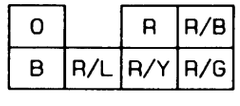
E2-06 RETRACTABLE HEADLIGHT RELAY (F)



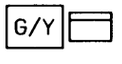
E2-07 COMBINATION SWITCH (LIGHT) (F)



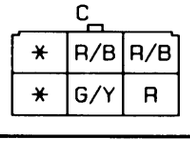
E2-08 RETRACTABLE HEADLIGHT SWITCH (I)



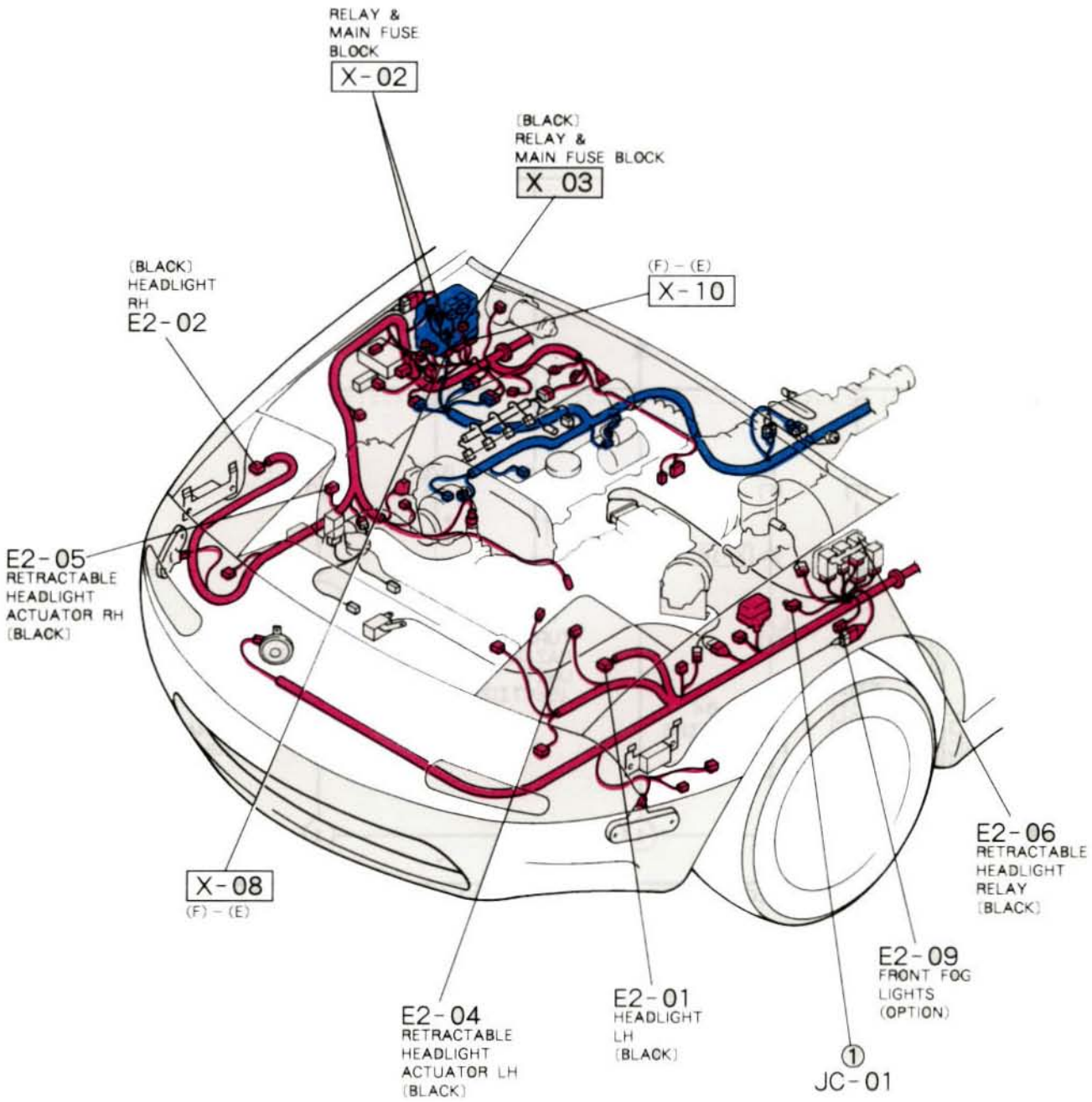
E2-09 FRONT FOG LIGHTS (OPTION) (F)

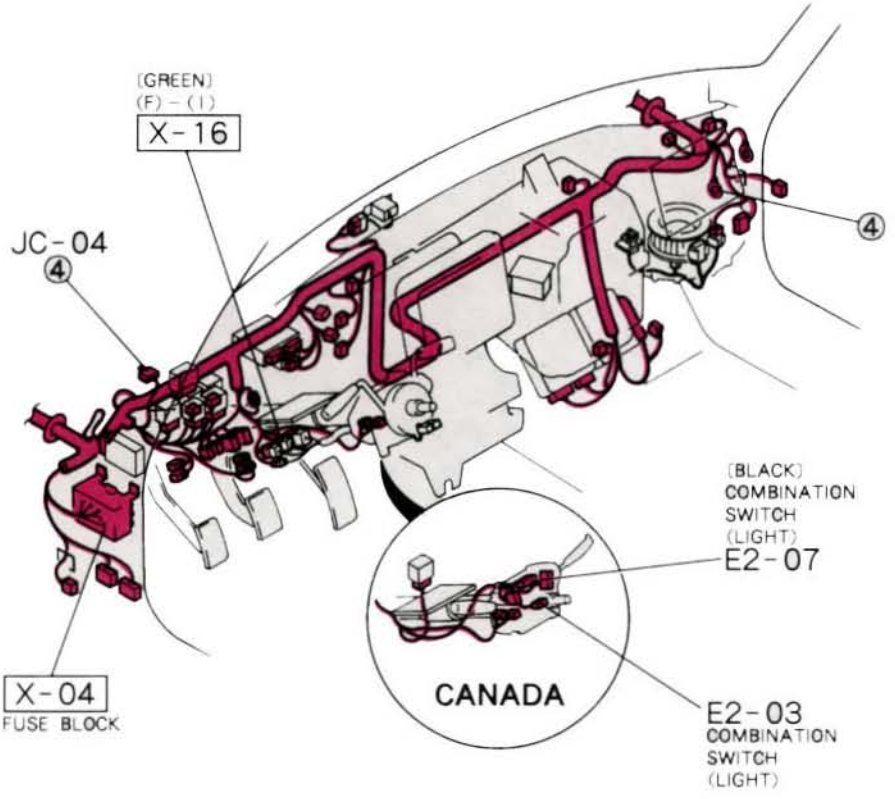


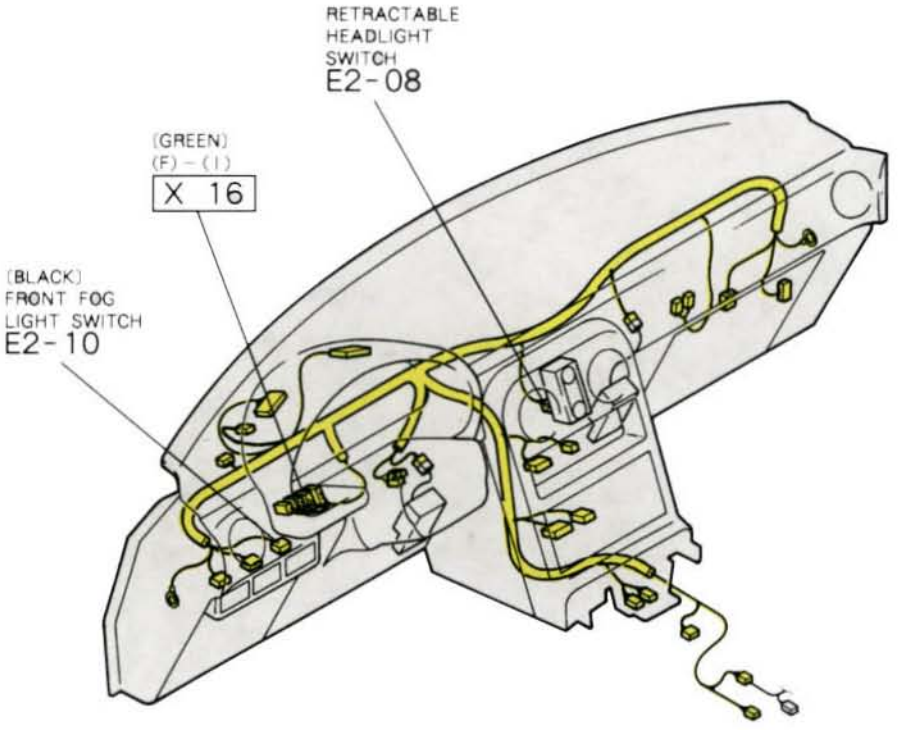
E2-10 FRONT FOG LIGHT SWITCH (I)



E-2

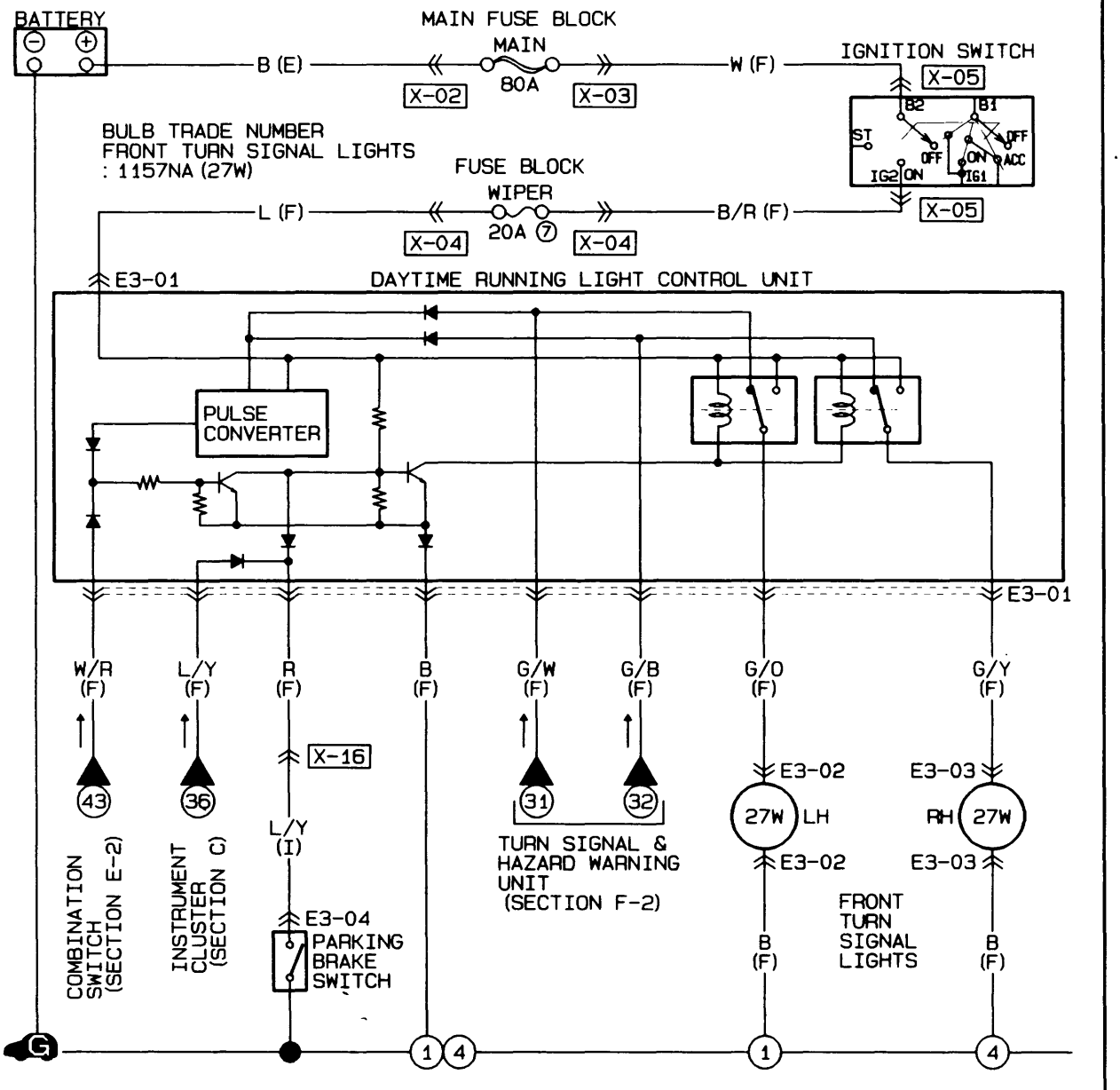

RELAY & MAIN FUSE BLOCK
X-02
[BLACK] RELAY & MAIN FUSE BLOCK
X 03
[BLACK] HEADLIGHT RH
E2-02
(F) - (E)
X-10
E2-05
RETRACTABLE HEADLIGHT ACTUATOR RH [BLACK]
X-08
(F) - (E)
E2-04
RETRACTABLE HEADLIGHT ACTUATOR LH [BLACK]
E2-01
HEADLIGHT LH [BLACK]
E2-09
FRONT FOG LIGHTS (OPTION)
E2-06
RETRACTABLE HEADLIGHT RELAY [BLACK]
① JC-01


(GREEN)
(F) - (I)
X-16
JC-04
④
④
(BLACK)
COMBINATION
SWITCH
(LIGHT)
E2-07
CANADA
X-04
FUSE BLOCK
E2-03
COMBINATION
SWITCH
(LIGHT)

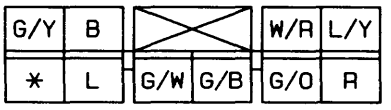

RETRACTABLE
HEADLIGHT
SWITCH
E2-08
(GREEN)
(F) - (I)
X 16
(BLACK)
FRONT FOG
LIGHT SWITCH
E2-10

CANADA ■ DAYTIME RUNNING LIGHT CONTROL SYSTEM

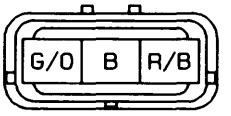
E-3



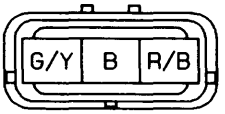
E3-01 DAYTIME RUNNING LIGHT CONTROL UNIT (F)



E3-02 FRONT TURN SIGNAL LIGHTS LH (F)

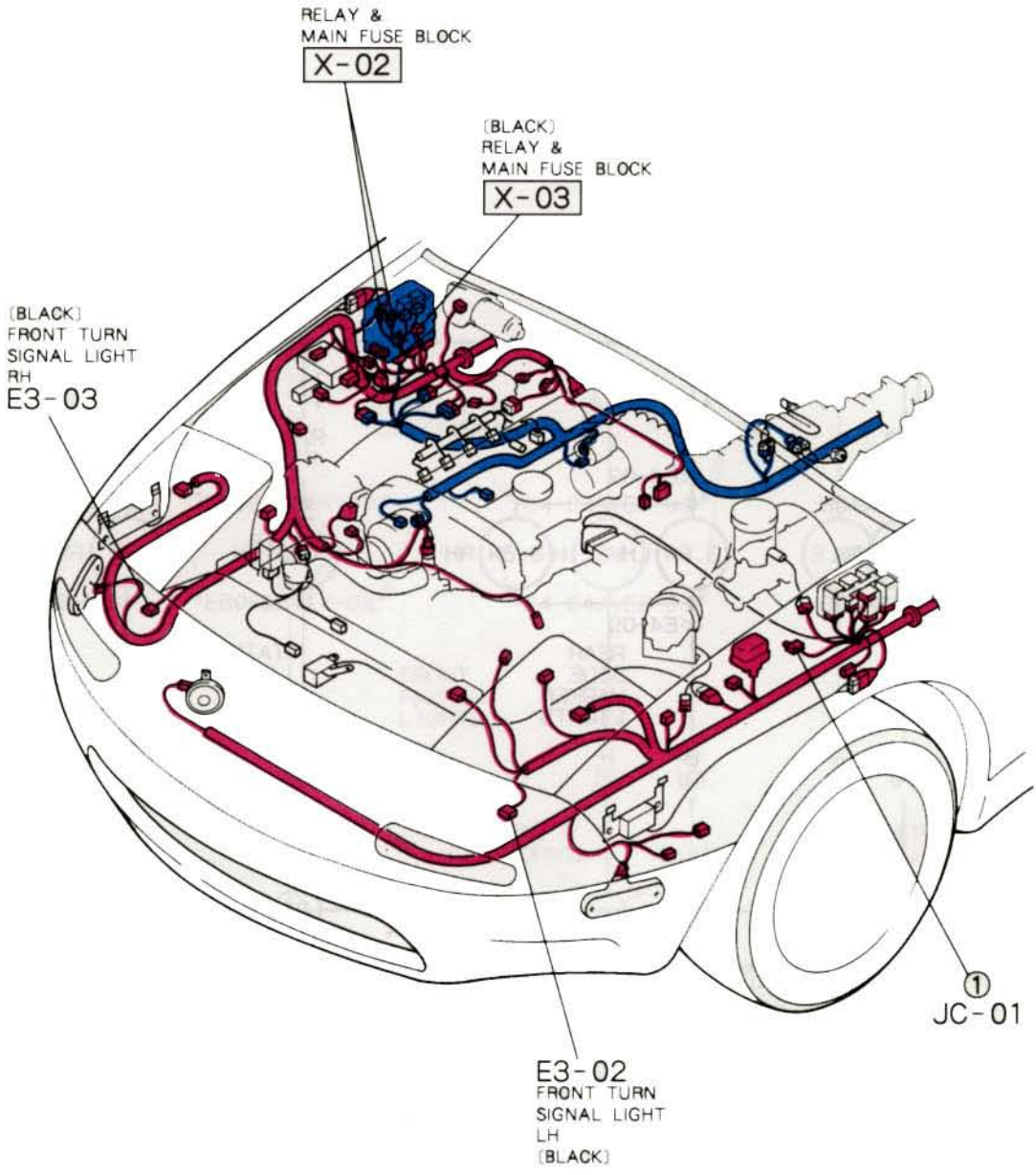


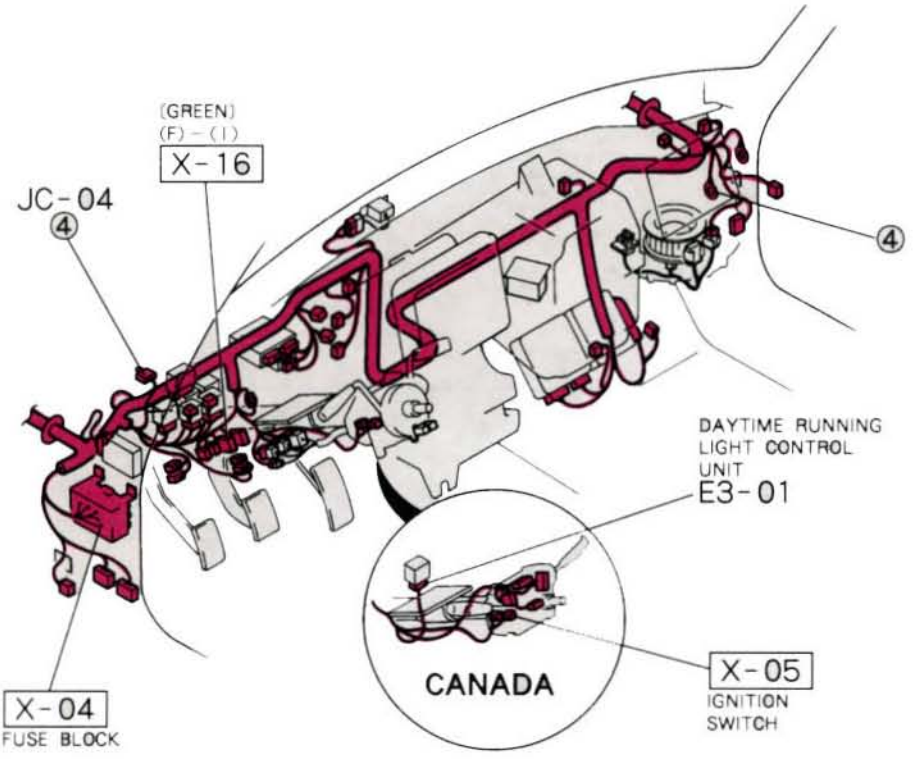
E3-03 FRONT TURN SIGNAL LIGHTS RH (F)

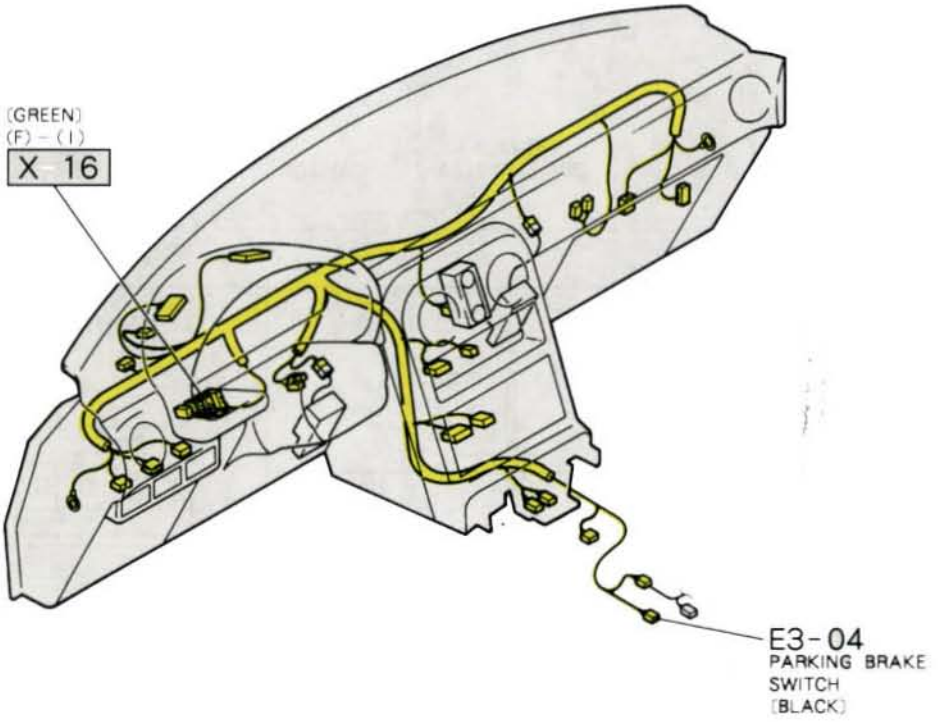


E3-04 PARKING BRAKE SWITCH (I)

E-3

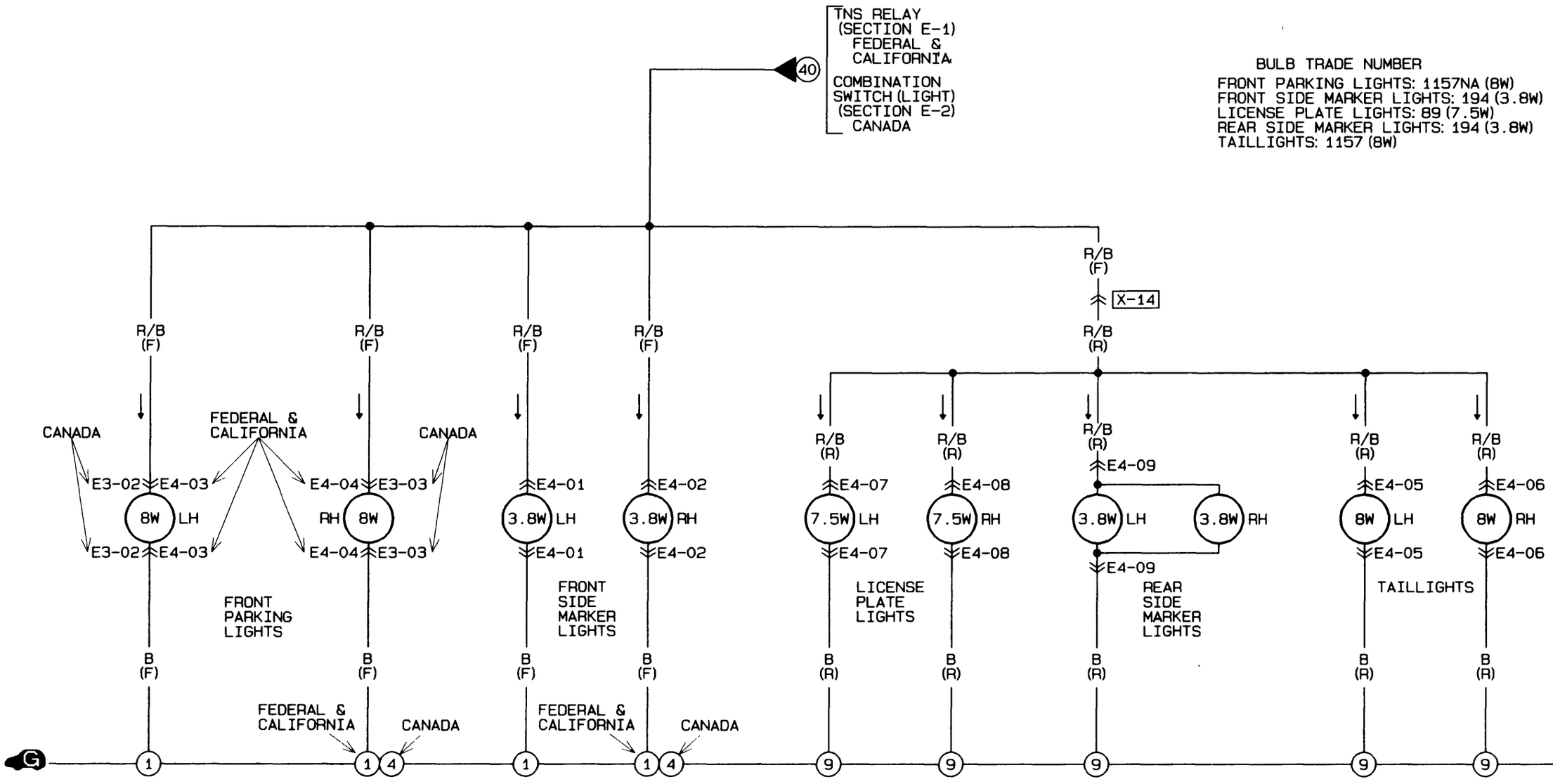

RELAY &
MAIN FUSE BLOCK
X-02
(BLACK)
RELAY &
MAIN FUSE BLOCK
X-03
(BLACK)
FRONT TURN
SIGNAL LIGHT
RH
E3-03
① JC-01
E3-02
FRONT TURN
SIGNAL LIGHT
LH
(BLACK)


(GREEN)
(F) - (I)
X-16
JC-04
④
④
DAYTIME RUNNING
LIGHT CONTROL
UNIT
E3-01
CANADA
X-05
IGNITION
SWITCH
X-04
FUSE BLOCK

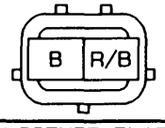

(GREEN)
(F) - (I)
X-16
E3-04
PARKING BRAKE
SWITCH
(BLACK)

■FRONT PARKING LIGHTS ■FRONT SIDE MARKER LIGHTS ■LICENSE PLATE LIGHTS ■TAILLIGHTS ■REAR SIDE MARKER LIGHTS

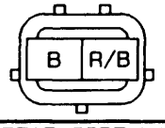
E-4



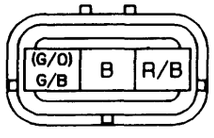
E4-01 FRONT SIDE MARKER LIGHT LH (F)



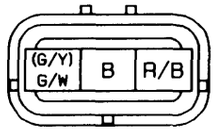
E4-02 FRONT SIDE MARKER LIGHT RH (F)



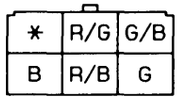
E3-02 FRONT PARKING
E4-03 LIGHT LH (F)



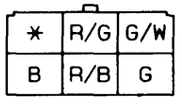
E3-03 FRONT PARKING
E4-04 LIGHT RH (F)



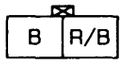
E4-05 TAILLIGHT LH (R)



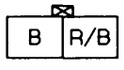
E4-06 TAILLIGHT RH (R)



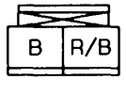
E4-07 LICENSE PLATE LIGHT LH (R)



E4-08 LICENSE PLATE LIGHT RH (R)



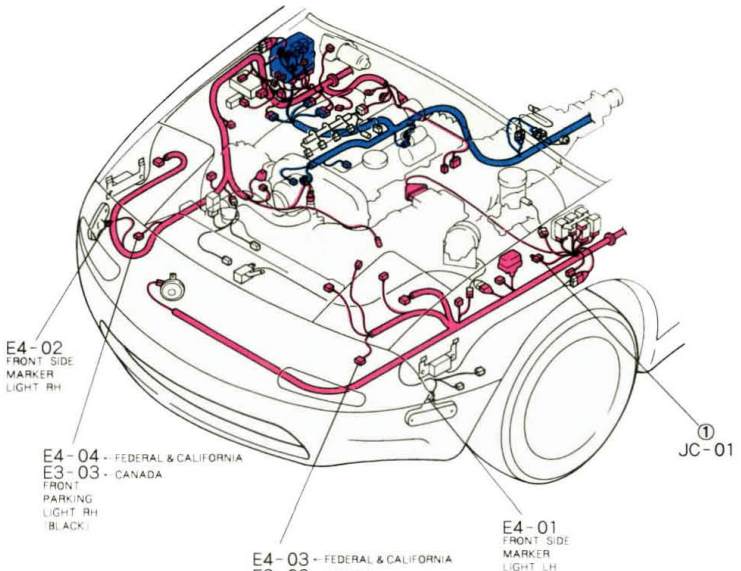
E4-09 REAR SIDE MARKER LIGHTS (R)

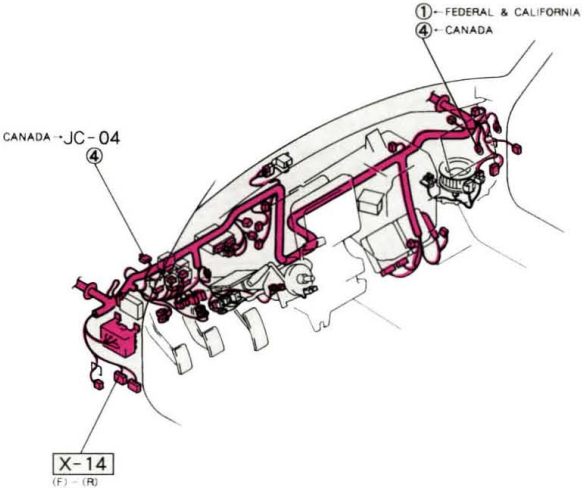


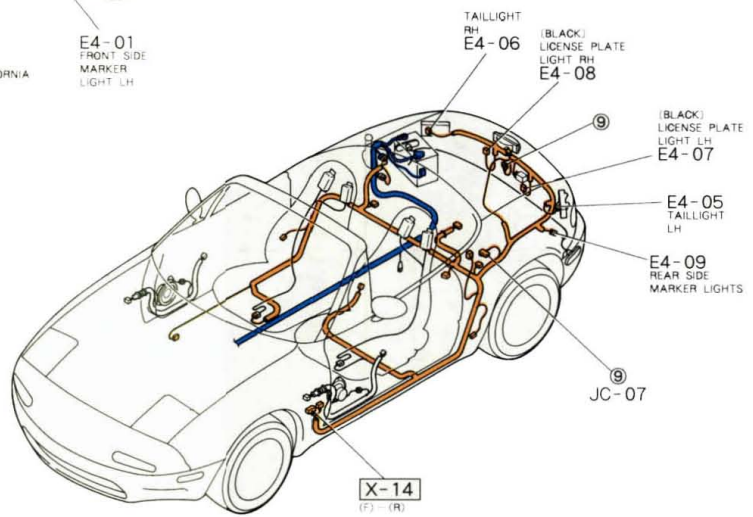
( ) . . . CANADA

( ) . . . CANADA

E-4

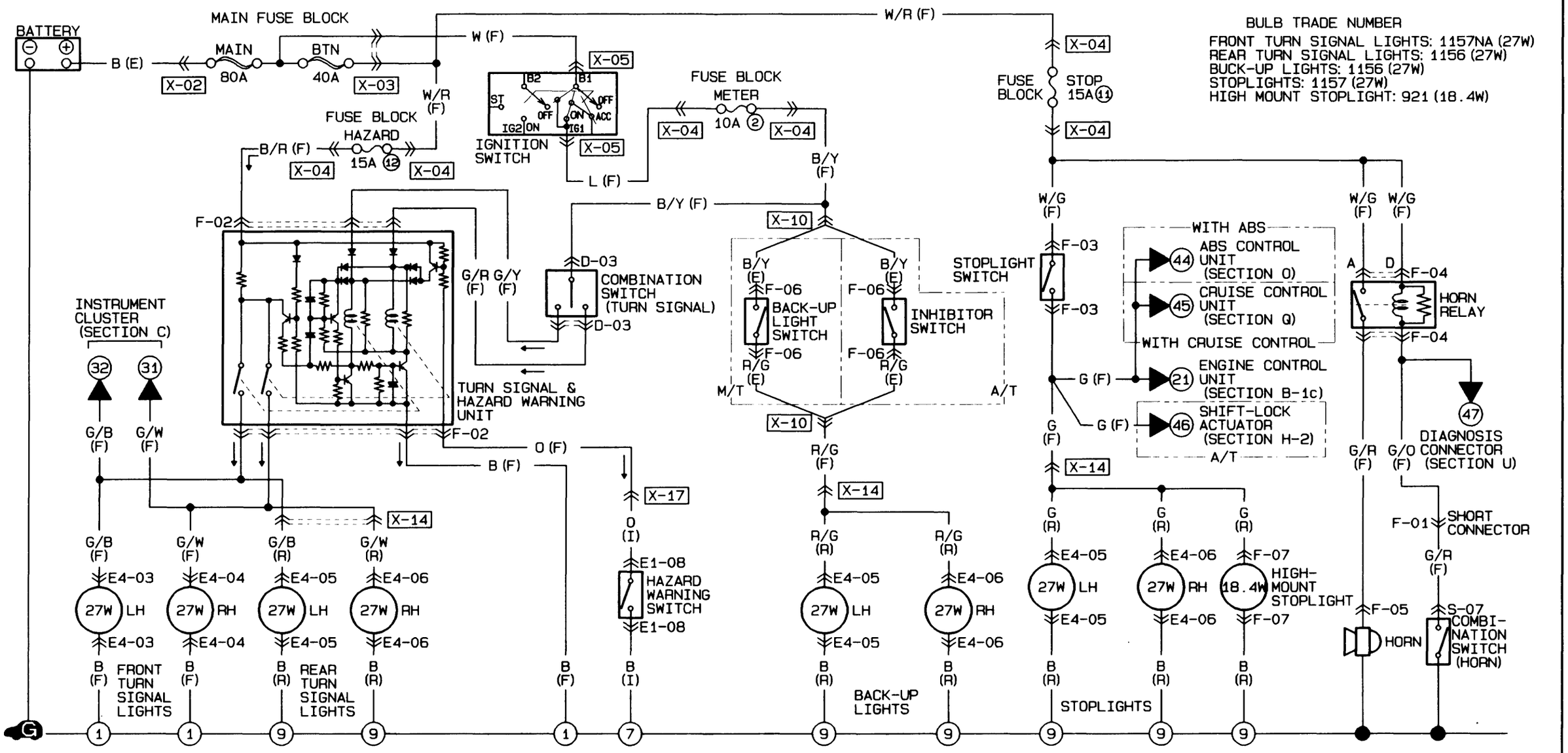

E4-02
FRONT SIDE MARKER LIGHT RH
E4-04 ← FEDERAL & CALIFORNIA
E3-03 ← CANADA
FRONT PARKING LIGHT RH (BLACK)
E4-03 ← FEDERAL & CALIFORNIA
E3-02 ← CANADA
FRONT PARKING LIGHT LH (BLACK)
E4-01
FRONT SIDE MARKER LIGHT LH
① JC-01


①← FEDERAL & CALIFORNIA
④← CANADA
CANADA → JC-04
④
X-14
(F) – (R)

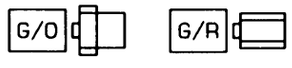

TAILLIGHT RH
E4-06
(BLACK) LICENSE PLATE LIGHT RH
E4-08
⑨
(BLACK) LICENSE PLATE LIGHT LH
E4-07
E4-05
TAILLIGHT LH
E4-09
REAR SIDE MARKER LIGHTS
⑨ JC-07
X-14
(F) – (R)

FEDERAL & CALIFORNIA ■ BACK-UP LIGHTS ■ HIGH-MOUNT STOPLIGHT ■ HORN ■ STOPLIGHTS ■ TURN SIGNAL & HAZARD WARNING LIGHTS

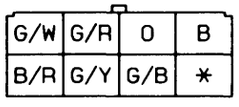
F-1



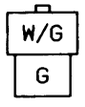
F-01 SHORT CONNECTOR (F)



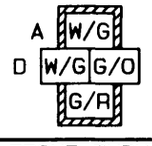
F-02 TURN SIGNAL & HAZARD WARNING UNIT (F)



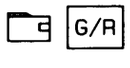
F-03 STOPLIGHT SWITCH (F)



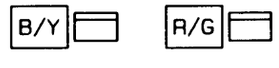
F-04 HORN RELAY (F)



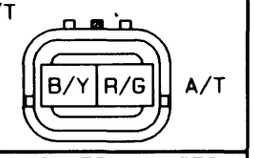
F-05 HORN (F)



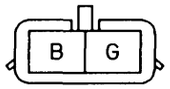
F-06 INHIBITOR SWITCH (E) A/T
BACK-UP LIGHT SWITCH (E) M/T
M/T



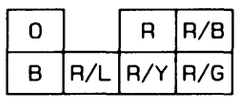
A/T



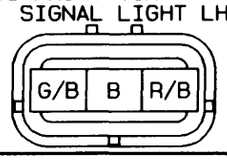
F-07 HIGH-MOUNT STOPLIGHT (R)



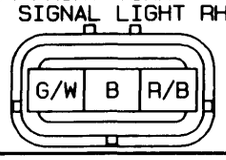
E1-08 HAZARD WARNING SWITCH (I)



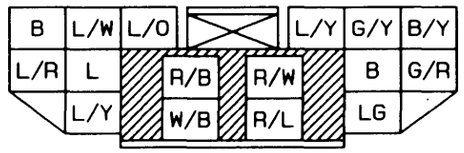
E4-03 FRONT TURN SIGNAL LIGHT LH (F)



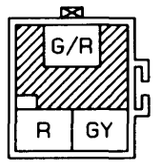
E4-04 FRONT TURN SIGNAL LIGHT RH (F)



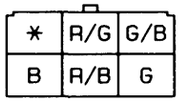
D-03 COMBINATION SWITCH (TURN SIGNAL) (F)



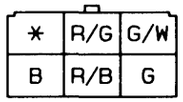
S-07 COMBINATION SWITCH (HORN) (F)



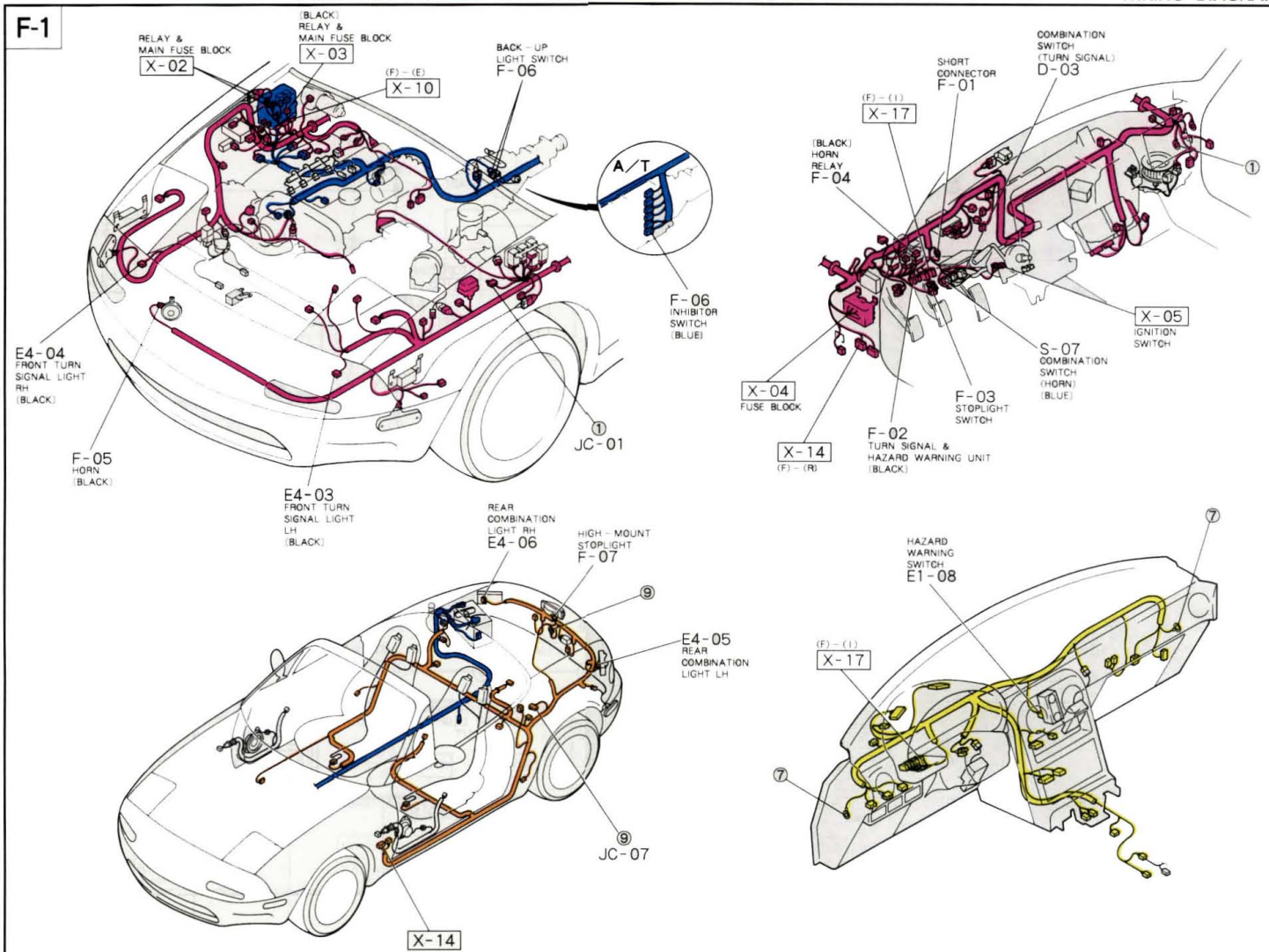
E4-05 REAR COMBINATION LIGHT LH (R)



E4-06 REAR COMBINATION LIGHT RH (R)



F-1


RELAY & MAIN FUSE BLOCK
X-02
(BLACK) RELAY & MAIN FUSE BLOCK
X-03
(F) - (E)
X-10
BACK - UP LIGHT SWITCH
F-06
A/T
F-06 INHIBITOR SWITCH (BLUE)
E4-04 FRONT TURN SIGNAL LIGHT RH (BLACK)
F-05 HORN (BLACK)
E4-03 FRONT TURN SIGNAL LIGHT LH (BLACK)
① JC-01
COMBINATION SWITCH (TURN SIGNAL) D-03
SHORT CONNECTOR F-01
(F) - (I)
X-17
(BLACK) HORN RELAY F-04
①
X-05 IGNITION SWITCH
S-07 COMBINATION SWITCH (HORN) (BLUE)
X-04 FUSE BLOCK
F-03 STOPLIGHT SWITCH
F-02 TURN SIGNAL & HAZARD WARNING UNIT (BLACK)
X-14 (F) - (R)
REAR COMBINATION LIGHT RH E4-06
HIGH - MOUNT STOPLIGHT F-07
⑨
E4-05 REAR COMBINATION LIGHT LH
⑨ JC-07
X-14 (F) - (R)
⑦
HAZARD WARNING SWITCH E1-08
(F) - (I)
X-17
⑦

CANADA ■ BACK-UP LIGHTS ■ HIGH-MOUNT STOPLIGHT ■ HORN ■ STOPLIGHTS ■ TURN SIGNAL & HAZARD WARNING LIGHTS

F-2

BULB TRADE NUMBER
REAR TURN SIGNAL LIGHTS: 1156 (27W)
BUCK-UP LIGHTS: 1156 (27W)
STOPLIGHTS: 1157 (27W)
HIGH MOUNT STOPLIGHT: 921 (18.4W)

BATTERY
MAIN FUSE BLOCK
MAIN 80A
BTN 40A
B (E)
W (F)
W/R (F)
W/R (F)
FUSE BLOCK
HAZARD 15A (12)
B/R (F)
IGNITION SWITCH
L (F)
FUSE BLOCK METER 10A (2)
B/Y (F)
FUSE BLOCK STOP 15A (11)
W/G (F)
STOPLIGHT SWITCH
INSTRUMENT CLUSTER (SECTION C) DRL CONTROL UNIT (SECTION E-3)
TURN SIGNAL & HAZARD WARNING UNIT
G/R G/Y (F) (F)
COMBINATION SWITCH (TURN SIGNAL)
B/Y (E)
BACK-UP LIGHT SWITCH
INHIBITOR SWITCH
M/T
A/T
WITH ABS
ABS CONTROL UNIT (SECTION 0)
ENGINE CONTROL UNIT (SECTION B-1c)
SHIFT-LOCK ACTUATOR (SECTION H-2)
HORN RELAY
G/B (F)
G/W (F)
O (F)
O (I)
HAZARD WARNING SWITCH
R/G (F)
G (F)
G/R G/O (F) (F)
G/B (R)
G/W (R)
27W LH
27W RH
18.4W HIGH-MOUNT STOPLIGHT
REAR TURN SIGNAL LIGHTS
BACK-UP LIGHTS
STOPLIGHTS
HORN
COMBINATION SWITCH (HORN)
B (F)
B (I)
B (R)

F-02 TURN SIGNAL & HAZARD WARNING UNIT (F)

G/W	G/R	O	B
B/R	G/Y	G/B	*

F-03 STOPLIGHT SWITCH (F)

W/G
G

F-04 HORN RELAY (F)

A	W/G	
D	W/G	G/O
	G/R	

F-05 HORN (F)

G/R

F-06 INHIBITOR SWITCH (E) A/T
BACK-UP LIGHT SWITCH (E) M/T

M/T

B/Y	
R/G	

A/T

B/Y	R/G

F-07 HIGH-MOUNT STOPLIGHT (R)

B	G

F-08 COMBINATION SWITCH (TURN SIGNAL) (F)

G/Y	*	*	*
B/Y	G/R	*	*

E2-07 COMBINATION SWITCH (HORN) (F)

G/O	W/R	*
W/L	R/B	R/W

E2-08 HAZARD WARNING SWITCH (I)

O		R	R/B
B	R/L	R/Y	R/G

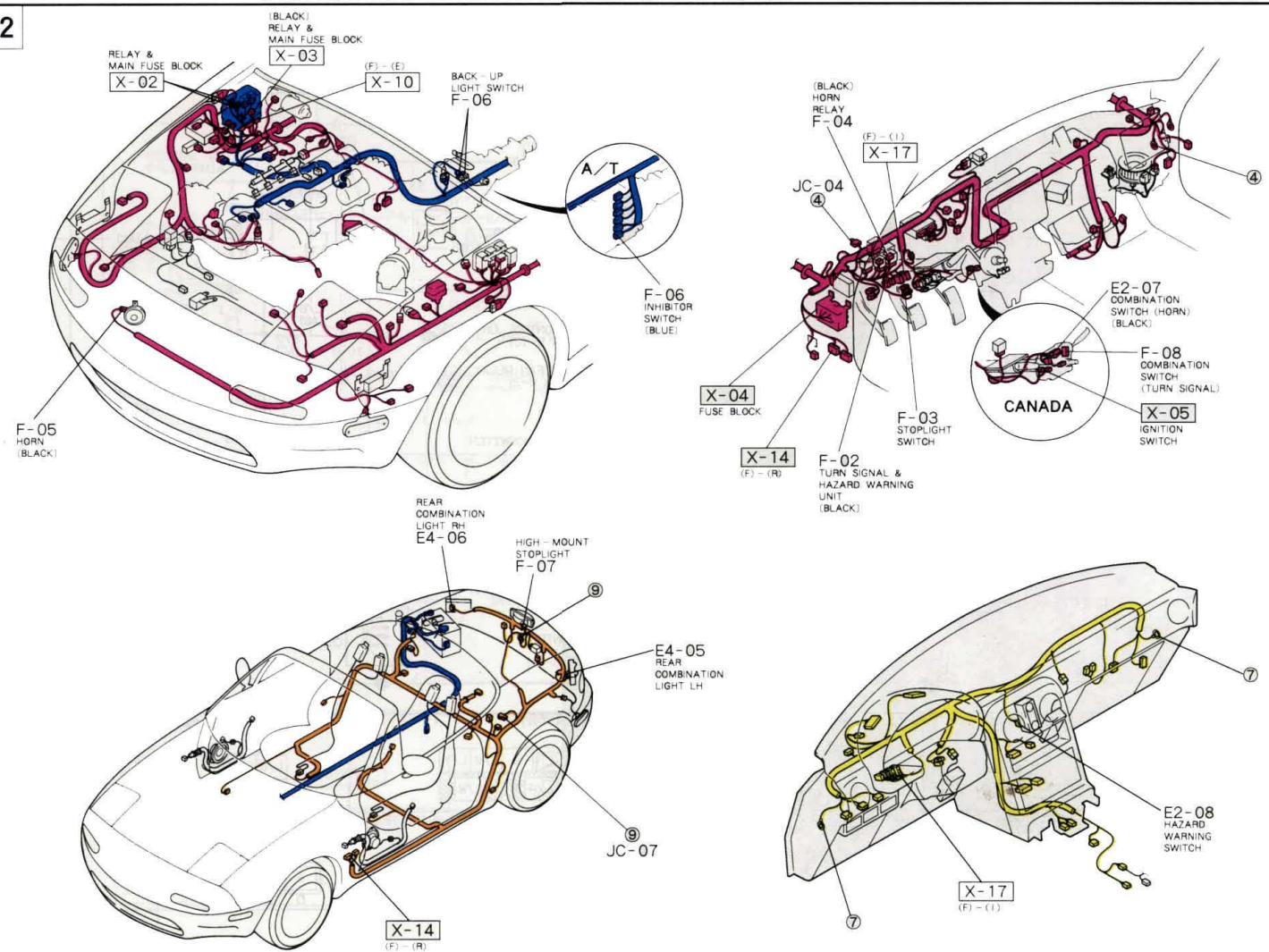
E4-05 REAR COMBINATION LIGHT LH (R)

*	R/G	G/B
B	R/B	G

E4-06 REAR COMBINATION LIGHT RH (R)

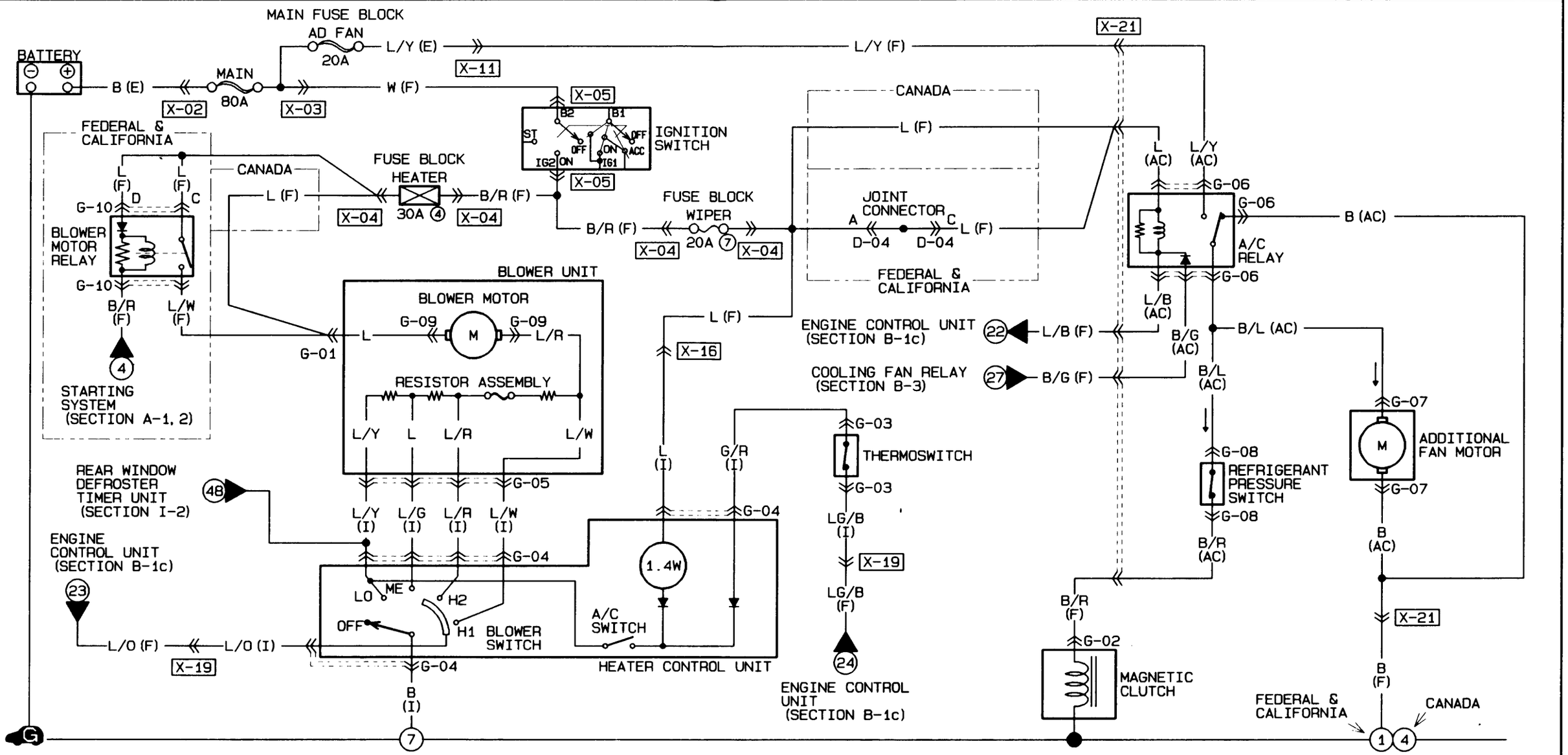
*	R/G	G/W
B	R/B	G

F-2

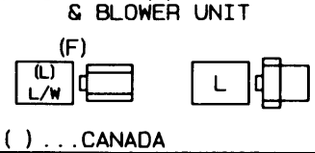

(BLACK)
RELAY & MAIN FUSE BLOCK
X-03
RELAY & MAIN FUSE BLOCK
X-02
(F) - (E)
X-10
BACK - UP LIGHT SWITCH
F-06
A/T
F-06
INHIBITOR SWITCH
(BLUE)
F-05
HORN
(BLACK)
(BLACK)
HORN RELAY
F-04
(F) - (I)
X-17
JC-04
④
④
E2-07
COMBINATION SWITCH (HORN)
(BLACK)
F-08
COMBINATION SWITCH
(TURN SIGNAL)
CANADA
X-05
IGNITION SWITCH
X-04
FUSE BLOCK
X-14
(F) - (R)
F-02
TURN SIGNAL & HAZARD WARNING UNIT
(BLACK)
F-03
STOPLIGHT SWITCH
REAR COMBINATION LIGHT RH
E4-06
HIGH - MOUNT STOPLIGHT
F-07
⑨
E4-05
REAR COMBINATION LIGHT LH
⑨
JC-07
X-14
(F) - (R)
⑦
E2-08
HAZARD WARNING SWITCH
X-17
(F) - (I)
⑦

■ HEATER & AIR CONDITIONER

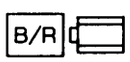
G



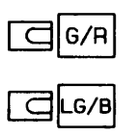
G-01 FRONT (F) & BLOWER UNIT



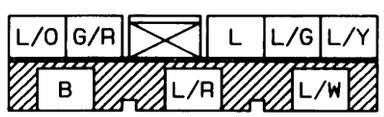
G-02 MAGNETIC CLUTCH (F)



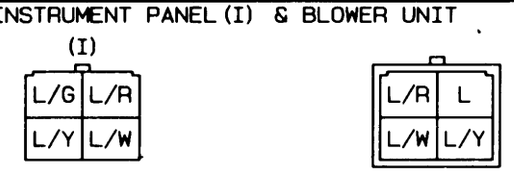
G-03 THERMOSWITCH (I)



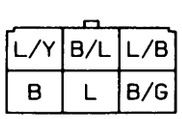
G-04 HEATER CONTROL UNIT (I)



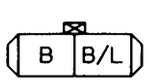
G-05 INSTRUMENT PANEL (I) & BLOWER UNIT



G-06 A/C RELAY (AC)

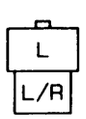


G-07 ADDITIONAL FAN MOTOR (AC)

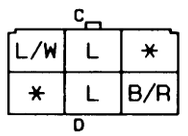


G-08 REFRIGERANT PRESSURE SWITCH (AC)

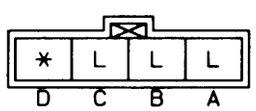
G-09 BLOWER MOTOR



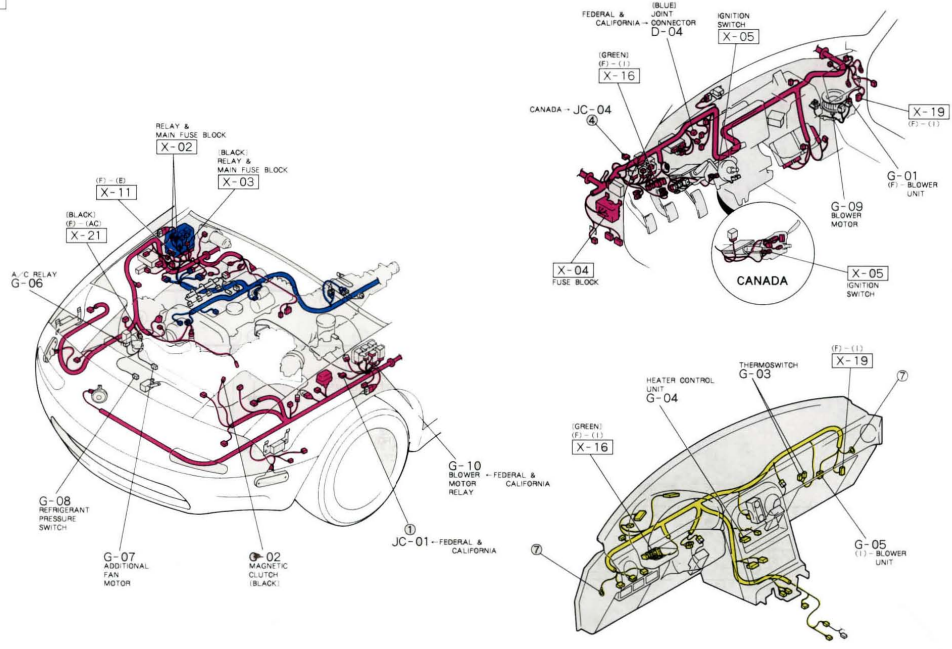
G-10 BLOWER MOTOR RELAY (F)



D-04 JOINT CONNECTOR (F)

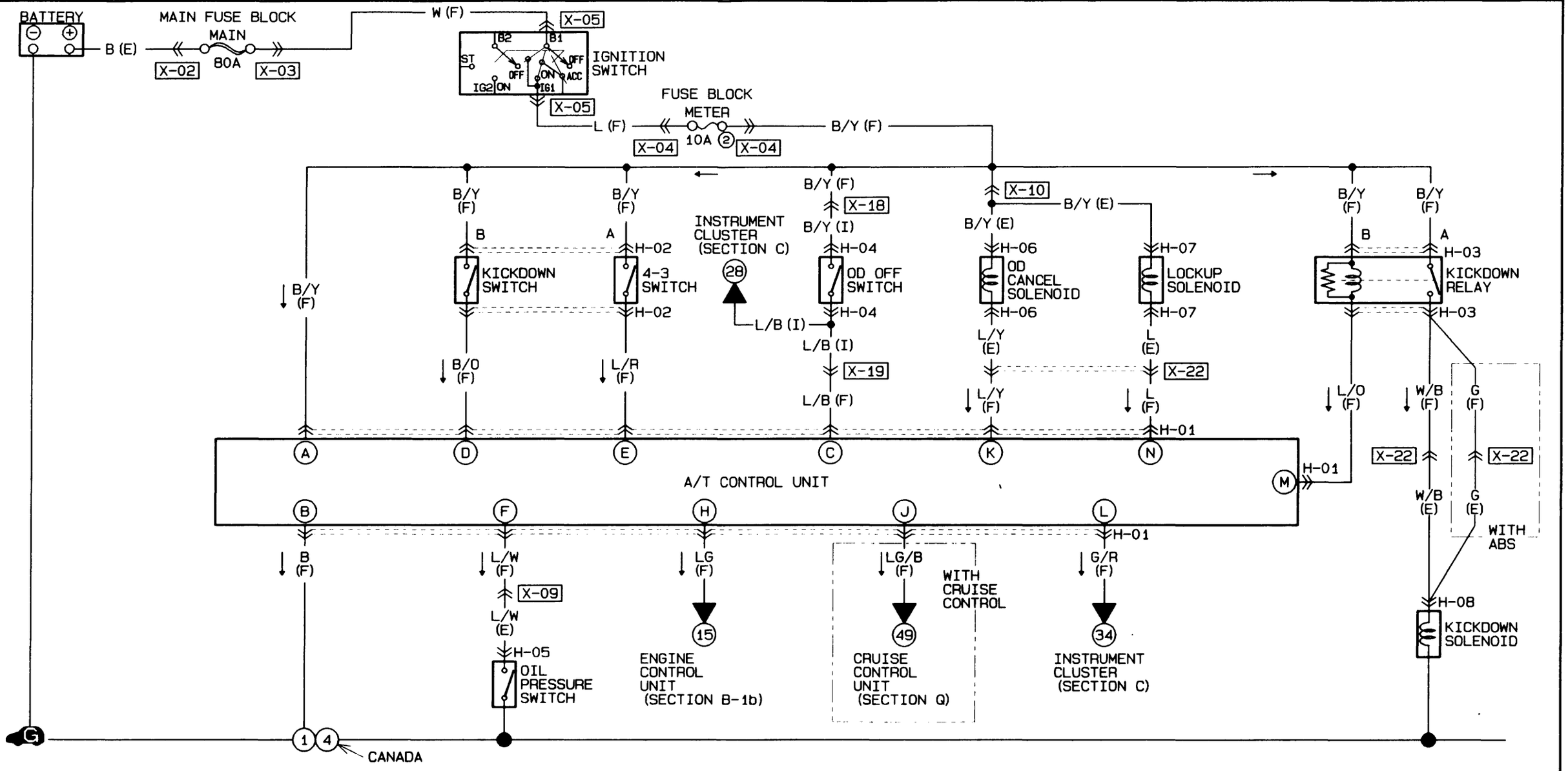


G


FEDERAL & CALIFORNIA → (BLUE) JOINT CONNECTOR D-04
IGNITION SWITCH X-05
(GREEN) (F) - (I) X-16
CANADA → JC-04 ④
X-19 (F) - (I)
G-01 (F) - BLOWER UNIT
G-09 BLOWER MOTOR
X-04 FUSE BLOCK
CANADA
X-05 IGNITION SWITCH
RELAY & MAIN FUSE BLOCK X-02
(BLACK) RELAY & MAIN FUSE BLOCK X-03
(F) - (E) X-11
(BLACK) (F) - (AC) X-21
A/C RELAY G-06
G-10 BLOWER MOTOR RELAY ← FEDERAL & CALIFORNIA
G-08 REFRIGERANT PRESSURE SWITCH
G-07 ADDITIONAL FAN MOTOR
02 MAGNETIC CLUTCH (BLACK)
① JC-01 ← FEDERAL & CALIFORNIA
(F) - (I) X-19
⑦
THERMOSWITCH G-03
HEATER CONTROL UNIT G-04
(GREEN) (F) - (I) X-16
⑦
G-05 (I) - BLOWER UNIT

■ A/T CONTROL SYSTEM

H-1



H-01 A/T CONTROL UNIT (F) ( ) ...WITH CRUISE CONTROL

O	M	K		E	C	A
*	L/O	L/Y		L/R	L/B	B/Y
*	L	G/R	* (LG/B) LG	L/W	B/O	B
P	N	L	J H	F	D	B

H-02 KICKDOWN & 4-3 SWITCH (F)

L/R	B/Y	A
B/O	B/Y	B

H-03 KICKDOWN RELAY (F)

B/Y		A
L/O	B/Y	B
W/B (G)		

( ) ...WITH ABS

H-04 OD OFF SWITCH (I)

L/B	B/Y
R	R/B

H-05 OIL PRESSURE SWITCH (E)

L/W

H-06 OD CANCEL SOLENOID (E)

B/Y	L/Y

H-07 LOCKUP SOLENOID (E)

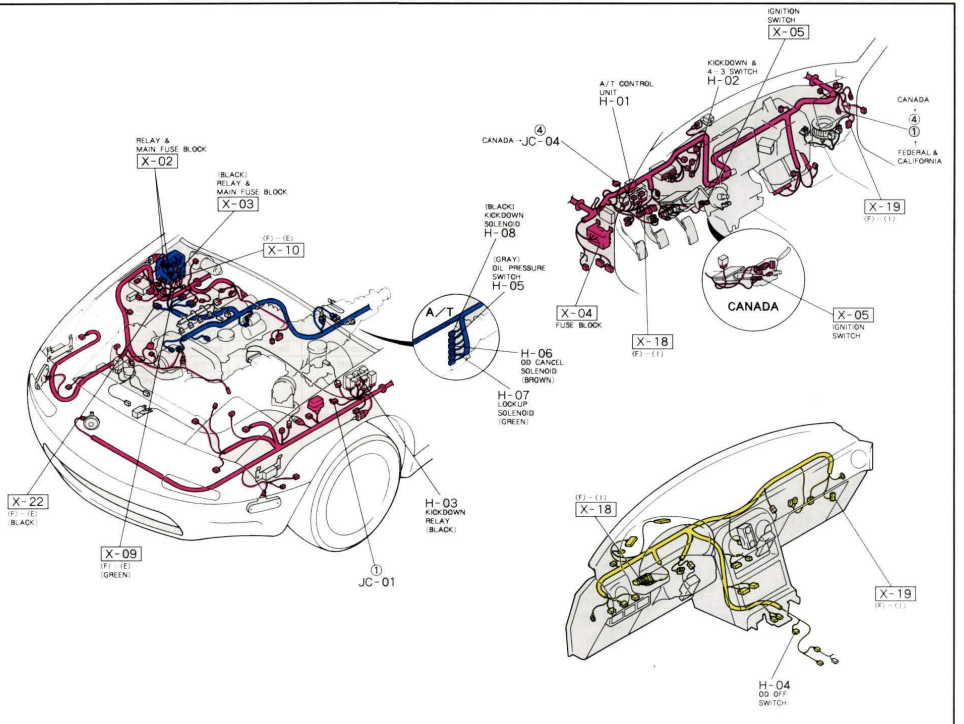
L	B/Y

H-08 KICKDOWN SOLENOID (E)

( ) ...WITH ABS

W/B (G)

H-1

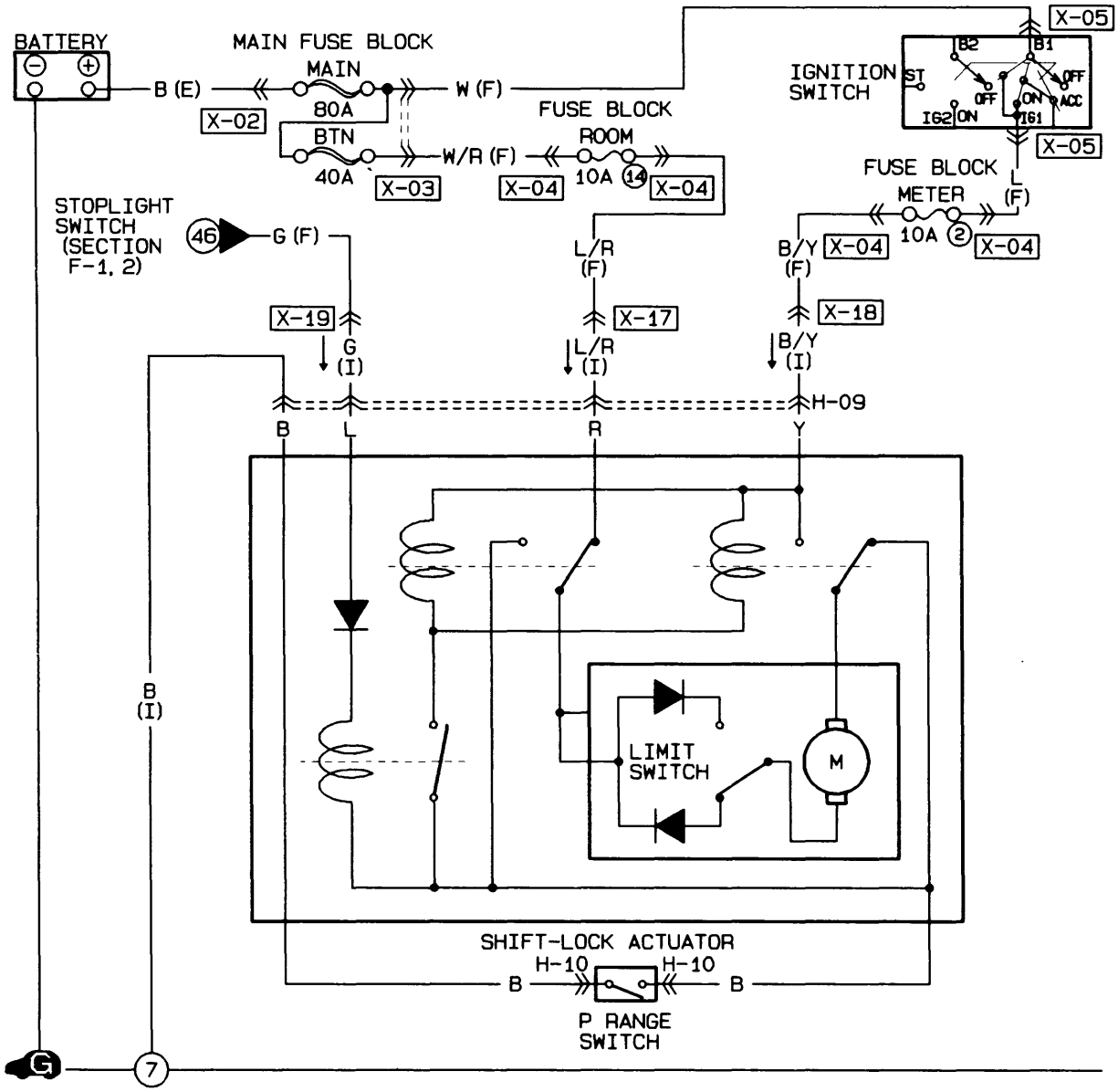

IGNITION SWITCH
X-05
KICKDOWN & 4-3 SWITCH
H-02
A/T CONTROL UNIT
H-01
CANADA
④
①
FEDERAL & CALIFORNIA
CANADA →④ JC-04
X-19
(F) - (I)
RELAY & MAIN FUSE BLOCK
X-02
(BLACK) RELAY & MAIN FUSE BLOCK
X-03
(F) - (E)
X-10
(BLACK) KICKDOWN SOLENOID
H-08
(GRAY) OIL PRESSURE SWITCH
H-05
A/T
X-04
FUSE BLOCK
X-18
(F) - (I)
CANADA
X-05
IGNITION SWITCH
H-06
OD CANCEL SOLENOID (BROWN)
H-07
LOCKUP SOLENOID (GREEN)
X-22
(F) - (E)
(BLACK)
X-09
(F) - (E)
(GREEN)
H-03
KICKDOWN RELAY
(BLACK)
① JC-01
(F) - (I)
X-18
X-19
(F) - (I)
H-04
OD OFF SWITCH

Terminal Voltage

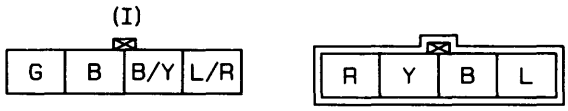
VB: Battery voltage

Terminal	Connected to	Voltage	Condition	
A (Battery power)	Battery	VB	Ignition switch ON	
		0V	Ignition switch OFF	
B (Ground)	Battery ground	0V	Constant	
C (Input)	OD OFF switch	VB	OD OFF switch released • OD not available	
		0V	OD OFF switch depressed • OD available	
D (Input)	Kickdown switch	VB	Switch ON: • Throttle opening 7/8—8/8	
		0V	Switch OFF: • Other than conditions above	
E (Input)	4-3 switch	VB	Switch ON: • Throttle opening 6/8—8/8	
		0V	Switch OFF: • Other than conditions above	
F (Input)	Oil pressure switch	VB	Switch OFF: • 1st, 2nd, and 3rd gear positions in forward ranges • P, R, and N ranges	
		0V	Switch ON: • OD gear position	
H (Input)	Engine control unit	Below. 1.5V	Ignition switch ON	
J (Input)	Cruise control unit	VB	Normal conditions	
		Below. 1.5V	Set or Resume switch ON, or vehicle speed 8 km/h (5 mph) lower than preset speed (Driving vehicle: cruise control operation)	
K (Output)	OD cancel solenoid	VB	Solenoid OFF: • OD gear position	
		Below. 1.5V	Solenoid ON: • 1st, 2nd, and 3rd gear positions in forward ranges • P, R, and N ranges	
L (Input)	Speed sensor	1.5—7V	During driving	
		Approx. 7V or below 1.5V	Vehicle stopped	
M (Input)	Kickdown relay	VB	Kickdown relay OFF: • Other than conditions below	
		Below. 1.5V	Kickdown relay ON: • Kickdown switch ON (throttle opening more than 7/8)	
N (Output)	Lockup solenoid	VB	Solenoid OFF: • Lockup prohibition	Ignition switch ON
		Below. 1.5V	Solenoid ON: • Lockup	Engine running
O	—	—	—	
P	—	—	—	

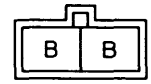
A/T ■ SHIFT-LOCK SYSTEM H-2



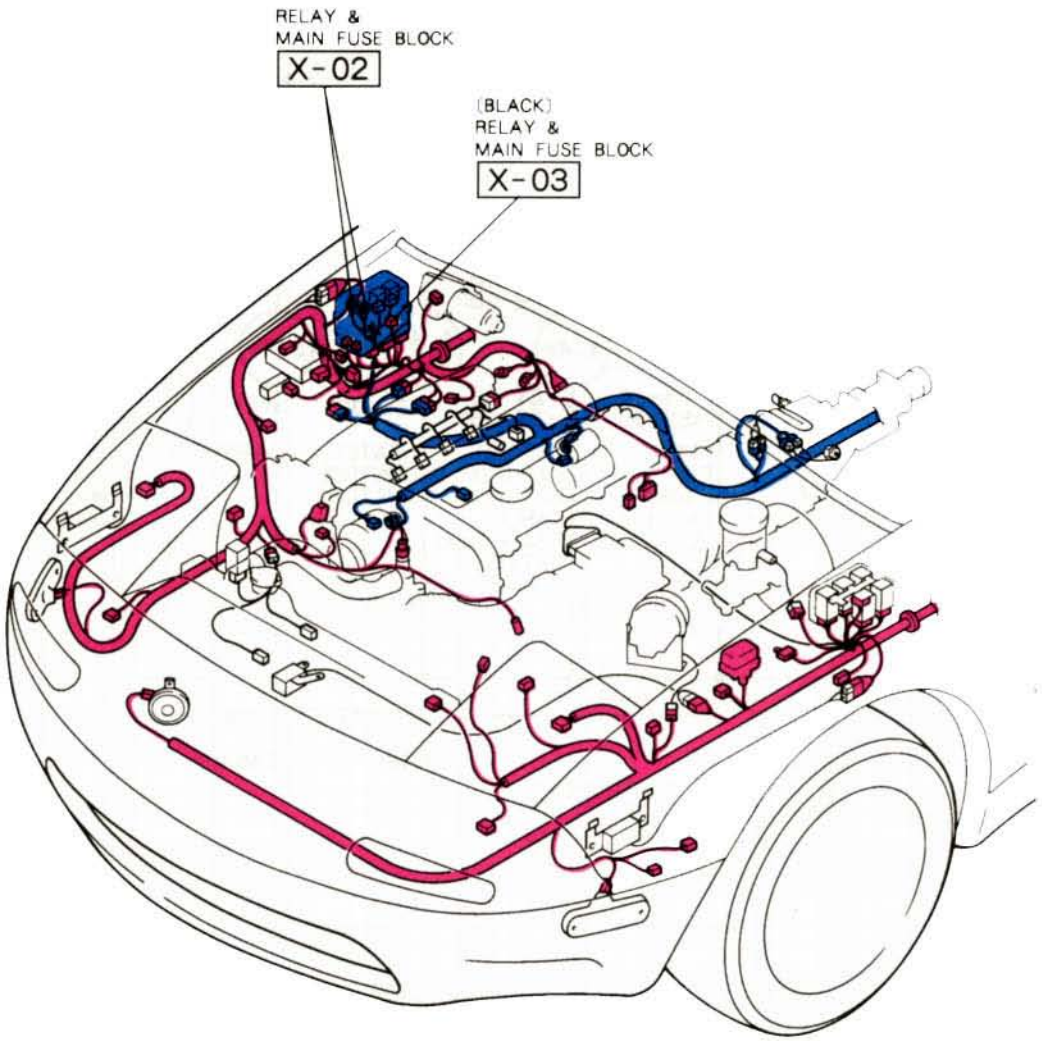
H-09 SHIFT-LOCK ACTUATOR (I)

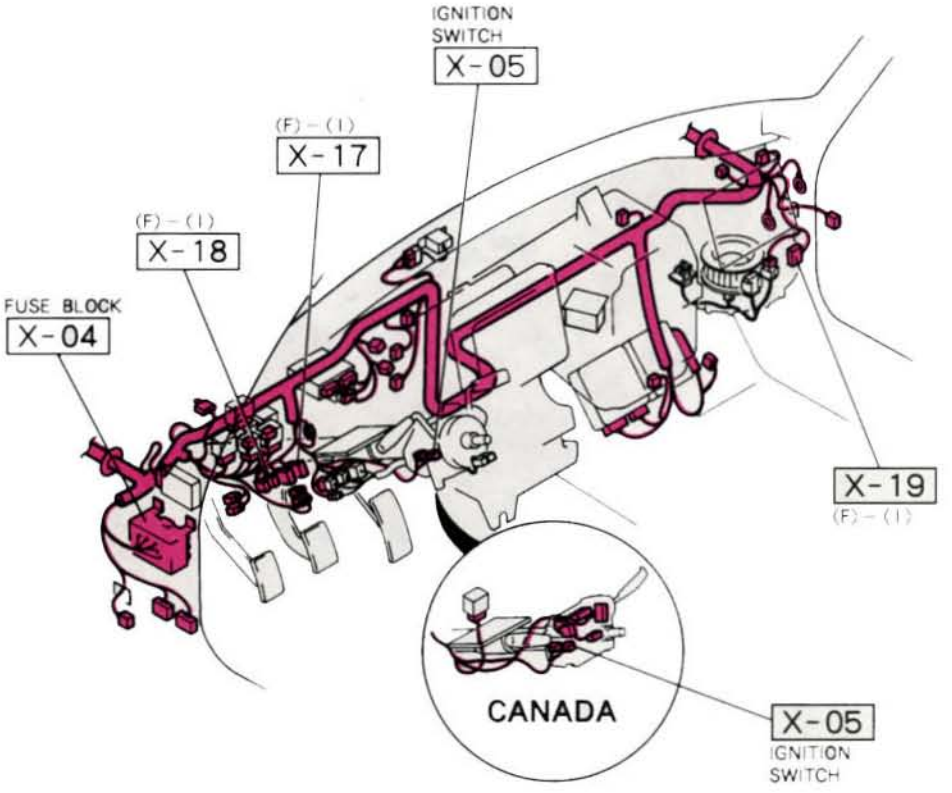


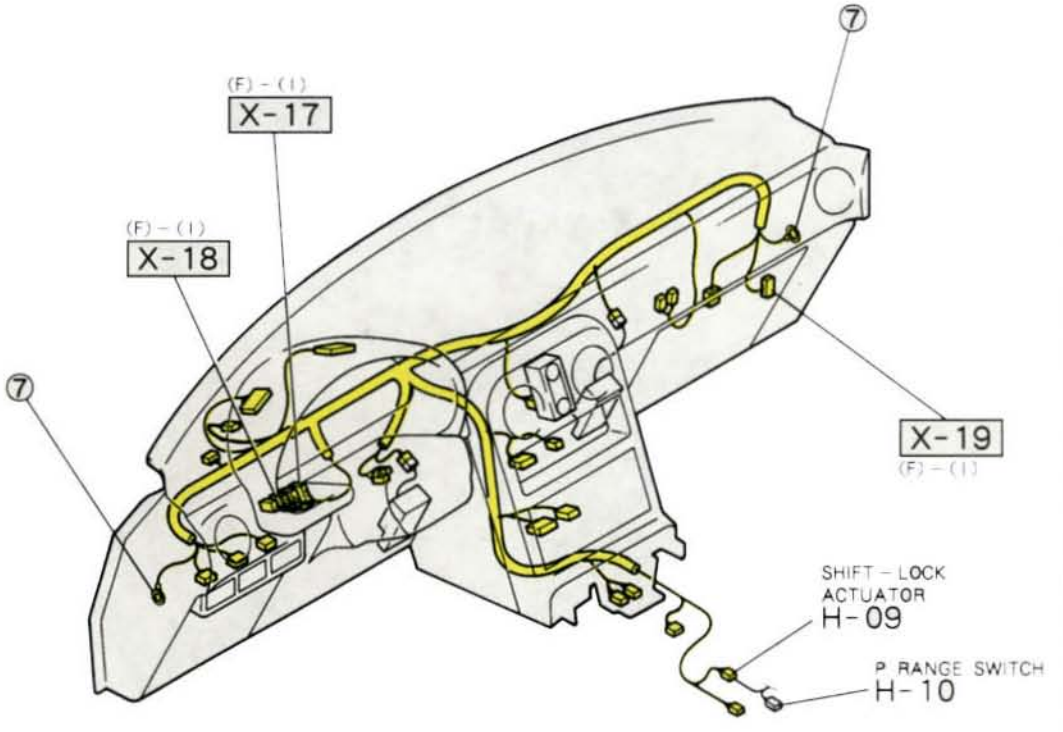
H-10 P RANGE SWITCH



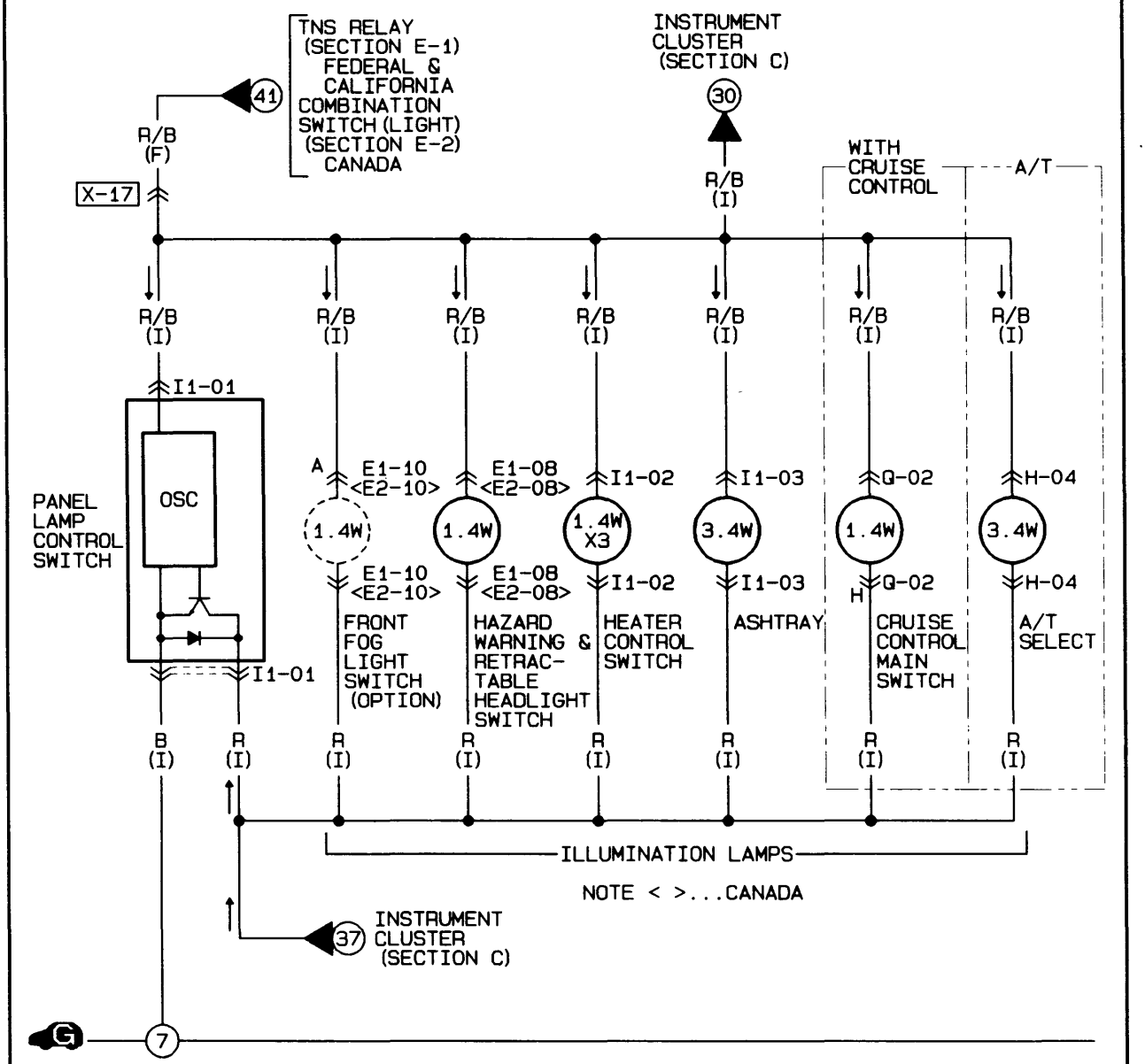
H-2



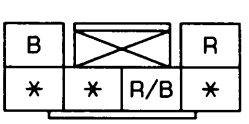

IGNITION SWITCH
X-05
(F) - (I)
X-17
(F) - (I)
X-18
FUSE BLOCK
X-04
X-19
(F) - (I)
CANADA
X-05
IGNITION SWITCH


⑦
(F) - (I)
X-17
(F) - (I)
X-18
⑦
X-19
(F) - (I)
SHIFT - LOCK ACTUATOR
H-09
P RANGE SWITCH
H-10

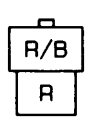
■ PANEL LAMP CONTROL SYSTEM I-1



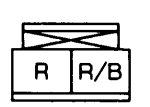
I1-01 PANEL LAMP CONTROL SWITCH (I)



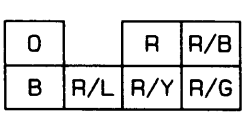
I1-02 HEATER CONTROL SWITCH ILLUMI (I)



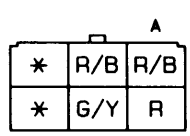
I1-03 ASHTRAY ILLUMI (I)



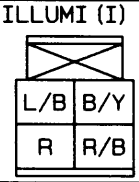
E1-08 HAZARD WARNING & RETRACTABLE HEADLIGHT SWITCH ILLUMI (I)
E2-08



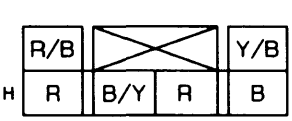
E1-10 FRONT FOG LIGHT SWITCH ILLUMI (OPTION) (I)
E2-10



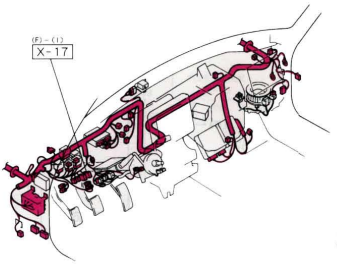
H-04 A/T SELECT ILLUMI (I)

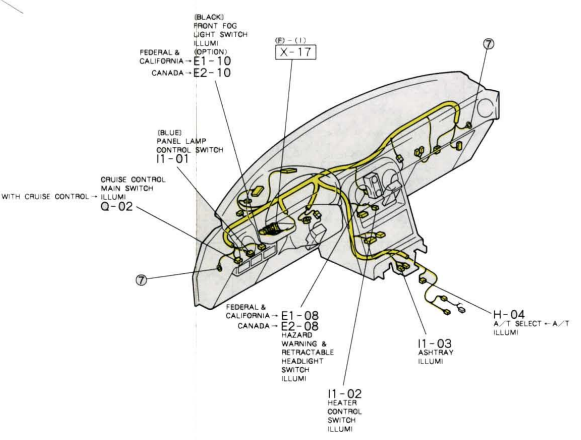


Q-02 CRUISE CONTROL MAIN SWITCH ILLUMI (I)



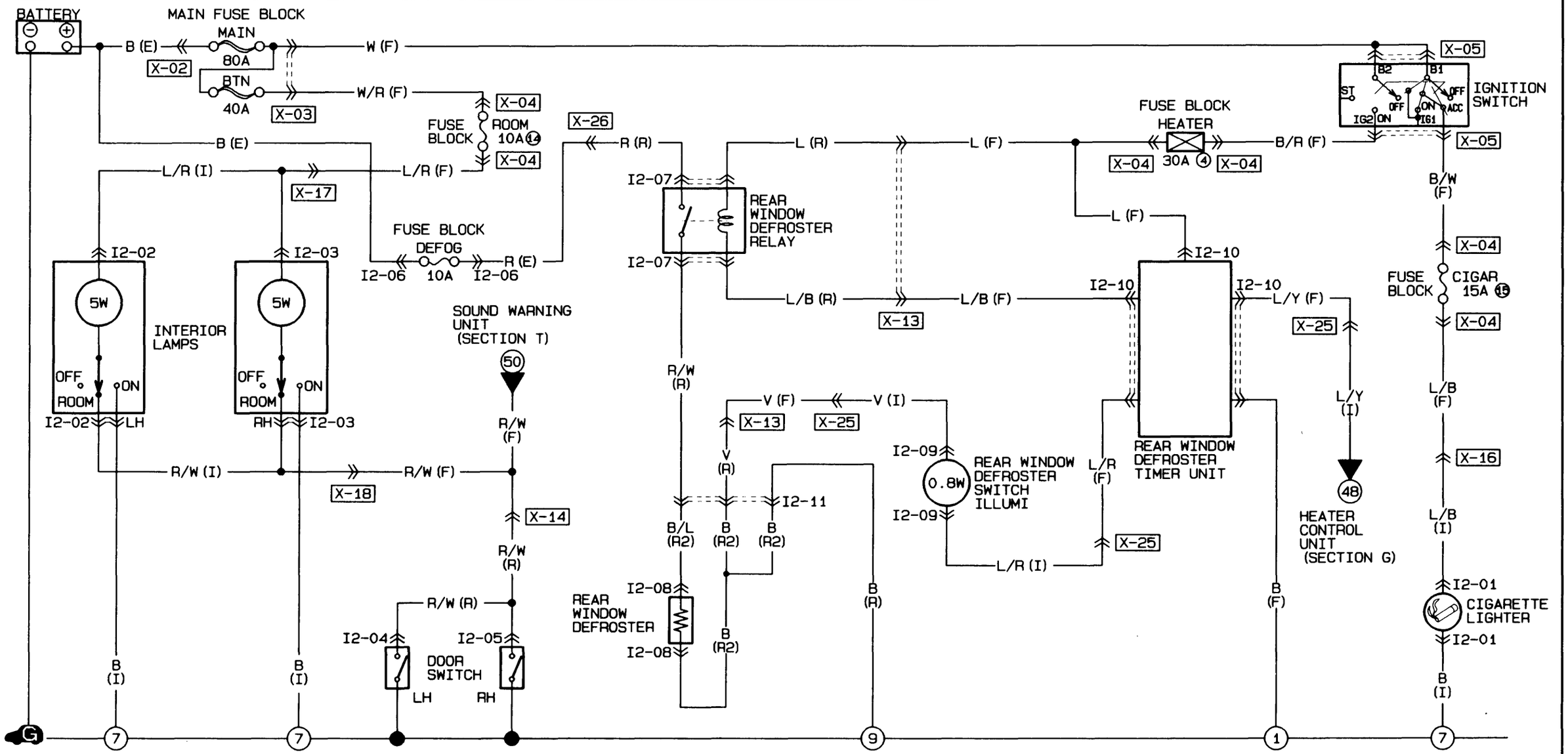
I-1

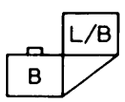
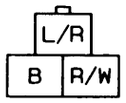
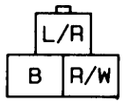
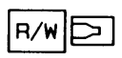
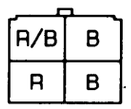
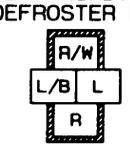
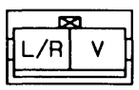
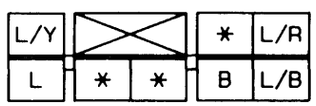
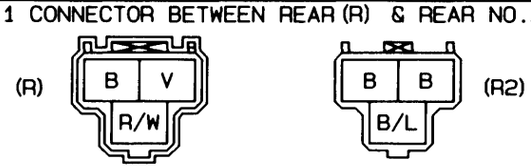

(F) - (1)
X-17


(BLACK)
FRONT FOG
LIGHT SWITCH
ILLUMI
(OPTION)
FEDERAL & CALIFORNIA → E1-10
CANADA → E2-10
(F) - (1)
X-17
⑦
(BLUE)
PANEL LAMP
CONTROL SWITCH
I1-01
CRUISE CONTROL
MAIN SWITCH
WITH CRUISE CONTROL → ILLUMI
Q-02
⑦
FEDERAL & CALIFORNIA → E1-08
CANADA → E2-08
HAZARD
WARNING &
RETRACTABLE
HEADLIGHT
SWITCH
ILLUMI
I1-02
HEATER
CONTROL
SWITCH
ILLUMI
I1-03
ASHTRAY
ILLUMI
H-04
A/T SELECT ← A/T
ILLUMI

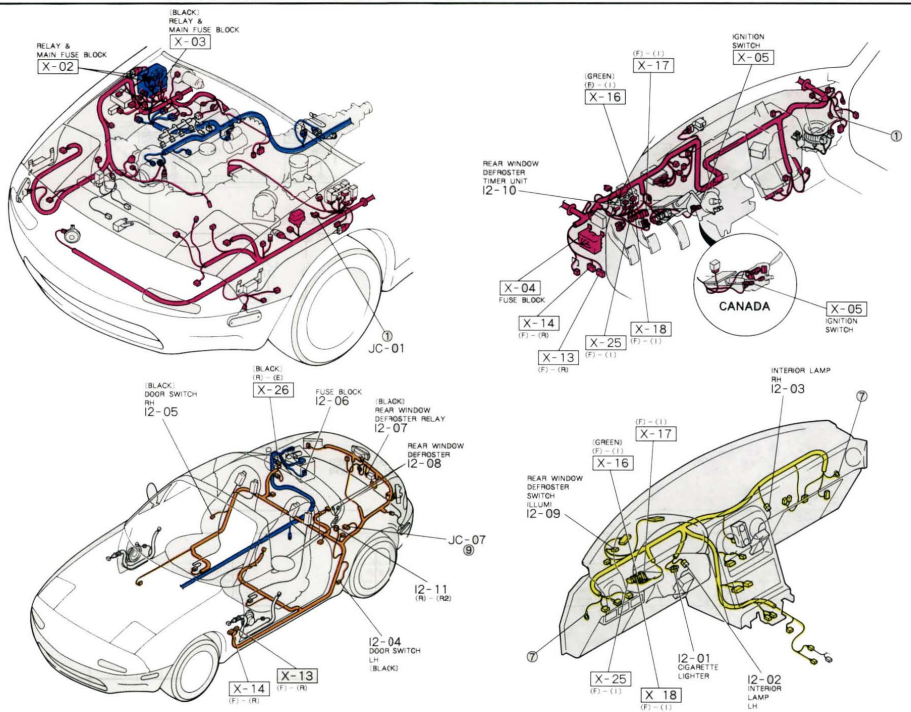
■ CIGARETTE LIGHTER ■ INTERIOR LAMPS ■ REAR WINDOW DEFROSTER

I-2



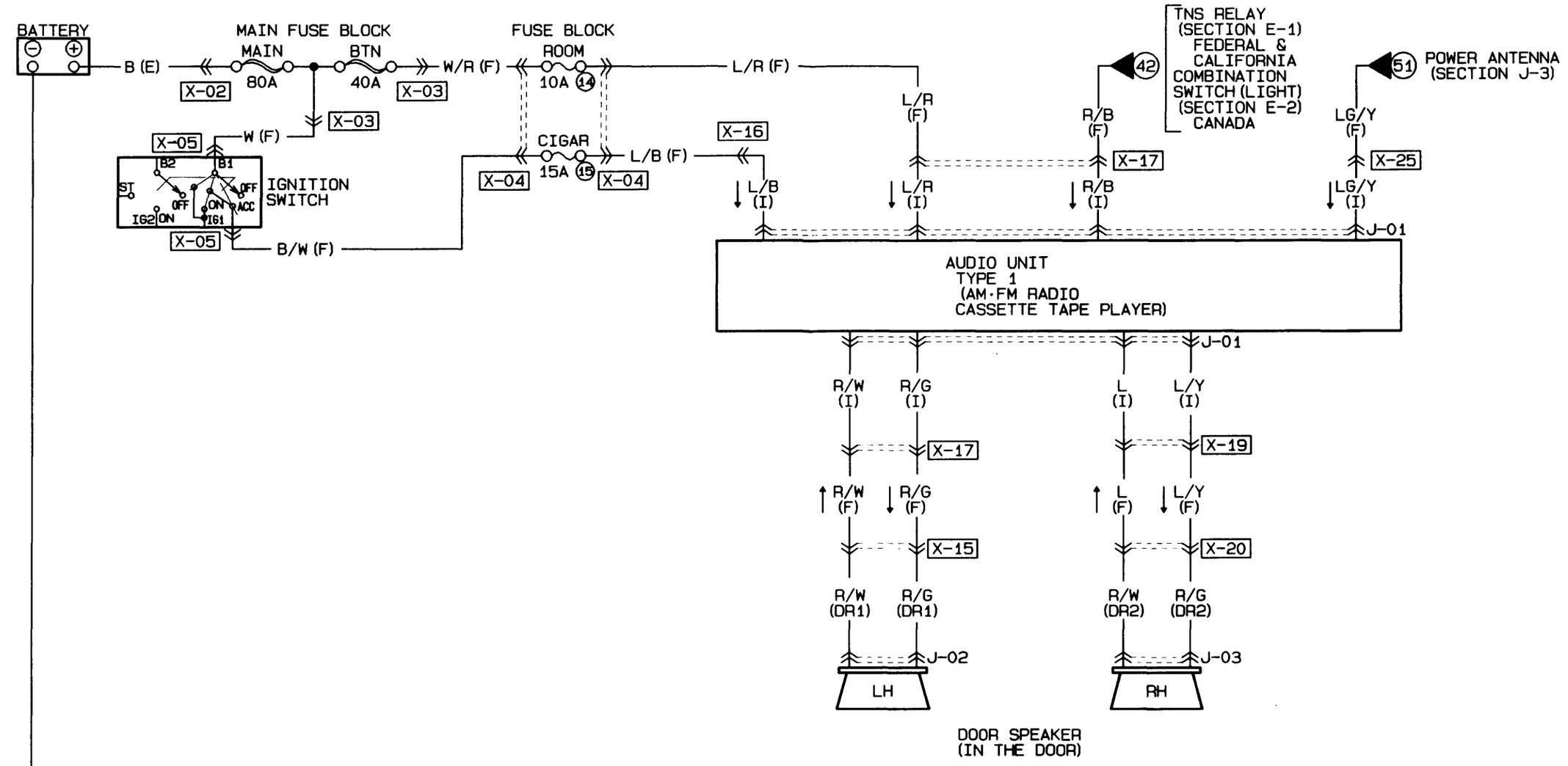
I2-01 CIGARETTE LIGHTER (I)	I2-02 INTERIOR LAMP LH (I)	I2-03 INTERIOR LAMP RH (I)	I2-04 DOOR SWITCH LH (R)	I2-05 DOOR SWITCH RH (R)	I2-06 FUSE BLOCK (E)	I2-07 REAR WINDOW DEFROSTER RELAY (R)
						
I2-08 REAR WINDOW DEFROSTER (R2)		I2-09 REAR WINDOW DEFROSTER SWITCH ILLUMI (I)		I2-10 REAR WINDOW DEFROSTER TIMER UNIT (F)		
						
I2-11 CONNECTOR BETWEEN REAR (R) & REAR NO.2 (R2)						
						

I-2


(BLACK)
RELAY & MAIN FUSE BLOCK
X-03
RELAY & MAIN FUSE BLOCK
X-02
JC-01
IGNITION SWITCH
X-05
(F) - (I)
X-17
(GREEN)
(F) - (I)
X-16
REAR WINDOW DEFROSTER TIMER UNIT
I2-10
X-04
FUSE BLOCK
X-14
(F) - (R)
X-13
(F) - (R)
X-25
(F) - (I)
X-18
(F) - (I)
CANADA
X-05
IGNITION SWITCH
(BLACK)
(R) - (E)
X-26
FUSE BLOCK
I2-06
(BLACK)
REAR WINDOW DEFROSTER RELAY
I2-07
(BLACK)
DOOR SWITCH RH
I2-05
REAR WINDOW DEFROSTER
I2-08
JC-07
I2-11
(R) - (R2)
I2-04
DOOR SWITCH LH
(BLACK)
X-13
(F) - (R)
X-14
(F) - (R)
INTERIOR LAMP RH
I2-03
(F) - (I)
X-17
(GREEN)
(F) - (I)
X-16
REAR WINDOW DEFROSTER SWITCH (ILLUM)
I2-09
I2-01
CIGARETTE LIGHTER
X-25
(F) - (I)
X 18
(F) - (I)
I2-02
INTERIOR LAMP LH

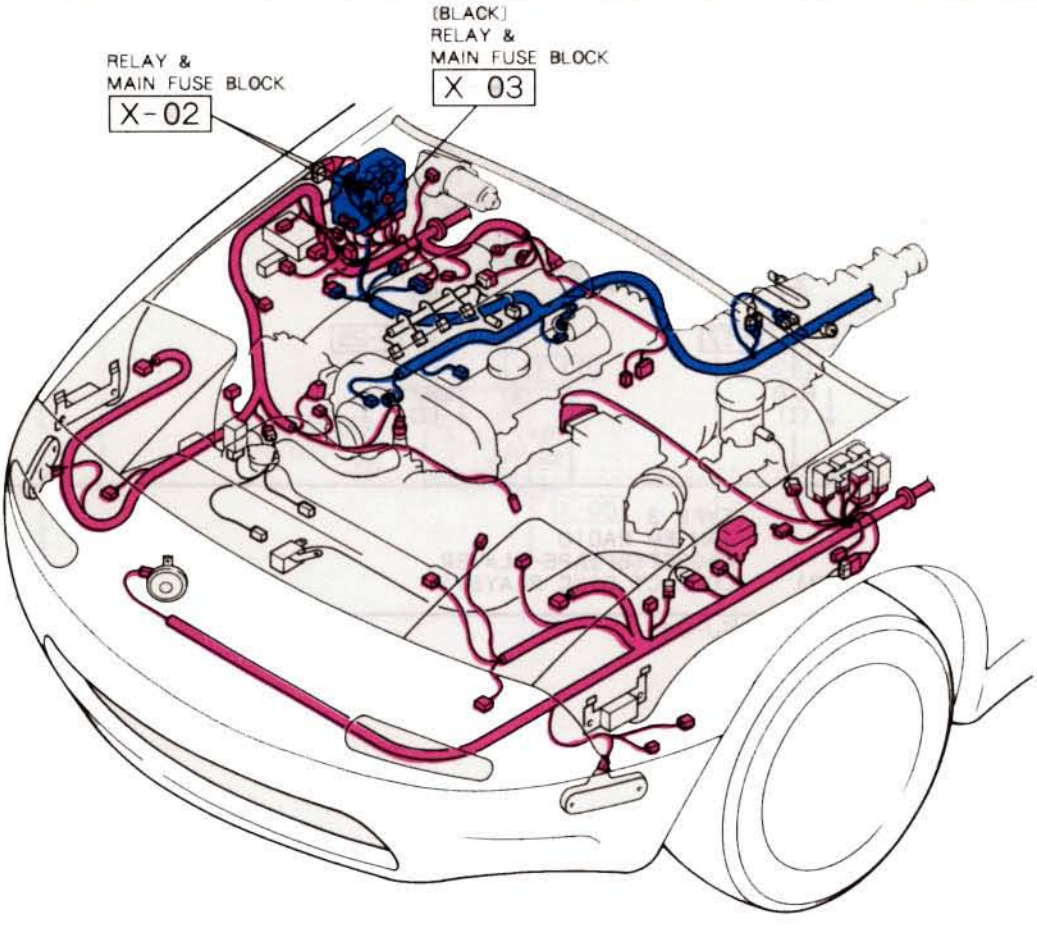
■ AUDIO SYSTEM (TYPE 1)

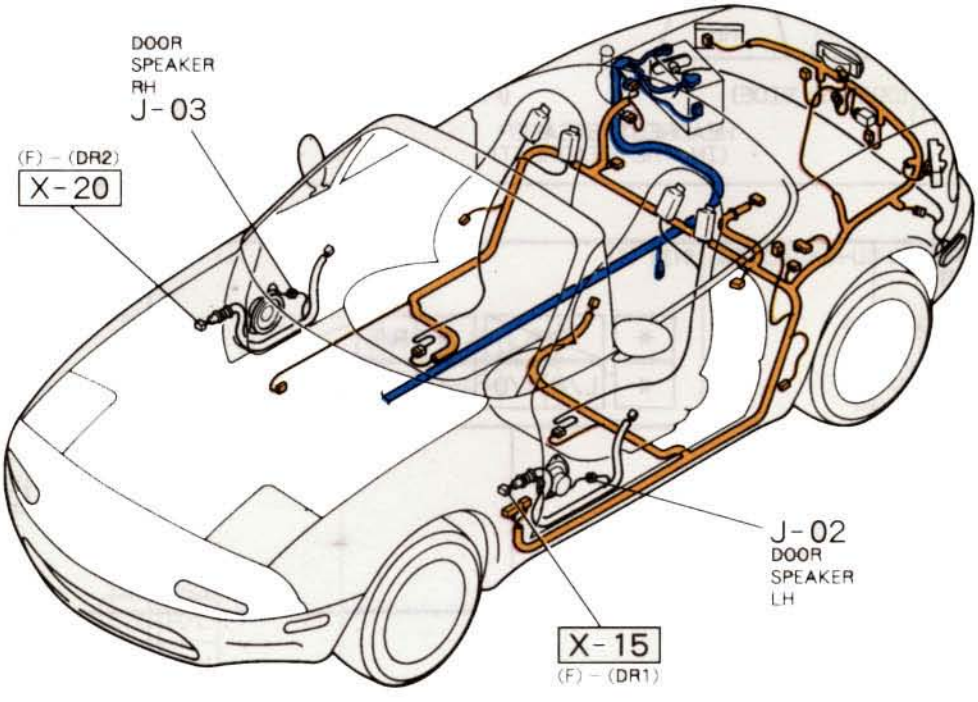
J-1

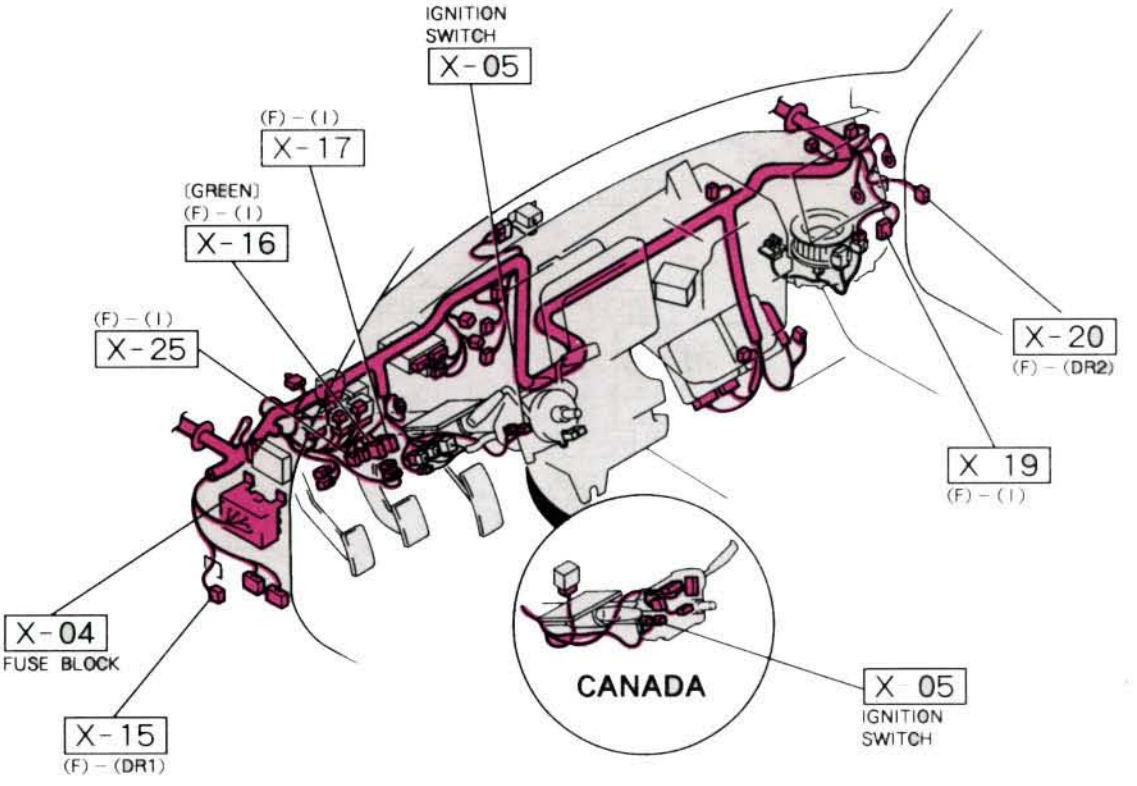


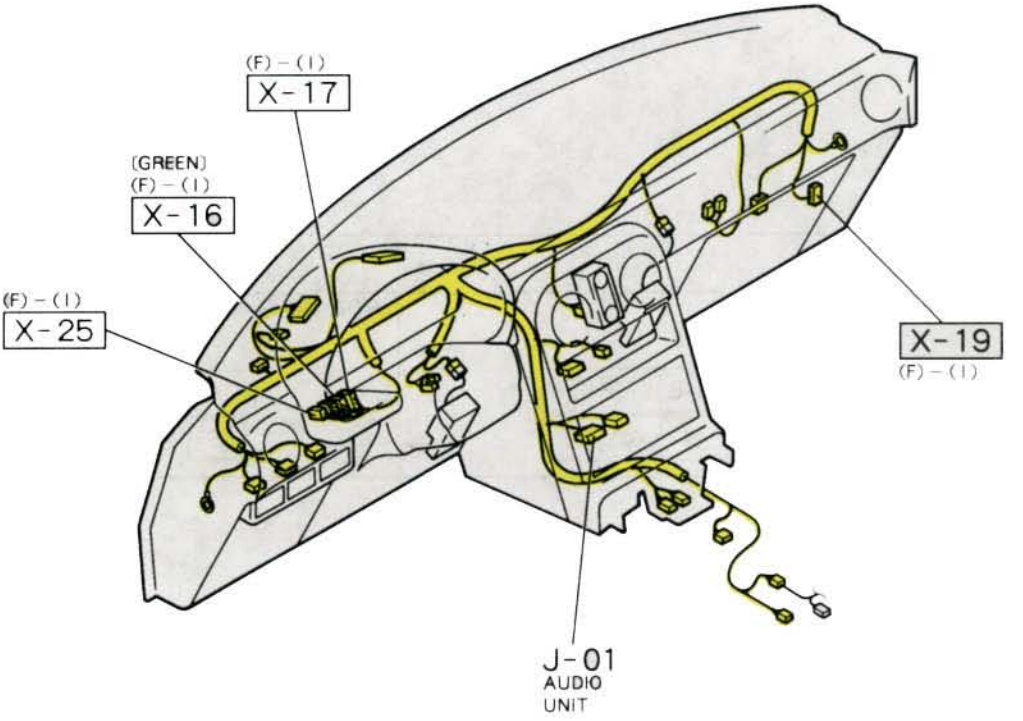
J-01 AUDIO UNIT (I)	J-02 DOOR SPEAKER LH (DR1)	J-03 DOOR SPEAKER RH (DR2)			
L/Y R/G ✕ R/B L/R L/B L R/W * * * LG/Y *	R/W R/G	R/W R/G			

J-1


RELAY &
MAIN FUSE BLOCK
X-02
(BLACK)
RELAY &
MAIN FUSE BLOCK
X 03

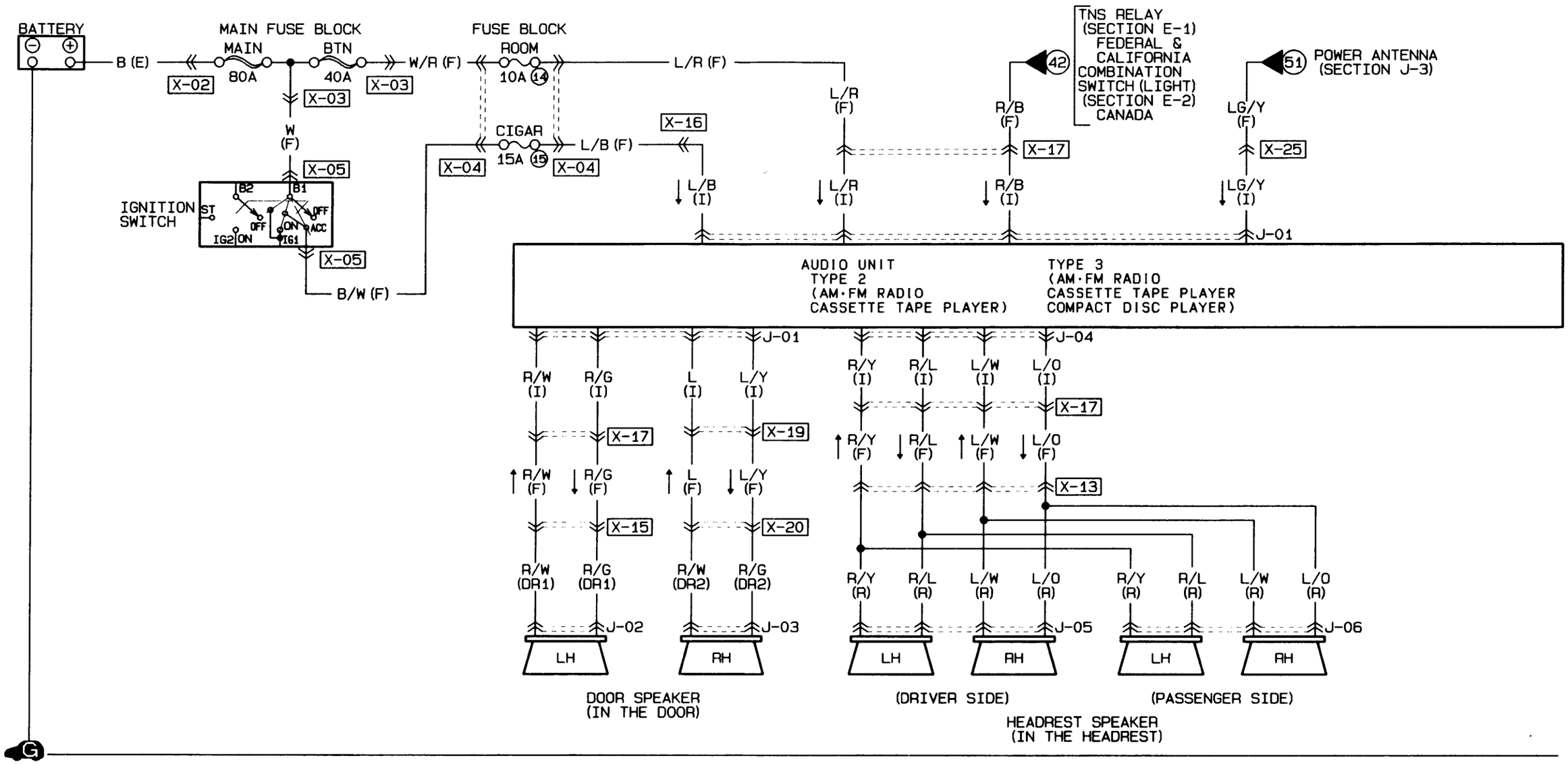

DOOR
SPEAKER
RH
J-03
(F) - (DR2)
X-20
J-02
DOOR
SPEAKER
LH
X-15
(F) - (DR1)


IGNITION SWITCH
X-05
(F) – (I)
X-17
(GREEN)
(F) – (I)
X-16
(F) – (I)
X-25
X-20
(F) – (DR2)
X 19
(F) – (I)
X-04
FUSE BLOCK
X-15
(F) – (DR1)
CANADA
X 05
IGNITION SWITCH


(F) – (I)
X-17
(GREEN)
(F) – (I)
X-16
(F) – (I)
X-25
X-19
(F) – (I)
J-01
AUDIO UNIT

■ AUDIO SYSTEM (TYPE 2, 3)

J-2



G

J-01 AUDIO UNIT (I)

L/Y	R/G			R/B	L/R	L/B
L	R/W	*	*	*	LG/Y	*

J-02 DOOR SPEAKER LH (DR1)

R/W
R/G

J-03 DOOR SPEAKER RH (DR2)

R/W
R/G

J-04 AUDIO UNIT (I)

*			*	R/L	
*	L/W	L/O	*	R/Y	

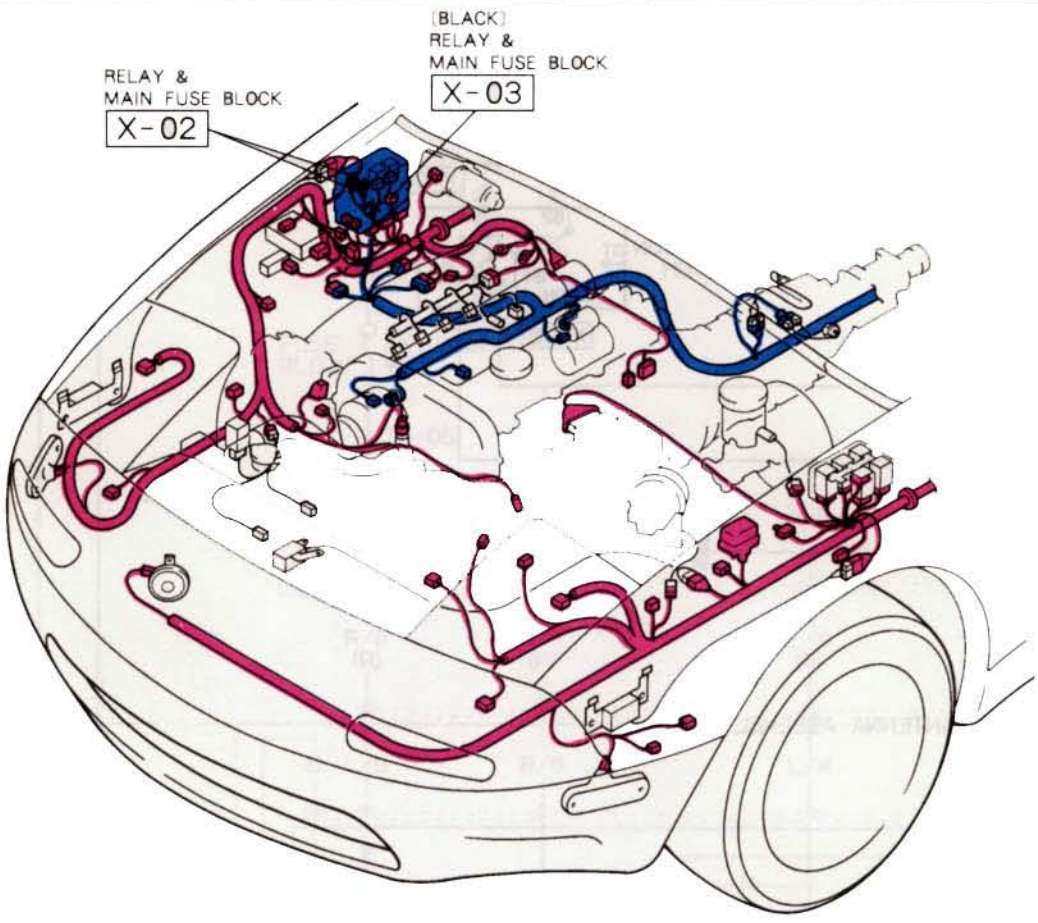
J-05 HEADREST SPEAKER (DRIVER SIDE) (R)

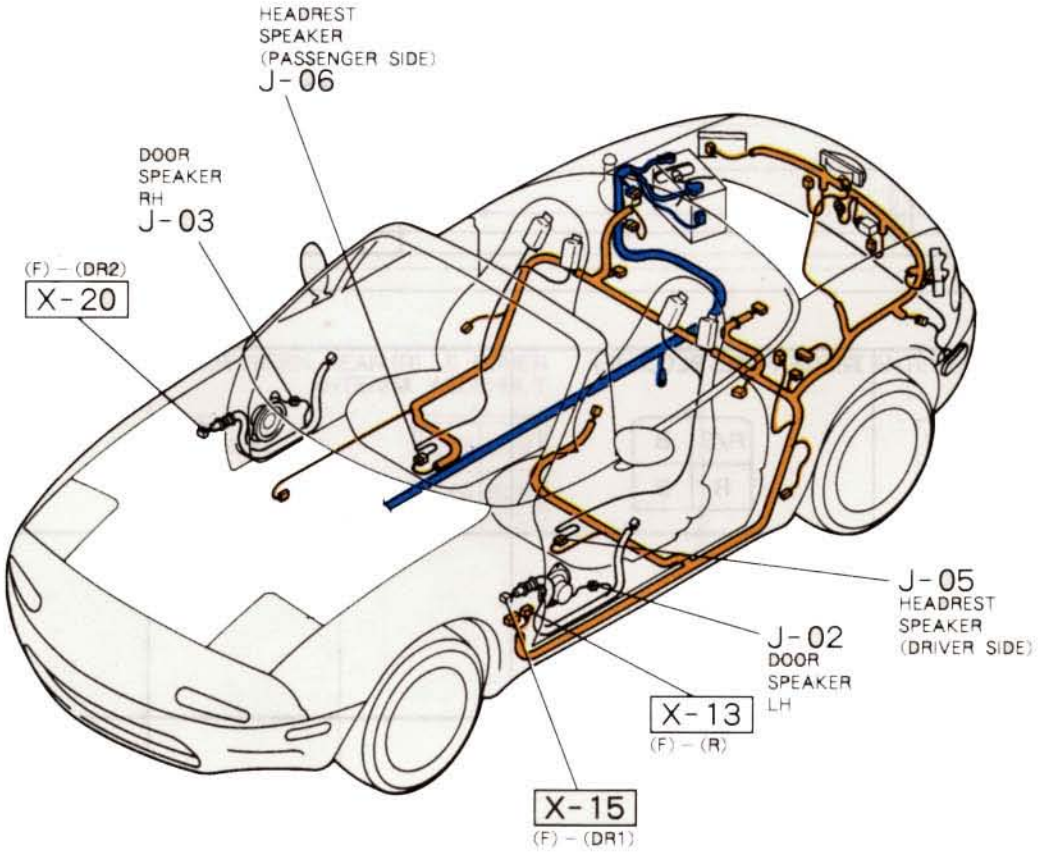
L/O	R/L
L/W	R/Y

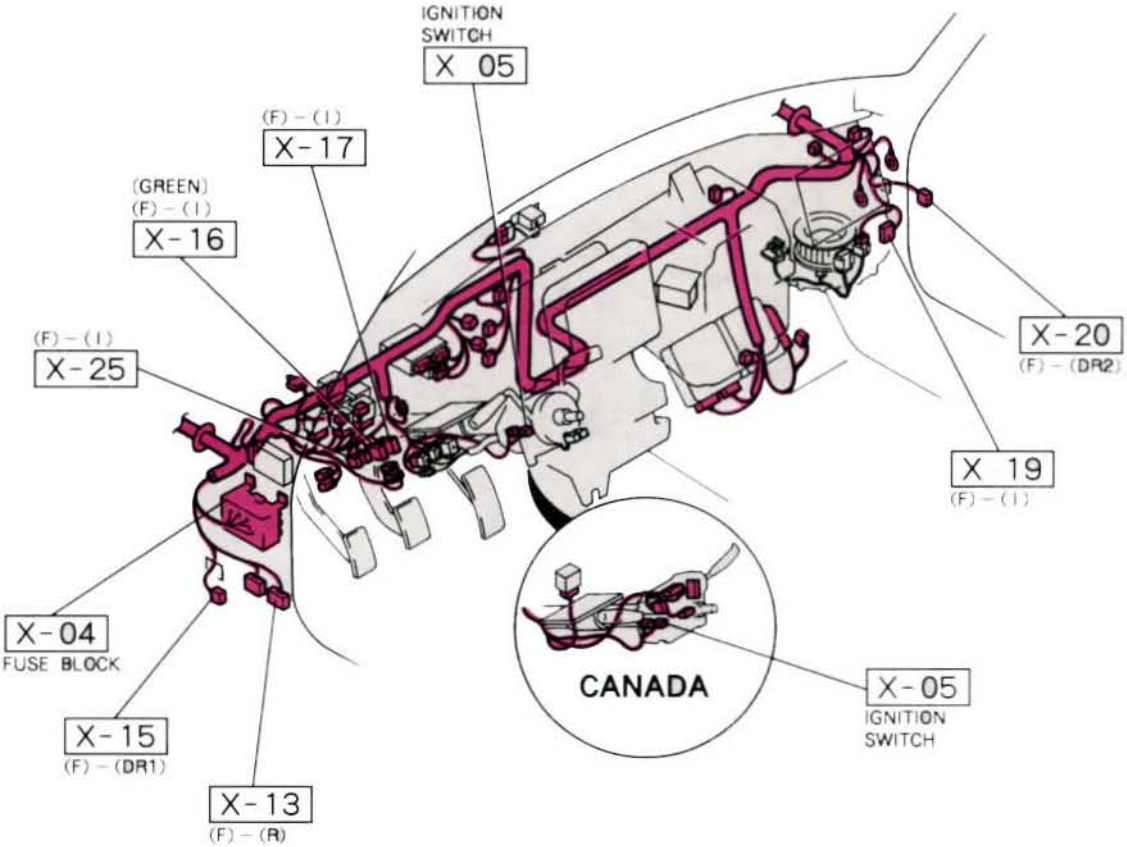
J-06 HEADRET SPEAKER (PASSENGER SIDE) (R)

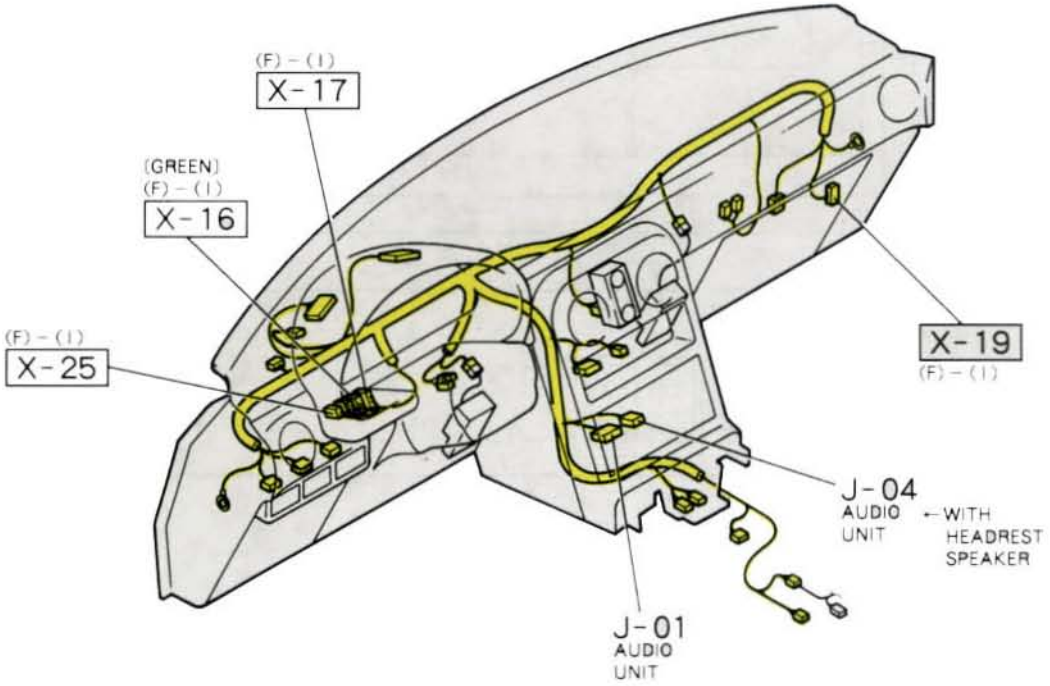
L/O	R/L
L/W	R/Y

J-2


RELAY &
MAIN FUSE BLOCK
X-02
(BLACK)
RELAY &
MAIN FUSE BLOCK
X-03

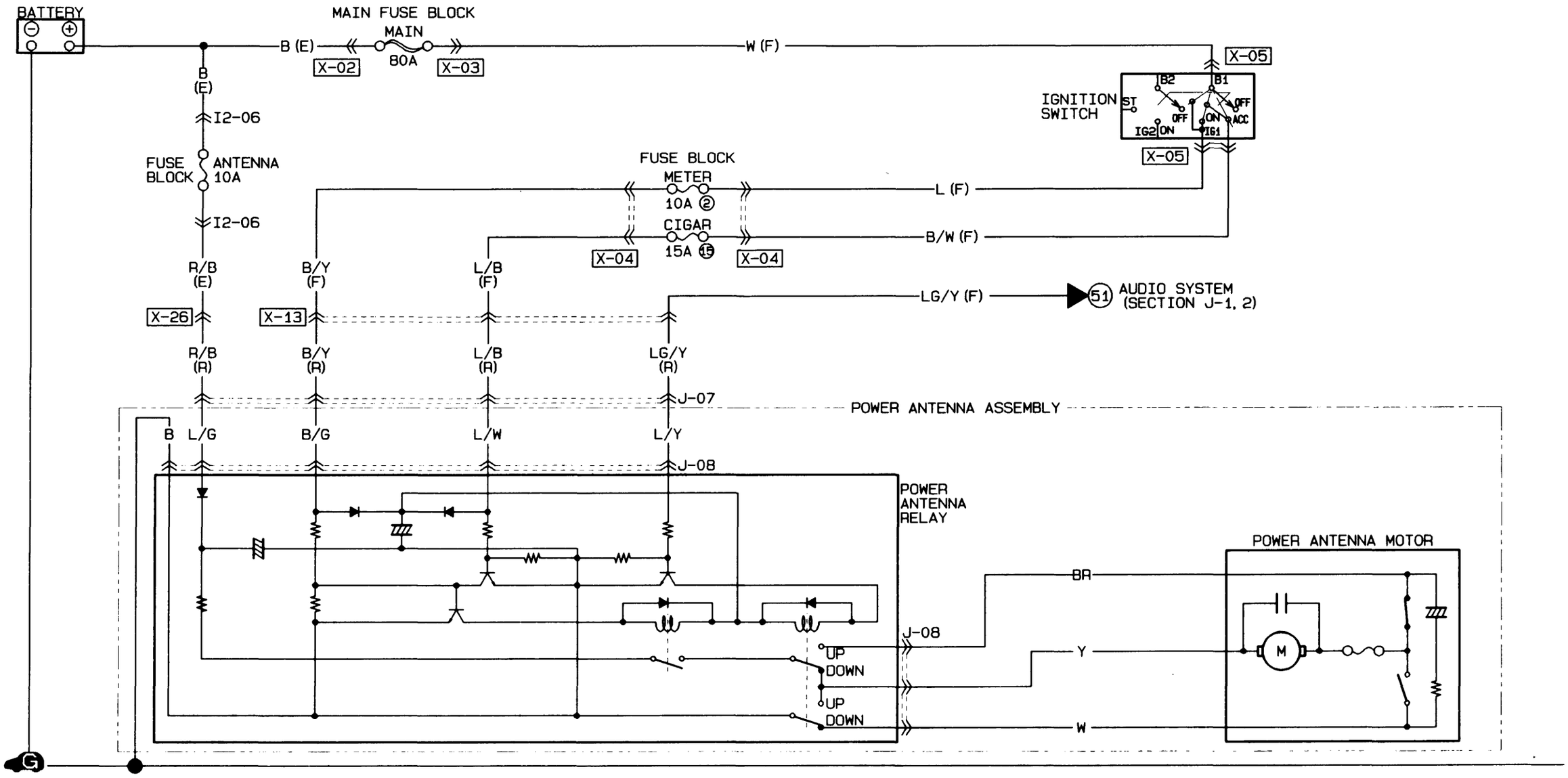

HEADREST
SPEAKER
(PASSENGER SIDE)
J-06
DOOR
SPEAKER
RH
J-03
(F) - (DR2)
X-20
J-05
HEADREST
SPEAKER
(DRIVER SIDE)
J-02
DOOR
SPEAKER
LH
X-13
(F) - (R)
X-15
(F) - (DR1)


IGNITION SWITCH
X 05
(F) – (I)
X-17
(GREEN)
(F) – (I)
X-16
(F) – (I)
X-25
X-20
(F) – (DR2)
X 19
(F) – (I)
X-04
FUSE BLOCK
X-15
(F) – (DR1)
X-13
(F) – (R)
CANADA
X-05
IGNITION SWITCH


(F) – (I)
X-17
(GREEN)
(F) – (I)
X-16
(F) – (I)
X-25
X-19
(F) – (I)
J-04
AUDIO UNIT
← WITH HEADREST SPEAKER
J-01
AUDIO UNIT

■ POWER ANTENNA

J-3



J-07 CONNECTOR BETWEEN REAR (R) & POWER ANTENNA ASSEMBLY

(R)

L/B	LG/Y
B/Y	R/B

L/Y	L/W
L/G	B/G

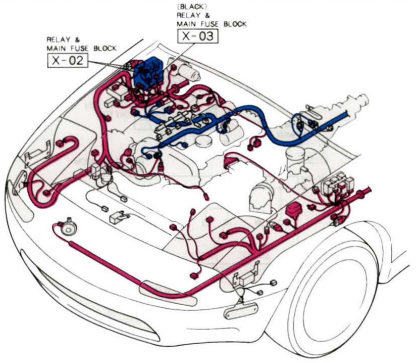
J-08 POWER ANTENNA RELAY

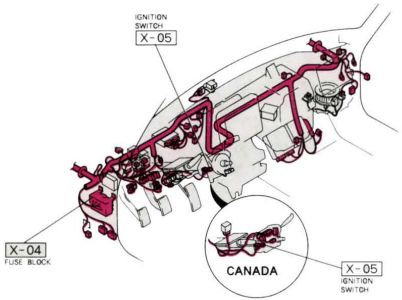
B/G	BR		W	L/Y
L/W	Y	B	*	L/G

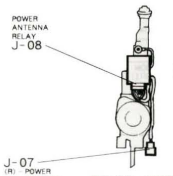
I2-06 FUSE BLOCK (E)

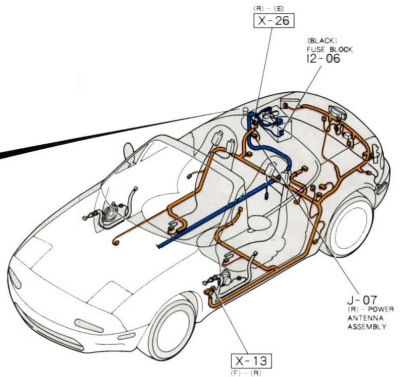
R/B	B
R	B

J-3


(BLACK)
RELAY &
MAIN FUSE BLOCK
X-03
RELAY &
MAIN FUSE BLOCK
X-02

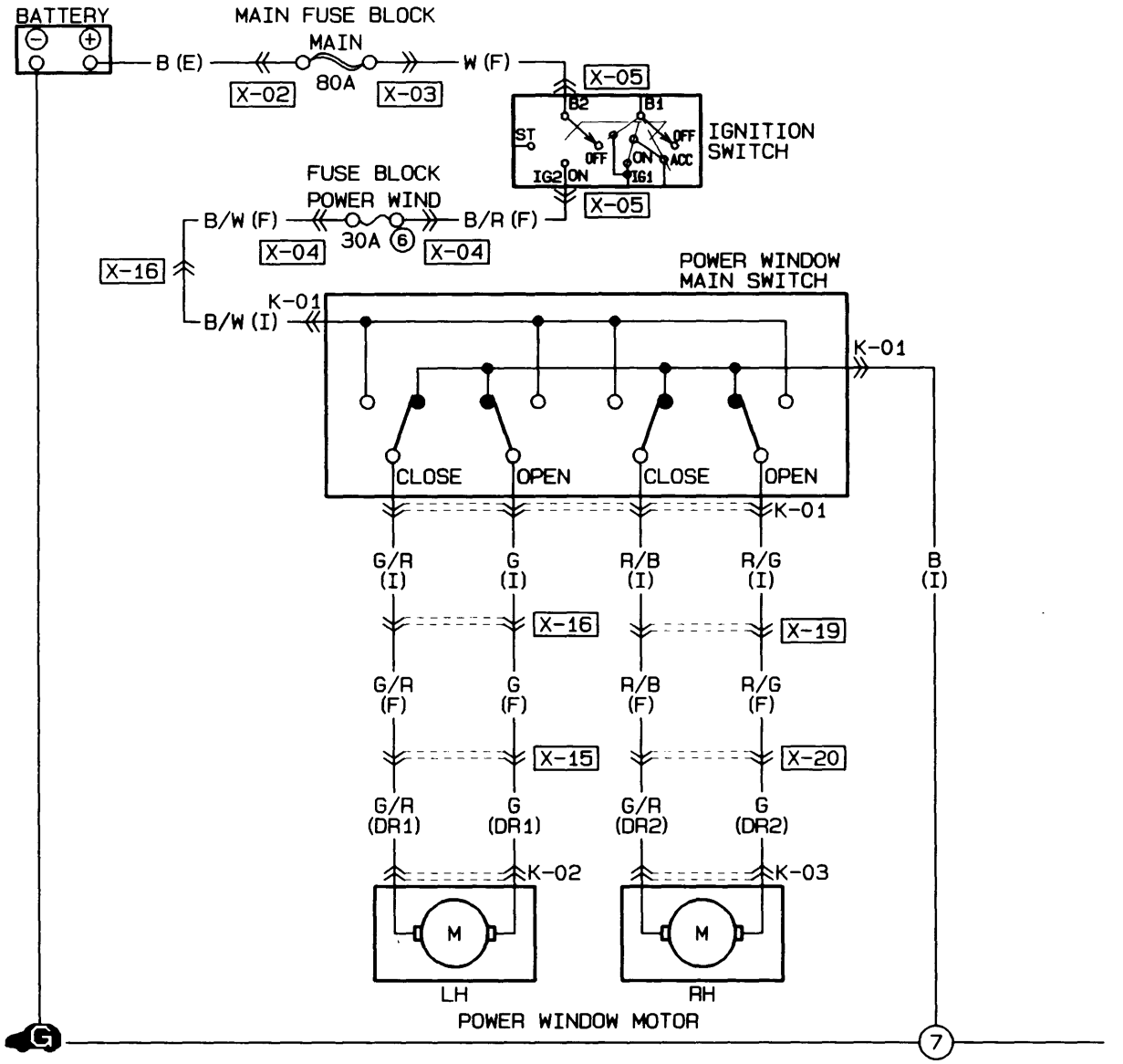

IGNITION
SWITCH
X-05
X-04
FUSE BLOCK
CANADA
X-05
IGNITION
SWITCH


POWER
ANTENNA
RELAY
J-08
J-07
(R) POWER
ANTENNA
ASSEMBLY
POWER ANTENNA
ASSEMBLY


(R) - (E)
X-26
(BLACK)
FUSE BLOCK
I2-06
J-07
(R) - POWER
ANTENNA
ASSEMBLY
X-13
(F) - (R)

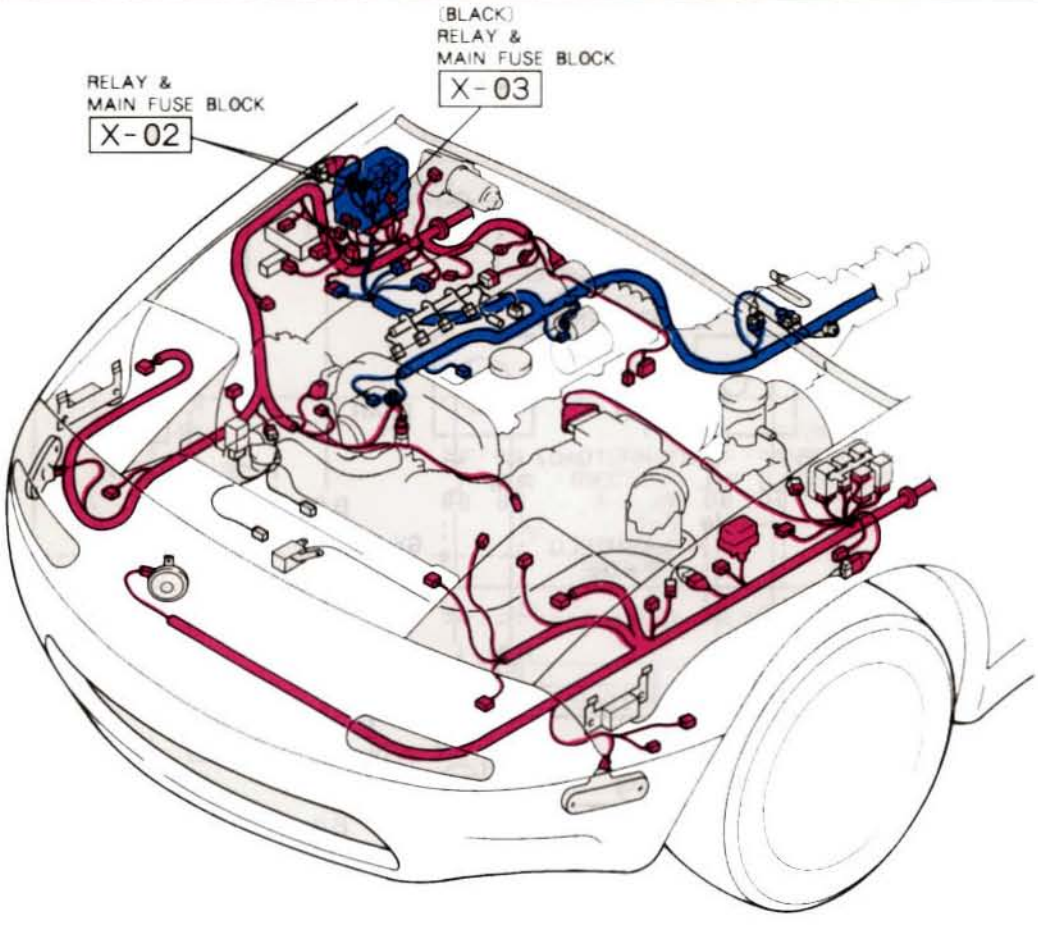
■ POWER WINDOW

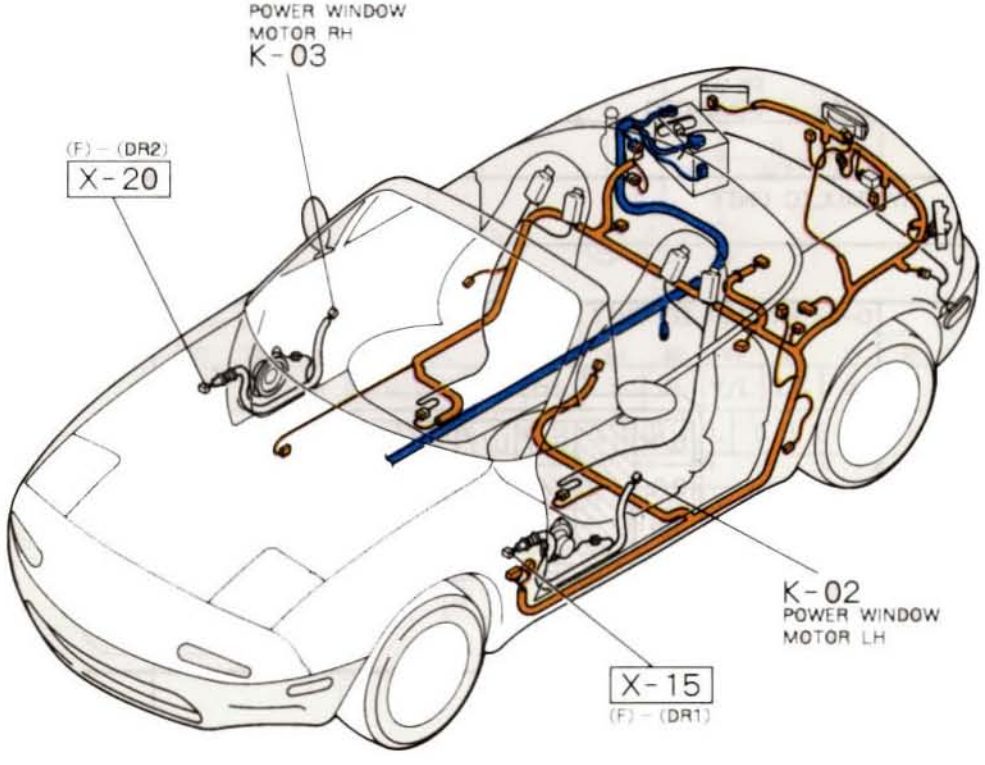
K

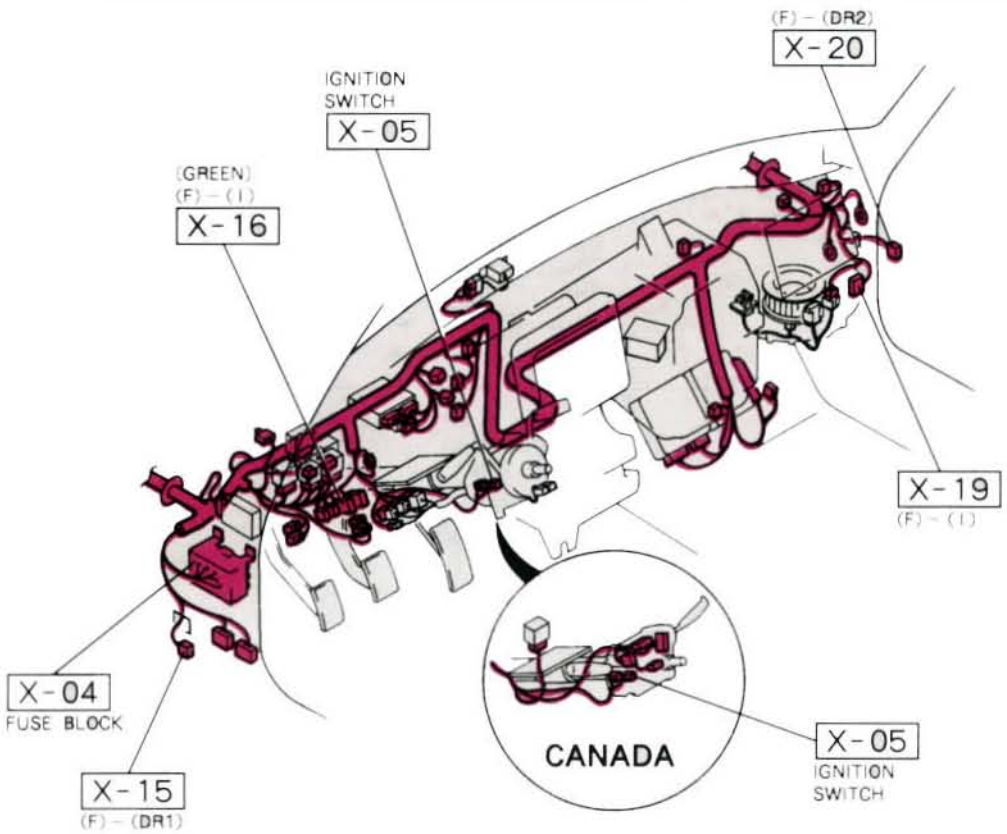


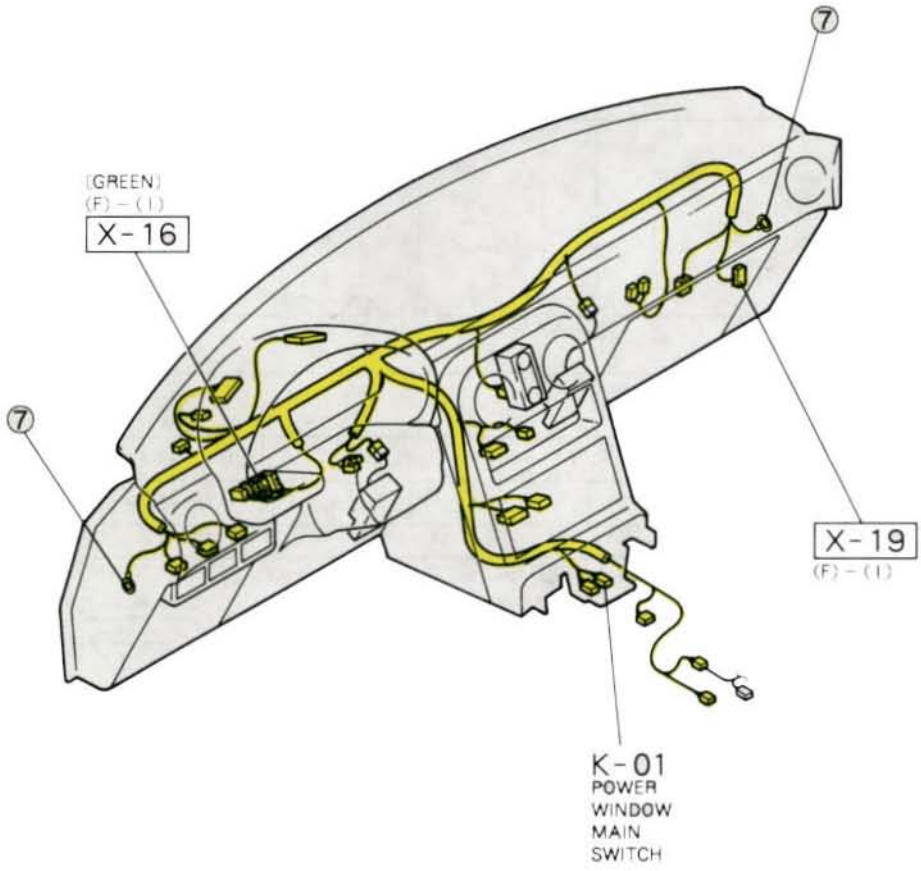
K-01 POWER WINDOW MAIN SWITCH (I)	K-02 POWER WINDOW MOTOR LH (DR1)	K-03 POWER WINDOW MOTOR RH (DR2)	
R/B | G/R | B/W R/G | G | B	G/R G	G/R G	

K

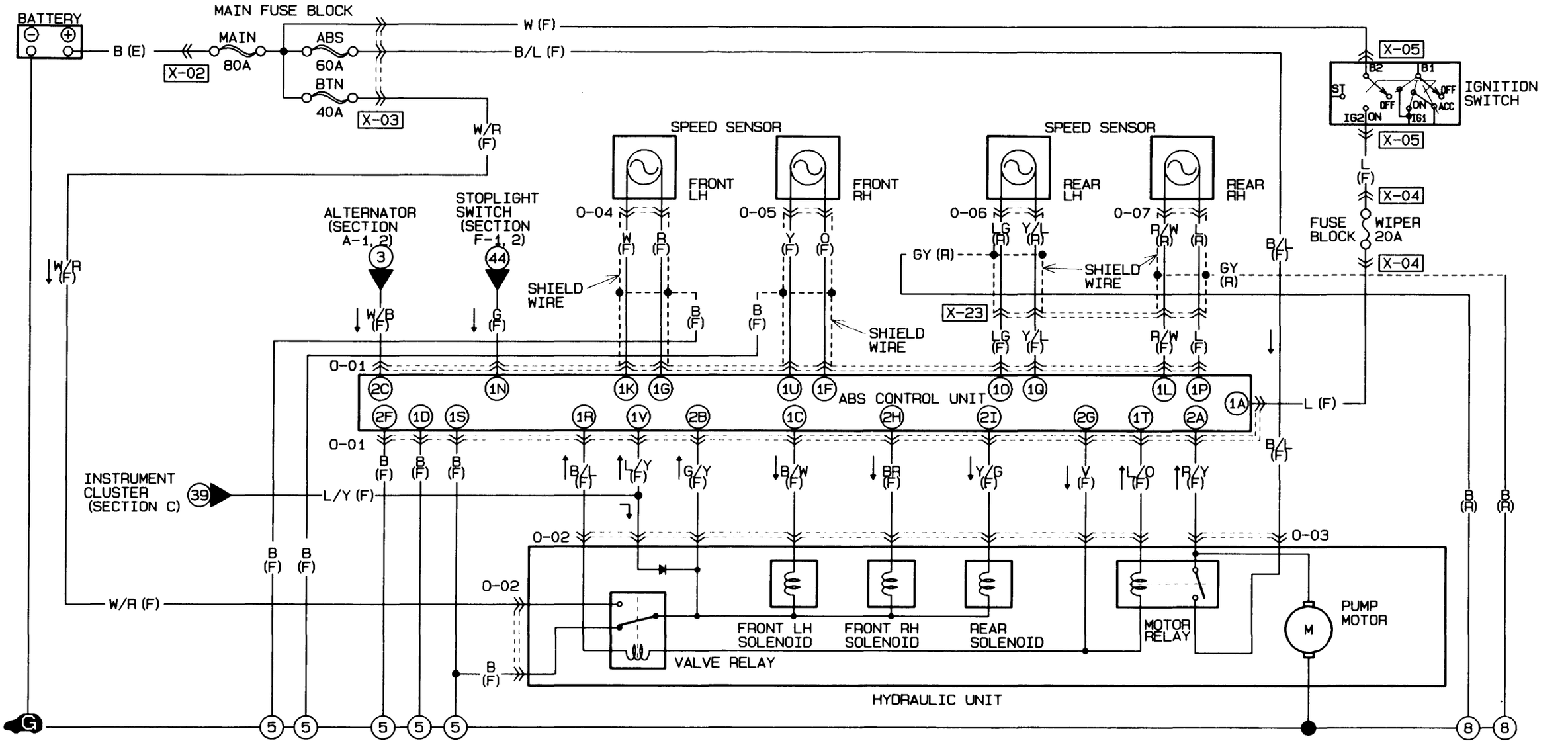

(BLACK)
RELAY &
MAIN FUSE BLOCK
X-03
RELAY &
MAIN FUSE BLOCK
X-02


POWER WINDOW
MOTOR RH
K-03
(F) - (DR2)
X-20
K-02
POWER WINDOW
MOTOR LH
X-15
(F) - (DR1)


(F) – (DR2)
X-20
IGNITION SWITCH
X-05
(GREEN)
(F) – (I)
X-16
X-19
(F) – (I)
X-04
FUSE BLOCK
X-15
(F) – (DR1)
CANADA
X-05
IGNITION SWITCH


⑦
(GREEN)
(F) – (I)
X-16
⑦
X-19
(F) – (I)
K-01
POWER WINDOW MAIN SWITCH

■ ABS (ANTI-LOCK BRAKE SYSTEM)



O-01 ABS CONTROL UNIT (F)

2I	2G	2E	2C	2A	1Y	1W	1U	1S	1Q	1O	1M	1K	1I	1G	1E	1C	1A
Y/G	V	*	W/B	R/Y	*	*	Y	B	Y/L	LG	*	W	*	R	*	B/W	L
BR	B	*	G/Y	*	*	L/Y	L/O	B/L	L	G	R/W	*	*	O	B	*	
2H	2F	2D	2B	1Z	1X	1V	1T	1R	1P	1N	1L	1J	1H	1F	1D	1B	

O-02 HYDRAULIC UNIT (F)

B/W		G/Y	L/Y	L/O
B/L		Y/G	B	*
BR		W/R	V	*

O-03 HYDRAULIC UNIT (F)

B/L	R/Y

O-04 SPEED SENSOR FRONT LH (F)

R	W

O-05 SPEED SENSOR FRONT RH (F)

O	Y

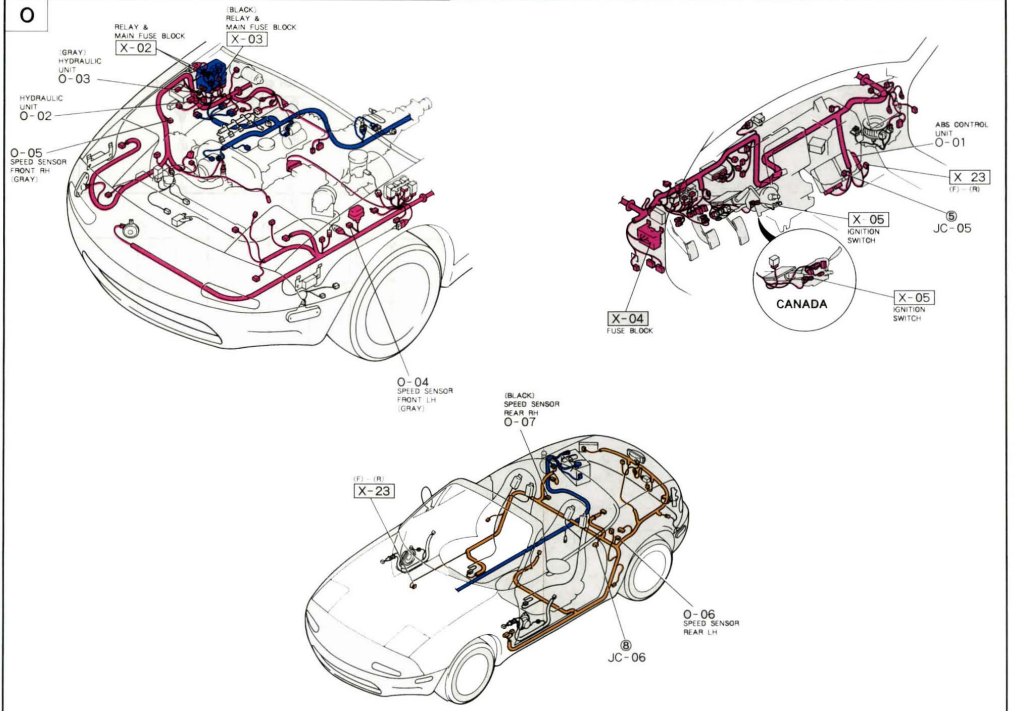
O-06 SPEED SENSOR REAR LH (R)

Y/L	LG

O-07 SPEED SENSOR REAR RH (R)

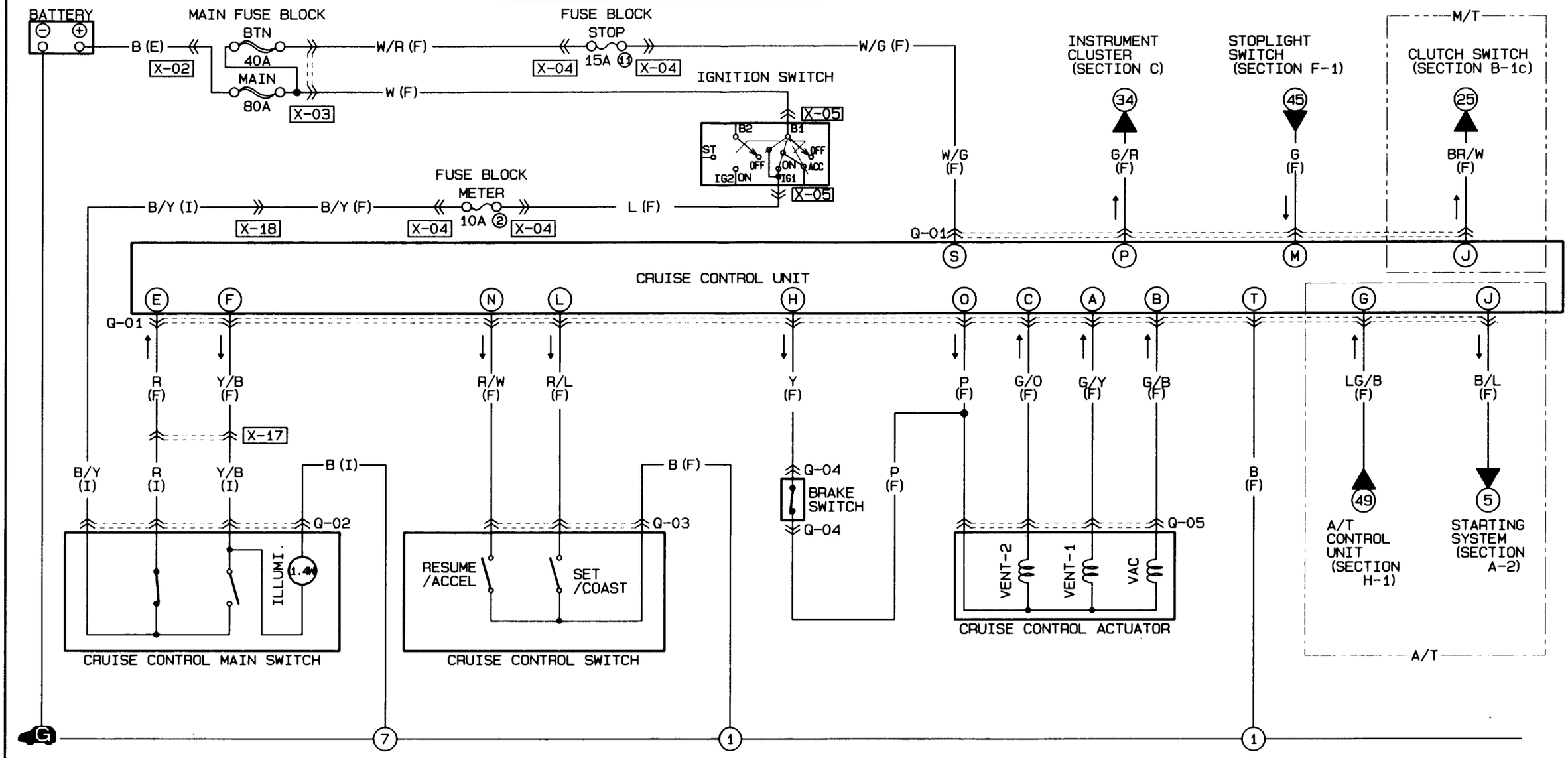
L	R/W

O

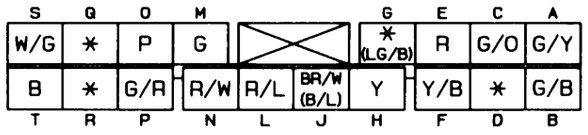

RELAY & MAIN FUSE BLOCK
X-02
(BLACK) RELAY & MAIN FUSE BLOCK
X-03
(GRAY) HYDRAULIC UNIT
O-03
HYDRAULIC UNIT
O-02
O-05 SPEED SENSOR FRONT RH (GRAY)
O-04 SPEED SENSOR FRONT LH (GRAY)
ABS CONTROL UNIT
O-01
X-23
(F) - (R)
X-05 IGNITION SWITCH
⑤
JC-05
CANADA
X-05 IGNITION SWITCH
X-04 FUSE BLOCK
(BLACK) SPEED SENSOR REAR RH
O-07
(F) - (R)
X-23
O-06 SPEED SENSOR REAR LH
⑧
JC-06

FEDERAL & CALIFORNIA ■ CRUISE CONTROL SYSTEM

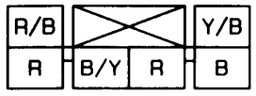
Q



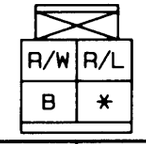
Q-01 CRUISE CONTROL UNIT (F)



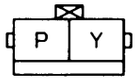
Q-02 CRUISE CONTROL MAIN SWITCH (I)



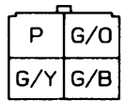
Q-03 CRUISE CONTROL SWITCH (F)



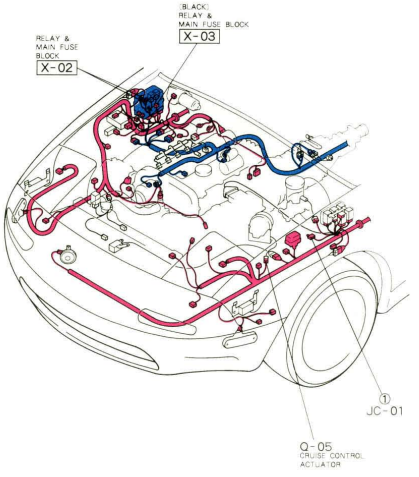
Q-04 BRAKE SWITCH (F)

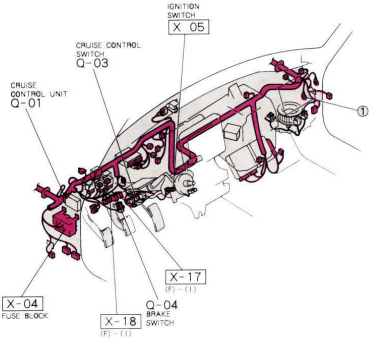


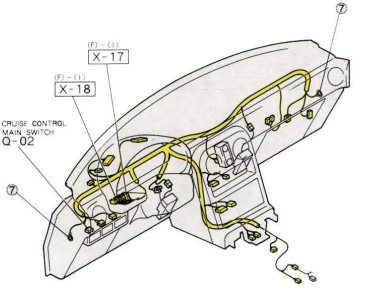
Q-05 CRUISE CONTROL ACTUATOR (F)



Q


BLACK
RELAY &
MAIN FUSE BLOCK
X-03
RELAY &
MAIN FUSE
BLOCK
X-02
① JC-01
Q-05
CRUISE CONTROL
ACTUATOR


IGNITION
SWITCH
X-05
CRUISE
CONTROL
SWITCH
Q-03
CRUISE
CONTROL UNIT
Q-01
①
X-17
(F)-(I)
X-04
FUSE BLOCK
X-18
(F)-(I)
Q-04
BRAKE
SWITCH

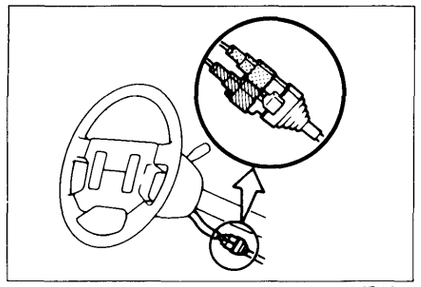

⑦
(F)-(I)
X-17
(F)-(I)
X-18
CRUISE CONTROL
MAIN SWITCH
Q-02
⑦

Terminal Voltage

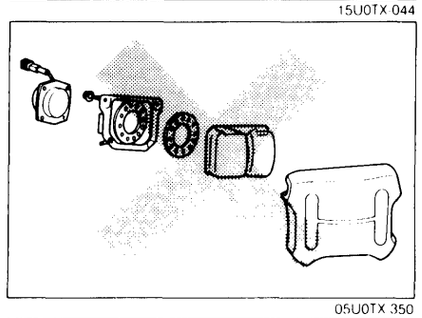
VB: Battery voltage

Terminal	Wire color	Connected to	Test condition	Specification	Action
a	G/Y	Actuator	Main switch off	0V	Go to Step 8
			Main switch on	9V	
b	G/B	Actuator	Main switch off	0V	
			Main switch on	9V	
c	G/O	Actuator	Main switch off	0V	
			Main switch on	9V	
e	R	Main switch	Main switch off	VB	Repair wire (R) (Main switch—Cruise control unit)
			Main switch off	0V	
f	Y/B	Main switch	Main switch off	0V	Repair wire (Y/B) (Main switch—Cruise control unit)
			Main switch on	VB	
g	LG/B	AT control unit	Ignition switch off	0V	Go to Section K
			Ignition switch on	VB	
h	Y	Brake switch	Brake pedal depressed	0V	Go to Step 4
			Brake pedal released	9V	
j	B/L	Inhibitor switch	Shift to "N" or "P" range	0V	Go to Section K
			Shift to other range	5V	
	BR/W	Clutch switch	Clutch pedal depressed	0V	Go to Step 5
			Clutch pedal released	VB	
l	R/L	Cruise control switch (Set switch and coast switch)	Main switch ON	VB	Go to Step 6
			While turning set switch after main switch ON	0V	
m	G	Stoplight switch	Brake pedal depressed	VB	Go to Step 7
			Brake pedal released	0V	
n	R/W	Cruise control switch (Resume switch and accel switch)	Main switch ON	VB	Go to Step 6
			While turning resume switch after main switch ON	0V	
o	P	Actuator	Main switch OFF	0V	Go to Step 8
			Main switch ON	9V	
p	G/R	Speed sensor	While rotating rear tires	Run out between 0—5V	Go to Step 9
s	W/G	Battery	Constant	VB	Repair wire (W/G)
t	B	Ground	Constant	0V	Repair wire (B)

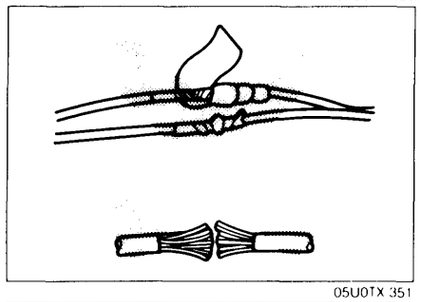
AIR BAG SYSTEM



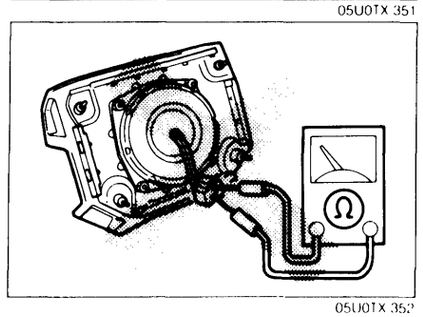
15U0TX 044



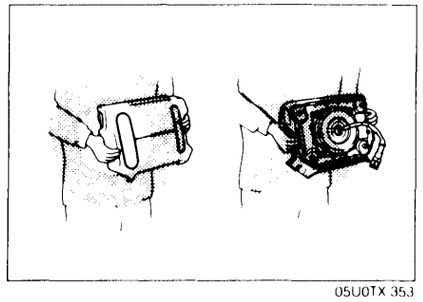
05U0TX 350



05U0TX 351



05U0TX 352



05U0TX 353

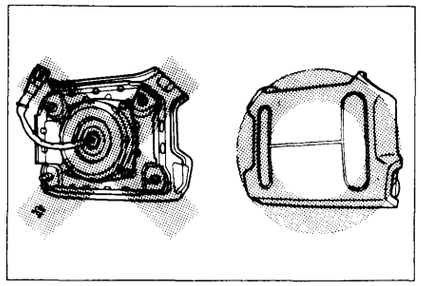
SERVICE PRECAUTION

1. BEFORE COMPONENT REPLACEMENT
   - Obtain the code number and deactivate the audio anti-theft function before disconnecting the battery.
   - Before replacement of any air bag system component or before disconnecting any connector of the system, first disconnect the negative battery cable; then disconnect the clock spring connectors (orange and blue).

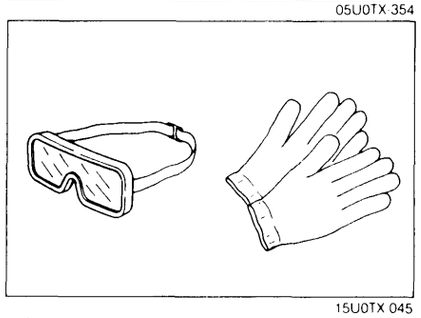
2. PROHIBITION OF COMPONENT DISASSEMBLY AND WIRE HARNESS REPAIR
   - The components of the air bag system are not intended to be disassembled for service. If a component failure is detected by the diagnostic module, replace the suspected component after checking the connections and the wire harness. Do not disassemble any component.
   - If an open circuit is found by a continuity test, replace the wire harness. Do not try to repair the wiring.

3. HANDLING OF AIR BAG MODULE
   - Do not use an ohmmeter for inspection of the air bag module. It may cause an accidental deployment of the air bag.
   - When carrying a live (unactivated) air bag module, make sure the trim cover is pointed away from your body to prevent personal injury in the event of an accidental deployment.

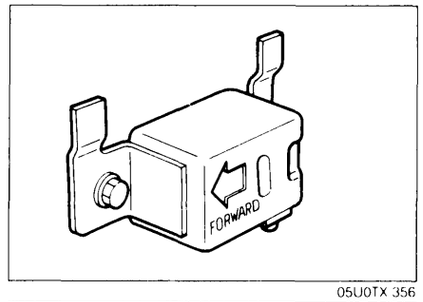
AIR BAG SYSTEM



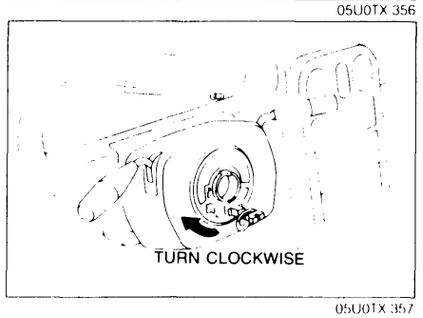
05U0TX 354



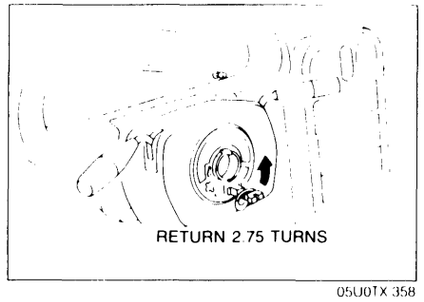
15U0TX 045



05U0TX 356



05U0TX 357



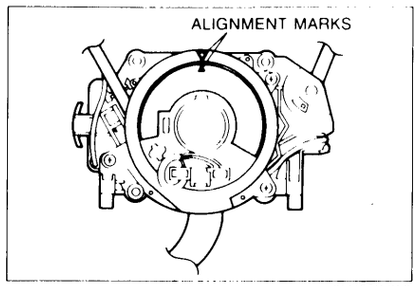
05U0TX 358

   - When placing a live air bag module on any surface, always face the trim cover upward to reduce the motion of the module if it is accidentally deployed.
   - When handling a deployed air bag module, wear gloves and safety glasses, because the deployed air bag module may contain deposits of sodium hydroxide, a caustic by-product of the gas generant combustion.
   - When an air bag module is to be disposed following the proper procedure recommended for the specific situation.

4. CRASH SENSOR INSTALLATION
   - Crash sensor orientation is very important for proper operation. If a vehicle is involved in a collision where its front sheet metal is damaged, inspect the body structure at the sensor mounting area for deformation. If damaged, restore to its original shape.
   - When installing a crash sensor, be sure to tighten the mounting bolts to the specified torque because the sensor is grounded through the crash sensor's mounting plate.

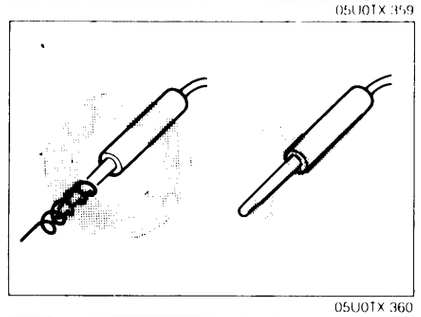
5. ADJUSTMENT OF CLOCK SPRING CONNECTOR
   - Whenever the steering wheel is removed, before reinstalling it, set the clock spring connector as follows:
     1. Set the front wheels straight ahead.
     2. Turn the clock spring connector clockwise until it stops. (Do not force it.)
     3. Return the connector 2.75 turns.

AIR BAG SYSTEM

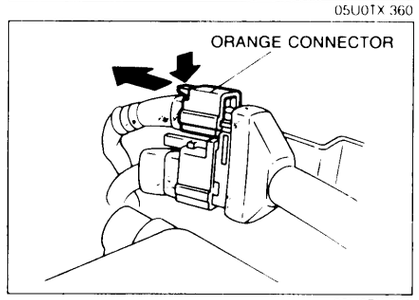


05U0TX359

4. Align the marks on the clock spring connector and the outer housing.

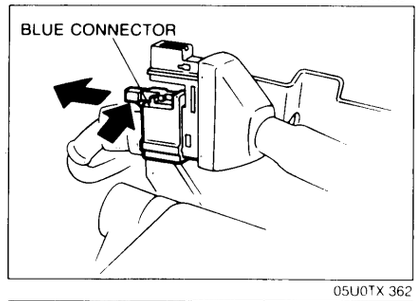

05U0TX360

6. When Using Test Lead
   - When using a test lead for testing, use a fine needle to prevent damage to the terminal.



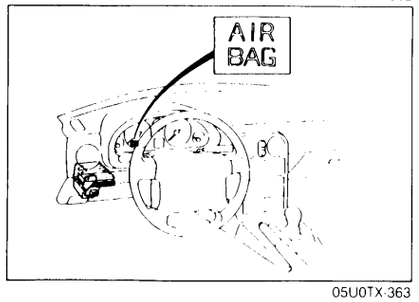
05U0TX361

7. Disconnecting Double Lock Type Connector
   - The connectors in the air bag system use a double lock type connector.
   - These connectors are disconnected as below.
     1) Press the orange knob and disconnect the orange connector.



05U0TX362

2) Press the blue knob and disconnect the blue connector.
3) Connect the connectors in the reverse order of disconnecting.

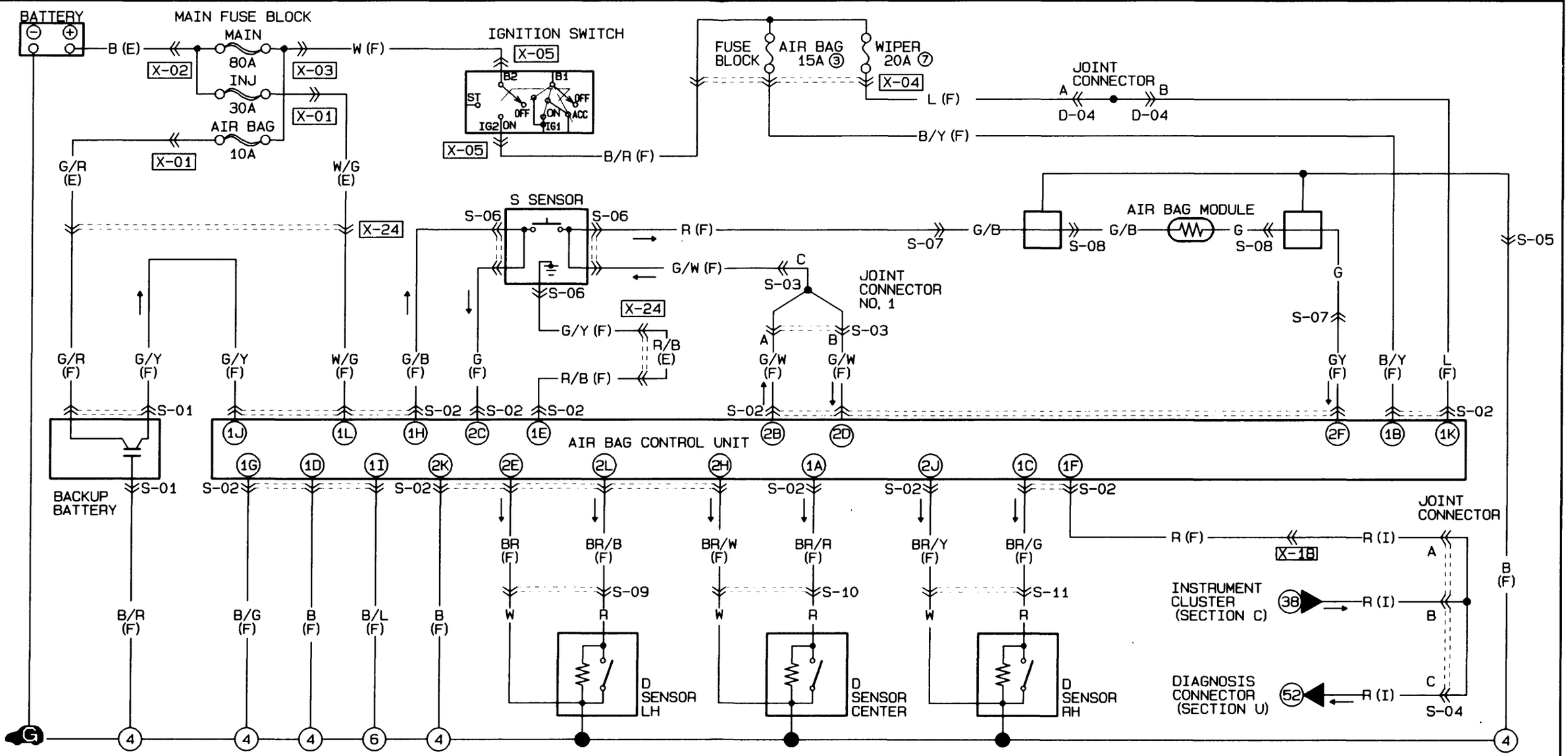


05U0TX363

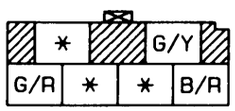
8. After System Service
   - After system service verify system operation by checking with the air bag system warning lamp. If the system is operating normally, the warning lamp will come on when the ignition switch is turned ON, then go off after approximately 6 seconds.
   - Check if the horn sounds. If the horn does not sound, remove the air bag module and check the connections of the air bag module and horn switch connectors.

FEDERAL & CALIFORNIA ■ AIR BAG CONTROL SYSTEM

S

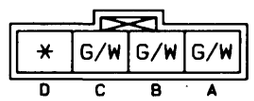


S-01 BACKUP BATTERY (F)

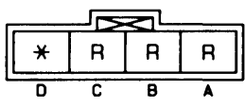


S-02 AIR BAG CONTROL UNIT (F)

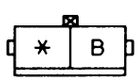
S-03 JOINT CONNECTOR NO. 1 (F)



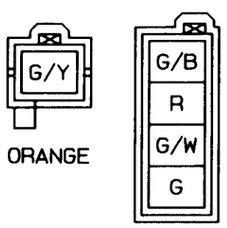
S-04 JOINT CONNECTOR (I)



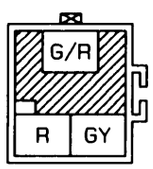
S-05 COMBINATION SWITCH (F)



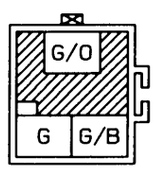
S-06 S SENSOR (F)



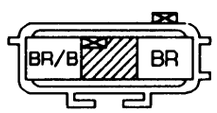
S-07 COMBINATION SWITCH (F)



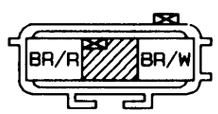
S-08 AIR BAG MODULE



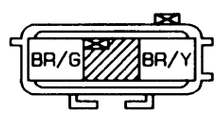
S-09 D SENSOR LH (F)



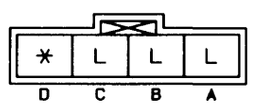
S-10 D SENSOR CENTER (F)



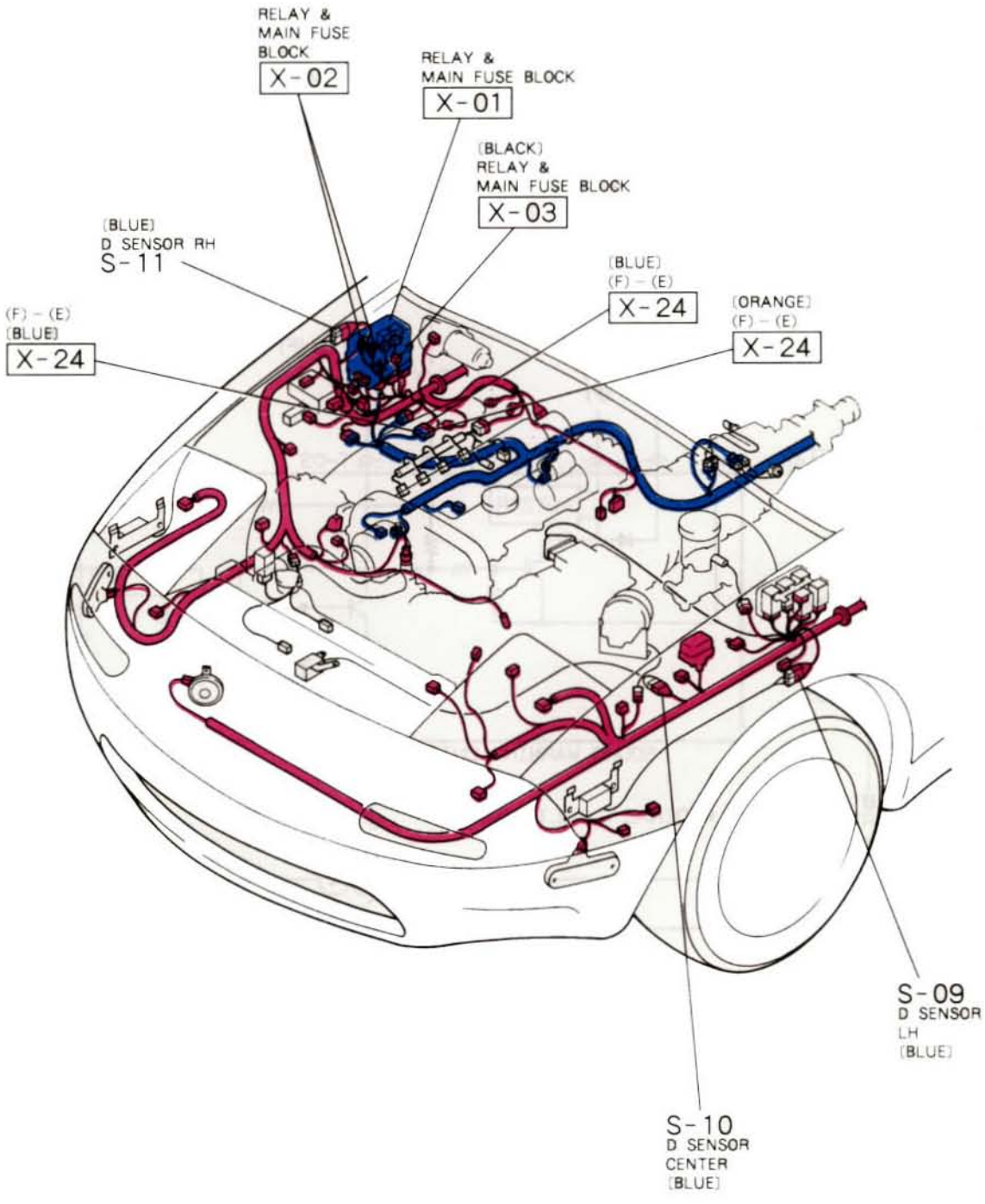
S-11 D SENSOR RH (F)

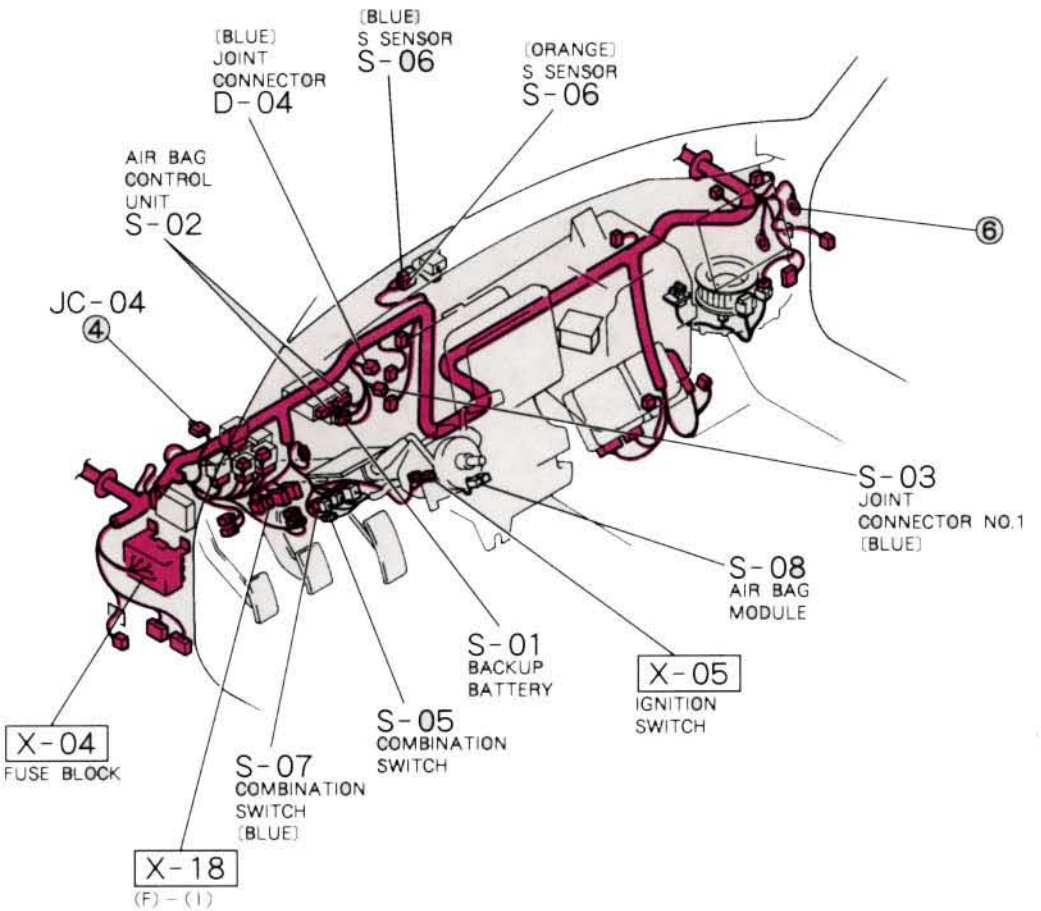


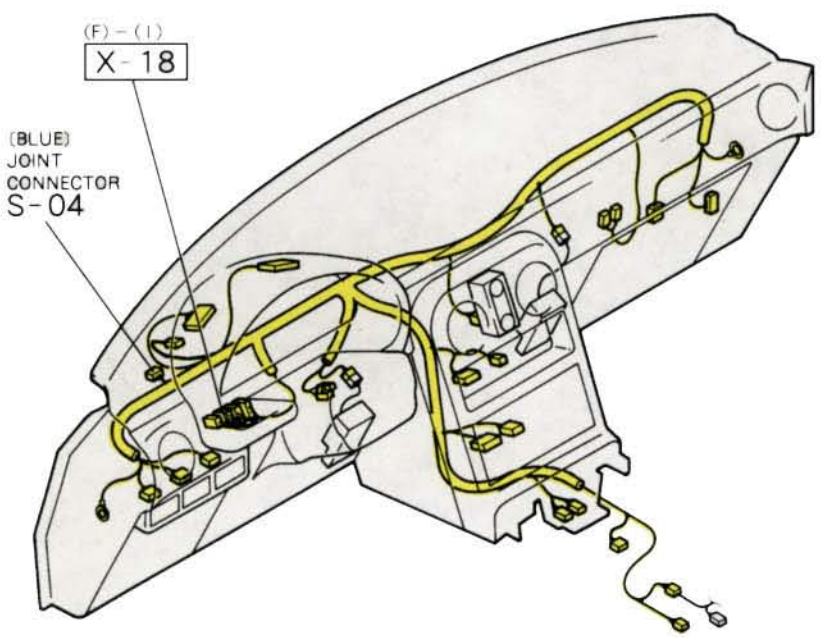
D-04 JOINT CONNECTOR (F)



S

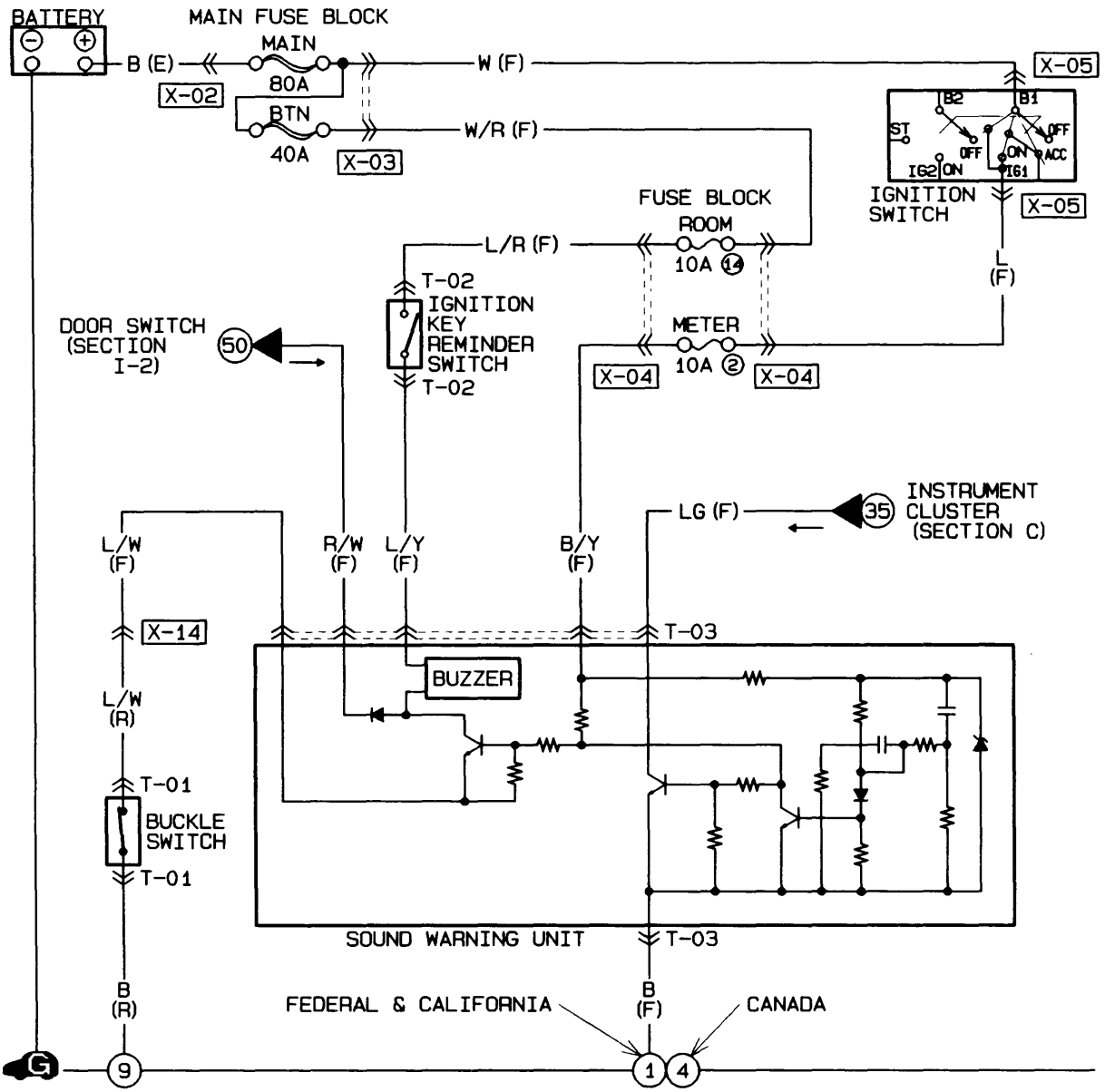

RELAY & MAIN FUSE BLOCK
X-02
RELAY & MAIN FUSE BLOCK
X-01
(BLACK)
RELAY & MAIN FUSE BLOCK
X-03
(BLUE)
D SENSOR RH
S-11
(F) - (E)
(BLUE)
X-24
(BLUE)
(F) - (E)
X-24
(ORANGE)
(F) - (E)
X-24
S-09
D SENSOR
LH
(BLUE)
S-10
D SENSOR
CENTER
(BLUE)


(BLUE)
JOINT
CONNECTOR
D-04
(BLUE)
S SENSOR
S-06
(ORANGE)
S SENSOR
S-06
AIR BAG
CONTROL
UNIT
S-02
JC-04
④
⑥
S-03
JOINT
CONNECTOR NO.1
(BLUE)
S-08
AIR BAG
MODULE
S-01
BACKUP
BATTERY
X-05
IGNITION
SWITCH
S-05
COMBINATION
SWITCH
X-04
FUSE BLOCK
S-07
COMBINATION
SWITCH
(BLUE)
X-18
(F) - (I)

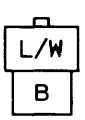

(F) - (I)
X-18
(BLUE)
JOINT
CONNECTOR
S-04

■ SOUND WARNING SYSTEM

T

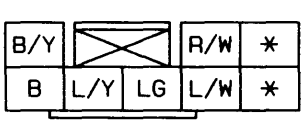


T-01 BUCKLE SWITCH (R)



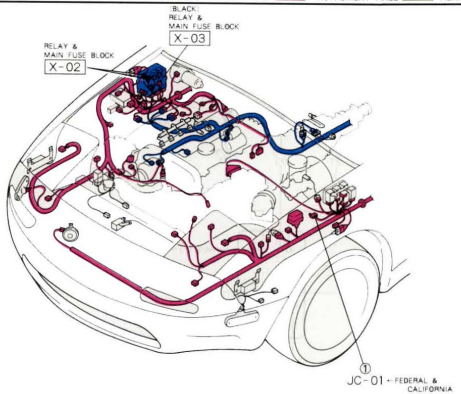
T-02 IGNITION KEY REMINDER SWITCH (F)

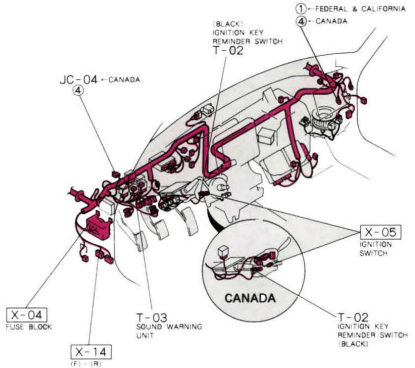
T-03 SOUND WARNING UNIT (F)

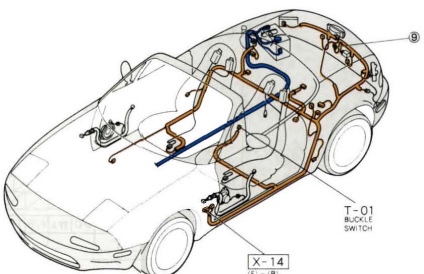


T

HARNESS COLOR : FRONT INSTRUMENT P.NEL REAR ENGINE

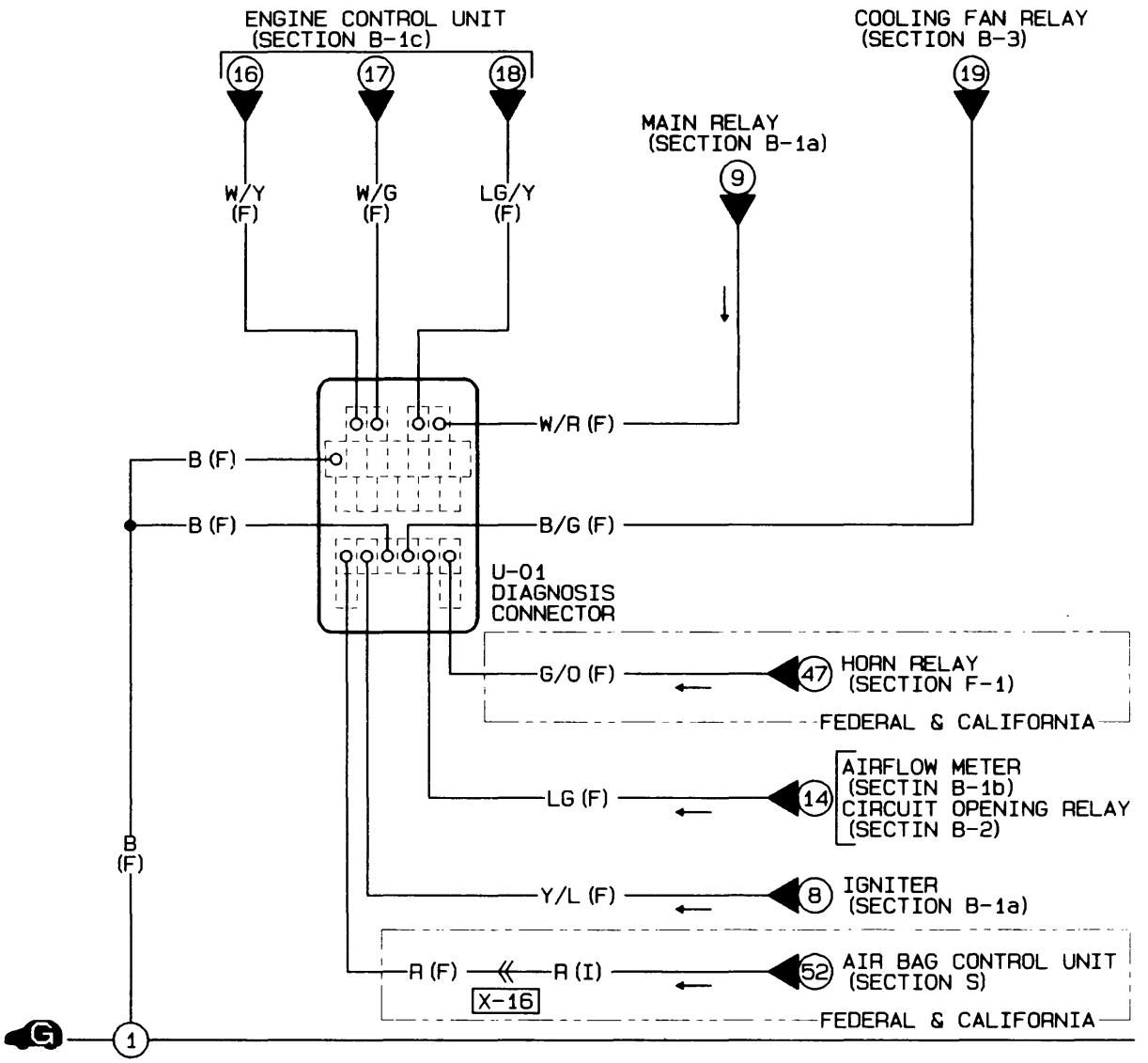




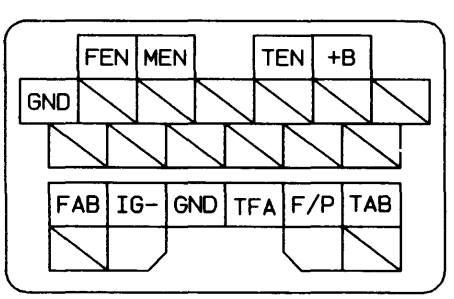


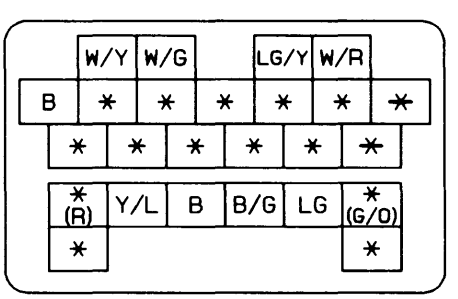
■ DIAGNOSIS CONNECTOR

U



U-01 DIAGNOSIS CONNECTOR (F)

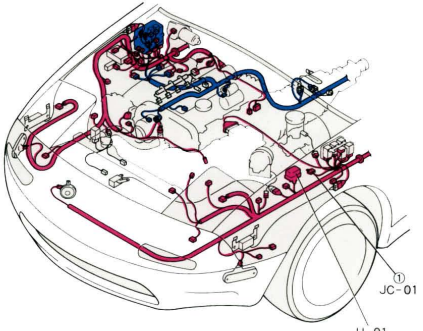


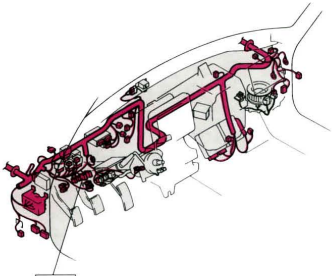


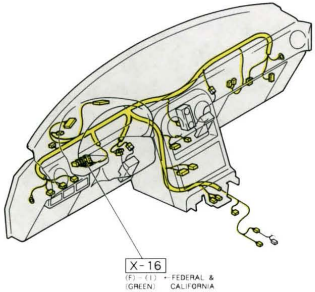
( ) . . . FEDERAL & CALIFORNIA

NOTE: THIS IS THE CONNECTOR AS SEEN FROM THE TERMINAL SIDE.

U

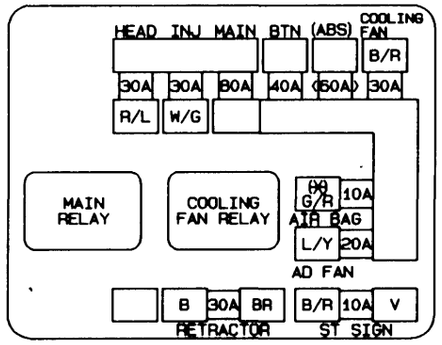

①
JC-01
U-01
DIAGNOSIS
CONNECTOR


X-16
(F) : (1) ← FEDERAL &
(GREEN) CALIFORNIA


X-16
(F) : (1) ← FEDERAL &
(GREEN) CALIFORNIA

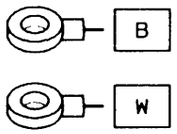
X-1 ■ COMMON CONNECTOR LIST

X-01 RELAY & MAIN FUSE BLOCK (E)

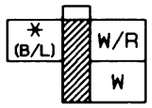


( ) . . . WITHOUT AIR BAG
〈 〉 . . . WITH ABS

X-02 RELAY & MAIN FUSE BLOCK (E)

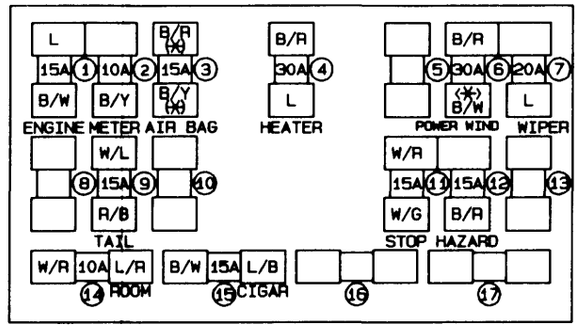


X-03 RELAY & MAIN FUSE BLOCK (F)



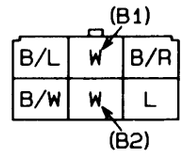
( ) . . . WITH ABS

X-04 FUSE BLOCK (F)

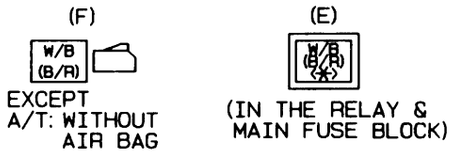


( ) . . . WITHOUT AIR BAG
〈 〉 . . . WITHOUT POWER WINDOW

X-05 IGNITION SWITCH (F)

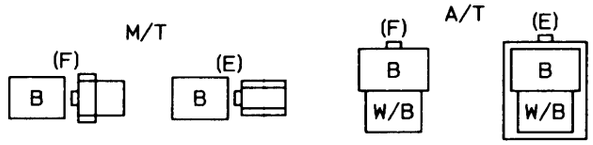


X-06 CONNECTOR BETWEEN FRONT (F) & ENGINE (E)

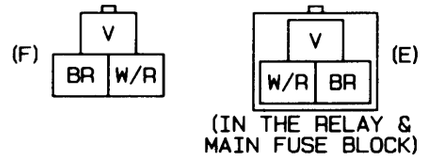


( ) . . . A/T: WITH AIR BAG
〈 〉 . . . A/T: WITHOUT AIR BAG

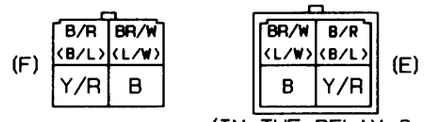
X-07 CONNECTOR BETWEEN FRONT (F) & ENGINE (E)



X-08 CONNECTOR BETWEEN FRONT (F) & ENGINE (E)

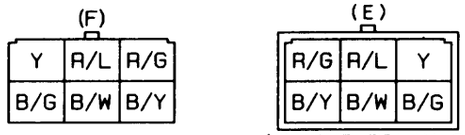


X-09 CONNECTOR BETWEEN FRONT (F) & ENGINE (E)

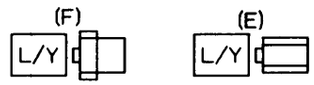


〈 〉 . . . A/T

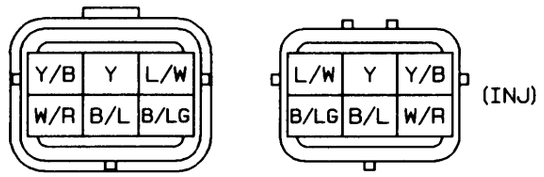
X-10 CONNECTOR BETWEEN FRONT (F) & ENGINE (E)



X-11 CONNECTOR BETWEEN FRONT (F) & ENGINE (E)



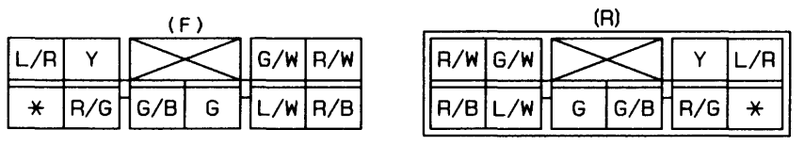
X-12 CONNECTOR BETWEEN FRONT (F) & INJECTION (INJ)



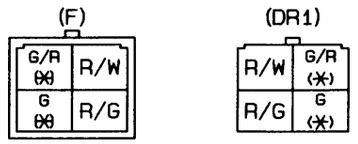
X-13 CONNECTOR BETWEEN FRONT (F) & REAR (R)

( ) . . . WITHOUT HEADRESTRANT SPEAKER

X-14 CONNECTOR BETWEEN FRONT (F) & REAR (R)

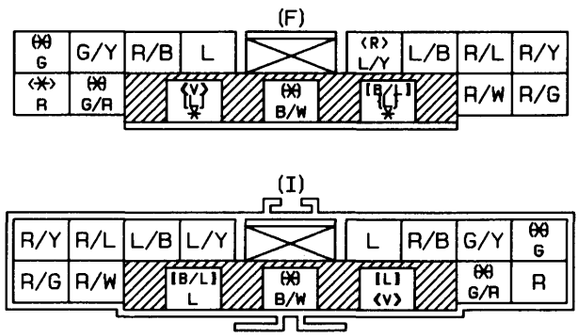


X-15 CONNECTOR BETWEEN FRONT (F) & DOOR NO.1 (DR1)



( ) . . . WITHOUT POWER WINDOW

X-16 CONNECTOR BETWEEN FRONT (F) & INSTRUMENT PANEL (I)

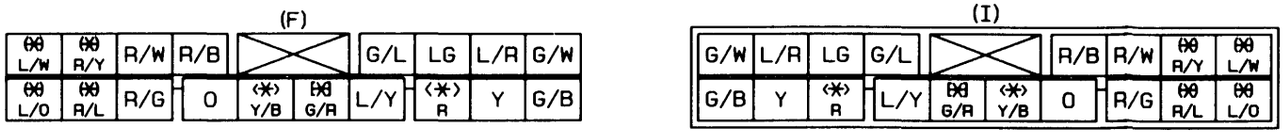


( ) . . . WITHOUT POWER WINDOW
〈 〉 . . . WITHOUT AIR BAG
《 》 . . . A/T
[ ] . . . M/T
{ } . . . A/T: WITH ABS
[ ] . . . M/T: WITH ABS

X

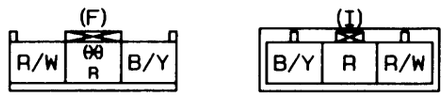
X-2 ■ COMMON CONNECTOR LIST

X-17 CONNECTOR BETWEEN FRONT (F) & INSTRUMENT PANEL (I)



( ) . . . WITH HEADREST SPEAKER
〈 〉 . . . WITHOUT CRUISE CONTROL
[ ] . . . M/T: WITHOUT CRUISE CONTROL

X-18 CONNECTOR BETWEEN FRONT (F) & INSTRUMENT PANEL (I)

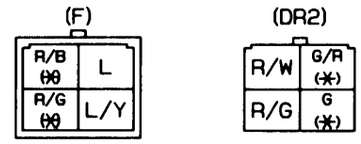


( ) . . . WITHOUT AIR BAG

X-19 CONNECTOR BETWEEN FRONT (F) & INSTRUMENT PANEL (I)

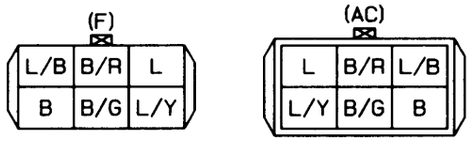
( ) . . . WITHOUT POWER WINDOW
〈 〉 . . . A/T
[ ] . . . WITH ABS

X-20 CONNECTOR BETWEEN FRONT (F) & DOOR NO.2 (DR2)

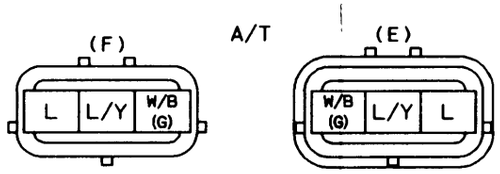


( ) . . . WITHOUT POWER WINDOW

X-21 CONNECTOR BETWEEN FRONT (F) & A/C (AC)

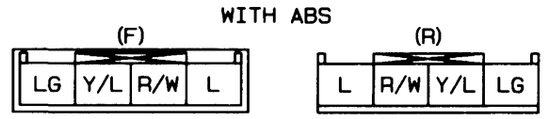


X-22 CONNECTOR BETWEEN FRONT (F) & ENGINE (E)



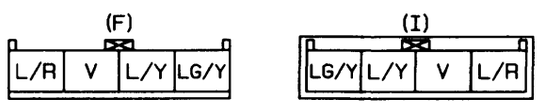
( ) . . . WITH ABS

X-23 CONNECTOR BETWEEN FRONT (F) & REAR (R)



X-24 CONNECTOR BETWEEN FRONT (F) & ENGINE (E)

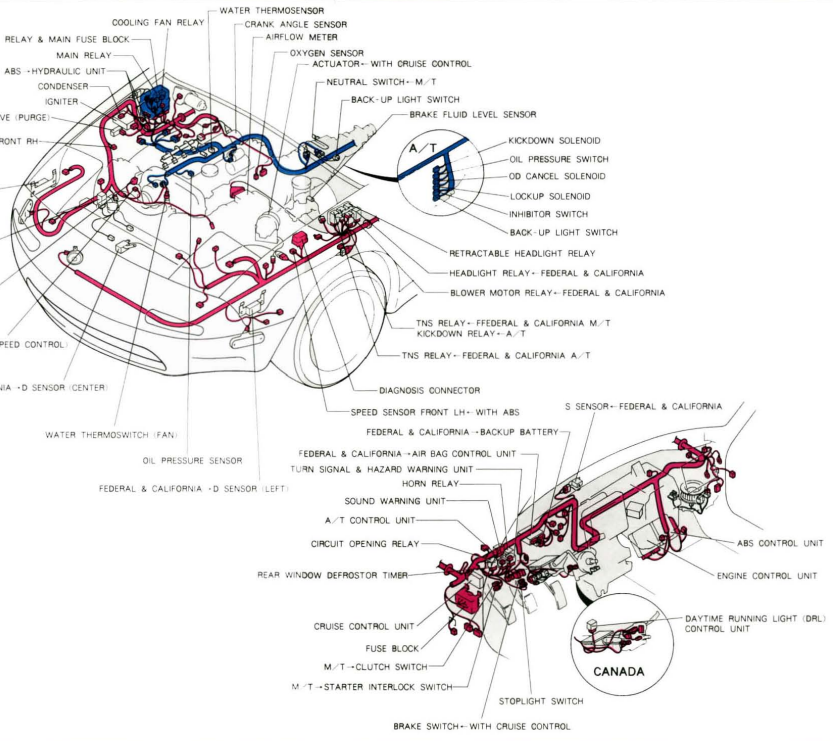
X-25 CONNECTOR BETWEEN FRONT (F) & INSTRUMENT PANEL (I)



X-26 CONNECTOR BETWEEN REAR (R) & ENGINE (E)

HARNESS COLOR : FRONT INSTRUMENT PANEL REAR ENGINE

PL



PL

PARTS INDEX

PARTS NAME	SECTION
Ⓐ A/C RELAY	G
A/C SWITCH	G
A/T CONTROL UNIT	H-1
ABS CONTROL UNIT	O
ADDITIONAL FAN MOTOR	G
AIR BAG CONTROL UNIT	S
AIR BAG MODULE	S
AIRFLOW METER	B-1b
ALTERNATOR	A-1,2
AUDIO UNIT	J-1,2
Ⓑ BACKUP BATTERY	S
BACKUP LIGHT SWITCH	F-1,2
BACKUP LIGHTS	F-1,2
BLOWER MOTOR	G
BLOWER MOTOR RELAY	G
BLOWER UNIT	G
BRAKE FLUID LEVEL SENSOR	C
BRAKE SWITCH	Q
BUCKLE SWITCH	T
Ⓒ CIGARETTE LIGHTER	I-2
CIRCUIT OPENING RELAY	B-2
CLUTCH SWITCH	B-1c
COMBINATION SWITCH	
(HORN)	F-1,2
(LIGHT)	E-1,2
(TURN SIGNAL)	F-1,2
(WINDSHIELD WIPER & WASHER)	D-1,2
CONDENSER	B-1a
COOLING FAN MOTOR	B-3
COOLING FAN RELAY	B-3
CRANK ANGLE SENSOR	B-1a
CRUISE CONTROL ACTUATOR	Q
CRUISE CONTROL MAIN SWITCH	Q
CRUISE CONTROL SWITCH	Q
CRUISE CONTROL UNIT	Q
Ⓓ D SENSOR	S
DAYTIME RUNNING LIGHT CONTROL UNIT	E-3
DIAGNOSIS CONNECTOR	U
DOOR SPEAKER	J-1,2
DOOR SWITCH	I-2
Ⓔ ENGINE CONTROL UNIT	B-1a,1b,1c
Ⓕ FRONT FOG LIGHT SWITCH	E-1,2
FRONT FOG LIGHTS	E-1,2
FRONT PARKING LIGHTS	E-4
FRONT SIDE MARKER LIGHTS	E-4
FRONT TURN SIGNAL LIGHTS	E-3,F-1
FUEL LEVEL SENSOR	B-2
FUEL PUMP	B-2
FUEL TANK UNIT	B-2
4-3 SWITCH	H-1
Ⓗ HAZARD WARNING SWITCH	F-1,2
HEADLIGHT RELAY	E-1
HEADLIGHTS	E-1,2
HEADREST SPEAKER	J-2
HEATER CONTROL UNIT	G
HIGH-MOUNT STOPLIGHT	F-1,2
HORN RELAY	F-1,2
HORN	F-1,2
HYDRAULIC UNIT	O
Ⓘ IGNITION COIL	B-1a
IGNITION KEY REMINDER SWITCH	T
IGNITER	B-1a
ILLUMINATION LAMPS	
A/T SELECT	I-1
ASHTRAY	I-1
CRUISE CONTROL MAIN SWITCH	I-1
FRONT FOG LIGHT SWITCH	I-1
HAZARD WARNING & RETRACTABLE HEADLIGHT SWITCH	I-1
HEATER CONTROL SWITCH	I-1
REAR WINDOW DEFROSTER SWITCH	I-2
INHIBITOR SWITCH	A-2,F-1,2
INJECTORS	B-1a
INSTRUMENT CLUSTER	C
INTERIOR LAMPS	I-2
Ⓙ JOINT CONNECTOR	D-1,G,S
Ⓚ KICKDOWN RELAY	H-1
KICKDOWN SOLENOID	H-1
KICKDOWN SWITCH	H-1
Ⓛ LICENSE PLATE LIGHTS	E-4
LOCKUP SOLENOID	H-1
Ⓜ MAGNETIC CLUTCH	G
MAIN RELAY	B-1a
Ⓝ NEUTRAL SWITCH	B-1c
Ⓞ OD CANCEL SOLENOID	H-1
OD OFF SWITCH	H-1
OIL PRESSURE SENSOR	C
OIL PRESSURE SWITCH	H-1
OXYGEN SENSOR	B-1b
Ⓟ P RANGE SWITCH	H-2
PANEL LAMP CONTROL SWITCH	I-1
PARKING BRAKE SWITCH	C,E-3
POWER ANTENNA ASSEMBLY	J-3
POWER ANTENNA MOTOR	J-3
POWER ANTENNA RELAY	J-3
POWER CONNECTOR	B-1a
POWER STEERING PRESSURE SWITCH	B-1b
POWER WINDOW MAIN SWITCH	K
POWER WINDOW MOTOR	K
Ⓡ REAR COMBINATION LIGHT	F-1,2
REAR SIDE MARKER LIGHTS	E-4
REAR TURN SIGNAL LIGHTS	F-1,2
REAR WINDOW DEFROSTER	I-2
REAR WINDOW DEFROSTER RELAY	I-2
REAR WINDOW DEFROSTER TIMER UNIT	I-2

PARTS INDEX

PARTS NAME	SECTION
REFRIGERANT PRESSURE SWITCH	G
RESISTOR ASSEMBLY	G
RETRACTABLE HEADLIGHT ACTUATOR	E-1,2
RETRACTABLE HEADLIGHT RELAY	E-1,2
RETRACTABLE HEADLIGHT SWITCH	E-1,2
Ⓢ S SENSOR	S
SHIFT-LOCK ACTUATOR	H-2
SHORT CONNECTOR	B-1b,F-1
SOLENOID VALVES	
(ISC)	B-1a
(PURGE)	B-1a
SPEED SENSOR	O
SOUND WARNING UNIT	T
STARTER	A-1,2
STARTER INTERLOCK SWITCH	A-1
STOPLIGHT SWITCH	F-1,2
STOPLIGHTS	F-1,2
Ⓣ TAILLIGHTS	E-4
THERMOSWITCH	G
THROTTLE SENSOR	B-1b
TNS RELAY	E-1
TURN SIGNAL & HAZARD WARNING UNIT	F-1,2
Ⓦ WASHER FLUID-LEVEL SENSOR	C
WATER THERMOSENSOR	B-1b,C
WATER THERMOSWITCH (FAN)	B-3
WINDSHIELD WASHER MOTOR	D-1,2
WINDSHIELD WIPER MOTOR	D-1,2

Mazda MX-5 Body Shop Manual

FOREWORD

This Bodyshop manual was prepared as reference material of the service personnel of authorized Mazda dealers to enable them to correctly carry out the task of rendering services on Mazda vehicles.

In order to ensure that the customers are satisfied with Mazda products, proper servicing must be provided. For this purpose, the service personnel must fully understand the contents of this manual and at the same time, are recommended to keep the manual in a place where reference can readily be made.

The information, photographs, drawings and specifications entered in this manual were the best available at the time of printing this manual. All alterations to this manual occurring as the result of modifications will be notified by the issuance of Service Information or supplementary volumes. It is, therefore, requested that the manual be dept up to date by carefully maintaining a follow-up of these materials.

Mazda Motor Corporation reserves the right to alter the specifications and contents of this manual without any obligation or advance notice.

All rights reserved. No part of this book may be reproduced or utilized in any form or by any means, mechanical, including photocopying, recording, or by any informational storage and retrieval system without permission in writing.

Mazda Motor Corporation
HIROSHIMA, JAPAN

CONTENTS

Title	Page
GENERAL SERVICE INFORMATION	1
DIMENSIONS	11
CONSTRUCTION	23
PANEL REPLACEMENT	35
SEALING	62
UNDERCOATING, PVC PAINTING AND RUST PREVENTIVE WAX TREATMENT	69
ALUMINUM BODY PARTS	79
PLASTIC BODY PARTS	83

©1989 Mazda Motor Corporation
PRINTED IN JAPAN October, '89©
3167-10-89J

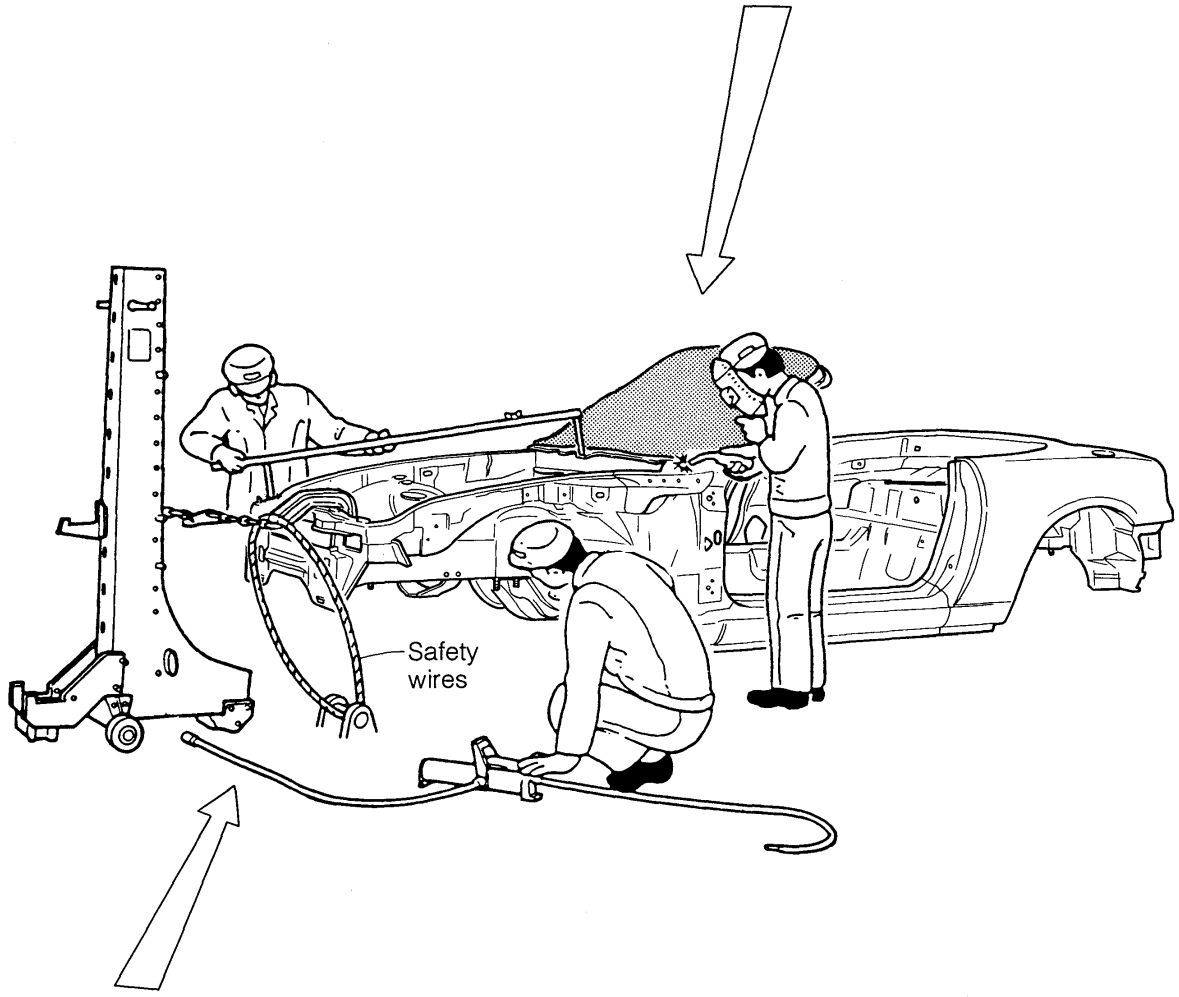
GENERAL SERVICE INFORMATION

SERVICE PRECAUTIONS 2
JACKING AND SAFETY STAND POSITIONS 8
VEHICLE LIFT (2-SUPPORT TYPE) POSITIONS 8
TOW CABLE ATTACHMENT POSITIONS 9
IDENTIFICATION NUMBER LOCATIONS 9
VEHICLE DIMENSIONS 10
WHEEL ALIGNMENT 10

SERVICE PRECAUTIONS

Arrangement of workshop
Arrangement of workshop is important for safe and efficient work.

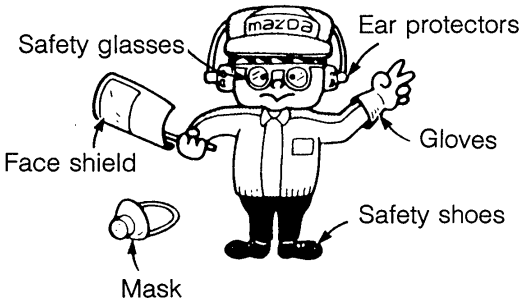
Vehicle protection
1. Use seat covers and floor covers.
2. Use heat-resistant protective covers to protect glass areas and seats from heat or sparks during welding.
3. Protect items such as moldings, garnishes, ornaments, with tape when welding.



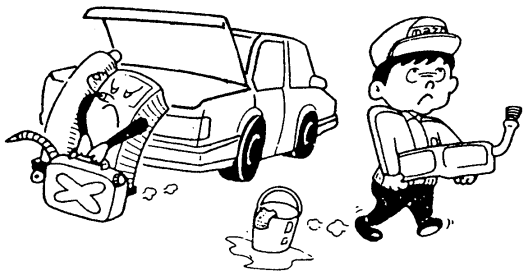
Use of pulling equipment
When using pulling equipment, keep away from the pulling area and use safety wires to prevent accidents.

SERVICE PRECAUTIONS

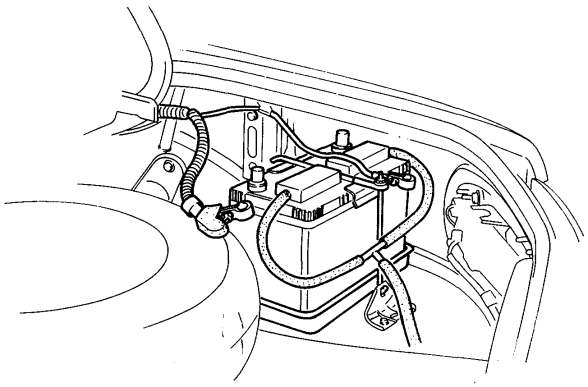
Safety precautions
Protective head covering and safety shoes should always be worn. Depending upon the nature of the work, gloves, safety glasses, ear protectors, face shield, etc., should also be used.



Safety
The fuel tank must be removed if welding is to be done near it or if an open flame is to be brought near it.
The connection piping must be plugged to prevent fuel leakage.



Before removing a wire harness or an electrical component, disconnect the negative battery cable.



EFFICIENT REPLACEMENT OF BODY PANELS

REMOVAL

Body measurements

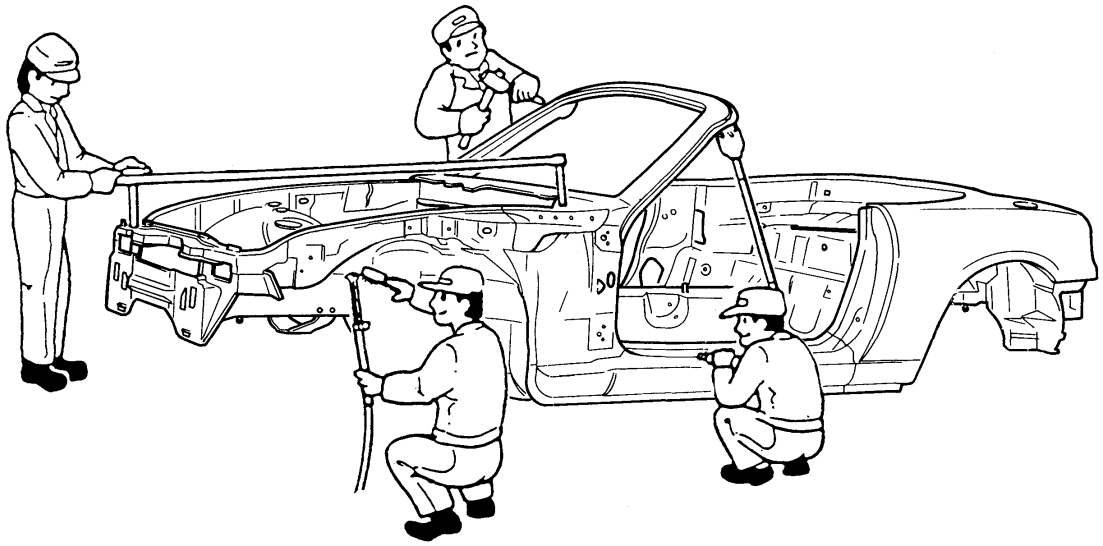
Before removal or rough cutting, first measure the body at and around the damaged area according to the dimensions figure, and if there is deformation, use frame repair equipment to make a rough correction.

Prevention of body deformation

Use a clamp or a jack for removal and reinforce at and around the rough-cutting location to prevent deformation of the body.

Selection of cut-and-join locations

For parts where complete replacement is not feasible, careful cutting and joining operations should be followed. If the location to be cut is a flat area where there is no reinforcement, the cutting location selected should be where the welding distortion will be a minimum.

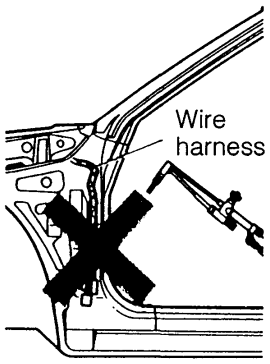


Removal of associated parts

Protect moldings, garnishes, and ornaments, with tape when removing associated parts.

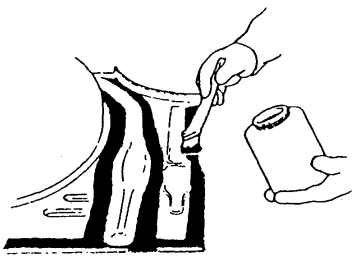
Rough-cutting of damaged panel

Check that are no parts (such as pipes, hoses, wire harnesses, etc.) nearby or on the opposite side which could be damaged by heat.
For cut-and-join areas, allow for an overlap of 30~50mm (1.18~1.97 in) and then roughly cut the damaged panel.



INSTALLATION PREPARATIONS

Application of weld-through primer



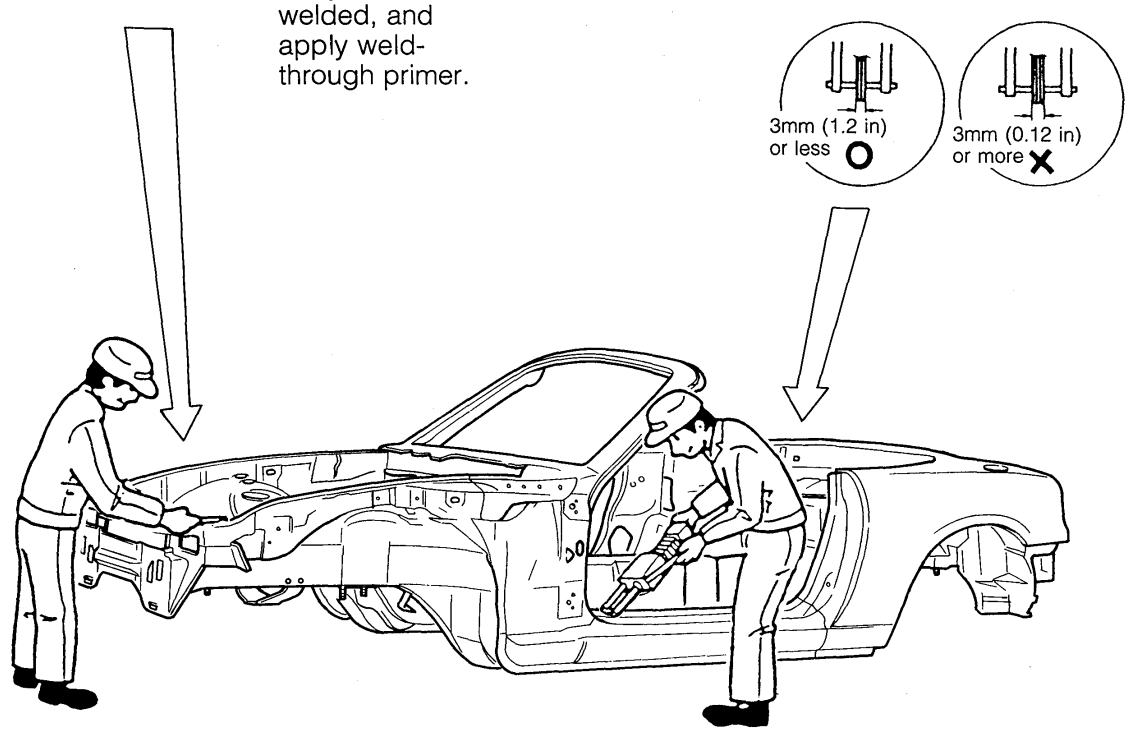
For treatment against corrosion, remove paint, grease, and other material from the portion of the new part and body to be welded, and apply weld-through primer.

Determination of welding method

If the total thickness at the area to be welded is 3mm (0.12 in) or more, use a drill to make holes of about ø7 for plug welding, then use a CO_2 gas shielded-arc welder to make the plug welds.

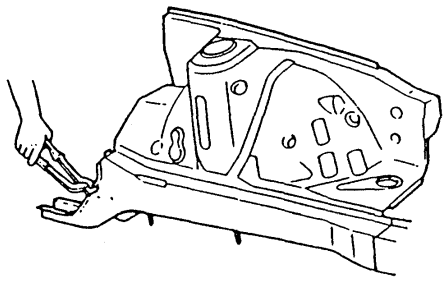
Note

Do not attempt to spot weld sections over 3mm (0.12 in) thick, as the weld strength would be too low.



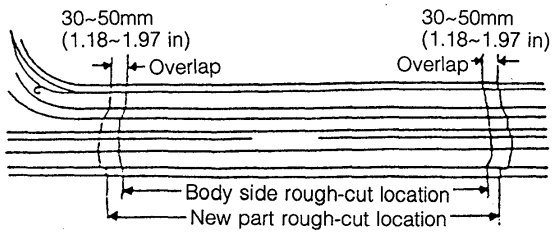
Making holes for plug-welding

For places that cannot be spot welded, make a hole of ø5~ø6 (at the new part of the body side) using a punch or drill.



Rough cutting of new parts

For cut-and-join areas, allow for an overlap of 30~50mm (1.18~1.97 in) and then roughly cut the new part, using a hand saw or air saw as necessary.



INSTALLATION

Checking pre-weld measurements and matching

Align to the standard reference dimensions, based upon the body dimensions illustration, so that new parts are installed at the correct position.

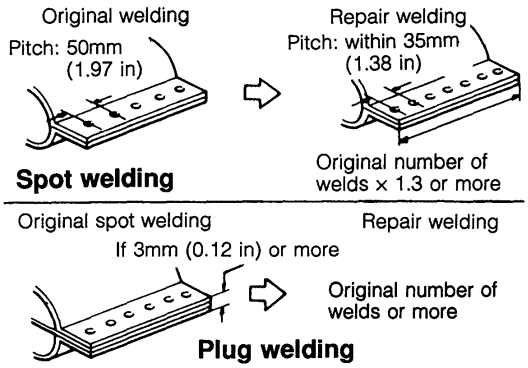
Welding notes

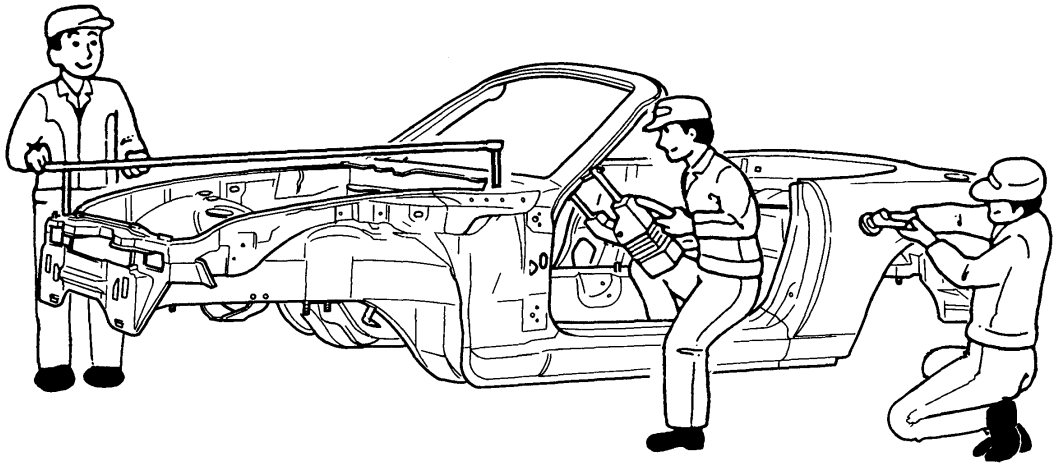
Welding should be performed in accordance with the following reference standards.

Note

a) Plug welding should be performed by the CO_2 gas shielded-arc welding method.

b) Panel connections by brazing should be only at the indicated locations.





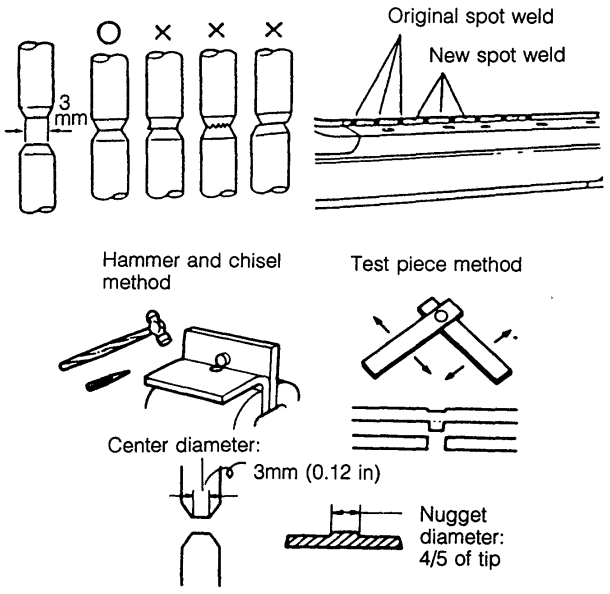
Spot welding notes

①Before spot welding, make a trial weld; If satisfactory, proceed with the actual welding.

②Before spot welding, check once again that the tip contact surface and facing surfaces to be welded are completely clean.

③Because the weld strength is affected by the shape of the spot welder tip, the tip should always be properly maintained, and, in addition, in order to minimize problems caused by overheating, a certain amount of cooling time should be allowed after each 5 or 6 weld points.

④Spot welds should, as a general rule, be made at points other than the originally welded points.



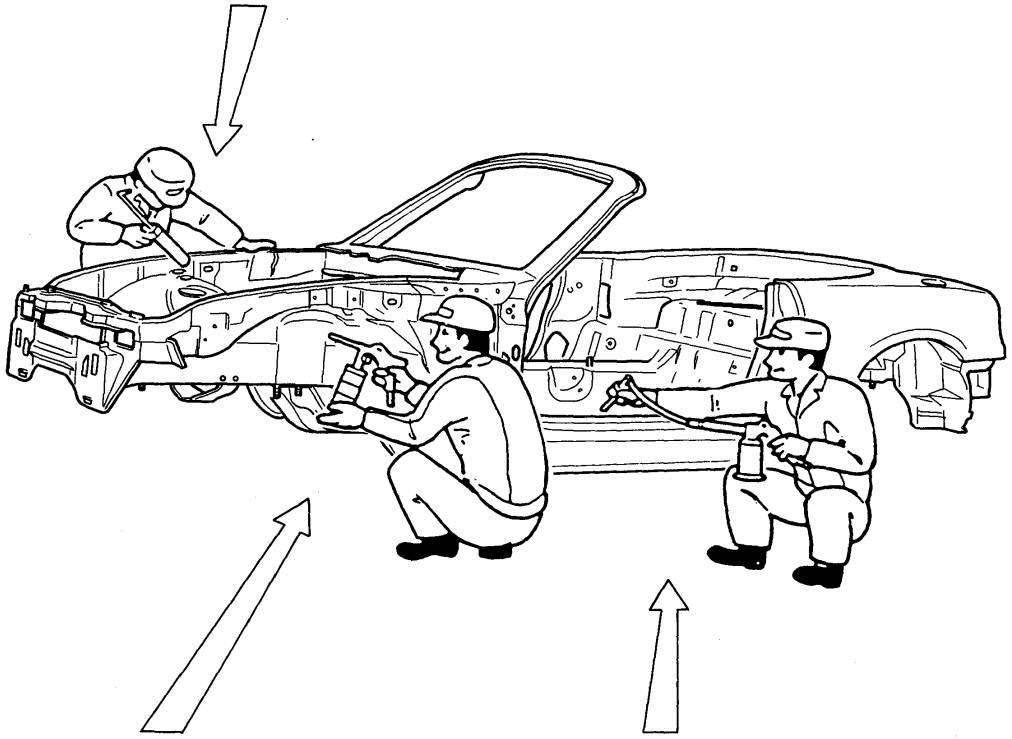
ANTI-CORROSION TREATMENT

When replacing body panels, always apply body sealer, anti-rust treatment, or undercoating according to the requirements of the market.

Application of surface agent and body sealer

After first applying the coating of surfacing agent, apply body sealer where necessary.

Note
For locations where application of body sealer is difficult after installation, apply it before the installation.



Application of rust inhibitor

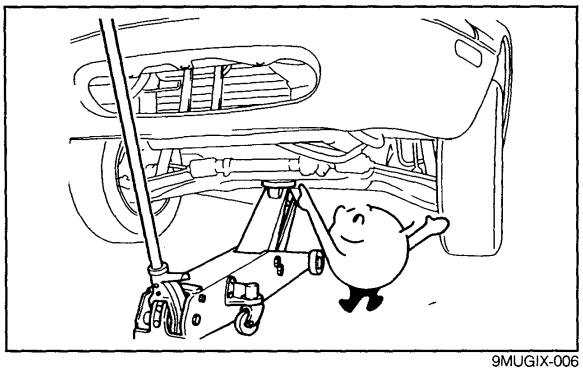
Apply rust inhibitor to the back of welded areas, using an installation hole or a gap near that section.

Undercoating

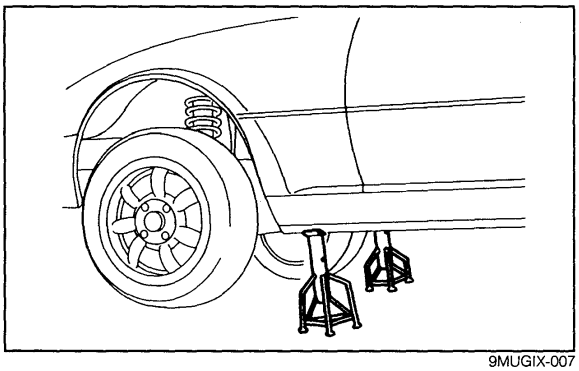
Use antirust treatment for underbody welding spots and wheel housings.

JACK AND SAFETY STAND POSITIONS

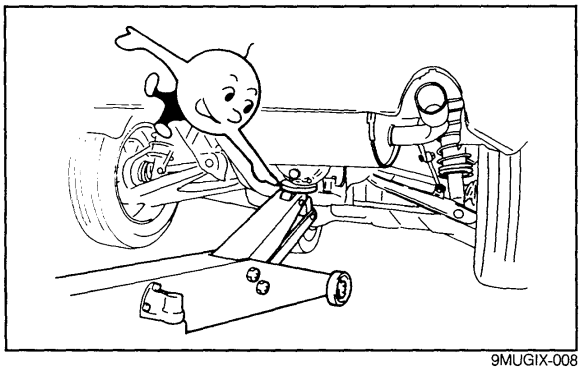
FRONT
Jack position:
Center of crossmember


9MUGIX-006

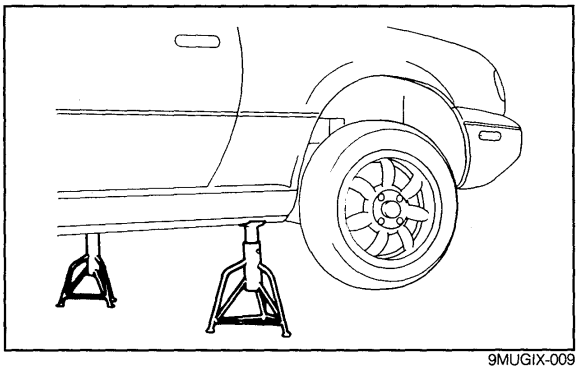
Safety stand positions:
Side sills


9MUGIX-007

REAR
Jack position:
Center of differential

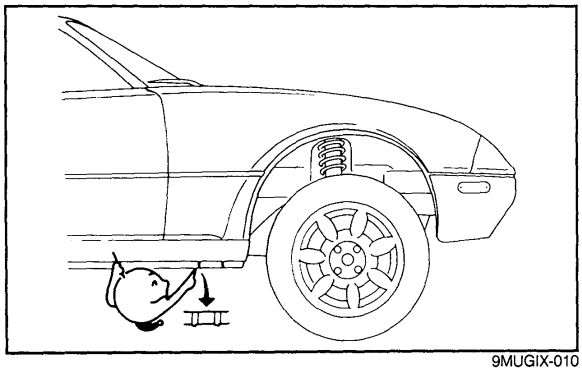

9MUGIX-008

Safety stand positions:
Side sills

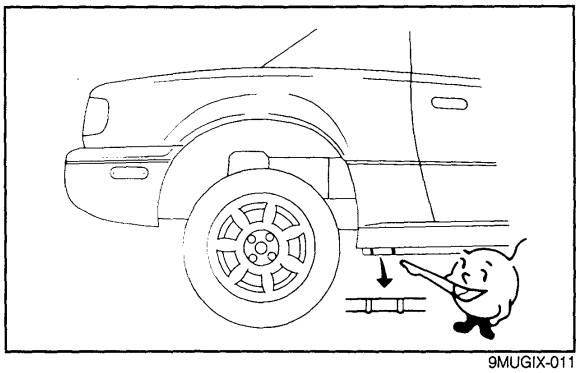

9MUGIX-009

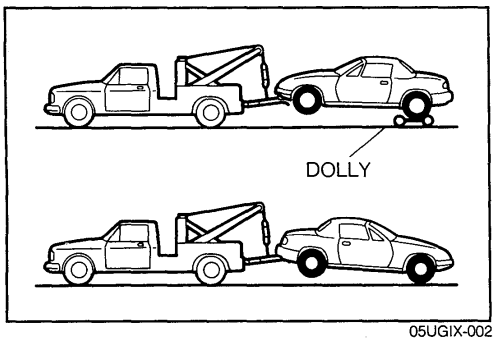
VEHICLE LIFT (2-SUPPORT TYPE) POSITIONS

FRONT
Frame
Side sills

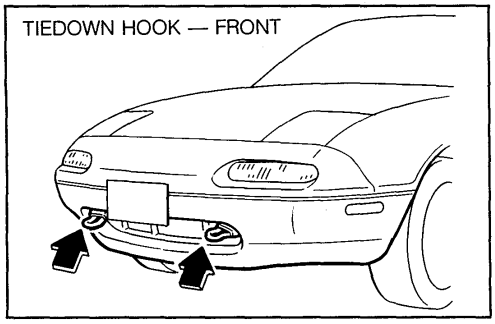

9MUGIX-010

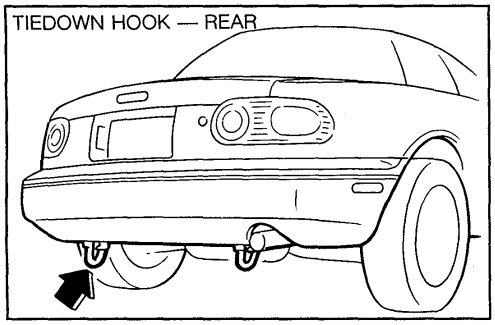
REAR
Frame
Side sills


9MUGIX-011



05UGIX-002





TOWING

Proper towing equipments are necessary to prevent damage to the vehicle during any towing operation. Laws and regulations applicable to vehicles in tow must always be observed.
Release the parking brake, place the shift lever in neutral, and set the ignition switch in the ACC position. As a rule, towed vehicles should be pulled with the driving wheels off the ground.

WITH MANUAL TRANSMISSION

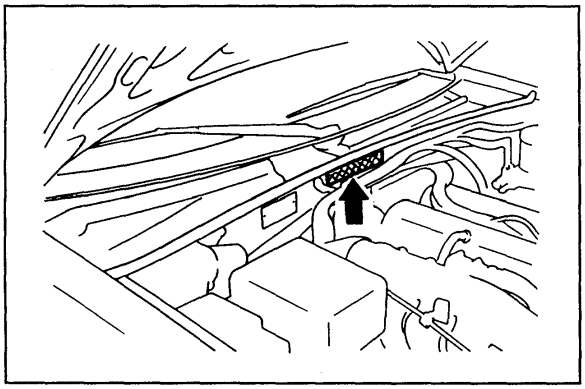
If the transmission, rear axle, and steering system are not damaged, the vehicle may be towed on all four wheels. If any of these components are damaged, use a towing dolly.

CAUTION

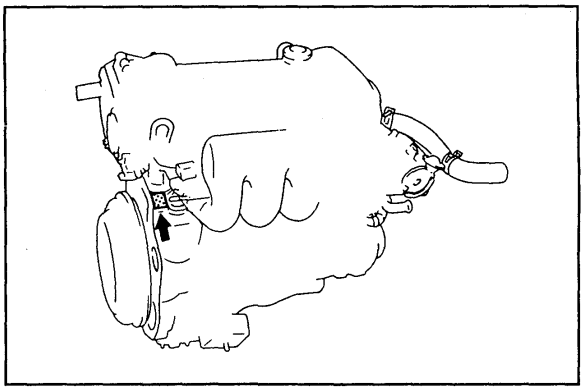
- **The power assist for the brakes and steering are inoperable while the engine is off.**
- **Do not use the tiedown hooks under the front or rear of the vehicle for towing. These hooks are designed ONLY for transport tiedown. If the tiedown hooks are used for towing, the front or rear skirt and bumper will be damaged.**

IDENTIFICATION NUMBER LOCATIONS

VEHICLE IDENTIFICATION NUMBER (VIN)



ENGINE MODEL AND NUMBER



VEHICLE DIMENSIONS

Item			Measurement
Overall length		mm (in)	3,948 (155.4)
Overall width		mm (in)	1,676 (65.9)
Overall height		mm (in)	1,224 (48.2)
Wheelbase		mm (in)	2,266 (89.2)
Tread	Front	mm (in)	1,410 (55.5)
	Rear	mm (in)	1,428 (56.2)

WHEEL ALIGNMENT

Front wheel alignment (Unloaded*)	Total toe-in	mm (in)	3 ± 3 (0.12 ± 0.12)
		degree	0°18′ ± 18′
	Maximum steering angle	Inner	37°23′ ± 2°
		Outer	32°32′ ± 2°
	Camber angle		0°24′ ± 30′
	Caster angle		4°49′ ± 45′
	King pin angle		11°20′
Rear wheel alignment (Unloaded*)	Total toe-in	mm (in)	3 ± 3 (0.12 ± 0.12)
		degree	0°18′ ± 18′
	Camber angle		–0°43′ ± 30′

* Fuel tank full; radiator coolant and engine oil at specified levels; and spare tire, jack, and tools in designated positions.

DIMENSIONS

BODY DIMENSIONS 12
EXPLANATION OF BODY DIMENSIONS 12
PROJECTED DIMENSIONS 13
  UNDERBODY PROJECTED DIMENSIONS 13
STRAIGHT-LINE DIMENSIONS 14
  UNDERBODY STRAIGHT-LINE DIMENSIONS 14
  FRONT BODY STRAIGHT-LINE DIMENSIONS 16
  CABIN SIDE FRAME STRAIGHT-LINE DIMENSIONS 18
  INTERIOR STRAIGHT-LINE DIMENSIONS (FRONT) 19
  INTERIOR STRAIGHT-LINE DIMENSIONS (REAR) 20
  REAR BODY STRAIGHT-LINE DIMENSIONS 21

BODY DIMENSIONS

The front suspension is a MacPherson strut style.
Adjustment of the front wheel alignment is limited to camber adjustment.
The front wheel alignment is determined by accuracy of the body itself.
Accurate measurement and dimensional accuracy based upon the body dimensions are required when repairs are made.

EXPLANATION OF BODY DIMENSIONS

PROJECTED DIMENSIONS

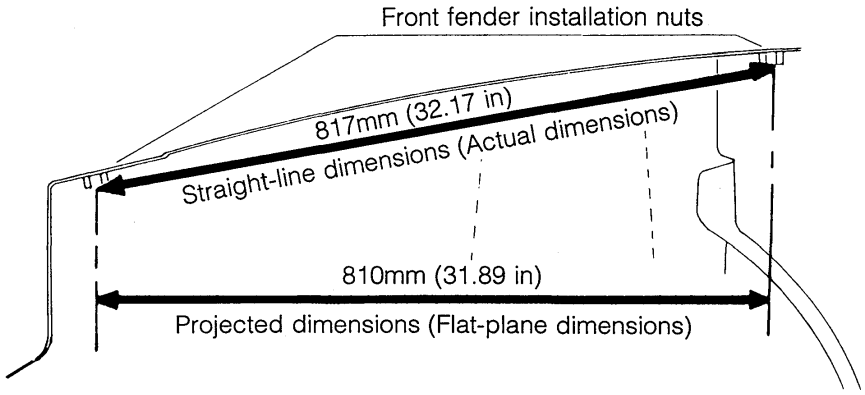
Flat-plane dimensions are those dimensions as measured on a flat surface projected from certain designated standard points of the body.

STRAIGHT-LINE DIMENSIONS (ACTUAL DIMENSIONS)

Actual dimensions are those dimensions actually measured in a straight line between two points.

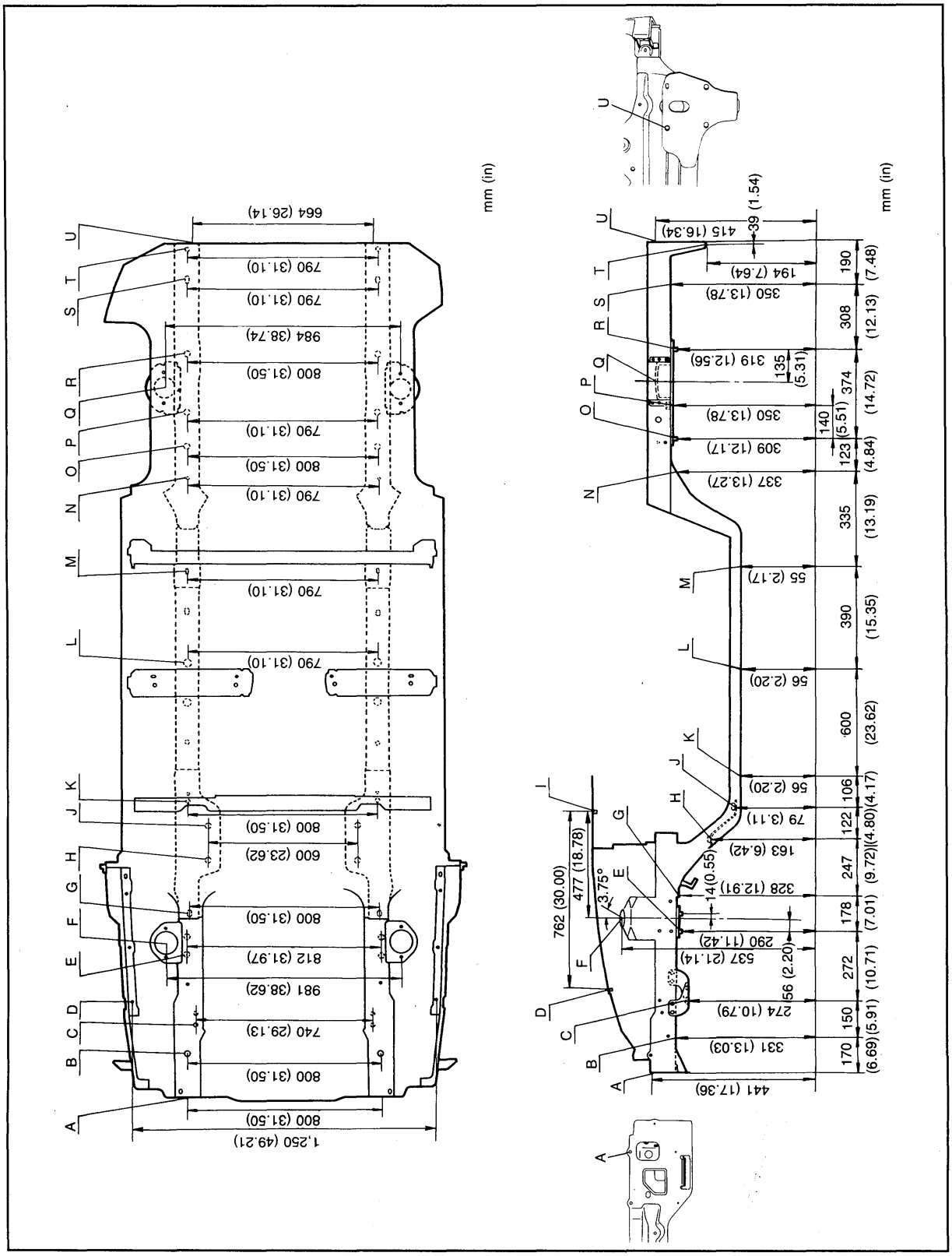
Note

Before the work, adjust the body according to the standard measurements and check the fit with associating parts, then proceed with the work.



PROJECTED DIMENSIONS

UNDERBODY PROJECTED DIMENSIONS

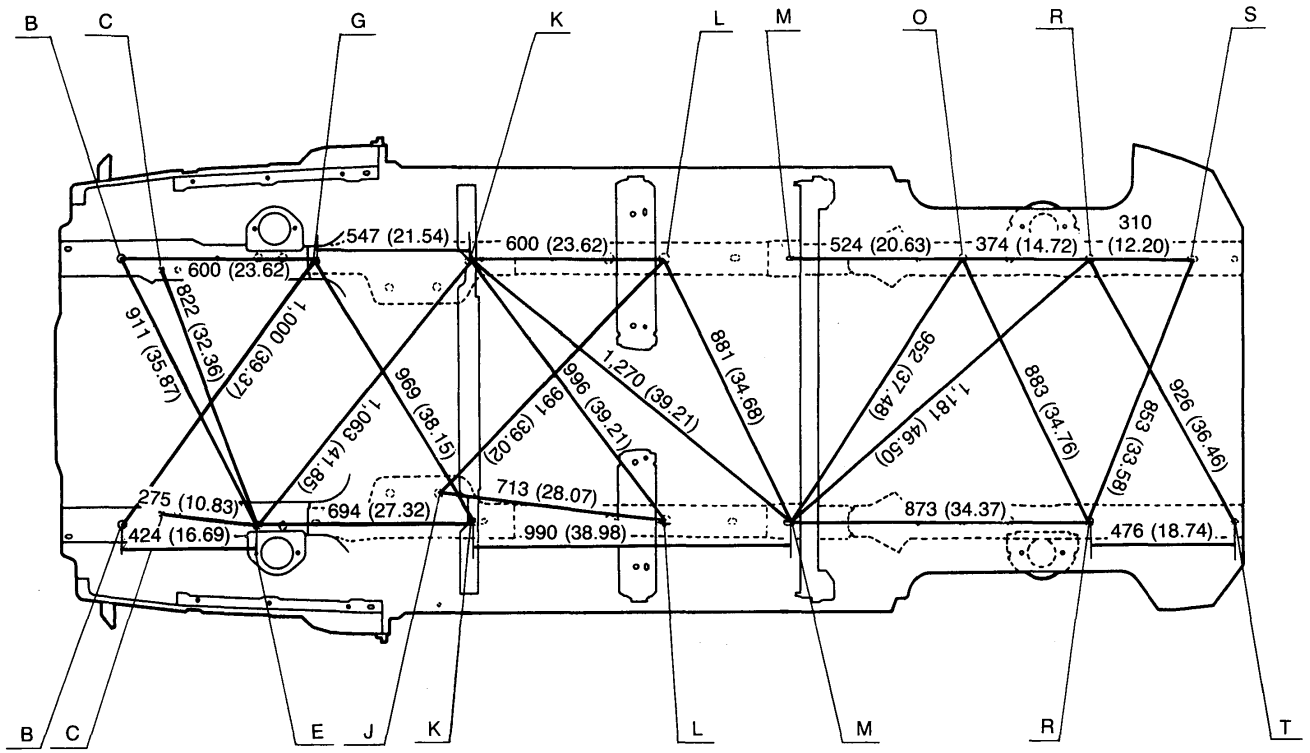


STRAIGHT-LINE DIMENSIONS

UNDERBODY STRAIGHT-LINE DIMENSIONS

ALL MEASURING POINTS ARE LOCATED SYMMETRICALLY

ALL MEASURING POINTS ARE THE CENTER OF THE REFERENCE HOLE OR MOUNTING NUT AND BOLT



B : FRAME REFERENCE HOLE ϕ16 (0.63)
C : STABILIZER MOUNTING NUT
E : SUSPENSION MOUNTING BOLT
G : FRAME REFERENCE HOLE 12x18 (0.47x0.71)
J : CROSSMEMBER MOUNTING NUT
K : FRAME REFERENCE HOLE ϕ12 (0.47)
L : FRAME REFERENCE HOLE ϕ20 (0.79)
M : FRAME REFERENCE HOLE 12x18 (0.47x0.71)
O : SUSPENSION MOUNTING BOLT
R : SUSPENSION MOUNTING BOLT
S : FRAME REFERENCE HOLE 16x22 (0.63x0.87)
T : BUMPER BRACKET REFERENCE HOLE ϕ7 (0.28)

mm (in)

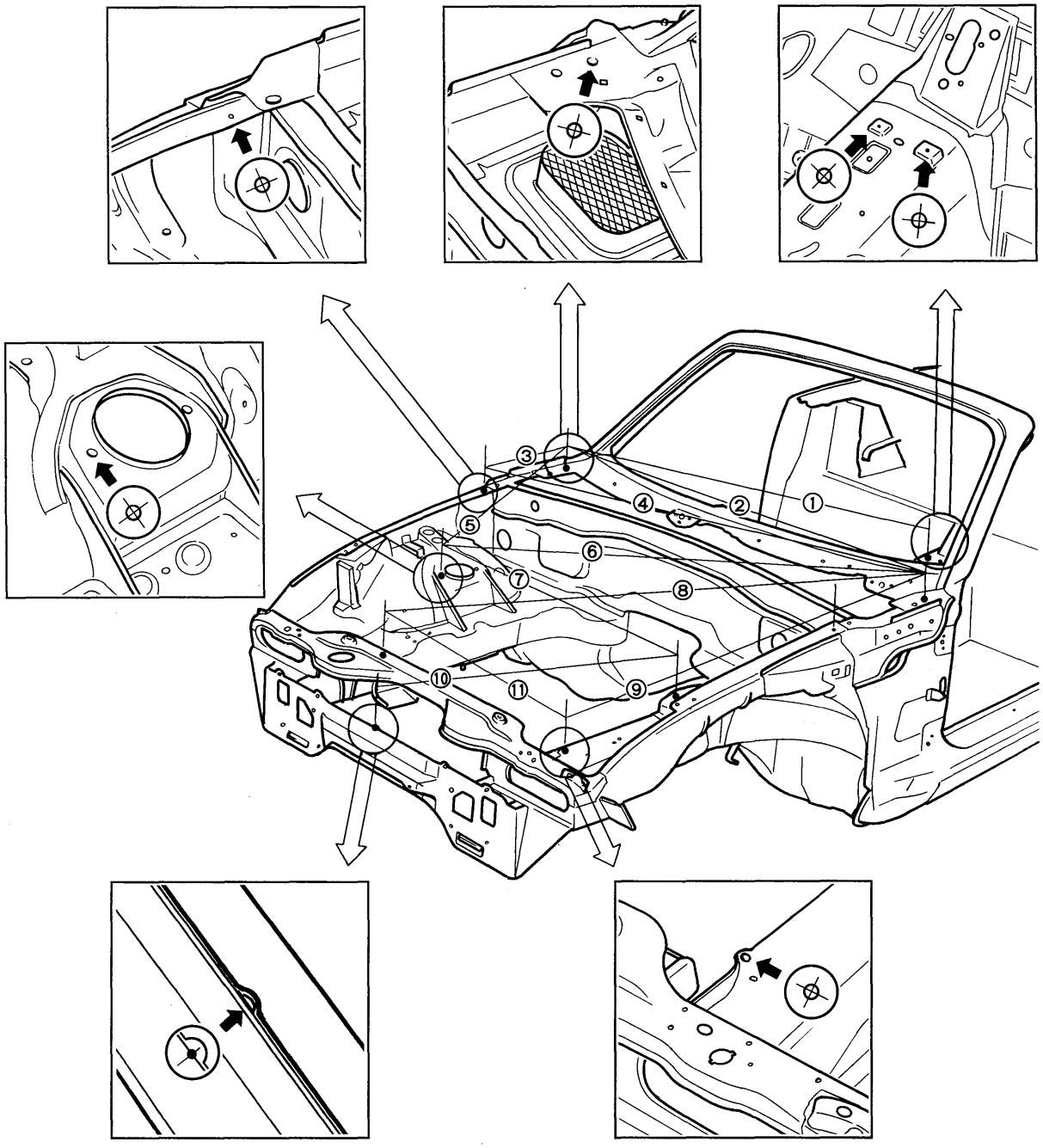
DIMENSIONS

A : BUMPER BRACKET MOUNTING NUT
B : FRAME REFERENCE HOLE ϕ16 (0.63)
C : STABILIZER MOUNTING NUT
D : FRONT FENDER PANEL MOUNTING NUT
E : SUSPENSION MOUNTING BOLT
F : FRONT MOUNTING BLOCK
G : FRAME REFERENCE HOLE 12x18 (0.47x0.71)
H : CROSSMEMBER MOUNTING NUT
I : FRONT FENDER PANEL MOUNTING NUT
J : CROSSMEMBER MOUNTING NUT
K : FRAME REFERENCE HOLE ϕ12 (0.47)
L : FRAME REFERENCE HOLE ϕ20 (0.79)
M : FRAME REFERENCE HOLE 12x18 (0.47x0.71)
N : FRAME REFERENCE HOLE ϕ12 (0.47)
O : SUSPENSION MOUNTING BOLT
P : SUSPENSION MOUNTING NUT
Q : REAR MOUNTING BLOCK
R : SUSPENSION MOUNTING BOLT
S : FRAME REFERENCE HOLE 16x22 (0.63x0.87)
T : BUMPER BRACKET REFERENCE HOLE ϕ7 (0.28)
U : BUMPER MOUNTING HOLE 12x14 (0.47x0.55)

mm (in)

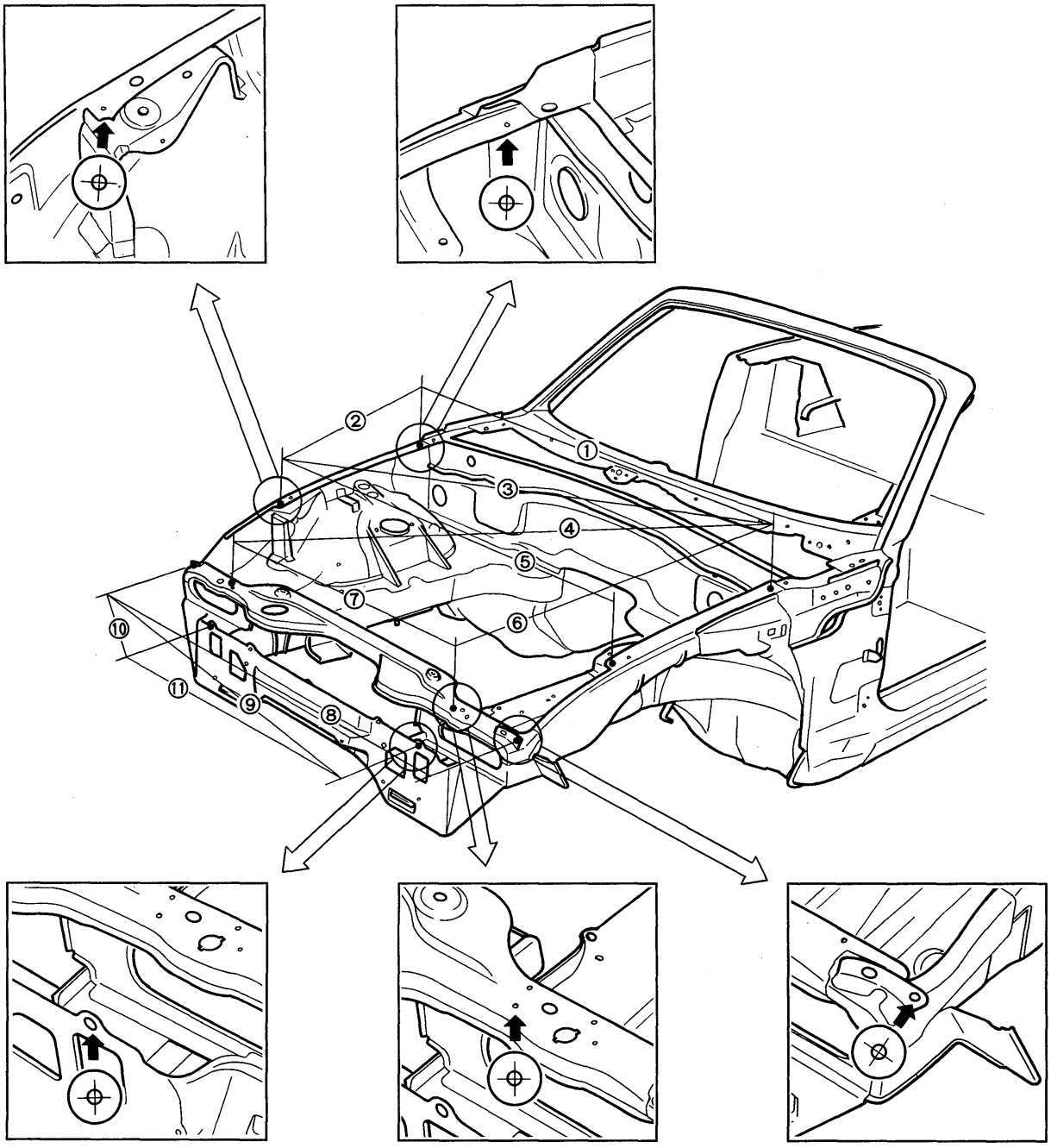
05U0SX-158

FRONT BODY STRAIGHT-LINE DIMENSIONS



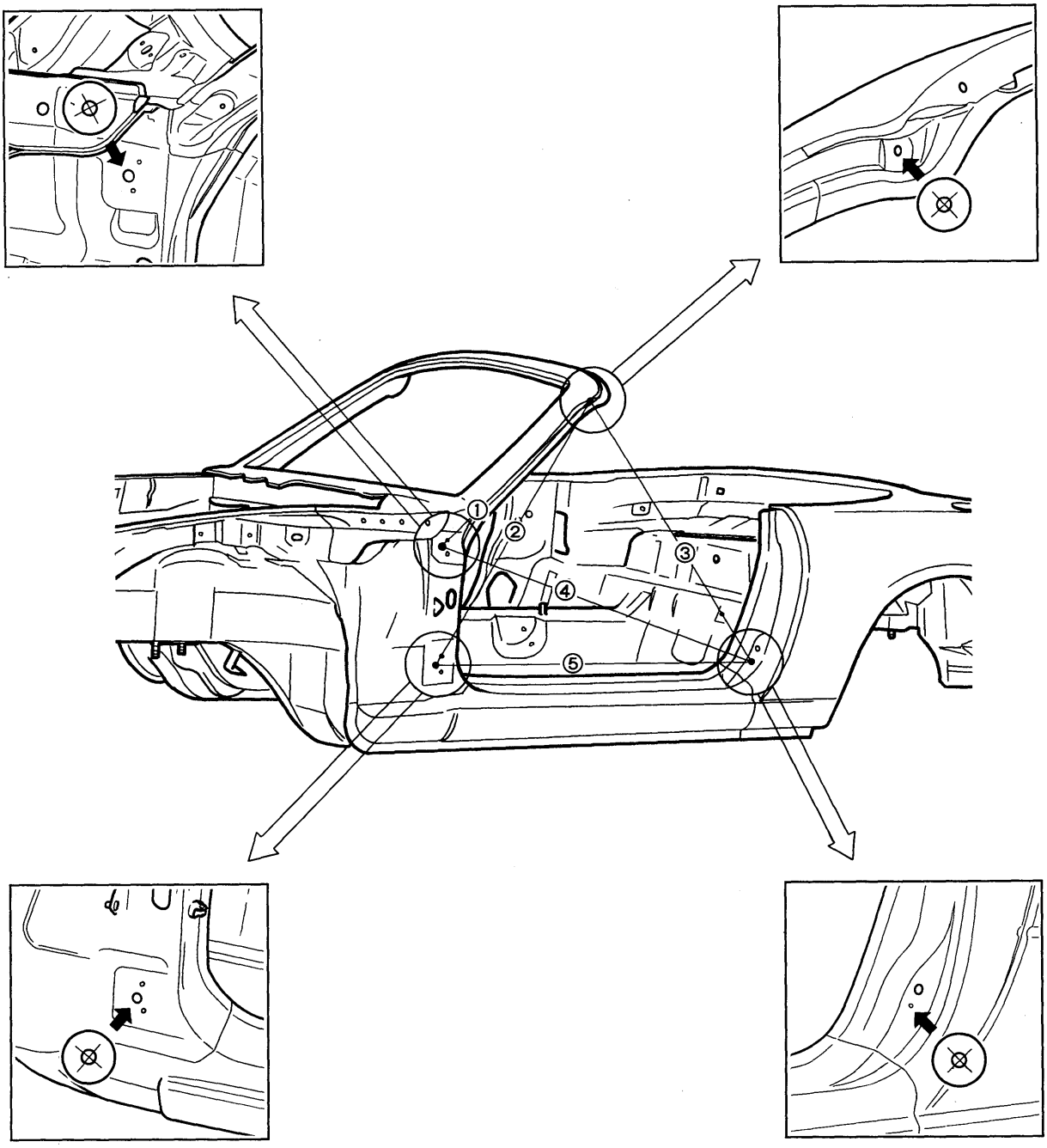
Measured location	①	②	③	④	⑤	⑥
Dimensions mm (in)	1251 (49.25)	1378 (54.25)	331 (13.03)	1379 (54.29)	665 (26.18)	1339 (52.72)
Measured location	⑦	⑧	⑨	⑩	⑪	
Dimensions mm (in)	981 (38.62)	1406 (55.35)	1023 (40.28)	780 (30.71)	676 (26.61)	

FRONT BODY STRAIGHT-LINE DIMENSIONS



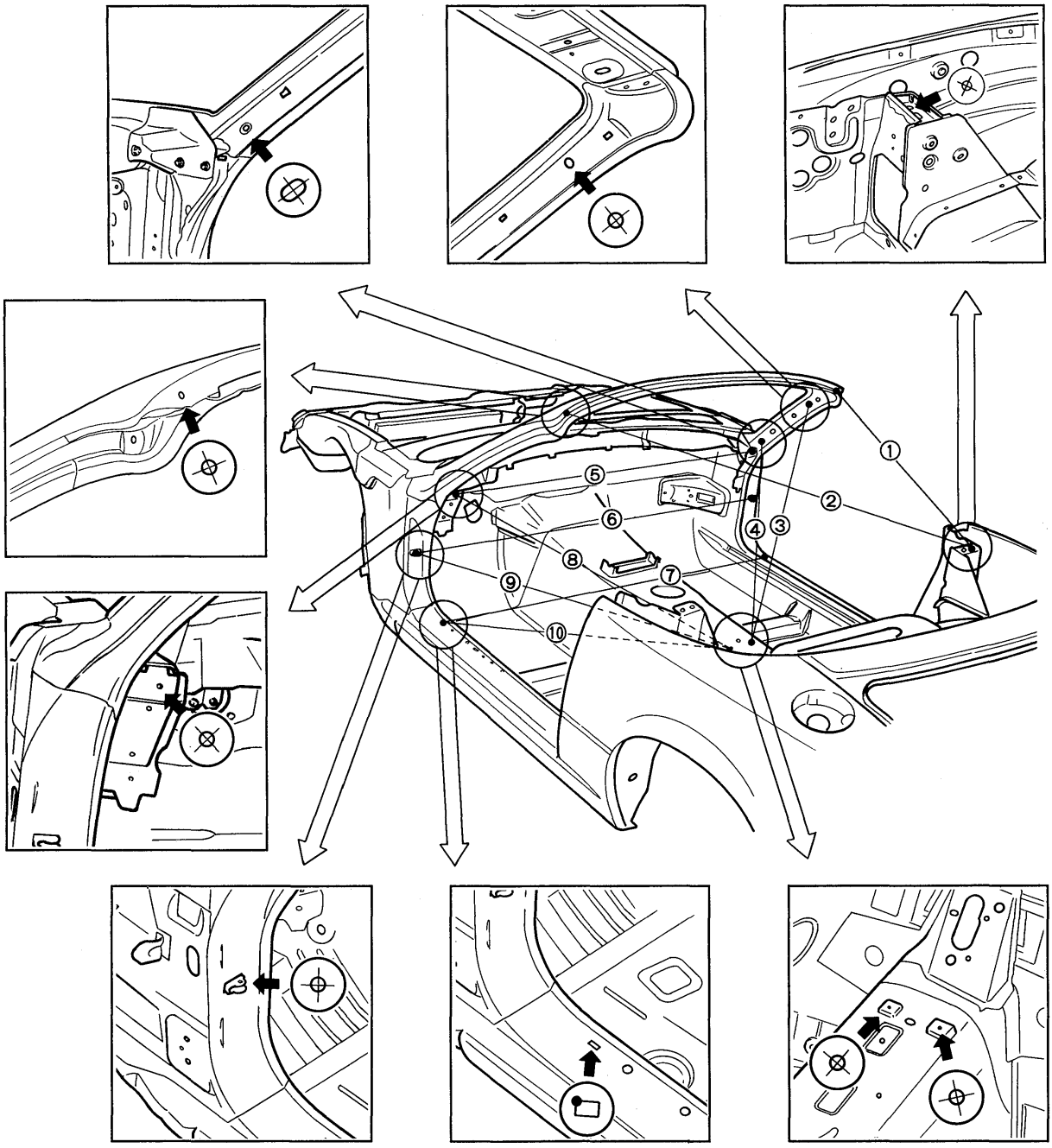
Measured location	①	②	③	④	⑤	⑥
Dimensions mm (in)	1300 (51.18)	517 (20.35)	1376 (54.17)	1350 (53.15)	1250 (49.21)	854 (33.62)
Measured location	⑦	⑧	⑨	⑩	⑪	
Dimensions mm (in)	842 (33.15)	1246 (49.06)	1029 (40.51)	251 (9.88)	800 (31.50)	

CABIN SIDE FRAME STRAIGHT-LINE DIMENSIONS



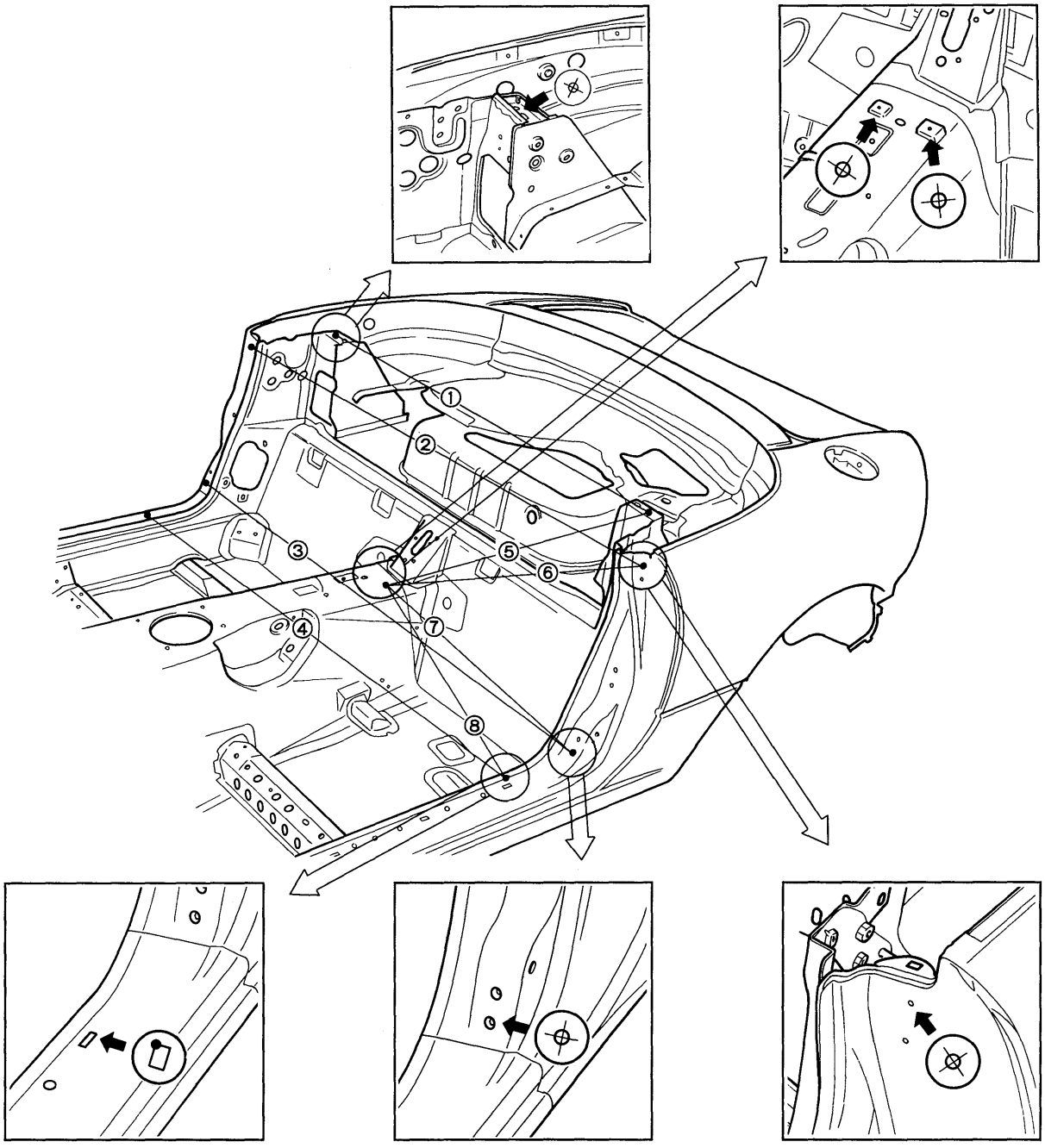
Measured location	①	②	③	④	⑤	
Dimensions mm (in)	732 (28.82)	929 (36.57)	847 (33.35)	1071 (42.17)	1034 (40.71)	

INTERIOR STRAIGHT-LINE DIMENSIONS (FRONT)



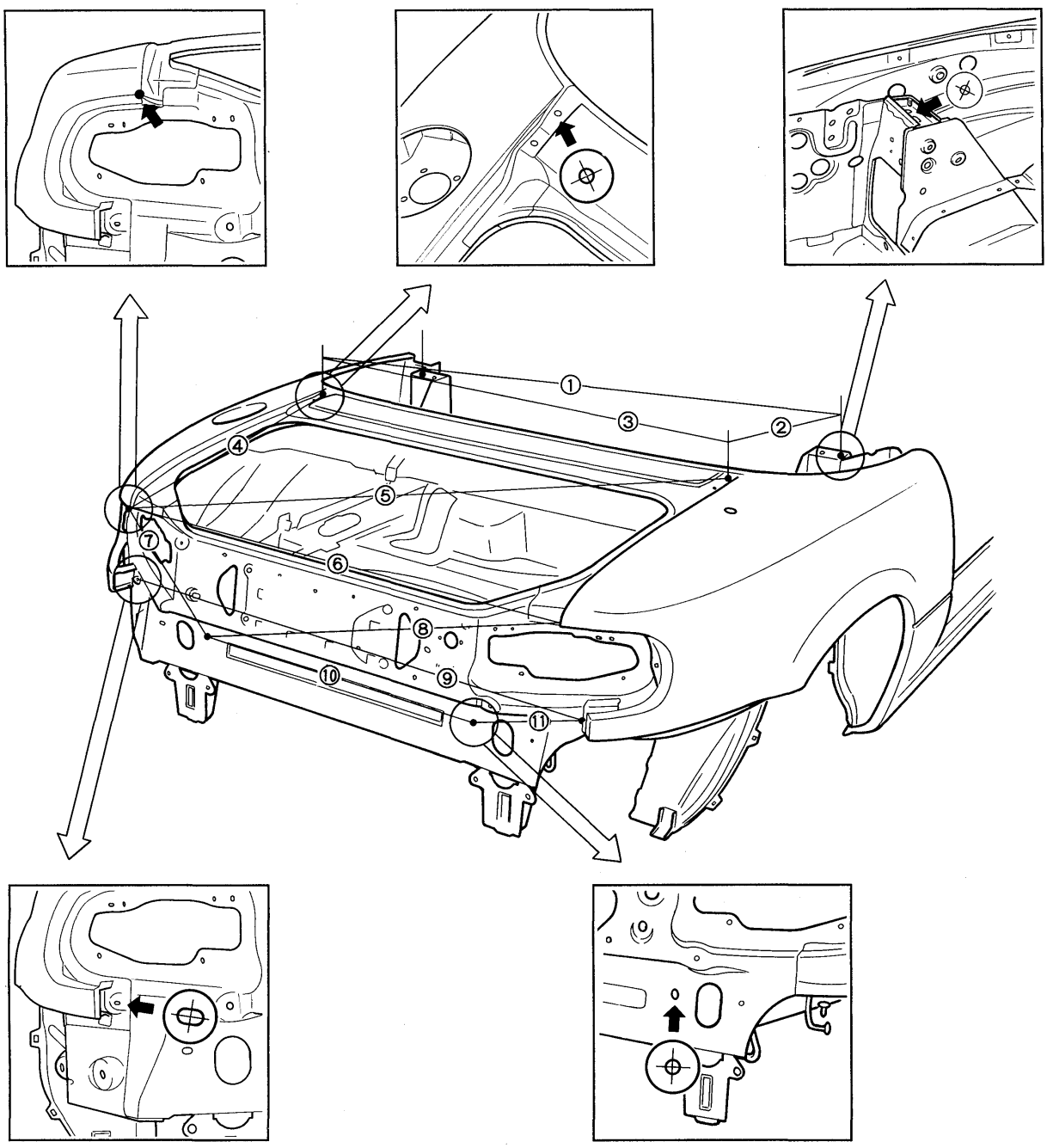
Measured location	①	②	③	④	⑤	⑥
Dimensions mm (in)	769 (30.28)	1337 (52.64)	963 (37.91)	1107 (43.58)	1253 (49.33)	1426 (56.14)
Measured location	⑦	⑧	⑨	⑩		
Dimensions mm (in)	1346 (52.99)	1089 (42.87)	1158 (45.59)	1034 (40.71)		

INTERIOR STRAIGHT-LINE DIMENSIONS (REAR)



Measured location	①	②	③	④	⑤	⑥
Dimensions mm (in)	1130 (44.49)	1390 (54.72)	1424 (56.06)	1346 (52.99)	690 (27.17)	752 (29.61)
Measured location	⑦	⑧				
Dimensions mm (in)	680 (26.77)	662 (26.06)				

REAR BODY STRAIGHT-LINE DIMENSIONS

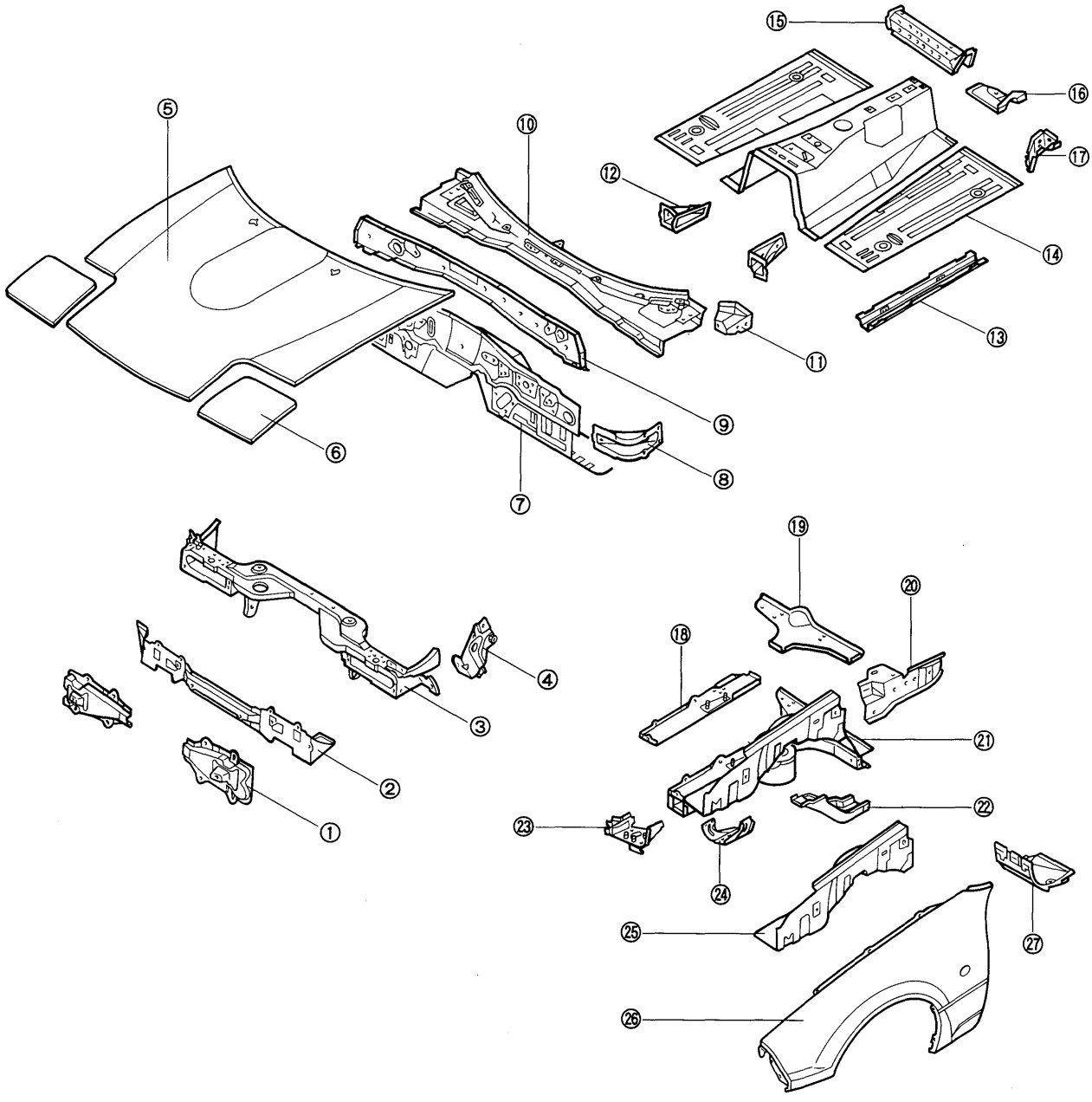


Measured location	①	②	③	④	⑤	⑥
Dimensions mm (in)	1184 (46.61)	472 (18.58)	1044 (41.10)	625 (24.61)	1213 (47.76)	1035 (40.75)
Measured location	⑦	⑧	⑨	⑩	⑪	
Dimensions mm (in)	310 (12.20)	885 (34.84)	1124 (44.25)	664 (26.14)	241 (9.49)	

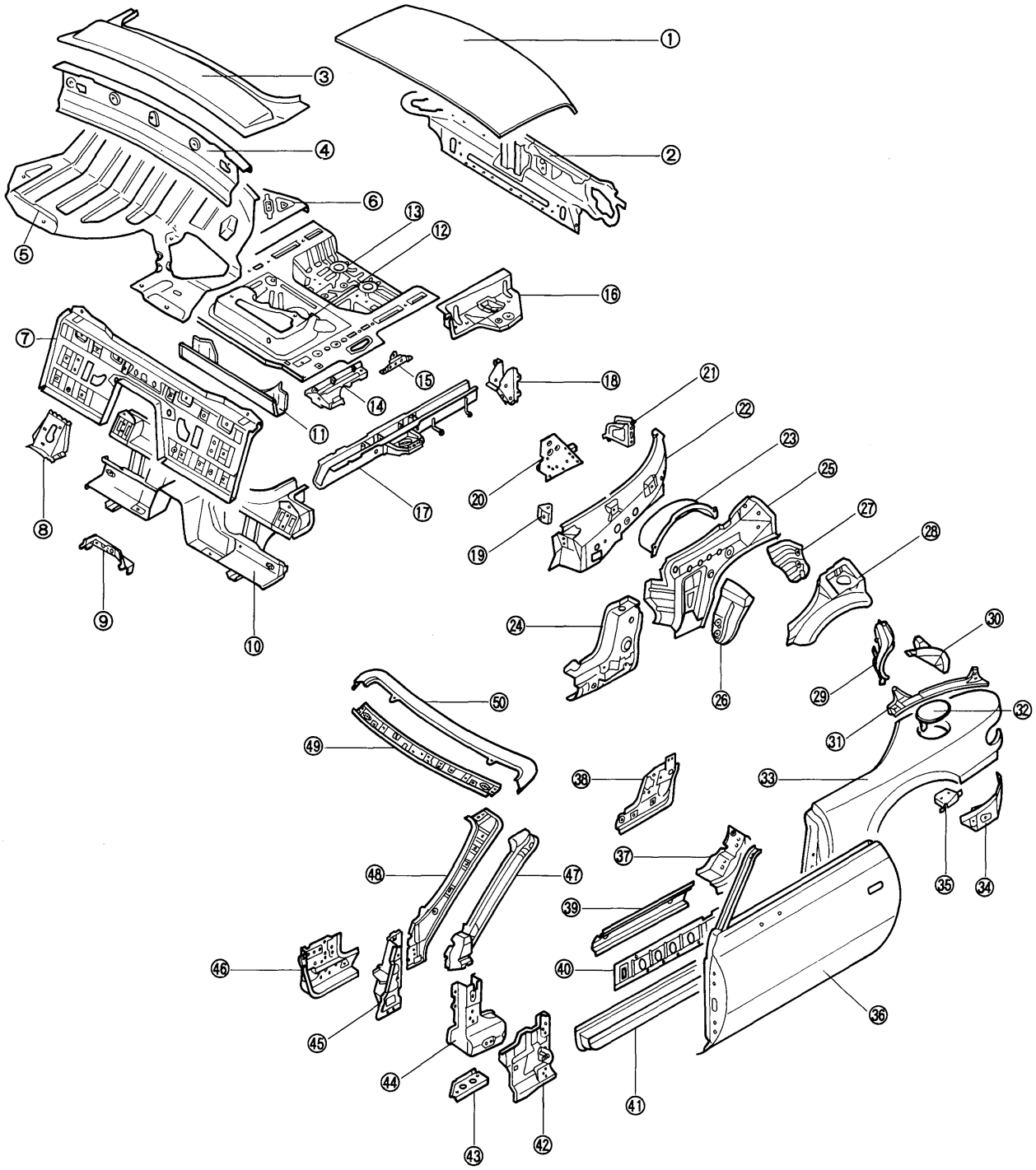
CONSTRUCTION

BODY COMPONENTS 24
RUST-PROOF STEEL 28
HIGH-STRENGTH STEEL 32

BODY COMPONENTS



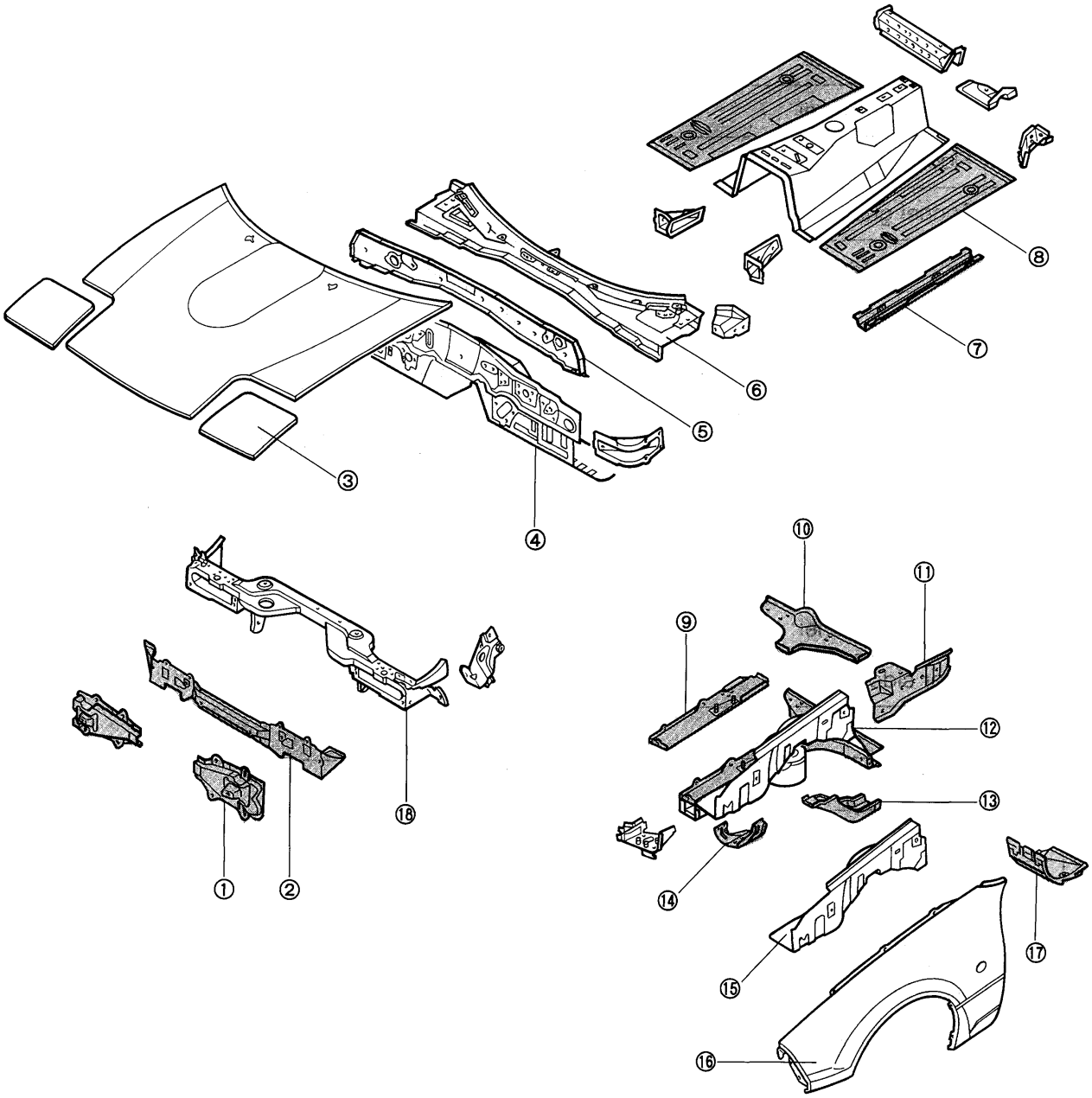
No.	Part Name	No.	Part Name
①	Bumper bracket	⑮	Crossmember No. 2
②	Crossmember No. 1	⑯	Seat bracket
③	Shroud panel assy	⑰	No. 3 gusset
④	Radiator bracket	⑱	Front frame, upper front
⑤	Hood (Bonnet)	⑲	Front frame, upper rear
⑥	Light lid	⑳	Apron reinforcement
⑦	Dash panel assy	㉑	Front wheel apron assy
⑧	Dash side junction	㉒	Front frame, rear
⑨	Cowl panel, front	㉓	Tie-down hook reinforcement
⑩	Dash panel assy	㉔	Stabilizer bracket
⑪	Instrument bracket	㉕	Front wheel apron panel
⑫	Tunnel side junction	㉖	Front fender panel
⑬	Front frame	㉗	Torque box
⑭	Front floor side pan		


①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯
⑰
⑱
⑲
⑳
㉑
㉒
㉓
㉔
㉕
㉖
㉗
㉘
㉙
㉚
㉛
㉜
㉝
㉞
㉟
㊱
㊲
㊳
㊴
㊵
㊶
㊷
㊸
㊹
㊺
㊻
㊼
㊽
㊾
㊿

No.	Part Name	No.	Part Name
①	Trunk lid	㉖	Seal plate
②	Rear end panel	㉗	Splash protector
③	Rear deck panel	㉘	Quarter panel
④	Rear deck member	㉙	Light housing
⑤	Bulkhead panel	㉚	Rear fender gusset
⑥	Floor side panel	㉛	Rear fender rain rail
⑦	Floor center pan	㉜	Fuel filler lid
⑧	Tunnel gusset	㉝	Rear fender panel
⑨	Parking bracket	㉞	Rear fender, lower
⑩	Crossmember No. 3	㉟	Trunk board bracket
⑪	Crossmember No. 4	㊱	Door body
⑫	Tank floor pan assy	㊲	Striker reinforcement
⑬	Trunk floor assy	㊳	Side sill, inner C
⑭	Floor side plate	㊴	Side sill, inner B
⑮	Nut plate	㊵	Side sill reinforcement
⑯	Floor side panel	㊶	Side sill, outer
⑰	Rear side frame	㊷	Cowl side panel
⑱	Bumper bracket	㊸	Side sill gusset
⑲	Cap bracket	㊹	Hinge pillar, outer
⑳	Closing bracket	㊺	Hinge pillar
㉑	Battery clamp bracket	㊻	Side sill, inner
㉒	Side panel, inner	㊼	Front pillar, outer
㉓	Wheel inner house	㊽	Front pillar, inner
㉔	Corner junction	㊾	Front header
㉕	Beltline reinforcement	㊿	Front header, upper

RUST-PROOF STEEL

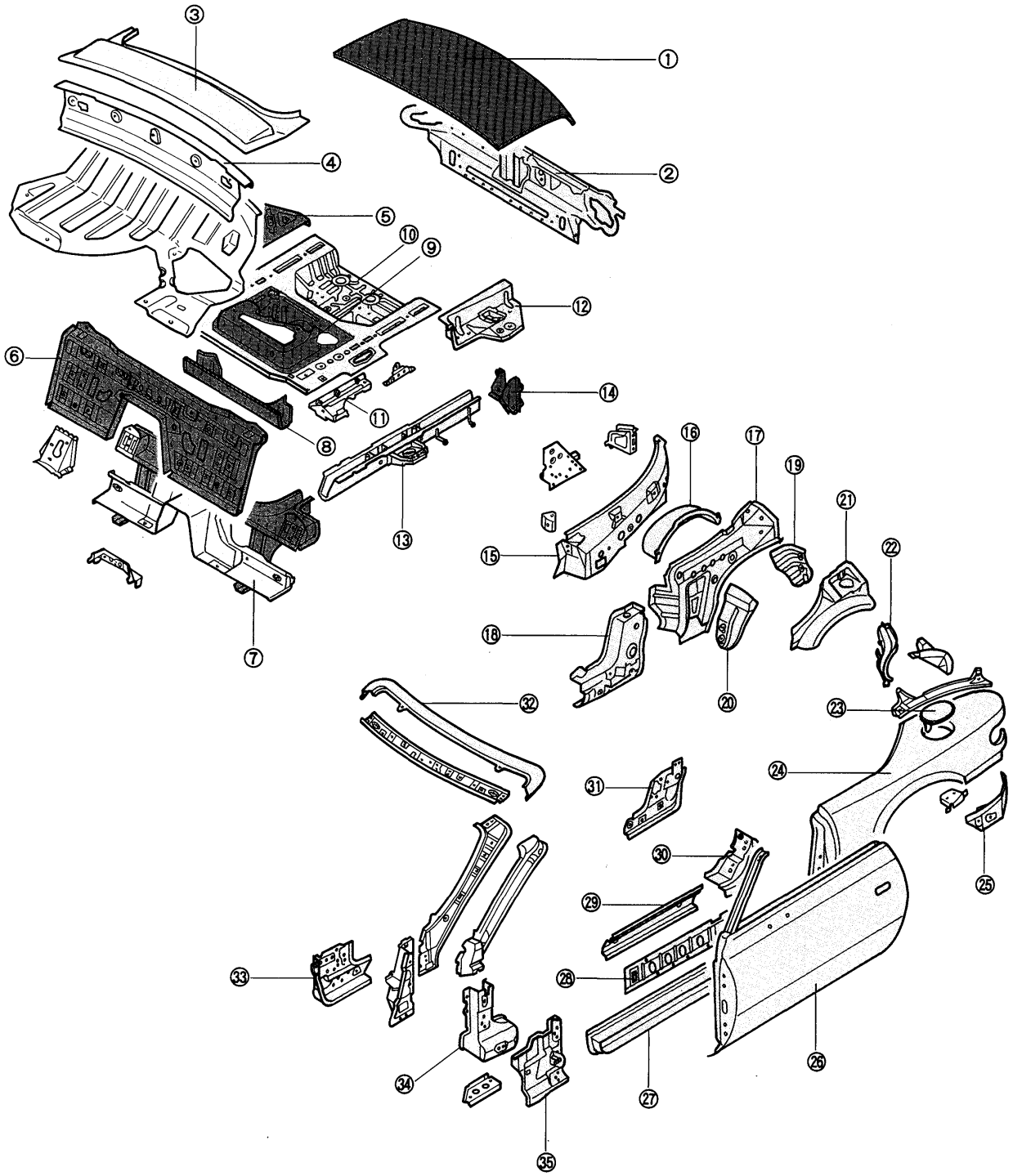
STRUCTURAL VIEW



No.	Part Name	No.	Part Name
①	Bumper bracket	⑩	Front frame, upper rear
②	Crossmember No. 1	⑪	Apron reinforcement
③	Light lid	⑫	Front wheel apron assy
④	Dash panel assy	⑬	Front frame rear
⑤	Cowl panel front	⑭	Stabilizer bracket
⑥	Dash panel assy	⑮	Front wheel apron panel
⑦	Front frame	⑯	Front fender panel
⑧	Front floor side pan	⑰	Torque box
⑨	Front frame, upper front	⑱	Shroud panel assy

..... Both side rust-proof treated steel

..... One side rust-proof treated steel (Reverse side only)

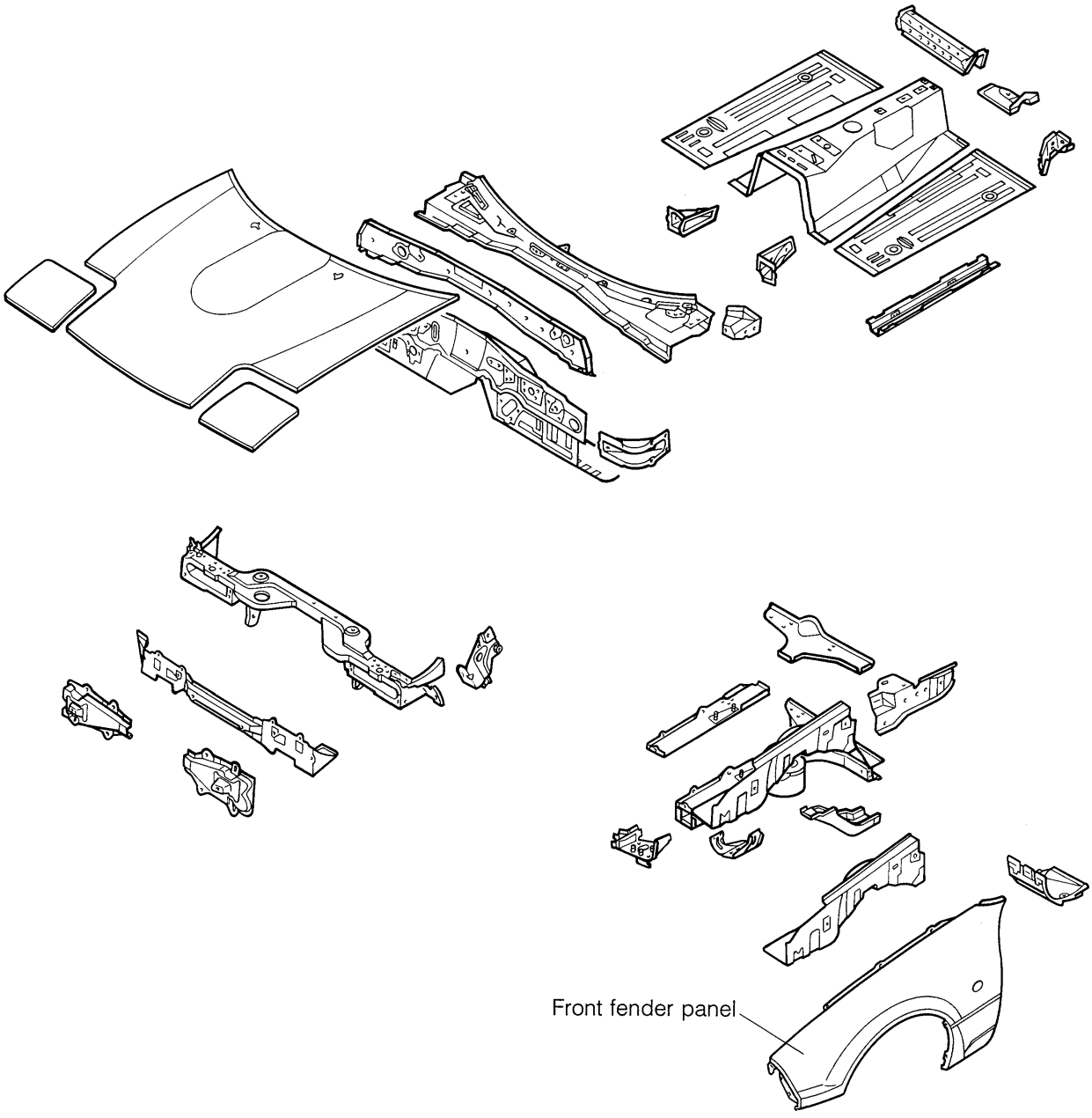

①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯
⑰
⑱
⑲
⑳
㉑
㉒
㉓
㉔
㉕
㉖
㉗
㉘
㉙
㉚
㉛
㉜
㉝
㉞
㉟

No.	Part Name	No.	Part Name
①	Trunk lid	⑲	Splash protector
②	Rear end panel	⑳	Seal plate
③	Rear deck panel	㉑	Quarter panel
④	Rear deck member	㉒	Light housing
⑤	Floor side panel	㉓	Fuel filler lid
⑥	Floor center pan	㉔	Rear fender panel
⑦	Crossmember No. 3	㉕	Rear fender, lower
⑧	Crossmember No. 4	㉖	Door body
⑨	Tank floor pan assy	㉗	Side sill, outer
⑩	Trunk floor assy	㉘	Side sill reinforcement
⑪	Floor side plate	㉙	Side sill B, inner
⑫	Floor side panel	㉚	Striker reinforcement
⑬	Rear side frame	㉛	Side sill C, inner
⑭	Bumper bracket	㉜	Front header, upper
⑮	Side panel, inner	㉝	Side sill A, inner
⑯	Wheel inner house	㉞	Hinge pillar, outer
⑰	Beltline reinforcement	㉟	Cowl side panel
⑱	Corner junction		

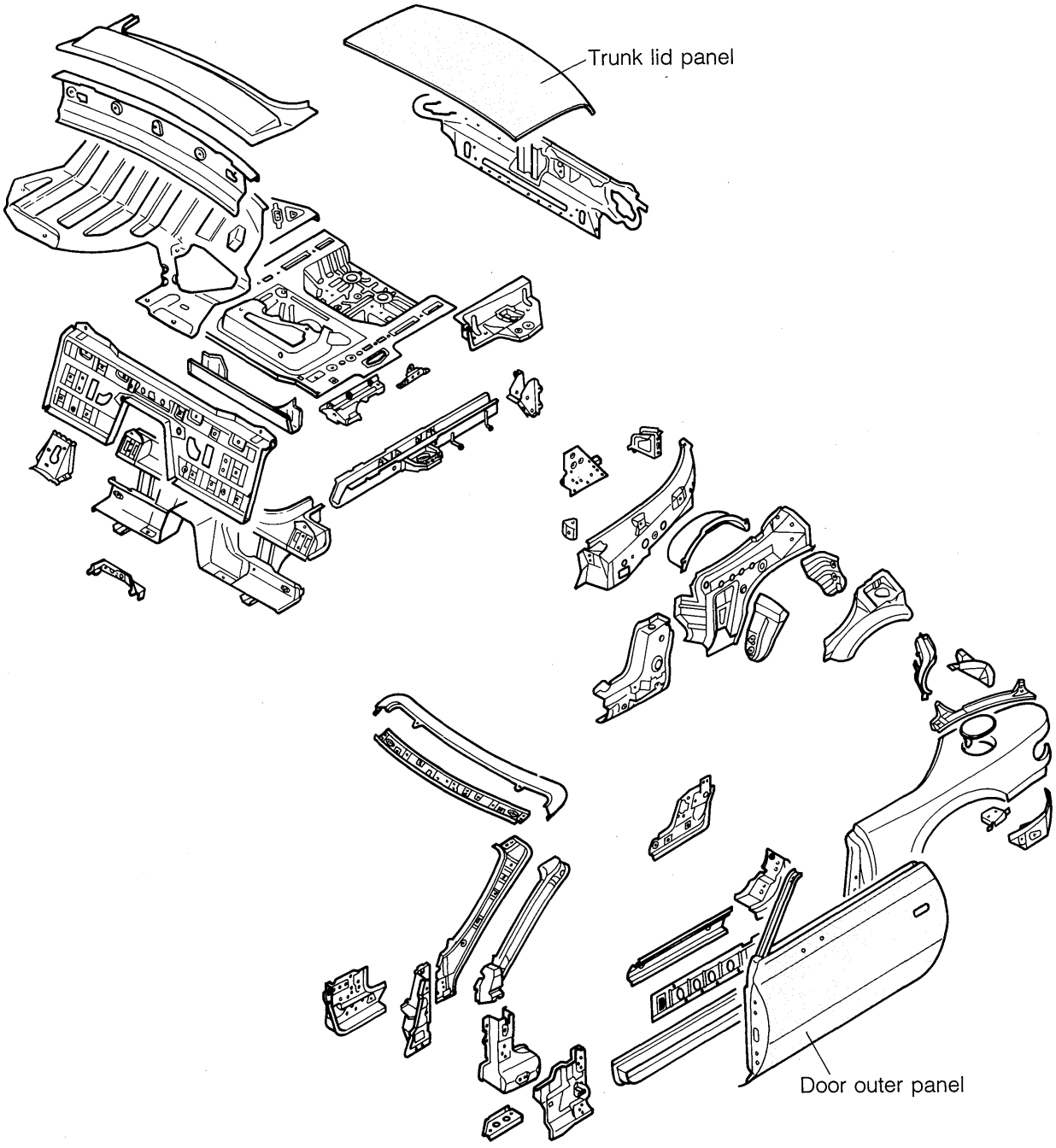
..... Both side rust-proof treated steel
..... One side rust-proof treated steel (Reverse side only)

HIGH-STRENGTH STEEL

STRUCTURAL VIEW



▭ ..... High-strength steel


Trunk lid panel
Door outer panel

PANEL REPLACEMENT

CROSSMEMBER (NO. 1) 36
SHROUD PANEL ASSY 38
WHEEL APRON PANEL 40
WHEEL APRON PANEL ASSY 42
COWL SIDE PANEL 44
SIDE SILL PANEL ASSY 46
FRONT PILLAR, OUTER COWL SIDE PANEL, HINGE PILLAR, INNER COWL SIDE PANEL AND SIDE SILL PANEL 48
REAR FENDER PANEL 52
REAR END PANEL 54
TRUNK FLOOR PAN, FLOOR SIDE PANEL 56

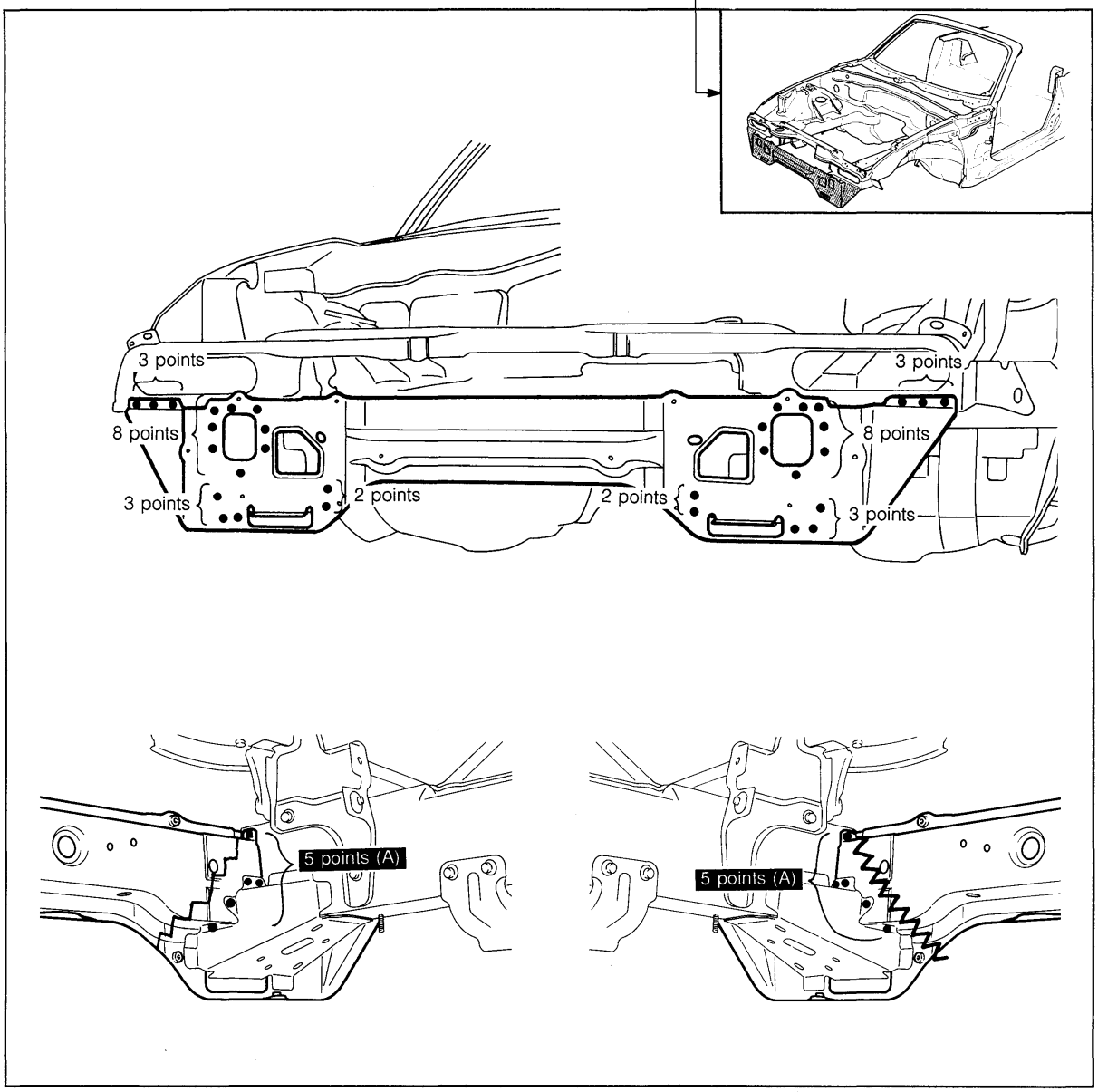
Welding Symbol	
●	Spot welding
■	MIG plug welding
+	MIG spot welding
++++	Continuous MIG welding at cut-and-join location
⊂⊃	Braze welding
∧∧∧	Rough cut location

CROSSMEMBER (NO. 1)

Name of part to be replaced

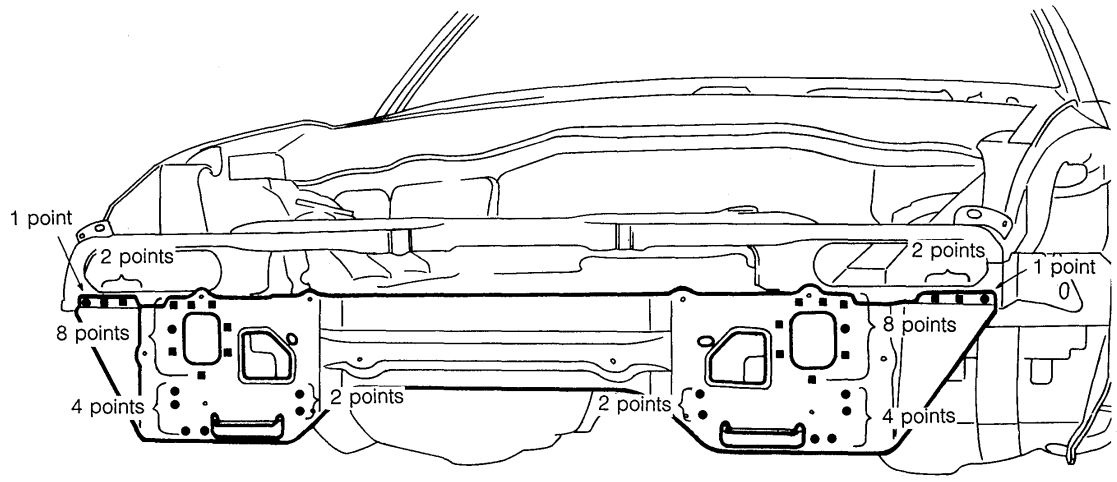
Location of part to be replaced

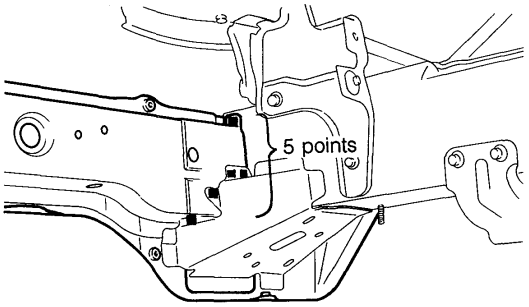
REMOVAL

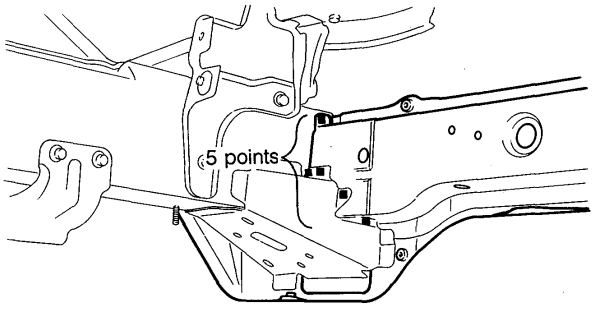


- To drill away 8 points indicated by (A), first rough-cut as shown in the illustration, and remove the crossmember.
- When drilling other than points (A), do not make open holes.
- Do not damage the front side frame when rough-cutting.

INSTALLATION



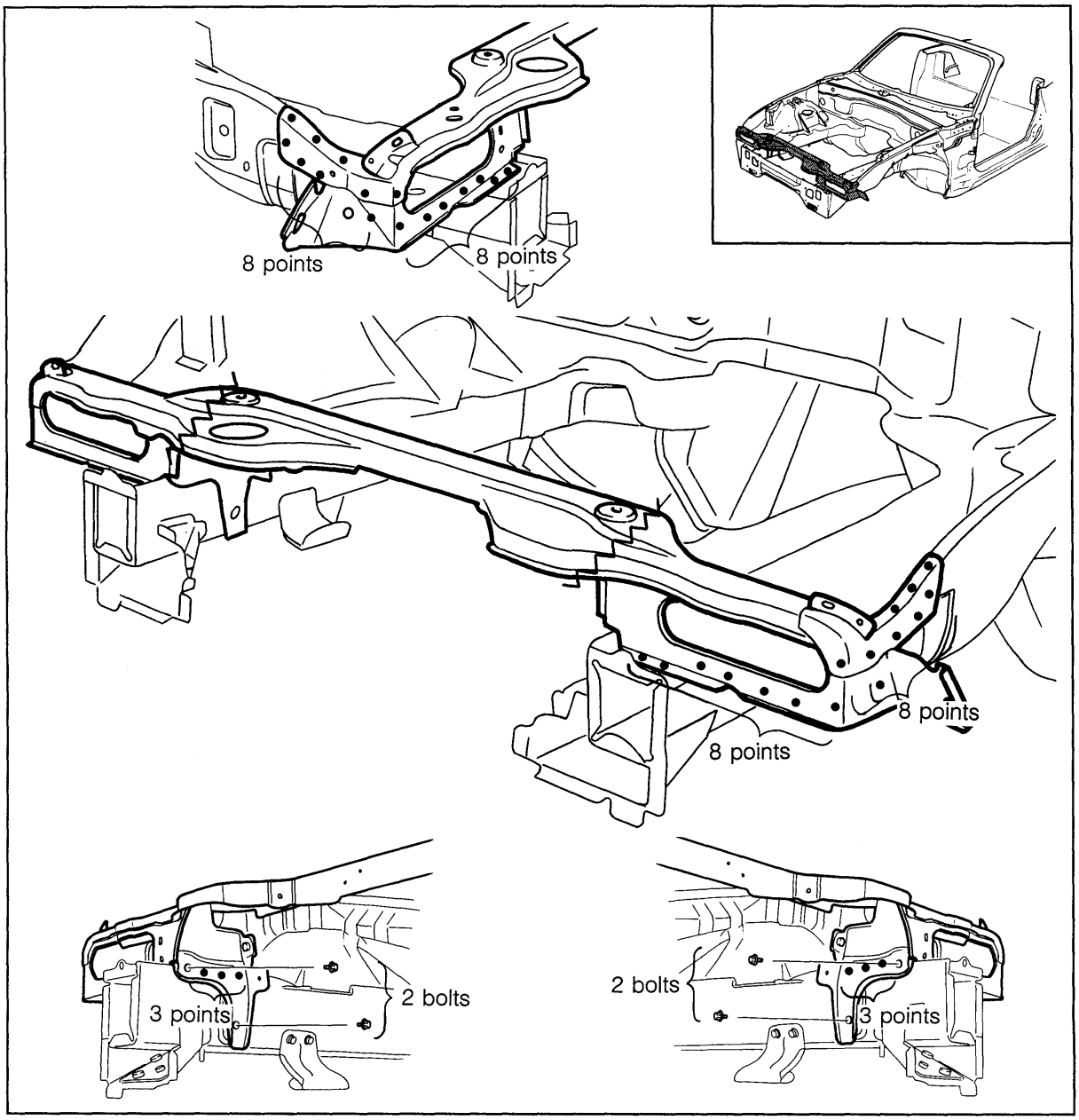




- When installing new parts, measure the dimensions to verify that they are as specified.

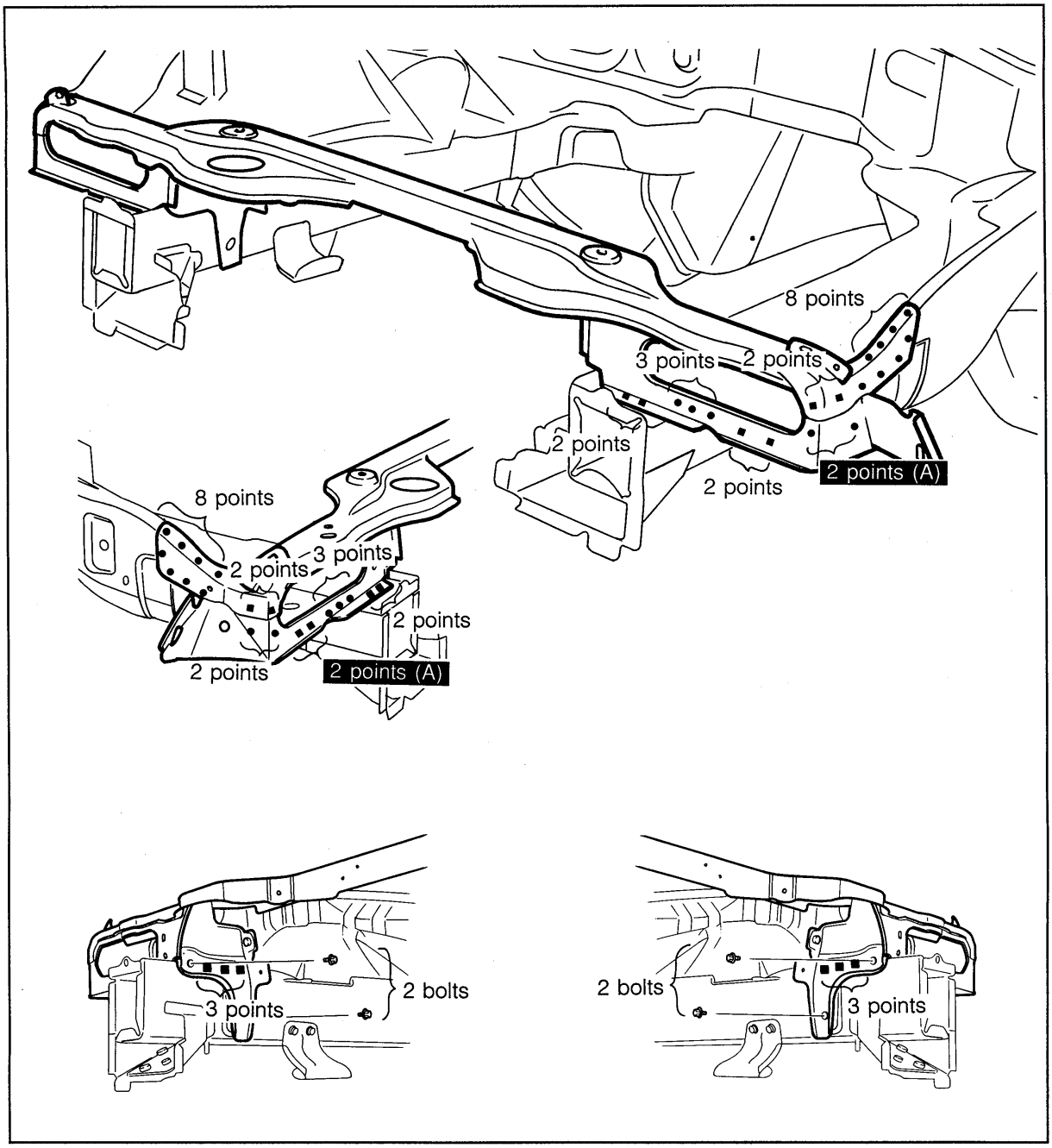
SHROUD PANEL ASSY

REMOVAL



- Work should be performed after the crossmember No. 1 is removed.
- When drilling away the spot welds, do not make open holes.

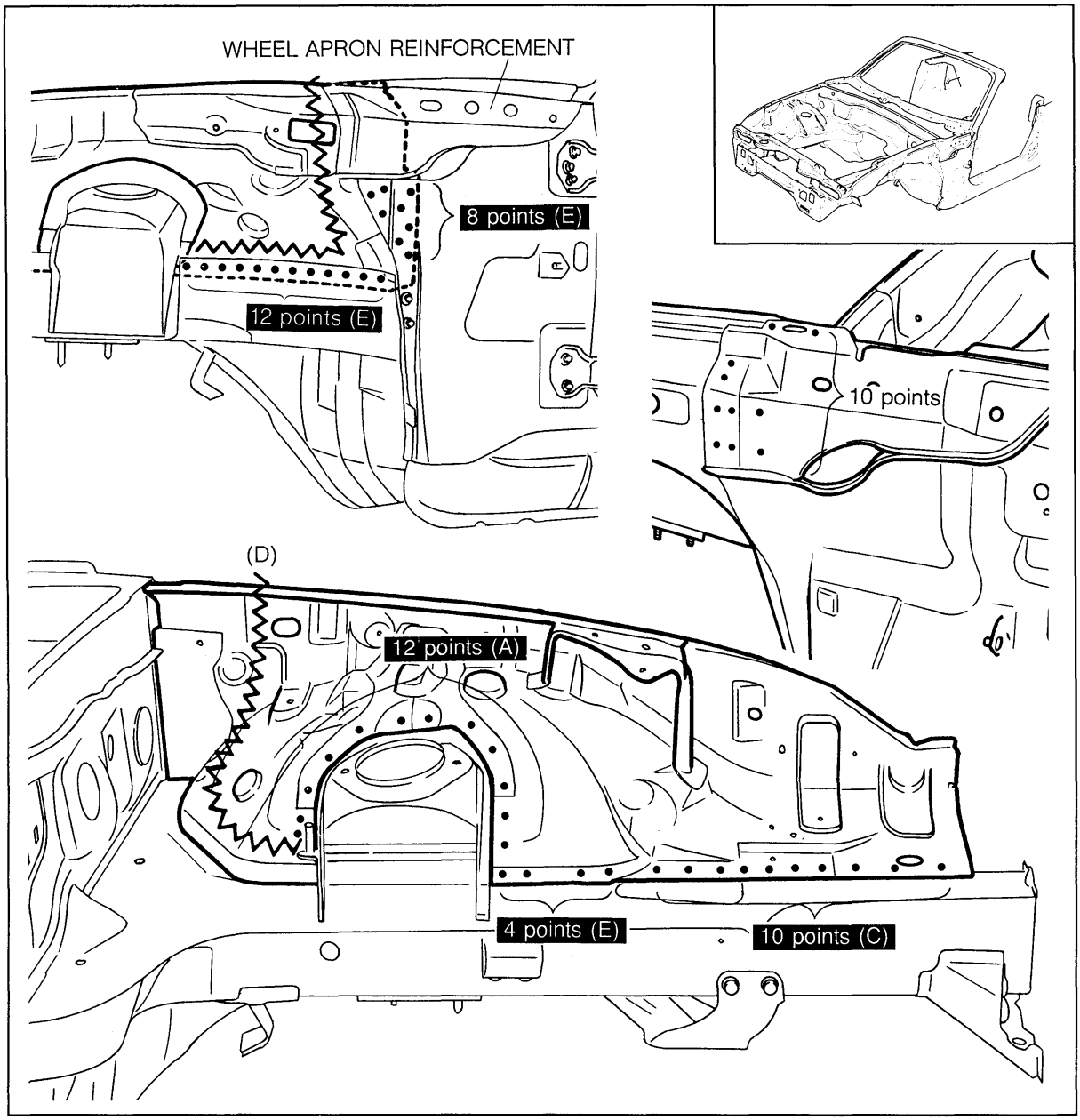
INSTALLATION



- When installing new parts, measure the dimensions to verify that they are as specified, and check the fit with associating parts.
- Plug welding 4 points indicated by (A) are performed during installation of the crossmember.

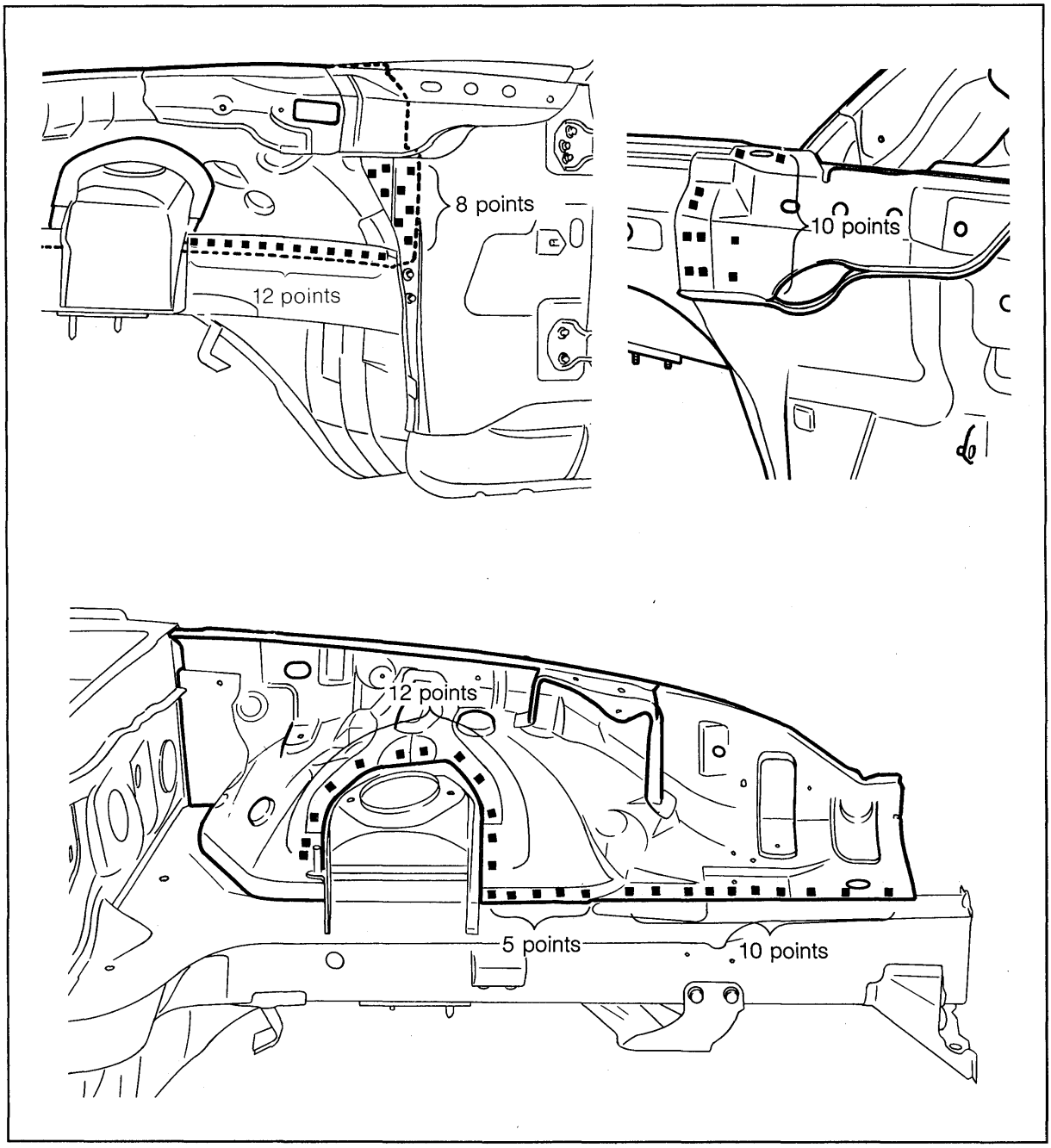
WHEEL APRON PANEL

REMOVAL



- Illustrations show only left side of the wheel apron panel.
  All points are located symmetrically.
- Do not damage the suspension housing and wheel apron reinforcement when rough-cutting.
- To drill away 22 points indicated by (E), first drill away points (A), (B), and (C), and rough-cut (D).
- Drilling of 12 points indicated by (A) should be performed with caution.
  Do not make open holes from the engine compartment side.
- Drilling of 5 points indicated by (B) should be performed from outboard side.

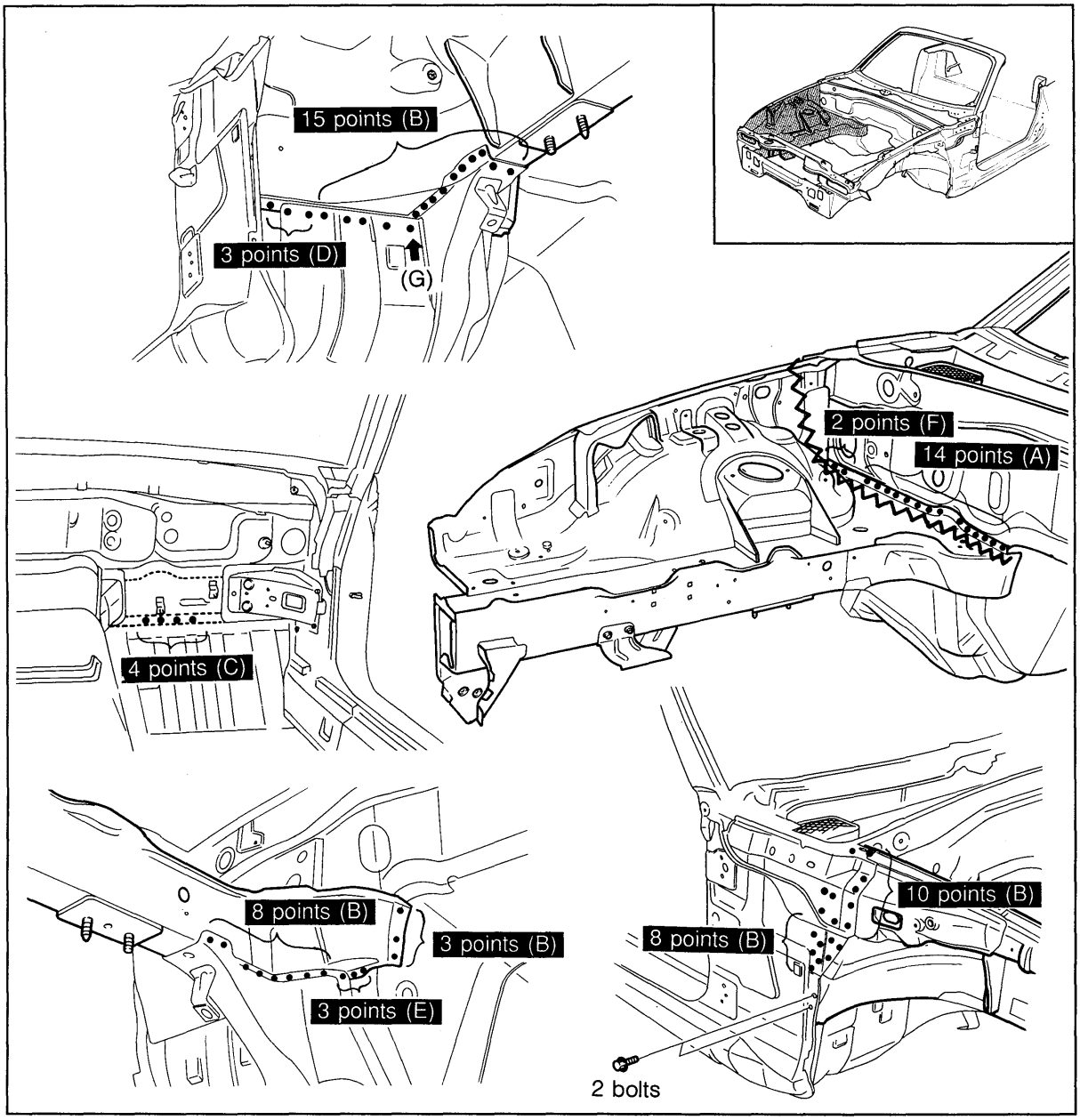
INSTALLATION



- Make plug welding holes in new parts.
- After temporary installation of new parts, measure the dimensions to verify that they are as specified.
- Check the fit with associating parts (hood, front fender panel, bumper, etc.).

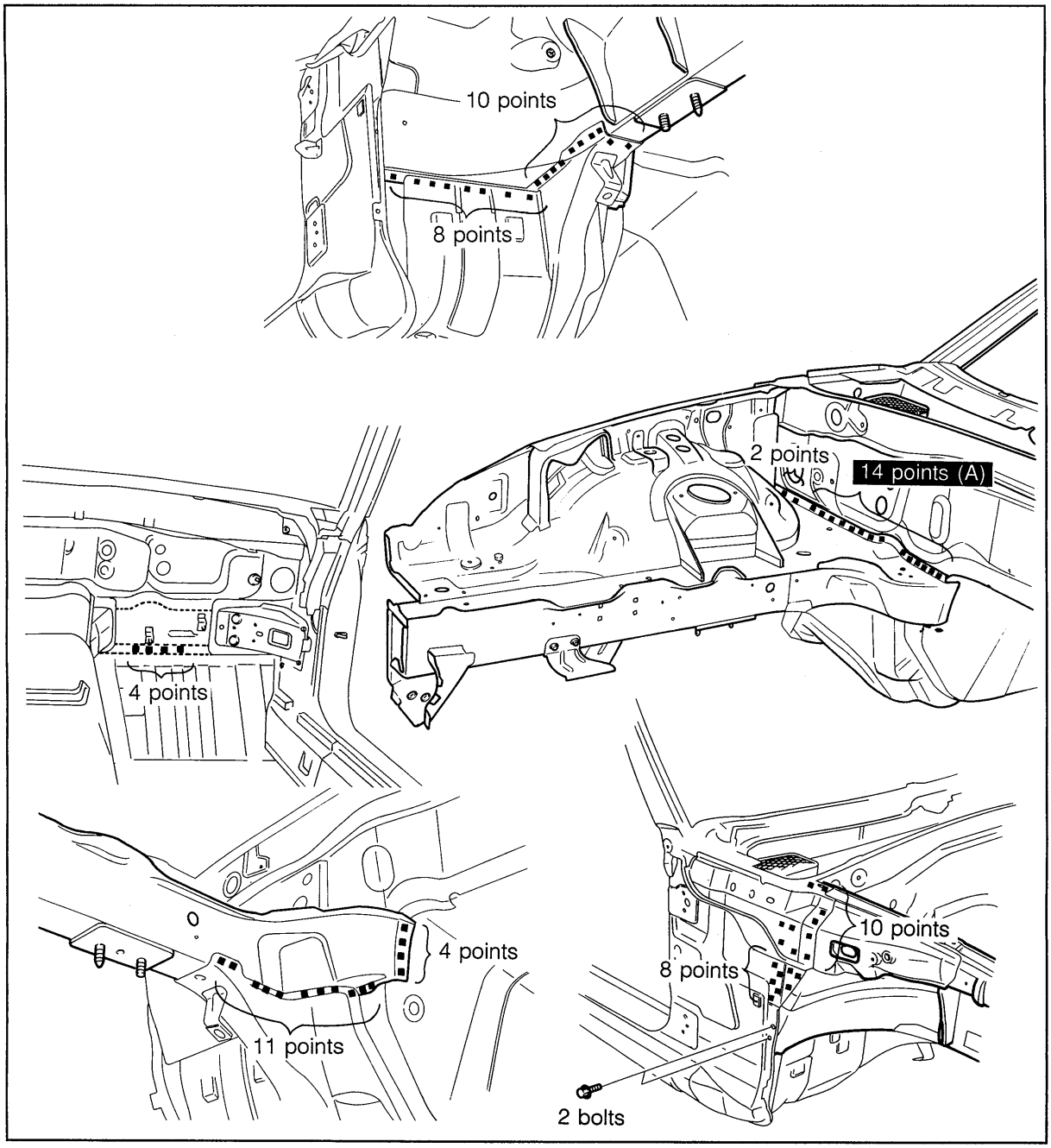
WHEEL APRON PANEL ASSY

REMOVAL



- Drilling for spot welding indicated by (A) and (F) should be performed after rough-cutting.
- Rough-cutting should be performed after drilling for spot welding indicated by (B) and (C).
- For best results, when drilling points indicated by (D), (E), and (G), do not make open holes.
- When replaceing the cowl side panel at the same time, make open holes in drilling points indicated by (E), perform plug welding from the hinge pillar side before installing the cowl side panel.
- Drilling for spot welding indicated by (C) and (G) should be performed from the cabin side.

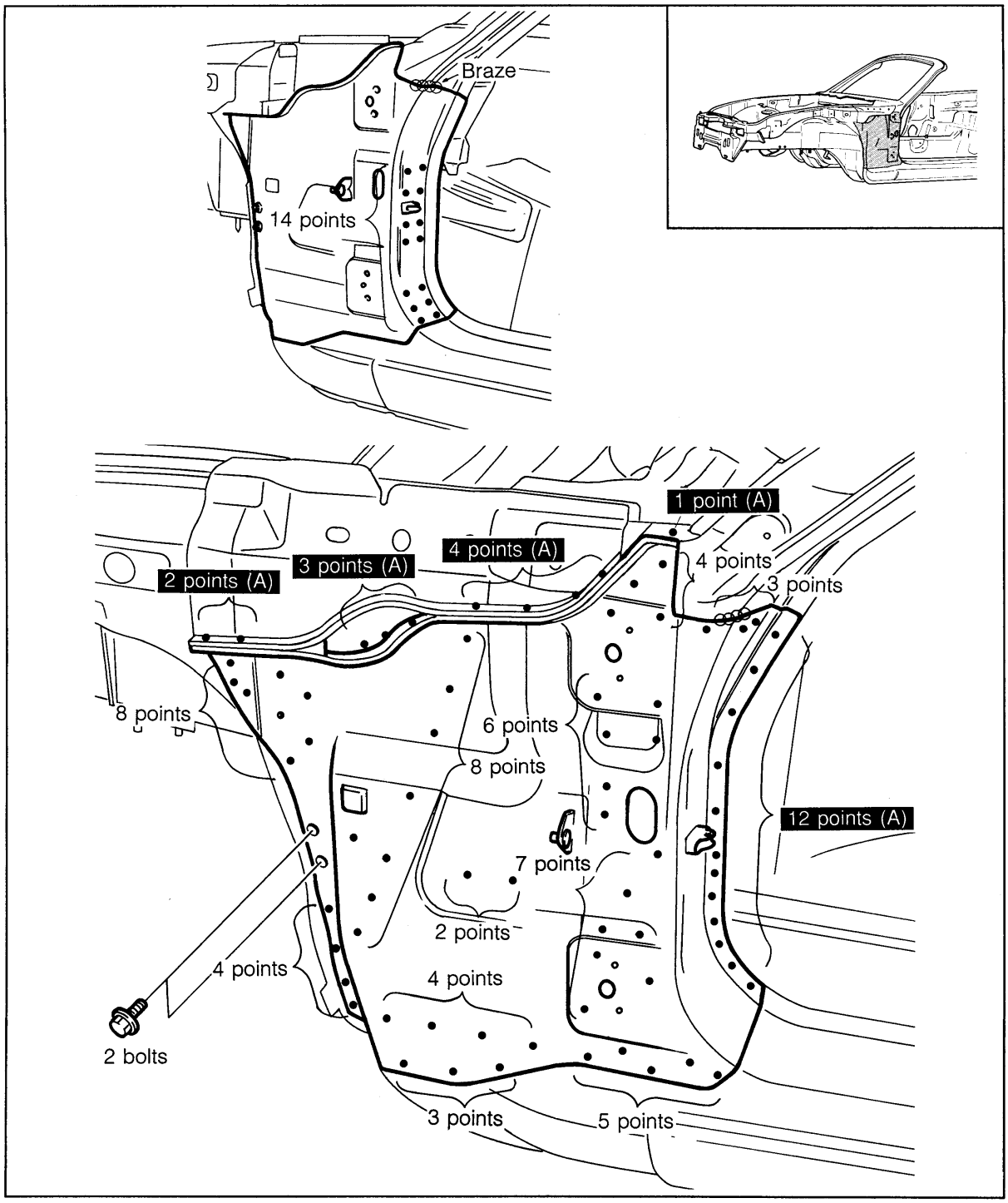
INSTALLATION



- Make plug welding holes in new parts.
- After temporary installation of new parts, measure the dimensions to verify that they are as specified.
- Check the fit with associating parts (hood, front fender, etc.).
- Plug welding indicated by (A) should be performed from the cabin side.

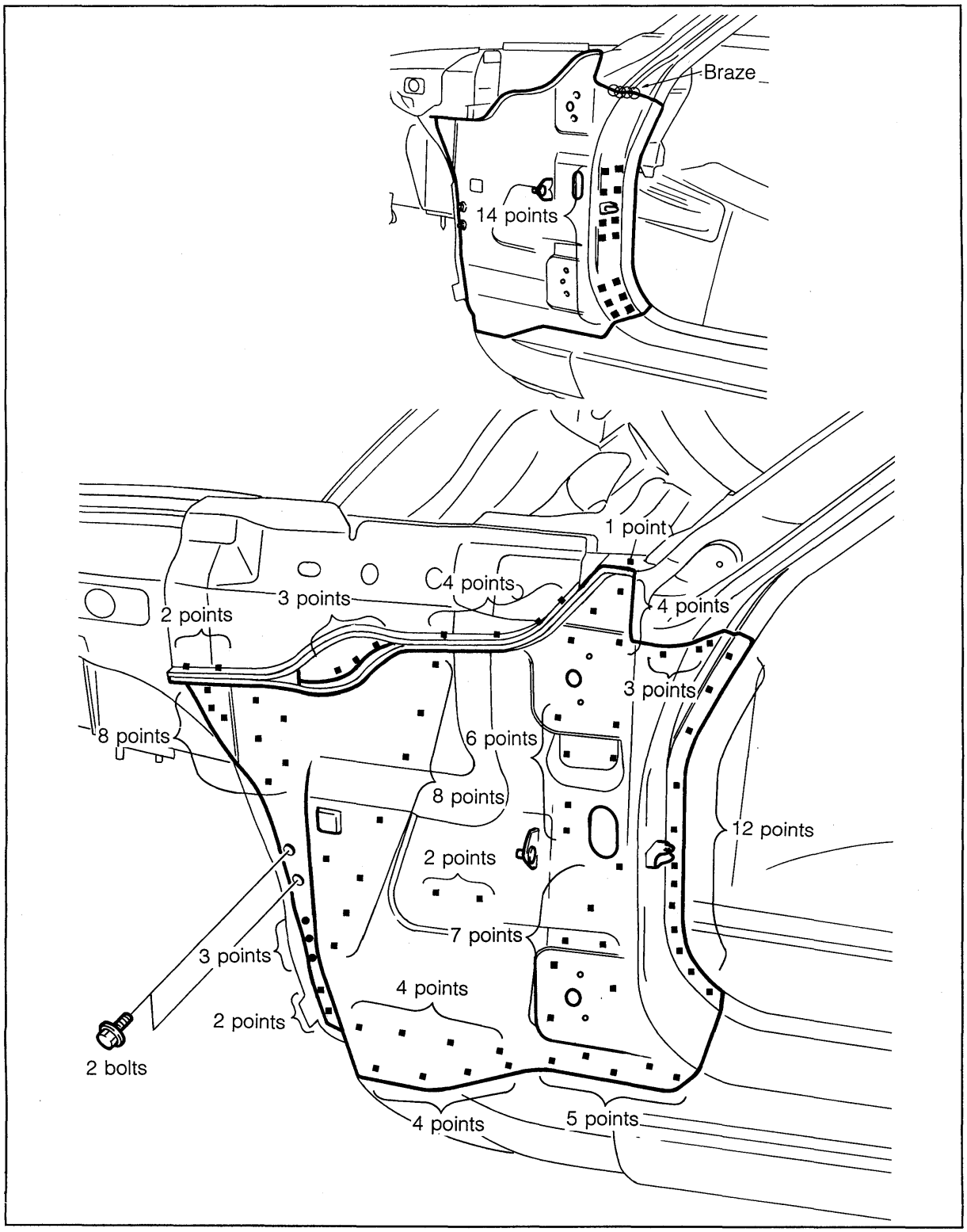
COWL SIDE PANEL

REMOVAL



- When drilling for spot welding, do not make open holes except 22 points indicated by (A).

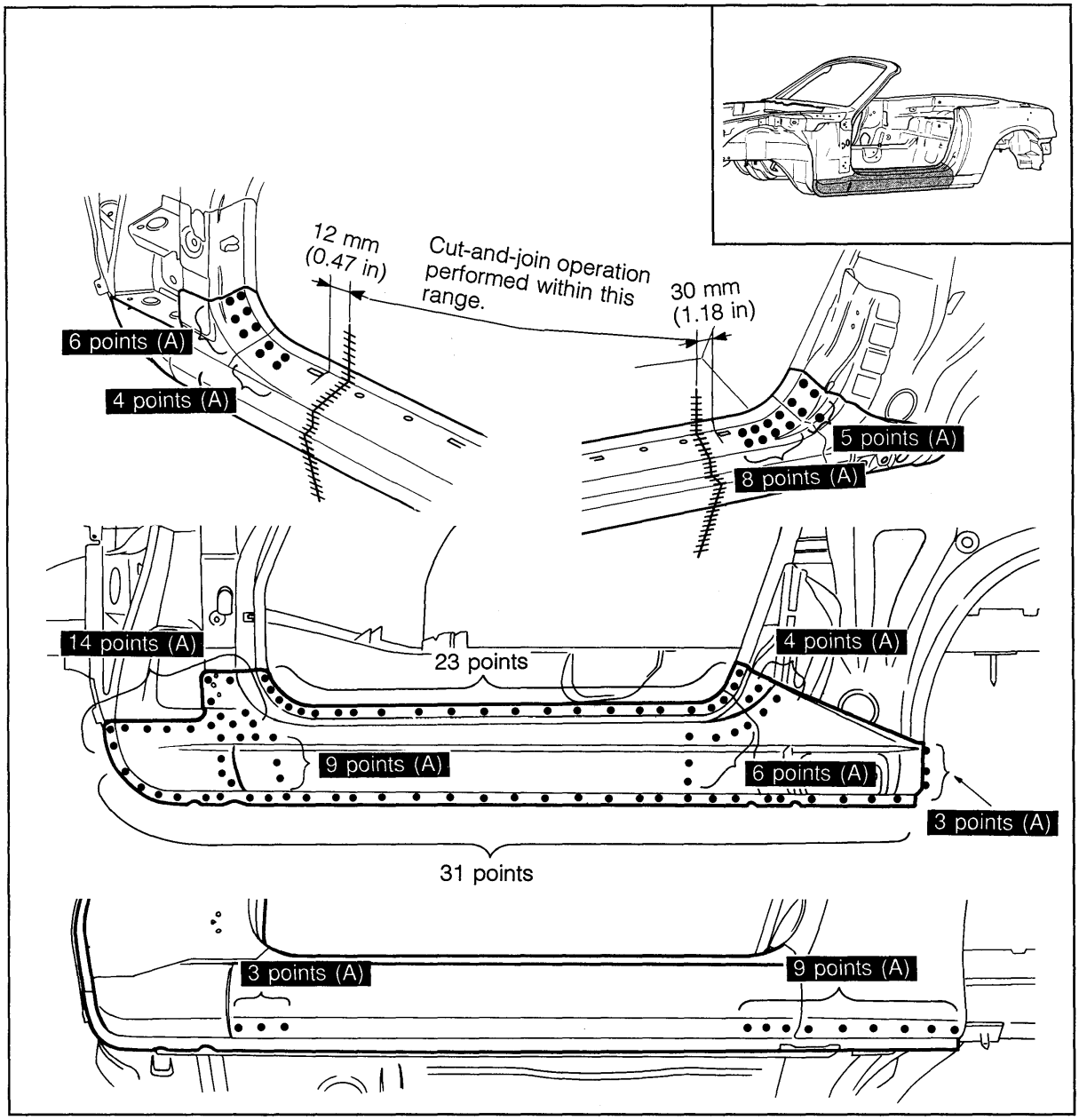
INSTALLATION



- Plug welds on door hinge side must be smooth.

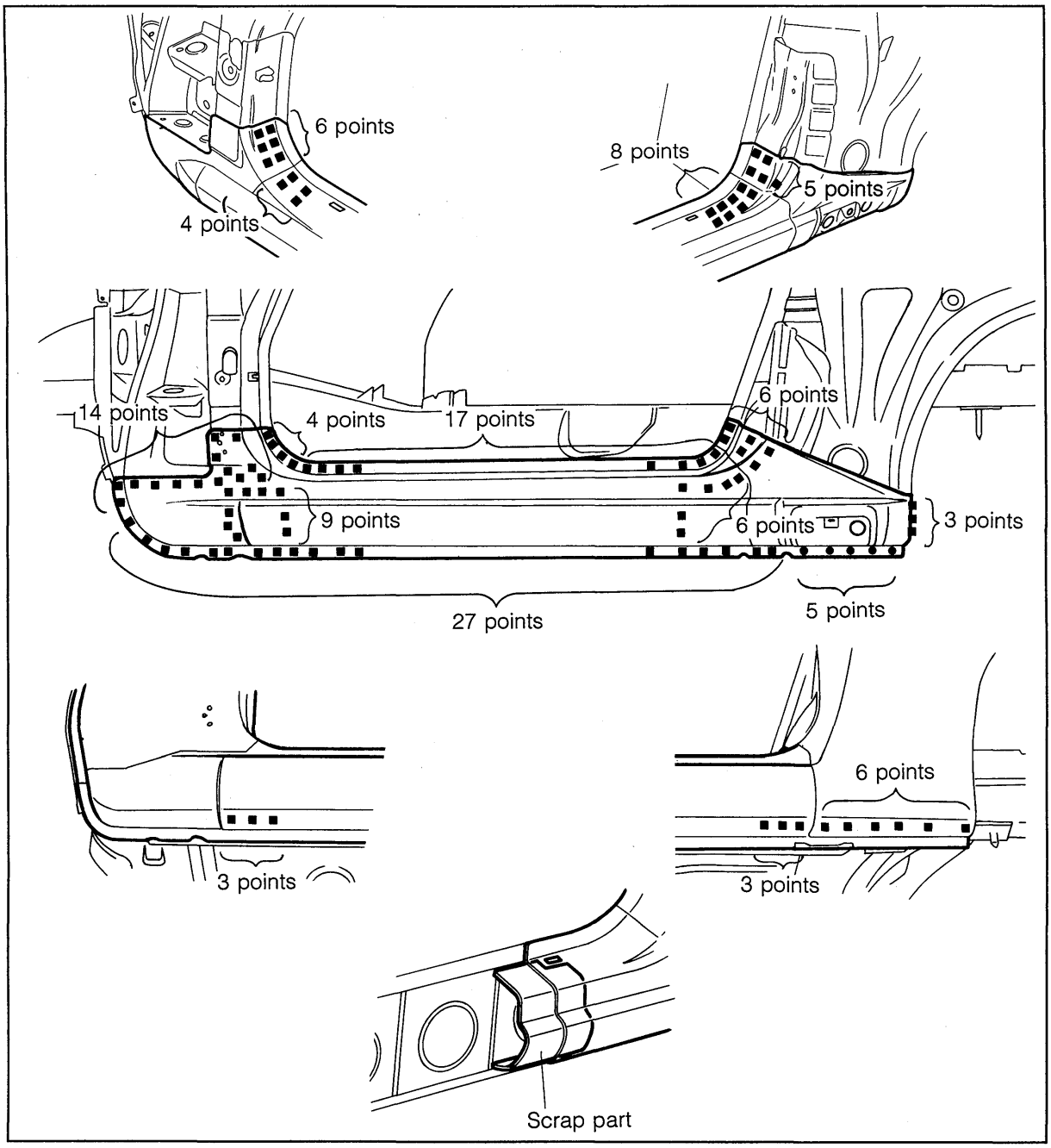
SIDE SILL PANEL ASSY

REMOVAL



- Work should be performed after the cowl side panel and the rear fender panel are removed.
- Rough-cut 30~50 mm (1.2~2.0 in) inside the cut-and-join location.
- Do not damage the outer hinge pillar and the side sill reinforcement when rough-cutting.
- Do not make open holes when drilling points (A).

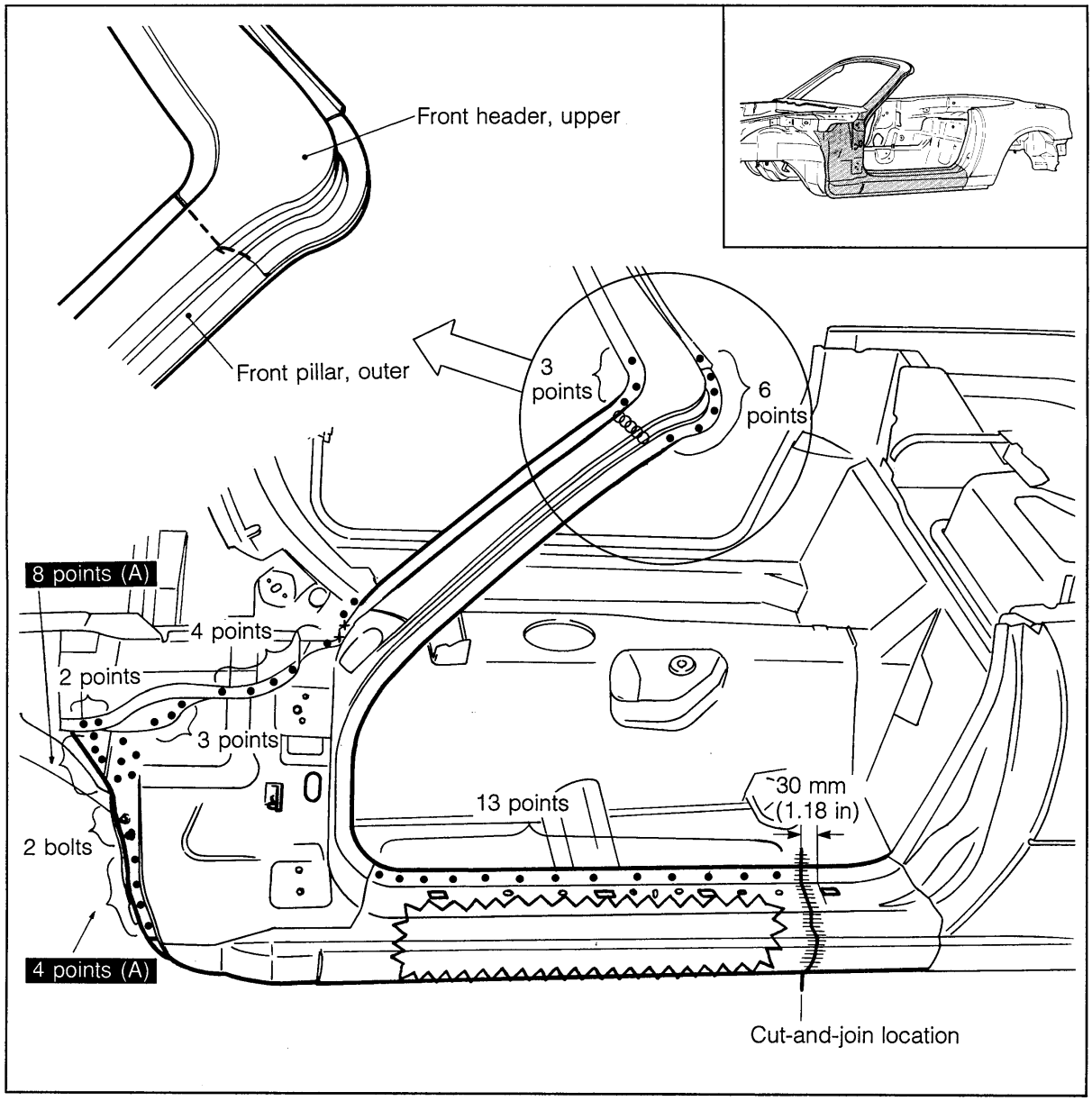
INSTALLATION



- Cut-and-join of the side sill should not be performed at ● or ■ points.
- When replacing the side sill, install a scrap part under the cut-and-join location to help welding.
- Plug welding of points (A) should be performed during installation of the cowl side panel and the rear fender panel.

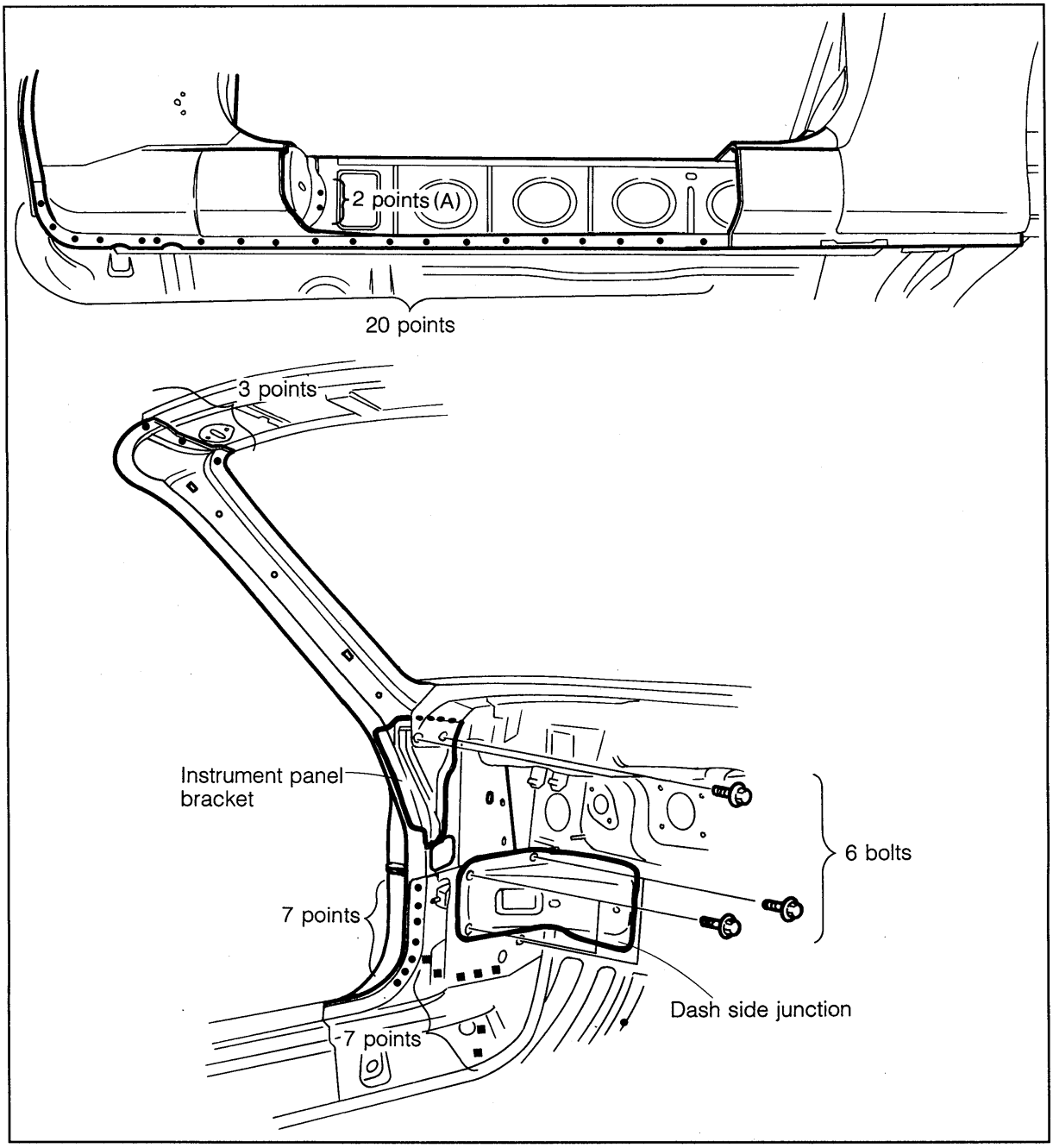
FRONT PILLAR, OUTER COWL SIDE PANEL, HINGE PILLAR, INNER COWL SIDE PANEL AND SIDE SILL PANEL

REMOVAL



- The following operations are performed when the inner and outer front pillars, cowl side panel, outer hinge pillar, inner cowl side panel, and outer side sill panel are replaced at the same time.
- Cut away the joint of the outer front pillar and the upper front header (shown by the broken line) with a saw.
- Rough-cut the outer side sill panel and drill away the spot welding of the hinge pillar and the side sill reinforcement. Do not make open holes when drilling.
- Cut away the other welded points shown in the illustration.
- Remove the bolts attached to the instrument panel bracket, the dash side junction, etc.
- Remove the parts to be replaced.

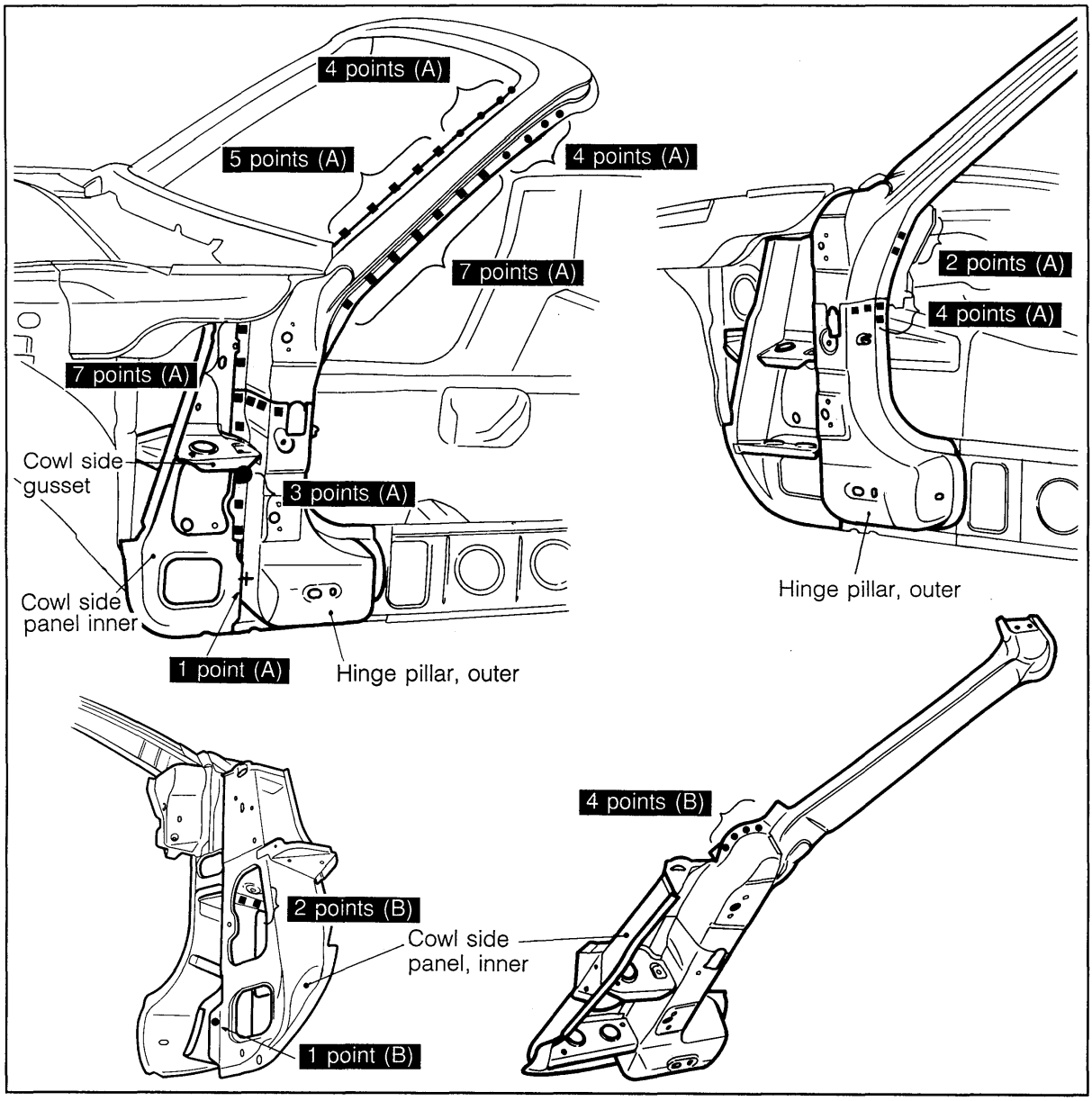
REMOVAL



- Do not damage the side sill reinforcement when rough-cutting.
- When drilling 14 points indicated by (A), do not make open holes.
- When drilling away plug welded points, first flatten paddings with a disc grinder.

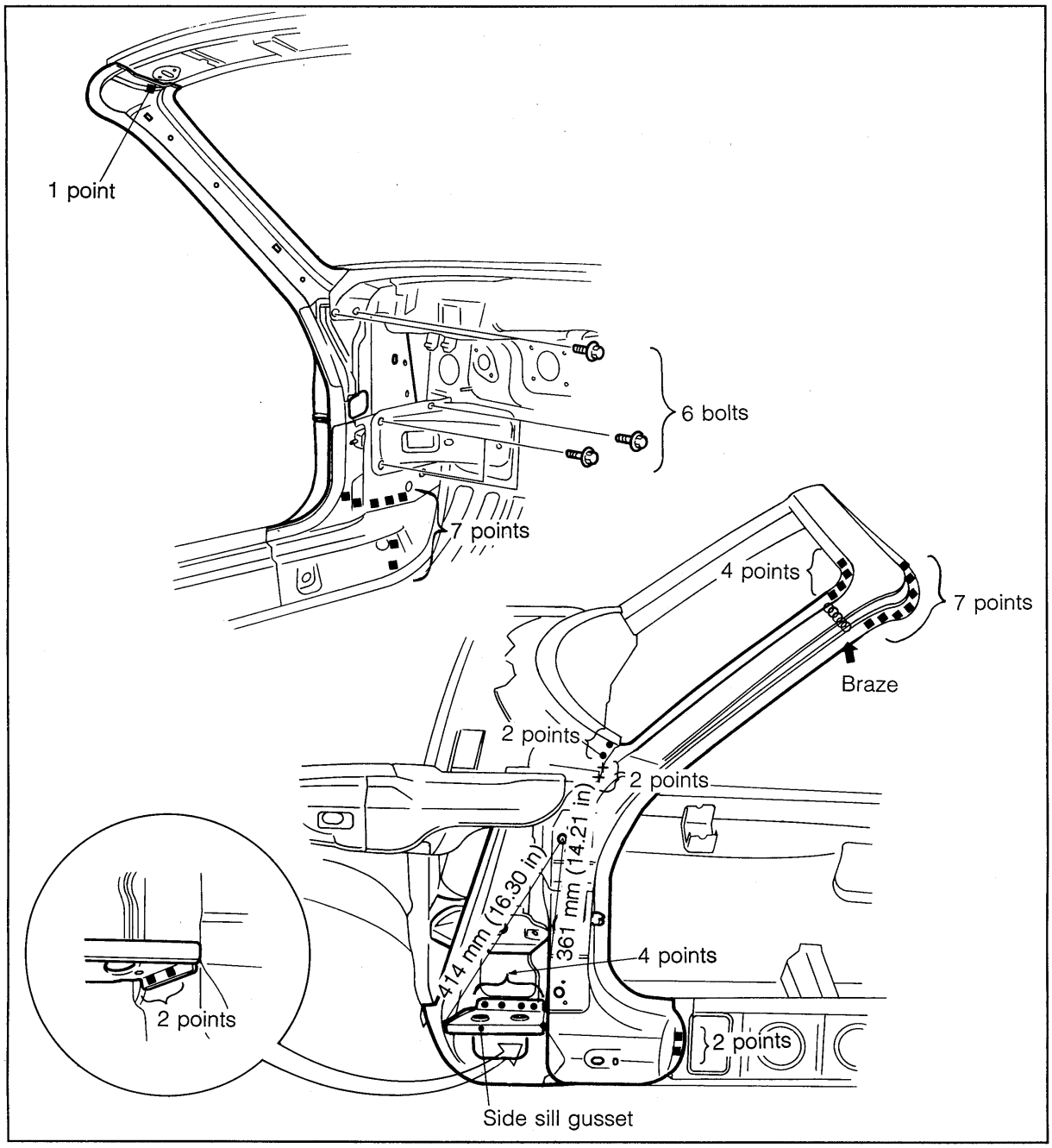
FRONT PILLAR, OUTER COWL SIDE PANEL, HINGE PILLAR, INNER COWL SIDE PANEL AND SIDE SILL PANEL

INSTALLATION



- Make plug welding holes in the outer hinge pillar and the cowl side gusset.
- After temporary installation of the inner and outer front pillar, outer hinge pillar, and inner cowl side panel, measure the dimensions to verify that they are as specified. Check the fit with associating parts, then weld the points indicated by (A).
- After welding the points (A), remove the front pillar and the hinge pillar from the body. Then spot weld or plug weld the points indicated by (B).

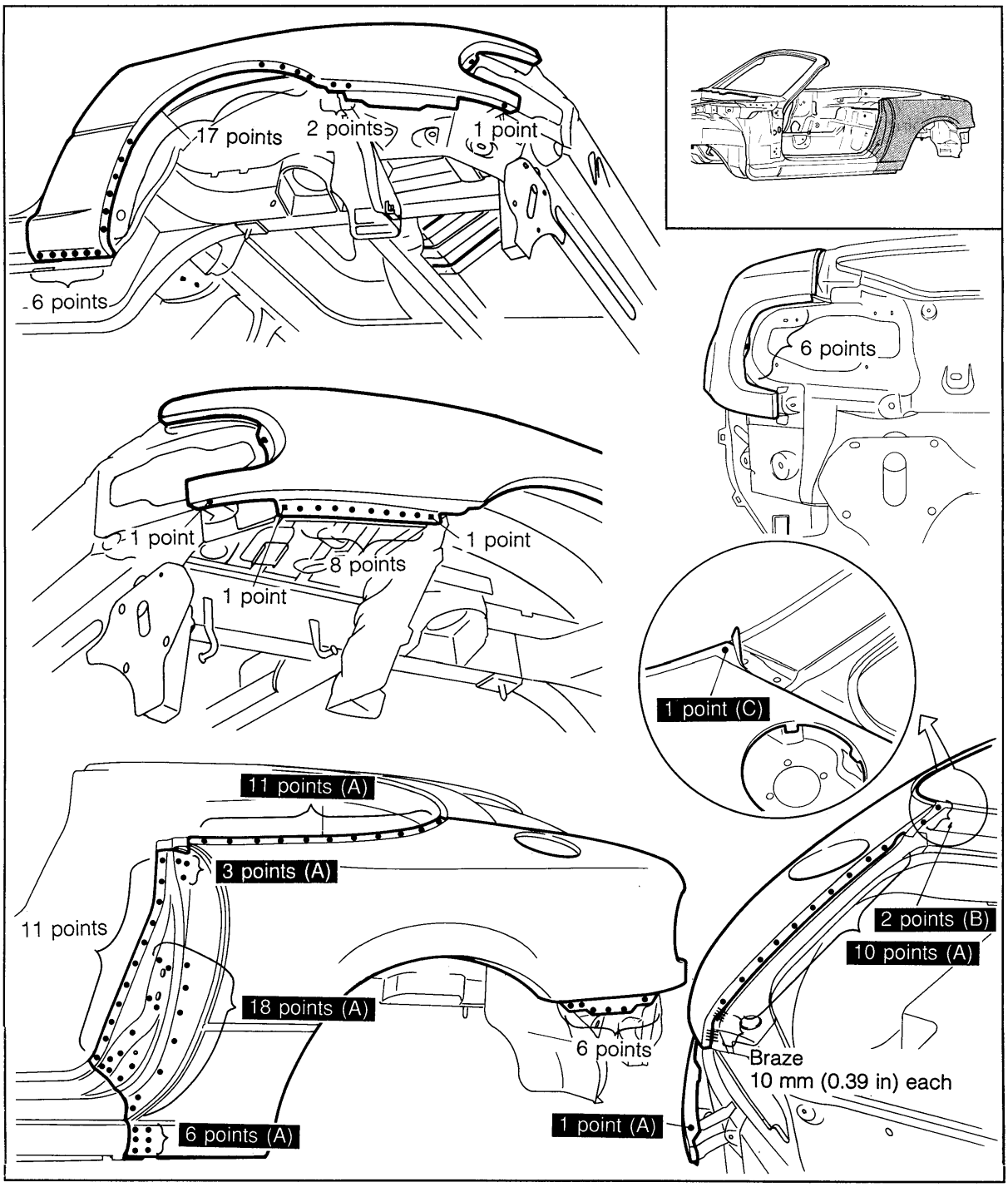
INSTALLATION



- After installing the side sill gusset as indicated, install the front pillar and the hinge pillar to the body. Check the fit with associating parts, then weld all parts.
- To weld parts, refer to page 49, cowl side panel and page 51, side sill panel assy to assure a good weld.
- To install the cowl side panel and the side sill panel, refer to page 49, 51.

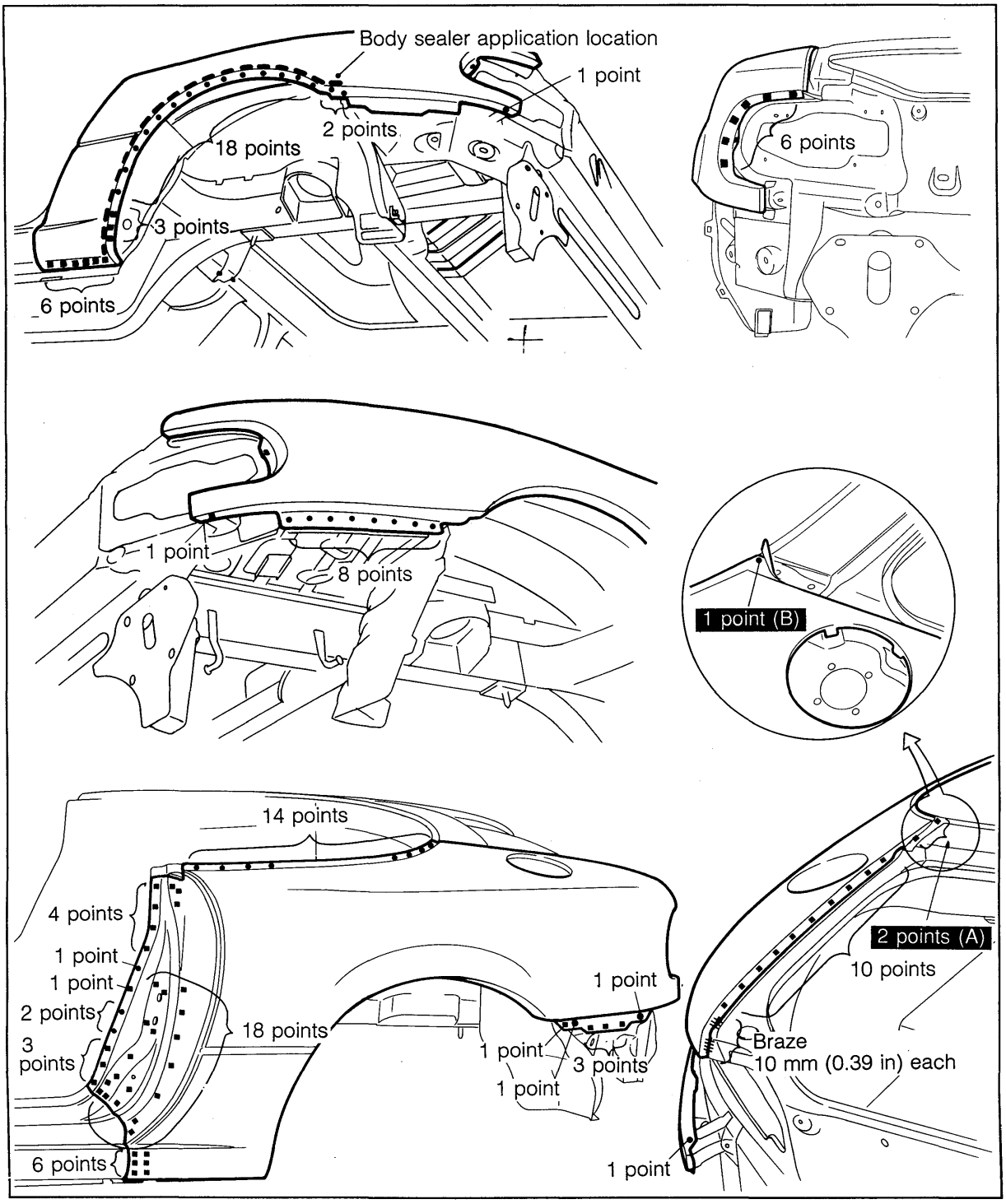
REAR FENDER PANEL

REMOVAL



- When drilling points for spot welding indicated by (A), (B) and (C), do not make open holes.
- To drill away 2 points indicated by (B), first drill points (A) and turn up the flange of the rear deck panel.

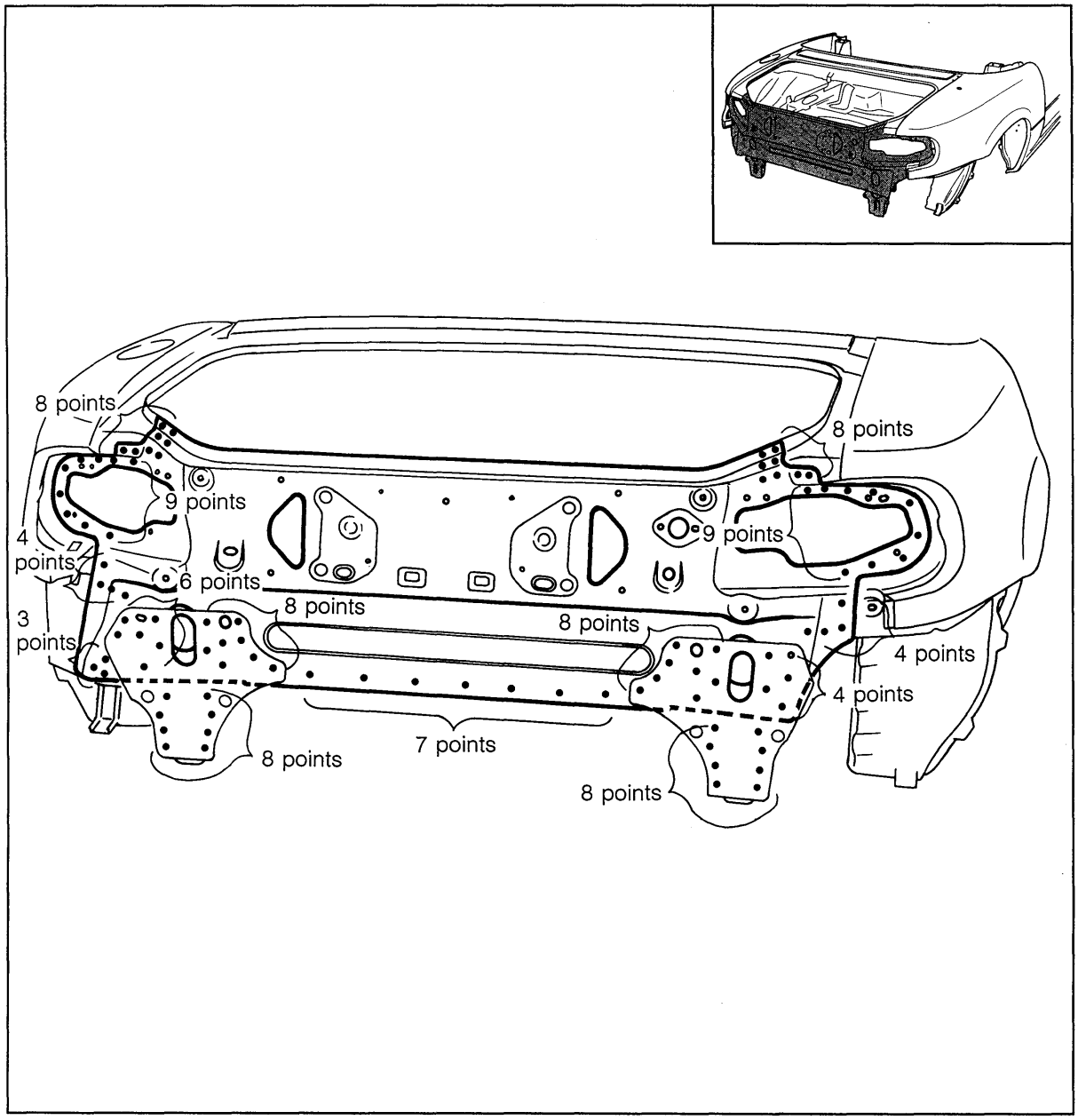
INSTALLATION



- Apply body sealer before installing new parts as shown in the illustration.
- After temporary installation of new parts, check the fit with associating parts (door, trunk lid, rear combination lights, rear bumper, rear finisher etc.).
- To plug weld 2 points indicated by (A), first spot weld point (B) and turn down the flange of the rear deck panel to the original position.

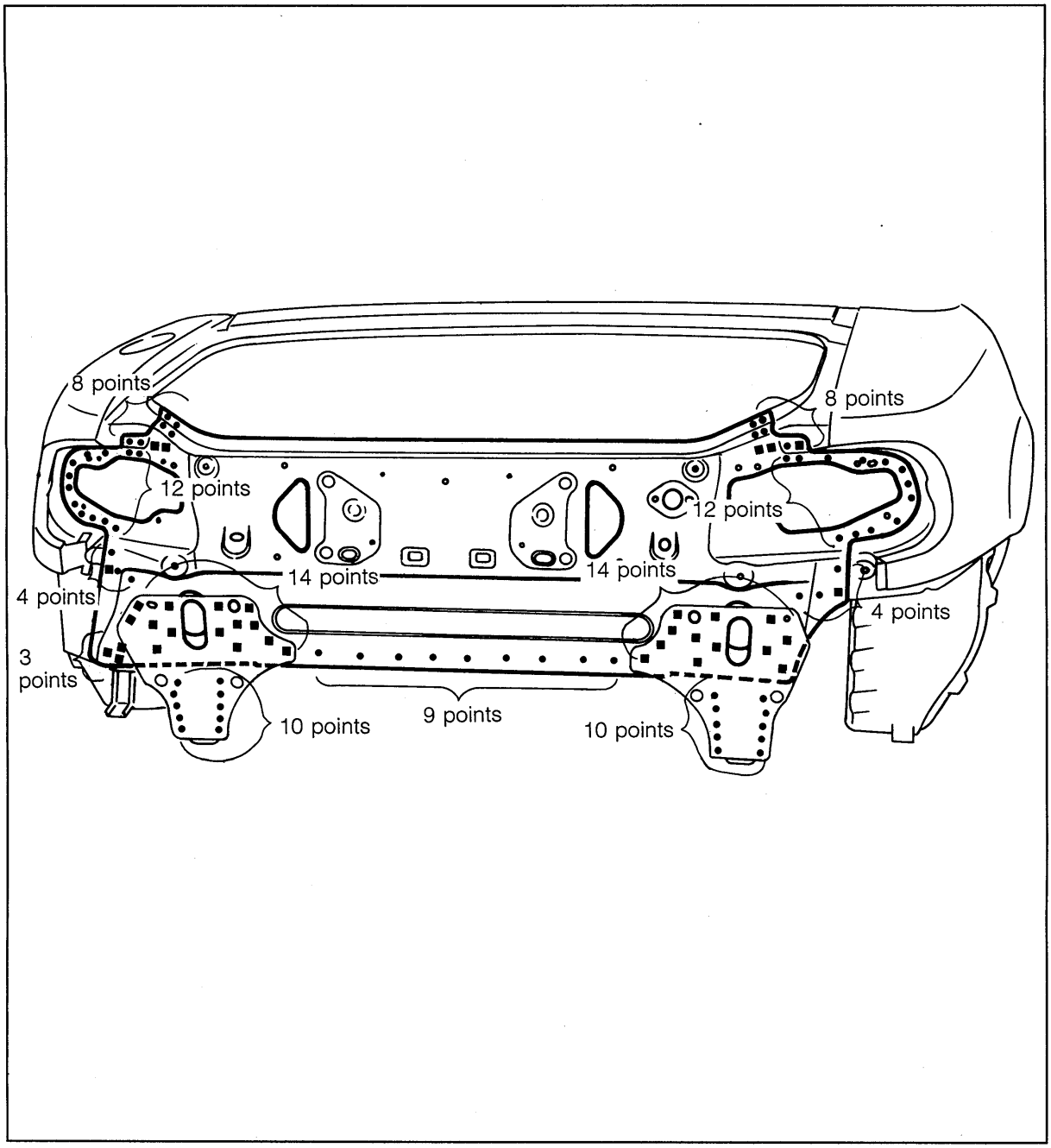
REAR END PANEL

REMOVAL



- For best results, when drilling spot welded points, do not make open holes.

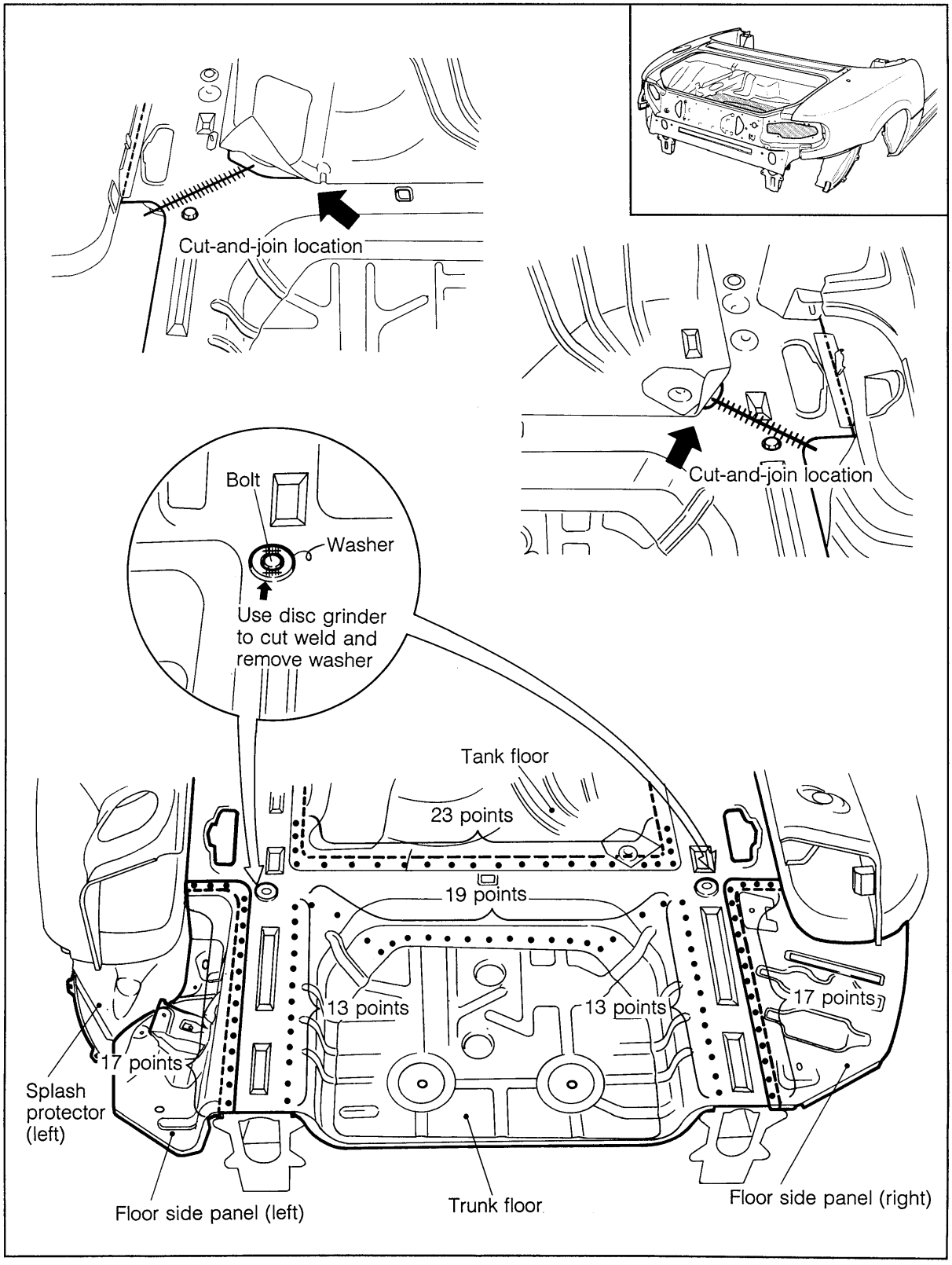
INSTALLATION



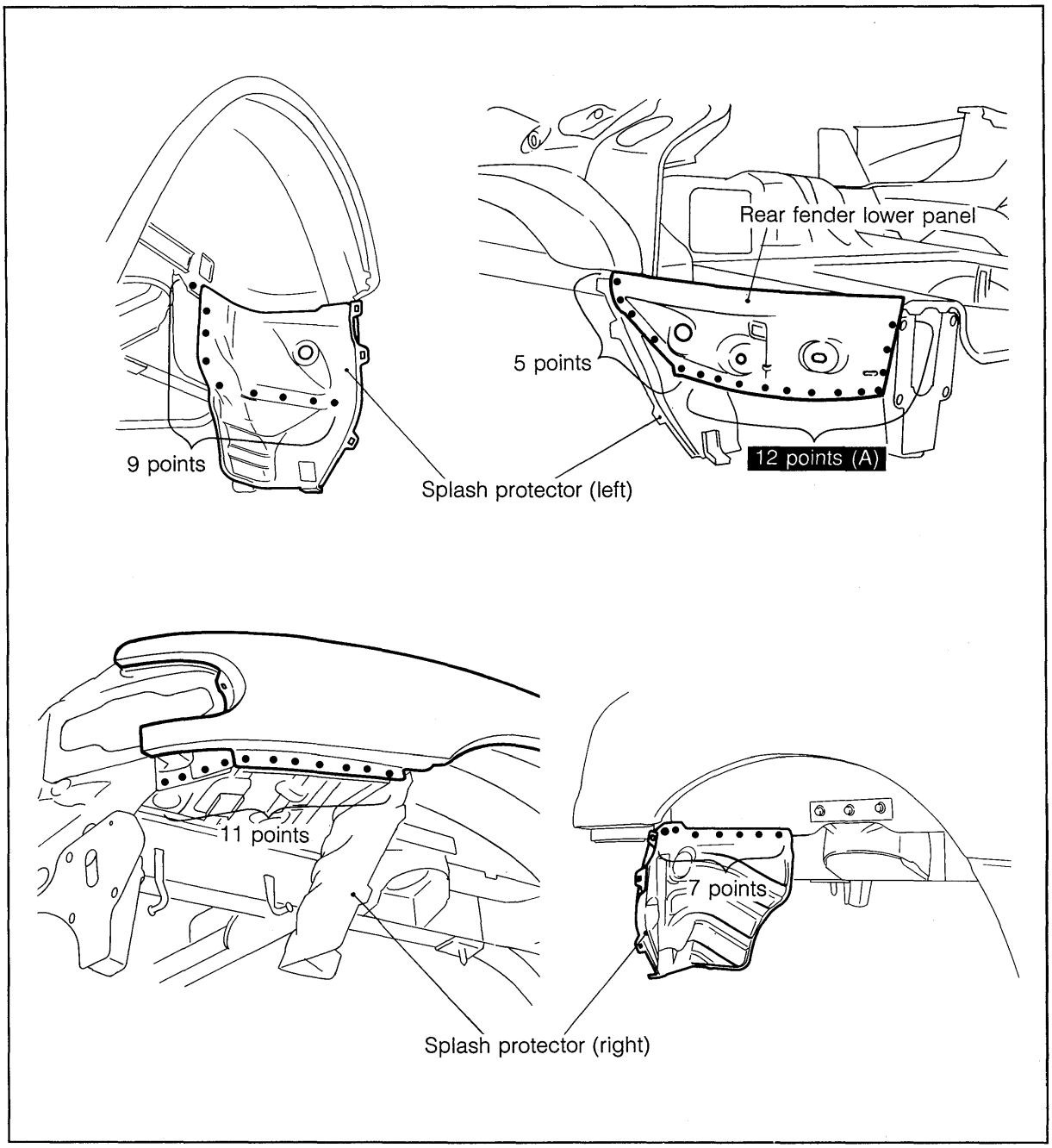
- After temporary installation of new parts, measure the dimensions to verify that they are as specified.
- Check the fit with associating parts (trunk lid, rear combination lights, rear bumper, etc.).
- Spot welds on rear combination light side must be smooth.

TRUNK FLOOR PAN, FLOOR SIDE PANEL

REMOVAL



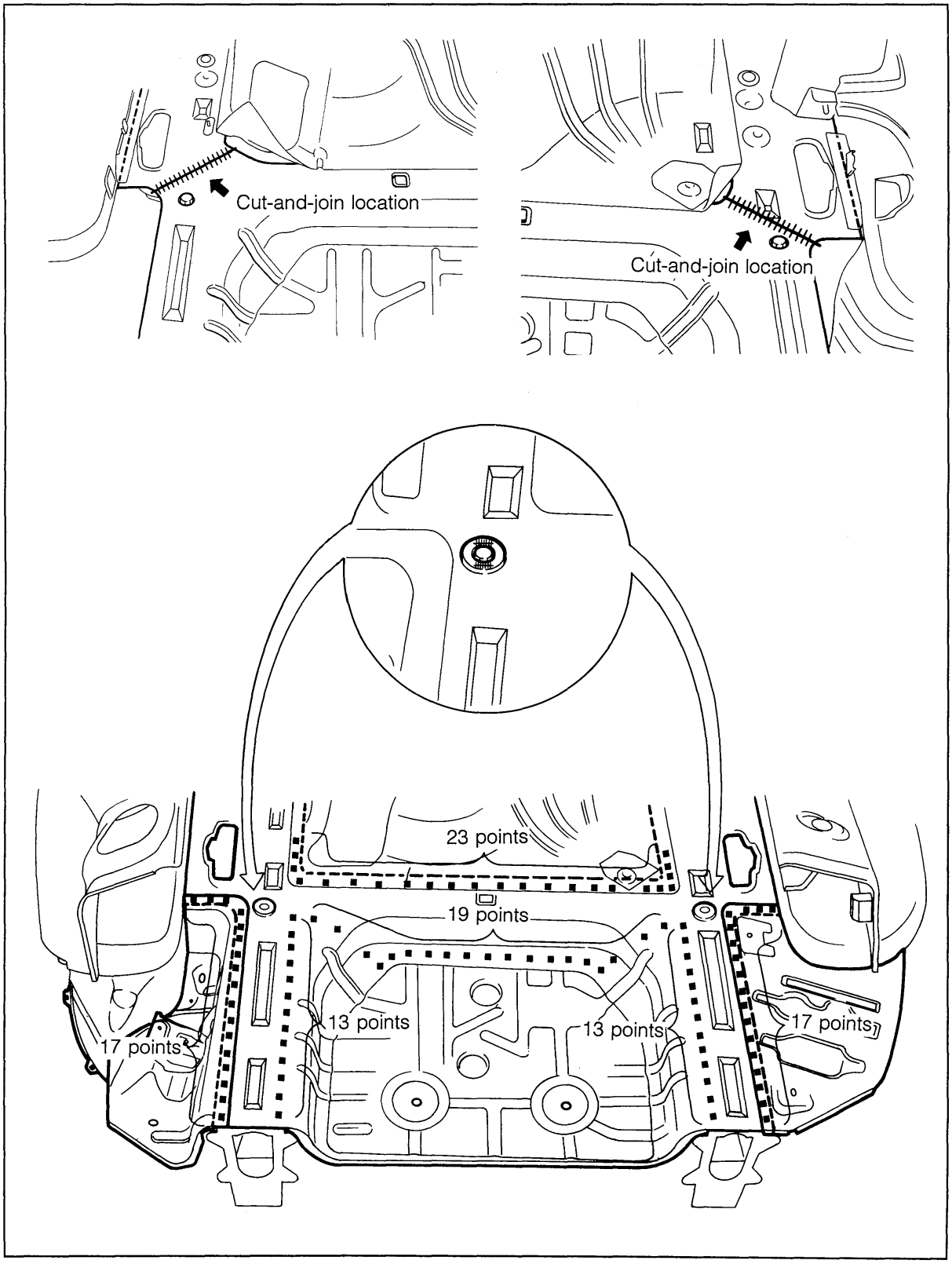
REMOVAL



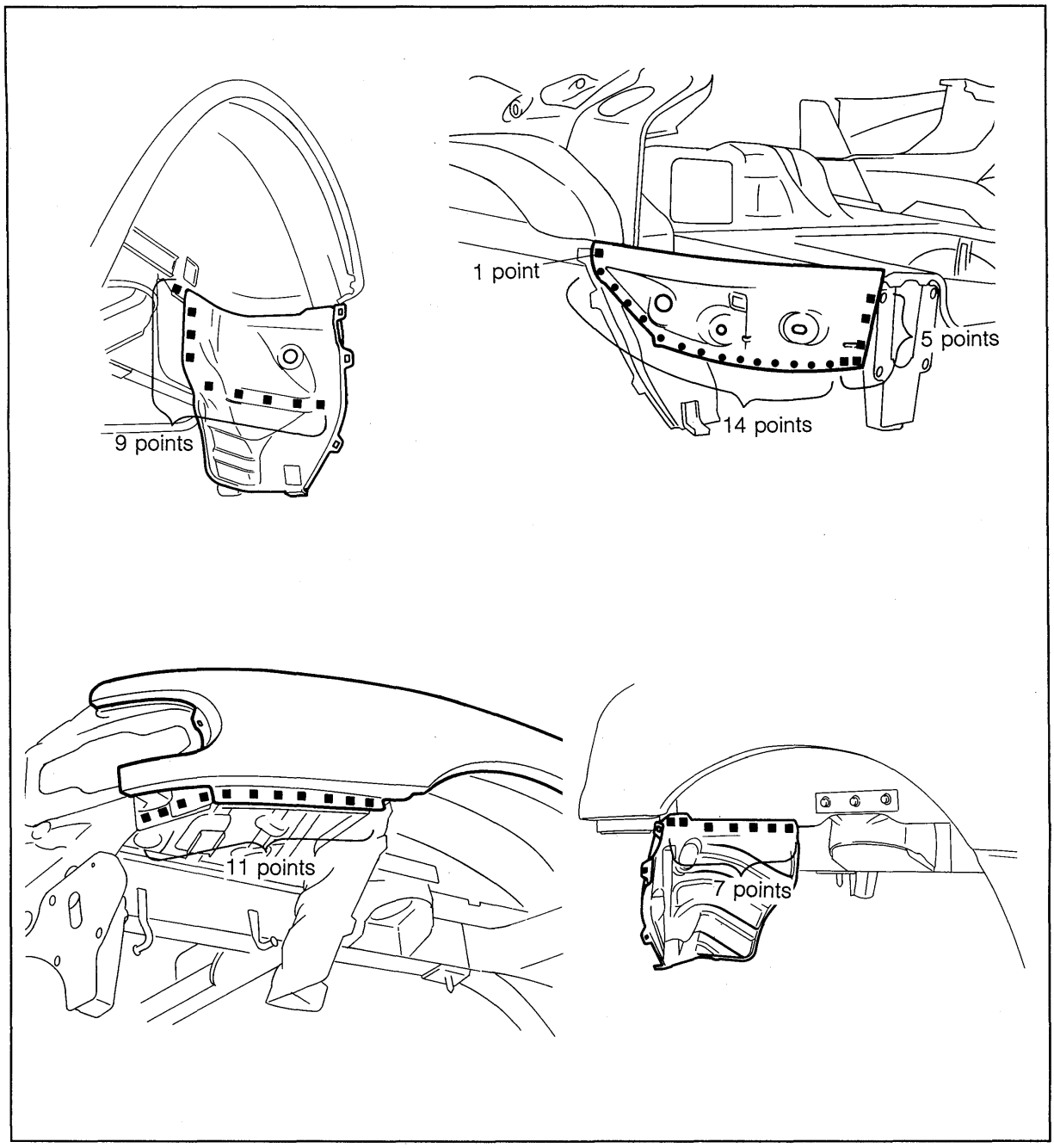
- Work should be performed after the rear end panel and the rear fender panel (left) are removed.
- The trunk floor is replaced by cut-and-join operation indicated on page 60.
- The cut-and-join operation is performed after turning up the tank floor as indicated by arrows in the illustration.
- When drilling points (A) for spot welding, do not make open holes.
- When the rear fender panel (left) is replaced at the same time, the panel can be removed without cutting away the spot welded points indicated by (A).
- Do not damage the rear side frame when rough-cutting.

TRUNK FLOOR PAN, FLOOR SIDE PANEL

INSTALLATION



INSTALLATION



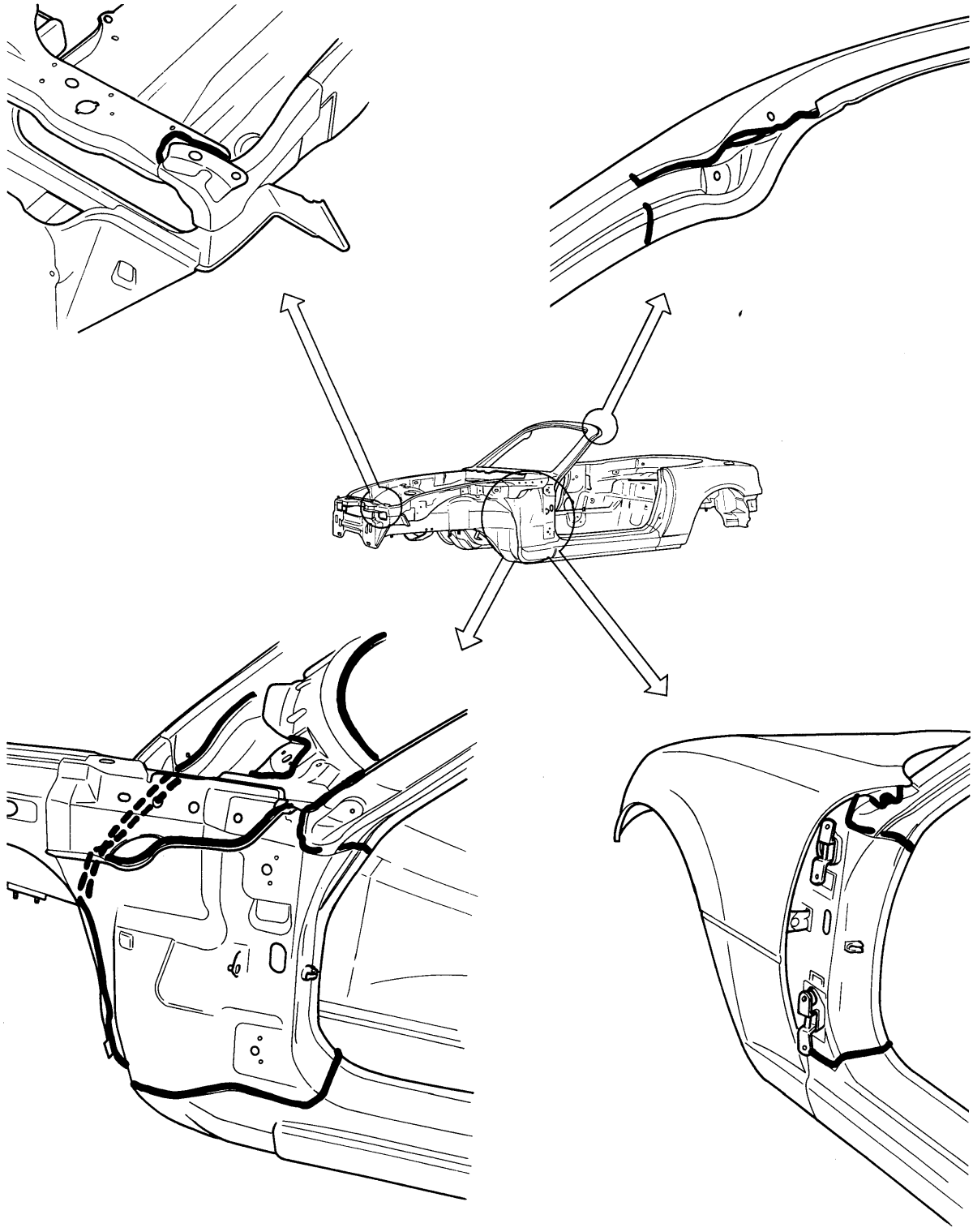
- Before installing new parts, measure the rear side frame dimensions to verify that they are as specified.
- After installing new parts, check the fit with associating parts.
- Turn down the tank floor to the original position after welding the cut-and-join location of the trunk floor and flattening it with a disc grinder.
- Plug-weld the trunk floor, tank floor, and crossmember (No. 4).
- Weld a washer (PART NO. 99952 2240A) at the rear crossmember installing bolt (two points).

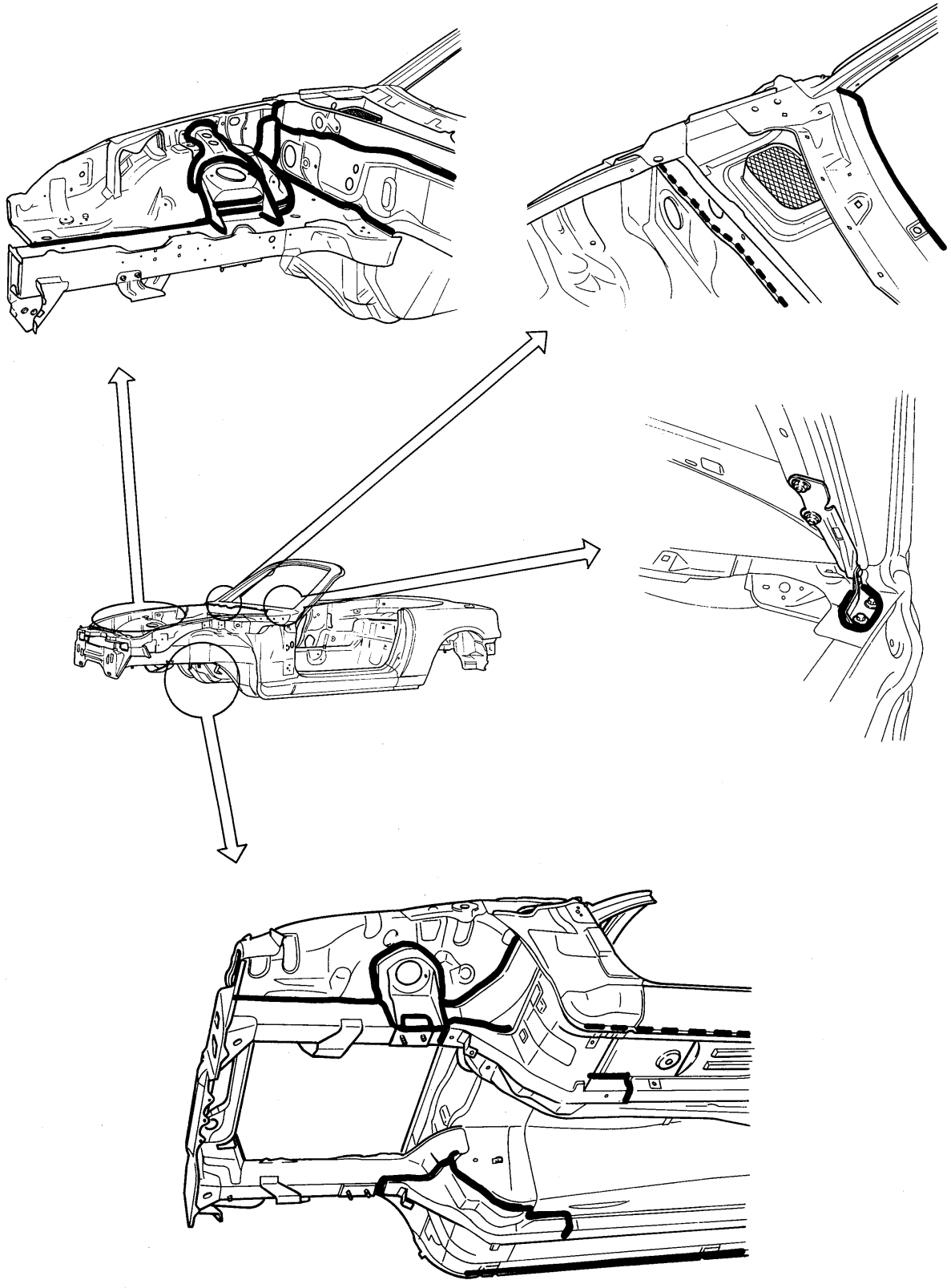
SEALING

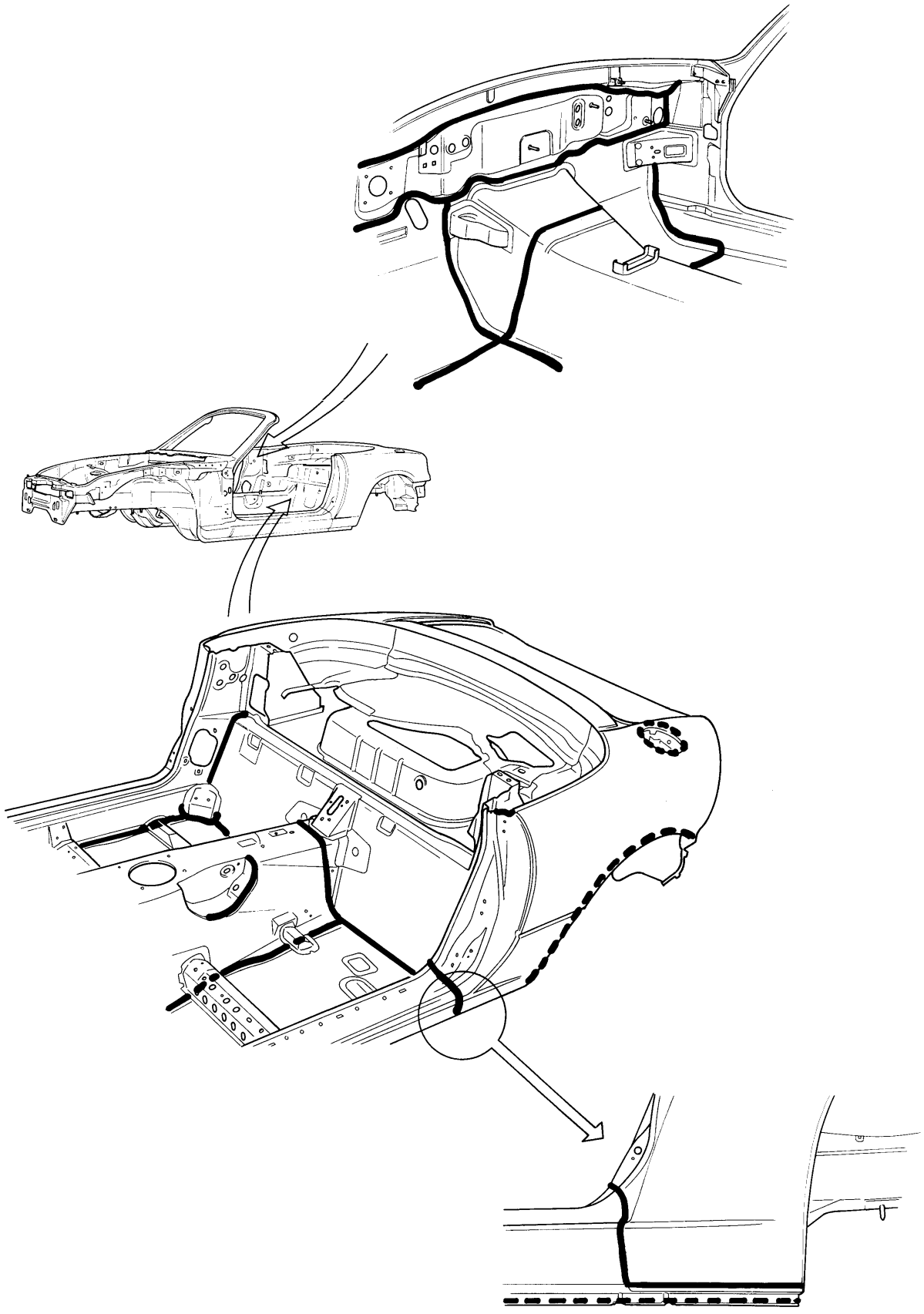
BODY SEALING 62

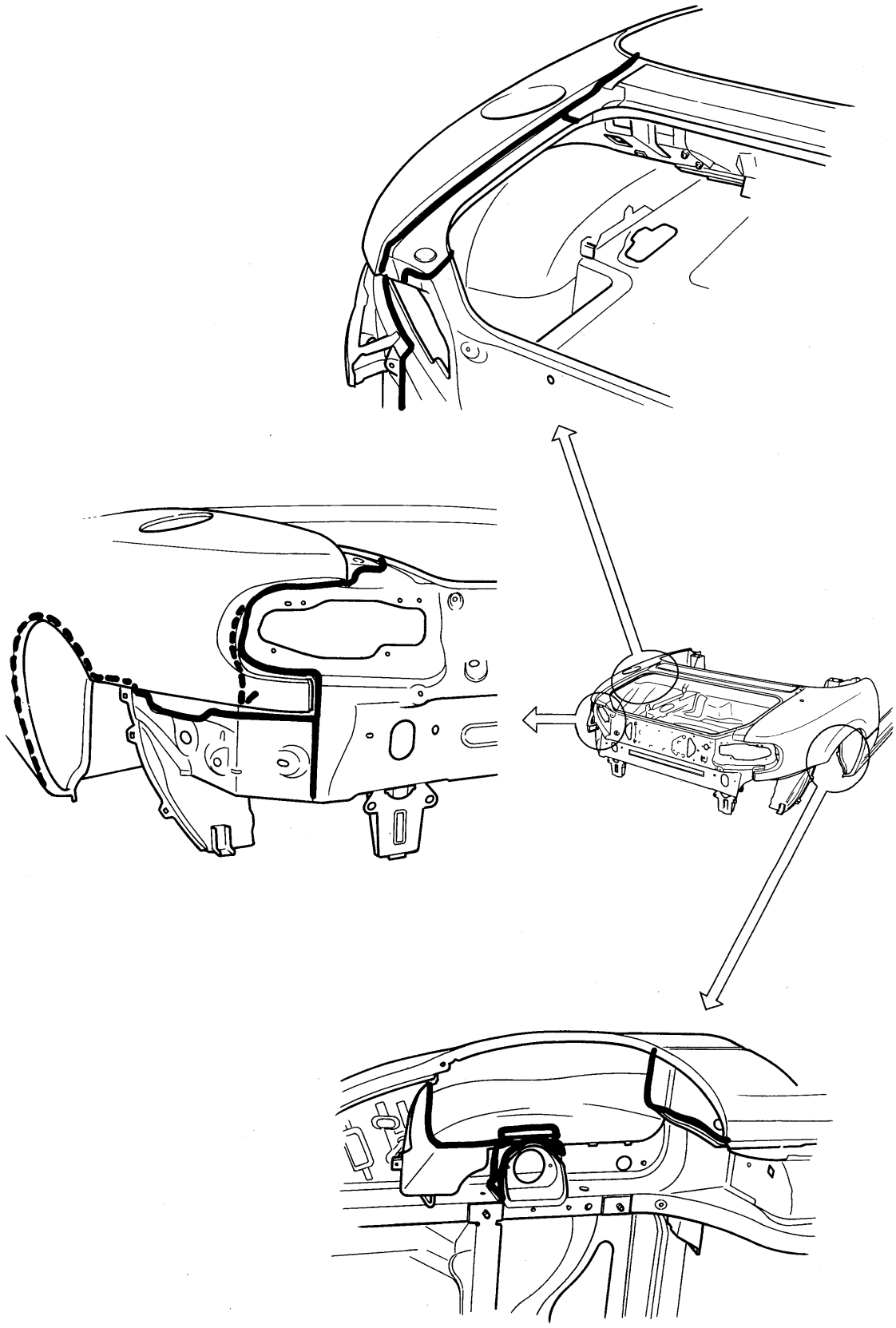
BODY SEALING

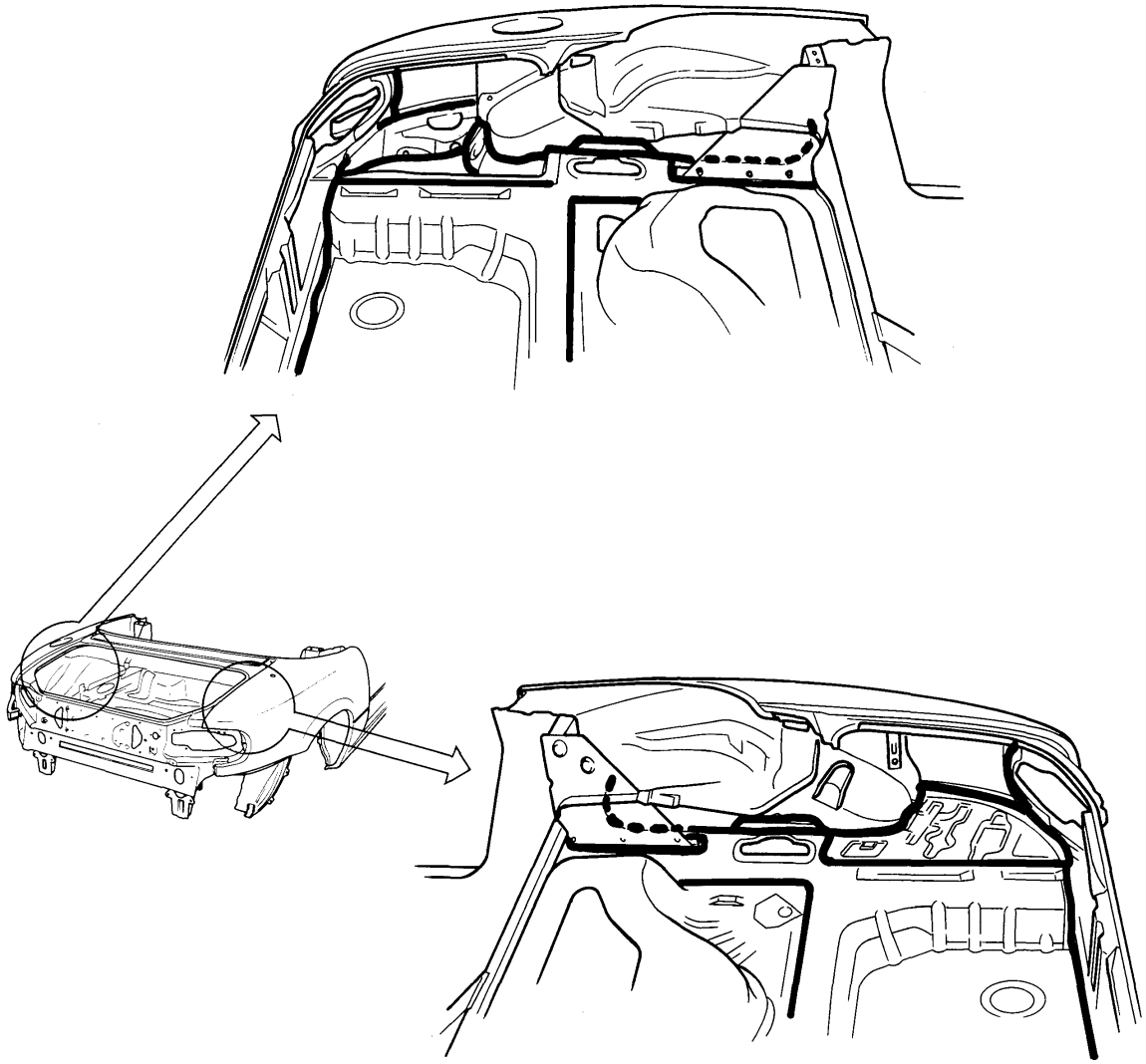
Sealant is applied to parts of the body where panels meet or are hemmed to provide waterproofing and rustproofing.
The sealing locations are shown by the heavy lines.

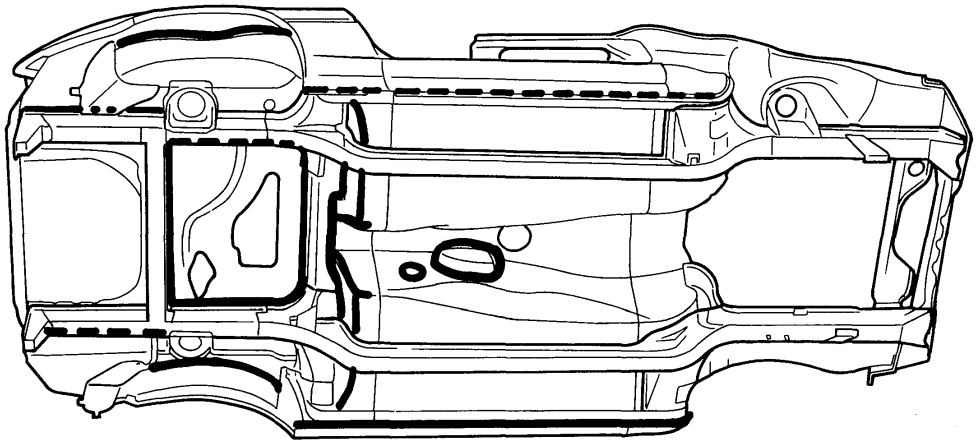


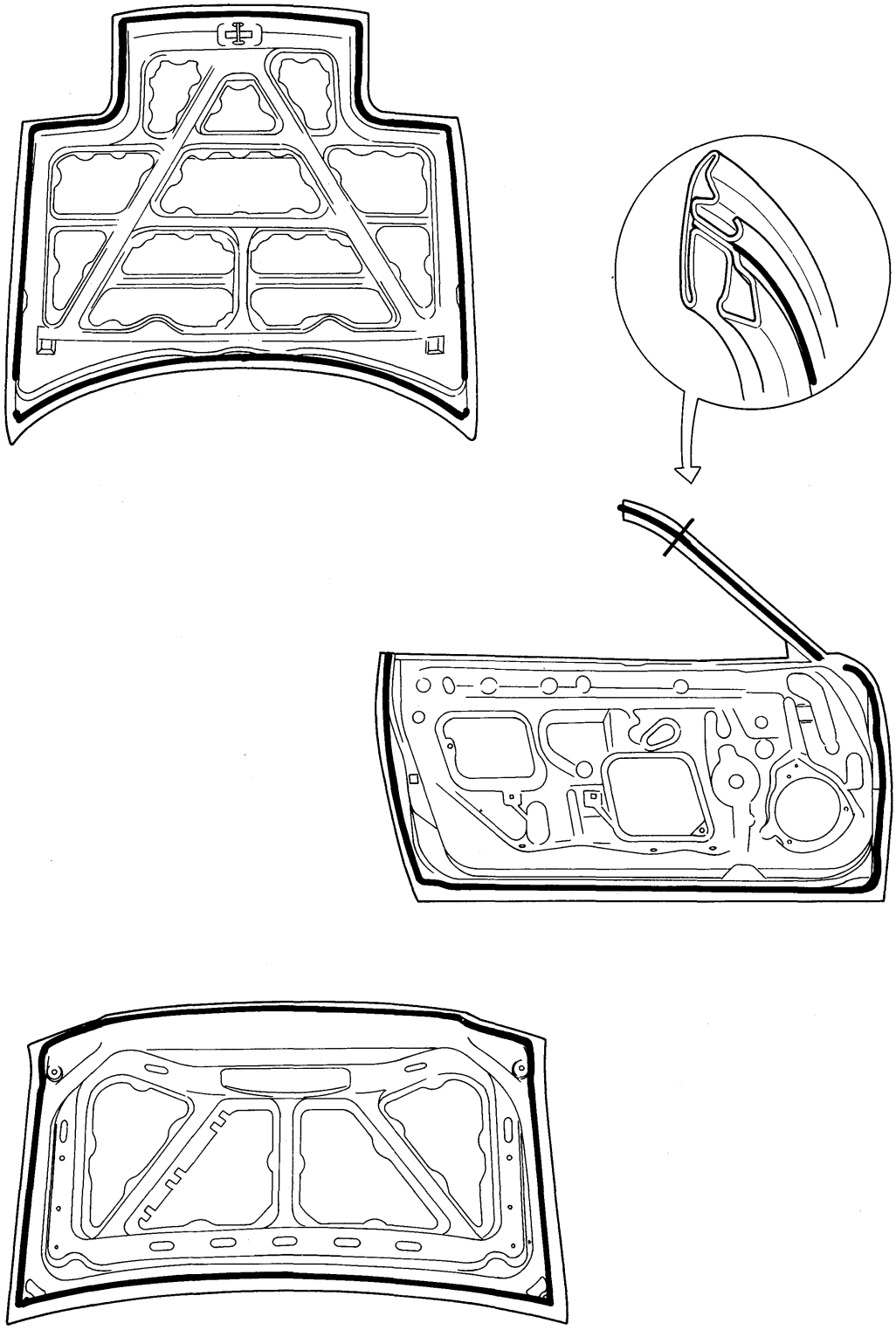










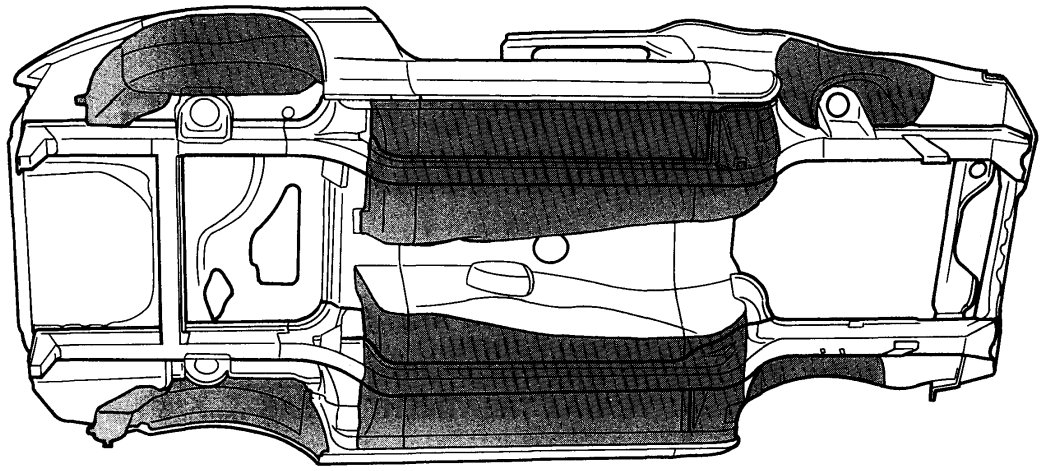


UNDERCOATING, PVC PAINTING AND RUST PREVENTIVE WAX TREATMENT

BODY PANEL UNDERCOATING AREAS 70
PVC (polyvinyl chloride) PAINTING 70
RUST PREVENTIVE WAX TREATMENT 73
RUST PREVENTIVE WAX TREATMENT AREAS 75

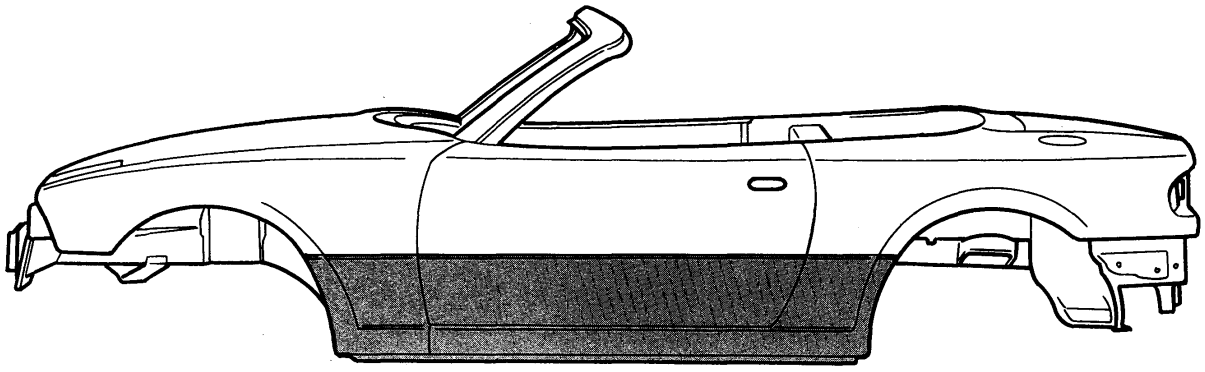
UNDERCOATING

The shaded areas of the underbody are undercoated to prevent noise and rusting.

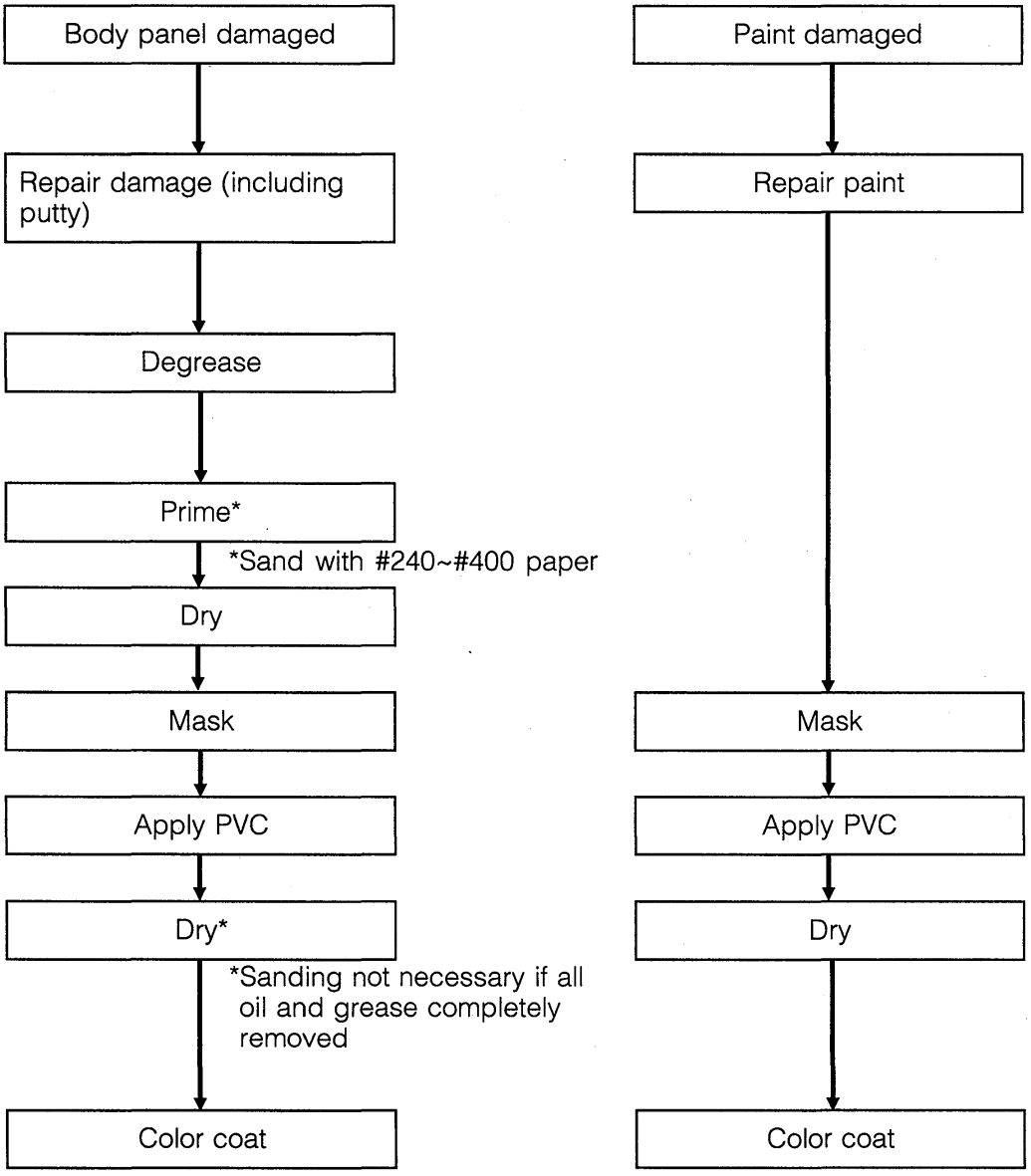


PVC (polyvinyl chloride) PAINTING

The side sills (shaded area) are painted with a special PVC paint to prevent rusting.



Procedure for PVC (polyvinyl chloride) Painting



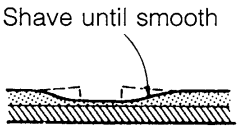
Repair of PVC (polyvinyl chloride) paint surface (repair of deep scratch)

Repair base coat (including putty)

- Done in same way as ordinary body repair.

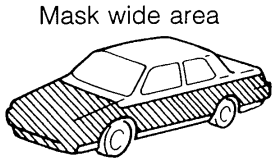
Repair PVC paint

- Thoroughly clean away dirt from the surface. For places where the paint film is scratched, use a knife or similar tool to carefully shave the surface until it is smooth.
- Use sandpaper (#120~#130) to roughen to assure good adhesion.



Mask

- Use masking over a wide area, because the mist will scatter widely.



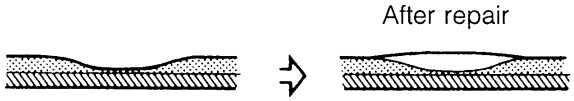
Apply PVC

- Depending upon the size of the pattern, adjust the distance of the spray gun from the surface and/or the air pressure; apply one or two coatings.

Pattern estimation conditions

	Large	Small	Smooth finish
Spray distance	10~20 cm (3.9~7.9 in)	20~40 cm (7.9~15.7 in)	20~30 cm (7.9~11.8 in)
Coating	1~2	2~3	1~2
Air pressure	294~392 kPa (3~4 kg/cm^2 0.4~0.6 psi)	392~588 kPa (4~6 kg/cm^2 0.6~0.9 psi)	392~490 kPa (4~5 kg/cm^2 0.6~0.7 psi)

- For partial area painting, spray smoothly, taking care that no uneven surfaces are formed.

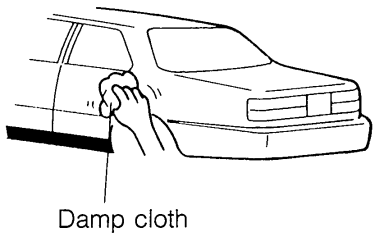


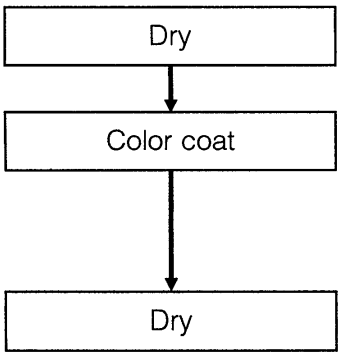
- After finishing with the tools (spray gun, etc.), wash them immediately with water.
(Even paint thinner will not be effective if hardening is complete.)

Remove masking

Refer to next page

- Remove masking immediately after coating is finished. (If removed after drying, edges might also peel off.)
- Wipe away overspray with a damp cloth before it dries. (If after drying, paint thinner will not be effective.)

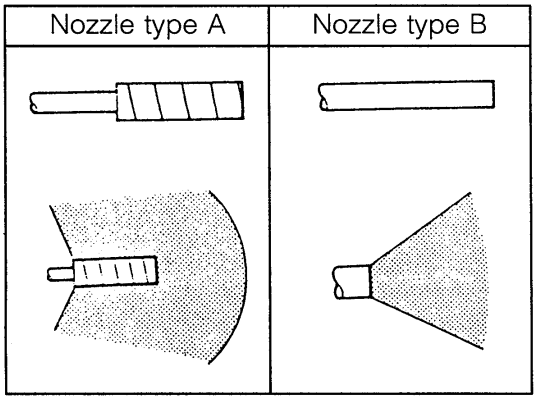




- Air dry a minimum of 4~6 hours [20°C (68°F)].
- Heat dry a minimum of 30~40 minutes [60°C (140°F)].

- Apply coating after PVC paint film is thoroughly dry.
- Sanding is not necessary if all oil and grease were completely removed.
- Conditions such as air pressure, paint viscosity, etc. can be same as for ordinary body coating.

- Done in same way as for ordinary body coating.

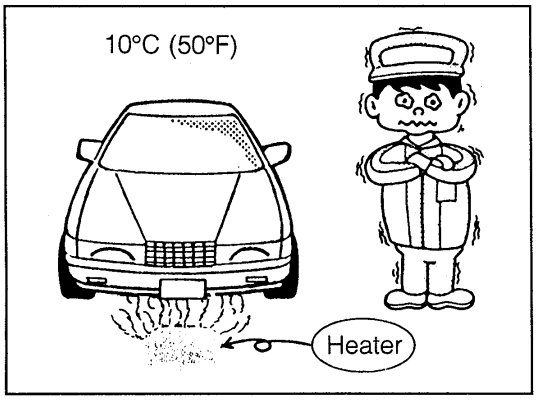


RUST PREVENTIVE WAX TREATMENT

WAX APPLICATION PROCEDURE

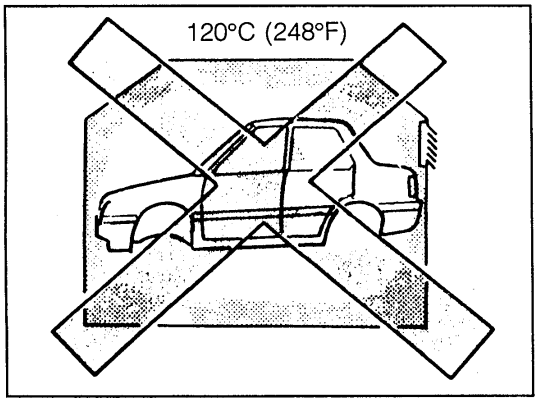
Preparation of equipment

1. Prepare equipment suitable for the wax chosen.
2. Use the correct nozzle, spray pattern, and injection pressure based on instructions provided for the wax.
3. If necessary, clean the nozzle with thinner before beginning work.



Preparation of vehicle (or parts)

1. Scrape mud, etc. off the wax application area.
2. Dry any water collected at the wax application area.
3. The temperature of the vehicle body should be kept at more than 10°C (50°F) during the operation.
4. Close all windows of the vehicle.



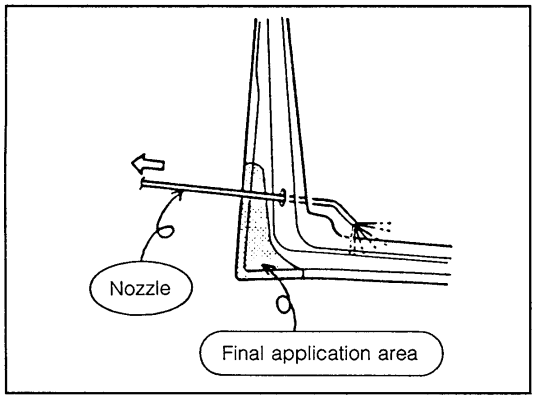
Caution

When repairing a damaged part, complete painting first, then apply the wax.

The reasons are:

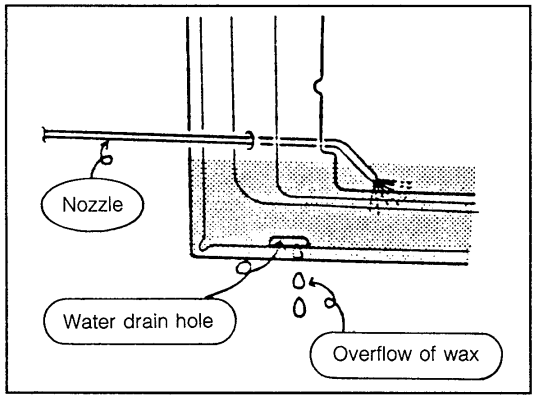
a) The wax is sometimes dissolved by heat [more than 120°C (248°F)] during the drying process, resulting in deteriorated anticorrosion effects.

b) If the wax applied before painting is smeared over the paint application surface, poor painting will result because the wax repels the paint.



Wax application operation

1. Apply wax to areas shown.
   (Refer to pages 79-81.)
2. If there is no hole for wax application operation, make a 10mm (0.39 in) hole in the application area.
3. After completing the wax application, apply the wax on the edge of the hole and close the hole with a grommet.
4. During wax application, move the nozzle slowly to apply the wax uniformly and heavily.



Note
To ensure wax application, make sure that the wax flows from a joint or hole.

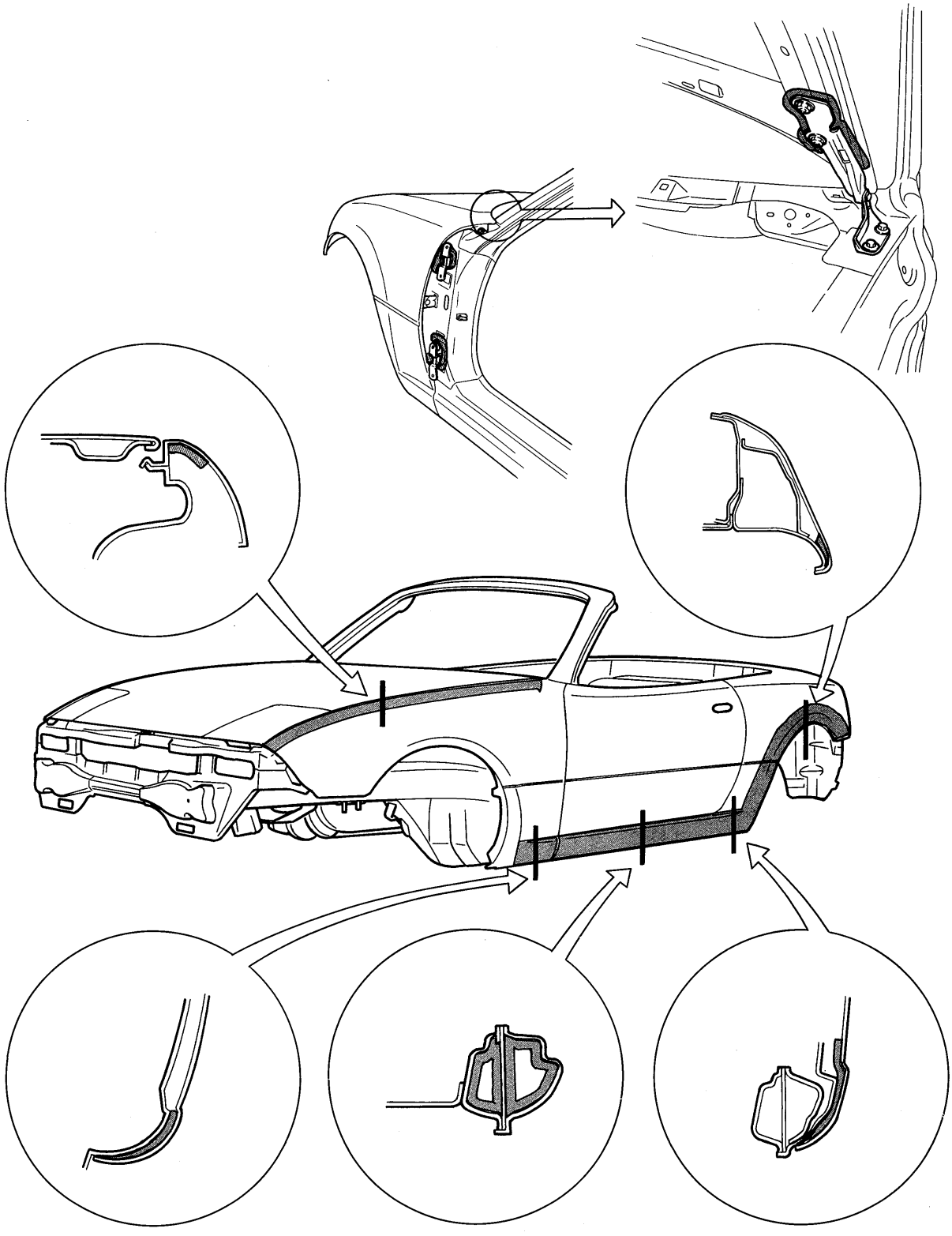
5. Apply wax to new parts before assembly. Avoid making holes as much as possible.

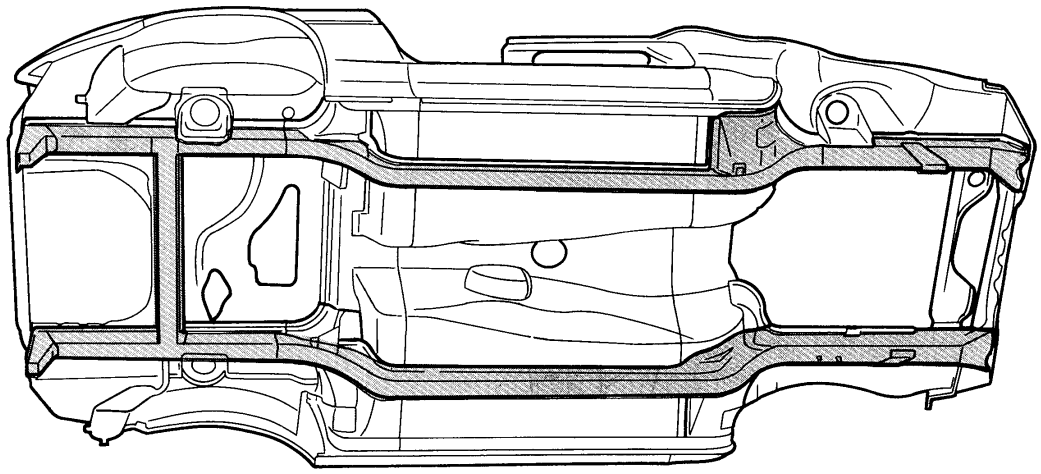
Cleaning

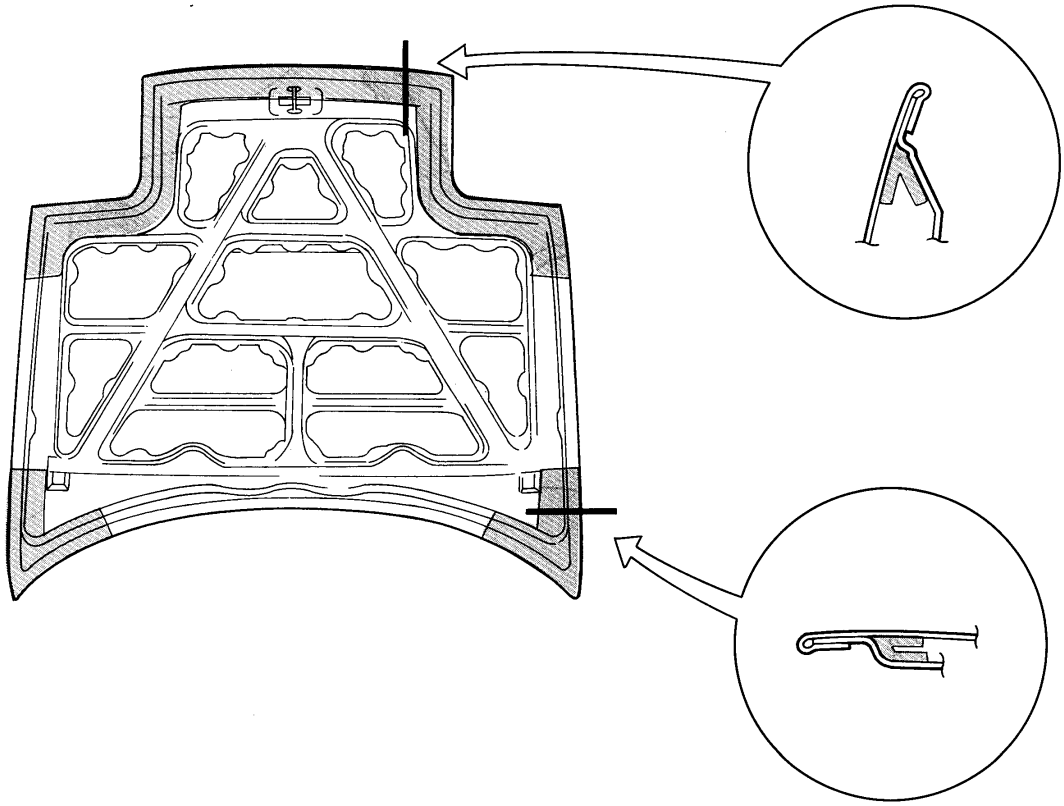
1. Wipe away any excess wax.
2. Let the vehicle stand for one hour after completing the wax application.
3. Verify that drain holes in the doors, fenders, etc. are not clogged.
   If there is any clogging, open it completely.

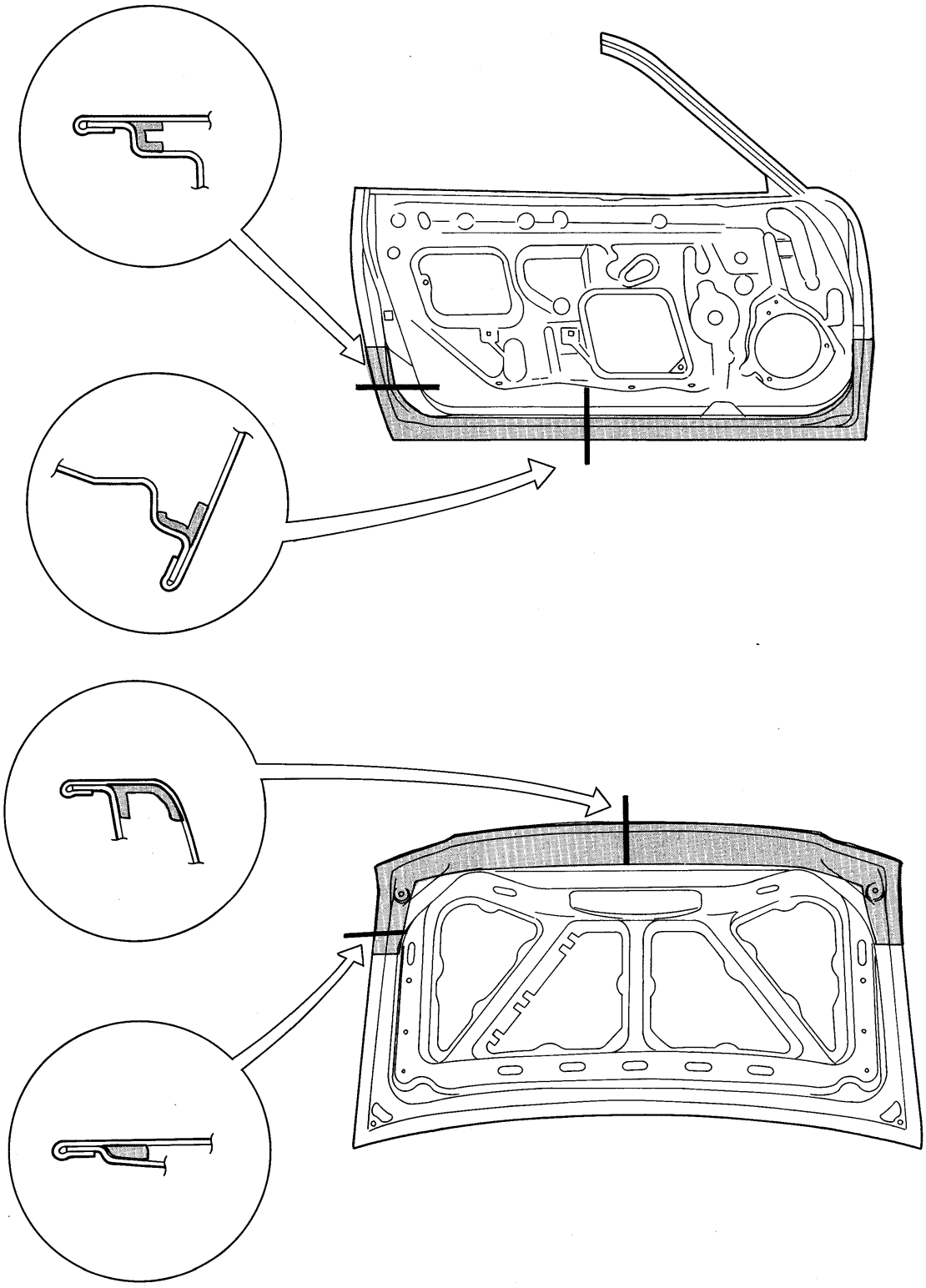
RUST PREVENTIVE WAX TREATMENT

Rust preventive wax treatment is applied to the shaded areas shown in the illustrations to prevent rusting.





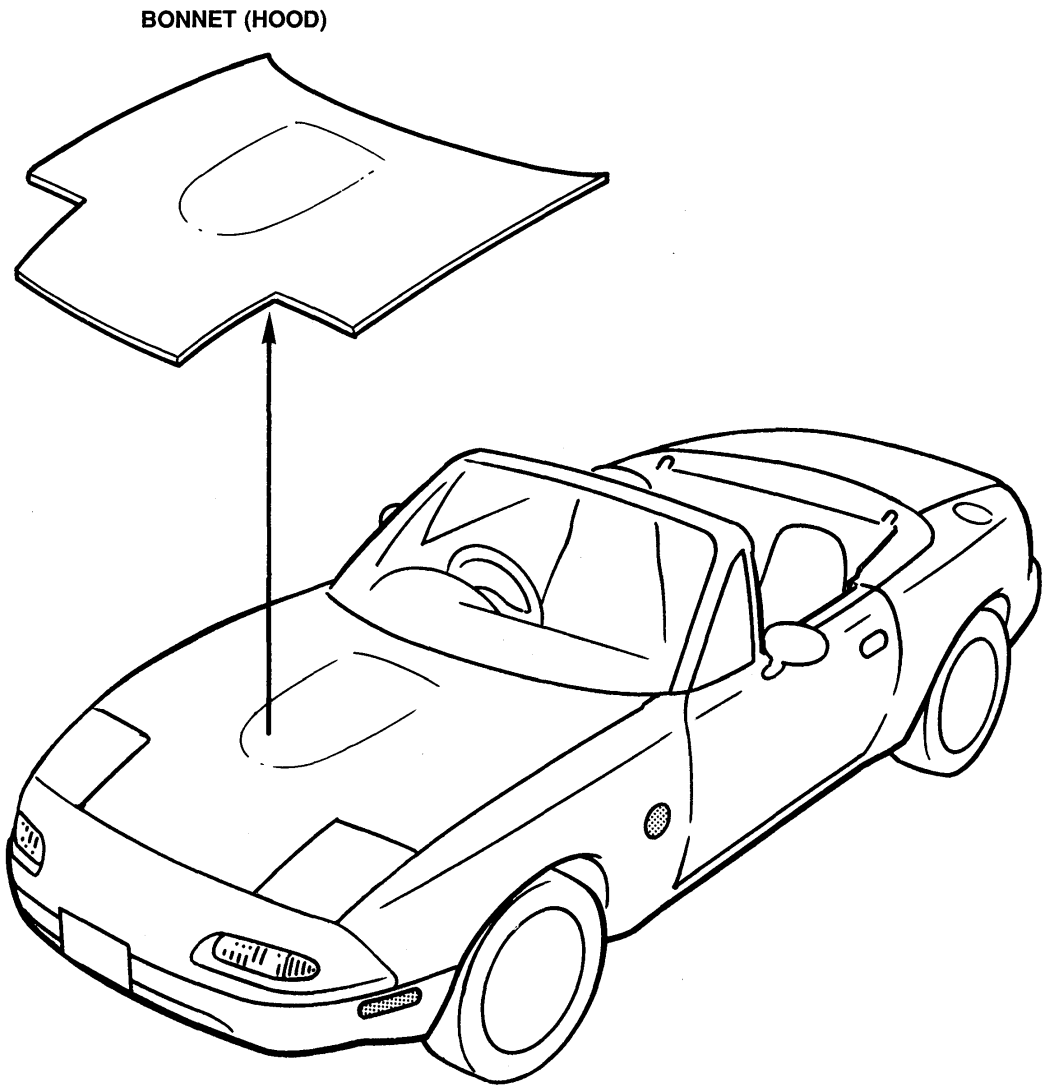




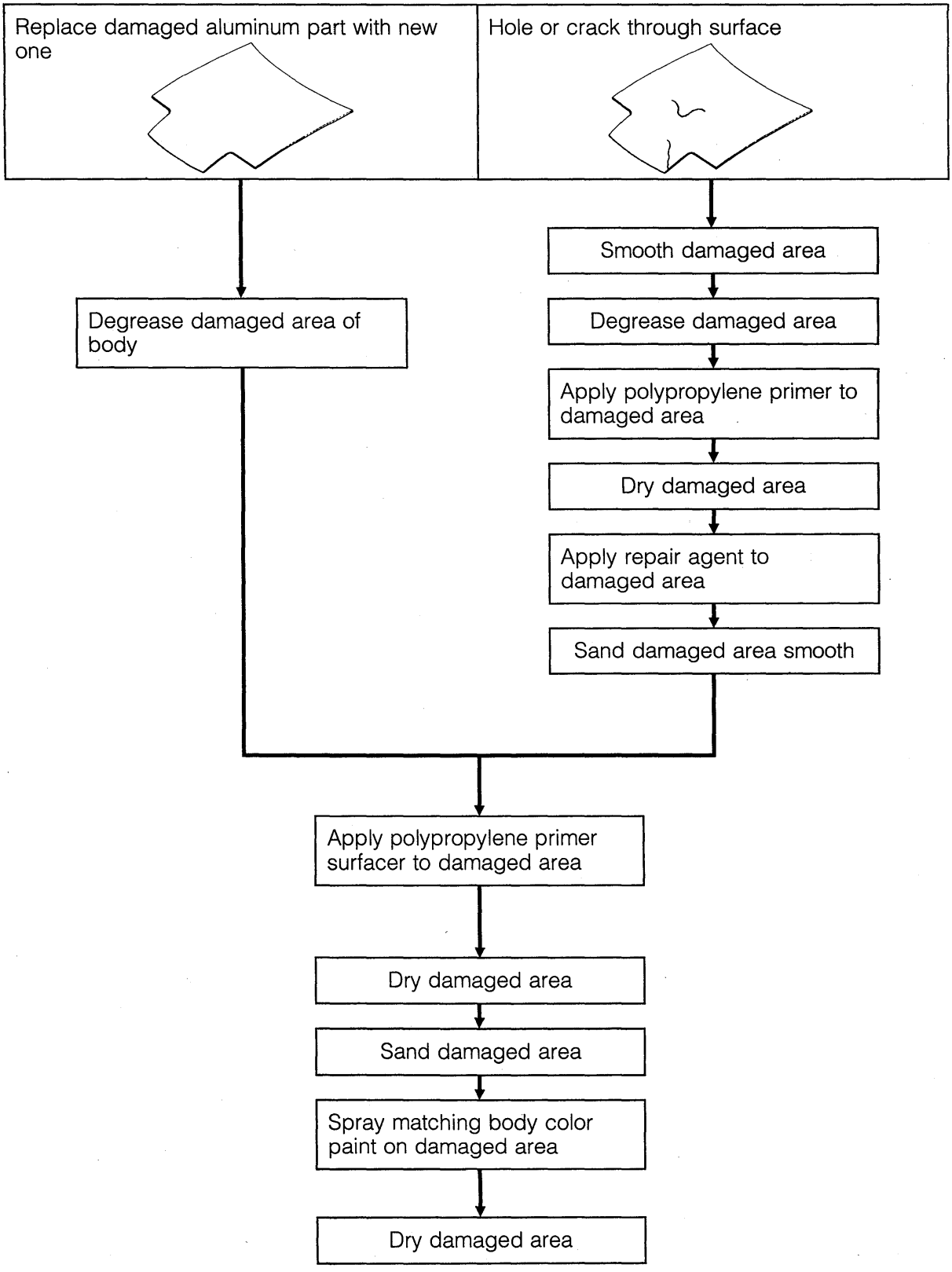
ALUMINUM BODY PARTS

LOCATION OF ALUMINUM BODY PARTS 80
PROCEDURE FOR REPAIRING ALUMINUM PARTS 81

LOCATION OF ALUMINUM BODY PARTS



Procedure for Repairing Aluminum Parts



ALUMINUM BODY PARTS

Although repair of aluminum components is done by the same procedures as repair of steel components, certain points should be noted, as described below.

1. Because aluminum has a greater characteristic of expansion/elongation than steel, a lesser striking force should be used for hammering so that the aluminum component does not become excessively distorted.
2. When heat is used as a method of repair of an aluminum component, the temperature should be kept as low as possible, and the heated area restricted as much as possible. This is to prevent a loss of rigidity due to overheating.
3. When removing old paint from aluminum, a fine-grain sandpaper (#120 — #180) should be used, because aluminum is a relatively soft material.
4. A special aluminum primer must be used before attempting application of putty or paint, because such materials do not adhere well to aluminum.
5. Determine the type of putty to be used (sheet-metal putty or polyethylene putty) according to the condition of the damage.
6. If bare aluminum is exposed as a result of grinding, sanding, etc., apply special primer for aluminum.
7. Such steps as primer surfacer drying, primer surfacer sanding, top-coat application and drying are done in the same way as for steel painting.

PLASTIC BODY PARTS

HANDLING PRECAUTIONS 84
LOCATION OF PLASTIC BODY PARTS 85
REPAIRING URETHANE FASCIA 86
REPAIRING POLYPROPYLENE FASCIA 94

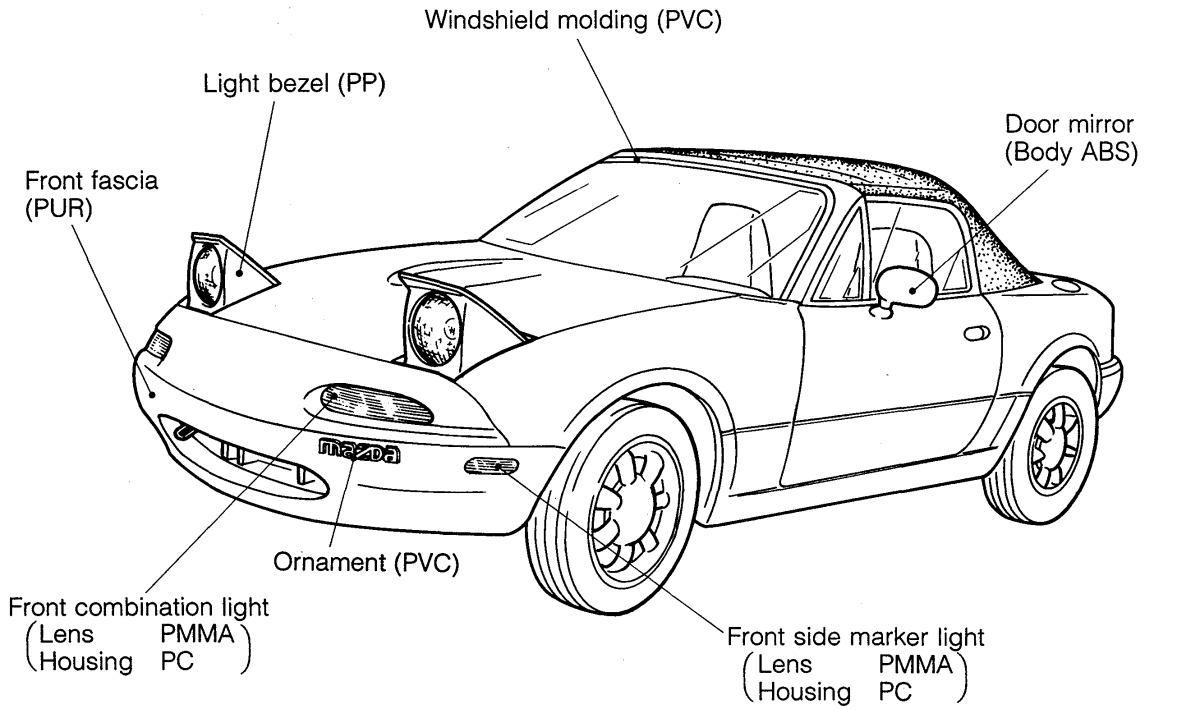
HANDLING PRECAUTIONS

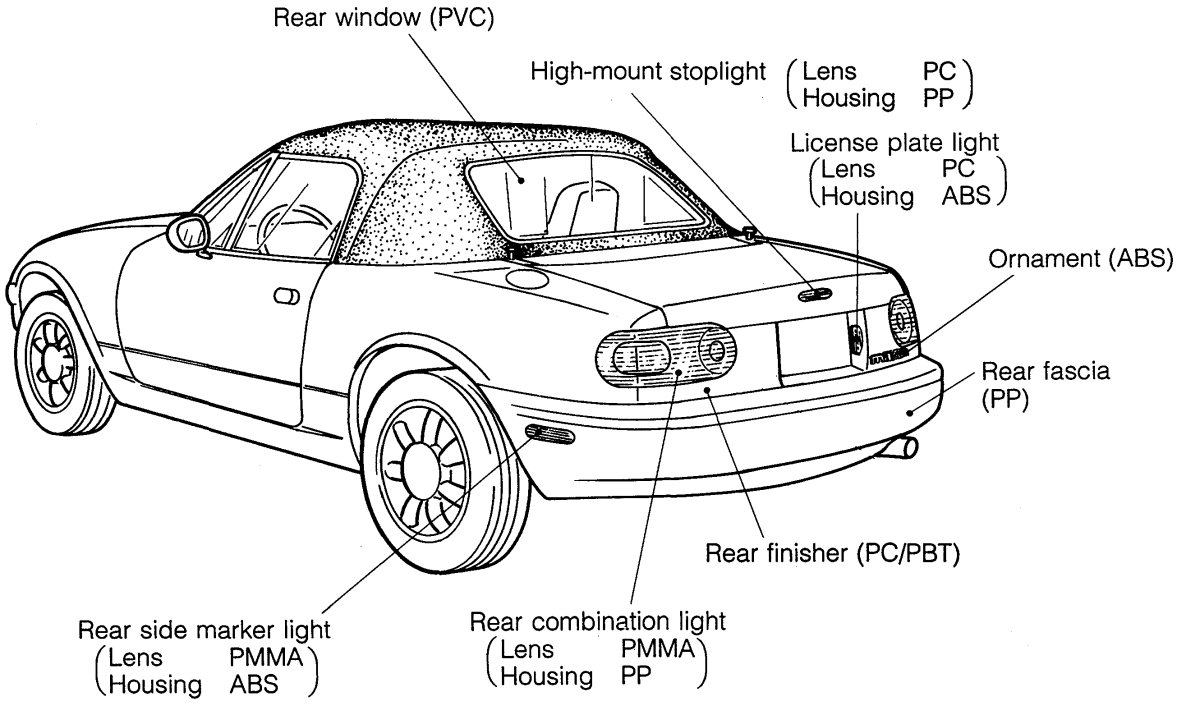
1. The repair procedure for plastic body parts must conform with the type of material.
2. Plastic body parts are identified by the codes in the following chart.
3. When repairing metal body parts adjoining plastic body parts (by brazing, frame cutting, welding, painting, etc.), consideration must given to the property of the plastic.

Code	Material Name	Heat Resistance * Temperature °C (°F)
ABS	Acrylonitrile Butadiene Styrene Copolymer	80 (176)
AS	Styrene Acrylonitrile Copolymer	80 (176)
PP	Polypropylene	70 (158)
PETP	Thermoplastic Elastomer	70 (158)
PVC	Polyvinylchloride	65 (149)
PUR	Polyurethane	80 (176)
PU	Foam Polyurethane	80 (176)
EVA	Ethylene Vinyl Acetate Copolymer	40 (104)
PE	Polyethylene	40 (104)
PA	Polyamide	100 (212)
PC	Polycarbonate	130 (266)
POM	Polyacetal	125 (257)
PMMA	Polymethyl Methacrylic Acrylate	75 (167)
FRP	Fibrous Glass Reinforced Plastics	200 (392)
PBT	Polybutylene Telephthalate	150 (302)
SMC	Sheet Molding Compound	110 (230)

* Temperatures higher than those listed may result in material deformation during repair.

LOCATION OF PLASTIC BODY PARTS

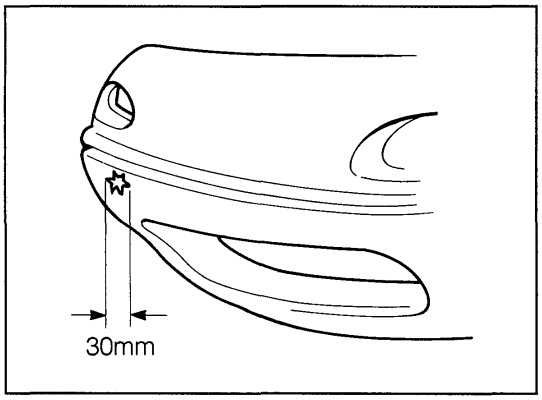




REPAIRING URETHANE FASCIA

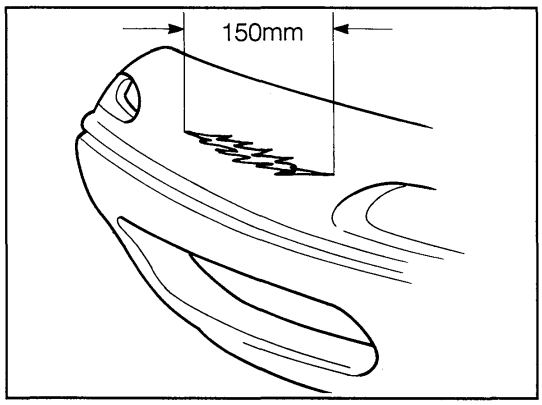
REPAIRABLE RANGE FOR URETHANE FASCIA

Urethane fascia which has been damaged greater than shown below should be replaced with a new one. Though such fascia may be repaired, a quality problem will occur.
In addition, this repair is not considered reasonable in terms of workload.

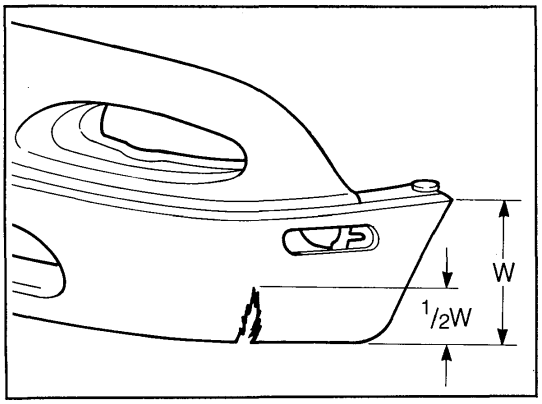


Allowable Repairs

1. Fascia with a hole less than 30mm (1.18 in) in diameter.



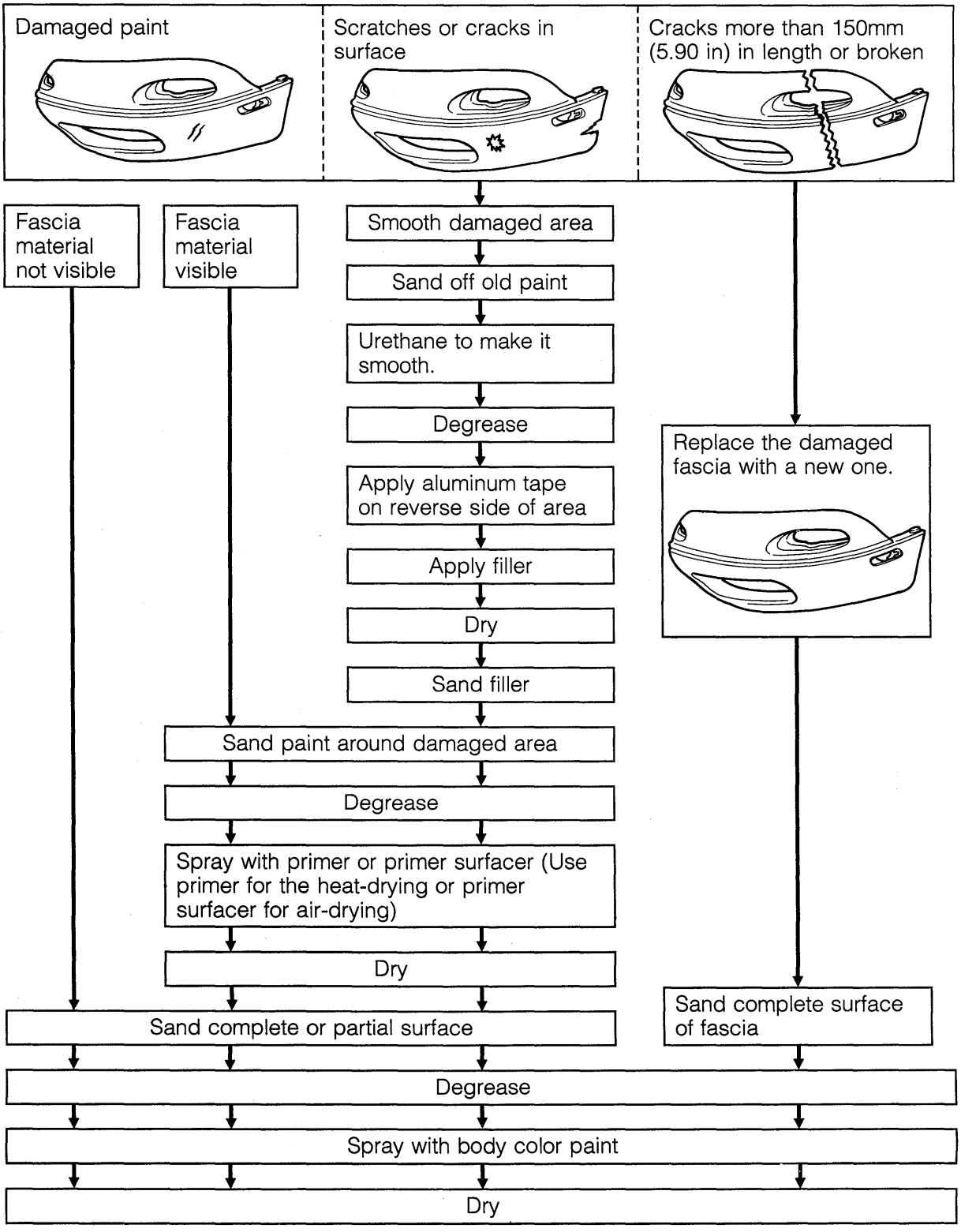
2. Fascia with a crack less than 150mm (5.90 in) in length.



3. Fascia with a crack less than 150mm (5.90 in) in length that is less than half of the width of the fascia.

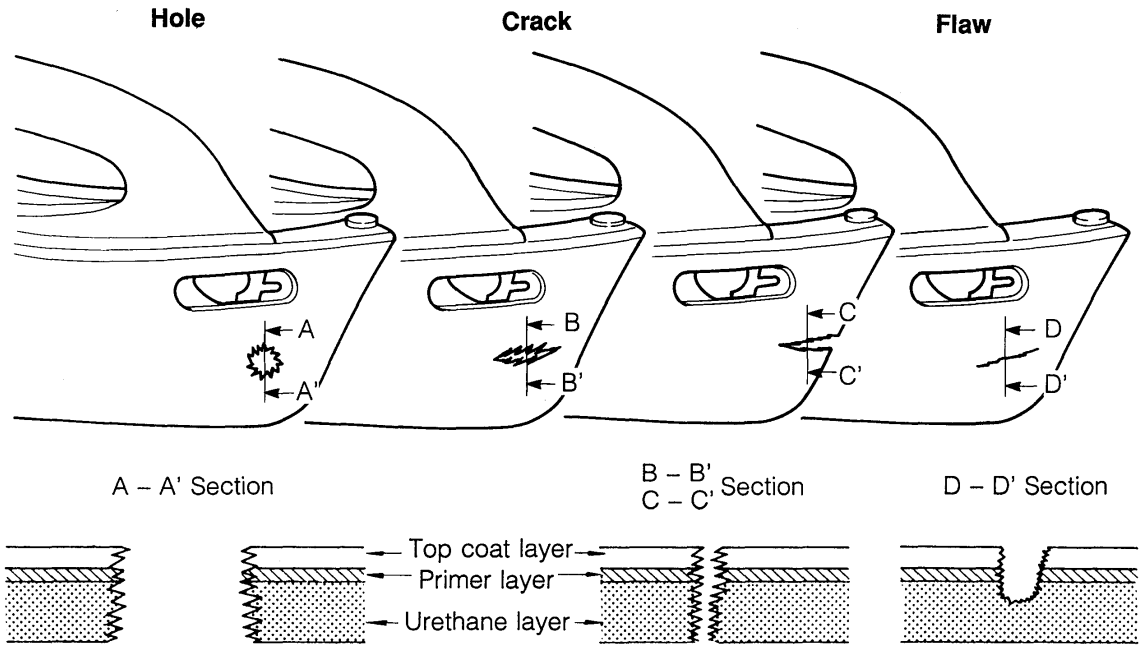
Procedure for Repairing Urethane Fascia

To repair urethane fascia follow the procedures below.

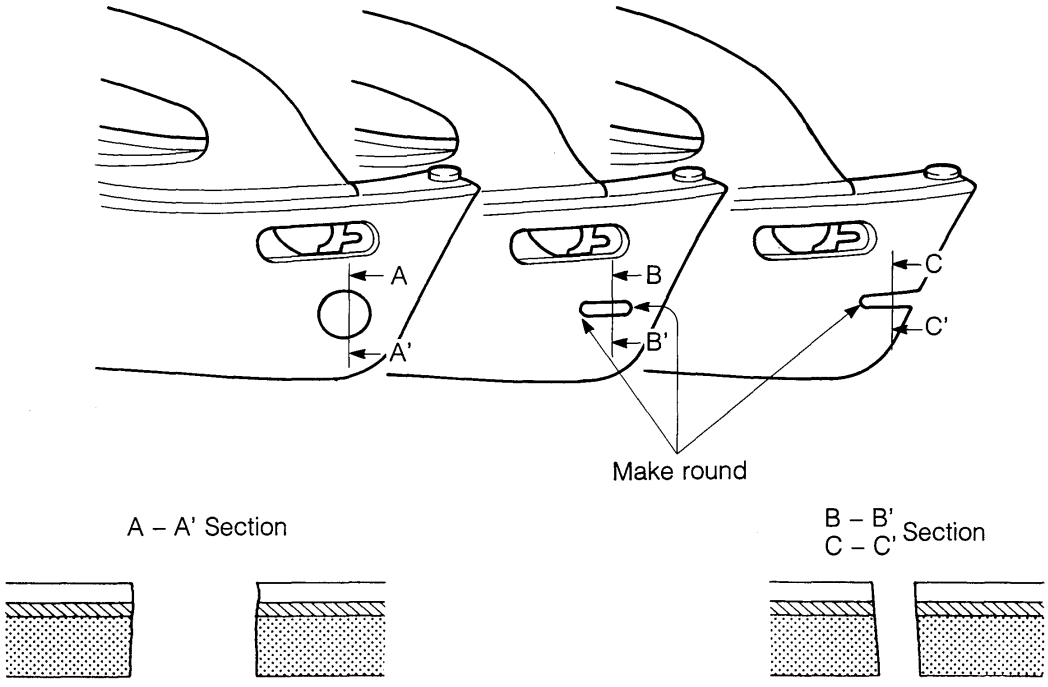


Repair of Urethane Fascia

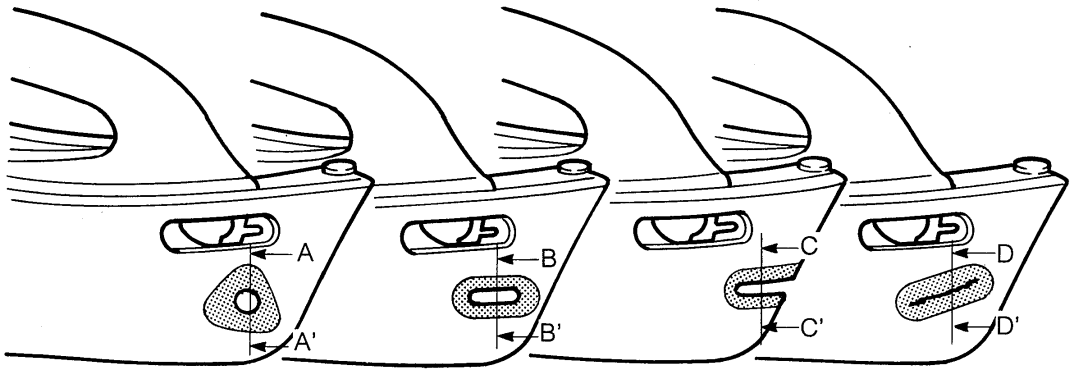
This section describes repair of urethane fascia having flaws that have reached the surface of the urethane and that are too serious to be restored by painting only.



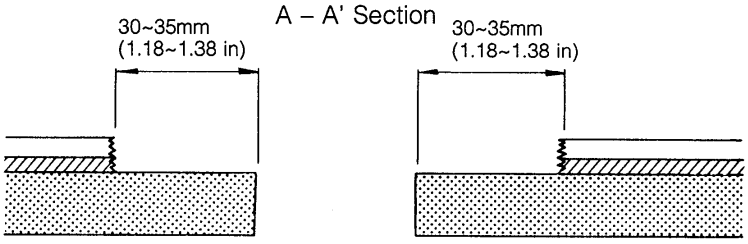
1. Smooth the rough edges around the hole or crack. Open a cracked section with a knife to make it wide enough to fill with filler.



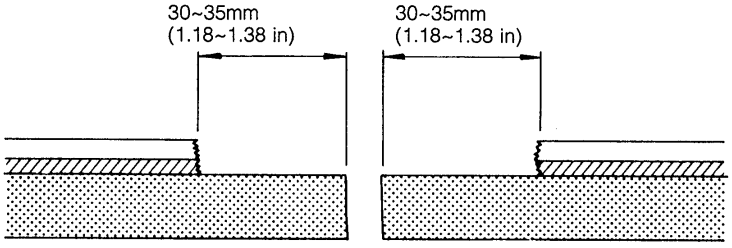
2. Sand away the old paint around the damaged area [in the range of 30~35mm (1.18~1.38 in)] with #40~#80 sandpaper.



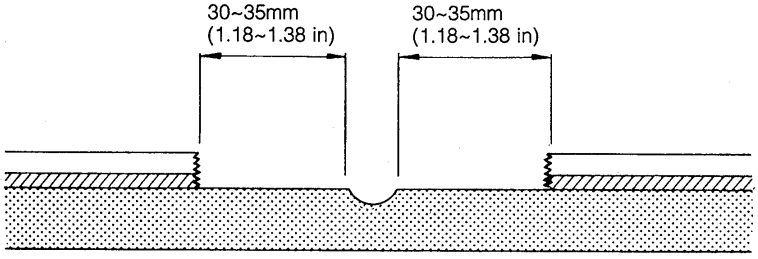
A – A' Section



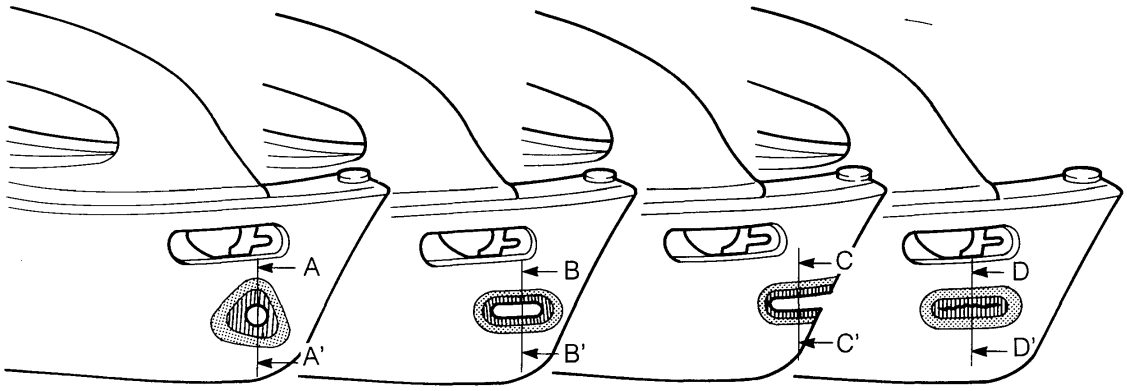
B – B'
C – C' Section



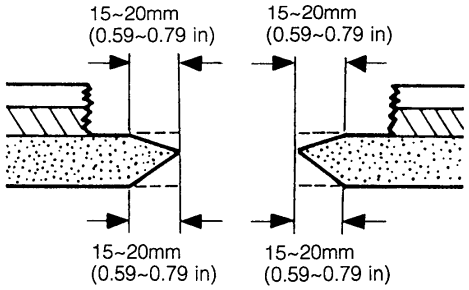
D – D' Section



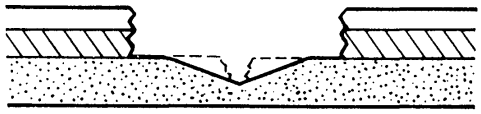
3. Sand the urethane around the damaged area with #36~#50 sandpaper to make it taper.



A – A'
B – B' Section
C – C'

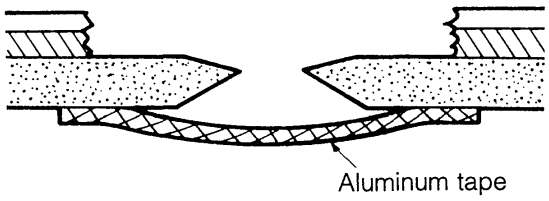


D – D' Section



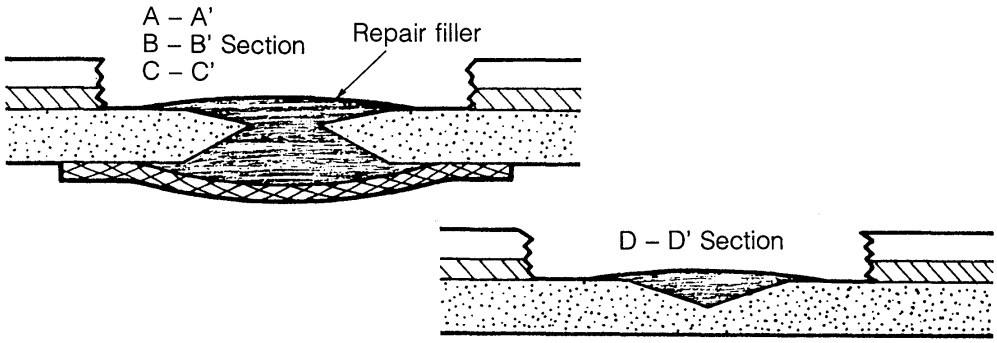
4. Degrease the repair area (the face and the back) with an appropriate degreasing agent. Cover the hole or crack with aluminum tape on the reverse side of the damaged area.

A – A'
B – B' Section
C – C'



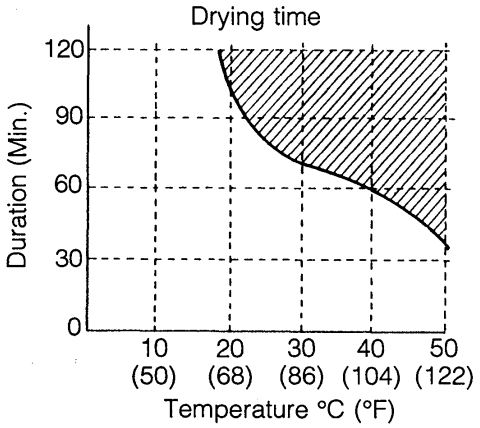
Caution
Do not use thinners or other chemicals as damage to the surface will result.

5. Apply repairing filler



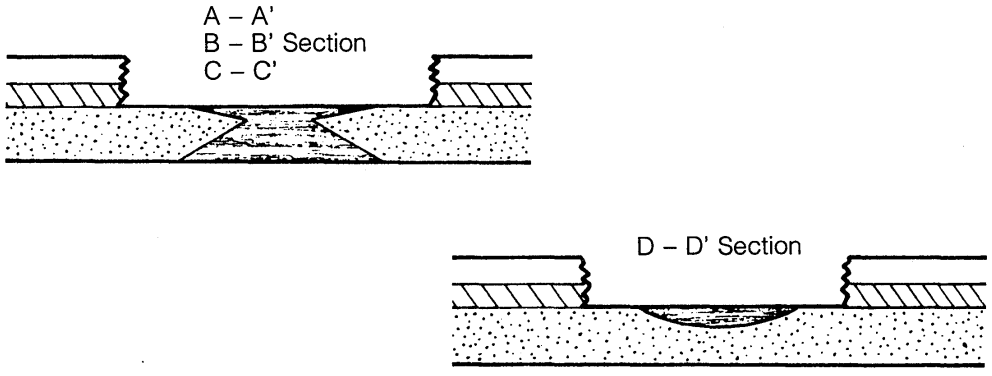
The repair filler is a two-part type filler composed of a main agent and a stiffening agent, and has the same flexibility as the urethane when hardened.

6. Air dry or heat dry.
Dry the applied repair filler completely.
The effected part must not exceed 80°C (176°F), or it may be deformed.



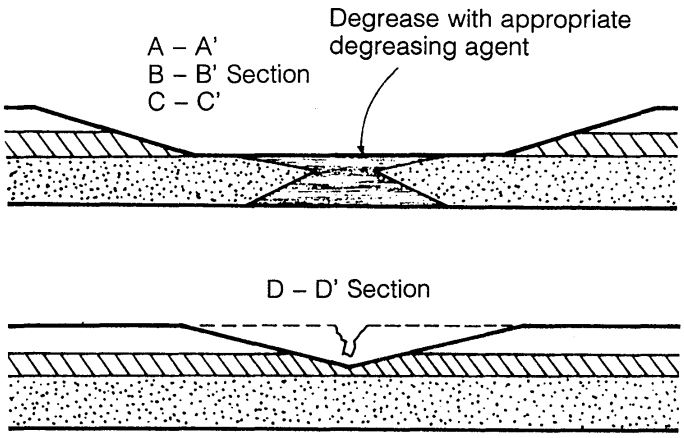
In the case of air drying [18°C (65°F)], the part may be sanded after **approx. 2 hrs**.
In the case of heat drying [50°C (122°F)], the part may be sanded after **approx. 40 min**.

7. After the repair filler has completely dried, and the repaired part with #120, #180 and #240 sandpaper, respectively, to make it smooth.



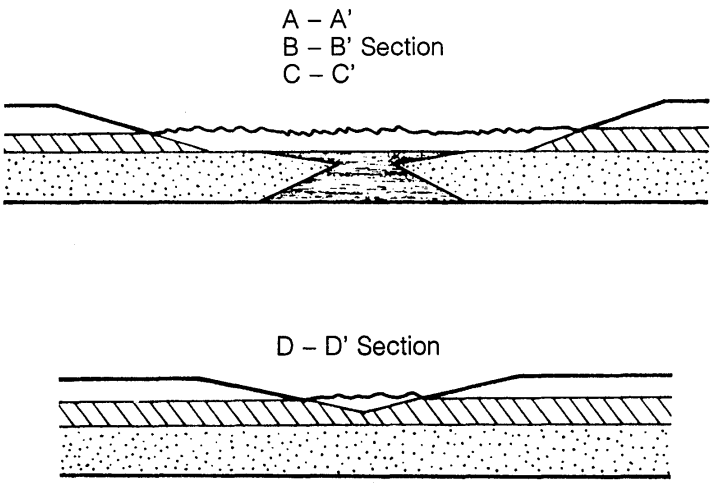
Note
If the repaired part is made concave, apply extra repair filler.

8. Sand the paint around the damaged area with #240 sandpaper to make it smooth.



Caution
Do not use thinners or other chemicals as damage to the surface will result.

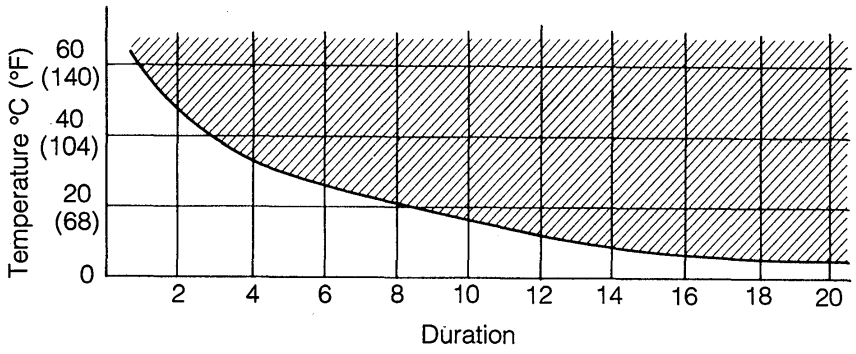
9. Spray primer (heat drying) or primer surfacer (air drying) only on the effected area of the part. (Spot spraying)



10. Dry the part.
    1) Primer (Forced drying)
       Uniformly heat the repaired part.

       Heating condition:
       80°C (176°F) (The temperature of the part) × 20 minutes

2) Primer surfacer (Air drying)
The time required for drying the applied part:
Air drying [20° (68°F)]: about 8 hours

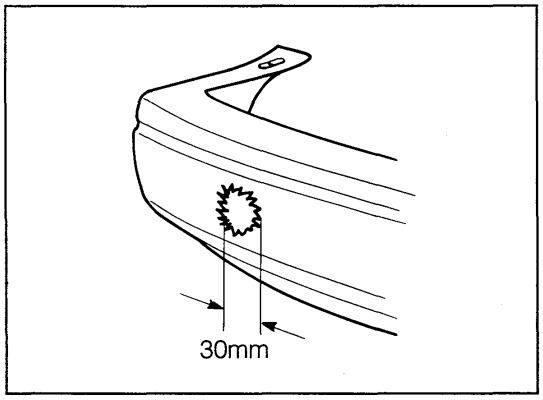


11. Sand the area of the repair with #400~#600 sandpaper. If the surface of the urethane be comes visible, touch it up with primer or primer surfacer.
12. Degrease the part and spray on a top coat.
Note
Use paint suitable for urethane only.
Normal body paint should not be applied to the flexible polyurethane fascia. If it is applied, it will not match the flexibility of the fascia causing the paint to crack or peel.

REPAIRING POLYPROPYLENE FASCIA

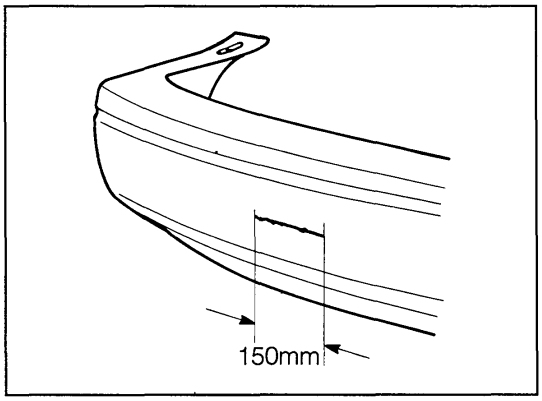
REPAIRABLE RANGE FOR POLYPROPYLENE FASCIA

The three examples of damage shown below are considered repairable. Although a bumper which has been damaged greater than this could also be repaired, it should be replaced with a new one. Any larger repair would detract from the looks and quality of the bumper. In addition, such repair is not considered reasonable in terms of workload.

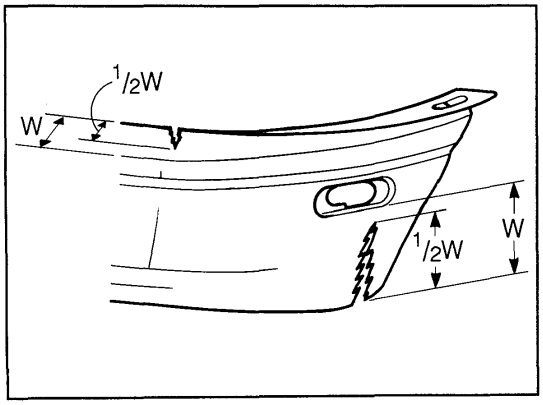


Allowable Repairs

1. A fascia with a hole less than 30mm (1.18 in) in diameter.

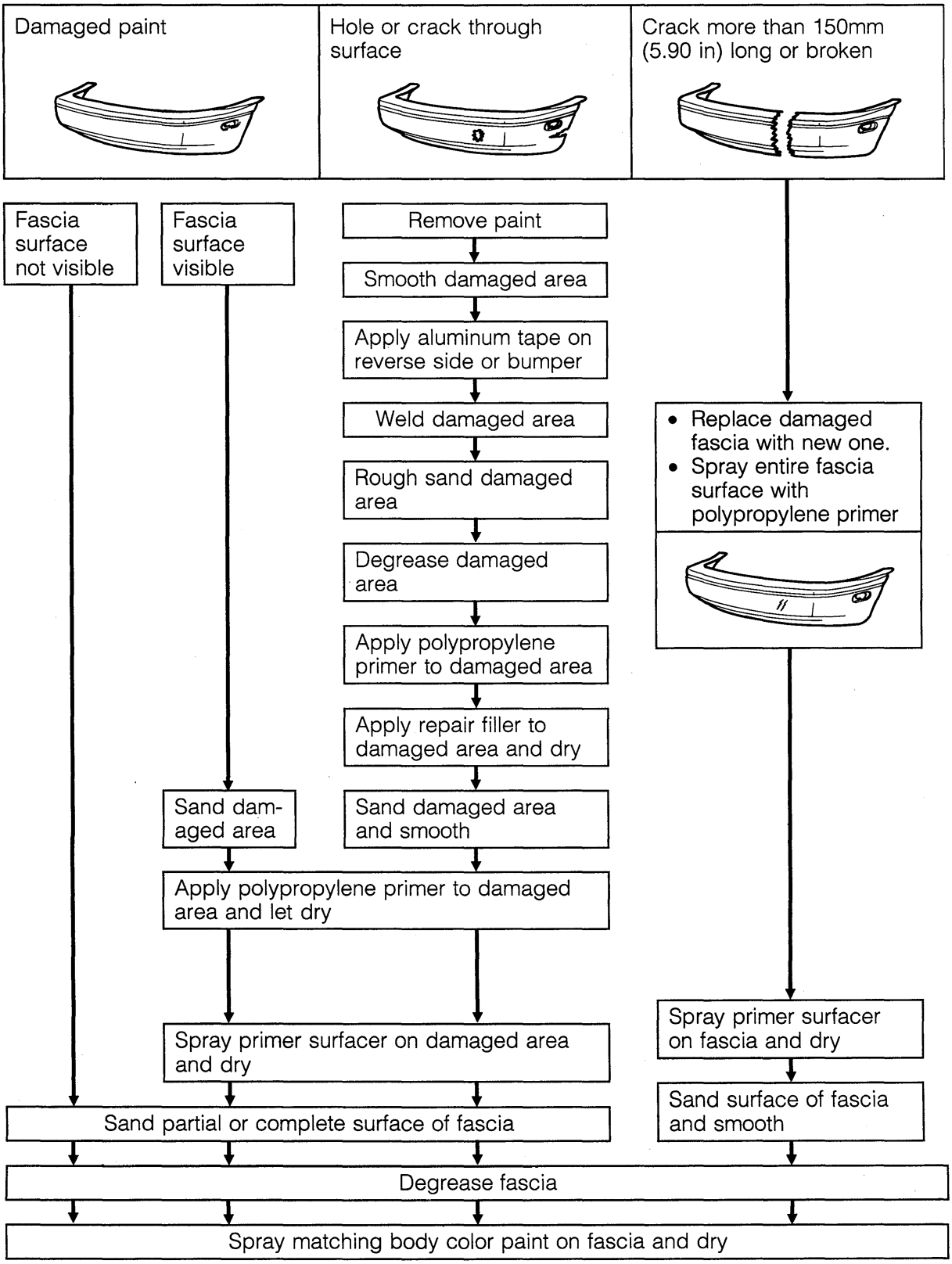


2. A fascia with a crack less than 150mm (5.90 in) in length.



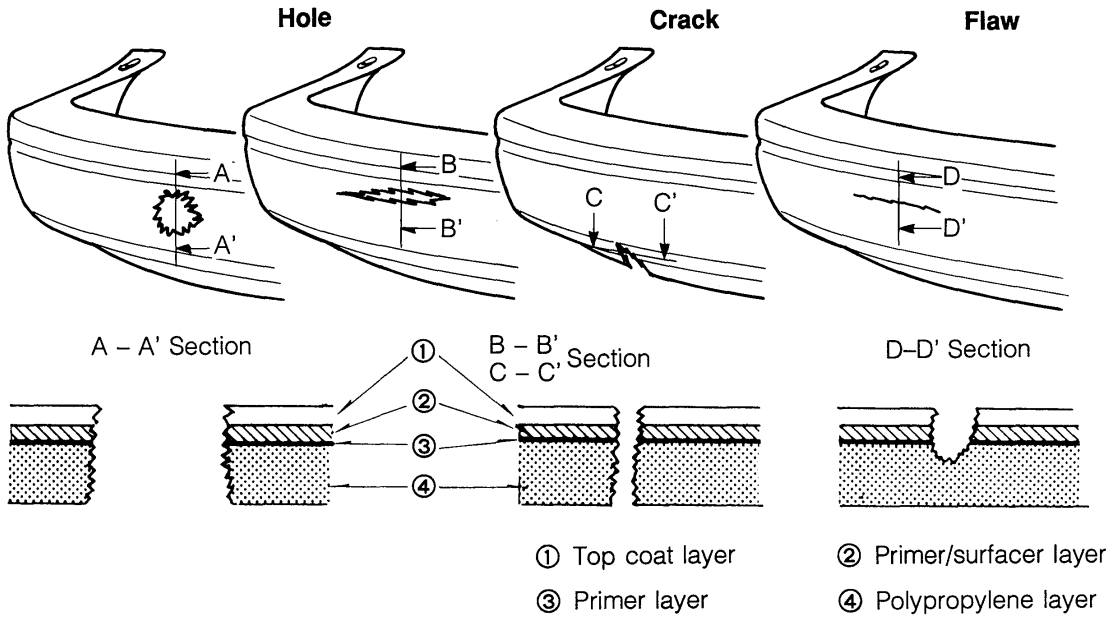
3. A fascia with a crack less than 150mm (5.90 in) in length that is less than half of the width of the bumper.

Procedure for Repairing Polypropylene Fascia

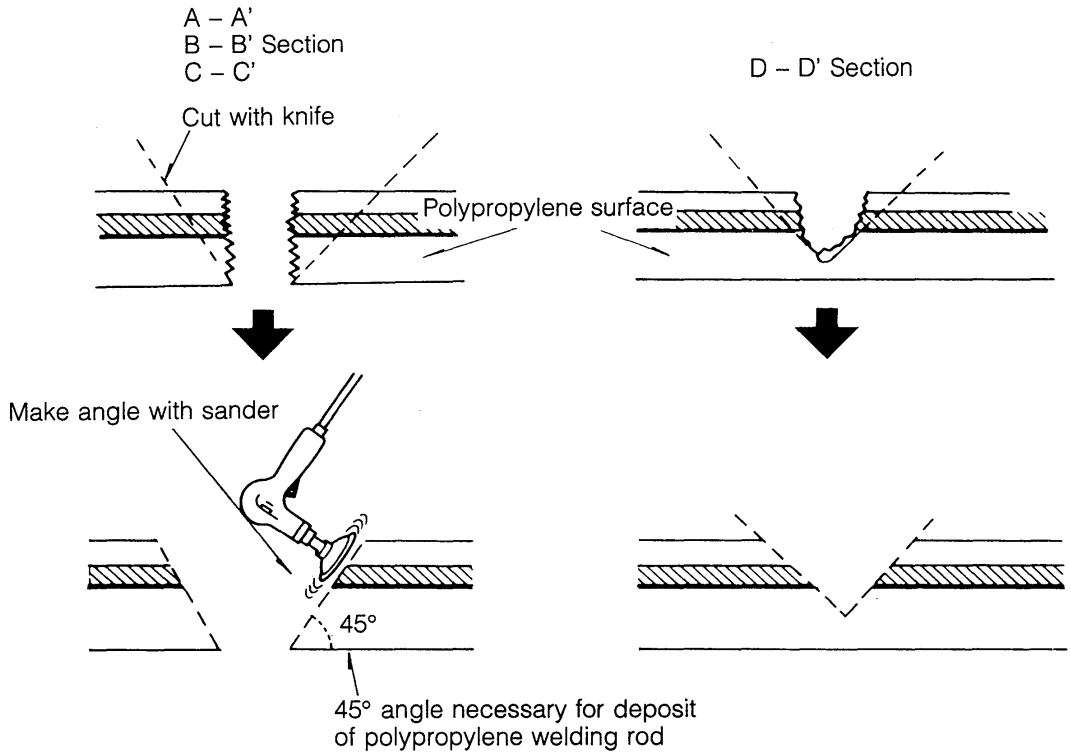


Repair of Polypropylene Fascia

Repair of polypropylene fascia having flaws that have reached the surface of the polypropylene and are too serious to be restored by the painting.

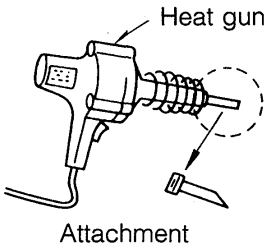


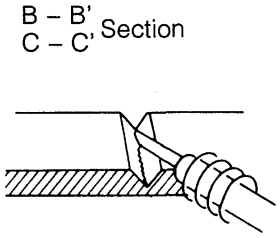
1. Cut the rough edges around the flaw with a knife to make it smooth. Sand the area with a sander to make an angle of about 45°.

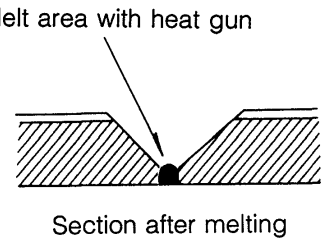


2. Weld damaged area

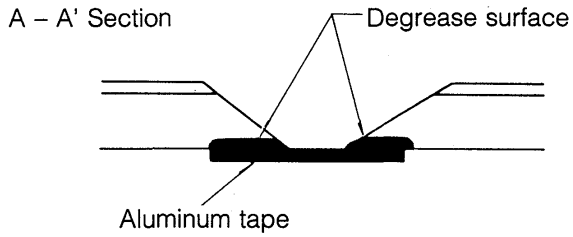
- For repair of a cracked area, melt the crack together a heat gun and a special attachment.



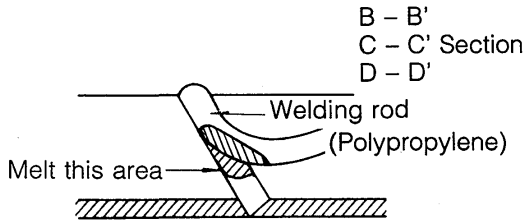


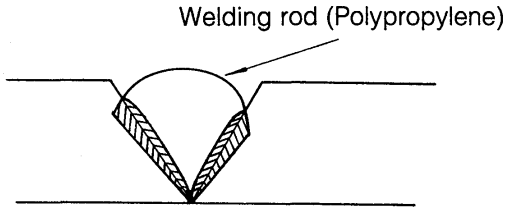


- For repair of a hole, degrease the area and apply aluminum tape on the reverse side of the damaged area.



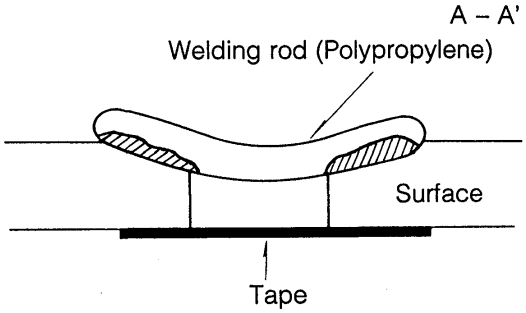
3. Melt the polypropylene welding rod with a heat gun and deposit it in the cracked area.

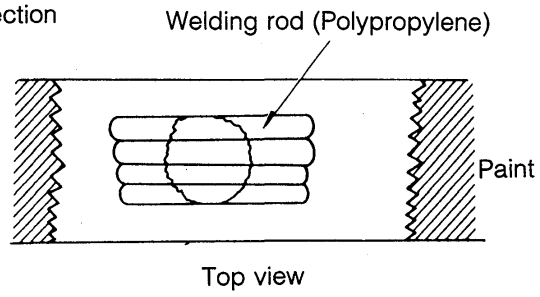




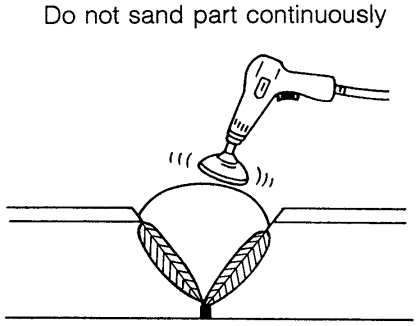
Note

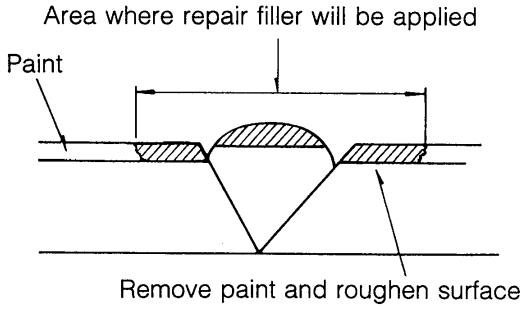
a) Heat the shaded area to melt it.
b) Take care not to excessively melt the welding rod. If the part is welded with the welding rod melted like jelly, the welding strength will be lowered.
c) Hold the heat gun 10~20mm (0.39~0.79 in) away from the part that will be welded.
d) Do not move the welding rod until the welded part cools.



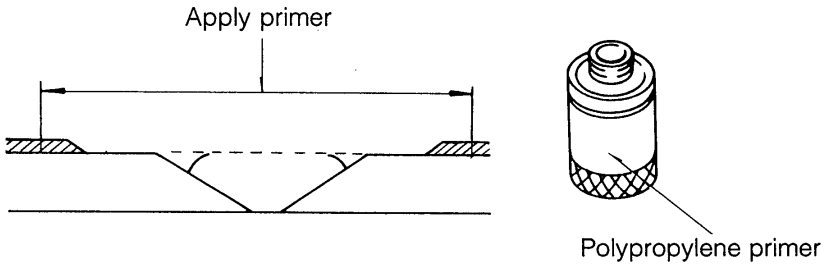


4. Sand the surface of the polypropylene little by little since it is easily melted even by the abrasion heat. If melted, remove the melted area.
   Sand the areas to which repair filler will be applied.

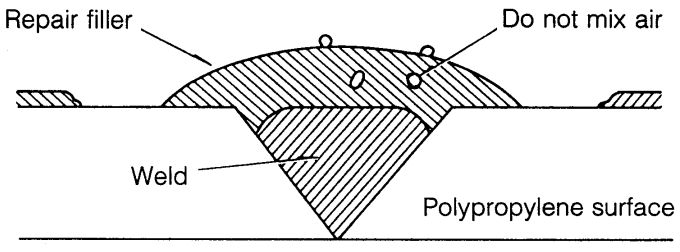




5. Apply polypropylene primer uniformly to an area larger than the repaired area with a brush. It will take about 10 minutes to dry at a 20°C (68°F).



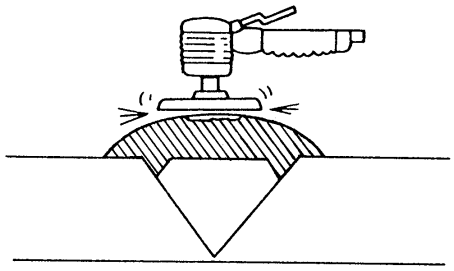
6. Mix the main agent and the stiffening agent in a ratio of one to one.
   Apply the mixed repair filler to the damaged area.
   Note
   a) When mixing the main and stiffening agents, do not allow bubbles to form.
   b) The repair filler hardens fast (about 5 minutes). Proceed with the work immediately after mixing.
   c) Allow about 30 minutes to dry at 20°C (68°F) before sanding.

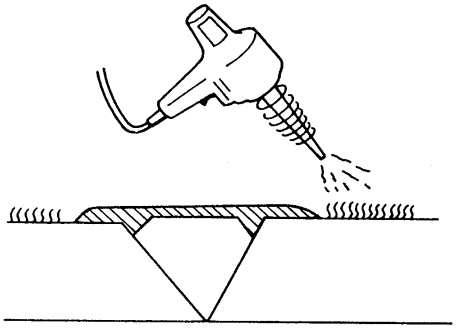


The repair filler is a two part epoxy adhesive.
When the repair filler hardens, it will provide a good finish with the same flexibility as the polypropylene.

The repair filler for a urethane fascia is also a two part adhesive; however, this is different from the repair filler for a polypropylene fascia. Do not use the wrong repair filler.

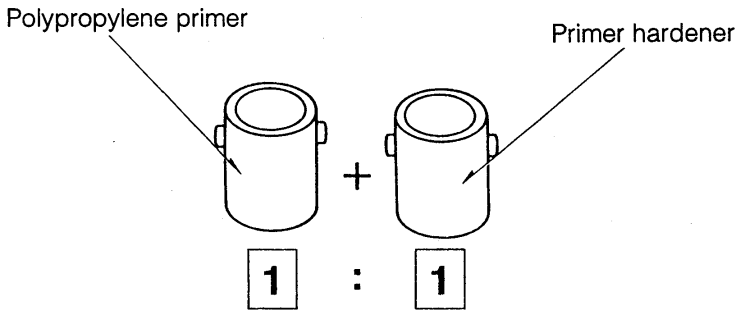
7. Sand the area with #180~#240 sandpaper.
   Note
   a) If excessive force is applied to the area when sanding, the surface will not become smooth.
   b) If there is fuzz around the repaired area melt it with a heat gun.





8. Degrease the painted surface.

9. Mix the primer and the hardener at a ratio of one to one.
   Apply primer to the repaired area and the surface of the fascia with a brush or spray.



   Use the primer within 16 hours after it is mixed.
   Note
   Polypropylene primer will dissolve even after drying if it is wiped with solvent. Use only water to clean.

10. Dry the part.

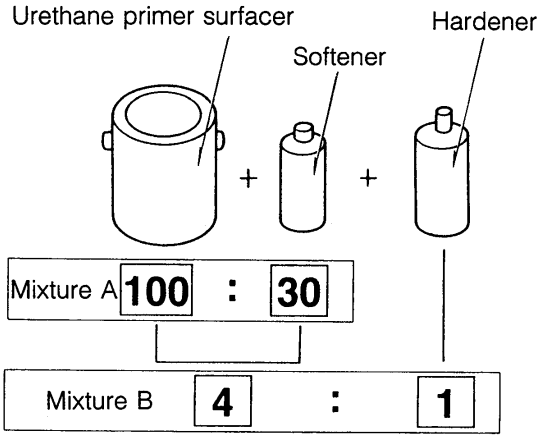
11. Add the softener to the urethane primer surfacer and spray it on the repaired part.
    (1) Mixing method
    Urethane primer surfacer +
    Softener ..... Mixture A
    Mixture A + hardener ..... Mixture B
    Dilute mixture B with thinner to spray on the fascia.

    (2) Viscosity
    14~16 seconds/viscosimeter 20°C (68°F)

    (3) Spray pressure
    300~400 kPa
    (3~4 kg/cm^2, 42.99~57.8 psi)

    (4) Standard film thickness
    30~50μ

    (5) Spray method
    Spot spray three or four times



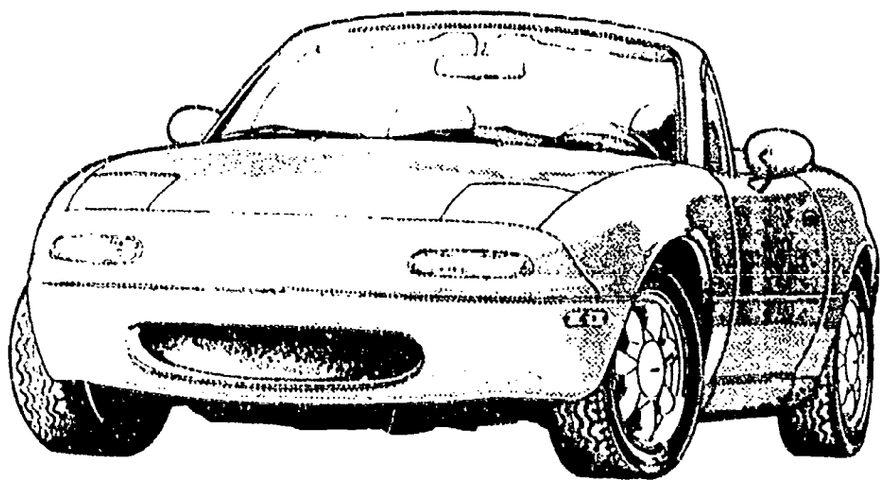
    Note
    Mix the solutions at the specified ratio.

12. Air drying 20°C (68°F) — 8 hours min.
    Forced drying 60°C (140°F) — 1 hour
13. Lightly sand the complete surface of the fascia with #400~#600 sandpaper. Do not expose the surface of the polypropylene.
    (Wet or dry sanding is acceptable)
14. Wipe the complete surface of the fascia with degreasing agent. Quickly wipe the surface with a clean rag to degrease it.
15. Apply a matching point coat to the fascia.
    Note
    The primer for repairing urethane fascia adheres poorly to a polypropylene fascia. Therefore, be sure to use only the correct primer.
    Other paints for repairing polypropylene fascia are the same as those for urethane. Normal body paint should not be applied to the flexible polypropylene bumper. If it is used, it will not match the flexibility of the fascia, causing the paint film to crack or peel.

16. Air drying 20°C (68°F) — 8 hours min.
    Forced drying 60°C (140°F) — 1 hour
    Note
    Let the part air dry when possible since forced drying could cause bubbles in the top coat.

Parts Catalog

Mazda MX-5 MIATA
U.S.A.
('91►'92)



NA35**-200001~350000

Jan.'94 (FINAL)

Catalog No. AU-NA02-07

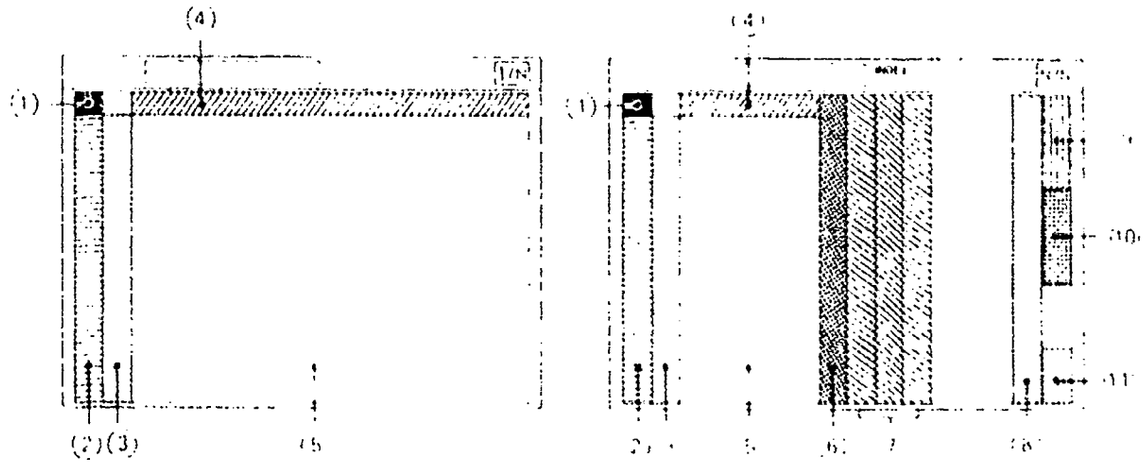
mazda

1994 Mazda Motor Corporation

1-B 1

LAYOUT OF CONTENTS / DISPOSITION TYPOGRAPHIQUE DE CONTENU / DISPOSICION DEL CONTENIDO / ANORDNUNG DES INHALTS

- The following is a typical example of the layout of contents on Mazda microfiche parts catalog
- Voici un exemple typique de la disposition typographique de contenu dans les microfiches de catalogue des pièces de Mazda
- El siguiente es un ejemplo típico de la disposición del contenido en una microficha del catalogo de repuestos de Mazda.
- Folgendes ist ein typisches Beispiel der Inhaltsanordnung des Mazda-Mikrofiche Teilekatalogs



Remark : The items listed under ④ have been deleted from each fiche since Dec '93

① · Layout of contents
· Disposition Typographique de Contenu
· Disposición del contenido
· Anordnung des Inhalts

② · Pictorial Index
· Index par Schémas
· Indice Gráfico
· Illustrierter Index

③ · Master Section No. Index
· Index des Numéros des Sections Totale
· Indice del Numero de la Sección Maéstra
· Hauptabschnittsnummer Index

~~④ · Section No. Index for the Column
· Index des Numéros des Sections pour les Colonnes
· N° de la Sección para el Indice
· Abschnittsnummer-Index für die Spalte~~

⑤ · Illustration & Text
· Illustrations et Textes
· Ilustración y Texto
· Abbildung und Text

⑥ · Part No. Index
· Index des Numéros des Pièces
· Indice del N° de Pieza
Teile Nr. Index

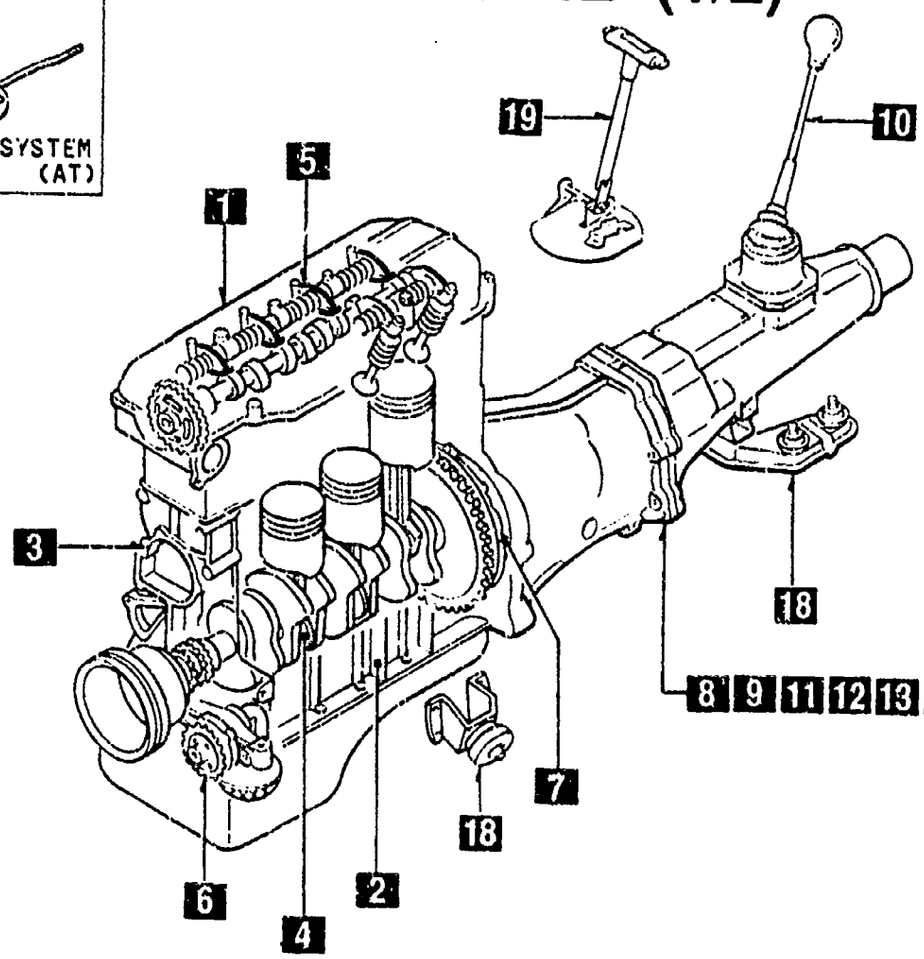
⑦ · Alphabetical Index
· Index Alphabétique
· Indice Alfabético
· Alphabetischer Index

⑧ · Model Identification
· Identification des Modèles
· Identificación del Modelo
· Modell-Kennzeichnung

⑨ · Vehicle Identification System
· Système d Identification de Véhicule
· Sistema de Identificación de Vehiculo
· Fahrzeug Identifikations system

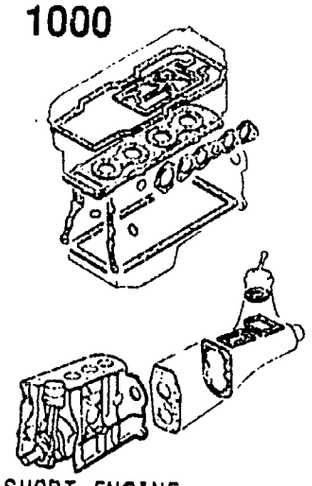
PICTORIAL INDEX

ENGINE (1/2)



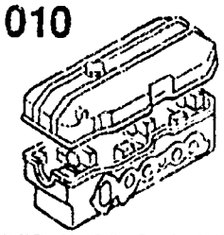
As this illustration is prepared to be applicable to all models, some parts are different in specifications from the parts listed in this parts Catalog

1000



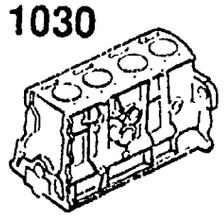
SHORT ENGINE & GASKET SETS

1 1010



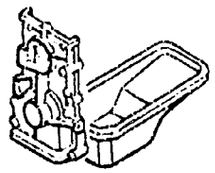
CYLINDER HEAD & COVER

2 1030



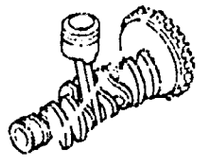
CYLINDER BLOCK

3 1040



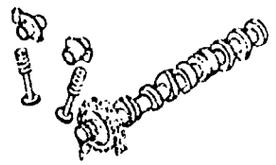
OIL PAN & TIMING COVER

4 1100



PISTON, CRANKSHAFT & FLYWHEEL

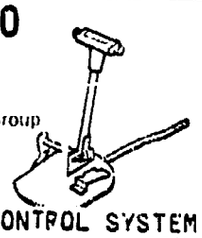
5 1200



VALVE SYSTEM

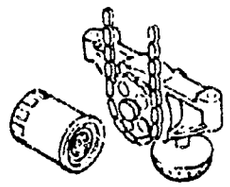
19 4600

Given in Chassis Group



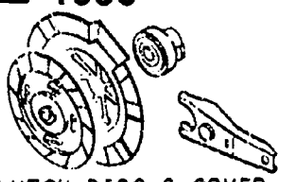
CHANGE CONTROL SYSTEM (AT)

6 1400



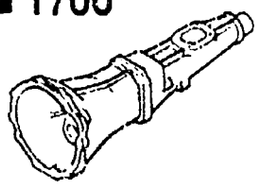
OIL PUMP & FILTER

7 1600



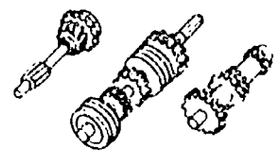
CLUTCH DISC & COVER (MANUAL)

8 1700



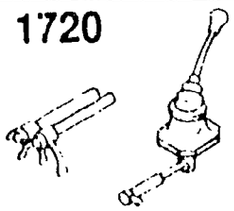
TRANSMISSION CASE (MANUAL)

9 1710



TRANSMISSION GEARS (MANUAL)

10 1720

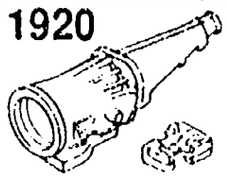


CHANGE CONTROL SYSTEM (MANUAL)

11 1910

TORQUE CONVERTER, OIL PUMP & PIPINGS (AUTOMATIC)

12 1920

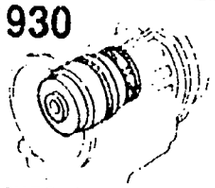


TRANSMISSION CASE & MAIN CONTROL SYSTEM (AUTOMATIC)

13 1925

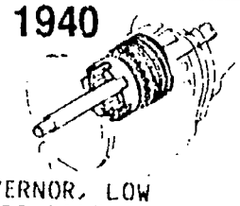
CONTROL VALVE (AUTOMATIC)

14 1930



CLUTCHES & PLANETARY GEARS (AUTOMATIC)

15 1940

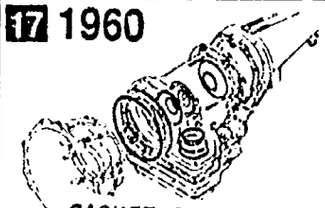


GOVERNOR, LOW & REVERSE PISTON (AUTOMATIC)

16 1950

MANUAL LINKAGE SYSTEM (AUTOMATIC)

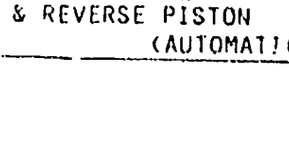
17 1960



GASKET & SEAL KIT (AUTOMATIC)

18 3900

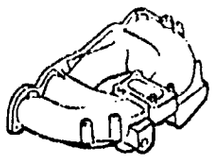
Given in Chassis Group



ENGINE & T/MISSION MOUNTINGS

PICTORIAL INDEX

1 1300

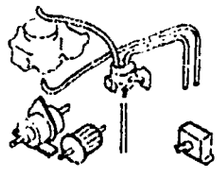


INLET MANIFOLD

2 1310

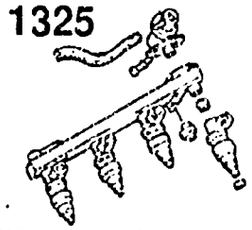
EXHAUST MANIFOLD

3 1320



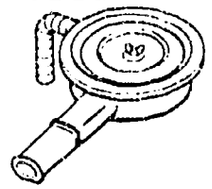
FUEL SYSTEM

4 1325



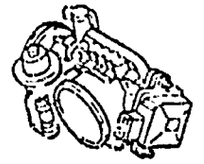
FUEL DISTRIBUTOR

5 1330



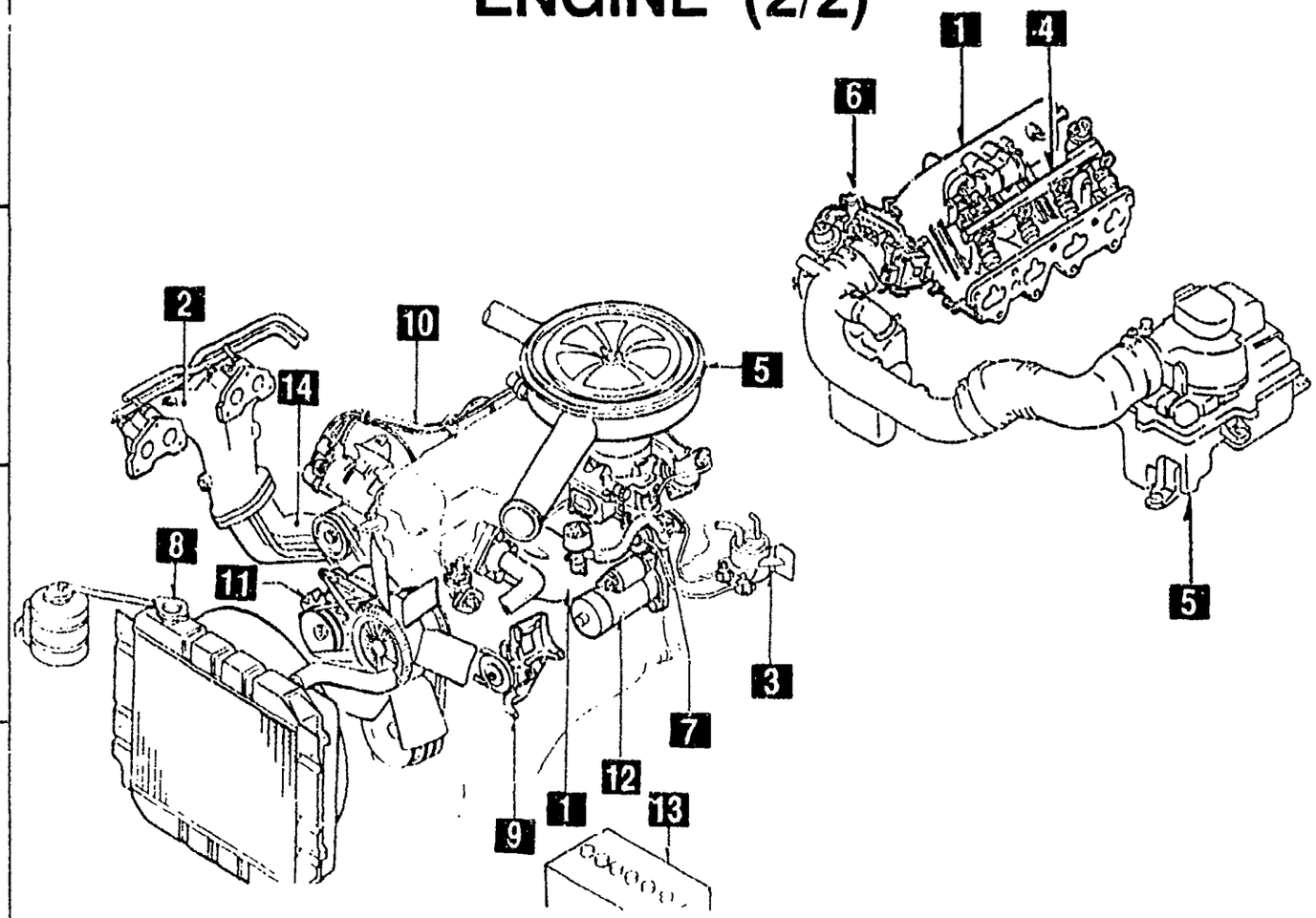
AIR CLEANER

6 1364



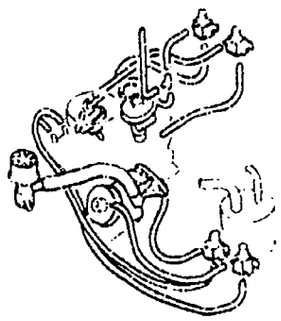
THROTTLE BODY

ENGINE (2/2)



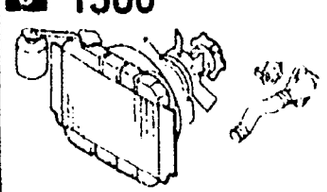
As this illustration is prepared to be applicable to all models, some parts are different in specifications from the parts listed in this parts Catalog

7 1370



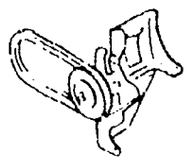
EMISSION CONTROL SYSTEM (INLET SIDE)

8 1500



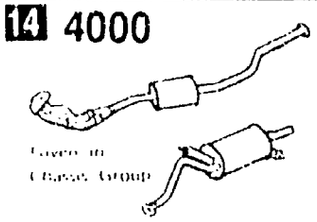
COOLING SYSTEM

9 1580



BRACKET, PULLEY & BELT

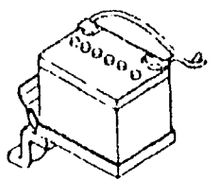
14 4000



Refer to Exhaust Group

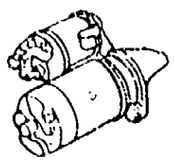
EXHAUST SYSTEM

13 1850



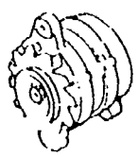
BATTERY

12 1840



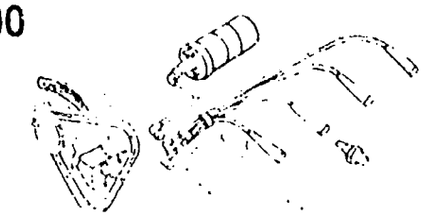
STARTER

11 1830



ALTERNATOR

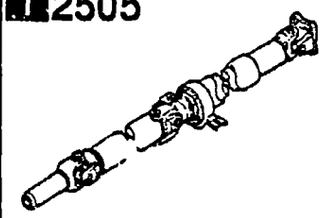
10 1800



ENGINE ELECTRICAL SYSTEM

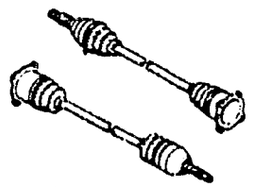
PICTORIAL INDEX

1 2505



REAR PROPELLER SHAFT

2 2550



REAR DRIVE SHAFT

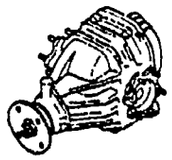
3 2600

REAR AXLE

4 2610

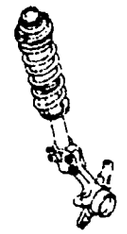
REAR BRAKE MECHANISMS

5 2710



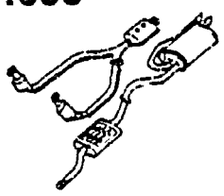
REAR DIFFERENTIALS

6 2800



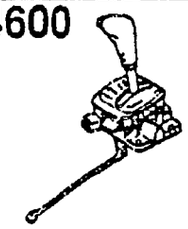
REAR SUSPENSION MECHANISMS

20 4000



EXHAUST SYSTEM

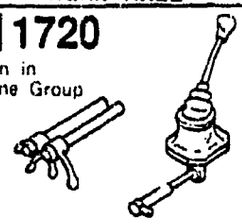
21 4600



CHANGE CONTROL SYSTEM

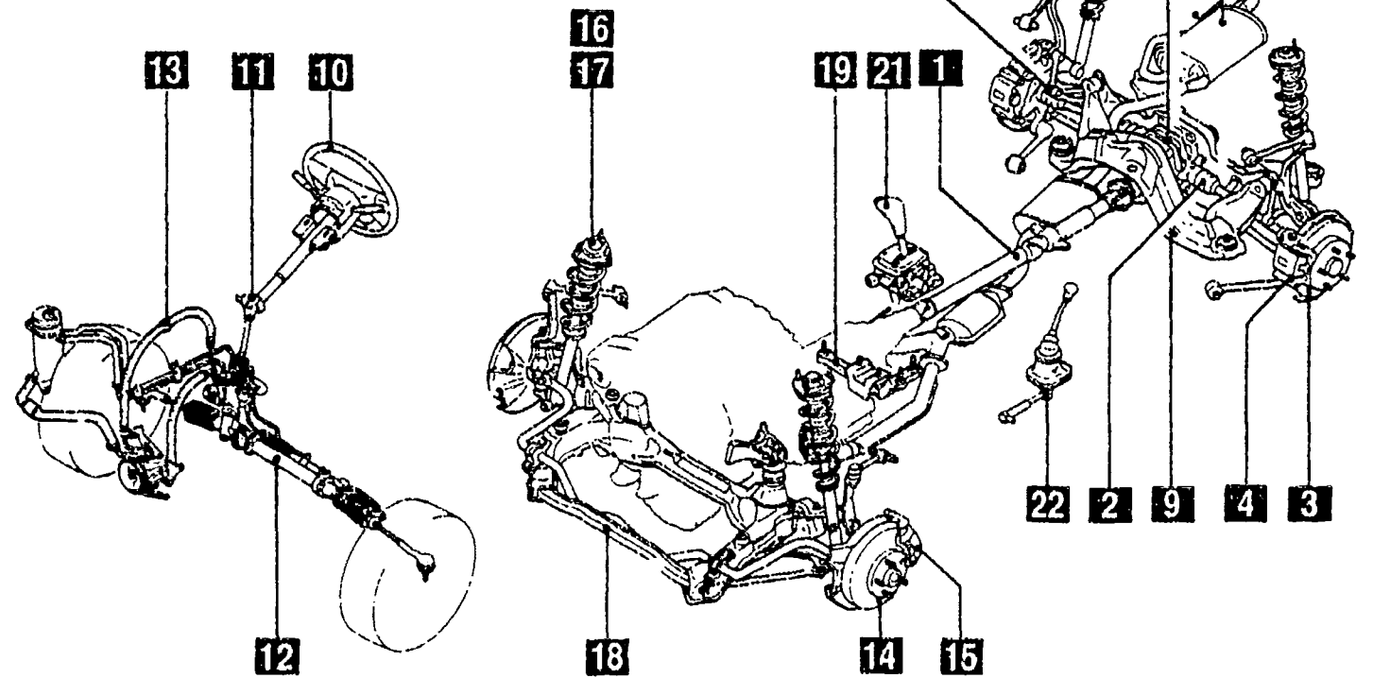
22 1720

Given in Engine Group



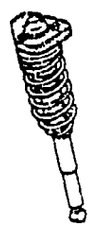
CHANGE CONTROL SYSTEM (MANUAL TRANSMISSION)

CHASSIS (1/2)



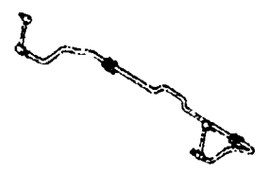
As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.

7 2801



REAR SPRING & DAMPER

8 2810

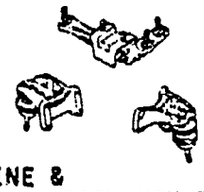


REAR STABILIZER

9 2830

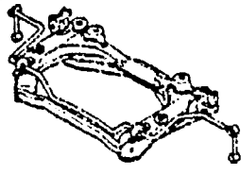
REAR LOWER ARMS & SUB FRAME

19 3900



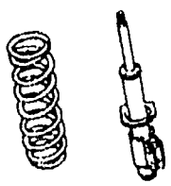
ENGINE & T/MISSION MOUNTINGS

18 3410



CROSSMEMBER & STABILIZER

17 3401

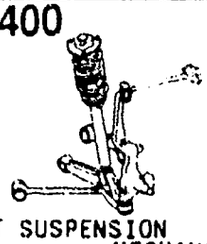


FRONT SPRING & DAMPER

10 3200

STEERING WHEEL

16 3400



FRONT SUSPENSION MECHANISMS

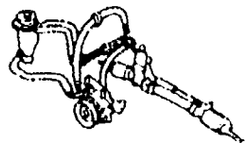
15 3310

FRONT BRAKE MECHANISMS

14 3300

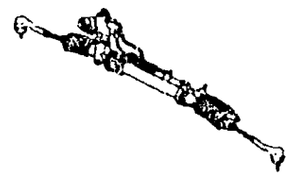
FRONT AXLE

13 3240



POWER STEERING SYSTEM (FRONT)

12 3220



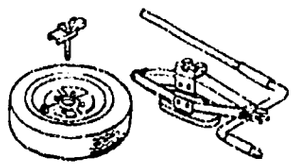
STEERING GEAR

11 3210

STEERING COLUMN & SHAFTS

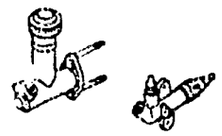
PICTORIAL INDEX

1 3700



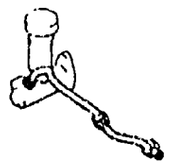
TIRES & JACK

2 4140



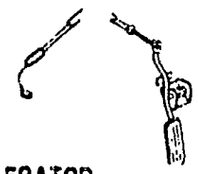
CLUTCH RELEASE & MASTER CYLINDERS

3 4145



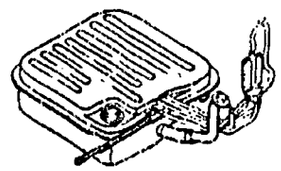
CLUTCH PIPINGS

4 4160



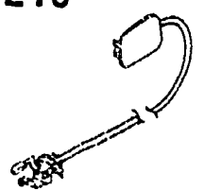
ACCELERATOR CONTROL SYSTEM

5 4200



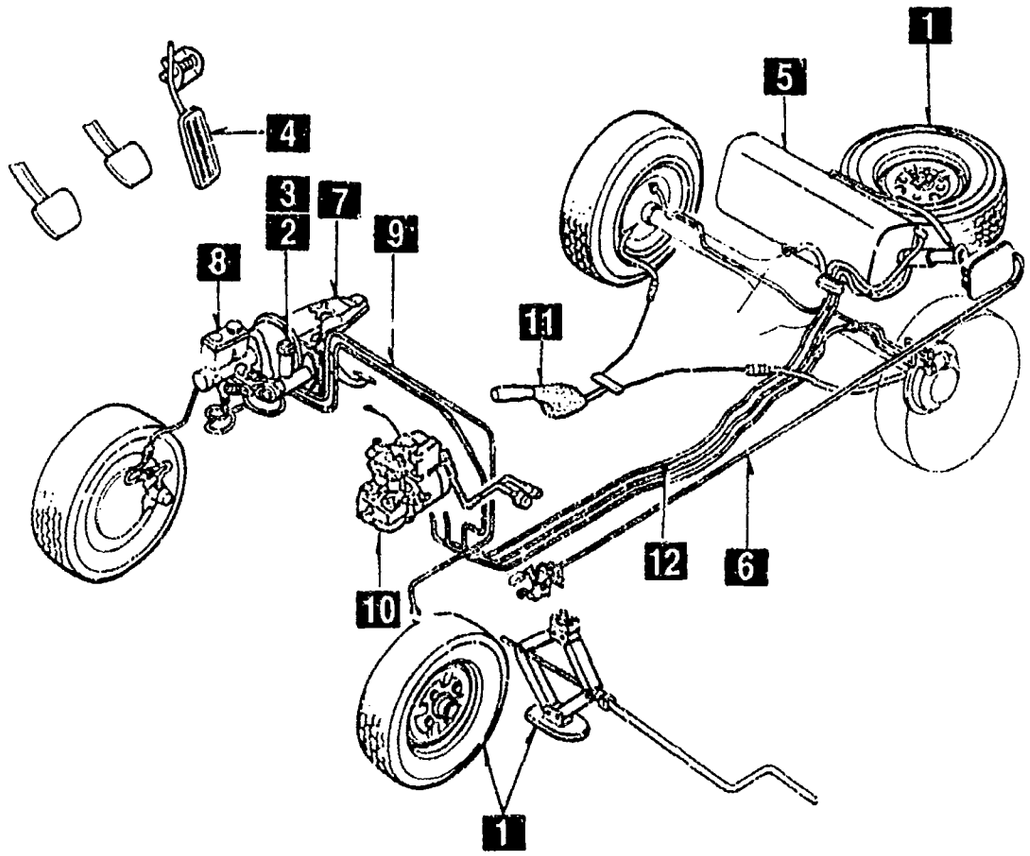
FUEL TANK

6 4210



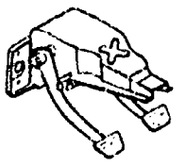
FUEL LID OPENER

CHASSIS (2/2)



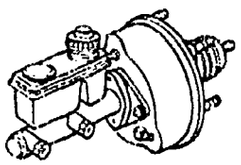
As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.

7 4300



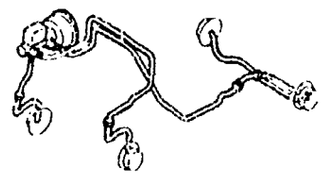
CLUTCH & BRAKE PEDALS

8 4340



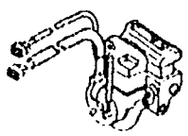
BRAKE MASTER CYLINDER & POWER BRAKE

9 4360



BRAKE PIPINGS

10 4370



ANTILOCK BRAKE SYSTEM

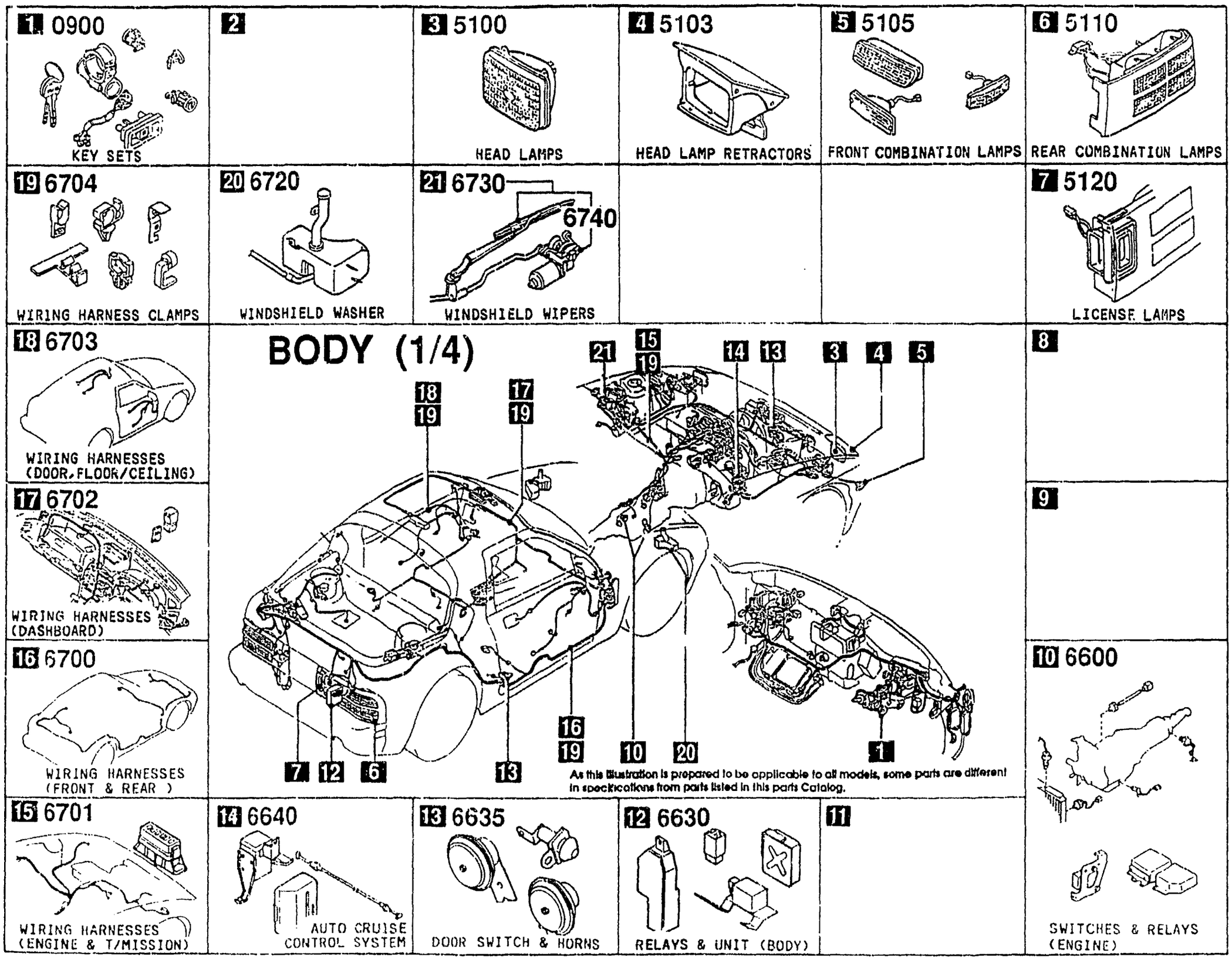
12 4500

FUEL PIPINGS

11 4400

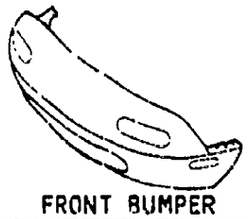
PARKING BRAKE SYSTEM

PICTORIAL INDEX



PICTORIAL INDEX

1 5000

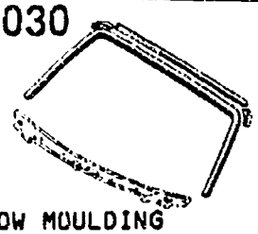


FRONT BUMPER

2 5010

REAR BUMPER

3 5030

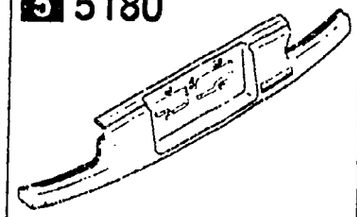


WINDOW MOULDING
& COWL GRILLES

4 5170

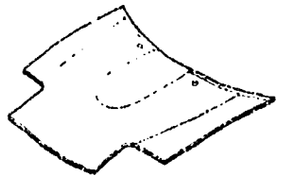
ORNAMENTS

5 5180



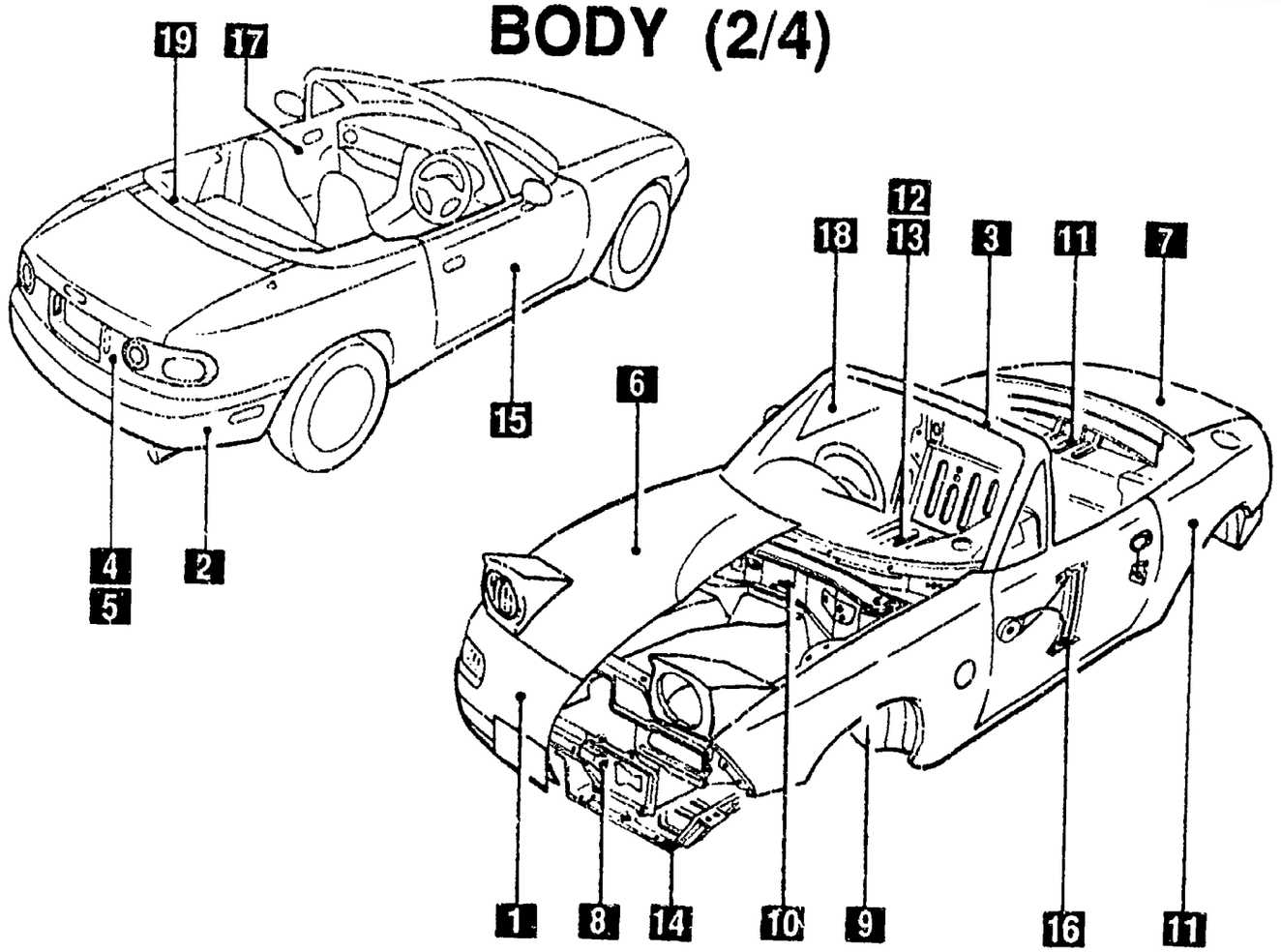
REAR FINISHER

6 5230

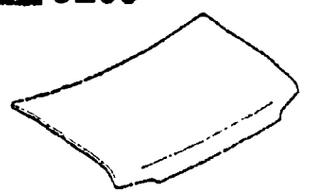


BONNET

BODY (2/4)

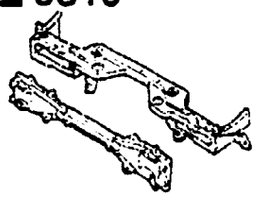


7 5260



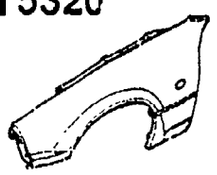
TRUNK LID

8 5310



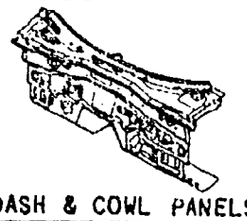
FRONT PANELS

9 5320



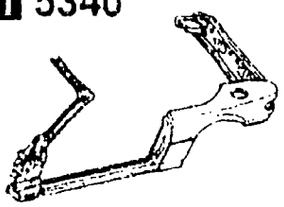
FENDER
& WHEEL APRON PANELS

10 5330



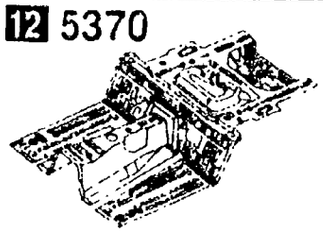
DASH & COWL PANELS

11 5340



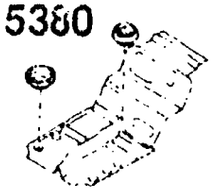
SIDE PANELS

12 5370



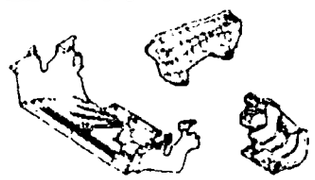
FLOOR PANELS

13 5380



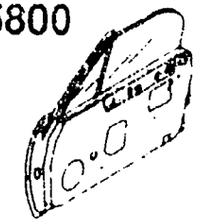
FLOOR ATTACHMENTS
(HOLE COVERS)

14 5390



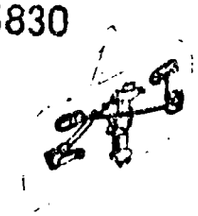
FLOOR ATTACHMENTS

15 5800



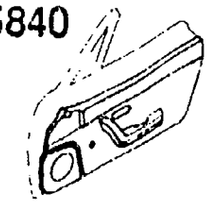
FRONT DOORS

16 5830



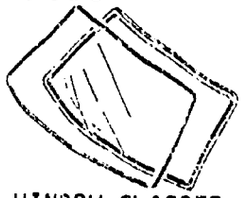
FRONT DOOR MECHANISMS

17 5840



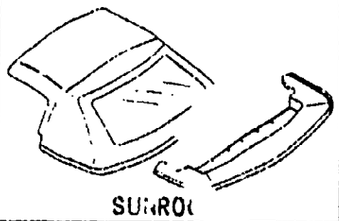
FRONT DOOR TRIMS
& RELATED PARTS

18 6000



WINDOW GLASSES

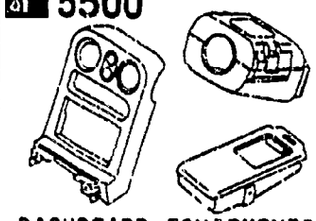
19 6330



SURROU

PICTORIAL INDEX

1 5500

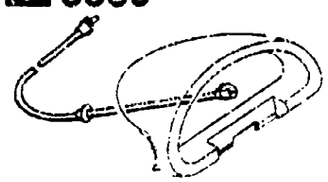


DASHBOARD EQUIPMENTS

2 5520

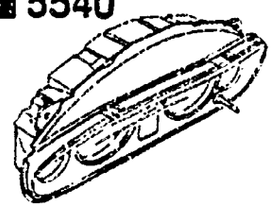
METER HOOD

3 5530



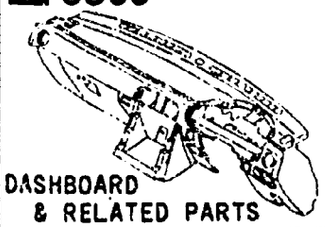
SPEEDOMETER CABLE

4 5540



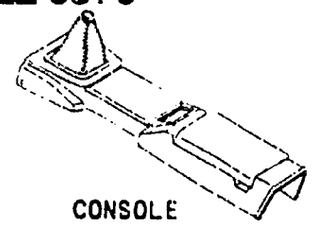
METER COMPONENTS

5 5560



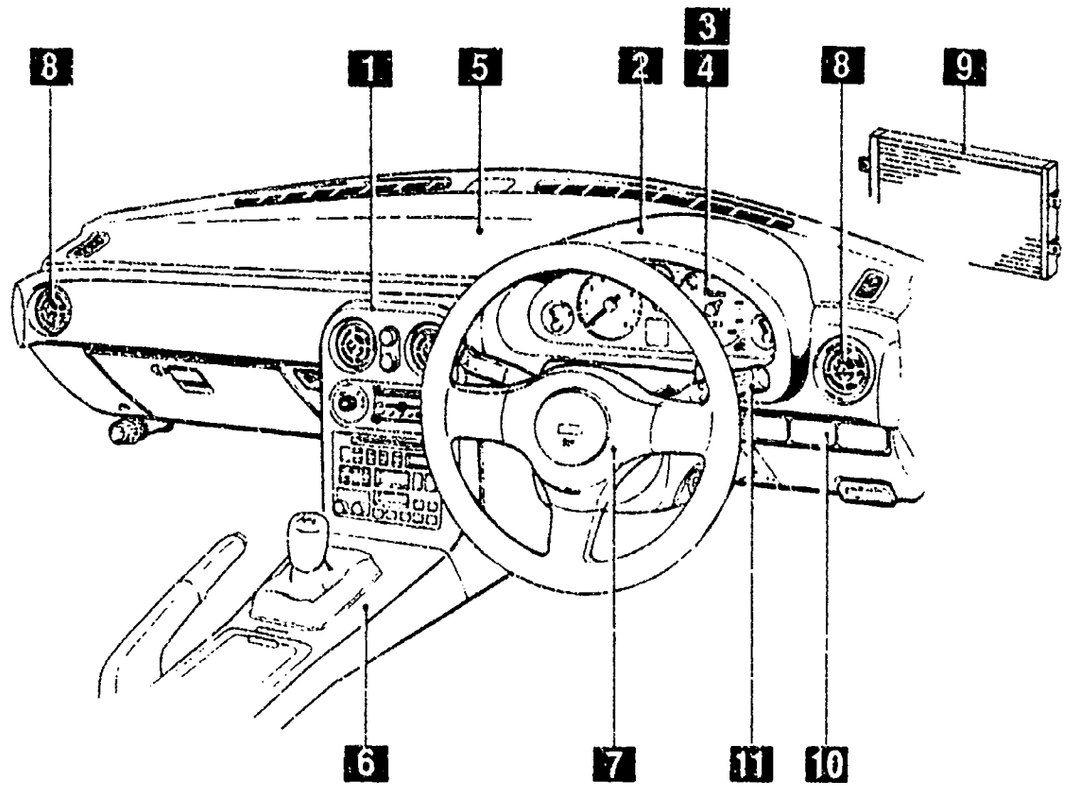
DASHBOARD & RELATED PARTS

6 5570



CONSOLE

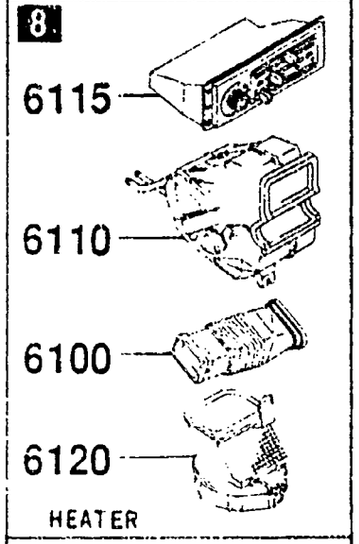
BODY (3/4)



7 5795

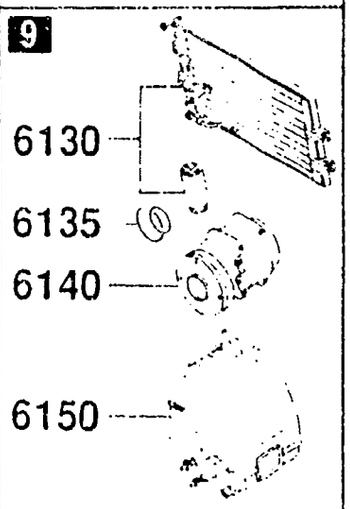
AIR BAG

8



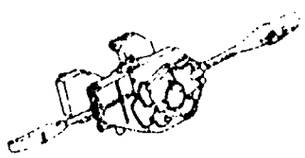
HEATER

9



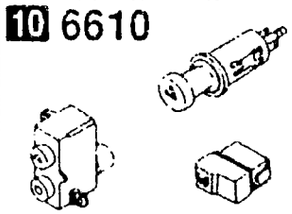
AIR CONDITIONER

11 6611



COMBINATION SWITCH

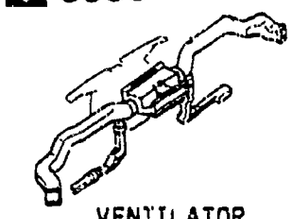
10 6610



DASHBOARD SWITCHES

PICTORIAL INDEX

1 5580

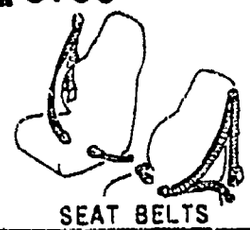


VENTILATOR

2 5700

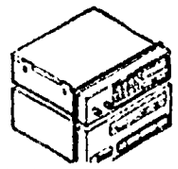
SEATS

3 5790



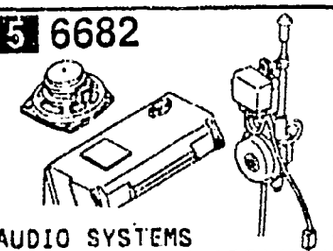
SEAT BELTS

4 6680



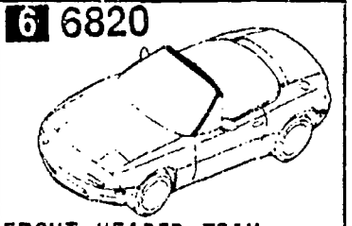
AUDIO SYSTEMS (RADIO & TAPE DECK)

5 6682



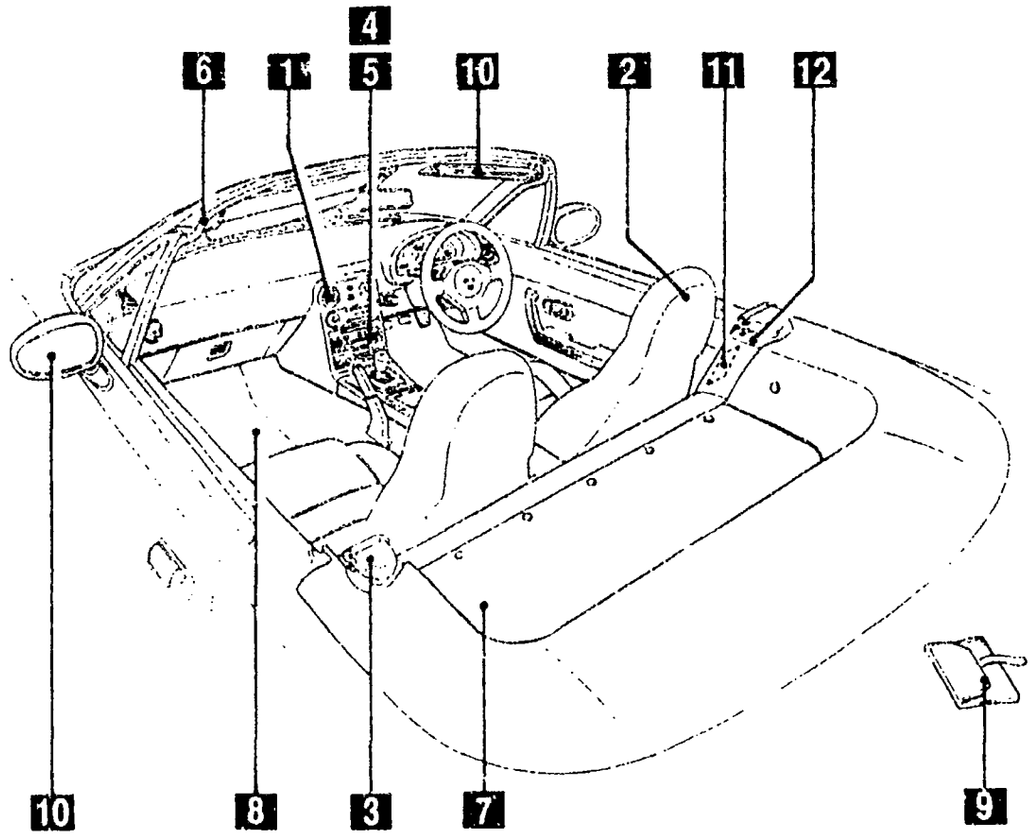
AUDIO SYSTEMS (ANTENNA & SPEAKER)

6 6820



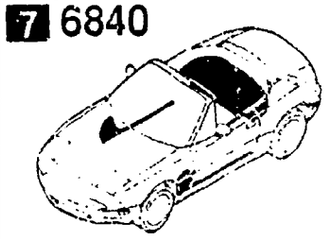
FRONT HEADER TRIM & PILLAR TRIMS

BODY (4/4)



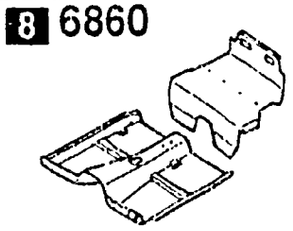
As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.

7 6840



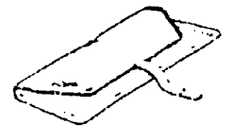
TRIMS & SCUFF PLATES

8 6860



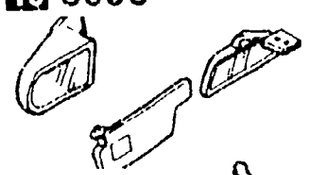
FLOOR MATS & PADS

9 6870



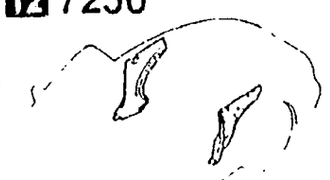
SERVICE TOOLS

10 6900



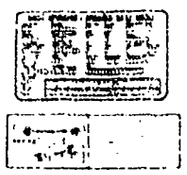
VISORS, ASSIST HANDLES & MIRRORS

12 7250



QUARTER WINDOW & TRIMS

11 6930



CAUTION PLATES & LABELS

SECTION NAME INDEX (ENGINE)

LO.NO	SEC.NO	SECTION NAME
1-C03	1000	ENGINE & GASKET SETS
1-D03	1010	CYLINDER HEAD & COVER
1-G03	1030	CYLINDER BLOCK
1-J03	1040	OIL PAN & TIMING COVER
1-K03	1100	PISTON,CRANKSHAFT & FLYWHEEL
1-N03	1200	VALVE SYSTEM
1-D04	1300	INLET MANIFOLD
1-E04	1310	EXHAUST MANIFOLD
1-F04	1320	FUEL SYSTEM
1-H04	1325	FUEL DISTRIBUTOR
1-I04	1330	AIR CLEANER
1-K04	1364	THROTTLE BODY
1-L04	1370	EMISSION CONTROL SYSTEM (INLET SIDE)
1-M04	1400	OIL PUMP & FILTER
1-C05	1500	COOLING SYSTEM
1-G05	1580	BRACKET,PULLEY & BELT
1-C06	1600	CLUTCH DISC & COVER (MANUAL)
1-D06	1700	TRANSMISSION CASE (MANUAL)
1-E06	1710	TRANSMISSION GEARS(MANUAL)
1-K06	1720	CHANGE CONTRO. SYSTEM (MANUAL)
1-N06	1800	ENGINE ELECTRICAL SYSTEM
1-D07	1830	ALTERNATOR
1-G07	1840	STARTER
1-I07	1850	BATTERY
1-J07	1910	TORQUE CONVERTER,OIL PUMP & PIPINGS (AUTOMATIC)
1-M07	1920	TRANSMISSION CASE & MAIN CONTROL SYSTEM (AUTOMATIC)
1-G08	1925	CONTROL VALVE (AUTOMATIC)
1-K08	1930	CLUTCHES & PLANETARY GEARS (AUTOMATIC)
1-F09	1940	GOVERNOR, LOW & REVERSE PISION (AUTOMATIC)
1-I09	1950	MANUAL LINKAGE SYSTEM (AUTOMATIC)
1-K09	1960	GASKET & SEAL KIT (AUTOMATIC)

SECTION NAME INDEX (CHASSIS)

LO.NO	SEC.NO	SECTION NAME	LO.NO	SEC.NO	SECTION NAME	LO.NO	SEC.NO	SECTION NAME
1-C11	2505	REAR PROPELLER SHAFT	1-H16	4360	BRAKE PIPINGS			
1-D11	2550	REAR DRIVE SHAFT	1-L16	4370	ANTILOCK BRAKE SYSTEM			
1-E11	2600	REAR AXLE	2-C03	4400	PARKING BRAKE SYSTEM			
1-G11	2610	REAR BRAKE MECHANISMS	2-E03	4500	FUEL PIPINGS			
1-I11	2710	REAR DIFFERENTIALS (NORMAL DIFF.)	2-G03	4600	CHANGE CONTROL SYSTEM (AT)			
1-N11	2710 A	REAR DIFFERENTIALS (LIMITED SLIP DIFF.)						
1-G12	2800	REAR SUSPENSION MECHANISMS						
1-H12	2801	REAR SPRING & DAMPER						
1-I12	2810	REAR STABILIZER						
1-J12	2830	REAR LOWER ARMS & SUB FRAME						
1-L12	3200	STEERING WHEEL						
1-M12	3210	STEERING COLUMN & SHAFTS						
1-N12	3220	STEERING GEAR (W/O POWER STEERING)						
1-D13	3220 A	STEERING GEAR (W/ POWER STEERING)						
1-G13	3240	POWER STEERING SYSTEM						
1-I13	3300	FRONT AXLE						
1-J13	3310	FRONT BRAKE MECHANISMS						
1-L13	3400	FRONT SUSPENSION MECHANISMS						
1-N13	3401	FRONT SPRING & DAMPER						
1-C14	3410	CROSSMEMBER & STABILIZER						
1-D14	3700	TIRES & JACK						
1-C15	3900	ENGINE & T/MISSION MOUNTINGS						
1-D15	4000	EXHAUST SYSTEM						
1-F15	4140	CLUTCH RELEASE & MASTER CYLIN ERS (MANUAL TRANSMISSION)						
1-G15	4145	CLUTCH PIPINGS (MANUAL TRANSMI SSION)						
1-H15	4160	ACCELERATOR CONTROL SYSTEM						
1-I15	4200	FUEL TANK						
1-L15	4210	FUEL LID OPENER						
1-M15	4300	CLUTCH & BRAKE PEDALS (MANUAL TRANSMISSION)						
1-D16	4300A	BRAKE PEDALS (AUTOMATIC TRANSM ISSION)						
1-F16	4340	BRAKE MASTER CYLINDER & POWER BRAKE						

SECTION NAME INDEX (BODY)

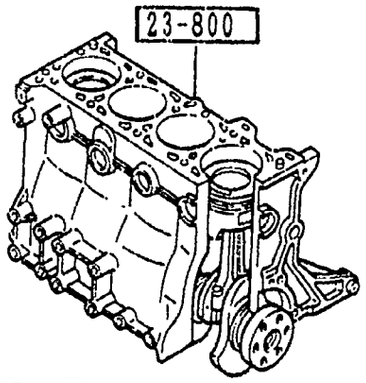
LO.NO	SEC.NO	SECTION NAME
2-C05	0900	KEY SETS
2-F05	5000	FRONT BUMPER
2-I05	5010	REAR BUMPER
2-K05	5030	WINDOW MOULDING & COWL GRILLES
2-L05	5100	HEAD LAMPS
2-M05	5103	HEAD LAMP RETRACTURS
2-D06	5105	FRONT COMBINATION LAMPS
2-F06	5110	REAR COMBINATION LAMPS
2-I06	5120	LICENSE LAMPS
2-J06	5170	ORNAMENTS
2-K06	5180	REAR FINISHER
2-M06	5230	BONNET
2-C07	5260	TRUNK LID
2-E07	5310	FRONT PANELS
2-F07	5320	FENDER & WHEEL APRON PANELS
2-I07	5330	DASH & COWL PANELS
2-J07	5340	SIDE PANELS
2-C08	5370	FLOOR PANELS
2-F08	5380	FLOOR ATTACHMENTS (HOLE COVERS)
2-G08	5390	FLOOR ATTACHMENTS
2-C09	5500	DASHBOARD EQUIPMENTS
2-E09	5520	METER HOOD
2-F09	5530	SPEEDOMETER CABLE
2-G09	5540	METER COMPONENTS
2-J09	5560	DASHBOARD & RELATED PARTS
2-M09	5570	CONSOLE
2-E10	5580	VENTILATOR
2-G10	5700	SEATS
2-E11	5790	SEAT BELTS
2-F11	5795	AIR BAG
2-G11	5800	FRONT DOORS
2-J11	5830	FRONT DOOR MECHANISMS
2-N11	5840	FRONT DOOR TRIMS & RELATED PARTS
2-C13	6100	HEATER
2-D13	6110	HEATER UNIT COMPONENTS
2-E13	6115	HEATER CONTROLS COMPONENTS
2-G13	6120	HEATER BLOWER COMPONENTS
2-H13	6130	AIR CONDITIONER
2-L13	6135	O RING SET,PIPING
2-M13	6140	COMPRESSOR COMPONENTS (AIR CONDITIONER)
2-C14	6150	COOLING UNIT (AIR CONDITIONER)
2-D14	6300	WINDOW GLASSES
2-E14	6330	SUNROOF
2-E15	6600	SWITCHES & RELAYS (ENGINE)
2-I15	6610	DASHBOARD SWITCHES
2-J15	6611	COMBINATION SWITCH
2-K15	6630	RELAYS & UNIT (BODY)
2-M15	6635	DOOR SWITCH & HORNS
2-N15	6640	AUTO CRUISE CONTROL SYSTEM
2-C16	6680	AUDIO SYSTEMS (RADIO & TAPE DECK)
2-E16	6682	AUDIO SYSTEMS (ANTENNA & SPEAKER)
2-G16	6700	WIRING HARNESSES(FRONT & REAR)
2-J16	6701	WIRING HARNESSES(ENGINE & T/MISSION)
2-L16	6702	WIRING HARNESSES(DASHBOARD)
2-M16	6703	WIRING HARNESSES(DOOR,FLOOR/CEILING)
3-C03	6704	WIRING HARNESS CLAMPS
3-F03	6720	WINDSHIELD WASHER
3-K03	6730	WINDSHIELD WIPERS
3-M03	6740	WIPER MOTOR COMPONENTS(FRONT)
3-N03	6820	FRONT HEADER TRIM & PILLAR TRIMS
3-C04	6840	TRIMS & SCUFF PLATES
3-E04	6860	FLOOR MATS & PADS
3-H04	6870	SERVICE TOOLS
3-I04	6900	VISORS,ASSIST HANDLES & MIRRORS
3-K04	6930	CAUTION PLATES & LABELS
3-M04	7250	QUARTER WINDOW & TRIMS

1-D 2

10-271S

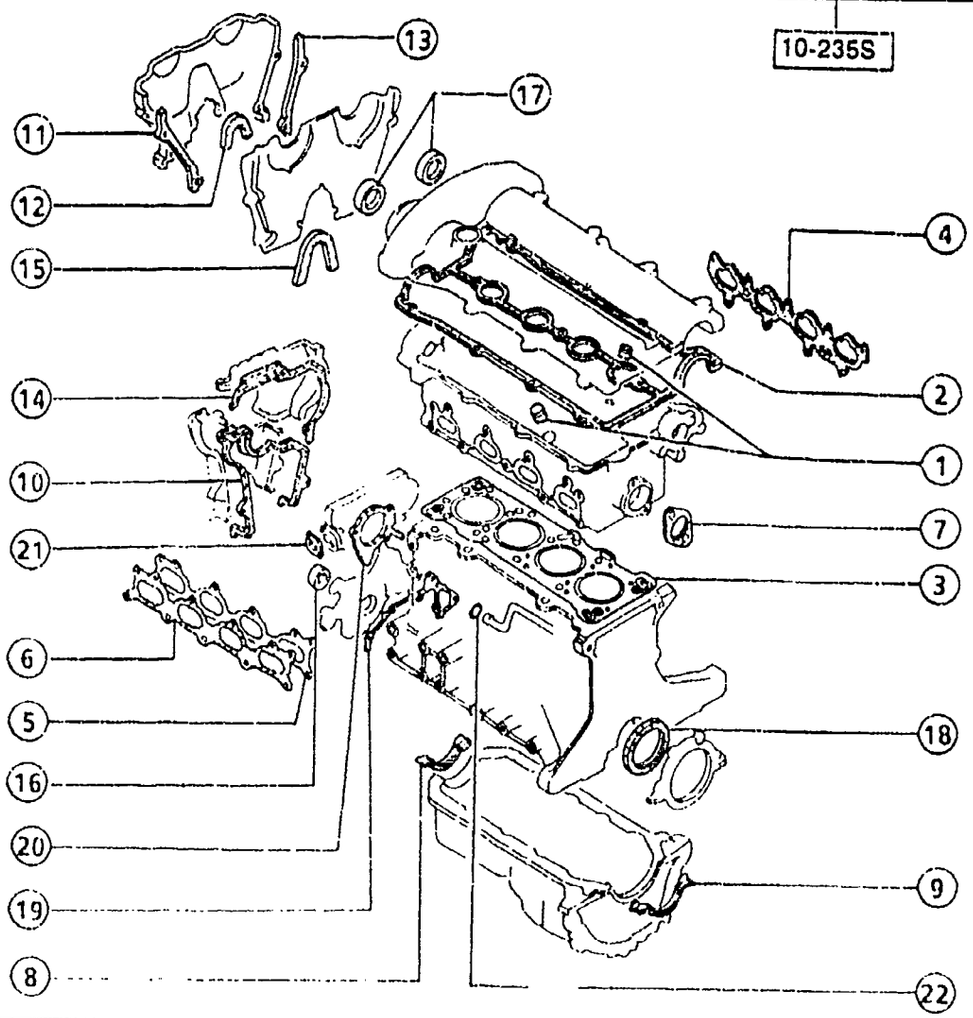
1-SEAL,VALVE.....(16)
2-GASKET,HEAD COVER.....(1)
3-GASKET,CYLINDER HEAD.....(1)
4-GASKET,IN.MANIFOLD.....(1)
5-GASKET,EX.MANIFOLD.....(1)
6-GASKET,EX.MANIFOLD.....(1)
7-GASKET,THERMOSTAT COVER.....(2)
8-GASKET,OIL PAN.....(1)
9-GASKET,OIL PAN.....(1)
10-GASKET,T.B.COVER LWR.....(1)
11-GASKET(L).....(1)
12-GASKET(INN),TINING BELT(L).....(1)
13-GASKET(C),TIMING BELT(L).....(1)
14-GASKET,T.BELT COVER-C. .....(1)
15-RUBBER,SEAL-SEAL PLATE.....(1)
16-SEAL,OIL.....(1)
17-SEAL,OIL.....(2)
18-SEAL,OIL-CRANKSHAFT.....(1)
19-GASKET,,OIL PUMP.....(1)
20-GASKET,WATER PUMP.....(1)
21-GASKET,W.PUMP INLET.....(1)
22-RING, O -WATER BY-PASS.....(1)

23-800



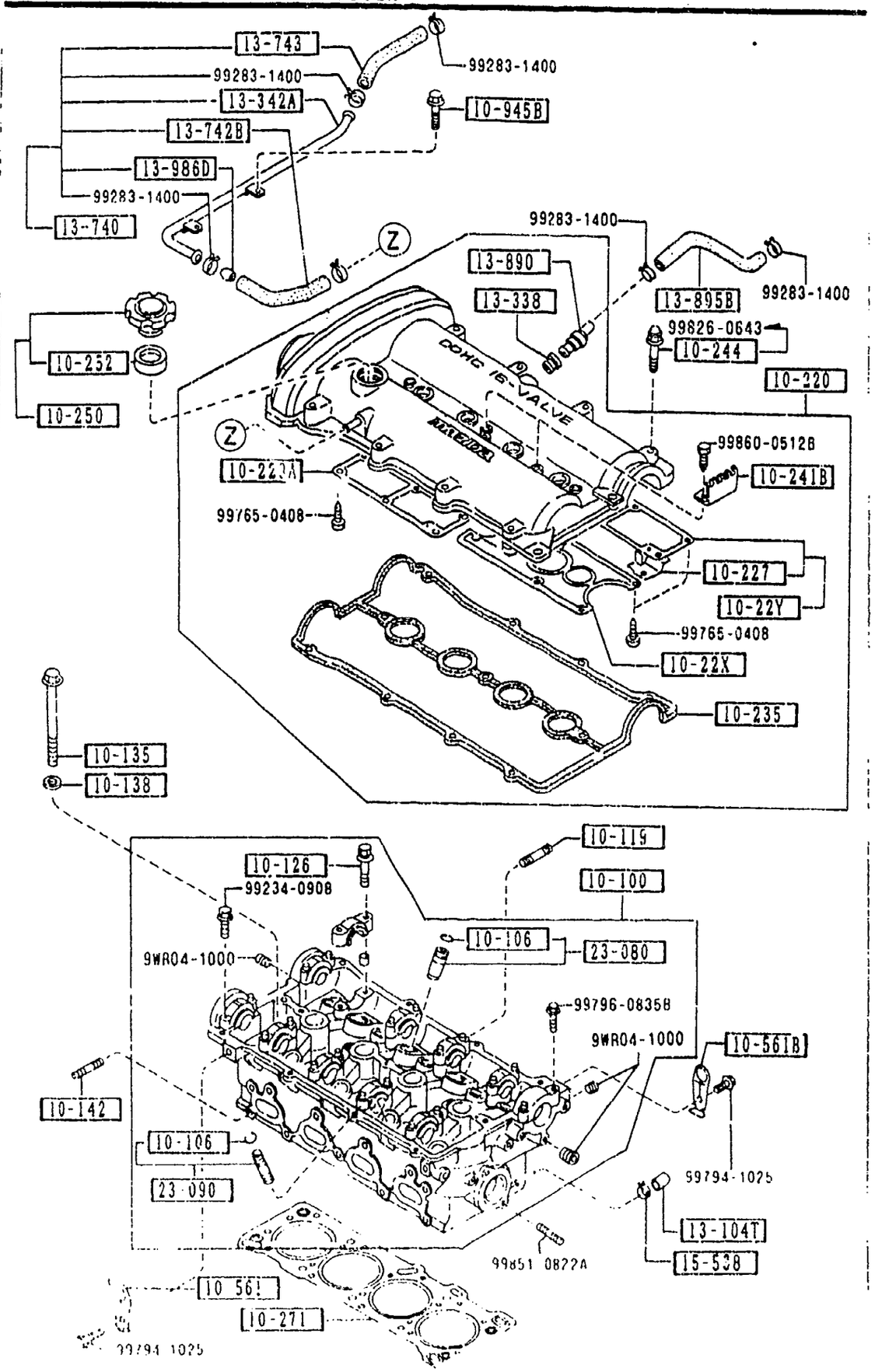
1-SEAL,VALVE.....(16)
2-GASKET,HEAD COVER.....(1)
3-GASKET,CYLINDER HEAD.....(1)
4-GASKET,IN.MANIFOLD.....(1)
5-GASKET,EX.MANIFOLD.....(1)
6-GASKET,EX.MANIFOLD.....(1)
7-GASKET,THERMOSTAT COVER.(2)

10-235S



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
10-235S		GASKET SET,CYL. HEAD			
8AN1-10-235	1				-1301
*8AN1-10-235A	1				1301-
10-271S		GASKET SET,ENGINE			
8AN1-10-271	1				-0910
8AN1-10-271B	1	NON ASBESTOS			0910-
23-800		ENGINE,SHORT			
B64E-02-200B	1	(MT)			-0910
B64J-02-200A	1	(AT)			-0910
B64J-02-200B	1	(AT)			0910-
B64E-02-200C A (B64E-02-200D)	1				0910-2101
B64E-02-200D	1	(MT)			2101-

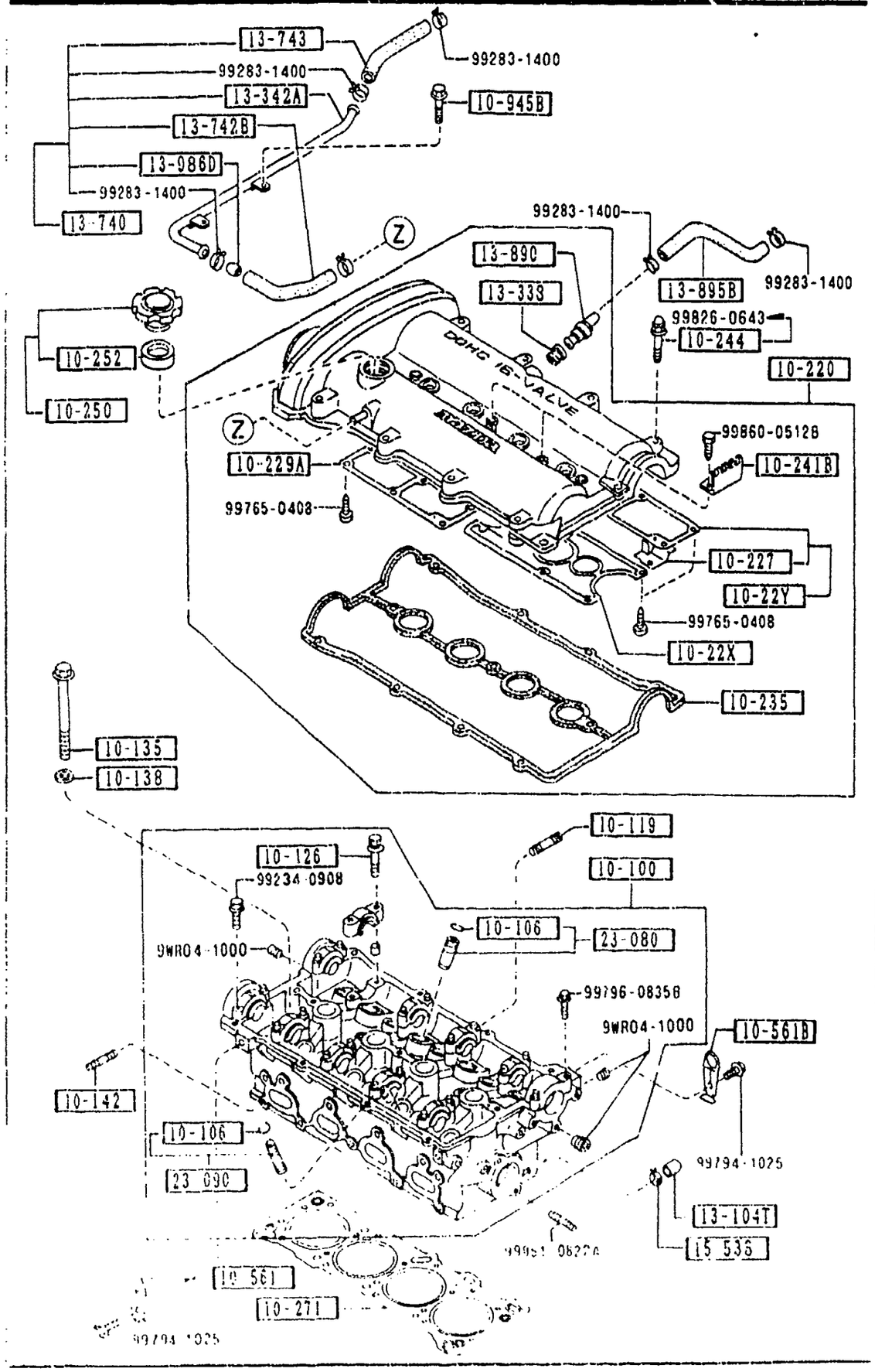
0910 NA35**-209446
1301 NA35**-237464
2101 NA35**-313914



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
10-100		HEAD,CYLINDER			
B61P-10-100B A (B61P-10-100C)	1				-0B19
B61P-10-100C A (B61P-10-100D)	1				0B19-1C01
B61P-10-100D	1				1C01-
10-106		CLIP,VALVE GUIDE			
B660-10-106	16				
10-119		STUD			
FE4J-13-146	3				
10-126		BOLT,CAMSHAFT CAP			
B660-10-126	20				
10-135		BOLT,CYLINDER HEAD			
B660-10-135A	10				
10-138		WASHER,PLAIN CYL. HEAD			
B630-10-138A	10				
10-142		STUD,EX. MANIFOLD			
B660-10-104A	9				-0801
B661-10-104	9				0801-
10-22X		PLATE,OIL BAFFLE-IN. SIDE			
B61P-10-22X	1				
10-22Y		PLATE,OIL BAFFLE-EX.			
B6S7-10-22Y	1				
10-220		COVER,CYLINDER HEAD			
B61P-10-210C A (B61P-10-210D)	1				-1301
B61P-10-210D	1				1301-
10-227		PLATE,BAFFLE			
B61P-10-227	1				
10-229A		PLATE,OIL BAFFLE			

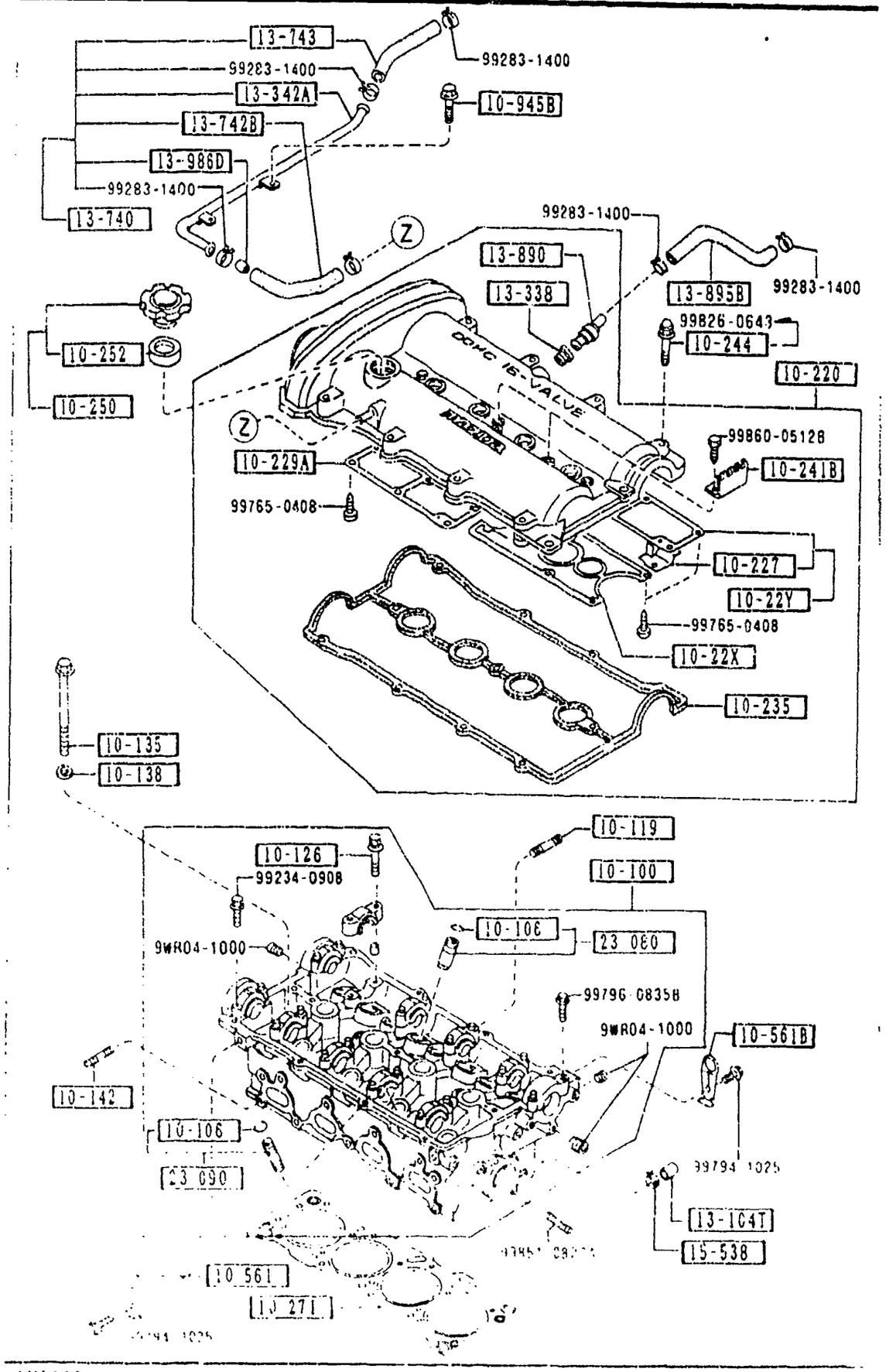
0801 NA35**-205068
0B19 NA35**-219322
1301 NA35**-231464
1C01 NA35**-309801

1010 CYLINDER HEAD & COVER



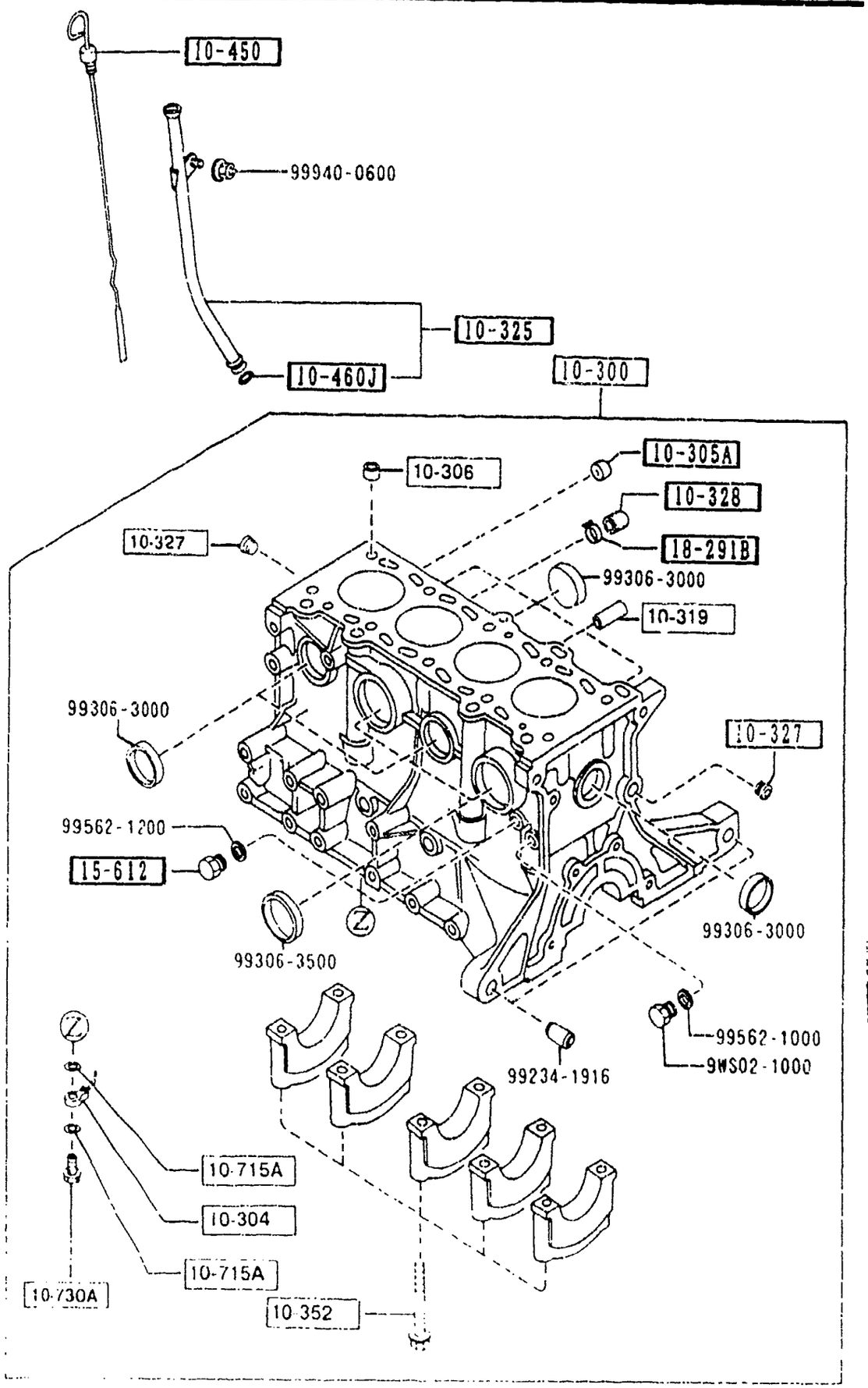
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D B6S7-10-225	2				
10-235		GASKET,HEAD COVER			
B61P-10-235 A (B61P-10-235A)	1	NON ASBESTOS			-1301
B61P-10-235A	1	NON ASBESTOS			1301-
10-241B		PROTECTOR,HT.CORD-S.TANK			
B660-10-241	2				
10-244		BOLT,CYLINDER HEAD COVER			
B660-10-244	11				-1117
10-250		CAP,OIL FILLER			
0453-10-250A	1				
10-252		GASKET			
0324-10-252	1				
10-271		GASKET,CYLINDER HEAD			
B6F4-10-271A	1	NON ASBESTOS			
10-561		HANGER,ENGINE			
B660-10-561	1				
10-561B		HANGER,ENGINE-REAR			
B61P-10-565	1				
10-945B		BOLT			
B61P-13-366	2				
13-104T		CAP,SEALING			
FEA7-13-104	1				
13-338		SEAL,RUBBER			
E301-13-338A	1				
13-342A		PIPE,VENTILATION			
B61P-13-74XA	1				

1117 NA35**-225452
1301 NA35**-231464

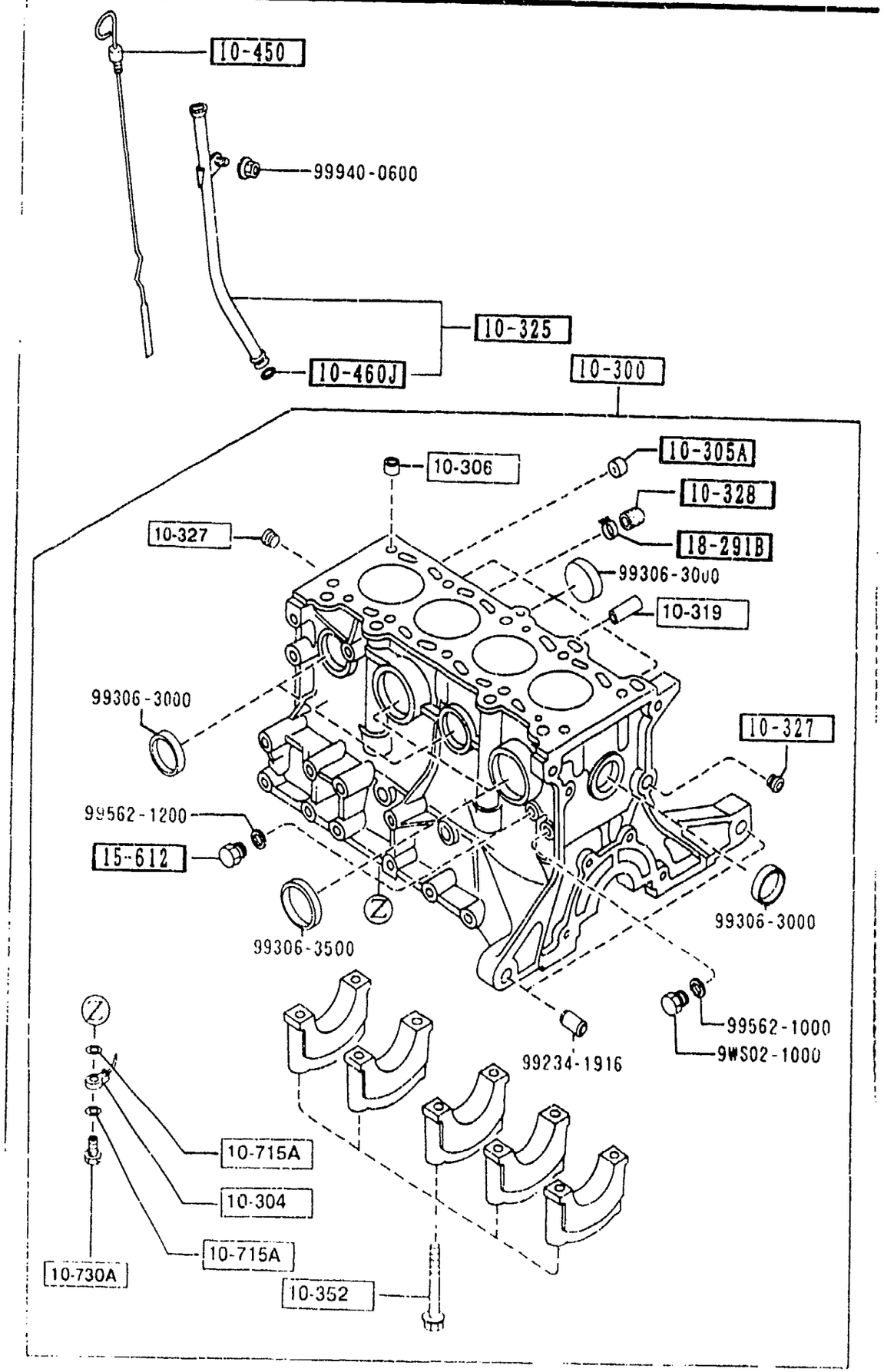


AUNA02

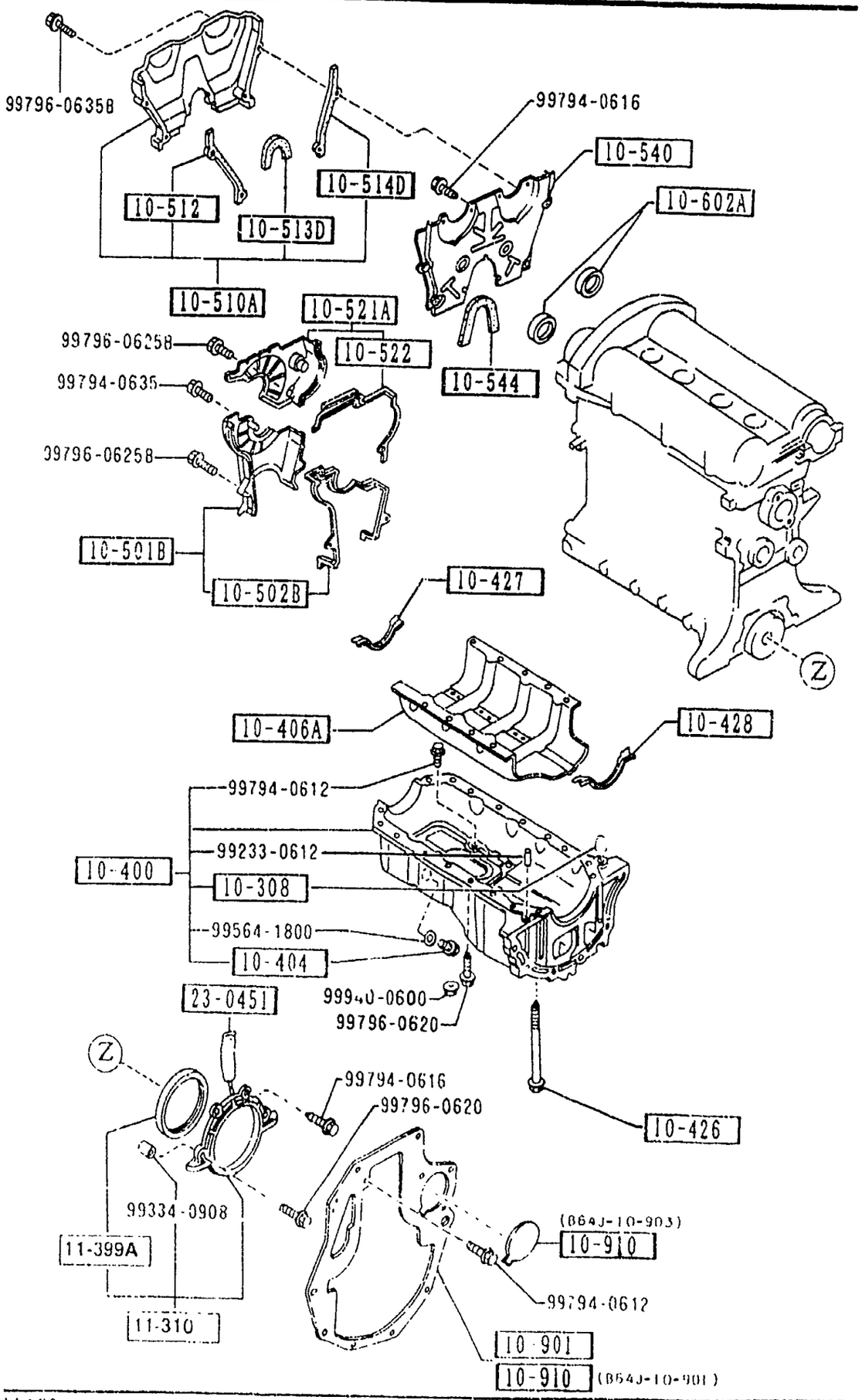
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
13-740		HOSE,VENT.-PURGE CONT. V.			
B61P-13-740A	1				
13-742B		HOSE,VENTILATION			
B61P-13-742A	1				
13-743		HOSE,VENTILATION			
B61P-13-743A	1				
13-890		VALVE,P.C.V.			
BP05-13-890	1				
13-895B		HOSE,P.C.V.			
B61P-13-741	1				
13-986D		ORIFICE			
B61P-13-986	1				
15-538		CLAMP,WATER HOSE			
JF02-15-538	1				
23-080		GUIDE,VALVE			
B6Z0-10-280	8				
23-090		GUIDE,VALVE			
B6Z0-10-290	8				



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESIPICTION	FROM-TO
10-300		BLOCK,CYLINDER			
B64J-10-300	1				
10-304		JET,OIL			
B660-10-580A	4				
10-305A		PLUG			
B366-10-305	1				
10-306		PIN,TUBULAR			
B630-10-306	2				
10-319		JOINT			
B630-10-319	1				
10-325		PIPE,OIL LEVEL GAUGE			
B61P-10-440	1				
10-327		PLUG,BLIND			
0221-10-327	2				
10-328		COVER,BLIND-CYL. BLOCK			
B660-10-328	1				
10-352		BOLT,BEARING CAP			
B630-10-352	10				
10-450		GAUGE,OIL LEVEL			
B61P-10-450C	1				
10-460J		RING,'O'			
99541-00907	1				
10-715A		GASKET,OIL JET			
SE01-10-715	8				
10-730A		VALVE,OIL JET			
SE01-10-730	4				
15-612		PLUG			
SE01-15-612	1				

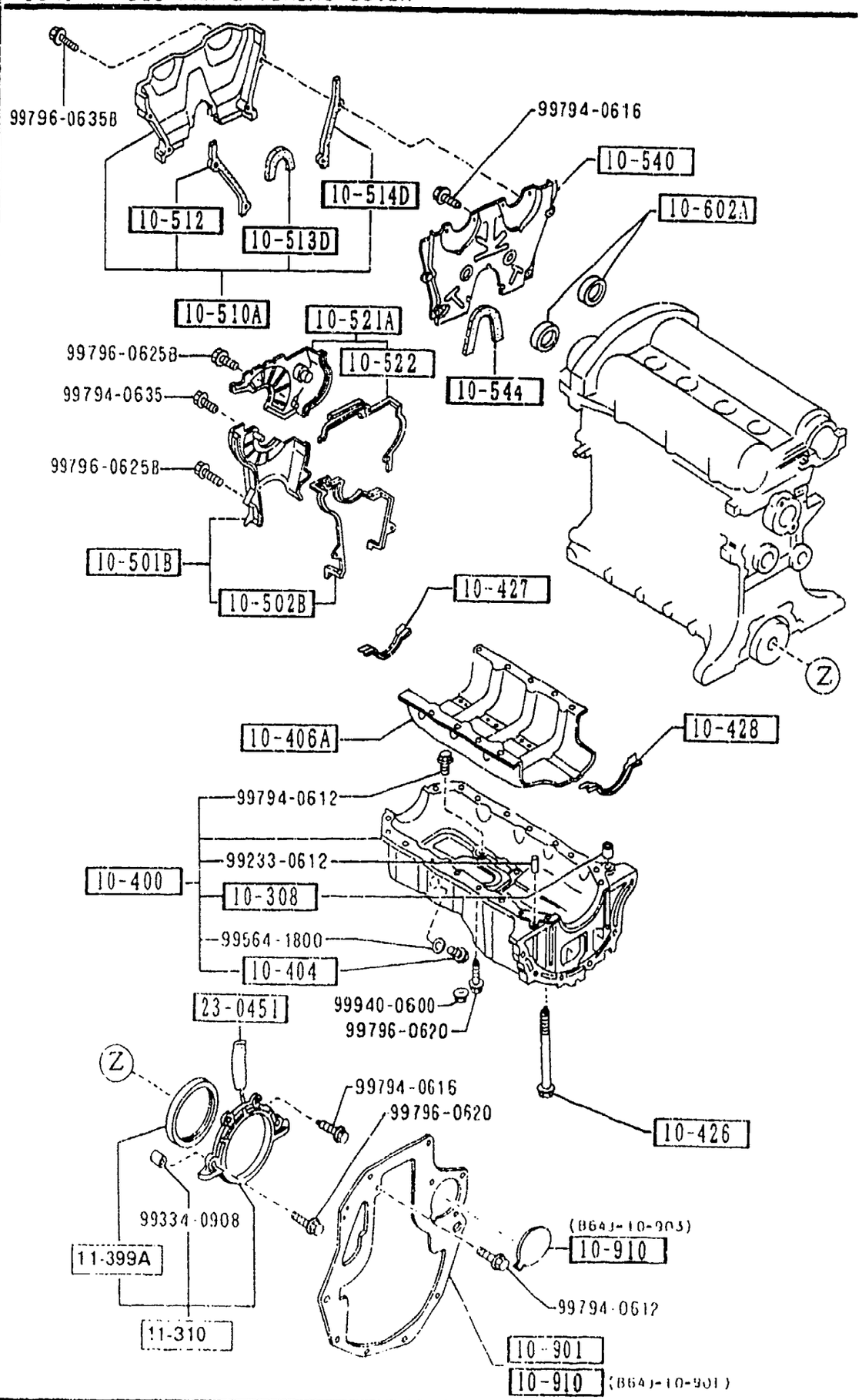


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
18-291B		CLAMP,HOSE			
R230-15-538	1				



AUNA02

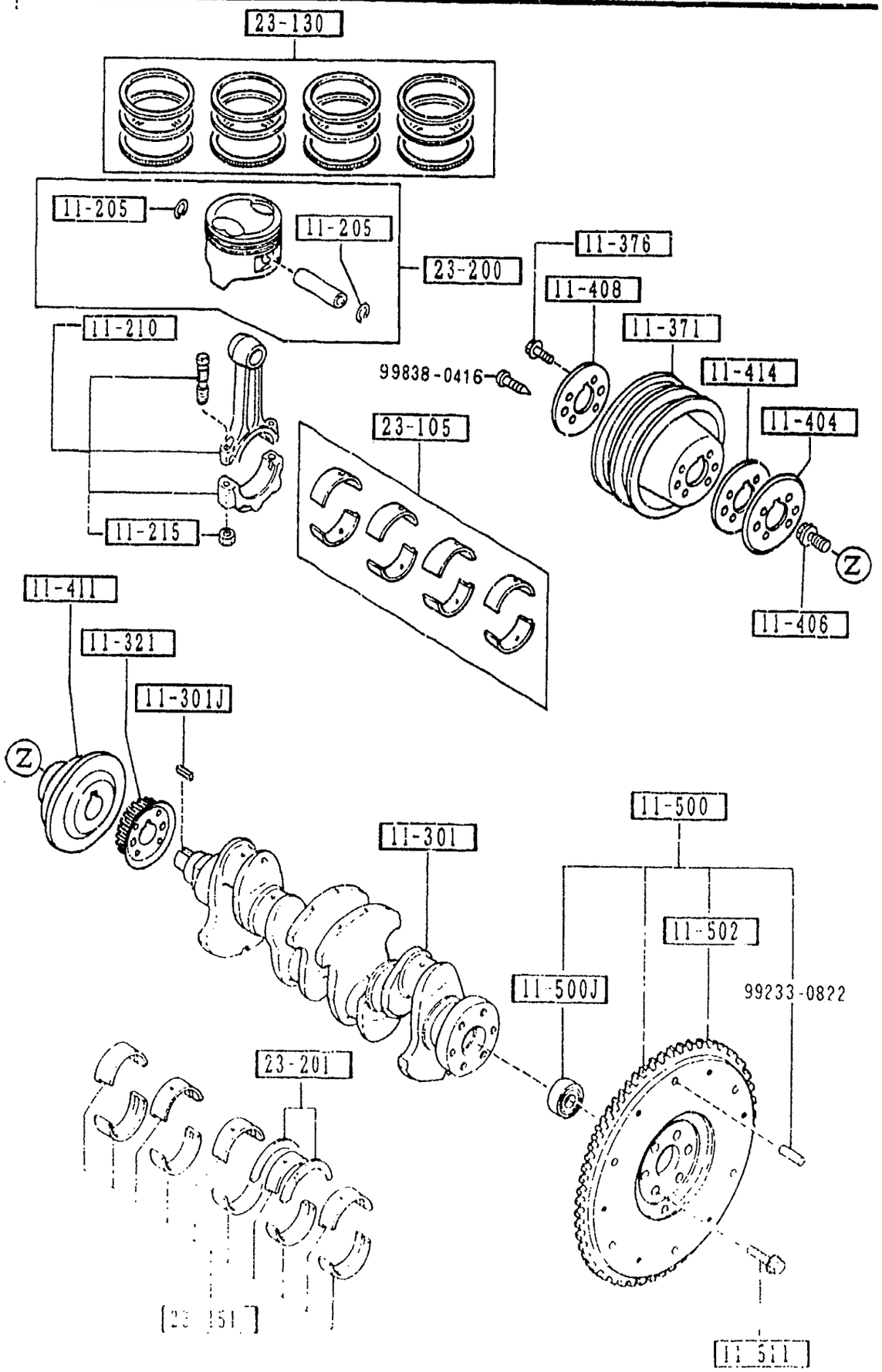
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
10-308		PIN,TUBULAR			
B6F4-10-308	1				
10-400		PAN,OIL			
B6Y0-10-400C	1				
10-404		PLUG,DRAIN			
B6S7-10-404A	1				
10-406A		PLATE,OIL BAFFLE-CYL. BLK			
B61P-10-40YA	1				
10-426		BOLT			
B6S7-10-465	2				
10-427		GASKET,OIL PAN			
B6F4-10-427	1				
10-428		GASKET,OIL PAN			
B6F4-10-428	1				
10-501B		COVER,TIMING BELT-LWR			
B660-10-500E	1				
10-502B		GASKET,T.B.COVER LWR			
B660-10-502B	1	NON ASBESTOS			
10-510A		COVER(UP.),TIMING CHAIN			
B61P-10-510	1				
10-512		GASKET(L)			
B61P-10-512	1	NON ASBESTOS			
10-513D		GASKET(INN),TIMING BELT(L)			
B61P-10-513	1	NON ASBESTOS			
10-514D		GASKET(C),TIMING BELT(L)			
B61P-10-514	1	NON ASBESTOS			



AUNA02

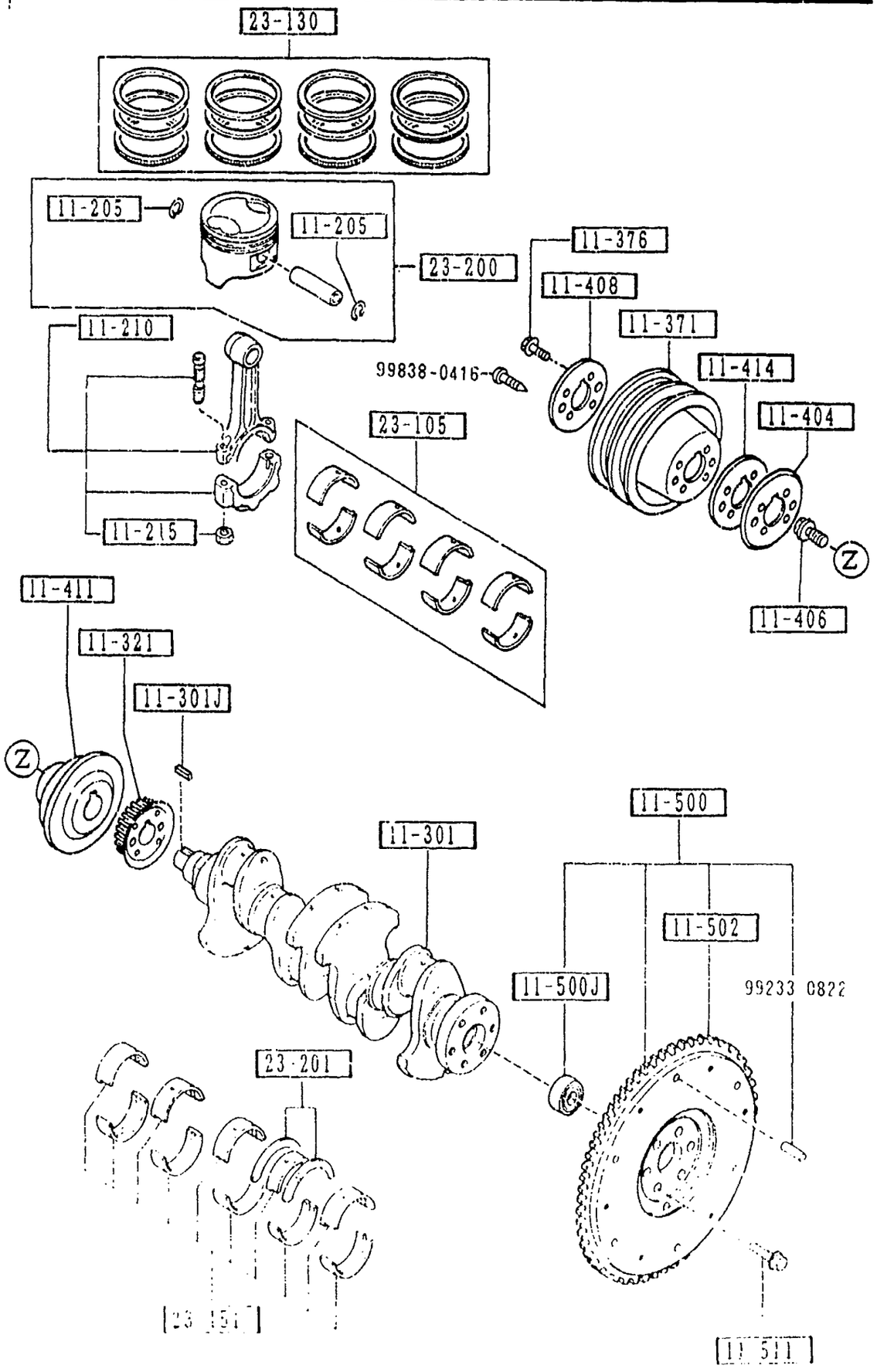
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
10-521A		COVER,TIMING BELT-C.			
B660-10-520B	1				
10-522		GASKET,T.BELT COVER-C.			
B660-10-522	1	NON ASBESTOS			
10-540		PLATE,SEAL-T.BELT COVER U			
B61P-10-540B AN(B61P-10-540C)	1				-1701
B61P-10-540C	1				1701-
10-544		RUBBER,SEAL-SEAL PLATE			
B61P-10-544	1				
10-602A		SEAL,OIL			
F801-10-602 A (F285-10-602)	2				-0B19
F285-10-602	2				0B19-
10-901		PLATE,END			
B61P-10-901A	1	(MT)			
10-910		COVER,END PLATE			
B64J-10-901	1	(AT)			
B64J-10-903	1	(AT)			
11-310		COVER,REAR			
B366-11-310B AN(B366-11-310C)	1				-0B26
B366-11-310C	1				0B26-
11-399A		SEAL,OIL-CRANKSHAFT			
B630-11-312 A (BP05-11-312)	1				-0B26
BP05-11-312	1				0B26-
23-0451		TUBE,SILICON			
8527-77-739	1				

0B19 NA35**-219322
0B26 NA35**-220046
1701 NA35**-235561



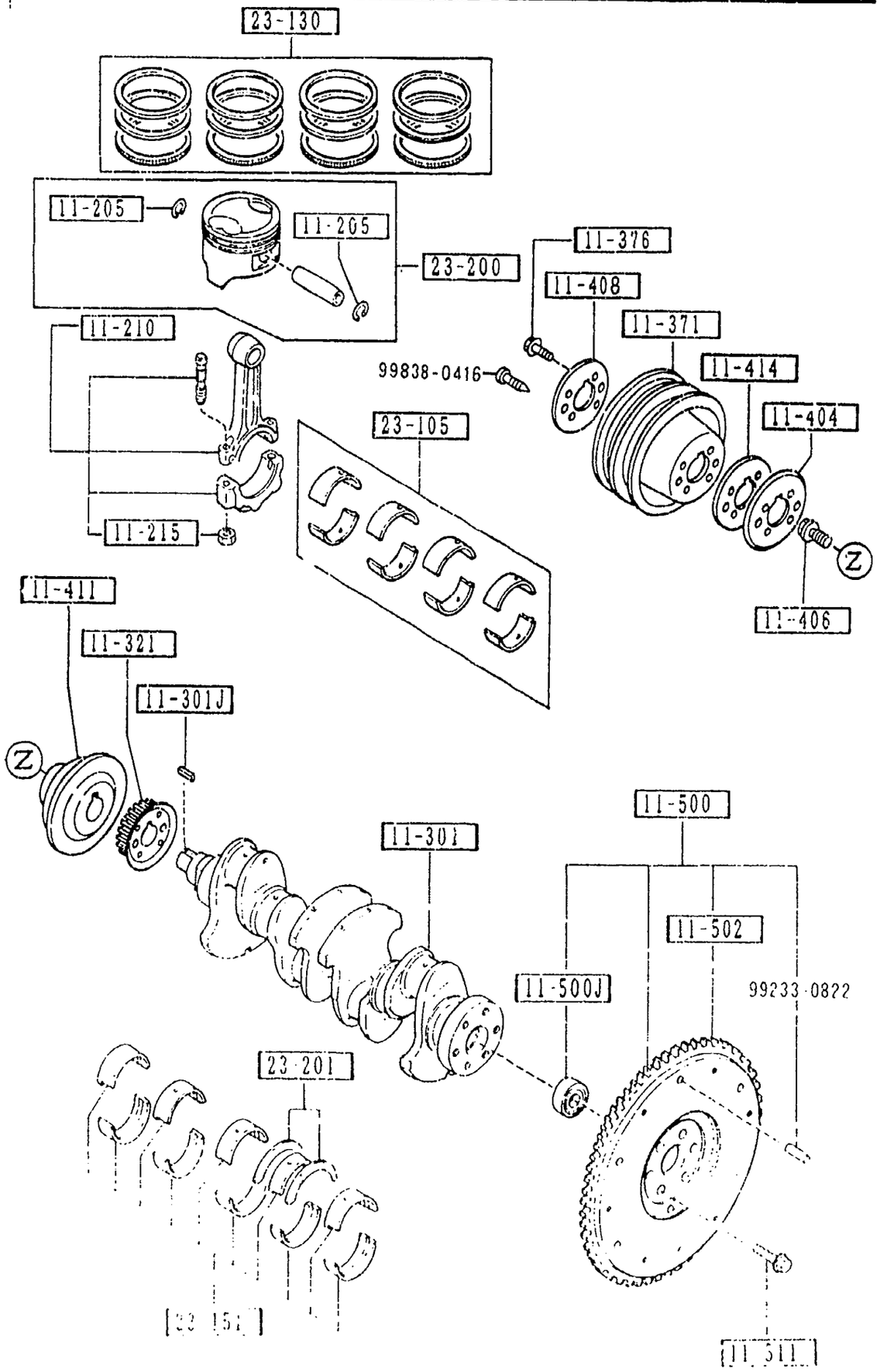
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
11-205		CLIP			
0221-11-205	8				
11-210		ROD,CONNECTING			
B6S7-11-210D	4				
11-215		NUT,CONNECTING ROD			
B6S7-11-215A	8				
11-301		CRANKSHAFT			
B616-11-300B	1				-0910
B6S7-11-300	1				0910-
11-301J		KEY,WOODRUFF-PULLEY			
B630-11-317A	1				-0910
B3C7-11-317	1				0910-
11-321		PULLEY,TIMING BELT			
B366-11-321A	1				-0910
B3C7-11-321	1				0910-
11-371		PULLEY,CRANKSHAFT			
B6S7-11-401A	1				-0910
B6S8-11-401	1				0910-
11-376		BOLT,PULLEY			
B631-11-405	4				-0910
B3C7-11-405	4				0910-0C01
JF01-11-405	4				0C01-
11-404		PLATE,TIMING BELT GUIDE			
B541-11-404 A (B541-11-404A)	1				-0901
B541-11-404A	1				0901-0910
11-406		BOLT,LOCK-C.SHAFT PULLEY			
B630-11-406C	1				-0910
B3C7-11-406	1				0910-

0901 NA35**-208969
0910 NA35**-209446
0C01 NA35**-220813



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
11-408		PLATE,CRANKSHAFT PULLEY			
B630-11-408B	1				-0910
B3C7-11-408	1				0910-
11-411		BOSS,PULLEY			
B3C7-11-400	1				0910-
11-414		PLATE(OUT),TIMING BELT			
B631-11-414	1				-0910
11-500		WHEEL,FLY			
B61P-11-500	1	(MT)			
11-500J		BEARING,BALL-FLY WHEEL			
F801-11-303	1	(MT)			
11-502		GEAR,RING-FLY WHEEL			
B367-11-502	1	(MT)			
11-511		BOLT,LOCK-FLYWHEEL			
F201-11-511	6	(MT)			
23-105		METAL SET,CONN.ROD			
B6Y1-11-SE0	1	STD.			
B6Y1-11-SFX	1	O.S. 0.50			
B6Y1-11-SFY	1	O.S. 0.75			
B6Y1-11-SF0	1	O.S. 0.25			
23-130		RING SET,PISTON			
B6Y3-11-SC0 A (B6Y3-11-SC0A)	1	STD.			-2101
B6Y4-11-SC0A A (B6Y4-11-SC0B)	1	STD.			-2101
B6Y3-11-SDX A (B6Y3-11-SDXA)	1	O.S. 0.50			-2101
B6Y4-11-SDXA A (B6Y4-11-SDXB)	1	O.S 0.50			-2101
B6Y3-11-SD0 A (B6Y3-11-SD0A)	1	O.S. 0.25			-2101

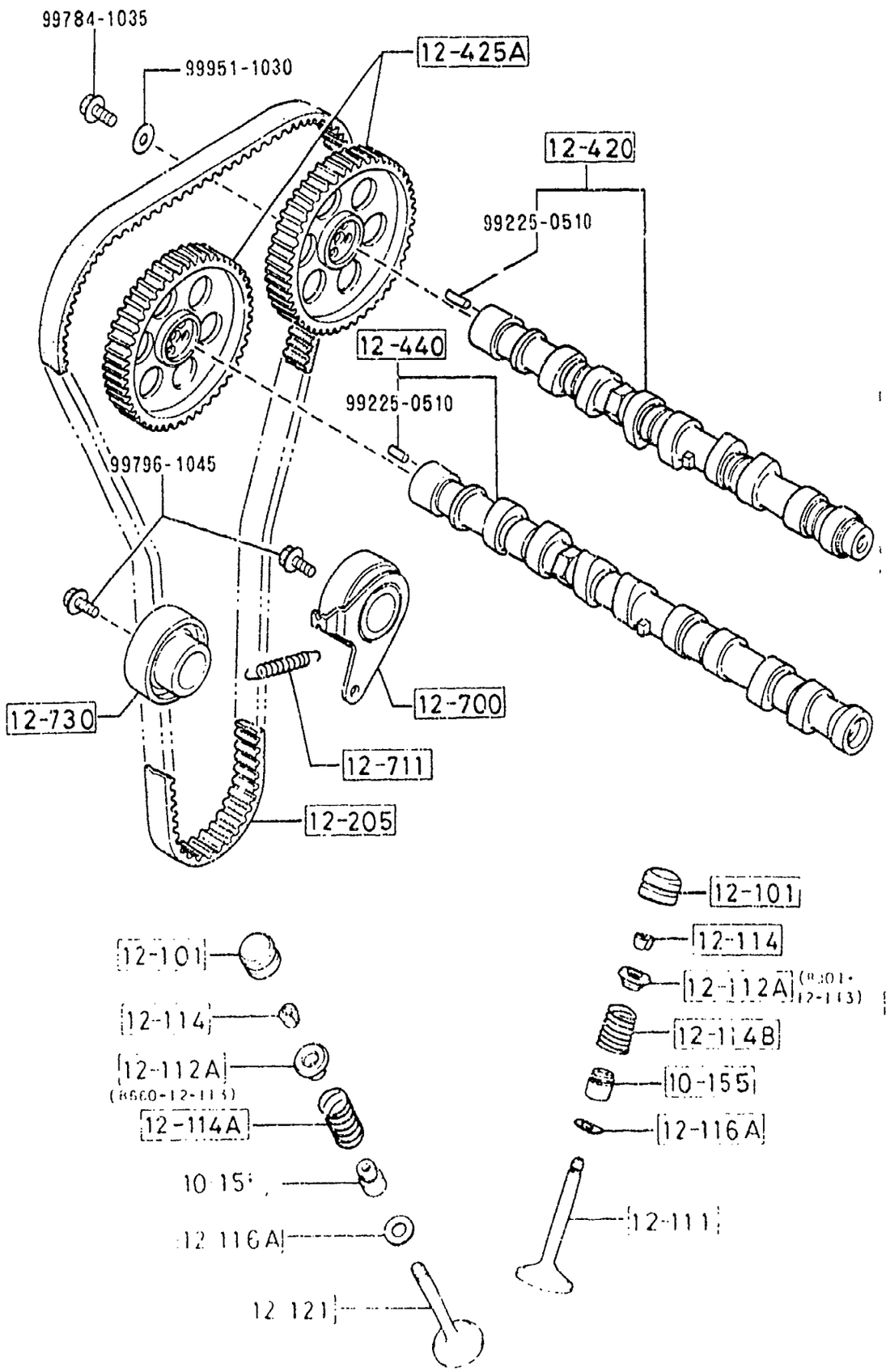
0910 NA35**-209446
2101 NA35**-313914



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
B6Y4-11-SD0A A (B6Y4-11-SD0B)	1	O.S 0.25			-2101
B6Y3-11-SC0A	1	STD. (AT)			2101-
B6Y4-11-SC0B	1	STD. (MT)			2101-
B6Y3-11-SDXA	1	O.S. 0.50 (AT)			2101-
B6Y4-11-SDXB	1	O.S. 0.50 (MT)			2101-
B6Y3-11-SD0A	1	O.S. 0.25 (AT)			2101-
B6Y4-11-SD0B	1	O.S. 0.25 (MT)			2101-
+----------+ | 23-151 | +----------+		METAL SET,MAIN BRG.			
B6Y2-11-SG0	1	STD.			
B6Y1-11-SHX	1	O.S. 0.50			
B6Y1-11-SH0	1	O.S. 0.25			
+----------+ | 23-200 | +----------+		PISTON SET			
B6Z2-11-SA0C	4	STD. (MT)			
B6Z5-11-SA0	4	STD. (AT)			
B6Z2-11-SBXC	4	O.S. 0.50 (MT)			
B6Z5-11-SBX	4	O.S. 0.50 (AT)			
B6Z2-11-SB0C	4	O.S. 0.25 (MT)			
B6Z5-11-SB0	4	O.S. 0.25 (AT)			
+----------+ | 23-201 | +----------+		METAL SET,THRUST			
B6Y1-11-SJ0	1	STD.			
B6Y1-11-SKX	1	O.S. 0.50			
B6Y1-11-SKY	1	O.S. 0.75			
B6Y1-11-SK0	1	O.S. 0.25			

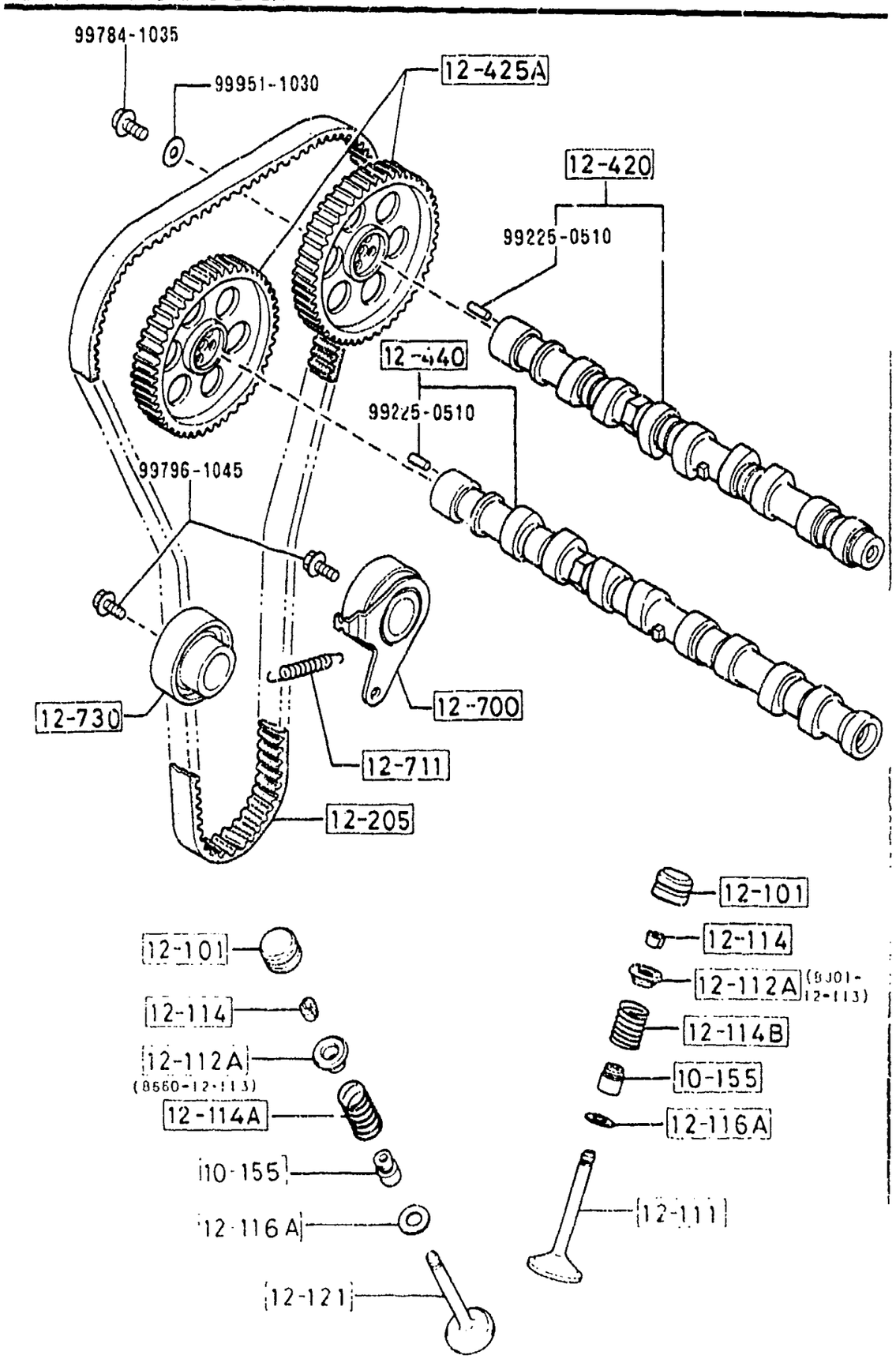
2101 NA35**-313914

1200 -1 VALVE SYSTEM



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
10-155		SEAL,VALVE			
B660-10-155	16	NOK			
12-101		ADJUSTER,HYDRAULIC L ASH			
B660-12-101	16	NITTAN VALVE			
12-111		VALVE,INLET			
B6S7-12-111	8				
12-112A		SEAT,VALVE SPG-UP.			
BJ01-12-113	8				
B660-12-113	8				
12-114		COTTER,VALVE			
B660-12-114	32				
12-114A		SPRING,OUT.-VALVE			
B61P-12-125	8				
12-114B		SPRING,VALVE			
BJ01-12-125	8				
12-116A		SEAT,VALVE SPG.-LWR			-1331
B660-12-123 AN(B660-12-123A)	16				
B660-12-123A	16				1301-
12-121		VALVE,EXHAUST			
B660-12-121	8				
12-205		BELT,TIMING			
B6S7-12-205A	1				
12-420		CAMSHAFT			
B64J-12-420	1	(AT)			
B660-12-420C	1	(MT)			
12-425A		PULLEY,CAMSHAFT			
B6S7-12-425A	2				

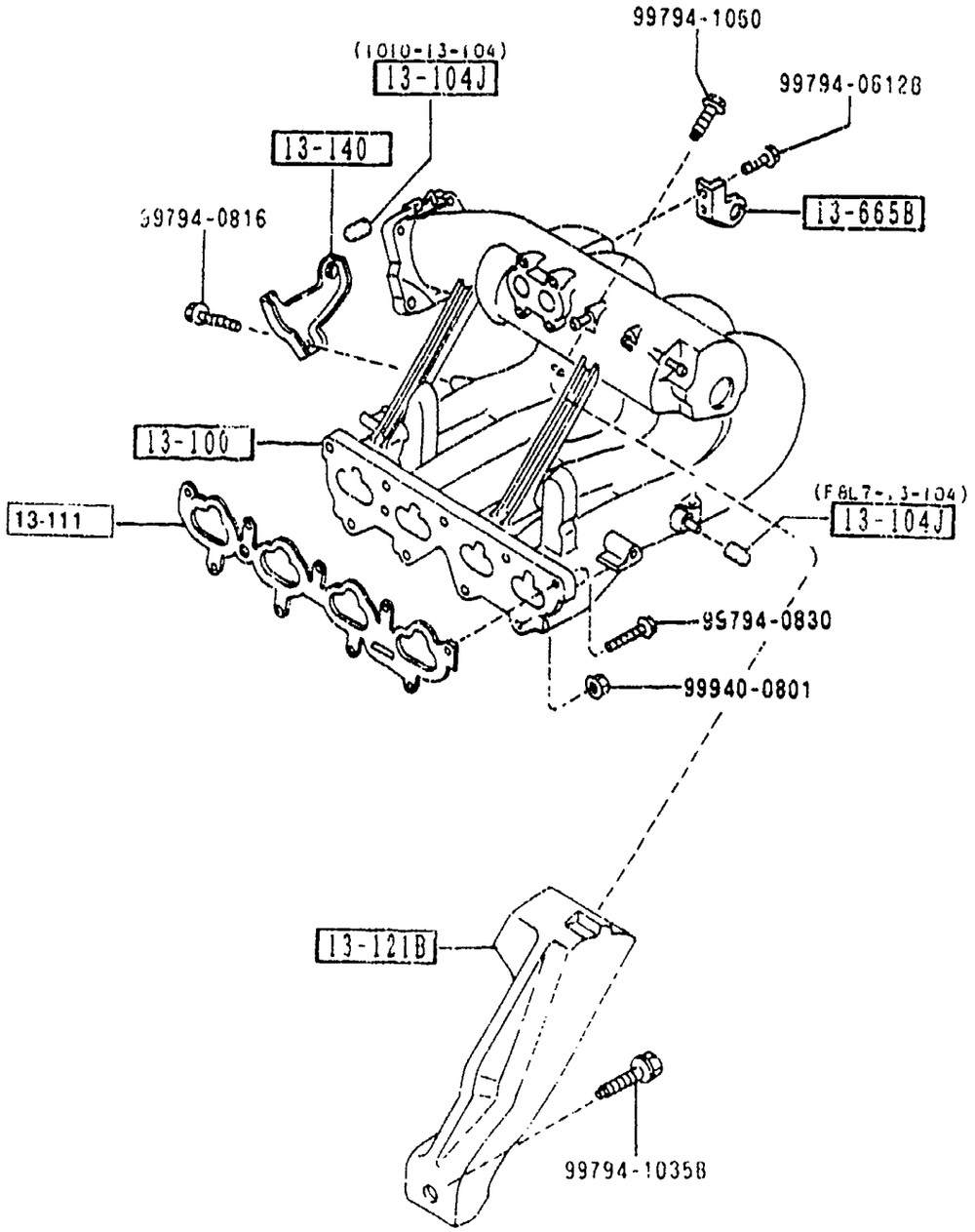
1301 NA35**-231464



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
12-440		CAMSHAFT,EXHAUST			
B6A7-12-440A	1	(AT)			
B61P-12-440	1	(MT)			
12-700		TENSIONER,T.BELT			
B660-12-700C AN(B660-12-700D)	1				-1121
B660-12-700D	1				1121-
12-711		SPRING,TENSIONER			
B660-12-711C	1				
12-730		IDLER,TIMING BELT			
B660-12-730B AN(B660-12-730C)	1				-1101
B660-12-730C	1				1101-

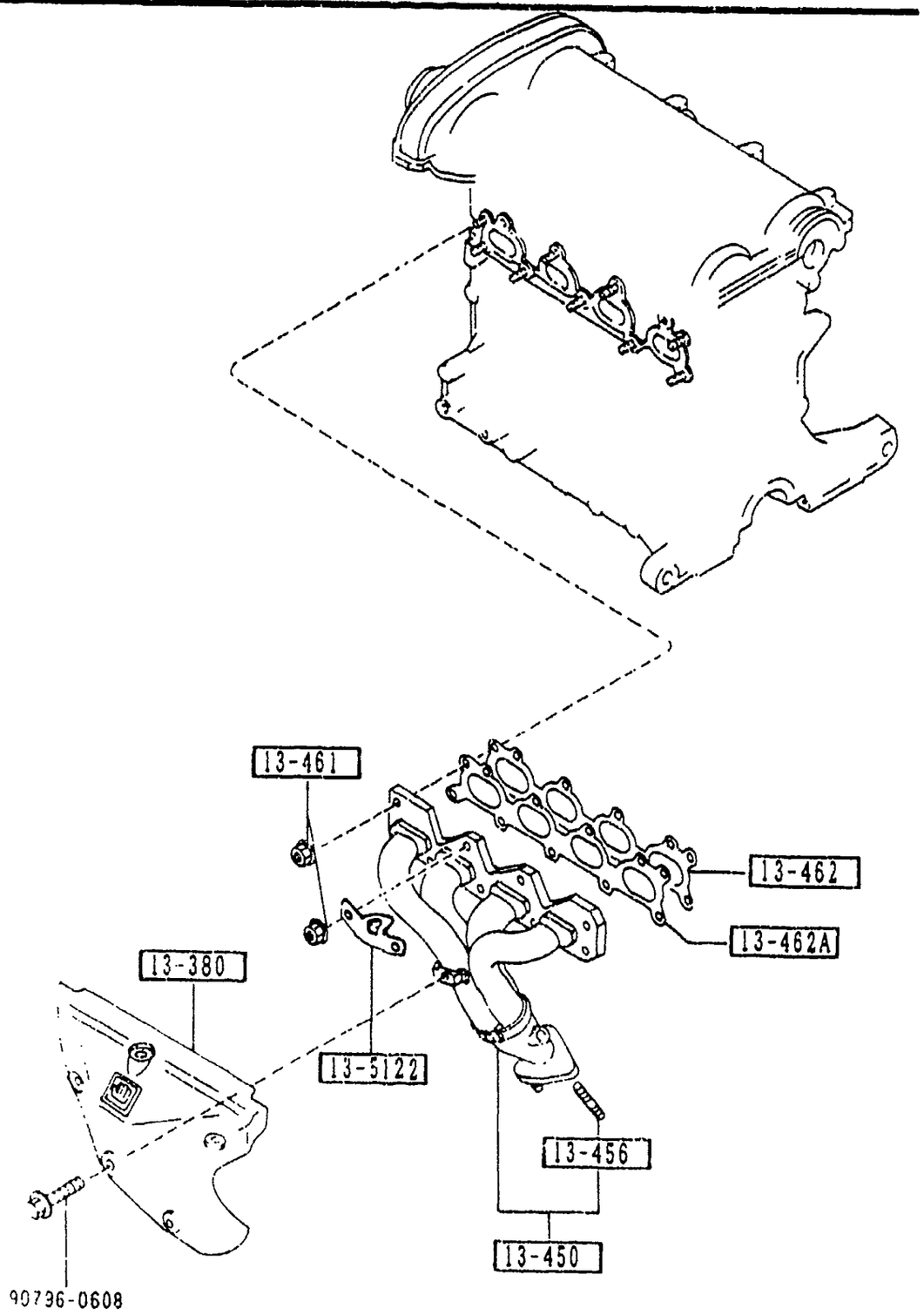
1101 NA35**-223636
1121 NA35**-226079

1300 INLET MANIFOLD



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
13-100		MANIFOLD,INLET			
B61P-13-100D	1				
13-104J		CAP,BLIND			
F8L7-13-104	1				
1010-13-104	1				
13-111		GASKET,IN.MANIFOLD			
B61P-13-111	1	NON ASBESTOS			
13-121B		STAY,MANIFOLD			
B61P-13-121	1				
13-140		BRKT,SURGE TANK			
B61P-13-140	1				
13-665B		BRACKET,ACCEL WIRE			
B61P-13-665	1				

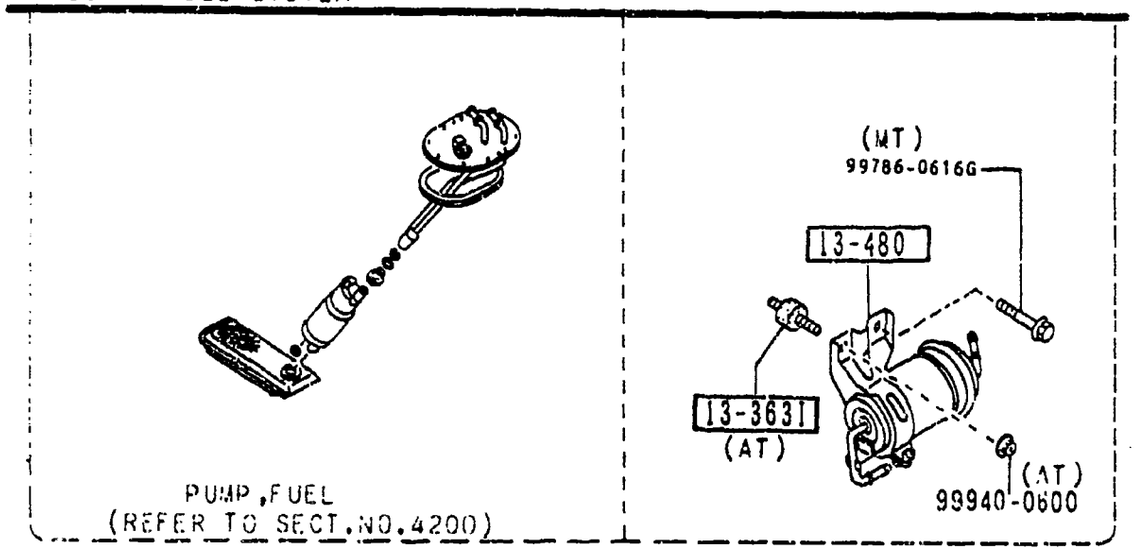
1310 EXHAUST MANIFOLD

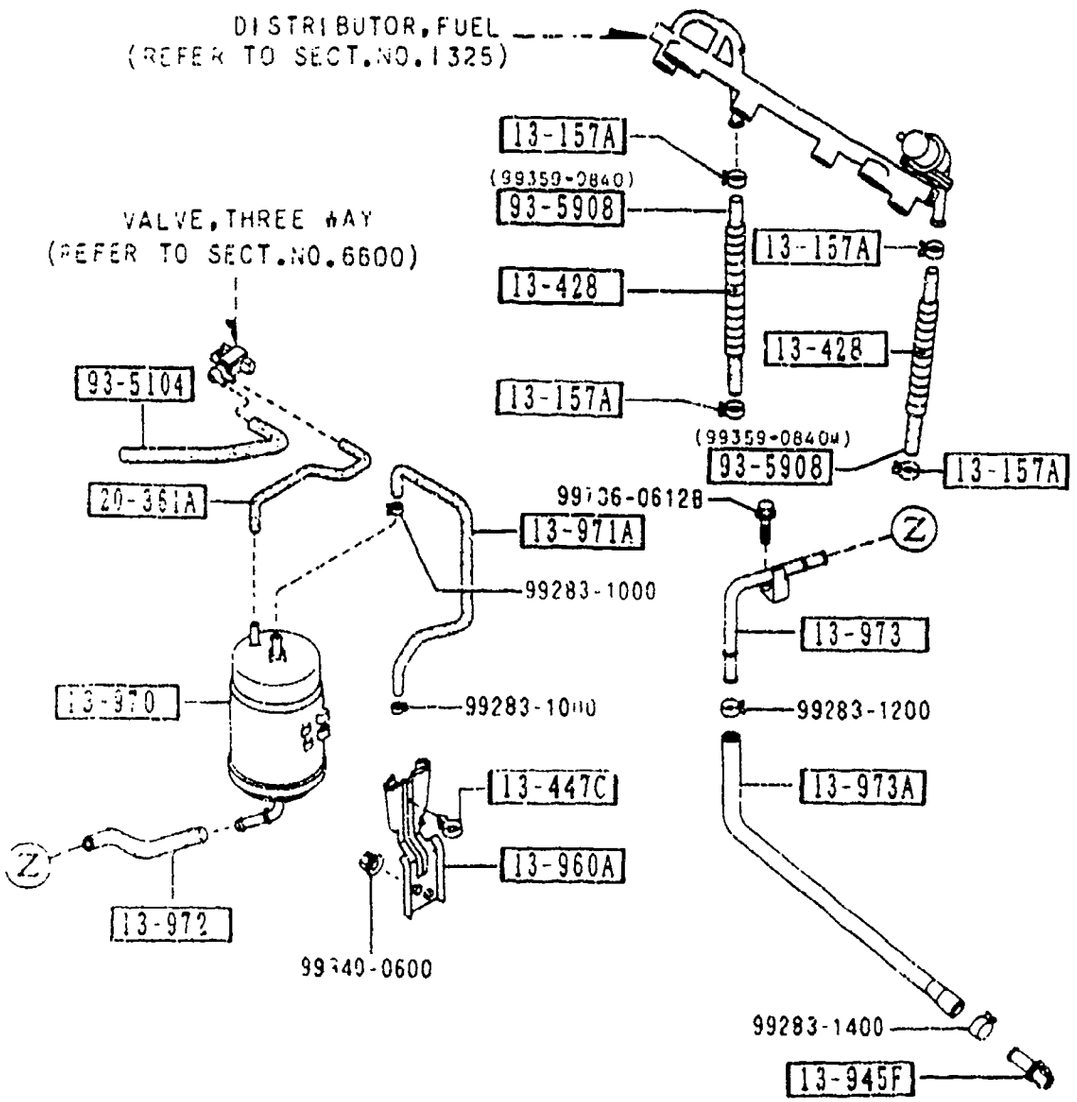


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
13-380		INSULATOR,HEAT			
B61P-13-380B A (B61P-13-380C)	1				-0821
B61P-13-380C	1				0821-
13-450		MANIFOLD,EXHAUST			
B61P-13-450A A (B61P-13-450B)	1				-0821
B61P-13-450B	1				0821-
13-456		STUD			
2306-13-456	3				
13-461		NUT,EX.MANIFOLD			
B6S7-13-465	9				
13-462		GASKET,EX.MANIFOLD			
B695-13-460A	1	NON ASBESTOS			
13-462A		GASKET,EX.MANIFOLD			
B695-13-462	1				
13-5122		BRACKET,EX.MANIFOLD			
B61P-13-468	1				

0821 NA35**-206810

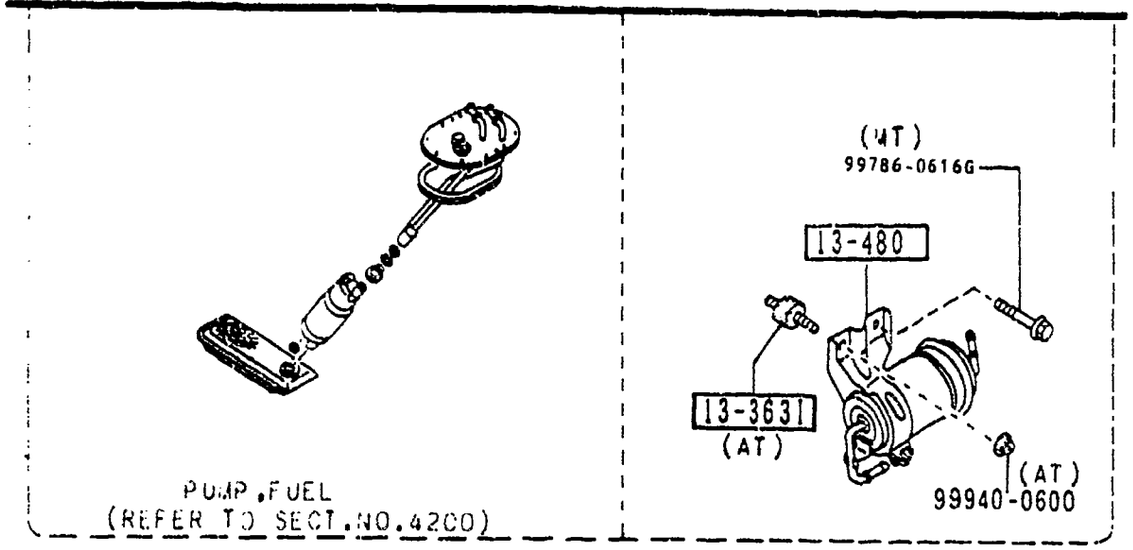
1320 FUEL SYSTEM

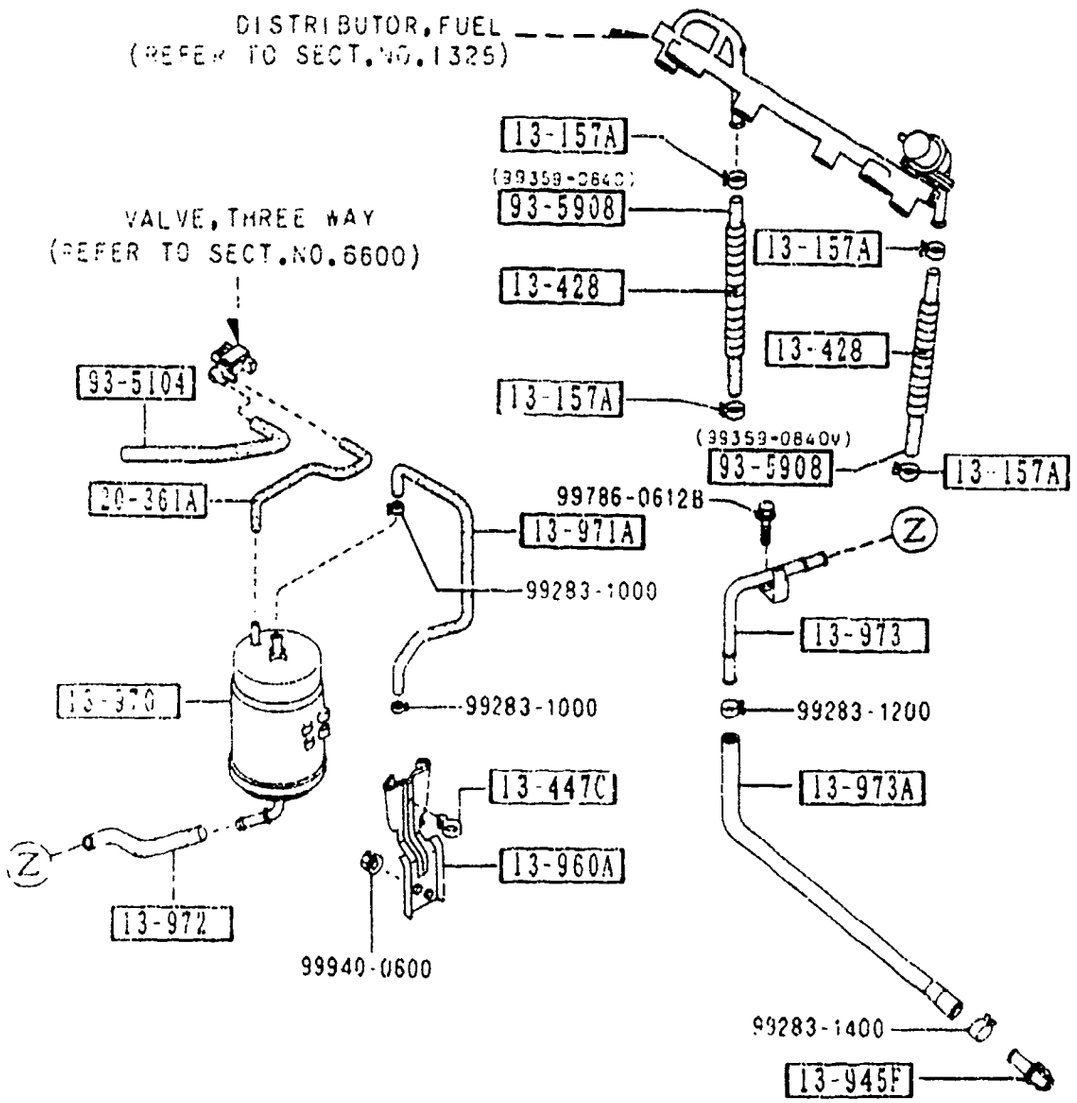




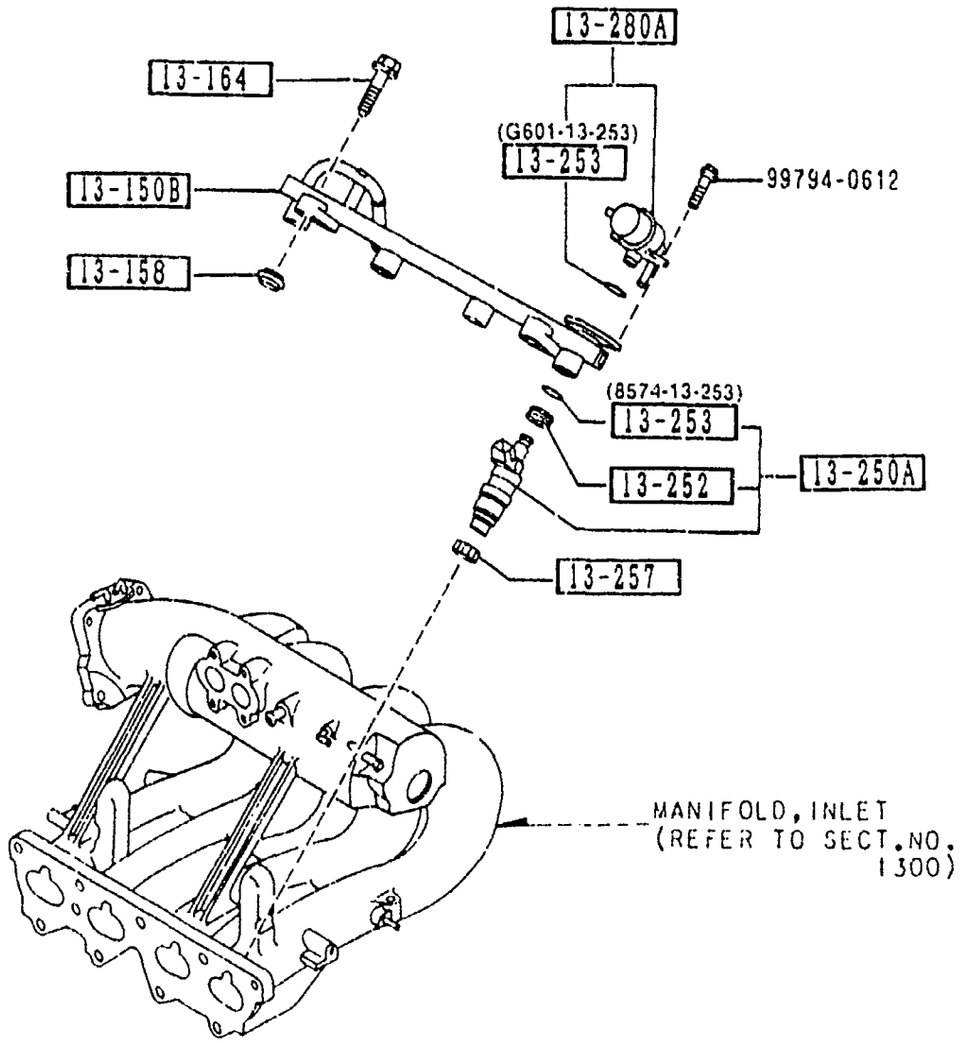
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
13-157A 8574-13-157	4	CLIP			
13-363I N326-13-363B		RUBBER,INSULATION (AT)			
13-428 B61P-13-428	2	PROTECTOR			
13-447C B61P-13-447	1	CLAMP,HOSE			
13-480 B61P-20-490	1	FILTER,FUEL			
13-945F JE16-13-298	1	CONNECTOR			
13-960A B61P-13-960	1	BRACKET,CANISTER			
13-970 B61P-13-970	1	CANISTER			
13-971A B61P-13-971	1	HOSE,VACUUM			
13-972 B61P-13-972A	1	HOSE,EVAPORATION			
13-973 B61P-13-97YA	1	HOSE,DRAIN			
13-973A B61P-13-973A	1	HOSE,EVAPORATION			
20-361A B61P-20-361	1	TUBE,VACUUM			
93-5104 99351-04999	1	HOSE			

1320 FUEL SYSTEM



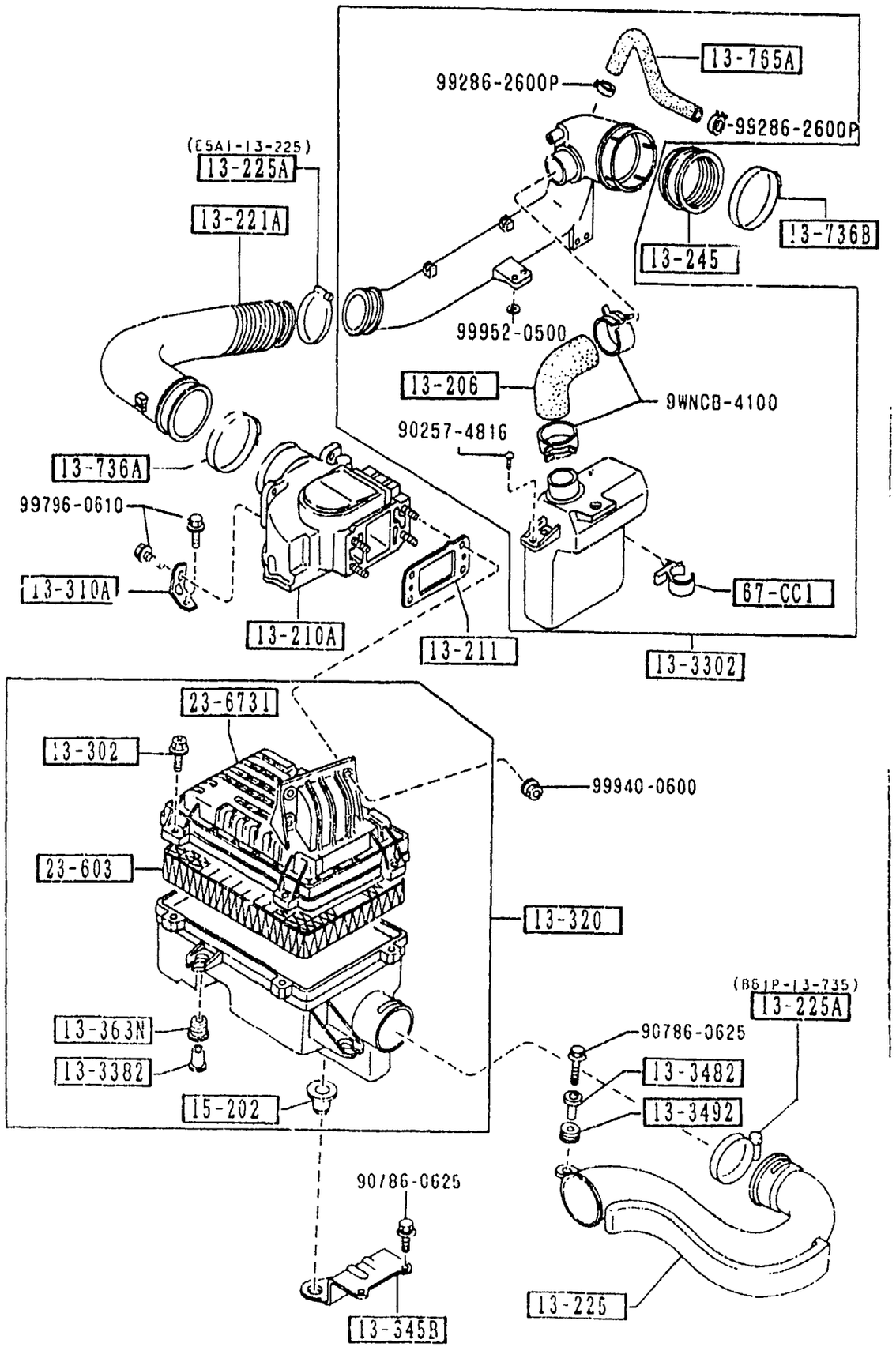


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
93-5908		HOSE			
99359-0840	1				
99359-0840M	1				



1325 -1 * FUEL DISTRIBUTOR

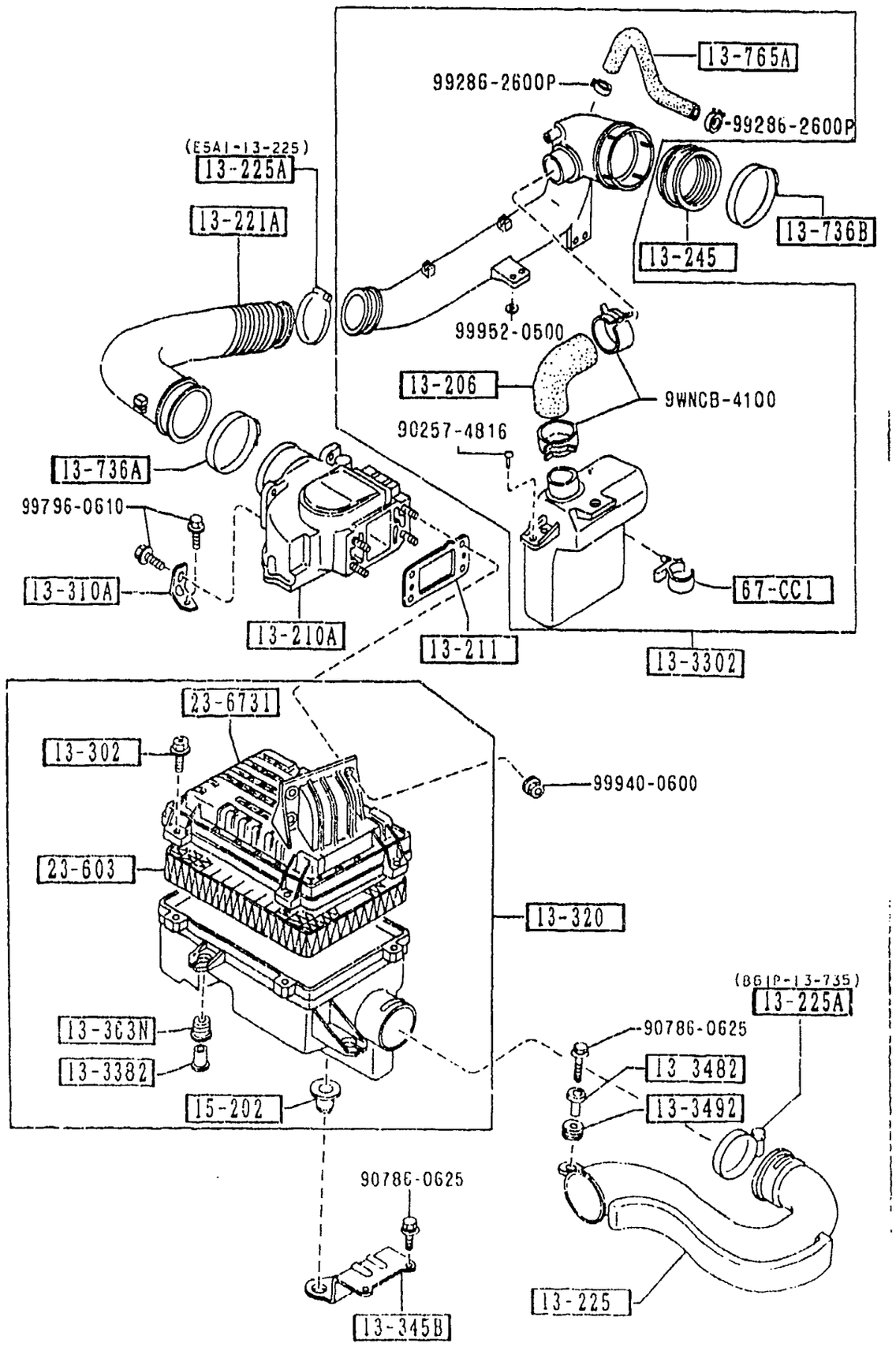
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
13-150B		DISTRIBUTOR,FUEL			
B61P-13-150	1				
13-158		INSULATOR,FUEL DIST.			
B675-13-158	2				
13-164		BOLT,FUEL DISTRIBUTOR			
F8B3-13-164	2				
13-250A		INJECTION,FUEL-M.P.ELECT.			
B[illegible]7-13-250	4				
13-252		GROMMET			
8574-13-252	4				
13-253		RING,'O'			
G601-13-253	1				
8574-13-253	4				
13-257		INSULATOR,INJECTION			
JE06-13-257	4				
13-280A		PRESSURE RG.,FUEL			
B61P-13-280	1				



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
13-206		HOSE,AIR			
B61P-13-206A	1				
13-210A		SENSOR,AIR FLOW			
B6S7-13-210A	1				
13-211		GASKET			
B6S7-13-211A	1	NON ASBESTOS			
13-221A		HOSE,AIR			
B61P-13-221B	1				
13-225		DUCT,FRESH AIR			
B61P-13-200B A (B61P-13-200C)	1				-1801
B61P-13-200C	1				1801-
13-225A		CLAMP,HOSE			
E5A1-13-225	1				
B61P-13-735	1				
13-245		JOINT,RUBBER			
B61P-13-245	1				
13-302		BOLT,AIR CLEANER			
F201-13-302A	5				
13-310A		BRKT,AIR FLOW METER			
B61P-13-311B	1				
13-320		HOUSING,AIR CLEANER			
B61P-13-320A	1				
13-3302		TUBE,AIR INTAKE			
B61P-13-330E	1	(MT)			
B64J-13-330	1	(AT)			
13-3382		SPACER			
FE51-13-329	3				

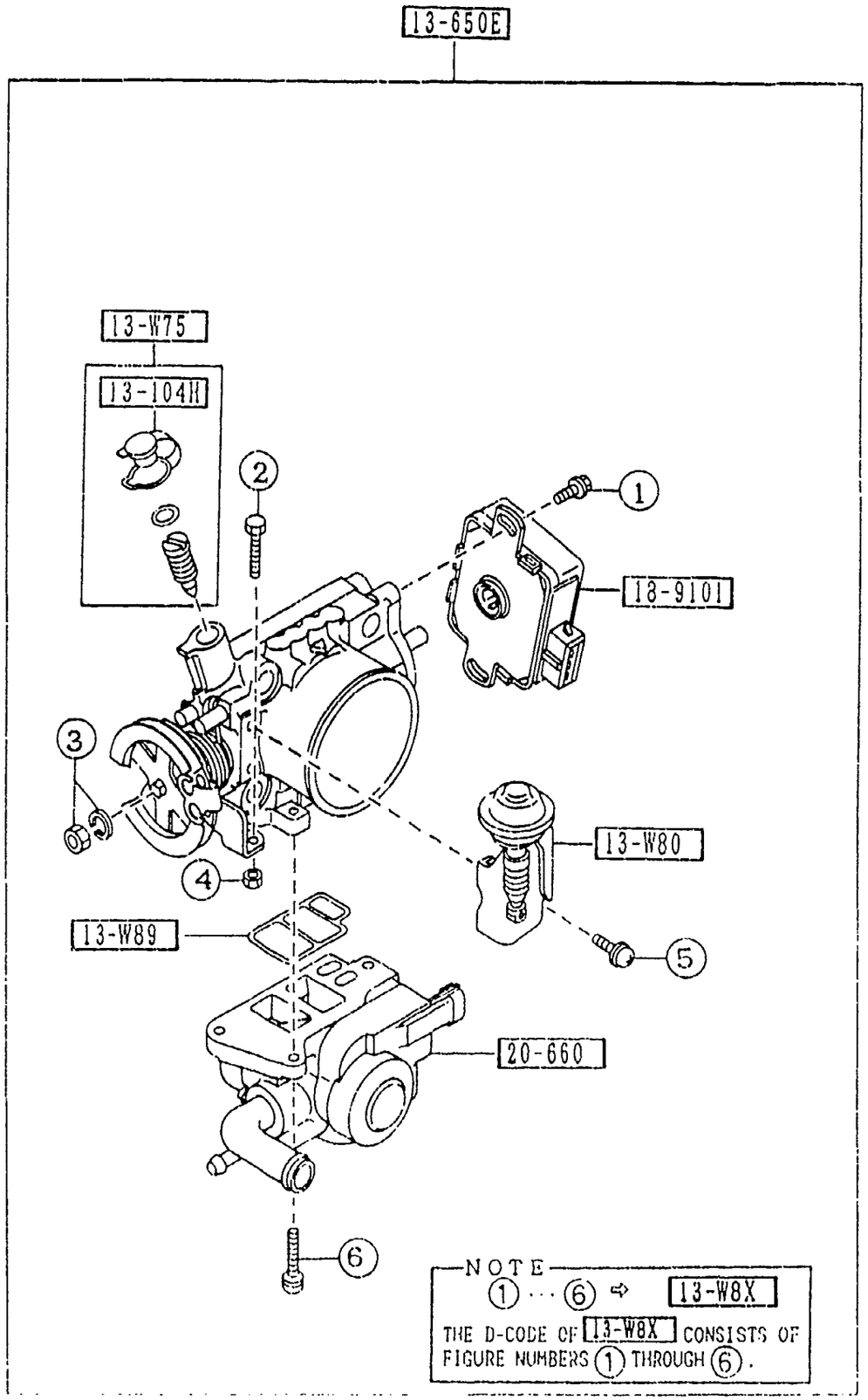
1801 NA35**-235561

1330 AIR CLEANER



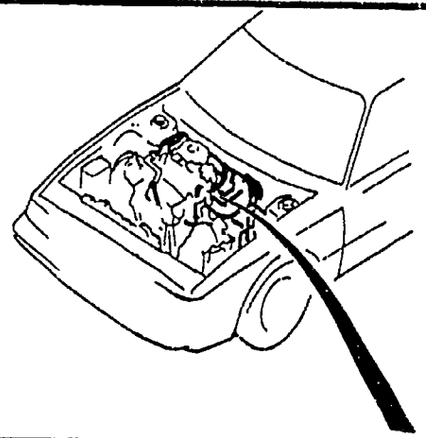
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
13-345B B61P-20-211	1	BRACKET,AIR CLEANER			
13-3482 SLA1-13-321	1	SPACER,AIR INT.PIPE			
13-3492 S501-13-349	1	INSULATOR			
13-363N FE51-13-363	3	RUBBER,MOUNTING			
13-736A B630-13-736	1	CLAMP,HOSE-A.I.P./A. CLNR			
13-736B F249-13-736	1	CLAMP,HOSE			
13-765A B61R-13-765	1	HOSE,AIR			
15-202 E501-15-202	1	RUBBER,MOUNT DENSO			-2501
B61P-13-Z66	1				2501-
23-603 B6S7-13-Z40	1	ELEMENT,AIR CLEANER			
23-6731 B61P-13-Z01	1	COVER,AIR CLEANER			
67-CC1 NA02-67-CH1	1	CLIP,HARNESS			

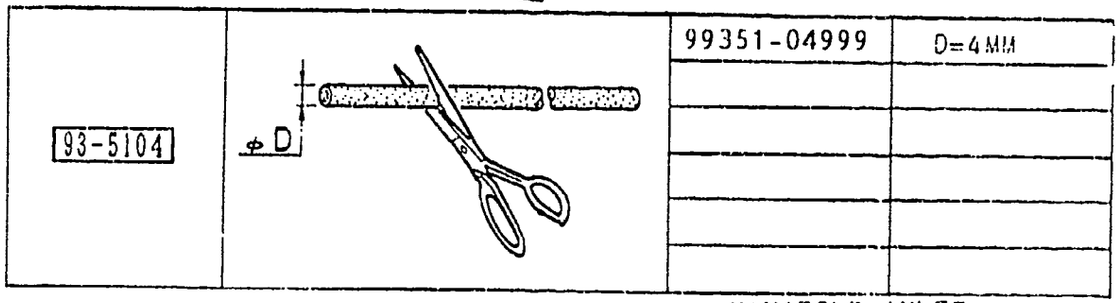
2501 NA35**-326361



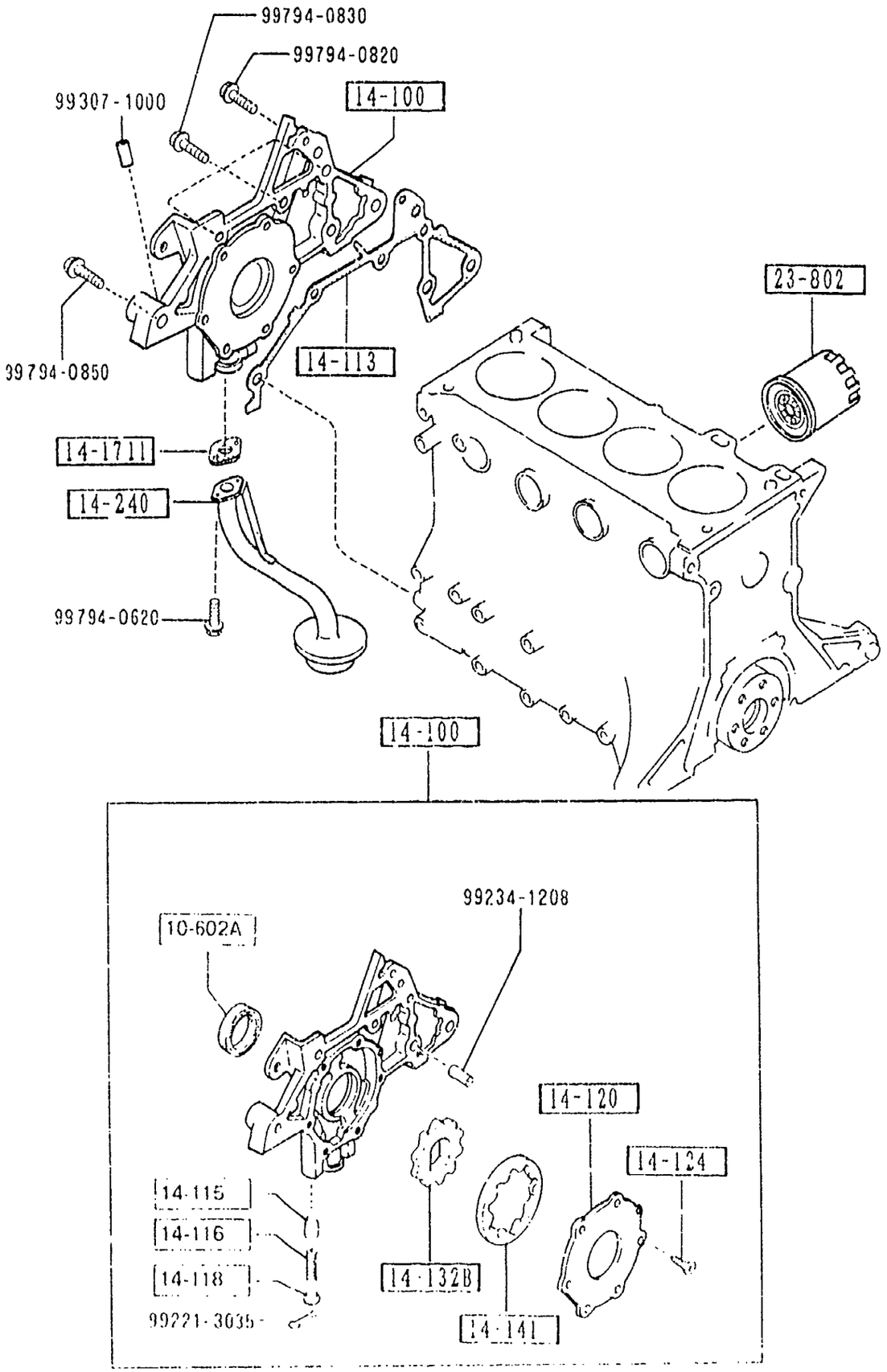
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
13-W75		SCREW SET,IDLE ADJUST-TH.			
B551-13-W75A	1				
13-W8X		SCREW & WASHER SET			
B551-13-W8X	1				
13-W80		BRKT SET,DASH POT-THROT			
B61P-13-W80	1				
13-W89		GASKET,THERMO			
B551-13-W89	1				
13-104H		CAP,BLIND			
B551-13-104	1				-1C01
13-650E		BODY,THROTTLE			
B61P-13-640B	1	(MT)			
B64J-13-640	1	(AT)			
18-9101		SENSOR,THROTTLE POSITION			
B6S8-18-911	1	(AT)			
B630-18-911	1	(MT)			
20-660		VALVE,IDLE AIR CONTROL			
B61P-20-660	1				

1C01 NA35**-309801



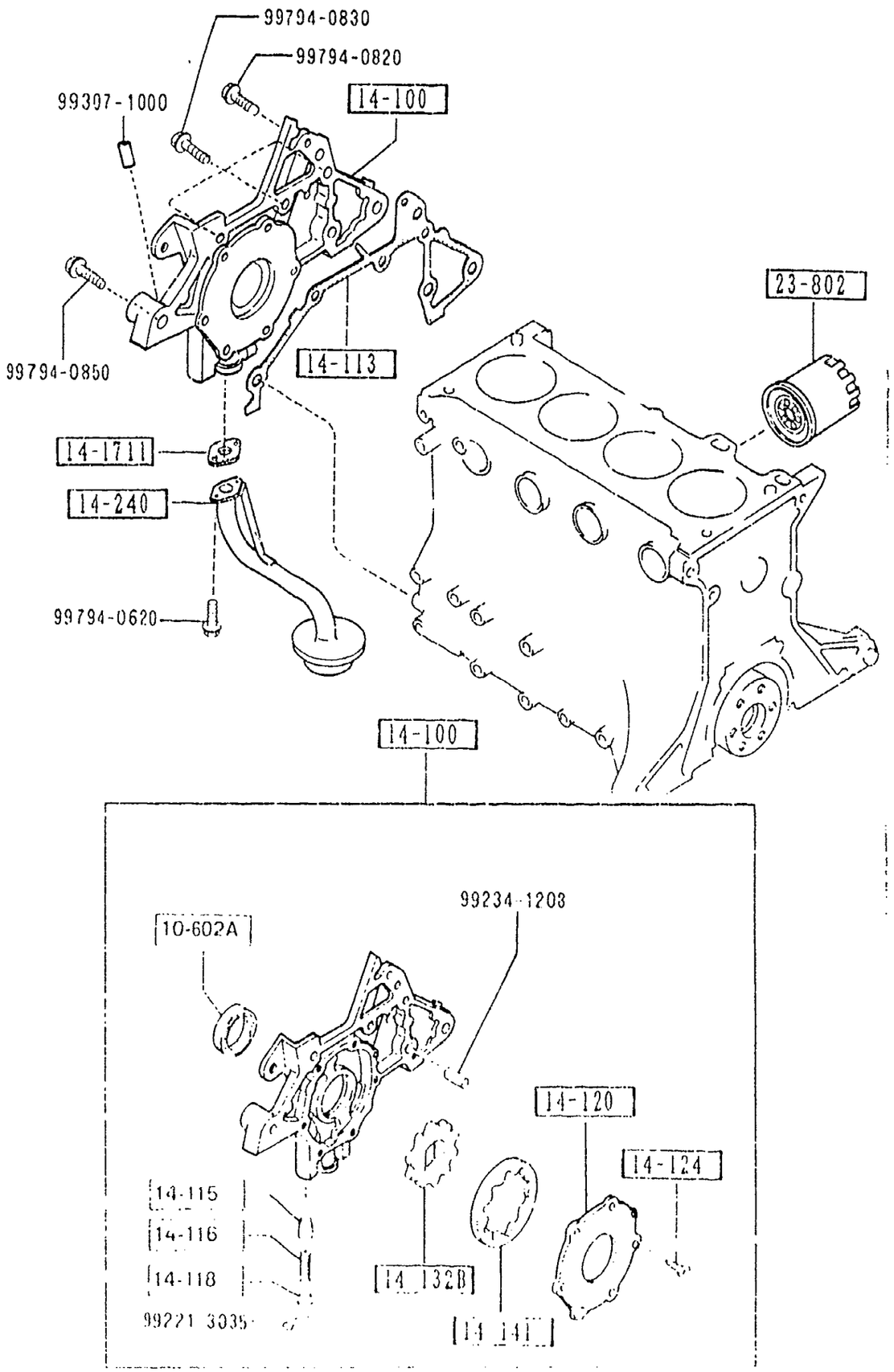


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
13-ZC7		RING,'O'-AIR VALVE			
B6S7-13-ZC7	1				
13-190A		VALVE,AIR			
B61P-13-190A	1	(MT)			
B64J-13-190	1	(AT)			
13-447C		CLAMP,HOSE			
B61P-13-447	1				
13-611		BRACKET			
B61P-13-685A	1				
13-655A		GASKET			
B6S7-13-655	1	NON ASBESTOS			
13-672		HOSE,WATER			
B61P-13-682A	1				
13-681A		HOSE,WATER			
B61P-13-681B	1				
13-691B		HOSE,WATER			
B61P-13-691A	1				
15-538		CLAMP,WATER HOSE			
JF02-15-538	6				
20-371B		TUBE,VACUUM			
B61P-20-371	1				
93-5104		HOSE			
99351-04999	1				



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
10-602A		SEAL,OIL			
B630-10-602	1				-0910
B3C7-10-602		NON ASBESTOS			
AN(B3C7-10-602A)	1				0910-0B01
B3C7-10-602A	1	NON ASBESTOS			0B01-
14-100		PUMP,OIL			
B660-14-100E	1				-0910
B6S8-14-100					
AN(B6S8-14-100A)	1				0910-0B01
B6S8-14-100A					
A (B6S8-14-100B)	1				0B01-0B08
B6S8-14-100B					
A (B6S8-14-100C)	1				0B08-1B01
B6S8-14-100C	1				1B01-
14-113		GASKET,OIL PUMP			
B630-14-113	1	ASBESTOS			
14-115		PLUNGER,CONTROL			
0221-14-115	1				
14-116		SPRING,PRESSURE			
0324-14-116A	1				-1B01
BPC8-14-116	1				1B01-
14-118		SHEET,SPRING			
0222-14-118	1				
14-120		COVER,OIL PUMP			
B630-14-121	1				-0910
B3C7-14-121	1				0910-
14-124		SCREW,OIL PUMP COVER			
FE1H-14-124	7				
14-132B		GEAR,INNER			
B660-14-132	1				0910
B6S7-14-132	1				0910-

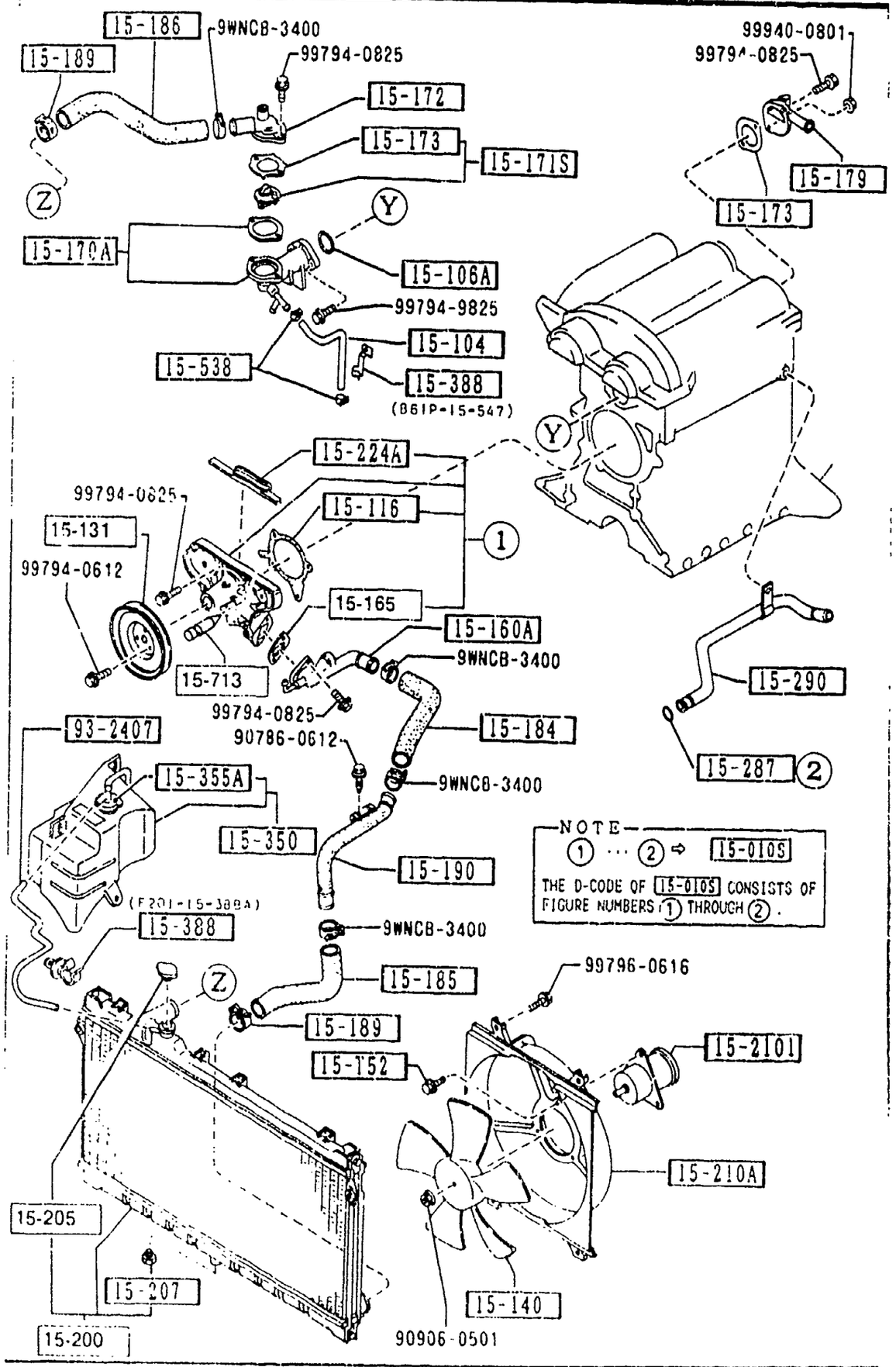
0910 NA35**-209446
0B01 NA35**-217311
0B08 NA35**-218223
1B01 NA35**-306993



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
14-141		GEAR,OUTER			
B660-14-141	1				-0910
B6S7-14-141	1				0910-
14-1711		GASKET,OIL STRAINER			
0810-14-171A	1	ASBESTOS			
14-240		STRAINER,OIL			
B61P-14-240	1				
23-802		CARTRIDGE,OIL FILTER			
B6Y1-14-302	1	TOKYO ROKI			

0910 NA35**-209446

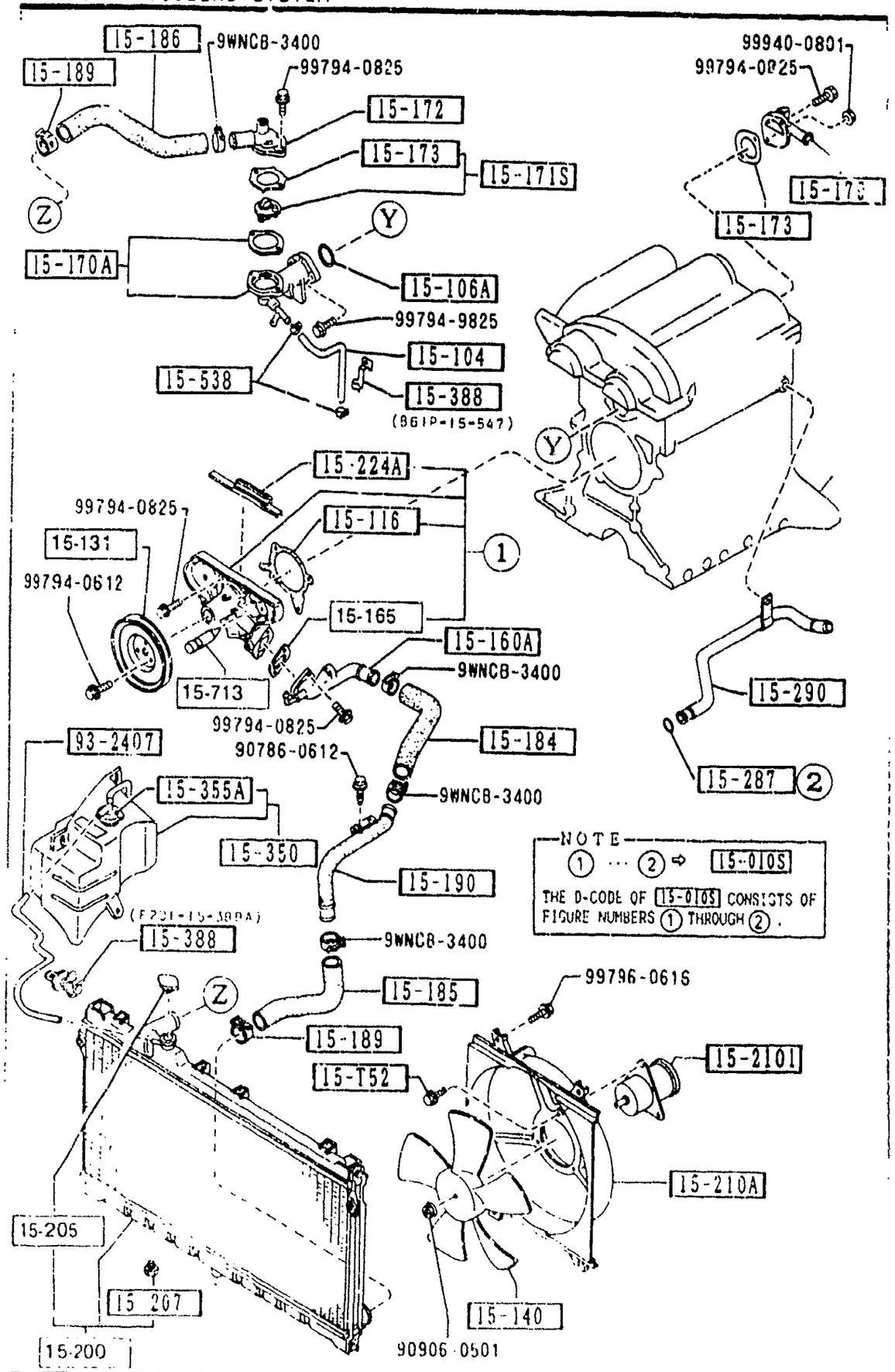
1500 COOLING SYSTEM



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
15-T52		SCREW,MOTOR-ELECTRIC FAN			
B6S8-15-T52	3				
15-010S		PUMP SET,WATER			
8AB8-15-010	1	NON ASBESTOS			
15-104		HOSE,WATER BY-PASS			
B61P-15-261A	1				
15-106A		RING,'O'-WATER PUMP			
B61P-15-106	1				
15-116		GASKET,WATER PUMP			
B621-15-116A	1	NON ASBESTOS			
15-131		PULLEY,WATER PUMP			
B366-15-131A	1				
15-140		FAN,COOLING			
B6S8-15-140A	1	CALSONIC (AT)			-1301
B61P-15-140	1	(MT)			-1301
B61P-15-140A	1	(MT)			1301-
B64J-15-140	1	CALSONIC (AT)			1301-
15-160A		INLET,WATER PUMP			
B61P-15-160	1				
15-165		GASKET,W.PUMP INLET			
B621-15-165A (B366-15-165)	1	NON ASBESTOS			-2101
B366-15-165	1				2101-
15-170A		COVER,THERMO			
*B61P-15-170B	1				
15-171S		THERMOSTAT SET			
8AN1-15-171	1	NON ASBESTOS			

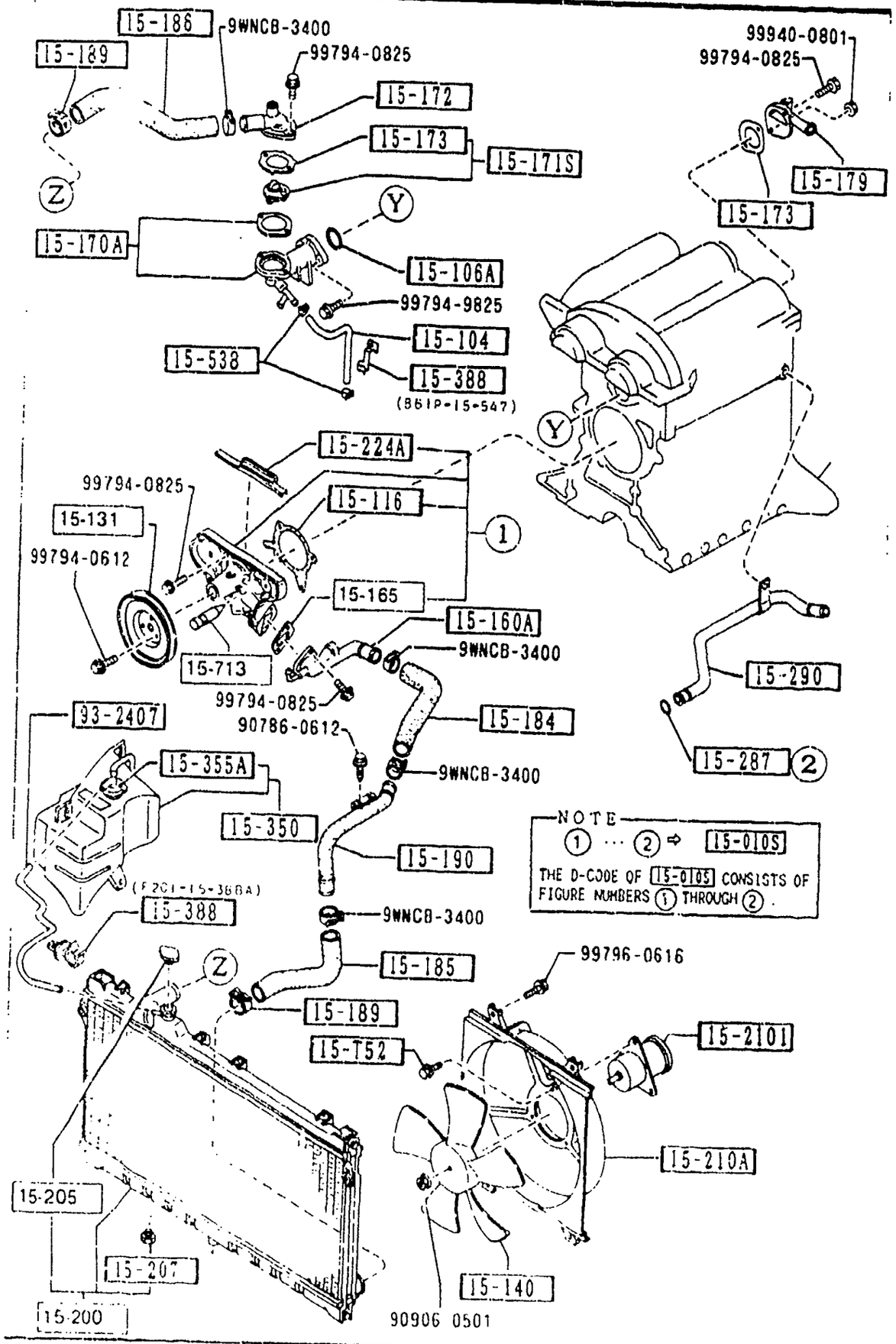
1301 NA35**-231464
2101 NA35**-313937

AUNA02



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
15-172		COVER,THERMOSTAT			
B61P-15-172	1				
15-173		GASKET,THERMOSTAT COVER			
B621-15-173	2	NON ASBESTOS			-2210
B366-15-173	2				2210-
15-179		OUTLET,WATER			
B61P-15-179A	1				
15-184		HOSE,WATER			
B61P-15-184	1				
15-185		HOSE,WATER			
B61P-15-185	1				
15-186		HOSE,WATER			
B61P-15-186	1				
15-189		CLAMP,HOSE			
B366-15-182	2				
15-190		PIPE,WATER			
B61P-15-190	1				
15-200		RADIATOR			
B61P-15-200 AN(B61P-15-200A)	1	CALSONIC			-0710
B64J-15-200A AN(B64J-15-200B)	1	CALSONIC			-0710
B61P-15-200A A (B61P-15-200B)	1	CALSONIC			0710-1220
B64J-15-200B A (B64J-15-200C)	1	CALSONIC			0710-1220
B61P-15-200B	1	CALSONIC (MT)			1220-
B64J-15-200C	1	CALSONIC (AT)			1220-
15-205		CAP,RADIATOR			
D316-15-205	1	CALSONIC			

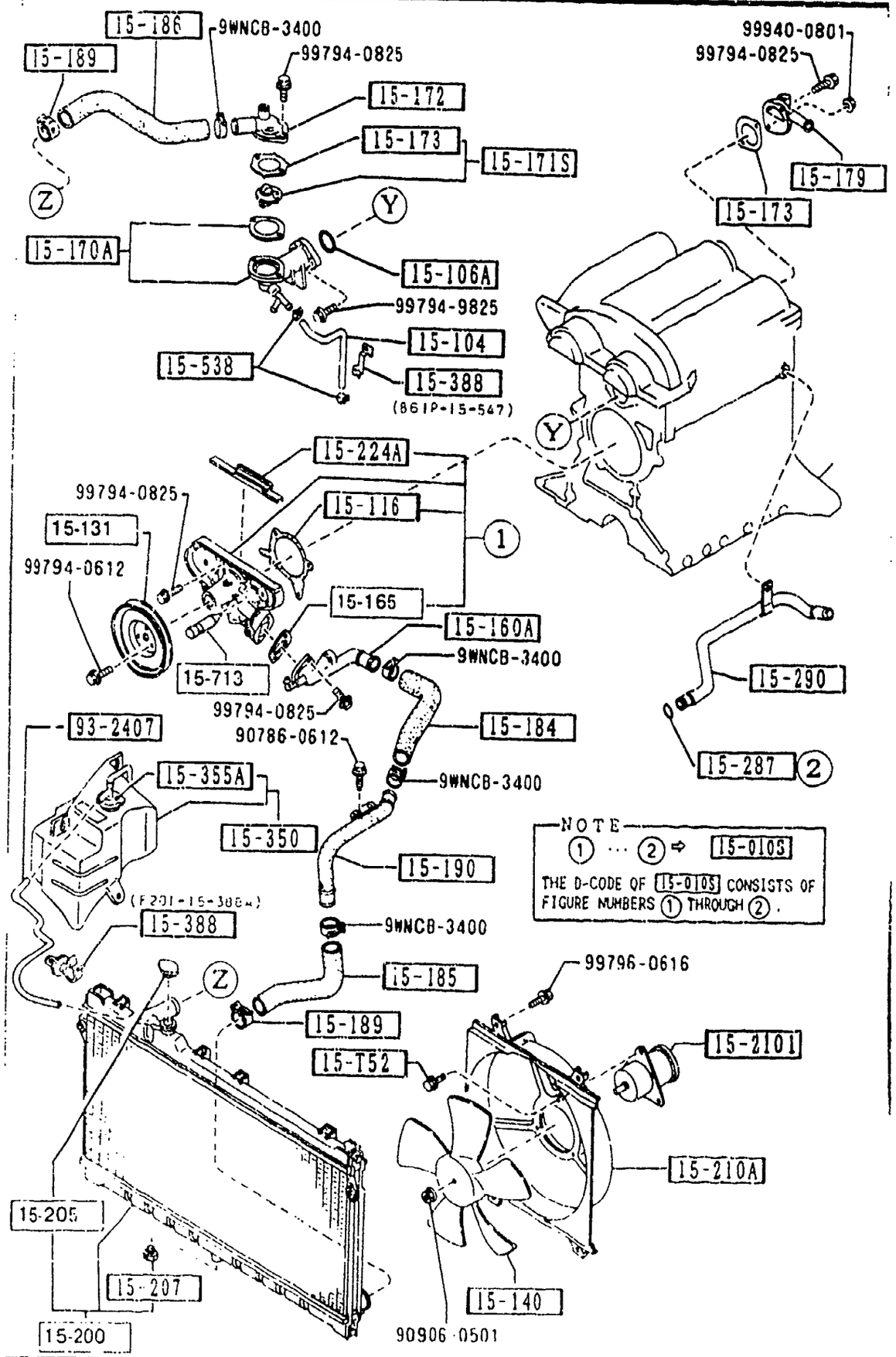
0710 NA35**-201527
1220 NA35**-230412
2210 NA35**-317616



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
15-207		COCK,DRAIN			
N326-15-203	1				
15-210A		COWLING,RADIATOR			
B61P-15-210A	1				-1301
B61P-15-210B	1				1301-
15-2101		FAN DRIVE			
B61P-15-150A	1	(MT)			-1301
B64J-15-150	1	(AT)			-1301
B61P-15-150B	1	(MT)			1301-
B64J-15-150A	1	(AT)			1301-
15-224A		RUBBER,SEAL			
B660-10-543B	1				
15-287		RING,'O'-WATER BYPASS			
E301-15-287	1				
15-290		PIPE,BYPASS			
B61P-15-290B	1				
15-350		TANK,SUB-RADIATOR			
B61P-15-350C (B61P-15-350D)	1				-2501
B61P-15-350D	1				2501-
15-355A		CAP,SUB TANK			
B61P-15-355A	1				
15-388		CLIP,HOSE-SUB T.& WATER H			
F201-15-388A	1				
B61P-15-547	1				
15-538		CLAMP,WATER HOSE			
JF02-15-538	2				
15-713		SET PIN,SPRING			
F801-15-713	1				

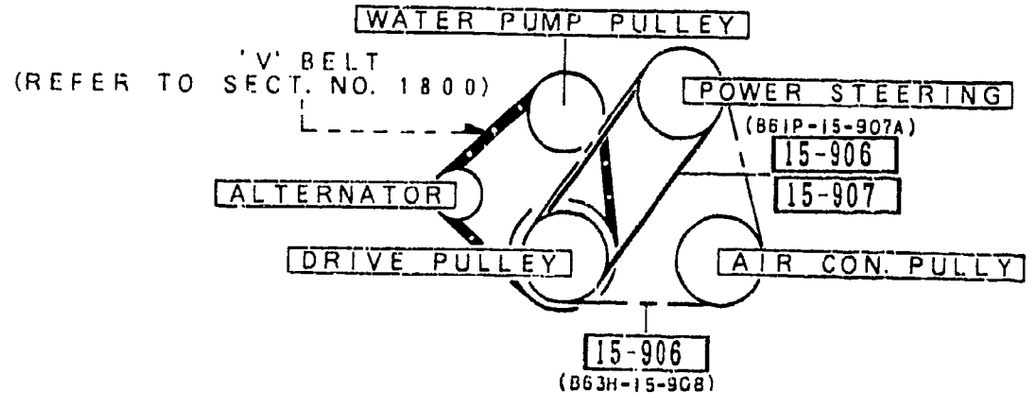
1301 NA35**-231464
2501 NA35**-326361

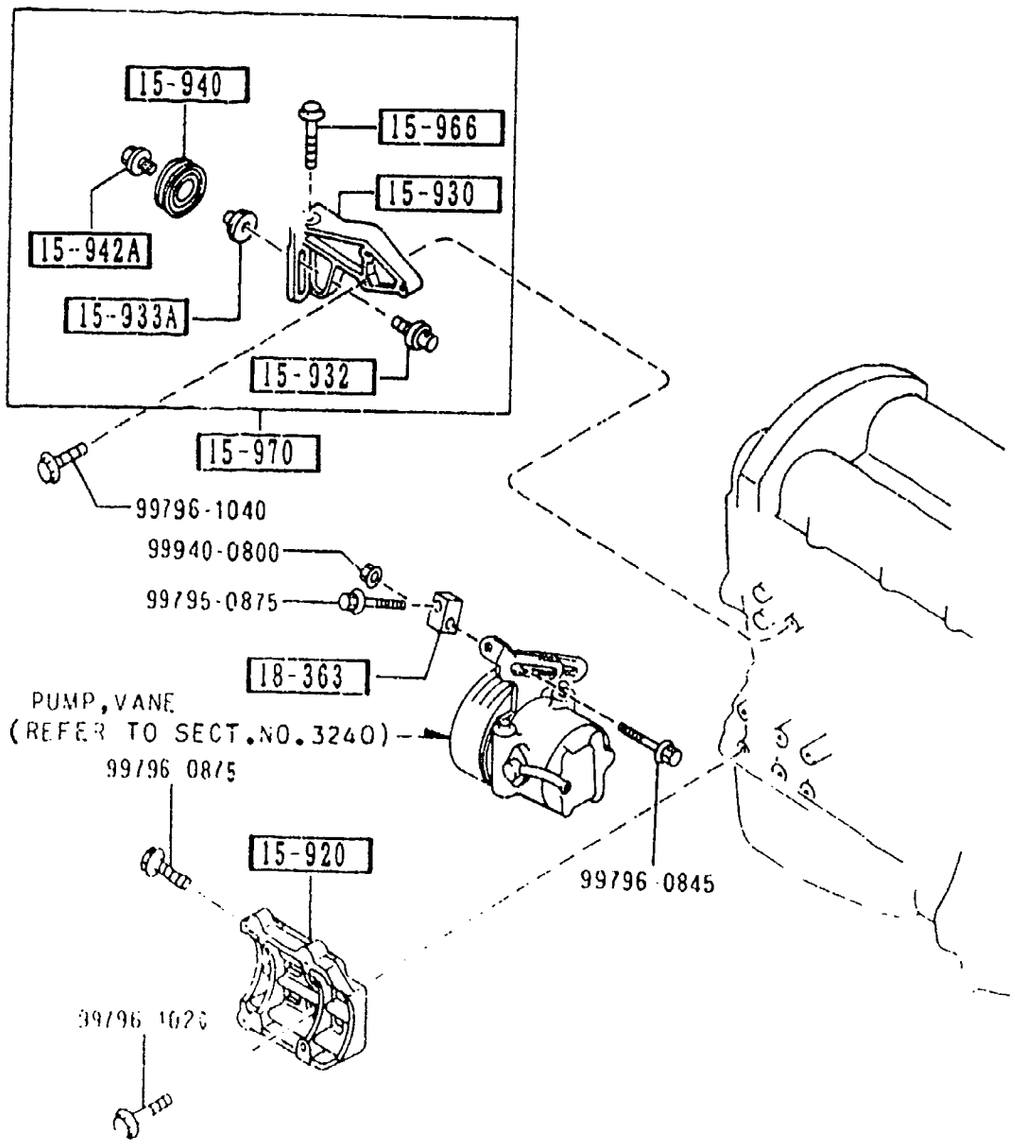
1500 COOLING SYSTEM



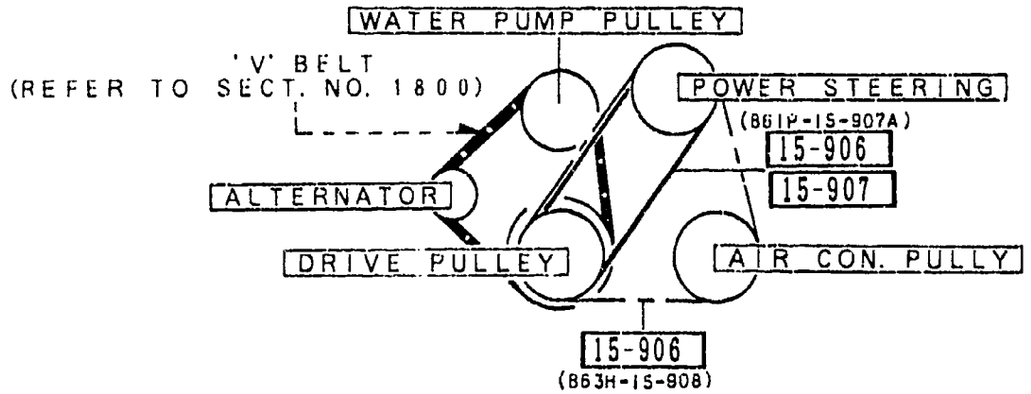
NOTE
① ··· ② ⇨ 15-0105
THE D-CODE OF 15-0105 CONSISTS OF FIGURE NUMBERS ① THROUGH ② .

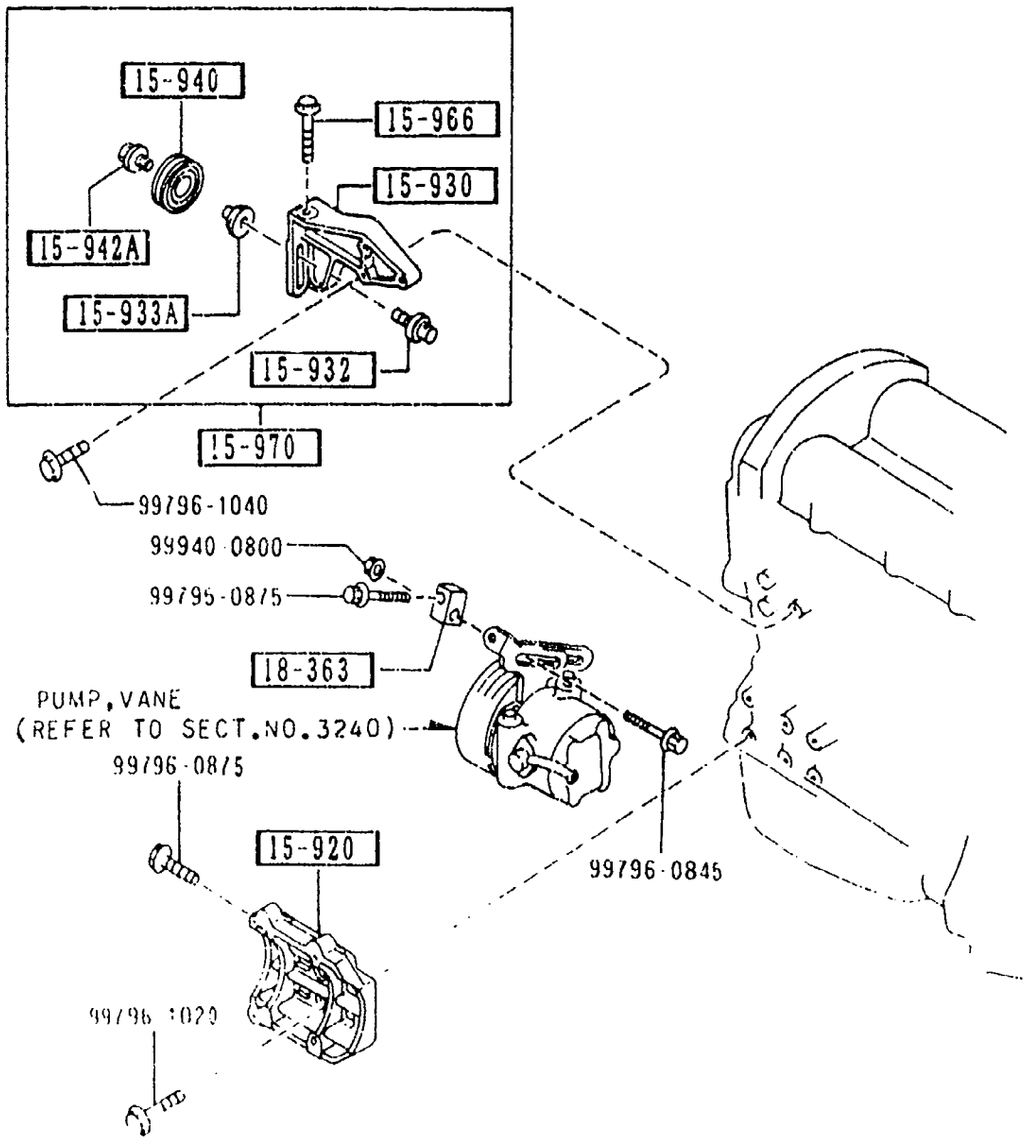
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
93-2407		HOSE,WATER			
99324-07610	1				



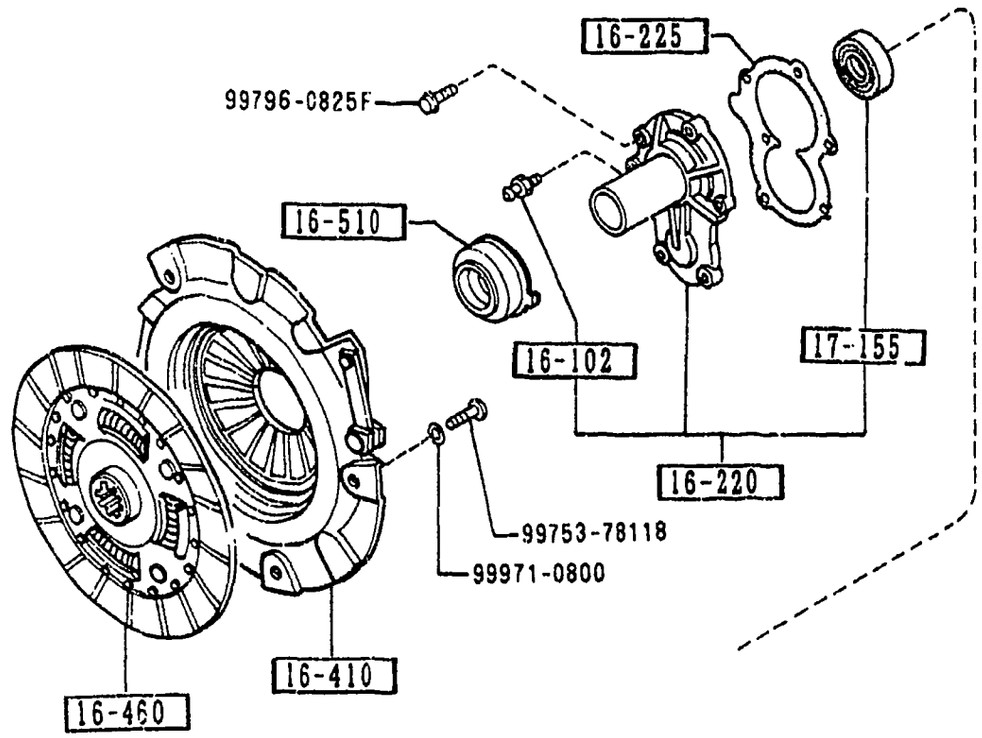


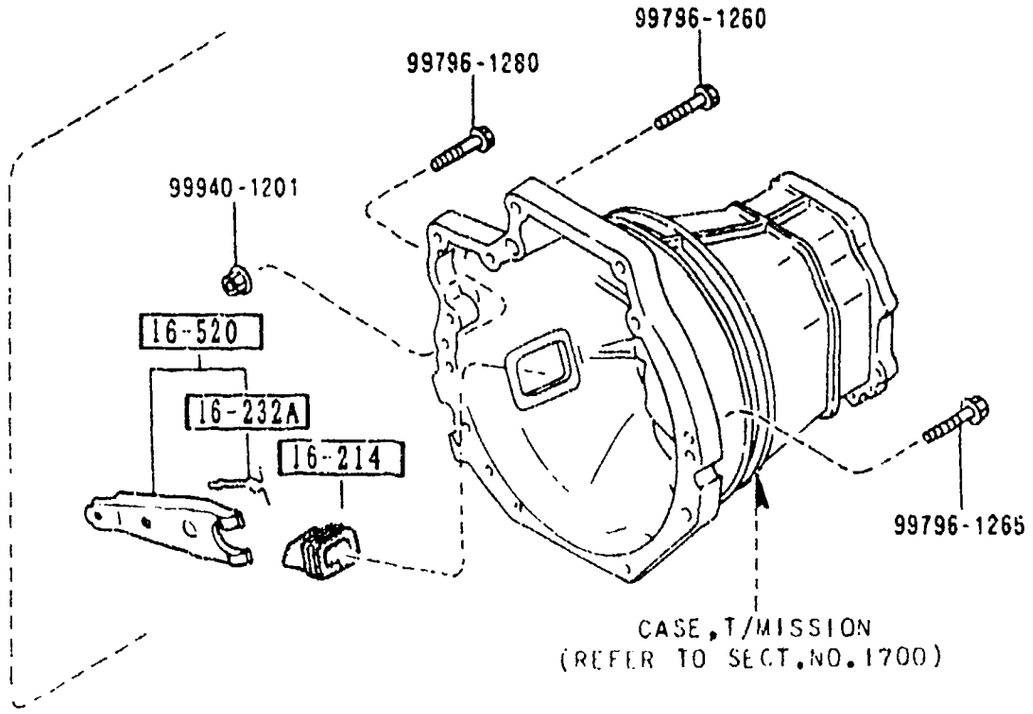
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
15-906		BELT'V'			
B61P-15-907A	1	L=855 4PK RIB.BELT ((W/O AIR-CON.,W/ P.S.))			
B63H-15-908	1	L=855 4PK RIB.V. ((W/ AIR-CON.,W/O P.S.))			
15-907		BELT'V'			
B63H-15-909	1	L=955 4PK RIB.V. ((W/ AIR-CON.,W/ P.S.))			
15-920		BRACKET,COMPRESSOR			
*B61P-15-810A	1	(A) (W/AIR CON.)			
15-930		BRACKET,IDLE PULLEY			
BP01-15-951	1	(A) ((W/ AIR-CON.,W/O P.S.))			
15-932		SHAFT,PULLEY			
B631-15-932	1	(A) ((W/ AIR-CON.,W/O P.S.))			
15-933A		COLLAR			
BP01-15-933	1	(A) ((W/ AIR-CON.,W/O P.S.))			
15-940		PULLEY,IDLE			
BP01-15-940	1	(A) ((W/ AIR-CON.,W/O P.S.))			
15-942A		COLLAR			
E564-15-942	1	(A) ((W/ AIR-CON.,W/O P.S.))			
15-966		BOLT,ADJUST			
E564-15-934	1	(A) ((W/ AIR-CON.,W/O P.S.))			
15-970		PULLEY,IDLE			





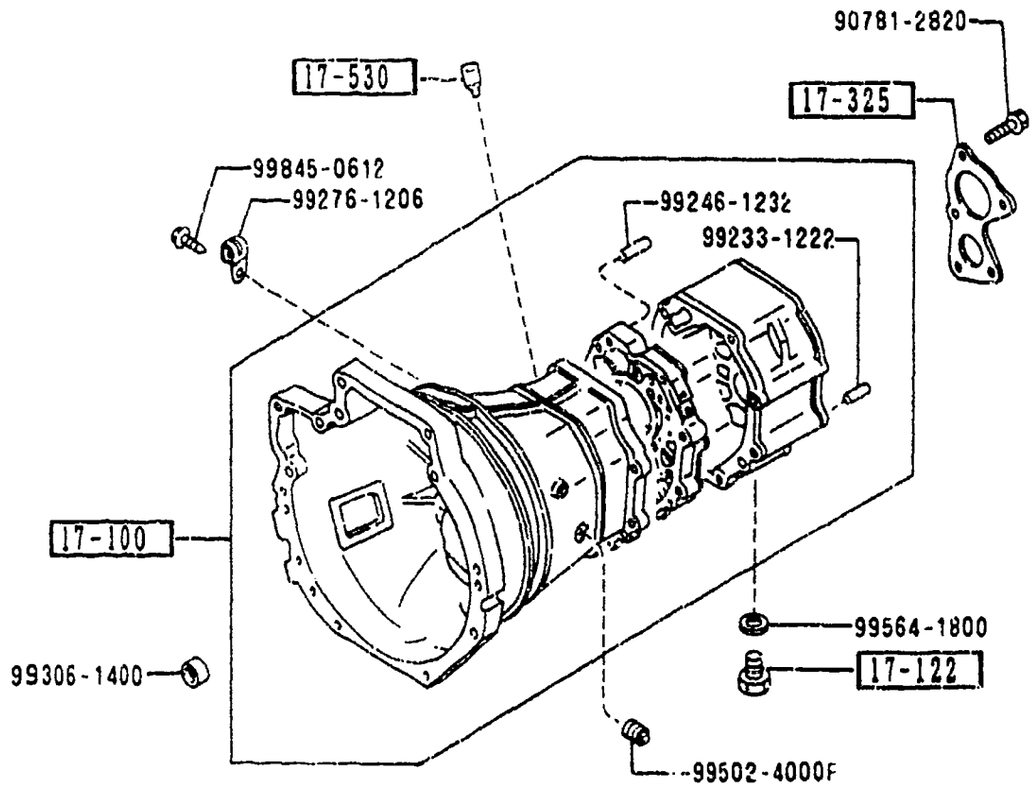
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
BP01-15-930	1	(A) ((W/ AIR-CON.,W/O P. S.))			
18-363		SPACER,STRAP			
F201-18-363	1	((W/O AIR-CON.,W/ P. S.))			

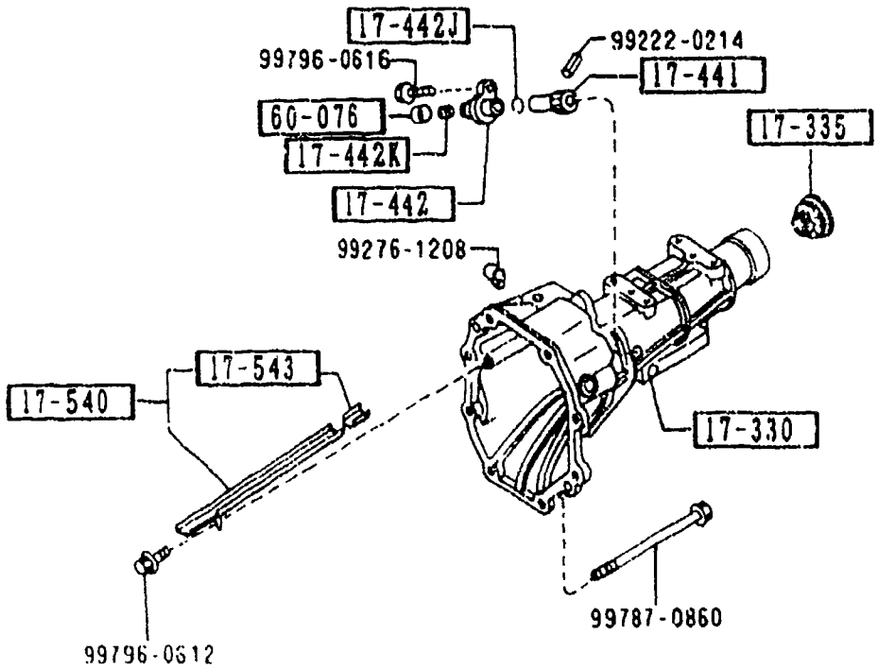




PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
16-102		PIN,PIVOT-CLUTCH REL .FORK			
0603-16-102B	1				
16-214		COVER,DUST-CLUTCH FO RK			
FE86-16-214	1				
16-220		COVER,FRONT CLUTCH			
B622-16-220	1				
16-225		GASKET,FRONT COVER			
FE50-16-225A	1				
16-232A		SUPPORTER,FORK			
1416-16-232A	1				
16-410		COVER,CLUTCH			
B622-16-410	1				
16-460		DISC,CLUTCH			
B622-16-460A	1	ASBESTOS			-2201
B630-16-460	1	NON ASBESTOS			2201-
16-510		COLLAR,CLUTCH REL.			
B622-16-510	1				
16-520		FORK,CLUTCH RELEASE			
B622-16-520	1				
17-155		SEAL,OIL			
H501-17-103	1				

2201 NA35**-316887

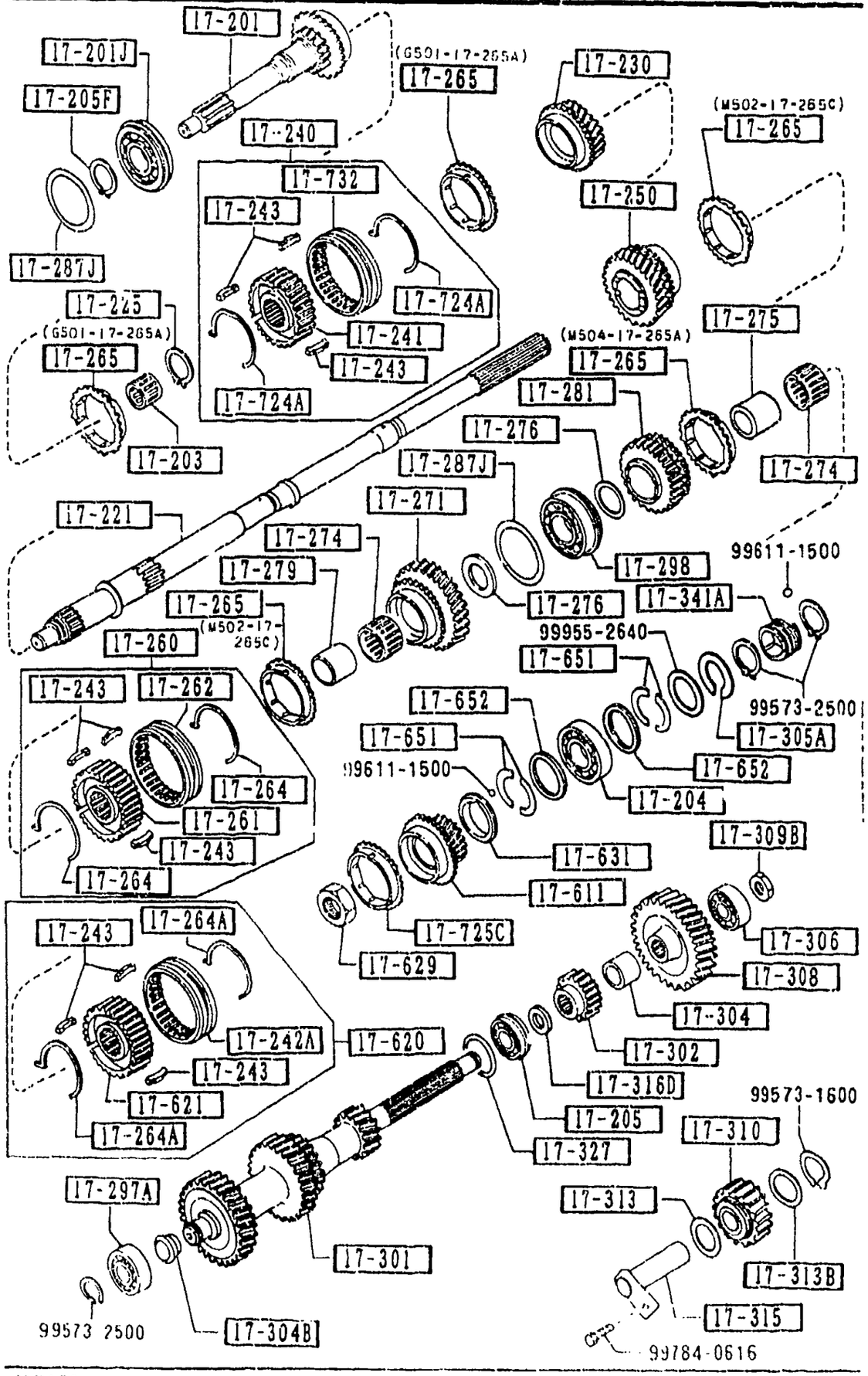




PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
17-100		CASE,T/MISSION			
1526-17-100	1				
17-122		PLUG,MAGNET			
0810-17-121	1				
17-325		COVER,BEARING			
8086-17-326	1				
17-330		HOUSING,EXTENSION			
*M519-17-330	1				
17-335		SEAL,OIL			
M507-17-335 A (M507-17-335A)	1				-2511
M507-17-335A	1				2511-
17-441		GEAR,DRIVEN			
1472-17-441A	1	N=23			
17-442		SLEEVE,SPEEDOMETER			
1669-17-442B	1				
17-442J		RING,'O'			
1011-17-443	1				
17-442K		SEAL,OIL			
99586-08166	1				
17-530		BREATHER,AIR-T/MISSION			
0884-17-530	1				
17-540		PASS,OIL			
M509-17-540	1				
17-543		RUBBER,SEAL			
M501-17-543A	1				
60-076		GASKET,GUIDE SEAL-SPEEDO.			
B092-60-076A	1				

2511 NA35**-327112

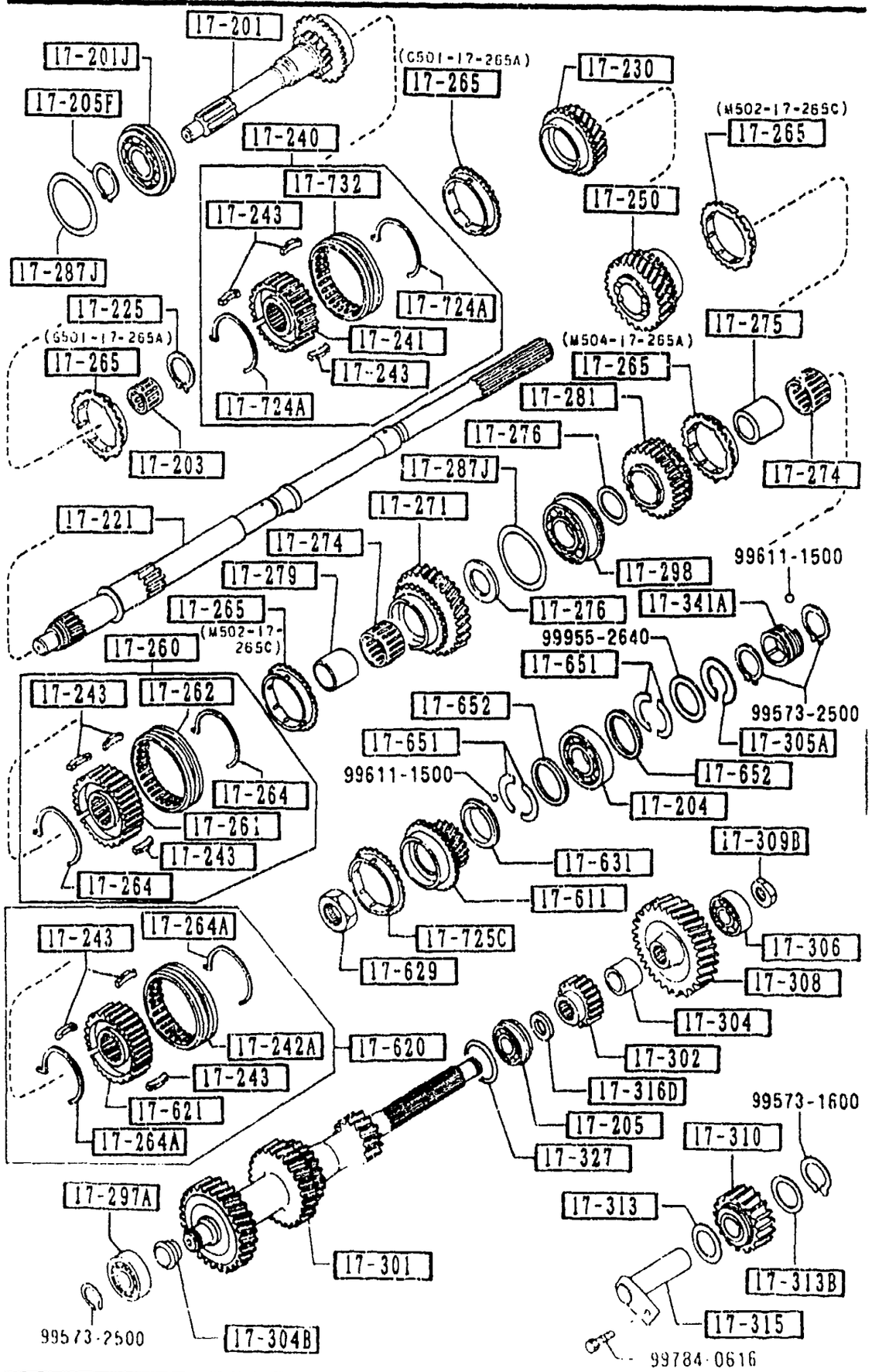
1710 -1 TRANSMISSION GEARS(MANUAL)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
17-201 M516-17-201	1	GEAR,MAIN DRIVE			
17-201J M502-17-295C	1	BEARING,BALL-MAIN DRIVE GEAR			
17-203 M501-17-210	1	BEARING,NEEDLE			
17-204 M503-17-204	1	BEARING,BALL-MAIN SHAFT			
17-205 R502-17-306A	1	BEARING,ROLLER			
17-205F M501-17-205	1	RING,RETAINING			
17-221 M505-17-221B	1	SHAFT,MAIN			
17-225 0317-17-225	1	RING,SNAP			
17-230 M513-17-231	1	GEAR,3RD			
17-240 M502-17-240C AN(M502-17-240D)	1	HUB SET,CLUTCH-3RD & 4TH			-1513
M502-17-240D	1				1513-
17-241 M501-17-241B AN(M501-17-241C)	1	HUB,CLUTCH			-1513
M501-17-241C	1				1513-
17-242A F401-17-242A	1	SLEEVE,CLUTCH HUB			
17-243		KEY,SYNCHRONIZER			

1513 NA35**-234232

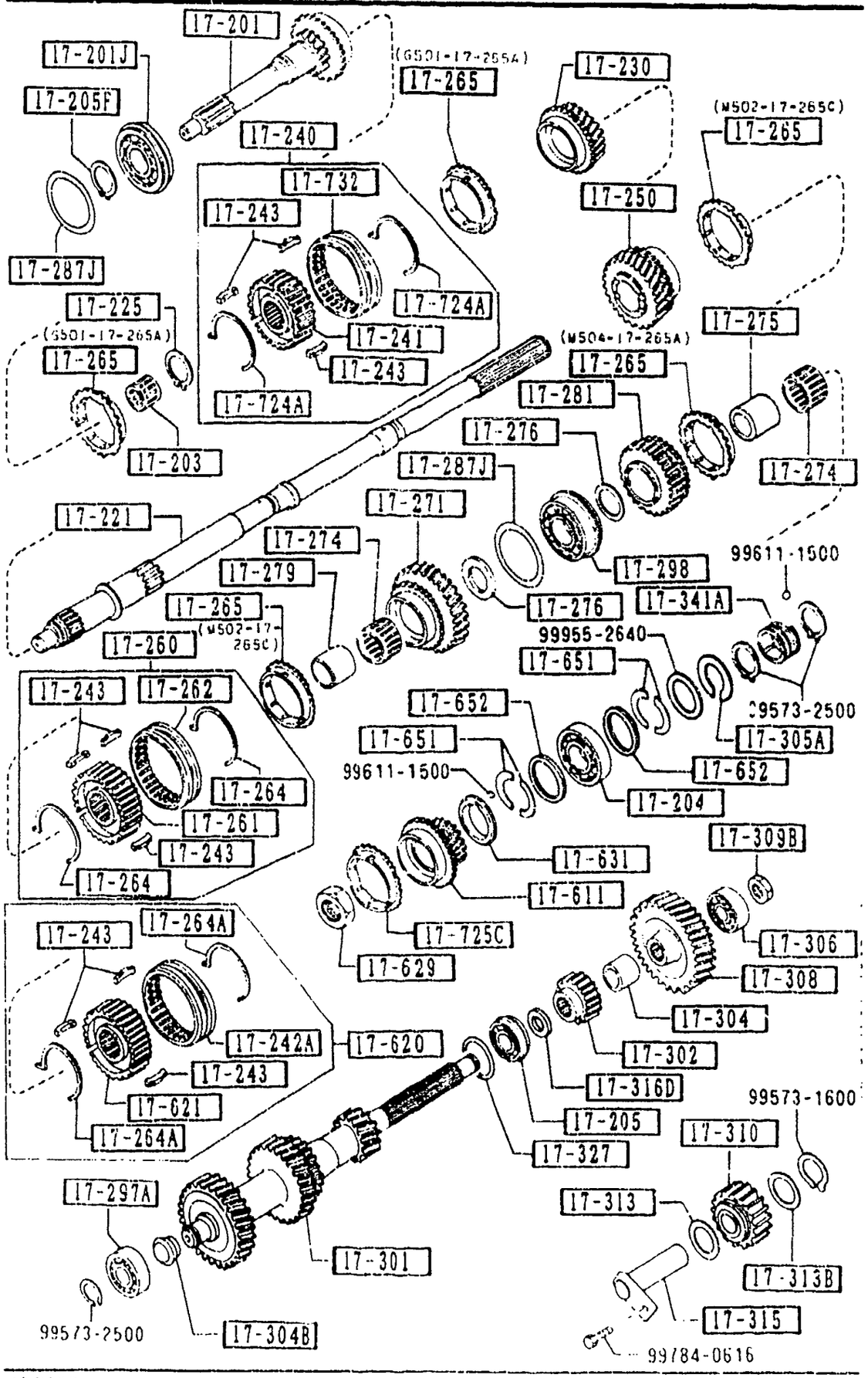
1710 -2 TRANSMISSION GEARS(MANUAL)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
F401-17-243A	9				
17-250		GEAR,2ND			
M515-17-251	1				-1601
A (M515-17-251A)					
M515-17-251A	1				1801-
17-260		HUB SET,CLUTCH-1ST & 2ND			
M503-17-260A	1				-1115
A (M505-17-260B)					
M505-17-260B	1				1115-2201
AN(M505-17-260C)					
M505-17-260C	1				2201-
17-261		HUB,CLUTCH			
M502-17-261	1				
17-262		SLEEVE,CLUTCH HUB			
M503-17-262	1				-1115
A (M503-17-262A)					
M503-17-262A	1				1115-2201
AN(M503-17-262B)					
M503-17-262B	1				2201-
17-264		SPRING,SYNCHRO. KEY			
G401-17-264	2				
17-264A		SPRING,SYNCHRONIZER			
F401-17-264A	2				
17-265		RING,SYNCHRONIZER			
G501-17-265A	2				
M504-17-265A	1				
M502-17-265A	2				-0C05
A (M502-17-265B)					
M502-17-265B	2				0C05-1410
A (M502-17-265C)					
M502-17-265C	2				1410-
17-271		GEAR,1ST			
M516-17-271	1				-2201
AN(M516-17-271A)					

0C05 NA35**-221271
1115 NA35**-225012
1410 NA35**-233076
1801 NA35**-235561
2201 NA35**-316887

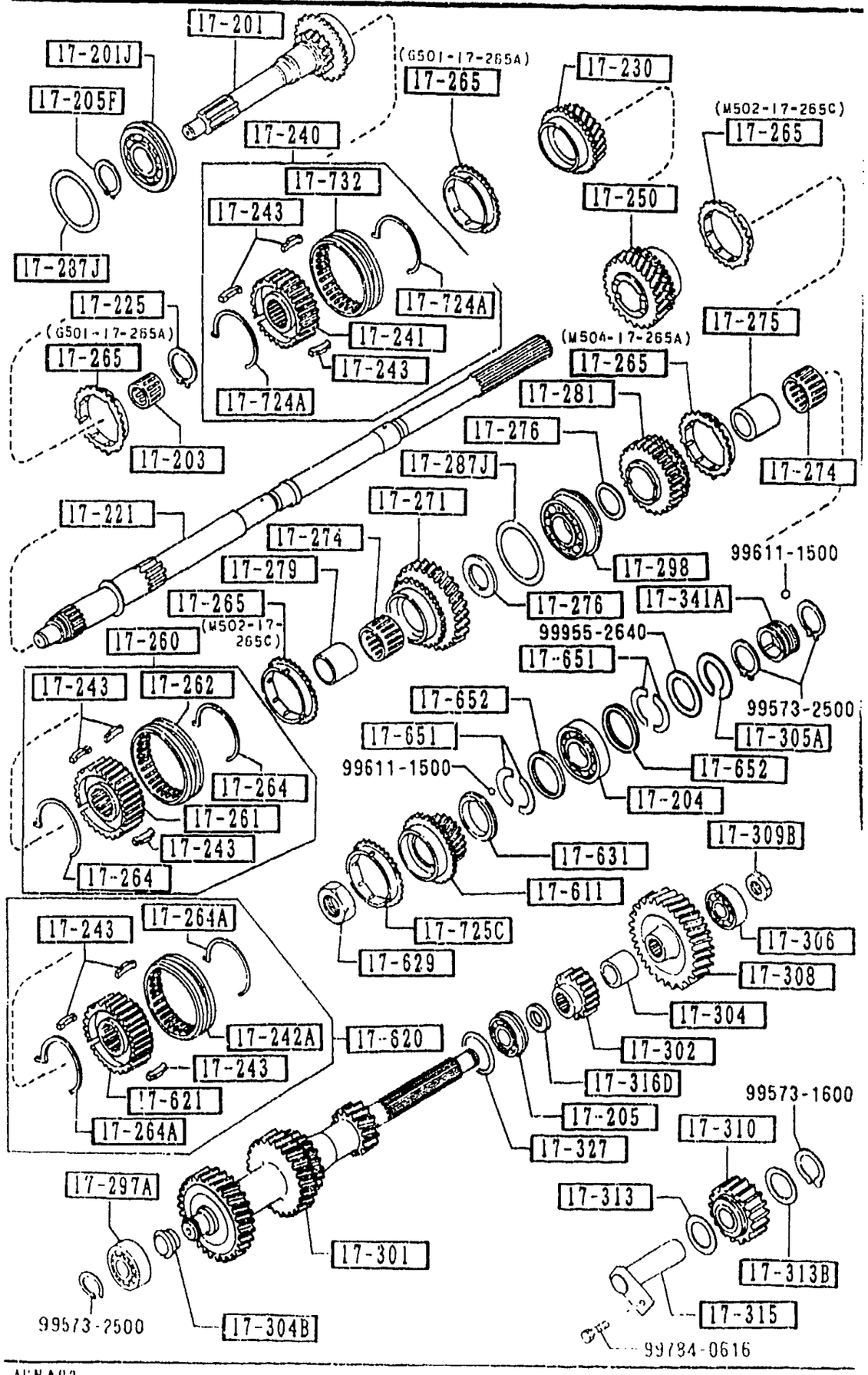
1710 -3 TRANSMISSION GEARS(MANUAL)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
M516-17-271A	1				2201-
17-274		BEARING,NEEDLE			
4069-17-283A	2				
17-275		RACE,INNER			
4069-17-284E	1				
17-276		WASHER,THRUST			
0259-17-274A	2	T=3MM			
0259-17-276	2	T=2.2MM			
0259-17-277	2	T=2.7MM			
0259-17-278	2	T=3.2MM			
0259-17-279	2	T=3.7MM			
17-279		SLEEVE,GEAR			
8540-17-275A	1				
17-281		GEAR,REVERSE			
M509-17-281A	1				
17-287J		SHIM,ADJUST			
99963-6310	2	T=0.1MM			
99963-6315	1	T=0.15MM			
99963-6330	2	T=0.3MM			
17-297A		BEARING,BALL-COUNTER SHAFT G.			
M502-17-297A	1				
17-298		BEARING			
M502-17-298A	1				
17-301		GEAR,COUNTER SHAFT			
M528-17-301	1				

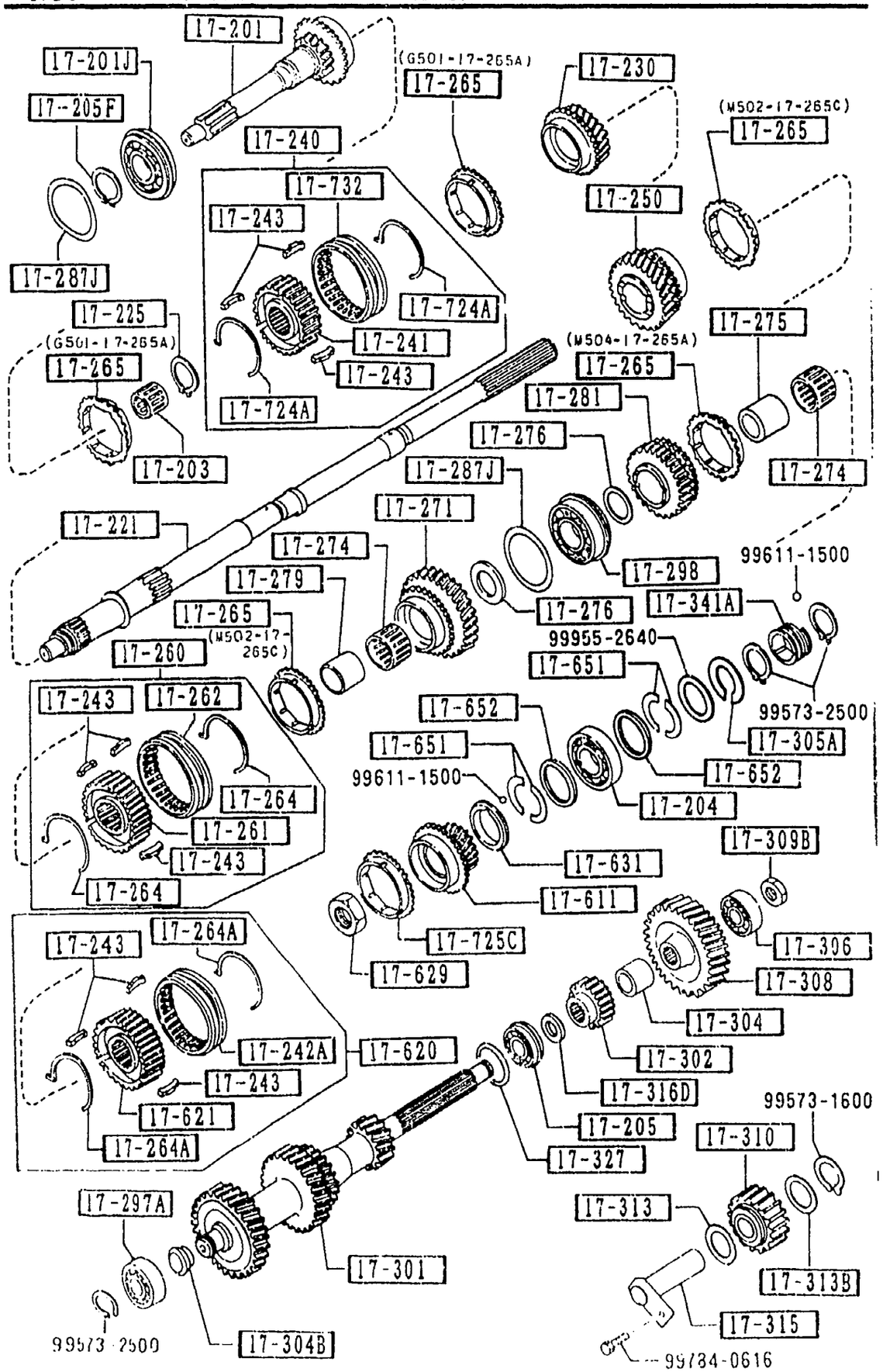
2201 NA35**-316887

1710 -4 TRANSMISSION GEARS(MANUAL)

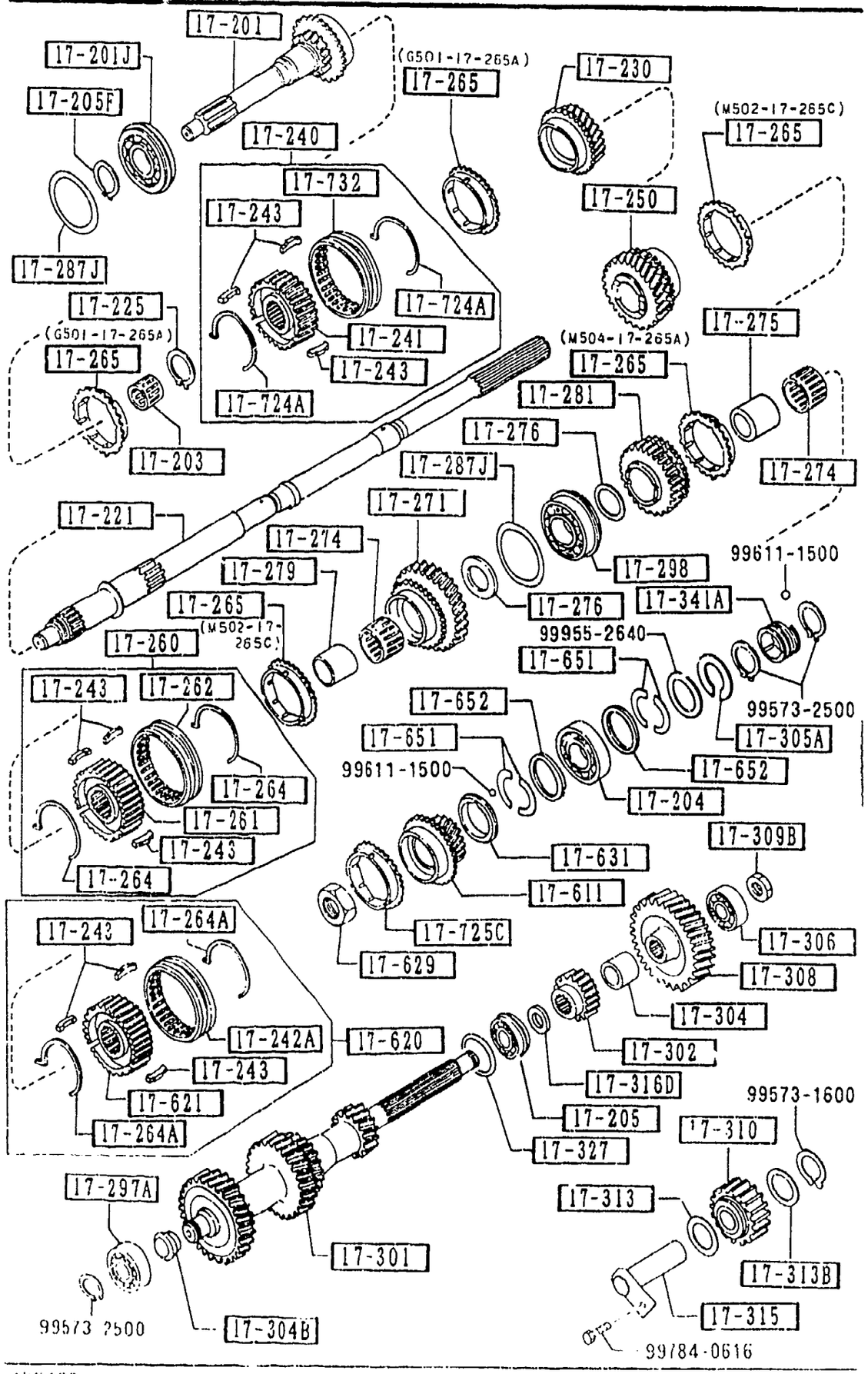


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM·TO
17-302		GEAR,COUNTER REVERSE			
M512-17-302A	1				
17-304		SPACER			
M504-17-304	1				
17-304B		SPACER			
M501-17-304B	1				
17-305A		RING,RETAINING-BALL BEARING			
0839-17-305B	1				
17-306		BEARING,BALL			
M502-17-299A	1				
17-308		GEAR,COUNTER			
M510-17-308	1				
17-309B		NUT,LOCK-COUNTER SHAFT BR			
M501-17-309	1				
17-310		GEAR,REVERSE IDLE			
M509-17-310A	1				
17-313		WASHER,THRUST-REVERSE IDLE G.			
M501-17-313	1	T=2MM			
17-313B		WASHER,THRUST			
4077-17-314A	1	T=2.8MM			
4077-17-315A	1	T=3MM			
4077-17-316	1	T=2.6MM			
17-315		SHAFT,REV. IDLE GEAR			
8086-17-140A	1				
17-316D		SPACER			
R502-17-316	1				

1710 -5 TRANSMISSION GEARS(MANUAL)

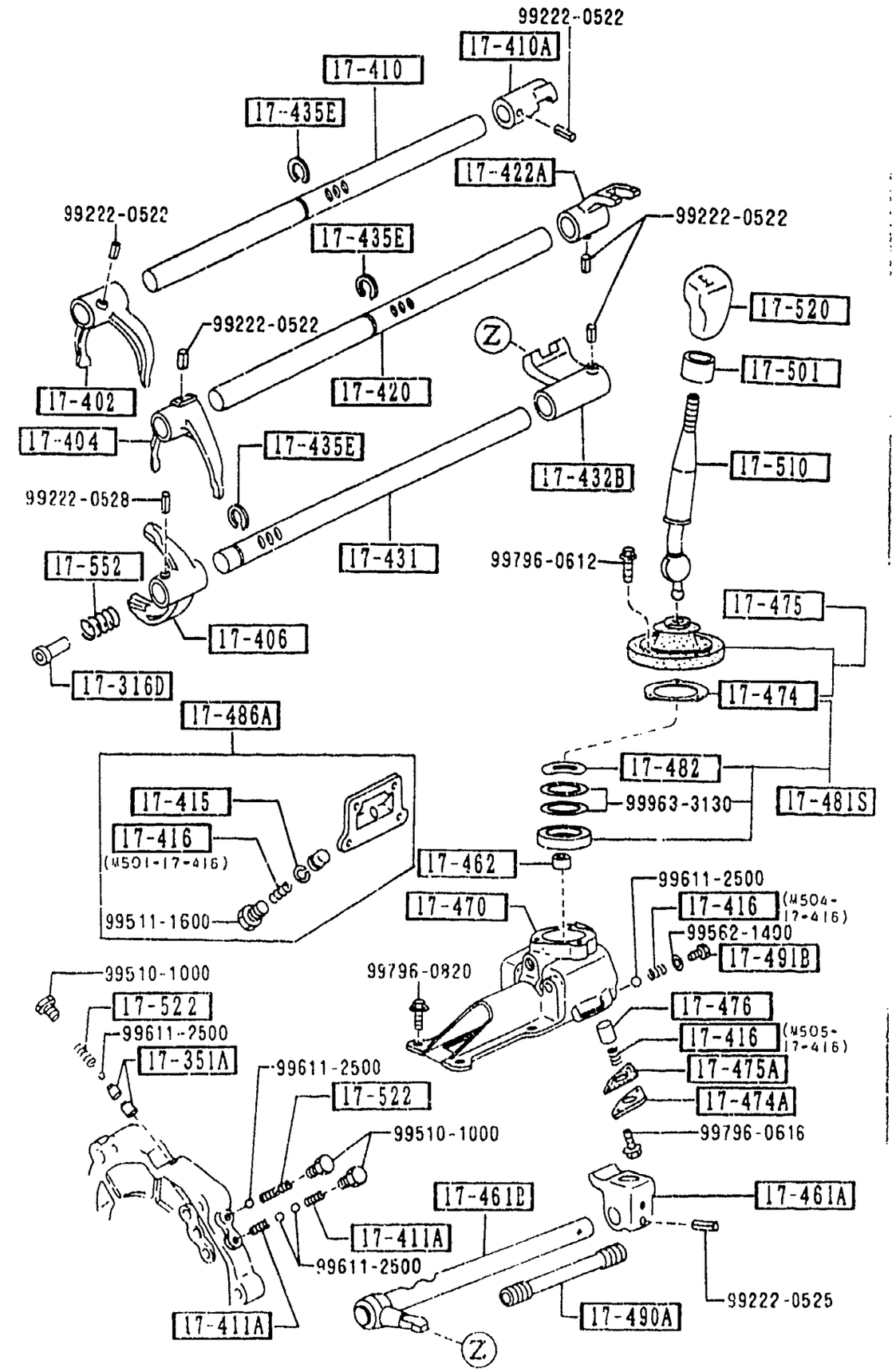


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
17-327		SHIM,ADJUST-COUNTER SHAFT GEAR			
0305-17-327	2	T=0.1MM			
0305-17-328	1	T=0.3MM			
17-341A		GEAR,SPEEDO.DRIVE			
M503-17-341	1				
17-611		GEAR.OVER TOP			
M517-17-611	1				
17-620		HUB SET,CLUTCH-O.T. & REV			
M505-17-620	1				
17-621		HUB,CLUTCH			
M505-17-621	1				
17-629		NUT,LOCK-CLUTCH HUB			
8601-17-629	1				
17-631		WASHER,THRUST LOCK-OVER TOP G.			
0884-17-632B	1	T=6.2MM			
0884-17-633B	1	T=6.4MM			
0884-17-634B	1	T=6.5MM			
0884-17-635B	1	T=6.6MM			
17-651		WASHER,THRUST			
M501-17-651	4	T=3MM			
M501-17-653	2	T=3.1MM			
M501-17-654	2	T=3.2MM			
M501-17-655	2	T=2.9MM			
17-652		RING,THRUST WASHER			
M501-17-652	2	T=2MM			



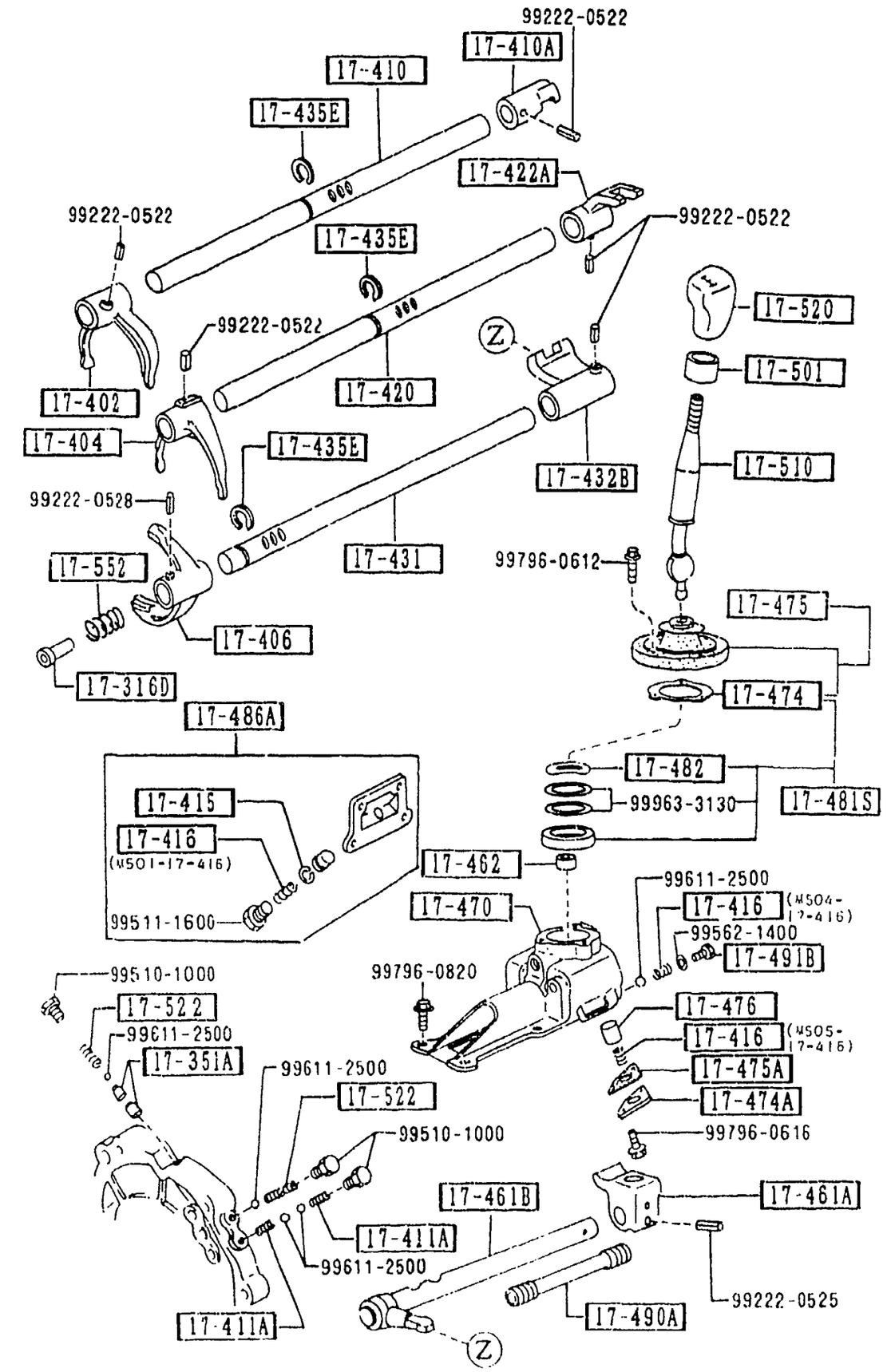
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
17-724A		SPRING,SYNCHRO.KEY			
W501-17-724	2				
17-725C		RING,SYNCHRONIZER			
V501-17-725	1				
17-732		SLEEVE,CLUTCH HUB			
W501-17-732B	1				

1720 -1 CHANGE CONTROL SYSTEM (MANUAL)

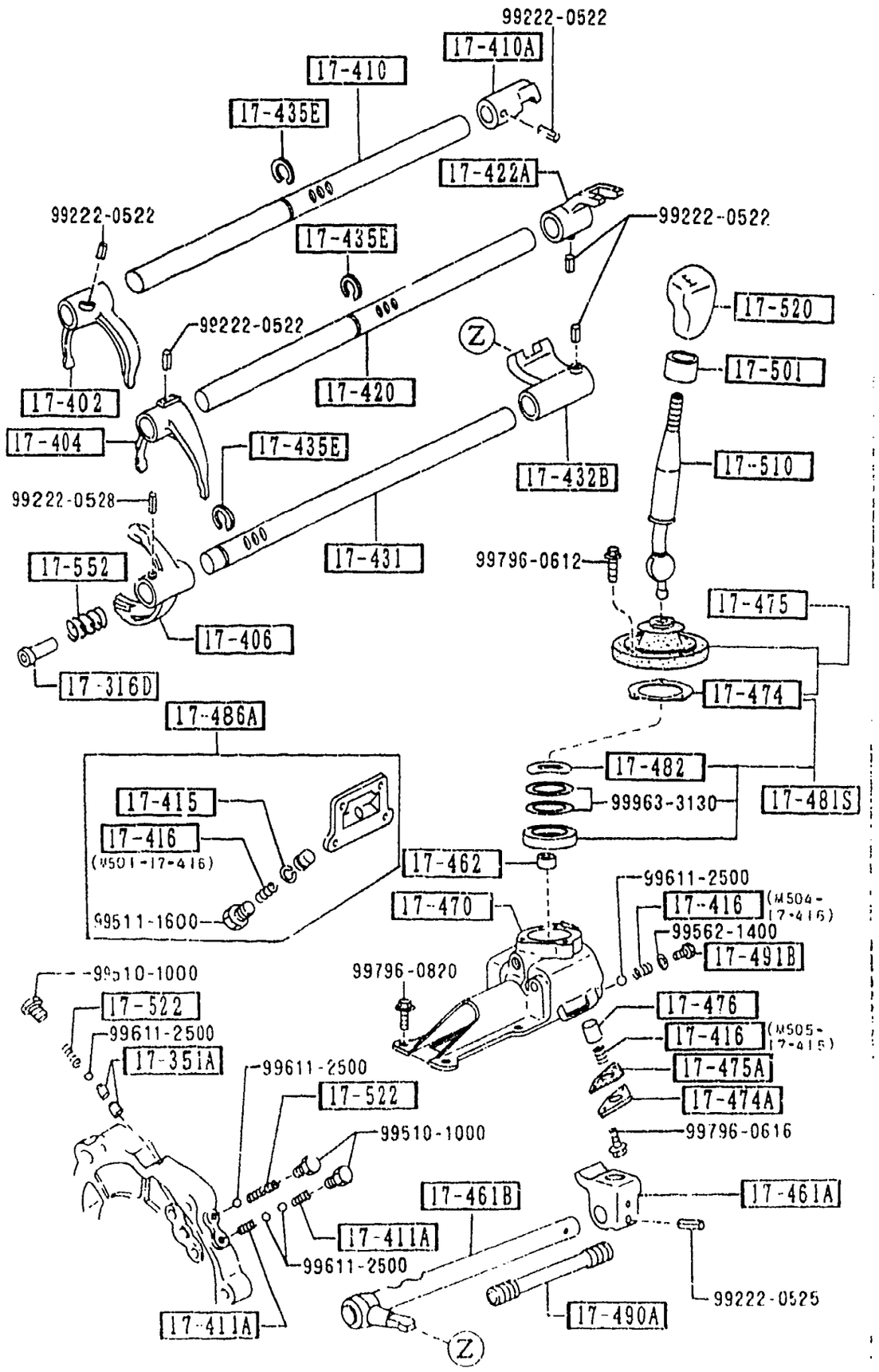


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
17-316D M504-17-316	1	SPACER			
17-351A 0114-17-351	2	PIN,INTER LOCK			
17-402 M503-17-402	1	FORK,SHIFT(1ST&2ND)			
17-404 M501-17-404B	1	FORK,SHIFT(3RD&4TH)			
17-406 M504-17-406A	1	FORK,SHIFT			
17-410 M503-17-411	1	ROD,SHIFT(1ST&2ND)			
17-410A M507-17-412	1	END,S/ROD(1ST&2ND)			
17-411A 0014-17-411	2	SPRING,SHIFT ROD-REVERSE			
17-415 3648-17-415	1	RING,RETAINING-SHIFT ROD END			
17-416 M501-17-416	1	SPRING,SHIFT ROD END			
M504-17-416	1				
M505-17-416	1				
17-420 M503-17-421	1	ROD,SHIFT(3RD&4TH)			
17-422A M507-17-422	1	END,S/ROD(3RD&4TH)			
17-431 M506-17-431A	1	ROD,SHIFT-OVER TOP & REVERSE			

1720 -2 CHANGE CONTROL SYSTEM (MANUAL)

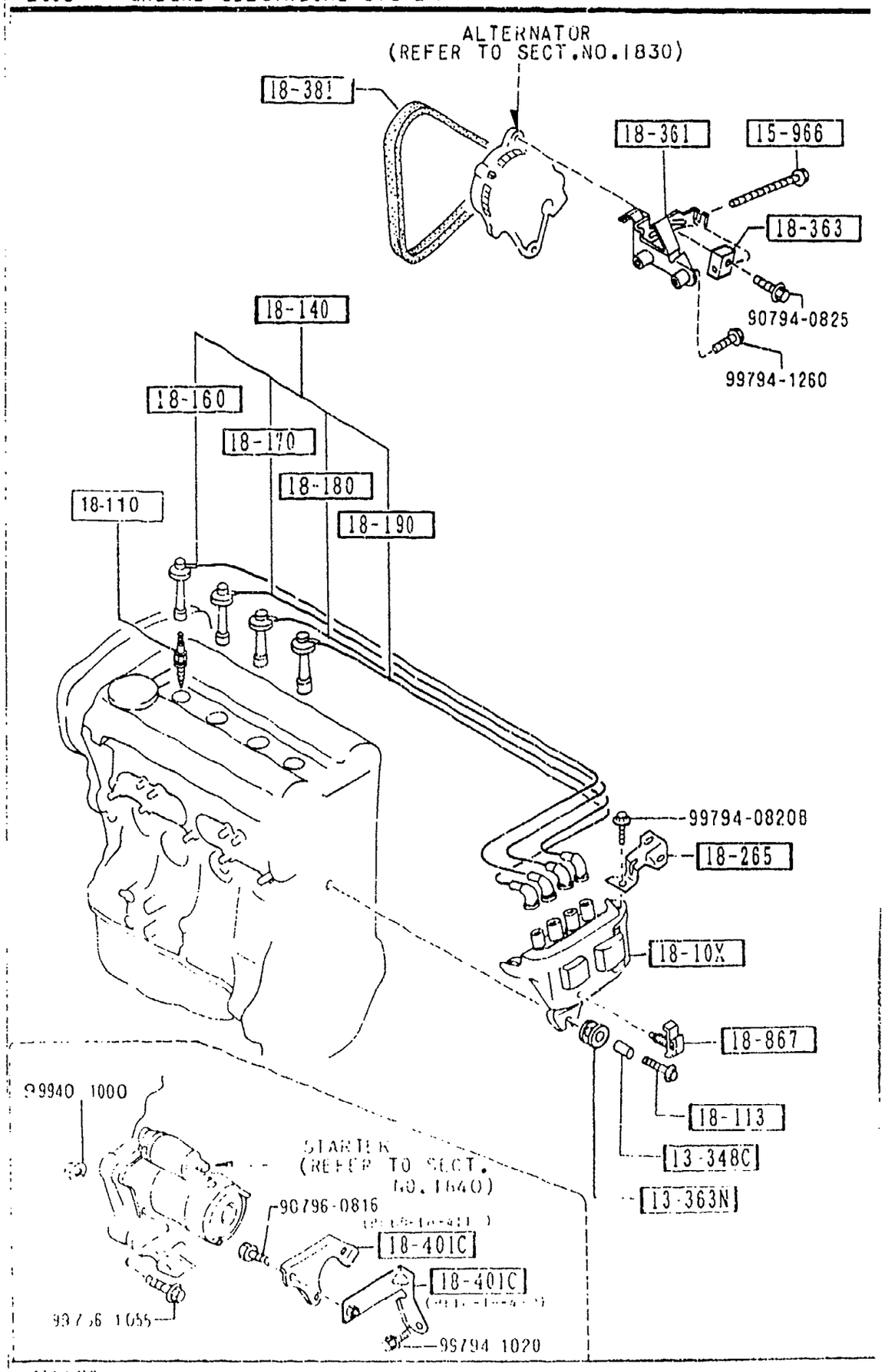


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
17-432B M508-17-432	1	END,SHIFT ROD(O/TOP&REV.)			
17-435E R502-17-435	3	RING,RETAINING			
17-461A M508-17-461	1	END,CONTROL LEVER			
17-461B M516-17-450	1	ROD,CONTROL			
17-462 0398-17-462A	1	SHEET,SPRING			
17-470 M510-17-470C	1	CASE,CHANGE CONTROL			
17-474 0303-17-474	1	GASKET,COVER PLATE			
17-474A M501-17-474	1	CAP,SPRING			
17-475 M514-17-480A	1	BOOT,DUST-CHANGE LEVER			
17-475A M501-17-475	1	GASKET,SPRING CAP			
17-476 M502-17-476A	1	SPINDLE,SELECT LOCK			
17-481S M505-99-178	1	BUSH SET,CHANGE LEVER			
17-482 M505-17-482	1	WASHER,WAVE-CHANGE CONT.CASE			
17-486A R501-17-47X	1	COVER,BLIND			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM·TO
17-490A M504-17-490A	1	COVER,ROD			
17-491B 0183-17-491	1	CAP,SPRING			
17-501 M501-17-501	1	INSULATOR,CHG LEVER			
17-510 M524-17-510A A (M524-17-510B)	1	LEVER,CHANGE			-2101
M524-17-510B	1				2101-
17-520		KNOB,CHANGE LEVER			
M515-17-520	1	BASE, (URETHANE)			
00	INT-	NA0 NA1 NA2 BLACK			
M517-17-520	1	V-SPECIAL, (WOOD)			0B01-
17-522 *0103-17-411	2	SPRING 5TH & REVERSE			
17-552 M504-17-552	1	SPRING			

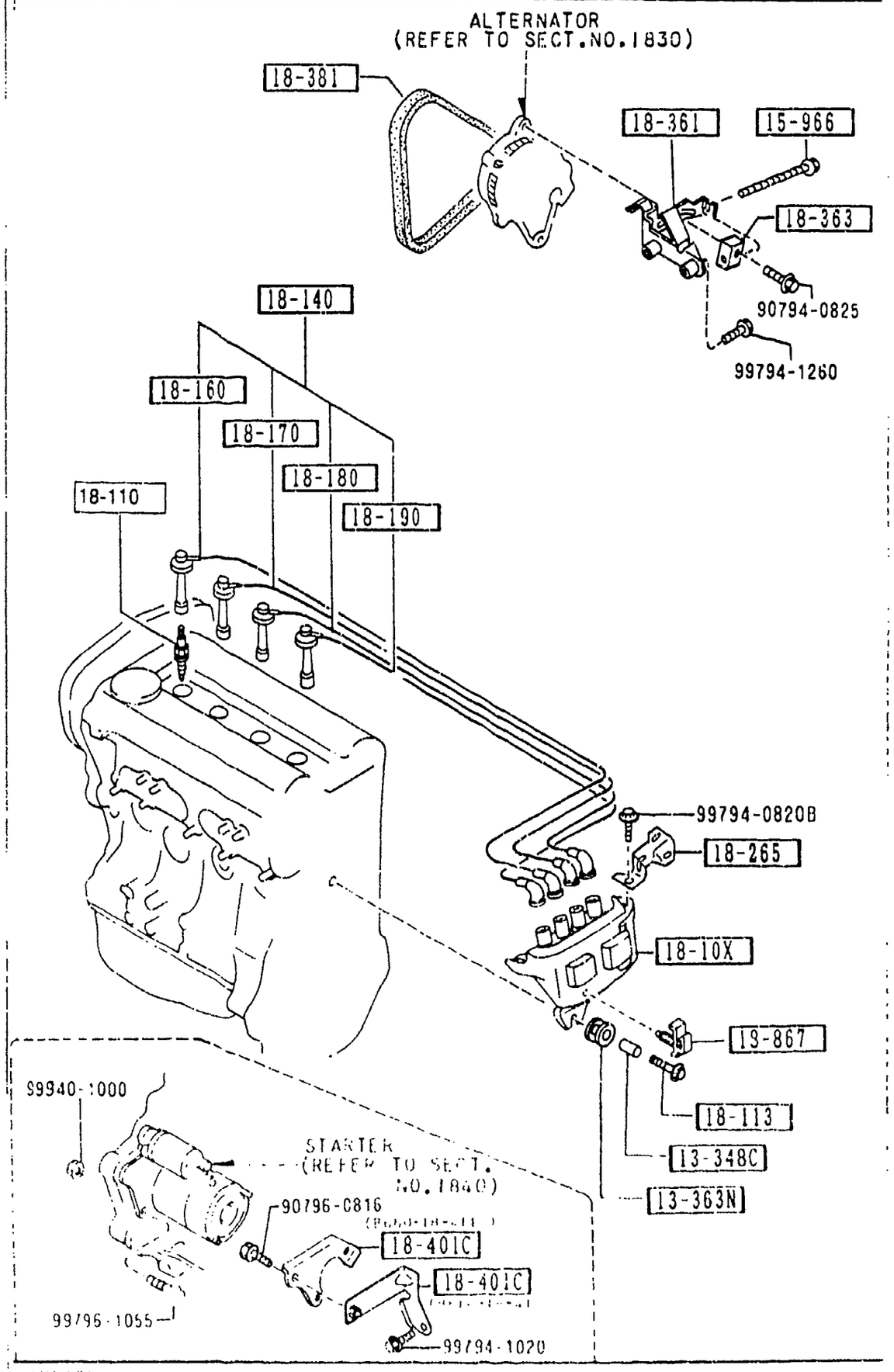
0B01 NA35**-217311
2101 NA35**-313937



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
13-348C		SPACER			
B61P-13-348	1				
13-363N		RUBBER,MOUNTING			
B61P-13-363A	1				
15-966		BOLT,ADJUST			
FE38-15-966	1				
18-10X		COIL & IGNITER			
B61P-18-10XC	1				-1801
B61P-18-10XD	1				1801-
18-110		PLUG,SPARK			
BP01-18-110	4	BKR5E-11 NGK (OPTION HOT TYPE)			
BP02-18-110	4	K16PR-U11 ND (OPTION HOT TYPE)			
BP03-18-110	4	BKR6E-11 NGK (STD.)			
BP04-18-110	4	K20PR-U11 ND (STD.)			
BP05-18-110	4	BKR7E-11 NGK (OPTION COLD TYPE)	"		
BP06-18-110	4	K22PR-U11 ND (OPTION COLD TYPE)			
18-113		BOLT			
B61P-18-1A5A	1				
18-140		CORD SET,HI.TENSION			
B61P-18-140B	1				-1129
B61P-18-140C	1				1129-
18-160		CORD NO.1,HI.TENSION			
B61P-18-160B	1				-1129
B61P-18-160C	1				1129-
18-170		CORD NO.2,HI.TENSION			
B61P-18-170B	1				

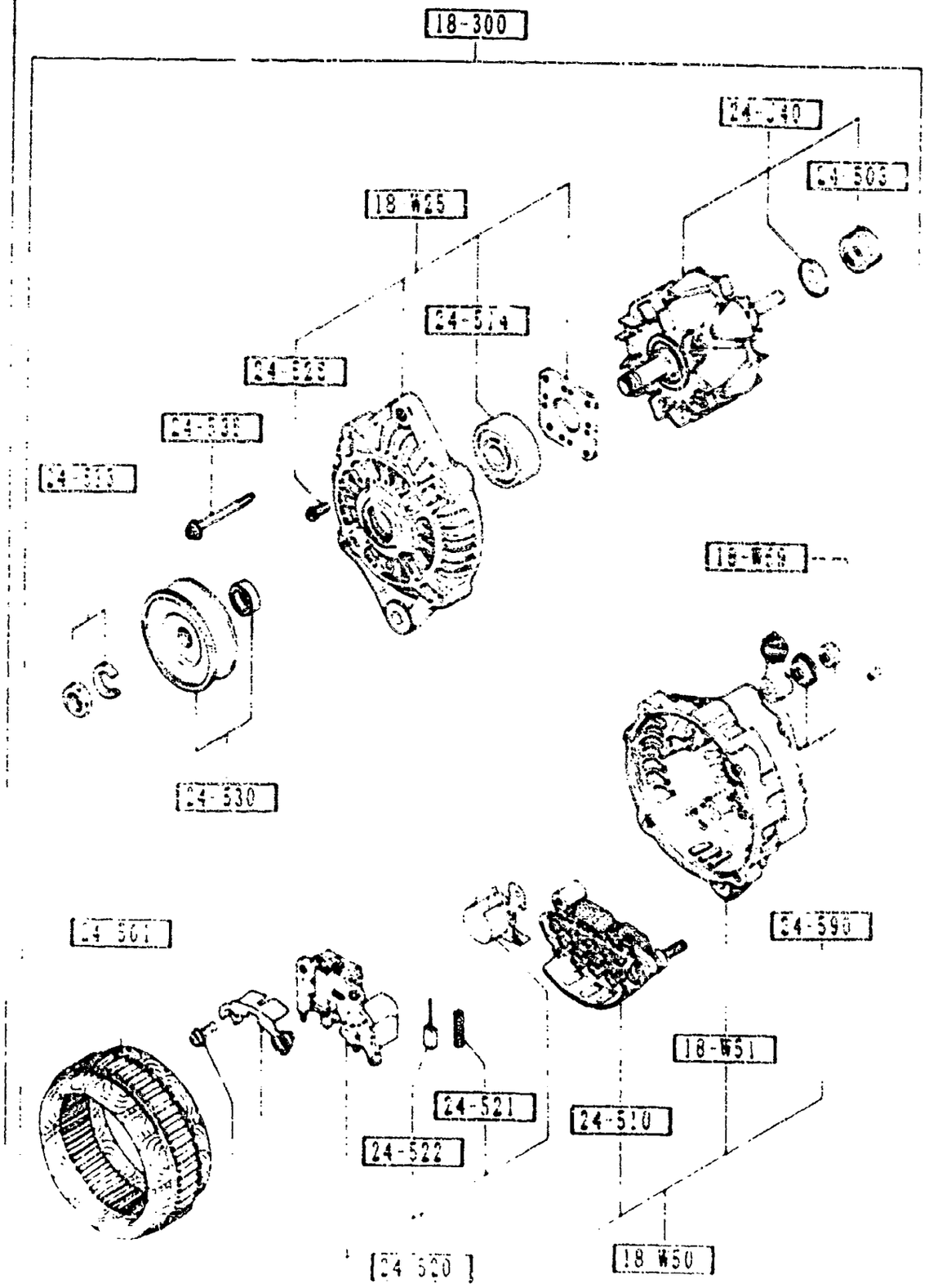
1129 NA35**-227553
1801 NA35**-235561

1800 ENGINE ELECTRICAL SYSTEM



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
18-180		CORD NO.3,HI.TENSION			
B61P-18-180B	1				
18-190		CORD NO.4,HI.TENSION			
B61P-18-190B	1				-1129
B61P-18-190C	1				1129-
18-265		CLIP,COUPLER			
B61R-18-266A	1				
18-361		STRAP,ALTERNATOR			
B61P-18-360A	1				
18-363		SPACER,STRAP			
F201-18-363	1				
18-381		BELT'V'			
B6S7-18-381B	1	AUTO-FLEX-3 A-34.7			
18-401C		BRACKET,STARTER			
B61P-18-410	1				
B660-18-411C	1				
18-867		CLIP			
FE30-18-867A	1				

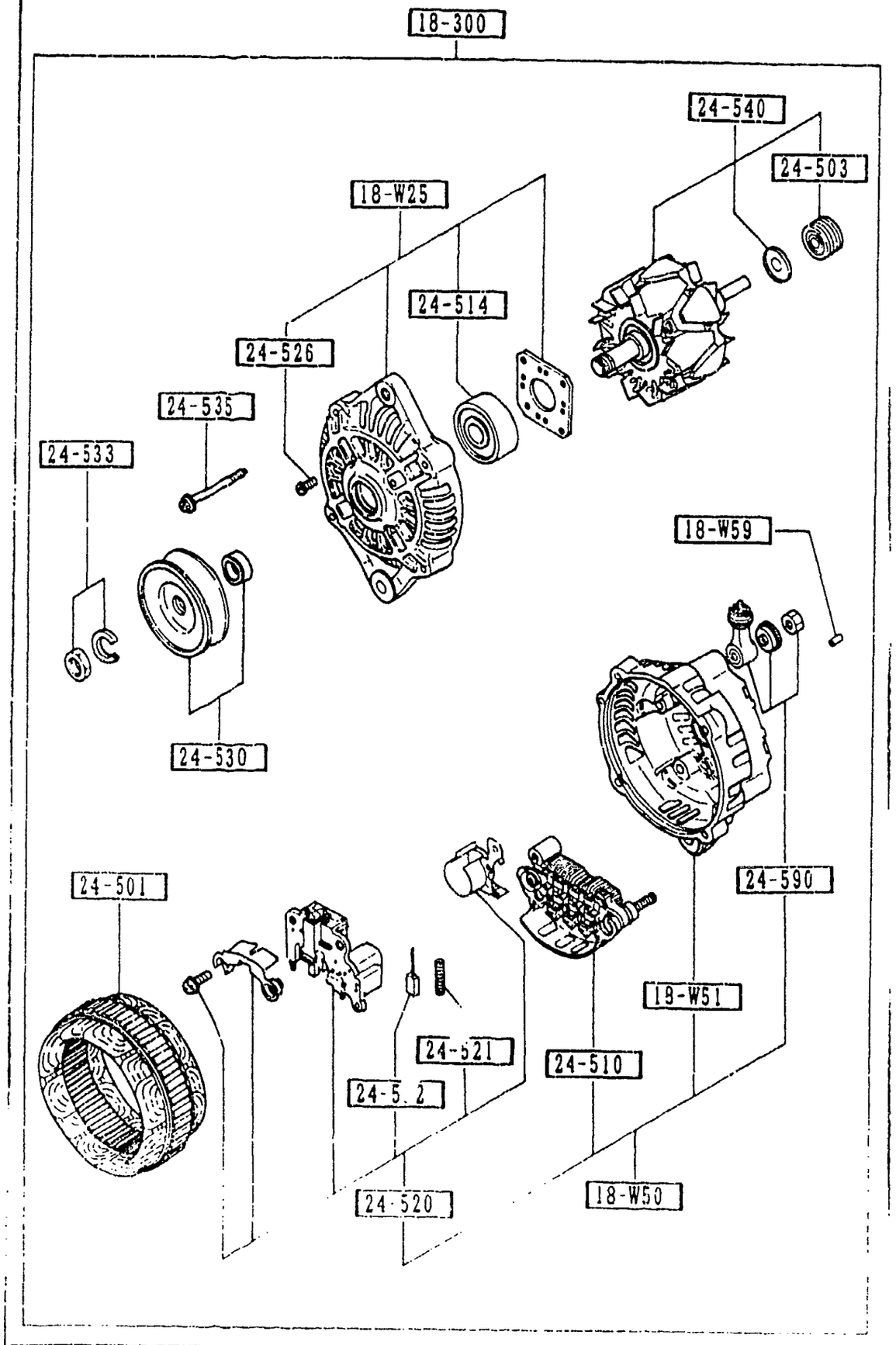
1129 NA35**-227553



PART NO.	QTY	MODEL RESTRICTION	MODEL RESTRICTION	MODEL RESTRICTION	FROM TO
18-W25		COVER,FRONT-ALTERNATOR			
B61P-18-W25	1				-0819
B64J-18-W25	1				0819-
18-W50		COVER,REAR-ALTERNATOR			
B61P-18-W50	1	(MT)			-0819
B64J-18-W50	1	(AT)			-0819
B61P-18-W50A	1	(MT)			0819-
B64J-18-W50A	1	(AT)			0819-
18-W51		COVER,REAR-ALTERNATOR			
B366-18-W51	1				-0819
B3C7-18-W51	1				0819-
18-W59		PLUG			
B675-18-W59	1				-0819
18-300		ALTERNATOR			
B61P-18-300D A (B61P-18-300E)	1				-0819
B64J-18-300A A (B64J-18-300B)	1				0819
B61P-18-300E	1	(MT)			0819-
B64J-18-300B	1	(AT)			0819
24-501		STATOR			
B1GE-18-W45	1	(AT)			
G608-18-W45	1	(MT)			-0819
B3C7-18-W45	1	(MT)			0819 1A01
G608-18-W45	1	(MT)			1A01-
24-503		BEARING,BALL-ALT REAR			
N336-18-W36	1				
24-510		RECTIFIER			
B366-18-W60	1	(AT)			-0819
B61P-18-W60	1	(MT)			0819
B61R-18-W60	1	(MT)			0819-
B64J-18-W60	1	(AT)			0819-

0819 NA35■■-219322
1A01 NA35■■-303526

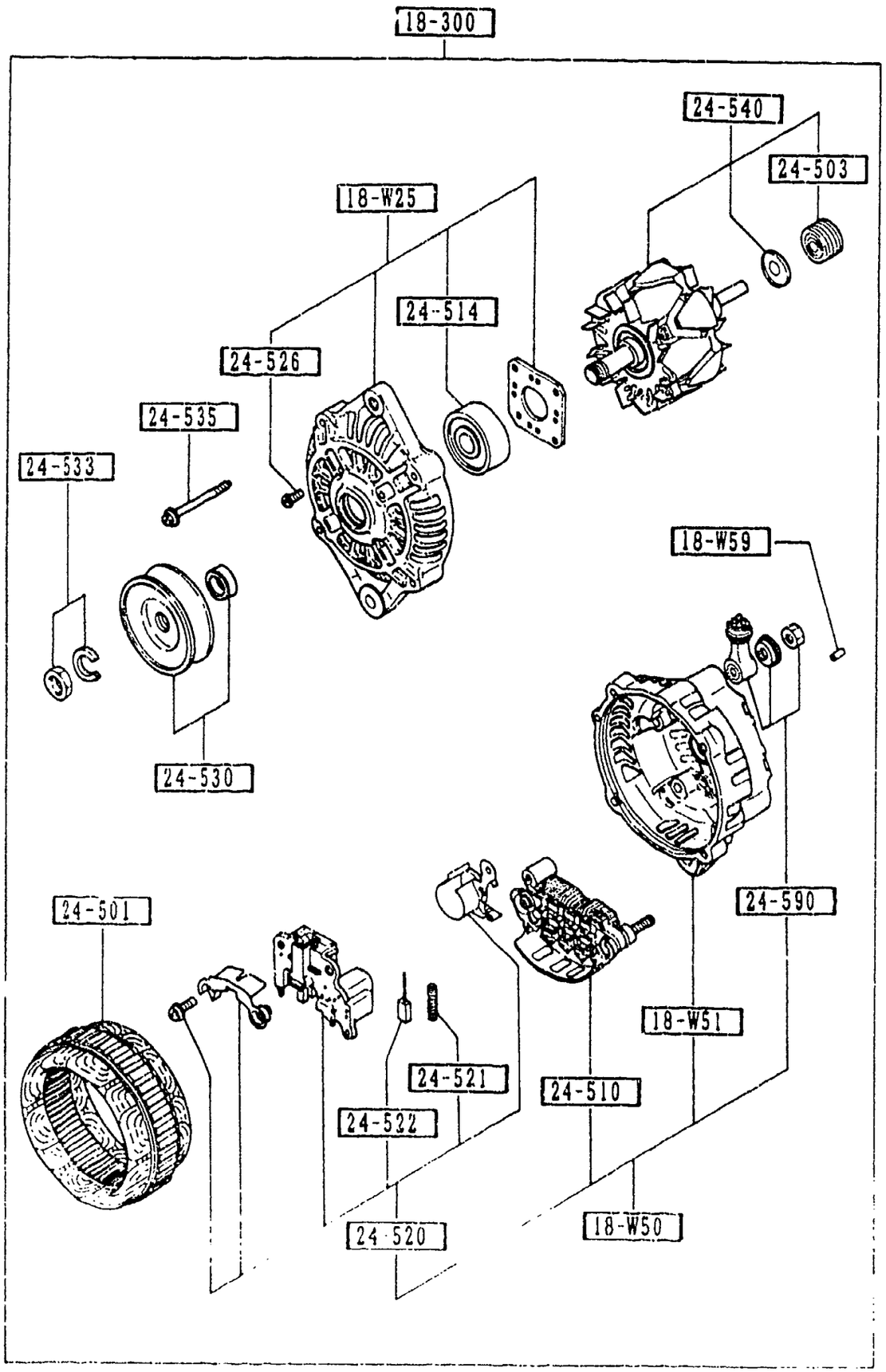
1830 -2 ALTERNATOR



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
24-514		BEARING,BALL-ALT. FRONT			
F811-18-W27	1				-0B19
PN16-18-W27	1				0B19-
24-520		REGULATOR,VOLTAGE			
B61P-18-W70	1				-0B19
B64J-18-W70 A (B64J-18-W70A)	1				0B19-1926
B64J-18-W70A	1				1926-
24-521		SPRING,BRUSH			
8599-24-521	2				-0B19
24-522		BRUSH			
FE2H-18-W77	2				-0B19
B3C7-18-W77	2				0B19-
24-526		SCREW SET			
RF71-18-W26	1				
24-530		PULLEY			
B366-18-W10	1				-0B19
B61P-18-W10	1				0B19-
24-533		NUT SET			
8028-24-533	1				-0B19
B3C7-18-W05	1				0B19-
24-535		SCREW SET			
RF71-18-W20	1				
24-540		ROTOR			
B366-18-W35A	1	(AT)			-0B19
B61P-18-W35	1	(MT)			-0B19
B64J-18-W35 A (B64J-18-W35A)	1				0B19-1921
B61R-18-W35 A (B61R-18-W35A)	1				0B19-1926
B64J-18-W35A	1	(AT)			1921-
B61R-18-W35A	1	(MT)			1926-

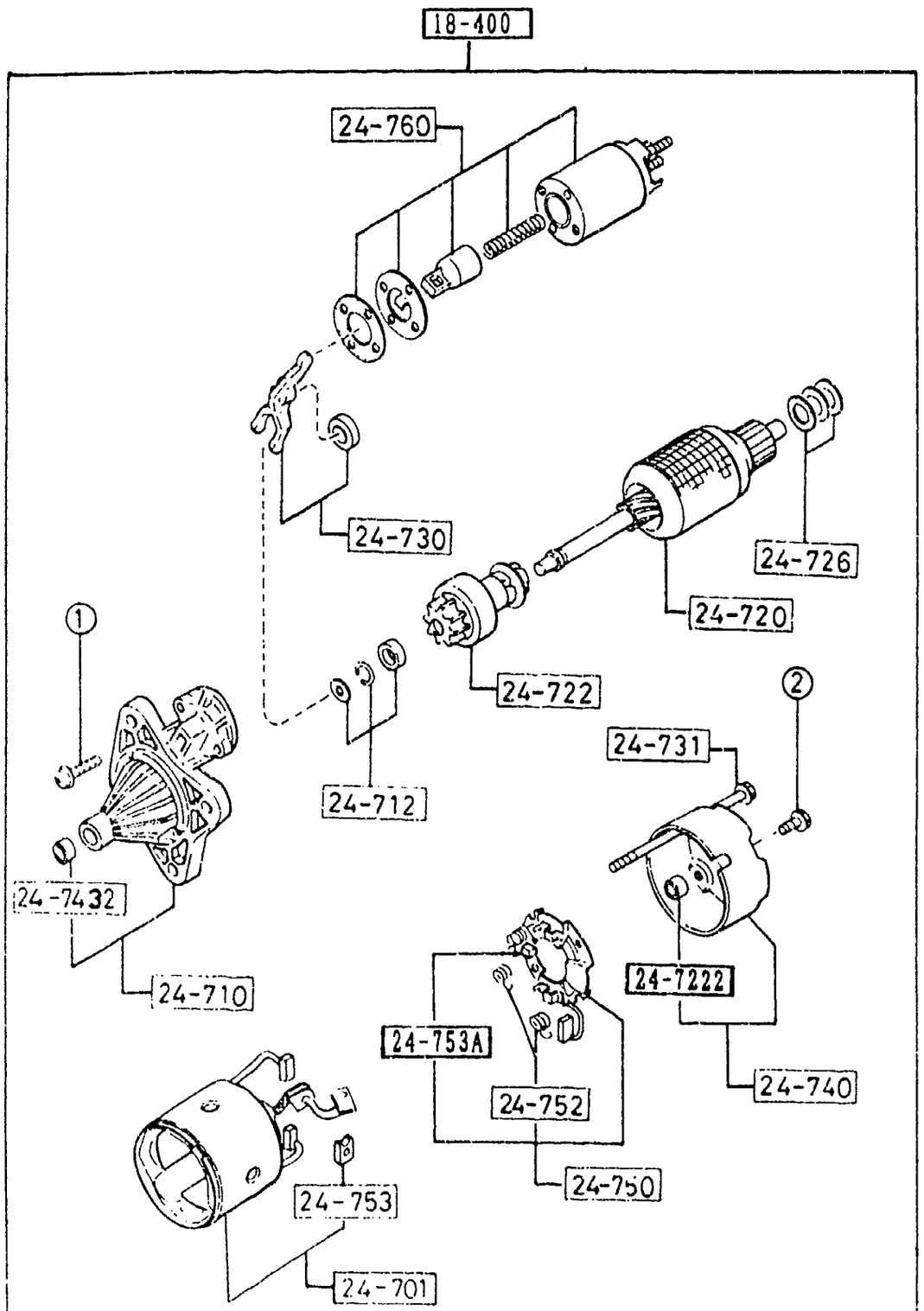
0B19 NA35**-219322
1921 NA35**-303526
1926 NA35**-303526

1830 ALTERNATOR



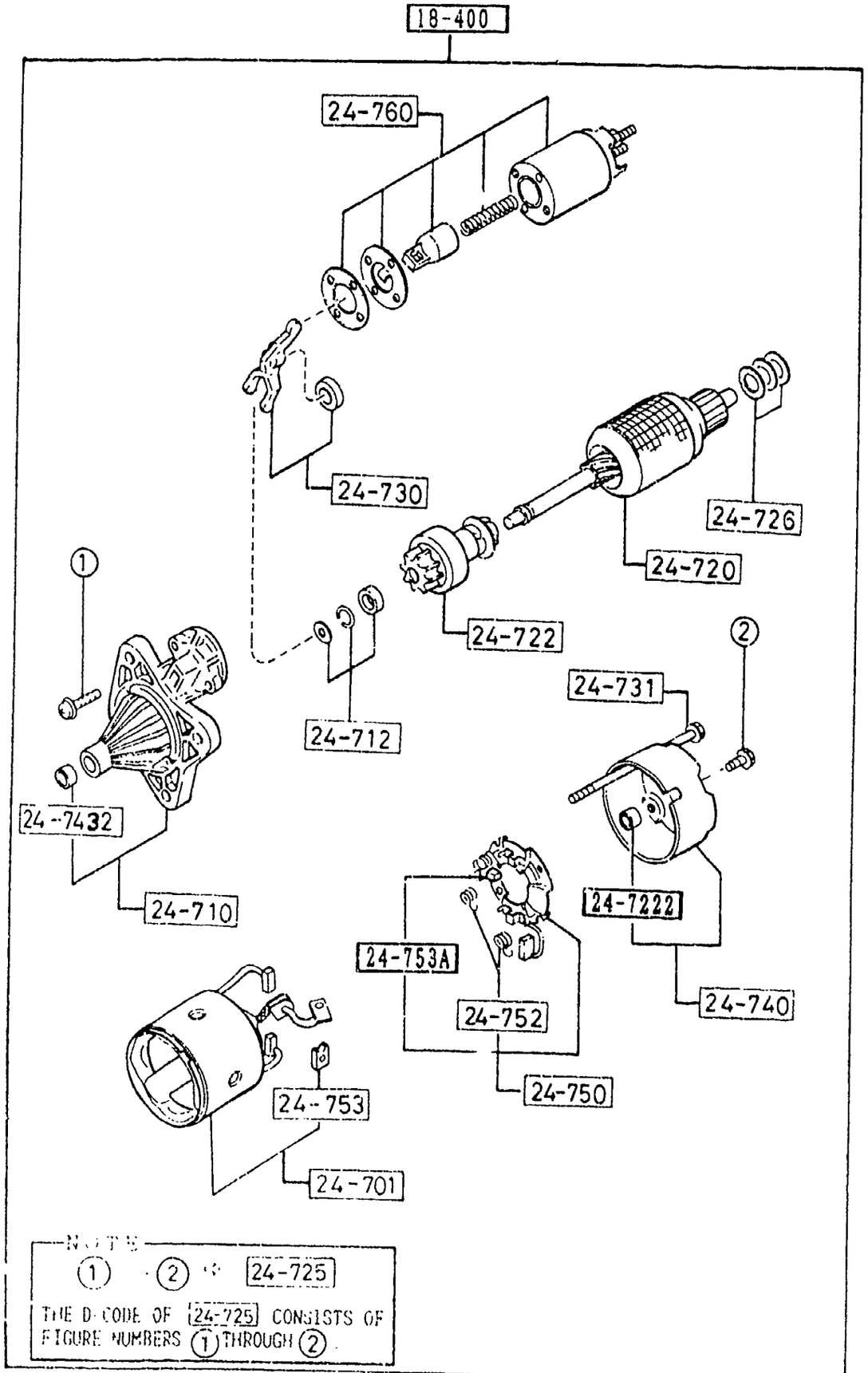
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
24-590		TERMINAL SET			
N337-18-W80	1				

1840 -1 STARTER



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
18-400		STARTER			
B61R-18-400A	1	NON ASBESTOS			
24-701		YOKE			
B61R-18-X65	1				
24-710		BRACKET,FRONT			
B61R-18-X00	1				
24-712		STOPPER SET			
E356-18-X30	1				
24-720		ARMATURE			
B6S8-18-X60	1	NON ASBESTOS			
24-722		CLUTCH,OVER RUNNING			
B630-18-X45	1				
24-7222		SLEEVE,BEARING-REAR			
E356-18-X81	1				
24-725		SCREW SET			
E356-18-X95	1				
24-726		WASHER SET			
E356-18-X92	1				
24-730		LEVER			
E356-18-X05	1				
24-731		BOLT SET			
B630-18-X90	2				
24-740		BRACKET,REAR			
E356-18-X80	1				
24-7432		SLEEVE,BEARING-FRONT			
F210-18-X01	1				

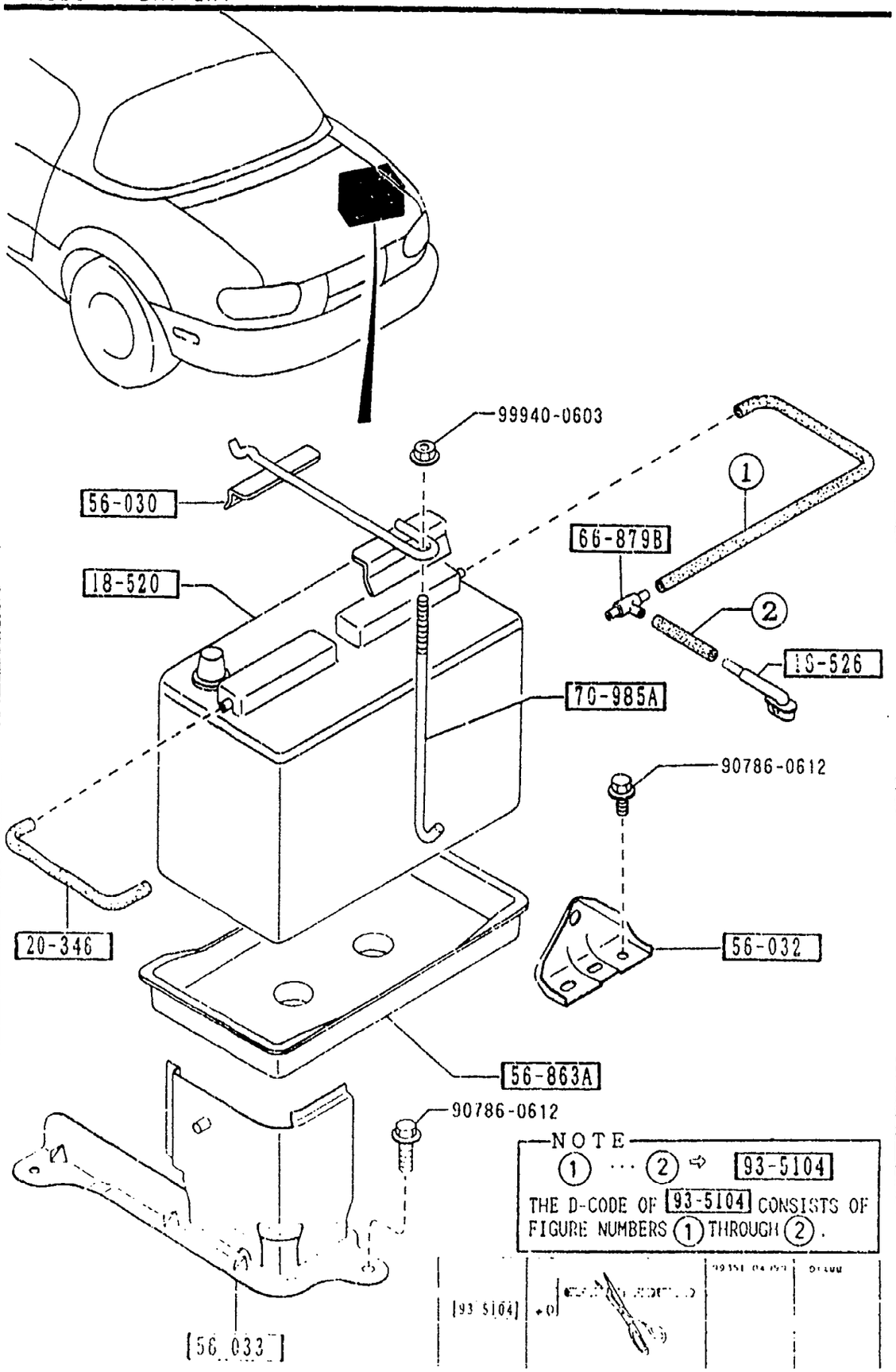
1840 STARTER



NOTES
① · ② * 24-725
THE D-CODE OF 24-725 CONSISTS OF FIGURE NUMBERS ① THROUGH ②.

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
24-750		HOLDER,BRUSH			
B61R-18-X70	1				
24-752		SPRING,BRUSH			
0222-24-752A	4				
24-753		BRUSH,YOKE			
B630-18-X66	2				
24-753A		BRUSH			
B660-18-X66	2				
24-760		SWITCH			
E356-18-X10	1				

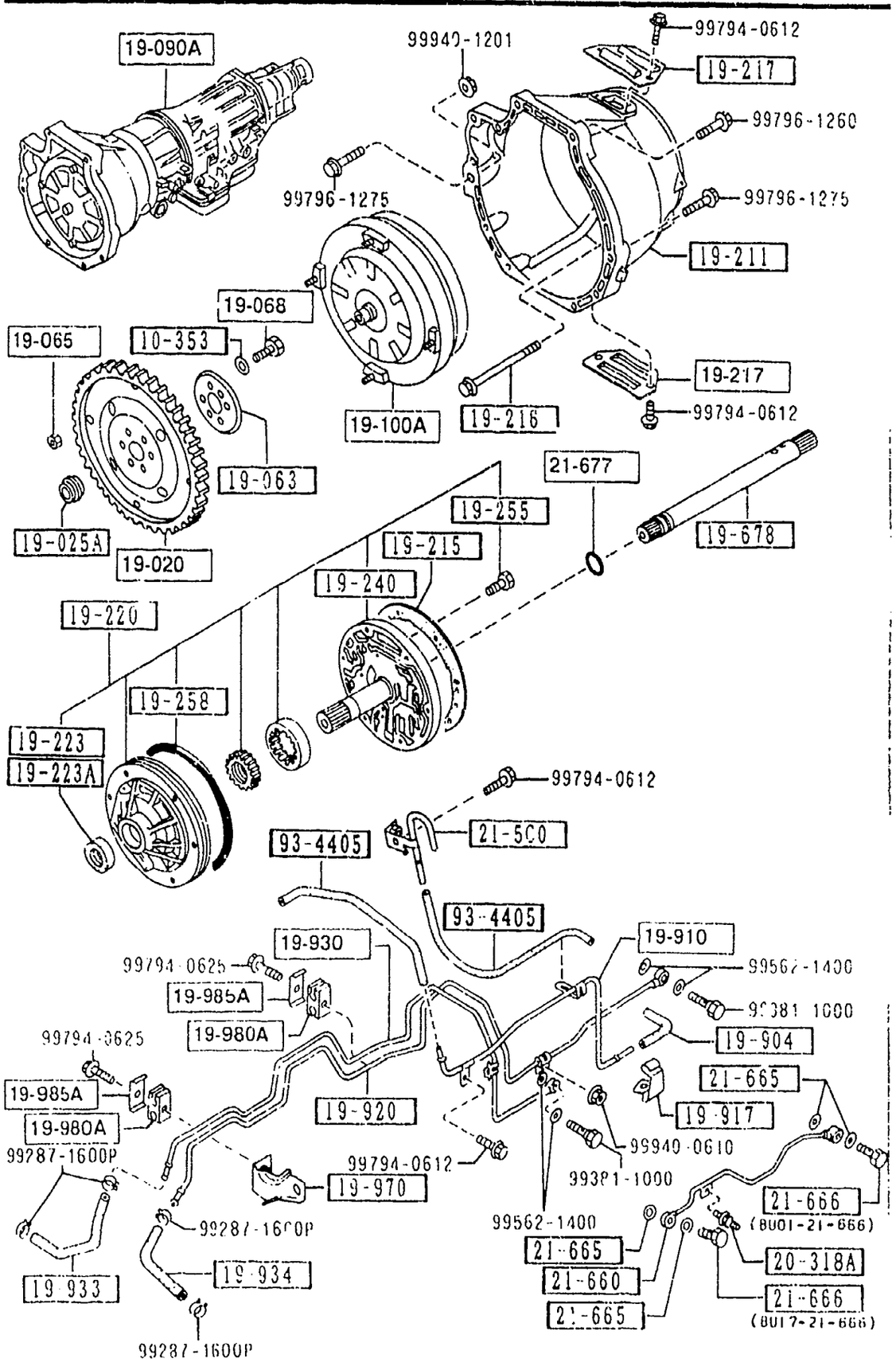
1850 BATTERY



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
18-520		BATTERY			
B61R-18-520B A (B61R-18-520C)	1	S46A24L(S) PANASONIC			-1301
B61R-18-520C	1	S46A24L(S) PANASONIC			1801-1B01
B6AC-18-520	1	S46A24L(S) PANASONIC			1801-
18-526		CONNECTOR,TUBE-BATTERY			
B61P-18-526	1				
20-346		TUBE,VACUUM			
B61P-18-524	1				
56-030		CLAMP,BATTERY			
NA01-56-03XA	1				
56-032		BRACKET,BATTERY CLAMP			
NA01-56-032A	1				
56-033		BRACKET,STOPPER-BATTERY			
NA01-56-033A	1				
56-863A		TRAY,BATTERY			
B095-56-032	1				
66-879B		JOINT			
0813-66-879	1				
70-985A		BOLT,CLAMP			
0259-54-292A	1				
93-5104		HOSE			
99351-04999	1				

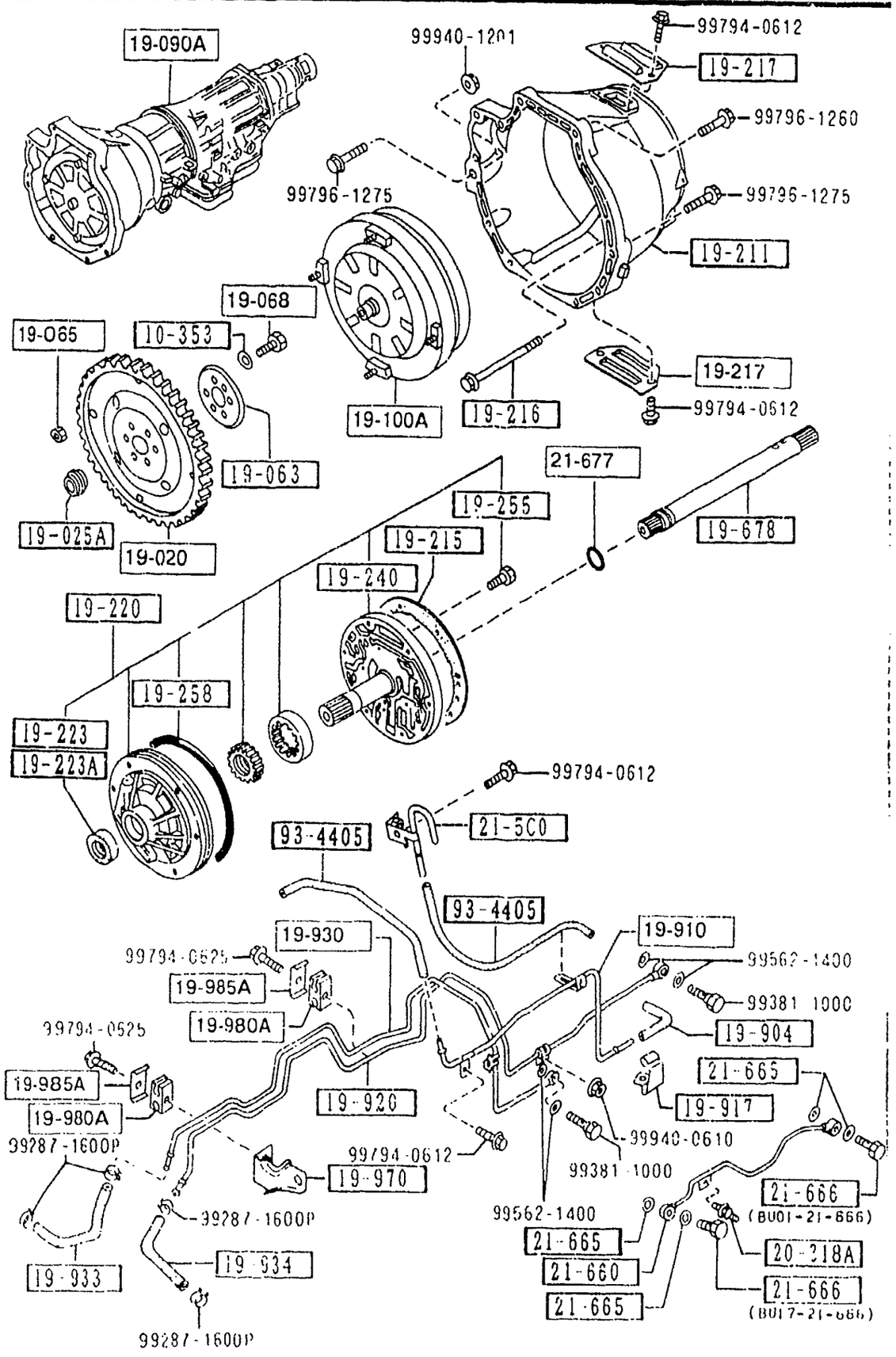
1801 NA35**-235561
1B01 NA35**-306993

1910 TORQUE CONVERTER,OIL PUMP & PIPINGS (AUTOMATIC)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
10-353 0290-10-353	6	WASHER,PLAIN			
19-020 BU55-19-020	1	PLATE,DRIVE			
19-025A FU60-19-025	1	ADAPTER,DRIVE PLATE			
19-063 FT31-19-063	1	PLATE,BACKING			
19-065 FU51-19-065	4	NUT			
19-068 FT31-19-064	6	BOLT,LOCK			
19-090A BUY2-19-090A	1	T/MISSION CPT.			
19-100A BU55-19-100	1	CONVERTER,TORQUE			
19-211 BU55-19-211	1	HOUSING,CONVERTER			
19-215 BU01-19-215	1	GASKET,OIL PUMP ASBESTOS			
19-216 BU01-19-216	6	BOLT			
19-217 BU55-19-217	2	COVER,BLIND			
19-220 BU55-19-220 AN(BU55-19-220A)	1	PUMP,OIL			-1A01
BU55-19-220A	1				1A01-

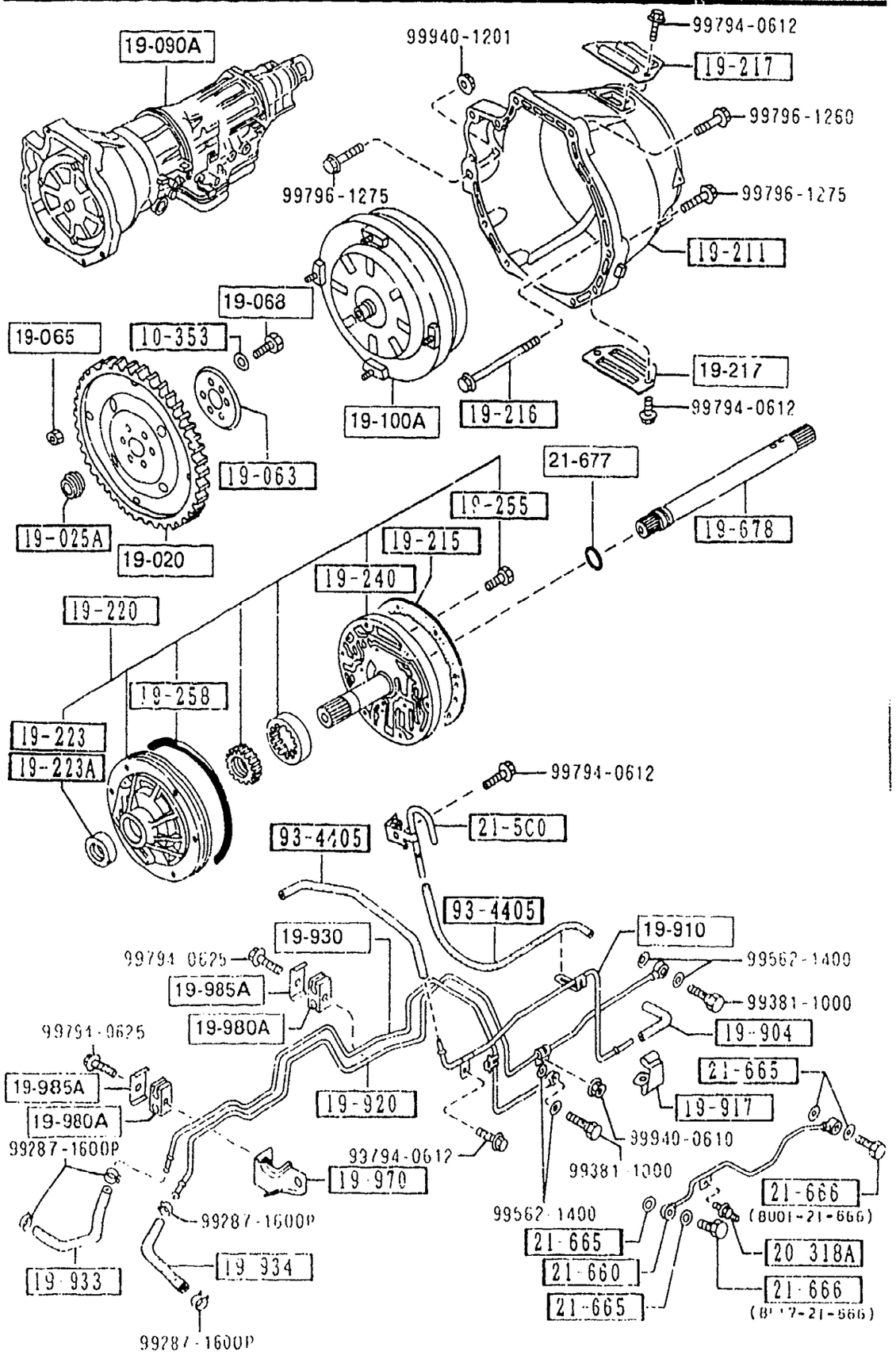
1A01 NA35**-303925



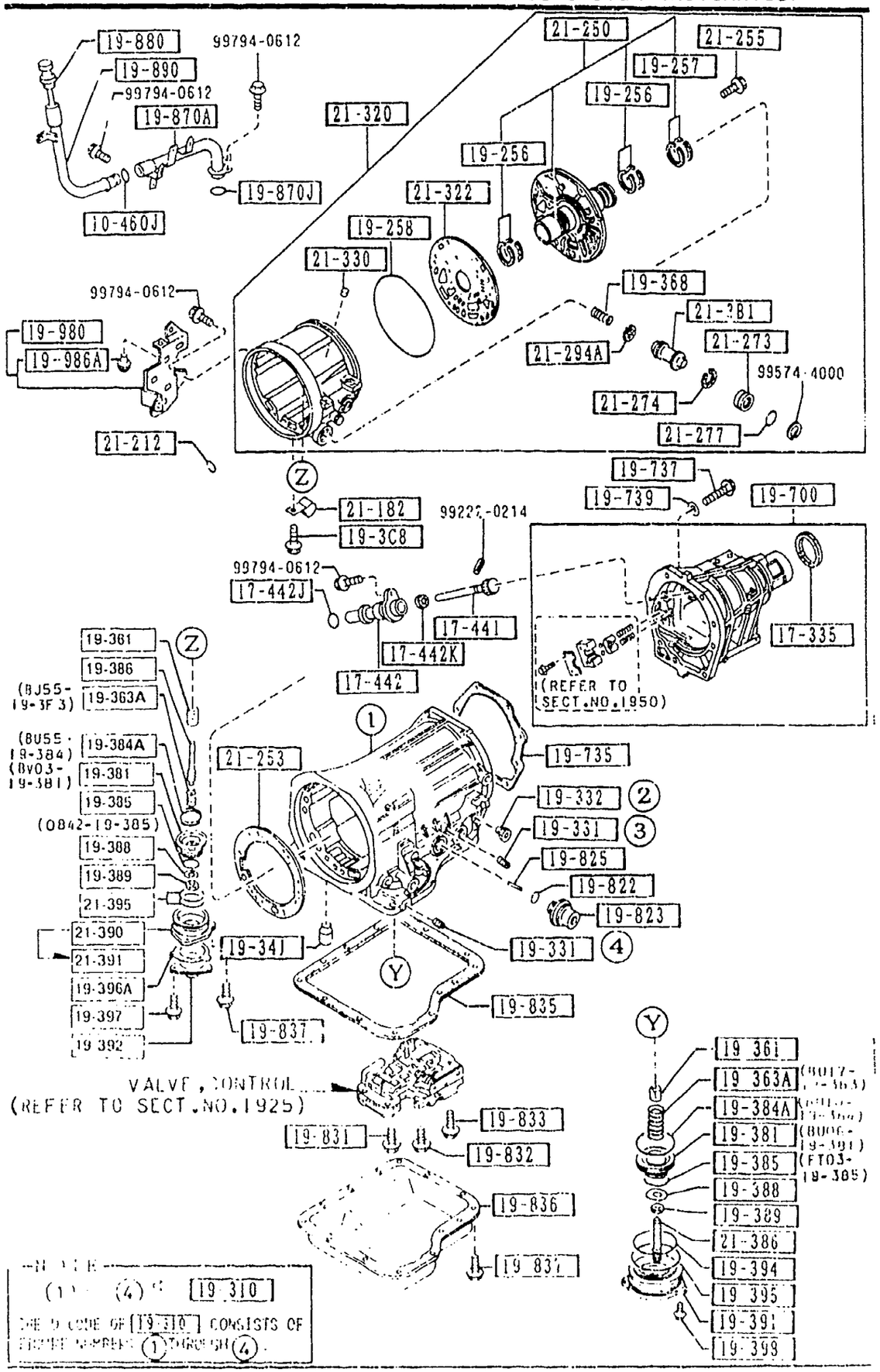
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-223		SEAL,OIL			
*BU55-19-223	1	JATCO			
19-223A		SEAL,OIL			
0338-19-223A	1	NOK			
19-240		COVER,OIL PUMP			
BU55-19-240 AN(BU55-19-240A)	1				-1A01
BU55-19-240A	1				1A01-
19-255		BOLT			
0338-19-255	5				
19-258		SEAL,CUT RING			
0338-19-258	1				
19-678		SHAFT,INPUT			
BU55-21-678	1				
19-904		HOSE,VACUUM			
0338-19-904A	1				
19-910		PIPE,VACUUM			
BU55-19-910A	1				
19-917		CLIP			
BU17-19-917	1				
19-920		PIPE,OIL			
BU55-19-920C	1				
19-930		PIPE,OIL			
BU55-19-930C	1				
19-933		HOSE,OIL			
BU55-19-933A	1				
19-934		HOSE,OIL			
BU55-19-934A	1				

1A01 NA35**-303925

1910 TORQUE CONVERTER,OIL PUMP & PIPINGS (AUTOMATIC)



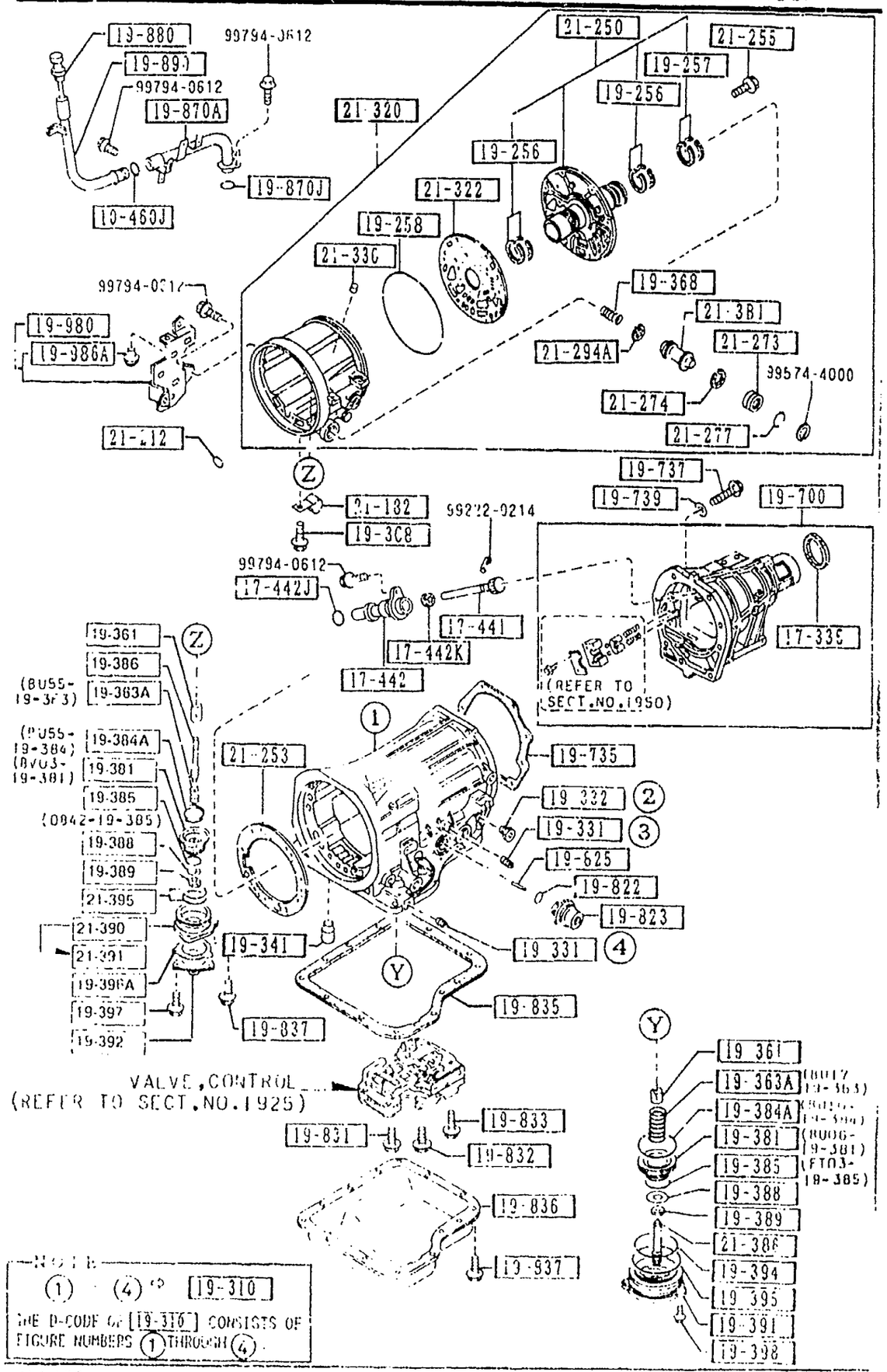
PART NO.	QTY	MODEL RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-970		BRACKET			
BU55-19-970A	1				
19-980A		SUPPORT,OIL PIPE			
BU29-19-980	2				
19-985A		CLIP,OIL PIPE			
BU29-19-985	2				
20-318A		BOLT			
BU27-19-838	1				
21-5C0		BREATHER			
BU55-21-5C0A	1				
21-660		TUBE,GOVERNOR			
BU55-21-660	1				
21-665		WASHER,SEAL			
BU01-21-665	4				
21-666		BOLT,CONNECTOR			
BU01-21-666	1				
BU17-21-666	1				
21-677		RING,'O'			
BU01-21-677	1				
93-4405		HOSE			
99344-05150	1				



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
10-460J		RING,'O'			
99541-01201	1				
17-335		SEAL,OIL			
M507-17-335 A (M507-17-335A)	1				-2511
M507-17-335A	1				2511-
17-441		GEAR,DRIVEN			
BU55-17-441	1				
17-442		SLEEVE,SPEEDOMETER			
BU55-17-442	1				
17-442J		RING,'O'			
1011-17-443	1				
17-442K		SEAL,OIL			
99586-08166	1				
19-256		RING,SEAL			
BU01-19-256	4				
19-257		RING,SEAL			
BU01-19-257	2				
19-258		SEAL,CUT RING			
0338-19-258	1				
19-3C8		BOLT,BAFFLE PLATE			
BU55-19-3C8	1				
19-310		CASE,T/MISSION			
BU55-19-310A	1				
19-331		PLUG,SQUARE HEAD			
BV11-19-3C4	1				-1301
0338-19-331A	1				1301-
19-332		CONNECTOR,STRAIGHT			
BU01-19-332A	1				

1301 NA35**-231464
2511 NA35**-327063

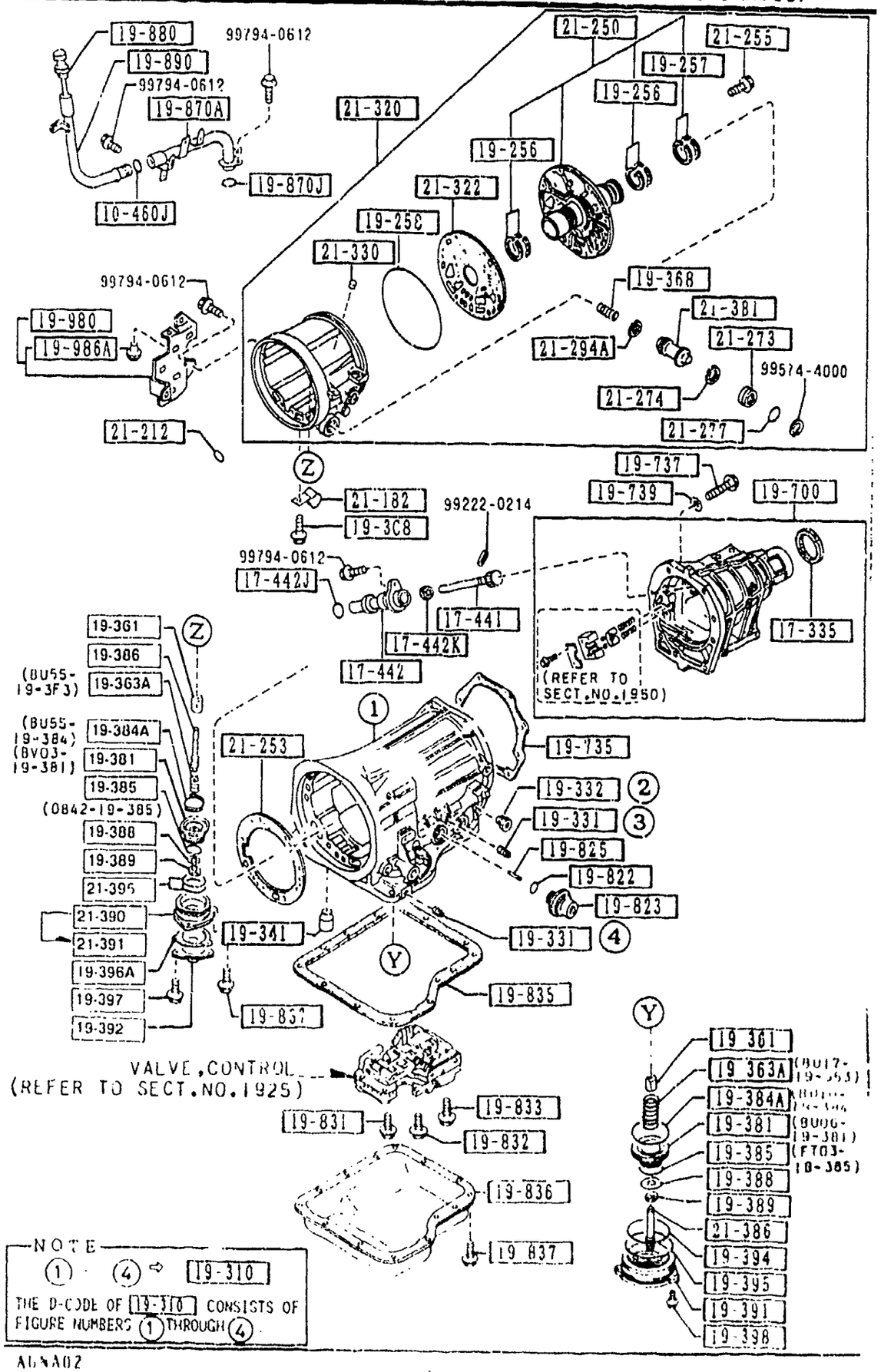
1920 TRANSMISSION CASE & MAIN CONTROL SYSTEM (AUTOMATIC)



NOTE
(1) ~ (4) : 19-310
THE D-CODE OF 19-310 CONSISTS OF FIGURE NUMBERS (1) THROUGH (4).

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-341		BOLT,ANCHOR END			
*0338-19-341	1				
19-361		STRUT,BAND			
0338-19-361B	2				
19-363A		SPRING,PISTON RETURN			
BU55-19-3F3	1				
BU17-19-363	1				
19-368		SPRING,CUSHION-PSTN. STEM			
BU20-19-368	1				
19-381		PISTON,BAND SERVO			
BU06-19-381	1				
BV03-19-381	1				
19-384A		SEAL,PISTON			
BU10-19-384	1				
BU55-19-384	1				
19-385		SEAL,PISTON			
FT03-19-385	1	D=44MM			
0842-19-385	1	D=36MM			
19-386		STEM,PISTON			
0338-19-386A	1				
19-388		WASHER,PLAIN			
0338-19-388A	2				
19-389		NUT			
0338-19-389	2				
19-391		RETAINER,SERVO			
BU06-19-391	1				
19-392		COVER,SERVO			
1758-19-392A	1				

1920 -3 TRANSMISSION CASE & MAIN CONTROL SYSTEM (AUTOMATIC)



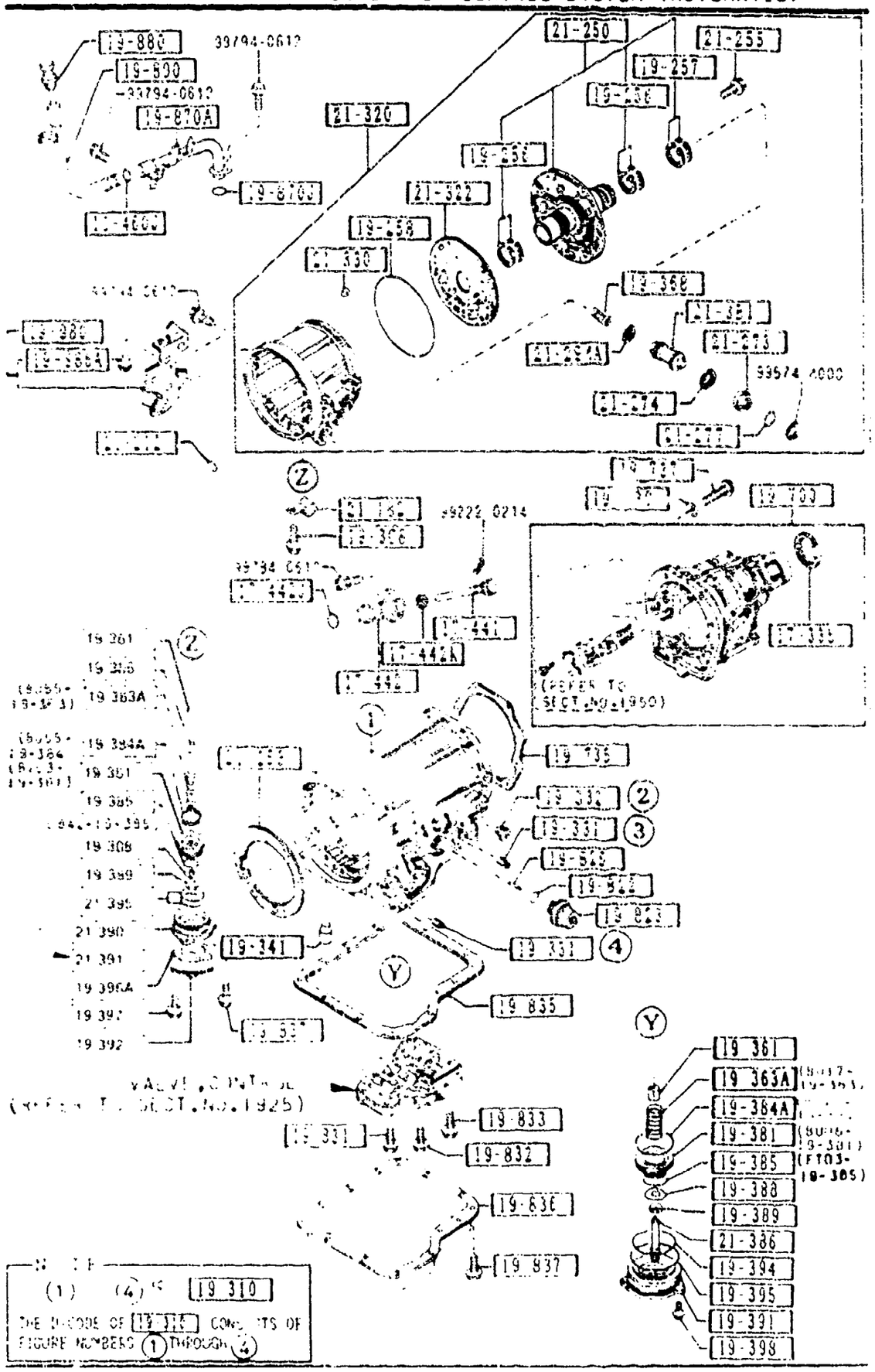
NOTE

① · ④ ⇨ 19-310

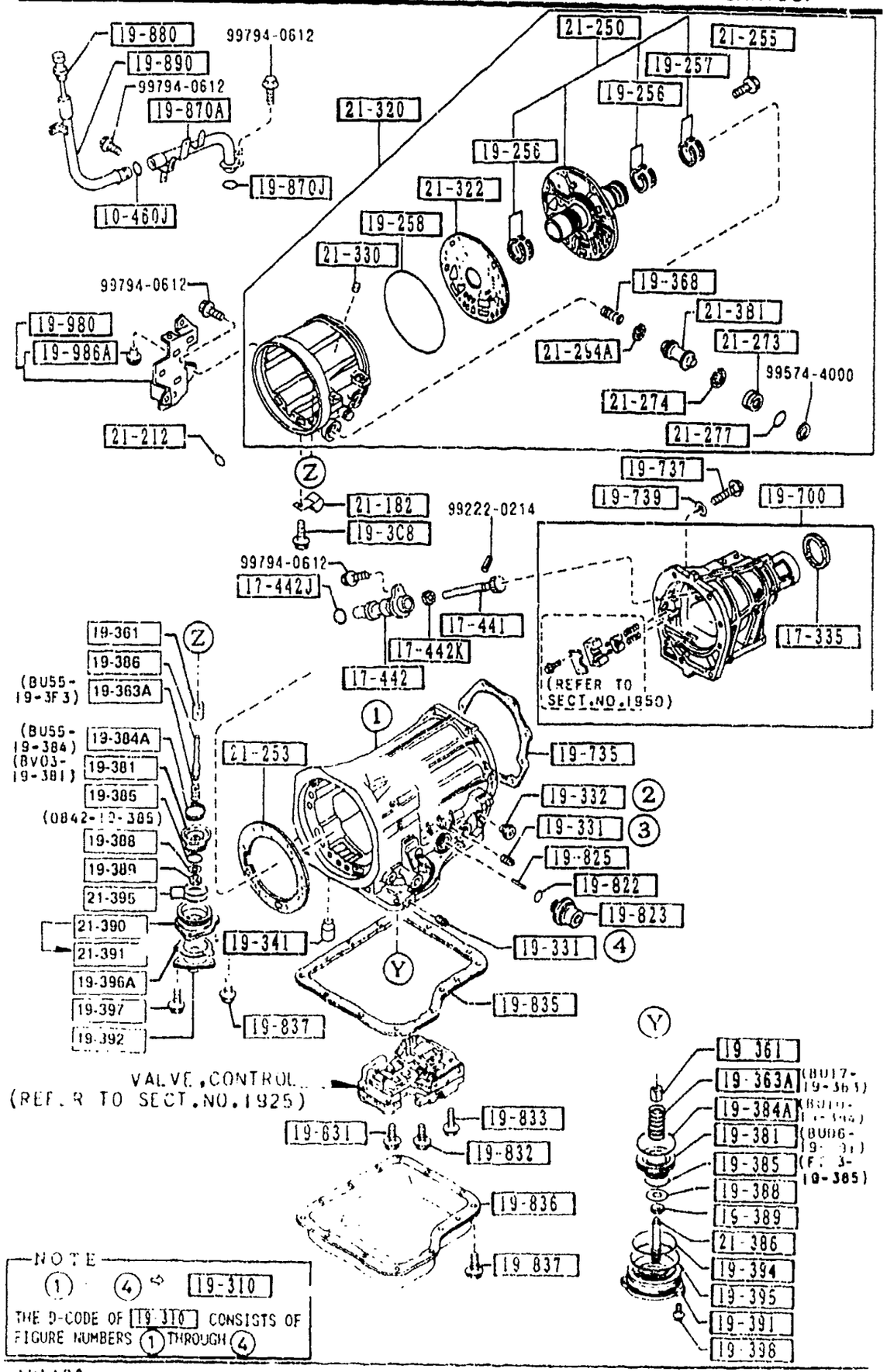
THE D-CODE OF 19-310 CONSISTS OF FIGURE NUMBERS ① THROUGH ④.

AUNA02

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-394		SEAL,LATHE CUT			
0842-19-394	1				
19-395		RING,'O'			
0338-19-395	1				
19-396A		GASKET			
1758-19-394A	1	ASBESTOS			
19-397		BOLT			
1758-19-397	3				
19-398		BOLT			
0338-19-398	3				
19-700		HOUSING,EXTENSION			
BUY2-19-7A0	1				
19-735		GASKET,EXTENSION			
0338-19-735	1	ASBESTOS			
19-737		BOLT			
0338-19-737	8				
19-739		WASHER,PLAIN			
0338-19-739	8				
19-822		SEAL,'O'RING			
0338-19-822	1				
19-823		DIAPHRAGM,VACUUM			
BU55-19-823	1				
19-825		ROD,DIAPHRAGM			
BU55-19-825	1	L=29.75MM			
0338-19-825	1	L=30MM			
0336-19-826	1	L=31MM			



PART NO.	QTY	MODEL RESTRICTION	MODEL RESTRICTION	MODEL RESTRICTION	REMARKS
CONT'D					
0338-19-827	1	L=30.5MM			
0338-19-828	1	L=29MM			
0338-19-829	1	L=29.5MM			
19-831		BOLT,CONTROL VALVE			
0338-19-831	2				
19-832		BOLT,CONTROL VALVE			
0338-19-832	2				
19-833		BOLT,CONTROL VALVE			
0338-19-833	3				
19-835		GASKET,OIL PAN			
0338-19-835B	1	ASBESTOS			
19-836		PAN,OIL			
0338-19-836A	1				
19-837		BOLT,OIL PAN			
0338-19-837	17				
19-870A		TUBE,FILLER			
BU55-19-870	1				
19-870J		RING,'O'			
99541-01601	1				
19-880		GAUGE,OIL LEVEL			
BU17-19-880B	1				
19-890		TUBE,OIL FILTER-UPPER			
BU55-19-890	1				
19-980		BRACKET			
BU55-19-980A	1				
19-986A		BUSH,RUBBER			



NOTE

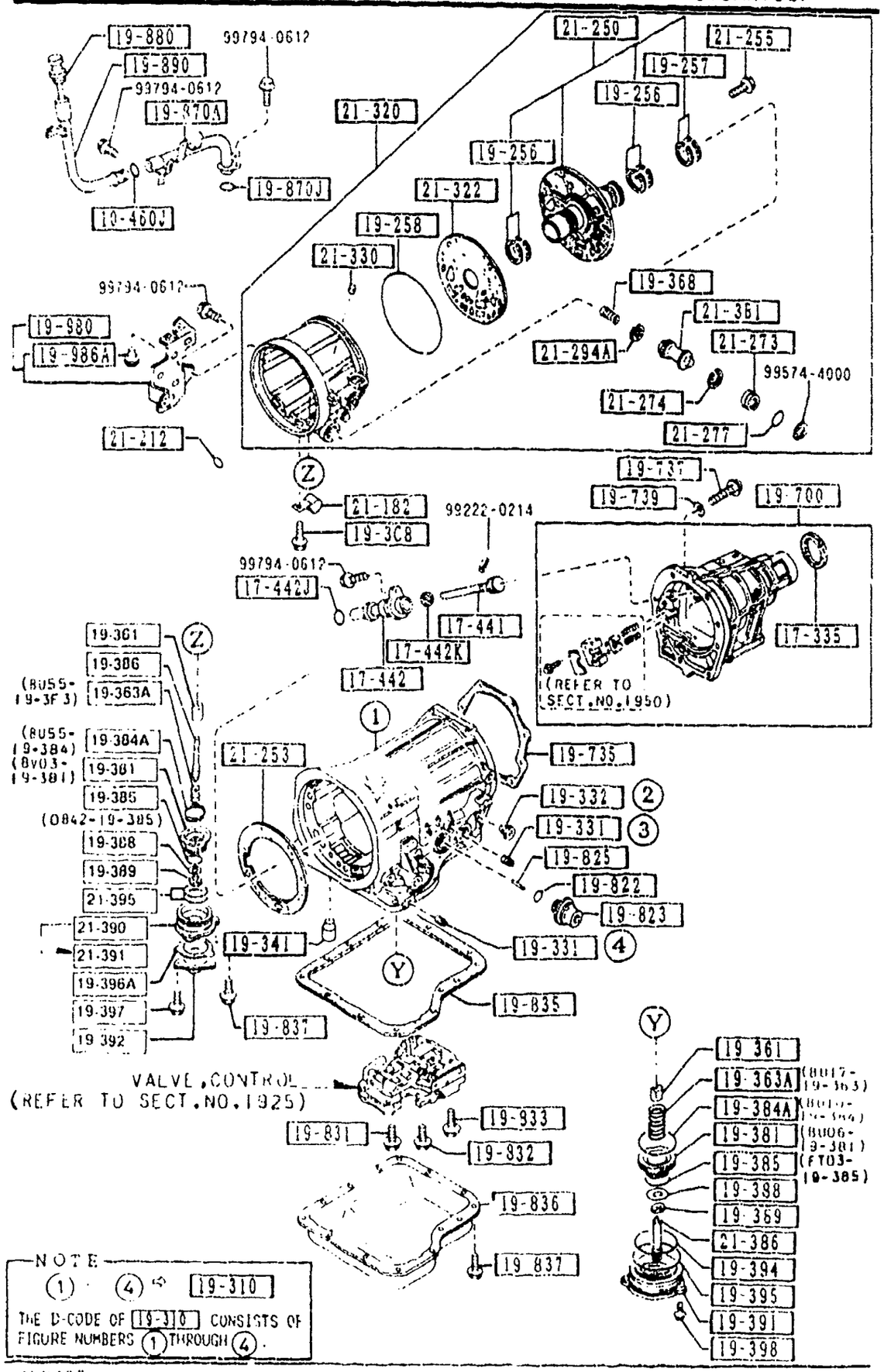
① ④ ⇨ 19-310

THE D-CODE OF 19-310 CONSISTS OF FIGURE NUMBERS ① THROUGH ④

AUNA02

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM 10
CONT'D					
BV01-19-986	1				
21-182		BRACKET			
BU55-21-182	1				
21-212		RING,'O'			
BU01-21-212	2				
21-250		SUPPORT,DRUM			
BU55-21-250	1				
21-253		GASKET,DRUM SUPPORT			
BU01-21-253	1	ASBESTOS			
21-255		BOLT			
BU01-21-255	5				
21-273		PLUG,ACCUMULATOR			
BU01-21-273	1				
21-274		SEAL,'O'RING			
BU01-21-274	1				
21-277		RING,'O'			
BU01-21-277	1				
21-294A		RING,SEAL			
BU55-21-293	1				
21-381		PISTON,ACCUMULATOR			
BU55-21-381	1				
21-320		CASE,OVER DRIVE			
BU55-21-320	1				
21-322		GASKET,O/DRIVE CASE			
BU01-21-322	1				
21-330		VALVE,ONE WAY			
BV01-21-330	1				

1920 TRANSMISSION CASE & MAIN CONTROL SYSTEM (AUTOMATIC)

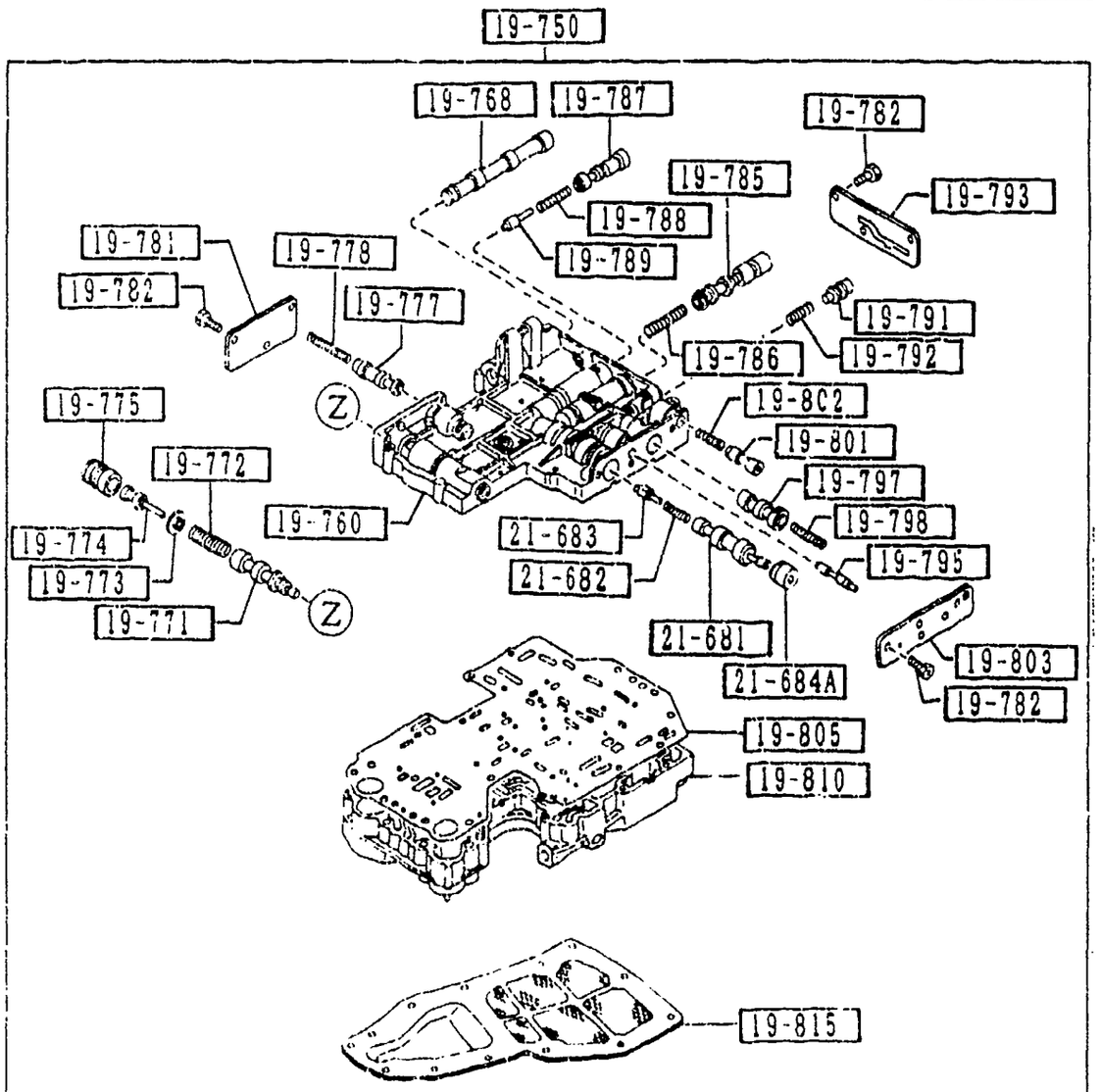


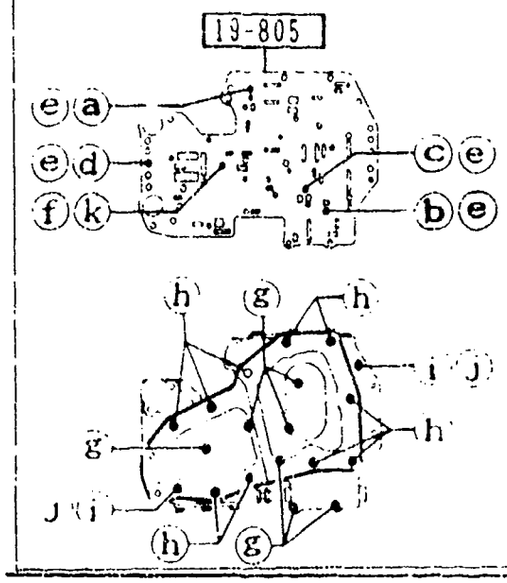
NOTE
① · ④ ⇨ 19-310
THE D-CODE OF 19-310 CONSISTS OF FIGURE NUMBERS ① THROUGH ④.

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
21-386		STEM,PISTON BAND			
BU01-21-386	1				
21-390		SERVO,OVER DRIVE			
BU20-21-390	1				-0B01
21-391		RETAINER,SERVO			
BV02-21-391	1				0B01-
21-395		RING,'O'			
BU01-21-395	2				

0B01 NA35**-217311

1925 CONTROL VALVE (AUTOMATIC)

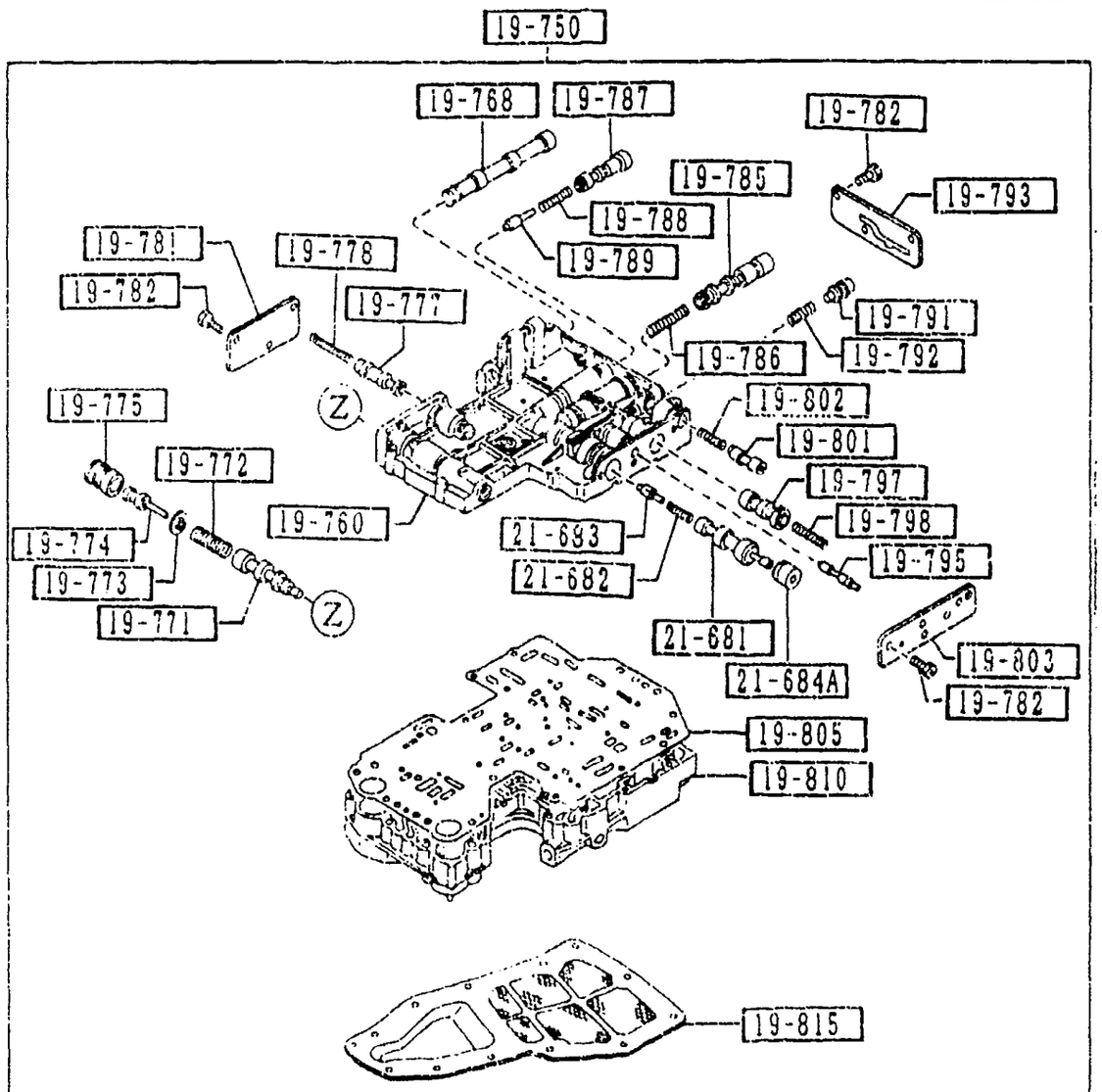


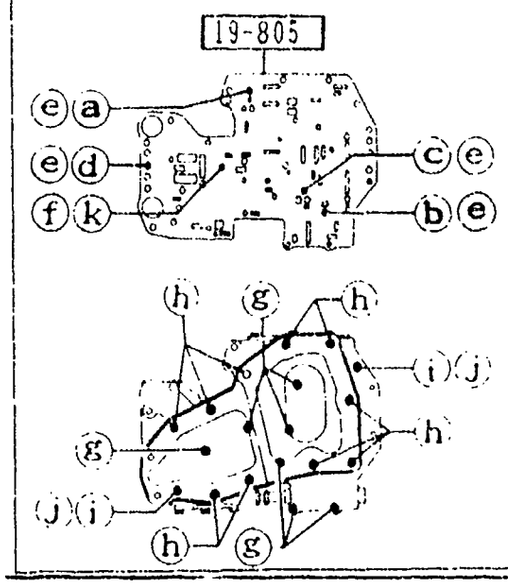


a		19-8A4	D=1.1MM
b		19-8B1	D=2.0MM
c		19-807	D=1.5MM (BU01-19-807)
d		19-807	D=1.8MM (BU17-19-807)
e		19-808	D=4.77MM,L=15.5MM
f		19-814	D=5.6MM,L=20.0MM
g		19-816	M5,L=25MM
h		19-817	M5,L=40MM
i		19-818	M6,L=57MM
J		19-819	
k		99611-2-00	

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-750		VALVE,CONTROL			
BU55-19-750	1				
19-760		BODY,CONTROL VALVE-UP			
BU55-19-760	1				
19-768		VALVE,MANUAL			
0338-19-768	1				
19-771		VALVE,REGULATOR			
BU01-19-771	1				
19-772		SPRING,REGULATOR			
0338-19-772	1				
19-773		SEAT,REGULATOR SPRING			
0338-19-773	1				
19-774		PLUG,REGULATOR			
BU55-19-774	1				
19-775		SLEEVE,REGULATOR PLUG			
BU55-19-775	1				
19-777		VALVE,SECOND LOCK			
0338-19-777	1				
19-778		SPRING,SECOND LOCK			
0338-19-778	1				
19-781		PLATE,SIDE'D'			
1758-19-781	1				
19-782		SCREW			
0338-19-782	9				
19-785		VALVE,1-2 SHIFT			
BU55-19-785	1				
19-786		SPRING,1-2 SHIFT			
BU55-19-786	1				

1925 CONTROL VALVE (AUTOMATIC)

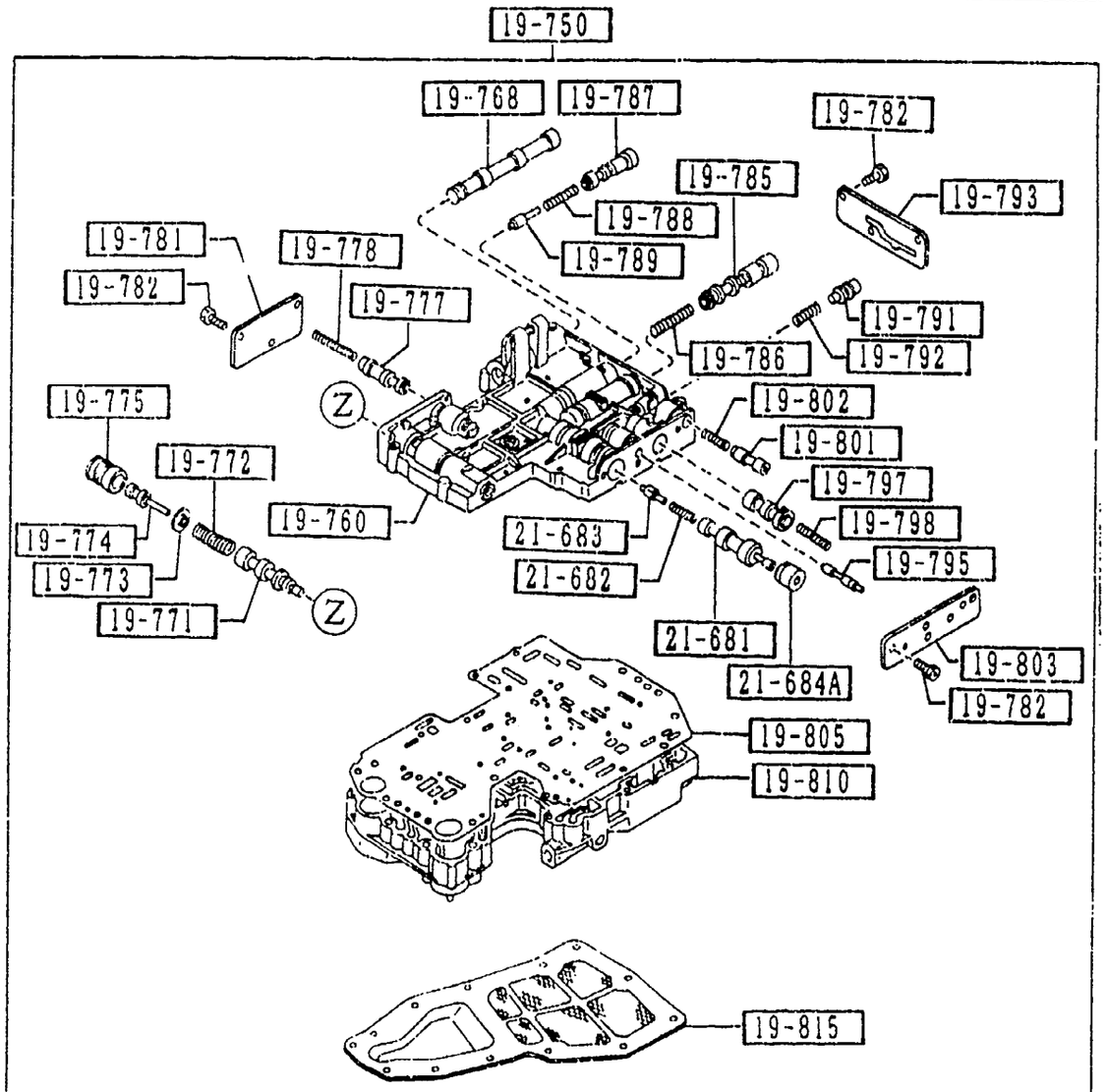


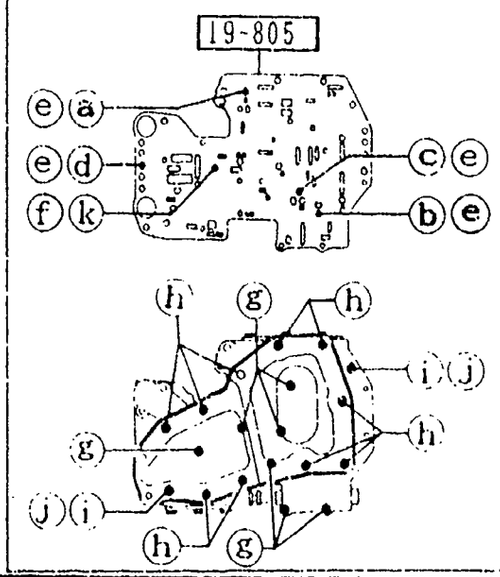


a		19-8A4	D=1.1MM
b		19-8B1	D=2.0MM
c		19-807	D=1.5MM (BU01-19-807)
d		19-807	D=1.8MM (BU17-19-807)
e		19-808	D=4.77MM,L=15.5MM
f		19-814	D=5.6MM,L=26.8MM
g		19-816	M5,L=25MM
h		19-817	M5,L=40MM
i		19-818	M6,L=57MM
j		19 819	
k		9961-1-2000	

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-787		VALVE,2-3 SHIFT			
BU55-19-787	1				
19-788		SPRING,2-3 SHIFT			
FT21-19-788	1				
19-789		PLUG,2-3 SHIFT			
BU17-19-789	1				
19-791		VALVE,MODIFIER			
FT27-19-791A	1				
19-792		SPRING,MODIFIER			
FT37-19-792	1				
19-793		PLATE,SIDE'A'			
0338-19-793A	1				
19-795		VALVE,THROTTLE			
0338-19-795B	1				
19-797		VALVE,THROTTLE BACK-UP			
0338-19-797	1				
19-798		SPRING,THROTTLE BACK-UP			
0338-19-798	1				
19-8A4		VALVE,ORIFICE CHECK			
BV01-19-8A4	1				
19-8B1		VALVE,ORIFICE CHECK			
BV01-19-8B1	1				
19-801		VALVE,DOWN SHIFT			
0338-19-801	1				
19-802		SPRING,DOWN SHIFT			
0338-19-802	1				
19-803		PLATE,SIDE'B'			
BU01-19-803A	1				

1925 CONTROL VALVE (AUTOMATIC)

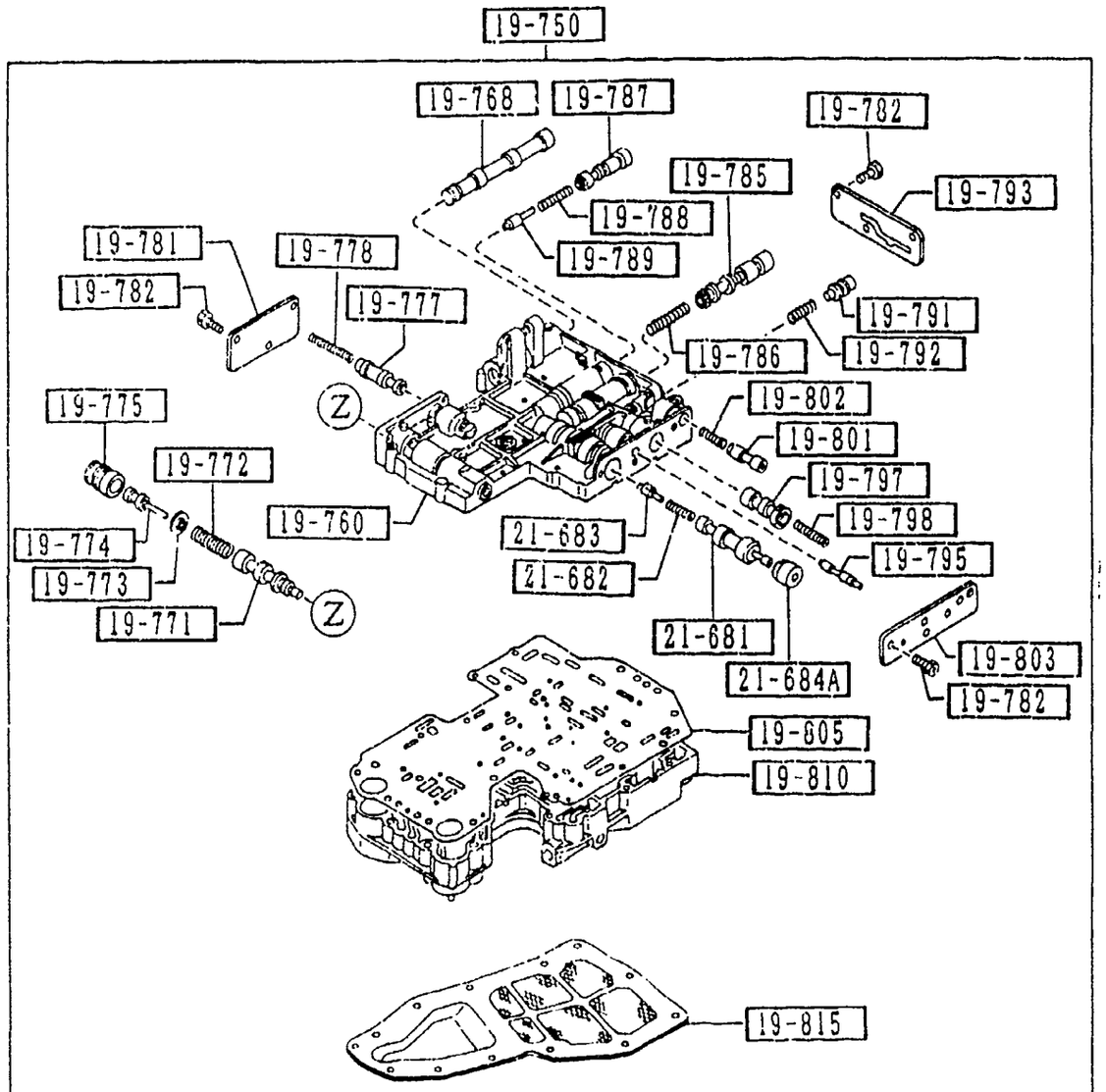


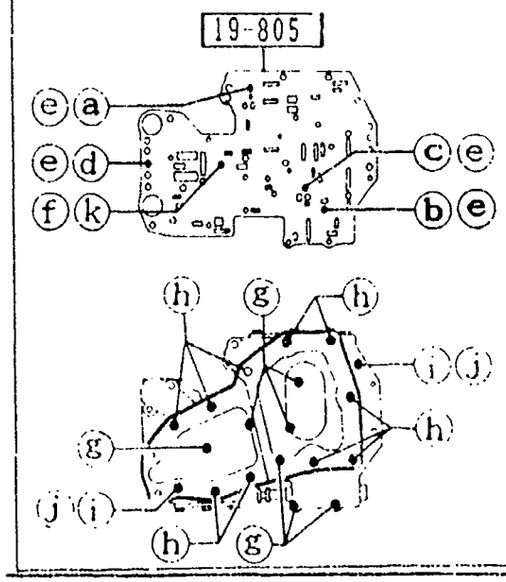


a	D	19-8A4	D=1.1MM
b	D	19-8B1	D=2.0MM
c	D	19-807	D=1.5MM (BU01-19-807)
d	D	19-807	D=1.8MM (BU17-19-807)
e	L D	19-808	L=4.77MM, L=15.5MM
f	L D	19-814	D=5.6MM, L=26.8MM
g	L	19-816	M5, L=25MM
h	L	19-817	M5, L=40MM
i		19-818	M6, L=57MM
j		19-819	
k		99611-2000	

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-805		PLATE,SEPARATOR			
BU55-19-805	1				
19-807		VALVE,ORIFICE CHECK			
BU01-19-807	1				
BU17-19-807	1				
19-808		SPRING			
0338-19-808	4				
19-810		BODY,LWR-CONT.VALVE			
BU55-19-810	1				
19-814		SPRING			
0338-19-814	1				
19-815		STRAINER,OIL			
BU01-19-815	1				
19-816		SCREW			
0338-19-816	7				
19-817		SCREW			
0338-19-817	10				
19-818		BOLT			
0338-19-818	2				
19-819		NUT			
0338-19-819	2				
21-681		VALVE,SHIFT 3-4			
BU35-21-681A	1				
21-682		SPRING,3-4 SHIFT			
BU35-21-682	1				
21-683		PLUG,3-4 SHIFT			
BU03-21-683A	1				

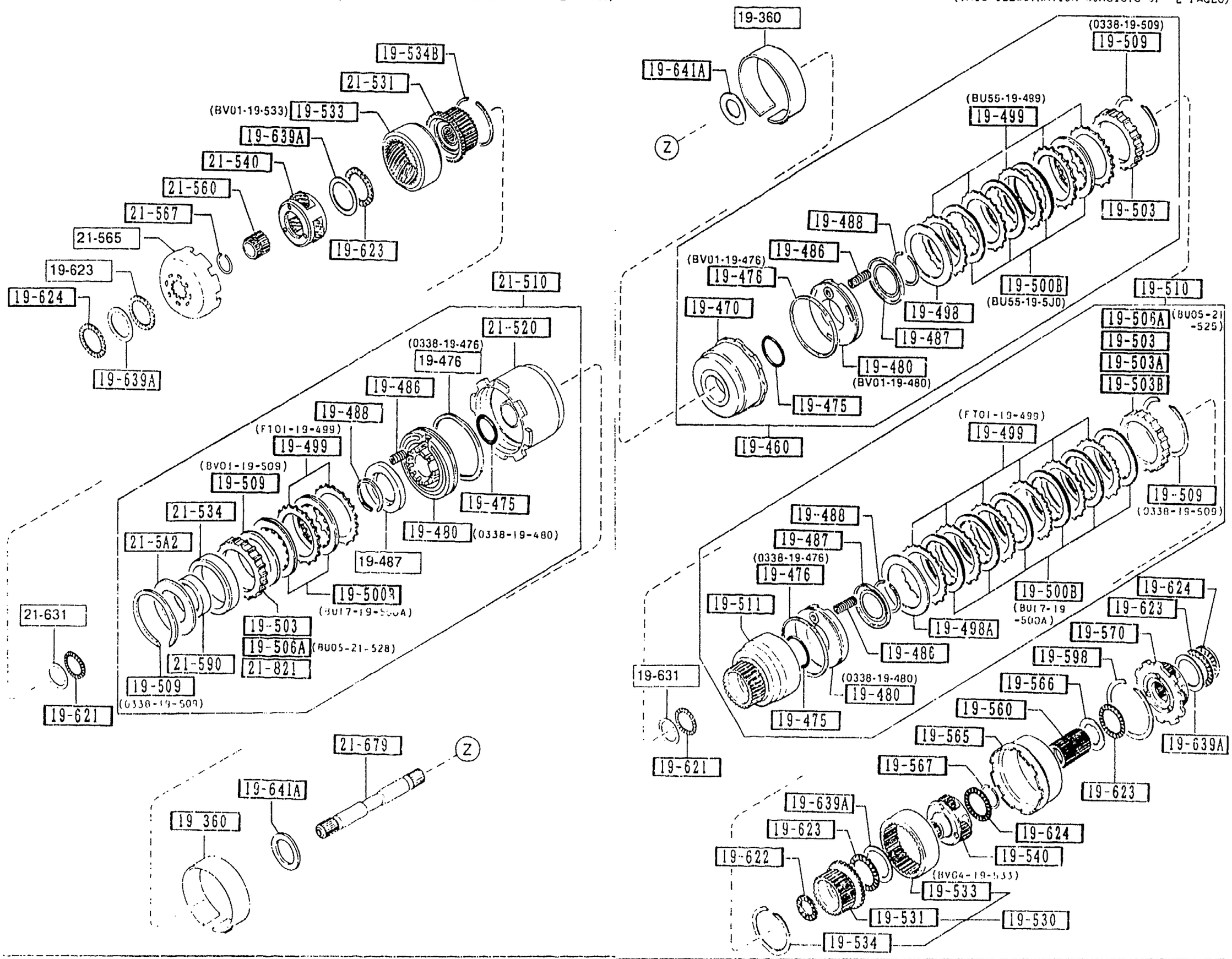
1925 CONTROL VALVE (AUTOMATIC)

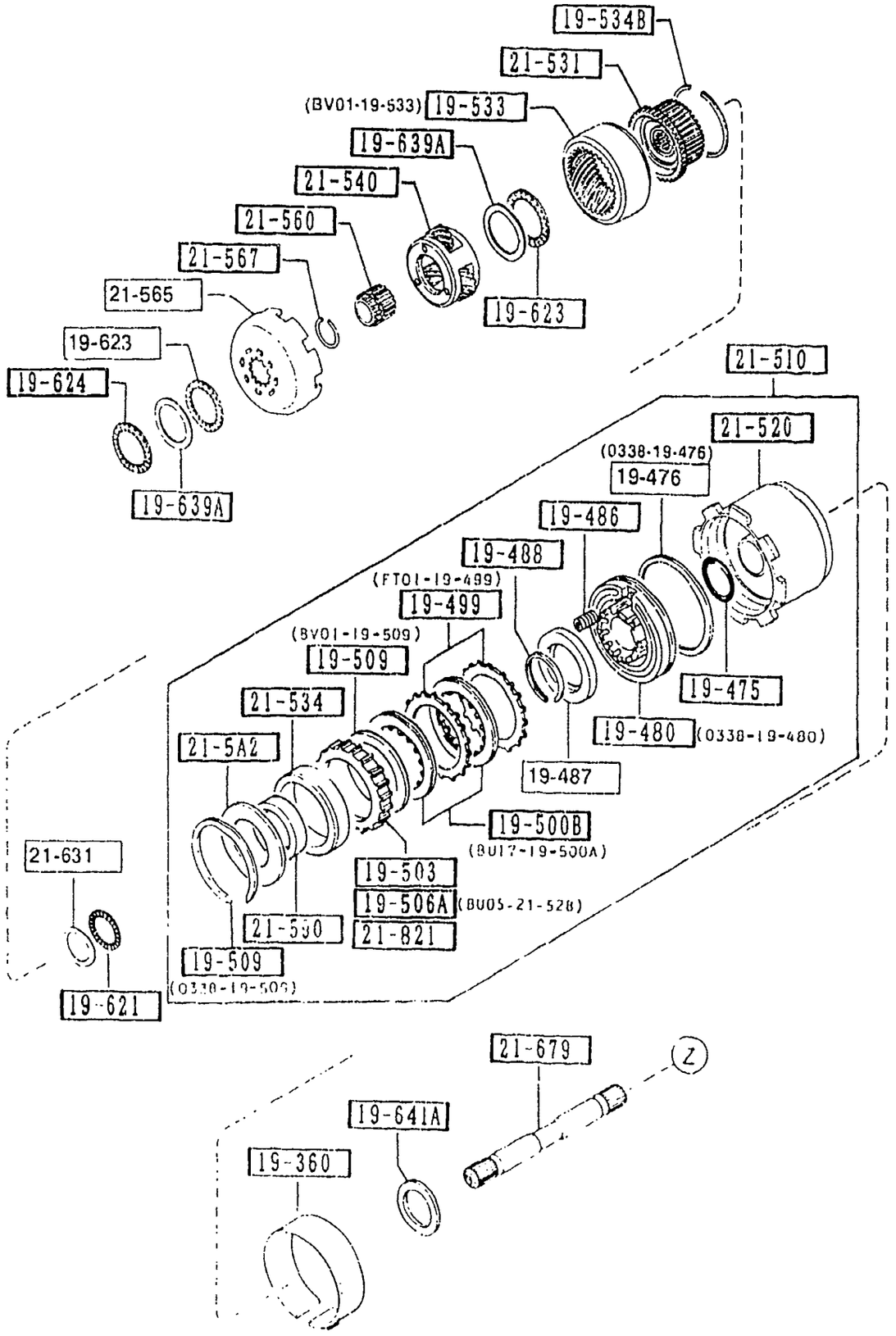




a	D	19-8A4	D=1.1MM
b	D	19-8B1	D=2.0MM
c	D	19-807	D=1.5MM (BU01-19-807)
d	D	19-807	D=1.8MM (BU17-19-807)
e	D L	19-808	D=4.77MM,L=15.5MM
f	D	19-814	D=5.6MM,L=26.8MM
g	L	19-816	M5,L=25MM
h	L	19-817	M5,L=40MM
i		19-818	M6,L=57MM
j		19-819	
k		99611-2000	

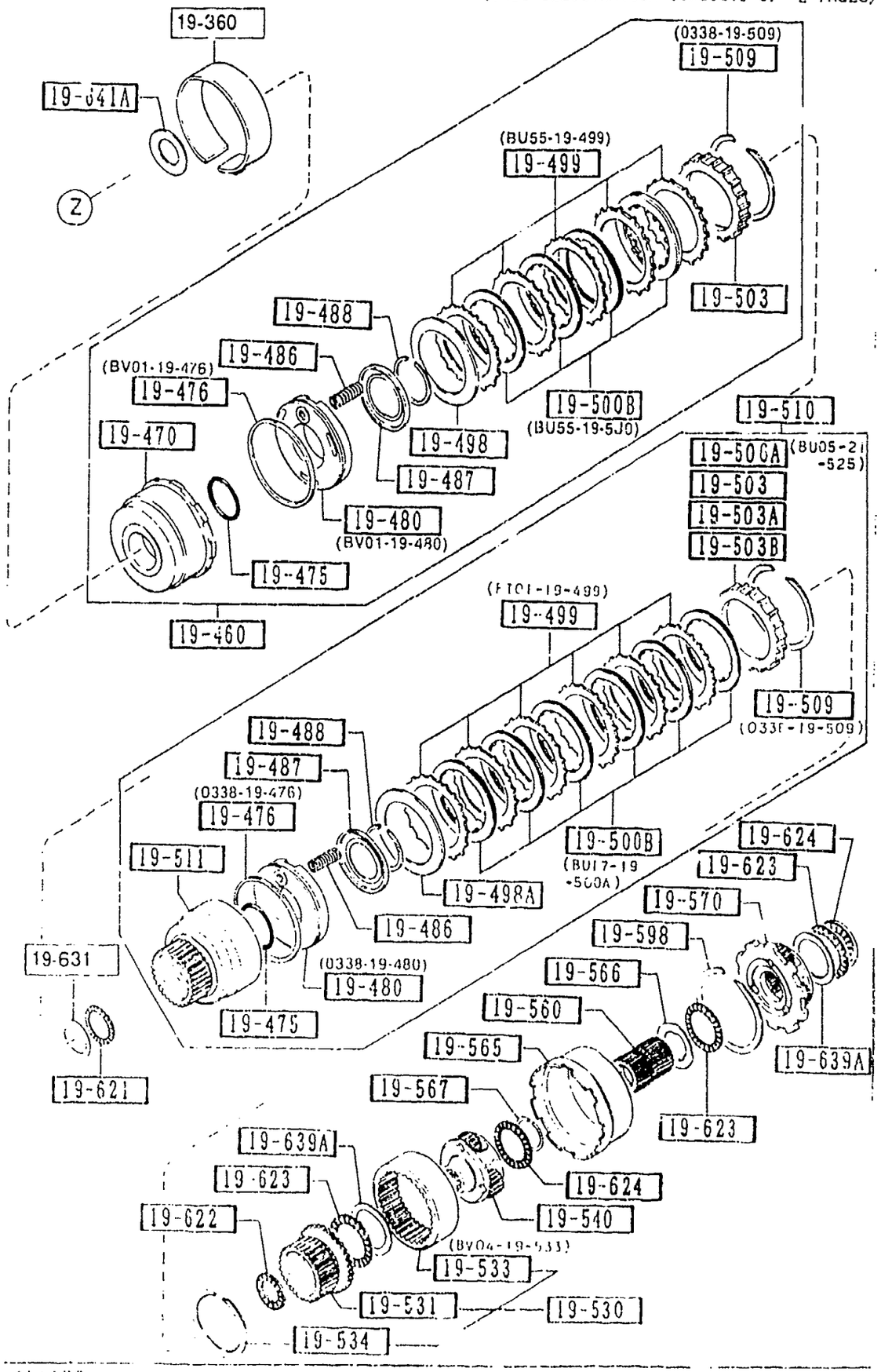
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
21-684A		SLEEVE,3-4 SHIFT			
BU35-21-684	1				


19-534B
21-531
(BV01-19-533)
19-533
19-639A
21-540
21-560
21-567
21-565
19-623
19-624
19-639A
19-623
19-641A
Z
19-360
21-510
21-520
(0338-19-476)
19-476
19-486
19-488
(F101-19-499)
19-499
(BV01-19-509)
19-509
21-534
21-5A2
21-590
19-509
(0338-19-509)
19-503
19-506A
(BU05-21-528)
21-821
19-5009
(BU17-19-500A)
19-487
19-480
(0338-19-480)
19-475
21-631
19-621
21-679
19-460
19-509
(0338-19-509)
19-499
(BU55-19-499)
19-503
19-488
19-486
(BV01-19-476)
19-476
19-470
19-498
19-487
19-500B
(BU55-19-5J0)
19-480
(BV01-19-480)
19-475
19-510
19-506A
(BU05-21-525)
19-503
19-503A
19-503B
(F101-19-499)
19-499
19-509
(0338-19-509)
19-488
19-487
(0338-19-476)
19-476
19-511
19-498A
19-486
19-500B
(BU17-19-500A)
(0338-19-480)
19-480
19-475
19-631
19-621
19-624
19-623
19-570
19-598
19-566
19-560
19-565
19-567
19-623
19-639A
19-623
19-622
19-624
19-540
(BV04-19-533)
19-533
19-531
19-530
19-534



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-360		BAND,BRAKE			
0338-19-360B	2				
19-460		CLUTCH,FRONT			
BU55-19-460	1				
19-470		DRUM,CLUTCH			
BU55-19-470	1				
19-475		SEAL,'O'RING			
0338-19-475	3				
19-476		SEAL,LATHE CUT			
BV01-19-476	1				
0338-19-476	2				
19-480		PISTON,CLUTCH			
BV01-19-480	1				
0338-19-480	2				
19-486		SPRING,PISTON RETURN			
0338-19-486	28				
19-487		RETAINER,SPRING			
0338-19-487	3				
19-488		RING,SNAP			
0338-19-488	3				
19-498		PLATE,DISHED			
0338-19-498	1				
19-498A		PLATE,DISHED			
BU17-19-498	1				
19-499		PLATE,DRIVEN			
BU55-19-499	5				
FT01-19-499	8				
19-500B		PLATE,DRIVEN			

(THIS ILLUSTRATION CONSISTS OF 2 PAGES)



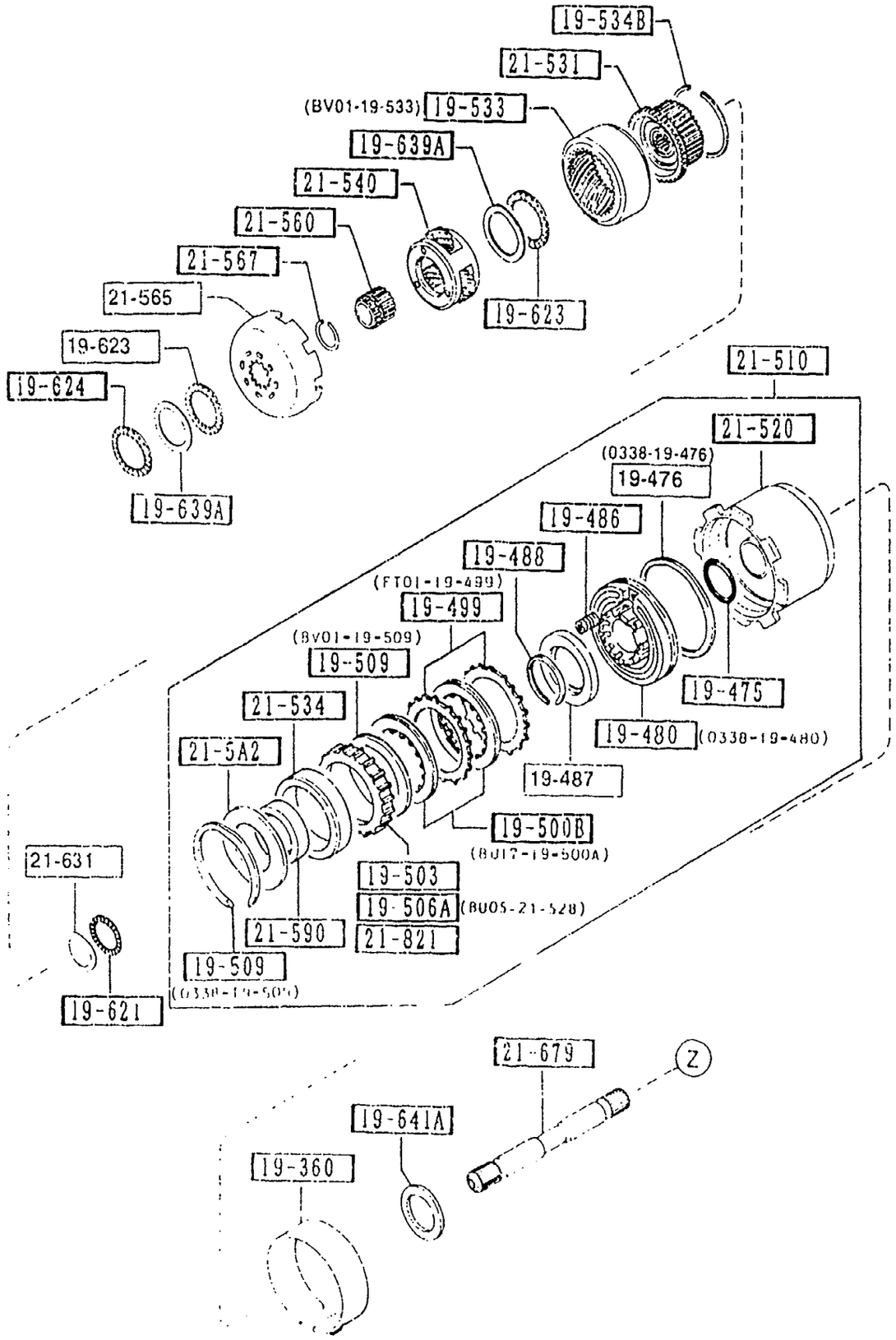
1930 -2 CLUTCHES & PLANETARY GEARS (AUTOMATIC)

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-10
CONT'D BU55-19-5J0	4				
BU17-19-500 AN(BU17-19-500A)	8				-0C01
BU17-19-500A	8				0C01-
19-503		PLATE,RETAINING			
3959-19-503	1	T=5MM			
3959-19-504	1	T=5.2MM			
3959-19-505	1	T=5.4MM			
3959-19-506	2	T=5.6MM			
3959-19-507	2	T=5.8MM			
3959-19-508	2	T=6MM			
3959-19-509	3	T=6.2MM			
19-503A		PLATE,RETAINING			
1758-19-503	1	T=7.2MM			
1758-19-504	1	T=7.4MM			
1758-19-505	1	T=7.6MM			
19-503B		PLATE,RETAINING			
BV02-19-506	1	T=6.6MM			
BV02-19-507	1	T=6.8MM			
BV02-19-508	1	T=7MM			
BV02-19-505	1	T=6.4MM			-1301
19-506A		PLATE,RETAINING			
BU05-21-528	1	T=7MM			
BU05-21-525	1	T=5.4MM			1301-

0C01 NA35**-220813
1301 NA35**-231464

1930 CLUTCHES & PLANETARY GEARS (AUTOMATIC) (1/2)

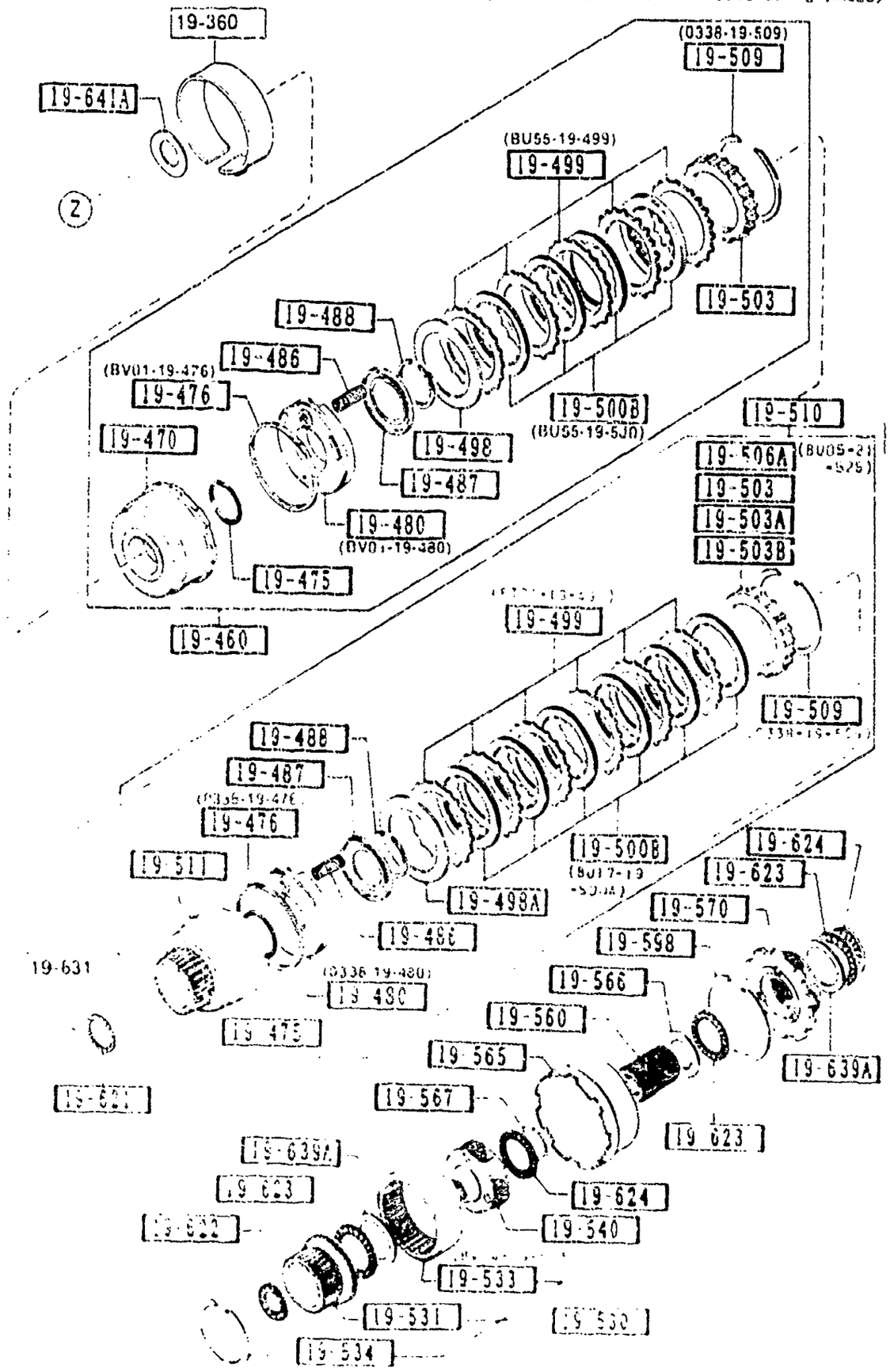
(THIS ILLUSTRATION CONSISTS OF 2 PAGES)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-509		RING,SNAP			
BV01-19-509	1				
0338-19-509	3				
19-510		CLUTCH,REAR			
BV01-19-510C (BV01-19-510A)	1				-2401
BV01-19--510A	1				2401-
19-511		DRUM,REAR CLUTCH			
1758-19-511AN(1758-19-511A)	1				-2401
1758-19-511A	1				2401-
19-530		HUB,REAR CLUTCH			
BV04-19-530	1				
19-531		HUB,REAR CLUTCH			
BV04-19-531	.				
19-533		GEAR,INTERNAL			
BV01-19-533	1				
BV04-19--533	1				
19-534		RING,SNAP			
0338-19-534	1				
19-534B		RING,SNAP			
BU03-19-534	1				
19-540		CARRIER,FRONT			
BV01-19-540A	1				
19-560		GEAR,SUN			
BV04-19-560	1				
19-565		SHELL,CONNECTING			
BV04-19-565	1				
19-566		RACE,SHELL BEARING			
BV04-19-566	1				

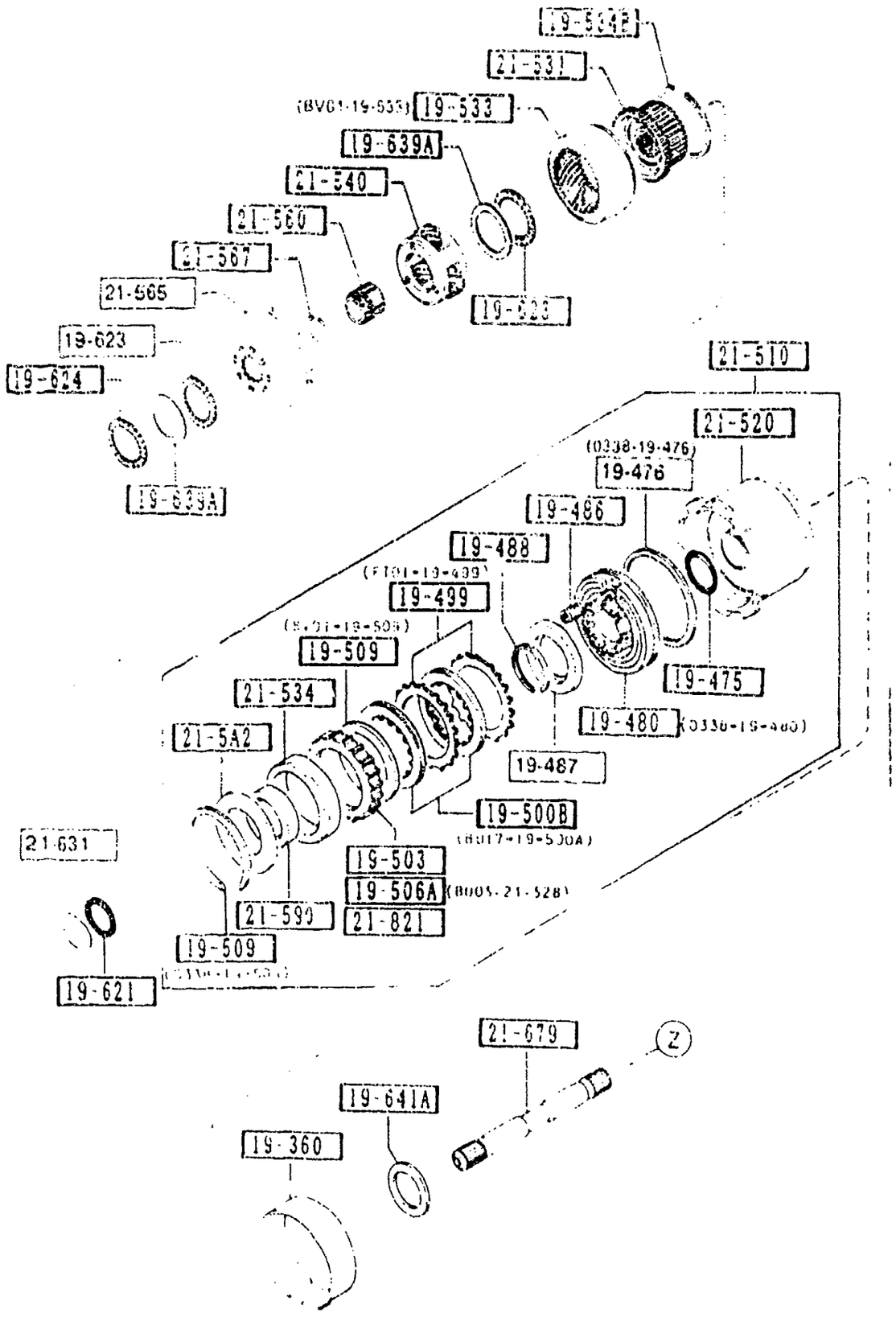
BV01-19-510 2401 NA35**-321905
C BV01-19--510A
C FT01-19--622

(THIS ILLUSTRATION CONSISTS OF 2 PAGES)



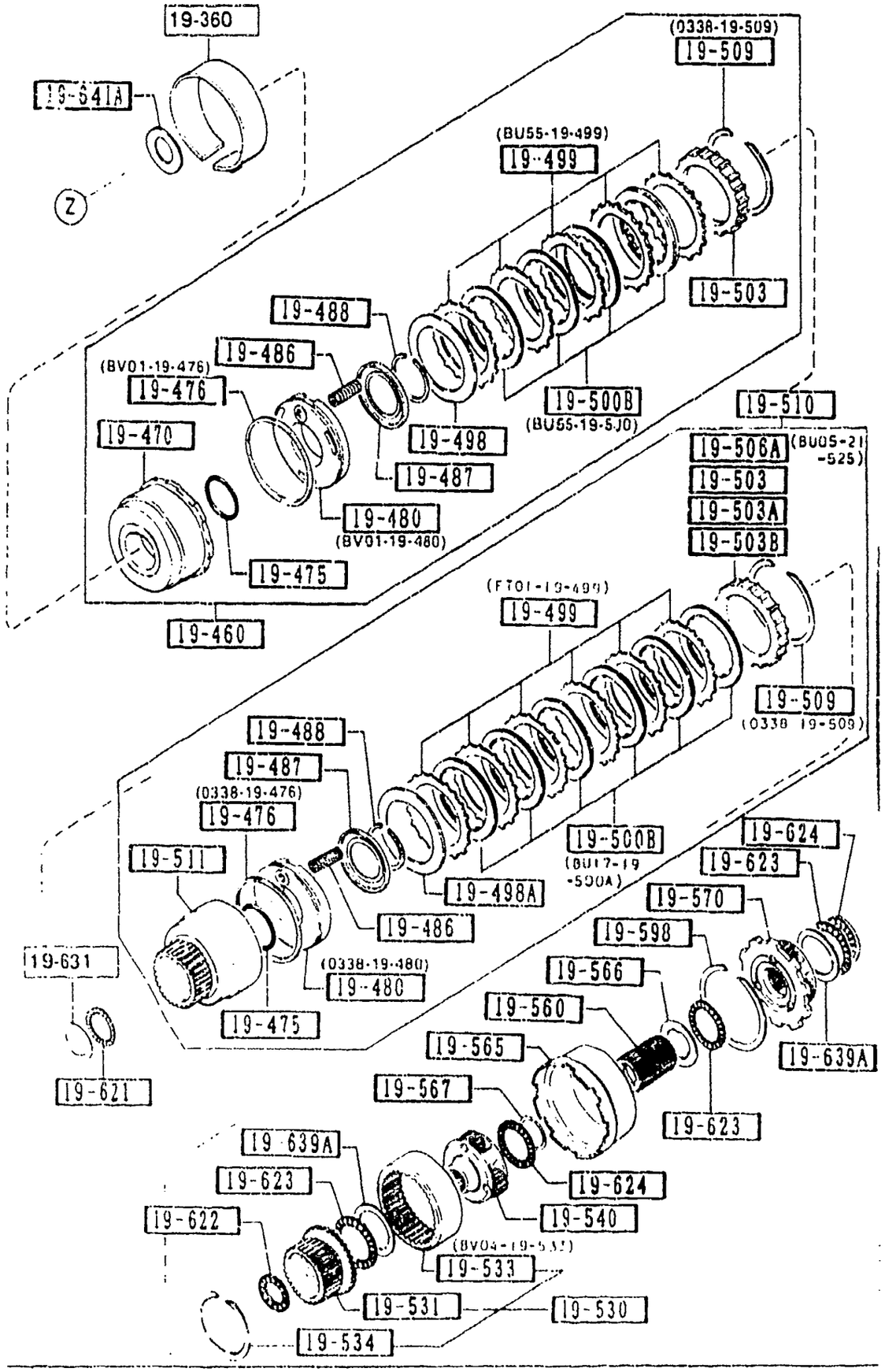
1930 -4 CLUTCHES & PLANETARY GEARS (AUTOMATIC)

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-567		RING,SNAP			
BU02-19-567	1				
19-570		CARRIER,REAR			
BV01-19-570A	1				
19-598		RING,SNAP			
0338-19-598	1				
19-621		BEARING,NEEDLE			
0338-19-621	2				
19-622		BEARING,NEEDLE			
FT01-19-622	1	D=33.8MM			
19-623		BEARING,NEEDLE			
0338-19-623A	5				
19-624		BEARING,NEEDLE			
0338-19-624	3				
19-631		RACE,BRG.PUMP COVER			
0338-19-631	1	T=1.2MM			
0338-19-632	1	T=1.4MM			
0338-19-633	1	T=1.6MM			
0338-19-634	1	T=1.8MM			
0338-19-635	1	T=2MM			
0338-19-636	1	T=2.2MM			
19-639A		RACE,BEARING			
0338-19-639	4				
19-641A		WASHER			
0338-19-641	2	T=1.9MM			
0338 19-642		T=2.1MM			



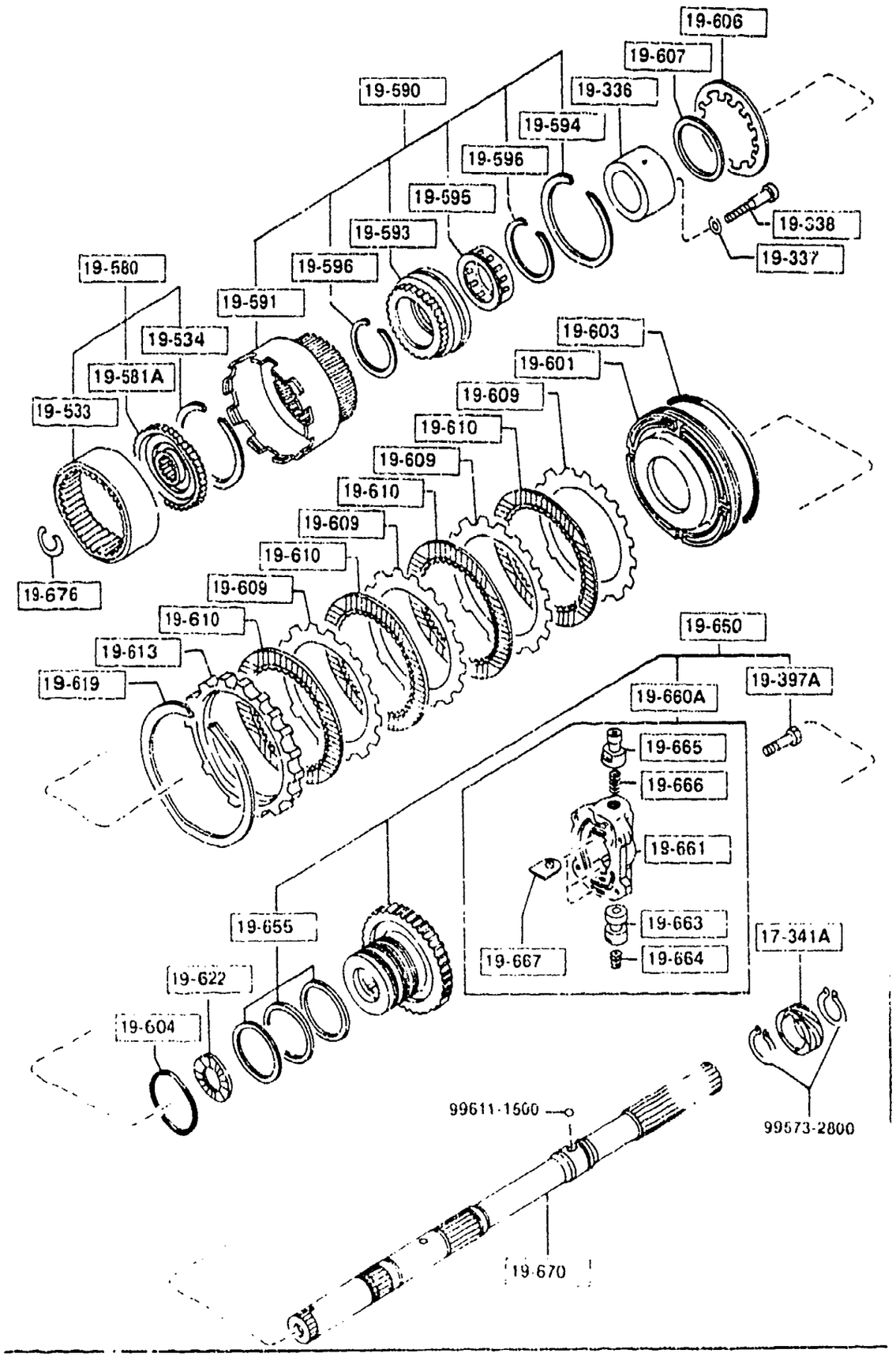
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM/TO
CONT'D					
	2				
0338-19-643	2	T=2.3MM			
0338-19-644	2	T=2.5MM			
0338-19-645	2	T=2.7MM			
0338-19-646	2	T=1.5MM			
0338-19-647	2	T=1.7MM			
0338-19-648	2	T=1.3MM			
21-5A2		RACE,SIDE-ONE WAY CLUTCH			
BV01-21-5A2	1	T=0.6MM			
BV01-21-5A3	1	T=0.8MM			
BV01-21-5A4	1	T=1MM			
BV01-21-5A5	1	T=1.2MM			
BV01-21-535	1	T=0.4MM			
21-510		CLUTCH,DIRECT			
BU55-21-510	1				
21-520		DRUM,DIRECT			
BU55-21-5A0	1				
21-531		HUB,O/DRIVE CLUTCH			
BV01-21-536	1				
21-534		RACE,OUTER-ONE WAY CLUTCH			
BV01-21-534	1				
21-540		CARRIER,OVER DRIVE			
BU03-21-540	1				
21-560		GEAR,OVER DRIVE			
BU03-21-560	1				

(THIS ILLUSTRATION CONSISTS OF 2 PAGES)

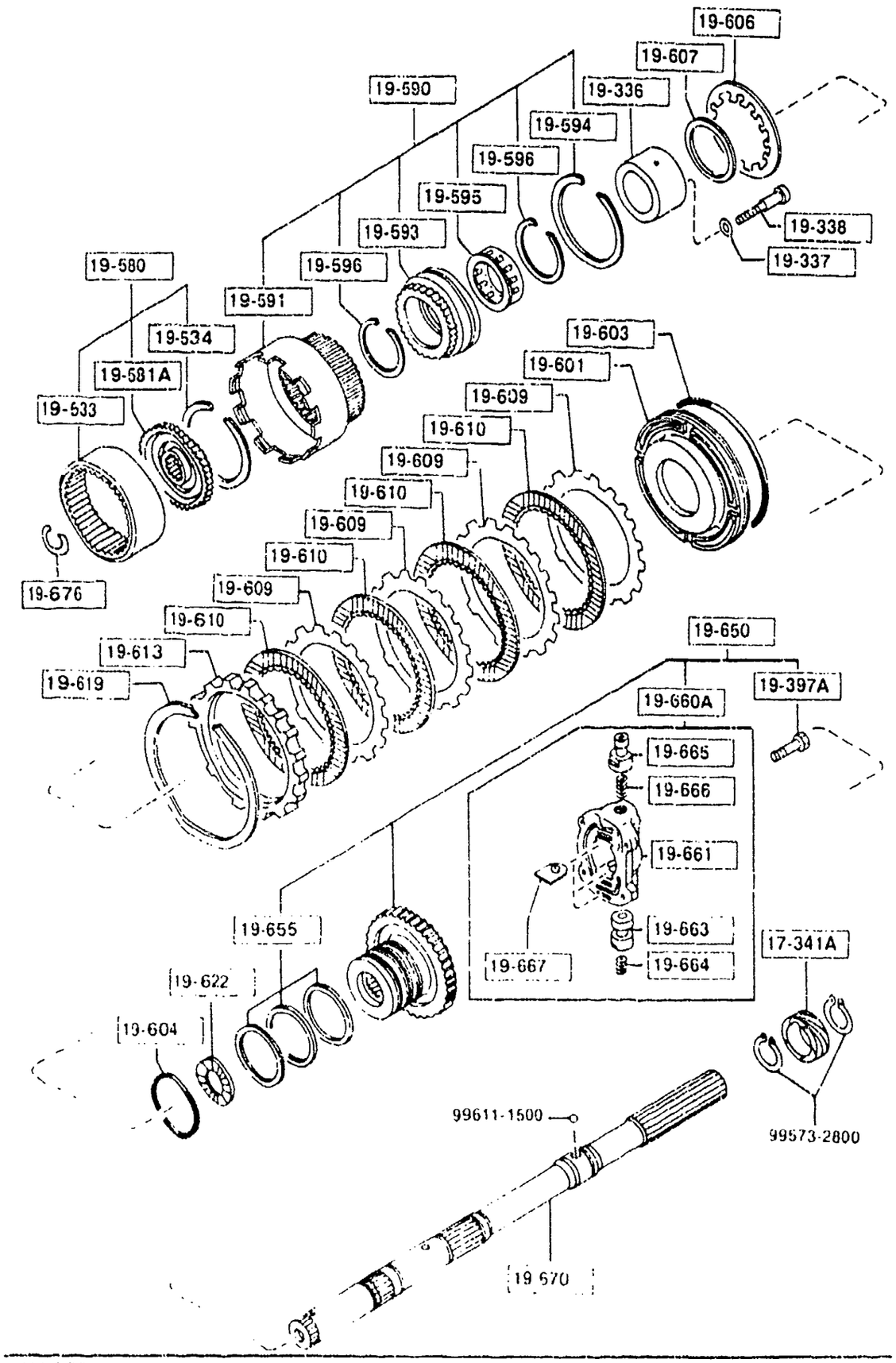


1930 -6 * CLUTCHES & PLANETARY GEARS (AUTOMATIC)

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
21-565		CONNECTING,SHELL			
BU03-21-565	1				
21-567		RING,SNAP			
BU03-21-567	1				
21-590		CLUTCH,ONE WAY			
BV01-21-533	1				
21-631		RACE,BRG.HUB CLUTCH			
BU01-21-631	1	L=1.2MM			
BU01-21-632	1	L=1.4MM			
BU01-21-633	1	L=1.6MM			
BU01-21-634	1	L=1.8MM			
BU01-21-635	1	L=2MM			
BU01-21-636	1	L=2.2MM			
21-679		SHAFT,INTERMEDIATE			
BU01-21-679	1				
21-821		PLATE,RETAINING			
BV01-21-821A	1				

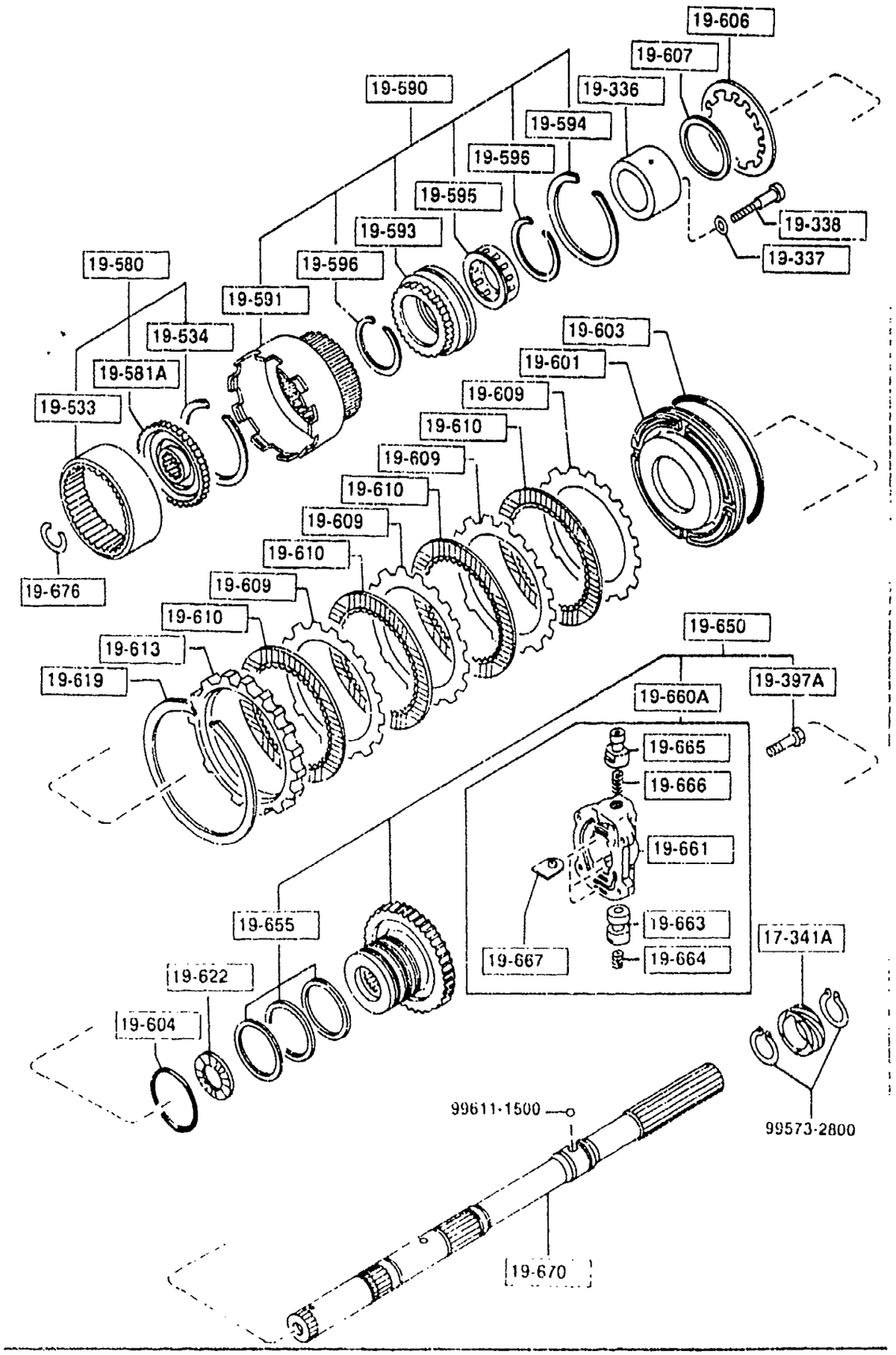


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
17-341A 1281-17-341	1	GEAR,SPEEDO.DRIVE			
19-336 0338-19-336	1	RACE,INNER			
19-337 0338-19-337	8	WASHER,PLAIN			
19-338 0338-19-338	8	BOLT			
19-397A 0338-19-397	4	BOLT			
19-533 BV04-19-533	1	GEAR,INTERNAL			
19-534 0338-19-534	1	RING,SNAP			
19-580 BV01-19-5K0	1	FLANGE			
19-581A BV04-19-581	1	HUB,DRIVE			
19-590 0338-19-590	1	DRUM,CONNECTING			
19-591 0338-19-591	1	DRUM,CONNECTING			
19-593 0338-19-593	1	RACE,OUTER			
19-594 0338-19-594	1	RING,SNAP			
19-595 0338-19-595	1	CLUTCH,ONE WAY			

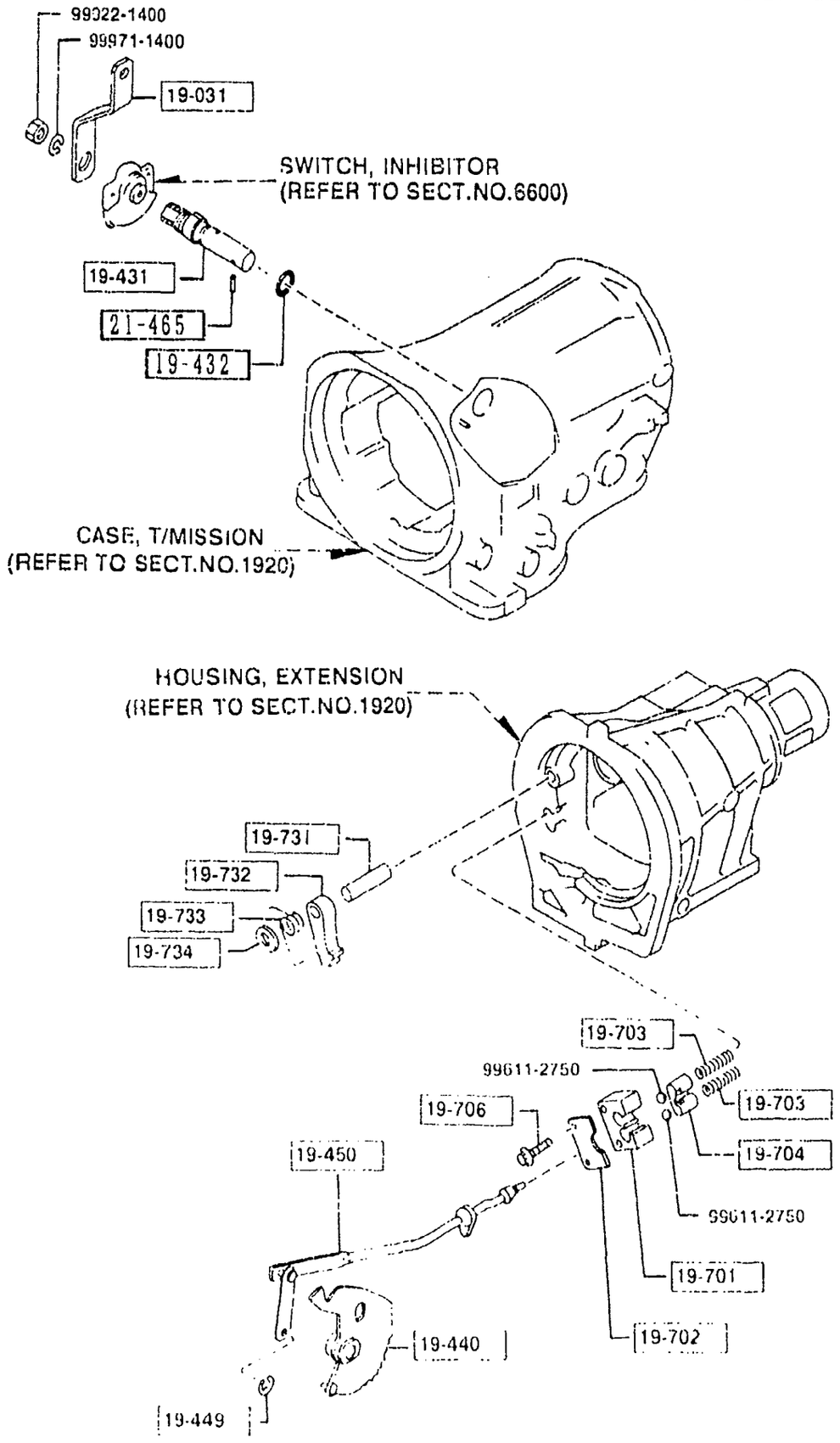


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-596		RING,SNAP			
0338-19-596	2				
19-601		PISTON,LOW & REVERSE			
BT08-19-600	1				
19-603		SEAL,PISTON			
0338-19-603	1				
19-604		SEAL,'O'RING			
0338-19-604	1				
19-606		SPRING,PISTON			
0338-19-606	1				
19-607		RING,SNAP			
0338-19-607	1				
19-609		PLATE,DRIVEN			
0338-19-609	4				
19-610		PLATE,DRIVEN			
BU17-19-610	4				
19-613		PLATE,RETAINING			
1758-19-613	1	T=7.8MM			
1758-19-614	1	T=8MM			
1758-19-615	1	T=8.2MM			
1758-19-616	1	T=8.4MM			
1758-19-617	1	T=8.6MM			
1758-19-618	1	T=8.8MM			
19-619		RING,SNAP			
0338-19-619	1				
19-622		BEARING,NEEDLE			

1940 GOVERNOR, LOW & REVERSE PISTON (AUTOMATIC)



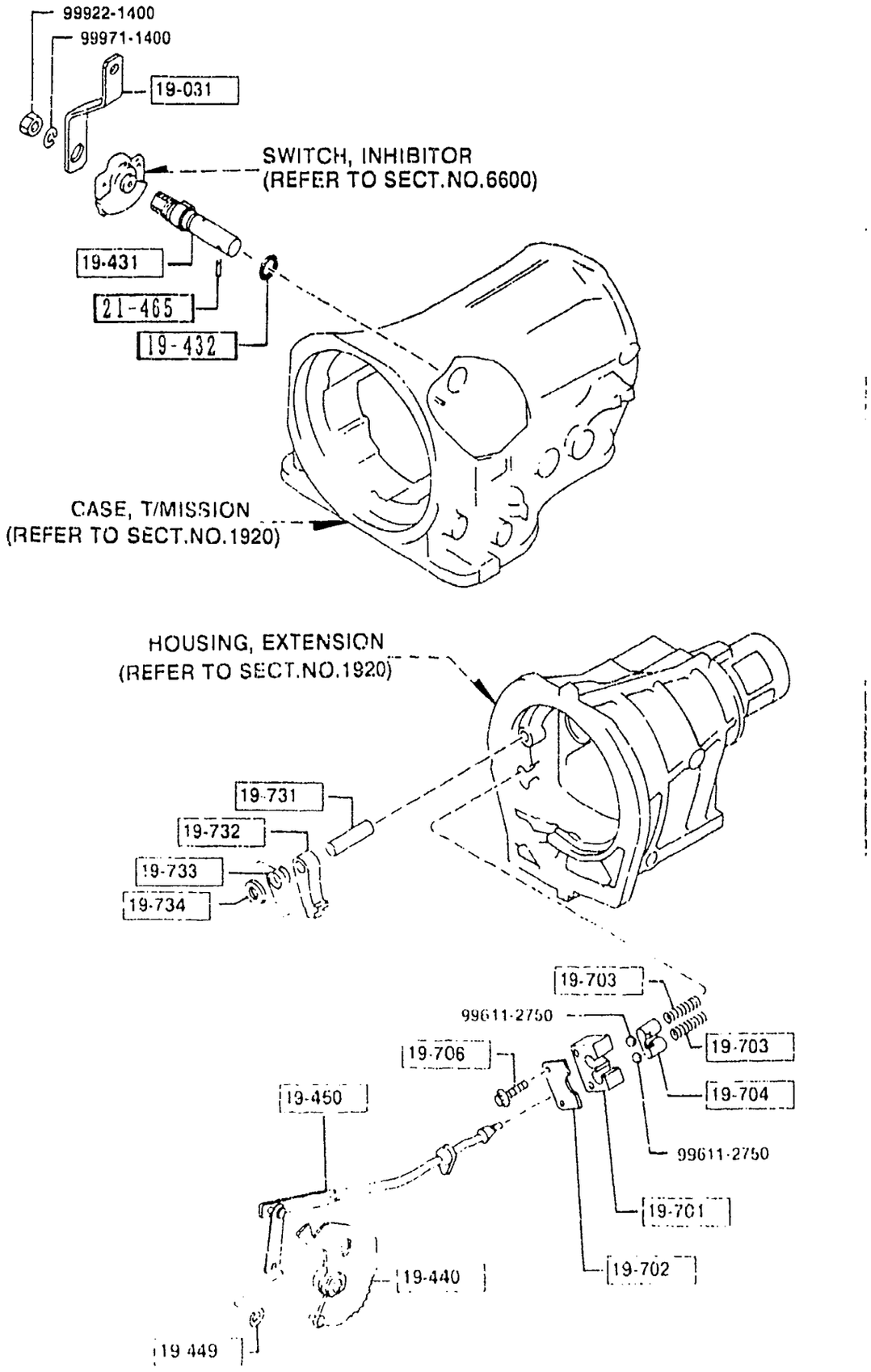
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D FT01-19-622	1	D=33.8MM			
19-650 BU55-19-650	1	DISTRIBUTOR,OIL			
19-655 0338-19-655	3	RING,SEAL			
19-660A BU55-19-660	1	VALVE,GOVERNOR			
19-661 BU55-19-661	1	BODY			
19-663 0338-19-663	1	VALVE			
19-664 0338-19-664	1	SPRING			
19-665 BU55-19-665	1	VALVE			
19-666 BU55-19-666	1	SPRING,GOVERNOR			
19-667 0338-19-667	3	PLATE,RETAINER			
19-670 BU55-19-670	1	SHAFT			
19-676 0338-19-676	1	RING			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-031		LEVER,SELECT			
BU55-19-031	1				
19-431		SHAFT,MANUAL			
BU67-19-431	1				
19-432		RING,'O'			
0338-19-432	1				
19-440		PLATE,MANUAL			
BU55-19-440	1				-2201
BU36-19-440	1				2201-
19-449		RING,SNAP			
0338-19-449	1				
19-450		ROD,PARKING			
BU17-19-450	1				
19-701		SUPPORTER,ACTUATOR			
0338-19-701A	1				-0B01
BU17-19-701	1				0B01-
19-702		PLATE,RETAINING			
0338-19-702A	1				
19-703		SPRING,BALL PARK			
0338-19-703	2				-0B01
BU17-19-703	2				0B01-
19-704		RETAINER			
0338-19-704	1				-0B01
BU17-19-704	1				0B01-
19-706		BOLT			
0338-19-706	1				
19-731		SHAFT,PARKING PAWL			
0338-19-731	1				

0B01 NA35**-217311
2201 NA35**-316887

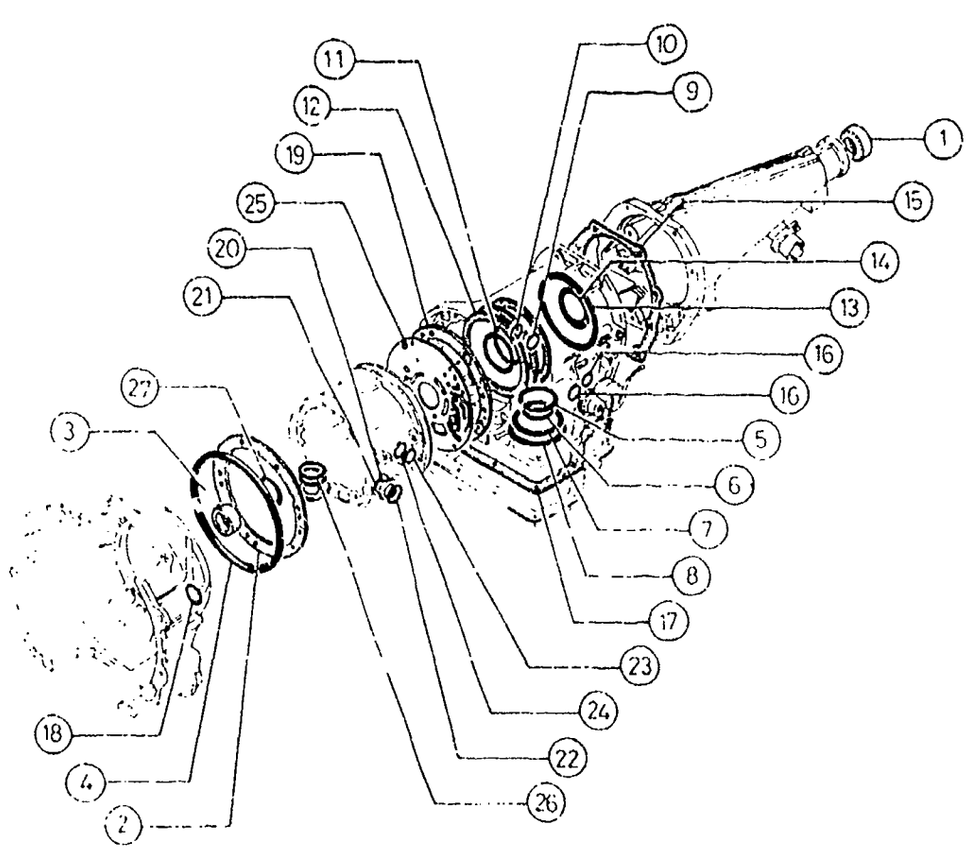
1950 MANUAL LINKAGE SYSTEM (AUTOMATIC)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-732 BU17-19-732	1	PAWL,PARKING			
19-733 0338-19-733C	1	SPRING,PAWL RETURN			
19-734 0338-19-734A	1	SPACER,DOWEL			
21-465 BU67-21-465	1	PIN,SPRING-PARKING ROD			

22-900

1-SEAL,OIL.....(1)
2-GASKET,OIL PUMP.....(1)
3-SEAL,OIL.....(1)
4-SEAL,CUT RING.....(2)
5-SEAL,PISTON.....(1)
6-SEAL,PISTON.....(1)
7-SEAL,LATHE CUT.....(1)
8-RING,"O".....(1)
9-RING,"O".....(1)
10-RING,"O".....(1)
11-SEAL,"O"RING.....(3)
12-SEAL,LAHTE CUT.....(3)
13-SEAL,PISTON.....(1)
14-SEAL,"O"RING.....(1)
15-GASKET,EXTENSION.....(1)
16-SEAL,"O"RING.....(2)
17-GASKET,OIL PAN.....(1)
18-RING,"O".....(1)
19-GASKET,DRUM SUPPORT....(1)
20-SEAL,"O"RING.....(1)
21-SEAL,"O"RING.....(1)
22-RING,"O".....(1)
23-RING,"O".....(1)
24-RING,"O".....(1)
25-GASKET,O/DRIVE CASE....(1)
26-RING,"O".....(1)
27-RING,"O".....(1)



1960 -1 * GASKET & SEAL KIT (AUTOMATIC)

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
22-900		GASKET & SEAL KIT			
BU01-99-190A	1	ASBESTOS			

ENGINE

CHASSIS

ENGINE

CHASSIS

ENGINE

CHASSIS

ENGINE

CHASSIS

ENGINE

CHASSIS

ENGINE

CHASSIS

ENGINE

CHASSIS

ENGINE

CHASSIS

ENGINE

CHASSIS

ENGINE

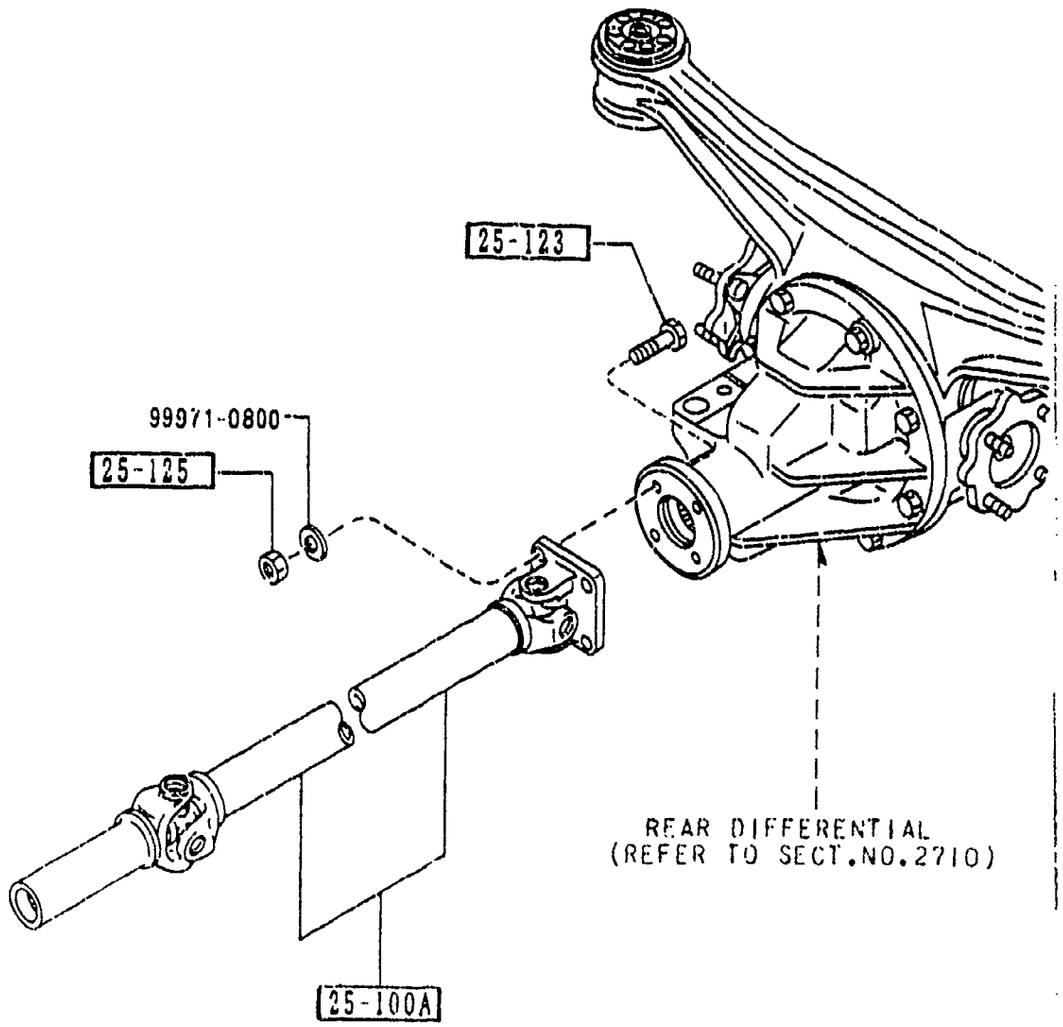
CHASSIS

ENGINE

CHASSIS

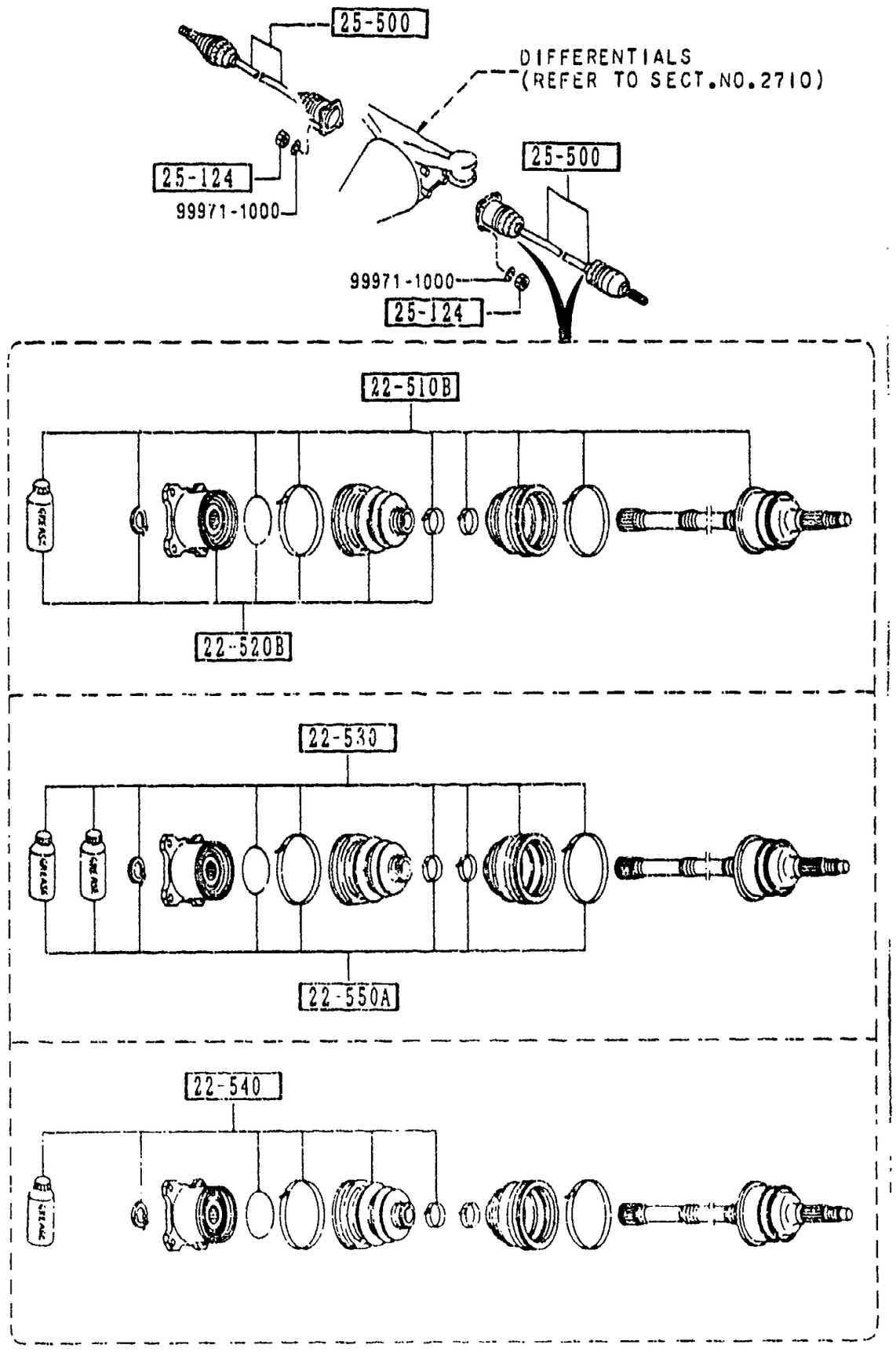
ENGINE

CHASSIS

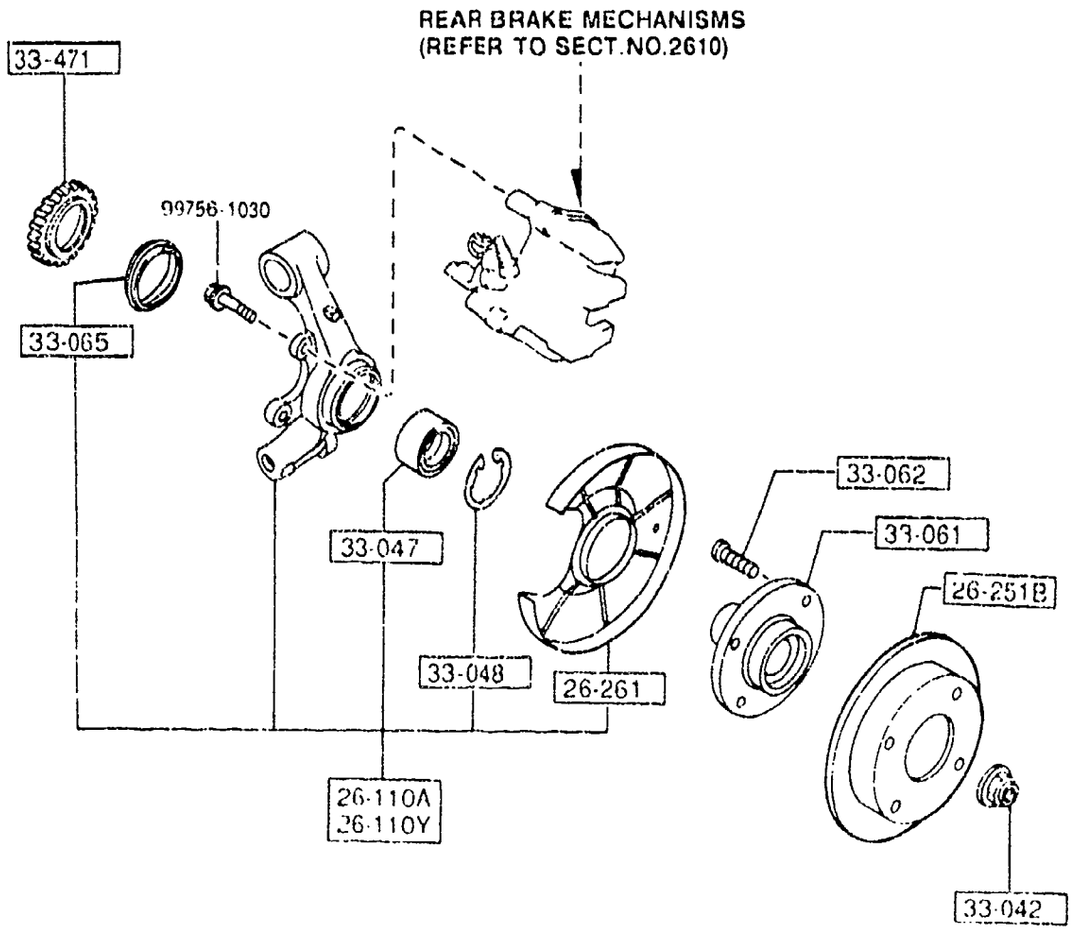


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-10
25-100A		SHAFT,PROPELLER			
M091-25-100	1				
25-123		BOLT			
N010-25-123	4				
25-125		NUT			
1456-25-125	4				

2550 REAR DRIVE SHAFT

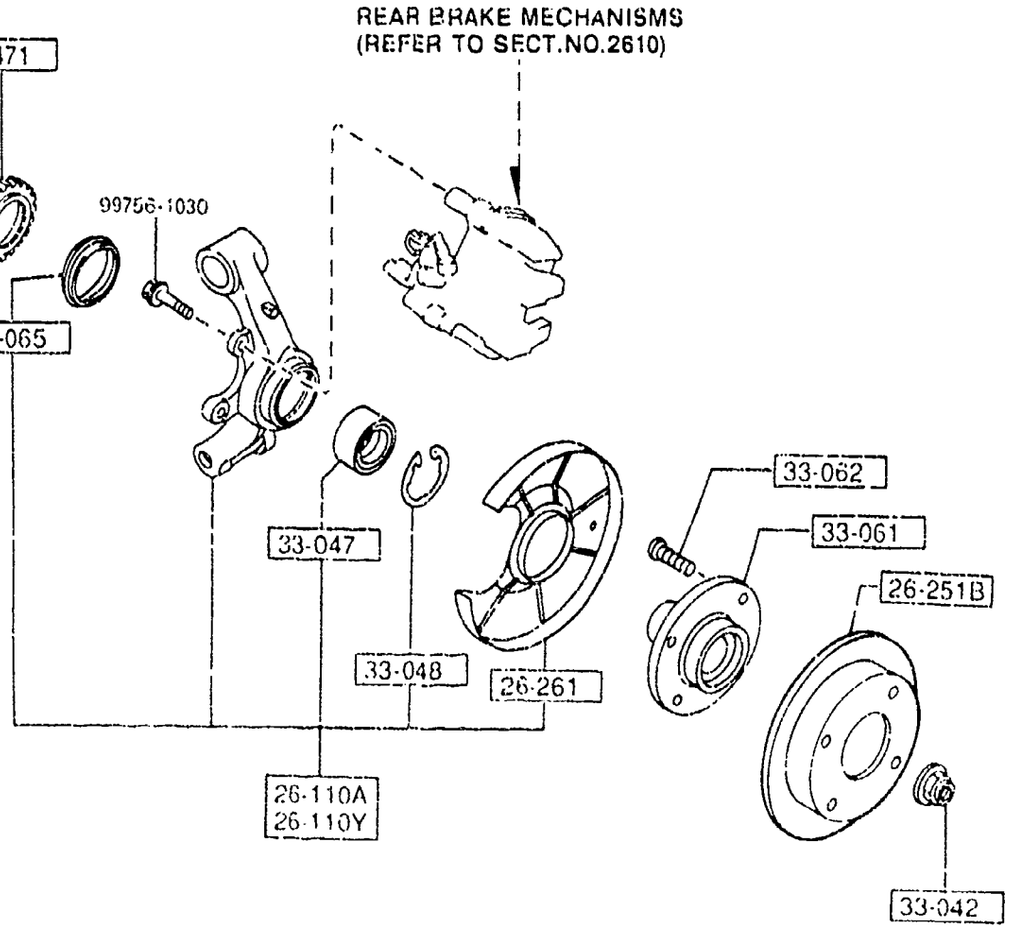


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
22-510B		JOINT SET,OUTER			
M090-22-510	2	(W/O A.LOCK BRAKE)			
M091-22-510	2	(A.LOCK BRAKE)			
22-520B		JOINT SET(R),INNER			
M090-22-520	2				
22-530		BOOT SET,OUTER JOINT			
M090-22-530	2				
22-540		BOOT SET,INNER JOINT			
M090-22-540	2				
22-550A		CLIP SET,DRIVE SHAFT			
M090-22-550	2				
25-124		NUT			
1368-25-124	8				
25-500		SHAFT,DRIVE			
M090-25-500	2	(W/O A.LOCK BRAKE)			
M091-25-500	2	(A.LOCK BRAKE)			



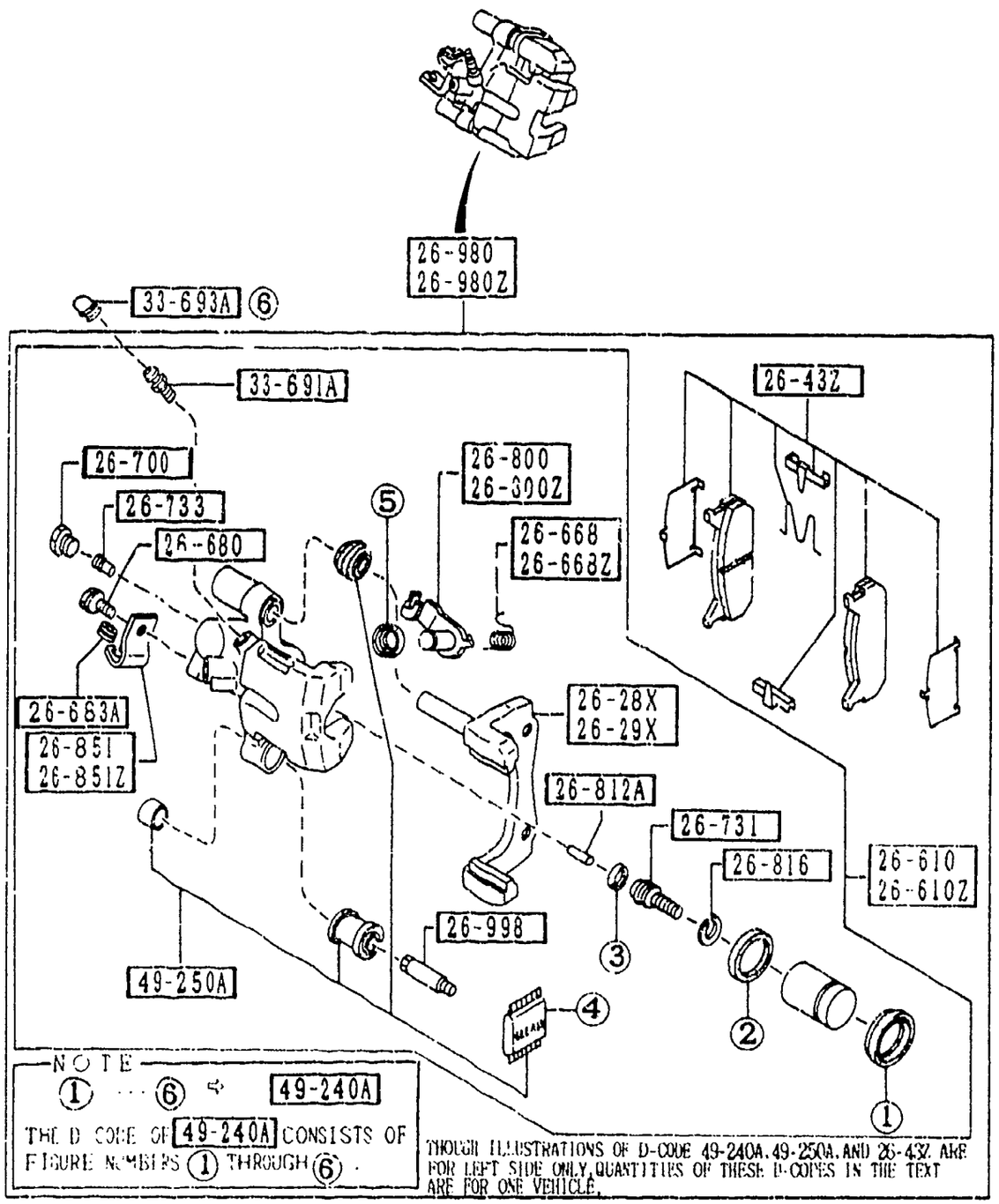
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
26-110A		KNUCKLE(R),REAR			
NA01-26-130A	1	(W/O A.LOCK BRAKE)			-2101
NA23-26-130	1	(A.LOCK BRAKE)			-2101
NA01-26-130B	1	(W/O A.LOCK BRAKE)			2101-
NA23-26-130A	1	(A.LOCK BRAKE)			2101-
26-110Y		KNUCKLE(L),REAR			
NA01-26-140A	1	(W/O A.LOCK BRAKE)			-2101
NA23-26-140	1	(A.LOCK BRAKE)			-2101
NA01-26-140B	1	(W/O A.LOCK BRAKE)			2101-
NA23-26-140A	1	(A.LOCK BRAKE)			2101-
26-251B		PLATE,DISC			
NA01-26-251A	2				
26-261		COVER,DUST			
NA01-26-261A	2				
33-042		NUT			
NA01-33-042A		W/WASHER			
A (NA01-33-042B)	2				-0820
NA01-33-042B	2	W/WASHER			0820-
33-047		BEARING,WHEEL			
B455-33-047A	2				-2101
B455-33-047B	2				2101-
33-048		RING,RETAINING-DISC PLATE			
H260-33-048	2				
33-061		HUB,WHEEL			
B455-33-061	2				
33-062		BOLT,HUB			
B455-33-062	8				
33-065		SEAL,OIL-AXLE			
G304-33-065	2				

0820 NA35**-206394
2101 NA35**-313937

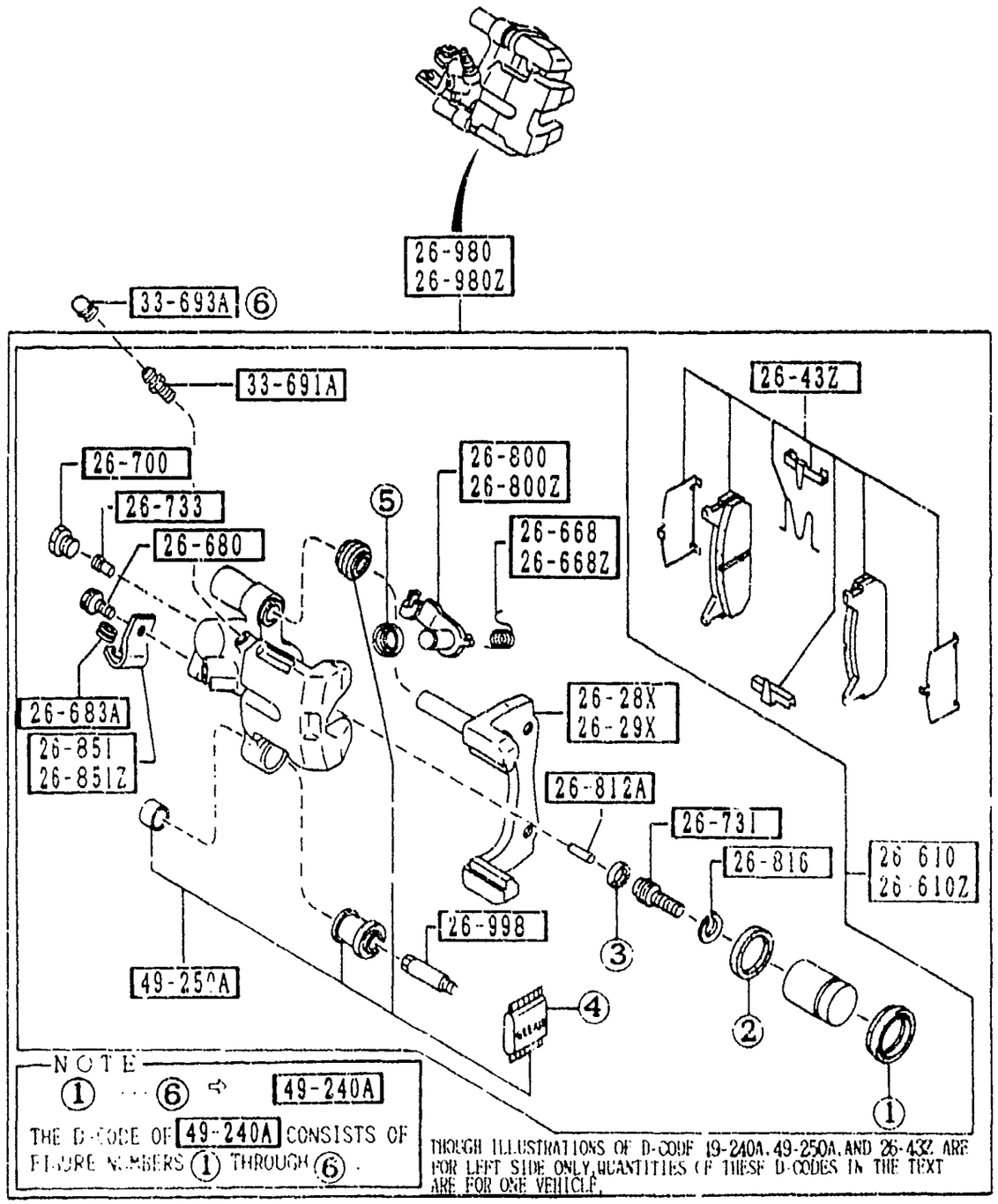


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
33-471		ROTOR,SENSOR-FRT A.B.S.			
B603-33-471	2				

2610 -1 REAR BRAKE MECHANISMS



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
26-28X		SUPPORT(R),MOUNTING			
NA10-26-28X	1				
26-29X		SUPPORT(L),MOUNTING			
NA10-26-29X	1				
26-432		PAD SET,RR CALIPER			
NAY0-26-43Z	1	NON ASBESTOS			
26-610		BODY & PISTON(R),CALIPER			
NA01-26-61X	1				
26-610Z		BODY & PISTON(L),CALIPER			
NA01-26-71Y	1				
26-668		SPRING(R),LEVER			
BW0H-26-668	1				
26-668Z		SPRING(L),LEVER			
BW0H-26-667	1				
26-680		BOLT			
BW0H-26-680	2				
26-683A		PROTECTOR			
BW0H-26-683	2				
26-700		PLUG,SCREW			
BW0H-26-700	2				
26-731		SPINDLE,ADJUSTER			
BW0H-26-731	2				
26-733		GEAR,ADJUST			
BW0H-26-733	2				
26-800		LEVER(R),OPERATING			
BW0H-26-800	1				
26-800Z		LEVER(L),OPERATING			



NOTE

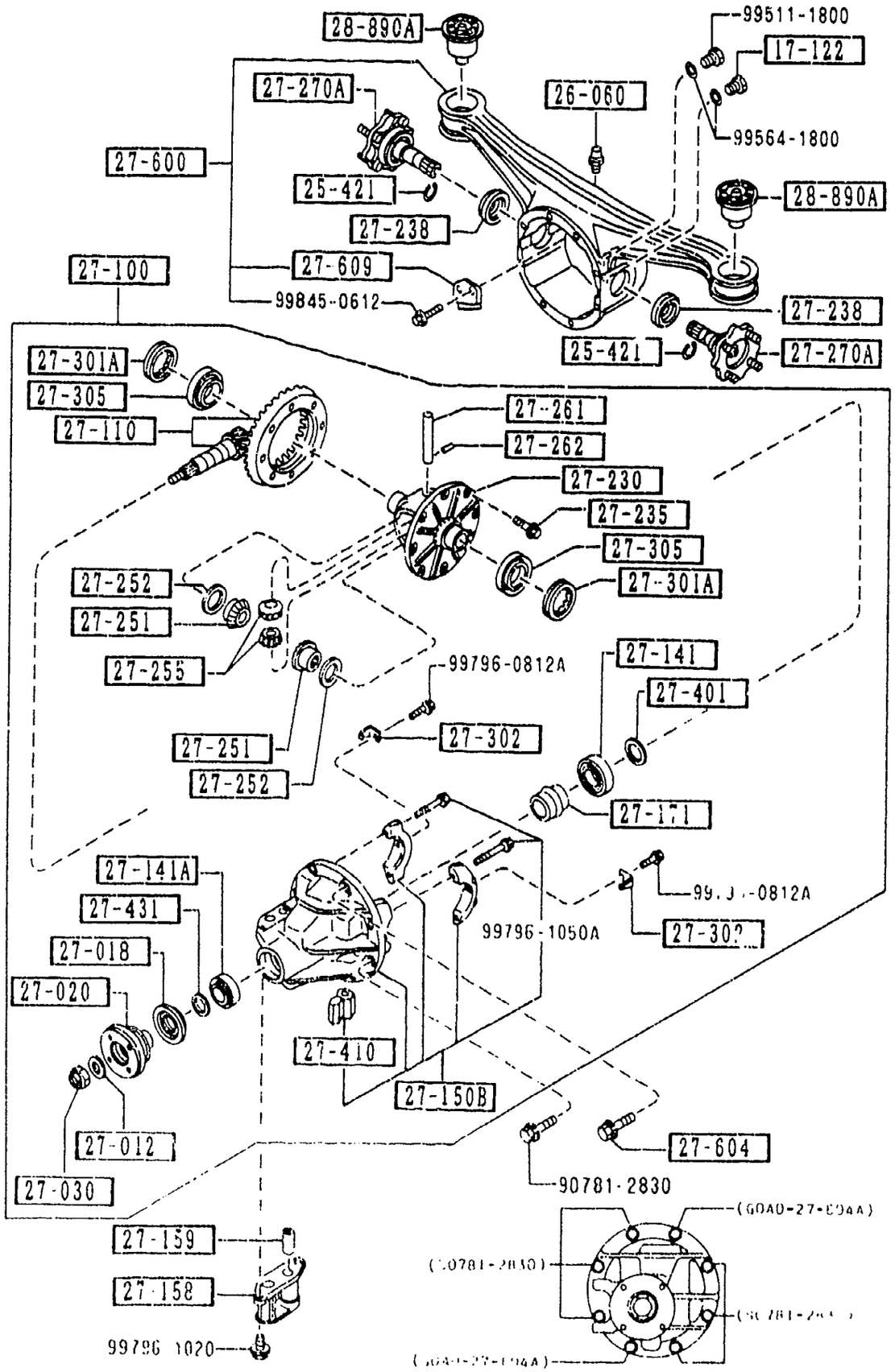
① ··· ⑥ ➪ 49-240A

THE D-CODE OF 49-240A CONSISTS OF FIGURE NUMBERS ① THROUGH ⑥.

THROUGH ILLUSTRATIONS OF D-CODE 19-240A, 49-250A, AND 26-43Z ARE FOR LEFT SIDE ONLY, QUANTITIES OF THESE D-CODES IN THE TEXT ARE FOR ONE VEHICLE.

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
BW0H-26-810	1				
26-812A		ROD,PUSH-FRT CALIPER			
BW0H-26-812	2				
26-816		RING,SNAP-RR CALIPER			
BW0H-26-816	2				-2401
GA2E-26-816	2				2401-
26-851		BRACKET(R),CABLE			
BW0H-26-851	1				
26-851Z		BRACKET(L),CABLE			
BW0H-26-861	1				
26-980		CALIPER(R),RR BRAKE			
NA01-26-980A	1				
26-980Z		CALIPER(L),RR BRAKE			
NA01-26-990A	1				
26-998		PIN,GUIDE			
BW0H-26-998A	2				
33-691A		SCREW,BLEEDER			
BW0H-26-691	2				
33-693A		CAP,BLEEDER SCREW			
0259-33-693	2				
49-240A		SEAL KIT,CALIPER-RR			
NAY1-26-44Z	1				
49-250A		BOOT KIT,RR CALIPER			
BWYH-26-45Z	1				

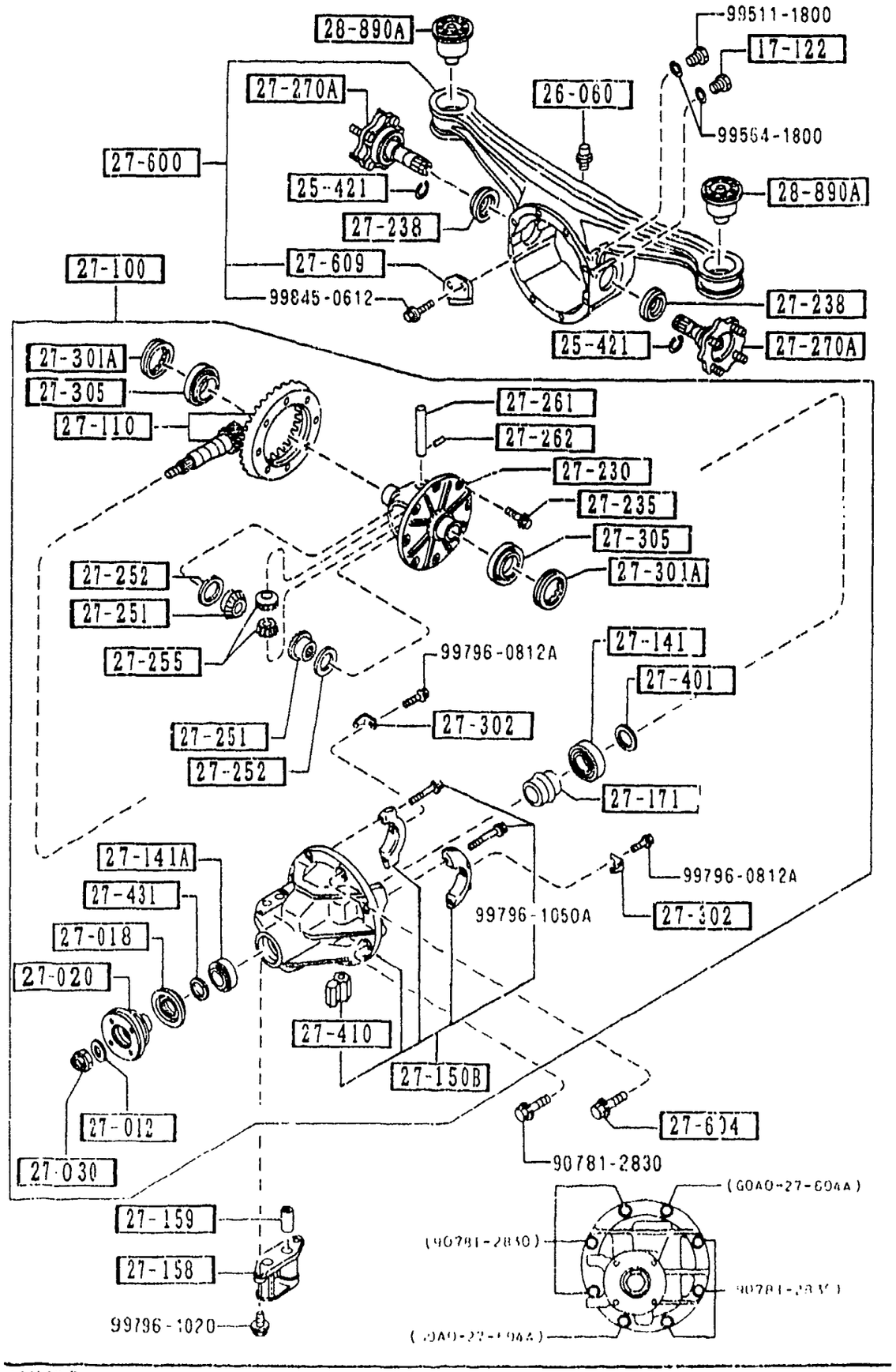
2401 NA35**-321905



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESIRICTION	FROM-TO
17-122 0810-17-121	1	PLUG,MAGNET			
25-421 F001-25-421A	2	CLIP			-2301
F002-25-421	2				2301-
26-060 0730-26-060	1	BREATHER			
27-012 3919-27-012	1	WASHER			
27-018 T020-27-165	1	SEAL,OIL			
27-020 T002-27-120B	1	FLANGE,COMPANION			
27-030 3919-27-130	1	NUT,LOCK			
27-100 T020-27-100K C (T020-27-100L)	1	DRIVING & DIFF.			-2301
T020-27-100L	1				2301-
27-110 T020-27-110B C (T020-27-110C)	1	GEAR SET,FINAL R=4.300			-2301
T020-27-110C	1	R=4.300			2301-
27-141 0755-27-210	1	BEARING,PINION			
27-141A 3919-27-220	1	BEARING,PINION			
27-150B T020-27-150D A (T020-27-150E)	1	CARRIER,DIFFERENTIAL -FRT			-2301

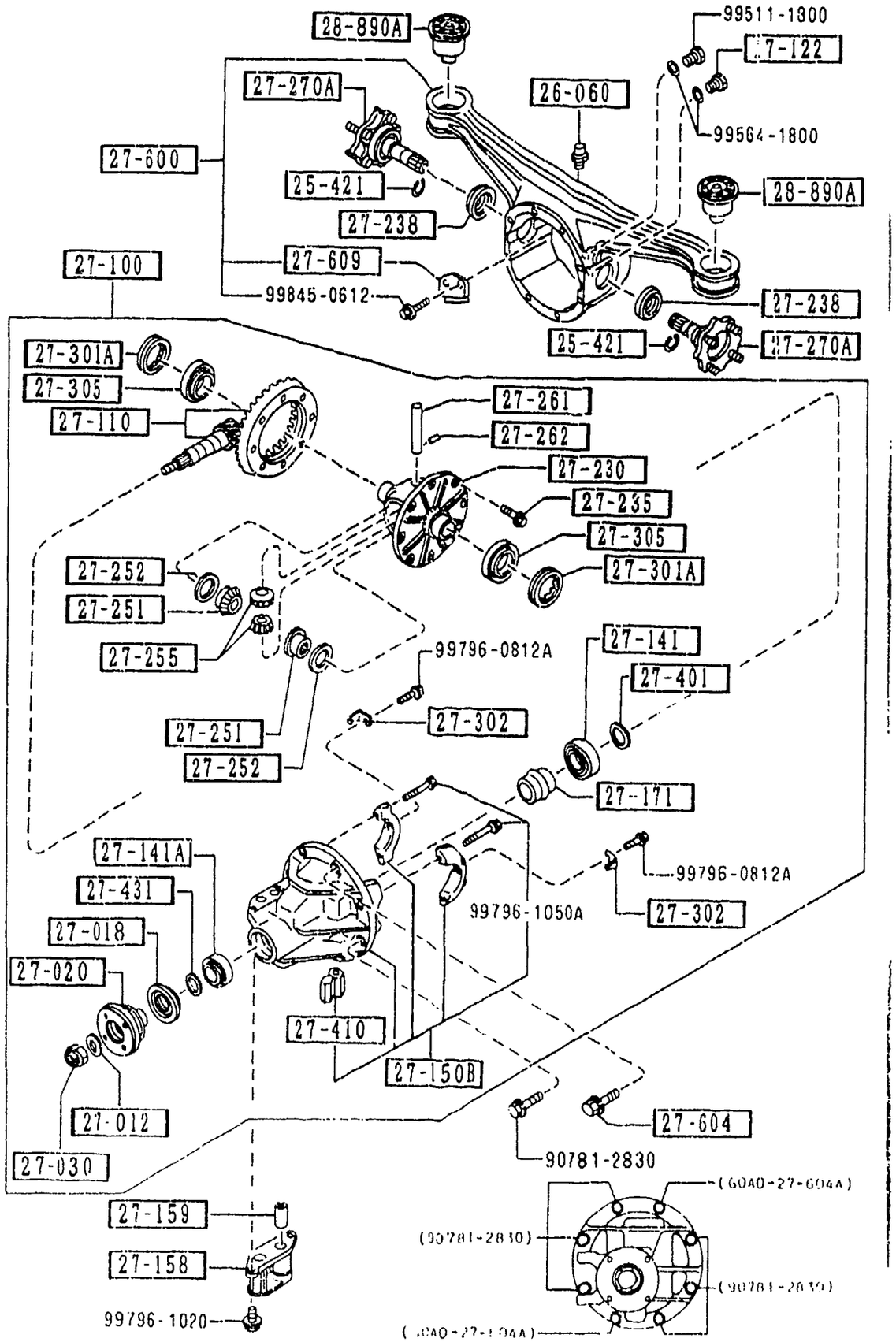
T020-27-100K
C T020-27-100L
T020-27-600G
T020-27-110B
C T020 27-110C
T020-27-150E
T006-27-401
T006-27-402
T006-27-403
T006-27-404
T006-27-405
T006-27-406
T006-27-407
T006-27-408
T006-27-409
T006-27-411
T006-27-412
T006-27-413
T006-27-414
T006-27-415

2301 NA35**-319568



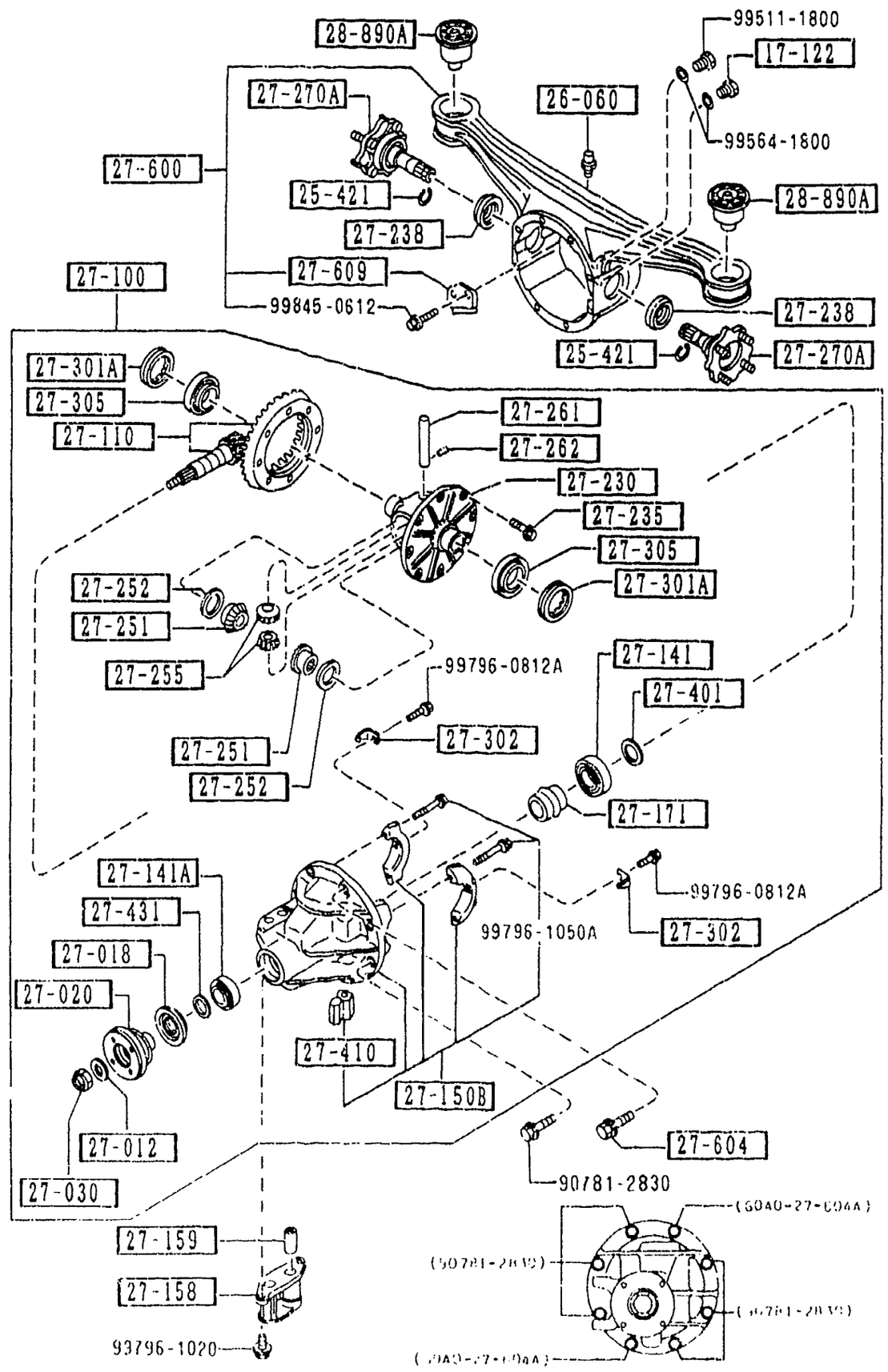
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D T020-27-150E	1				2301-
+---------+ | 27-158 | +---------+		SPACE			
T020-27-158A	1				
+---------+ | 27-159 | +---------+		PIN,TUBULAR			
T020-27-159A	1				
+---------+ | 27-171 | +---------+		PIECE,DISTANCE			
T020-27-171	1				
+---------+ | 27-230 | +---------+		CASE			
T005-27-231	1				
+---------+ | 27-235 | +---------+		BOLT,RING GEAR			
3919-27-235	8	D=10.2MM			
3919-27-236	8	D=10MM			
+---------+ | 27-238 | +---------+		SEAL,OIL			
T020-27-238	2				
+---------+ | 27-251 | +---------+		GEAR,DIFF.SIDE			
F035-27-251	2				
+---------+ | 27-252 | +---------+		WASHER			
F001-27-252	2	T=2MM			
F001-27-253	2	T=2.1MM			
F001-27-254	2	T=2.2MM			
+---------+ | 27-255 | +---------+		PINION,DIFFERENTIAL			
T020-27-255 AN(T020-27-255A)	2				-1501
T020-27-255A	2				1501-
+---------+ | 27-261 | +---------+		SHAFT,DIFF. PINION			
F001-27-261A	1				

1501 NA35**-2[illegible]754
2301 NA35**-[illegible]668



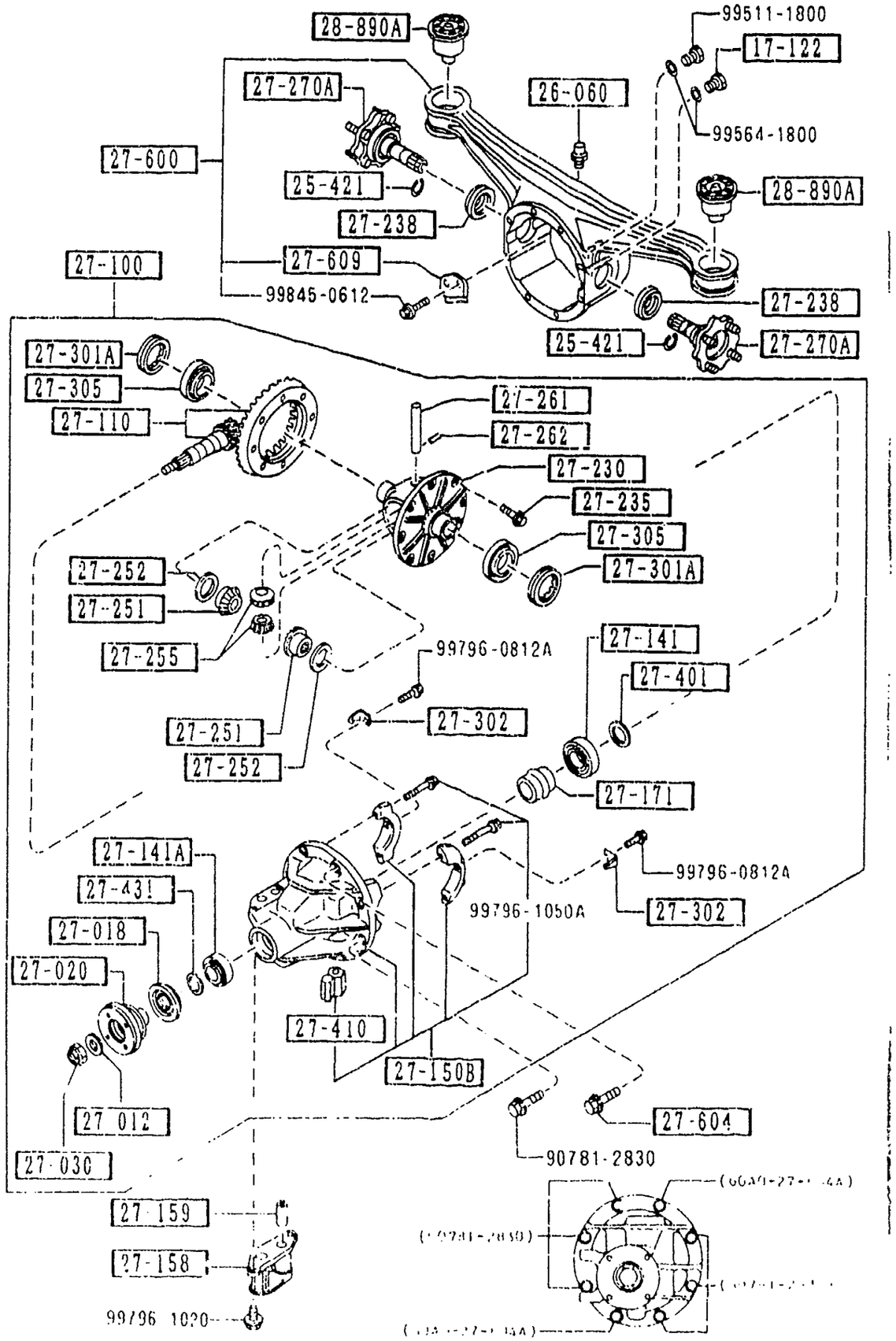
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
27-262		PIN			
0114-27-262	1				
27-270A		SHAFT,OUTPUT			
T005-27-270B	2				-2301
T005-27-270C	2				2301-
27-301A		SCREW,ADJUST			
0180-27-301A	2				
27-302		PLATE,LOCK			
0290-27-302	2				
27-305		BEARING			
0249-27-350	2				
27-401		SPACER			
0259-27-401	1	T=3.08MM			-2301
0259-27-402	1	T=3.11MM			-2301
0259-27-403	1	T=3.14MM			-2301
0259-27-404	1	T=3.17MM			-2301
0259-27-405	1	T=3.2MM			-2301
0259-27-406	1	T=3.23MM			-2301
0259-27-407	1	T=3.26MM			-2301
0259-27-408	1	T=3.29MM			-2301
0259-27-409	1	T=3.32MM			-2301
0259-27-411	1	T=3.35MM			-2301
0259-27-412	1	T=3.38MM			-2301
0259-27-413	1	T=3.41MM			-2301
0259-27-414	1	T=3.44MM			-2301

2301 NA35**-319568



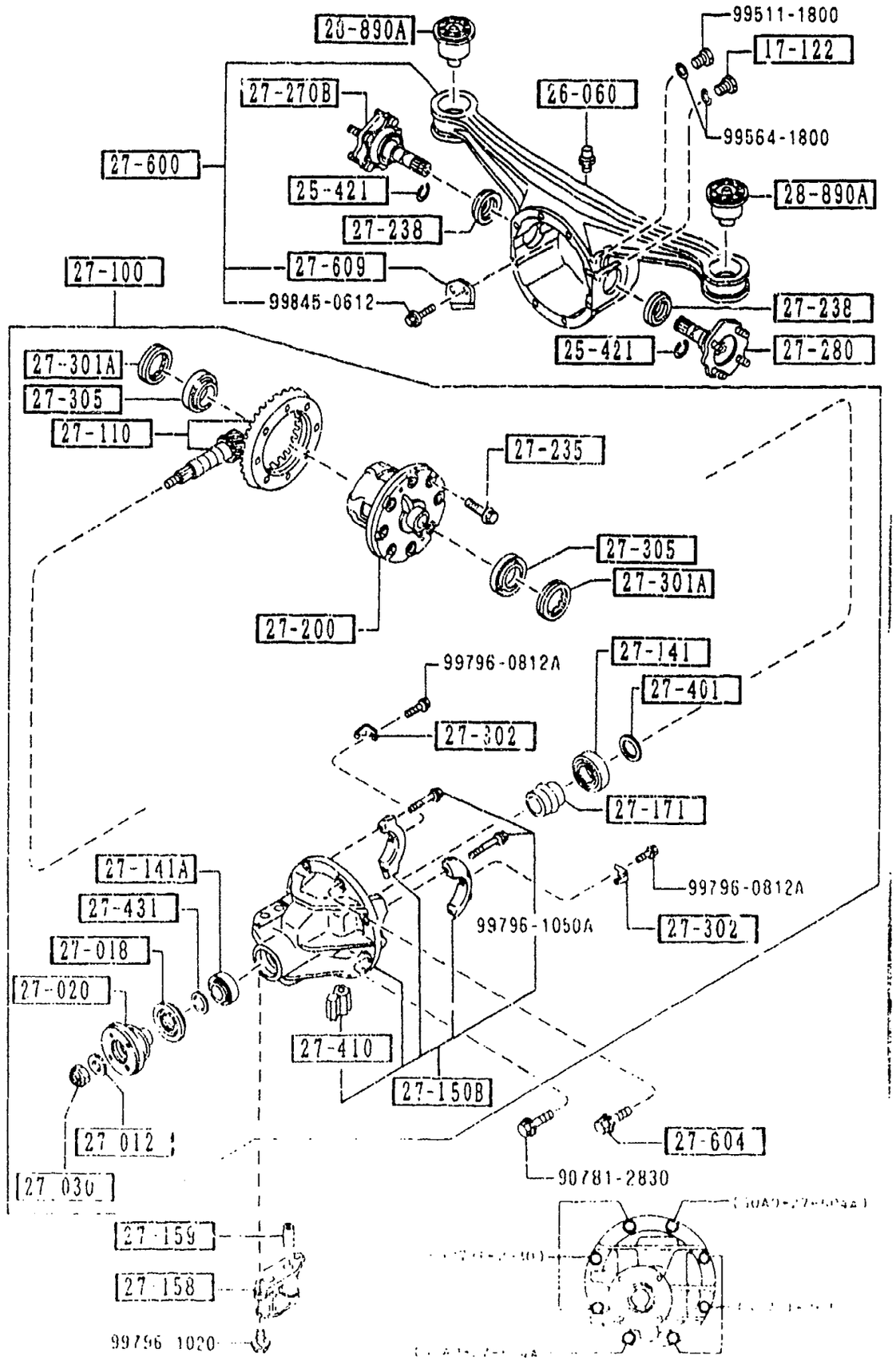
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
0259-27-415	1	T=3.47MM			-2301
T006-27-401	1	T=2.08MM			2301-
T006-27-402	1	T=2.11MM			2301-
T006-27-403	1	T=2.14MM			2301-
T006-27-404	1	T=2.17MM			2301-
T006-27-405	1	T=2.2MM			2301-
T006-27-406	1	T=2.23MM			2301-
T006-27-407	1	T=2.26MM			2301-
T006-27-408	1	T=2.29MM			2301-
T006-27-409	1	T=2.32MM			2301-
T006-27-411	1	T=2.35MM			2301-
T006-27-412	1	T=2.38MM			2301-
T006-27-413	1	T=2.41MM			2301-
T006-27-414	1	T=2.44MM			2301-
T006-27-415	1	T=2.47MM			2301-
+---------+					
| 27-410 |		SPACER			
+---------+					
*T020-27-410	1	L=50.850			
*T021-27-410	1	L=50.875			
*T022-27-410	1	L=50.900			
*T023-27-410	1	L=50.925			
*T024-27-410	1	L=50.950			
*T025-27-410	1	L=50.975			
*T026-27-410	1	L=51.000			

2301 NA35**-319568



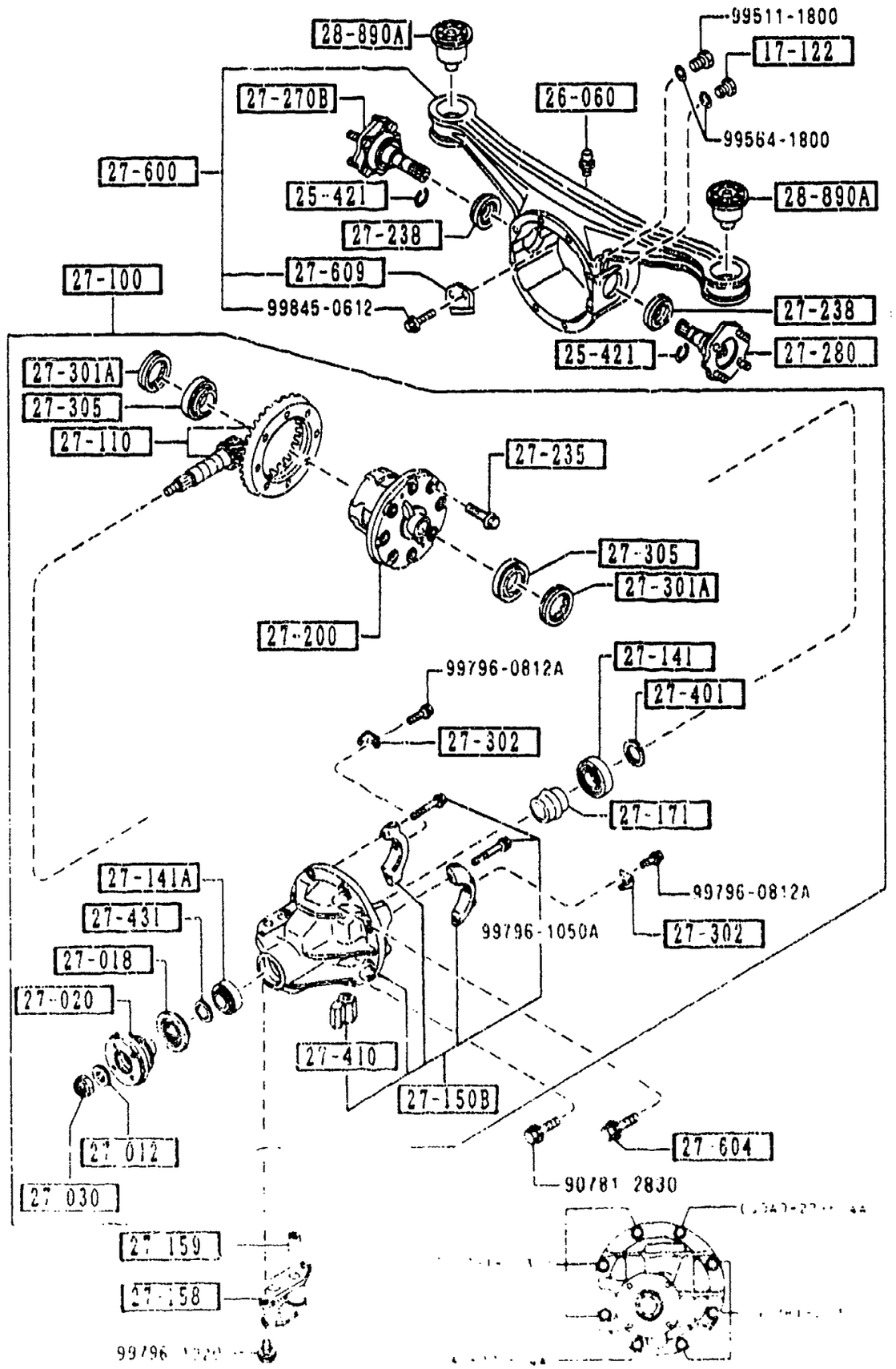
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
CONT'D					
*T027-27-410	1	L=51.025			
*T028-27-410	1	L=51.050			
| 27-431 |		SPACER			
T001-27-431	1				-2701
TA01-27-431	1				2701-
| 27-600 |		CASING,DIFFERENTIAL			
T020-27-600F A (T020-27-600G)	1				-2301
T020-27-600G	1				2301-
| 27-604 |		BOLT,CARRIER			
G0A0-27-604A	2				
| 27-609 |		PLATE,BAFFLE-DIFF CASING			
M0A1-27-609A	1				-0801
T025-27-609	1				0801-
| 28-890A |		RUBBER,SUB FRAME MTG			
NA01-28-890	2				

0801 NA35** 205068
2301 NA35** 319568



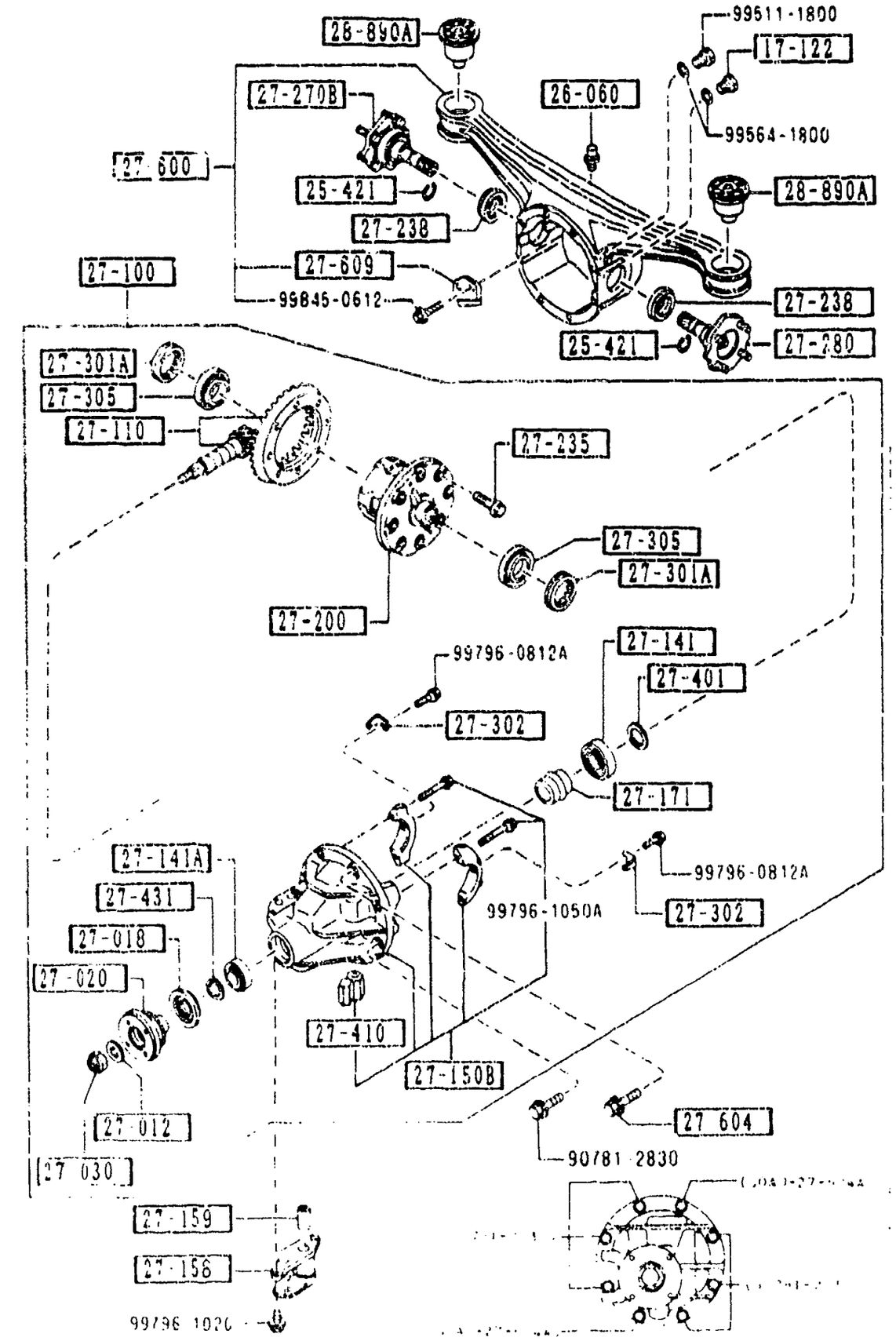
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
17-122		PLUG,MAGNET			
0810-17-121	1				
25-421		CLIP			
F001-25-421A	2				-2301
F002-25-421	2				2301-
26-060		BREATHER			
0730-26-060	1				
27-012		WASHER			
3919-27-012	1				
27-018		SEAL,OIL			
T020-27-165	1				
27-020		FLANGE,COMPANION			
T002-27-120B	1				
27-030		NUT,LOCK			
3919-27-130	1				
27-100		DRIVING & DIFF.			
T025-27-100J	1				-2301
T025-27-100L	1				2301-
27-110		GEAR SET,FINAL			
T020-27-110B		R=4.300			
C (T020-27-110C)	1				-2301
T020-27-110C	1	R=4.300			2301-
27-141		BEARING,PINION			
0755-27-210	1				
27-141A		BEARING,PINION			
3919-27-220	1				
27-150B		CARRIER,DIFFERENTIAL -FRT			
T020-27-150D	1				2301
A (T020-27-150E)					

T020-27-110B
C T020-27-110C
T020-27-150E
T006-27-401
T006-27-402
T006-27-403
T006-27-404
T006-27-405
T006-27-406
T006-27-407
T006-27-408
T006-27-409
T006-27-411
T006-27-412
T006-27-413
T006-27-414
T006-27-415
2301 NA35**-519568



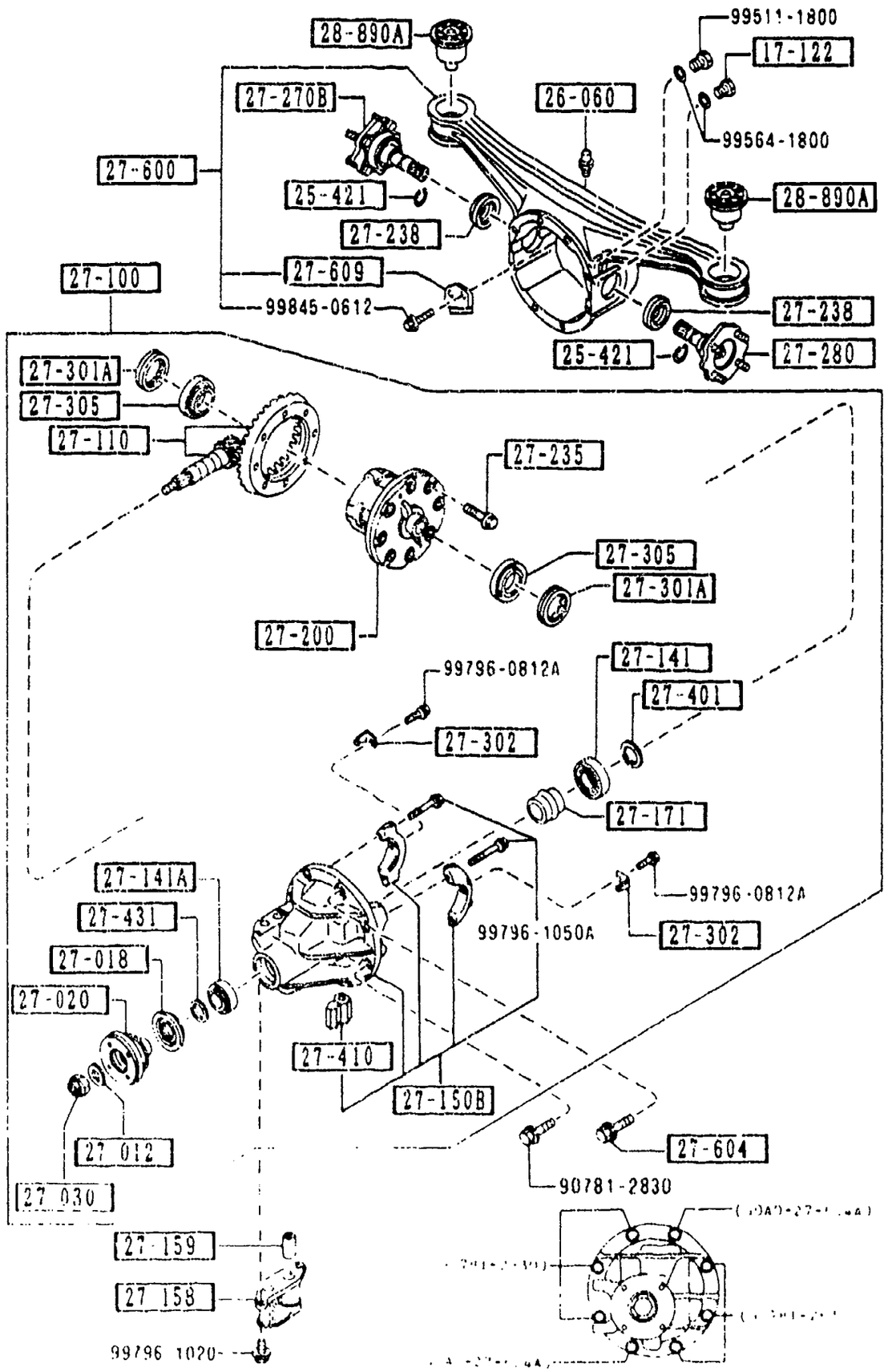
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
CONT'D					
T020-27-150E	1				2301-
27-158		SPACE			
T020-27-158A	1				
27-159		PIN,TUBULAR			
T020-27-159A	1				
27-171		PIECE,DISTANCE			
T020-27-171	1				
27-200		DIFFERENTIAL			
T016-27-200B	1				-2301
T016-27-200C	1				2301-
27-235		BOLT,RING GEAR			
3919-27-235	8	D=10.2MM			
3919-27-236	8	D=10MM			
27-238		SEAL,OIL			
T020-27-238	2				
27-270B		SHAFT(R),OUTPUT			
T015-27-270	1				-2301
T015-27-270A	1				2301-
27-280		SHAFT(L),OUTPUT			
T015-27-280	1				-2301
T015-27-280A	1				2301-
27-301A		SCREW,ADJUST			
0180-27-301A	2				
27-302		PLATE,LOCK			
0290-27-302	2				
27-305		BEARING			
0249-27-350	2				

2301 NA35**-319568



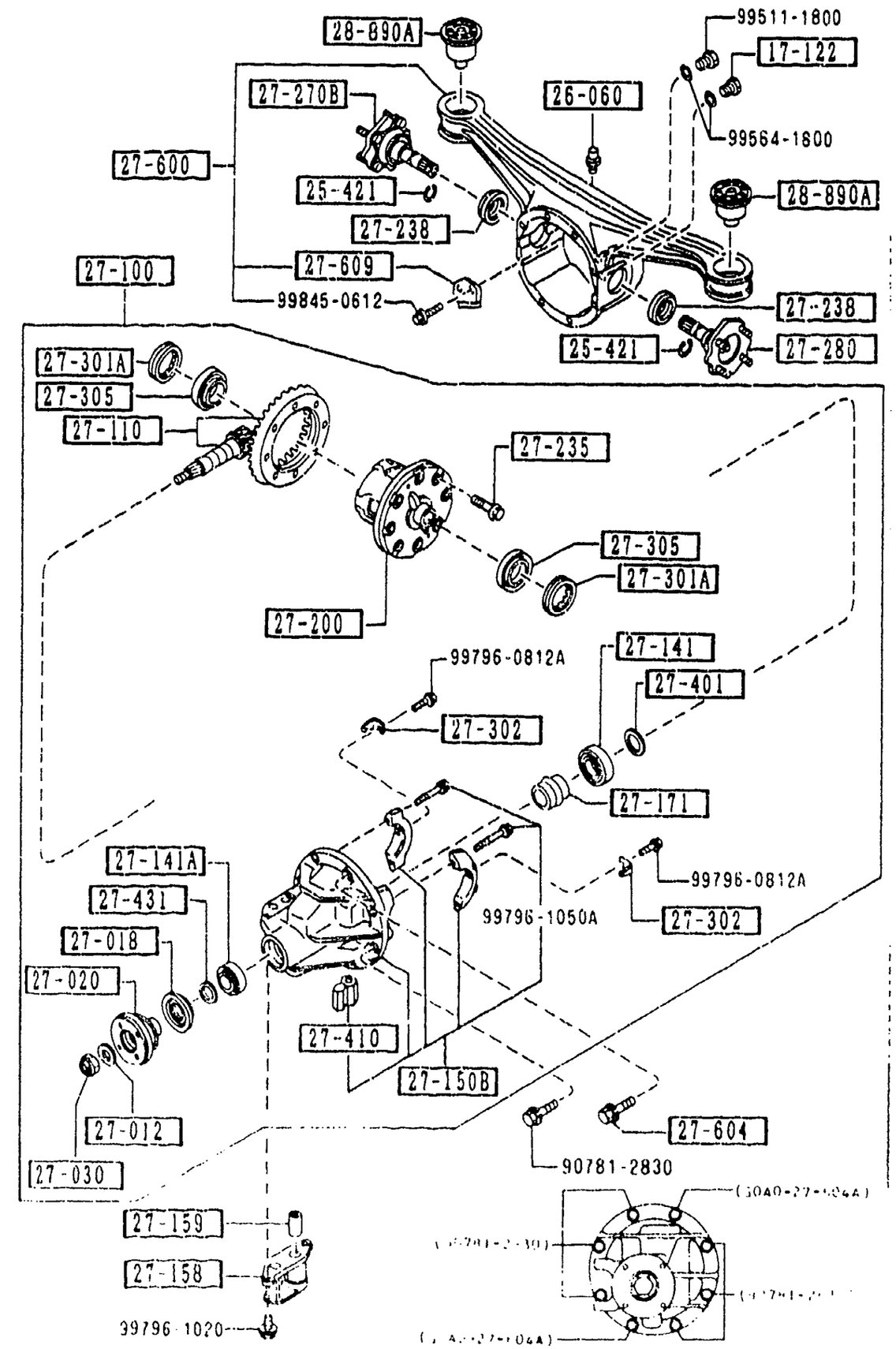
PART NO.	QTY	MODEL/RESTRICTION	MODEL RESTRICTION	MODEL RESTRICTION	FROM TO
27-401		SPACER			
0259-27-401	1	T=3.08MM			-2301
0259-27-402	1	T=3.11MM			-2301
0259-27-403	1	T=3.14MM			-2301
0259-27-404	1	T=3.17MM			-2301
0259-27-405	1	T=3.2MM			-2301
0259-27-406	1	T=3.23MM			-2301
0259-27-407	1	T=3.26MM			-2301
0259-27-408	1	T=3.29MM			-2301
0259-27-409	1	T=3.32MM			-2301
0259-27-411	1	T=3.35MM			-2301
0259-27-412	1	T=3.38MM			-2301
0259-27-413	1	T=3.41MM			-2301
0259-27-414	1	T=3.44MM			-2301
0259-27-415	1	T=3.47MM			-2301
T006-27-401	1	T=2.08MM			2301-
T006-27-402	1	T=2.11MM			2301-
T006-27-403	1	T=2.14MM			2301-
T006-27-404	1	T=2.17MM			2301-
T006-27-405	1	T=2.2MM			2301-
T006-27-406	1	T=2.23MM			2301-
T006-27-407	1	T=2.26MM			2301-
T006-27-408	1	T=2.29MM			2301-

2301 NA35##-319568



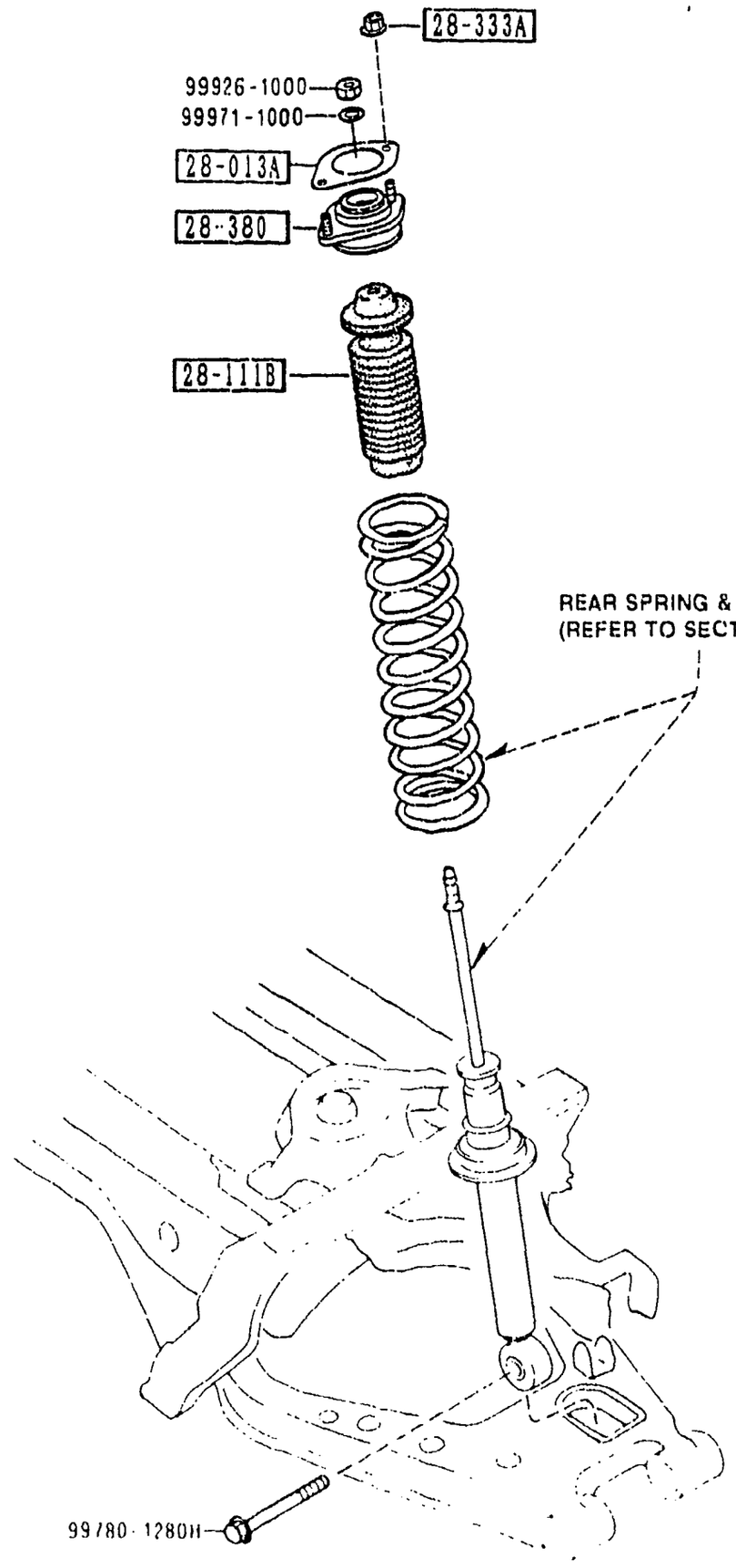
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
T006-27-409	1	T=2.32MM			2301-
T006-27-411	1	T=2.35MM			2301-
T006-27-412	1	T=2.38MM			2301-
T006-27-413	1	T=2.41MM			2301-
T006-27-414	1	T=2.44MM			2301-
T006-27-415	1	T=2.47MM			2301-
27-410		SPACER			
*T020-27-410	1	L=50.850			
*T021-27-410	1	L=50.875			
*T022-27-410	1	L=50.900			
*T023-27-410	1	L=50.925			
*T024-27-410	1	L=50.950			
*T025-27-410	1	L=50.975			
*T026-27-410	1	L=51.000			
*T027-27-410	1	L=51.025			
*T028-27-410	1	L=51.050			
27-431		SPACER			
1001-27-431	1				-2701
TA01-27-431	1				2701-
27-600		CASING,DIFFERENTIAL			
T020-27-600F (T020-27-600G)	1				-2301
T020-27-600G	1				2301-
27-604		BOLT,CARRIER			
G0A0-27-604A	2				

2301 NA35**-319568



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
27-609		PLATE,BAFFLE-DIFF CASING			
M0A1-27-609A	1				-0801
T025-27-609	1				0801-
28-890A		RUBBER,SUB FRAME MTG			
NA01-28-890	2				

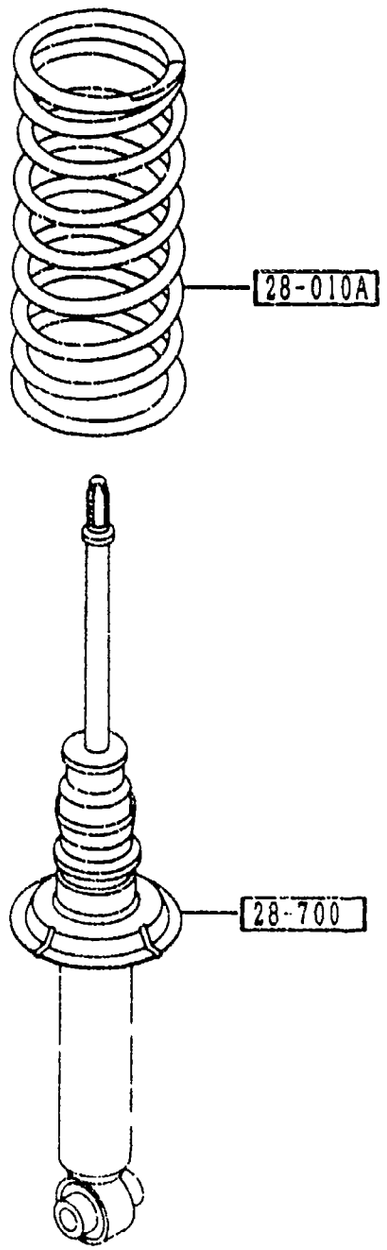
0801 NA35**-205068



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
28-013A G030-28-013A	2	SHEET,RUBBER			
28-111B NA01-28-111	2	STOPPER,BUMP			
28-333A H001-28-333	4	NUT,FLANGE			
28-380 NA01-28-380A A (NA01-28-380B)	2	RUBBER,MOUNTING			-2310
NA01-28-380B	2				2310-

2310 NA35**-319561

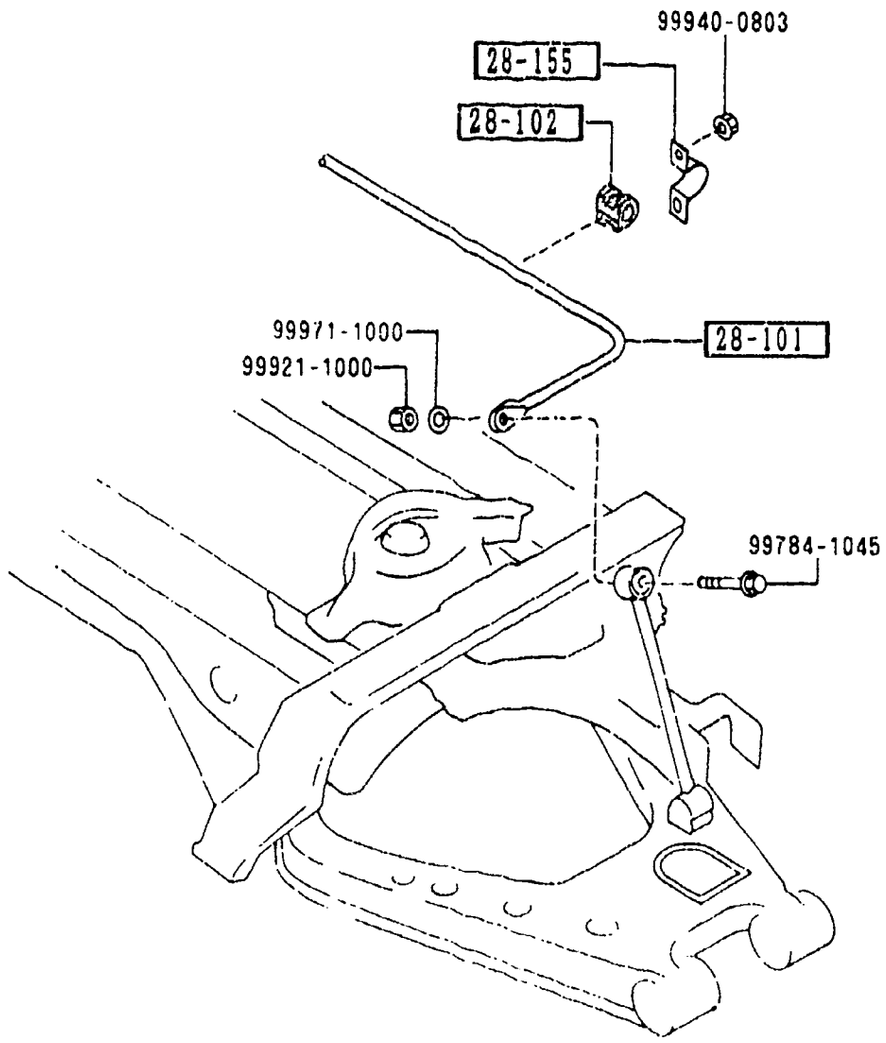
2801 REAR SPRING & DAMPER



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
28-010A		SPRING,COIL-REAR			
NA01-28-011B A (NA01-28-011C)	2				-1C01
NA03-28-011 A (NA03-28-011A)	2				-1C01
NA01-28-011C	2	(MT)			1C01-
NA03-28-011A	2	(AT)			1C01-
28-700		DAMPER,REAR			
NA01-28-700	2				

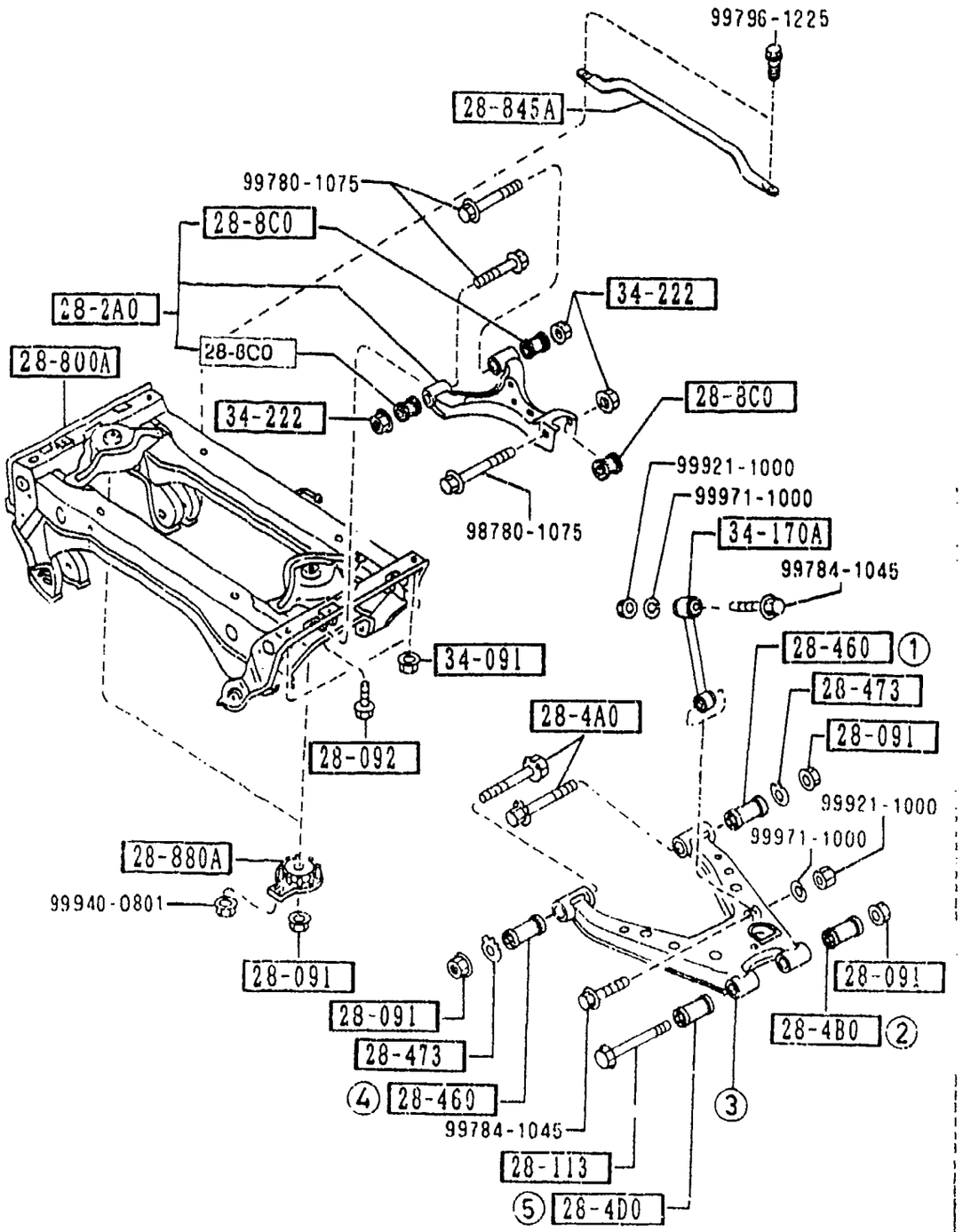
1C01 NA35##-309801

2810 REAR STABILIZER



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
28-101		STABILIZER,RR			
NA01-28-151A	1				
28-102		BUSH,STABILIZER-RR			
FB01-28-156	2				
28-155		PLATE,STABILIZER-RR			
FB01-28-155	2				

2830 -1 REAR LOWER ARMS & SUB FRAME



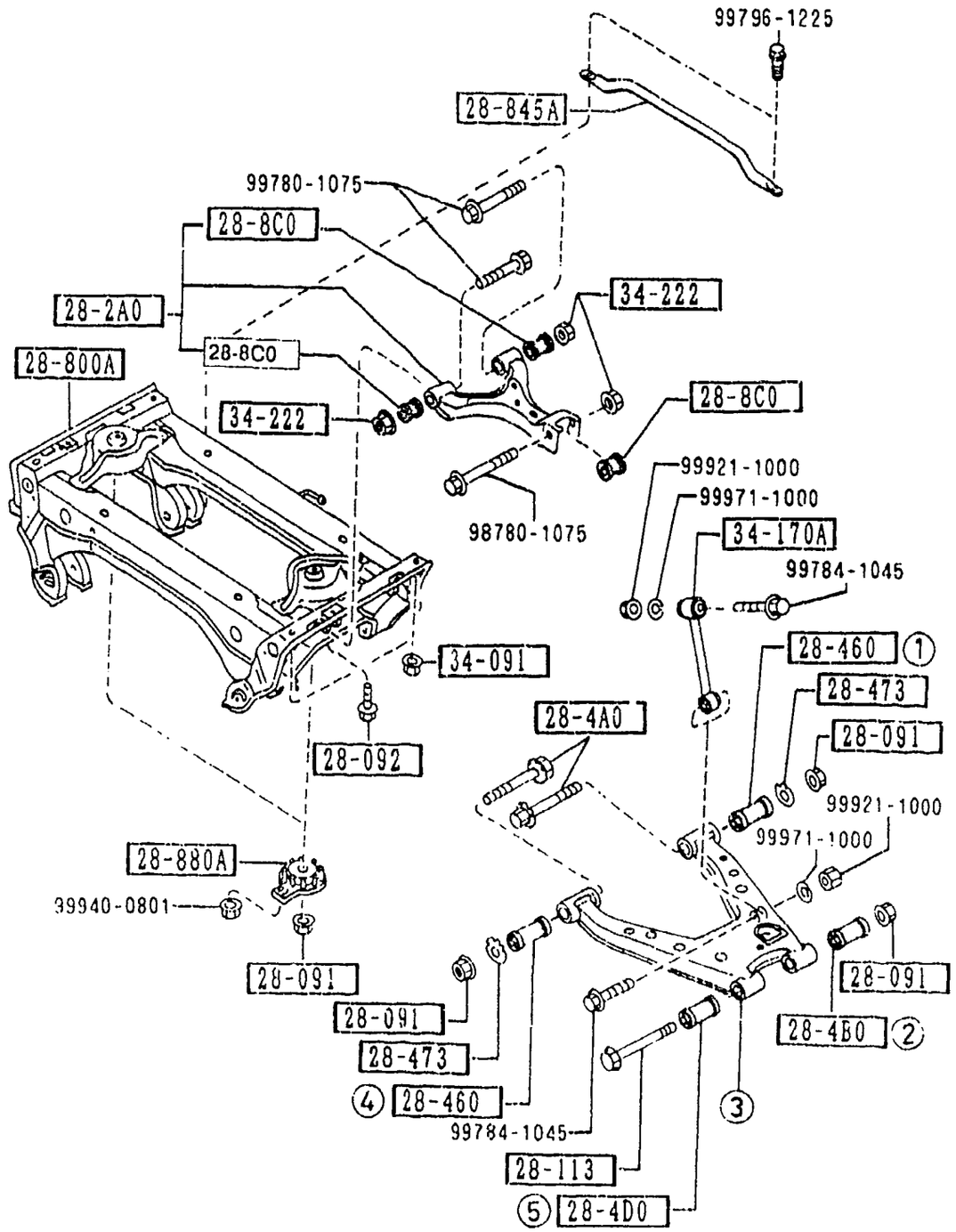
NOTE

(1) ... (5) ⇨ 28-300 / 28-300Z

THE P CODE OF 28-300 / 28-300Z CONSISTS OF FIGURE NUMBERS (1) THROUGH (5).

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
28-091		NUT			
B037-28-091	8				
28-092		BOLT,CONTROL LINK			
NA01-28-092	2				
28-113		BOLT			
NA01-28-113	2				
28-2A0		ARM,UPPER-REAR			
NA01-28-2A0B	2				
28-300		ARM(R),LOWER-REAR			
NA01-28-300	1				
28-300Z		ARM(L),LOWER-REAR			
NA01-28-350	1				
28-4A0		BOLT,ADJUST			
NA01-28-4A0	4				
28-4B0		BUSHING,RUBBER-LOWER ARM			
NA01-28-4B0	2				
28-4D0		BUSHING,RUBBER-LOWER ARM			
NA01-28-4D0	2				
28-460		BUSHING,LOWER ARM			
NA01-28-460	4				
28-473		PLATE,CAM-SUB FRAME			
NA01-28-473	4				
28-8C0		BUSHING,RUBBER			
NA01-28-8C0B	6				
28-800A		MEMBER,CROSS			
NA23-28-800	1				-1801
N007-28-800C A (N007-28-800D)	1				1801-2101
N007-28-800D	1				2101-

1801 NA35**-235561
2101 NA35**-313937



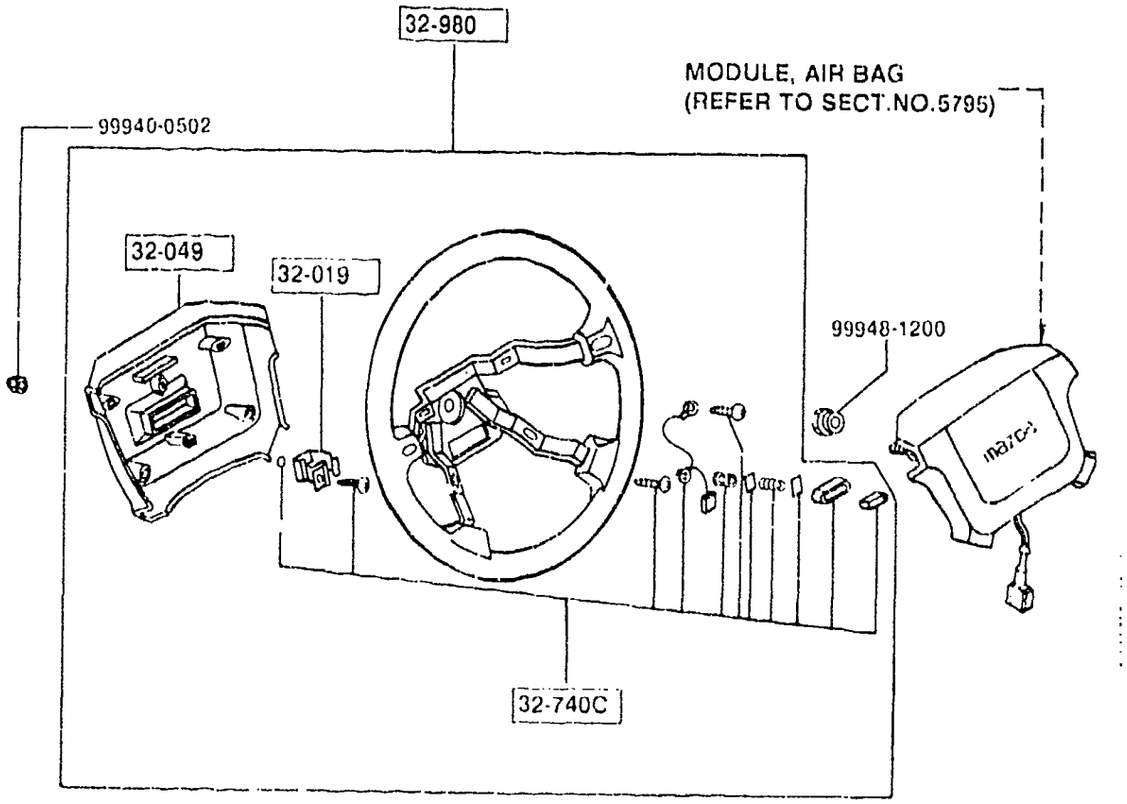
NOTE

① ... ⑤ ⇨ 28-300 / 28-300Z

THE PURPOSE OF 28-300 / 28-300Z CONSISTS OF FIGURE NUMBERS ① THROUGH ⑤

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
28-845A		BAR,REAR SUSPENSION			
N007-28-845A	1				1801-
28-880A		WASHER,STOP			
NA01-28-880B	2				
34-091		NUT			
FB01-34-091	4				
34-170A		LINK,CONTROL-STAB			
NA01-34-170	2				
34-222		NUT			
8871-34-222	6				

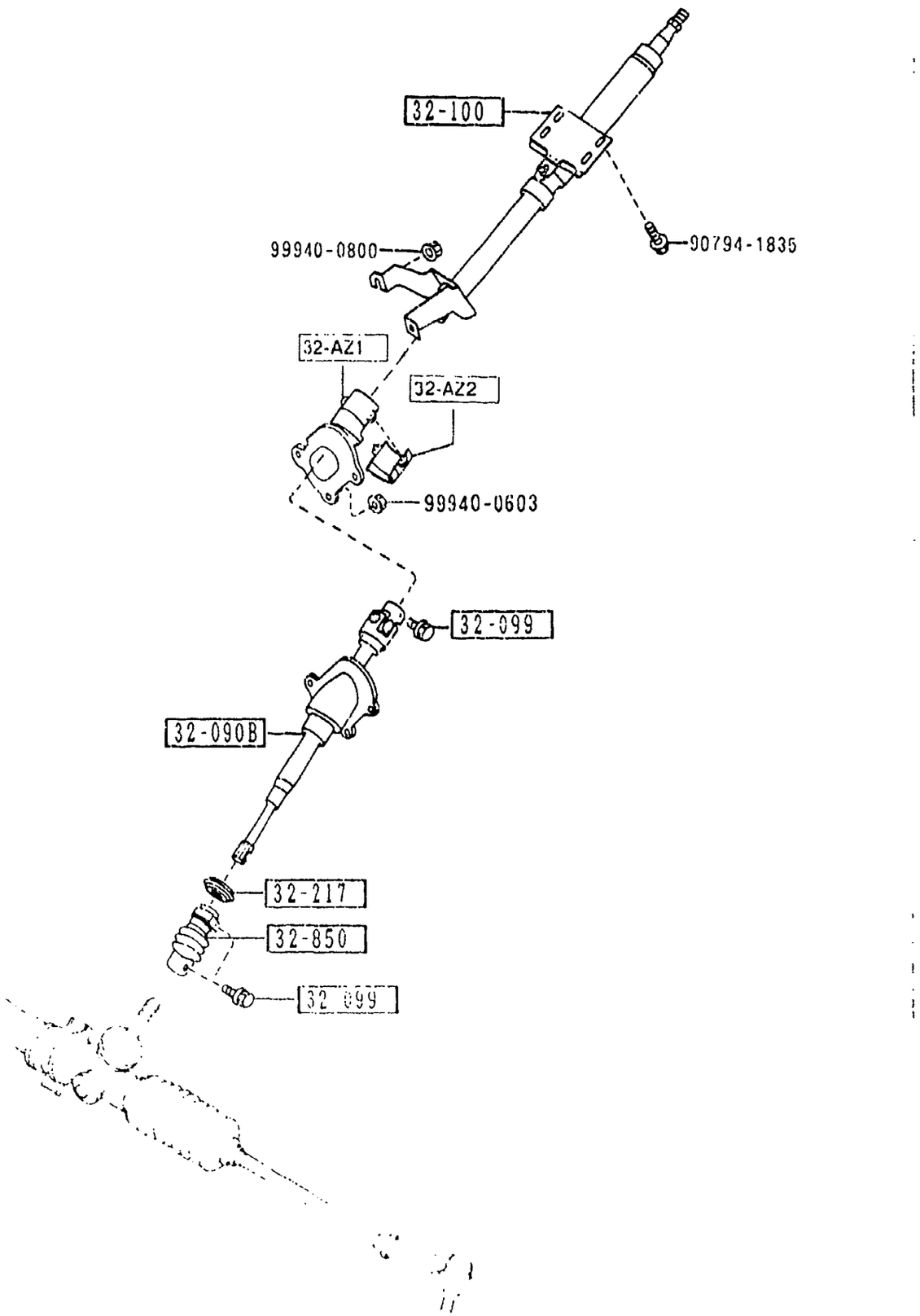
1801 NA35**-235561



3200 -1 * STEERING WHEEL

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
32-019 NA01-32-019	1	BRACKET,COUPLER			
32-049 NA01-32-049	1	COVER,WHEEL CORE			
32-740C NA01-32-750	1	PARTS SET,ST. WHEEL			
32-980 NA01-32-980B A (NA01-32-980C)	1	BOSS,STEERING WHEEL			-2417
NA02-32-980B A (NA02-32-980C)	1				-2417
*NA01-32-980C	1	BASE, (URETHANE)			2417-
*NA02-32-980C	1	PKG-OPT, V-SPECIAL, (LEATHER)			2417-

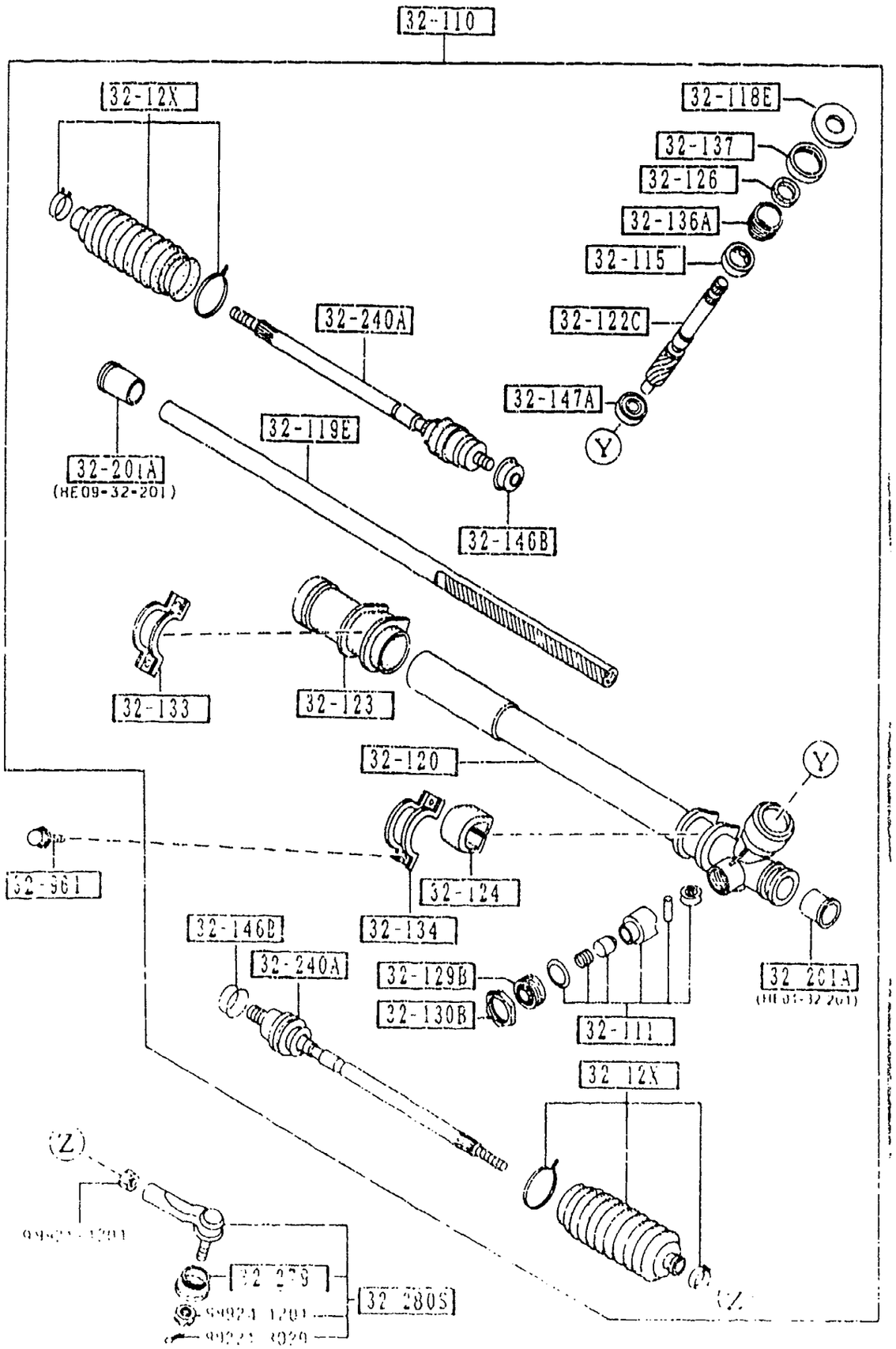
2417 NA35**-324605



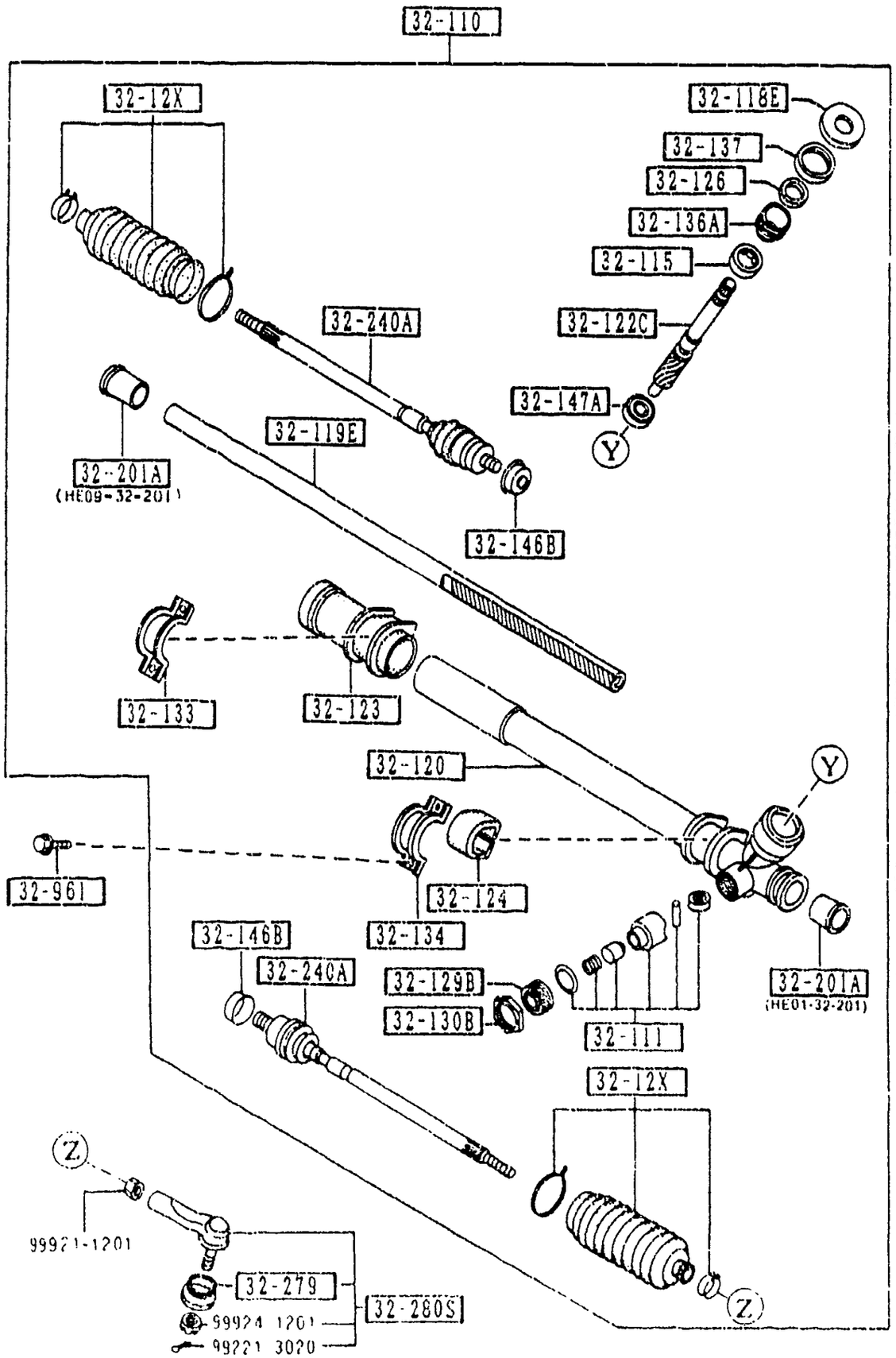
3210 -1 * STEERING COLUMN & SHAFTS

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
32-AZ1		COVER,JOINT-UPPER			
NA01-32-AZ1B	1				
32-AZ2		COVER,JOINT-LOWER			
NA01-32-AZ2A	1				
32-090B		SHAFT,INTERMED.			
NA01-32-090B	1	(W/O P.S.)			-1C01
NA02-32-090B	1	(W/P.S.)			-1C01
NA01-32-090C	1	(W/O P.S.)			1C01-
NA02-32-090C	1	(W/P.S.)			1C01-
32-099		BOLT,SHAFT			
B455-32-099	3				
32-100		SHAFT,ENGY.ABSORBER			
NA01-32-100B	1				
32-217		GROMMET			
NA01-32-217	1				
32-850		JOINT,STEERING			
NA01-32-850	1				-1C01
NA01-32-850A	1				1C01-

1C01 NA35** 309801



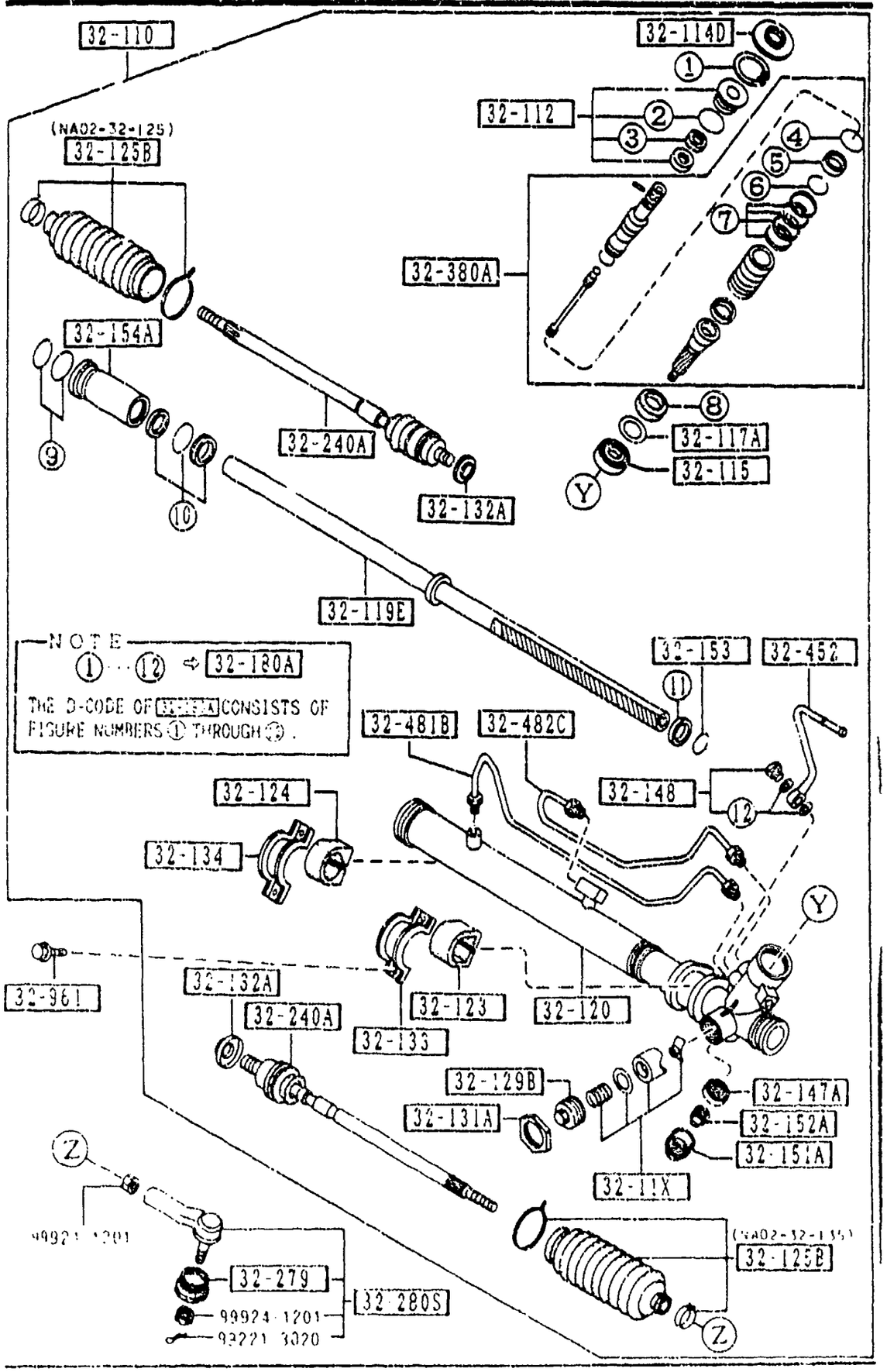
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
32-110		GEAR,STEERING			
NA01-32-110	1				
32-111		YOKE,SUPPORT			
GJ21-32-111	1				
32-115		BEARING,ST. GEAR			
G030-32-115	1				
32-118E		COVER,DUST-ST. GEAR			
NA01-32-118	1				
32-119E		RACK,STEERING GEAR			
NA01-32-119	1				
32-12X		BOOT SET,ST. GEAR			
NA01-32-12X	2				
32-120		HOUSING,GEAR			
NA01-32-120	1				
32-122C		PINION,STEERING GEAR			
NA01-32-122	1				
32-123		RUBBER,MOUNTING			
NA01-32-123	1				
32-124		RUBBER,MOUNTING			
NA01-32-124	1				
32-126		SEAL,SHAFT			
G030-32-126	1				
32-129B		PLUG,PINION			
HE01-32-129	1				
32-130B		NUT,LOCK			
S083-32-137	1				
32-133		PLATE,CLAMP			
BC51-32-133	1				



3220 -2 * STEERING GEAR
(W/O POWER STEERING)

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
32-134		PLATE,CLAMP			
NA01-32-134	1				
32-136A		COVER,REAR			
G030-32-136	1				
32-137		NUT,LOCK			
S030-32-137	1				
32-146B		WASHER			
HA14-32-146	2				
32-147A		BEARING,PINION			
G030-32-147	1				
32-201A		BUSHING,RACK-ST. GEAR			
HE01-32-201	1				
HE09-32-201	1				
32-240A		JOINT,BALL			
NA01-32-240	2				
32-279		SEAL,DUST-BALL JOINT			
B455-32-279	2				
32-280S		JOINT SET,BALL			
8AN1-32-280	2				
32-961		BOLT			
G030-32-961	4				

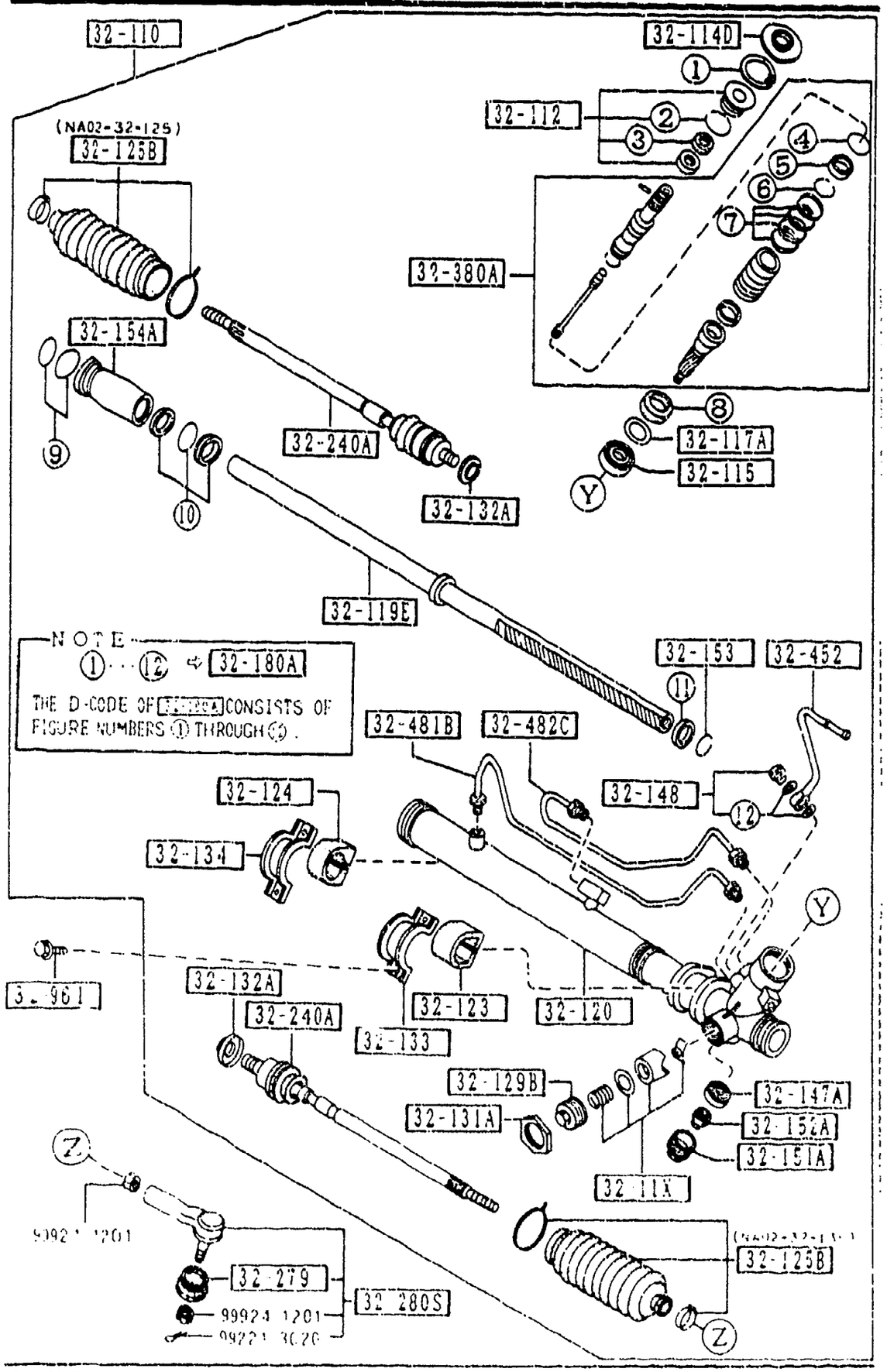
3220 A STEERING GEAR
(W/ POWER STEERING)



3220 A-1 STEERING GEAR
(W/ POWER STEERING)

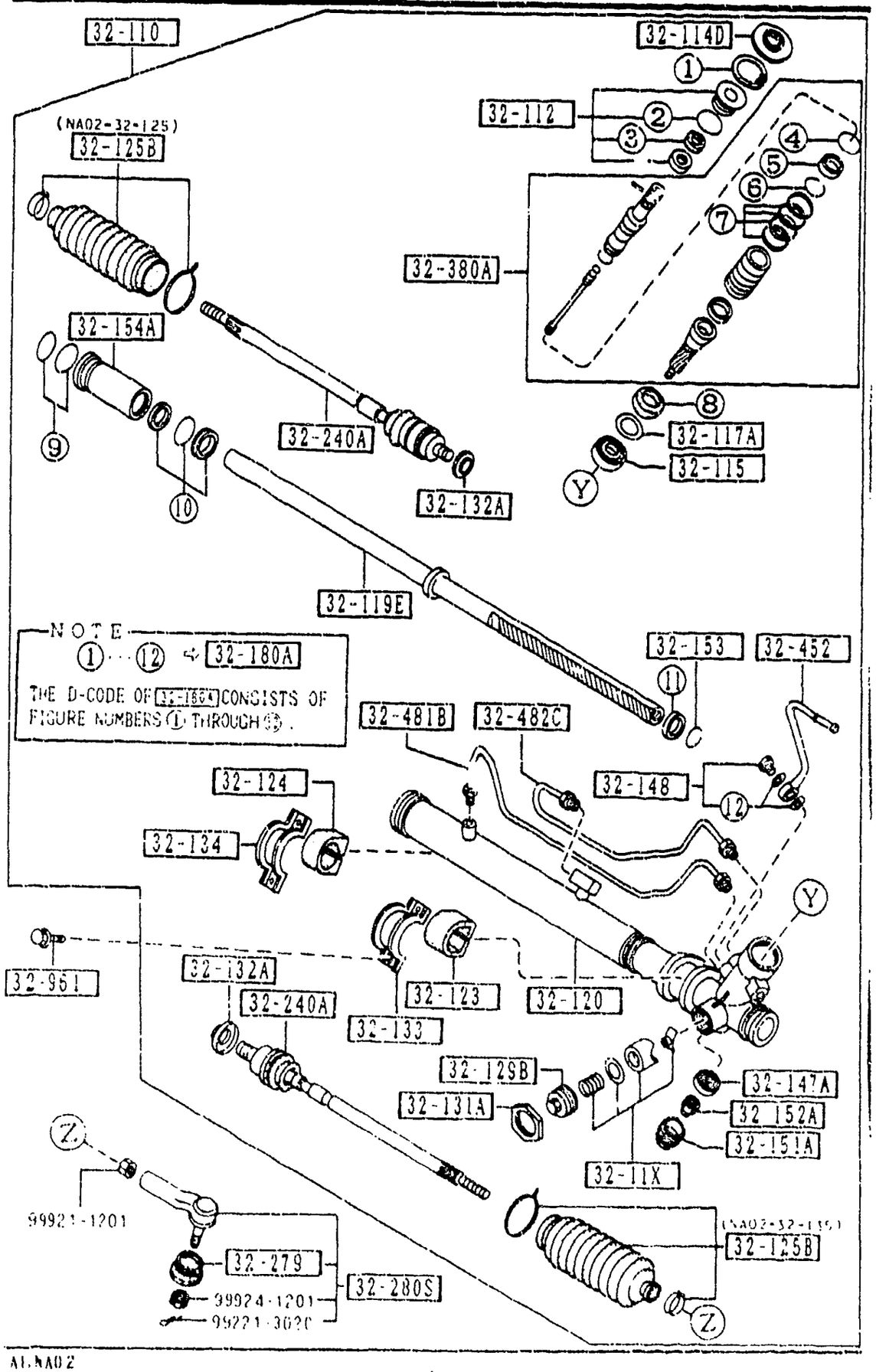
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
32-11X NA02-32-11X	1	YOKE SET,SUPPORT-ST. GEAR			
32-110 NA02-32-110	1	GEAR,STEERING			
32-112 NA02-32-112	1	COVER,DUST			
32-114D NA02-32-114	1	COVER,DUST-ST. GEAR			
32-115 NA02-32-115	1	BEARING,ST. GEAR			
32-117A NA02-32-121	1	SPACER,STEERING GEAR			
32-119E NA02-32-119	1	RACK,STEERING GEAR			
32-120 NA02-32-120	1	HOUSING,GEAR			
32-123 NA02-32-123	1	RUBBER,MOUNTING			
32-124 NA02-32-124	1	RUBBER,MOUNTING			
32-125B NA02-32-125	1	BOOT,RACK			
NA02-32-135	1				
32-129B NA02-32-129	1	PLUG,PINION			
32-131A NA02-32-131	1	NUT,LOCK-RACK			

3220 A STEERING GEAR
(W/ POWER STEERING)



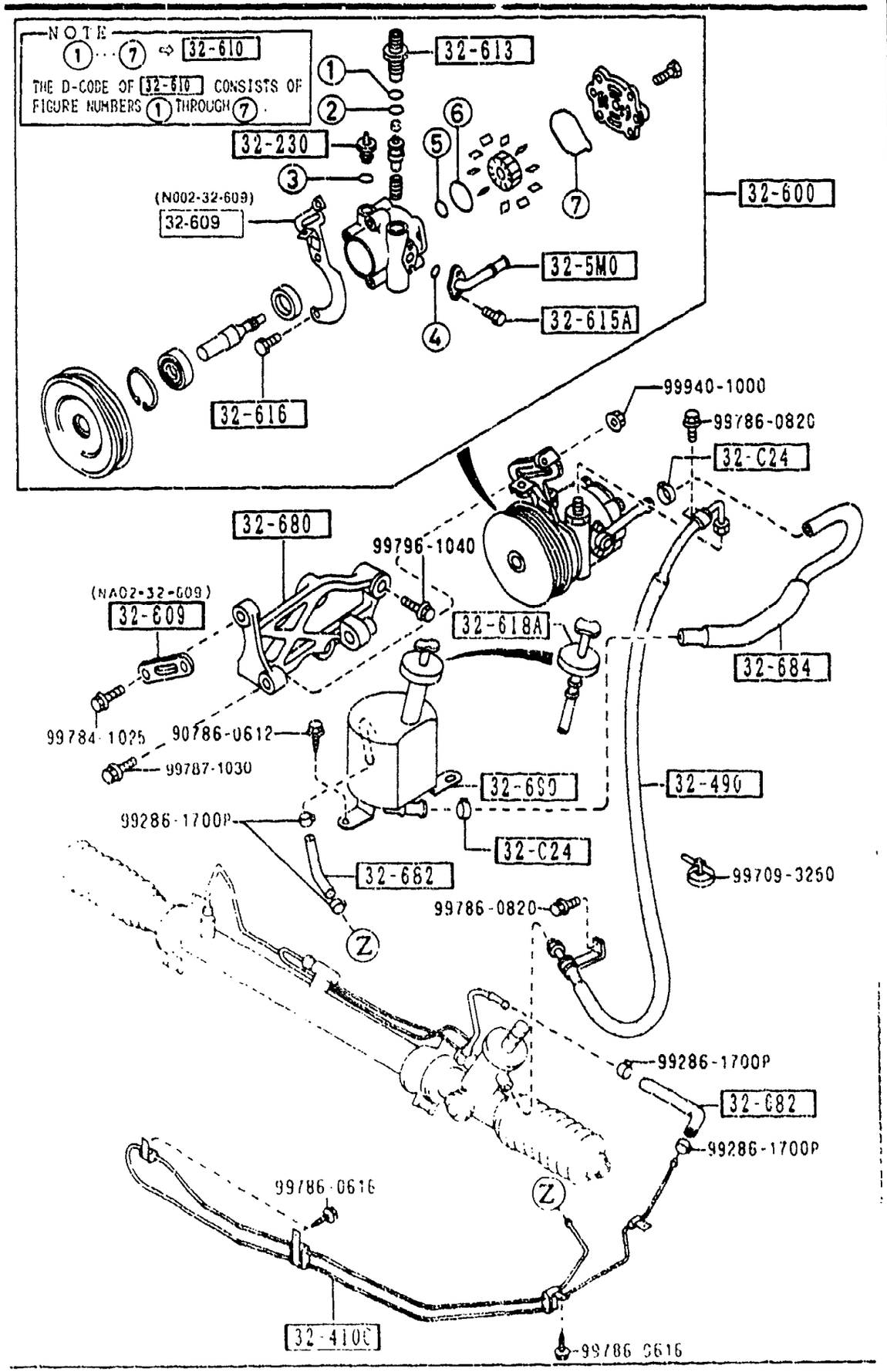
3220 A-2 STEERING GEAR
(W/ POWER STEERING)

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
32-132A		WASHER			
NA02-32-126	2				
32-133		PLATE,CLAMP			
NA02-32-133	1				
32-134		PLATE,CLAMP			
NA02-32-134	1				
32-147A		BEARING,PINION			
NA02-32-147	1				
32-148		EYE BOLT KIT,ST. GEAR			
D002-32-148	1				
32-151A		PLUG,PINION-ST.GEAR			
NA02-32-151	1				
32-152A		NUT,ADJUST			
NA02-32-152	1				
32-153		RING,BACK UP			
NA02-32-153	1				
32-154A		HOLDER,STEERING GEAR			
NA02-32-154	1				
32-180A		SEAL KIT,ST. GEAR			
NA02-32-180	1				
32-240A		JOINT,BALL			
NA02-32-240	2				
32-279		SEAL,DUST-BALL JOINT			
B455-32-279	2				
32-280S		JOINT SET,BALL			
8AN1-32-280	2				
32-380A		VALVE,ST. GEAR			
NA02-32-380	1				



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM 19
32-452		PIPE'B',ST. GEAR			
NA02-32-452	1				
32-481B		PIPE'A',CYLINDER			
NA02-32-481	1				
32-482C		PIPE' ',CYLINDER			
NA02-32-482	1				
32-961		BOLT			
G030-32-961	4				

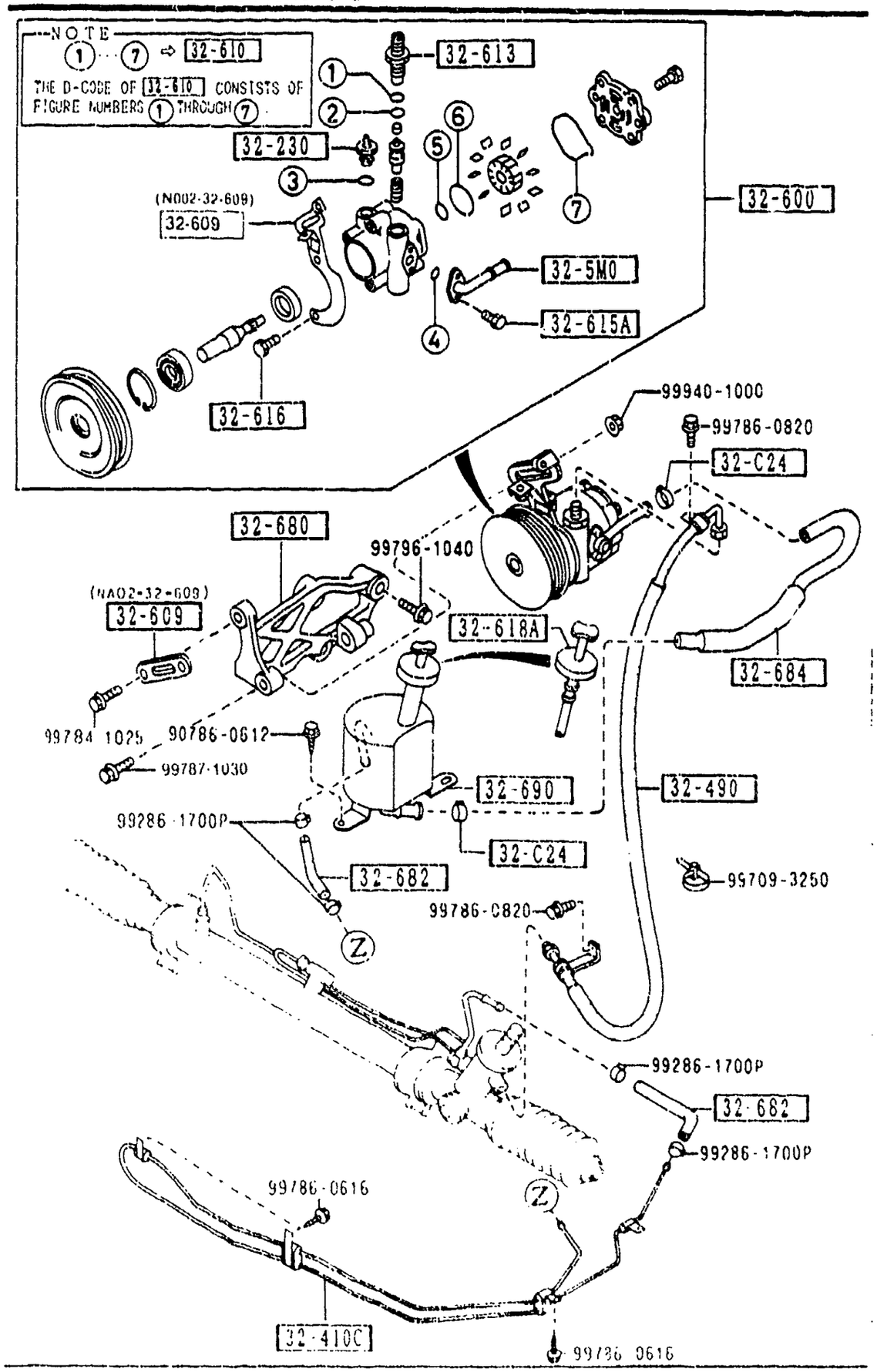
3240 POWER STEERING SYSTEM



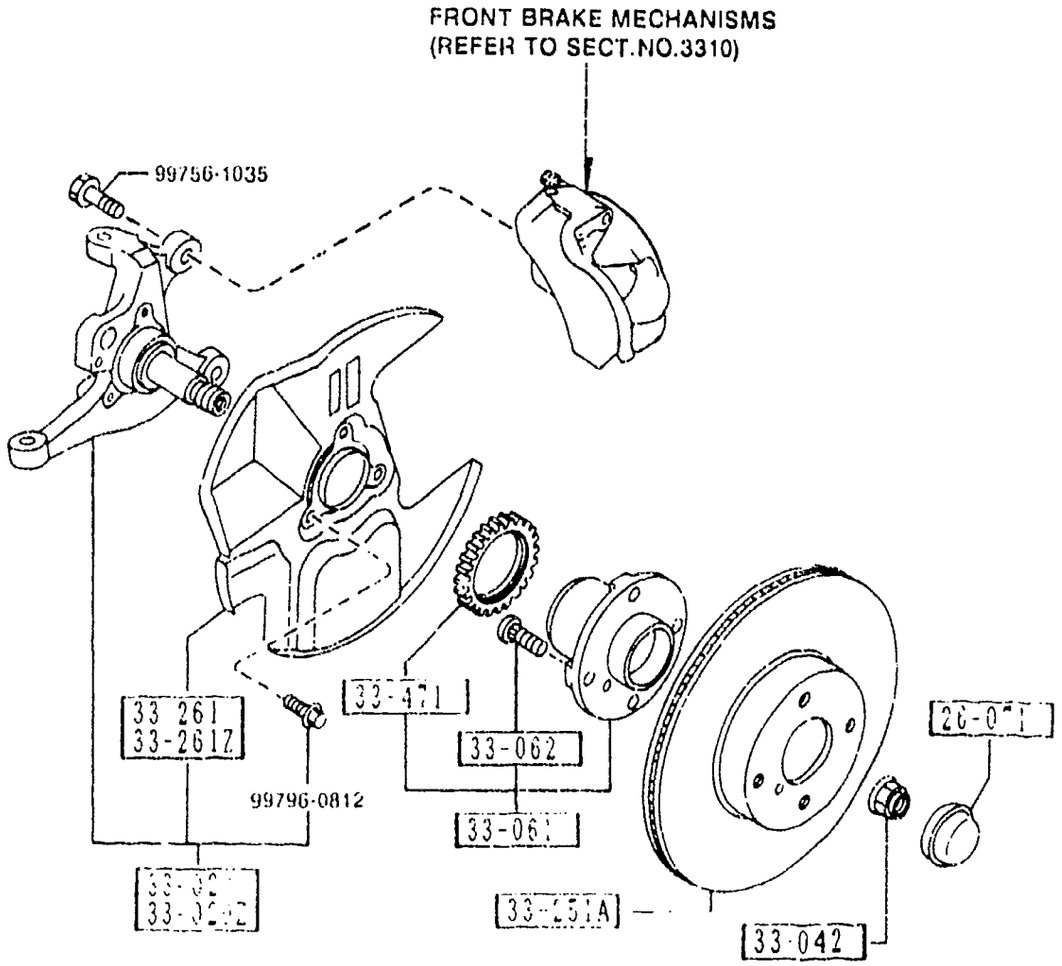
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
32-C24		CLAMP,HOSE-P.S.			
G238-32-C24	2				
32-230		SENSOR,STEERING PRESSURE			
B456-32-230	1				
32-410C		PIPE,RETURN			
NA02-32-410A	1				
32-490		HOSE,PRESSURE			
NA02-32-490B A (NA02-32-490C)	1				-1301
NA02-32-490C	1				1301-
32-5M0		PIPE,SUCTION			
N002-32-5M0	1				
32-600		PUMP,VANE			
N002-32-600B	1				
32-609		BRACKET,VANE PUMP			
NA02-32-609	1	KUROISHI TEKKO			
N002-32-609	1	NIHON POWER STEERING			
32-610		SEAL KIT,VANE PUMP			
N002-32-610	1				
32-613		NIPPLE,VANE PUMP			
N002-32-613	1				
32-615A		BOLT			
B456-32-615	2				
32-616		BOLT,VANE PUMP			
B456-32-616	2				
32-618A		CAP,VANE PUMP TANK			
NA02-32-691	1				

1301 NA35**-231464

3240 POWER STEERING SYSTEM



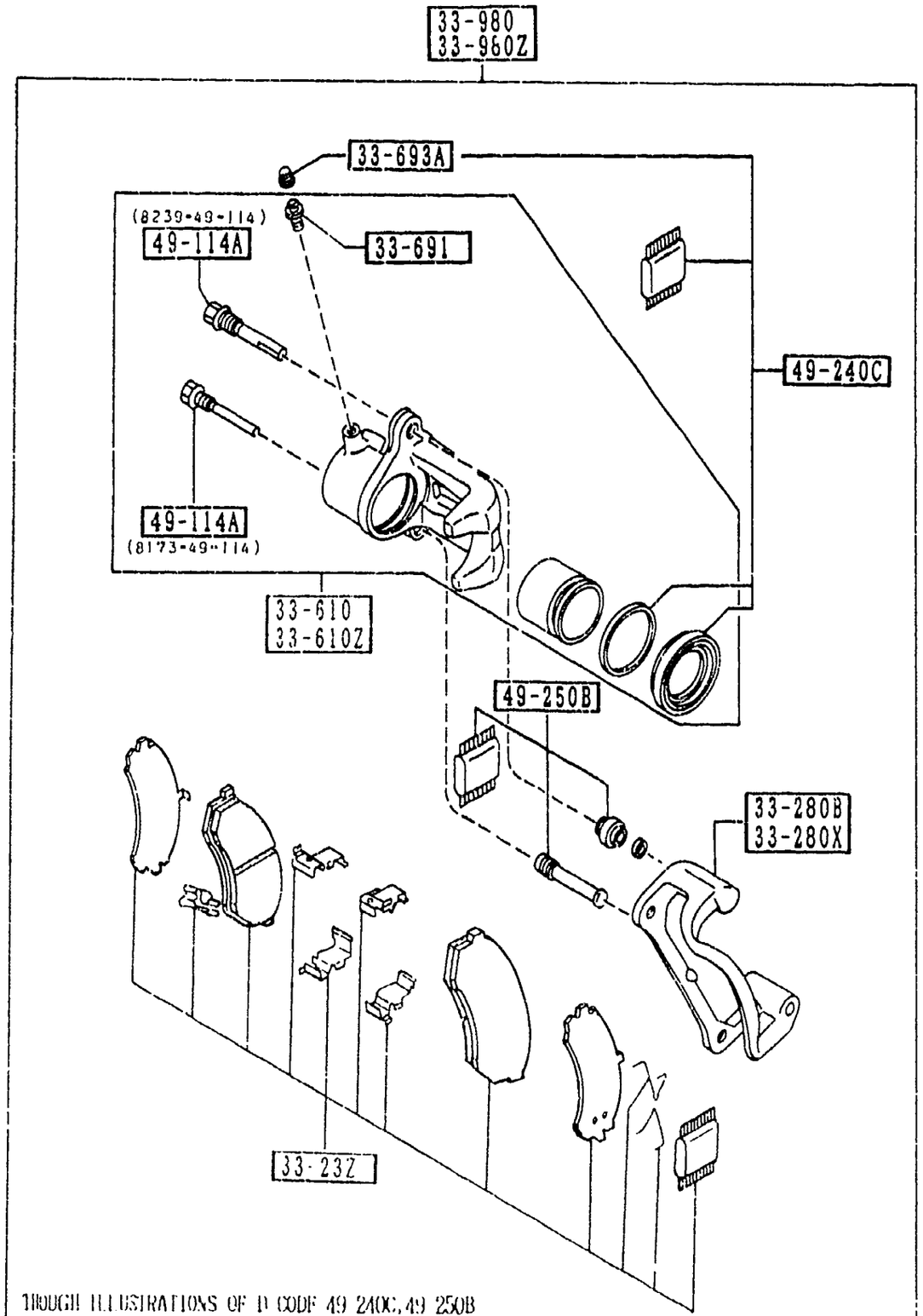
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
32-680		BRACKET,VANE PUMP			
NA02-32-680	1				
32-682		HOSE,RETURN			
NA02-32-682	2				
32-684		HOSE,RETURN			
NA02-32-684B	1				
32-690		TANK,VANE PUMP			
NA02-32-690A	1				



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
26-071		CAP,HUB			
B455-26-071	2				
33-020		KNUCKLE(R),STEERING			
NA01-33-020A	1	(W/O A.LOCK BRAKE)			
NA23-33-021A	1	(A.LOCK BRAKE)			
33-020Z		KNUCKLE(L),STEERING			
NA01-33-030A	1	(W/O A.LOCK BRAKE)			
NA23-33-031A	1	(A.LOCK BRAKE)			
33-042		NUT			
NA01-33-042A		W/WASHER			
A (NA01-33-042B)	2				-0820
NA01-33-042B	2	W/WASHER			0820-
33-061		HUB,WHEEL			
NA01-33-04X	2	(W/O A.LOCK BRAKE)			
NA23-33-04XA	2	(A.LOCK BRAKE)			
33-062		BOLT,HUB			
B455-33-062	8				
33-251A		PLATE,DISC			
NA01-33-25X	2				
33-261		COVER(R),DUST			
NA01-33-261	1	(W/O A.LOCK BRAKE)			
NA23-33-261	1	(A.LOCK BRAKE)			
33-261Z		COVER(L),DUST			
NA01-33-271	1	(W/O A.LOCK BRAKE)			
NA23-33-271	1	(A.LOCK BRAKE)			
33-471		ROTOR,SENSOR-FRT A.B.S.			
NA23-33-471B	2				

0820 NA35**-206394

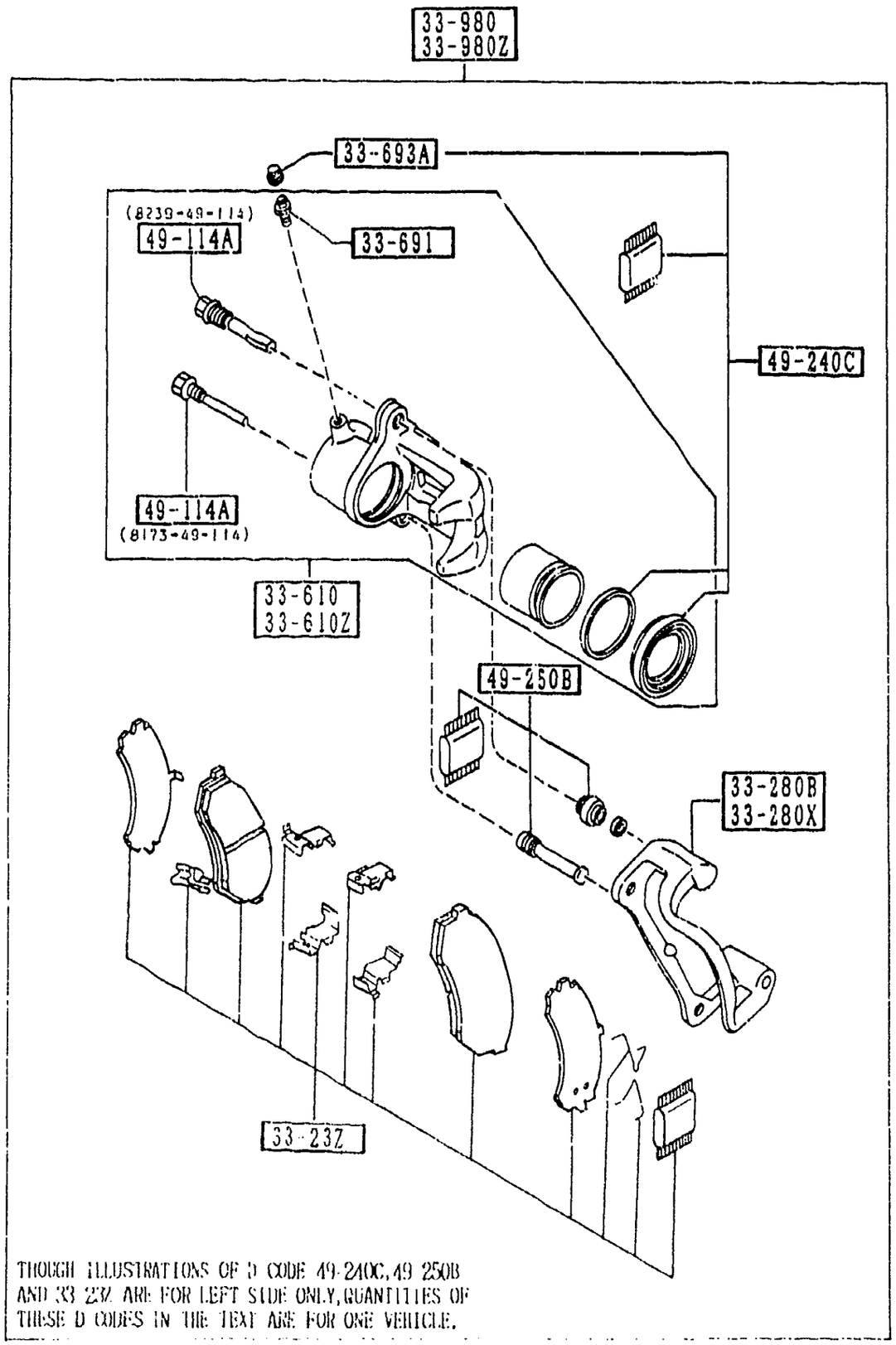
3310 -1 FRONT BRAKE MECHANISMS



THOUGH ILLUSTRATIONS OF D CODE 49 240C, 49 250B AND 33 23Z ARE FOR LEFT SIDE ONLY, QUANTITIES OF THESE D CODES IN THE TEXT ARE FOR ONE VEHICLE.

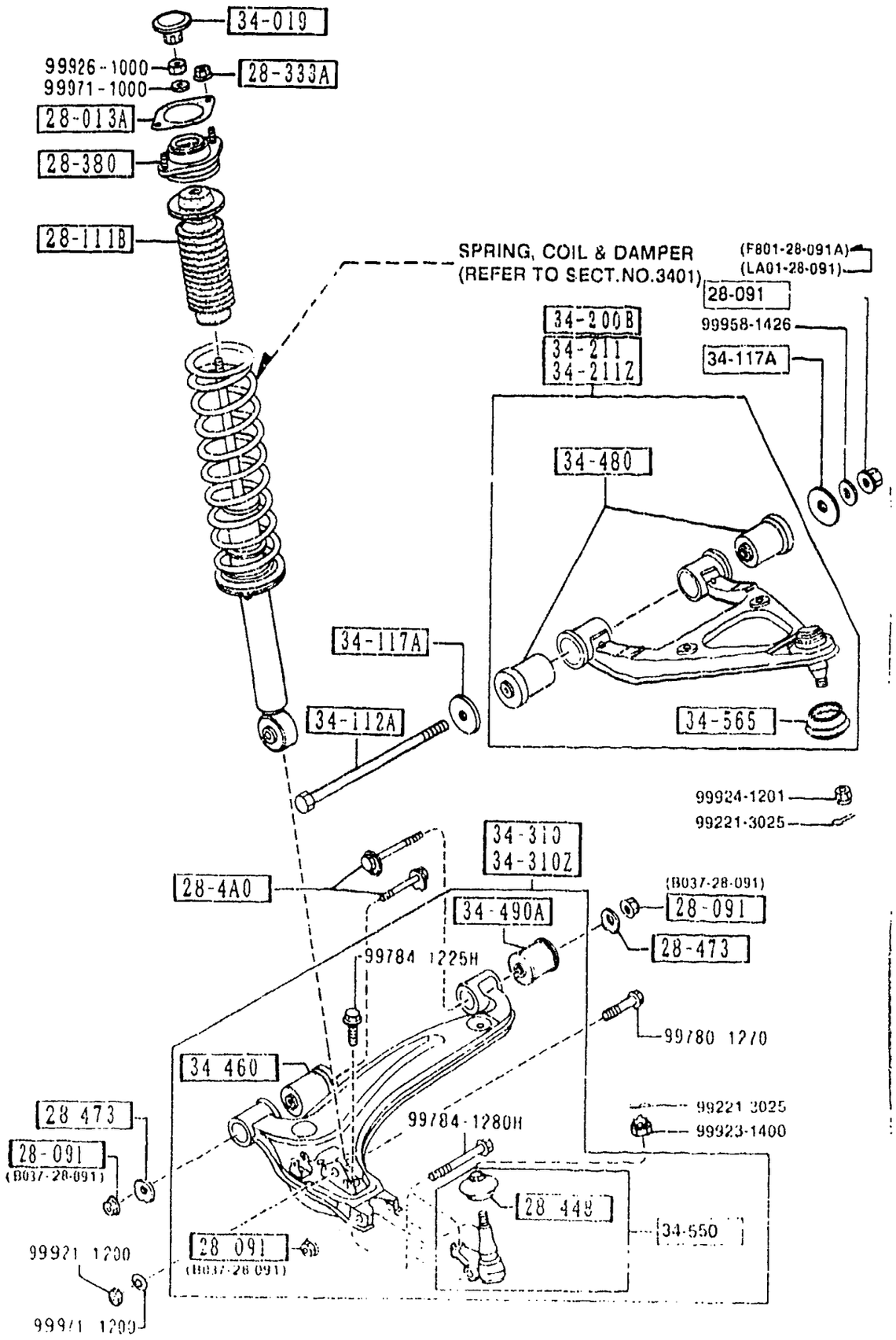
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
33-23Z		PAD SET,FRT CALIPER			
NAY0-33-23ZA	1	NON ASBESTOS			-1801
NOY1-33-23Z	1				1801-
33-280B		SUPPORT(R),MOUNTING			
NA01-33-281	1				
33-280X		SUPPORT(L),MOUNTING			
NA01-33-291	1				
33-610		BODY & PISTON(R),CALIPER			
NA01-33-61X	1				
33-610Z		BODY & PISTON(L),CALIPER			
NA01-33-71X	1				
33-691		SCREW,BLEEDER			
B001-33-691	2				
33-693A		CAP,BLEEDER SCREW			
0259-33-693	2				
33-980		CALIPER(R),FRT BRAKE			
NA10-33-980A	1				-0C25
A (NA10-33-980C)					
NA10-33-980C	1				0C25-1801
N001-33-980	1				1801-
33-980Z		CALIPER(L),FRT BRAKE			
NA10-33-990A	1				-0C25
A (NA10-33-990C)					
NA10-33-990C	1				0C25-1801
N001-33-990	1				1801-
49-114A		PIN,SLIDER			
8173-49-114	2				
8239-49-114	2				
49-240C		SEAL KIT,CALIPER-FRT			
NAY1-33-24Z	1				

0C25 NA35**-223235
1801 NA35**-235561



THOUGH ILLUSTRATIONS OF D CODE 49-240C, 49-250B AND 33-23Z ARE FOR LEFT SIDE ONLY, QUANTITIES OF THESE D CODES IN THE TEXT ARE FOR ONE VEHICLE.

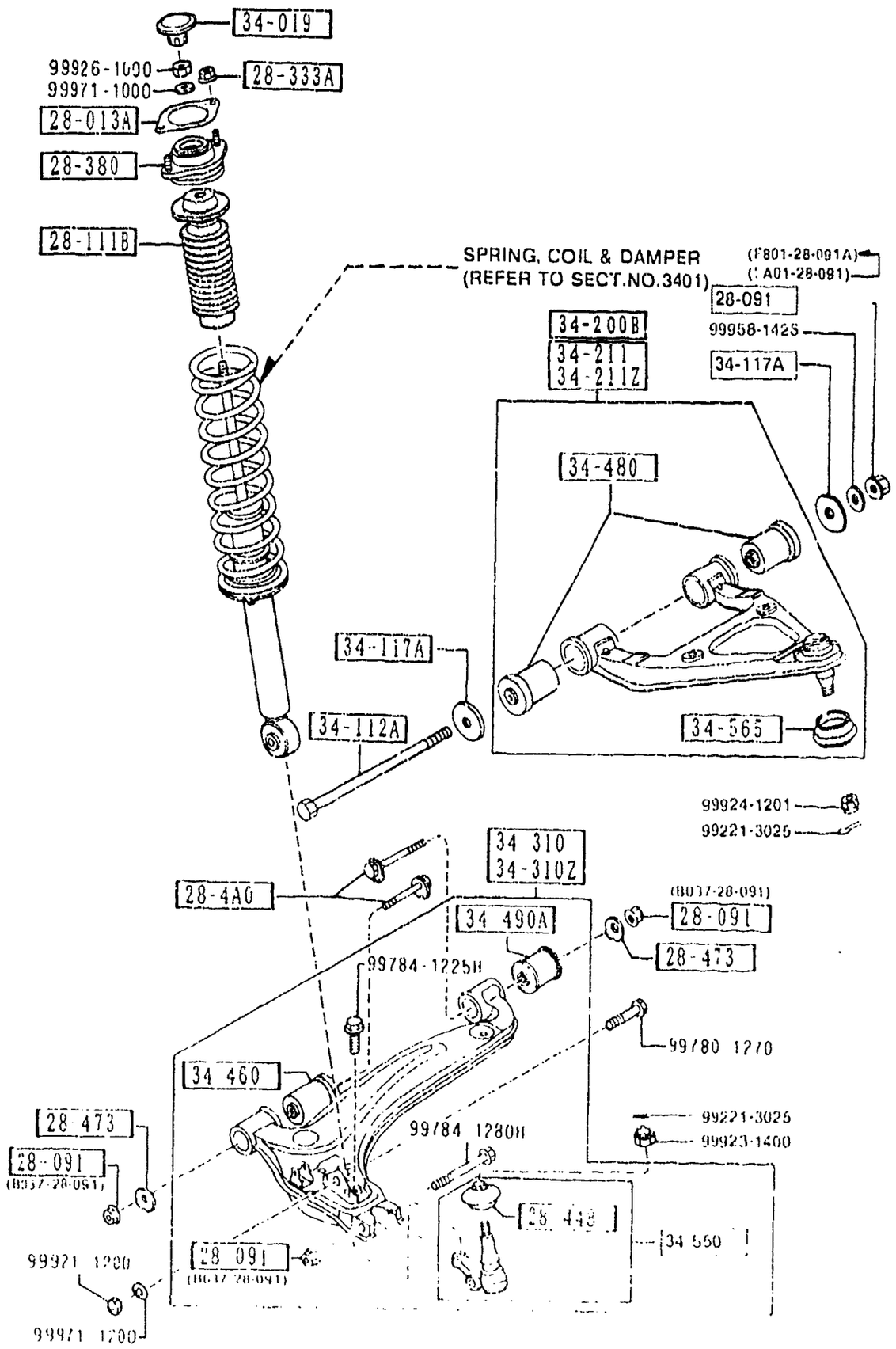
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
49-250B		BOOT KIT,FRT CALIPER			
NAY1-33-25Z	1				



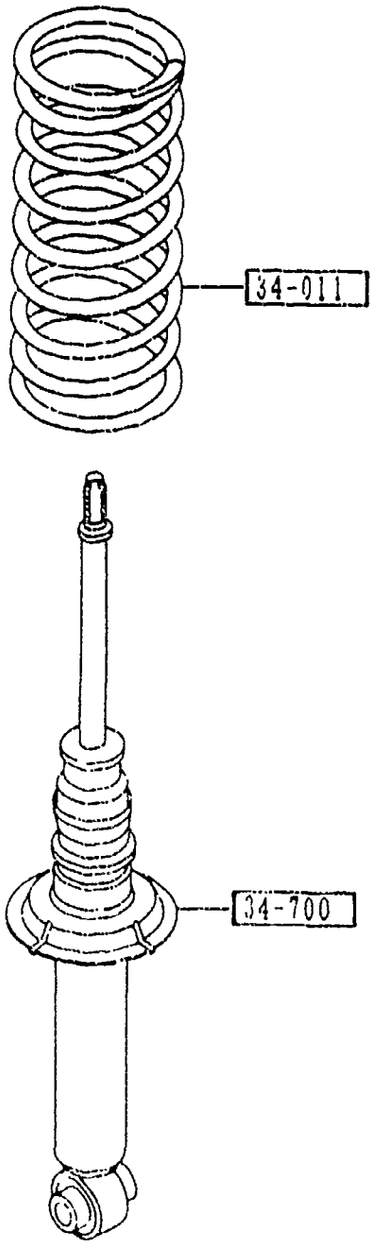
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
28-013A		SHEET,RUBBER			
G030-28-013A	2				
28-091		NUT			
B037-28-091	6				
LA01-28-091	2				-1510
FB01-28-091A	2				1510-
28-111B		STOPPER,BUMP			
NA01-28-111	2				
28-333A		NUT,FLANGE			
H001-28-333	4				
28-380		RUBBER,MOUNTING			
NA01-28-380A A (NA01-28-380B)	2				-2310
NA01-28-380B	2				2310-
28-4A0		BOLT,ADJUST			
NA01-28-4A0	4				
28-448		SEAL,DUST-BALL JOINT			
H266-28-448	2				
28-473		PLATE,CAM-SUB FRAME			
NA01-28-473	4				
34-019		CAP,DAMPER			
NA01-34-019	2				
34-112A		BOLT			
NA01-34-112	2				
34-117A		WASHER			
NA01-34-117A	4				
34-200B		ARM,UPPER-FRT			
NA01-34-200A	2	(W/O A.LOCK BRAKE)			

1510 NA35**-234121
2310 NA35**-319561

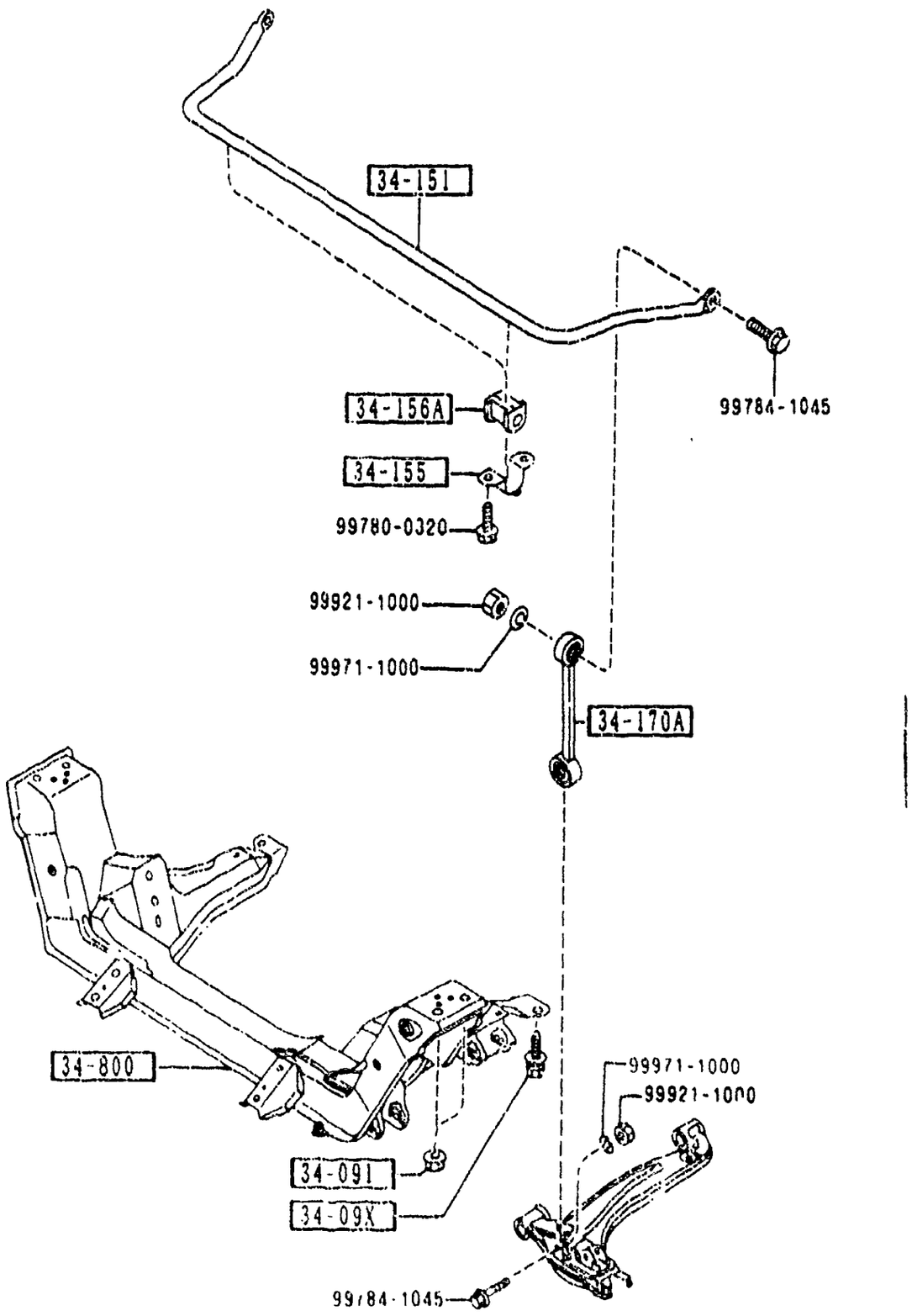
3400 FRONT SUSPENSION MECHANISMS



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
34-211		ARM(R),UPPER			
NA23-34-200	1	(A.LOCK BRAKE)			
34-211Z		ARM(L),UPPER			
NA23-34-250	1	(A.LOCK BRAKE)			
34-310		ARM(R),LOWER			
NA01-34-300A	1				
34-310Z		ARM(L),LOWER			
NA01-34-350A	1				
34-460		BUSH,RUBBER-LWR ARM			
NA01-34-460A	2				
34-480		BUSHING,RUBBER-LOWER ARM			
NA01-34-480A	4				
34-490A		BUSHING,RUBBER			
NA01-34-490	2				
34-550		BALL JOINT,LOWER			
NA01-34-550	2				
34-565		SEAL,DUST			
NA01-34-548	2				

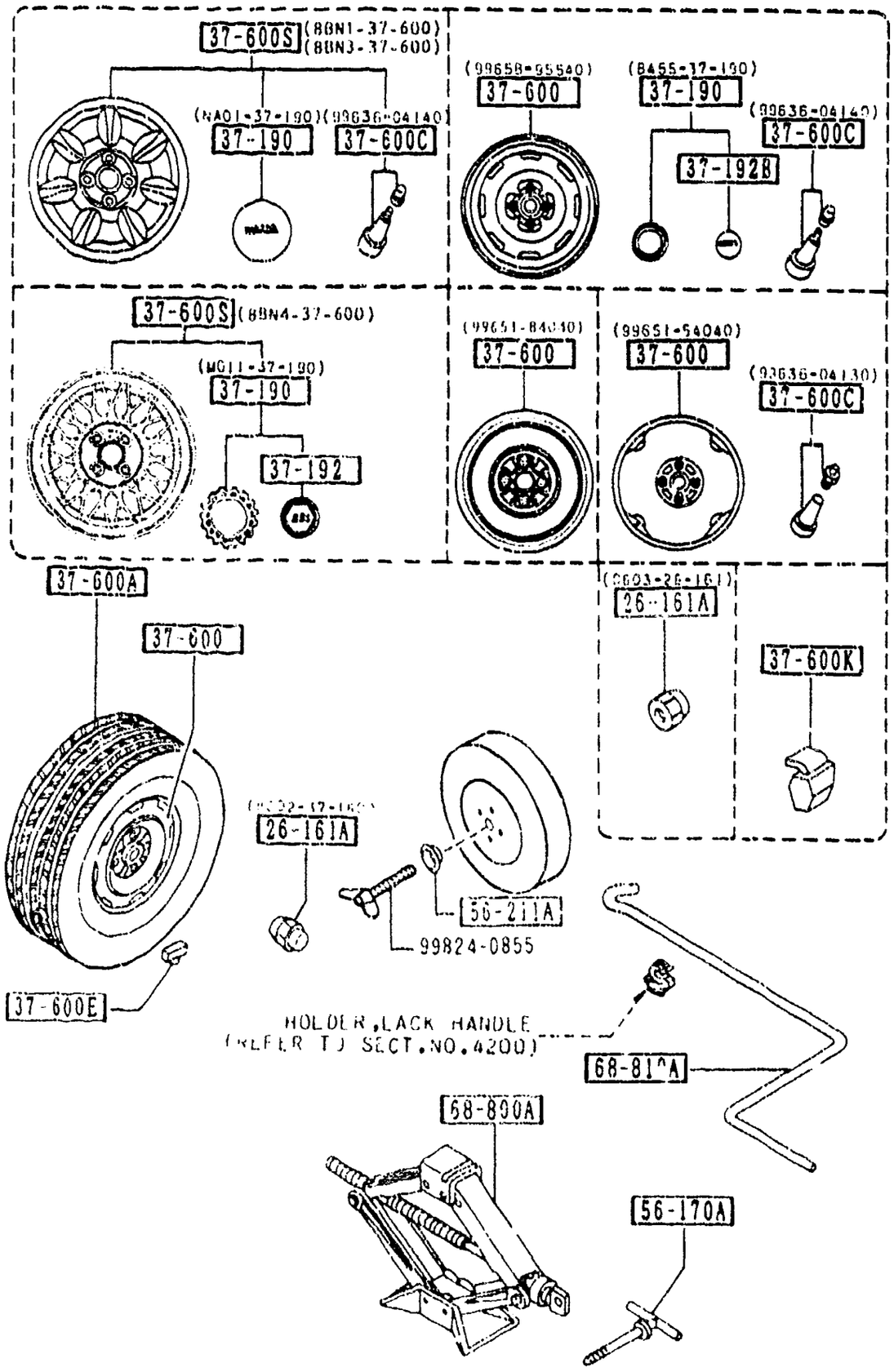


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
34-011		SPRING,COIL-FRONT			
NA01-34-011A	2	(MT)			
NA03-34-011	2	(AT)			
34-700		DAMPER,FRONT			
NA01-34-700	2	(W/O A.LOCK BRAKE)			
NA23-34-700B	2	(A.LOCK BRAKE)			



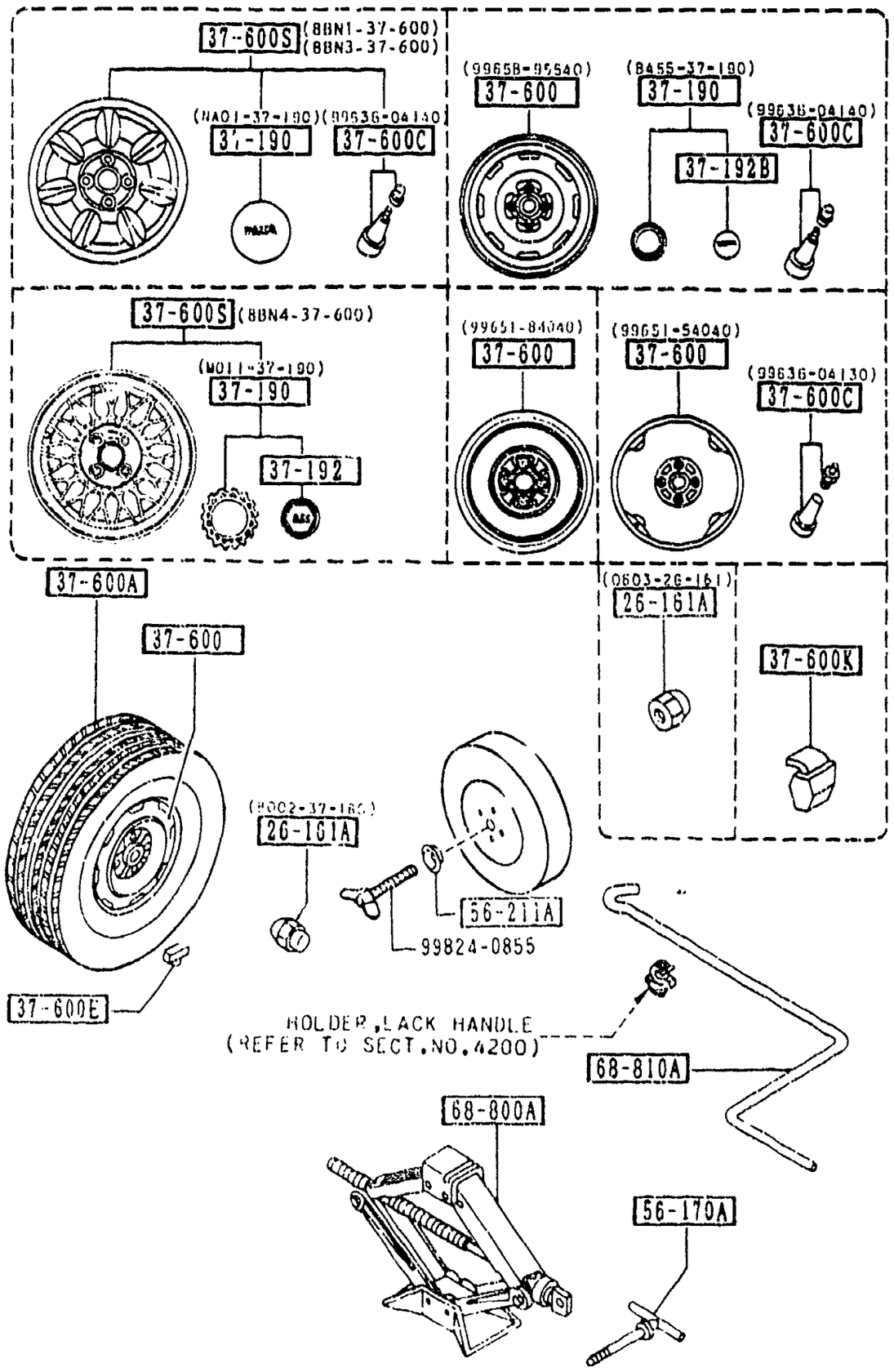
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
34-09X		BOLT			
NA01-34-09XA	4				
34-091		NUT			
FB01-34-091	4				
34-151		STABILIZER,FRONT			
NA01-34-151A	1				
34-155		PLATE,STABILIZER			
FB01-34-155	2				
34-156A		RUBBER,STAB -FRT			
NA01-34-156A	2				
34-170A		LINK,CONTROL-STAB			
NA01-34-170	2				
34-800		MEMBER,CROSS			
NA01-34-800A	1				

3700 -1 TIRES & JACK



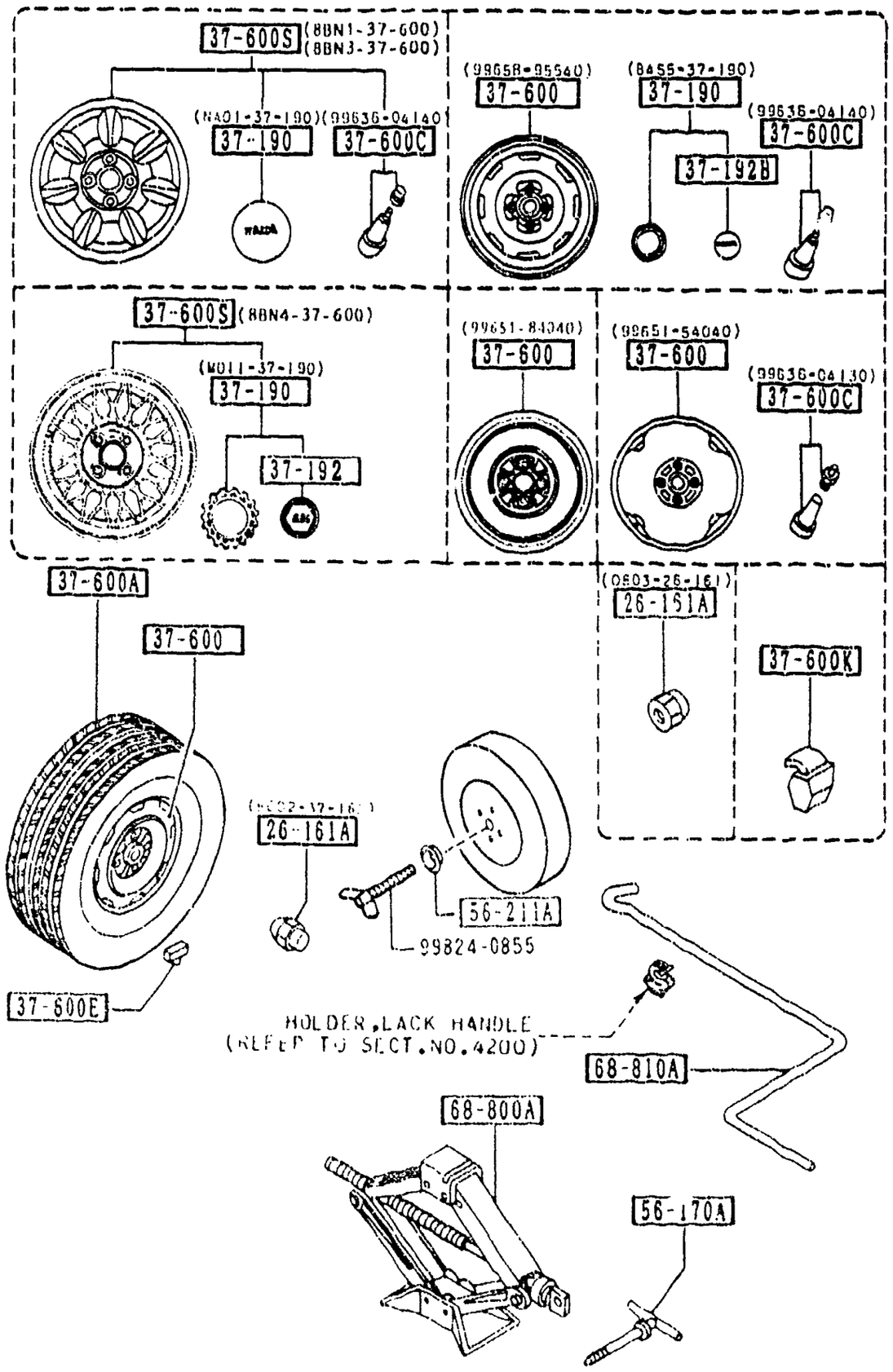
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM 10
26-161A		NUT,HUB			
0603-26-161	16	NON BRIGHT PKG-OPT,			
B002-37-160	16	PLATED BASE,			
37-190		CAP,CENTER			
B455-37-190	4	BASE,			
NA01-37-190	4	PKG-OPT,			
M011-37-190	4	SP-AD, (BBS ALUMI.WHEEL)			1801-
37-192		EMBLEM,CAP-WHEEL			
M011-37-192	4	SP-AD, (BBS ALUMI.WHEEL)			1801-
37-192B		EMBLEM,CENTER			
B001-37-192	4	BASE,			
37-600		WHEEL,DISC-STEEL			
99658-95540	4	5.5JJX14 P=100/O=45 BASE,			
99651-54040	1	4TX14 P=100/O=45			-2501
99651-84040	1	4TX14 P=100/O=45			2501-
37-600A		TIRE			
90620-47614	1	T155/70D14			
90623-06684	4	P185/60R14 DUNLOP SP-AD, (BBS ALUMI.WHEEL)			
90624-26684	4	P185/60R14 BS			
37-600C		VALVE,AIR			
99636-04130	1	TR413			
99636-04140	4	TR414			
37-600E		WEIGHT,DISC WHEEL-STEEL			
99655-30005	50				

1801 NA35##-235561
2501 NA35##-326361



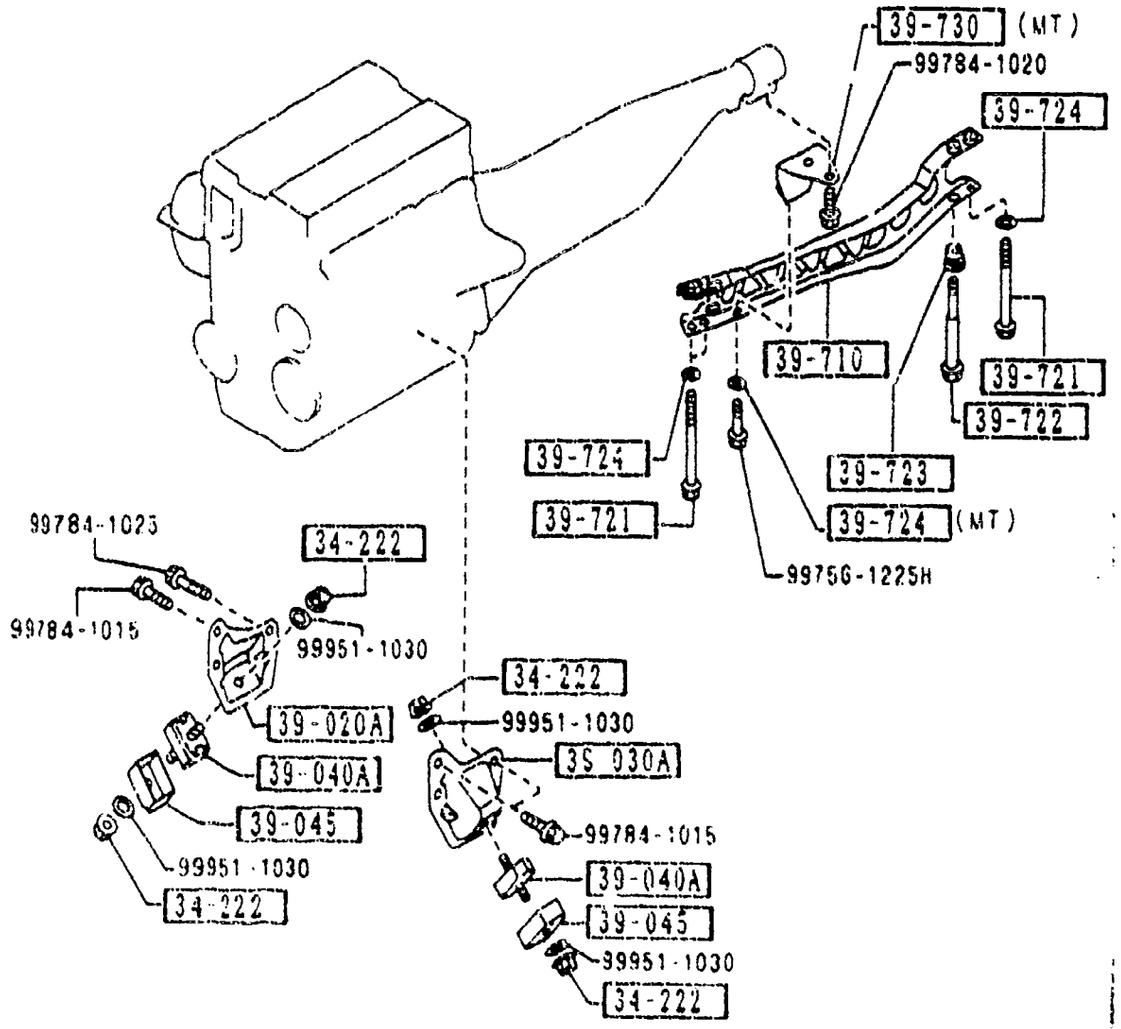
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
99655-30010	4	10G			
99655-30015	4	15G			
99655-30020	4	20G			
99655-30025	4	25G			
99655-30030	4	30G			
99655-30035	4	35G			
99655-30040	4	40G			
99655-30045	4	45G			
99655-30050	4	50G			
99655-30055	4	55G			
99655-30060	4	60G			
+---------+					
| 37-600K |		WEIGHT,DISC WHEEL-ALUMI			
+---------+					
99655-90005	4	5G FOR 1-PIECE WHL			
99655-90010	4	10G FOR 1-PIECE WHL			
99655-90015	4	15G FOR 1-PIECE WHL			
99655-90020	4	20G FOR 1-PIECE WHL			
99655-90025	4	25G FOR 1-PIECE WHL			
99655-90030	4	30G FOR 1-PIECE WHL			
99655-90035	4	35G FOR 1-PIECE WHL			
99655-90040	4	40G FOR 1-PIECE WHL			
99655-90045	4	45G FOR 1-PIECE WHL			
99655-90050	4	50G FOR 1-PIECE WHL			
99655-90055	4	55G FOR 1-PIECE WHL			

3700 TIRES & JACK



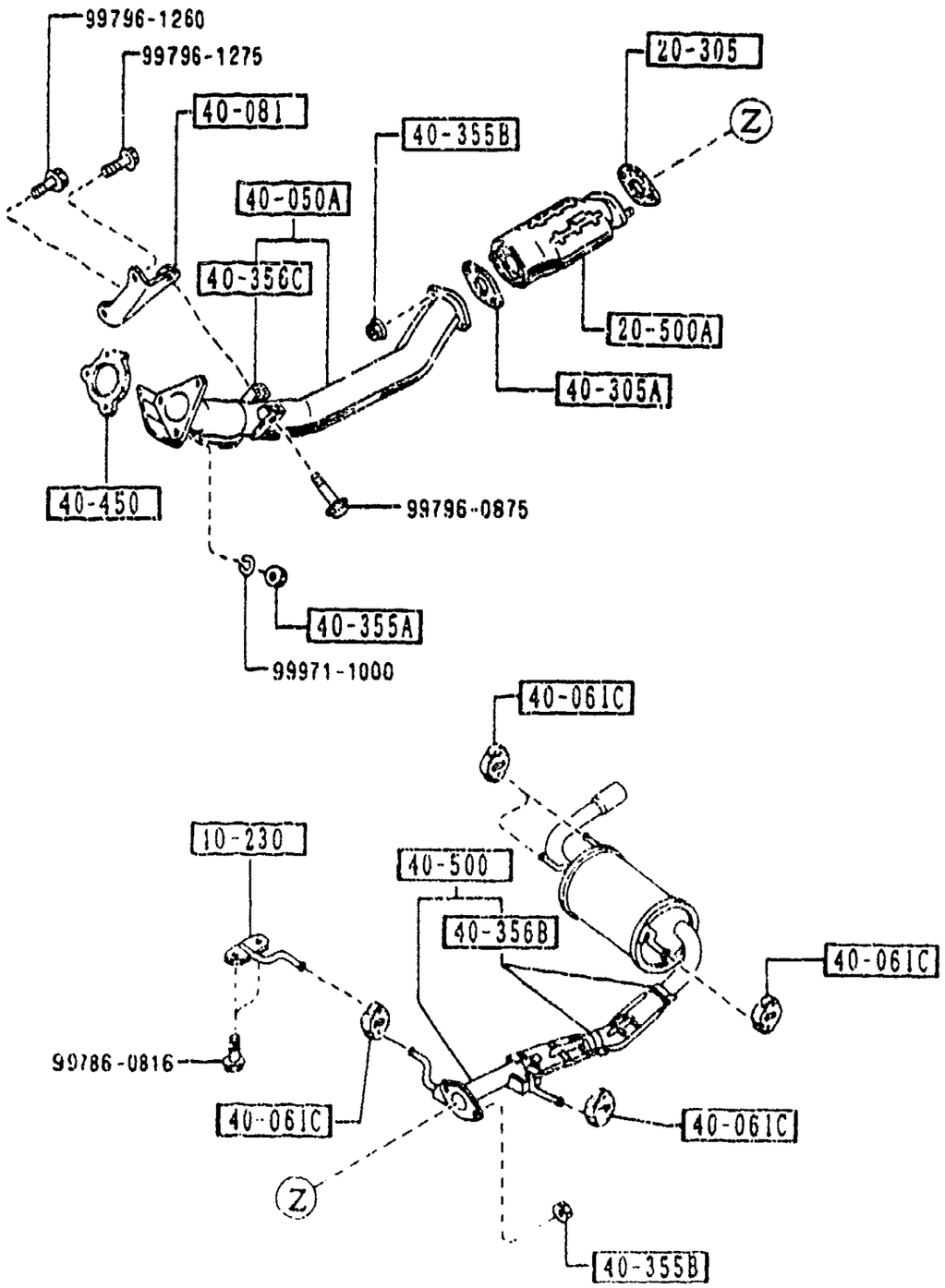
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
99655-90060	4	60G FOR 1-PIECE WHL			
+---------+					
| 37-600S |		WHEEL SET,DISC-ALUMI			
+---------+					
8BN1-37-600	4	5.5JJX14 NKK MAKE PKG-OPT,			
8BN3-37-600	4	5.5JJX14 ENKEI MAKE PKG-OPT,			
8BN4-37-600	4	6JJX14 BBS SP-AD, (BBS ALUMI.WHEEL)			1801-
+---------+					
| 56-170A |		BOLT,JACK SET			
+---------+					
B001-56-170C	1				
+---------+					
| 56-211A |		PLATE,CLAMP-JACK			
+---------+					
1219-56-211	1				
+---------+					
| 68-800A |		JACK			
+---------+					
B455-37-790A	1				
+---------+					
| 68-810A |		HANDLE,JACK			
+---------+					
GJ21-37-810	1				

1801 NA35**-235561



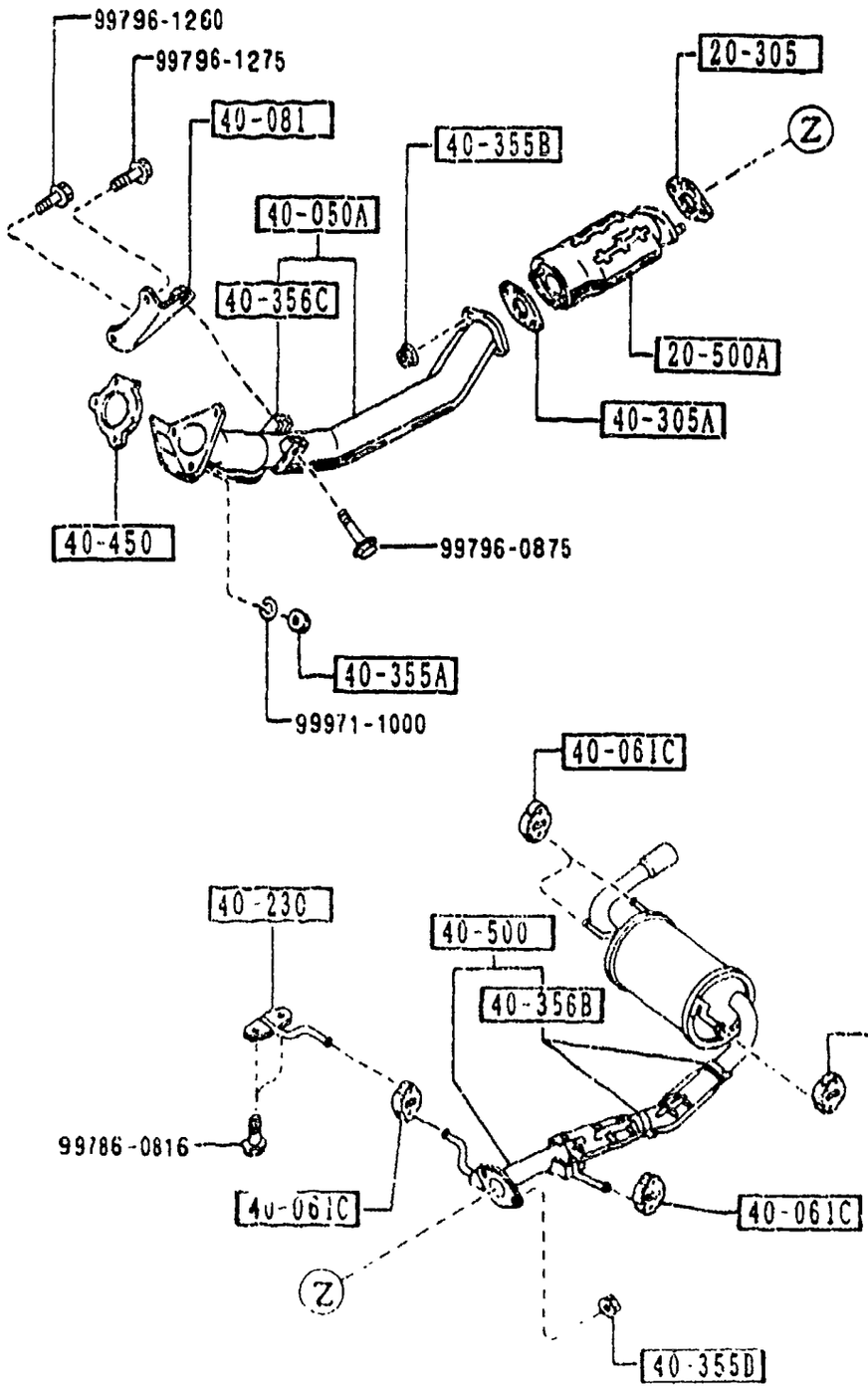
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
34-222		NUT			
8871-34-222	4				
39-020A		BRACKET(R),ENGINE			
NA01-39-020	1				
39-030A		BRACKET(L),ENGINE			
NA01-39-030	1				
39-040A		RUBBER,ENGINE MT.			
NA01-39-040	2				
39-045		CASING,STOPPER			
NA01-39-041	2	(MT)			
S231-39-041	2	(AT)			
39-710		FRAME,POWER PLANT			
NA01-39-710	1	(MT)			
NA03-39-710	1	(AT)			
39-721		BOLT,PLANT FRAME			
NA01-39-721	5				
39-722		BOLT,PLANT FRAME			
NA01-39-722	1				
39-723		SPACER,PLANT FRAME			
NA01-39-723	1				
39-724		WASHER,PLAIN-FRAME			
NA01-39-724	3	(AT)			
NA01-39-724	4	(MT)			
39-730		BRACKET,PLANT FRAME			
NA01-39-730A	1	(MT)			

4000 EXHAUST SYSTEM



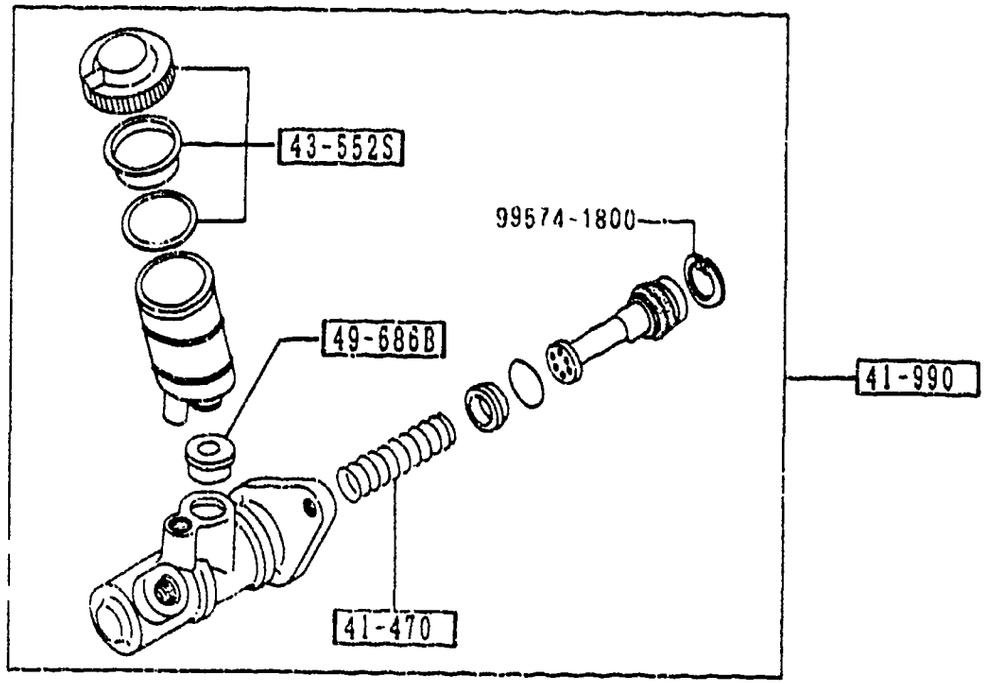
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
20-305 B690-40-305	1	GASKET,EXH.PIPE-CONVERTER NON ASBESTOS			
20-500A B61P-20-600	1	CATALYST,THREE WAY			
40-050A B690-40-500A	1	PIPE,EXHAUST-FRONT			
40-061C RF03-40-061	5	HANGER,SILENCER			
40-081 B690-40-080A	1	BRACKET,HANGER			
40-230 B690-40-690	1	BRACKET,HANGER			
40-305A B322-40-305	1	GASKET NON ASBESTOS			
40-355A 2158-40-355	3	NUT			
40-355B JE10-40-355	4	NUT			
40-356B B6A5-40-356	2	BAND			
40-356C B690-40-356	1	BAND			
40-450 B690-40-450	1	GASKET CONVERTER NON ASBESTOS			
40-500 B6B4-40-100B AN(B6B4-40-100C)	1	SILENCER,MAIN			-1601

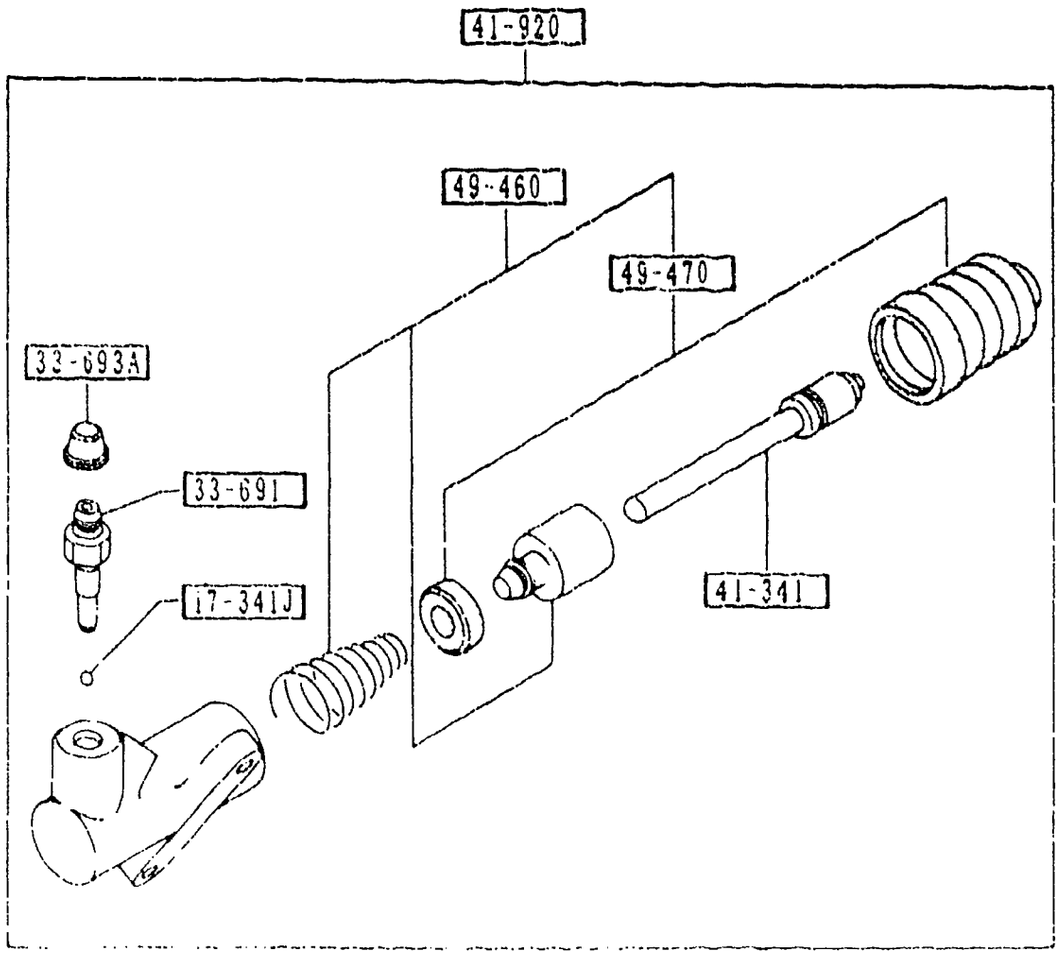
1601 NA35**-235561



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
CONT'D					
B690-40-100F AN(B690-40-100G)	1				-1601
B6B4-40-100C A (B6B4-40-100D)	1				1601-1B26
B690-40-100G A (B690-40-100H)	1				1601-1B26
B690-40-100H AN(B690-40-100J)	1				1B26-2407
B6B4-40-100D AN(B6B4-40-100E)	1				1B26-2408
B690-40-100J	1	(MT)			2407-
B6B4-40-100E	1	(AT)			2408-

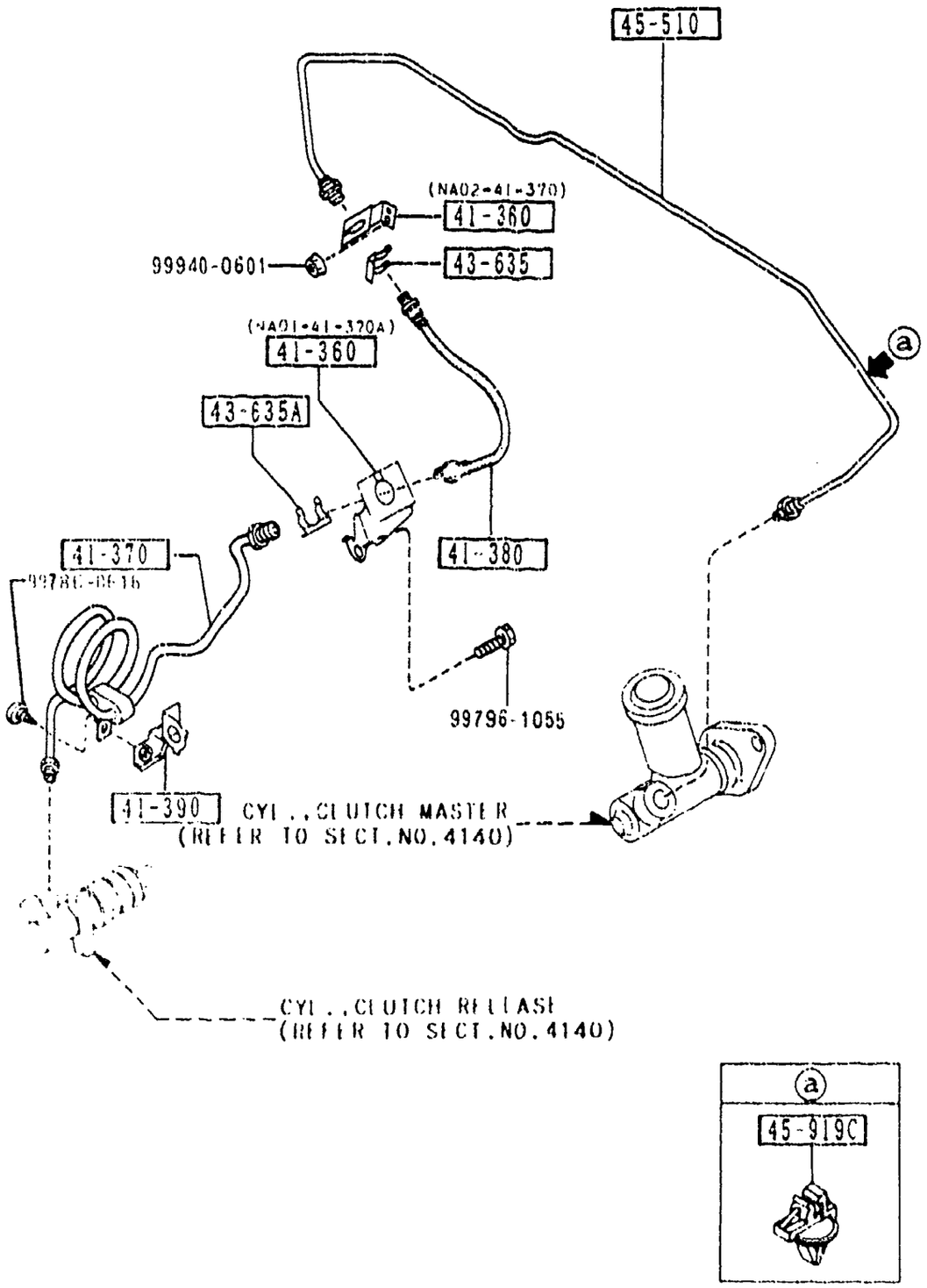
1601 NA35**-235561
1826 NA35**-309171
2407 NA35**-322783
2408 NA35**-323024





PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
17-341J 99611-1500	1	BALL,STEEL			
33-691 0259-33-691	1	SCREW,BLEEDER			
33-693A 0259-33-693	1	CAP,BLEEDER SCREW			
41-341 H266-41-341	1	ROD,PUSH			
41-470 B312-41-470	1	SPRING			
41-920 NA01-41-920	1	CYL.,CLUTCH RELEASE			
41-990 NA01-41-400A	1	CYL.,CLUTCH MASTER			
43-552S B093-49-580	1	CAP SET,RESERVE TANK			
49-460 H005-49-460	1	PARTS KIT,INNER			
49-470 H005-49-470	1	SEAL KIT			
49-686B 0305-49-686B	1	BUSH,ELBOW JOINT			

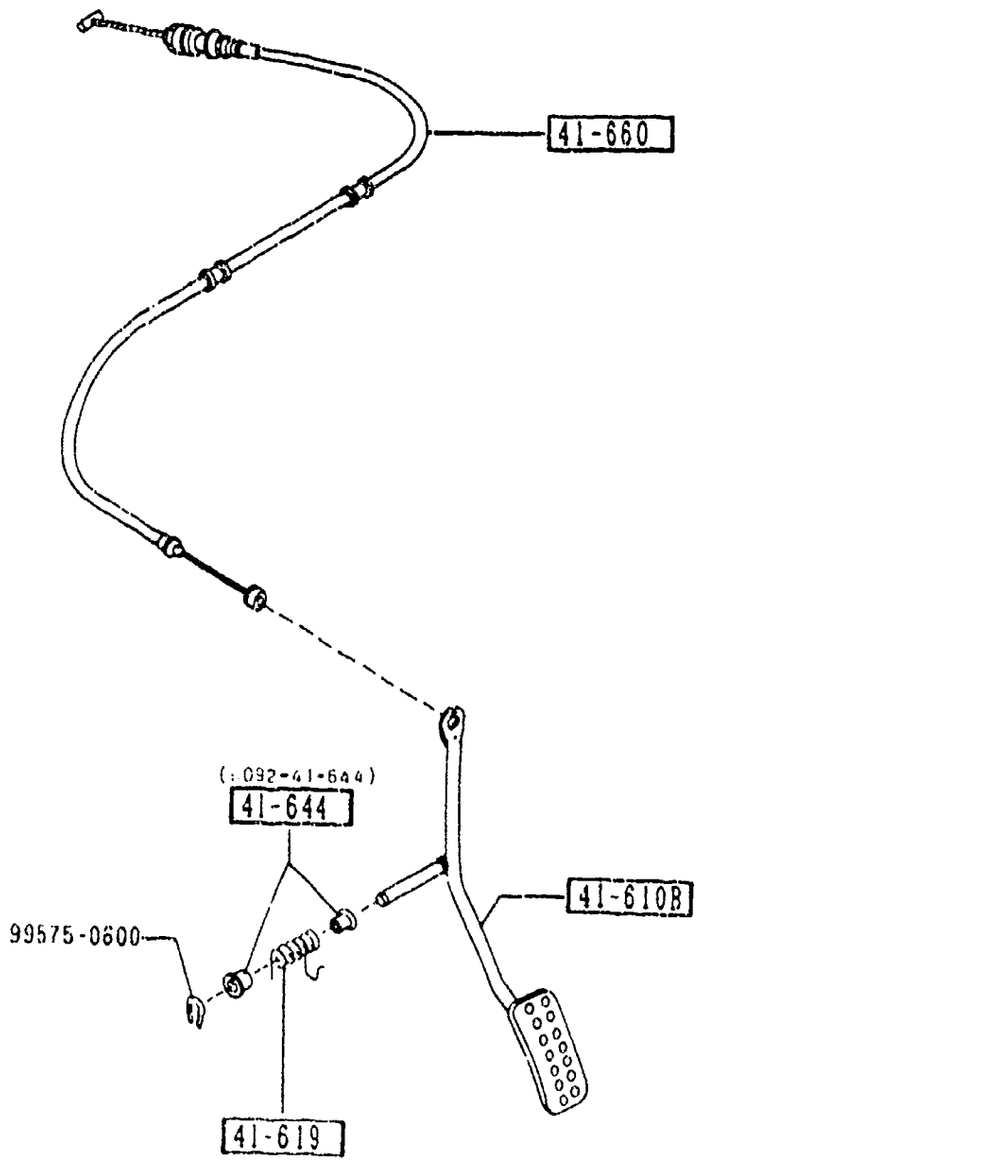
4145 CLUTCH PIPINGS (MANUAL TRANSMISSION)

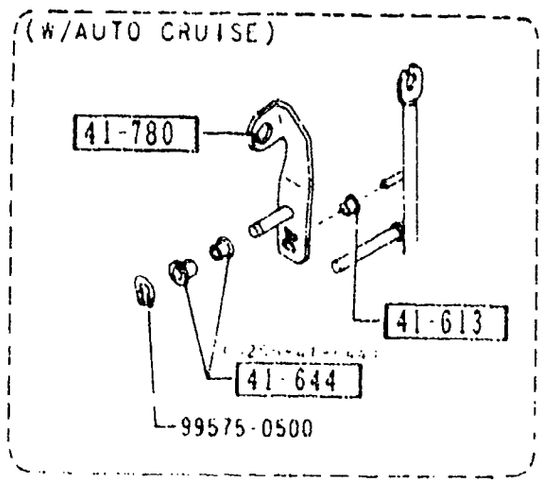


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
41-360		HOLDER,CLUTCH			
NA01-41-370A	1	SUMINO KOGYO			
NA02-41-370	1	MIDORI			
41-370		PIPE,CLUTCH			
NA01-41-360A	1				
41-380		HOSE,FLEXIBLE			
GK67-41-380A	1				
41-390		HOLDER,PIPE			
NA01-41-390	1				
43-635		CLIP,FLEXIBLE HOSE			
W023-43-635	1				0723-
43-635A		CLIP,FLEXIBLE HOSE			
0136-43-635	2				-0723
0136-43-635	1				0723-
45-510		PIPE,CLUTCH			
NA20-45-510D	1				
45-919C		CLIP,PIPE			
G030-45-919	1				

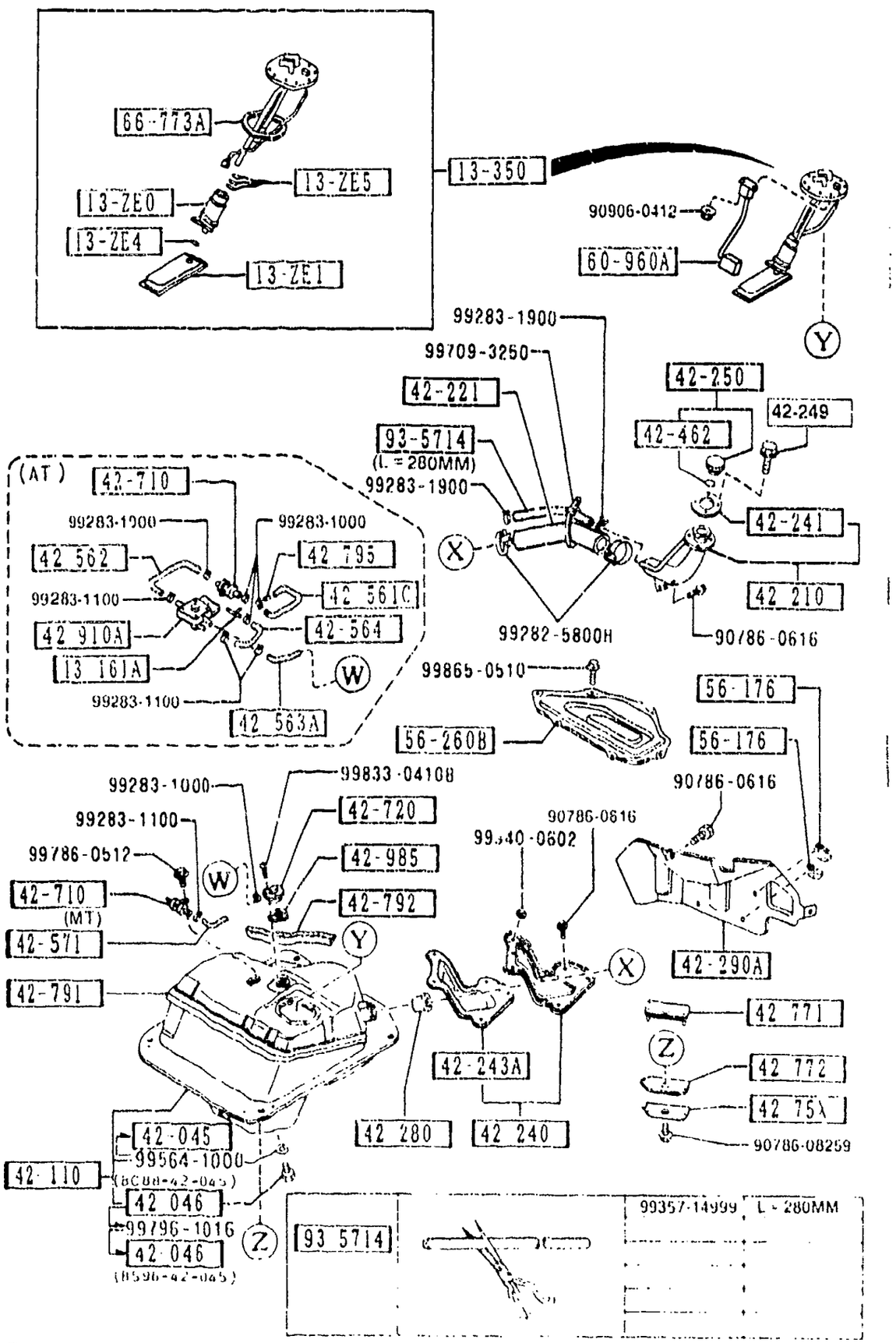
0723 NA35**-203719

4160 ACCELERATOR CONTROL SYSTEM



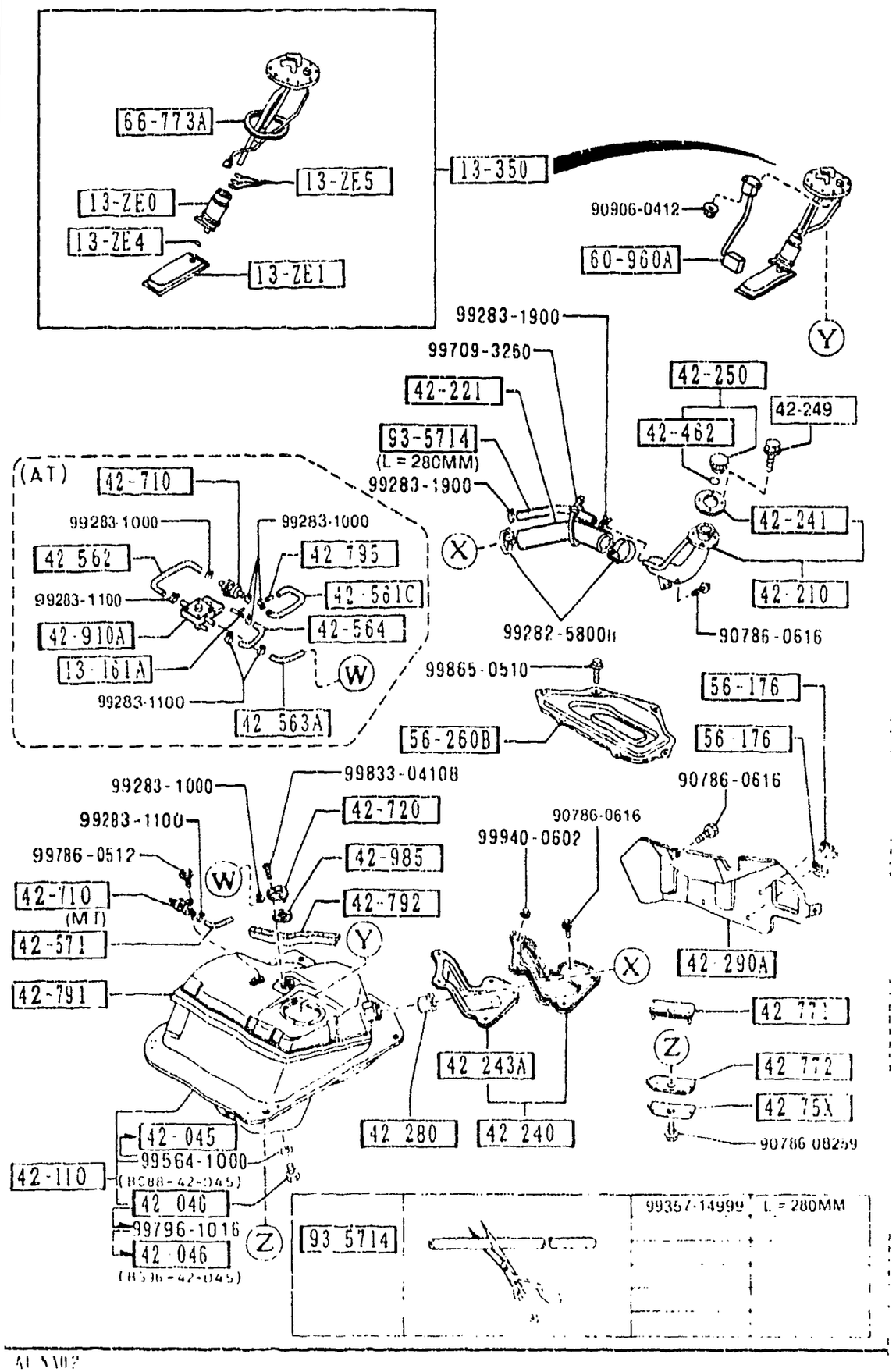


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
41-610B		PEDAL & ARM			
NA01-41-610A	1	BASE, (W/O AUTO CRUISE CONT.)			
NA02-41-610A	1	PKG-OPT, (W/AUTO CRUISE CONT)			
41-613		ROLLER			
B104-41-114	1	PKG-OPT, (W/AUTO CRUISE CONT)			
41-619		SPRING,RETURN			
NA01-41-619	1				
41-644		BUSH			
B092-41-644	2	OIRES KOGYO			
0259-41-644	2	ONDO KOSAKUSHO PKG-OPT, (W/AUTO CRUISE CONT)			
41-660		CABLE,ACCEL.			
NA01-41-660A	1				
41-780		LEVER,ACCELERATOR			
NA01-41-130A	1	PKG-OPT, (W/AUTO CRUISE CONT)			

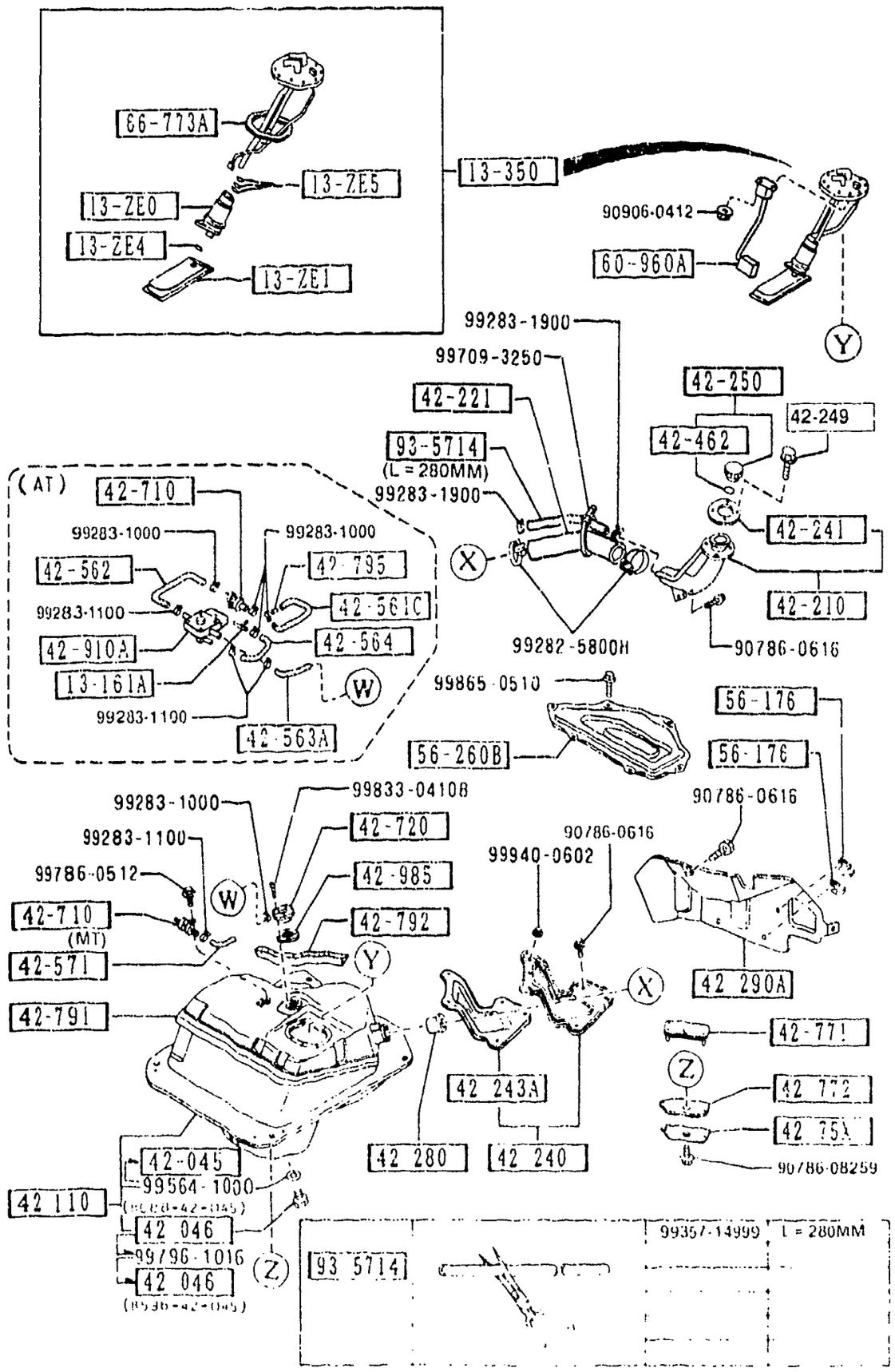


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
13-ZE0		PUMP,FUEL			
B61P-13-ZE0	1				
13-ZE1		FILTER,FUEL PUMP			
B61P-13-ZE1	1				
13-ZE4		WASHER,LOCK-PUMP FIL TER			
FEH2-13-ZE4	1	DENSO			
13-ZE5		RING,'O'-FUEL PUMP			
B61P-13-ZE5	1				
13-161A		JOINT'T'			
E580-13-161	1	(AT)			
13-350		PUMP,FUEL			
B61P-13-350B	1				
42-045		GASKET,DRAIN PLUG			
0866-42-046	1				1B01-
42-046		PLUG,DRAIN			
8C88-42-045	1				-1B01
B596-42-045	1				2201-
42-110		TANK,FUEL			
NA01-42-110A	1	(MT)			
NA03-42-110	1	(AT)			
42-210		PIPE,FILLER			
NA01-42-210A	1				
42-221		HOSE,FILLER			
NA01-42-241B	1				
42-240		COVER,DUST			
NA01-42-230	1				
42-241		GASKET,FILLER PIPE			
0866-42-366B	1				

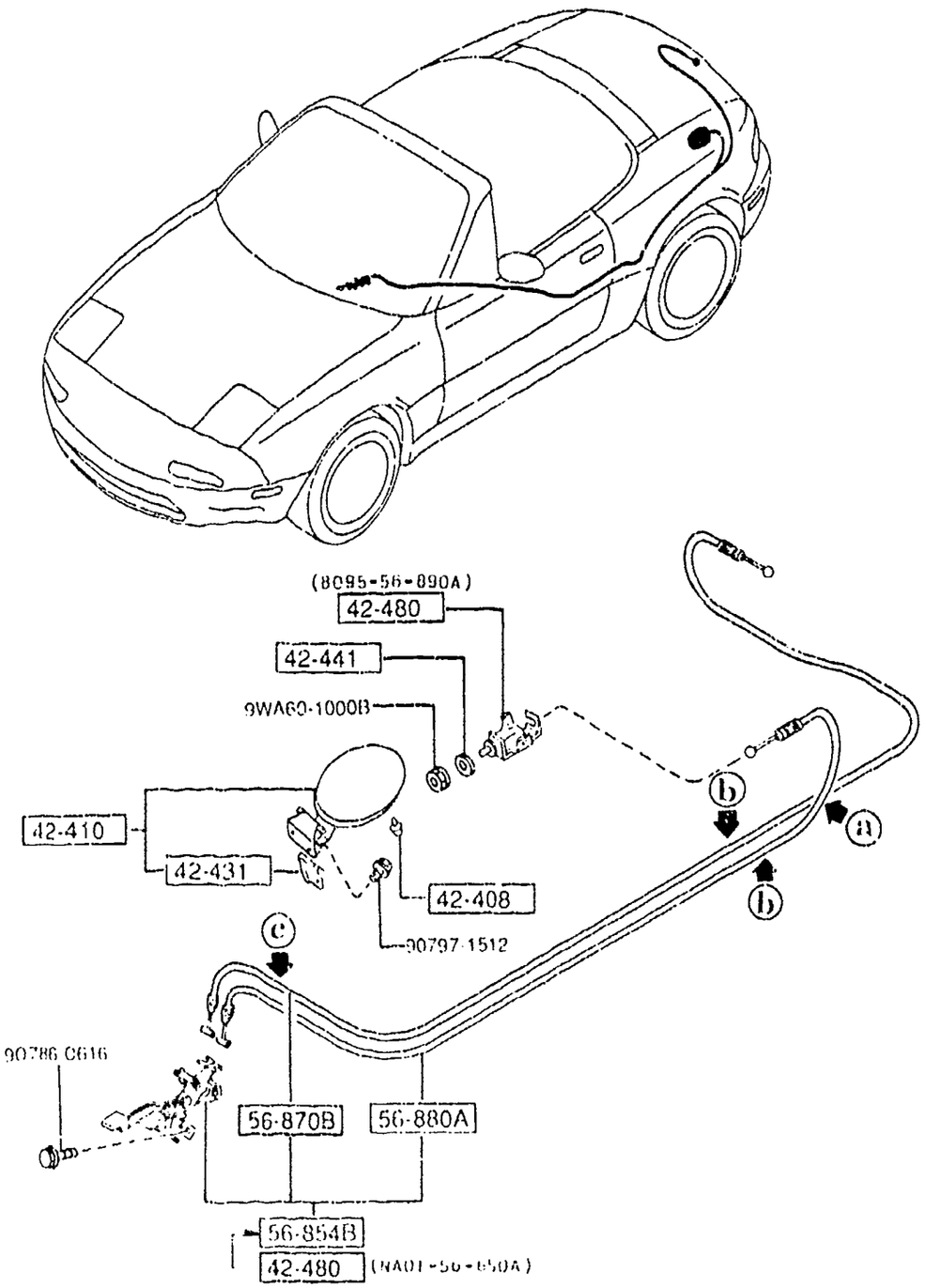
1B01 NA35**-306993
2201 NA35**-316887



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
42-243A		GASKET'A',DUST COVER			
NA01-42-233	1				
42-249		BOLT,FILLER PIPE			
NA01-42-249B	4				
42-250		CAP,FILLER			
NA02-42-250	1				
42-280		VALVE,NON RETURN			
H260-42-270	1				
42-290A		PROTECTOR'A',FILLER PIPE			
NA01-42-291A	1				
42-462		GASKET,CAP			
*BF67-42-252	1				
42-561C		HOSE NO.1,BREATHER			
NA03-42-561	1	(AT)			
42-562		HOSE NO.2,BREATHER			
NA03-42-562	1	(AT)			
42-563A		HOSE NO.3,BREATHER			
NA03-42-563	1	(AT)			
42-564		HOSE NO.4,BREATHER			
NA03-42-564	1	(AT)			
42-571		HOSE,VENT			
NA01-42-561	1	(MT)			
42-710		VALVE,CHECK			
H260-42-910B	1				
42-720		VALVE,FUEL VAPOR.			
FB01-42-980	1				
42-75X		REINF.,FUEL TANK			
NA01-42-77X	4				

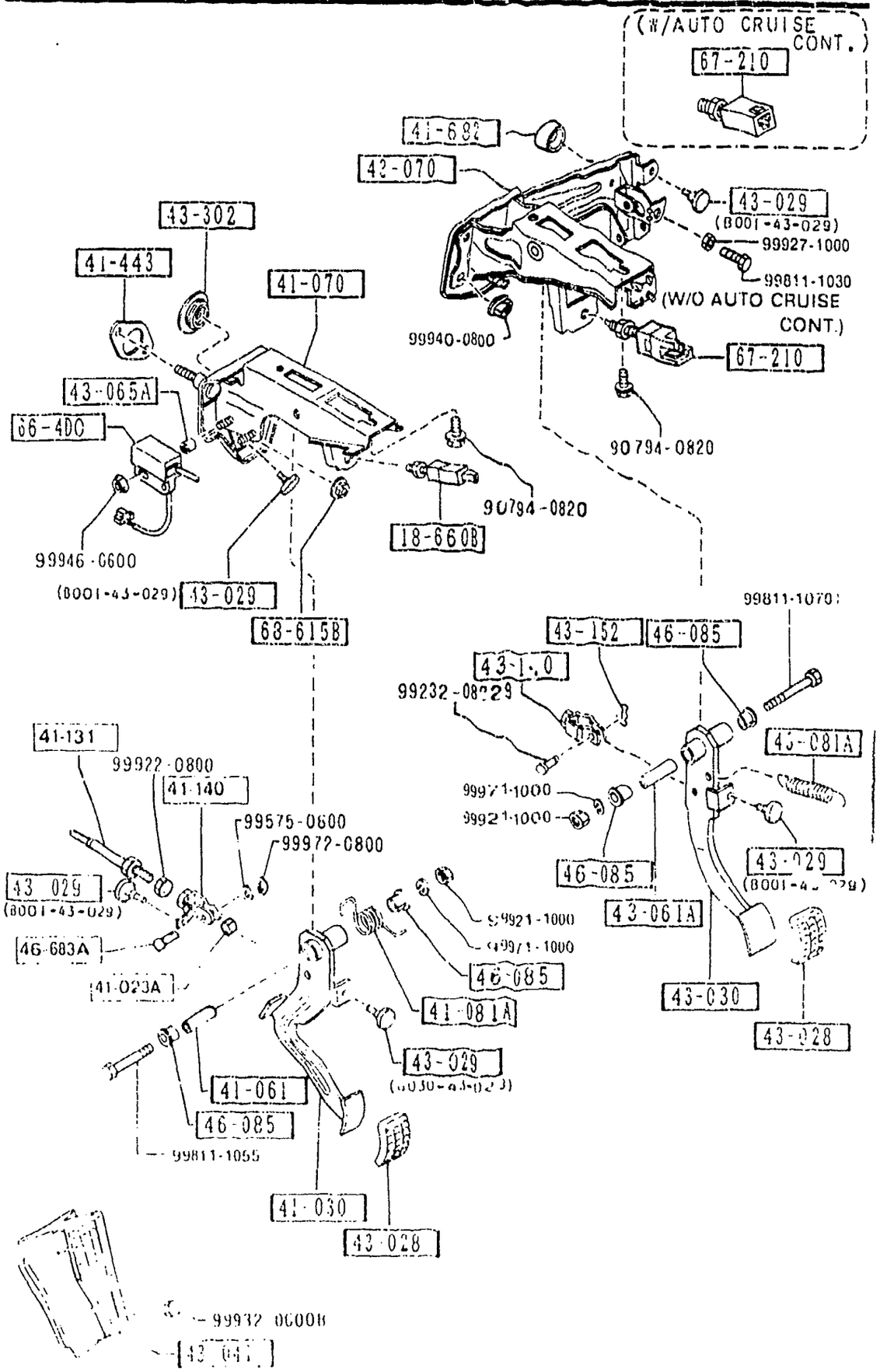


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
42-771 NA01-42-771	4	RUBBER(UP),MOUNT-TANK			
42-772 NA01-42-772	4	RUBBER(LWR),MOUNT-TANK			
42-791 NA01-42-761	1	PAD,FUEL TANK			
42-792 NA01-42-762	1	PAD,FUEL TANK			
42-795 GN51-42-795	1	INSERT (AT)			
42-910A NA03-42-910	1	VALVE'A',CHECK-BREATHER (AT)			
42-985 FB01-42-985	1	GASKET,VAPOR VALVE			
56-176 G030-56-176	3	HOLDER,JACK HANDLE			
56-260B NA01-56-260	1	COVER,GAUGE-FUEL TANK			
60-960A NA01-60-960	1	GAUGE,FUEL TANK			
66-773A NA01-60-962	1	GASKET			
93-5714 99357-14999	1	HOSE			



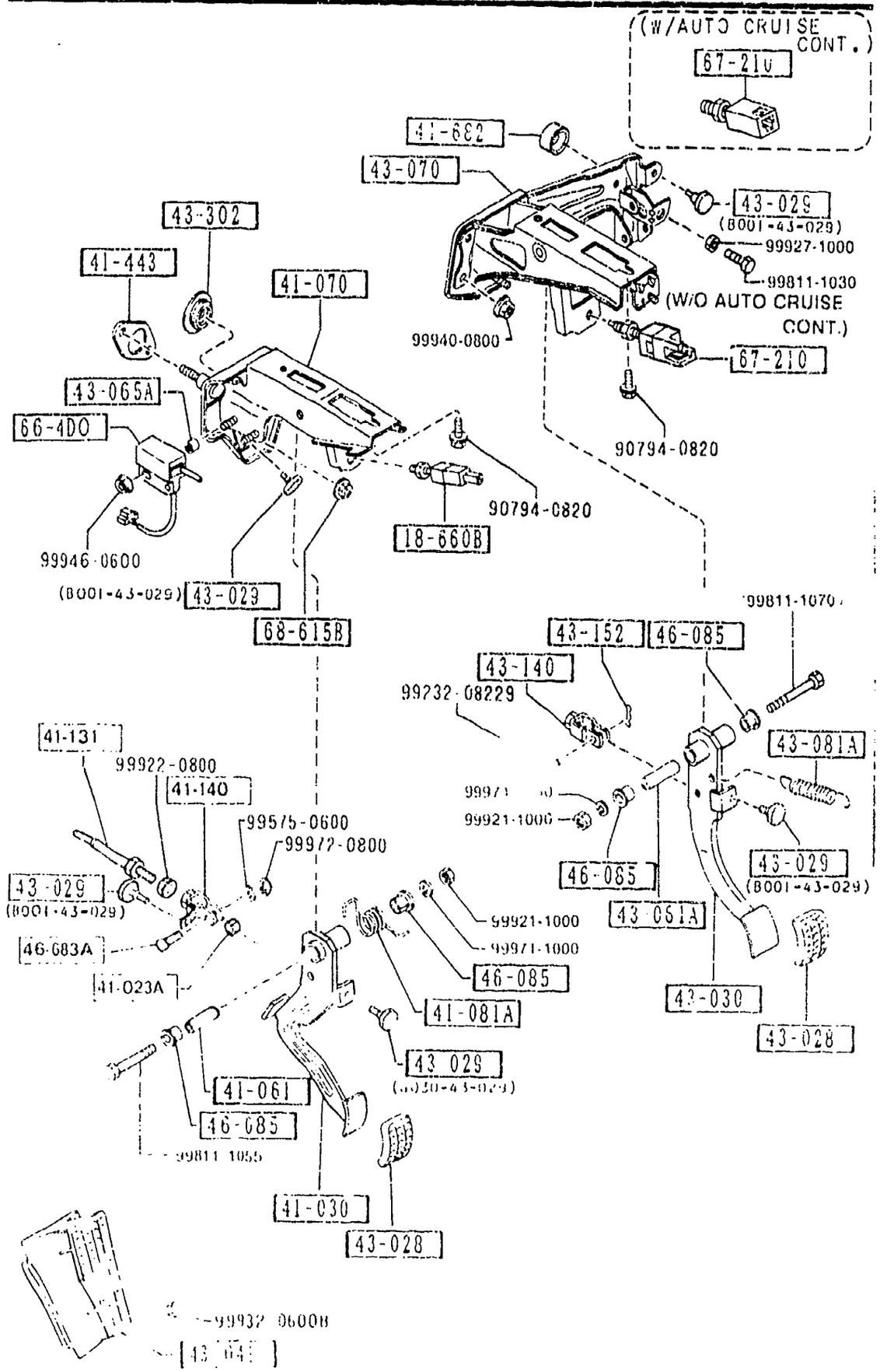
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
42-408		STOPPER,FILLER LID			
0187-70-491	2				
42-410		LID,FUEL FILLER			
NA01-42-410A	1				
42-431		SPRING LIFT,LID			
H043-42-431D	1				
42-441		WASHER,LID OPENER			
NA01-56-896	1				
42-480		OPENER,FILLER LID			
8095-56-890A	1				
NA01-56-850A	1				-1801
56-854B		OPENER,T/LID & F/LID			
N007-56-850A	1				1801-
56-870B		CABLE,T/LID OPENER			
N007-56-880A	1				1801-
56-880A		CABLE,F/LID OPENER			
NA01-56-890A	1				
67-052J		CLIP			
8001-67-051	1				
67-054D		CLIP			
H260-67-054	2				

1801 NA35**-235561



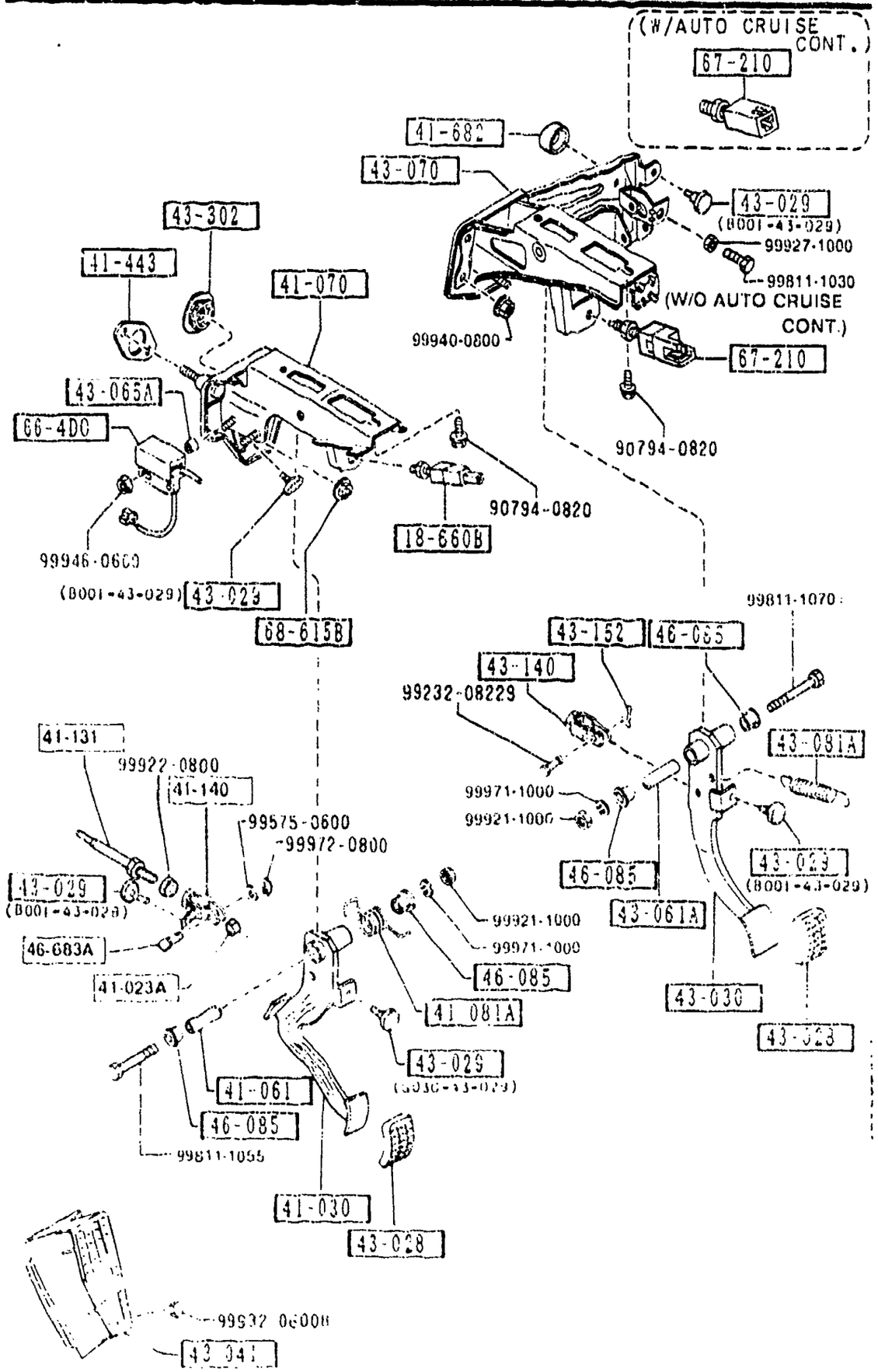
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
18-660B		SWITCH,CLUTCH			
LA01-66-490A	1				
41-023A		BUSH			
0727-41-023	1				
41-030		PEDAL,CLUTCH			
NA01-41-030B A (NA01-41-030C)	1				-1101
NA01-41-030C	1				1101-
41-061		SPACER			
0727-41-061	1				
41-070		BRACKET,MASTER CYL.			
NA01-41-070A	1				
41-081A		SPRING,RETURN			
BR70-41-081	1				
41-131		ROD,PUSH			
0824-41-131	1				
41-140		FORK,CLUTCH			
NA01-41-140B	1				
41-443		GASKET			
NA01-41-443	1				
41-682		RUBBER,STOP			
1456-41-682	1	PKG-OPT, (W/AUTO CRUISE CONT)			
43-028		PAD,PEDAL			
B092-43-028	2				
43-029		RUBBER,STOPPER			
B001-43-029	4	KUROISHI TEKKO			
G030-43-029	1	OIRES KOGYO			

1101 NA35**-223656

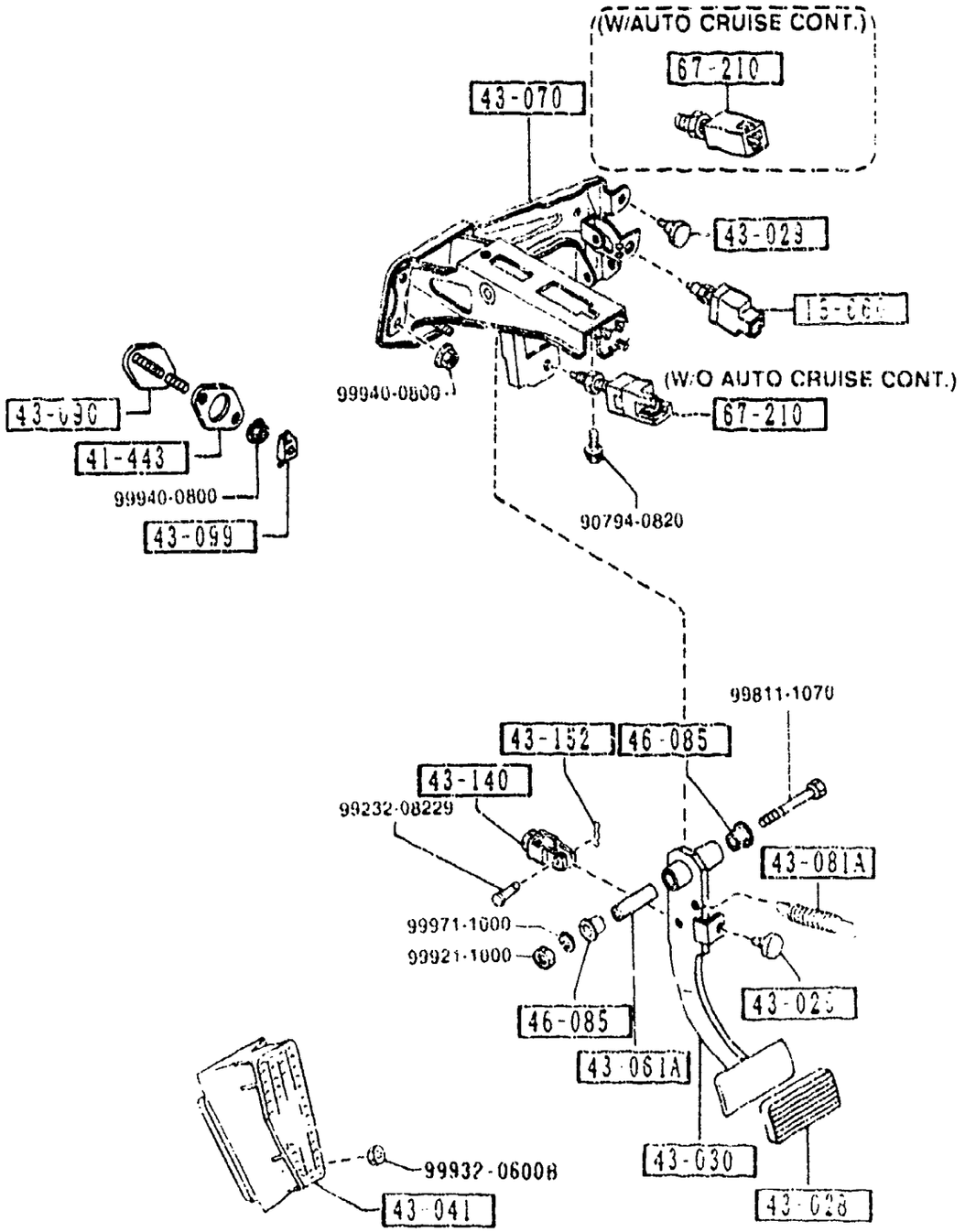


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
43-030		PEDAL,BRAKE			
NA01-43-030	1				
43-041		REST,FOOT			
NA01-43-041	1				
43-061A		PIPE,PEDAL			
0866-43-062	1				
43-065A		SPACER			
BR70-43-065	2				
43-070		BRACKET,MASTER CYL.			
NA01-43-070A	1	BASE, (W/O AUTO CRUISE CONT.)			
NA02-43-070A	1	PKG-OPT, (W/AUTO CRUISE CONT)			
43-081A		SPRING,RETURN-BRAKE			
B092-41-081	1				
43-140		FORK,BRAKE			
1524-43-140	1				-2620
*1524-43-141	1				2620-
43-152		PIN,SNAP			
0001-43-152	1				
43-302		GROMMET,BRAKE PEDAL			
B180-43-302	1				
46-085		BUSH			
1015-46-085	4				
46-683A		PIN			
9223-46-683	1				
66-4D0		SWITCH,CLUTCH CUT			
FB01-66-4D0	1				

2620 NA35**-330122



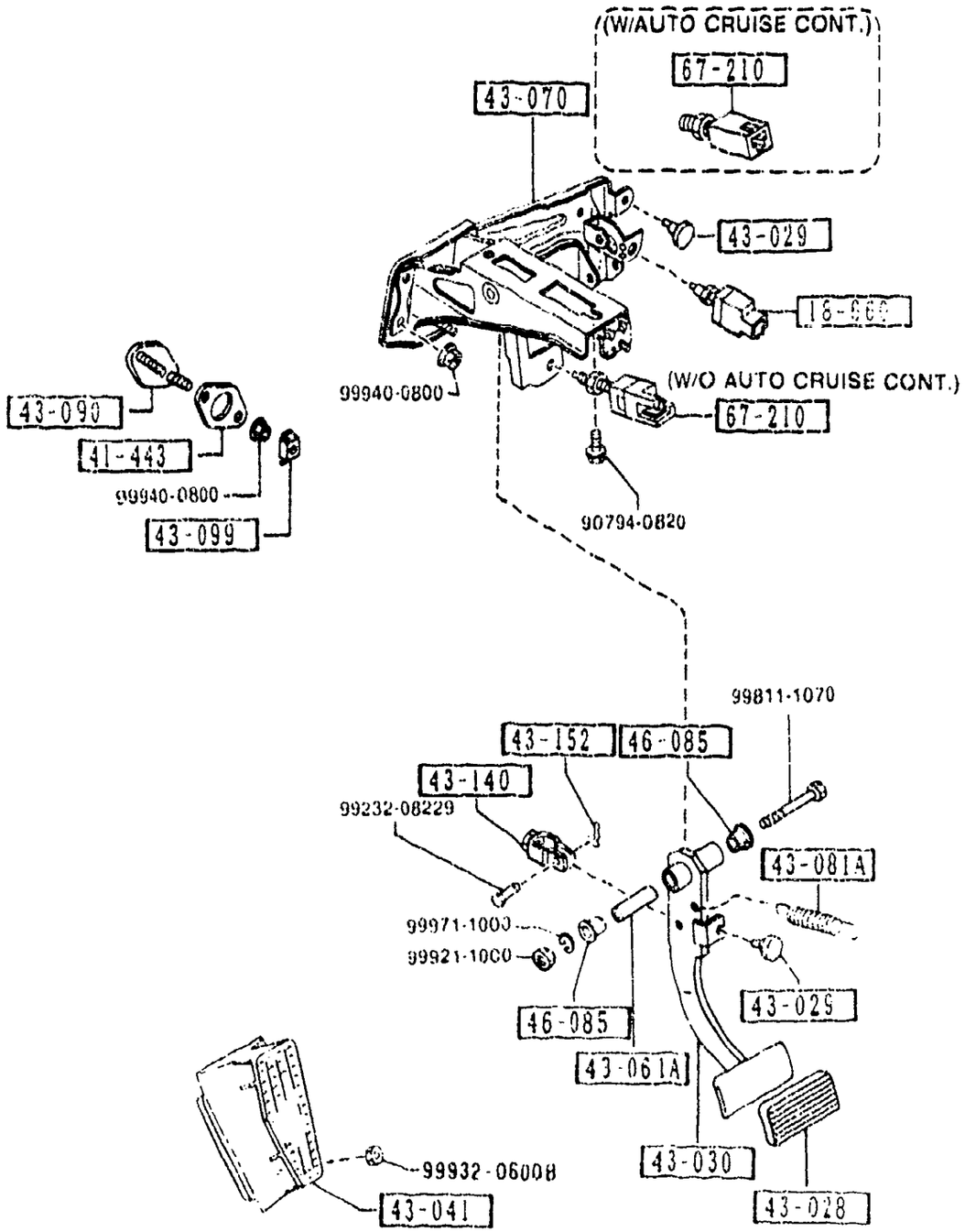
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
67-210		SWITCH,STOP			
BR70-66-490A	1	PKG-OPT, (W/AUTO CRUISE CONT)			
B001-66-490A	1	BASE, (W/O AUTO CRUISE CONT.)			
68-615B		NUT,FLANGE-CAP			
B100-68-615	1				



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
18-660		SWITCH,KICK DOWN			
H118-66-470	1				
41-443		GASKET			
NA01-41-443	1				
43-028		PAD,PEDAL			
0268-43-028	1				
43-029		RUBBER,STOPPER			
B001-43-029	2	KUROISHI TEKKO			
43-030		PEDAL,BRAKE			
NA03-43-030	1				
43-041		REST,FOOT			
NA01-43-041	1				
43-061A		PIPE,PEDAL			
0866-43-062	1				
43-070		BRACKET,MASTER CYL.			
NA01-43-070A	1	BASE. (W/O AUTO CRUISE CONT.)			
NA02-43-070A	1	PKG-OPT, (W/AUTO CRUISE CONT)			
43-081A		SPRING,RETURN-BRAKE			
B092-41-081	1				
43-090		PLATE			
NA03-43-090	1				
43-099		HOLDER,PLATE			
HF23-43-099	1				
43-140		FORK,BRAKE			
1524-43-140	1				-2620
*1524-43-141	1				2620-

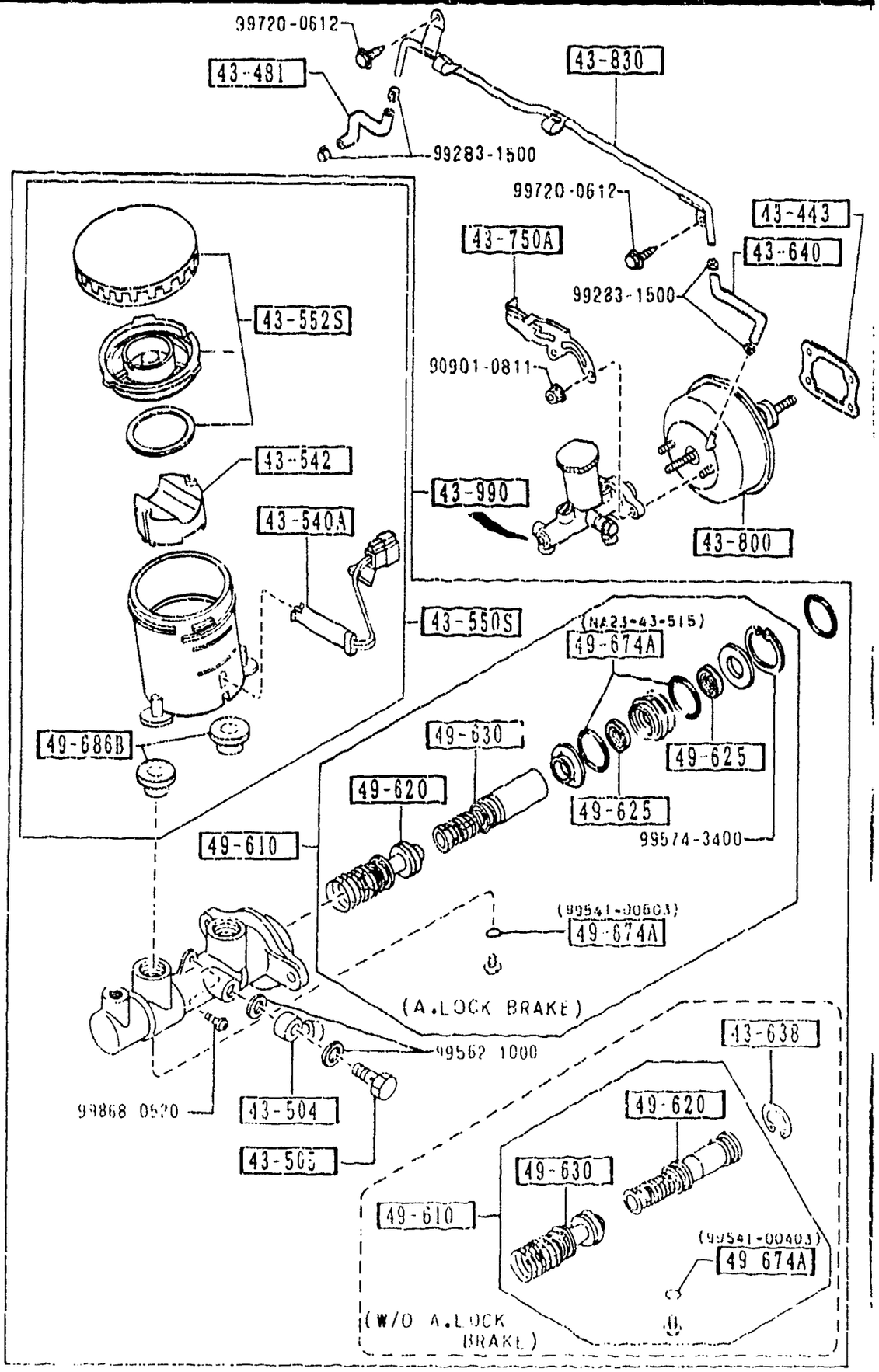
2620 NA35**-330122

4300A BRAKE PEDALS (AUTOMATIC TRANSMISSION)



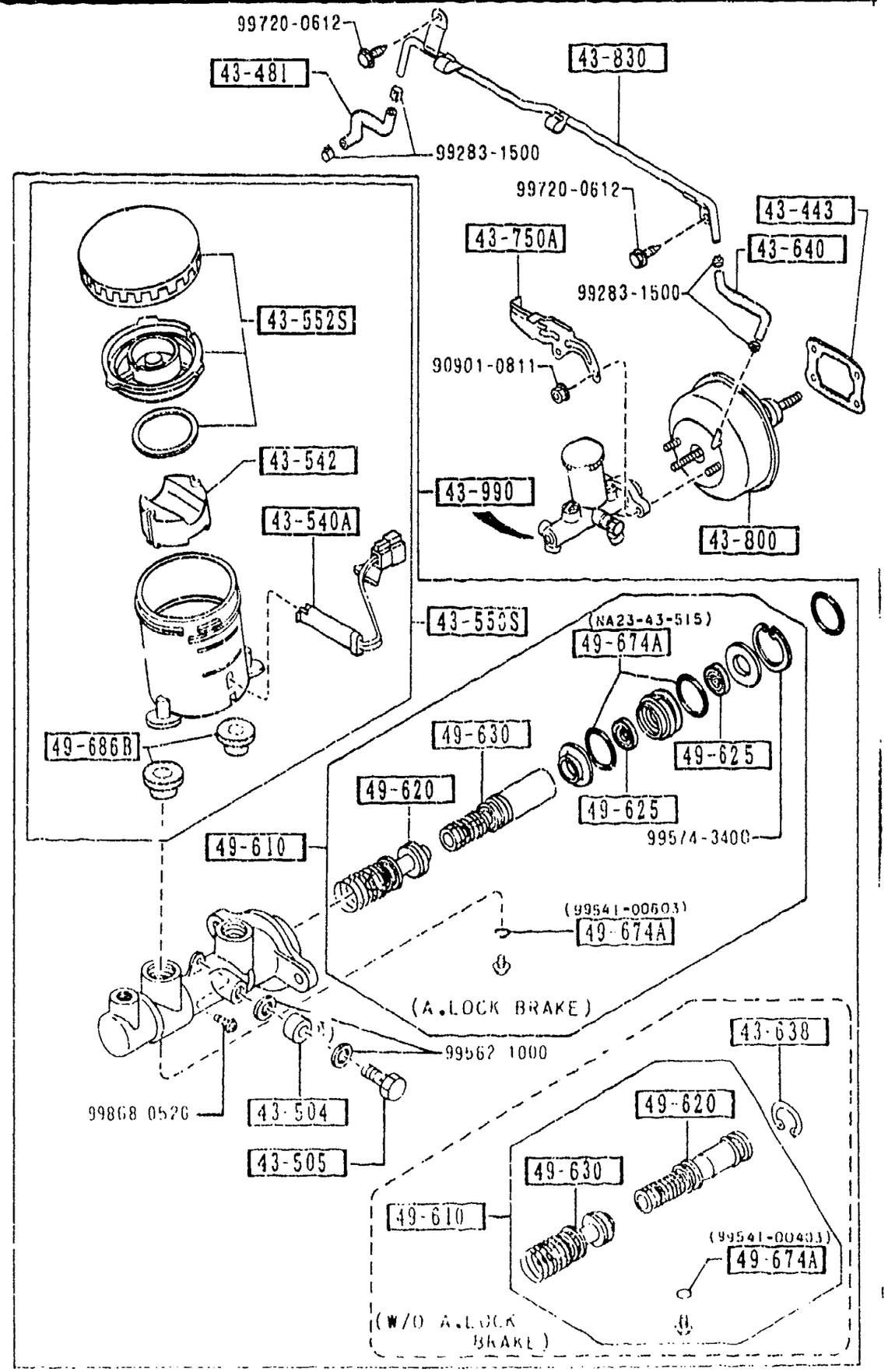
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
43-152		PIN,SNAP			
D001-43-152	1				
46-085		BUSH			
1015-46-085	2				
67-210		SWITCH,STOP			
BR70-66-490A	1	PKG-OPT, (W/AUTO CRUISE CONT)			
B001-66-490A	1	BASE, (W/O AUTO CRUISE CONT.)			

4340 BRAKE MASTER CYLINDER & POWER BRAKE



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
43-443		GASKET,VAC POWER ASSIST			
H001-43-443	1	NON ASBESTOS			
43-481		HOSE,VACUUM			
NA01-43-481	1				
43-504		JOINT,PIPE			
W023-43-504	1				
43-505		BOLT,CONNECTOR			
W023-43-505	1				
43-540A		SENSOR,RESERVE TANK			
GA97-43-540	1				
43-542		FLOAT			
3597-43-542	1				
43-550S		TANK SET,RESERVE			
NA23-43-55Z	1	(A.LOCK BRAKE)			
B216-49-680A	1	(W/O A.LOCK BRAKE)			
43-552S		CAP SET,RESERVE TANK			
D001-49-650A	1				
43-638		RING,RETAINING			
GA02-49-638	1	(W/O A.LOCK BRAKE)			
43-640		HOSE,VACUUM			
NA01-43-640	1				
43-750A		HOLDER,P.B.VALVE			
NA01-43-750	1	(W/O A.LOCK BRAKE)			
NAC[illegible]-43-750A	1	(A.LOCK BRAKE)			
43-800		VACUUM POWER ASSIST			
NA01-43-800	1	(W/O A.LOCK BRAKE)			
NA23-43-800	1	(A.LOCK BRAKE)			

4340 BRAKE MASTER CYLINDER & POWER BRAKE

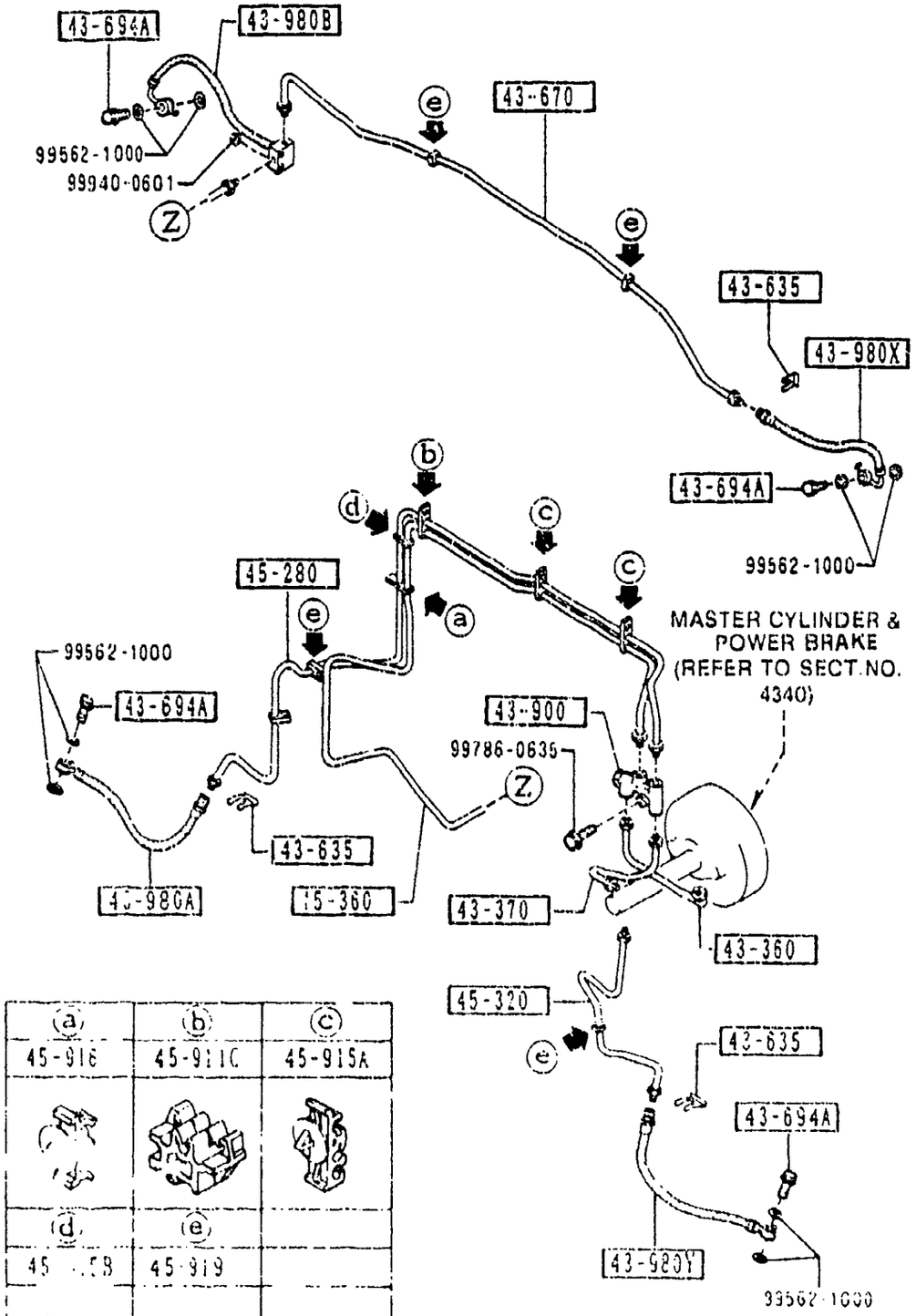


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
43-830		PIPE,VACUUM			
NA01-43-830A	1	(W/O A.LOCK BRAKE)			
NA23-43-830A (NA23-43-830B)	1				-0A01
NA23-43-830B	1	(A.LOCK BRAKE)			0A01-
43-990		CYL.,TANDEM MASTER			
NAY3-43-40Z	1	(A.LOCK BRAKE)			
NA01-43-400D	1	(W/O A.LOCK BRAKE)			
49-610		PARTS KIT,INN.-BRAKE			
NAY3-43-41Z	1	(A.LOCK BRAKE)			
BW0A-43-61Z	1	(W/O A.LOCK BRAKE)			
49-620		PISTON,PRIMARY			
BW0A-43-62Z	1	(W/O A.LOCK BRAKE)			
B252-49-620A	1	(A.LOCK BRAKE)			
49-625		CUP,SECONDARY			
NA23-43-625	2	(A.LOCK BRAKE)			
49-630		PISTON,FLOATING			
BW0A-43-63Z	1	(W/O A.LOCK BRAKE)			
NA23-43-63Z	1	(A.LOCK BRAKE)			
49-674A		RING,'O'-MASTER CYL.			
NA23-43-515	2	SHINEI KOGYO (A.LOCK BRAKE)			
99541-00403	1	(W/O A.LOCK BRAKE)			
99541-00603	1	NOK (A.LOCK BRAKE)			
49-686B		BUSH,ELBOW JOINT			
0305-49-686B	2				

0A01 NA35**-213219

(W/O A,LOCK BRAKE)

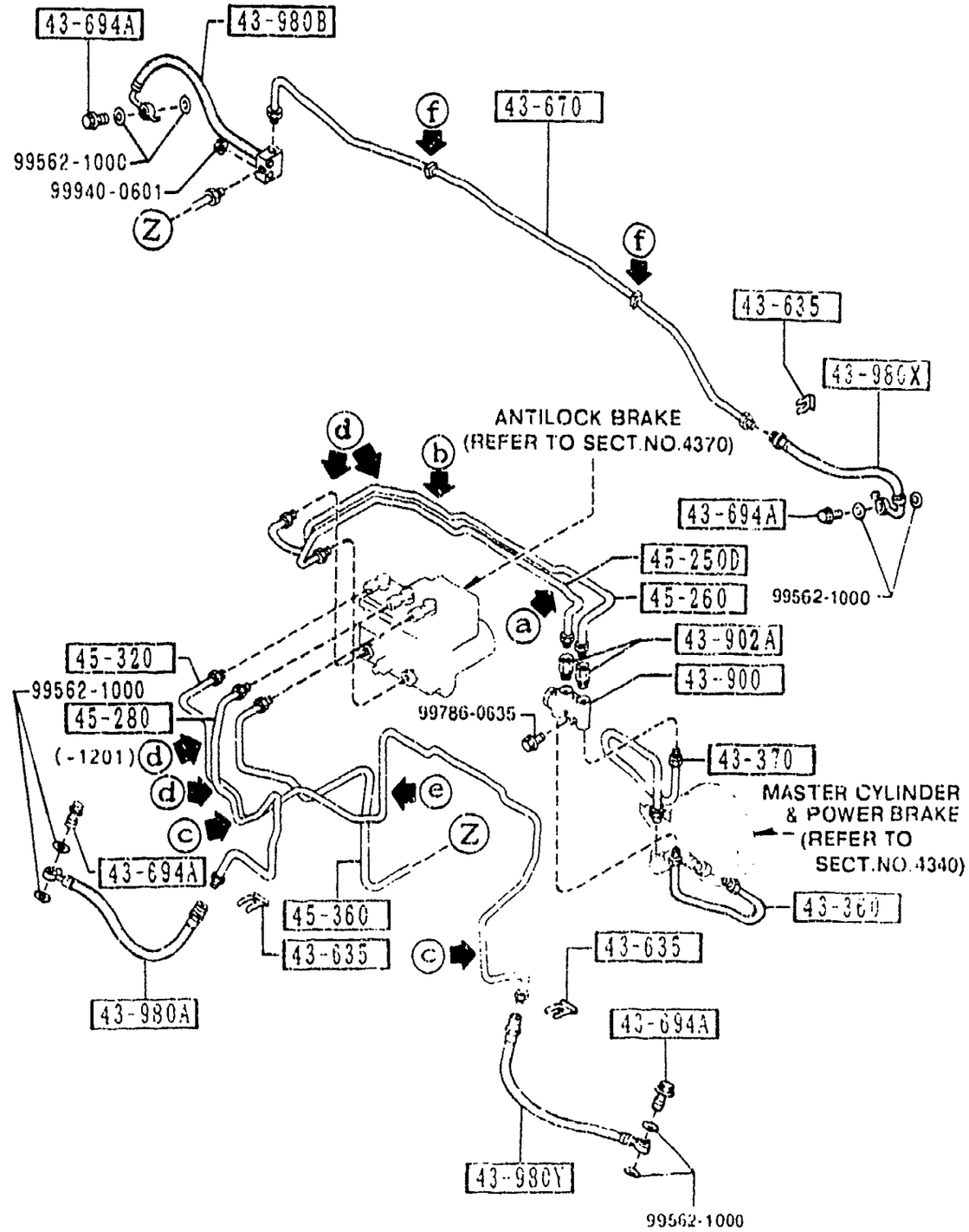
(THIS ILLUSTRATION CONSISTS OF 2 PAGES)



ⓐ	ⓑ	ⓒ
45-916	45-911C	45-915A
ⓓ	ⓔ	
45-[illegible]B	45-919	

(A,LOCK BRAKE)

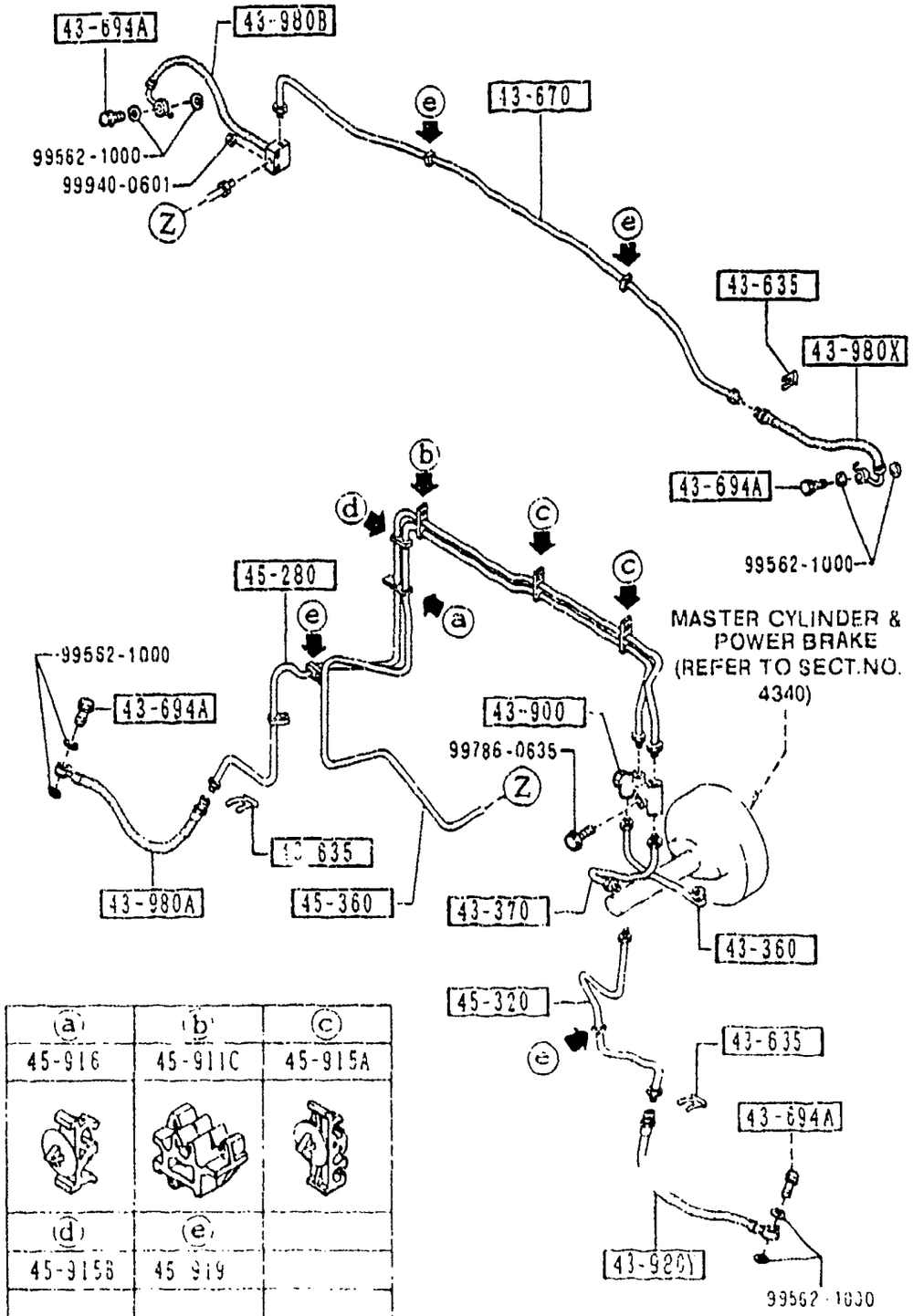
(THIS ILLUSTRATION CONSISTS OF 2 PAGES)



ⓐ	ⓑ	ⓒ	ⓓ	ⓔ	ⓕ
45-910E	45-920	43-607	43-919A	45-919C	45-919

(W/O A.LOCK BRAKE)

(THIS ILLUSTRATION CONSISTS OF 2 PAGES)



(a)	(b)	(c)
45-916	45-911C	45-915A
(d)	(e)	
45-915B	45-919	

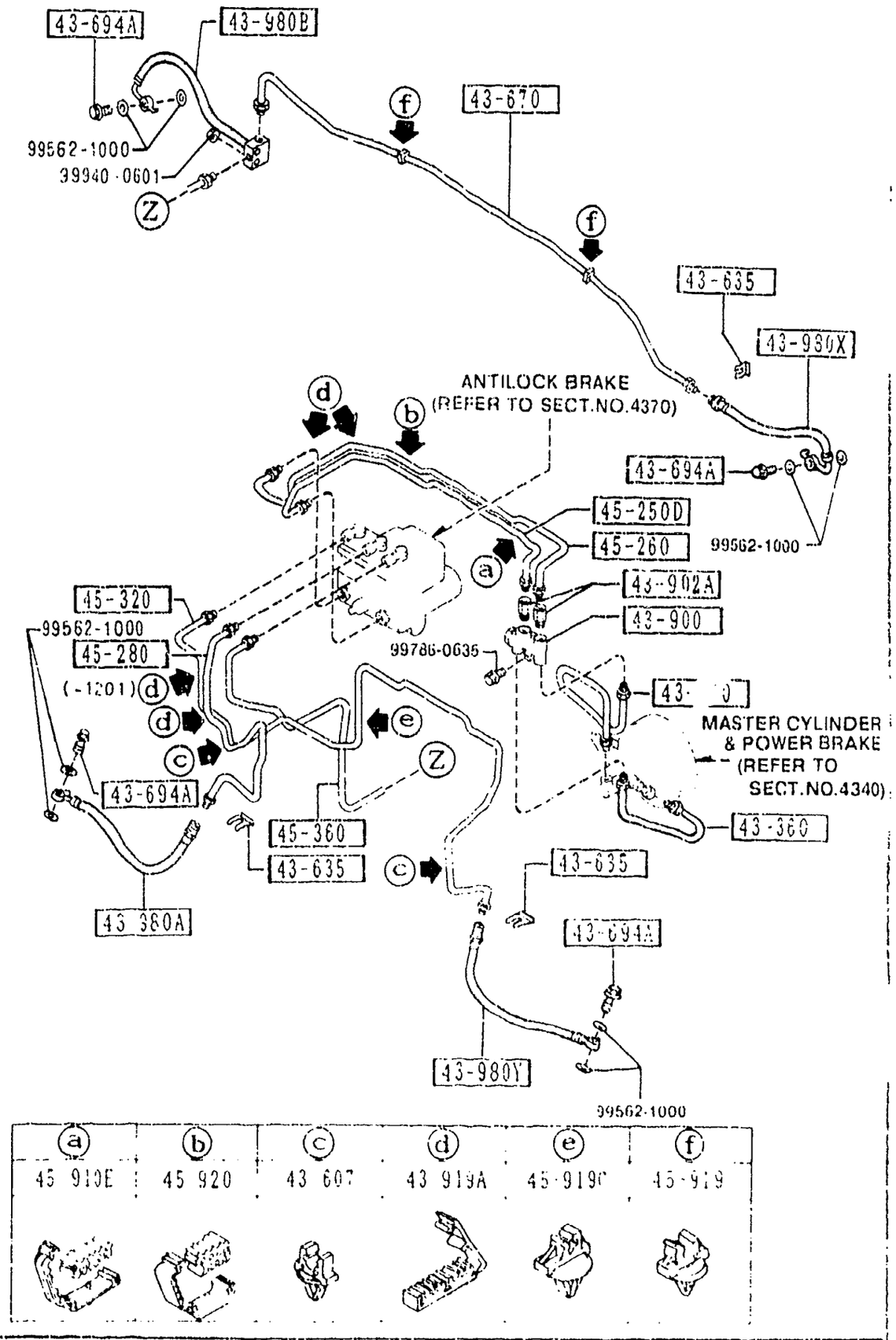
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
43-360		PIPE,BRAKE			
NA01-43-360A	1	(W/O A.LOCK BRAKE)			
NA23-43-360A	1	(A.LOCK BRAKE)			
43-370		PIPE,BRAKE			
NA01-43-370	1	(W/O A.LOCK BRAKE)			
NA23-43-370A	1	(A.LOCK BRAKE)			
43-607		CLIP,RR BRAKE PIPE			
G309-43-607	2	(A.LOCK BRAKE)			
43-635		CLIP,FLEXIBLE HOSE			
W023-43-635	3				
43-670		PIPE,BRAKE-REAR			
NA01-43-670A	1				
43-694A		BOLT,CONNECTOR			
B001-43-694A	4				
43-900		VALVE,DUAL PROPORTIONING			
NA23-43-9Z0A	1	(A.LOCK BRAKE)			
NA01-43-900	1	(W/O A.LOCK BRAKE)			
43-902A		RING'O'			
NA17-43-902	2	(A.LOCK BRAKE)			
43-919A		HOLDER,BRAKE PIPE			
NA20-45-915	4	(A.LOCK BRAKE)			-1201
NA20-45-915	3	(A.LOCK BRAKE)			1201-
43-980A		HOSE(R),FLEXIBLE-FRT			
NA01-43-810A	1				
43-980B		HOSE(R),FLEXIBLE-RR			
NA01-43-980	1				
43-980X		HOSE(L),FLEXIBLE-RR			
NA01-43-990	1				

1201 NA3*-228219

4360 BRAKE PIPINGS (2/2)

(A,LOCK BRAKE)

(THIS ILLUSTRATION CONSISTS OF 2 PAGES)



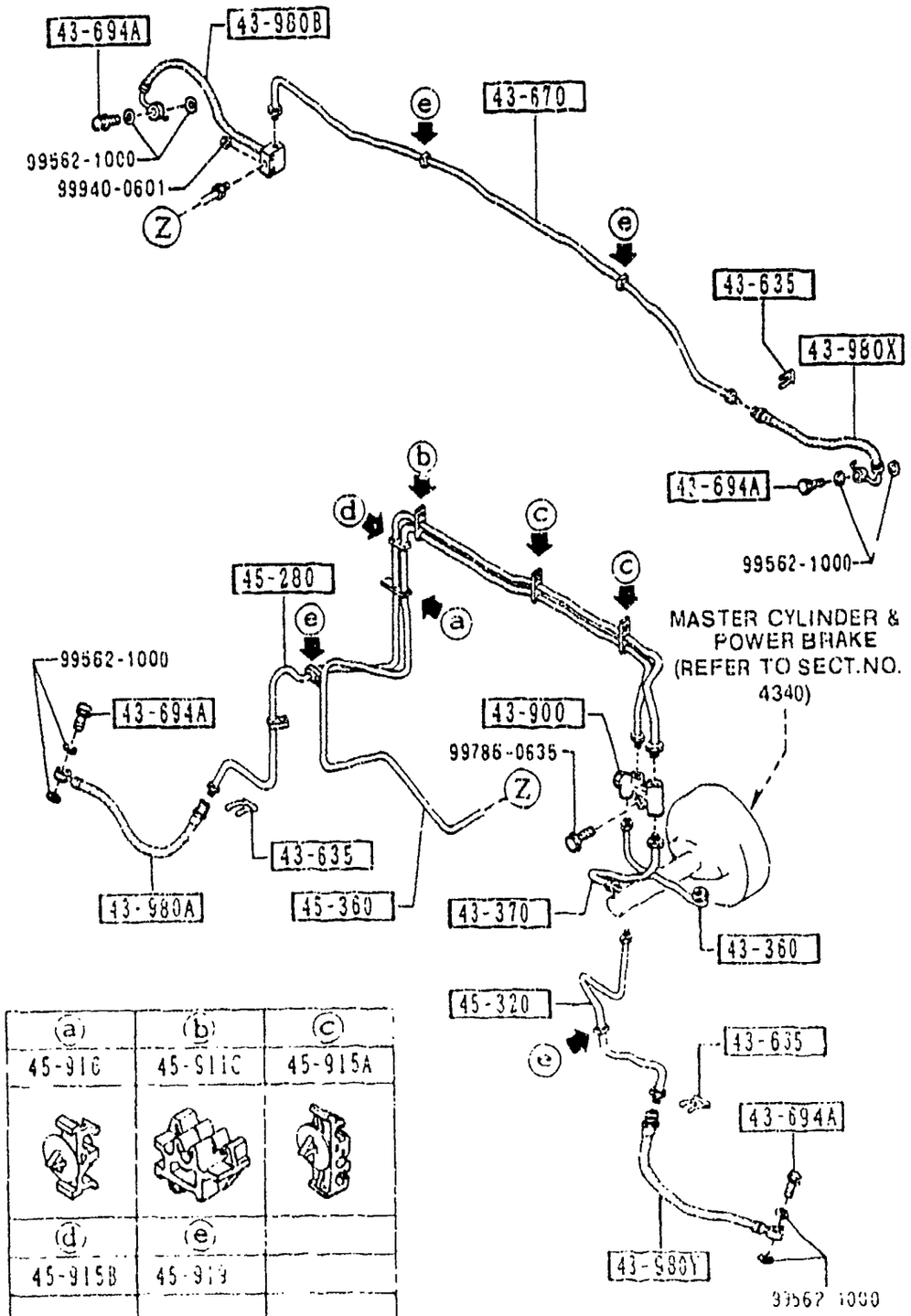
a	b	c	d	e	f
45 910E	45 920	43 607	43 919A	45-919C	45-919

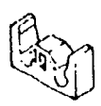
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
43-980Y		HOSE(L),FLEXIBLE-FRT			
NA01-43-820A	1				
45-250D		PIPE NO.1,BRAKE-FRT			
NA20-45-230C	1	(A.LOCK BRAKE)			
45-260		PIPE NO.2,BRAKE-FRT.			
NA20-45-240C	1	(A.LOCK BRAKE)			
45-280		PIPE(R),BRAKE-FRONT			
NA01-45-280B	1	(W/O A.LOCK BRAKE)			
NA20-45-280B	1	(A.LOCK BRAKE)			
45-320		PIPE(L),BRAKE-FRONT			
NA20-45-320C	1	(A.LOCK BRAKE)			
NA01-45-320B AN(NA01-45-320C)	1				-1B01
NA01-45-320C	1	(W/O A.LOCK BRAKE)			1B01-
45-360		PIPE NO.2,BRAKE-REAR			
NA01-45-360B	1	(W/O A.LOCK BRAKE)			
NA20-45-360D	1	(A.LOCK BRAKE)			
45-910E		HOLDER,PIPE			
NA20-45-910A	1	(A.LOCK BRAKE)			
45-911C		CLIP,PIPE			
NA01-45-911	1	(W/O A.LOCK BRAKE)			
45-915A		HOLDER,PIPE			
B001-45-915	2	(W/O A.LOCK BRAKE)			
45-915B		HOLDER,PIPE			
NA01-45-915A	1	(W/O A.LOCK BRAKE)			
45-916		HOLDER,PIPE			
B001-45-916	1	(W/O A.LOCK BRAKE)			
45-919		CLIP,PIPE			
B001-45-919B	2	(A.LOCK BRAKE)			

1B01 NA35**-306993

(W/O A,LOCK BRAKE)

(THIS ILLUSTRATION CONSISTS OF 2 PAGES)

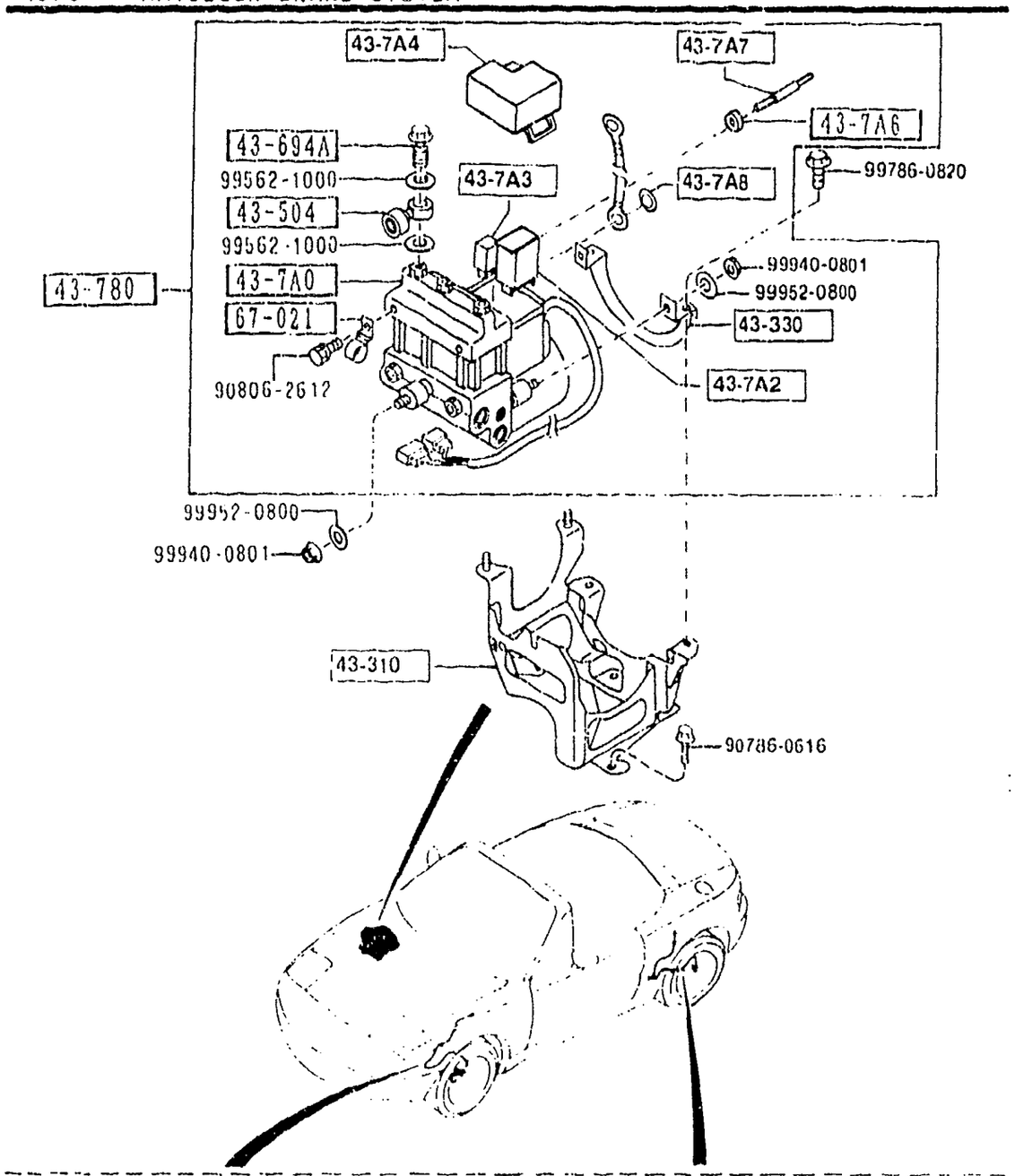


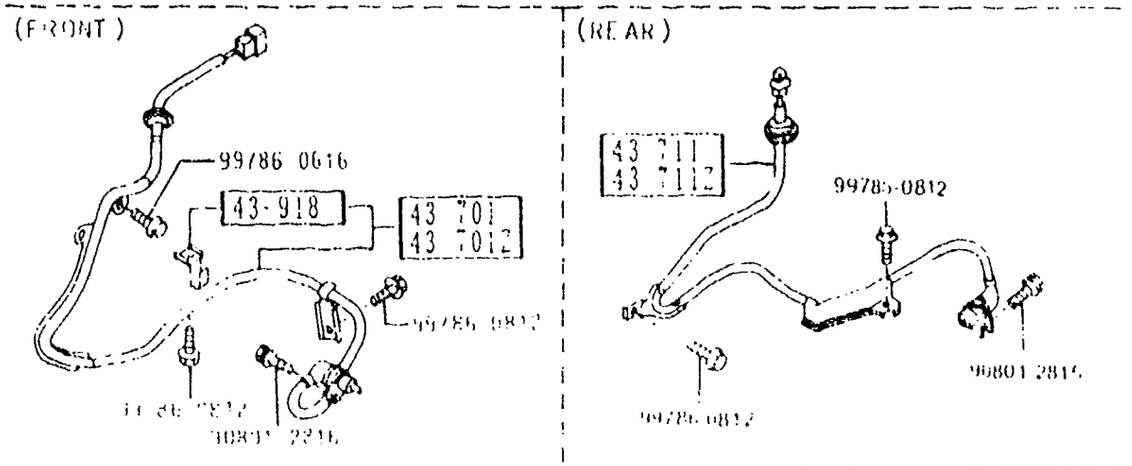
ⓐ	ⓑ	ⓒ
45-916	45-S11C	45-915A
ⓓ	ⓔ	
45-915B	45-913	
		

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
8001-45-919B	4	(W/O A.LOCK BRAKE)			
+---------+					
| 45-919C |		CLIP,PIPE			
+---------+					
G030-45-919	1	(A.LOCK BRAKE)			
+---------+					
| 45-920 |		BRACKET			
+---------+					
NA20-45-920A	1				-2121
A (NA20-45-920B)					
NA20-45-920B	1	(A.LOCK BRAKE)			2121-

2121 NA35**-315566

4370 -1 ANTILOCK BRAKE SYSTEM

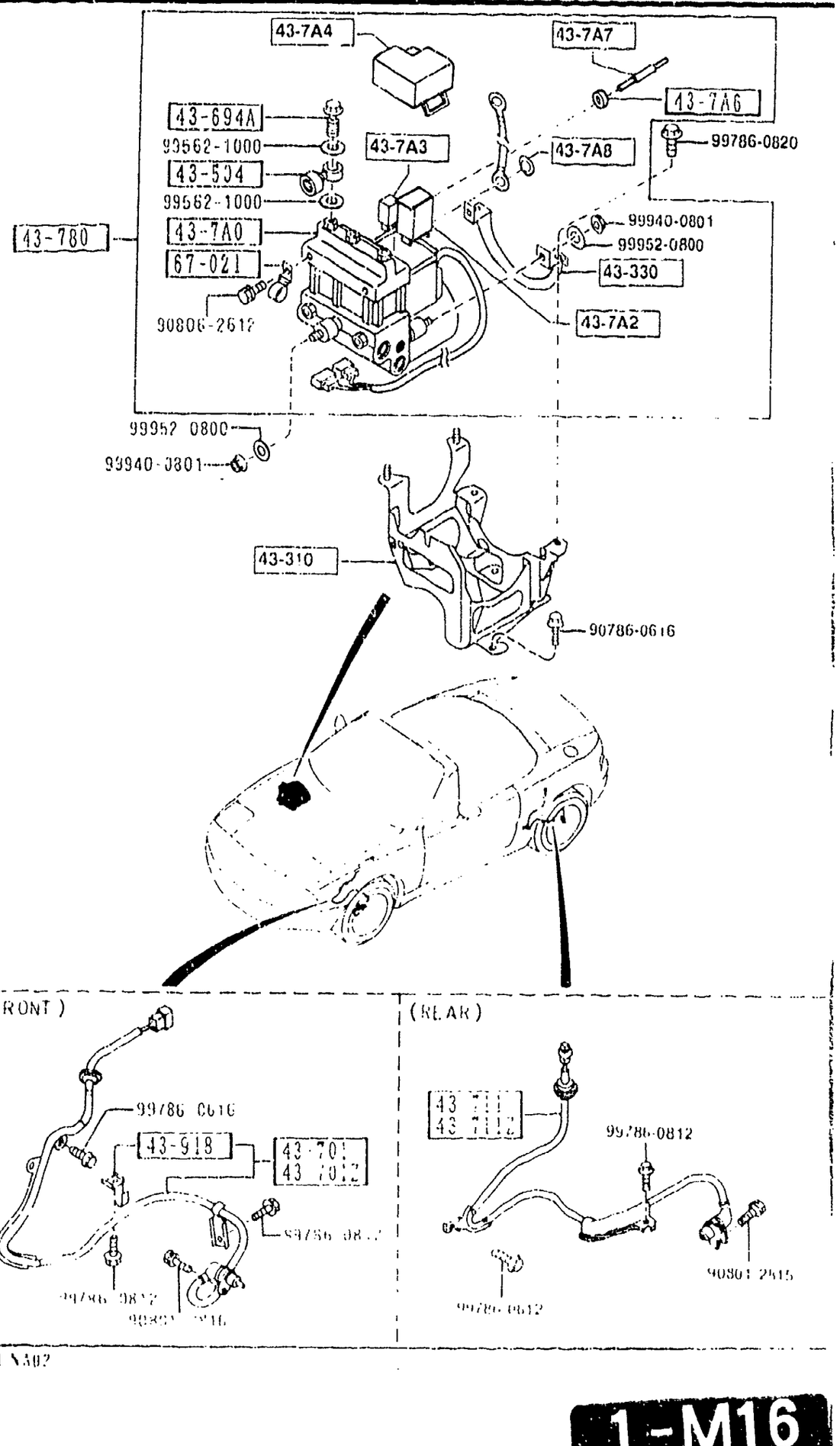




PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
43-310 NA23-43-310B	1	BRACKET NO 1,A.B.S.			
43-330 NA23-43-330B	1	BRACKET NO.5,A.B.S.			
43-504 WU23-43-504	3	JOINT,PIPE			
43-694A B001-43-694A	3	BOLT,CONNECTOR			
43-7A0 NA23-43-7A0B	1	HYDRAULIC UNIT,A B S			
43-7A2 NA23-43-7A2	1	RELAY,MOTOR-HYD. UNIT			
43-7A3 NA23-43-7A3	1	RELAY,VALVE-HYD. UNIT			
43-7A4 NA23-43-7A4	1	COVER'L',HYDRAULIC UNIT			
43-7A6 NA23-43-7A6	1	RUBBER,MOUNT-HYD. UNIT			
43-7A7 NA23-43-7A7	1	STUD,HEX-HYD. UNIT			
43-7A8 NA23-43-7A8	1	WASHER,HYD. UNIT			
43-701 NA23-43-70XB A (NA23-43-70XD)	1	SENSOR(R),FRT-A B.S.			-0B01
NA23-43-70XD	1				0B01-
43-701Z NA23-43-73XB A (NA23-43-73XD)	1	SENSOR(L),FRT-A.B.S.			-0B01

0B01 NA35**-217311

4370 ANTILOCK BRAKE SYSTEM

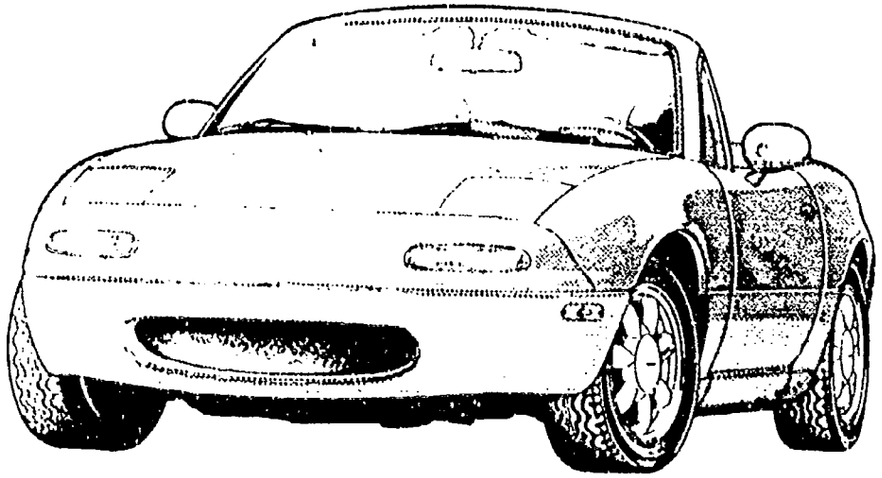


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA23-43-73XD	1				0B01-
43-711		SENSOR(R),RR A.B.S.			
NA23-43-71YB	1				
43-711Z		SENSOR(L),RR-A.B.S.			
NA23-43-72YB	1				
43-780		ANTILOCK BRAKE			
NA23-43-780D AN(NA23-43-780E)	1				-0901
NA23-43-780E	1				0901-
43-918		CLIP,SENSOR HARNESS			
NA23-43-705	2				
67-021		CLIP			
BE32-67-021	2				

0901 NA35**-208969
0B01 NA35**-217311

Parts Catalog

Mazda MX-5 MIATA
U.S.A.
('91►'92)



(NA35**-200001-350000)

Jan.'94 (FINAL)

Catalog No. AU-NA02-07

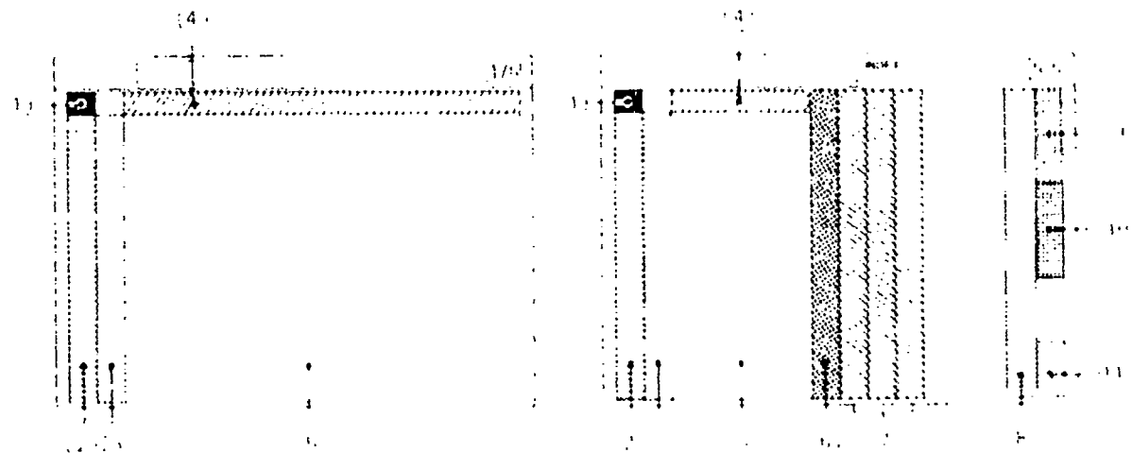
mazda

1994 Mazda Motor Corporation

2-B 1

LAYOUT OF CONTENTS / DISPOSITION TYPOGRAPHIQUE DE CONTENU / DISPOSICION DEL CONTENIDO / ANORDNUNG DES INHALTS

- The following is a typical example of the layout of contents on Mazda microfiche parts catalog.
- Voici un exemple typique de la disposition typographique de contenu dans les microfiches de catalogue des pièces de Mazda
- El siguiente es un ejemplo típico de la disposición del contenido en una microficha del catálogo de repuestos de Mazda
- Folgendes ist ein typisches Beispiel der Inhaltsanordnung des Mazda Mikrofiche Teilekatalogs

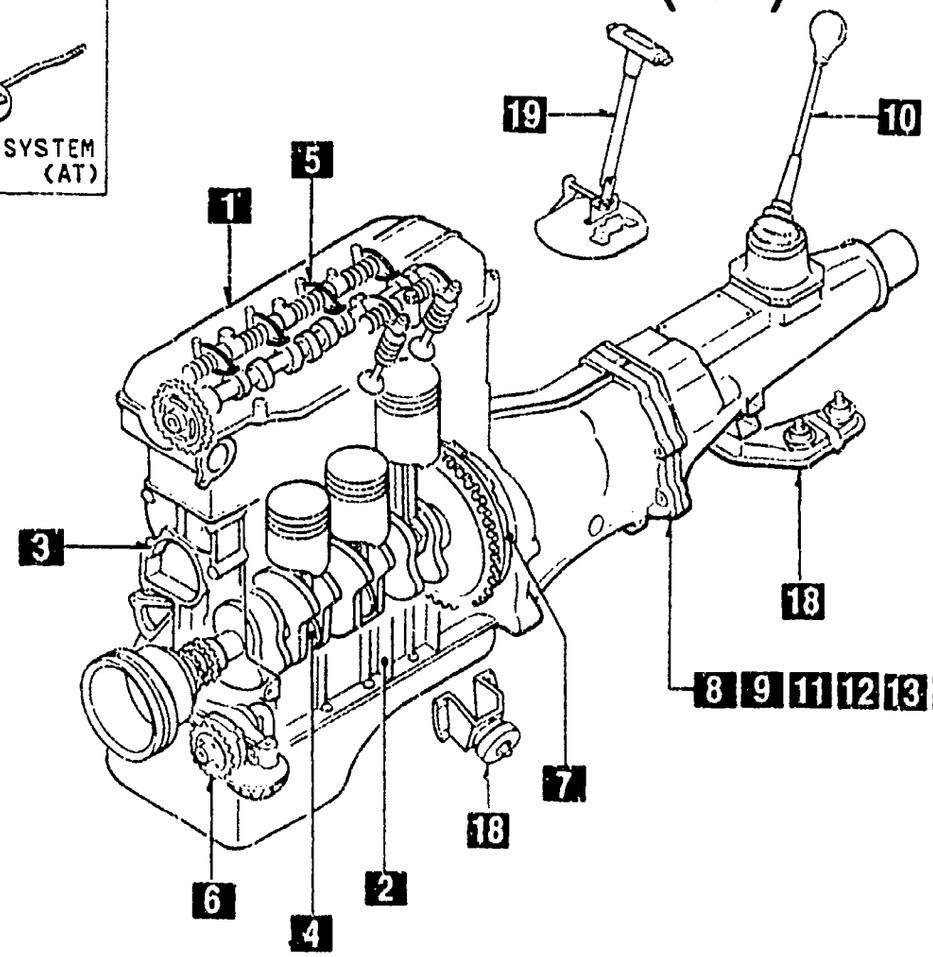


Remark : The items listed under ④ have been deleted from each fiche since Dec. '93

① · Layout of contents · Disposition Typographique de Contenu · Disposición del contenido · Anordnung des Inhalts	② · Pictorial Index · Index par Schémas · Indice Gráfico · Illustrierter Index	③ · Master Section No. Index · Index des Numéros des Sections Totale · Indice del Numero de la Sección Maestra · Hauptabschnittsnummer Index
~~④ · Section No. Index for the Column · Index des Numéros des Sections pour les Colonnes · N° de la Sección para el Indice · Abschnittsnummer Index für die Spalte~~	⑤ · Illustration & Text · Illustrations et Textes · Ilustración y Texto · Abbildung und Text	6 · Part No. Index · Index des Numéros des Pièces · Indice del N° de Pieza · Teile No. Index
⑦ · Alphabetical Index · Index Alphabétique · Indice Alfabético · Alphabetischer Index	⑧ · Model Identification · Identification des Modèles Identificación del Modelo · Modell Kennzeichnung	9 · Vehicle Identification System · Système d'Identification de Véhicule · Sistema de Identificación de Vehículo · Fahrzeug Identifikations system

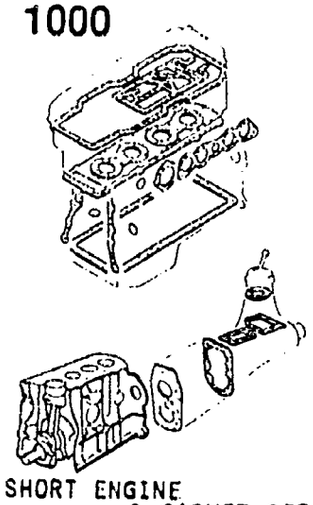
PICTORIAL INDEX

ENGINE (1/2)



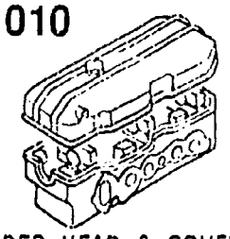
As this illustration is prepared to be applicable to all models, some parts are different in specifications from the parts listed in this parts Catalog

1000



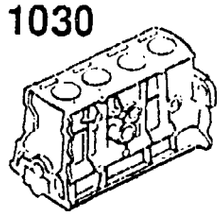
SHORT ENGINE & GASKET SETS

1 1010



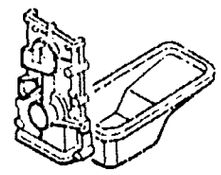
CYLINDER HEAD & COVER

2 1030



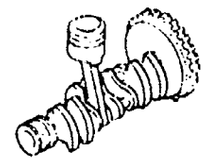
CYLINDER BLOCK

3 1040



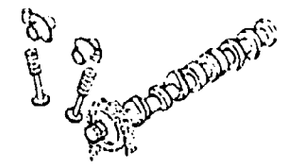
OIL PAN & TIMING COVER

4 1100



PISTON, CRANKSHAFT & FLYWHEEL

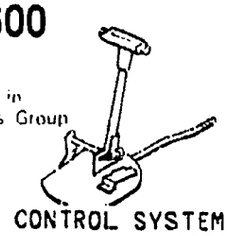
5 1200



VALVE SYSTEM

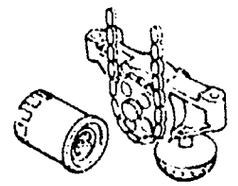
19 4600

Given in Chassis Group



CHANGE CONTROL SYSTEM (AT)

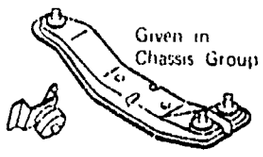
6 1400



OIL PUMP & FILTER

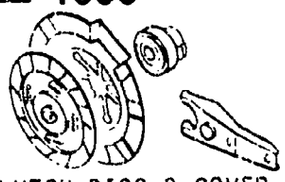
18 3900

Given in Chassis Group



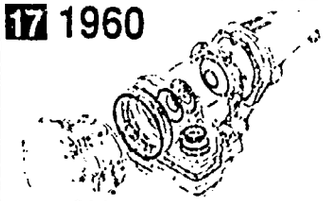
ENGINE & T/MISSION MOUNTINGS

7 1600



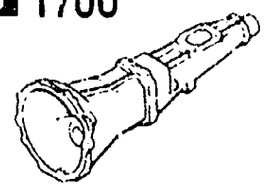
CLUTCH DISC & COVER (MANUAL)

17 1960



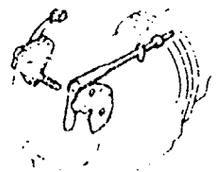
GASKET & SEAL KIT (AUTOMATIC)

8 1700



TRANSMISSION CASE (MANUAL)

16 1950

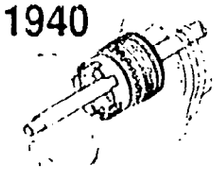


MANUAL LINKAGE SYSTEM (AUTOMATIC)

9 1710

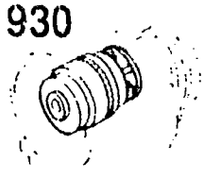
TRANSMISSION GEARS (MANUAL)

15 1940



GOVERNOR, LOW & REVERSE PISTON (AUTOMATIC)

14 1930

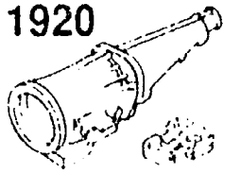


CLUTCHES & PLANETARY GEARS (AUTOMATIC)

13 1925

CONTROL VALVE (AUTOMATIC)

12 1920



TRANSMISSION CASE & MAIN CONTROL SYSTEM (AUTOMATIC)

11 1910

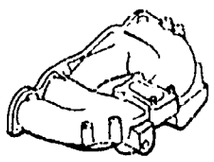
TORQUE CONVERTER, OIL PUMP & PIPINGS (AUTOMATIC)

10 1720

CHANGE CONTROL SYSTEM (MANUAL)

PICTORIAL INDEX

1 1300

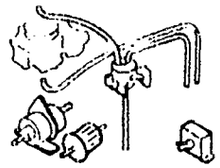


INLET MANIFOLD

2 1310

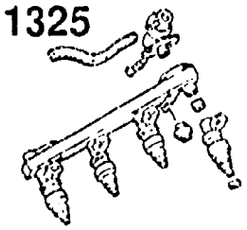
EXHAUST MANIFOLD

3 1320



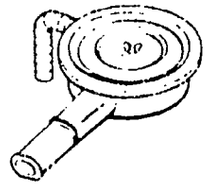
FUEL SYSTEM

4 1325



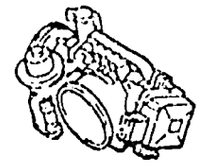
FUEL DISTRIBUTOR

5 1330



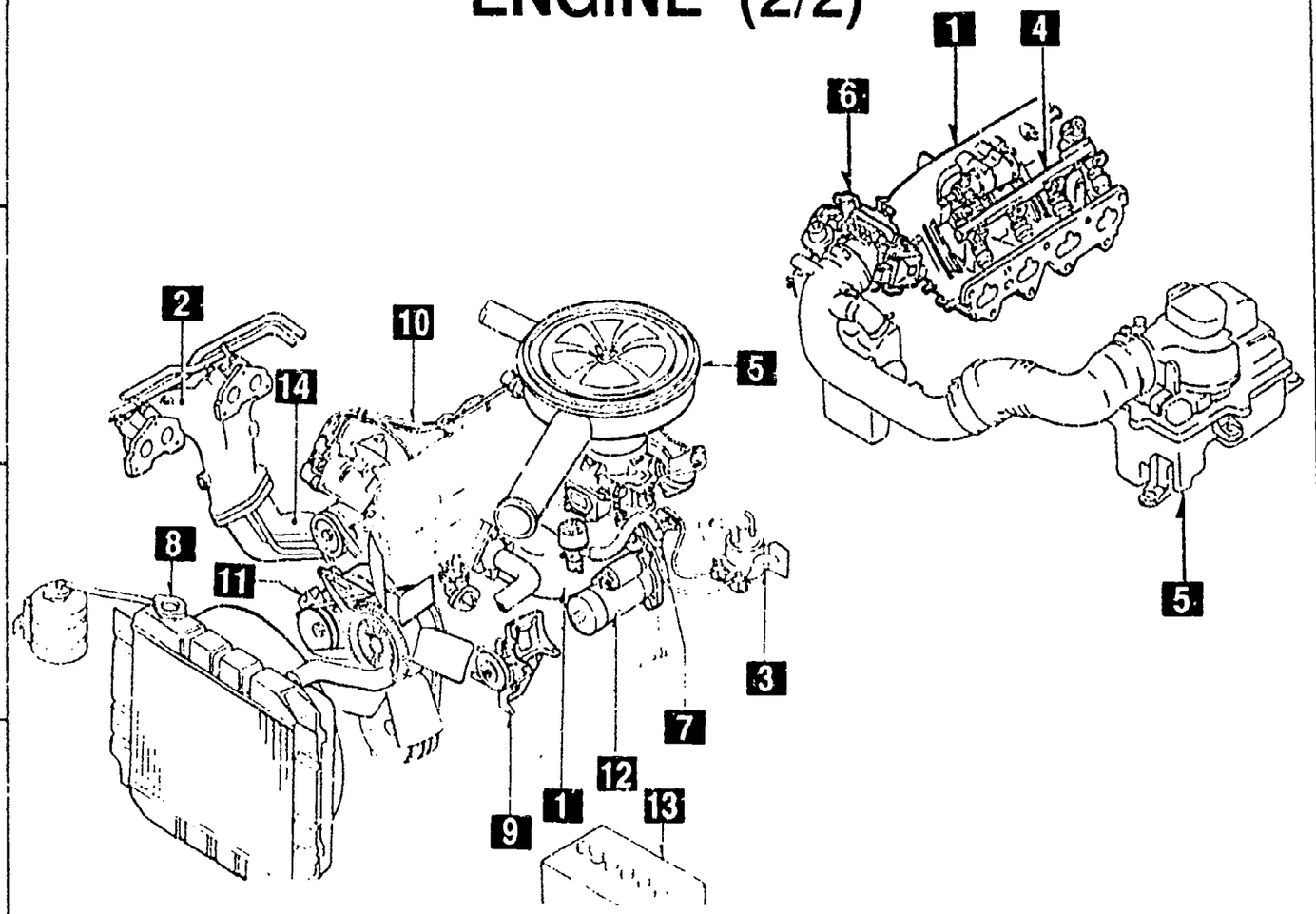
AIR CLEANER

6 1364



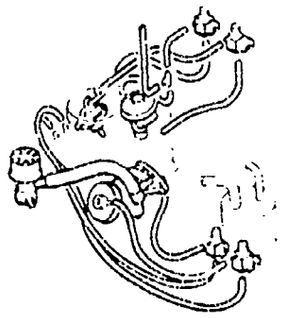
THROTTLE BODY

ENGINE (2/2)



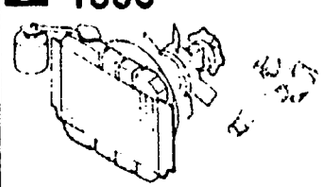
As this illustration is prepared to be applicable to all models, some parts are different in specifications from the parts listed in this parts Catalog

7 1370



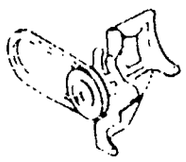
EMISSION CONTROL SYSTEM (INLET SIDE)

8 1500



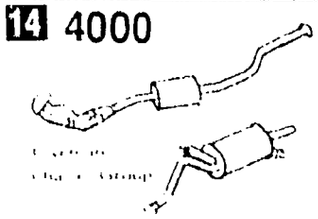
COOLING SYSTEM

9 1580



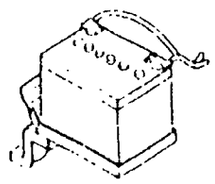
BRACKET, PULLEY & BELT

14 4000



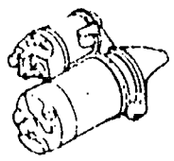
EXHAUST SYSTEM

13 1850



BATTERY

12 1840

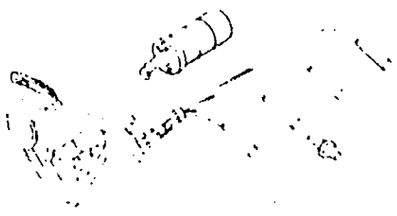


STARTER

11 1830

ALTERNATOR

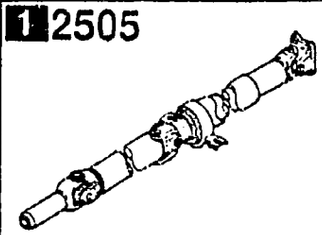
10 1800



ENGINE ELECTRICAL SYSTEM

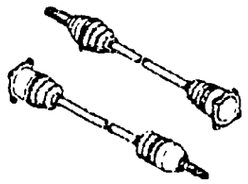
PICTORIAL INDEX

1 2505



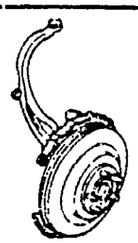
REAR PROPELLER SHAFT

2 2550



REAR DRIVE SHAFT

3 2600

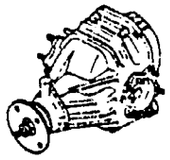


REAR AXLE

4 2610

REAR BRAKE MECHANISMS

5 2710

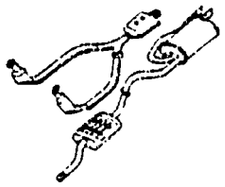


REAR DIFFERENTIALS

6 2800

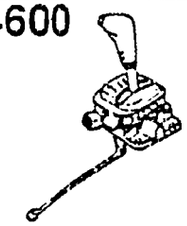
REAR SUSPENSION MECHANISMS

20 4000



EXHAUST SYSTEM

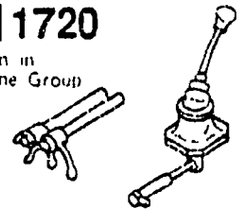
21 4600



CHANGE CONTROL SYSTEM

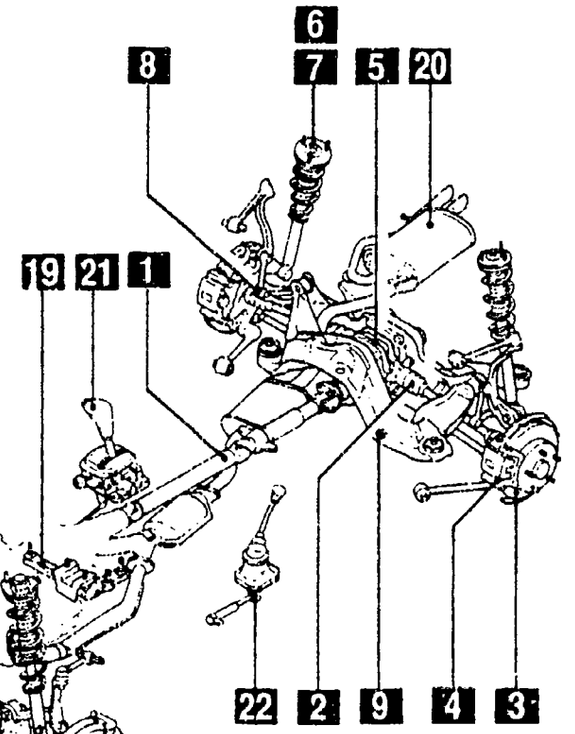
22 1720

Given in Engine Group



CHANGE CONTROL SYSTEM (MANUAL TRANSMISSION)

CHASSIS (1/2)



7 2801

REAR SPRING & DAMPER

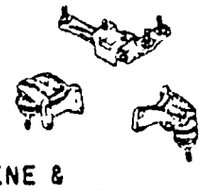
8 2810

REAR STABILIZER

9 2830

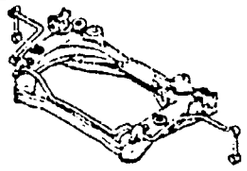
REAR LOWER ARMS & SUB FRAME

19 3900



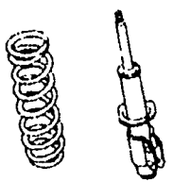
ENGINE & T/MISSION MOUNTINGS

18 3410

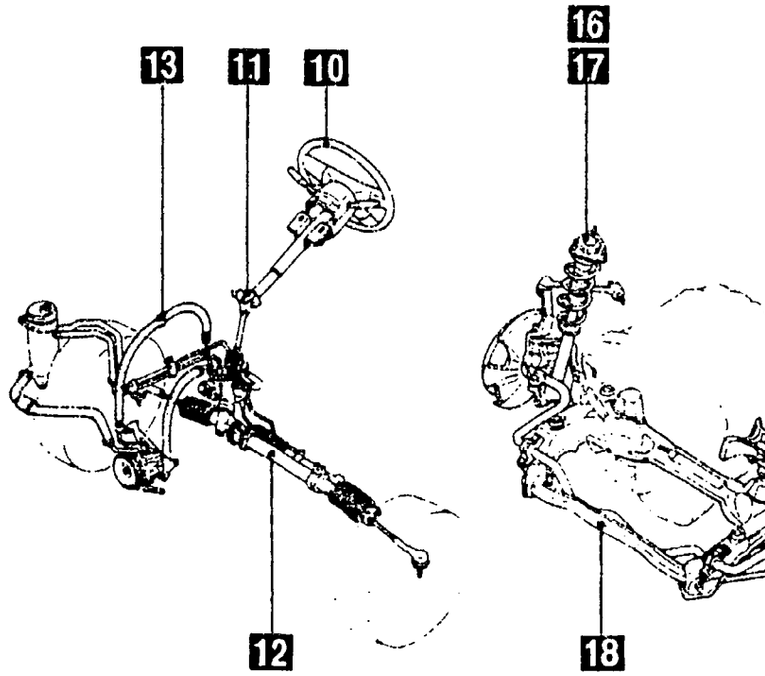


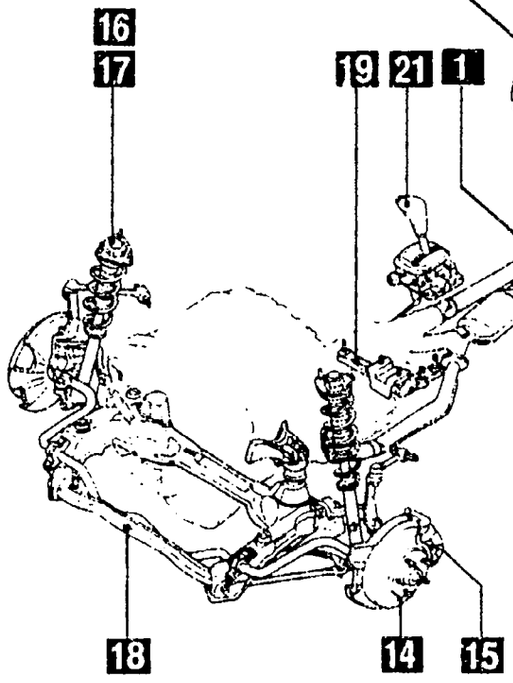
CROSSMEMBER & STABILIZER

17 3401



FRONT SPRING & DAMPER



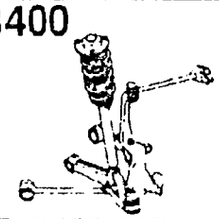


As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.

10 3200

STEERING WHEEL

16 3400



FRONT SUSPENSION MECHANISMS

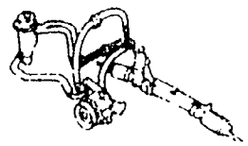
15 3310

FRONT BRAKE MECHANISMS

14 3300

FRONT AXLE

13 3240



POWER STEERING SYSTEM (FRONT)

12 3220

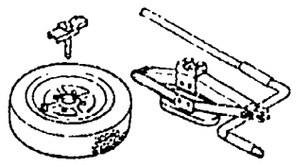
STEERING GEAR

11 3210

STEERING COLUMN & SHAFTS

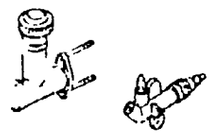
PICTORIAL INDEX

1 3700



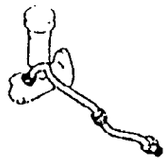
TIRES & JACK

2 4140



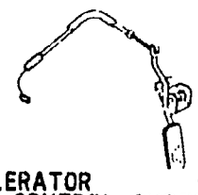
CLUTCH RELEASE & MASTER CYLINDERS

3 4145



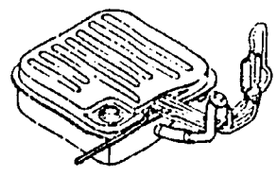
CLUTCH PIPINGS

4 4160



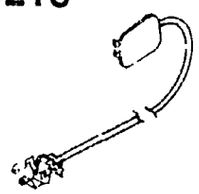
ACCELERATOR CONTROL SYSTEM

5 4200



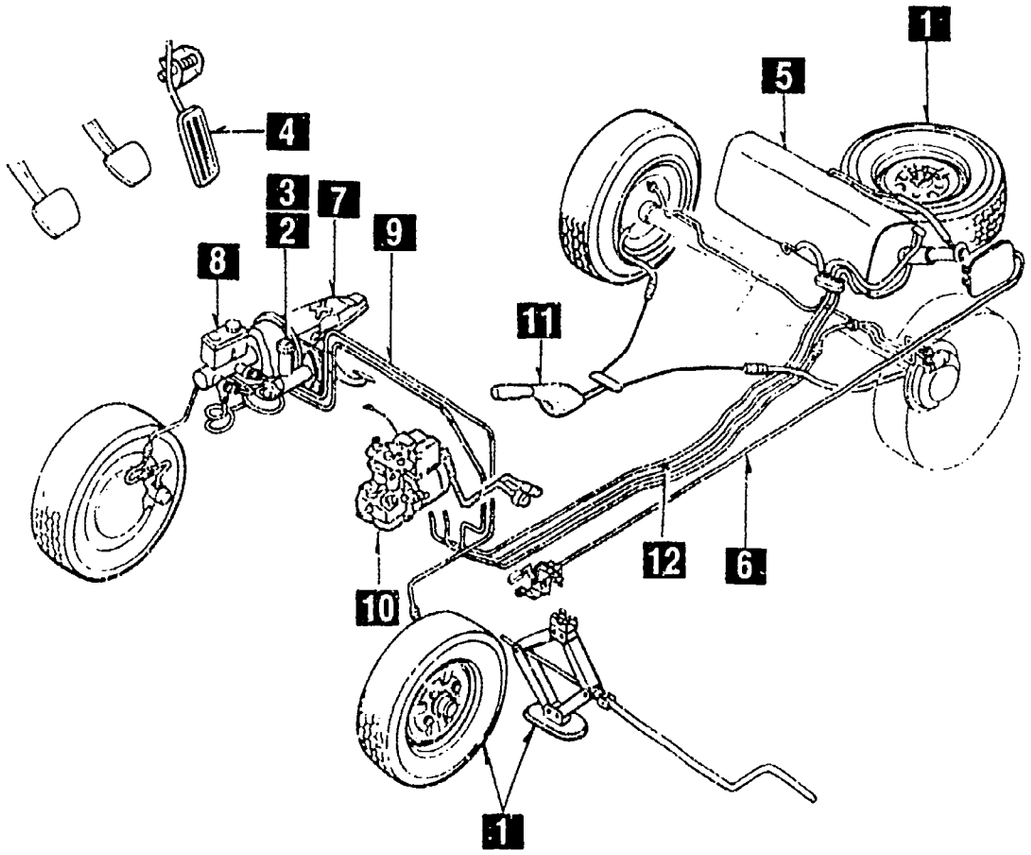
FUEL TANK

6 4210



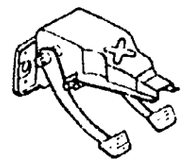
FUEL LID OPENER

CHASSIS (2/2)



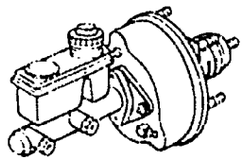
As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.

7 4300



CLUTCH & BRAKE PEDALS

8 4340

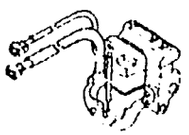


BRAKE MASTER CYLINDER & POWER BRAKE

9 4360

BRAKE PIPINGS

10 4370



ANTILOCK BRAKE SYSTEM

12 4500

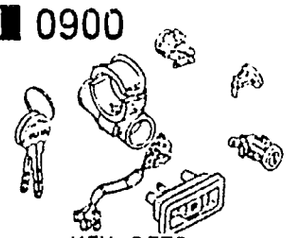
FUEL PIPINGS

11 4400

PARKING BRAKE SYSTEM

PICTORIAL INDEX

1 0900



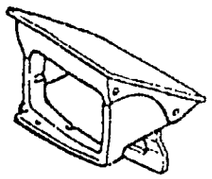
KEY SETS

2

3 5100

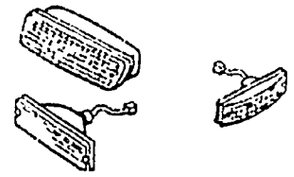
HEAD LAMPS

4 5103



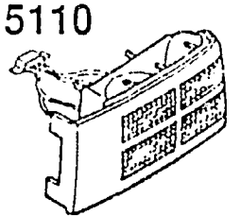
HEAD LAMP RETRACTORS

5 5105



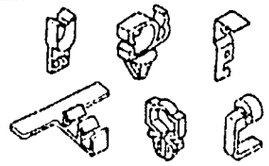
FRONT COMBINATION LAMPS

6 5110



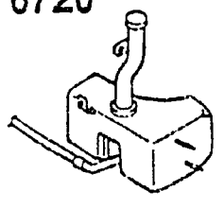
REAR COMBINATION LAMPS

19 6704



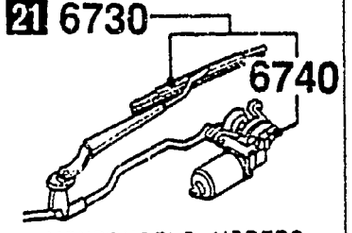
WIRING HARNESS CLAMPS

20 6720



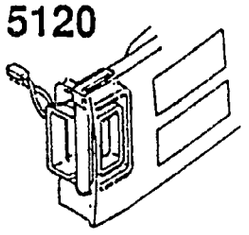
WINDSHIELD WASHER

21 6730 — 6740



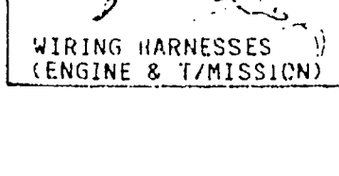
WINDSHIELD WIPERS

7 5120



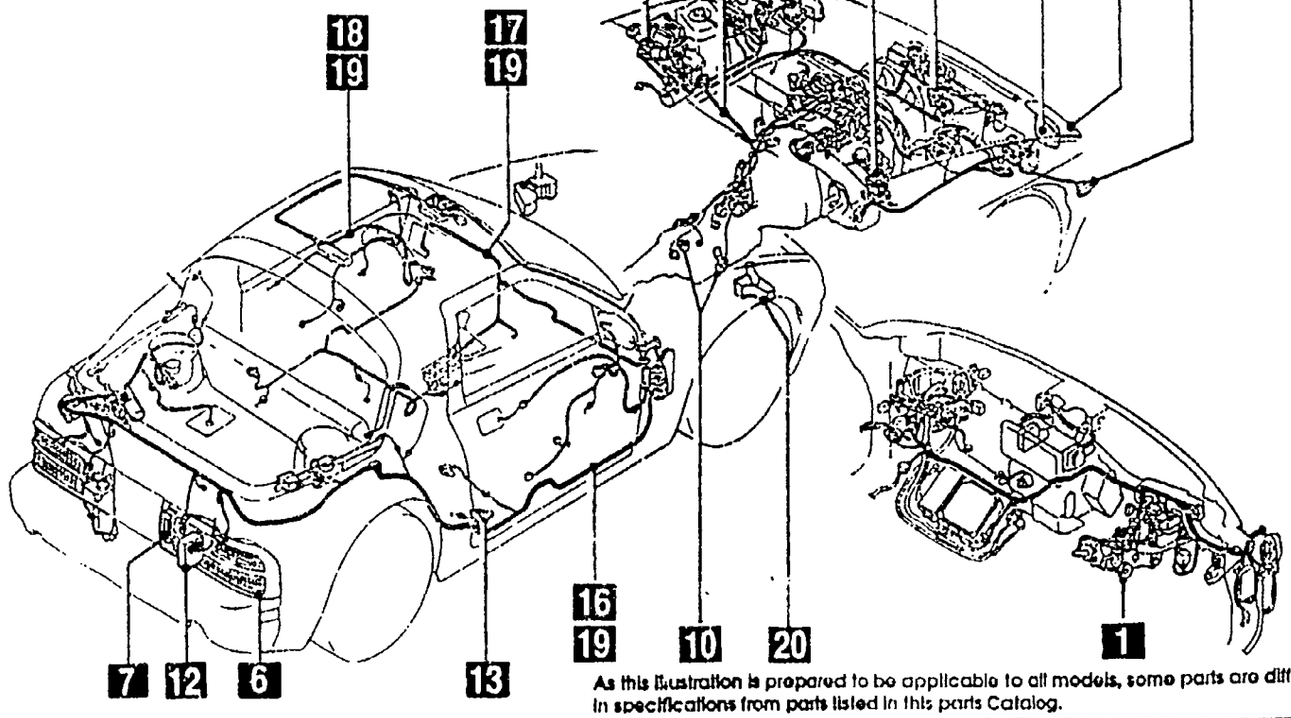
LICENSE LAMPS

18 6703



WIRING HARNESSES (DOOR, FLOOR/CEILING)

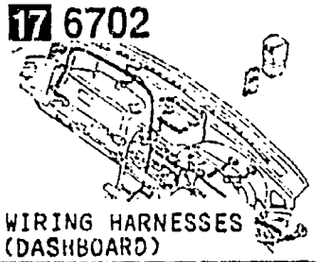
BODY (1/4)



8

9

17 6702

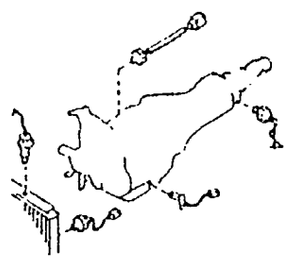


WIRING HARNESSES (DASHBOARD)

16 6700

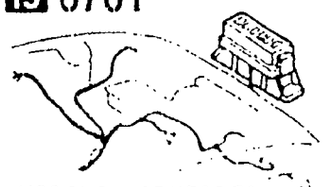
WIRING HARNESSES (FRONT & REAR)

10 6600



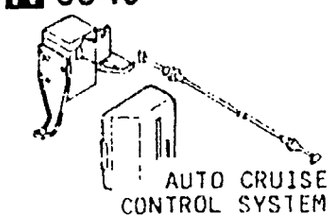
SWITCHES & RELAYS (ENGINE,

15 6701



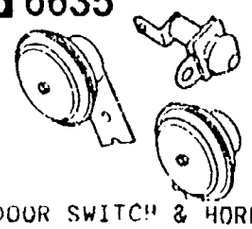
WIRING HARNESSES (ENGINE & T/MISSION)

14 6640



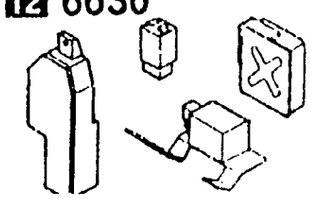
AUTO CRUISE CONTROL SYSTEM

13 6635



DOOR SWITCH & HORNS

12 6630



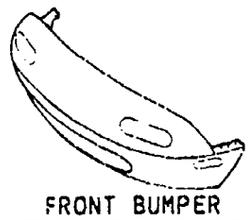
RELAYS & UNIT (BODY)

11

As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.

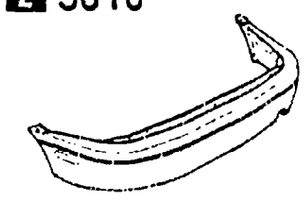
PICTORIAL INDEX

1 5000



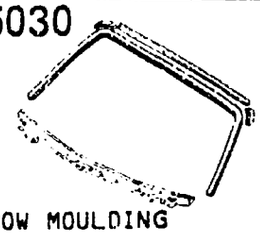
FRONT BUMPER

2 5010



REAR BUMPER

3 5030



WINDOW MOULDING
& COWL GRILLES

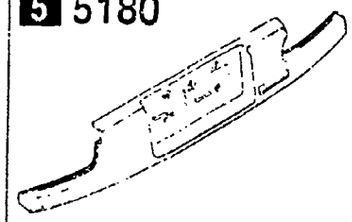
4 5170

mazda

Miata
Mazda MX-5

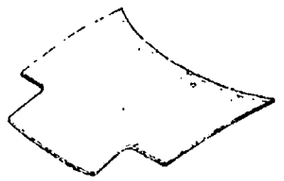
ORNAMENTS

5 5180



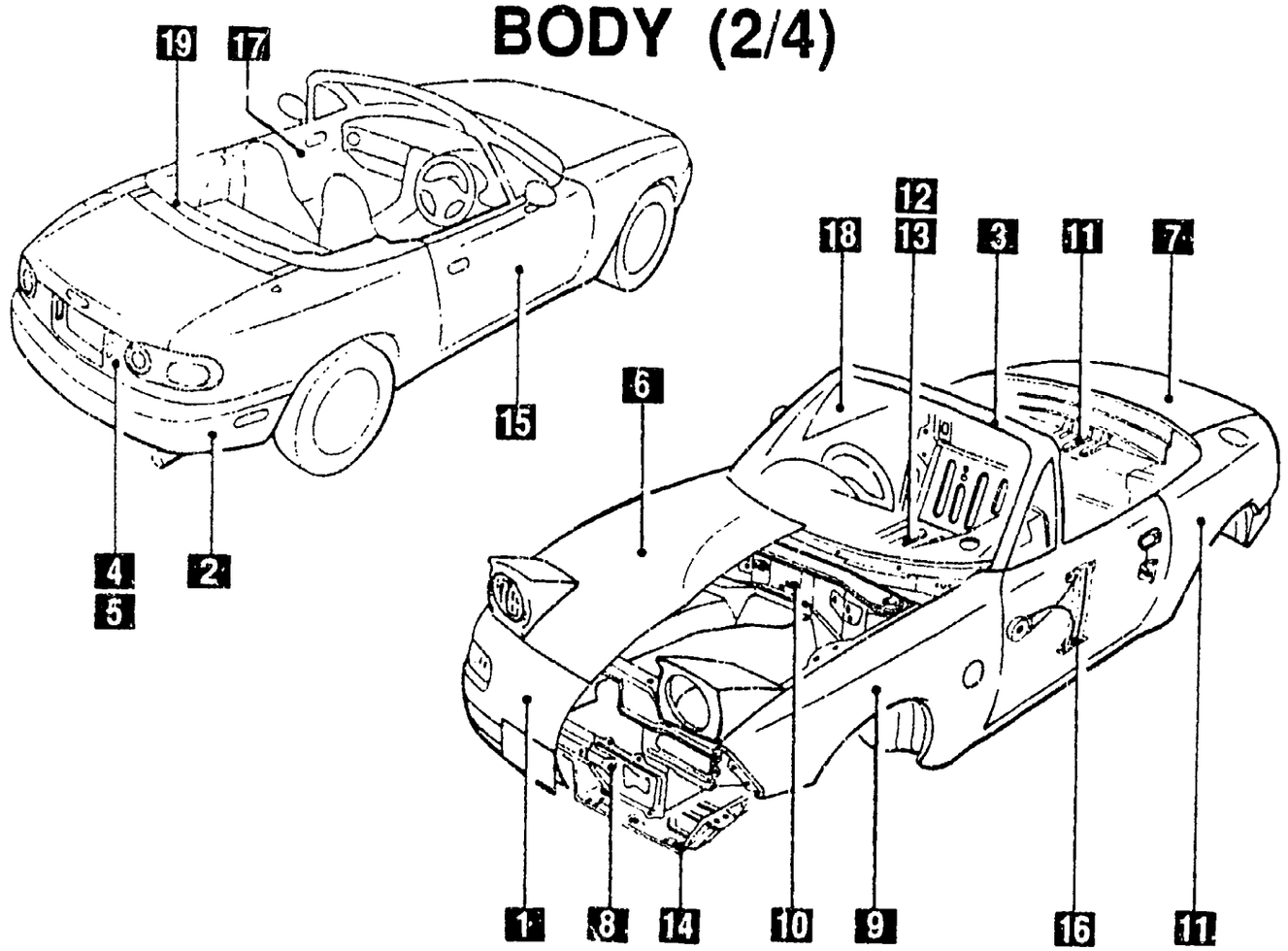
REAR FINISHER

6 5230

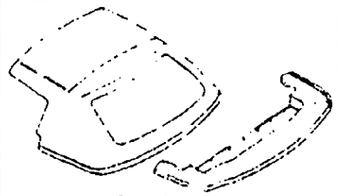


BONNET

BODY (2/4)



19 6330

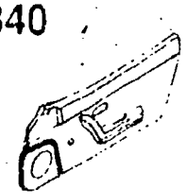


SUNROOF

18 6303

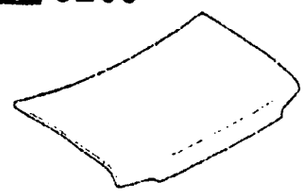
WINDOW GLASSES

17 5840



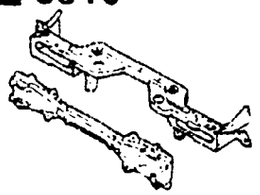
FRONT DOOR TRIMS
& RELATED PARTS

7 5260



TRUNK LID

8 5310

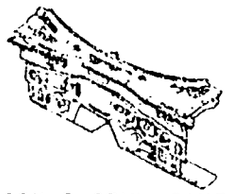


FRONT PANELS

9 5320

FENDER
& WHEEL APRON PANELS

10 5330



DASH & COWL PANELS

16 5830

FRONT DOOR MECHANISMS

15 5800

FRONT DOORS

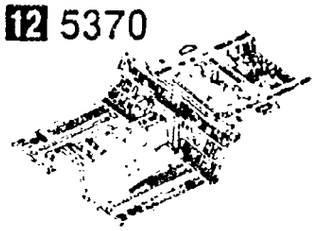
14 5390

FLOOR ATTACHMENTS

13 5380

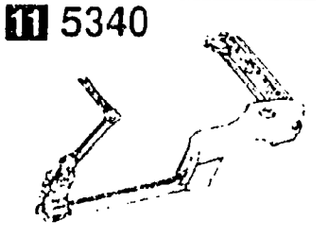
FLOOR ATTACHMENTS
(HOLE COVERS)

12 5370



FLOOR PANELS

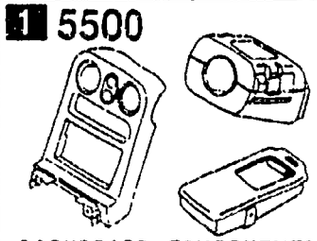
11 5340



SIDE PANELS

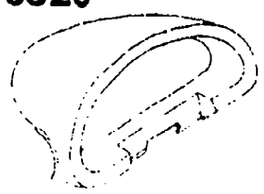
PICTORIAL INDEX

1 5500



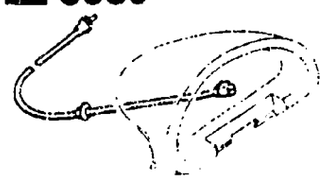
DASHBOARD EQUIPMENTS

2 5520



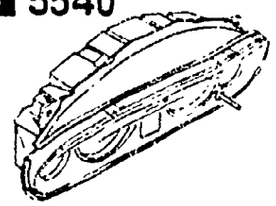
METER HOOD

3 5530



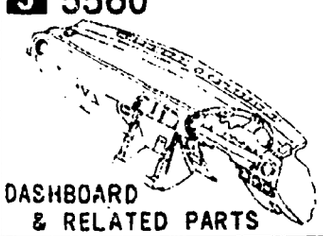
SPEEDOMETER CABLE

4 5540



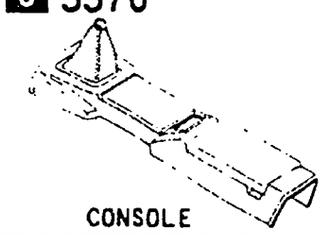
METER COMPONENTS

5 5560



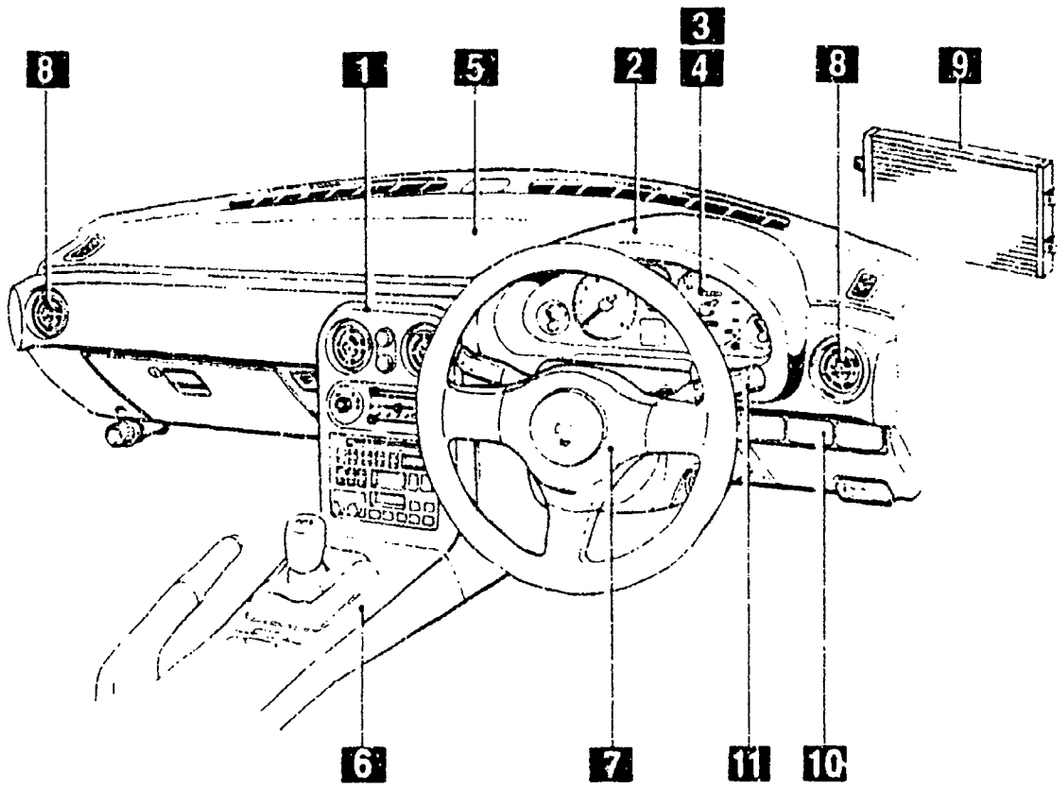
DASHBOARD & RELATED PARTS

6 5570

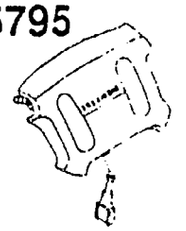


CONSOLE

BODY (3/4)

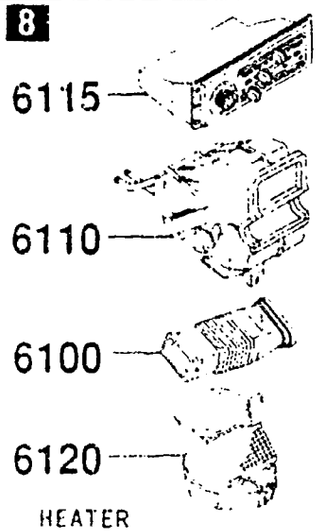


7 5795



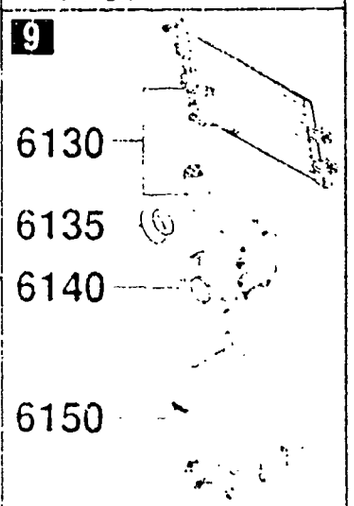
AIR BAG

8



HEATER

9

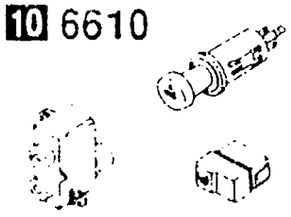


AIR CONDITIONER

11 6611

COMBINATION SWITCH

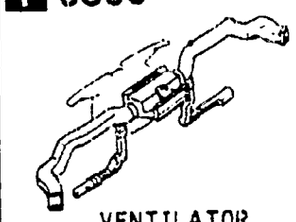
10 6610



DASHBOARD SWITCHES

PICTORIAL INDEX

1 5580

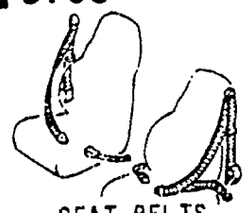


VENTILATOR

2 5700

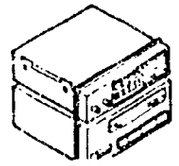
SEATS

3 5790



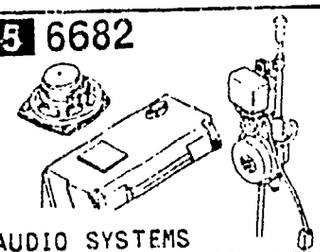
SEAT BELTS

4 6680



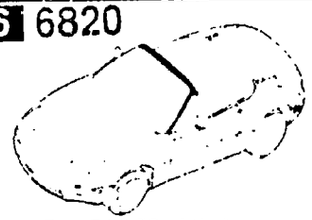
AUDIO SYSTEMS (RADIO & TAPE DECK)

5 6682



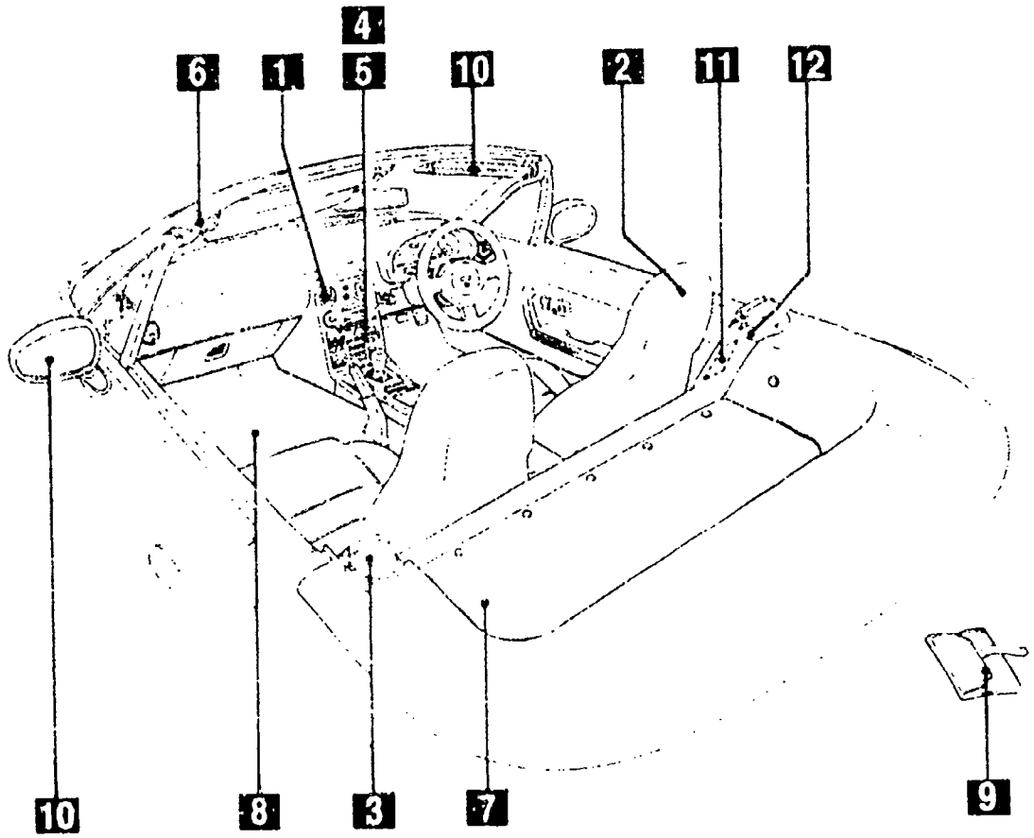
AUDIO SYSTEMS (ANTENNA & SPEAKER)

6 6820



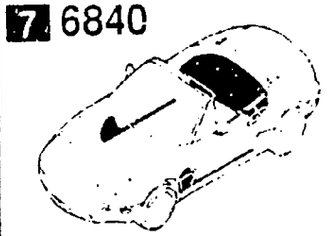
FRONT HEADER TRIM & PILLAR TRIMS

BODY (4/4)



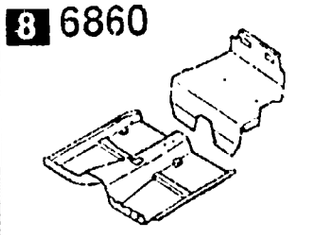
As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.

7 6840



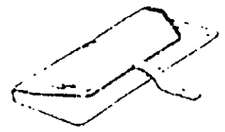
TRIMS & SCUFF PLATES

8 6860



FLOOR MATS & PADS

9 6870

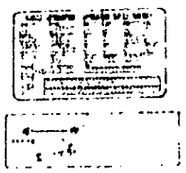


SERVICE TOOLS

10 6900

VISORS, ASSIST HANDLES & MIRRORS

11 6930



CAUTION PLATES & LABELS

12 7250

QUARTER WINDOW & TRIMS

SECTION NAME INDEX (ENGINE)

LO.NO	SEC.NO	SECTION NAME	LO.NO	SEC.NO	SECTION NAME	LO.NO	SEC.NO	SECTION NAME
1-C03	1000	ENGINE & GASKET SETS						
1-D03	1010	CYLINDER HEAD & COVER						
1-G03	1030	CYLINDER BLOCK						
1-I03	1040	OIL PAN & TIMING COVER						
1-K03	1100	PISTON,CRANKSHAFT & FLYWHEEL						
1-N03	1200	VALVE SYSTEM						
1-D04	1300	INLET MANIFOLD						
1-F04	1310	EXHAUST MANIFOLD						
1-F04	1320	FUEL SYSTEM						
1-H04	1325	FUEL DISTRIBUTOR						
1-I04	1330	AIR CLEANER						
1-K04	1364	THROTTLE BODY						
1-L04	1370	EMISSION CONTROL SYSTEM (INLET SIDE)						
1-M04	1400	OIL PUMP & FILTER						
1-C05	1500	COOLING SYSTEM						
1-G05	1580	BRACKET,PULLEY & BELT						
1-C06	1600	CLUTCH DISC & COVER (MANUAL)						
1-D06	1700	TRANSMISSION CASE (MANUAL)						
1-E06	1710	TRANSMISSION GEARS(MANUAL)						
1-K06	1720	CHANGE CONTROL SYSTEM (MANUAL)						
1-N06	1800	ENGINE ELECTRICAL SYSTEM						
1-D07	1830	ALTERNATOR						
1-G07	1840	STARTER						
1-I07	1850	BATTERY						
1-J07	1910	TORQUE CONVERTER,OIL PUMP & PIPINGS (AUTOMATIC)						
1-M07	1920	TRANSMISSION CASE & MAIN CONTROL SYSTEM (AUTOMATIC)						
1-G08	1925	CONTROL VALVE (AUTOMATIC)						
1-F08	1930	CLUTCHES & PLANETARY GEARS (AUTOMATIC)						
1-F09	1940	GOVERNOR, LOW & REVERSE PISTON (AUTOMATIC)						
1-I09	1950	MANUAL LINKAGE SYSTEM (AUTOMATIC)						
1-K09	1960	GASKET & SEAL KIT (AUTOMATIC)						

SECTION NAME INDEX (CHASSIS)

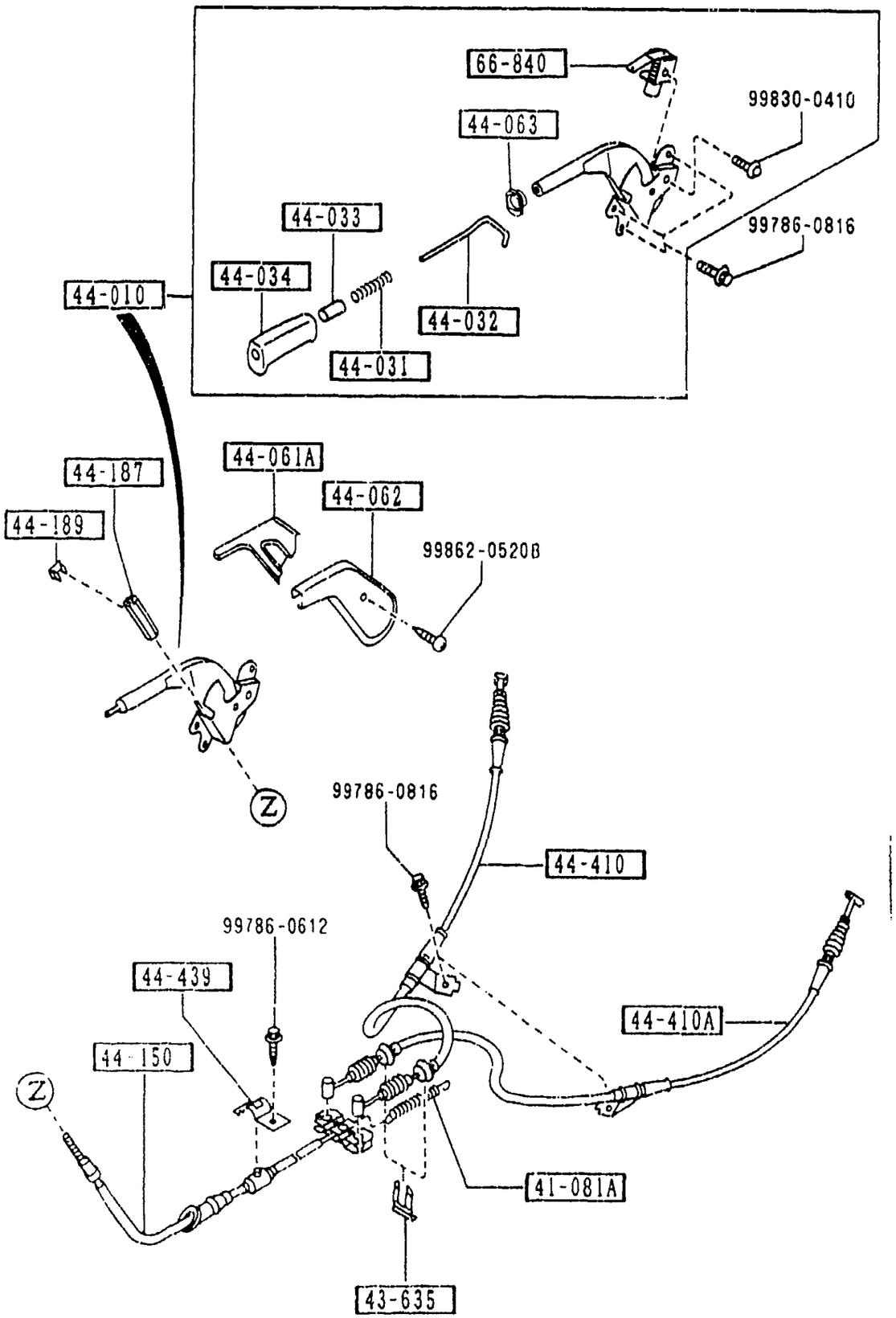
LO.NO	SEC.NO	SECTION NAME	LO.NO	SEC.NO	SECTION NAME	LO.NO	SEC.NO	SECTION NAME
1-C11	2505	REAR PROPELLER SHAFT	1-H16	4360	BRAKE PIPINGS			
1-D11	2550	REAR DRIVE SHAFT	1-L16	4370	ANTILOCK BRAKE SYSTEM			
1-E11	2600	REAR AXLE	2-C03	4400	PARKING BRAKE SYSTEM			
1-G11	2610	REAR BRAKE MECHANISMS	2-E03	4500	FUEL PIPINGS			
1-I11	2710	REAR DIFFERENTIALS (NORMAL DIFF.)	2-G03	4600	CHANGE CONTROL SYSTEM (AT)			
1-N11	2710 A	REAR DIFFERENTIALS (LIMITED SLIP DIFF.)						
1-G12	2800	REAR SUSPENSION MECHANISMS						
1-H12	2801	REAR SPRING & DAMPER						
1-I12	2810	REAR STABILIZER						
1-J12	2830	REAR LOWER ARMS & SUB FRAME						
1-L12	3200	STEERING WHEEL						
1-M12	3210	STEERING COLUMN & SHAFTS						
1-N12	3220	STEERING GEAR (W/O POWER STEERING)						
1-D13	3220 A	STEERING GEAR (W/ POWER STEERING)						
1-G13	3240	POWER STEERING SYSTEM						
1-I13	3300	FRONT AXLE						
1-J13	3310	FRONT BRAKE MECHANISMS						
1-L13	3400	FRONT SUSPENSION MECHANISMS						
1-N13	3401	FRONT SPRING & DAMPER						
1-C14	3410	CROSSMEMBER & STABILIZER						
1-D14	3700	TIRES & JACK						
1-C15	3900	ENGINE & T/MISSION MOUNTINGS						
1-D15	4000	EXHAUST SYSTEM						
1-F15	4140	CLUTCH RELEASE & MASTER CYLINERS (MANUAL TRANSMISSION)						
1-G15	4145	CLUTCH PIPINGS (MANUAL TRANSMISSION)						
1-H15	4160	ACCELERATOR CONTROL SYSTEM						
1-I15	4200	FUEL TANK						
1-J15	4210	FUEL LID OPENER						
1-M15	4300	CLUTCH & BRAKE PEDALS (MANUAL TRANSMISSION)						
1-D16	4300A	BRAKE PEDALS (AUTOMATIC TRANSMISSION)						
1-F16	4340	BRAKE MASTER CYLINDER & POWER BRAKE						

2-C 2

SECTION NAME INDEX (BODY)

LO.NO	SEC.NO	SECTION NAME
2-C05	0900	KEY SETS
2-F05	5000	FRONT BUMPER
2-I05	5010	REAR BUMPER
2-K05	5030	WINDOW MOULDING & COWL GRILLES
2-L05	5100	HEAD LAMPS
2-M05	5103	HEAD LAMP RETRACTORS
2-D06	5105	FRONT COMBINATION LAMPS
2-F06	5110	REAR COMBINATION LAMPS
2-I06	5120	LICENSE LAMPS
2-J06	5170	ORNAMENTS
2-K06	5180	REAR FINISHER
2-M06	5230	BONNET
2-C07	5260	TRUNK LID
2-E07	5310	FRONT PANELS
2-F07	5320	FENDER & WHEEL APRON PANELS
2-I07	5330	DASH & COWL PANELS
2-J07	5340	SIDE PANELS
2-C08	5370	FLOOR PANELS
2-F08	5380	FLOOR ATTACHMENTS (HOLE COVERS)
2-G08	5390	FLOOR ATTACHMENTS
2-C09	5500	DASHBOARD EQUIPMENTS
2-E09	5520	METER HOOD
2-F09	5530	SPEEDOMETER CABLE
2-G09	5540	METER COMPONENTS
2-J09	5560	DASHBOARD & RELATED PARTS
2-M09	5570	CONSOLE
2-E10	5580	VENTILATOR
2-G10	5700	SEATS
2-E11	5790	SEAT BELTS
2-F11	5795	AIR BAG
2-G11	5800	FRONT DOORS
2-J11	5830	FRONT DOOR MECHANISMS
2-N11	5840	FRONT DOOR TRIMS & RELATED PARTS
2-C13	6100	HEATER
2-D13	6110	HEATER UNIT COMPONENTS
2-E13	6115	HEATER CONTROLS COMPONENTS
2-G13	6120	HEATER BLOWER COMPONENTS
2-H13	6130	AIR CONDITIONER
2-L13	6135	O RING SET,PIPING
2-M13	6140	COMPRESSOR COMPONENTS (AIR CONDITIONER)
2-C14	6150	COOLING UNIT (AIR CONDITIONER)
2-D14	6300	WINDOW GLASSES
2-E14	6330	SUNROOF
2-E15	6600	SWITCHES & RELAYS (ENGINE)
2-I15	6610	DASHBOARD SWITCHES
2-J15	6611	COMBINATION SWITCH
2-K15	6630	RELAYS & UNIT (BODY)
2-M15	6635	DOOR SWITCH & HORNS
2-N15	6640	AUTO CRUISE CONTROL SYSTEM
2-C16	6680	AUDIO SYSTEMS (RADIO & TAPE DECK)
2-E16	6682	AUDIO SYSTEMS (ANTENNA & SPEAKER)
2-G16	6700	WIRING HARNESSES(FRONT & REAR)
2-J16	6701	WIRING HARNESSES(ENGINE & T/MISSION)
2-L16	6702	WIRING HARNESSES(DASHBOARD)
2-M16	6703	WIRING HARNESSES(DOOR/FLOOR/CEILING)
3-C03	6704	WIRING HARNESS CLAMPS
3-F03	6720	WINDSHIELD WASHER
3-K03	6730	WINDSHIELD WIPERS
3-M03	6740	WIPER MOTOR COMPONENTS(FRONT)
3-N03	6820	FRONT HEADER TRIM & PILLAR TRIMS
3-C04	6840	TRIMS & SCUFF PLATES
3-E04	6860	FLOOR MATS & PADS
3-H04	6870	SERVICE TOOLS
3-I04	6900	VISORS,ASSIST HANDLES & MIRRORS
3-K04	6930	CAUTION PLATES & LABELS
3-M04	7250	QUARTER WINDOW & TRIMS

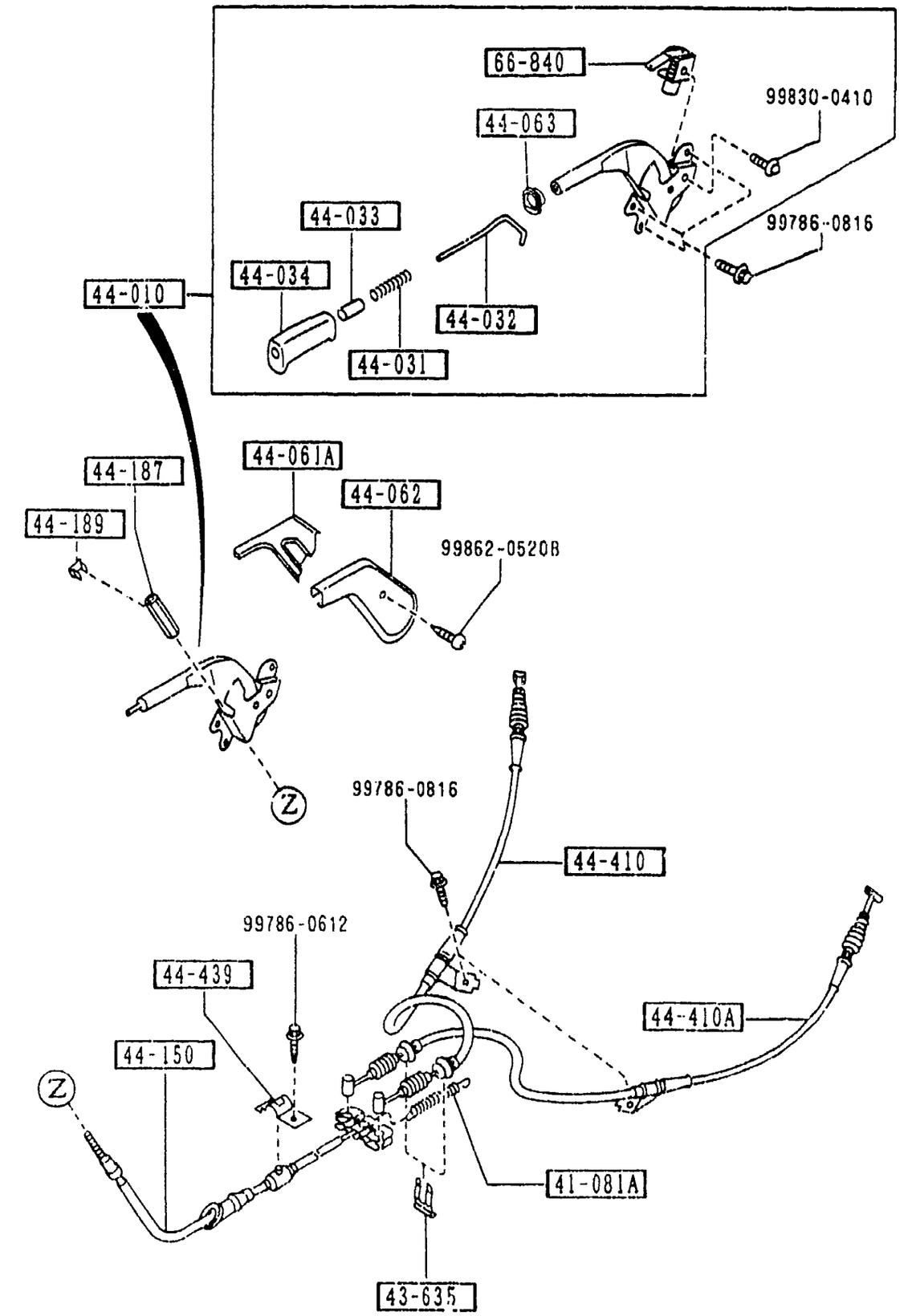
4400 PARKING BRAKE SYSTEM



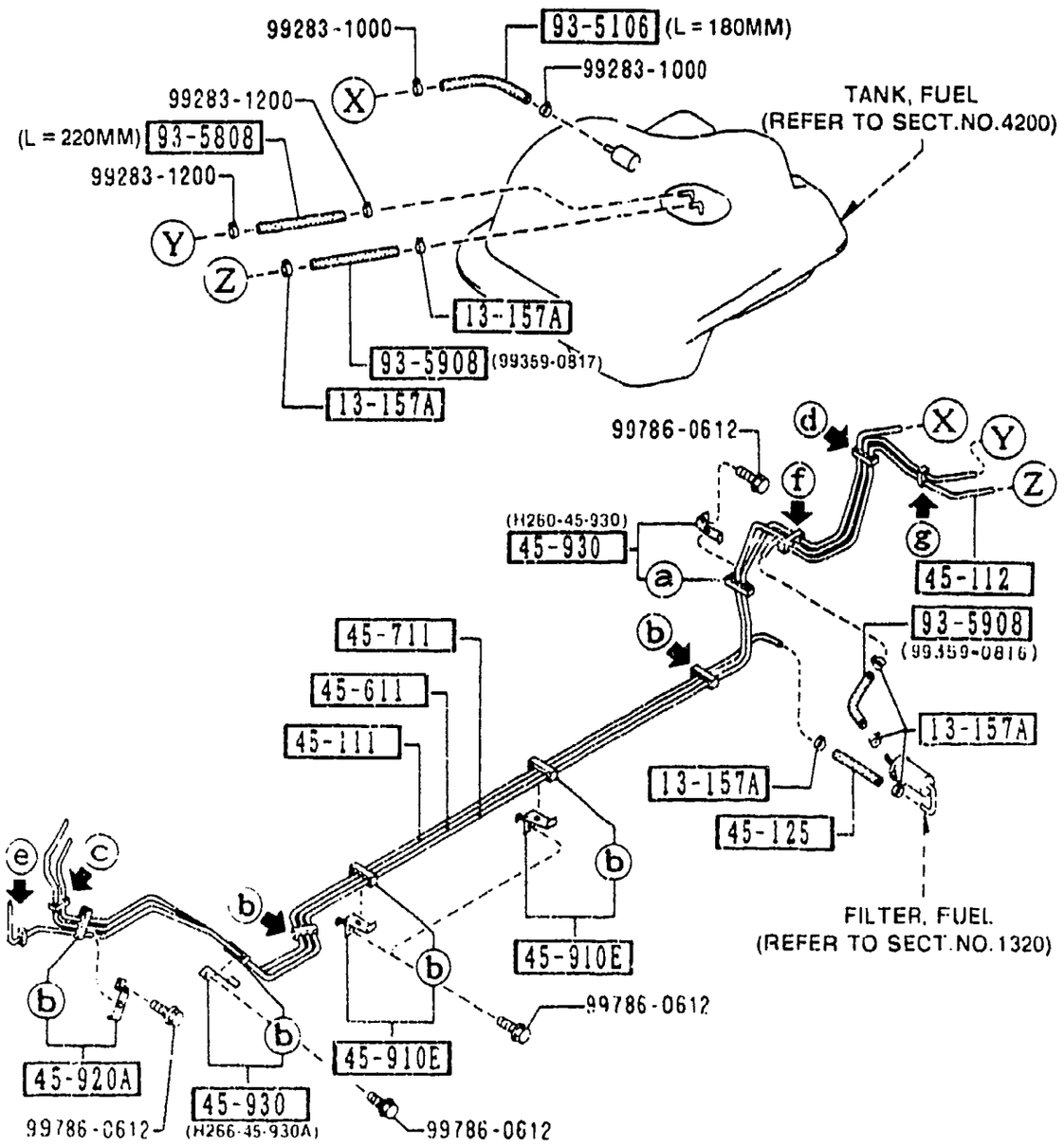
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
41-081A		SPRING,RETURN			
0750-41-308	1				
43-635		CLIP,FLEXIBLE HOSE			
W023-43-635	2				
44-010		LEVER,PARKING BRAKE			
NA01-44-010	1	(URETHAN)			
N001-44-010A	1	(WOOD)			0A01-
44-031		SPRING,PARKING REVER			
G030-44-031	1				
44-032		ROD,RELEASE			
NA01-44-032	1				
44-033		BUTTON,RELEASE			
FB01-44-033	1				
44-034		CAP,PARK BRAKE LEVER			
FB01-44-034	1	(URETHAN)			
N001-44-034A AN(N001-44-034B)	1				0A01-1401
N001-44-034B	1	(WOOD)			1401-
44-061A		COVER			
F 01-44-061B	1				
44-062		COVER			
FB01-44-062A	1				
44-063		SPACER			
FC01-44-063 AN(FC01-44-063A)	1				-0A01
FC01-44-063A	1	(URETHAN)			0A01-
FC01-44-063A	1	(WOOD)			0A01-1401
N001-44-063	1	(WOOD)			1401-
44-150		CABLE,PARKING-FRT			
NA01-44-150B	1				

0A01 NA35**-213219
1401 NA35**-232720

4400 PARKING BRAKE SYSTEM



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
44-187		SCREW,ADJUST			
0866-44-187A	1				
44-189		CLIP			
0866-44-189	1				
44-410		CABLE(R),R.-PARK.			
NA01-44-410B	1				
44-410A		CABLE(L),R.-PARK.			
NA01-44-420B	1				
44-439		CLIP,CABLE			
1011-44-439	1				
66-840		SWITCH,PARKING LAMP			
GJ21-66-450A	1				

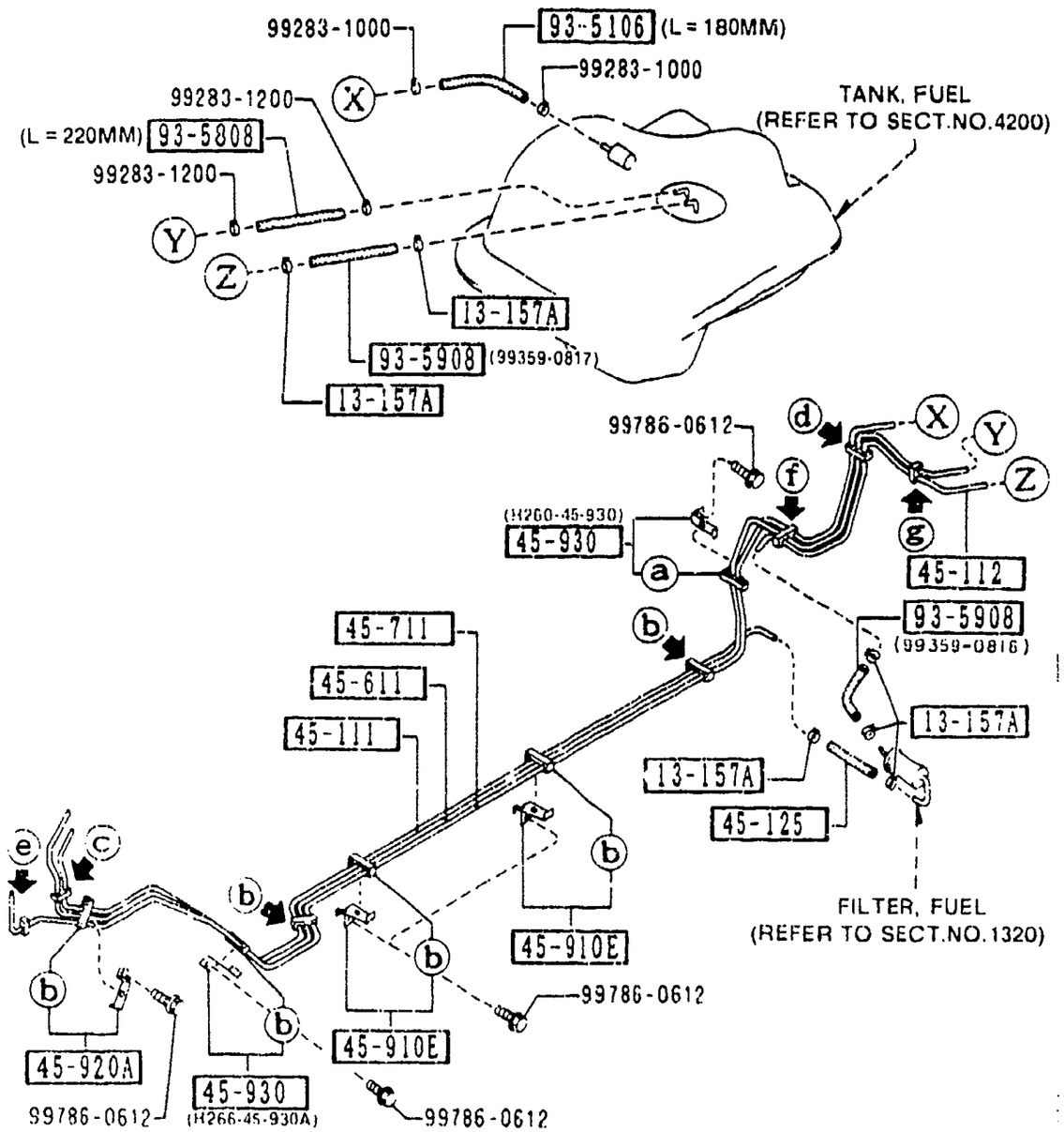


a	b	c	d	e	f	g
45-912D	45-912D	45-913	45-913A	45-914	45-915	45-921
(H260-45-912)	(H266-45-912)					

93-5106 93-5808	99351-06999	(L = 180MM)
	99358-08999	(L = 220MM)

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
13-157A		CLIP			
8574-13-157	6				
45-111		PIPE,FUEL-MAIN			
NA01-45-111	1				
45-112		PIPE,FUEL-MAIN			
NA01-45-112A	1				
45-125		HOSE,FUEL			
99359-0815	1				
45-611		PIPE,FUEL-RETURN			
NA01-45-611	1				
45-711		PIPE,EVAPORATION			
NA01-45-711A	1				
45-910E		HOLDER,PIPE			
H266-45-910A	2				
45-912D		HOLDER'A'			
H260-45-912	1				
H266-45-912	6				
45-913		HOLDER,PIPE			
NA01-45-912	1				
45-913A		CLIP,PIPE			
NA01-45-913	1				
45-914		HOLDER,PIPE			
FB01-45-914	1	NIFUKO			
45-915		CLIP,PIPE			
NA01-45-914	1				
45-920A		HOLDER'B',PIPE			
H266-45-920A	1				

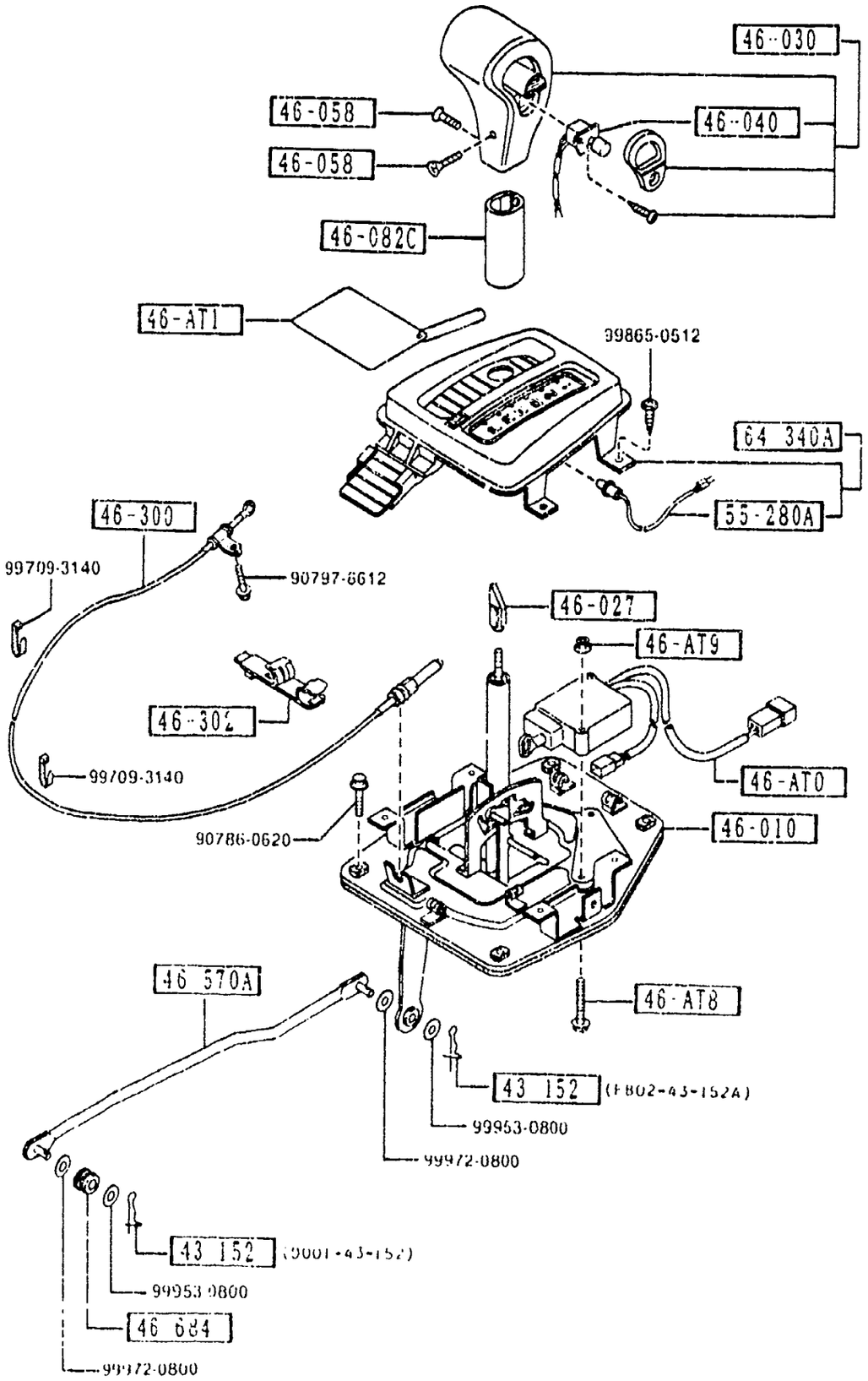
4500 FUEL PIPINGS



ⓐ	ⓑ	ⓒ	ⓓ	ⓔ	ⓕ	ⓖ
45-912D	45-912D	45-913	45-913A	45-914	45-915	45-921
(H266-45-912)	(H266-45-912)					

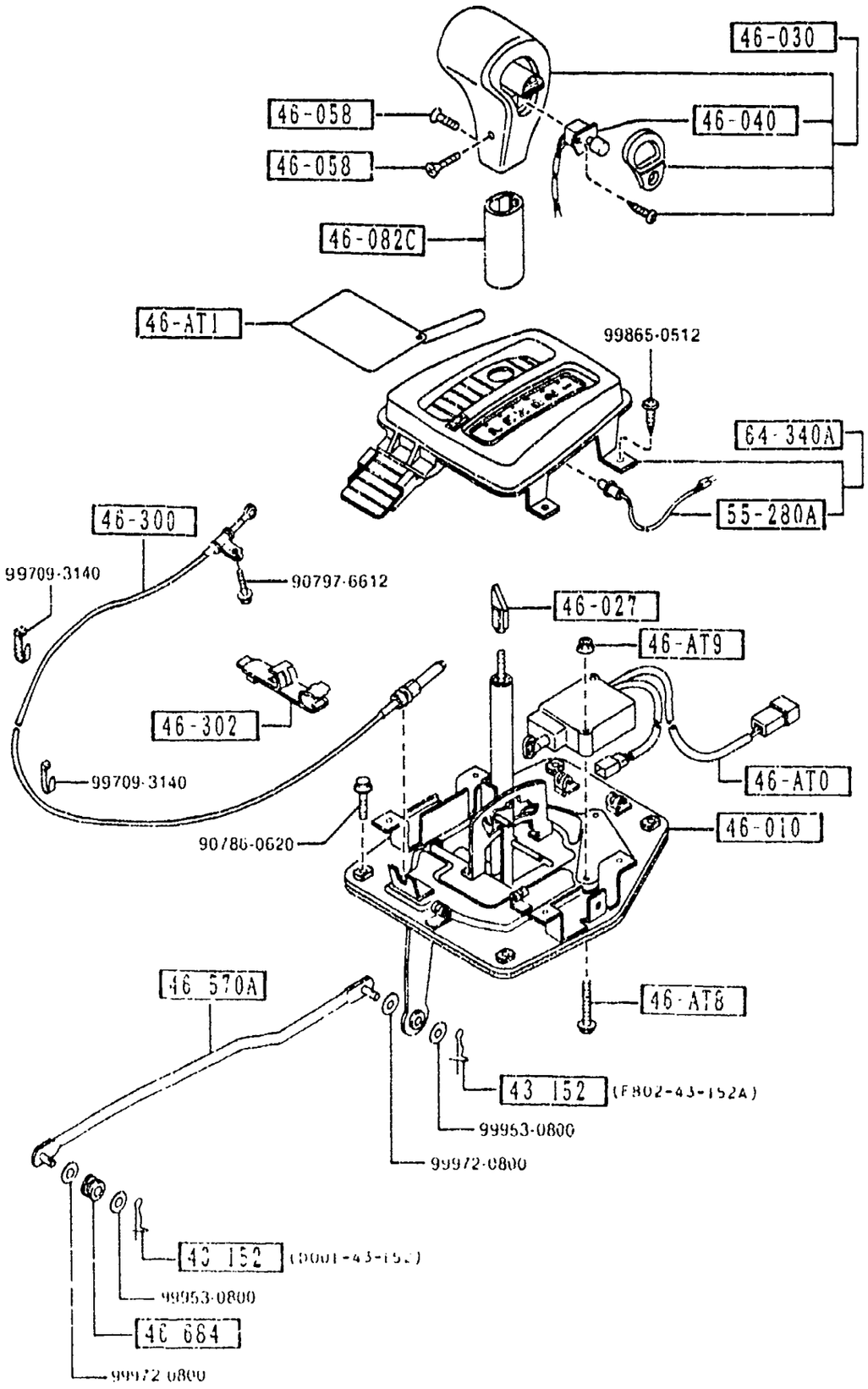
93-5106	99351-06999	(L = 180MM)
93-5808	99358-08999	(L = 220MM)

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
45-921		CLIP,PIPE			
B210-45-917	1				
45-930		HOLDER'C',PIPE			
H260-45-930	1				
H266-45-930A	1				
93-5106		HOSE			
99351-06999	1				
93-5808		HOSE			
99358-08999	1				
93-5908		HOSE			
99359-0816	1				
99359-0817	1				



PART NO.	QTY	MODEL/RESTRICTION	MODEL·RESTRICTION	MODEL/RESTRICTION	FROM TO
43-152		PIN,SNAP			
D001-43-152	1				
FB02-43-152A	1				
46-AT0		ACTUATOR,SHIFT LOCK			
NA03-46-AT0A	1				
46-AT1		TAG,CAUTION-CHANGE			
GN52-46-AT1B	1				
46-AT8		SCREW			
H338-46-AT8	2				
46-AT9		NUT			
H338-46-AT9	2				
46-010		LEVER,SELECT			
NA03-46-100E AN(NA03-46-100F)	1				-1319
NA03-46-100F	1				1319-
46-027		CAM,CHANGE LEVER			
H338-46-027	1				
46-030		KNOB,CHANGE LEVER			
NA03-46-030B	1				
46-040		SWITCH,OVER DRIVE CONTROL			
NA03-46-040B	1				
46-058		SCREW,CHANGE LEVER KNOB			
FB02-46-058C	2				
46-082C		COVER,SELECT LEVER			
NA03-46-088	1				
46-300		CABLE,INTER LOCK			
NA03-46-300B	1				
46-302		CLIP			
NA16-46-302	1				

1319 NA35**-232215



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
46-570A NA03-46-570	1	ROD,SELECTOR-REAR			
46-684 1015-46-684A	1	BUSH			
55-280A NA03-55-280A	1	BULB & SOCKET			
64-340A NA03-64-350C	1	INDICATOR			

CHASSIS

BODY

CHASSIS

BODY

CHASSIS

BODY

CHASSIS

BODY

CHASSIS

BODY

CHASSIS

BODY

CHASSIS

BODY

CHASSIS

BODY

CHASSIS

BODY

CHASSIS

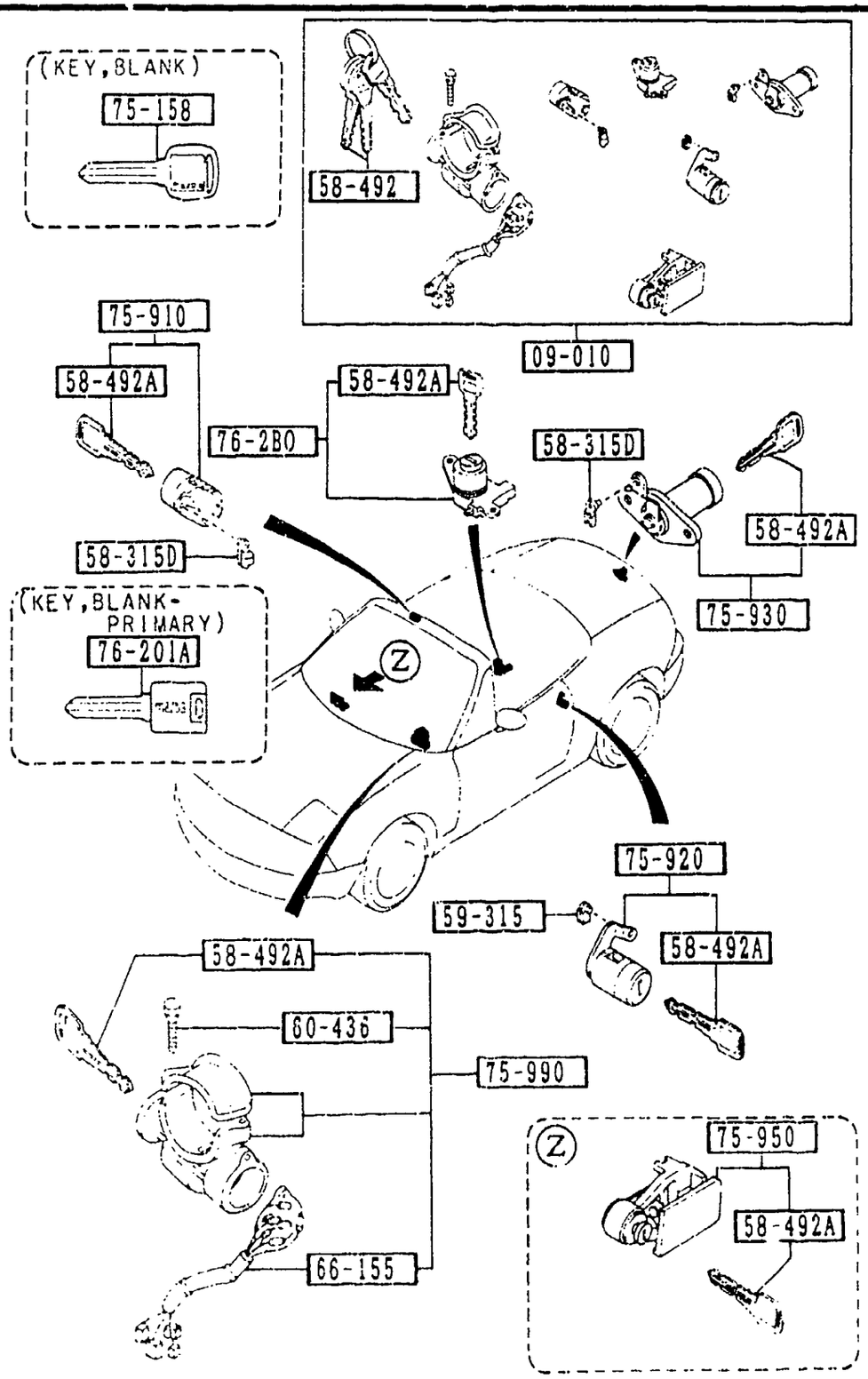
BODY

CHASSIS

BODY

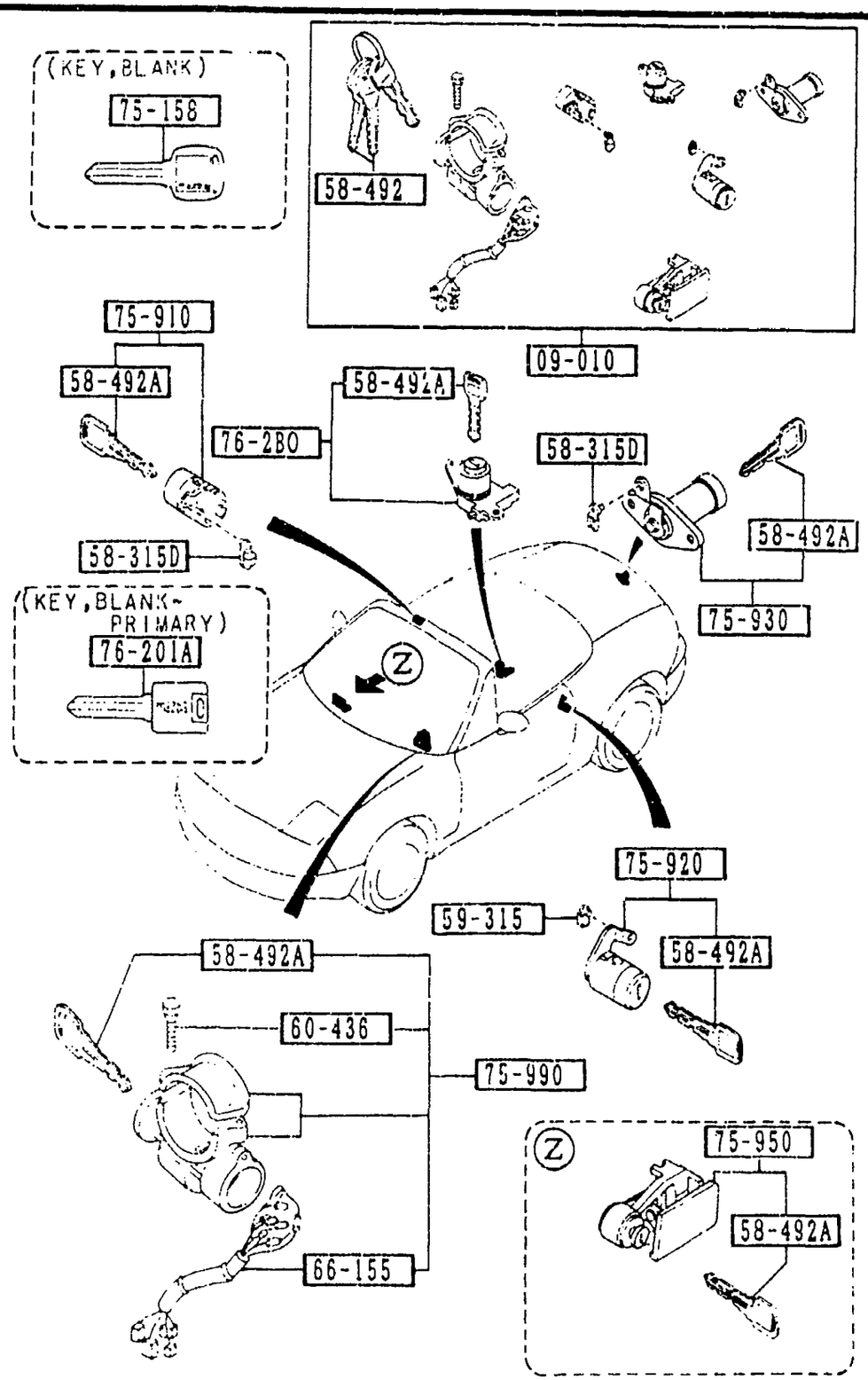
CHASSIS

BODY



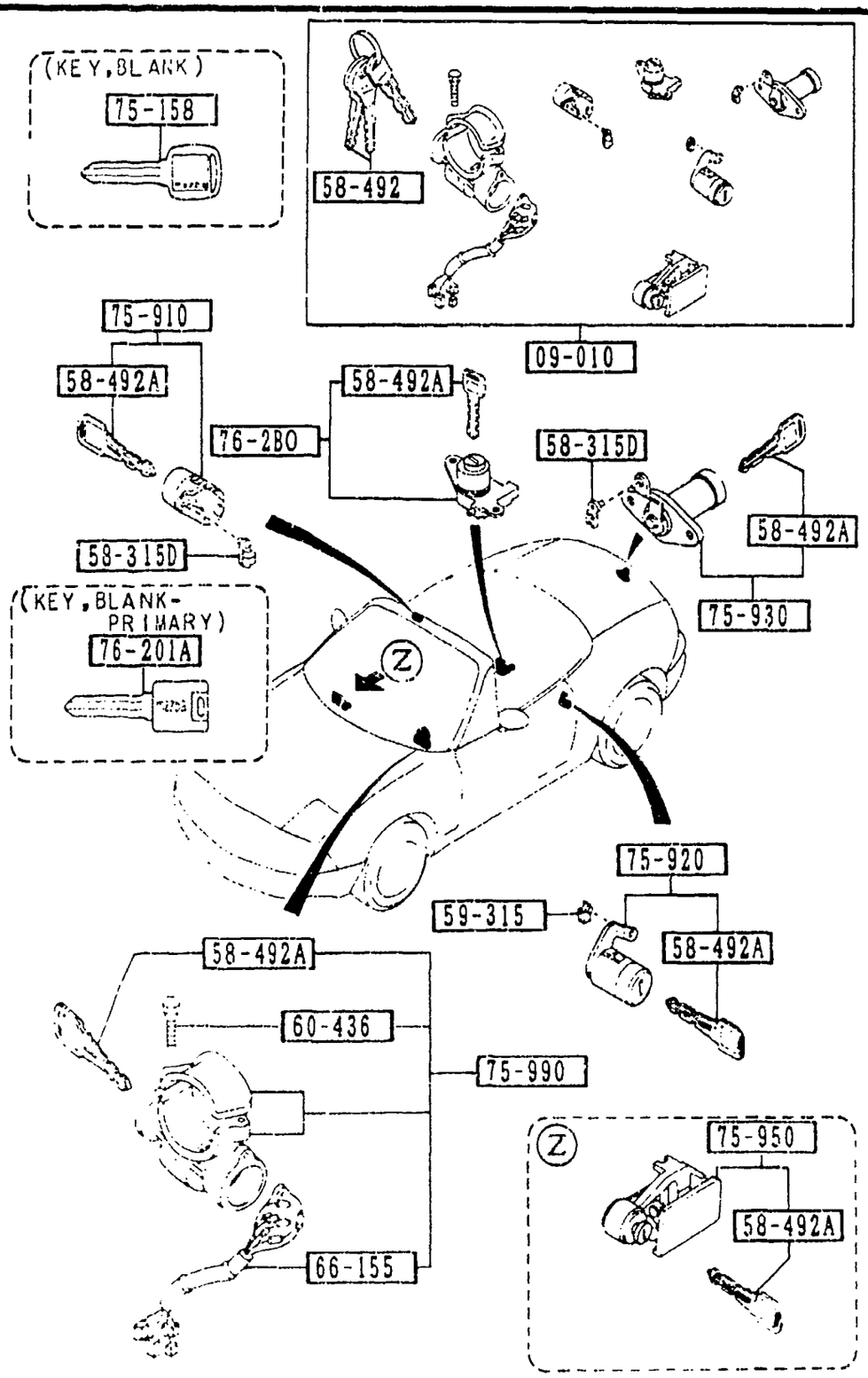
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
09-010		KEY SET			
NA01-09-010C	1	(MT)			-1801
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN/BLACK			
NA03-09-010A	1	(AT)			-1801
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN/BLACK			
NA01-09-010E	1	(MT)			1801-2513
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN/BLACK			
NA03-09-010C	1	(AT)			1801-2513
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN/BLACK			
NA01-09-010F	1	(MT)			2513-
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN/BLACK			
NA03-09-010D	1	(AT)			2513-
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN/BLACK			
58-315D		CLIP (R)			
G030-58-315	2				
58-492		KEY,PRIMARY			
BR75-58-492	2	KEY NO.IS REQUIRED			-2513
FD01-58-492	2	KEY NO.IS REQUIRED			2513-
58-492A		KEY,SECONDARY			
LA02-58-493	1	KEY NO.IS REQUIRED			-2513
FD01-58-493	1	KEY NO.IS REQUIRED			2513-
59-315		CLIP			
G030-59-315	1				

1801 NA35**-300014
2513 NA35**-327330



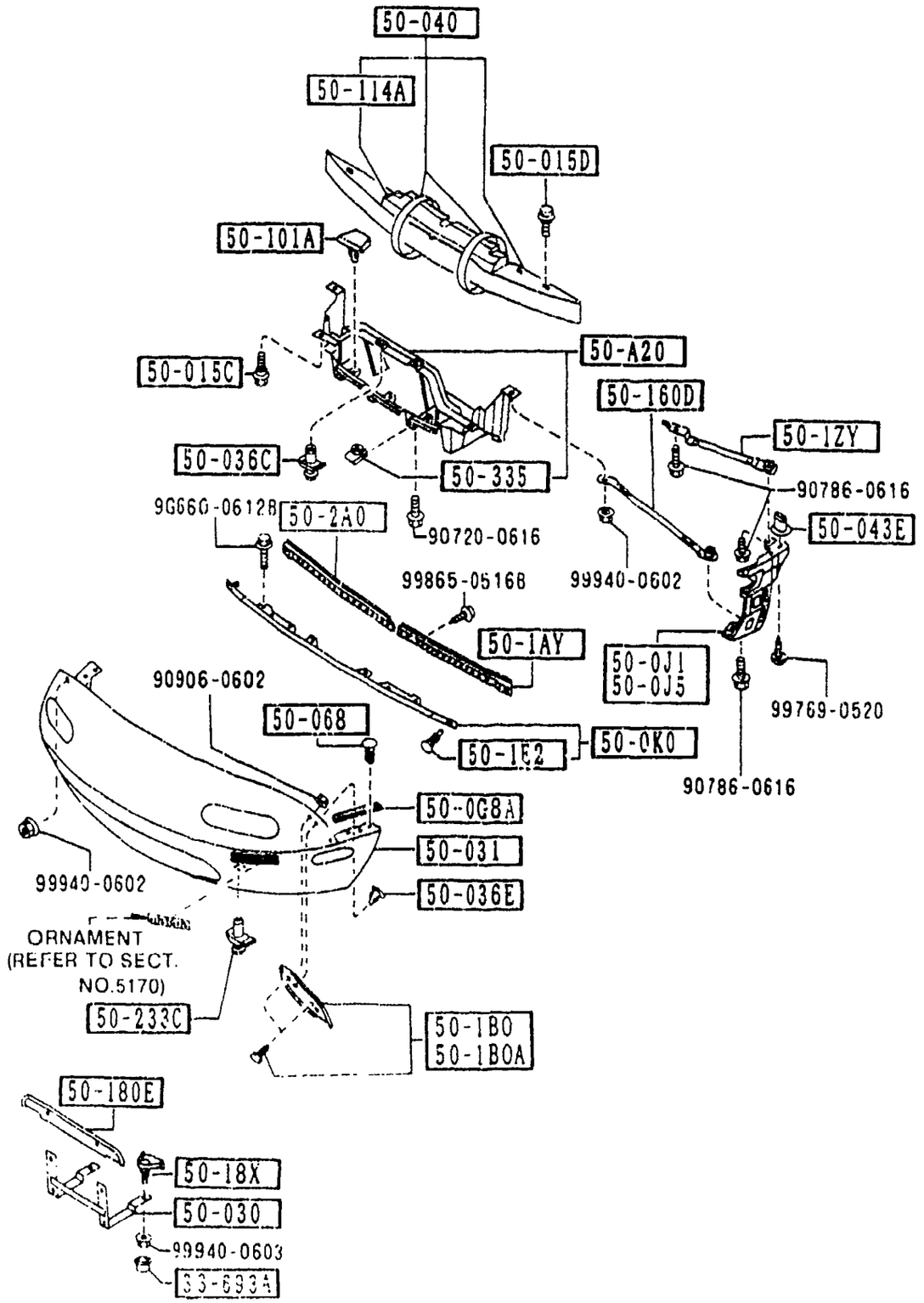
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
60-436		BOLT,SET			
H043-66-154	2				
66-155		SWITCH,IGNITION			
D001-66-151	1				
75-158		KEY,BLANK			
LA02-76-202	1				
75-910		KEY SUB SET(R),DOOR			
NA01-76-210	1				-1801
NA01-76-210B	1				1801-
75-920		KEY SUB SET(L),DOOR			
NA01-76-220	1				-1801
NA01-76-220B	1				1801-
75-930		KEY SUB SET,TRUNK			
NA01-76-230	1				-1801
NA01-76-230B	1				1801-
75-950		KEY SUB SET,GLOVE			
NA01-76-250	1				-1801
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
NA01-76-250B	1				1801-
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
75-990		KEY SUB SET,ST.LOCK			
NA01-76-290A	1	(MT)			-1801
NA03-76-290A	1	(AT)			-1801
NA01-76-290C	1	(MT)			1801-
NA03-76-290C	1	(AT)			1801-
76-2B0		KEY SUB SET,CONSOLE			
NA01-76-2B0	1				-1801
	INT-	NA0 NA1 BLACK			

01 NA35**-300014

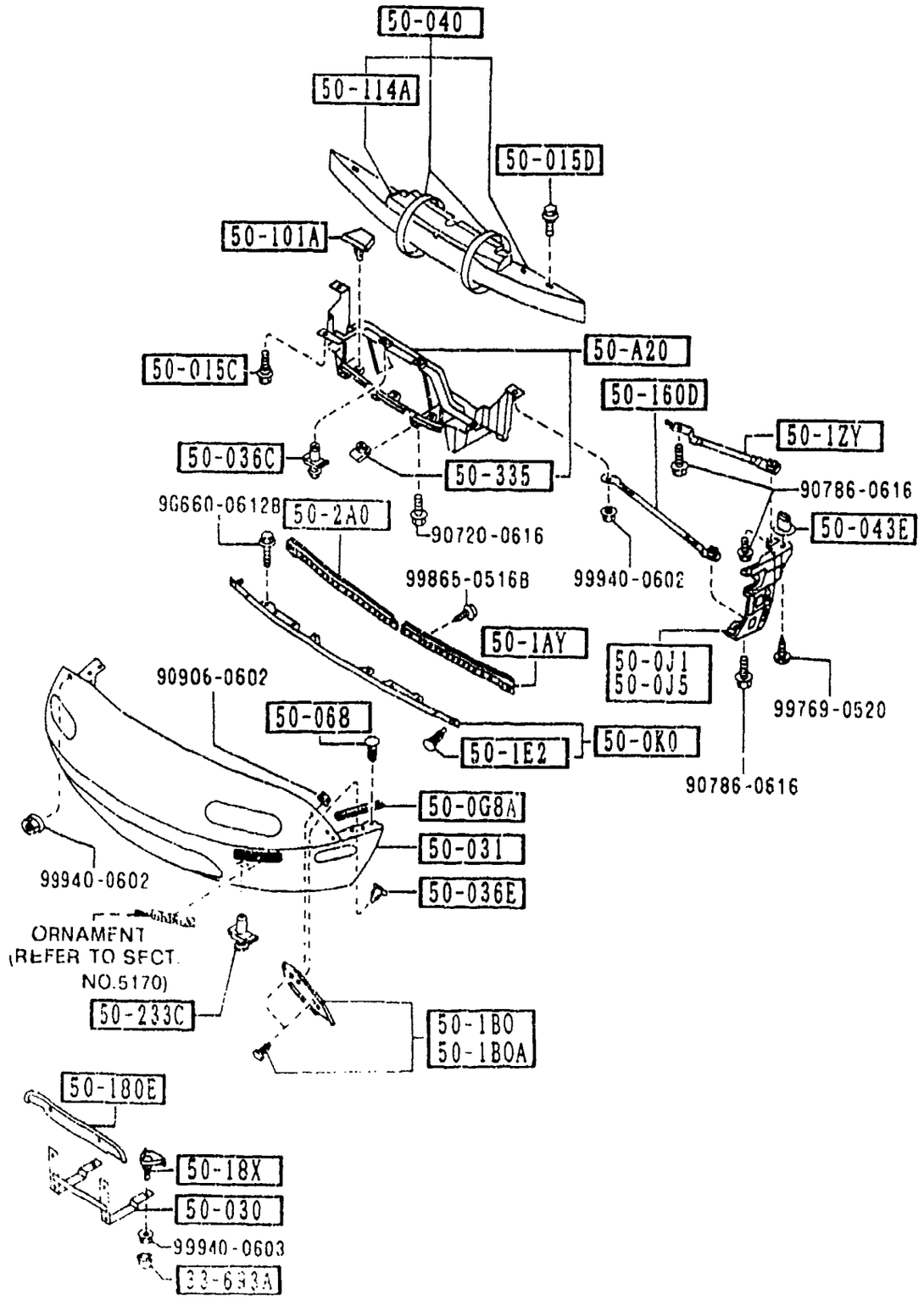


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA01-76-230B	1				1801-
00	INT-	NA0 NA1 NA2 BLACK			
+----------+					
| 76-201A |		KEY,BLANK-PRIMARY			
+----------+					
B545-76-201	1				

1801 NA35**-300014

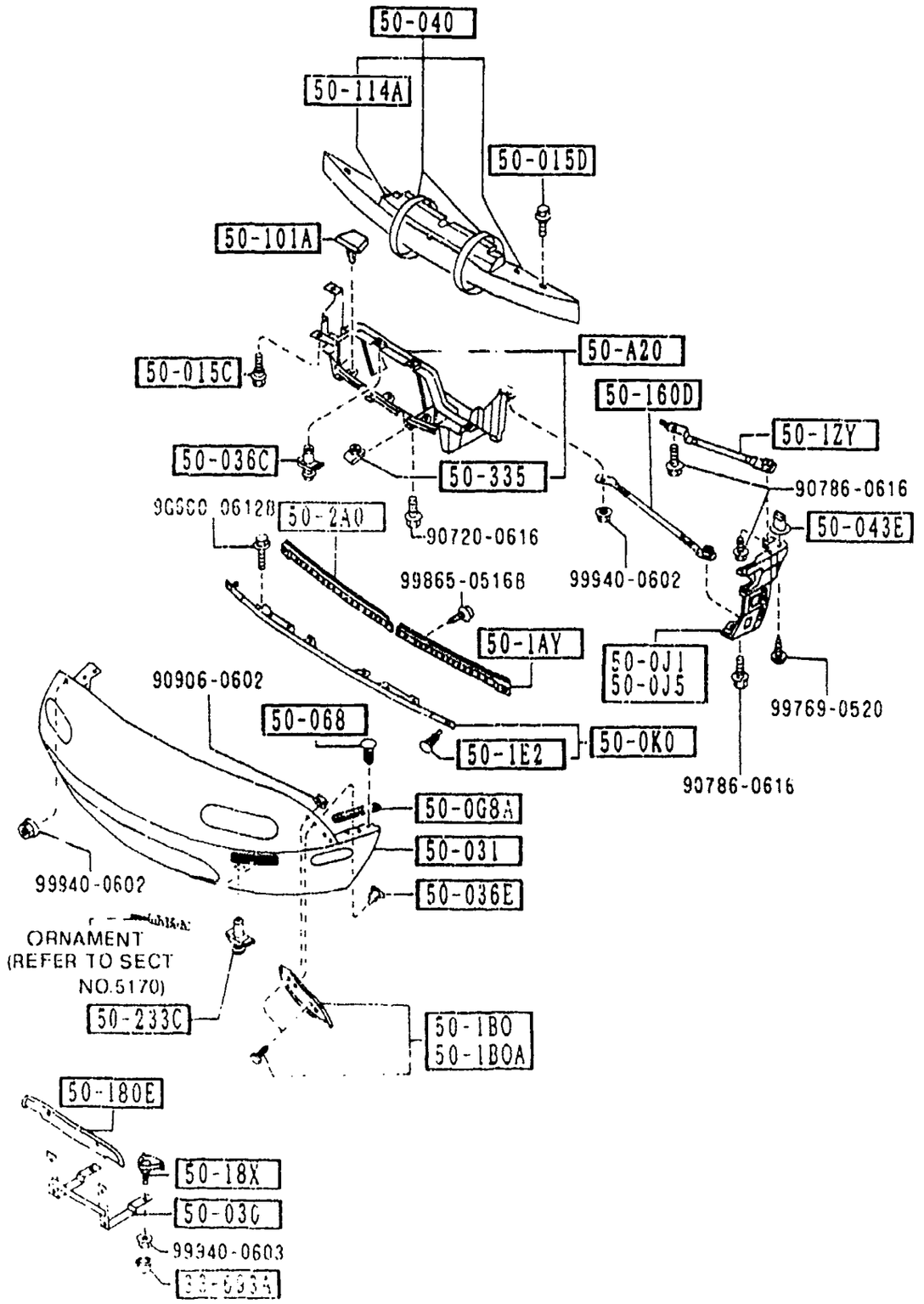


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
33-693A		CAP,BLEEDER SCREW			
0259-33-693	2				
50-A20		GUIDE,AIR			
NA01-50-A20A	1	(W/O A.LOCK BRAKE)			
NA23-50-A20	1	(A.LOCK BRAKE)			
50-0G8A		SEAL,RUBBER-FRONT BUMPER			
NA01-50-0G9	2				
50-0J1		RETAINER(R),FRONT BUMPER			
NA01-50-0J1	1				
50-0J5		RETAINER(L),FRONT BUMPER			
NA01-50-0J5	1				
50-0K0		RETAINER,FASCIA			
NA01-50-0K0B	1				
50-015C		BOLT			
FB01-50-132	2				
50-015D		BOLT			
NA01-50-0Z2	8				
50-030		HOLDER,NO. PLATE			
NA01-50-160A	1				
50-031		BUMPER,FRONT			
NAY1-50-030	1	PAINT TO MATCH			
50-036C		FASTENER			
8F67-50-033	2				
50-036E		CLIP			
NA01-50-1G2	6				
50-040		REINFORCEMENT,BUMPER			
NA01-50-070	1				



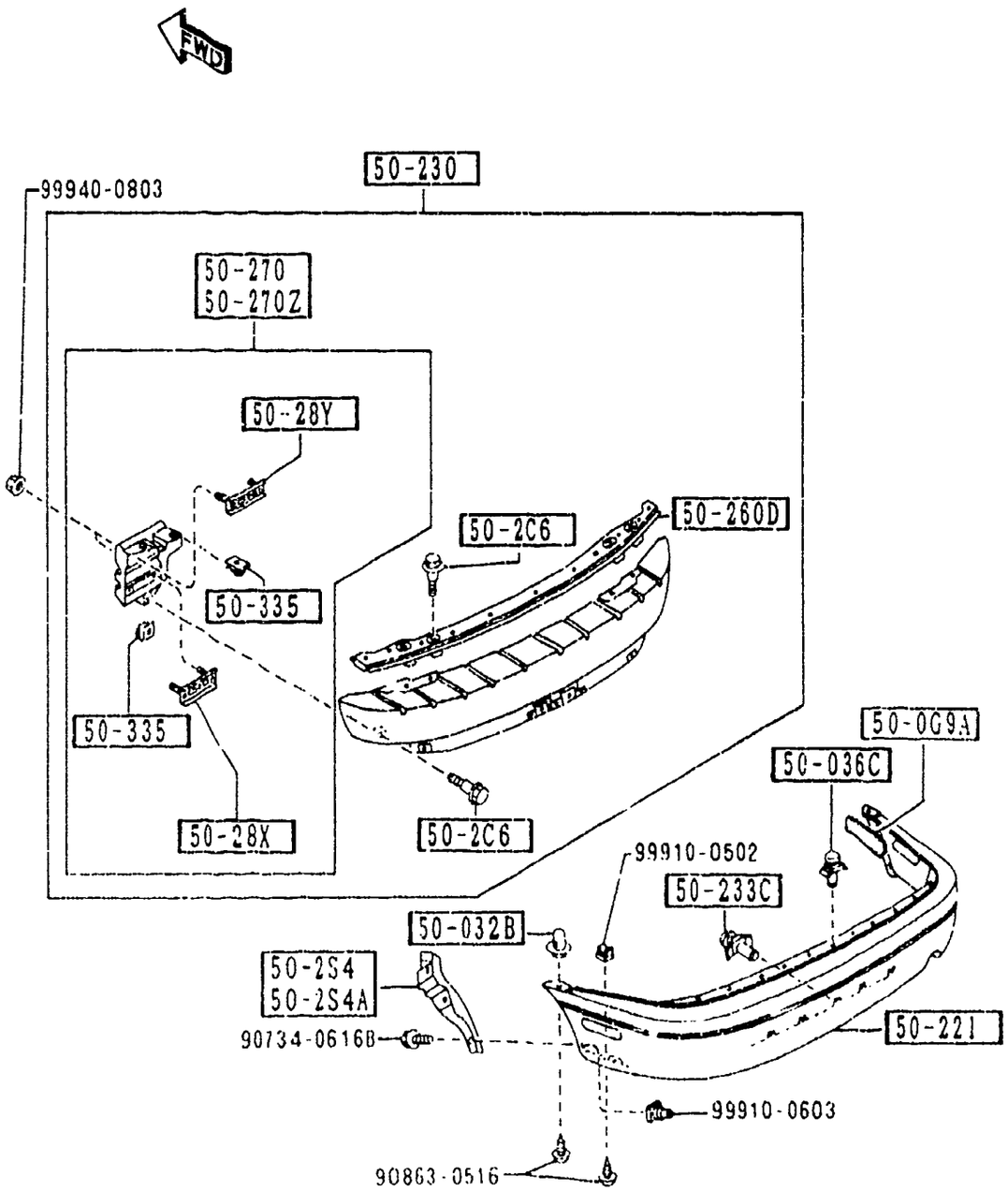
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
50-043E		SLIDE'A',BUMPER			
B092-50-032	2				
50-068		CLIP			
NA01-50-068	6				
50-1AY		PLATE,SET NO.1			
NA01-50-1AYB	1				
50-1B0		PLATE NO.2(R),SET-F. BUMPER			
NA01-50-1B0	1				
50-1B0A		PLATE NO.2(L),SET-F. BUMPER			
NA01-50-1C0	1				
50-1E2		BOLT			
NA01-50-1E2	2				
50-1ZY		BRACKET,FENDER			
NA01-50-1ZY	2				
50-101A		COVER,GRILLE			
NA01-50-101A	3				
50-114A		SPACER,E.A.FOAM			
NA01-50-114	1				
50-160D		BRACKET(L),F. BUMPER SIDE			
NA01-50-160	1	(A.LOCK BRAKE)			
NA01-50-160	2	(W/O A.LOCK BRAKE)			
50-18X		BRACKET,LICENCE PLATE			
NA01-50-18X	2				
50-180E		PROTECTOR,NO. PLATE			
FB01-50-144	1				
50-2A0		SET PLATE NO.1(R),RR BUMPER			
NA01-50-2A0A	1				

5000 FRONT BUMPER

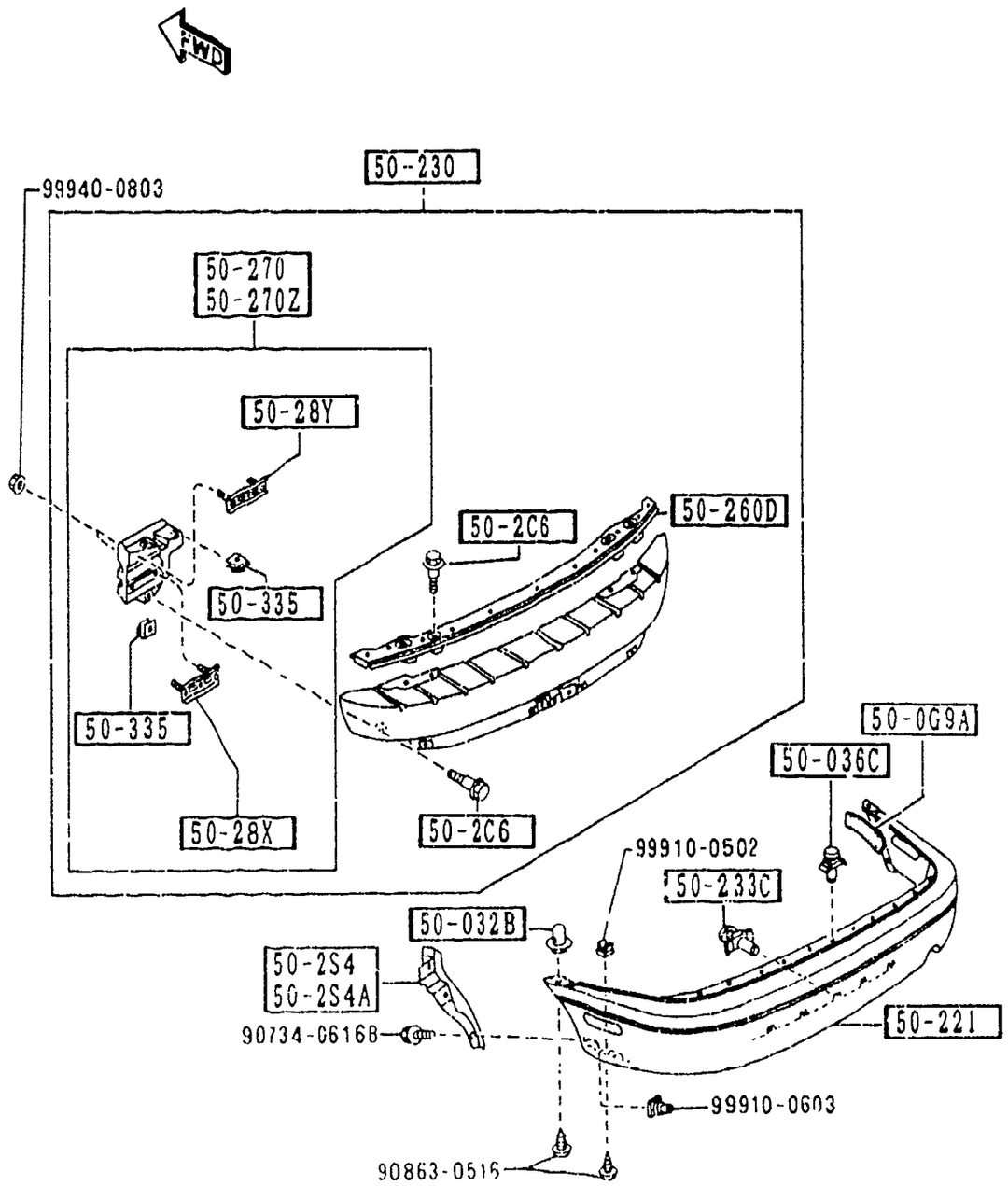


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
50-233C		FASTENER,REAR BUMPER			
BF82-50-233	3				
50-335		NUT,CLIP			
FB01-50-133 A (FB01-50-133A)	4				-1424
FB01-50-133A	4				1424-1A01
FB01-50-133B A (FB01-50-133C)	4				1A01-1A25
FB01-50-133C	4				1A25-

1424 NA35**-233635
1A01 NA35**-303526
1A25 NA35**-306286

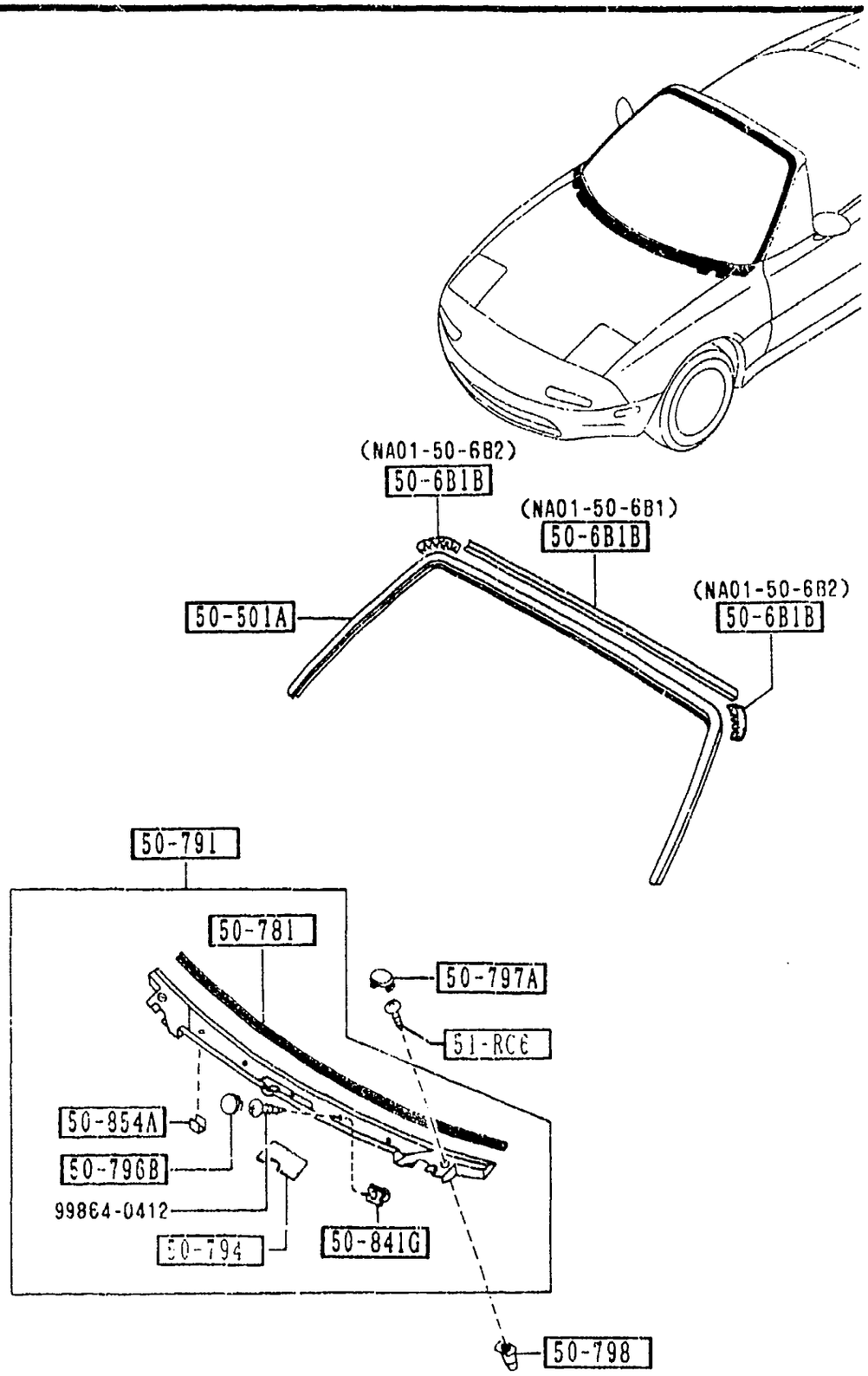


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
50-0G9A		SEAL,RUBBER-REAR BUMPER			
NA01-50-0G8	2				
50-032B		SLIDE'UP.',BUMPER			
GJ21-50-032	2				
50-036C		FASTENER			
BF67-50-033	11				
50-2C6		BOLT			
NA01-50-2C6	6				
50-2S4		SHIELD(R),SPLASH-R.BUMPER			
NA01-50-2S4	1				
50-2S4A		SHIELD(L),SPLASH-R.BUMPER			
NA01-50-2S5	1				
50-221		BUMPER,REAR			
NAY1-50-220A	1	PAINT TO MATCH			
50-230		REINFORCEMENT,BUMPER			
NA01-50-260	1				
50-233C		FASTENER,REAR BUMPER			
BF82-50-233	5				
50-260D		RETAINER,R.BUMPER			
NA01-50-2J0	1				
50-270		STAY(R),RR. BUMPER			
NA01-50-280A	1				
50-270Z		STAY(L),RR. BUMPER			
NA01-50-290A	1				
50-28X		PLATE SET			
NA01-50-28XC	2				
50-28Y		PLATE SET			

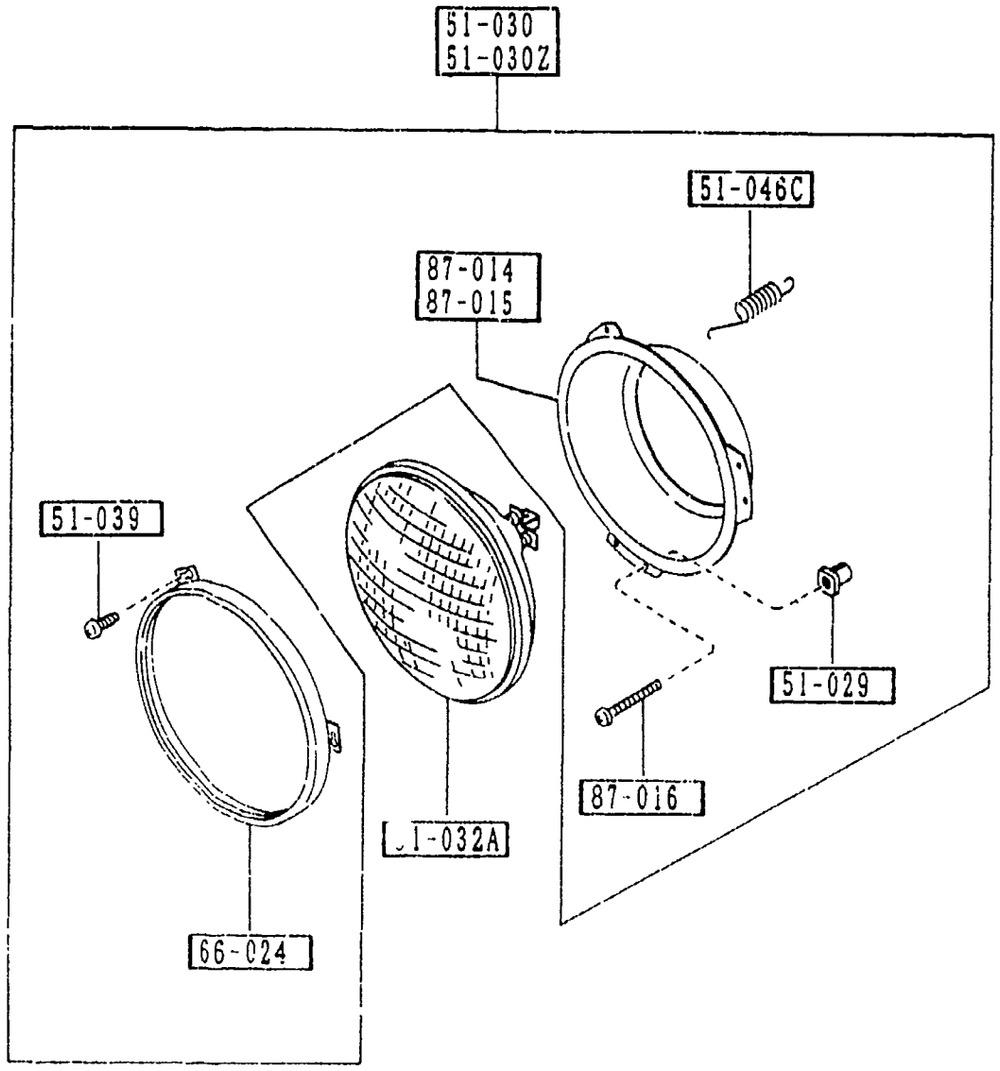


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA01-50-28YC	2				
50-335		NUT,CLIP			
NA01-50-133	6				

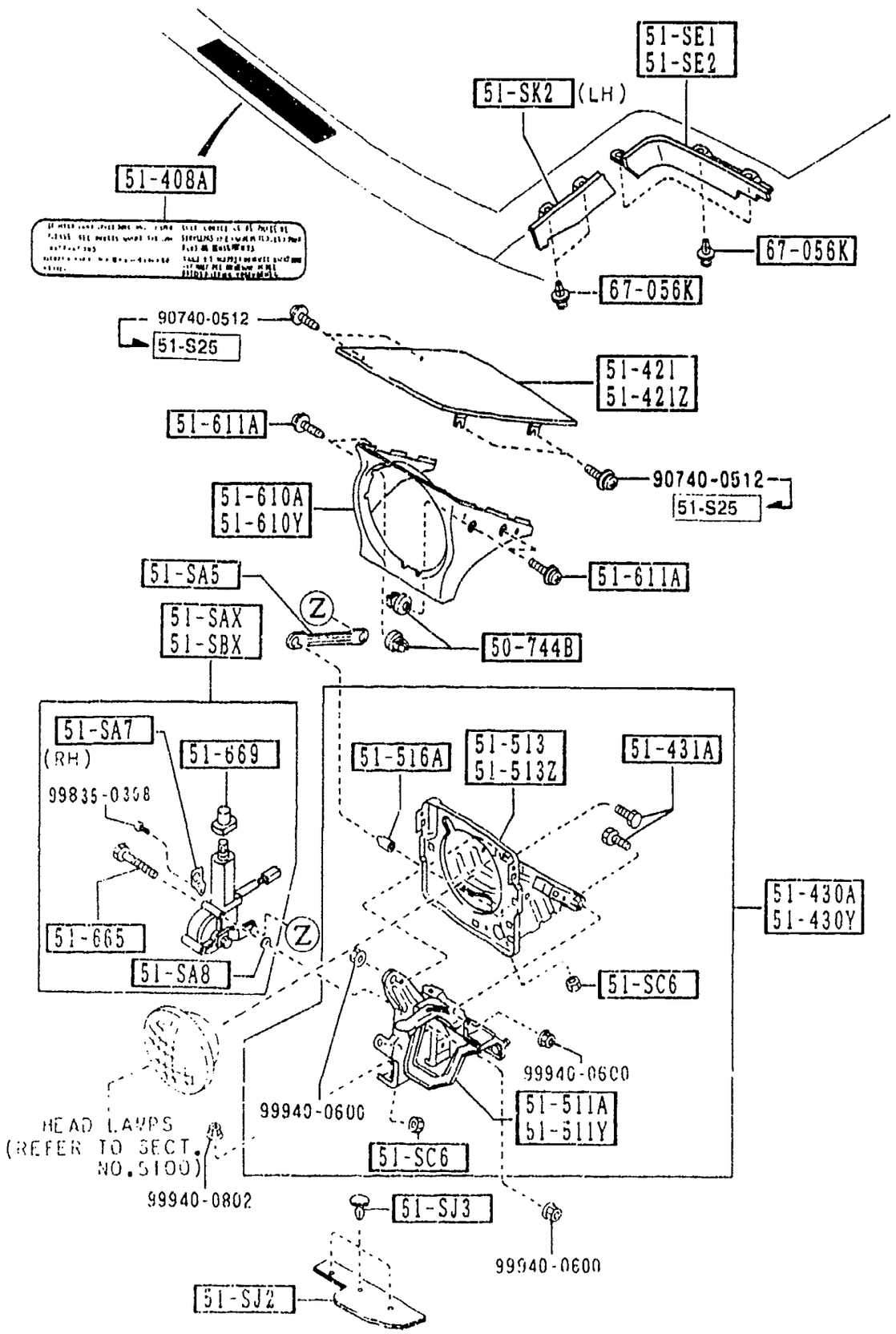
5030 WINDOW MOULDING & COWL GRILLES



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
50-501A		MOULD(UP),FRT.WINDOW			
NAY1-50-601	1				
50-6B1B		PROTECTOR,MOULD-FRT WIND			
NA01-50-6B1	1				
NA01-50-6B2	2				
50-781		PROTECTOR,COWL GRILLE			
NA01-50-792A	1				
50-791		GRILLE,COWL			
NA01-50-790D	1				
50-794		PROTECTOR			
NA01-50-788	1				
50-796B		CAP			
B455-50-796	5				
50-797A		CAP			
NA01-50-797	2				
50-798		SCREW,GROMMET			
NA01-50-798	2				
50-841G		GROMMET,SCREW			
NA01-51-789	5				
50-854A		PROTECTOR			
NA01-50-794	4				
51-RC6		SCREW,SIDE GARNNISH			
H272-51-RC6	2				

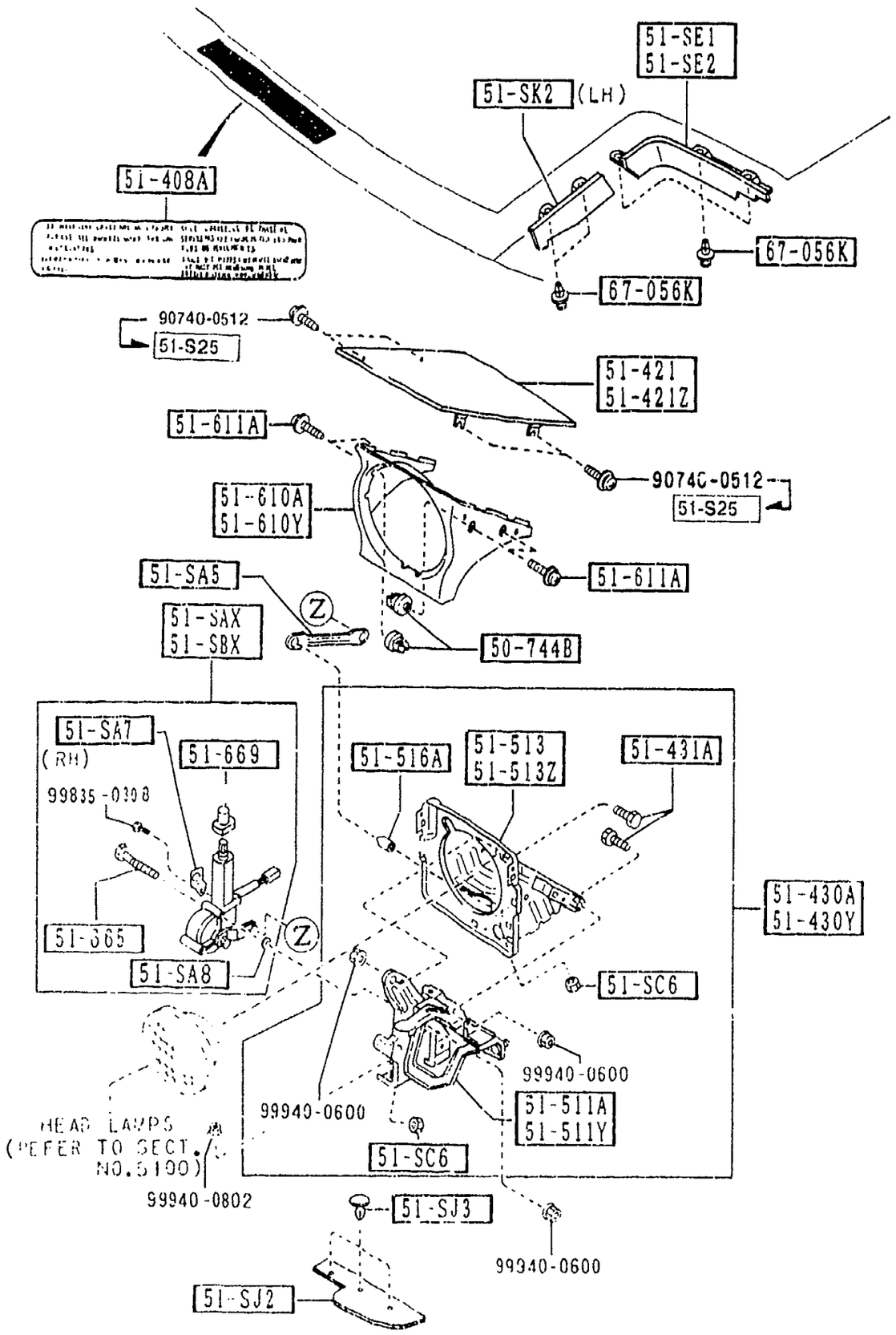


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
51-029 0483-66-061A	4	GROMMET,SCREW			
51-030 8BN1-51-030	1	LAMP SET(R),HEAD			
51-030Z 8BN1-51-040	1	LAMP SET(L),HEAD			
51-032A NA02-51-031	2	UNIT,HEAD LAMP			
51-039 B481-51-0E3	6	SCREW			
51-046C NA01-51-046	2	SPRING			
66-024 NA01-51-033	2	RING,RETAINING			
87-014 NA01-51-032	1	RING(R)MOUNTING			
87-015 NA01-51-034	1	RING(L)MOUNTING			
87-016 NA01-51-037	4	SCREW,ADJUST			



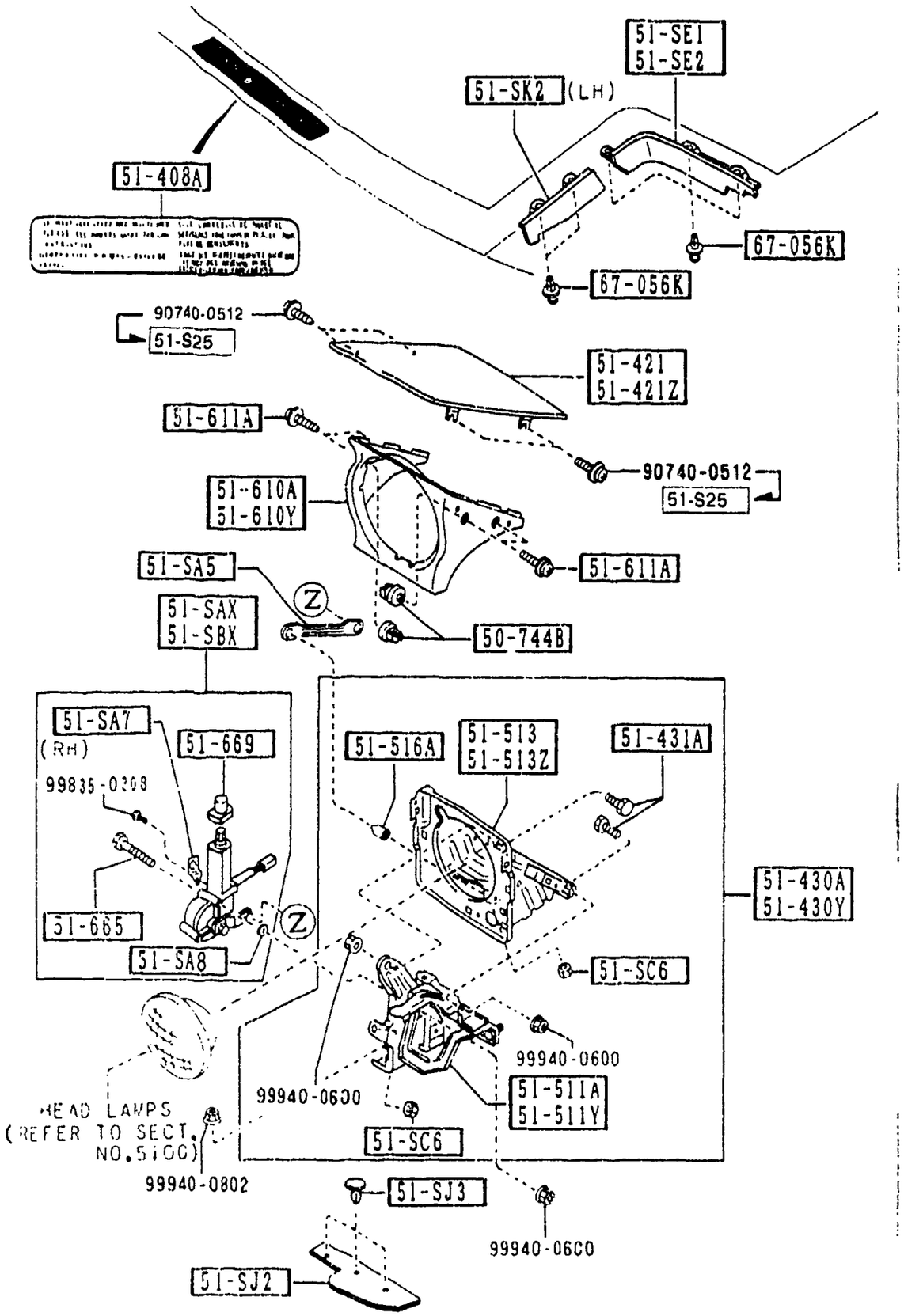
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
50-744B		GROMMET,SCREW			
B481-50-744	8				
51-SAX		MOTOR(R),RETRACTABLE HEAD			
NA01-51-SAX	1				
51-SA5		ROD,RETRACTABLE			
NA01-51-SA5	2				
51-SA7		BRACKET,CLIP			
NA01-51-SA7	1				
51-SA8		WASHER			
NA01-51-SA8	6				
51-SBX		MOTOR(L),RETRACTABLE HEAD			
NA01-51-SBX	1				
51-SC6		NUT,STOPPER-LAMP HINGE			
KA01-51-SC6	4				
51-SE1		PROTECTOR(R),RETRA H/L			
NA01-51-SE1	1				
51-SE2		PROTECTOR(L),RETRA. H/L			
NA01-51-SE2	1				
51-SJ2		PROTECTOR(L),RETRA. FRONT			
NA01-51-SJ2	2				
51-SJ3		CLIP			
NA01-51-SJ3	6				
51-SK2		PROTECTOR(L),RETRA. SIDE			
NA01-51-SK2	1				
51-S25		BOLT,LAMP LID			
BS34-51-S25 A (BS34-51-S25A)	8				0C21-1212
BS34-51-S25A	8				1212-

0C21 NA35**-222968
1212 NA35**-229419

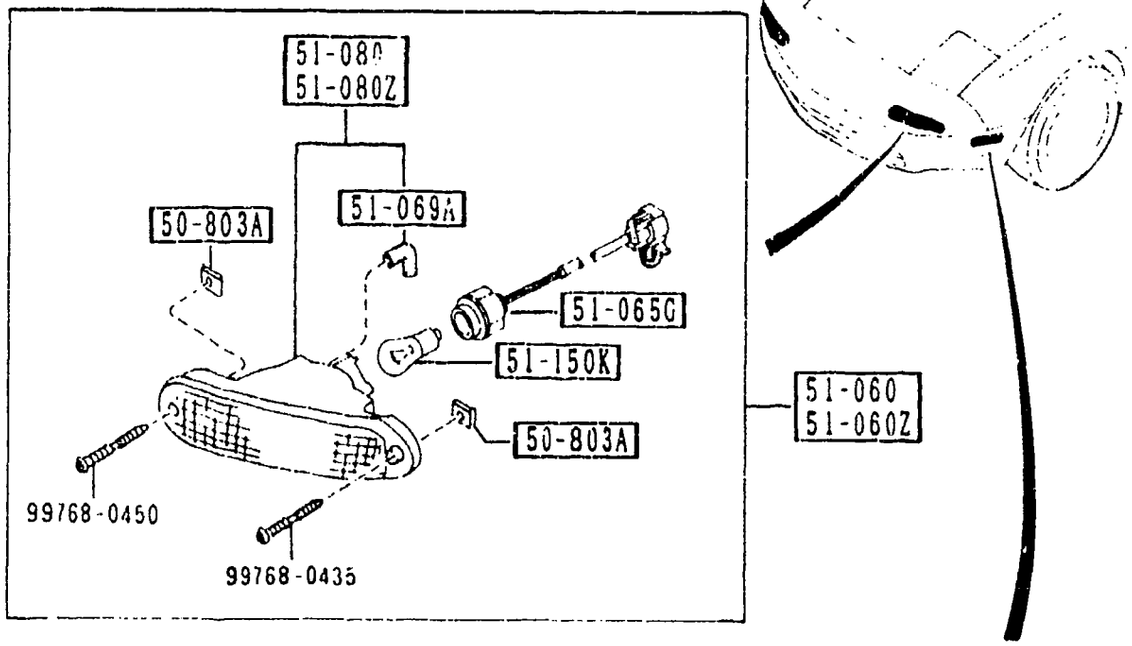


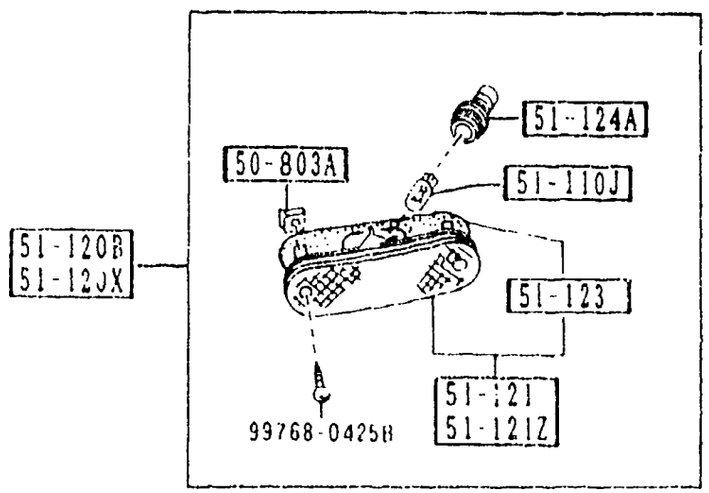
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
51-408A NA04-51-S02	1	LABEL,CAUTION-RETRACTABLE			
51-421 NA01-51-SH1B	1	LID(R),LAMP			
51-421Z NA01-51-SH2B	1	LID(L),LAMP			
51-430A NA01-51-SC0B	1	HINGE(R),LID-LAMP			
51-430Y NA01-51-SD0B	1	HINGE(L),LID-LAMP			
51-431A KA01-51-SD7	4	BOLT,HINGE			
51-511A NA01-51-SC1A	1	BRACKET(R),HINGE-LAMP LID			
51-511Y NA01-51-SD1A	1	BRACKET(L),HINGE-LAMP LID			
51-513 NA01-51-SC5B	1	HOUSING(R),LAMP-LID HINGE			
51-513Z NA01-51-SD5B	1	HOUSING(L),LAMP-LID HINGE			
51-516A KA01-51-SD6	2	CAP,HINGE-H.L.RETRACTABLE			
51-610A NA01-50-741	1	BEZEL(R),HEAD LAMP			
51-610Y NA01-50-751	1	BEZEL(L),HEAD LAMP			
51-611A B481-50-75X	8	SCREW,HEAD LAMP BEZEL			

5103 HEAD LAMP RETRACTORS



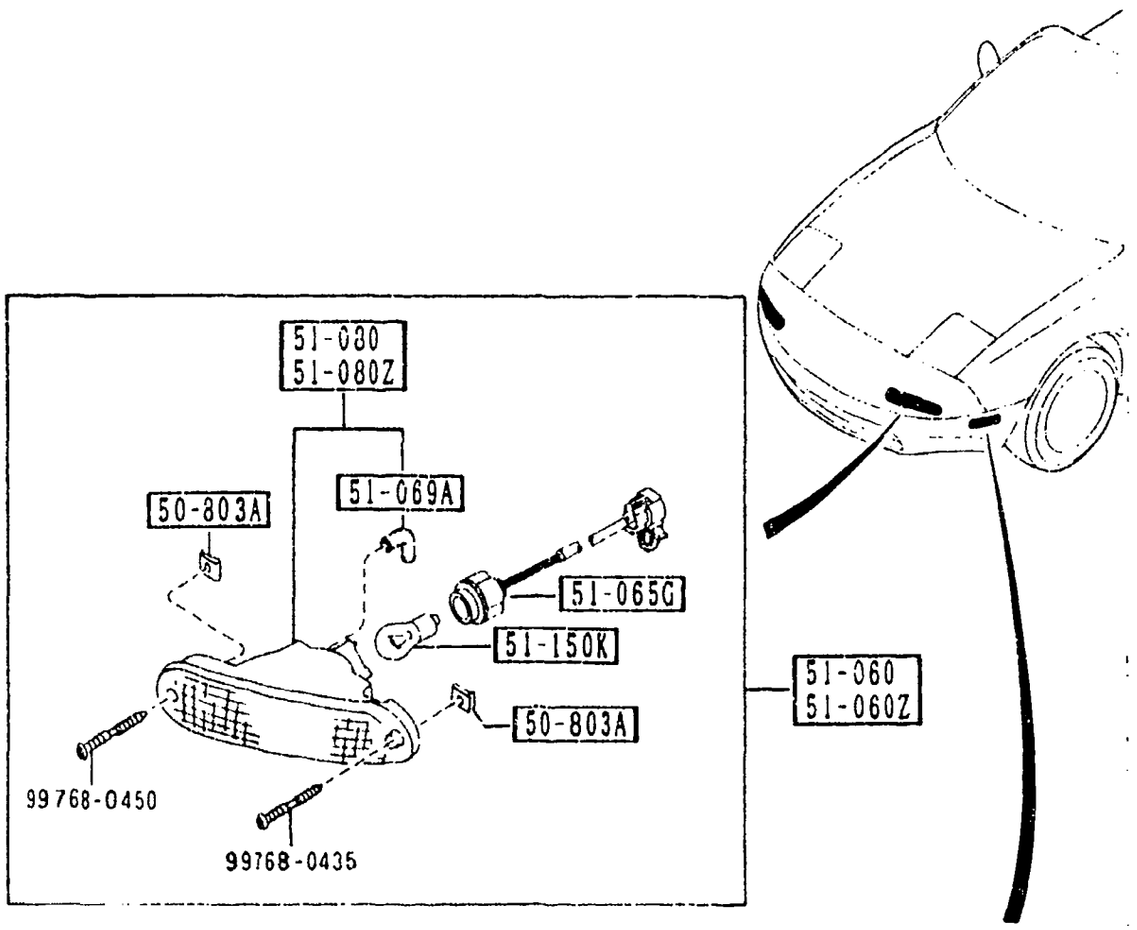
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
51-665		BOLT,MOTOR-RETRACT H /LAMP			
FB01-51-665	6				
51-669		BOOT,MOTOR-RETRACT H /L			
NA01-51-669	2				
67-056K		RIVET			
UB39-50-795	8				

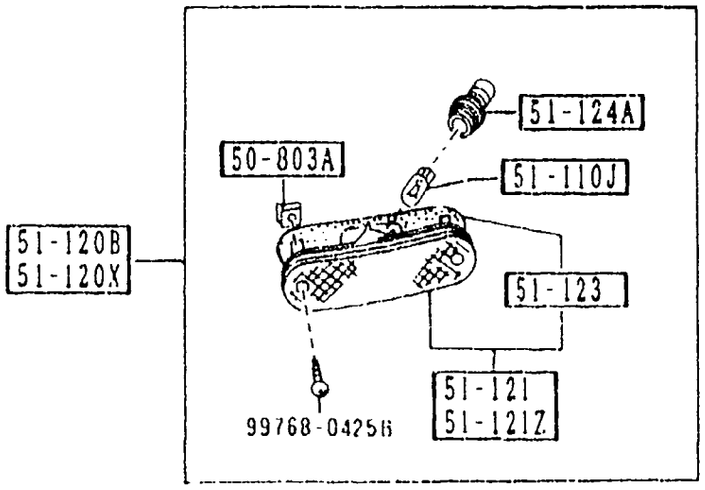




PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
50-803A G158-50-803	8	NUT,SIDE PROTECTOR			
51-060 8BN1-51-060	1	LAMP SET(R),FRT COMB			
51-060Z 8BN1-51-070	1	LAMP SET(L),FRT COMB			
51-065G NA01-51-064	2	SOCKET,F. COMB. LAMP			
51-069A NA01-51-069	2	TUBE,HEAD LAMP			
51-080 NA01-51-06XA	1	LENS & HOUSING(R)			
51-080Z NA01-51-07XA	1	LENS & HOUSING(L)			
51-110J 99701-6038	2	BULB 12V 3.8W			
51-120B 8BN1-51-120	1	LAMP SET(R),SIDE TURN			
51-120X 8BN1-51-130	1	LAMP SET(L),SIDE TURN			
51-121 NA01-51-5EX A (NA01-51-5EXA)	1	LENS & BODY(R)			-1201
NA01-51-5EXA	1				1201-
51-121Z NA01-51-5FX A (NA01-51-5FXA)	1	LENS & BODY(L)			-1201
NA01-51-5FXA	1				1201-

1201 NA35**-228219

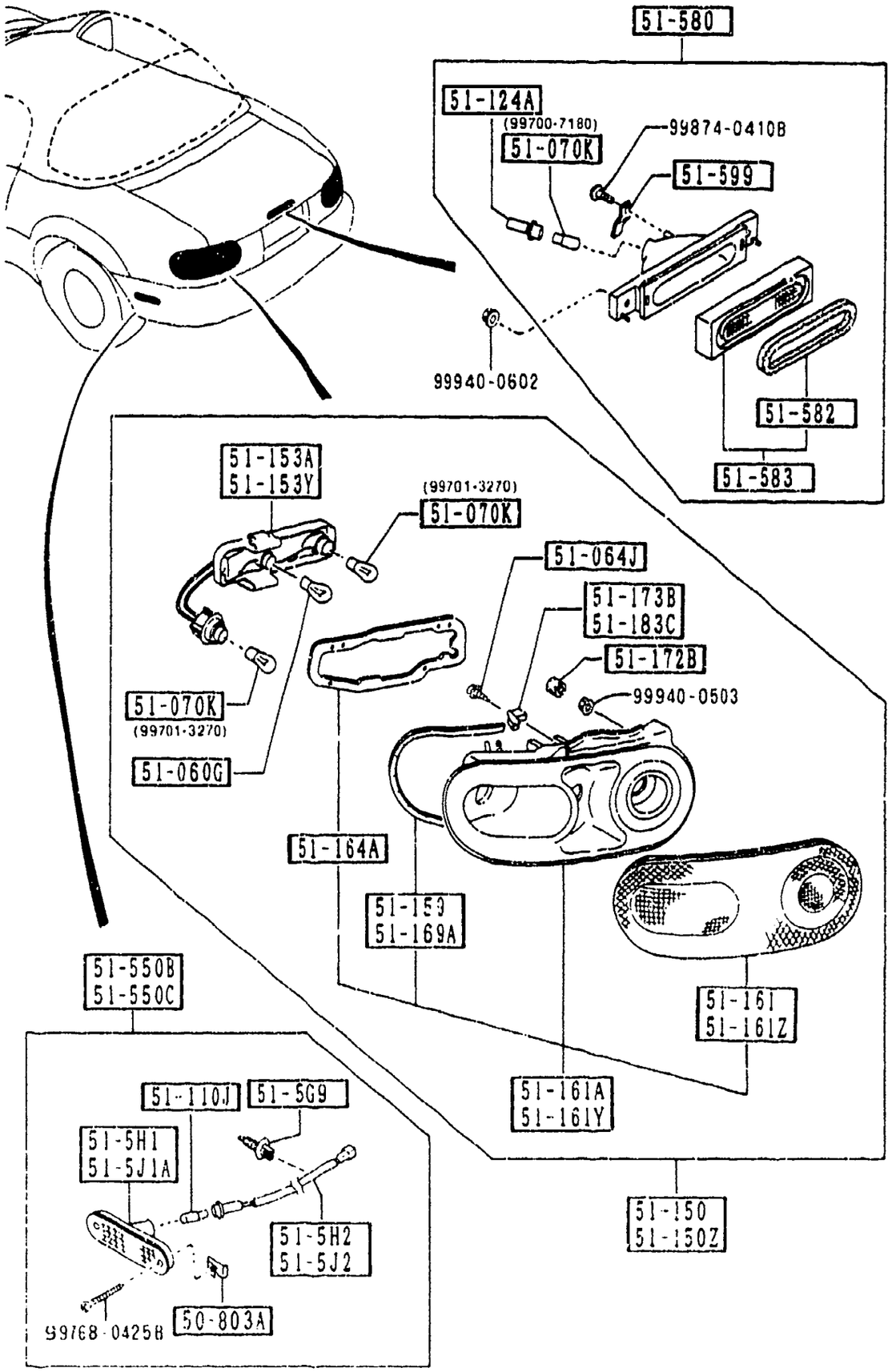




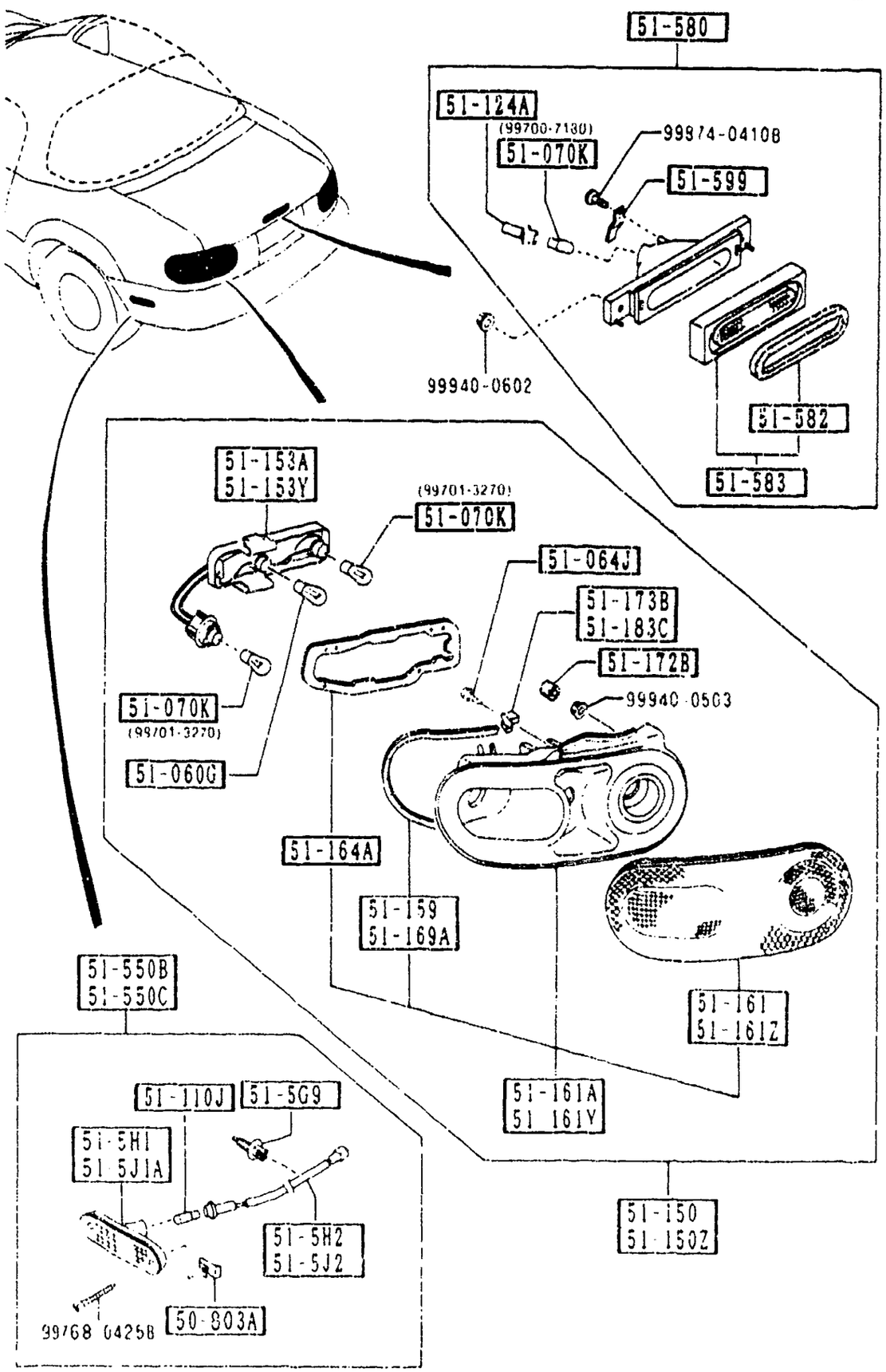
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
+---------+					
| 51-123 |		GASKET,SIDE TURN			
+---------+					
NA01-51-5D3	2				-1201
A (NA01-51-5D3A)					
NA01-51-5D3A	2				1201-
+---------+					
| 51-124A |		SOCKET,SIDE TURN			
+---------+					
NA01-51-5E2	2				
+---------+					
| 51-150K |		BULB			
+---------+					
99701-4278Y	2	A12V 27/8W			

1201 NA35**-228219

5110 -1 REAR COMBINATION LAMPS



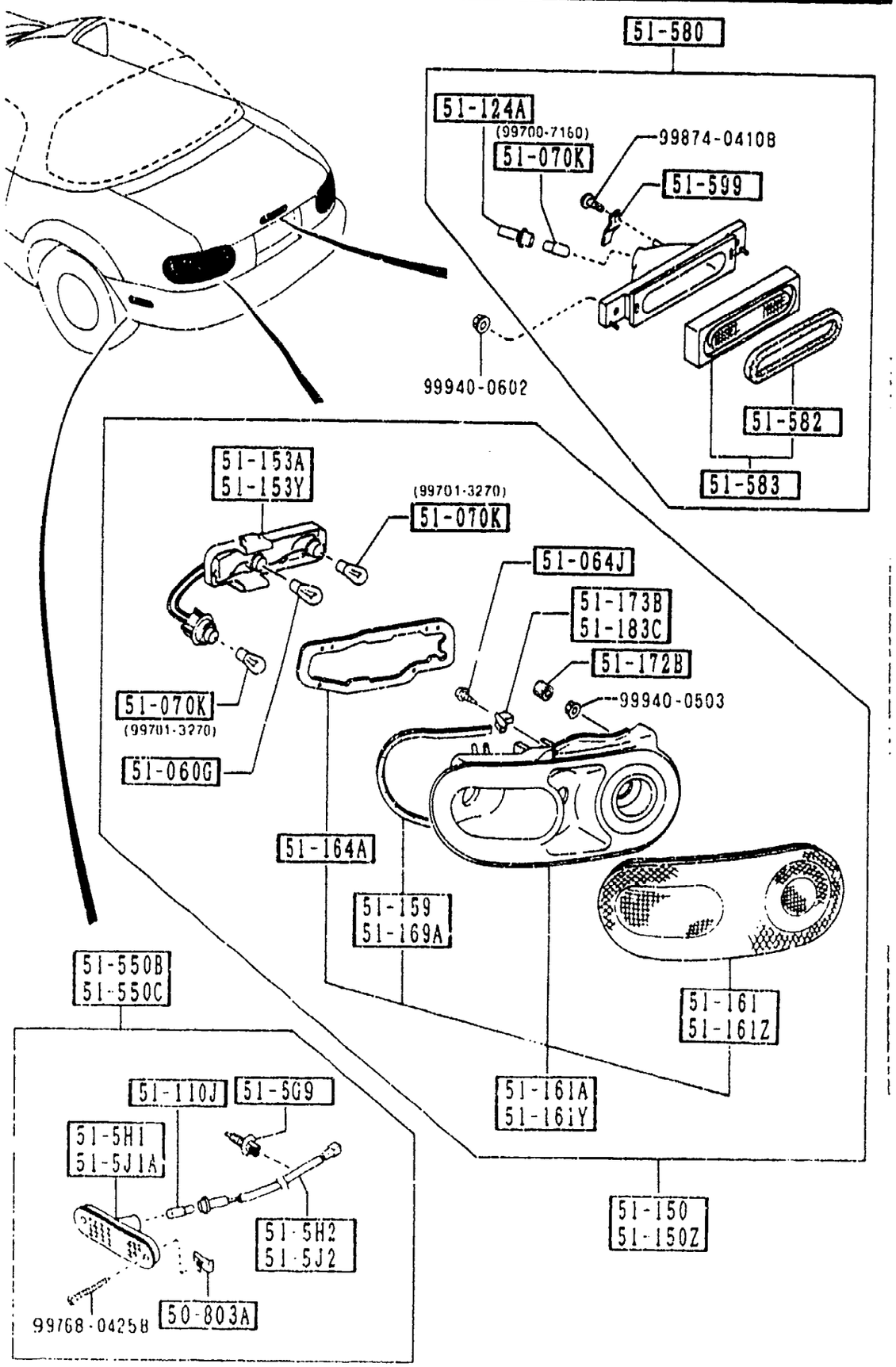
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
50-803A		NUT,SIDE PROTECTOR			
G158-50-803	4				
51-060G		BULB			
99701-4278	2	12V 27W/8W			
51-064J		SCREW,TAPPING			
NA01-51-1E6	2				
51-070K		BULB			
99700-7180	1	A12V 18.4W			
99701-3270	4	12V 27W			
51-110J		BULB			
99701-6038	2	12V 3.8W			
51-124A		SOCKET,SIDE TURN			
BJ38-51-584	1				
51-150		LAMP SET(R),RR.COMB.			
8BN1-51-150	1				
51-150Z		LAMP SET(L),RR.COMB.			
8BN1-51-160	1				
51-153A		SOCKET(R),RR.COMB.			
N001-51-155A	1				
51-153Y		SOCKET(L),RR.COMB.			
N001-51-165A	1				
51-159		PROTECTOR(R),'A'			
NA01-51-159	1				
51-161		LENS(R),RR.COMB.			
NA01-51-15XB	1				
51-161A		LENS & BODY(R),RR COMB.			



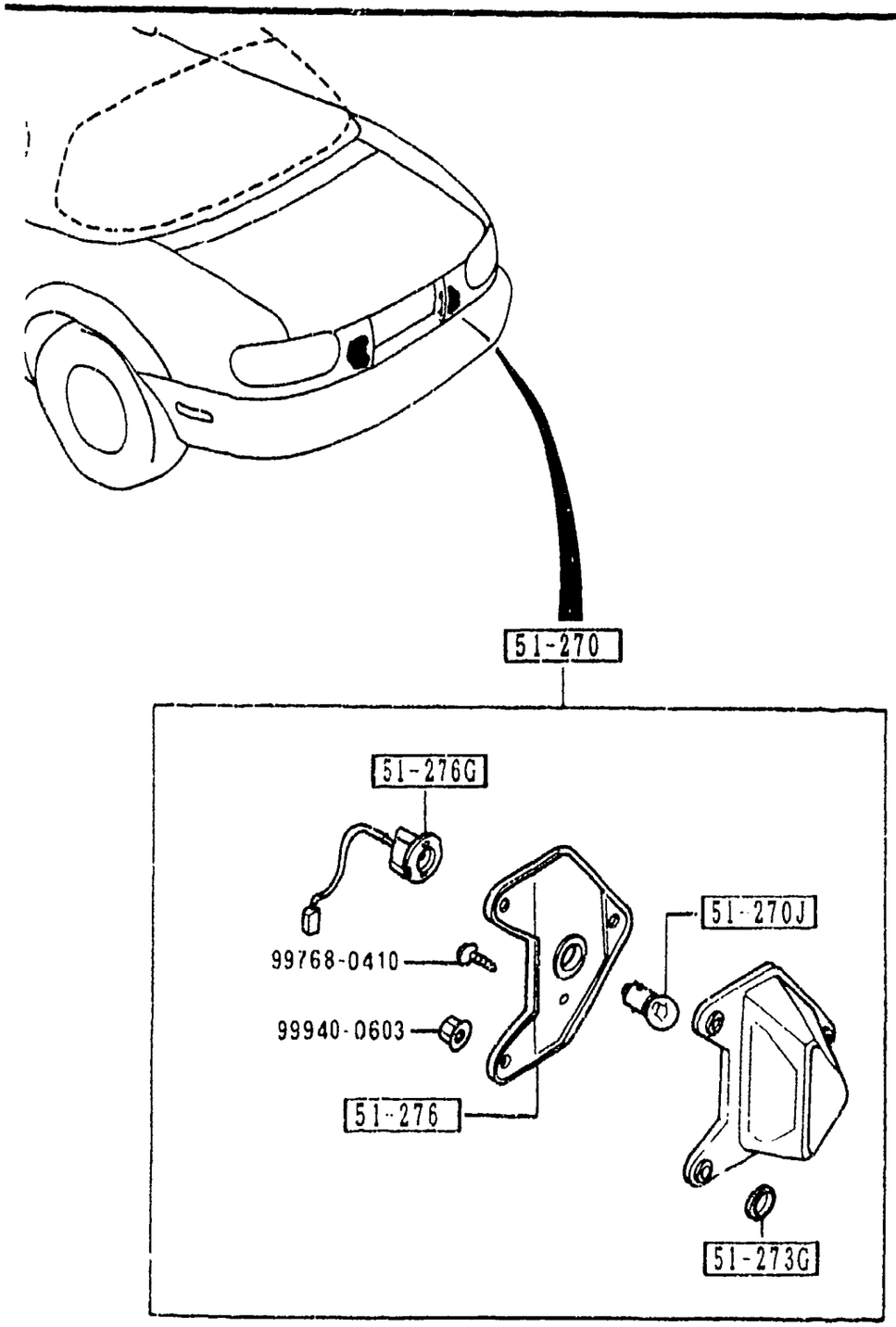
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA01-51-170B	1				
51-161Y		LENS & BODY(L),RR COMB.			
NA01-51-180B	1				
51-161Z		LENS(L),RR.COMB.			
NA01-51-16XB	1				
51-164A		GASKET,RR.COMB.			
NA01-51-158	2				
51-169A		PROTECTOR(L),'A'			
NA01-51-169	1				
51-172B		CAP			
G030-51-172	3				
51-173B		PROTECTOR(R),'B'			
NA01-51-173	1				
51-183C		PROTECTOR(L),'B'			
NA01-51-183	1				
51-5G9		CLIP			
NA01-51-5G9	8				
51-5H1		LENS & BODY(R),RR SIDE TURN			
NA01-51-5H1B	1				-1201
A (NA01-51-5H1C)					
NA01-51-5H1C	1				1201-
51-5H2		SOCKET(R),RR SIDE TURN			
NA01-51-5H2A	1				
51-5J1A		LENS & BODY(L),RR SIDE TURN			
NA01-51-5J1B	1				-1201
A (NA01-51-5J1C)					
NA01-51-5J1C	1				1201-
51-5J2		SOCKET(L),RR SIDE TURN			
NA01-51-5J2A	1				

1201 NA35**-228219

5110 REAR COMBINATION LAMPS

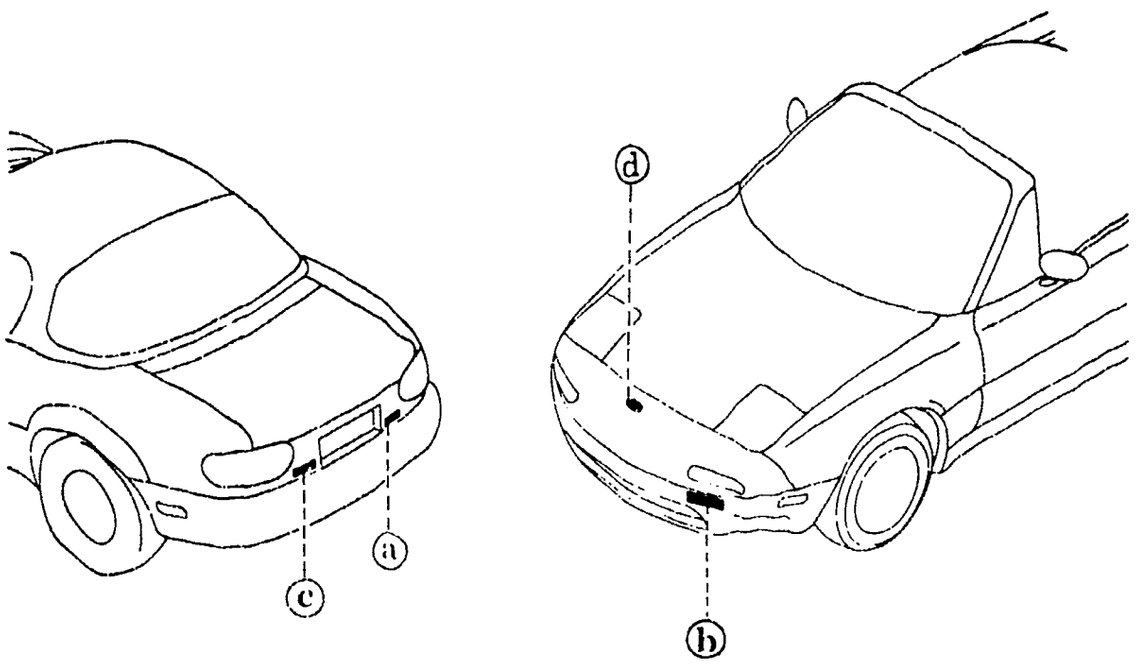


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESIRICTION	FROM TO
51-550B 8BN1-51-550	1	LAMP SET(R),SIDE TURN-RR			
51-550C 8BN1-51-560	1	LAMP SET(L),SIDE TURN-RR			
51-580 NA01-51-580B	1	LAMP,STOP-HI.MOUNT.			
51-582 NA01-51-592B	1	GASKET,STOP LAMP-HI.MOUNT			
51-583 NA01-51-58XA	1	LENS,STOP LAMP-HI.MOUNT			
51-599 NA01-51-599	1	FASTENER,STOP LAMP-HI.			

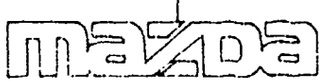


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
51-270		LAMP,LICENSE			
8BF1-51-270	2				
51-270J		BULB			
99701-2070	2	12V 7.5W			
51-273G		GASKET,LICENSE LAMP			
FB67-51-273	2				
51-276		SHADE,LAMP-LICENSE			
FB67-51-276	2				
51-276G		SOCKET,LICENSE LAMP			
FB67-51-272	2				

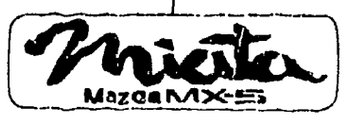
5170 ORNAMENTS



ⓐ 51-711B

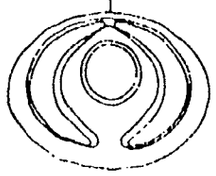


ⓒ 51-781



ⓑ 51-711C

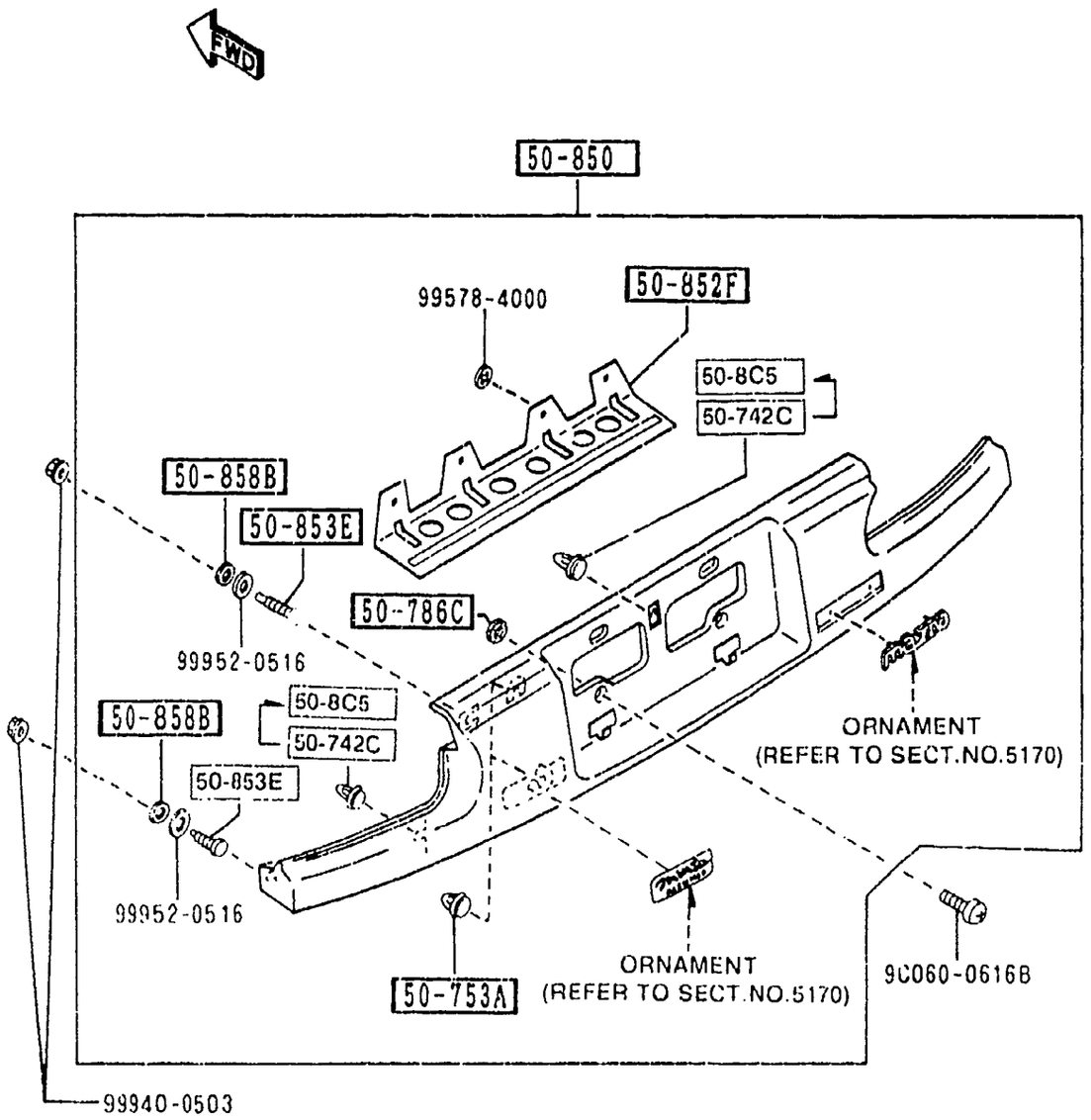
ⓓ 51-711A



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
51-711A		ORNAMENT,FRONT			
*BB1H-51-731	1				2513-
51-711B		ORNAMENT,MAKER NAME-REAR			
NA01-51-711	1				
51-711C		ORNAMENT,MAKER NAME-FRONT			
NA04-51-711	1				-2513
14	EXT-	DU FU HU SU UC LIGHT GRAY			
18	EXT-	3L DARK GRAY			
51-781		ORNAMENT,REAR			
NA01-51-721	1				

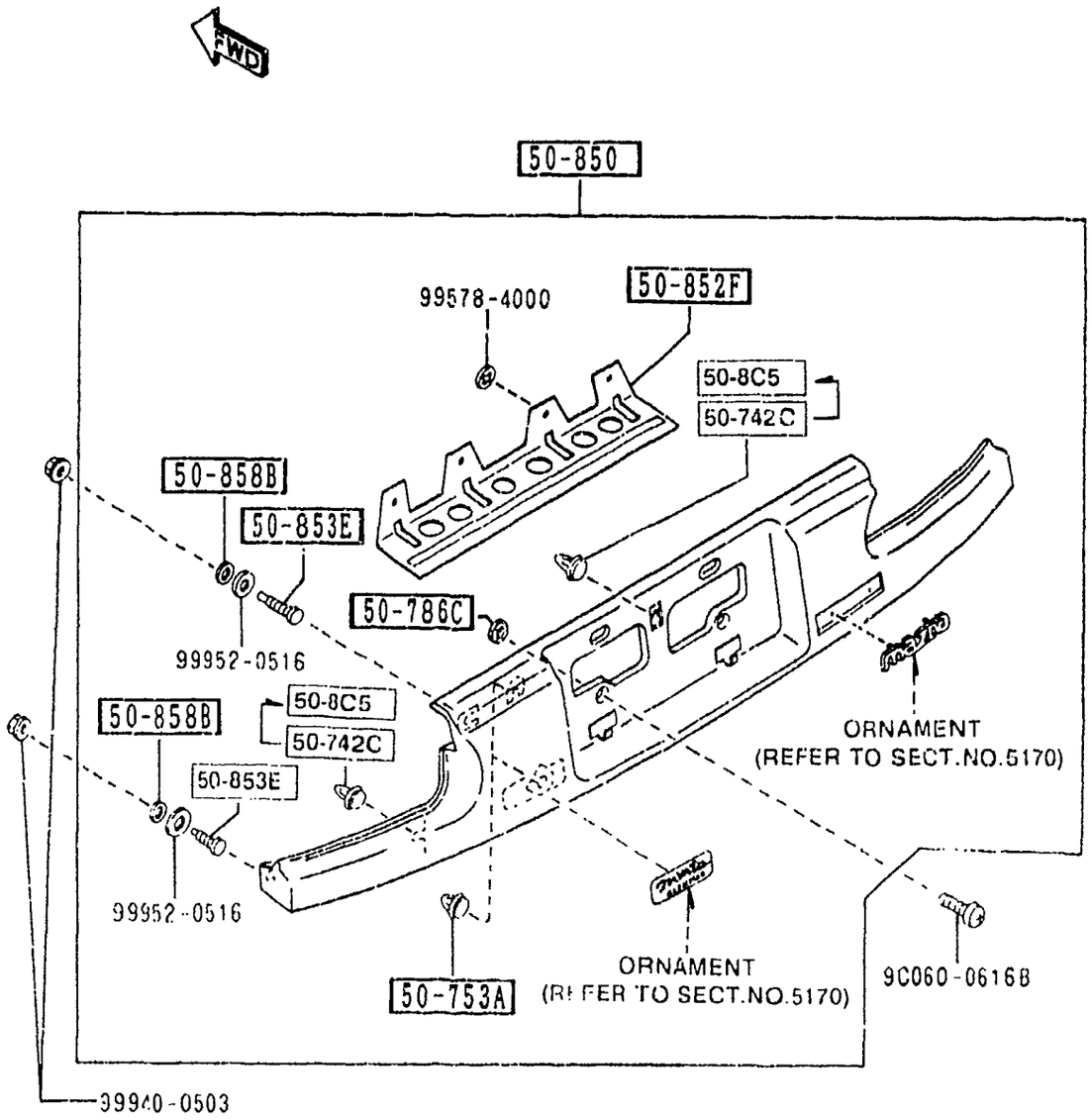
2513 NA35**-327330

5180 REAR FINISHER

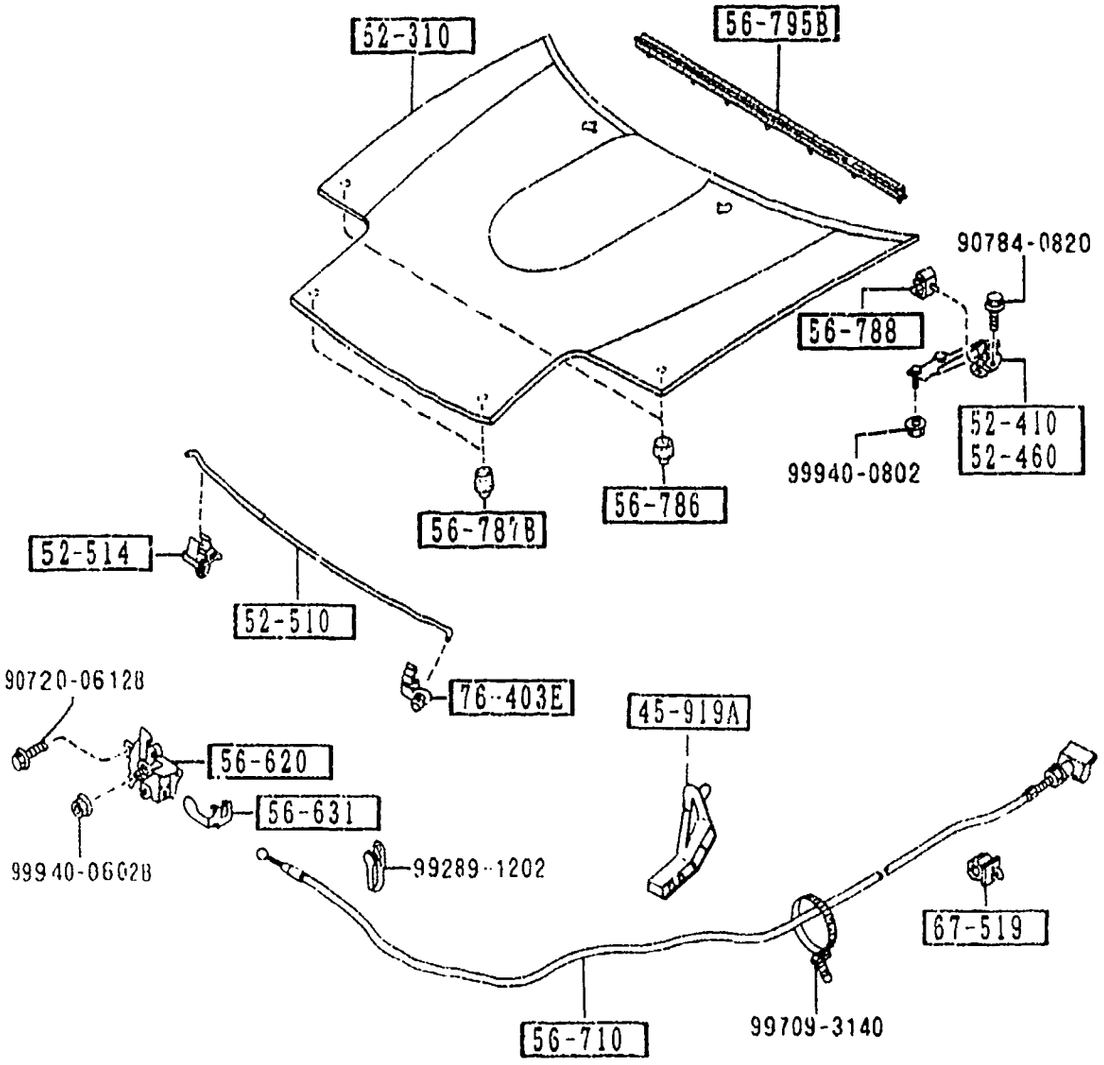


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
50-742C		CLIP			
G043-50-742	3				-0B01
50-753A		FASTENER			
G043-50-753	4				
50-786C		GASKET			
G030-50-786	2				
50-8C5		CLIP			
B467-50-8C5	3				0B01-
50-850		FINISHER,REAR			
NA01-50-850D G (NA01-50-850E)	1				-0801
DU		MARINER BLUE			
HU		NEO GREEN			
SU		CLASSIC RED			
UC		CRYSTAL WHITE			
3I.		SILVER STONE METALLIC			
NA01-50-850E	1				0801-1801
DU	EXT-	DU MARINER BLUE			
HU	EXT-	HU NEO GREEN			
SU	EXT-	SU CLASSIC RED			
UC	EXT-	UC CRYSTAL WHITE			
3L	EXT-	3L SILVER STONE METALLIC			
NA01-50-850G	1				1801-
DU	EXT-	DU MARINER BLUE			
HU	EXT-	HU NEO GREEN			
HZ	EXT-	HZ SUNBURST YELLOW			
PZ	EXT-	PZ BRILLIANT BLACK			
SU	EXT-	SU CLASSIC RED			
UC	EXT-	UC CRYSTAL WHITE			
3L	EXT-	3L SILVER STONE METALLIC			

0801 NA35**-205068
0B01 NA35**-217311
1801 NA35**-300014



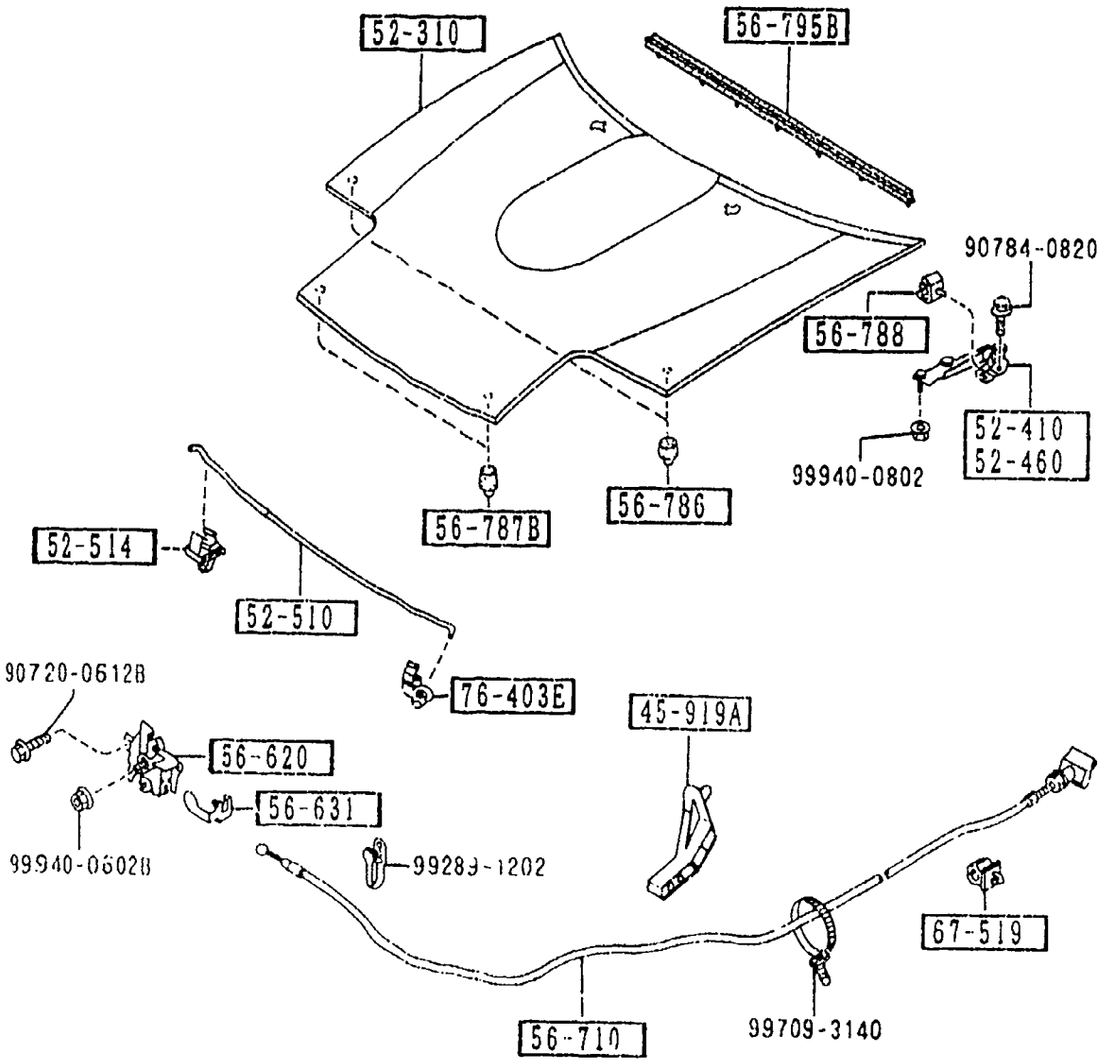
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
50-852F		REINFORCEMENT			
NA01-50-852	1				
50-853E		BOLT,GARNISH-RR			
LA01-50-853	4				
50-858B		GASKET,REAR FINISHER			
B388-50-855	4				



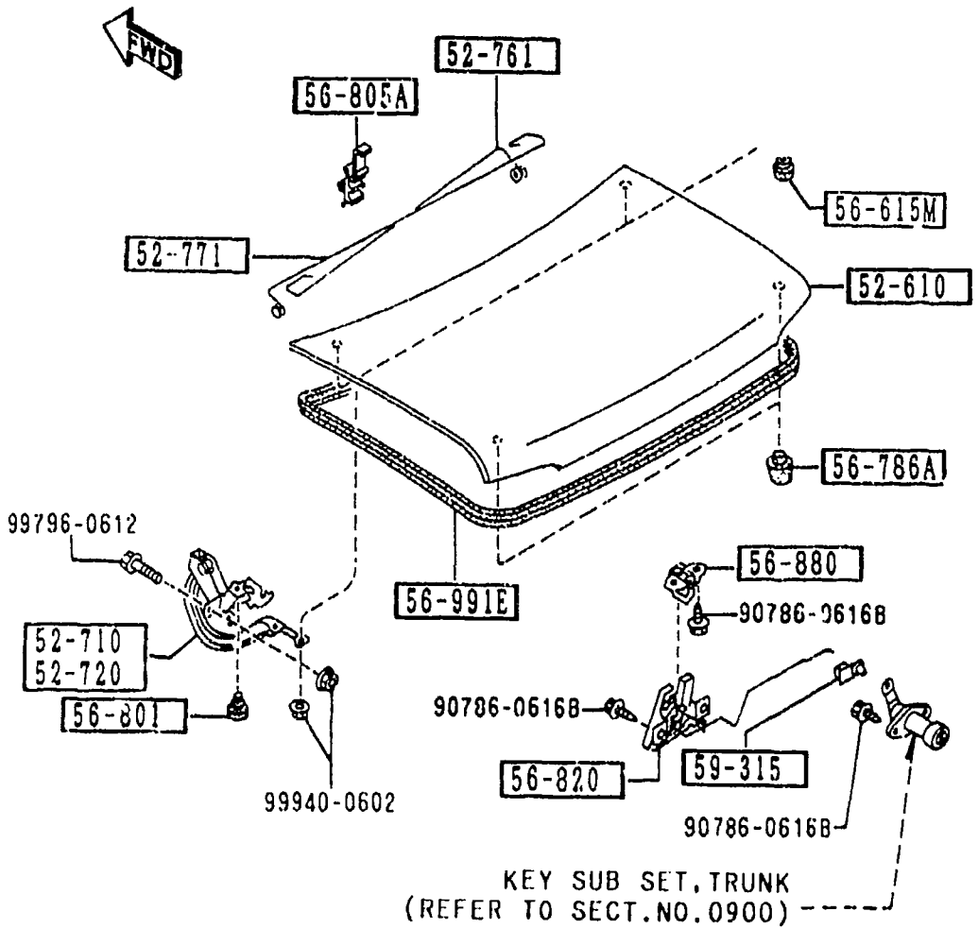
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
45-919A		HOLDER,PIPE			
H115-45-916A	1				
52-310		BONNET			
NAY1-52-310A	1				-1601
A (NAY1-52-310B)					
NAY1-52-310B	1				1601-
52-410		HINGE(R),BONNET			
NA01-52-4J0A	1				
52-460		HINGE(L),BONNET			
NA01-52-420A	1				
52-510		STAY,BONNET			
NA01-56-650	1				
52-514		HOLDER,ROD			
G030-56-693	1				
56-620		LOCK,BONNET			
NA01-56-620A	1				
56-631		FASTENER,BONNET RELEASE			
LA01-56-631	1				
56-710		WIRE,RELEASE-BONNET			
NA01-56-720C	1				-0801
A (NA01-56-720D)					
NA01-56-720D	1				0801-
00	INT-	NA0 NA1 NA2 BLACK			
56-786		RUBBER(C),CUSHION-BONNET			
NA01-56-787	2				
56-787B		RUBBER,CUSHION-BONNET FRT			
FB01-56-787A	2				
56-788		RUBBER,CUSHION-BONNET RR			
NA01-56-78X	2				

0801 NA35**-205068
1601 NA35**-235561

5230 BONNET

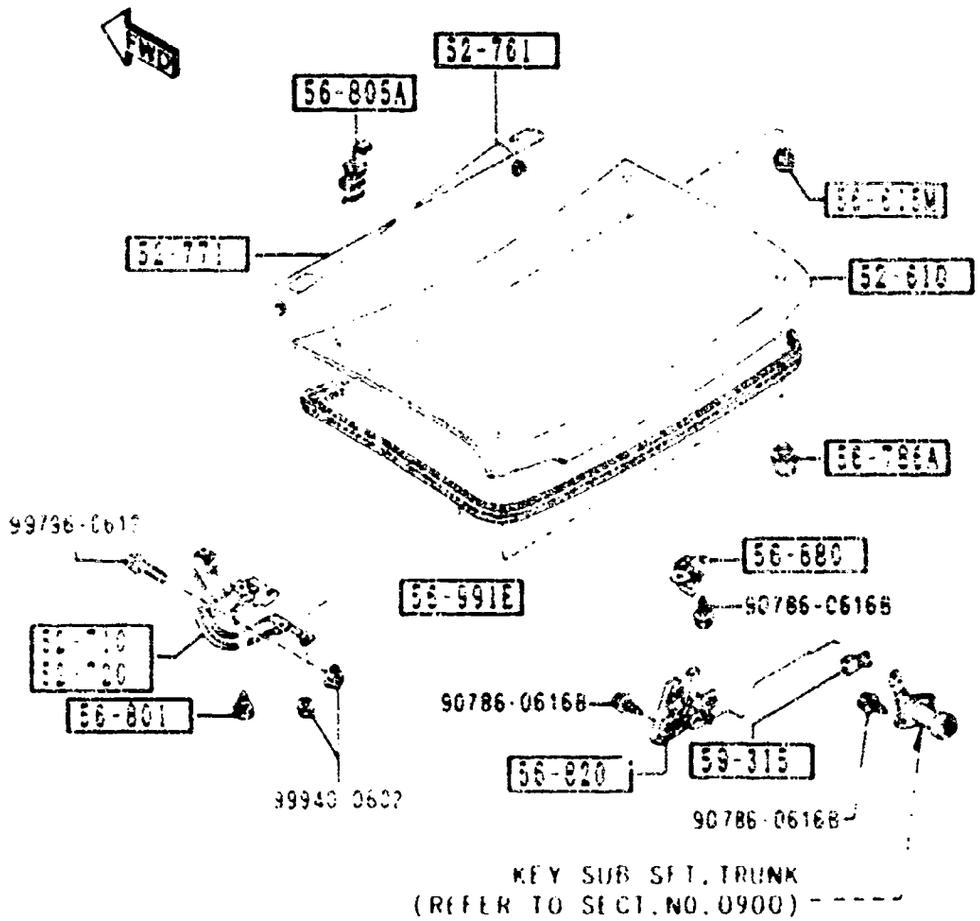


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
56-795B		WEATHERSTRIP,BONNET-REAR			
NA01-56-760	1				
67-519		CLIP,PIPE			
G030-67-519	1				
76-403E		HOLDER,ROD			
B092-52-518	1				



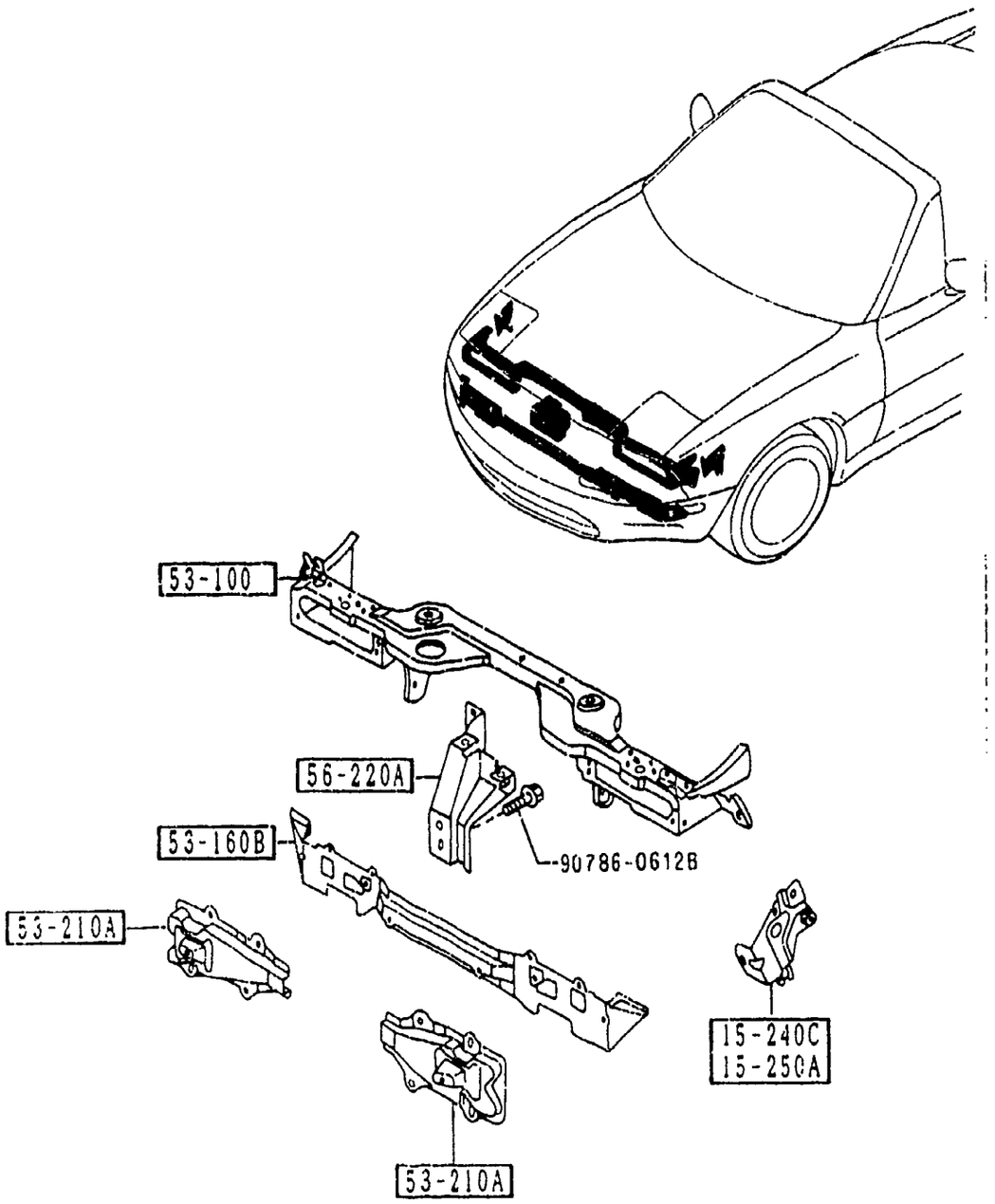
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
52-610		LID,TRUNK			
NAY1-52-610 AN(NAY1-52-610A)	1				-0A01
NAY1-52-610A A (NAY1-52-610B)	1				0A01-1601
NAY1-52-610B	1				1601-
52-710		HINGE(R),TRUNK LID			
NA01-52-710A	1				
52-720		HINGE(L),TRUNK LID			
NA01-52-720A	1				
52-761		SPRING(R),BALANCE			
NA01-52-791A	1				
52-771		SPRING(L),BALANCE			
NA01-52-792A	1				
56-615M		PLUG,DRAIN			
NA01-56-051	2				
56-786A		RUBBER,CUSHION			
B481-56-786	2				
56-801		CUSHION,LID HINGE			
NA01-56-803	2				
56-805A		HOLDER,BALANCE SPRING			
NA01-56-805	1				
56-820		LOCK,LID			
NA01-56-820A	1				-1801
N007-56-820	1				1801-
56-880		STRIKER,LID			
NA01-56-840	1				
56-991E		WEATHERSTRIP,LID			
NA01-56-951	1				

0A01 NA35**-213219
1601 NA35**-235561
1801 NA35**-300014



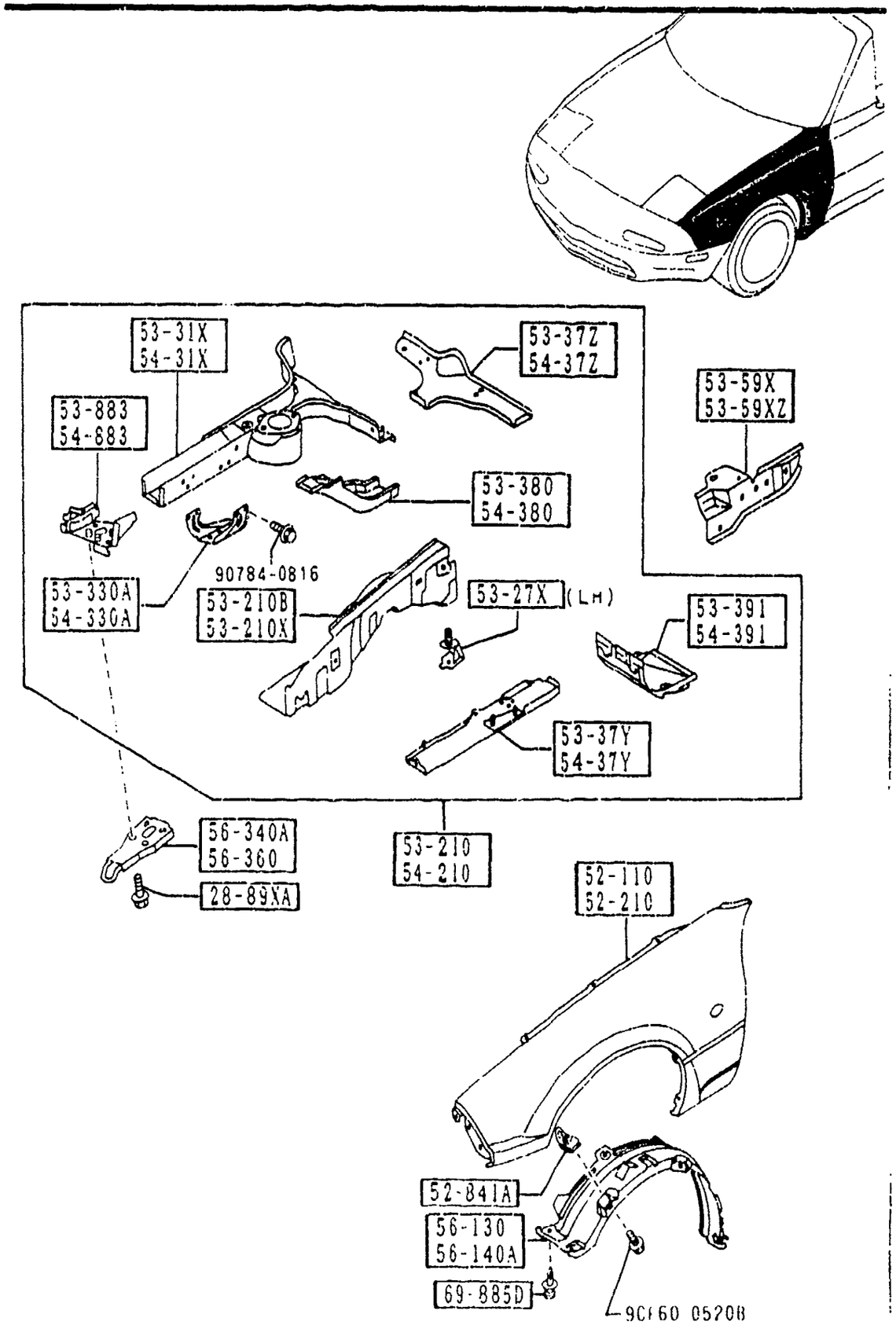
PART NO.	QTY	MODEL/DESTRICTION	MODEL DESTRICTION	MODEL DESTRICTION	FROM TO
59-315		CLIP			
G030-59-315	1				

5310 FRONT PANELS



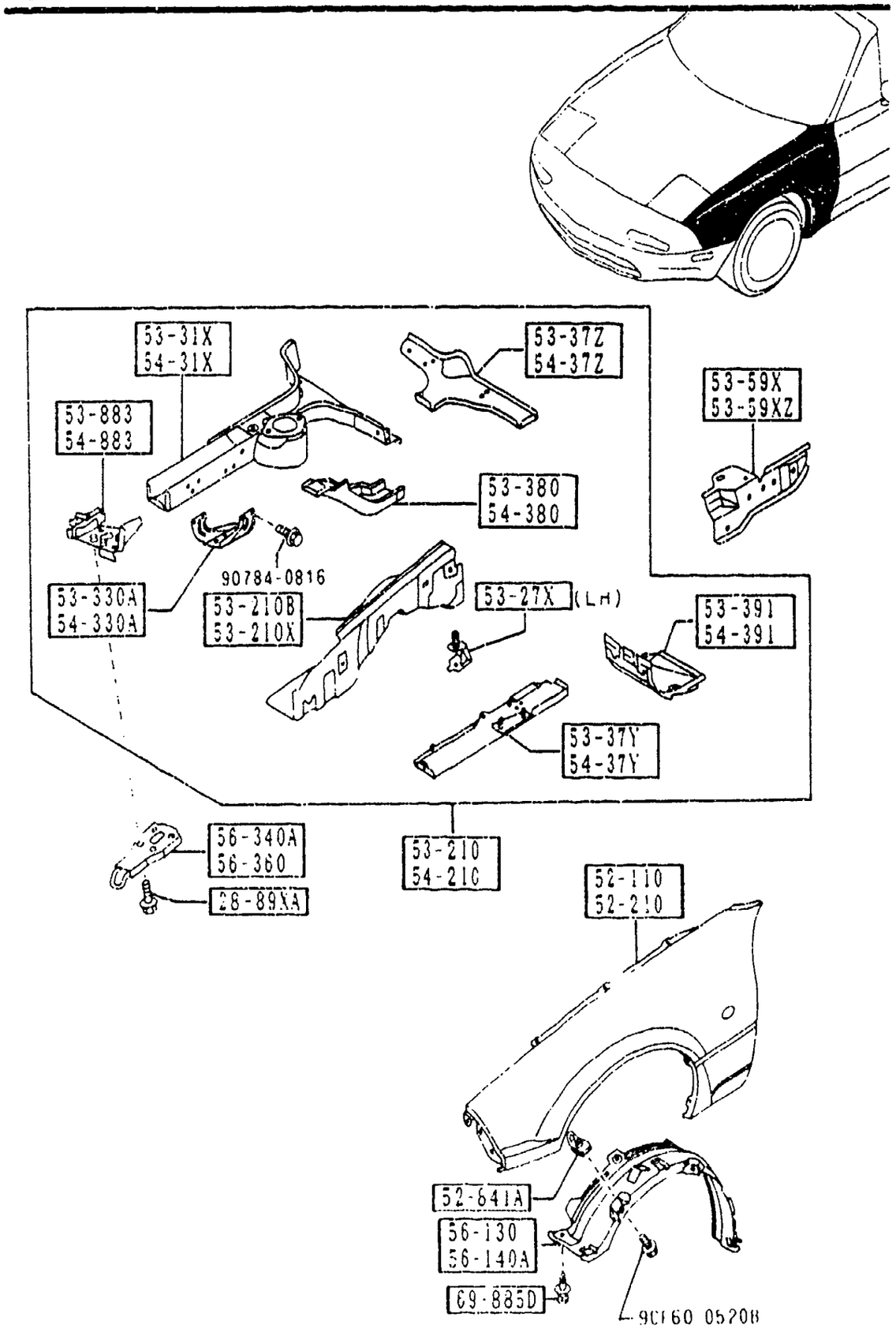
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
15-240C B61P-15-240	1	BRACKET(R),RADIATOR			
15-250A B61P-15-250	1	BRACKET(L),RADIATOR			
53-100 NA01-53-100F	1	PANEL,RAD.SHROUD			
53-160B NA01-53-16XC	1	MEMBER,CROSS			
53-210A NA01-54-180	2	BRACKET,BUMPER			
56-220A NA01-56-221B	1	STAY,LOCK-BONNET			

5320 FENDER & WHEEL APRON PANELS



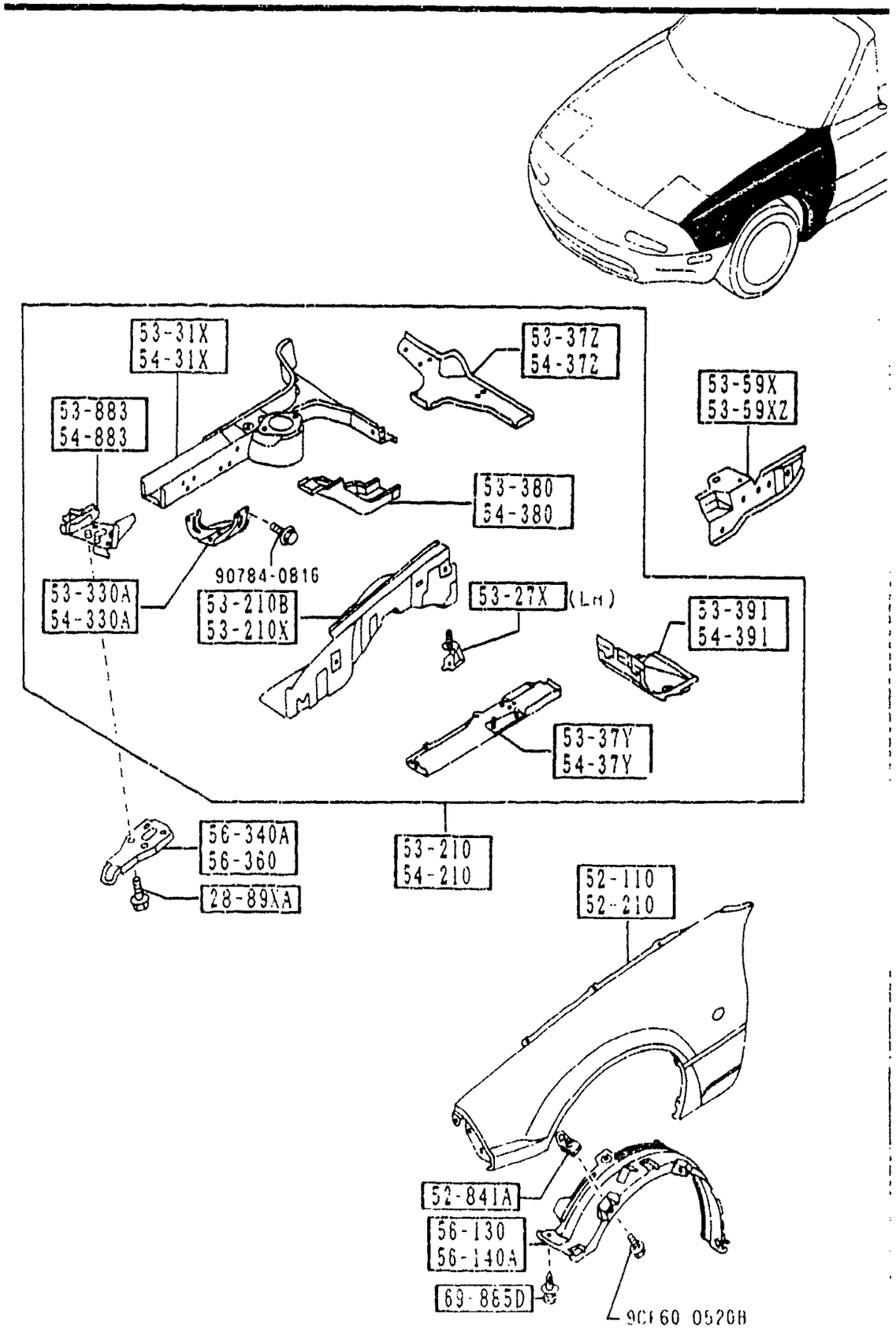
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
28-89XA GJ21-28-89X	6	BOLT,CROSS MEMBER			
52-110 NAY1-52-110	1	PANEL(R),FENDER-FRT.			
52-210 NAY1-52-210	1	PANEL(L),FENDER-FRT.			
52-841A LA01-56-135	10	NUT,CLIP			
53-210 NAY1-53-200B A (NAY1-53-200D)	1	PANEL(R),WHEEL APRON			-0A01
NAY1-53-200D	1				0A01-
53-210B NA01-53-210B A (NAC1-53-210E)	1	PANEL(R),WHEEL APRON			-0A01
NA01-53-210E	1				0A01-
53-210X NA01-54-210B A (NA01-54-210D)	1	PANEL(L),WHEEL APRON			-0A01
NA01-54-210D AM(NA01-54-210E)	1				0A01-1423
NA01-54-210E A (NA01-54-210F)	1				1423-1801
NA01-54-210F	1				1801-
53-27X NA01-54-36X	1	BRKT,AIR CLNR-WHL APRON			
53-31X *NA01-53-31XE	1	FRAM(R),FRONT			
53-330A NA01-53-330	1	BRACKET(R),STABILIZER			
53-37Y NA01-53-37Y	1	FRAME(UP.,R),FRONT-FRT			

0A01 NA35**-213219
1423 NA35**-233585
1801 NA35**-300014



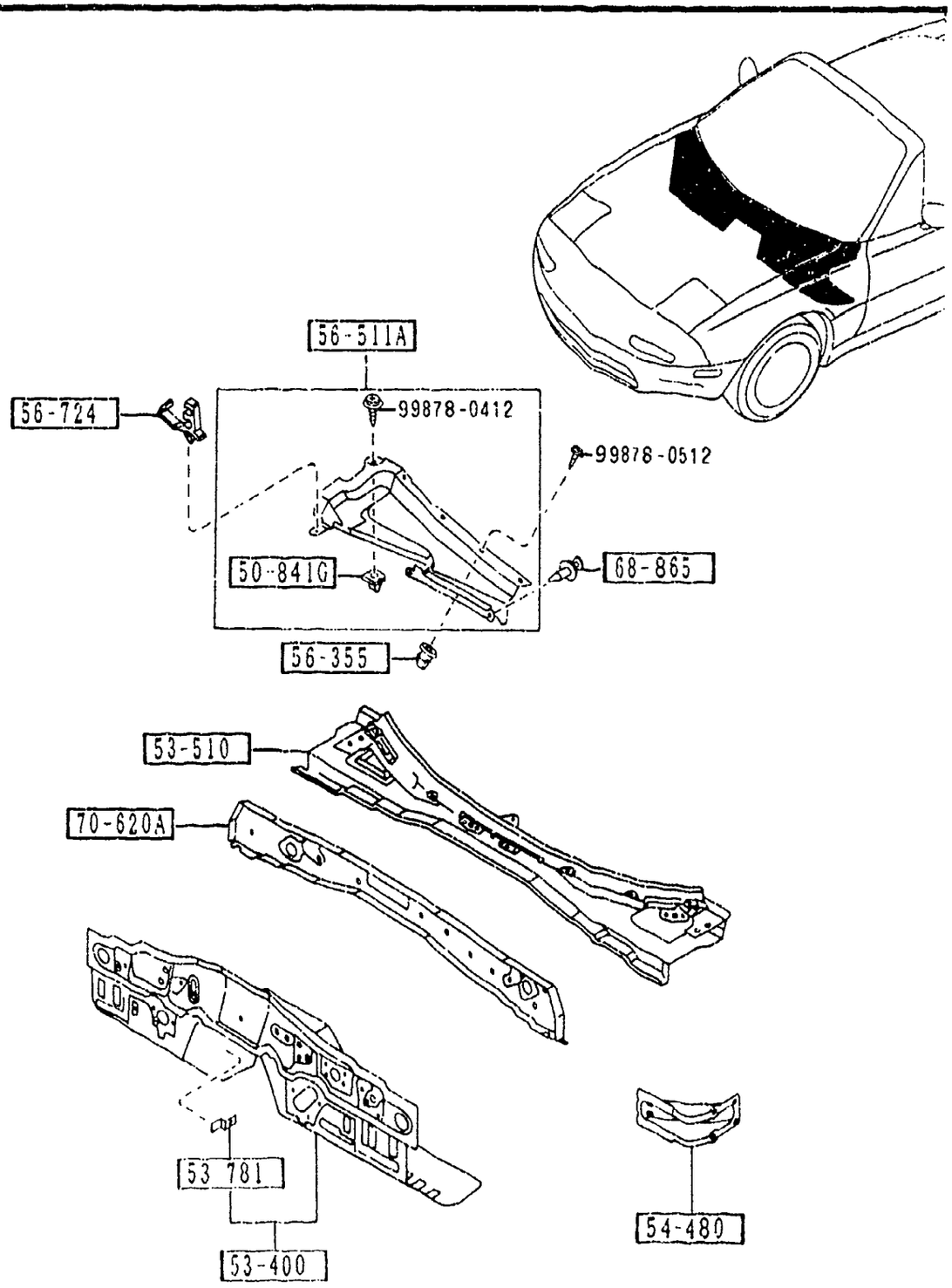
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
53-37Z		FRAME(UP.R),FRONT-REAR			
NA01-53-37ZA	1				
53-380		REINFORCEMENT(R)			
NA01-53-380	1				
53-391		BOX(R),TORQUE			
NA01-53-391	1				
53-59X		REINF.(R),WHEEL APRON			
NA01-53-591	1				
53-59XZ		REINF.(L),WHEEL APRON			
NA01-54-590	1				
53-883		REINF.(R),TIE DOWN HOOK			
NA01-53-32XB	1				
54-210		PANEL(L),WHEEL APRON			
NAY1-54-200BA (NAY1-54-200D)	1				-0A01
NAY1-54-200D	1				0A01-
54-31X		FRAM(L),FRONT			
*NA01-54-31XE	1				
54-330A		BRACKET(L),STABILIZER			
NA01-54-330	1				
54-37Y		FRAME(UP.,L),FRONT-FRT			
NA01-54-37Y	1				
54-37Z		FRAME(UP.L),FRONT-REAR			
NA01-54-37ZA	1				
54-380		FRAME(L),FRONT-REAR			
NA01-54-380A (NA01-54-380B)	1				-1801
NA01-54-380B	1				1801-
54-391		BOX(L),TORQUE			

0A01 NA35**-213219
1801 NA35**-300014

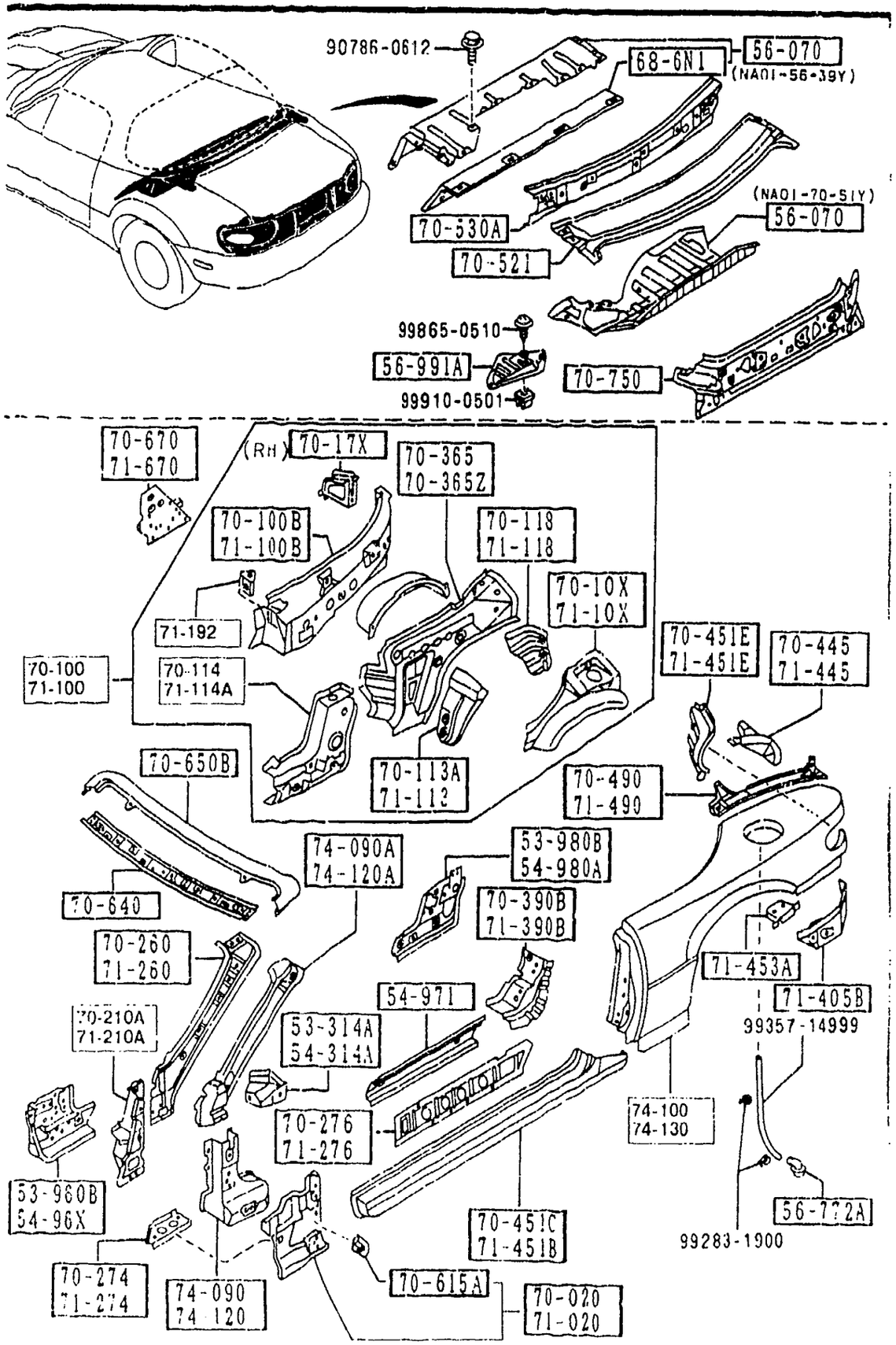


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA01-54-391	1				
54-883		REINF.(L),TIE DOWN HOOK			
NA01-54-32XC	1				
56-130		GUARD(R),MUD			
NA01-56-131A	1				
56-140A		GUARD(L),MUD			
NA01-56-141C	1				
56-340A		HOOK(R),TIE DOWN-FRONT			
NA01-56-34XC	1				
56-360		HOOK(L),TIE DOWN-FRONT			
NA01-56-34YC	1				
69-885D		FASTENER			
NA01-56-145	10				

5330 DASH & COWL PANELS

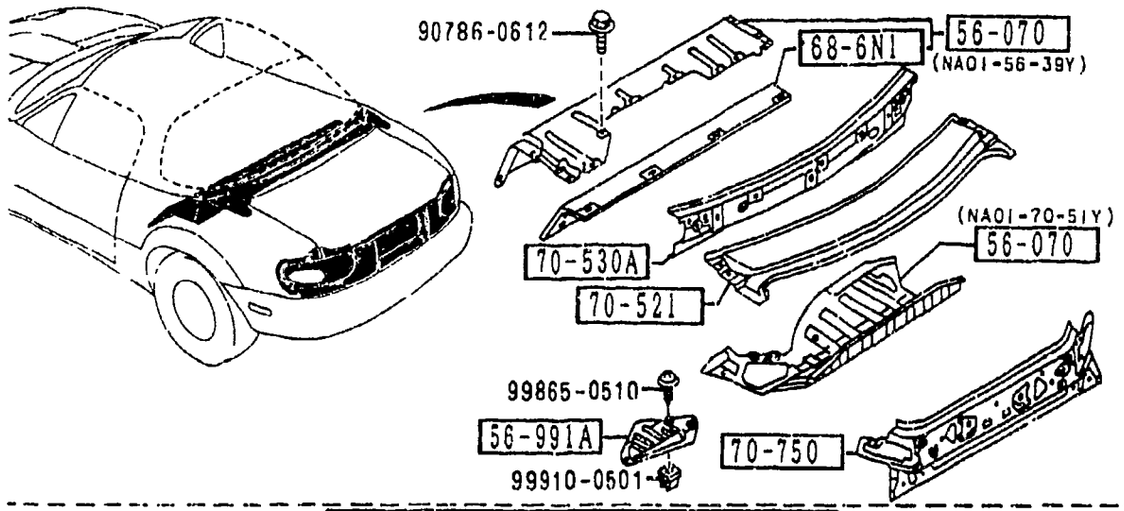


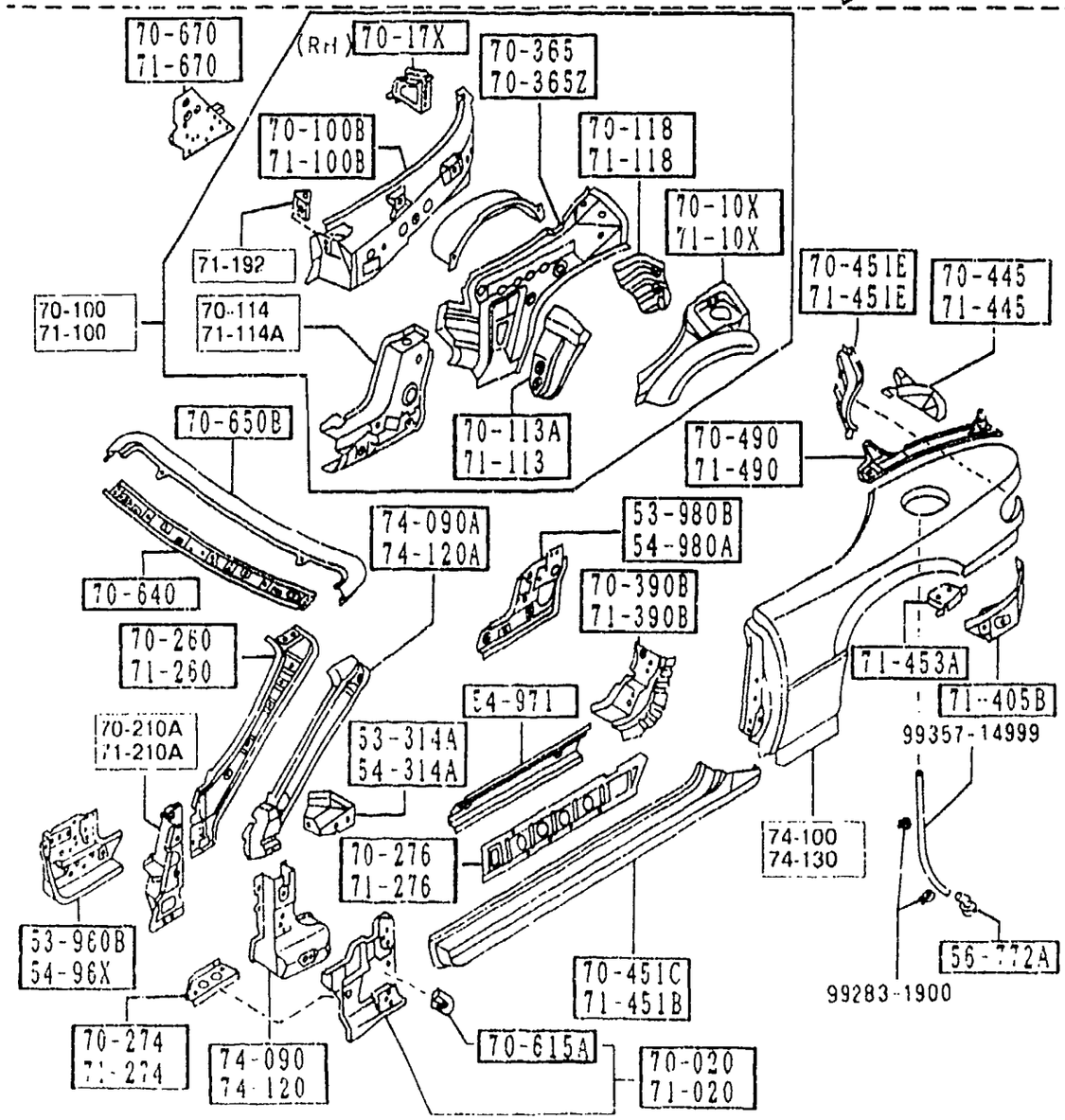
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
50-841G F044-51-912	1	GROMMET,SCREW			
53-400 NA01-54-400G	1	PANEL,DASH-LOWER			
53-510 NA01-53-510D	1	PANEL,DASH-UPPER			
53-781 0305-53-781A	1	BRACKET,GRILLE-C			
54-480 NA01-54-480	2	JUNCTION,DASH SIDE-S.SILL			
56-355 G211-56-355A	4	GROMMET,SCREW-BAFFLE			
56-511A NA01-56-35X	1	COVER,BAFFLE-COWL PANEL			
56-724 H260-56-724	1	CLIP'B',WIRE-BONNET			
68-865 B040-68-865A	2	FASTENER			
00	INT-	NA0 NA1 NA2 BLACK			
70-620A NA01-70-62YB	1	PANEL,COWL-FRONT			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
53-314A NA01-70-071A	1	BRACKET(R),INST.			
53-960B NA01-53-960B	1	SILL(FRT.R),SIDE-INNER			
53-980B NA01-53-980B	1	SILL(RR.R),SIDE-INNER			
54-314A NA01-71-071A	1	BRACKET(L),INST.			
54-96X NA01-54-96XB	1	SILL(FRT.L),SIDE-INNER			
54-971 NA01-54-971	2	SILL(C),SIDE-INNER			
54-980A NA01-54-980B	1	SILL(RR.L),SIDE-INNER			
56-070 NA01-56-39Y	1	PANEL,BULK HEAD			
NA01-70-51Y	1				
56-772A NA01-56-772	1	PIPE,DRAIN-RR FENDER			
56-991A NA01-56-971	1	COVER,SERVICE HOLE			
68-6N1 NA01-68-6N1	1	INSULATOR,BALK HEAD PANEL			
70-020 NA01-70-020B	1	PANEL(R),COWL SIDE			
70-10X NA01-70-111A (NA01-70-111B)	1	PANEL(R),QUARTER			-1330
NA01-70-111B	1				1330-1929

1330 NA35**-232705
1929 NA35**-303526

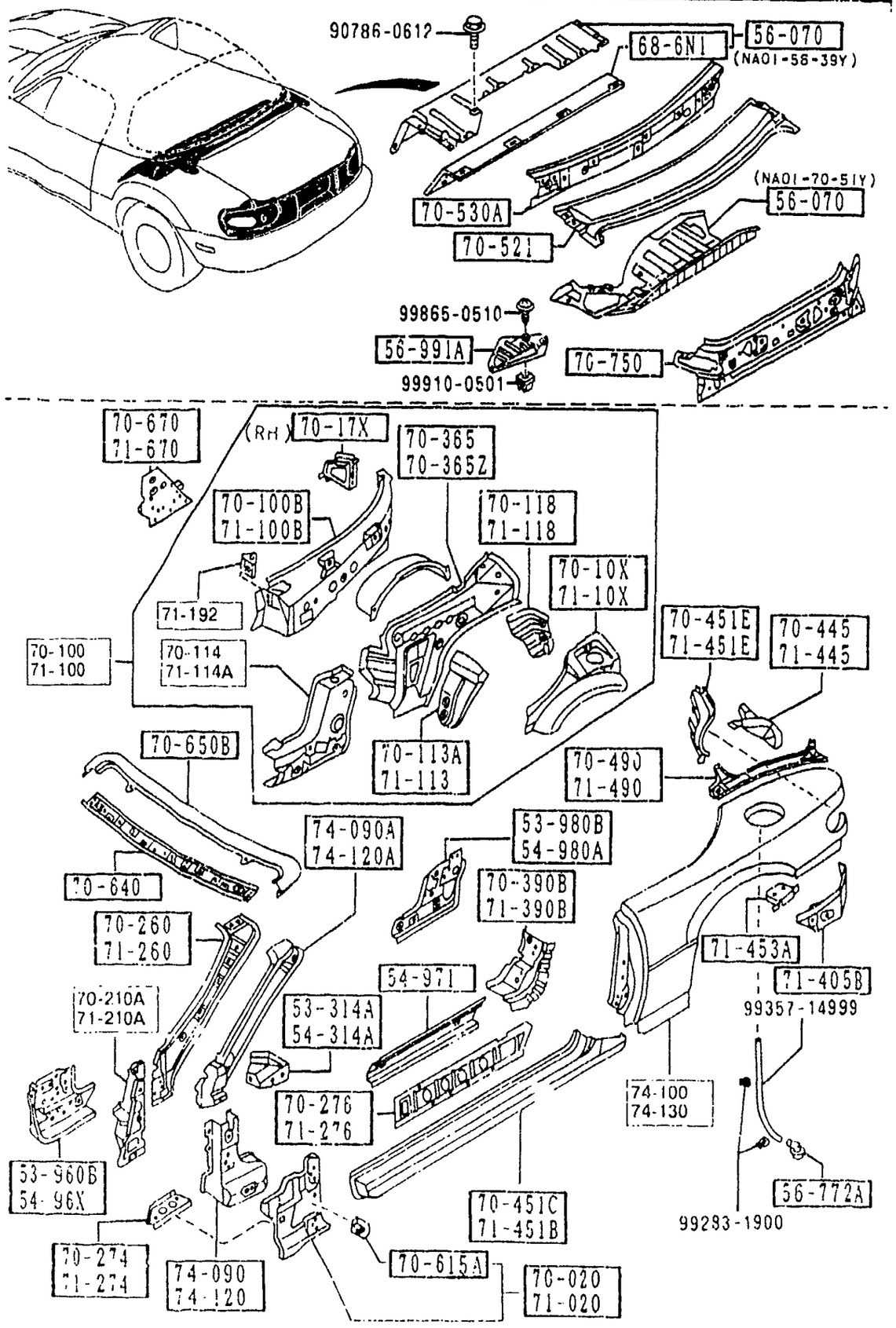




PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D AN(NA01-70-111C)					
NA01-70-111C	1				1929-
+----------+					
| 70-100 |		PANEL(R),QUARTER			
+----------+					
NA01-70-100G A (NA01-70-100H)	1				-1330
NA01-70-100H	1				1330-1801
NA01-70-100K AN(NA01-70-100L)	1				1801-1929
NA01-70-100L	1				1929-
+----------+					
| 70-100B |		PANEL(R),INSIDE			
+----------+					
NA01-70-19XB	1				
+----------+					
| 70-113A |		PLATE(R),SEAL			
+----------+					
NA01-70-11Z	1				
+----------+					
| 70-114 |		PLATE(R),END			
+----------+					
NA01-70-12XA	1				
+----------+					
| 70-118 |		PROTECTOR(R),SPLASH			
+----------+					
NA01-70-15X	1				
+----------+					
| 70-17X |		BRKT,BATT.CLAMP-QTR PANEL			
+----------+					
NA01-70-17XA	1				
+----------+					
| 70-210A |		PILLAR(R),HINGE			
+----------+					
NA01-70-230	1				
+----------+					
| 70-260 |		PILLAR(R),FRT.-INNER			
+----------+					
NA01-70-240B	1				
+----------+					
| 70-274 |		GUSSET(R),SIDE SILL OUTER			
+----------+					
NA01-70-274	1				
+----------+					
| 70-276 |		REINF.(R).SIDE SILL			
+----------+					
NA01-70-275	1				
+----------+					
| 70-365 |		REINF.(R),BELT LINE-C.PIL			
+----------+					
NA01-70-116A	1				

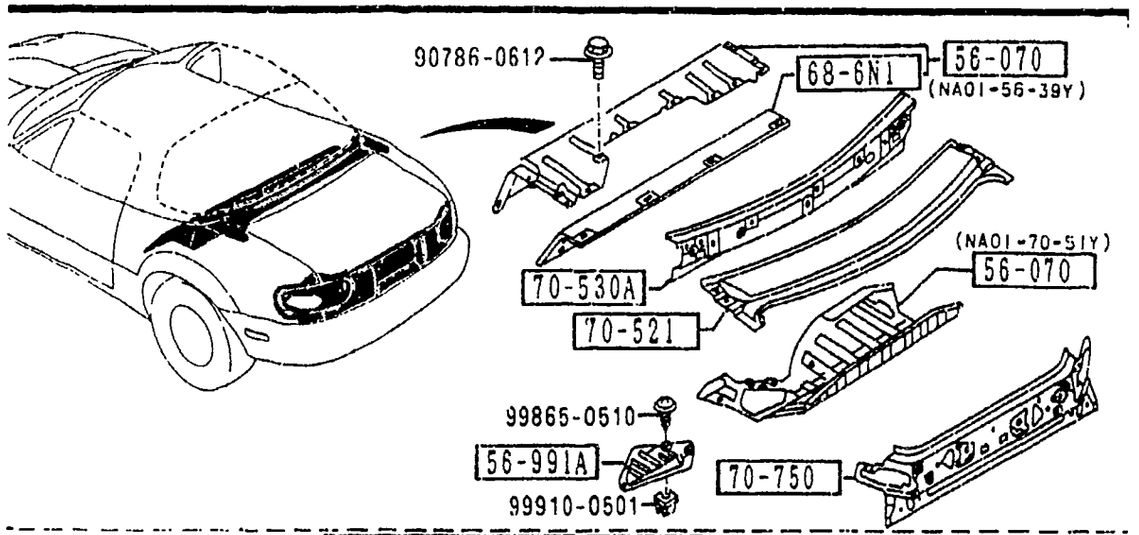
1330 NA35**-232705
1801 NA35**-300014
1929 NA35**-303526

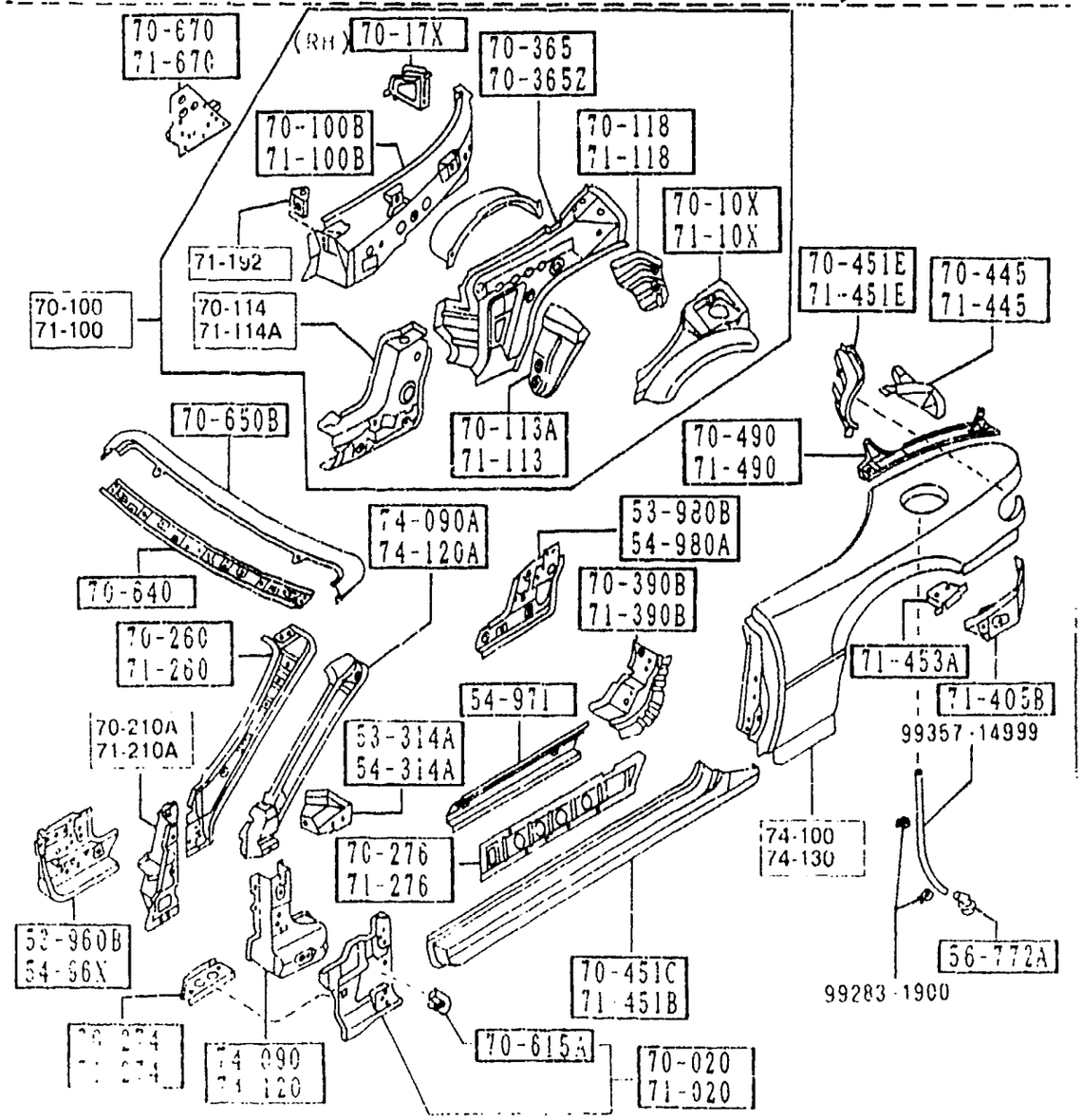
5340 SIDE PANELS



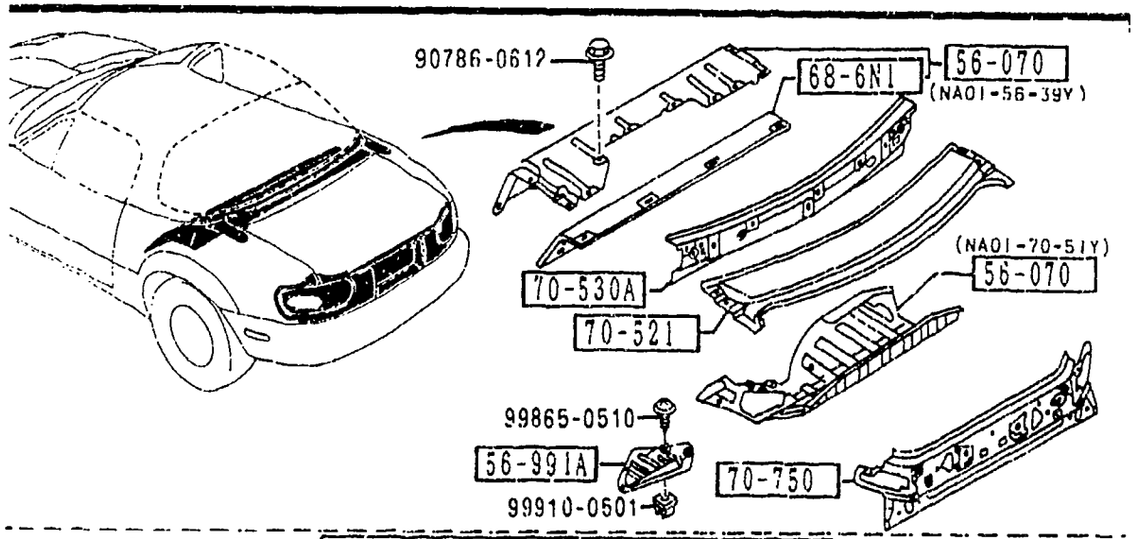
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
70-365Z NA01-71-116B	1	REINF.(L),BELT LINE-C.PIL			
70-390B NA01-70-460	1	REINF.(R),STRIKER			
70-445 NA01-70-445	1	GUSSET(R),REAR FENDER-RR			
70-451C NA01-70-270B	1	SILL(R),SIDE OUT.			
70-451E NA01-70-J30	1	HOUSING(R),LAMP-RR FENDER			
70-490 NA01-70-440A	1	RAIL(R),RAIN-REAR			
70-521 NA01-70-521A	1	PANEL,REAR DECK			
70-530A NA01-70-530A	1	MEMBER,REAR DECK			
70-615A B092-70-070A	2	BRACKET,FENDER			
70-640 NA01-70-640	1	HEADER,FRONT			
70-650B NA01-70-650	1	HEADER,FRONT-UPPER			
70-670 NA01-70-670	1	PLATE(R),CLOSING-QTR PANEL			
70-750 NA01-70-750F G (NA01-70-750G)	1	PANEL,REAR END			-0801
NA01-70-750G	1				0801-

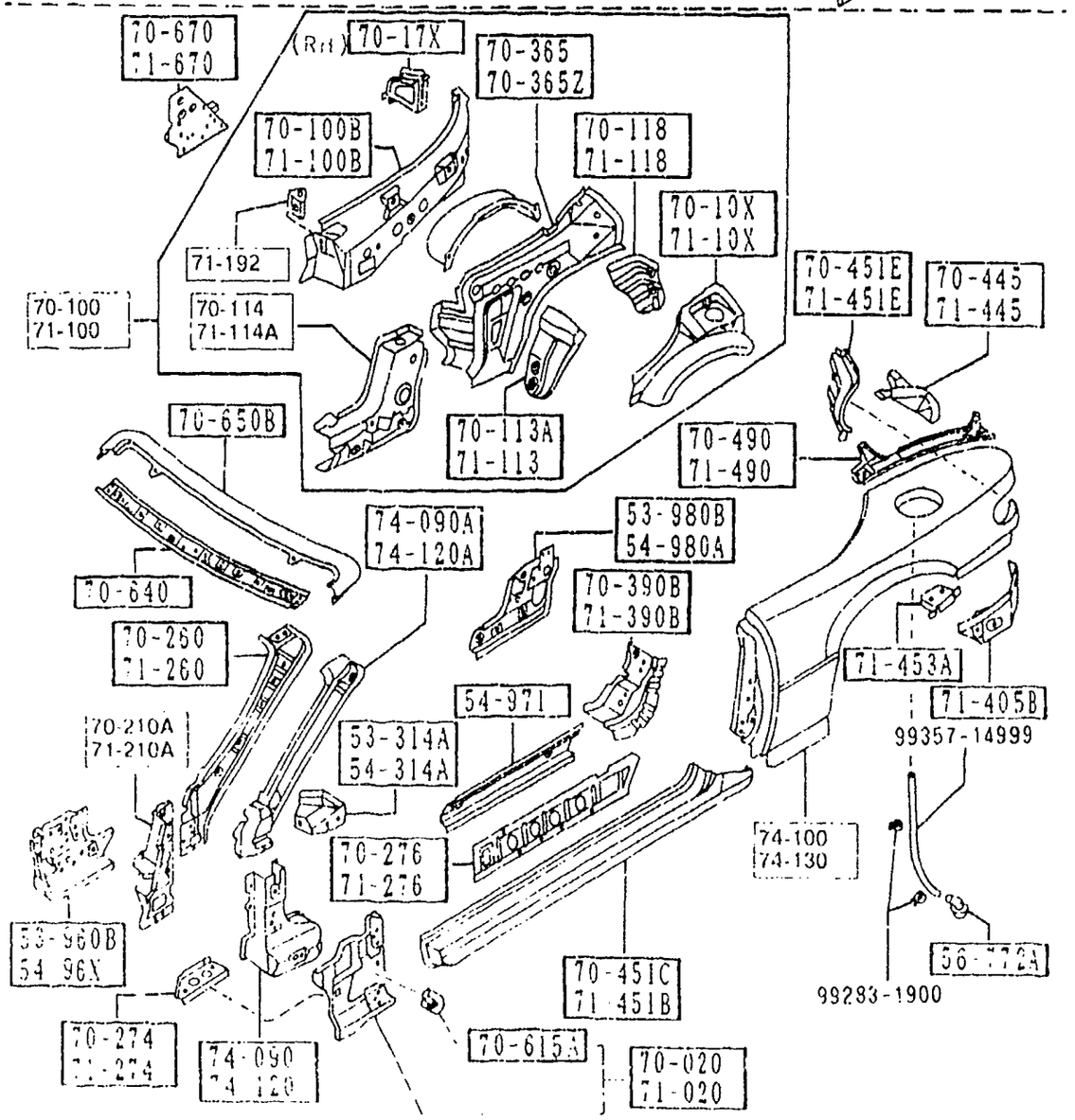
0801 NA35**-205068





PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
71-020		PANEL(L),COWL SIDE			
NA01-71-020B	1				
71-10X		PANEL(L),QUARTER			
NA01-71-11XA	1				
71-100		PANEL(L),QUARTER			
NA01-71-100G	1				
71-100B		PANEL(L),INSIDE			
NA01-71-19XB	1				
71-113		PLATE(L),SEAL			
NA01-71-11Z	1				
71-114A		JUNCTION(L),CORNER-Q/PANE			
NA01-71-12XA	1				
71-118		PROTECTOR(L),SPLASH			
NA01-71-15XA	1				
71-192		BRKT,CAP-QUARTER PANEL			
NA01-71-192	2				
71-210A		PILLAR(L),HINGE			
NA01-71-230	1				
71-260		PILLAR(L),FRT.-INNER			
NA01-71-240B	1				
71-274		GUSSET(L),SIDE SILL OUTER			
NA01-71-274	1				
71-276		REINF.(L),SIDE SILL			
NA01-71-275	1				
71-390B		REINF.(L),STRIKER			
NA01-71-460	1				
71-405B		PANEL(L),RR FENDER-LOWER			
NA01-71-421	1				

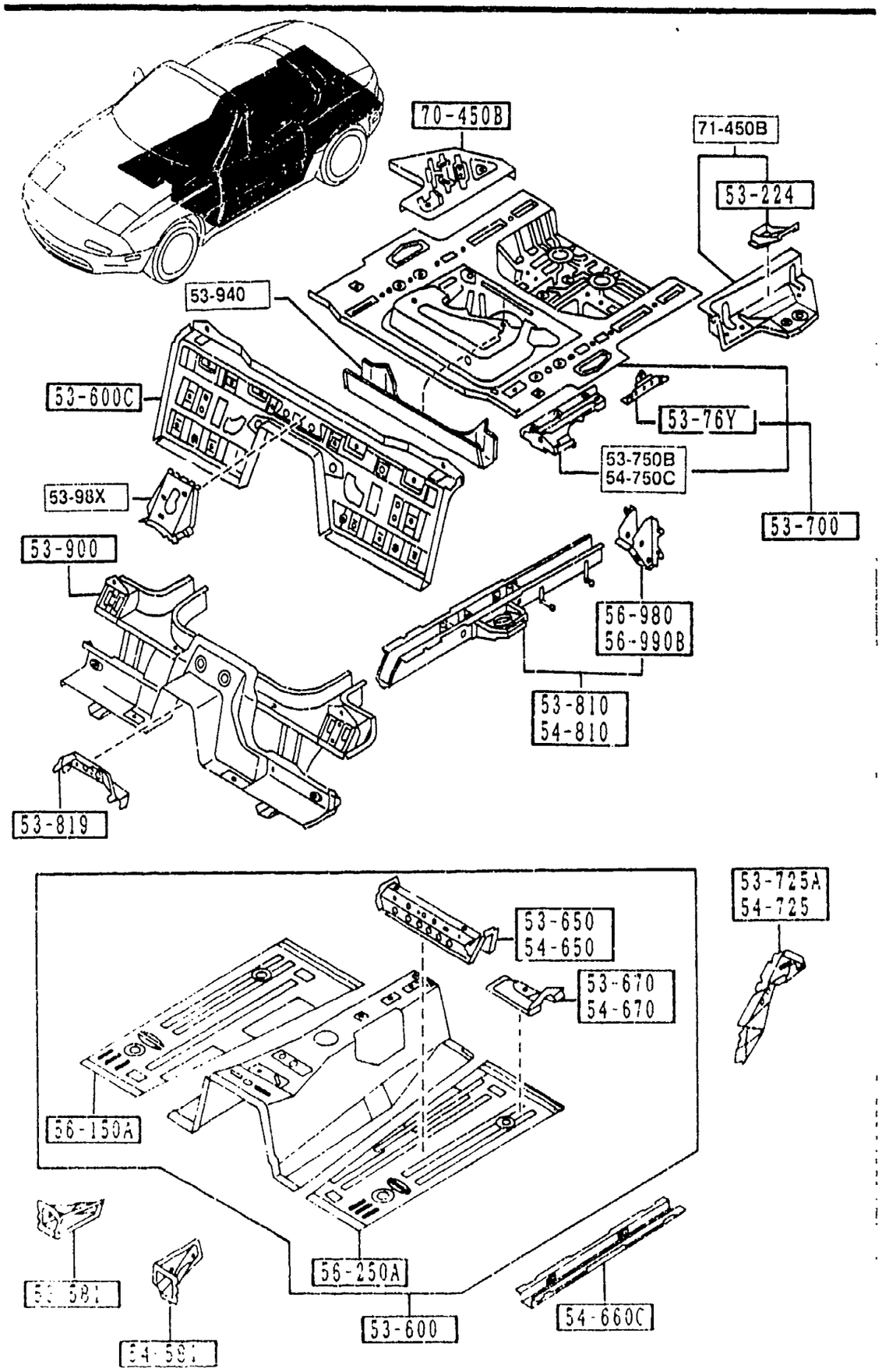




PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
71-445		GUSSET(L),REAR FENDER-RR			
NA01-71-445	1				
71-4518		SILL(L),SIDE OUT.			
NA01-71-270B	1				
71-451E		HOUSING(L),LAMP-RR FENDER			
NA01-71-J30	1				
71-453A		BRKT(L),TRK.BOARD-FENDER			
NA01-71-453	1				
71-490		RAIL(L),RAIN-REAR			
NA01-71-440A	1				
71-670		PLATE(L),CLOSING-QTR PANEL			
NA01-71-670	1				-1801
NA01-71-670B	1				1801-
74-090		PILLAR(R),HINGE-OUT.			
NA01-70-280B	1				
74-090A		PILLAR(R),FRONT-CUT.			
NA01-70-210	1				
74-100		PANEL(R),FENDER-REAR			
NAY1-70-400A AN(NAY1-70-400B)	1				-1101
NAY1-70-400B	1				1101-
74-120		PILLAR(L),HINGE-OUT.			
NA01-71-280B	1				
74-120A		PILLAR(L),FRONT-OUT.			
NA01-71-210	1				
74-130		PANEL(L),FENDER-REAR			
NAY1-71-400A AN(NAY1-71-400B)	1				-1101
NAY1-71-400B	1				1101-

1101 NA35**-223636
1801 NA35**-300014

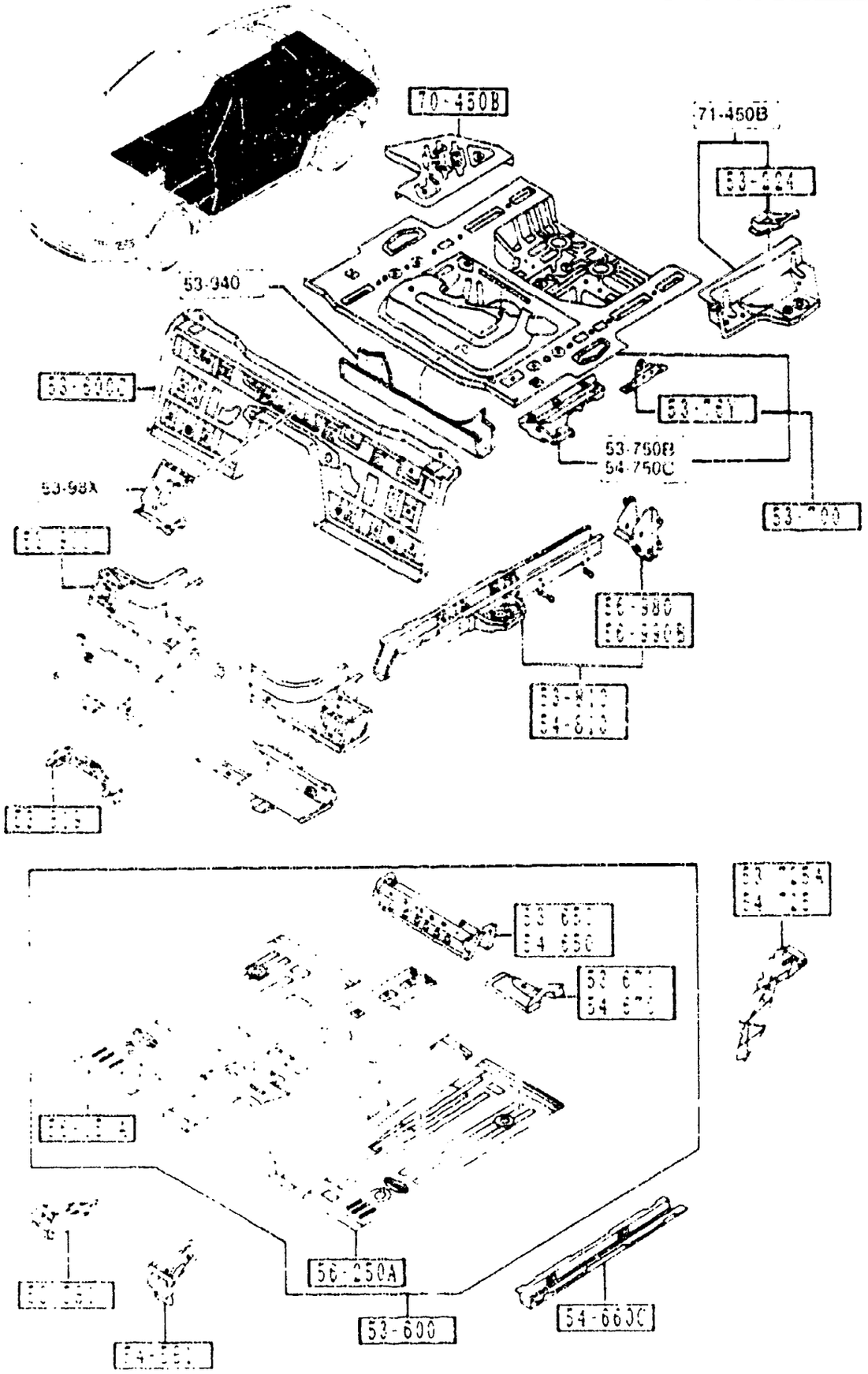
5370 -1 FLOOR PANELS



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM 1)
53-224		BRACKET,JACK			
B455-53-750C	1				
53-581		JUNCTION(R),FRT. FLOOR			
NA01-53-482	1				
53-600		PAN,FLOOR-FRONT			
NA01-53-600A	1				
53-600C		PAN,FLOOR-CENTER			
NA01-53-720	1				
53-650		MEMBER NO.2(R),CROSS-FLOOR			
NA01-53-650	1				
53-670		BRKT(R),SEAT-F.FLOOR PAN			
NA01-53-670	1				
53-700		PAN,FLOOR-REAR			
NA01-53-710B	1				
53-725A		GUSSET NO.3(R),C.FLOOR PAN			
NA01-53-725A	1				
53-750B		PLATE(R),SIDE-REAR FLOOR			
NA01-53-750	1				
53-761		PLATE,NUT-TRUNK FLOOR PAN			
NA01-53-760	2				
53-810		FRAME(R),REAR SIDE			
NA01-53-810D	1				0A01
AN(NA01-53-810E)					
NA01-53-810E	1				0A01 1109
AN(NA01-53-810F)					
NA01-53-810F	1				1110
53-819		BRACKET,PARKING CABLE-FLOOR			
NA01-53-819	1				
53-900		MEMBER NO 3.CROSS			

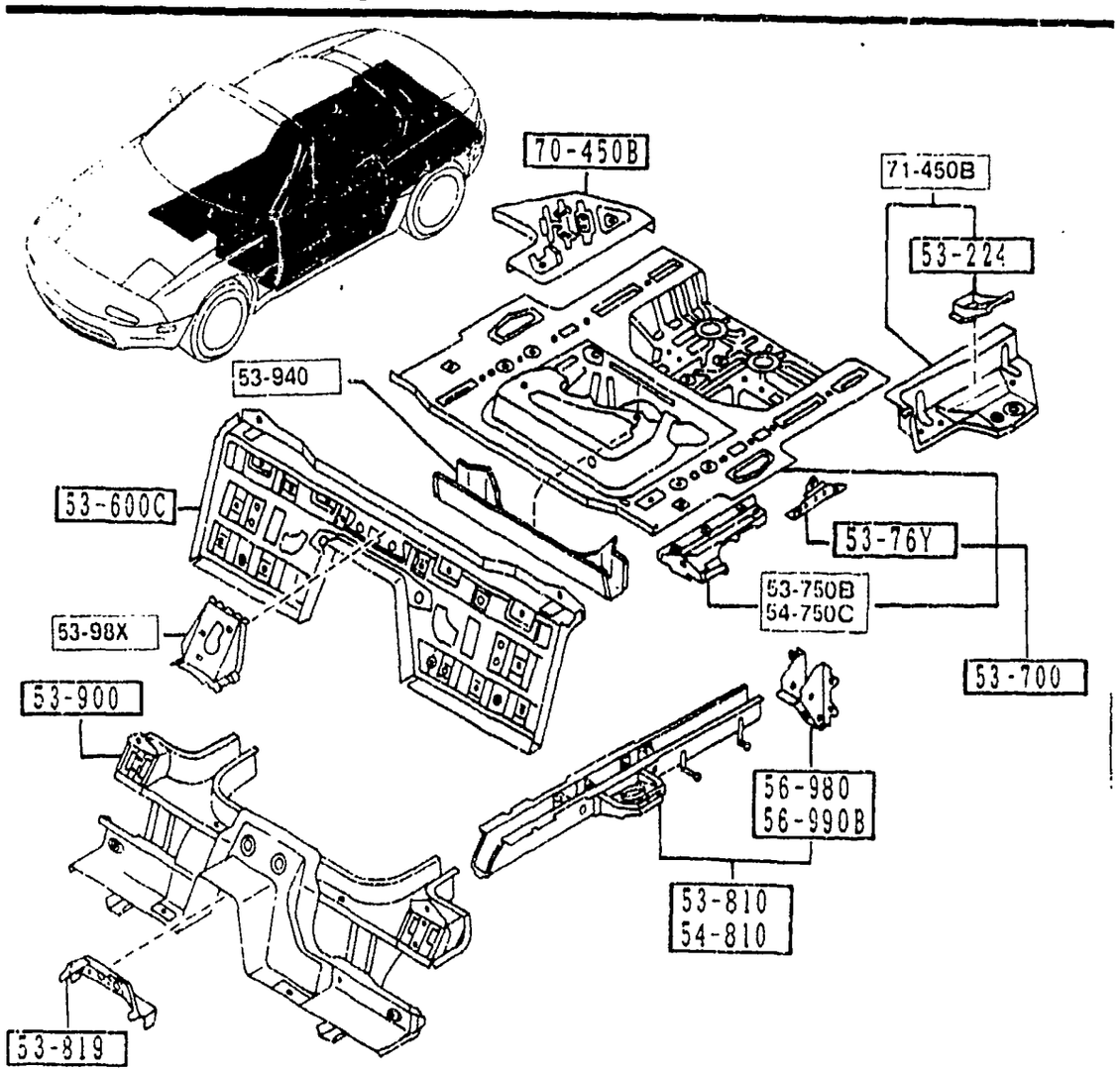
0A01 NA35**-213219
1110 NA35**-224235

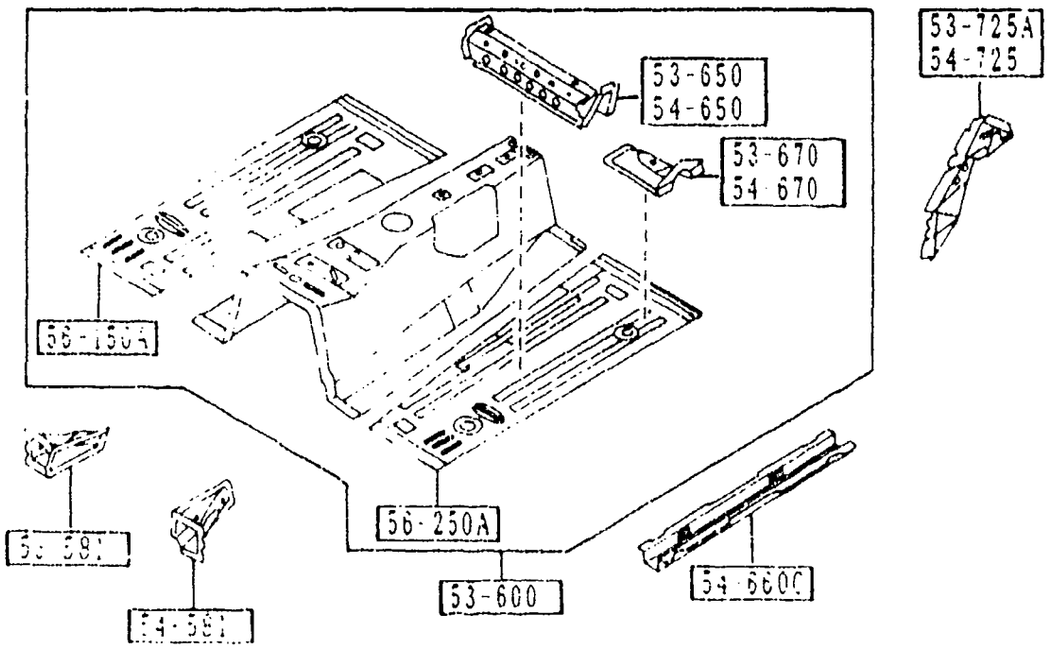
5370 -2 FLOOR PANELS



PART NO.	QTY	MODEL DESCRIPTION	MODEL APPLICATION	MFG NO. APPLICATION	REMARKS
CONT'D					
NA01-53-900	1				-1801
A (NA01-53-900B)					
NA01-53-900B	1				1801-
53-940		MEMBER NO.4,CROSS			
NA01-53-931	1				
53-98X		GUSSET,FRONT FLOOR PAN			
NA01-53-880	1				-1601
NA01-53-880A	1				1801-
54-581		JUNCTION(L),FRT. FLOOR			
NA01-54-482	1				
54-650		MEMBER NO.2(L),CROSS-FLOOR			
NA01-54-650	1				
54-660C		FRAME,FRONT-FRT FLOOR PAN			
NA01-54-660	2				-1801
A (NA01-54-660B)					
NA01-54-660B	2				1801-
54-670		BRKT(L),SEAT-F,FLOOR PAN			
NA01-54-670	1				
54-725		GUSSET NO.3(L),C FLOOR PAN			
NA01-54-7254	1				
54-750C		PLATE(L),SIDE-REAR FLOOR			
NA01-54-750	1				
54-810		FRAME(L),REAR SIDE			
NA01-54-810D	1				0A01
AN(NA01-54-810E)					
NA01-54-810E	1				0A01 1110
AN(NA01-54-810F)					
NA01-54-810F	1				1110-
56-150A		PAN(R),FLOOR			
NA01-53-602	1				

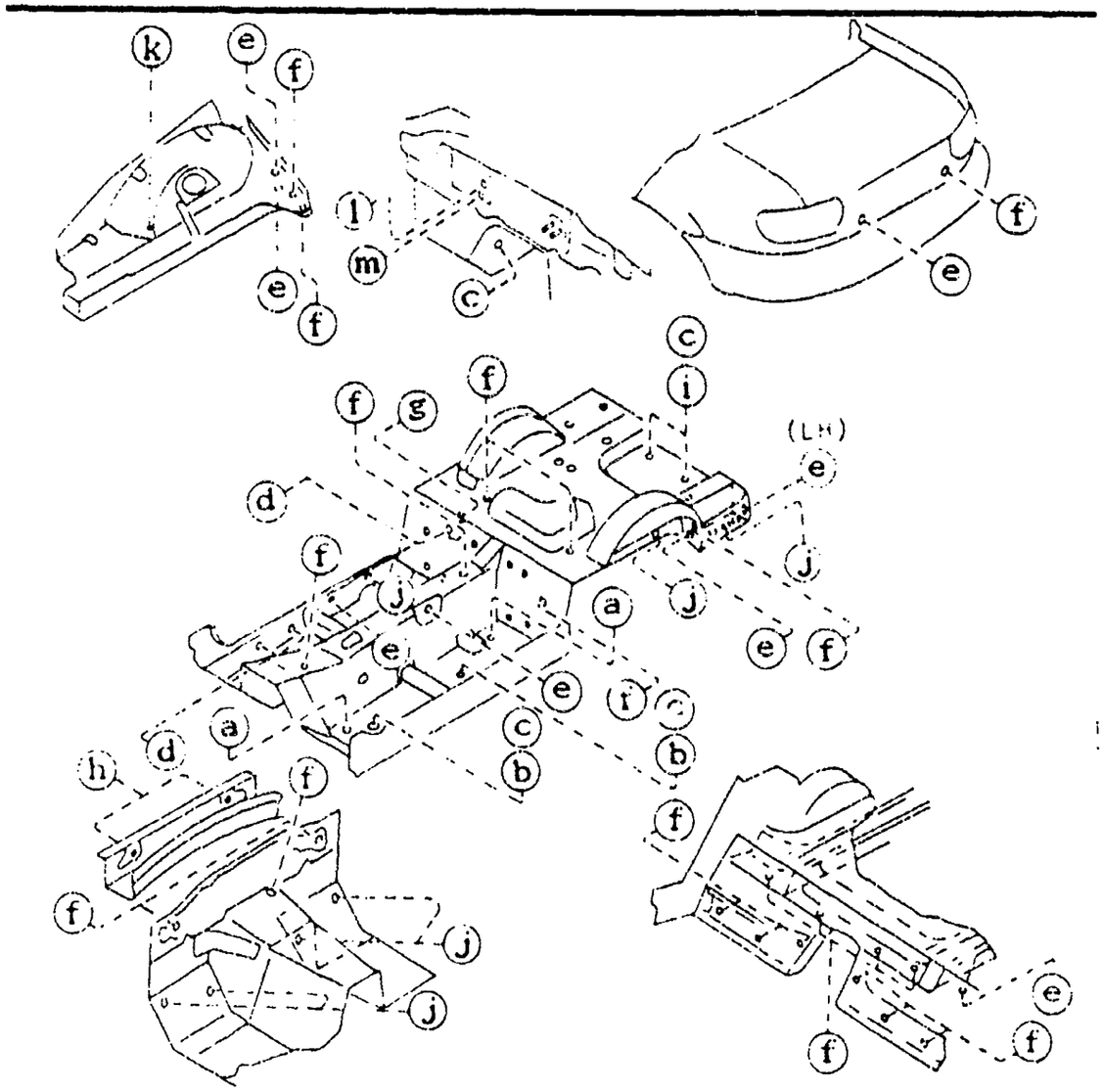
0A01 NA35**-213219
1110 NA35**-224235
1801 NA35**-300014

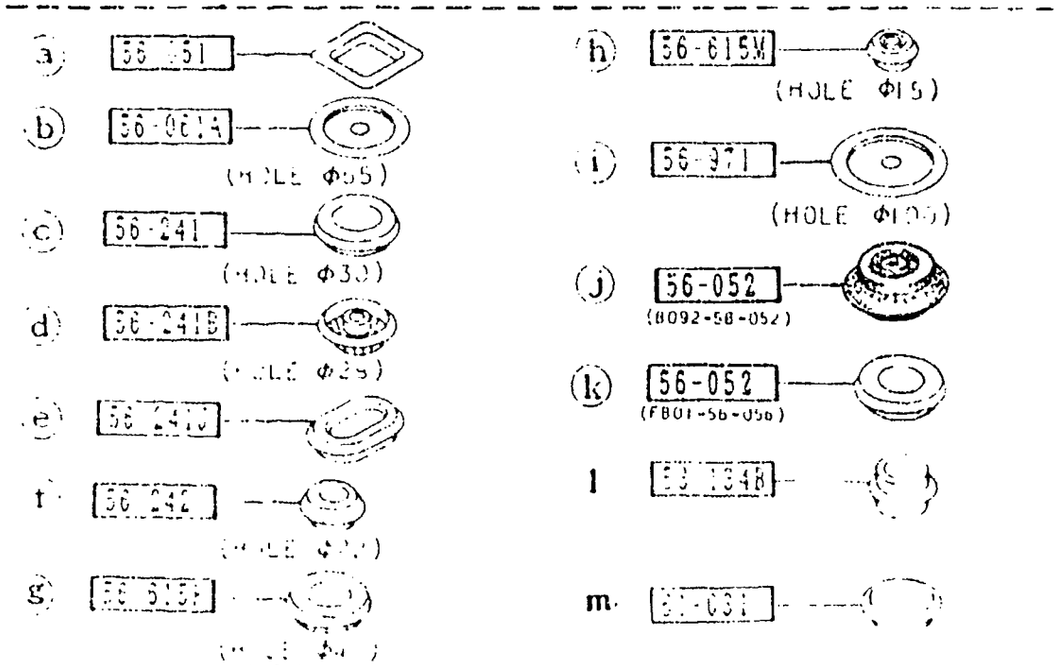




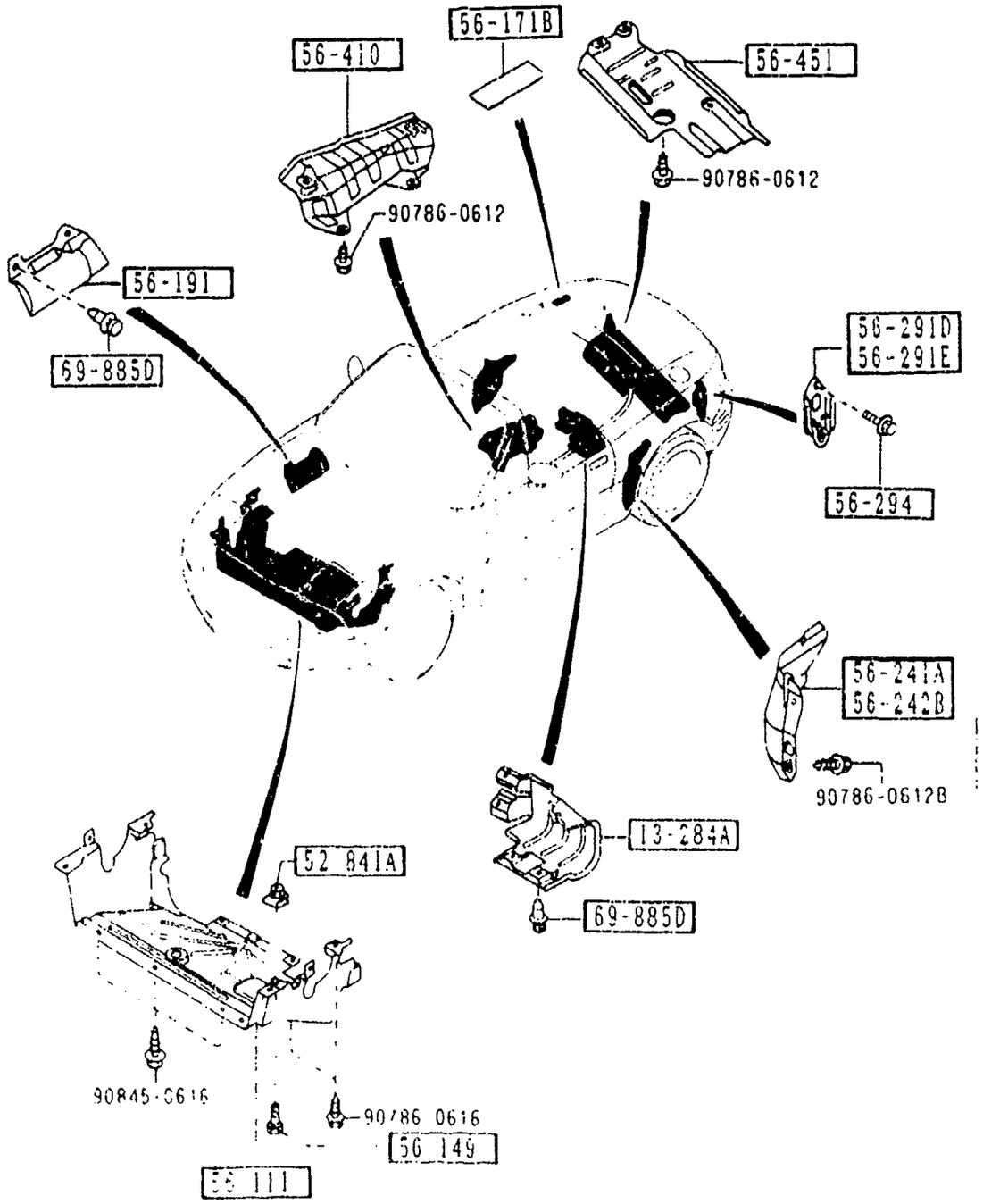
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
56-250A		PAN(L),FLOOR			
NA01-54-610	1				
56-980		BRKT(R),BUMPER-RR SKIRT			
NA01-53-830C	1				
56-990B		BRKT(L),BUMPER-RR SKIRT			
NA01-54-830C	1				
70-450B		PANEL(R),FLOOR SIDE			
NA01-53-740B G (NA01-53-740C)	1				-1801
NA01-53-740C	1				1801-
71-450B		PANEL(L),FLOOR SIDE			
NA01-54-740A	1				

1801 NA35**-300014



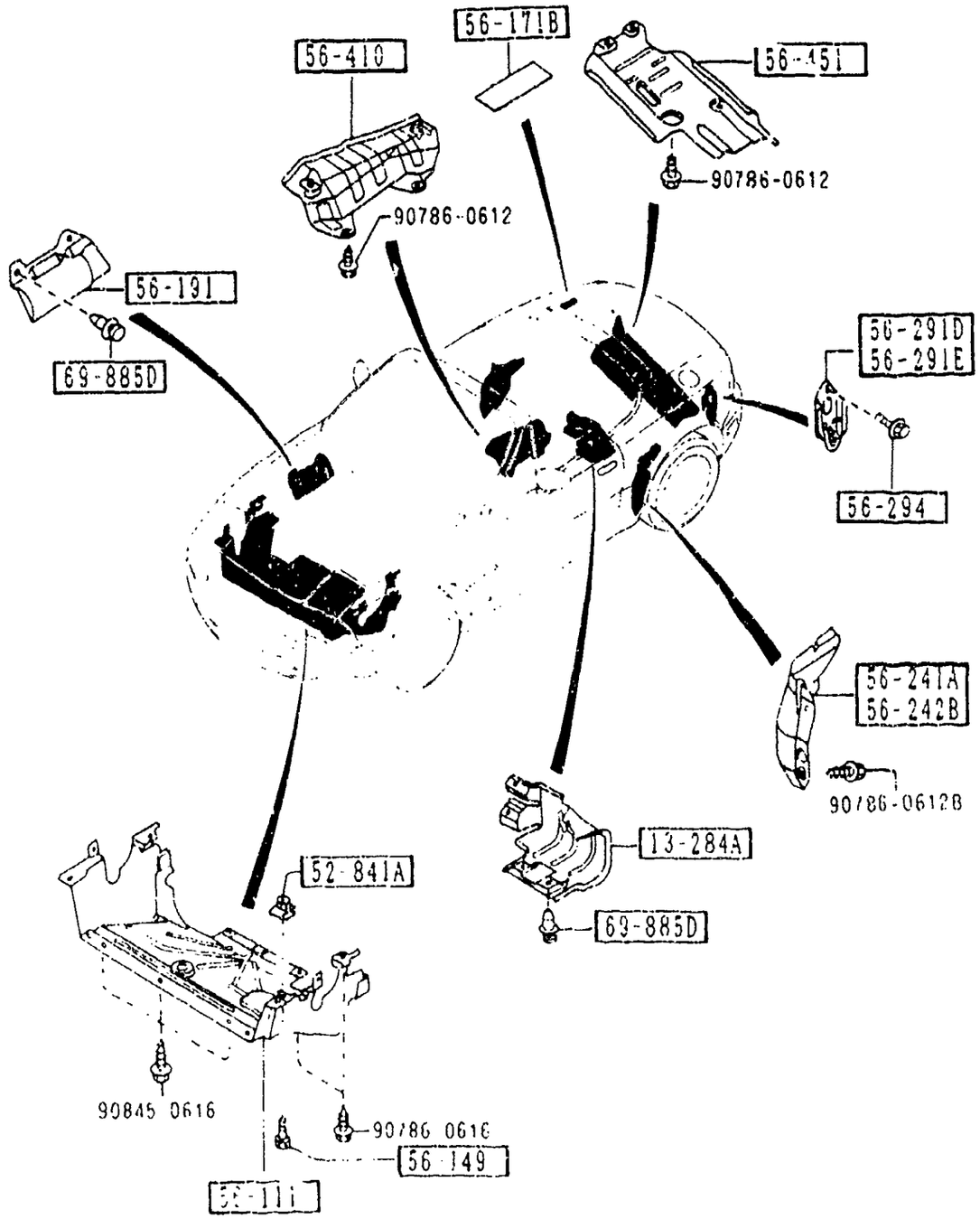


PART NO.	QTY	MODEL·DESCRIPTION	MODEL·DESCRIPTION	MODEL·DESCRIPTION	FROM TO
53-134B		RUBBER,DUST SEAL			
0187-53-134	1				
56-051		COVER,HOLE			
1011-56-051	4				
56-052		PLUG,DRAIN			
B092-56-052	9	D=12MM			
FB01-56-056	4				
56-061A		COVER,HOLE			
8545-56-052	4				
56-241		PLUG,DRAIN			
0118-56-241	7				
56-241B		PLUG			
B001-56-051	6				
56-241J		PLUG,DRAIN			
8477-56-241	9				
56-242		PLUG,DRAIN			
011*-56-242B	19				
56-615F		PLUG,DRAIN			
0208-56-615	2				
56-615M		PLUG,DRAIN			
NA01-56-051	4				
56-971		COVER,HOLE			
8545-56-053	2				
61-031		PLUG,HOLE			
1708-61-031	1				



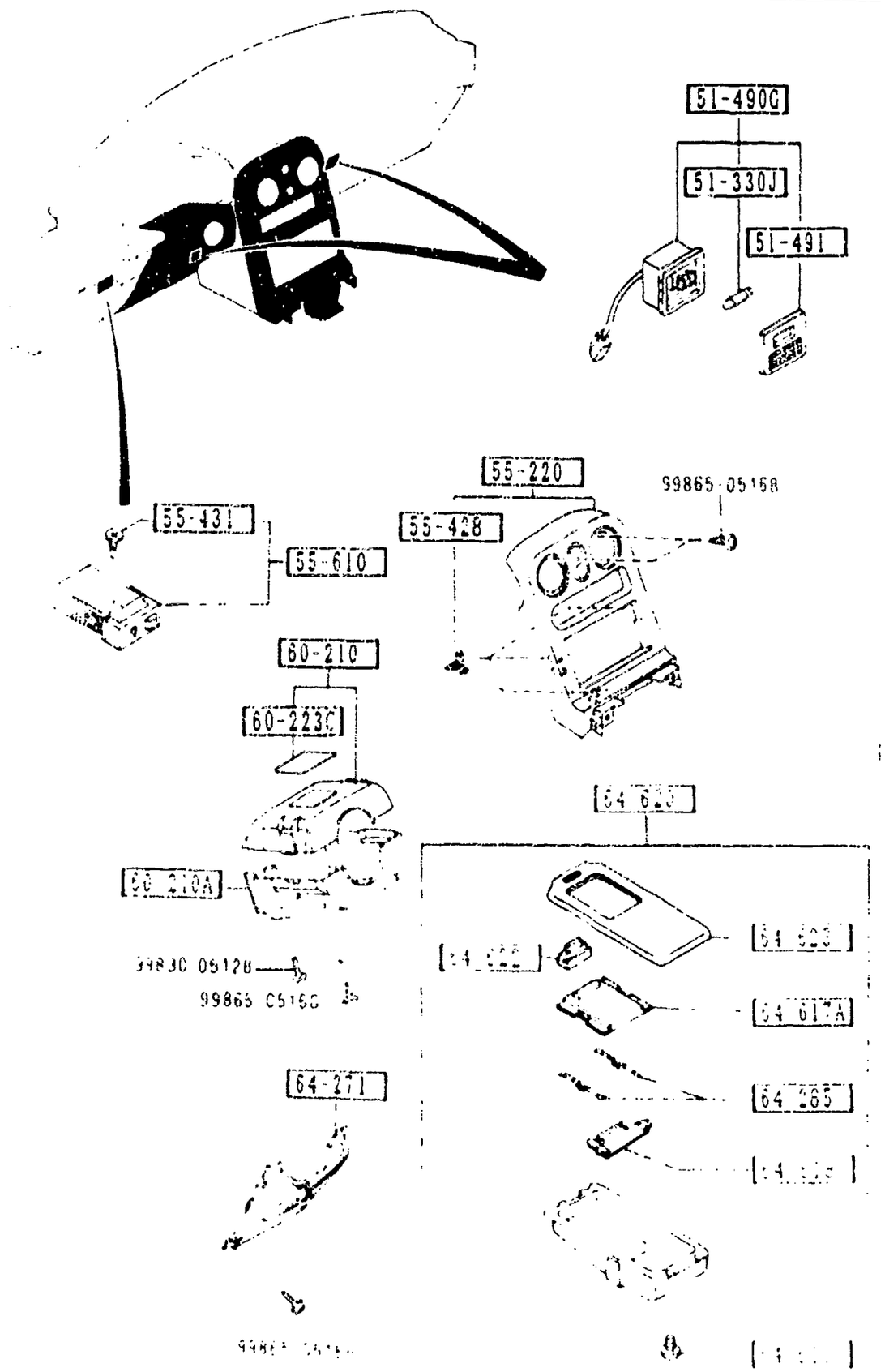
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
13-284A		COVER,FUEL FILTER			
NA01-56-241B	1				
52-841A		NUT,CLIP			
B455-56-135	1				
56-111		COVER,UNDER			
NA01-56-111C	1				
56-149		SCREW,TAPPING-MUD GUARD			
B455-56-149	1				
56-171B		PROTECTOR(R),RR FENDER			
NA01-56-171A	1				
56-191		SHIELD,SPLASH			
NA01-56-112	1				
56-241A		SHIELD(R),SPLASH-REAR			
NA01-56-311	1				-0921
AN(NA01-56-311A)					
NA01-56-311A	1				0921-
56-242B		SHIELD(L),SPLASH-REAR			
NA01-56-321	1				-0921
AN(NA01-56-321A)					
NA01-56-321A	1				0921-
56-291D		HOOK(R),TIE DOWN			
NA01-56-29XC	1				
56-291E		HOOK(L),TIE DOWN			
NA01-56-290C	1				
56-294		SCREW,TIE DOWN HOOK			
NA01-56-294	4				
56-410		INSULATOR,HEAT FRONT			
NA01-56-411	1				
56-451		INSULATOR			

0921 NA35**-211544



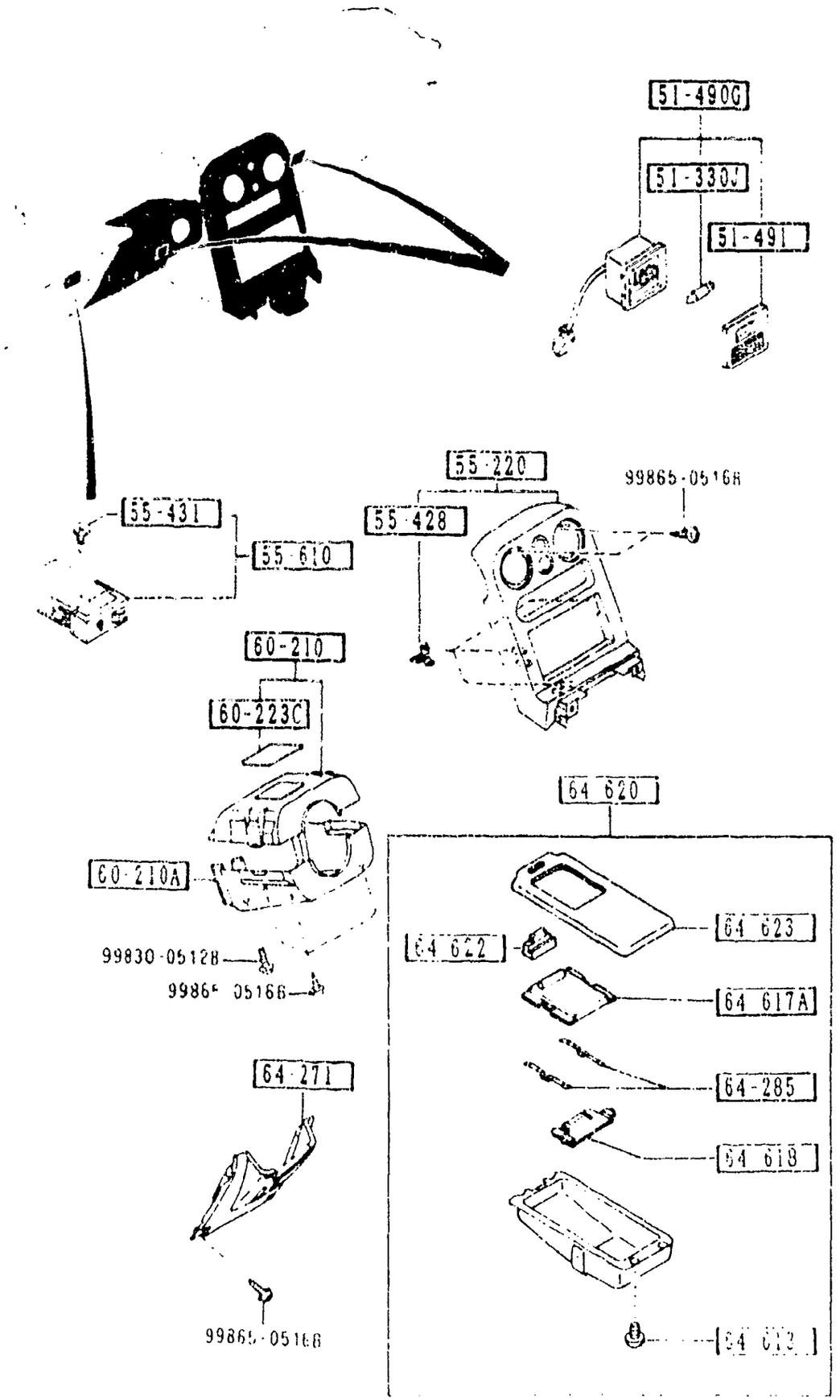
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
CONT'D					
NA01-56-451	1				
69-885D		FASTENER			
NA01-56-145	7				

5500 -1 DASHBOARD EQUIPMENTS



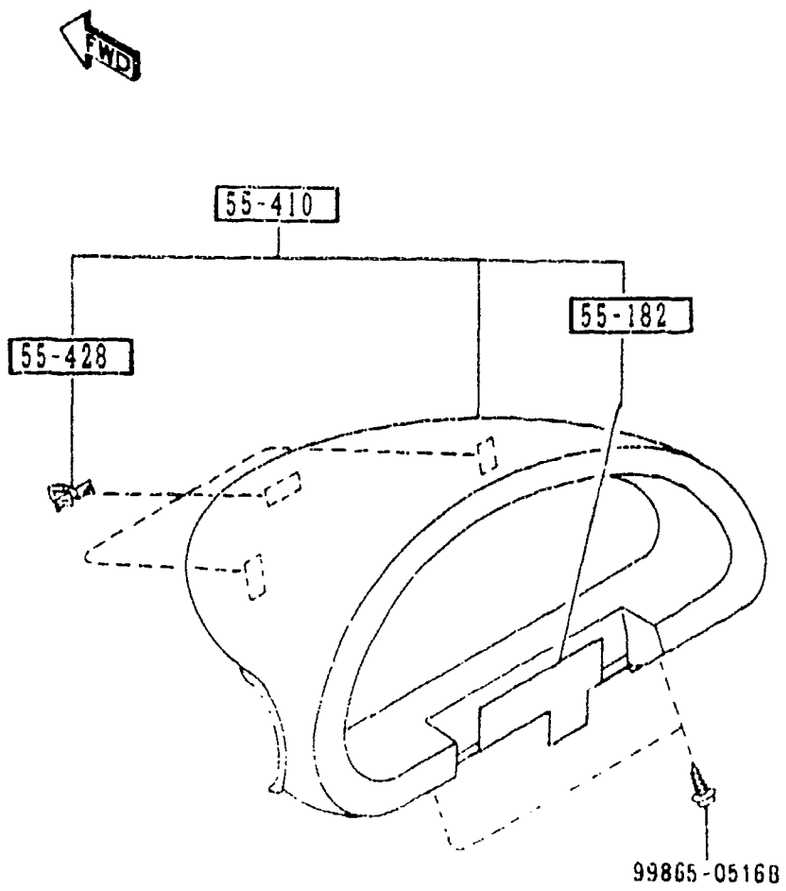
PART NO.	QTY	MODEL/RESTRICTION	MODEL RESTRICTION	MODEL RESTRICTION	FROM TO
51-330J		BULB			
99701-5050	2	12V 5W			
51-490G		LAMP,PERSONAL			
NA01-51-490B	2				
00	INT-	NA0 NA1 NA2 BLACK			
51-491		LENS,PERSONAL LAMP			
H197-51-491A	2				
00	INT-	NA0 NA1 NA2 BLACK			
55-220		PANEL,CENTER			
NA01-55-210A	1				-1501
A (NA01-55-210B)					
00	INT-	NA0 NA1 BLACK			
NA01-55-210B	1				1501-
00	INT-	NA0 NA1 NA2 BLACK			
55-428		SPRING,METER HOOD			
GJ21-55-428	3				
55-431		BULB,RESISTOR			
BR70-55-431	1				
55-610		RESISTOR,PANEL LIGHT			
BR70-55-490	1				
60-210		COVER,COLUMN-UPPER			
NA01-60-220	1				
00	INT-	NA0 NA1 NA2 BLACK			
60-210A		COVER,COLUMN-LOWER			
NA01-60-230A	1				
00	INT-	NA0 NA1 NA2 BLACK			
60-223C		CAP,COLUMN COVER			
NA01-60-223	1				
00	INT-	NA0 NA1 NA2 BLACK			

1501 NA35** 233754



PART NO.	QTY	MODEL/DESTINATION	MODEL RESTRICTION	MODEL RESTRICTION	FROM TO
64-271		PANEL,CENTER-LOWER			
NA01-64-270C A (NA01-64-270D)	1				-1123
00 INT-		NA0 NA1 BLACK			
NA01-64-270D	1				1123-
00 INT-		NA0 BLACK			
88 INT-		NA1 TAN			
64-285		SPRING,ASHTRAY			
NA01-64-612	2				
64-613		SCREW,ASHTRAY			
NA01-64-613	4				
64-617A		LID,ASHTRAY			
NA01-64-617	1				
00 INT-		NA0 NA1 NA2 BLACK			
64-618		PLATE,ASHTRAY			
NA01-64-618	1				
64-620		TRAY,ASH			
NA01-64-610 A (NA01-64-610A)	1				-0A01
00 INT-		NA0 NA1 BLACK			
NA01-64-610A AN(NA01-64-610B)	1				0A01-0C01
00 INT-		NA0 NA1 BLACK			
NA01-64-610B	1				0C01-
00 INT-		NA0 NA1 NA2 BLACK			
64-622		LIGHT,PLATE-ASHTRAY			
NA01-64-622	1				
64-623		CASE'OUT',ASHTRAY			
NA01-64-623	1				
00 INT-		NA0 NA1 NA2 BLACK			

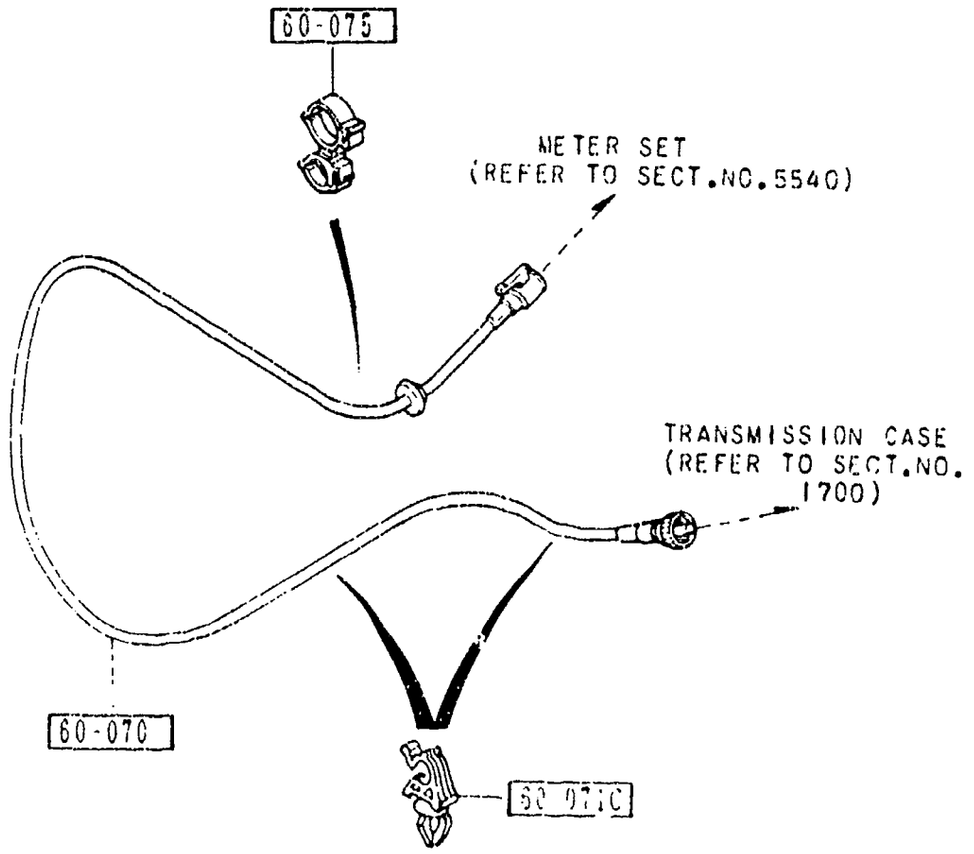
0A01 NA35**-213219
0C01 NA35**-220813
1123 NA35**-226539



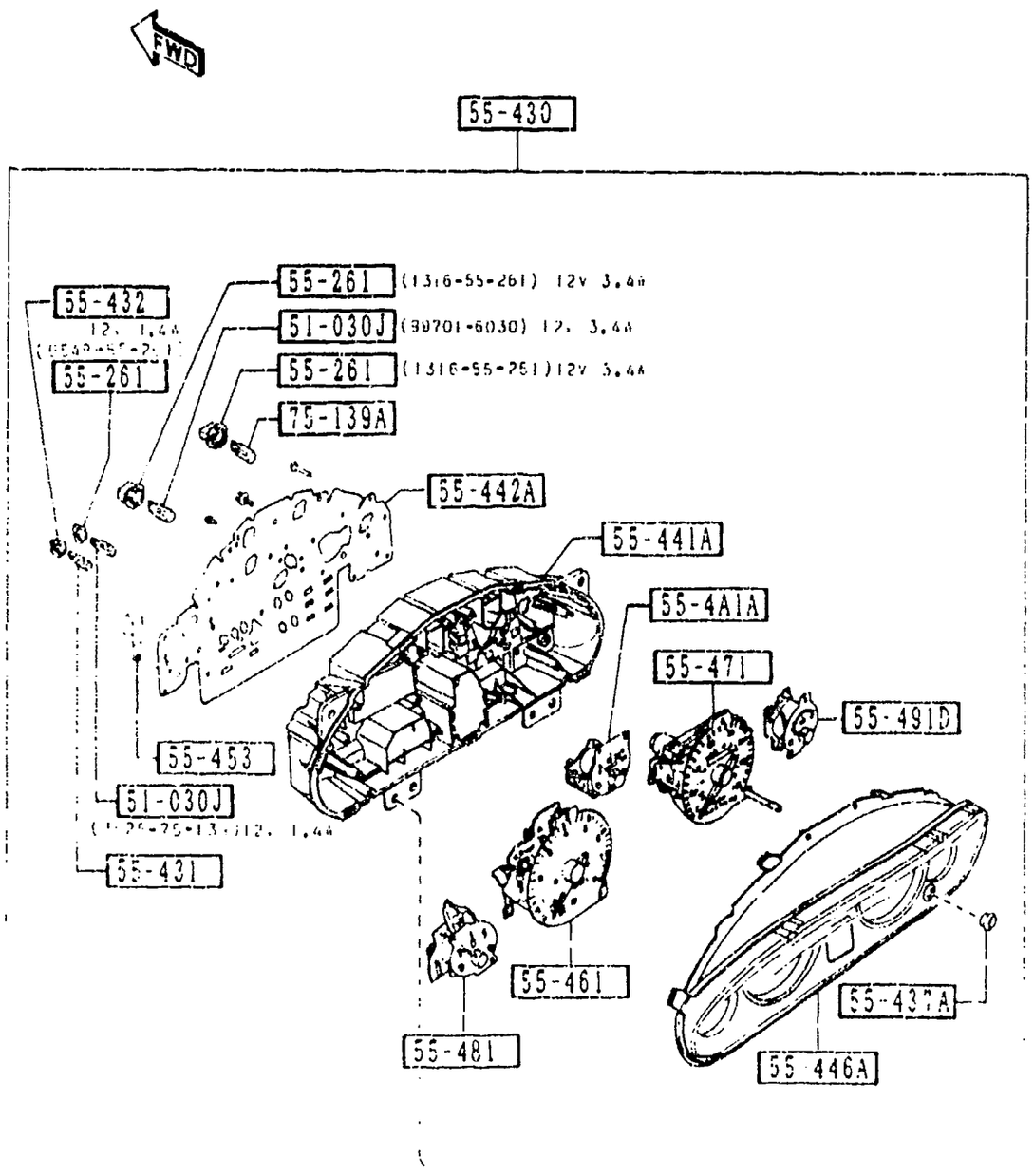
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
55-182		RUBBER,BLIND			
NA01-55-182	1				
55-410		HOOD,METER			
NA01-55-420B	1	(STD COAT BLACK/BLACK)			
00	INT-	NA0 NA1 NA2 BLACK			
NA02-55-420	1	(PROTAIN COAT BLACK/TAN)			0801-
00	INT-	NA1 NA2 BLACK			
55-428		SPRING,METER HOOD			
GJ21-55-428	3				

0801 NA35**-217311

5530 -1 * SPEEDOMETER CABLE

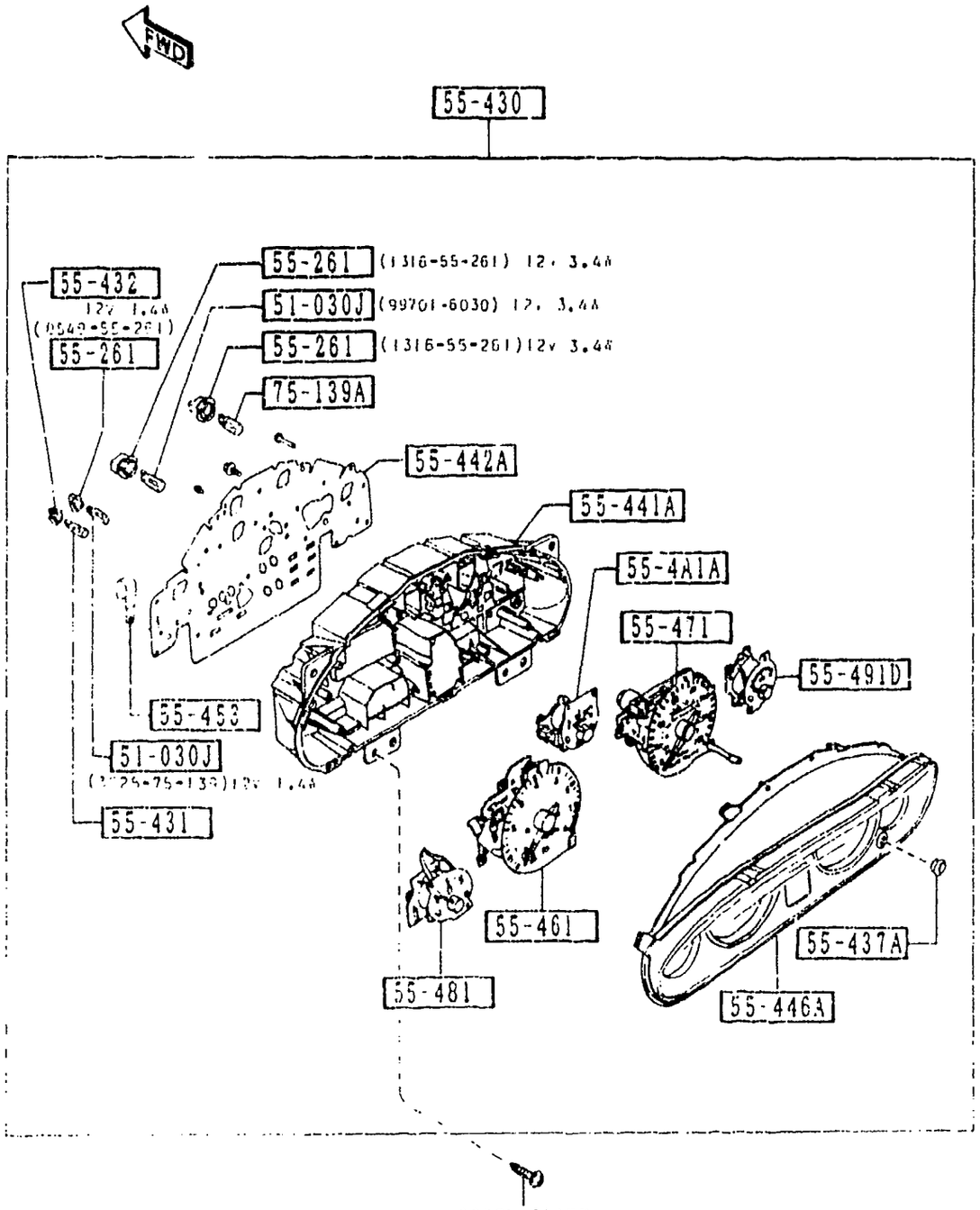


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
60-070		CABLE,SPEEDOMETER			
NA01-60-070B	1	(MT)			
NA03-60-070A	1	(AT)			
60-071C		CLIP			
NA03-60-071	2				
60-075		CLIP'A',SPEEDOMETER CABLE			
NA01-60-075	1				



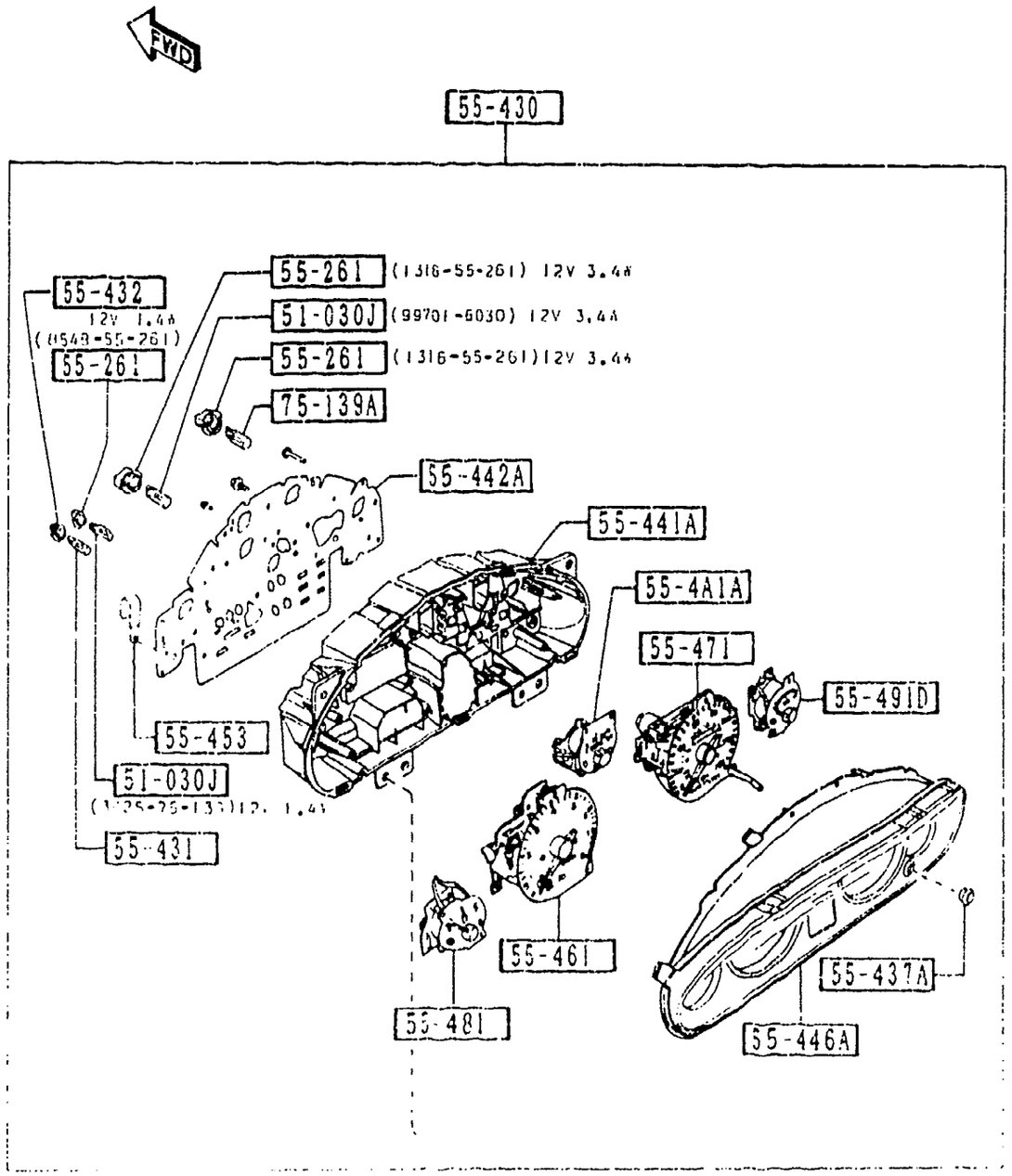
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FR M-TO
51-030J		BULB			
3625-75-139	7	12V 1.4W,FOR WARNING (MT)			
3625-75-139	8	12V 1.4W,FOR WARNING (AT)			
99701-6030	3	12V 3.4W			
55-261		SOCKET			
1316-55-261	7	12V 3.4W			
8548-55-261	7	12V 1.4W BLACK (MT)			
8548-55-261	8	12V 1.4W BLACK (AT)			
55-4A1A		METER,OIL PRESSURE			
NA01-55-4A1	1				
55-430		METER SET			
NA01-55-430C	1	((MT))(W/O A.LOCK BRAKE))			-1801
NA03-55-430B	1	((AT))(W/O A.LOCK BRAKE))			-1801
NA23-55-430	1	((MT))(A.LOCK BRAKE))			-1801
NA25-55-430	1	((AT))(A.LOCK BRAKE))			-1801
NA01-55-430D A (NA01-55-430E)	1				1801-2601
NA03-55-430C A (NA03-55-430D)	1				1801-2601
NA23-55-430A A (NA23-55-430B)	1				1801-2601
NA25-55-430A A (NA25-55-430B)	1				1801-2601
NA01-55-430E	1	((MT))(W/O A.LOCK BRAKE))			2601-
NA03-55-430D	1	((AT))(W/O A.LOCK BRAKE))			2601-
NA23-55-430B	1	((MT))(A.LOCK BRAKE))			2601-
NA25-55-430B	1	((AT))(A LOCK BRAKE))			2601-

1801 NA35**-300014
2601 NA35**-329895



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
55-431		BULB,RESISTOR			
NA01-55-431	1				
55-432		SOCKET,METER SET			
NA01-55-432	1				
55-437A		GROMMET,KNOB-METER SET			
NA01-55-437	1				
55-441A		CASE,METER			
NA23-55-441	1				-1801
NA01-55-441C	1				1801-
55-442A		PLATE,PRINT			
NA01-55-442B A (NA01-55-442C)	1				-1801
NA03-55-442B A (NA03-55-442C)	1				-1801
NA23-55-442 A (NA23-55-442A)	1				-1801
NA25-55-442 A (NA25-55-442A)	1				-1801
NA01-55-442C	1	((MT))(W/O A.LOCK BRAKE))			1801-
NA03-55-442C	1	((AT))(W/O A.LOCK BRAKE))			1801-
NA23-55-442A	1	((MT))(A.LOCK BRAKE))			1801-
NA25-55-442A	1	((AT))(A.LOCK BRAKE))			1801-
55-446A		PLATE,WINDOW			
NA01-55-446A G (NA01-55-446B)	1				-1801
NA01-55-446B	1				1801-
55-453		CLAMP			
N007-55-467	1				1801-
55-461		TACHOMETER			
NA01-55-461A	1	(MT)			
NA03-55-461A	1	(AT)			

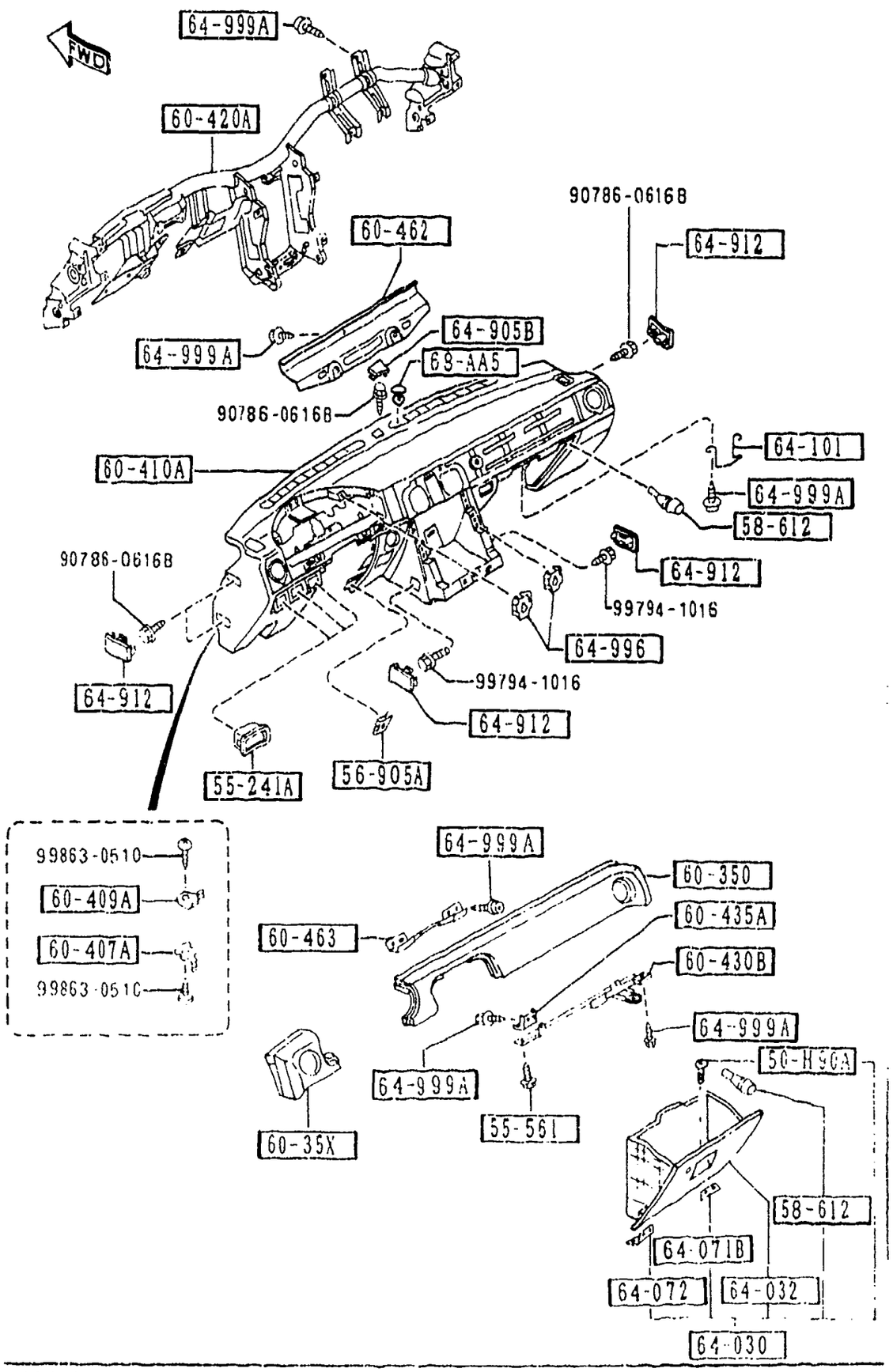
1801 NA35**-300014



99865 05168

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
55-471		SPEEDOMETER			
NA01-55-471A	1				-2601
A (NA01-55-471B)					
NA01-55-471B	1				2601-
55-481		METER,FUEL			
NA01-55-481	1				
55-491D		METER,THERMO			
NA01-55-491	1				
75-139A		BULB			
B491-55-431	4				

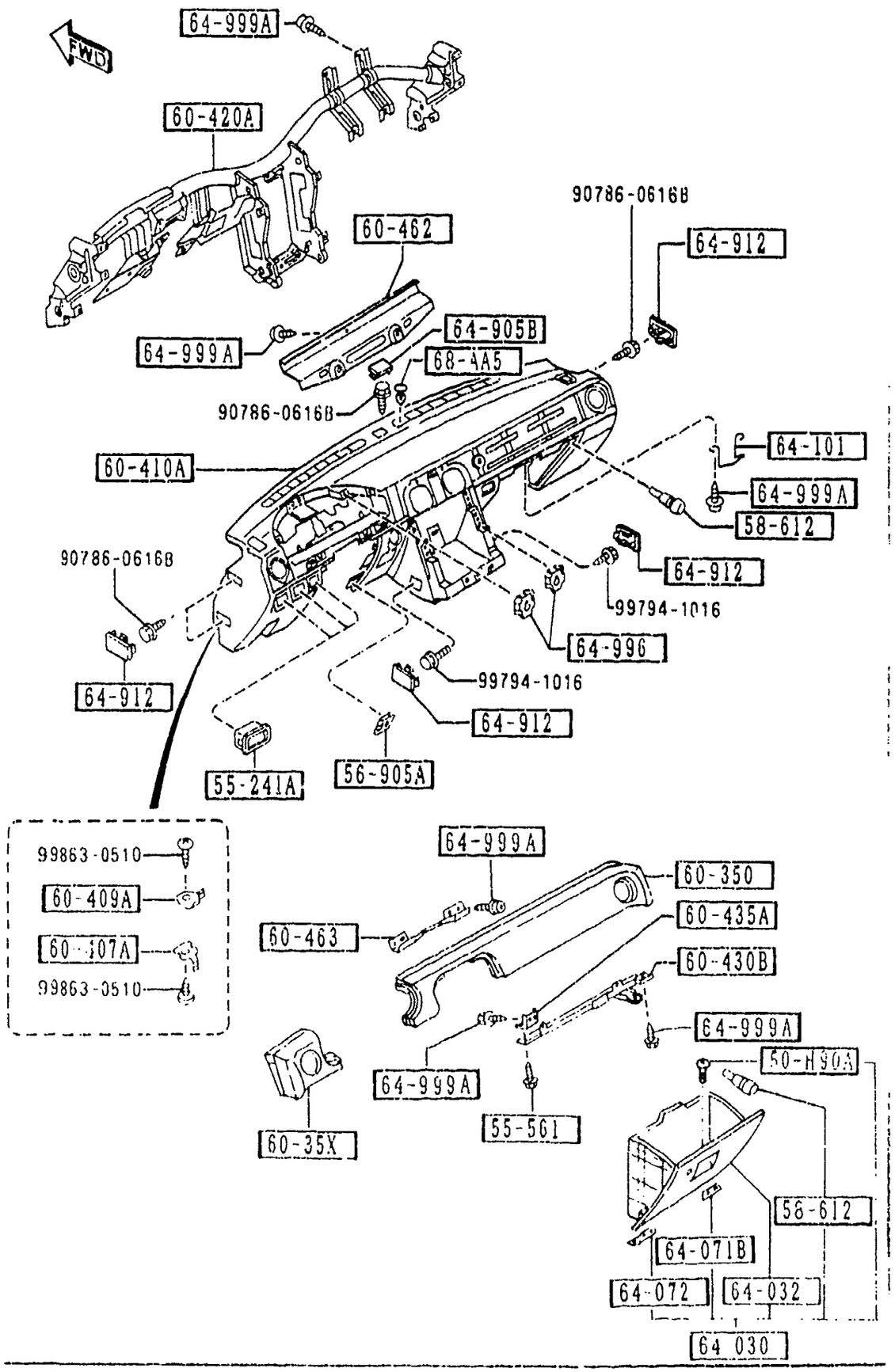
2601 NA35**-329895



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
50-H90A		SCREW,MOULD-FRT WIND			
LA01-50-H90	1	.			
55-241A		BOX,INSTRUMENT PANEL			
NA01-55-241A	3				
00	INT-	NA0 NA1 NA2 BLACK			
55-561		BOLT,INST. PANEL			
B455-55-561	1				
56-905A		NUT,SPRING			
B092-60-408	4				
58-612		CUSHION,RUBBER			
B092-64-046	3				
60-35X		PAD,INSTRUMENT PANEL			
NA01-60-35X	1				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
60-350		PAD,CRASH			
NA01-60-350	1				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
60-407A		SPRING,NO.1			
NA01-60-407	2				
60-409A		SPRING,NO.2			
NA01-60-409	2				
60-410A		PANEL,INSTRUMENT			
NA01-60-401C A (NA01-60-401D)	1				-0927
00	INT-	NA0 BLACK			
NA01-60-401D	1	(STD COAT BLACK/BLAC K)			0927-
00	INT-	NA0 BLACK			
NA02-60-401	1	(PROTAiN COAT BLACK/			0B01-

0927 NA35**-212630
0B01 NA35**-217311

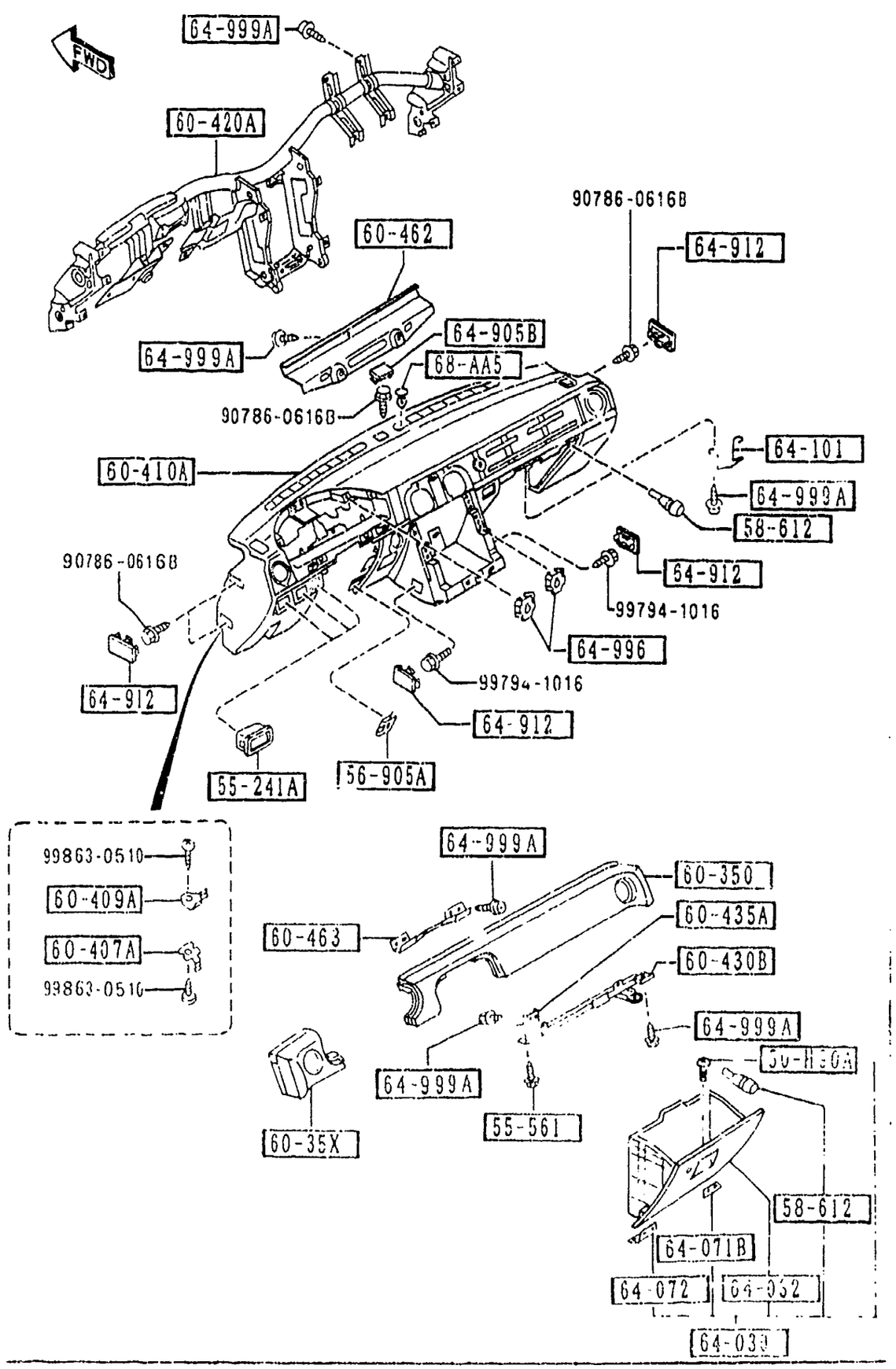
5560 -2 DASHBOARD & RELATED PARTS



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
CONT'D		TAN)			
88 INT-		NA1 BLACK/TAN			
60-420A		FRAME,INST.PANEL			
NA01-60-420D	1				
60-430B		MEMBER(R),INST. PANEL			
NA01-60-430C	1				
60-435A		BRACKET,MEMBER			
NA01-60-435	1				
60-462		BRACKET,INST. PANEL			
NA01-60-462A	1				
60-463		BRACKET,CRASH PAD			
NA01-60-463	1				
64-030		BOX,GLOVE			
NA01-64-030D	1	NA0 NA1 BLACK/TAN			-0820
00		BLACK			
NA01-64-030E	1				0820-
00 INT-		NA0 BLACK			
88 INT-		NA1 TAN			
64-032		COVER,BOX			
NA01-64-032B	1				-0820
00 INT-		NA0 BLACK			
88 INT-		NA1 TAN			
NA01-64-032C	1				0820-
00 INT-		NA0 BLACK			
88 INT-		NA1 TAN			
64-071B		HINGE(R),GLOVE LID			
NA01-64-03X	1				
64-072		HINGE(L),GLOVE LID			
NA01-64-03Y	1				

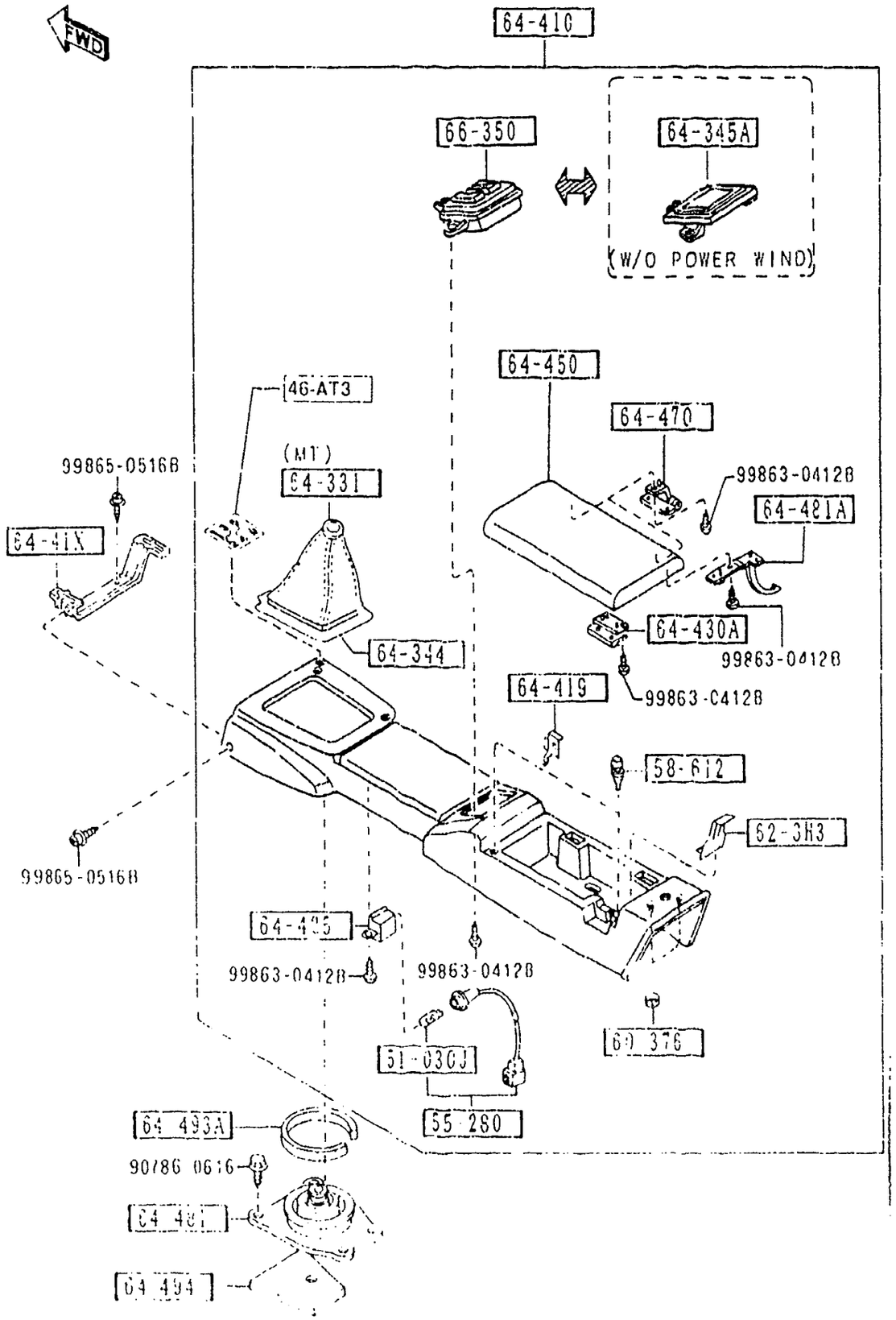
0820 NA35**-206394

5560 -3 * DASHBOARD & RELATED PARTS



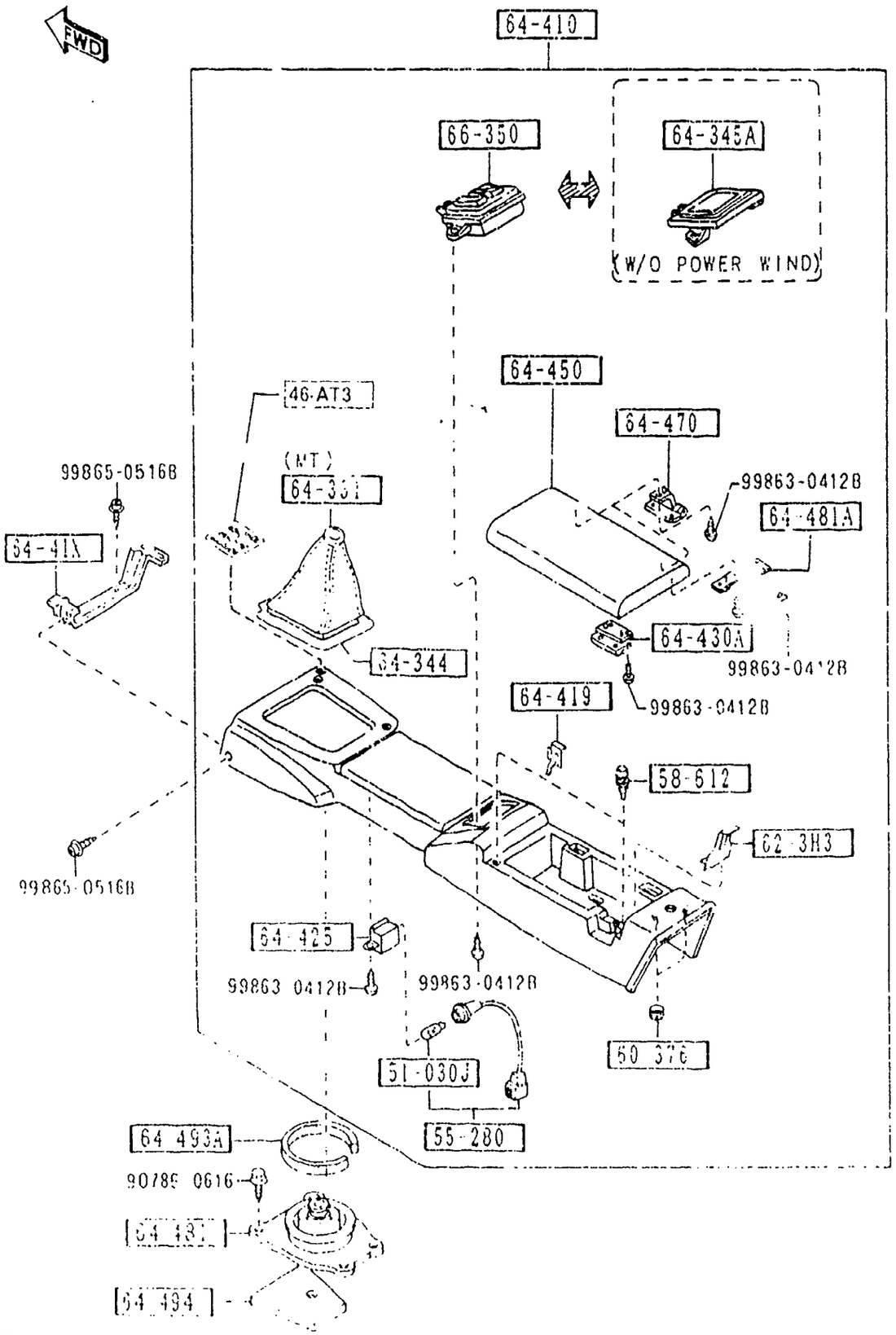
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
64-101		STRIKER			
NA01-64-101	1				
64-905B		COVER,HOLE-(C)			
NA01-64-905	1	(STD COAT BLACK/BLACK)			
00	INT-	NA0 NA1 NA2 BLACK			
N002-64-905	1	(PROTAIN COAT BLACK/TAN)			0B01-
00	INT-	NA1 NA2 BLACK			
64-912		COVER,SIDE			
NA01-64-912	6				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
64-996		NUT,EXPANSION			
GJ21-64-996	8				
64-999A		SCREW,TAPPING			
W201-64-999	37				
68-AA5		FASTENER,DOOR TRIM			
W201-68-AA5	4				-1801
AN(W201-68-AA5A)					
00	INT-	NA0 NA1 BLACK			
W201-68-AA5A	4				1801-
00	INT-	NA0 NA1 NA2 BLACK			

0B01 NA35**-217311
1801 NA3 **-360014



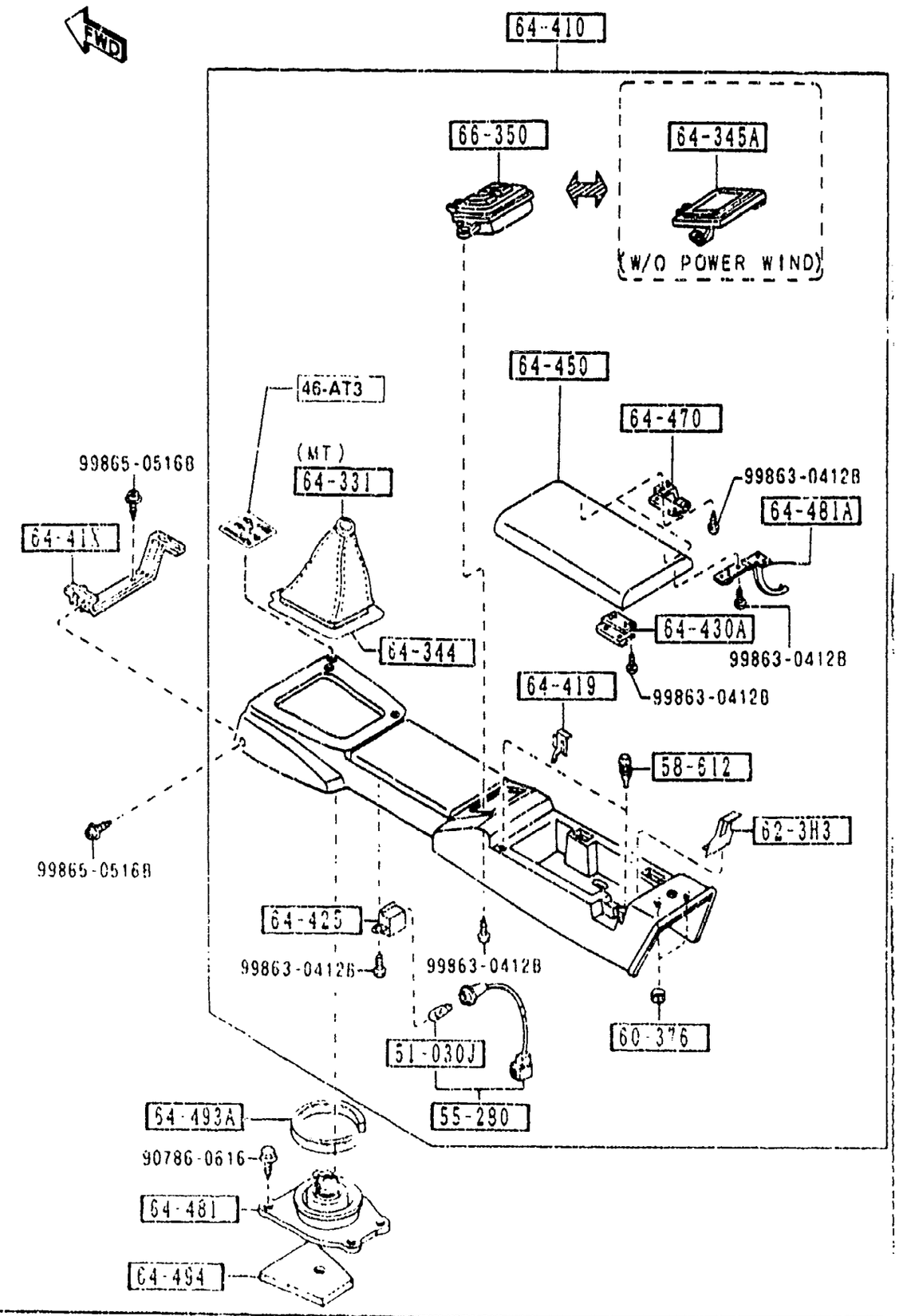
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
46-AT3		LABEL,CHANGE			
N002-46-AT3	1	V-SPECIAL, (WOOD) (MT)			0B01-
51-030J		BULB			
3625-75-139	1	12V 1.4W,FOR WARNING (MT)			
55-280		BULB & SOCKET			
NA01-55-280	1	(MT)			
NA06-55-280	1	BASE, (URETHANE) (AT)			
58-612		CUSHION,RUBBER			
B092-64-046	2				
60-376		NUT,TOP-CRASH PAD			
B092-60-376	2				
62-3H3		COVER,LEVER-OPENER			
NA01-64-424	1				1801-
64-331		BOOT,CHANGE			
NA01-64-331	1	(MT)			
06	INT-	NA0 NA1 NA2 BLACK			
64-344		PLATE,BACK-BOOTS RING			
NA01-64-344B	1	(MT)			
64-345A		BOX,COIN-CONSOLE			
NA01-64-437	1	BASE, (W/O POWER WIND.)			
00	INT-	NA0 NA1 NA2 BLACK			
64-41X		BRACKET,REAR CONSOLE			
NA01-64-416	1				
64-410		CONSOLE,REAR			
NA01-64-410B	1				0B03
AN(NA01-64-410C)					
00	INT-	NA0 NA1 BLACK			

0B01 NA35**-217311
0B03 NA35**-217595
1801 NA35**-300014



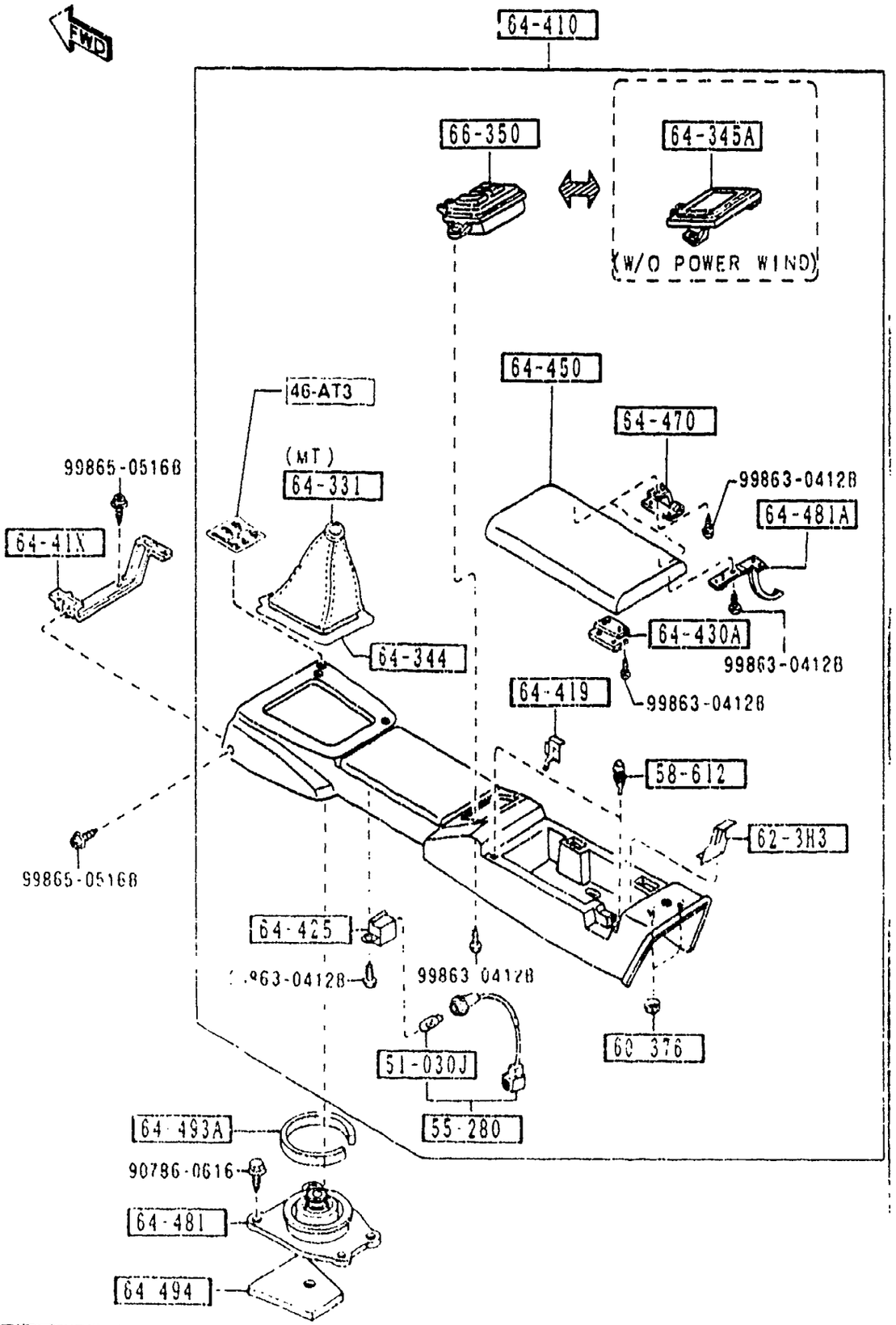
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
CONT'D					
NA02-64-410B	1				-0B03
AN(NA02-64-410C)					
00 INT-		NA0 NA1 BLACK			
NA03-64-410A	1				-0B03
AN(NA03-64-410B)					
00 INT-		NA0 NA1 BLACK			
NA06-64-410B	1				-0B03
AN(NA06-64-410C)					
00 INT-		NA0 NA1 BLACK			
N007-64-410	1				0B01-0B03
AN(N007-64-410A)					
00 INT-		NA0 NA1 BLACK			
N008-64-410	1				0B01-0B03
AN(N008-64-410A)					
00 INT-		NA0 NA1 BLACK			
NA01-64-410C	1				0B03-1801
A (NA01-64-410D)					
00 INT-		NA0 NA1 BLACK			
NA02-64-410C	1				0B03-1801
A (NA02-64-410D)					
00 INT-		NA0 NA1 BLACK			
NA03-64-410B	1				0B03-1801
A (NA03-64-410C)					
00 INT-		NA0 NA1 BLACK			
NA06-64-410C	1				0B03-1801
A (NA06-64-410D)					
00 INT-		NA0 NA1 BLACK			
N007-64-410A	1				0B03-1801
A (N007-64-410B)					
00 INT-		NA0 NA1 BLACK			
N008-64-410A	1				0B03-1801
A (N008-64-410B)					
00 INT-		NA0 NA1 BLACK			
NA01-64-410D	1	BASE, (URETHANE KNOB,W/O POWER WIND.) (MT)			1801-
00 INT-		NA0 NA1 NA2 BLACK			
NA02-64-410D	1	PKG-OP1, (URETHANE KNOB,W/POWER WIND.) (MT)			1801-
00 INT-		NA0 NA1 NA2 BLACK			

0B01 NA35** 217311
0B03 NA35** 217595
1801 NA35** 300014

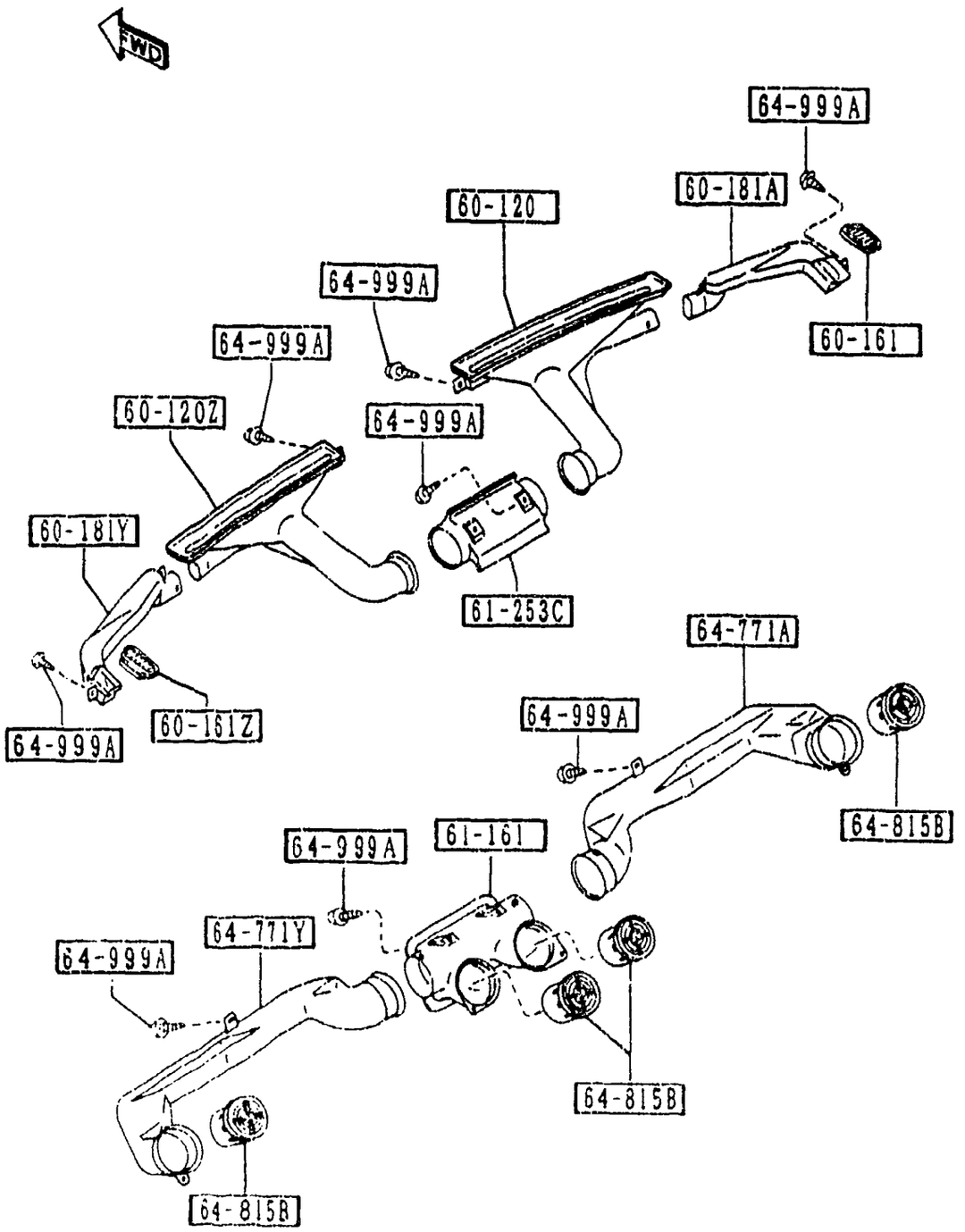


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA03-64-410C	1	BASE, (URETHANE KNOB,W/O POWER WIND.) (AT)			1801-
00	INT-	NA0 NA1 NA2 BLACK			
NA06-64-410D	1	PKG-OPT, (URETHANE KNOB,W/POWER WIND.) (AT)			1801-
00	INT-	NA0 NA1 NA2 BLACK			
N007-64-410B	1	(WOOD KNOB,W/O POWER WIND.) (MT)			1801-
00	INT-	NA0 NA1 NA2 BLACK			
N008-64-410B	1	V-SPECIAL, (WOOD KNOB,W/POWER WIND.) (MT)			1801-
00	INT-	NA0 NA1 NA2 BLACK			
+----------+					
| 64-419 |		CLIP,HARNESS-HAND BRAKE			
+----------+					
H260-64-419	1	PKG-OPT, V-SPECIAL, (W/POWER WIND.)			
+----------+					
| 64-425 |		CASE,LAMP			
+----------+					
NA01-64-414	1				
+----------+					
| 64-430A |		LOCK,CONSOLE-REAR			
+----------+					
FB01-64-430	1				
+----------+					
| 64-450 |		LID,CONSOLE			
+----------+					
NA01-64-450A	1				
00	INT-	NA0 NA1 NA2 BLACK			
+----------+					
| 64-470 |		HINGE			
+----------+					
NA01-64-45XA	2				
00	INT-	NA0 NA1 NA2 BLACK			
+----------+					
| 64-481 |		INSULATOR NO.1,CHANGE			
+----------+					
NA01-64-481A	1	(MT)			
+----------+					
| 64-481A |		STOPPER,CONSOLE LID			
+----------+					
NA01-64-452	1				
00	INT-	NA0 NA1 NA2 BLACK			

1801 NA35**-300014



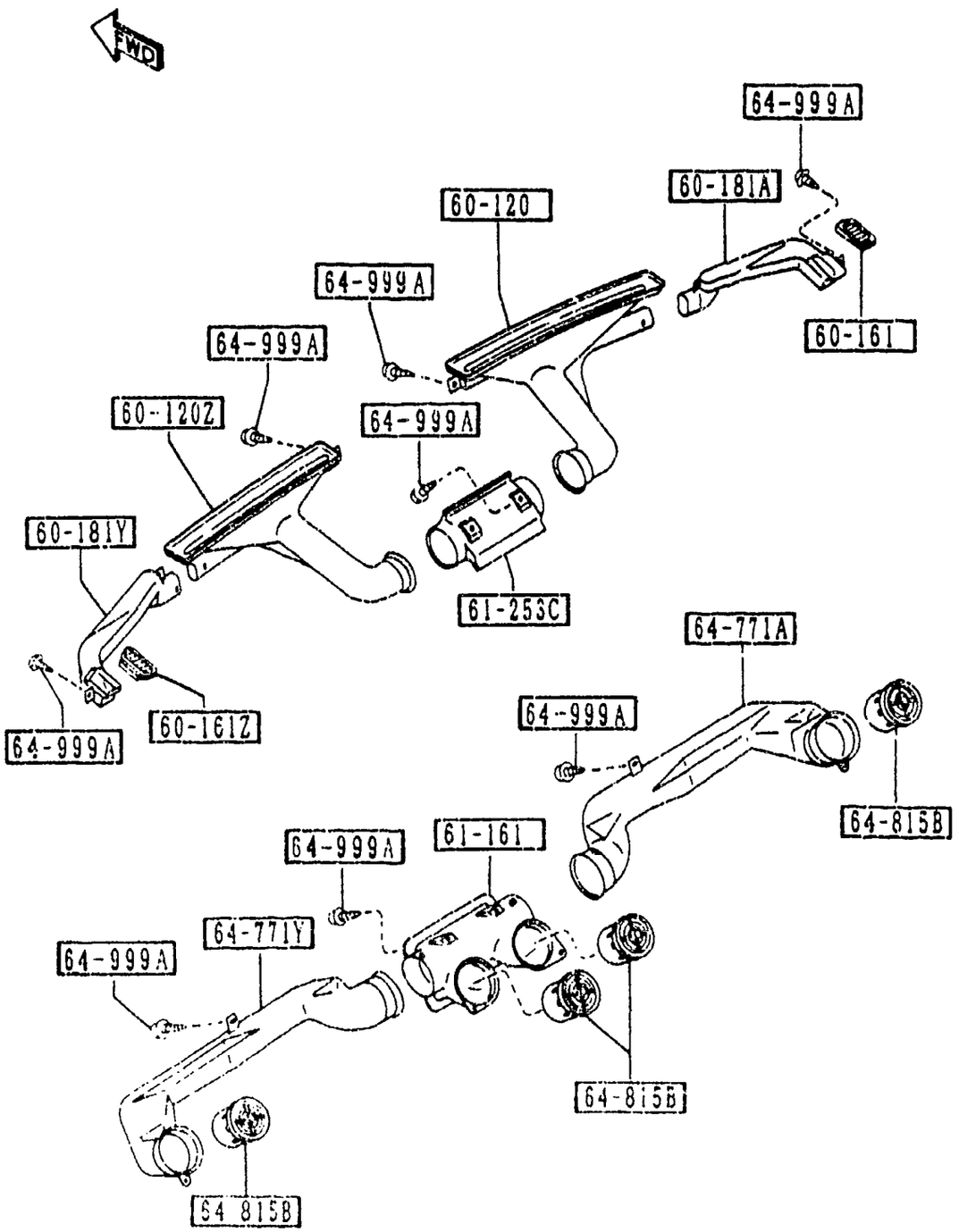
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
64-493A		PACK,SILENT			
H001-64-493	1	(MT)			
64-494		PAD,CHANGE BOOT			
FB01-64-495	1	(MT)			
66-350		SWITCH,POWER WINDOW			
NA01-66-350A	1	PKG-OPT, V-SPECIAL, (W/POWER WIND.) (MT)			
00	INT-	NA0 NA1 NA2 BLACK			
NA03-66-350	1	PKG-OPT, V-SPECIAL, (W/POWER WIND.) (AT)			
00	INT-	NA0 NA1 NA2 BLACK			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
60-120		NOZZLE(R),DEFROSTER			
NA01-60-121	1				
60-120Z		NOZZLE(L),DEFROSTER			
NA01-60-141	1				
60-161		GRILLE(R),DEMISTER			
NA01-60-161	1	(STD COAT BLACK/BLACK)			
00	INT-	NA0 NA1 NA2 BLACK			
N002-60-161	1	(PROTAIN COAT BLACK/TAN)			0B01-
00	INT-	NA1 NA2 BLACK			
60-161Z		GRILLE(L),DEMISTER			
NA01-60-171	1	(STD COAT BLACK/BLACK)			
00	INT-	NA0 NA1 NA2 BLACK			
N002-60-171	1	(PROTAIN COAT BLACK/TAN)			0B01-
00	INT-	NA1 NA2 BLACK			
60-181A		DUCT(R),SIDE DEMIST.			
NA01-60-183	1				
60-181Y		DUCT(L),SIDE DEMIST.			
NA01-60-193	1				
61-161		DUCT,CENTER			
NA01-61-161	1				-0801
AN(NA01-61-161A)					
NA01-61-161A	1				0801-
61-253C		HOSE(C),DEFROSTER			
NA01-61-253	1				
64-771A		DUCT NO.1(R)			
NA01-64-741	1				
64-771Y		DUCT NO.1(L)			
NA01-64-841	1				

0801 NA35**-205068
0B01 NA35**-217511

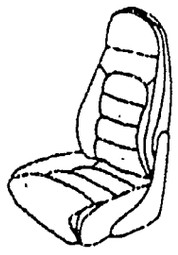
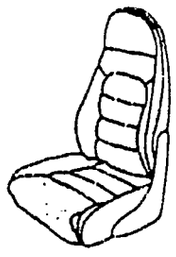
5580 VENTILATOR

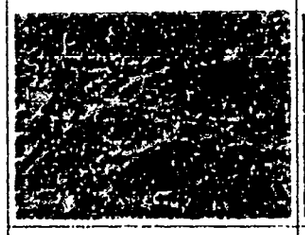
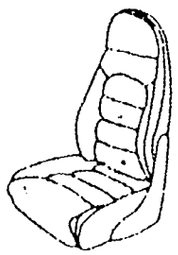
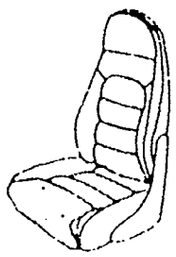


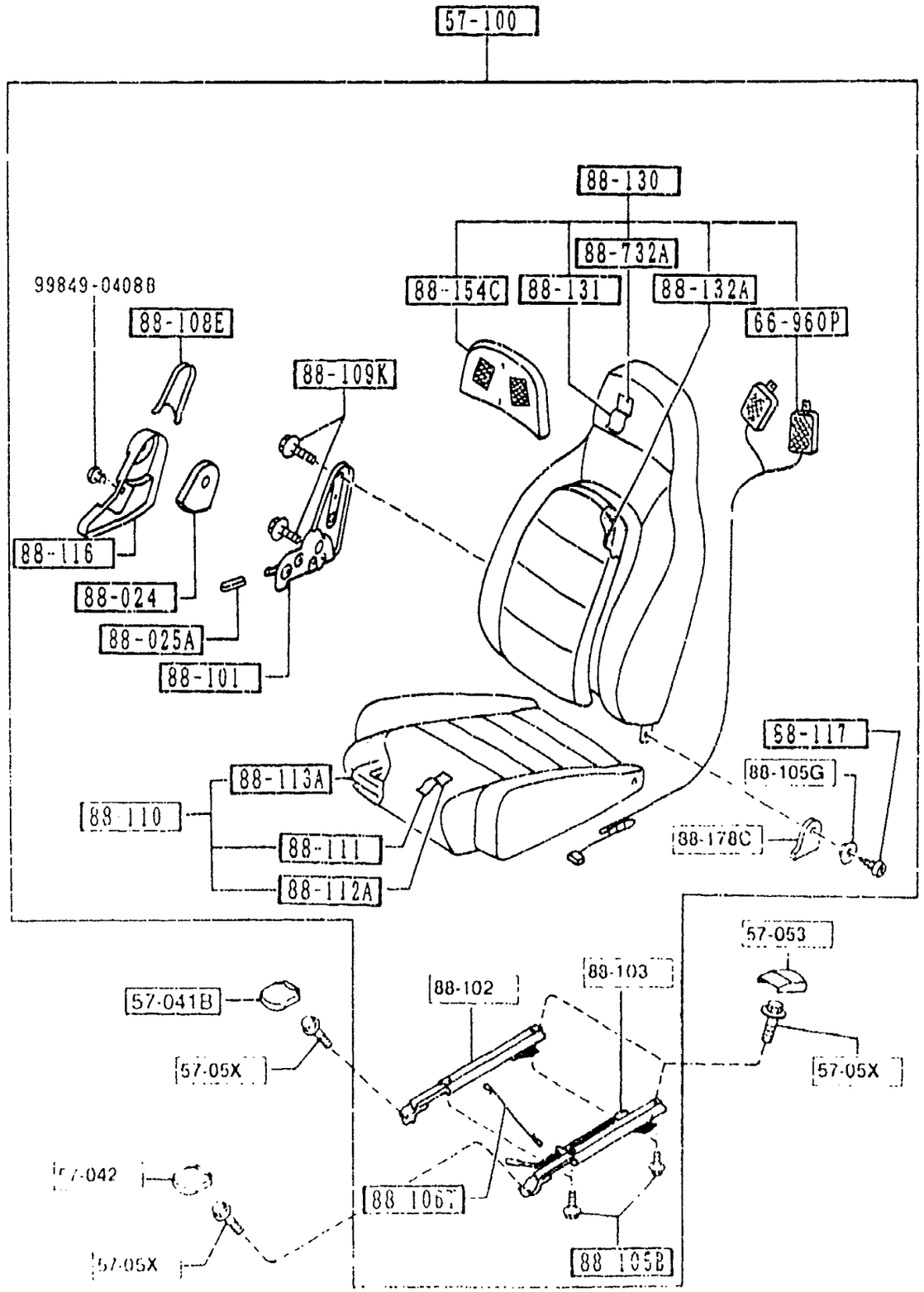
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
64-815B		LOUVER,VENTILATOR			
NA01-64-81X	4				-1801
00	INT-	NA0 NA1 BLACK			
N001-64-81X	4				1801-
00	INT-	NA0 NA1 NA2 BLACK			
64-999A		SCREW,TAPPING			
W201-64-999	11				

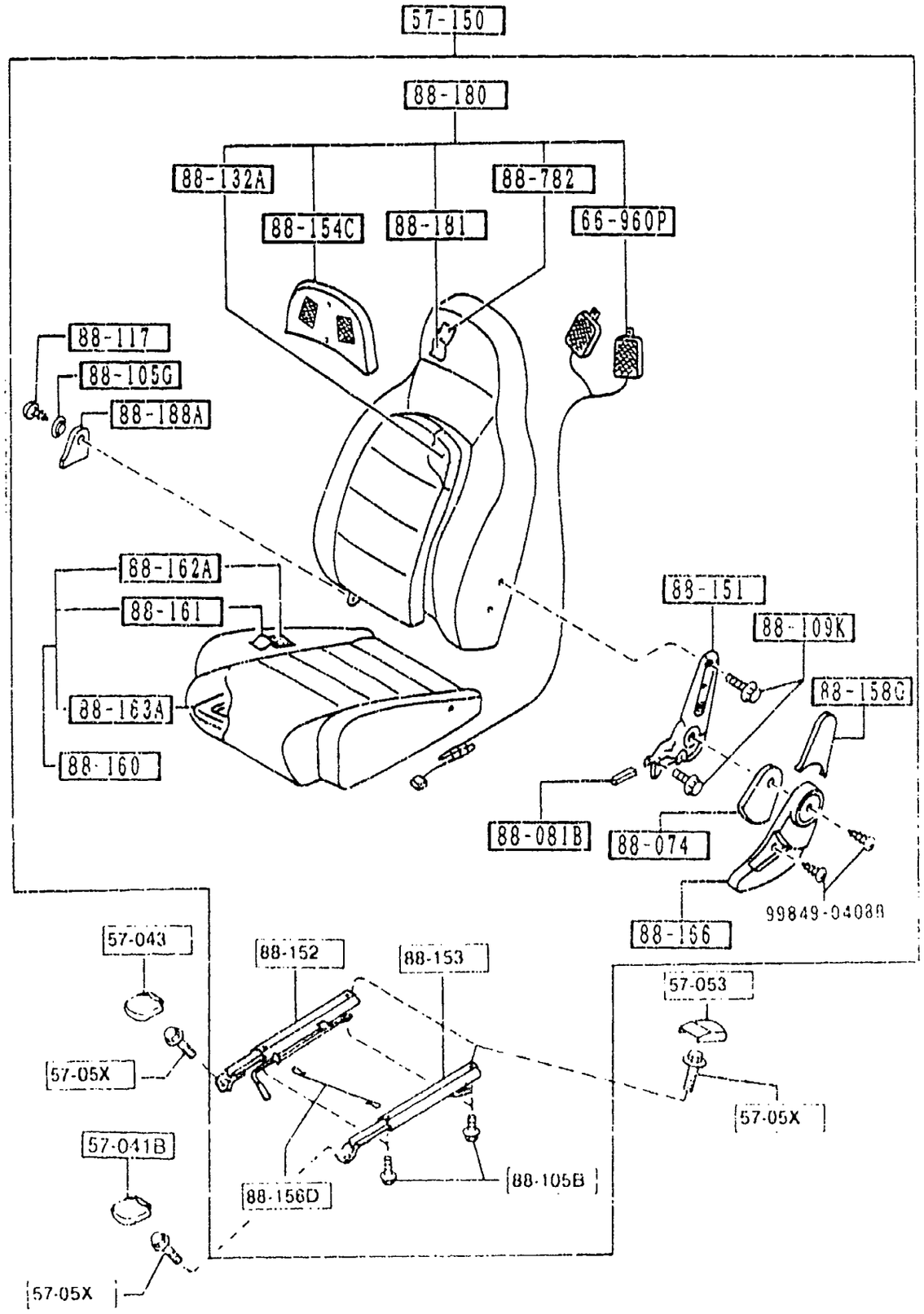
1801 NA35**-300014

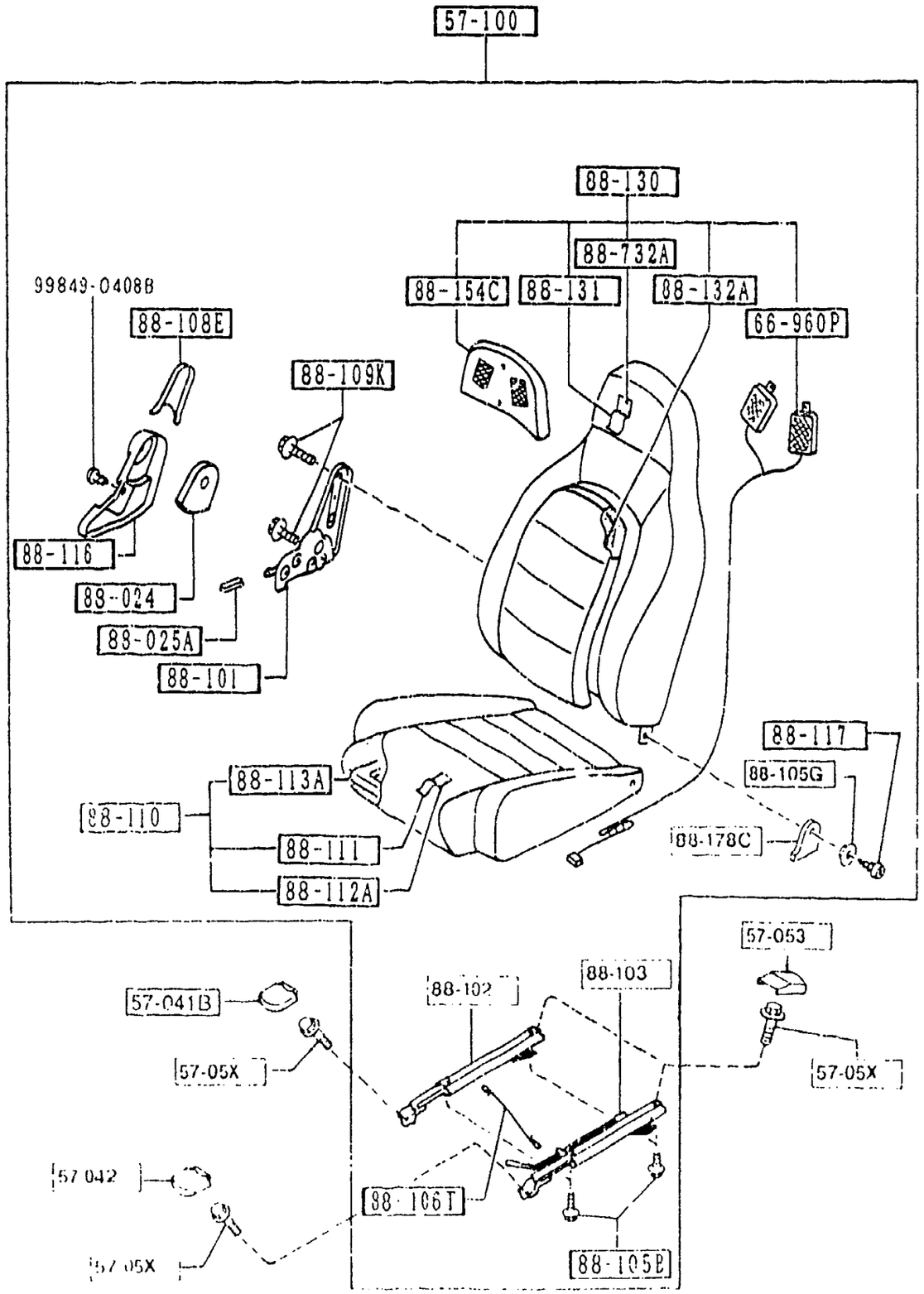
(THIS ILLUSTRATION CONSISTS OF 3 PAGES)

TYPE / GRADE / SPECIFICATIONS	STA	STB
	BASE	PKG-OPT
SEAT TRIMS	CLOTH	CLOTH
		
HEAD REST SPEAKER	—	×

TYPE / GRADE / SPECIFICATIONS	STC	STD
	V-SPECIAL	—
SEAT TRIMS	LEATHER 	LEATHER
		
HEAD REST SPEAKER	×	—


57-100
88-130
88-732A
88-154C
88-131
88-132A
66-960P
99849-04088
88-108E
88-109K
88-116
88-024
88-025A
88-101
88-117
88-105G
88-178C
88-113A
88-110
88-111
88-112A
57-053
88-102
88-103
57-041B
57-05X
57-042
88-106
88-105B

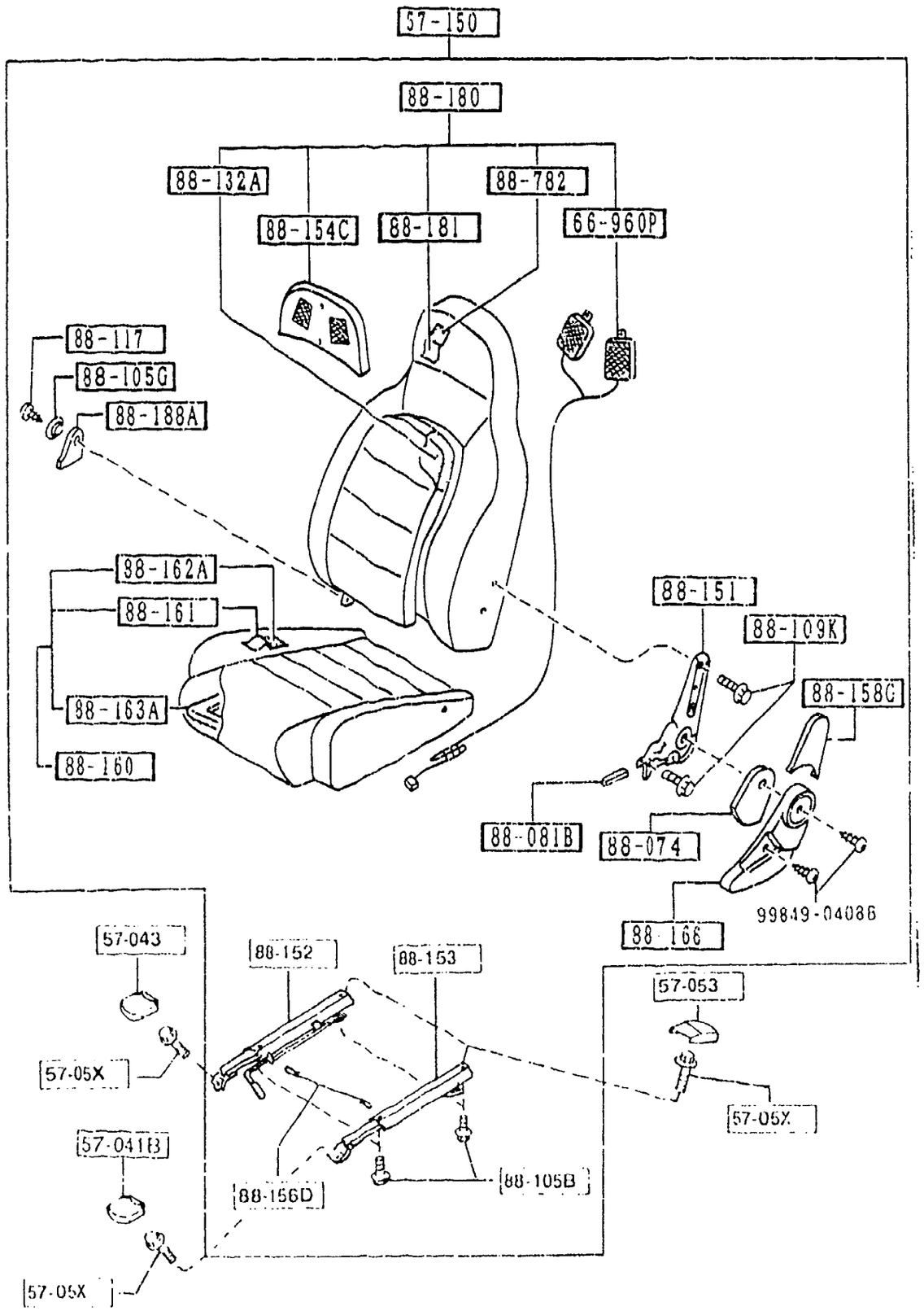

57-150
88-180
88-132A
88-782
88-154C
88-181
66-960P
88-117
88-105G
88-188A
88-162A
88-161
88-163A
88-160
88-151
88-109K
88-158G
88-081B
88-074
99849-04088
88-156
57-043
57-05X
88-152
88-153
57-053
57-041B
88-156D
88-105B



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
57-041B		COVER NO.1,ADJ-FRT			
*J001-57-041	2	V-SPECIAL, (LEATHER)			0B01-
* 40 INT-		NA0 NA1 DARK GRAY			
57-042		COVER NO.2,ADJ-FRT			
N005-57-042	1	V-SPECIAL, (LEATHER)			0B01-
40 INT-		NA0 NA1 DARK GRAY			
57-043		COVER NO.3,ADJ-FRT			
N005-57-043	1	V-SPECIAL, (LEATHER)			0B01-
40 INT-		NA0 NA1 DARK GRAY			
57-05X		BOLT,LINK			
B455-57-05X	8				
57-053		COVER,ADJUSTER-REAR			
J001-57-051	4	V-SPECIAL, (LEATHER)			0B01-
40 INT-		NA0 NA1 DARK GRAY			
57-100		SEAT(R),FRONT			
NA01-57-100F A (NA01-57-100G)	1				-2101
00 INT-		NA0 BLACK			
NA02-57-100F A (NA02-57-100G)	1				-2101
00 INT-		NA0 BLACK			
NA23-57-100 A (NA23-57-100A)	1				0B01-2101
88 INT-		NA1 TAN			
NA24-57-100 A (NA24-57-100A)	1				1801-2101
88 INT-		NA1 TAN			
NA01-57-100G	1	BASE, (NAN1 STA TYPE)			2101-
00 INT-		NA0 BLACK			
NA02-57-100G	1	PKG-OPT, (NAN1 STB TYPE)			2101-
00 INT-		NA0 BLACK			

0B01 NA35**-217311
1801 NA35**-300014
2101 NA35**-313914

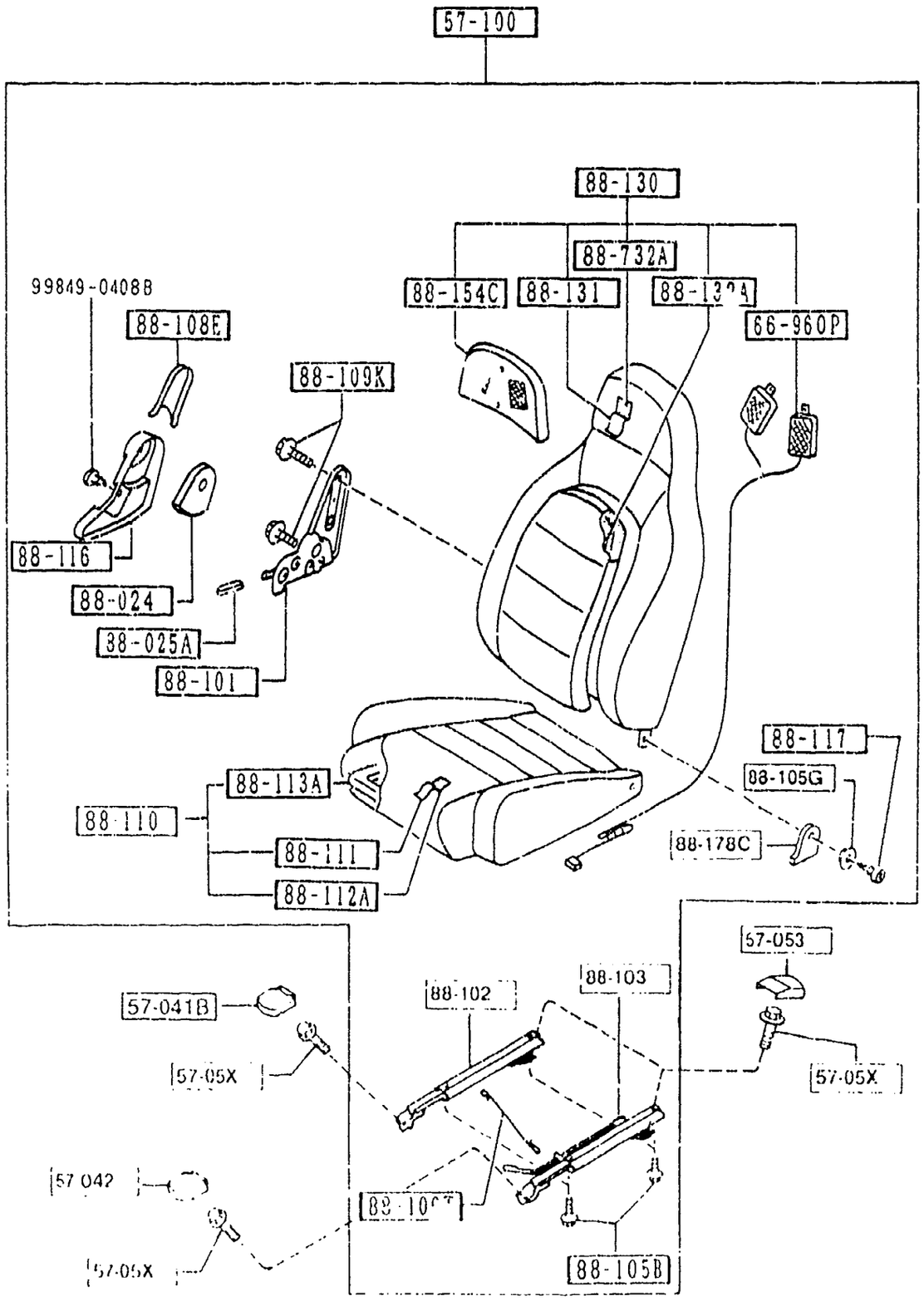
(THIS ILLUSTRATION CONSISTS OF 3 PAGES)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA23-57-100A	1	V-SPECIAL, (NAN1 STC TYPE)			2101-
88	INT-	NA1 TAN			
NA24-57-100A	1	(NAN1 STD TYPE)			2101-
88	INT-	NA1 TAN			
+---------+ | 57-150 | +---------+		SEAT(L),FRONT			
NA01-57-150F A (NA01-57-150G)	1				-2101
00	INT-	NA0 BLACK			
NA02-57-150F A (NA02-57-150G)	1				-2101
00	INT-	NA0 BLACK			
NA23-57-150 A (NA23-57-150A)	1				0801-2101
88	INT-	NA1 TAN			
NA24-57-150 A (NA24-57-150A)	1				1801-2101
88	INT-	NA1 TAN			
NA01-57-150G	1	BASE, (NAN1 STA TYPE)			2101-
00	INT-	NA0 BLACK			
NA02-57-150G	1	PKG-OPT, (NAN1 STB TYPE)			2101-
00	INT-	NA0 BLACK			
NA23-57-150A	1	V-SPECIAL, (NAN1 STC TYPE)			2101-
88	INT-	NA1 TAN			
NA24-57-150A	1	(NAN1 STD TYPE)			2101-
88	INT-	NA1 TAN			
+---------+ | 66-960P | +---------+		SPEAKER,PILLOW-SEAT			
NA04-66-960A	2	PKG-OPT, (W/HEAD SPEAKER)			
+---------+ | 88-024 | +---------+		PROTR(R),SEAT BELT			
NA01-88-033	1				
+---------+ | 88-025A | +---------+		KNOB(R),KNUCKLE			
NA01-88-034	1				
00	INT-	NA0 BLACK			

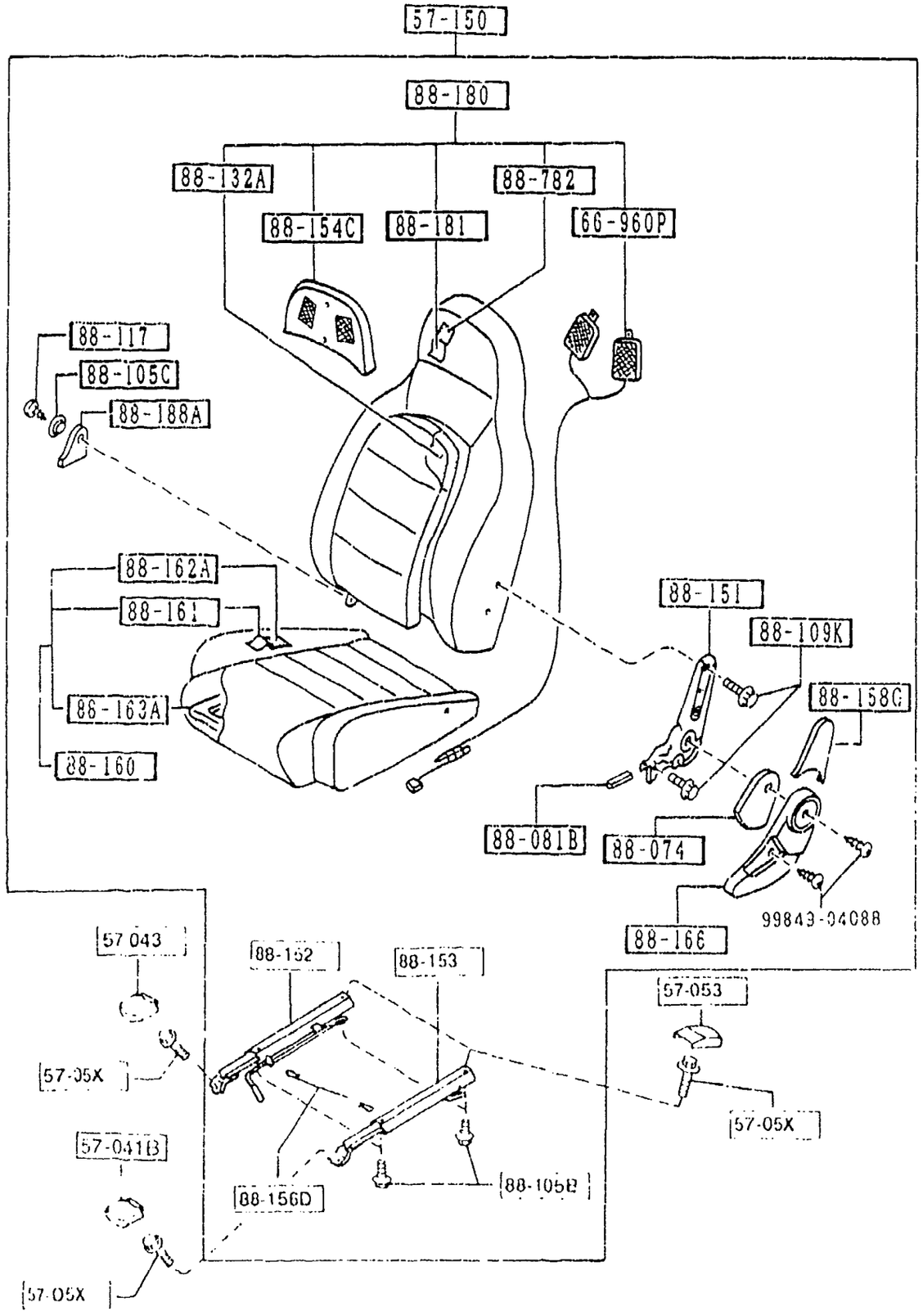
0801 NA35**-217311
1801 NA35**-300014
2101 NA35**-313914

(THIS ILLUSTRATION CONSISTS OF 3 PAGES)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
88 INT-		NA1 TAN			
88-074		PROTR(L),SEAT BELT			
NA01-88-083	1				
88-081B		KNOB(L),KNUCKLE			
NA01-88-084	1				
00 INT-		NA0 BLACK			
88 INT-		NA1 TAN			
88-101		KNUCKLE(R),RECLINING			
NA01-88-101A	1				
88-102		ADJUSTER,NO.1			
NA01-88-102A	1				
88-103		ADJUSTER,NO.2			
NA01-88-103A	1				
88-105B		BOLT,LINK			
H260-88-105	8				
88-105G		BUSH,HINGE			
H260-88-108	2				
02 INT-		NA0 NA1 NA2 BLACK			
88 INT-		NA1 TAN			
88-106T		WIRE,CONNECT			
NA01-88-106	1				
88-108E		COVER(R),SEAT BACK			
NA01-88-036	1				
00 INT-		NA0 BLACK			
88 INT-		NA1 TAN			
88-109K		SCREW,KNUCKLE			
H260-88-109	8				
88-110		CUSHION(R),FRT SEAT			

(THIS ILLUSTRATION CONSISTS OF 3 PAGES)

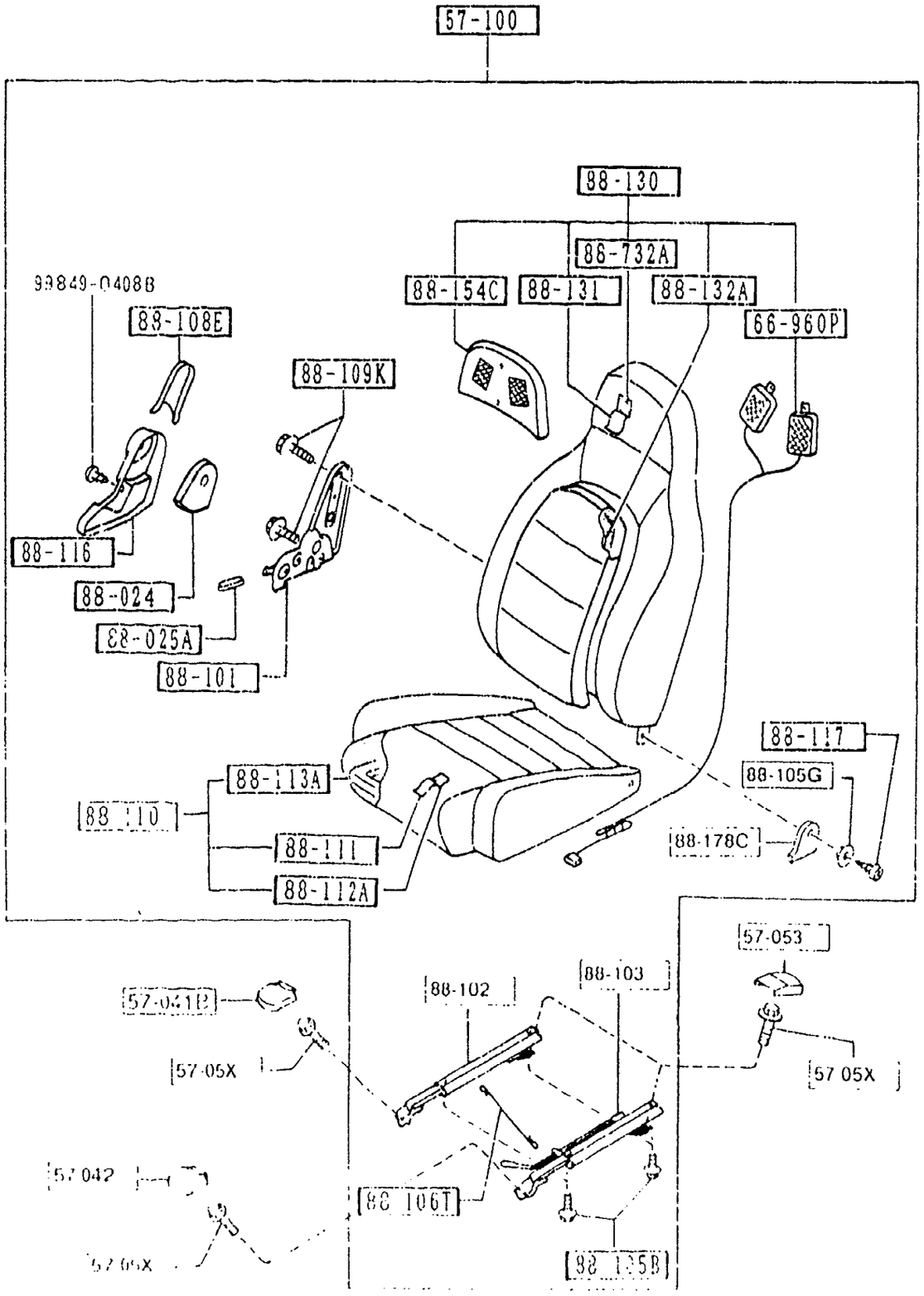


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA01-88-110	1	BASE, PKG-OPT, (CLOTH)			
00	INT-	NA0 BLACK			
NA23-88-110	1	V-SPECIAL, (LEATHER)			0B01-
88	INT-	NA1 TAN			
88-111		TRIM(R),SEAT CUSHION			
NA01-88-111	1	BASE, PKG-OPT, (CLOTH)			
00	INT-	NA0 BLACK			
NA23-88-111	1	V-SPECIAL, (LEATHER)			0B01-
88	INT-	NA1 TAN			
88-112A		PAD(R),CUSHION-FRT			
NA01-88-112	1				
88-113A		FRAME(R),CUSHION-FRT			
NA01-88-113	1				
88-116		COVER(R),KNUCKLE			
NA01-88-031	1				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
88-117		SCREW,KNUCKLE			
H260-88-107	2				
88-130		BACK(R),FRONT SEAT			
NA01-88-130 A (NA01-88-130A)	1				-2101
00	INT-	NA0 BLACK			
NA02-88-130 A (NA02-88-130A)	1				-2101
00	INT-	NA0 BLACK			
NA23-88-130 A (NA23-88-130A)	1				0B01-2101
88	INT-	NA1 TAN			
NA24-88-130 A (NA24-88-130A)	1				1801-2101

0801 NA35**-217311
1801 NA35**-300014
2101 NA35**-313914

5700 SEATS (2/3)

(THIS ILLUSTRATION CONSISTS OF 3 PAGES)

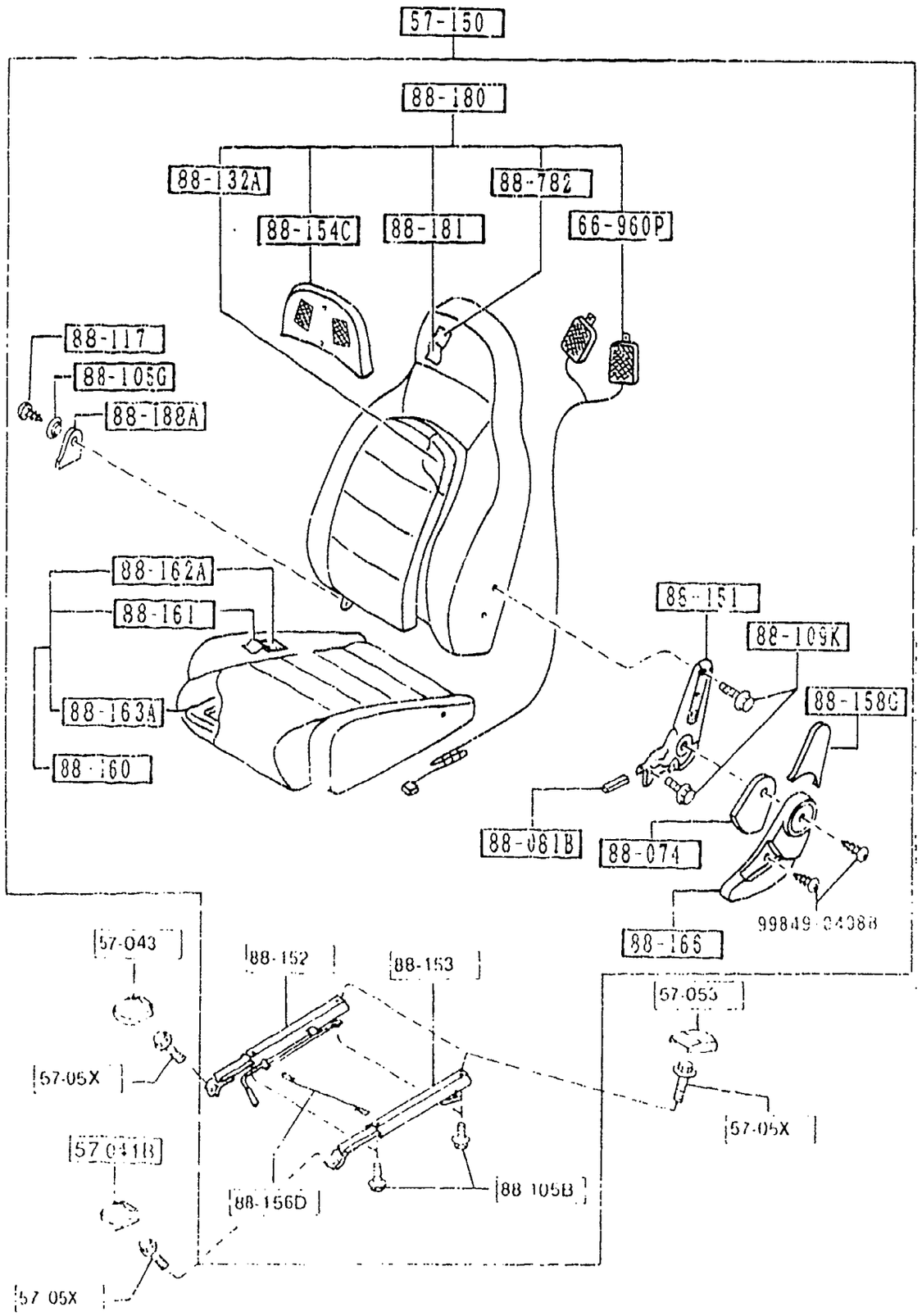


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
88	INT-	NA1 TAN			
NA01-88-130A	1	BASE, (NAN1 STA TYPE)			2101-
00	INT-	NA0 BLACK			
NA02-88-130A	1	PKG-OPT, (NAN1 STB TYPE)			2101-
00	INT-	NA0 BLACK			
NA23-88-130A	1	V-SPECIAL, (NAN1 STC TYPE)			2101-
88	INT-	NA1 TAN			
NA24-88-130A	1	(NAN1 STD TYPE)			2101-
88	INT-	NA1 TAN			
+----------+					
| 88-131 |		TRIM(R),SEAT BACK			
+----------+					
NA01-88-131	1	BASE, PKG-OPT, (CLOTH)			
00	INT-	NA0 BLACK			
NA23-88-131	1	V-SPECIAL, (LEATHER)			0B01-
88	INT-	NA1 TAN			
+----------+					
| 88-132A |		PAD(R),BACK-FRT			
+----------+					
NA01-88-132A (NA01-88-132A)	2				-2101
NA01-88-132A	2				2101-
+----------+					
| 88-151 |		KNUCKLE(L),RECLINING			
+----------+					
NA01-88-151A	1				
+----------+					
| 88-152 |		ADJUSTER NO.3			
+----------+					
NA01-88-152A	1				
+----------+					
| 88-153 |		ADJUSTER NO.4			
+----------+					
NA01-88-153A	1				
+----------+					
| 88-154C |		COVER,HEAD REST			
+----------+					
NA01-88-137	2				
+----------+					
| 88-156D |		WIRE,CONNECT			
+----------+					
NA01-88-156	1				

0B01 NA35**-217311
2101 NA55**-313914

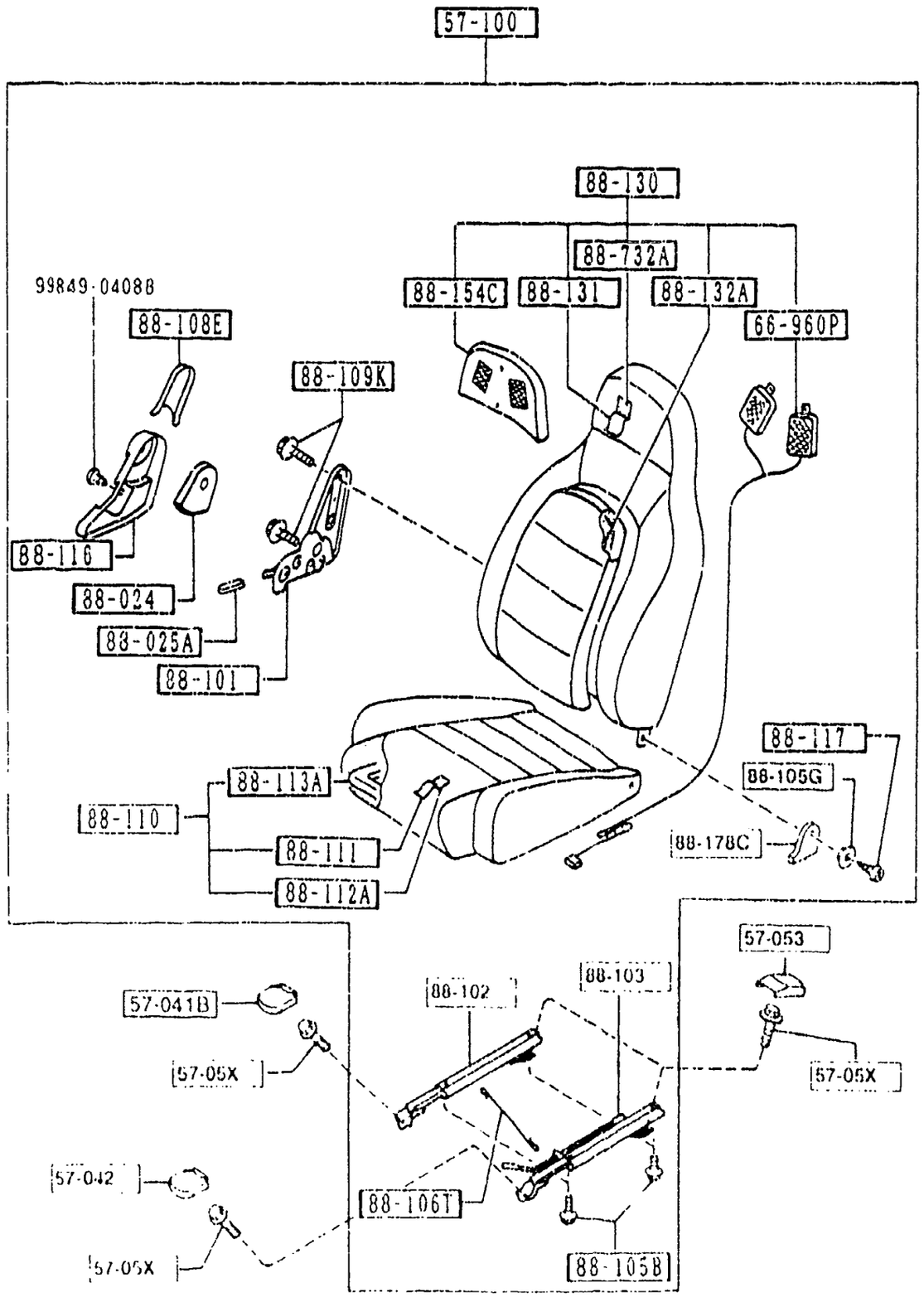
5700 SEATS (3/3)

(THIS ILLUSTRATION CONSISTS OF 3 PAGES)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
88-158G		CUVER(L),SEAT BACK			
NA01-88-086	1				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
88-160		CUSHION(L),FRT SEAT			
NA01-88-160	1	BASE, PKG-OPT, (CLOTH)			
00	INT-	NA0 BLACK			
NA23-88-160	1	V-SPECIAL, (LEATHER)			0B01-
88	INT-	NA1 TAN			
88-161		TRIM(L),SEAT CUSHION			
NA01-88-161	1	BASE, PKG-OPT, (CLOTH)			
00	INT-	NA0 BLACK			
NA23-88-161	1	V-SPECIAL, (LEATHER)			0B01-
88	INT-	NA1 TAN			
88-162A		PAD(L),CUSHION-FRT			
NA01-88-162	1	BASE, PKG-OPT, (CLOTH)			
N005-88-162	1	V-SPECIAL, (LEATHER)			0B01-
88-163A		FRAME(L),CUSHION-FRT			
NA01-88-163	1				
88-166		COVER(L),KNUCKLE			
NA01-88-081	1				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
88-178C		COVER(R),HINGE			
NA01-88-035	1				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			

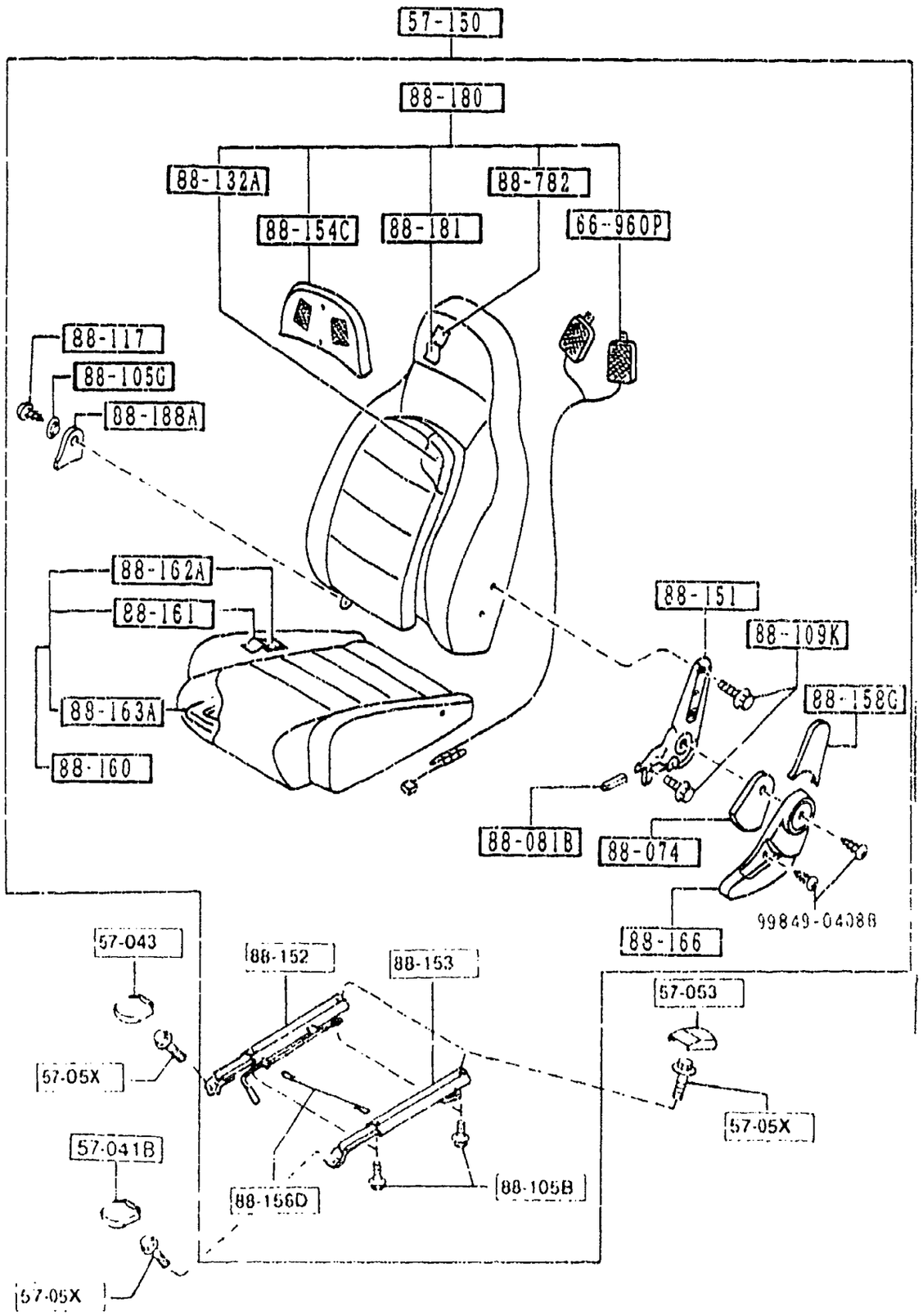
0B01 NA35**-217311



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
88-180		BACK(L),FRONT SEAT			
NA01-38-160 A (NA01-88-180A)	1				-2101
00	INT-	NA0 BLACK			
NA02-88-180 A (NA02-88-180A)	1				-2101
00	INT-	NA0 BLACK			
NA23-88-180 A (NA23-88-180A)	1				0801-2101
88	INT-	NA1 TAN			
NA24-88-180 A (NA24-88-180A)	1				1801-2101
88	INT-	NA1 TAN			
NA01-88-180A	1	BASE, (NAN1 STA TYPE)			2101-
00	INT-	NA0 BLACK			
NA02-88-180A	1	PKG-OPT, (NAN1 STB TYPE)			2101-
00	INT-	NA0 BLACK			
NA23-88-180A	1	V-SPECIAL, (NAN1 STC TYPE)			2101-
88	INT-	NA1 TAN			
NA24-88-180A	1	(NAN1 STD TYPE)			2101-
88	INT-	NA1 TAN			
88-181		TRIM(L),SEAT BACK			
NA01-88-181	1	BASE, PKG-OPT, (CLOTH)			
00	INT-	NA0 BLACK			
NA23-88-181	1	V-SPECIAL, (LEATHER)			0601-
83	INT-	NA1 TAN			
88-188A		COVER(L),HINGE			
NA01-88-085	1				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
88-732A		PAD'B'(R),BACK-FRT			
NA01-88-732 A (NA01-88-732A)	1				-2101

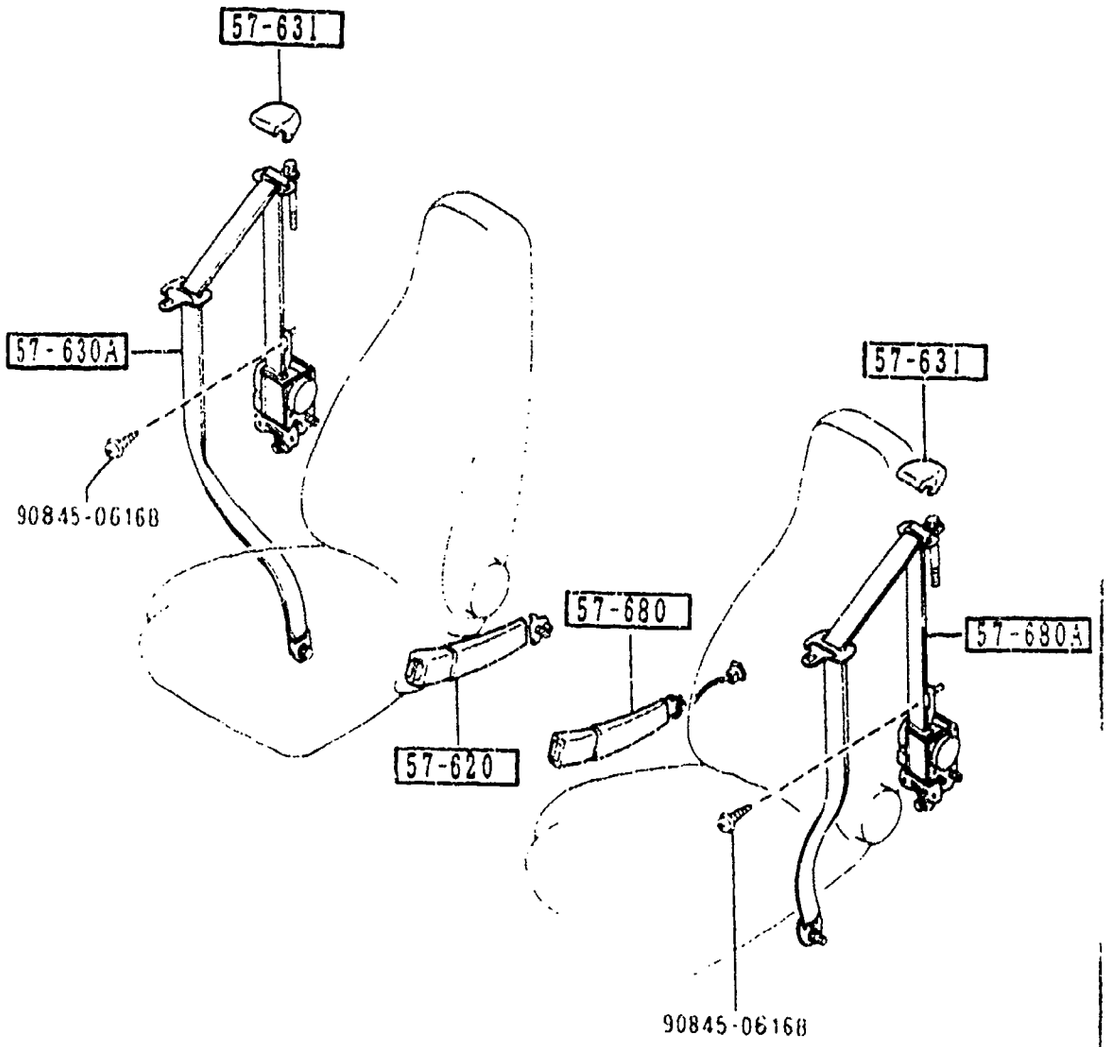
0801 NA35**-217311
1301 NA35**-300014
2101 NA35**-313914

(THIS ILLUSTRATION CONSISTS OF 3 PAGES)

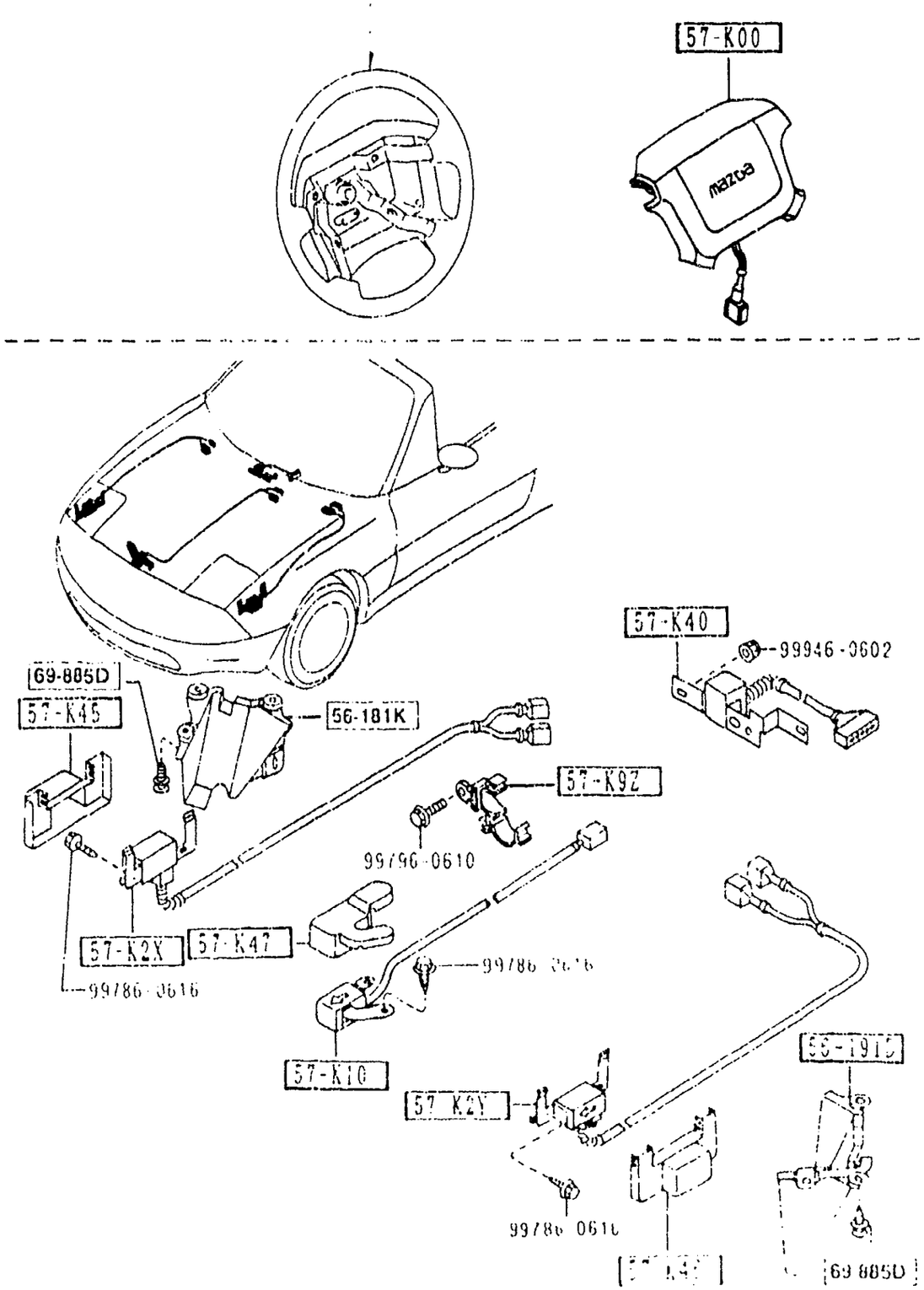


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL RESTRICTION	FROM TO
CONT'D NA01-88-732A	1				2101-
88-782		PAD'B'(L),BACK-FRT			
NA01-88-782A (NA01-88-782A)	1				-2101
NA01-88-782A	1				2101-

2101 NA35**-313914

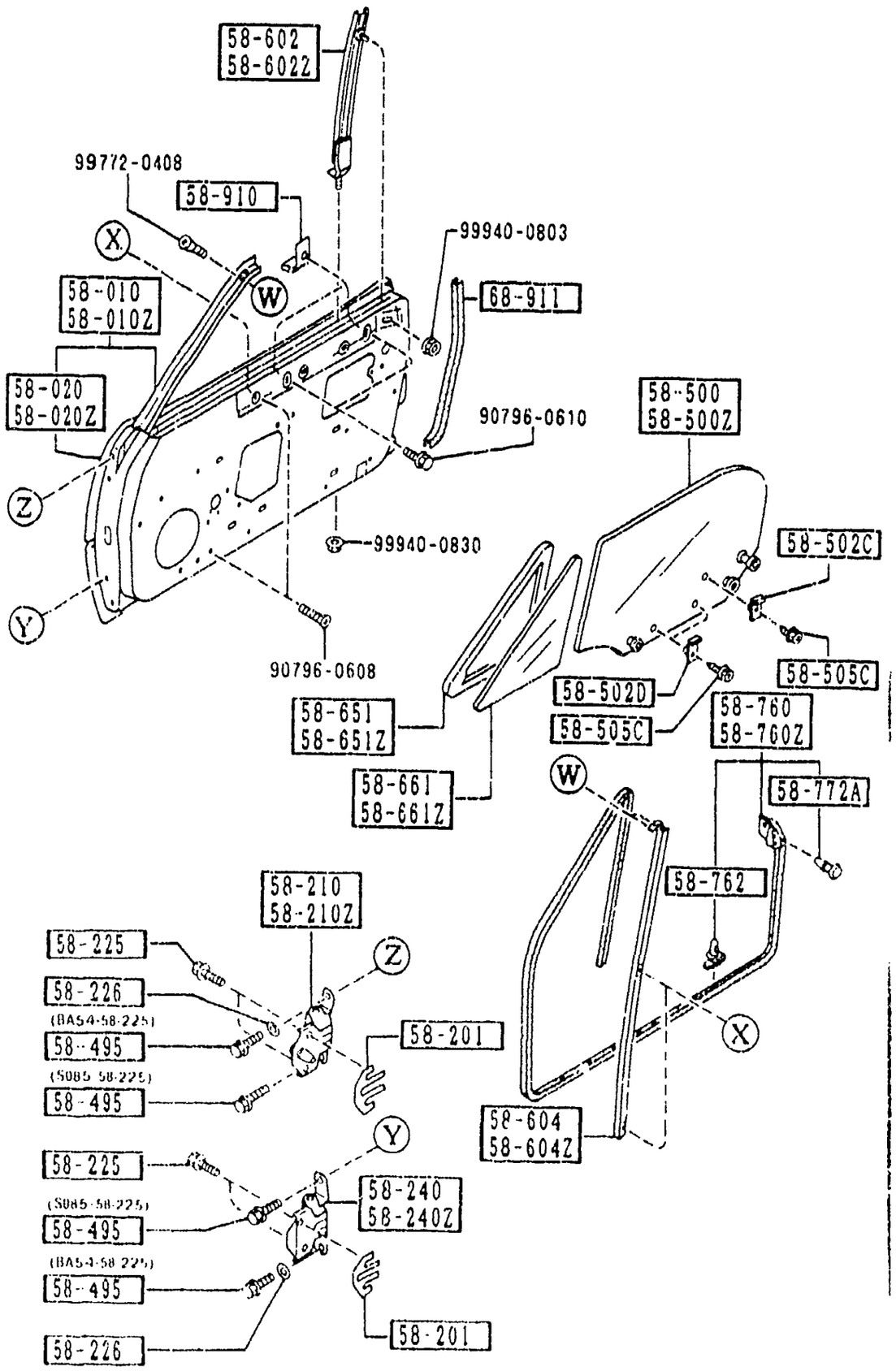


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
57-620		BELT'A',FRONT SEAT			
NA01-57-620	1				
00	INT-	NA0 NA1 NA2 BLACK			
57-630A		BELT'B'(R),FRT SEAT			
NA01-57-630C	1				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
57-631		COVER,ANCHOR			
NA01-57-631B	2				
00	INT-	NA0 NA1 NA2 BLACK			
57-680		BELT'A',FRONT SEAT			
NA01-57-680	1				
00	INT-	NA0 NA1 NA2 BLACK			
57-680A		BELT'B'(L),FRT SEAT			
NA01-57-690A	1				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			



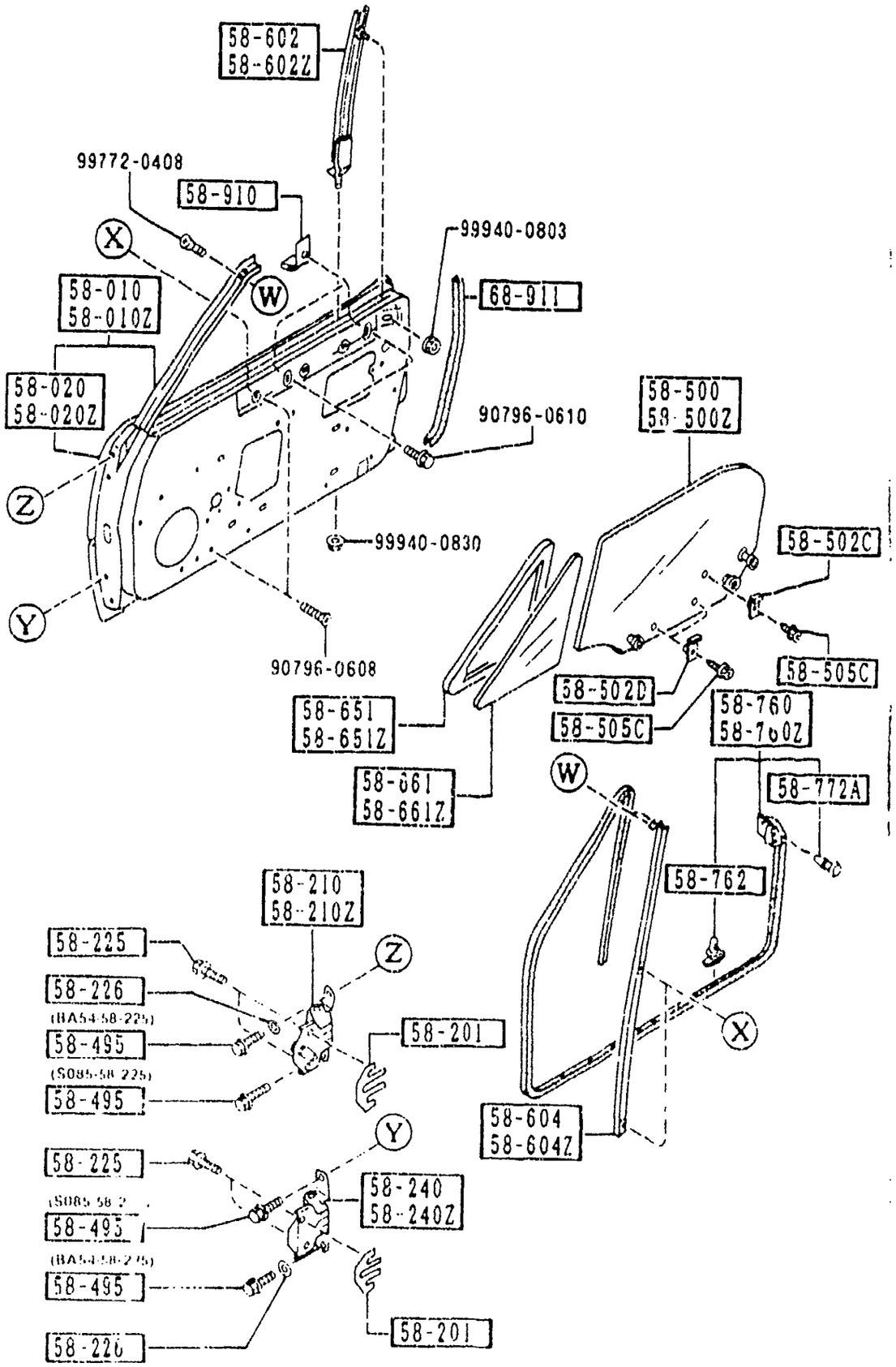
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
56-181K		COVER(R),SENSOR-AIR BAG			
NA01-56-191A	1				
56-191D		COVER(L),SENSOR-AIR BAG			
NA01-56-181A	1				
57-K00		MODULE,AIR BAG			
NA01-57-K00A (NA01-57-K00B)	1				-2101
00	INT-	NA0 NA1 BLACK			
NA01-57-K00B	1				2101-
00	INT-	NA0 NA1 NA2 BLACK			
57-K10		SENSOR(C),AIR BAG			
NA01-57-K10H	1				
57-K2X		SENSOR(R),AIR BAG			
NA01-57-K2XJ	1				
57-K2Y		SENSOR(L),AIR BAG			
NA01-57-K2YJ	1				
57-K40		SENSOR,AIR BAG-INNER			
NA01-57-K40D	1				
57-K45		COVER(R),SENSOR			
NA01-57-K45B	1				
57-K46		COVER(L),SENSOR			
NA01-57-K46B	1				
57-K47		COVER(C),SENSOR			
NA01-57-K47B	1				
57-K9Z		BRACKET,CLIP			
NA01-57-K9ZB	1				
69-885D		FASTENER			
NA01-56-145	8				

2101 NA35**-313914



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
58-010		BODY(R),FRONT DOOR			
NAY1-58-020 AN(NAY1-58-020A)	1				-0A01
NAY1-58-020A	1				0A01-
58-010Z		BODY(L),FRONT DOOR			
NAY1-59-020 AN(NAY1-59-020A)	1				-0A01
NAY1-59-020A	1				0A01-
58-020		PANEL(R),OUT.-FRT DOOR			
NA01-58-030A AN(NA01-58-030B)	1				-0A01
NA01-58-030B	1				0A01-
58-020Z		PANEL(L),OUT.-FRT DOOR			
NA01-59-030A AN(NA01-59-030B)	1				-0A01
NA01-59-030B	1				0A01-
58-201		SHIM,HINGE-DOOR			
B092-58-201A	4				
58-210		HINGE(R),DOOR-UPPER			
FB01-58-210	1				
58-210Z		HINGE(L),DOOR-UPPER			
FB01-59-210	1				
58-225		BOLT,SETTING-HINGE LOWER			
B455-58-225	8				
58-226		WASHER,SETTING			
GJ21-58-226	4				
58-240		HINGE(R),DOOR-LOWER			
B156-58-240	1				
58-240Z		HINGE(L),DOOR-LOWER			
B156-59-240	1				

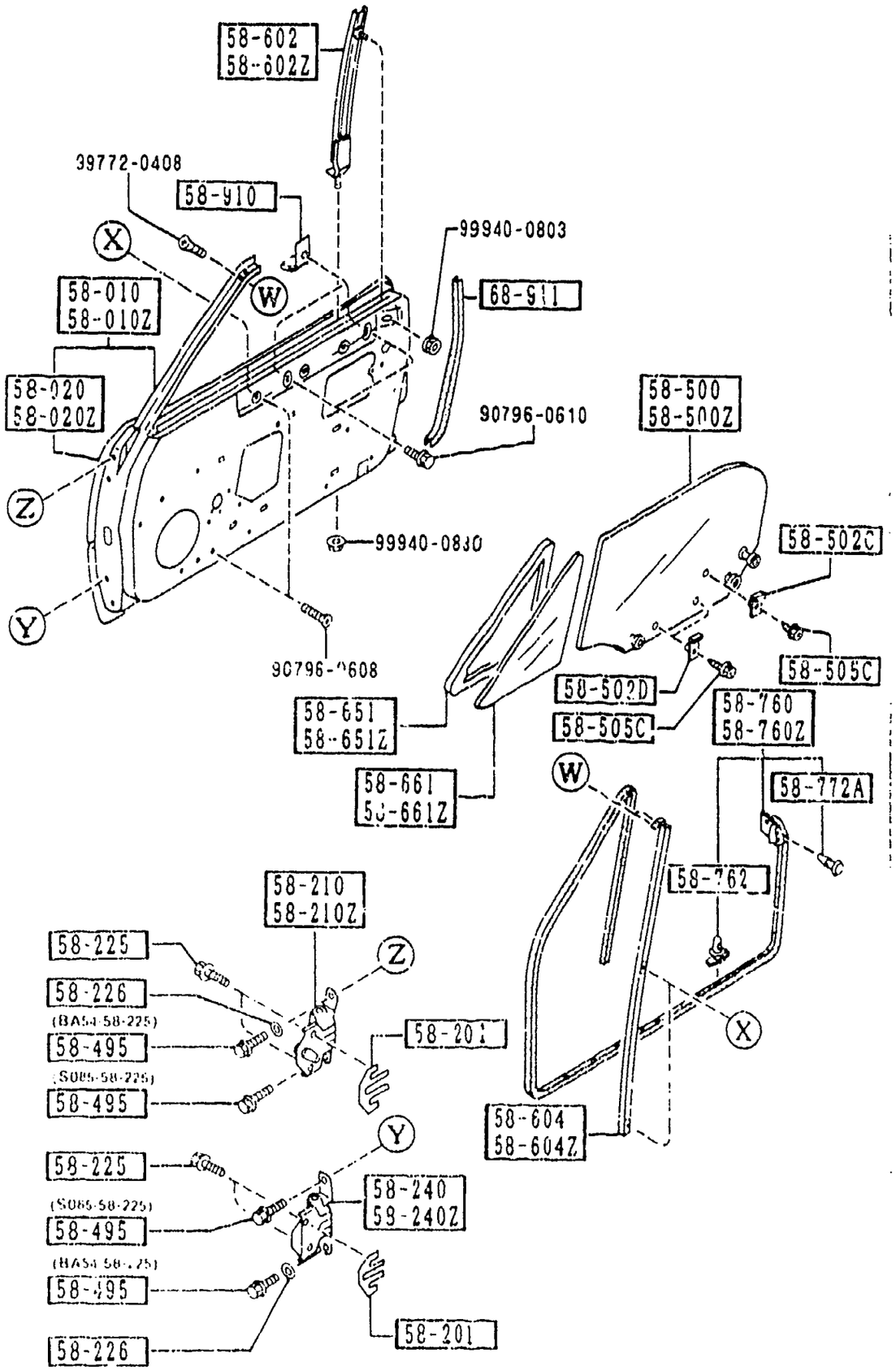
0A01 NA35##-213219



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
58-495		BOLT,SET			
BA54-58-225	4				
S085-58-225	4				
58-500		GLASS(R),DOOR-FRT			
NA01-58-510	1				
58-500Z		GLASS(L),DOOR-FRT			
NA01-59-510	1				
58-502C		GROMMET,SCREW			
B235-58-502	2				
58-502D		GROMMET,SCREW-DOOR GLASS			
UB39-58-502A	4				
58-505C		SCREW,WINDOW REGULATOR			
B092-58-505	6				
58-602		GUIDE'B'(R),GLASS			
NA01-58-603A A (NA01-58-603C)	1				-0820
NA01-58-603C	1				0820-
58-602Z		GUIDE'B'(L),GLASS			
NA01-59-603A A (NA01-59-603C)	1				-0820
NA01-59-603C	1				0820-
58-604		CHANNEL(R),DIVISION-DOOR			
NA01-58-604B	1				
58-604Z		CHANNEL(L),DIVISION-DOOR			
NA01-59-604B	1				
58-651		WEATHERSTRIP(R)			
NA01-58-651A	1				
58-651Z		WEATHERSTRIP(L)			
NA01-59-651A	1				

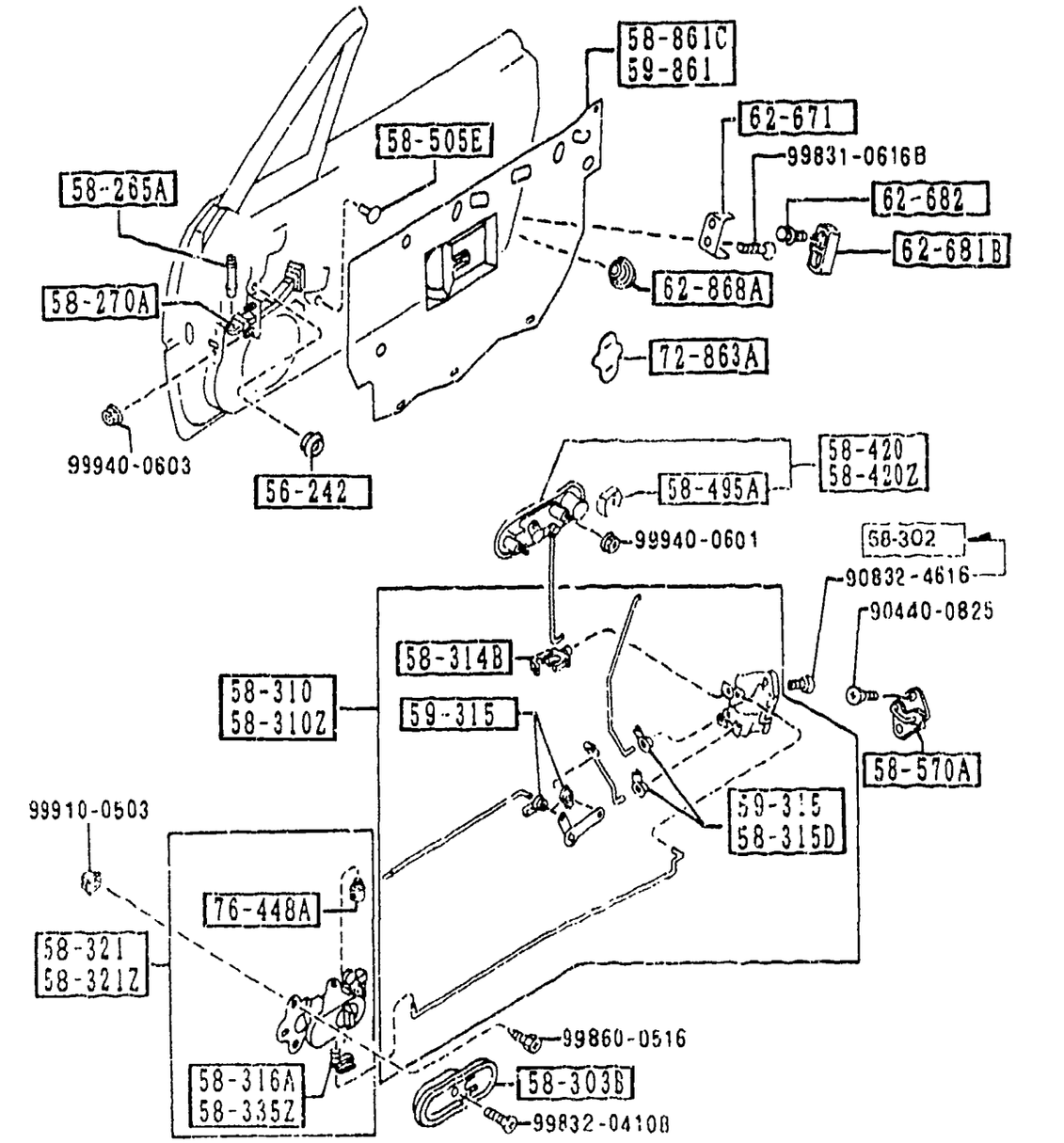
0820 NA35**-219417

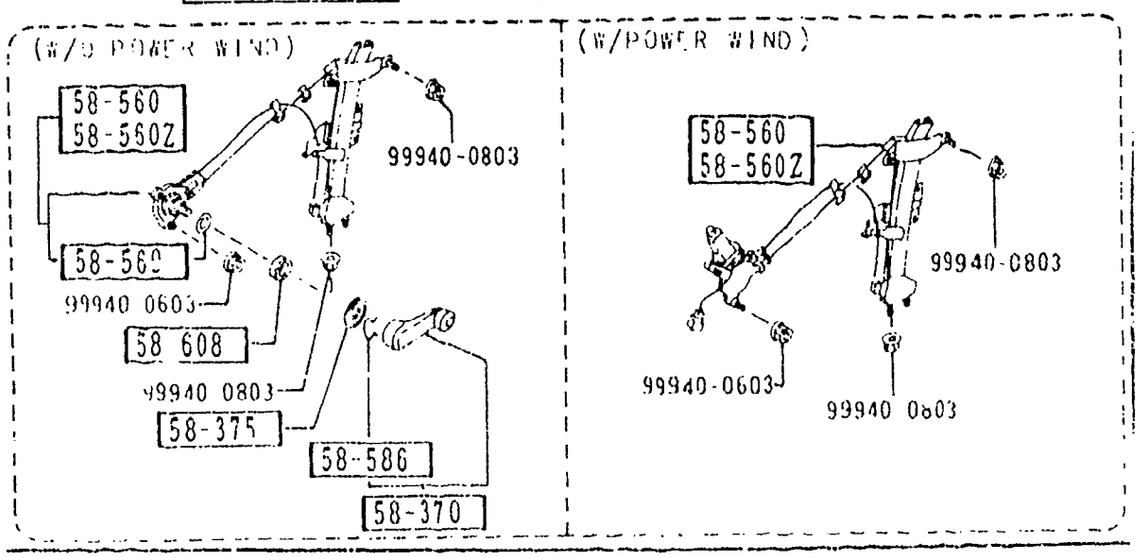
5800 FRONT DOORS



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
58-661 NA01-58-661	1	GLASS(R),VENTILATOR			
58-661Z NA01-59-661	1	GLASS(L),VENTILATOR			
58-760 NA01-58-760C	1	WEATHERSTRIP(R),DOOR			
58-760Z NA01-59-760D	1	WEATHERSTRIP(L),DOOR			
58-762 G031-58-762	42	FASTENER			
58-772A 1011-58-772	4	FASTENER			
58-910 H272-58-911	4	STOPPER,GLASS			
68-911 NA01-68-911	2	WELT,SEAMING			
00	INT-	NA0 NA1 NA2 BLACK			

5830 -1 FRONT DOOR MECHANISMS

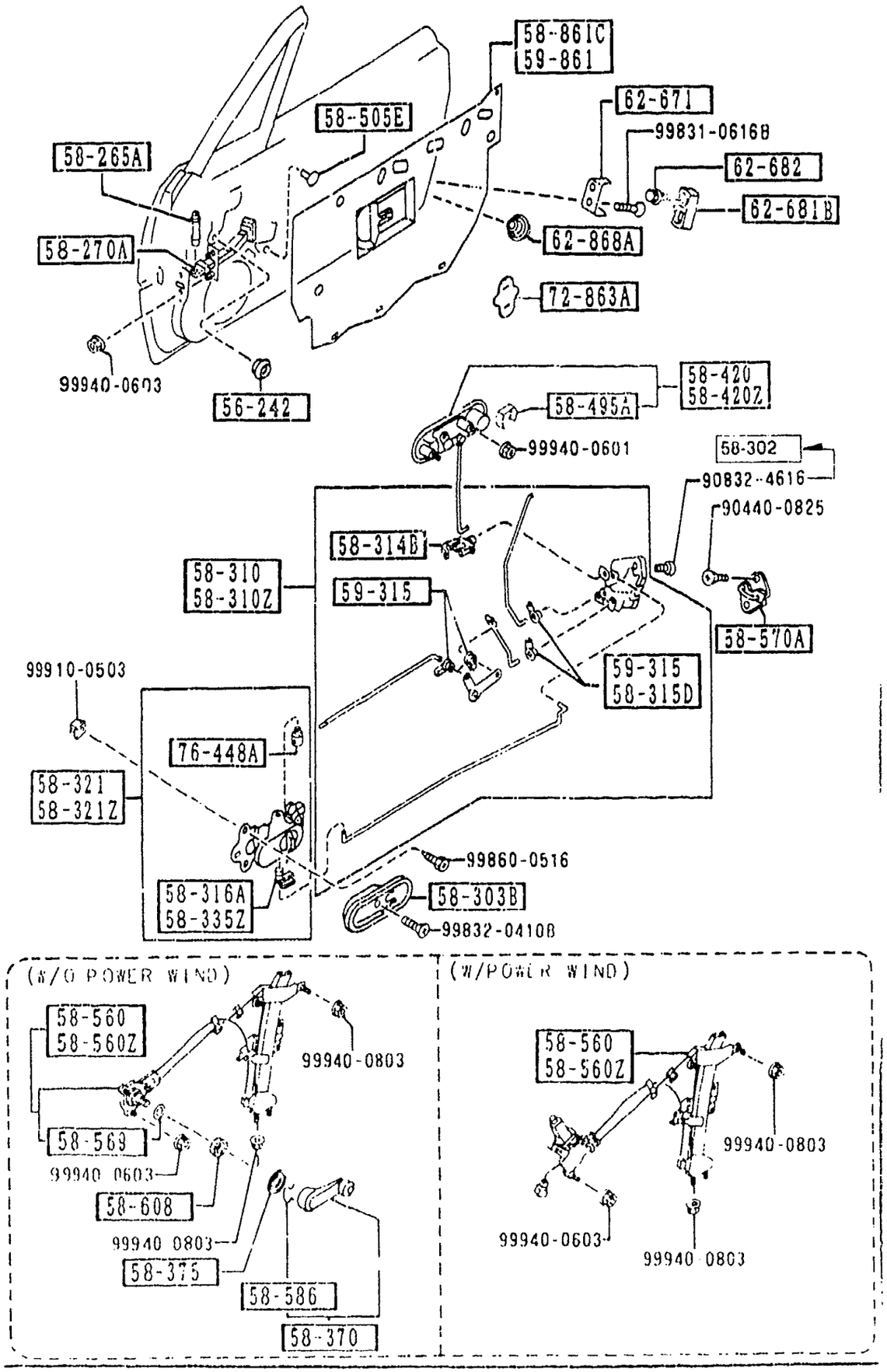




PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
56-242		PLUG,DRAIN			
0118-56-242B	2				
58-265A		PIN,CHECKER			
H260-58-265C	2				
58-270A		CHECKER,DOOR			
NA01-58-270A	2				
58-30..		SCREW,TAPPING-DOOR LOCK			
HG30-58-302A	6				1601-
58-303B		COVER,INNER HANDLE			
NA01-58-303	2				
00	INT-	NA0 NA1 NA2 BLACK			
58-310		LOCK(R),DOOR			
NA01-58-310B	1				
58-310Z		LOCK(L),DOOR			
NA01-59-310B	1				
58-314B		JOINT			
4043-72-411	2				
58-315D		CLIP (R)			
G030-58-315	3	(FOR LEFT)			
58-316A		CLIP			
B001-59-335	1	(FOR RIGHT)			
58-321		HANDLE(R),INNER			
NA01-58-330A	1				
00	INT-	NA0 NA1 NA2 BLACK			
58-321Z		HANDLE(L),INNER			
NA01-59-330A	1				
00	INT-	NA0 NA1 NA2 BLACK			
53-335Z		CLIP(L),INNER HANDLE			

1601 NA35**-235561

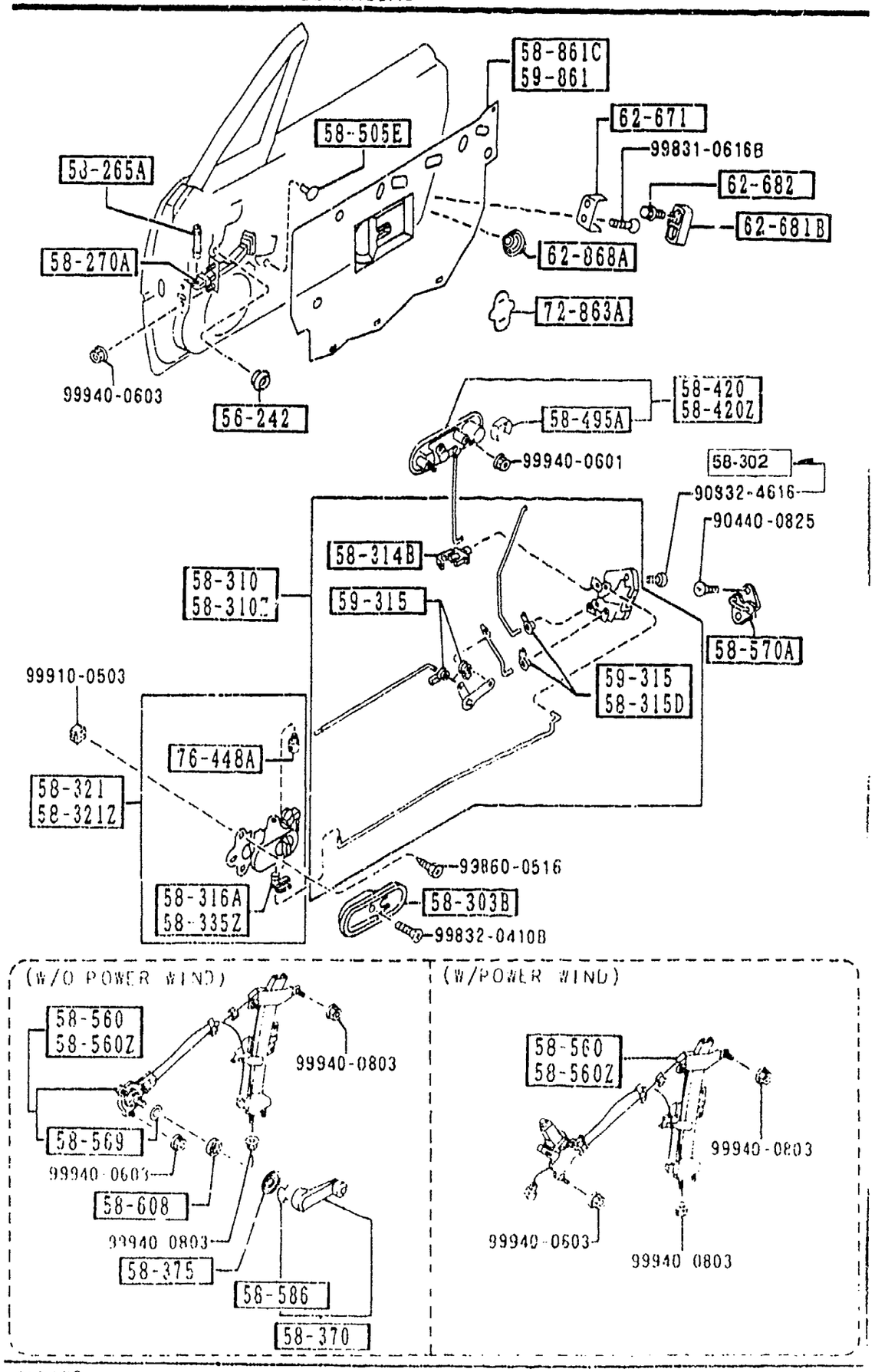
5830 FRONT DOOR MECHANISMS



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
FB01-58-335	1				
+----------+					
| 58-370 |		HANDLE,REGULATOR			
+----------+					
B092-58-580	2	BASE, (W/O POWER WIND.)			
00 INT-		NA0 NA1 NA2 BLACK			
+----------+					
| 58-375 |		ESCUTCHEON			
+----------+					
B001-58-582A	2	BASE, (W/O POWER WIND.)			
00 INT-		NA0 NA1 NA2 BLACK			
+----------+					
| 58-420 |		HANDLE(R),OUT.			
+----------+					
NA01-58-410C AN(NA01-58-410D)	1				-0A02
NA01-58-410D	1				0A02-
+----------+					
| 58-420Z |		HANDLE(L),OUT.			
+----------+					
NA01-59-410C AN(NA01-59-410D)	1				-0A02
NA01-59-410D	1				0A02-
+----------+					
| 58-495A |		RETAINER,LOCK CYL.			
+----------+					
G211-58-495	2				
+----------+					
| 58-505E |		CAP			
+----------+					
B092-58-355	2	BASE, (W/O POWER WIND.)			
+----------+					
| 58-560 |		REGULATOR(R),WINDOW			
+----------+					
NA01-58-560B A (NA01-58-560C)	1				-0B14
NA02-58-560B A (NA02-58-560C)	1				-0B14
NA01-58-560C	1	BASE, (W/O POWER WIND.)			0B14-
NA02-58-560C	1	PKG-OPT, V-SPECIAL, (W/POWER WIND.)			0B14-
+----------+					
| 58-560Z |		REGULATOR(L),WINDOW			
+----------+					
NA01-59-560B A (NA01-59-560C)	1				-0B14
NA02-59-560B A (NA02-59-560C)	1				-0B14

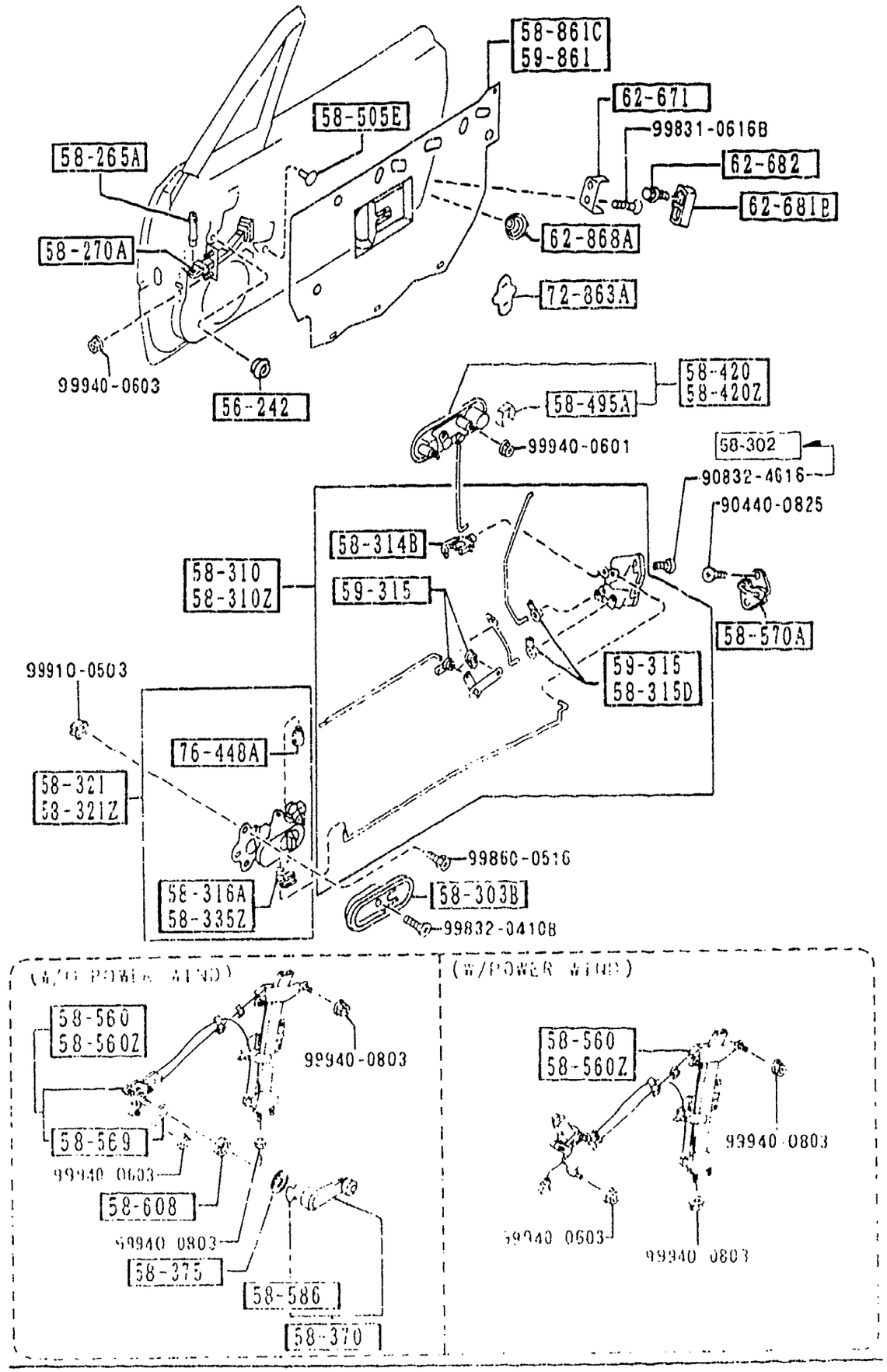
0A02 NA35**-213378
0B14 NA35**-218786

5830 -3 FRONT DOOR MECHANISMS

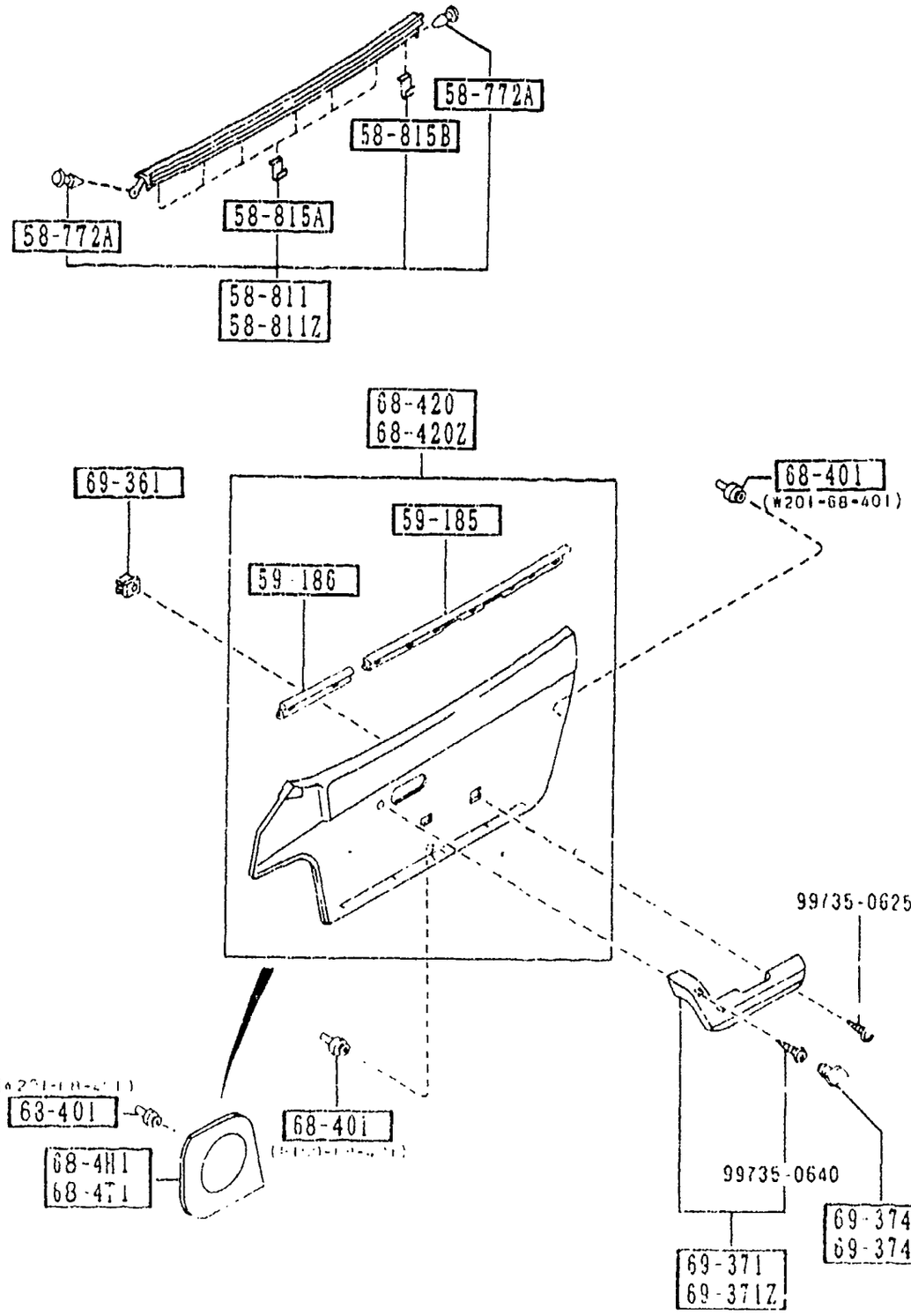


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
CONT'D					
NA01-59-560C	1	BASE, (W/O POWER WIND.)			0B14-
NA02-59-560C	1	PKG-OPT, V-SPECIAL, (W/POWER WIND.)			0B14-
58-569		GASKET,WINDOW REGULATOR			
B092-58-569	2	BASE, (W/O POWER WIND.)			
58-570A		STRIKER			
B001-58-361A	2				
58-586		RING,SNAP			
B001-58-585	2	BASE, (W/O POWER WIND.)			
58-608		PAD			
B092-58-863A	2	BASE, (W/O POWER WIND.)			
58-861C		SCREEN(R),FRONT DOOR			
NA01-58-861A	1	BASE, (W/O POWER WIND.)			
NA02-58-861A	1	PKG-OPT, V-SPECIAL, (W/POWER WIND.)			
59-315		CLIP			
G030-59-315	3	(FOR RIGHT)			
59-861		SCREEN(L),FRONT DOOR			
NA01-59-861A	1	BASE, (W/O POWER WIND.)			
NA02-59-861A	1	PKG-OPT, V-SPECIAL, (W/POWER WIND.)			
62-671		DOVETAIL,LIFT GATE			
S084-62-671	2				
62-681B		WEDGE,DOOR-FRONT			
NA01-62-681	-				
62-682		SCREW,WEDGE-LIFT GATE			
B216-62-682	4				

0B14 NA35**-218786



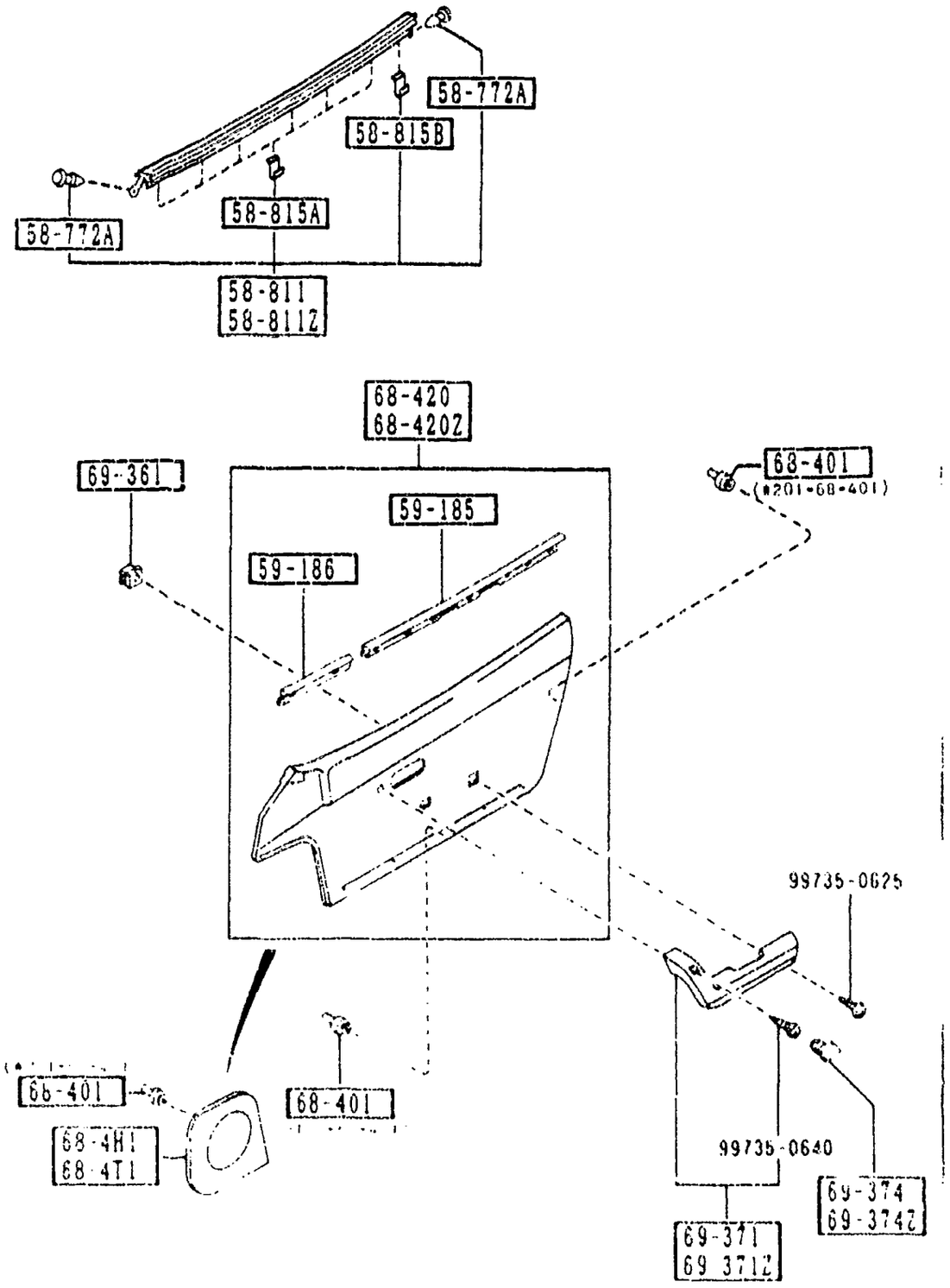
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
62-868A		COVER,HOLE-LIFT GATE			
B499-62-868	2				
72-863A		PAD			
H260-72-864B	2				
76-448A		CLIP			
G030-76-448	2				



5840 -1 FRONT DOOR TRIMS & RELATED PARTS

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
58-772A		FASTENER			
1011-58-772	4				
58-811		WEATHERSTRIP(R),OUT.			
NA01-58-810D	1				
58-811Z		WEATHERSTRIP(L),OUT.			
NA01-59-810D	1				
58-815A		CLIP,WEATHERSTRIP-OUTER			
NA01-58-815	12				
58-815B		CLIP'A',WEATHERSTRIP-OUT			
B157-58-815	2				
59-185		WEATHERSTRIP NO.1			
NA01-58-821	2				
59-186		WEATHERSTRIP NO.2			
NA02-58-821	2				
68-4H1		GRILLE(R),SPEAKER			
NA01-68-4H0	1				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN/BLACK			
68-4T1		GRILLE(L),SPEAKER			
NA01-68-4W0	1				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN/BLACK			
68-401		FASTENER,DOOR TRIM			
B100-68-401	10				
W201-68-401	12				
68-420		TRIM(R),DOOR			
NA01-68-420B (NA01-68-420C) A	1				-1311
00	INT-	NA0 BLACK			
88	INT-	NA1 BLACK-TAN			

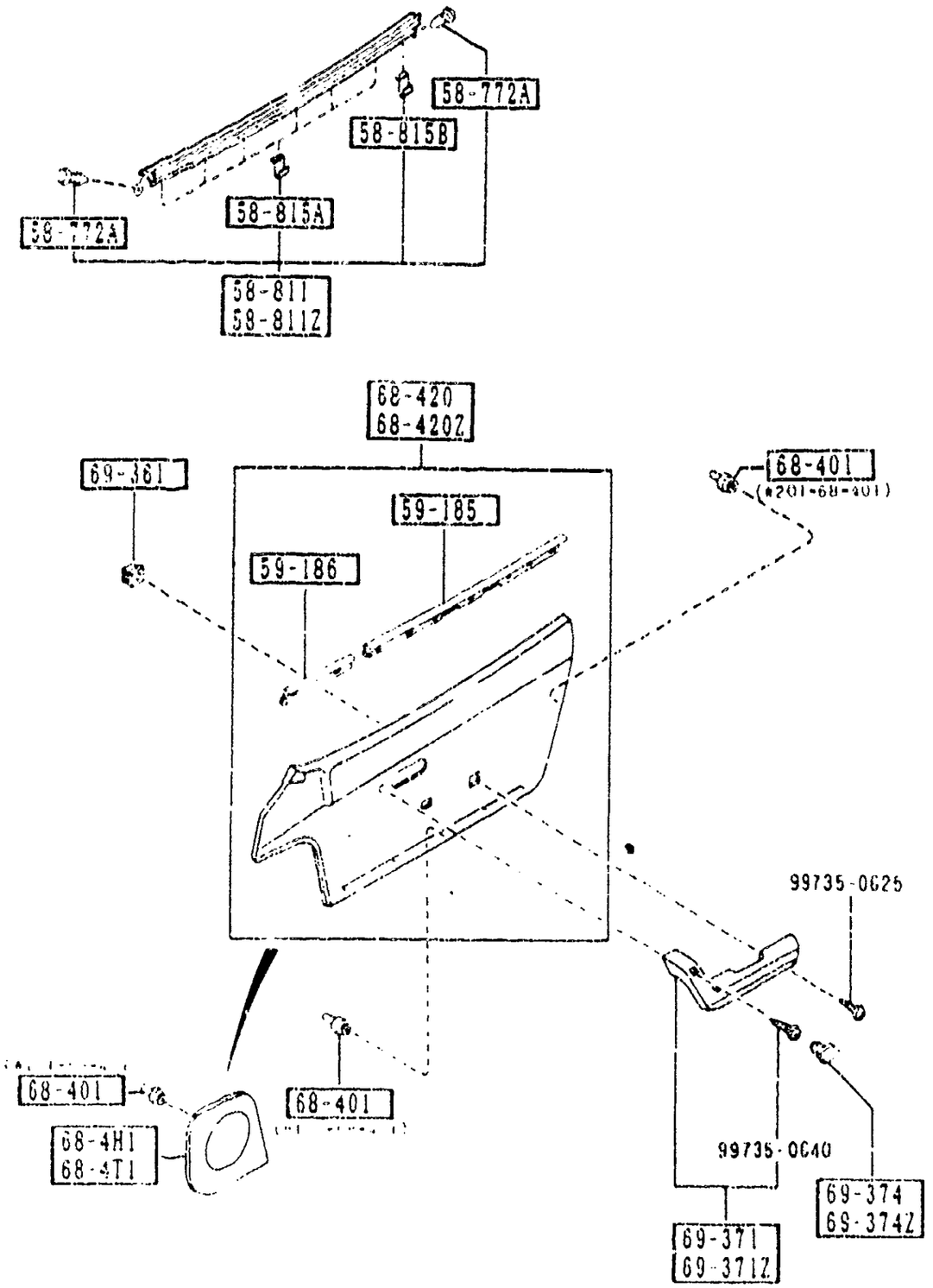
1311 NA35**-231857



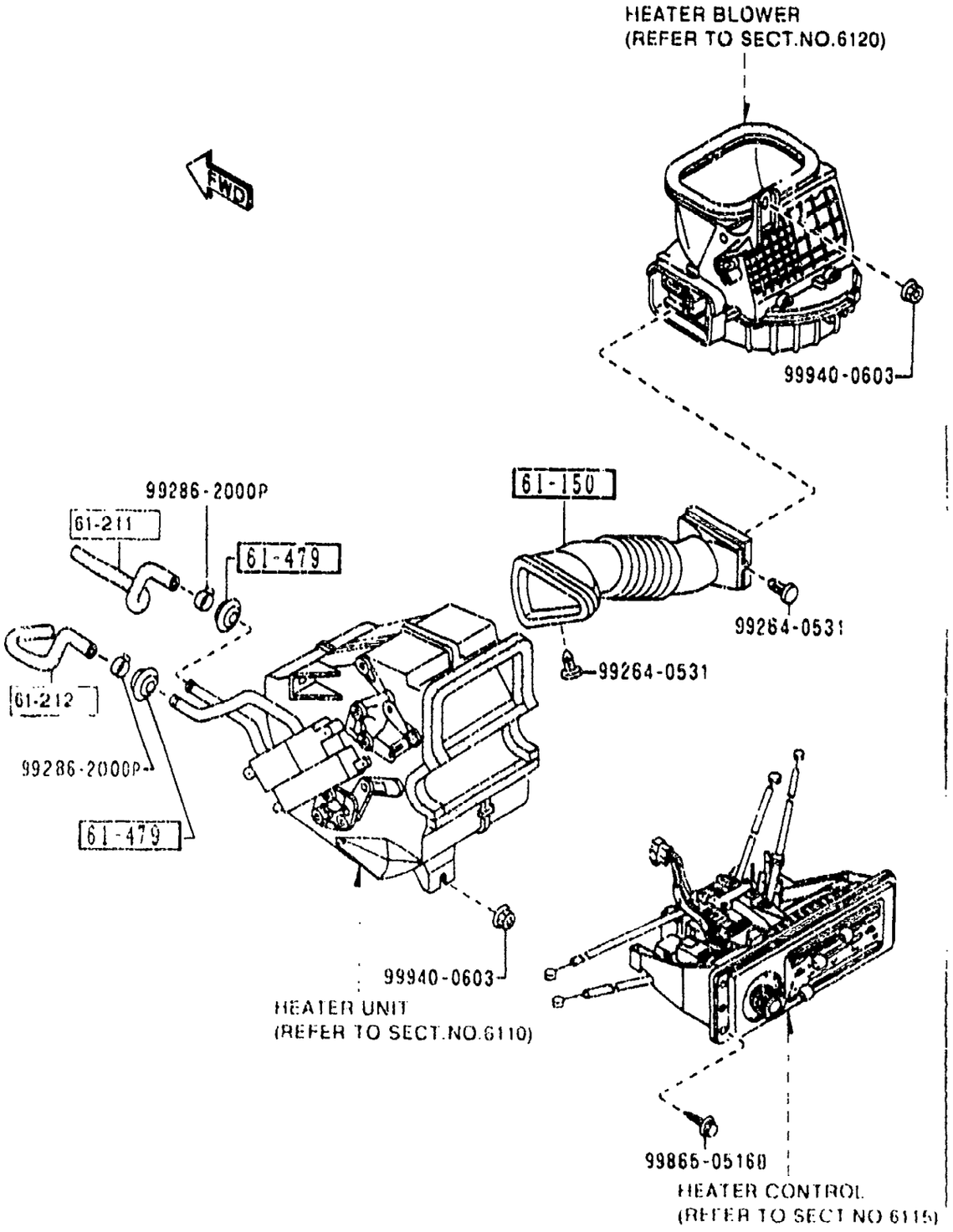
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA02-68-420B	1				-1311
A (NA02-68-420C)					
00	INT-	NA0 BLACK			
88	INT-	NA1 BLACK/TAN			
NA01-68-420C	1	BASE, (W/O POWER WIND.)			1311-
00	INT-	NA0 BLACK			
88	INT-	NA1 BLACK/TAN			
NA02-68-420C	1	PKG-OPT, V-SPECIAL, (W/POWER WIND.)			1311-
00	INT-	NA0 BLACK			
88	INT-	NA1 BLACK/TAN			
68-420Z		TRIM(L),DOOR			
NA01-68-450B	1				-1311
A (NA01-68-450C)					
00	INT-	NA0 BLACK			
88	INT-	NA1 BLACK/TAN			
NA02-68-450B	1				-1311
A (NA02-68-450C)					
00	INT-	NA0 BLACK			
88	INT-	NA1 BLACK/TAN			
NA01-68-450C	1	BASE, (W/O POWER WIND.)			1311-
00	INT-	NA0 BLACK			
88	INT-	NA1 BLACK/TAN			
NA02-68-450C	1	PKG-OPT, V-SPECIAL, (W/POWER WIND.)			1311-
00	INT-	NA0 BLACK			
88	INT-	NA1 BLACK/TAN			
69-361		GROMMET,SCREW			
B316-69-361	6				
69-371		REST(R),ARM			
BF70-69-370C	1				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			

1311 NA35MM-231857

5840 -3 * FRONT DOOR TRIMS & RELATED PARTS

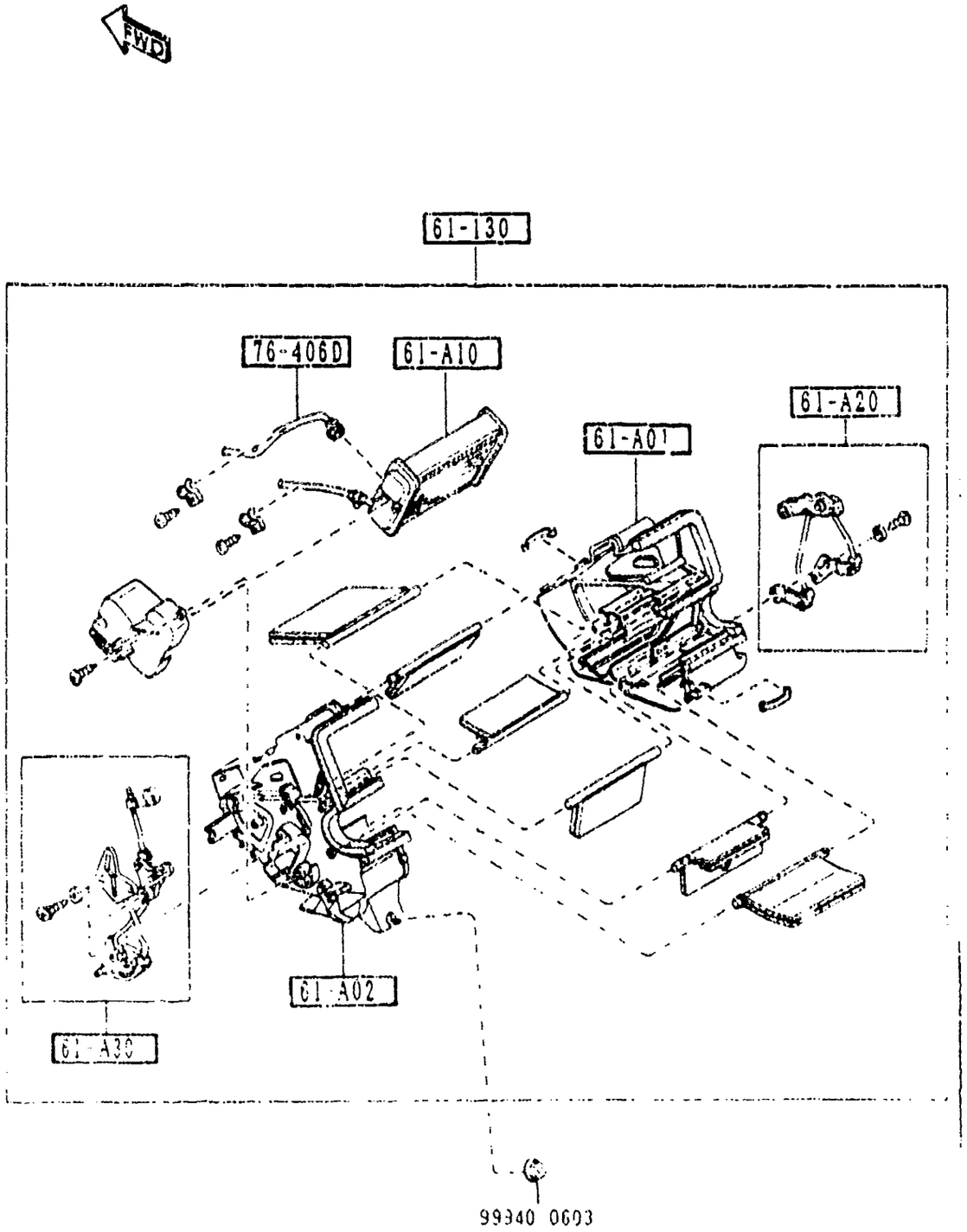


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-10
69-371Z		REST(L),ARM			
BF70-69-390C	1				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
69-374		CAP(R),PULL HANDLE			
BF70-69-372	1				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
69-374Z		CAP(L),PULL HANDLE			
BF70-69-392	1				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			

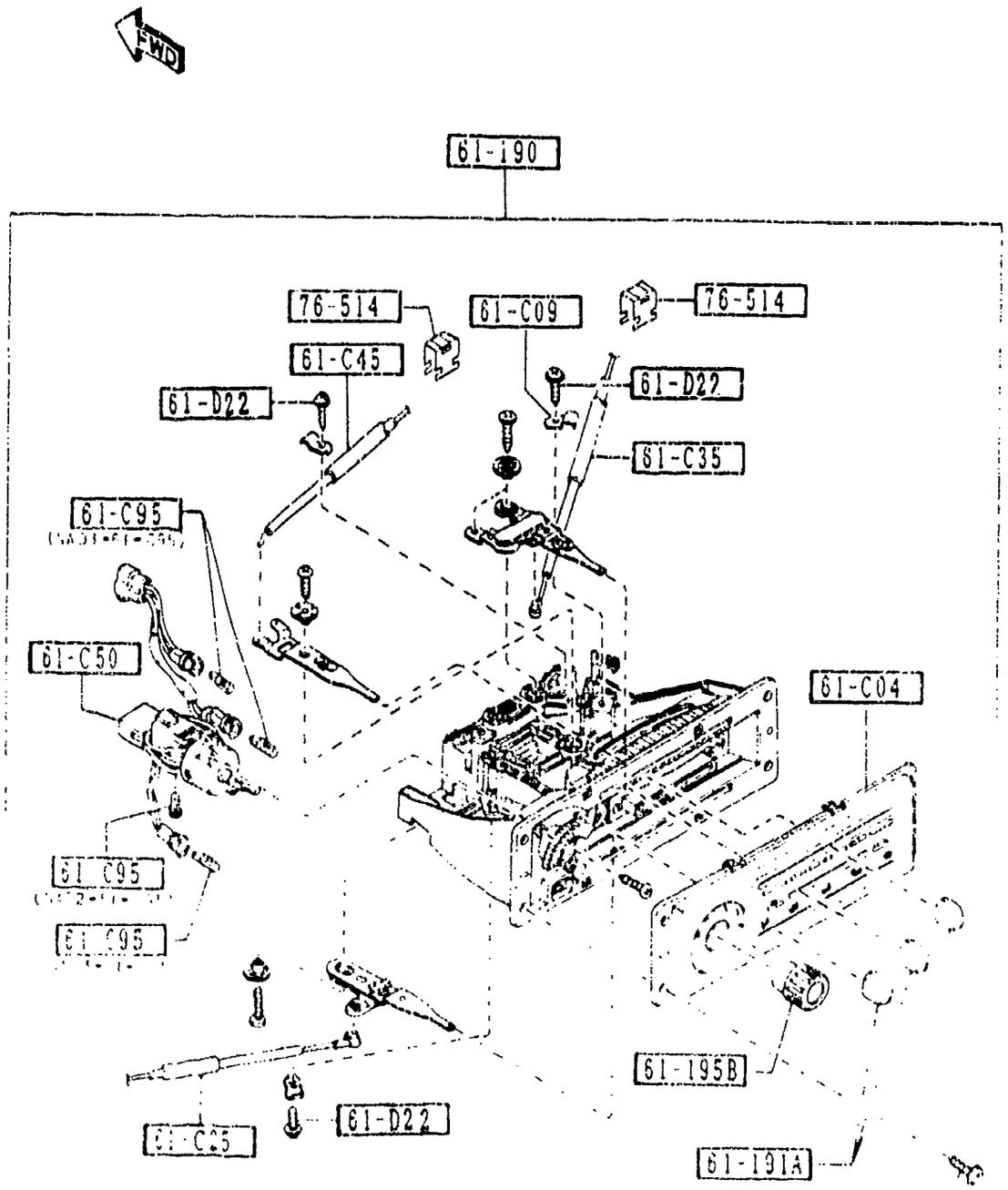


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
61-150		DUCT,AIR			
NA01-61-150A	1				
61-211		HOSE NO.1,WATER			
NA01-61-211	1				
61-212		HOSE NO.2,WATER			
NA01-61-212A	1				-1801
N007-61-212	1				1801-
61-479		GROMMET			
8871-61-219A	2				

1801 NA35**-300014



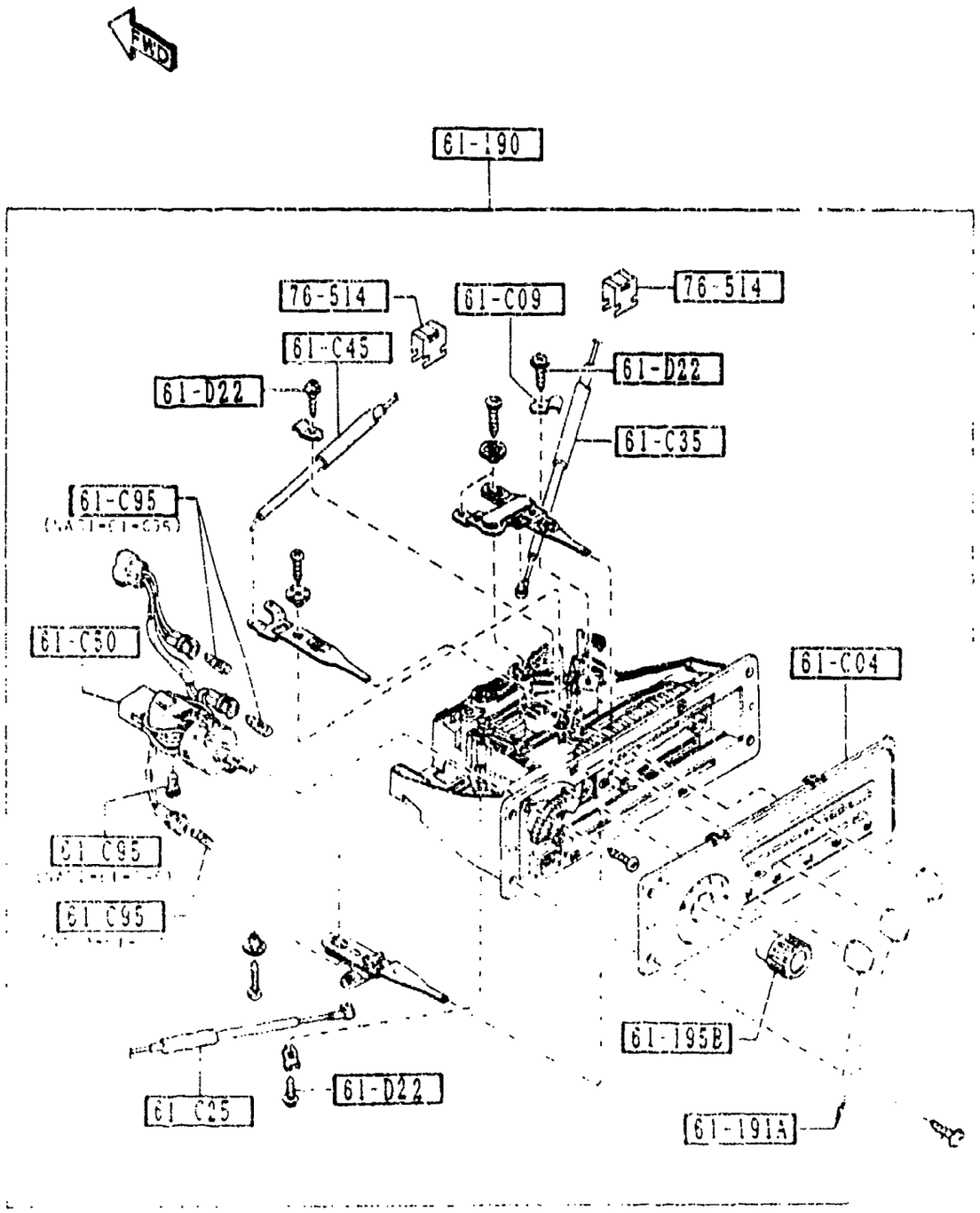
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
61-A01		CASE'A',HEATER UNIT			
NA01-61-A01	1				
61-A02		CASE'B',HEATER UNIT			
NA01-61-A02	1				
61-A10		CORE,HEATER UNIT			
NA01-61-A10	1				
61-A20		LINK SET,TEMP			
NA01-61-A20	1				
61-A30		LINK SET,MODE			
NA01-61-A30	1				
61-130		HEATER UNIT			
NA01-61-130A	1				
76-406D		PIPE,HEATER UNIT			
NA01-61-A15	1				



99865 C516B

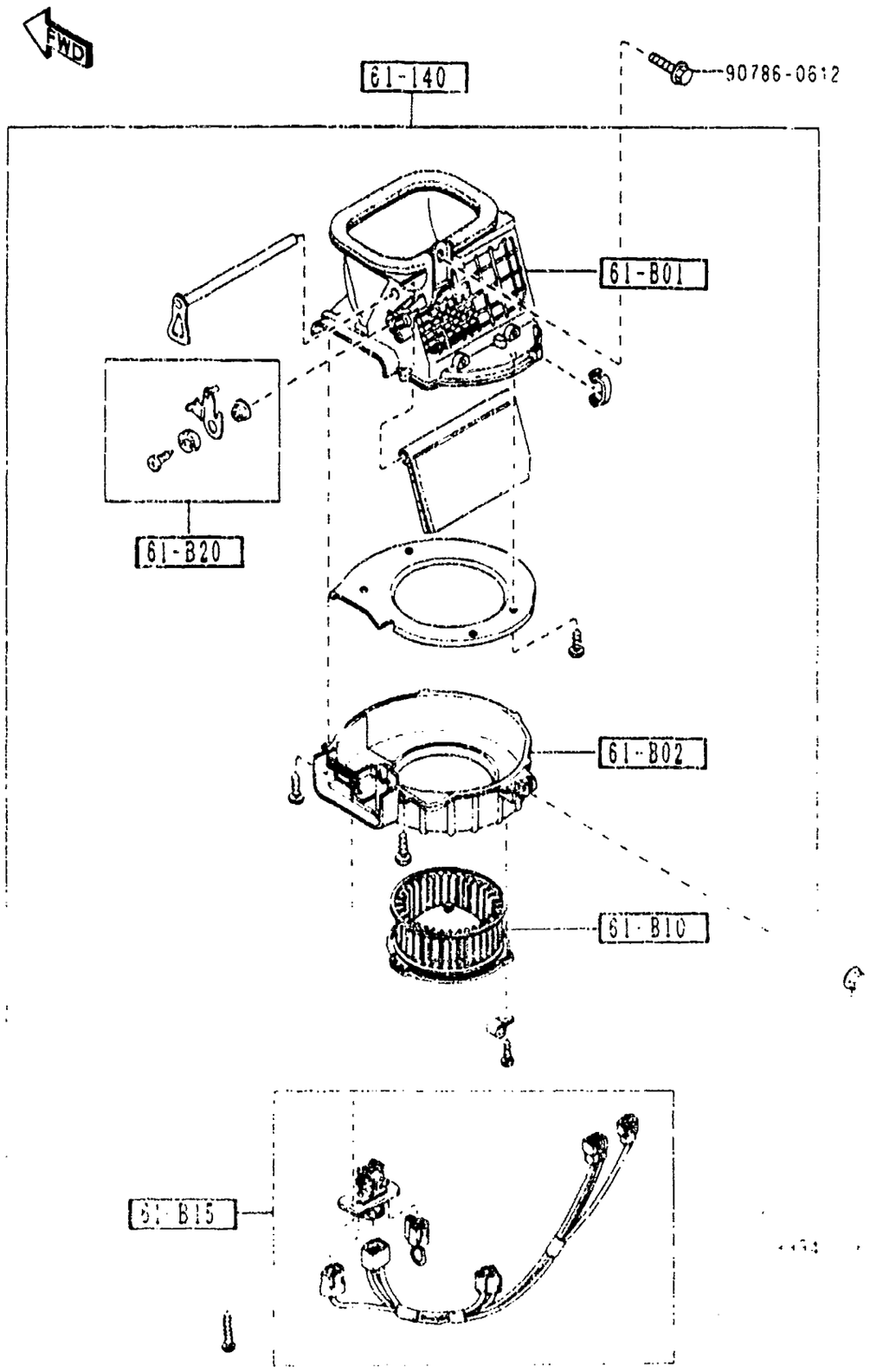
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
61-C04		PANEL,PLATE-MODE CONTROL			
NA01-61-C04	1	BASE, (W/O DETACHABLE TOP)			-1826
NA02-61-C04A	1	OPTION, (W/DETACHABLE TOP-B. COLOR,)			1801-
NA01-61-C04A	1	BASE, (W/O DETACHABLE TOP)			1826-
61-C09		CLIP,HEATER CONTROL			
H260-61-C09	1				
61-C25		WIRE,TEMP. CONTROL			
NA01-61-C25	1				
61-C35		WIRE,MODE CONTROL			
NA01-61-C35	1				
61-C45		WIRE,RECYCLE & FRESH			
NA01-61-C45	1				
61-C50		SWITCH,FAN-HEATER CONTROL			
NA01-61-C50	1				
61-C95		BULB,MODE CONTROL			
NA01-61-C95	2				
NA02-61-C95	1				
NA03-61-C95	1				
61-D22		SCREW,RR HEATER UNIT			
NA01-61-D22	3				
61-190		CONTROL,HEATER			
NA01-61-190A	1	BASE, (W/O DETACHABLE TOP)			-1826
NA02-61-190A	1	OPTION, (W/DETACHABLE TOP-B. COLOR,)			1801-
NA01-61-190B	1	BASE, (W/O DETACHABLE TOP)			1826-

1801 NA35**-300014
1826 NA35**-301452



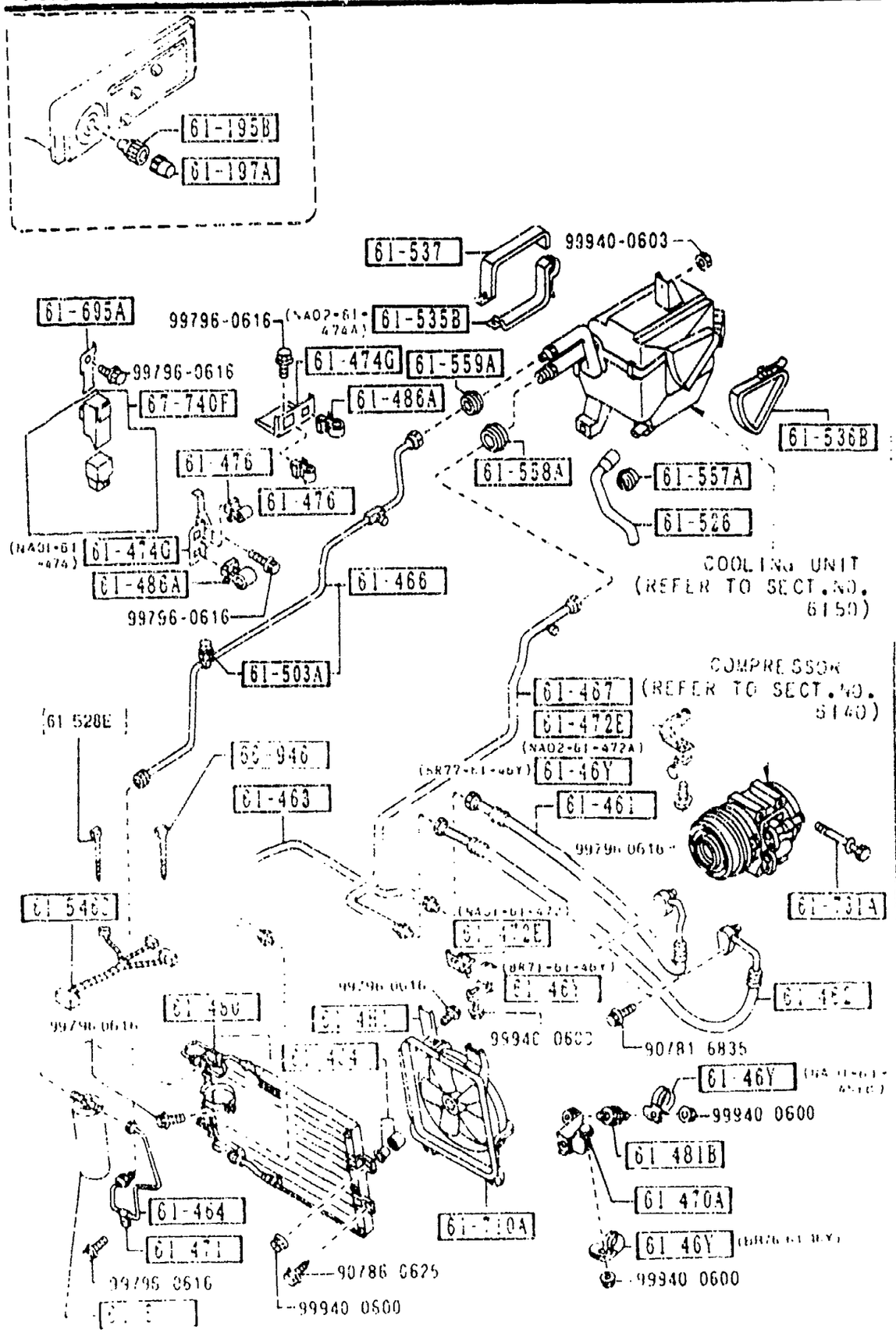
49865 05168

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
61-191A		KNOB NO.1			
NA01-61-191	3				
61-195B		KNOB,FAN SWITCH			
NA01-61-195	1				
76-514		CLIP			
B001-76-526	2				



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
61-B01		CASE'A',BLOWER UNIT			
NA01-61-B01	1				
61-B02		CASE'B',BLOWER UNIT			
NA01-61-B02	1				
61-B10		MOTOR,FAN-BLOWER UNIT			
NA01-61-B10	1				
61-B15		RESISTOR,BLOWER UNIT			
NA01-61-B15	1				
61-B20		LINK,RECYCLE & FRESH			
NA01-61-B20	1				
61-140		BLOWER UNIT			
NA01-61-140A	1				

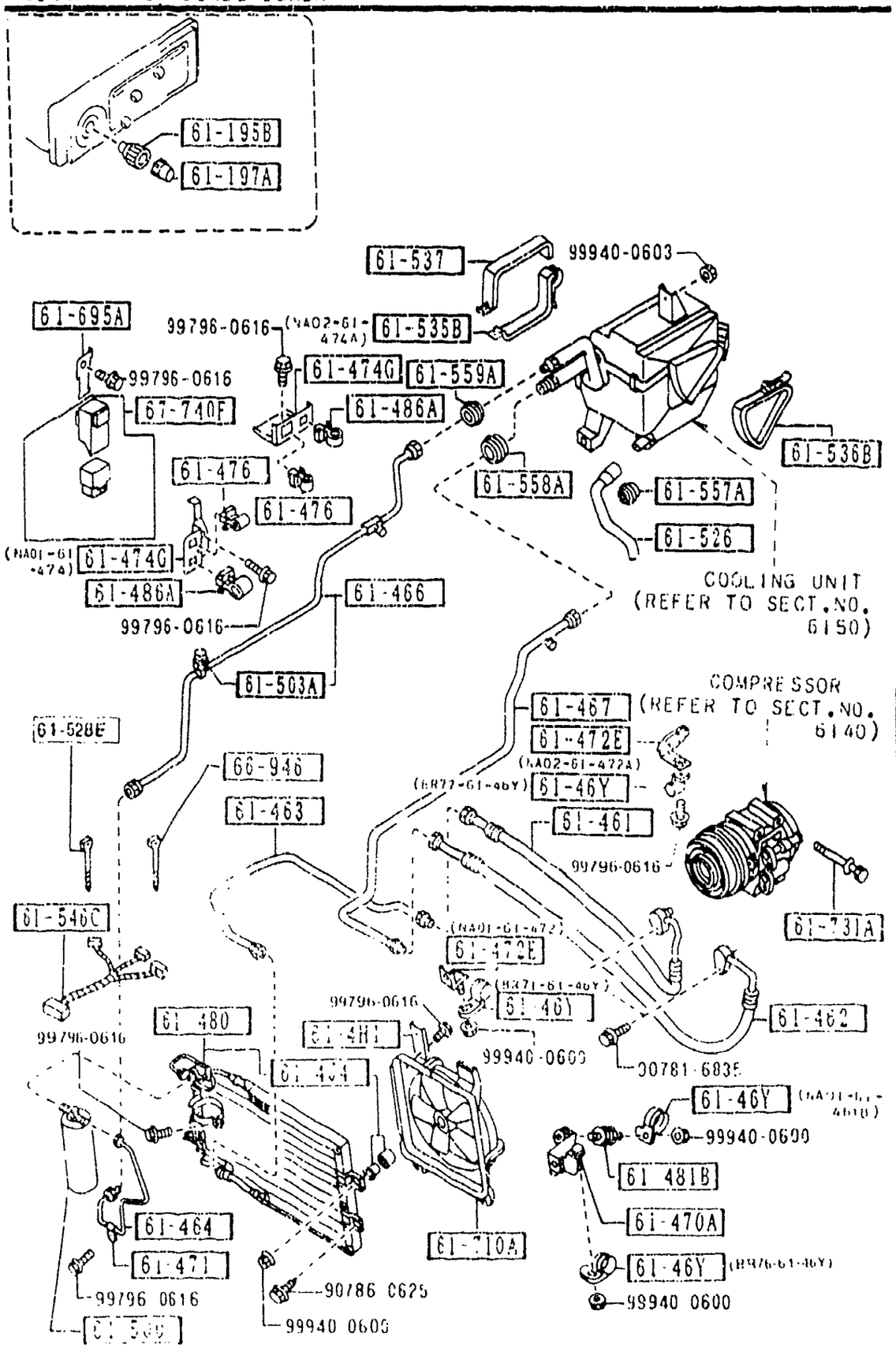
6130 -1 AIR CONDITIONER



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM 15
61-195B		KNOB,FAN SWITCH			
NA01-61-193	1				
61-197A		KNOB,AIR CON.			
NA01-61-197	1				
61-4H1		BRACKET,HOSE			
NA01-61-4H1	1	(A)			
61-4J4		RUBBER,INS.-CONDR			
NA01-61-4J4	4	(A)			
61-46Y		CLIP,PIPE			
BR71-61-46Y	1	(A)			
BR76-61-46Y	1	(A)			
BR77-61-46Y	1	(A)			
NA01-61-461B	1	(A)			
61-461		HOSE,FLEXIBLE-HIGH			
NA01-61-461B	1	(A)			
61-462		HOSE,FLEXIBLE-LOW			
NA01-61-462C	1	(A)			
61-463		PIPE NO.1,COOLER			
NA02-61-466C	1	(A)			
61-464		PIPE NO.2,COOLER			
NA01-61-466	1	(A)			
61-466		PIPE NO 4,COOLER			
NA01-61-467C AN(NA01-61-46X)	1	(A)			0C17
NA01-61-46X	1	(A)			0C17-

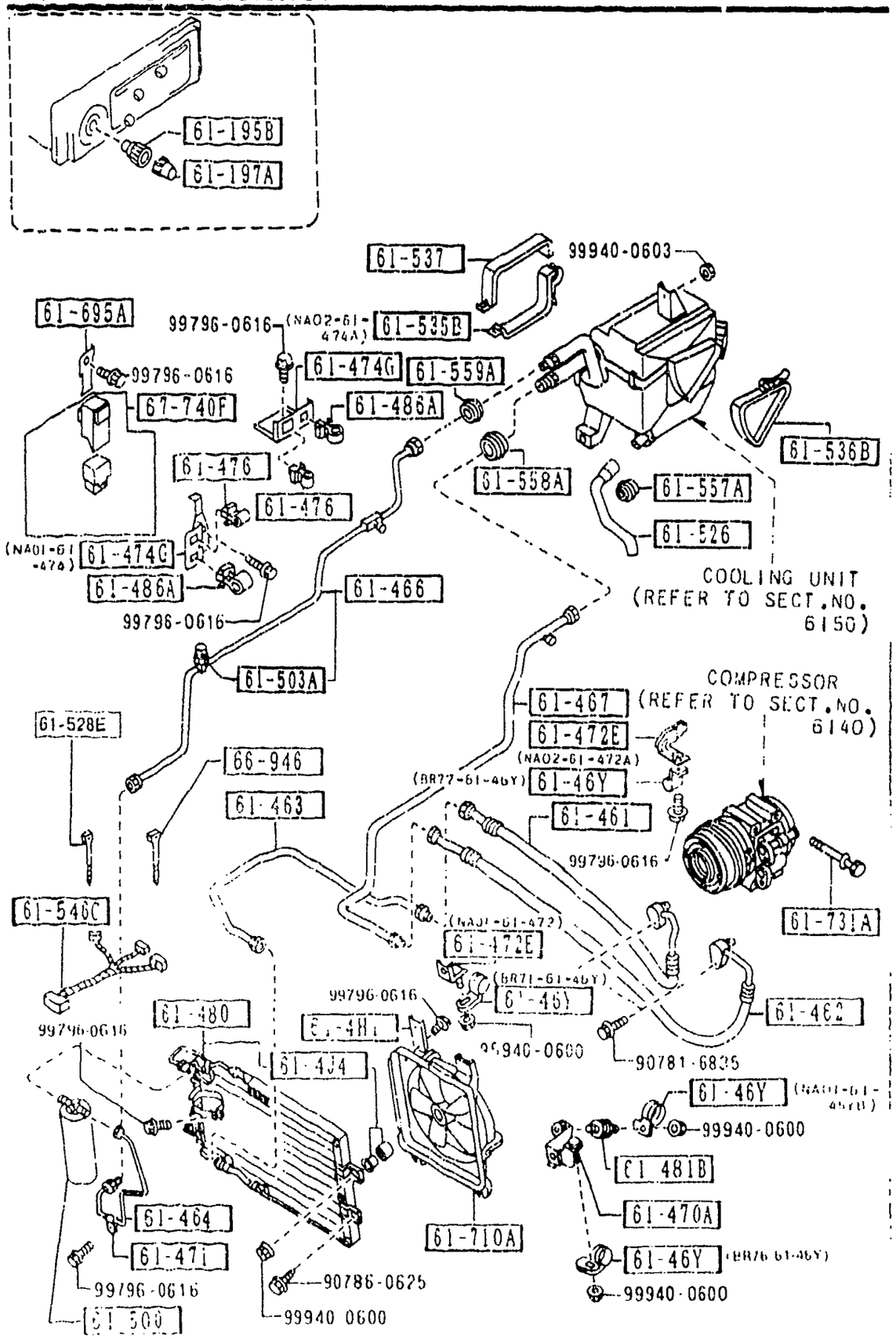
0C17 NA35##-222506

6130 AIR CONDITIONER



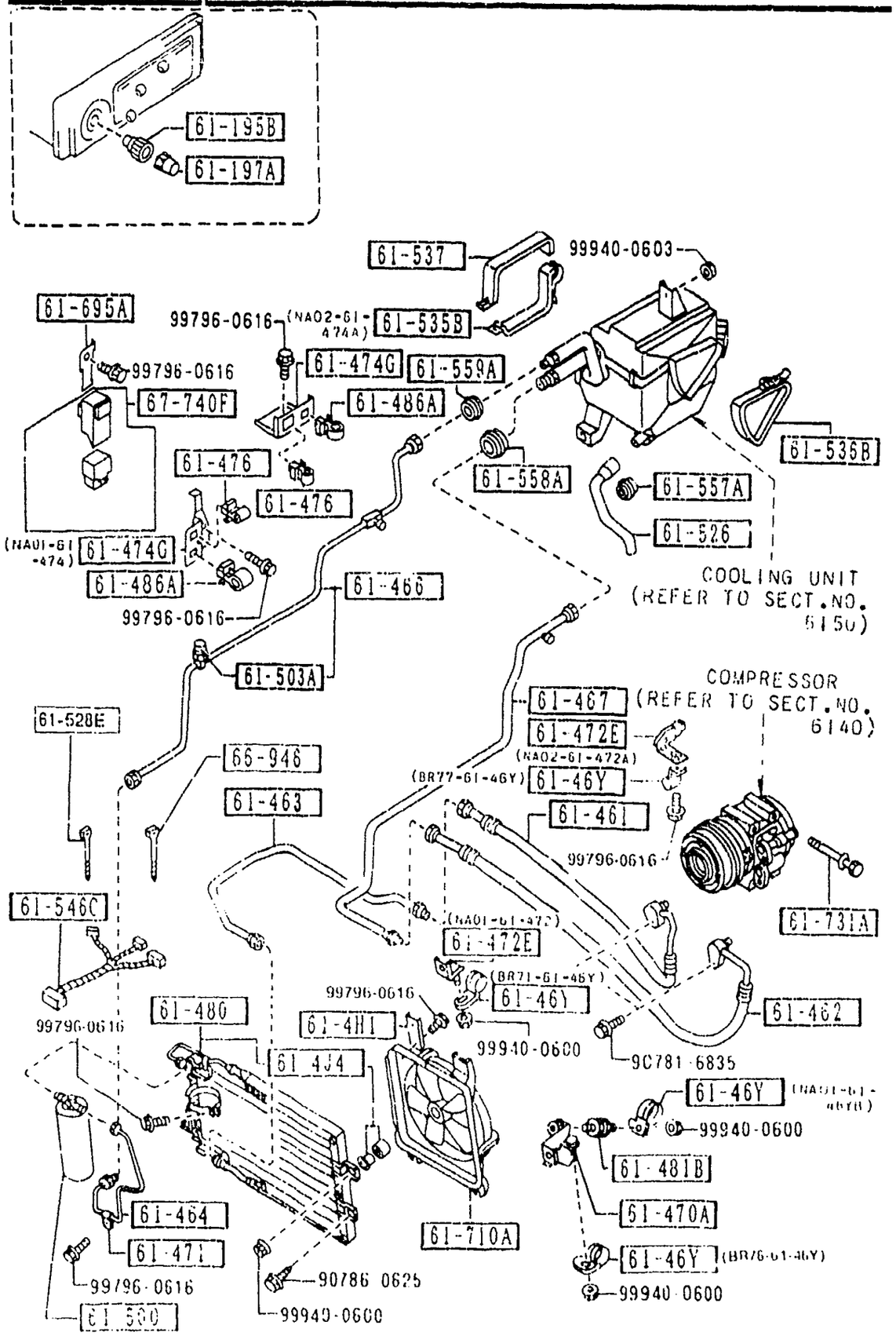
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
61-467		PIPE NO.5,COOLER			
NA01-61-468A	1	(A)			
61-470A		BRACKET,HOSE			
*NA02-61-471A	1	(A)			
61-471		CLIP,PIPE			
BF67-61-471	1	(A)			
61-472E		BRACKET,CLAMP			
NA01-61-472	1	(A)			
NA02-61-472A	1	(A)			
61-474G		BRACKET,PIPE			
NA01-61-474	1	(A)			
NA02-61-474A	1	(A)			
61-476		CLIP			
NA02-61-476	2	(A)			
61-480		CONDENSER			
NA01-61-480	1	(A)			
61-481B		RUBBER,INSULATOR			
NA01-61-487	1				
61-486A		CLIP			
UB39-61-486A	2				
61-500		TANK,LIQUID			
NA01-61-500	1	(A)			
61-503A		SWITCH,PRESS-COOLER PIPE			
NA01-61-503	1	(A)			

6130 -3 AIR CONDITIONER

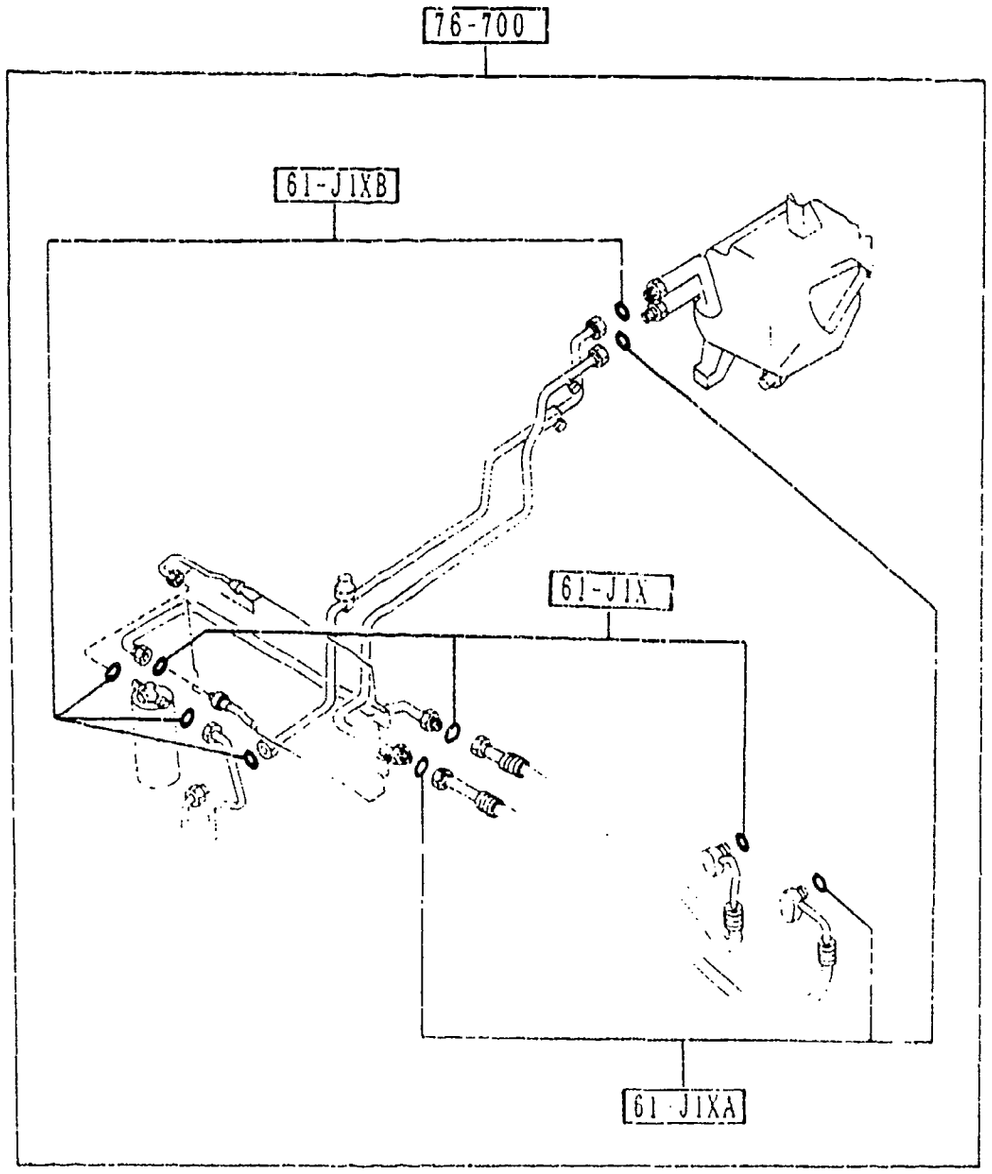


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
61-526		HOSE,DRAIN			
NA01-61-526	1	(A)			
61-528E		BAND			
NA01-61-435	3	(G)			-0C10
NA01-61-435	2	(G)			0C10-
61-535B		PLATE NO.1,SEAL			
NA01-61-52YA	1	(A)			
61-536B		PLATE NO.2,SEAL			
NA01-61-52Z	1	(A)			
61-537		PLATE NO.3,SEAL			
NA01-61-529	1	(A)			
61-546C		HARNESS,WIRE			
NA01-61-546B	1	(A)			
61-557A		GROMMET			
FB04-61-557	1	(A)			
61-558A		GROMMET			
BF67-61-558	1	(A)			
61-559A		GROMMET			
BF67-61-559	1	(A)			
61-695A		BRACKET,RELAY			
NA01-61-695	1	(A)			
61-710A		FAN,CONDENSER			
NA01-61-710	1	(A)			

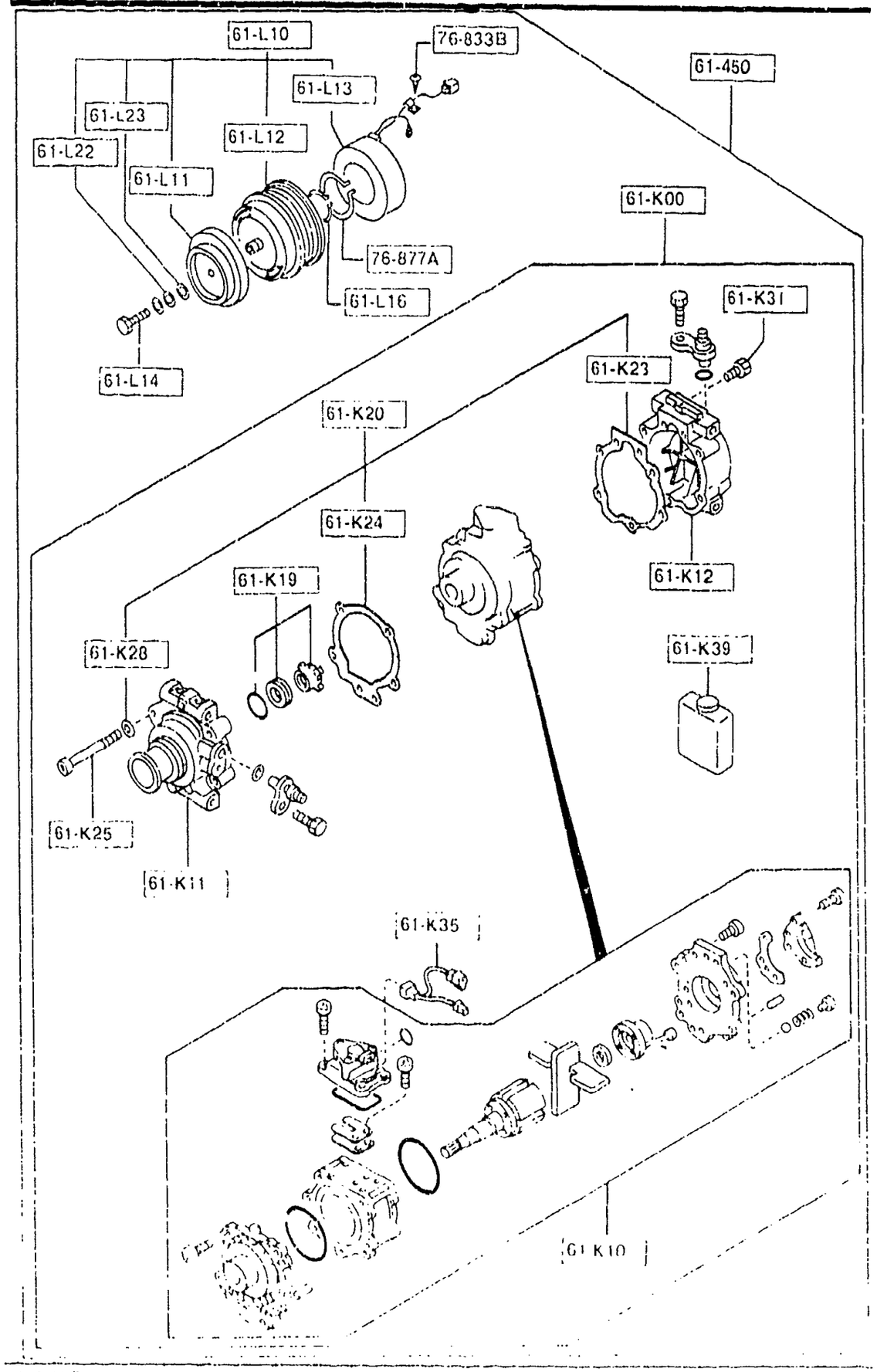
0C10 NA35**-221880



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
61-731A		BOLT,AIR CON.			
B111-61-731	4				
66-946		BAND			
NA02-61-435	1	(A)			
67-740F		CONTROL,COOLANT FAN			
B462-67-740	1				

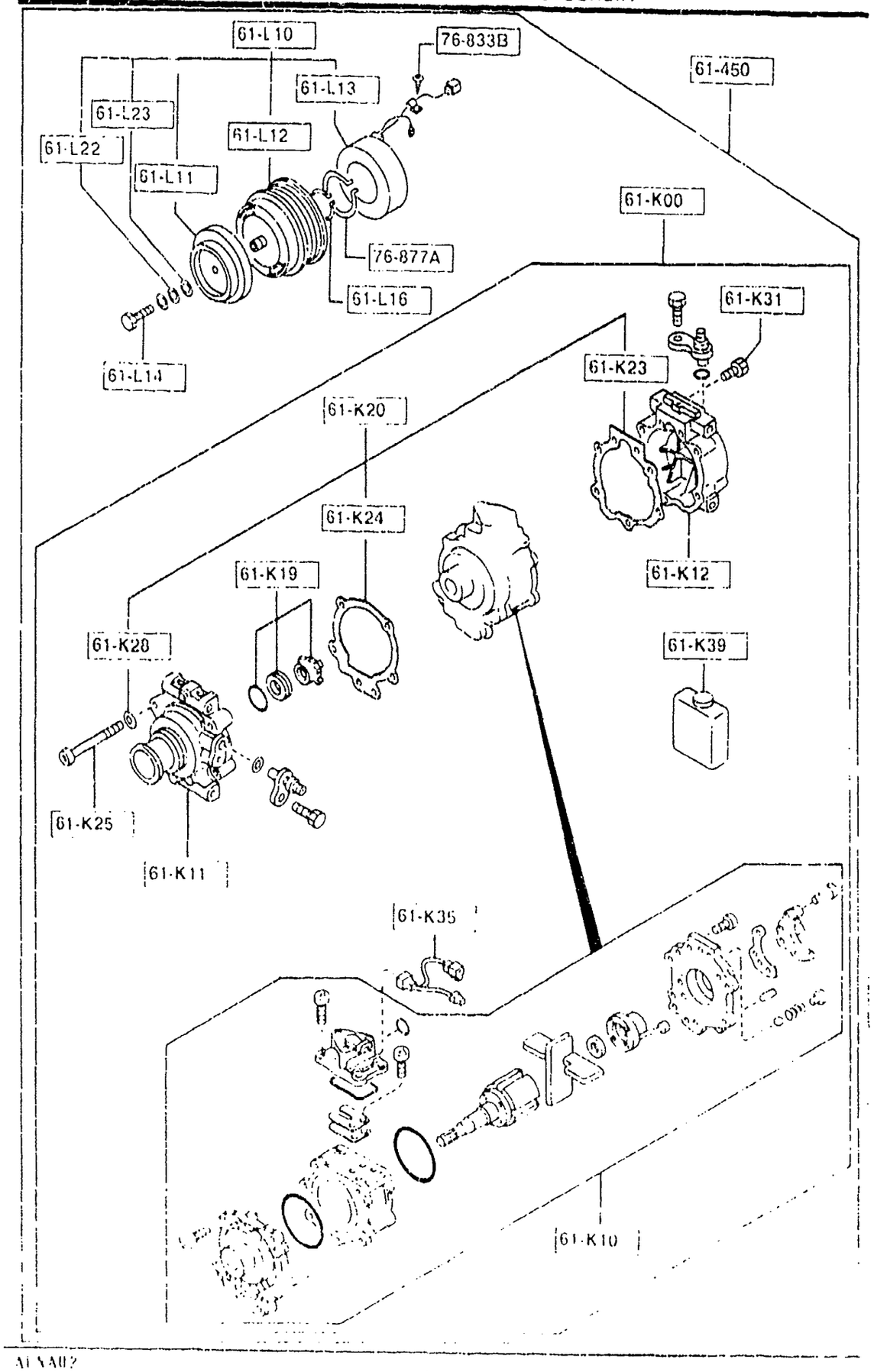


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
61-J1X		RING,'O'-NO.1			
GJY1-61-J1X	3	(A)			
61-J1XA		RING,'O'-NO.2			
GJY2-61-J1X	3	(A)			
61-J1XB		RING,'O'-NO.3			
GJY3-61-J1X	4	(A)			
76-700		RING SET,'O'-AIR CON			
NA01-76-700	1	(A)			

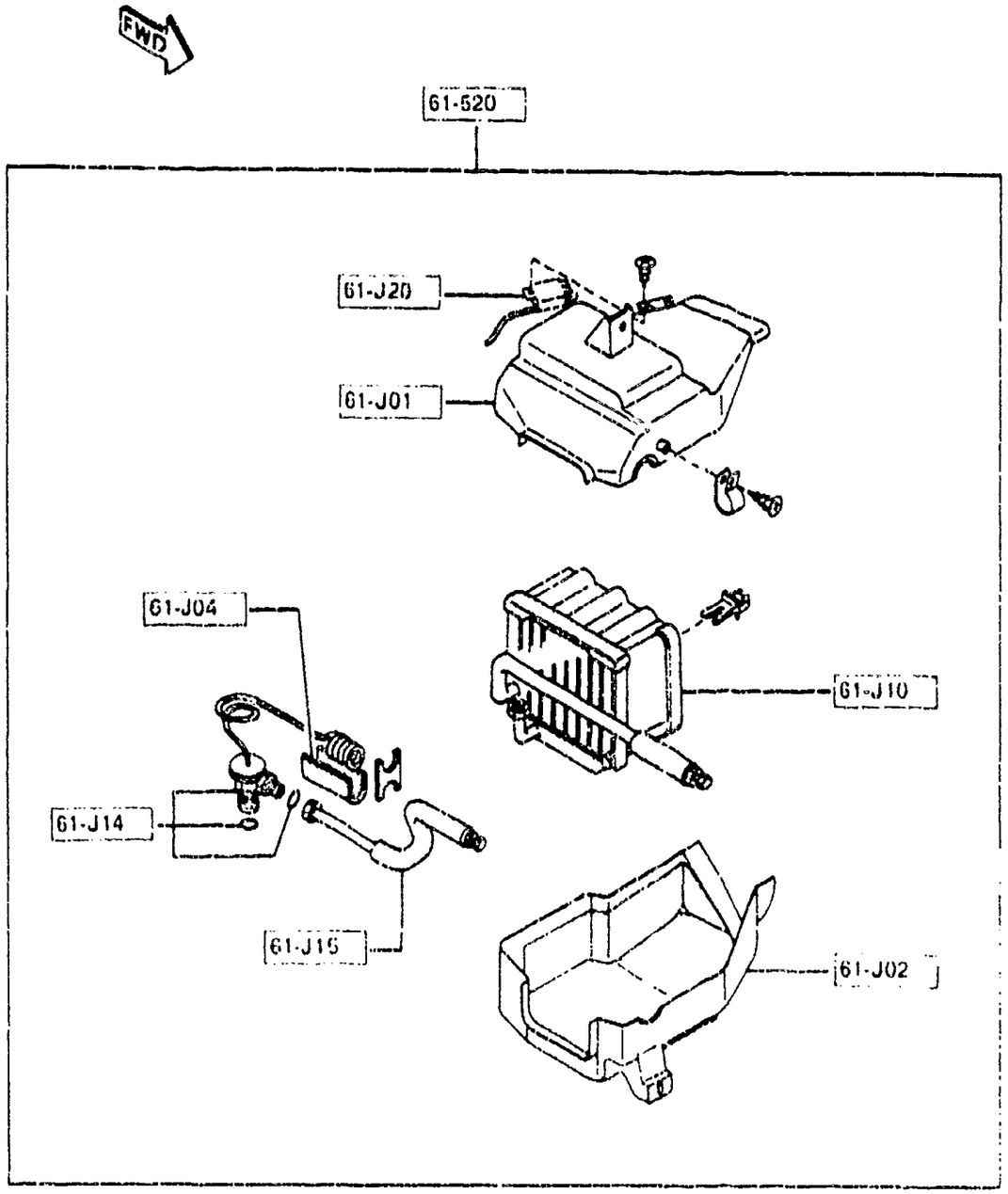


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
61-K00 NA02-61-K00	1	COMPRESSOR,AIR CON. (A)			
61-K10 NA02-61-K10	1	SHAFT,CYL -COMPRESSOR (A)			
61-K11 NA02-61-K11	1	HEAD,CYL.-COMPRESSOR (A)			
61-K12 NA02-61-K12	1	HEAD,CYL.-COMPRESSOR (A)			
61-K19 F065-61-K19	1	SEAL,SHAFT-COMPR.			
61-K20 NA02-61-K2X	1	GASKET KIT,COMPRESSOR (A)			
61-K23 NA02-61-K23	1	PLUG,COMPRESSOR (A)			
61-K24 NA02-61-K24	1	GASKET,COMPRESSOR (A)			
61-K25 F065-61-K25	5	BOLT,COMPRESSOR-AIR CON.			
61-K28 NA02-61-K28	5	WASHER,COMPRESSOR (A)			
61-K31 F065-61-K31	2	BOLT,COMPRESSOR			
61-K35 NA02-61-K35	1	HARNESS,COMPRESSOR (A)			

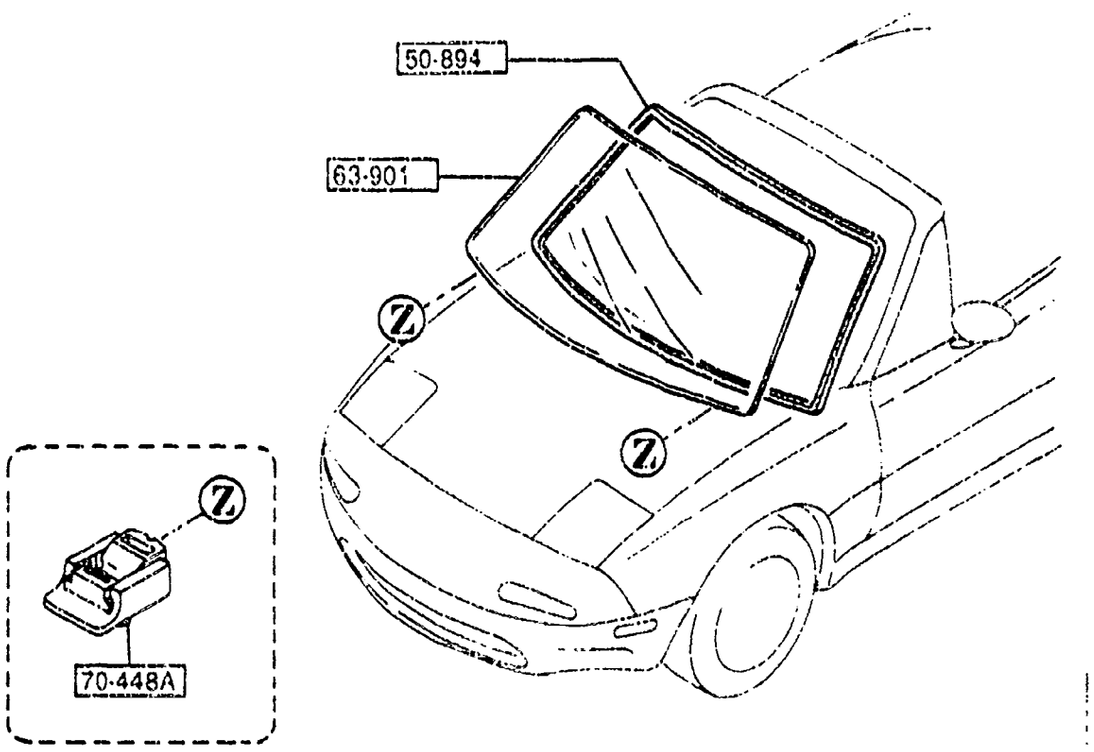
6140 -2 * COMPRESSOR COMPONENTS (AIR CONDITIONER)

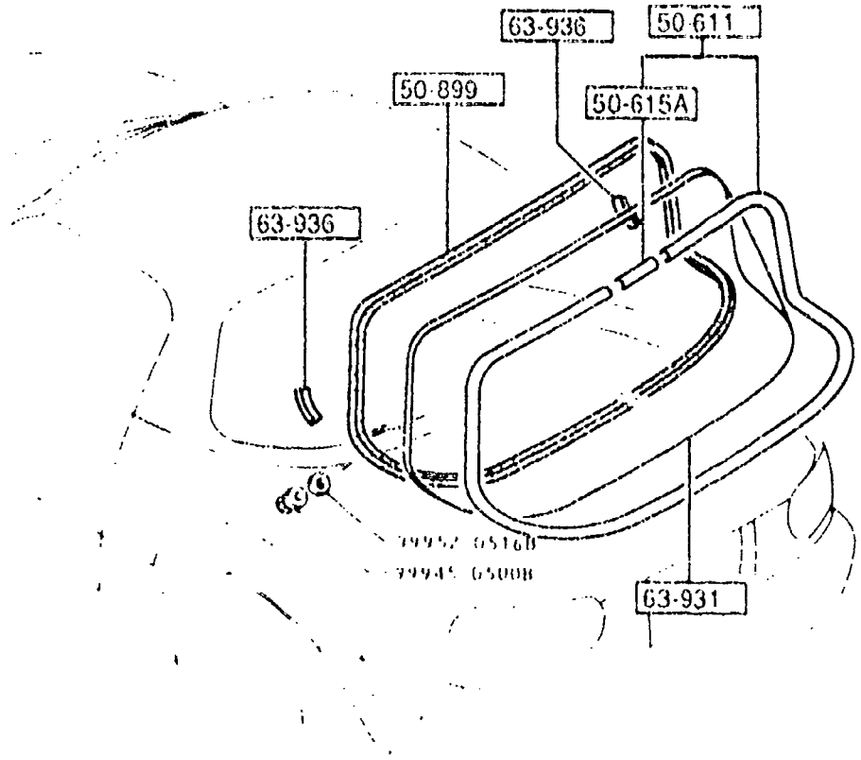


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
61-K39		OIL,COMPRESSOR			
NA02-61-K39	1	(A)			
61-L10		CLUTCH,MAGNET			
NA02-61-L10	1	(A)			
61-L11		ARMATURE,MAGNETIC CLUTCH			
F065-61-L11	1				
61-L12		PULLEY,MAGNET CLUTCH			
NA02-61-L12	1	(A)			
61-L13		COIL,FIELD-MAGNET CLUTCH			
F065-61-L13	1				
61-L14		BOLT,MAGNET CLUTCH			
F065-61-L14	1				
61-L16		RING,SNAP-MAGNET CLUTCH			
F065-61-L16	1				
61-L22		WASHER,MAGNET CLUTCH			
*KA10-61-L22	1				
61-L23		WASHER,MAGNET CLUTCH			
*KA10-61-L23	1				
61-450		COMPRESSOR			
NA02-61-450A	1	(A)			
76-833B		WASHER			
B001-76-734	1				
76-877A		RING,SNAP			
B001-76-725	1				



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
61-J01		CASE'A',COOLING UNIT			
NA01-61-J01	1	(A)			
61-J02		CASE'B',COOLING UNIT			
NA01-61-J02	1	(A)			
61-J04		SEAL,COOLING UNIT			
NA01-61-J04	1	(A)			
61-J10		EVAPORATOR			
NA01-61-J10	1	(A)			
61-J14		VALVE,EXPANSION			
NA01-61-J14	1	(A)			
61-J15		PIPE,COOLING UNIT			
NA01-61-J15	1	(A)			
61-J20		THERMOSTAT,COOLING U NIT			
NA01-61-J20	1	(A)			
61-520		UNIT,COOLING			
NA01-61-520B	1	(A)			





PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
50-611		MOULD,RR.WINDOW			
NAY1-63-930	1	OPTION, (W/DETACHABLE TOP)			
50-615A		JOINT,BACK WINDOW MOULD			
NA01-63-934	1	OPTION, (W/DETACHABLE TOP)			
50-894		DAM,FRONT-WIND.			
NA01-50-894 A (NA01-50-894A)	1				-0A01
NA01-50-894A	1				0A01-
50-899		DAM,REAR-WIND.			
NA01-63-895	1	OPTION, (W/DETACHABLE TOP)			
63-901		GLASS,WINDSHIELD			
NA01-63-901	1				
63-931		GLASS,BACK WINDOW			
NA01-63-931C	1	OPTION, (W/DETACHABLE TOP)			-1801
N007-63-931	1	OPTION, (W/DETACHABLE TOP)			1801-
63-936		PROTR.BACK WINDOW-UPPER			
NA01-63-936A	2	OPTION, (W/DETACHABLE TOP)			
70-448A		SPACER'B'			
GJ21-50-891	2				

0A01 NA35**-213219
1801 NA35**-300014

(W/O DETACHABLE TOP)

RI-96X

BAG FOR HOOD

NOTE
ⓐ ... ⓒ ⇔ RI-230A
THE D CODE OF RI-230A CONSISTS OF FIGURE NUMBERS ⓐ THROUGH ⓒ.

FWD

RI-210A
RI-240A
RI-213
(NA01-RI-3618)
RI-881
RI-882
(NA01-RI-3718)
RI-243
RI-242
RI-250
RI-211
99441-08208
RI-312
RI-311
RI-860A
RI-870
99830-06208
69-818
90257-3205
RI-281
RI-251A
RI-711
RI-958
99775-04128
99910-0401
99775-04128
99831-05128
99910-0101
RI-491
RI-331A
RI-741
RI-742
RI-750
RI-582
99720-08168
99720-06168
RI-581
RI-271
RI-272
99940-0600
RI-131
RI-141A
RI-411
RI-421
RI-132
RI-142A
RI-181
RI-100A
56-376
99775-04128
RI-412
RI-422
RI-413
RI-423
RI-592
ⓒ RI-235A
99791-08209
99264-0748
ⓑ RI-234A
RI-560
RI-233A
ⓐ
RI-38X
RI-382
RI-451
RI-461
99775-04128
RI-452
RI-462
RI-453
RI-463
66-865C
RI-780
RI-790
RI-381
RI-391
RI-982
RI-981
RI-962
RI-953
RI-186
99775-05208
50-841B
RI-721A
RI-731
RI-931
RI-941A
RI-972
RI-970
RI-860B

RI-881
RI-882
(NA02-RI-3618)
(NA02-RI-3718)
99441-08208

(THIS ILLUSTRATION CONSISTS OF 2 PAGES)

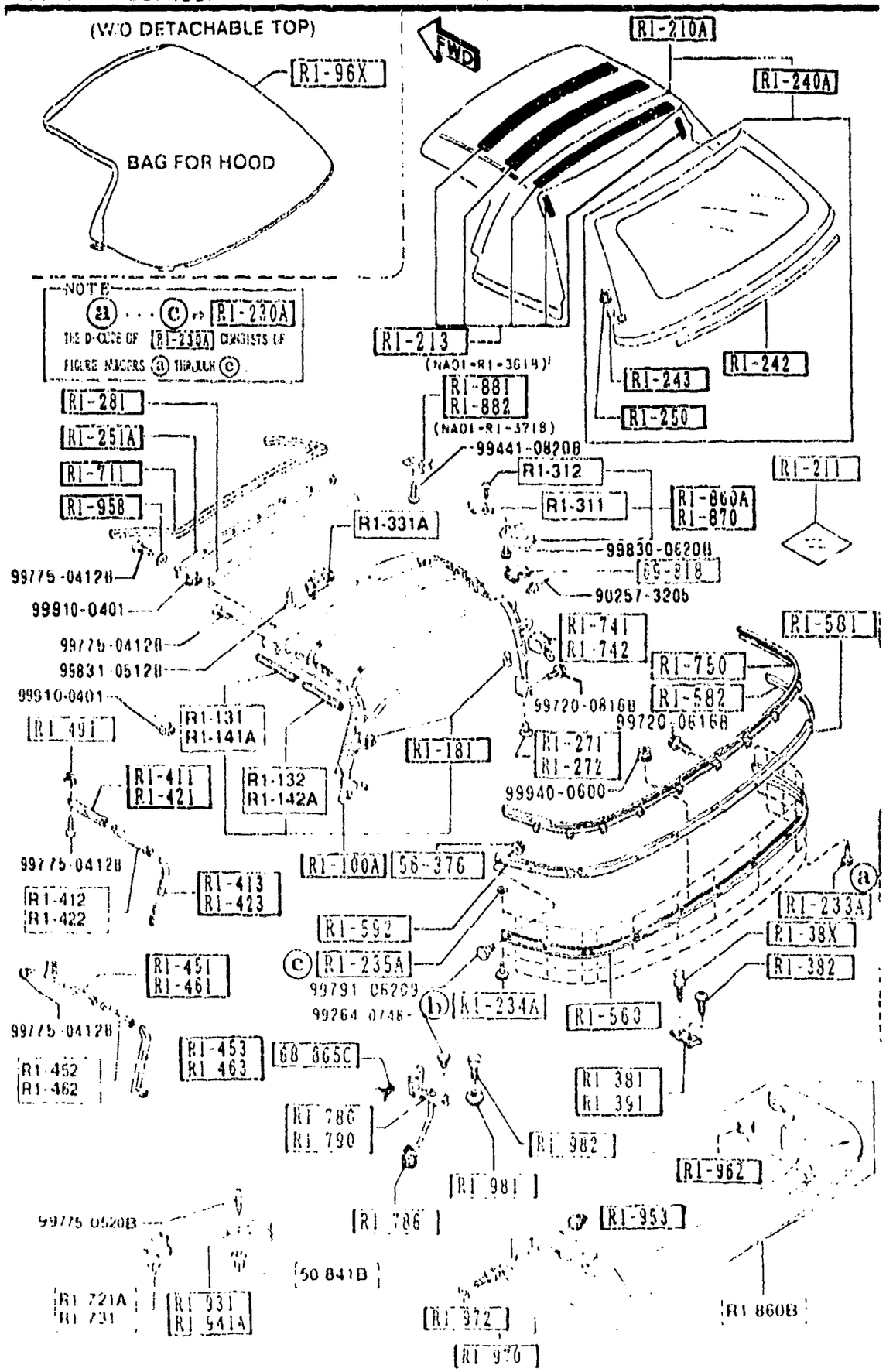
FWD

RI-810C
55-225B
RI-312
RI-311
RI-860A
RI-870
69-818
99830-06208
RI-882A
RI-892
99953-0600
99774-04128
99771-0412
68-030
55-225B
RI-936
RI-935
RI-951A
RI-952A
99774-04168
RI-89X
RI-810A
RI-946
RI-937
RI-832
67-060
RI-310A
RI-312
RI-311
99830-06208

BACK WINDOW
(REFER TO SECT.NO.6300)

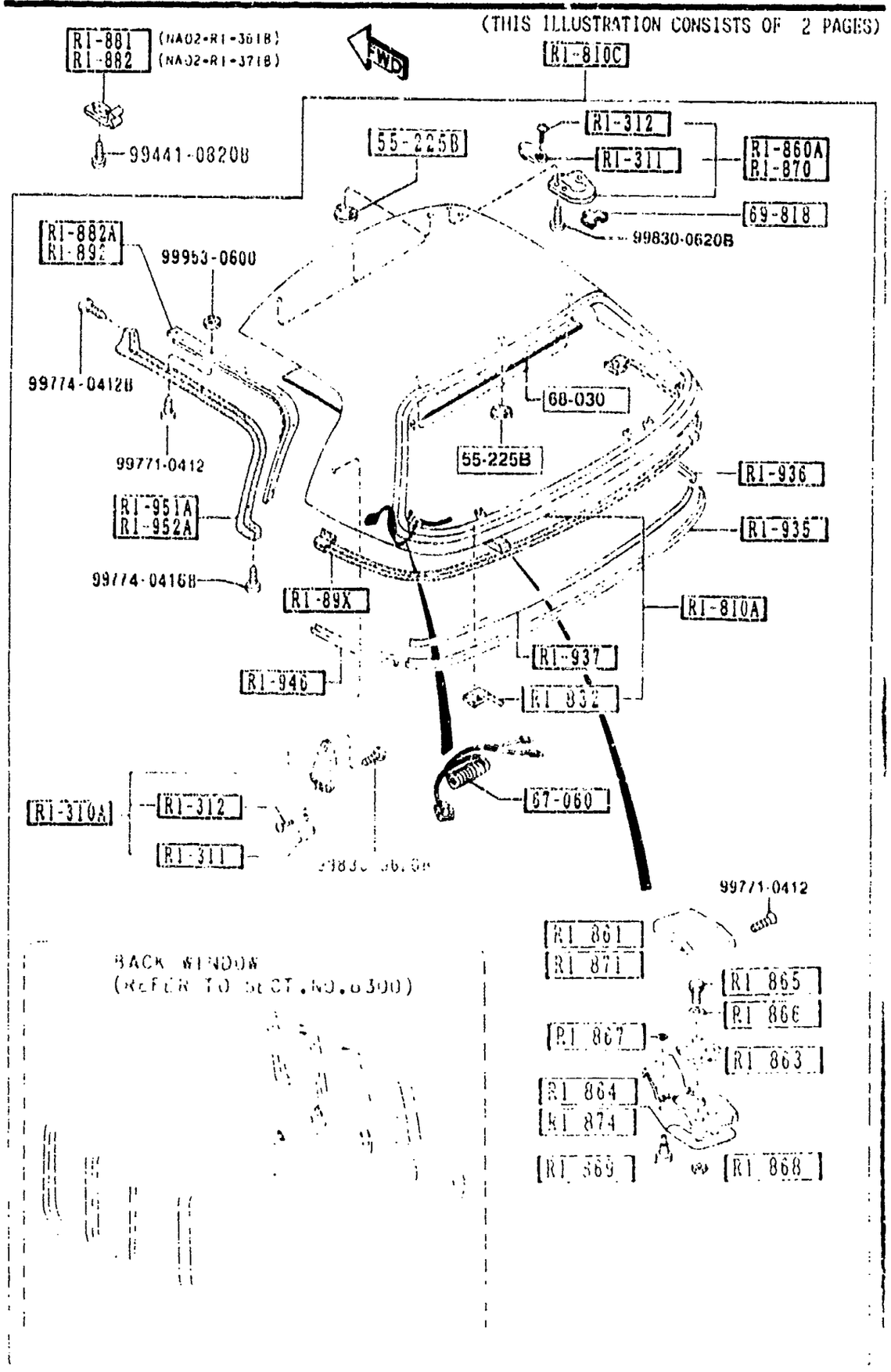
99771-0412
RI-861
RI-871
RI-865
RI-866
RI-867
RI-863
RI-864
RI-874
RI-869
RI-868

(THIS ILLUSTRATION CONSISTS OF 2 PAGES)



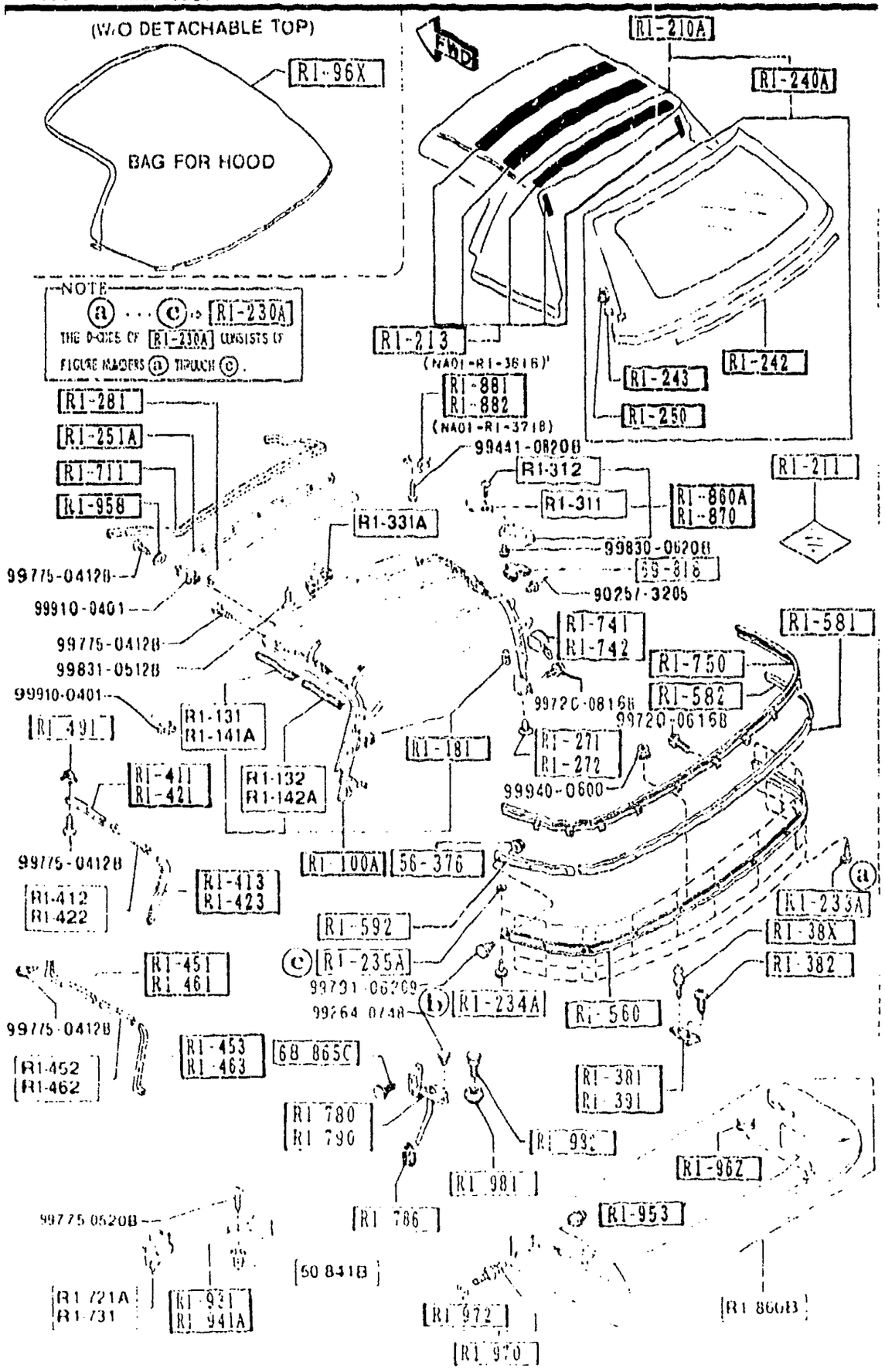
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
R1-100A		LINK,SOFT TOP			
NA01-R1-1000 AN(NA01-R1-100E)	1				-1201
NA01-R1-100E	1				1201-
R1-131		PROTECTOR'A'(R),LINK			
NA01-R1-131	1				1201-
R1-132		PROTECTOR'B'(R),LINK			
NA01-R1-132	1				1201-
R1-141A		PROTECTOR'A'(L),LINK			
NA01-R1-141	1				1201-
R1-142A		PROTECTOR'B'(L),LINK			
NA01-R1-142	1				1201-
R1-181		STOPPER,LINK-HOOD			
NA01-R1-181	2				
R1-210A		FABRIC,TOP-SOFT TOP			
NA01-R1-210G AN(NA01-R1-210H)	1				-2501
NA02-R1-21[illegible] A (NA02-R1-210A)	1				1801-1C01
NA02-R1-210A AN(NA02-R1-210B)	1				1C01-2501
NA01-R1-210H	1	(BLACK)			2501-
NA02-R1-210B	1	(TAN)			2501-
R1-211		CLOTH,REPAIR-TOP			
NAY1-R1-211	1	(BLACK)			
NAY2-R1-211	1	(TAN)			1801-
R1-213		CLOTH'C',TOP			
*NA02-R1-213	1	(TAN)			2401-
R1-230A		FASTENER SET,TOP CLOTH			
*NA01-R1-230	1				2401-
R1-233A		FASTENER,RAIN RAIL-SIDE			

1201 NA35**-228219
1801 NA35**-300014
1C01 NA35**-309801
2401 NA35**-321905
2501 NA35**-326361



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
*NA01-R1-233	8				2401-
R1-234A		FASTENER,RAIN RAIL-REAR			
*NA01-R1-234	7				2401-
R1-235A		WASHER,FASTENER-RAIN RAIL			
*NA01-R1-235	15				2401-
R1-240A		WINDOW,BACK-D. TOP			
NAY1-R1-240C A (NAY1-R1-240D)	1	BLACK			-1701
NAY1-R1-240D AN(NAY1-R1-240E)	1	BLACK			1701-2501
NAY2-R1-240 A (NAY2-R1-240A)	1	TAN			1801-1C01
NAY2-R1-240A AN(NAY2-R1-240B)	1	TAN			1C01-2501
NAY1-R1-240E	1	BLACK			2501-
NAY2-R1-240B	1	TAN			2501-
R1-242		TAPE,SEAL-RAIN RAIL			
NAY1-R1-242	2				
R1-243		STOPPER,ZIPPER-BACK WINDOW			
NAY1-R1-243	2				
R1-250		HEAD,ZIPPER-BACK WINDOW			
NA01-R1-250A AN(NA01-R1-250B)	1				-2501
NA01-R1-250B	1				2501-
R1-251A		PLATE(FRT),SET-ROOF PANEL			
NA01-R1-291	1				
R1-271		CLIP(R),FORM PLATE			
NA01-R1-271	1				
R1-272		CLIP(L),FORM PLATE			
NA01-R1-272	1				

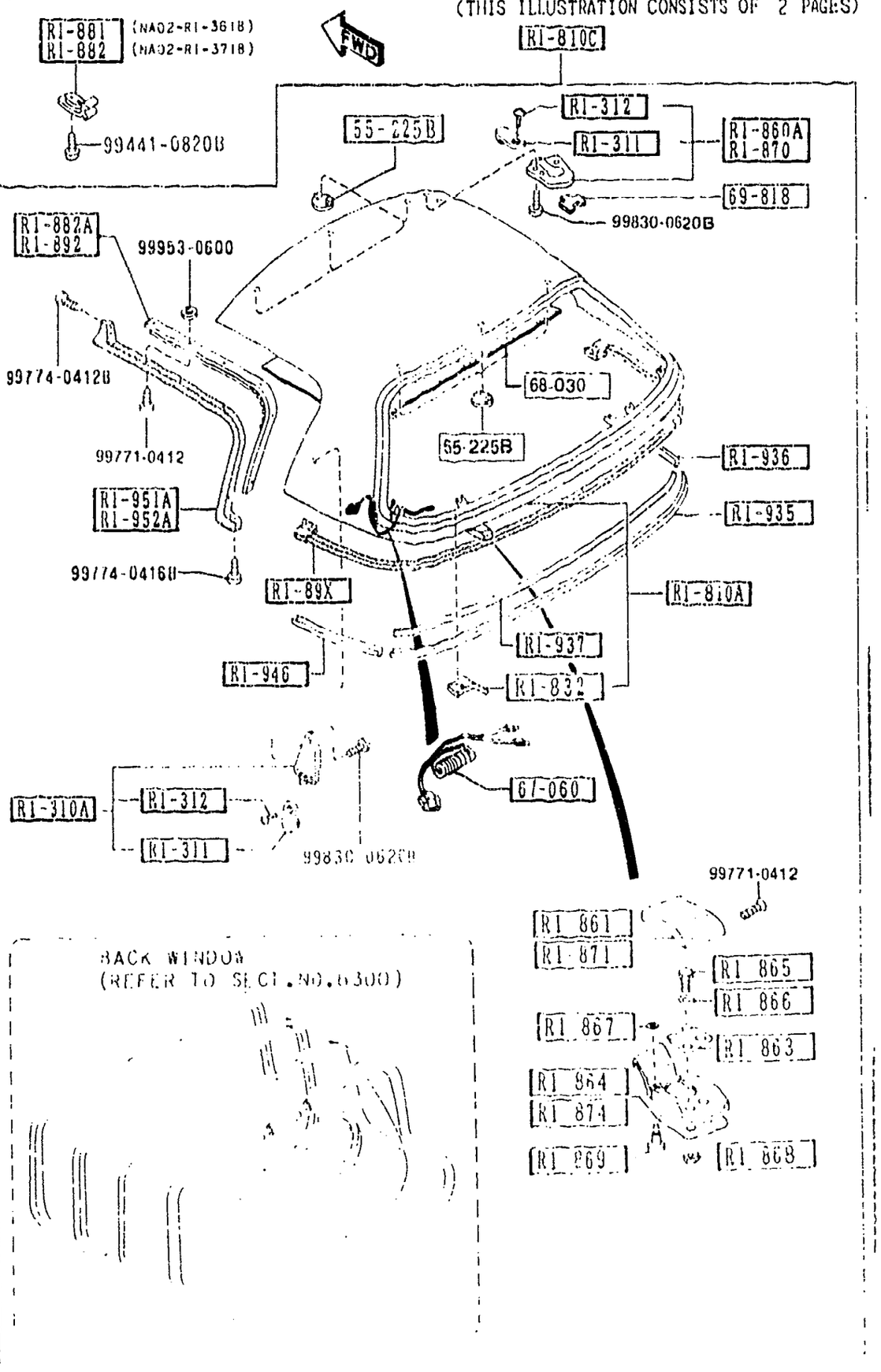
1701 NA35**-235561
1801 NA35**-300014
1C01 NA35**-309801
2401 NA35**-321905
2501 NA35**-326561



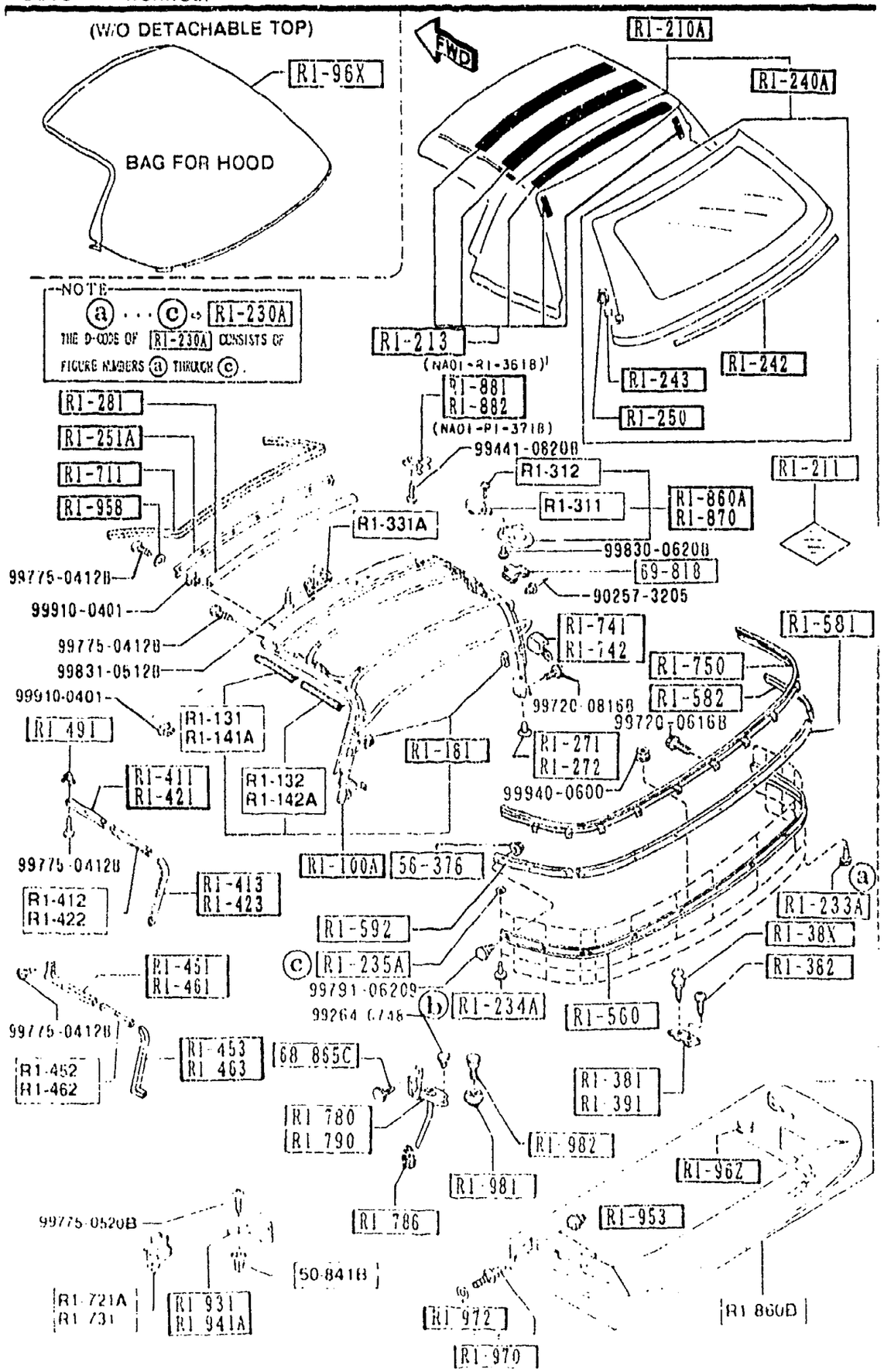
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
R1-281		WELT,SEAMING-SOFT TOP			
NA01-R1-281	1				
R1-310A		LOCK,DETACHABLE TOP			
NA02-R1-3108	2	OPTION, (W/DETACHABLE TOP)			
R1-311		CAP,TOP LOCK			
NA01-R1-311	2	BASE, (W/O DETACHABLE TOP)			1201-
NA01-R1-311	6	OPTION, (W/DETACHABLE TOP)			1201-
R1-312		SCREW,TOP LOCK			
NA01-R1-312	2	BASE, (W/O DETACHABLE TOP)			1201-
NA01-R1-312	6	OPTION, (W/DETACHABLE TOP)			1201-
R1-331A		HANDLE,SOFT TOP			
NA01-R1-331	1				
R1-38X		HOOK,SOFT TOP-REAR DECK			
NA01-R1-38XB	2				
R1-381		PLATE(R),HOOK-REAR DECK			
NA01-R1-381B	1				
R1-382		SCREW,HOOK-REAR DECK			
NA01-R1-382A	2				
R1-391		PLATE(L),HOOK-REAR DECK			
NA01-R1-391B	1				
R1-411		RETAINER'A'(R),WTHSTP			
NA01-R1-461	1				
R1-412		RETAINER'B'(R),WTHSTP			
NA01-R1-462	1				
R1-413		RETAINER'C'(R),WTHSTP			

1201 NA35**-2:8219

(THIS ILLUSTRATION CONSISTS OF 2 PAGES)

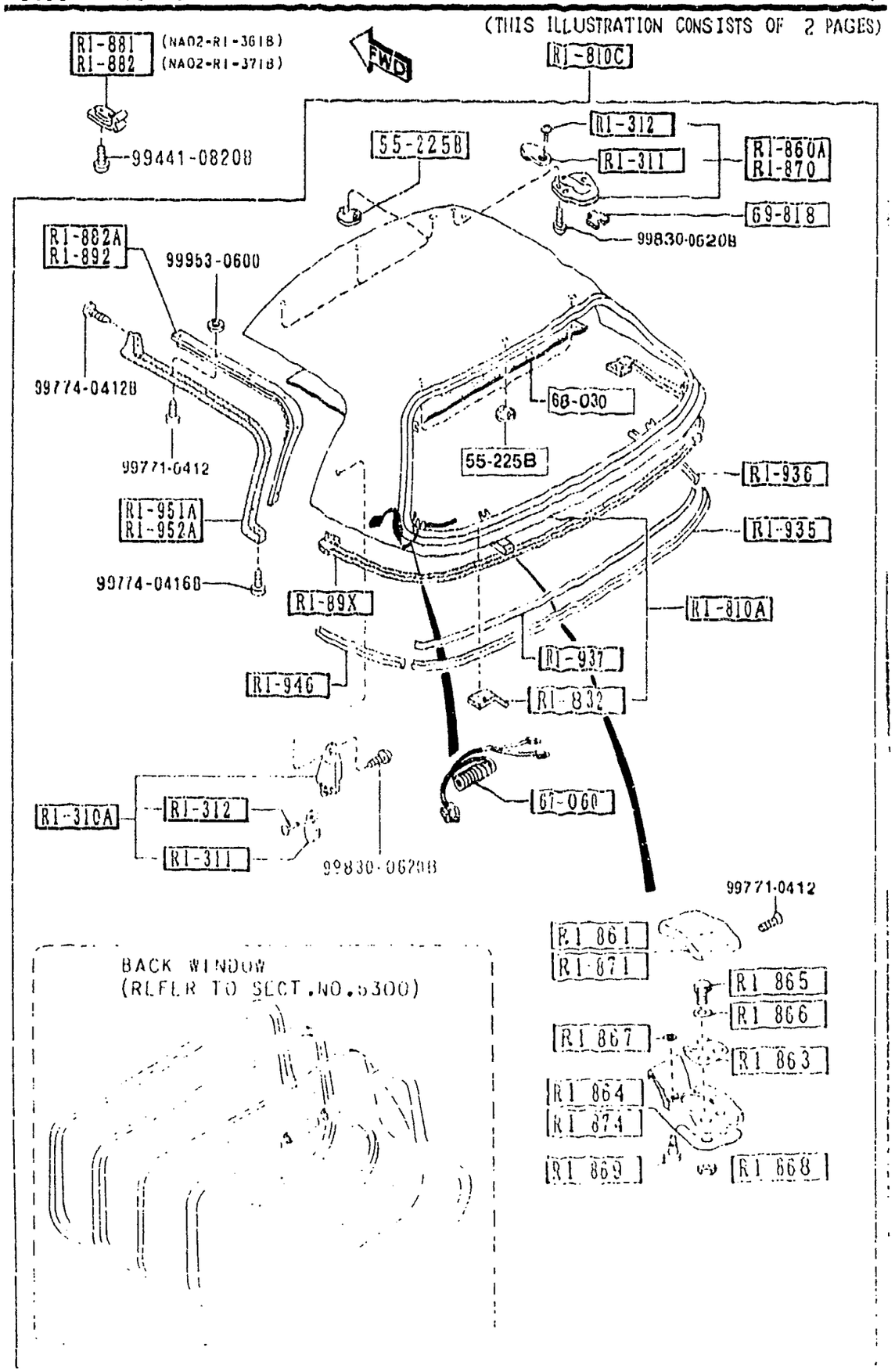


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D NA01-R1-463	1				
R1-421		RETAINER'A'(L),WTHSTP			
NA01-R1-471	1				
R1-422		RETAINER'B'(L),WTHSTP			
NA01-R1-472	1				
R1-423		RETAINER'C'(L),WTHSTP			
NA01-R1-473	1				
R1-451		WTHSTP NO.1(R),LINK			
NA01-R1-411B	1				
R1-452		WTHSTP NO.2(R),LINK			
NA01-R1-412B	1				
R1-453		WTHSTP NO.3(R),LINK			
NA01-R1-413B	1				
R1-461		WTHSTP NO.1(L),LINK			
NA01-R1-421B	1				
R1-462		WTHSTP NO.2(L),LINK			
NA01-R1-422B	1				
R1-463		WTHSTP NO.3(L),LINK			
NA01-R1-423B	1				
R1-491		GROMMET,SCREW-RETAINER			
NA01-R1-491	16				
R1-560		RAIL,RAIN-SOFT TOP REAR			
NA01-R1-560C	1				
R1-581		PLATE(C),SET-TOP FABRIC			
NA01-R1-581B	1				
R1-582		PLATE(R),SET-TOP FABRIC			
NA01-R1-582A	1				



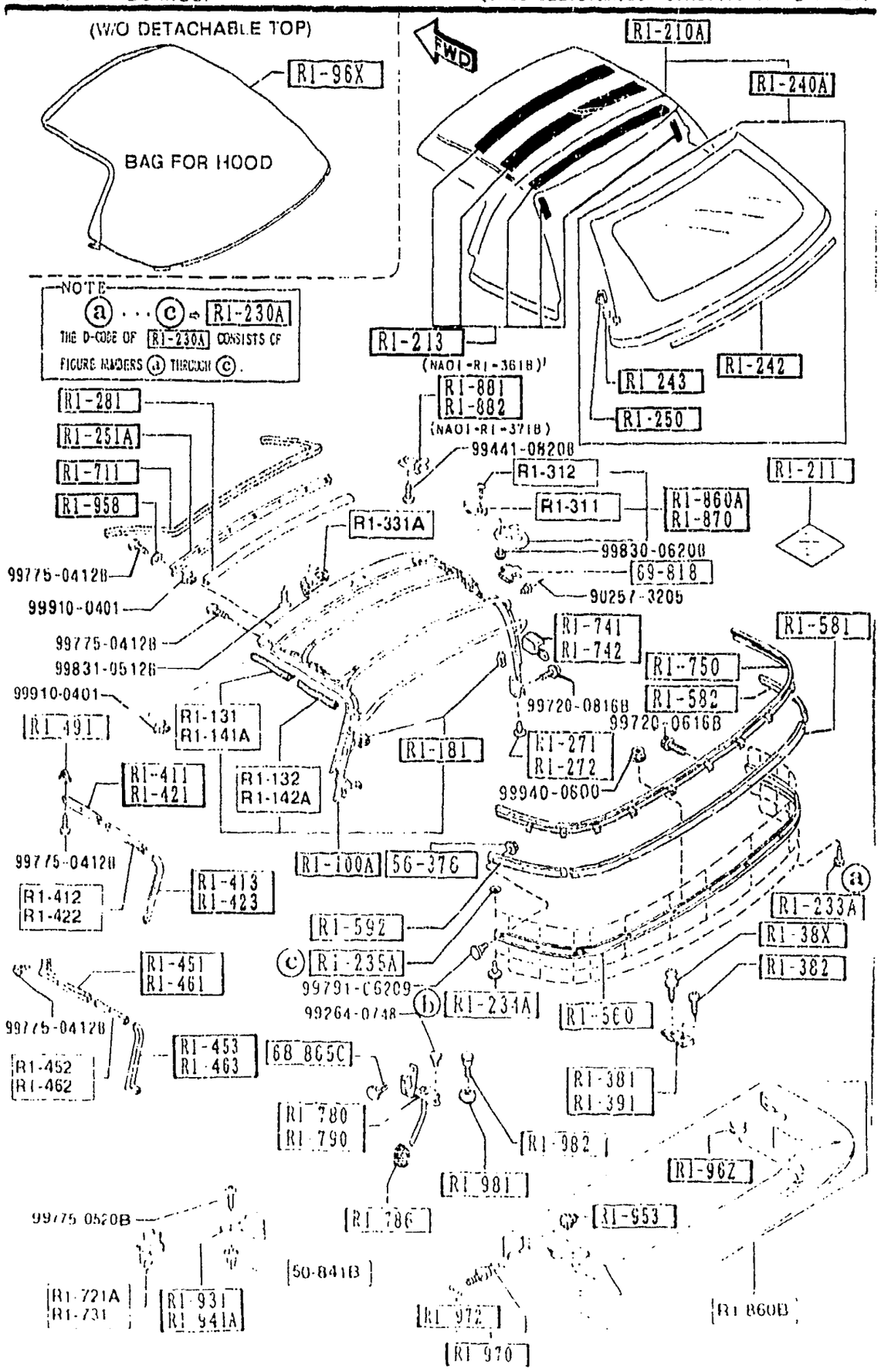
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
R1-592		PLATE(L),SET-TOP FABRIC			
NA01-R1-592A	1				
R1-711		WTHSTP,FRONT HEADER			
NA01-R1-711B	1				
R1-721A		WTHSTP(R),CAB SIDE			
NA01-R1-721B	1				
R1-731		WTHSTP(L),CAB SIDE			
NA01-R1-731B	1				
R1-741		PROTR(R),MOULD-BELTLINE			
NA01-R1-741B	1				
R1-742		PROTR(L),MOULD-BELTLINE			
NA01-R1-742B	1				
R1-750		MOULD,BELTLINE-REAR			
NA01-R1-750D	1				
R1-780		COVER(R),DRAIN-SOFT TOP			
NA01-R1-780C	1				
R1-786		GROMMET,DRAIN HOSE-TOP			
NA01-R1-786A	2				
R1-790		COVER(L),DRAIN-SOFT TOP			
NA01-R1-790C	1				
R1-810A		PANEL,ROOF			
NA01-R1-82XA	1	(W/DETACHABLE TOP-PART COLOR)			
00	INT-	NA0 NA1			
NA02-R1-82XA	1	OPTION, (RED,W/O RR DEFG.)			-0801
NA03-R1-82X	1	OPTION, (BLUE,W/O RR DEFG.)			-0801
NA04-R1-82X	1	OPTION, (WHITE,W/O RR DEFG.)			-0801
NA06-R1-82X	1	OPTION,			0801-

0801 NA35**-205068



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D		(W/DETACHABLE TOP-B. COLOR,)			
DU	EXT-	DU MARINER BLUE			
HU	EXT-	HU NEO GREEN			
HZ	EXT-	HZ SUNBURST YELLOW			
PZ	EXT-	PZ BRILLIANT BLACK			
SU	EXT-	SU CLASSIC RED			
UC	EXT-	UC CRYSTAL WHITE			
3L	EXT-	3L SILVER STONE METALLIC			
R1-810C		ROOF,DETACHABLE TOP			
NA02-R1-810F	1	OPTION, (RED,W/O RR DEFG.)			-0801
NA03-R1-810	1	OPTION, (BLUE,W/O RR DEFG.)			-0801
NA04-R1-810	1	OPTION, (WHITE,W/O RR DEFG.)			-0801
NA06-R1-810	1	(W/DETACHABLE TOP-B. COLOR, W/O RR DEFG.)			0801-1801
DU	EXT-	DU MARINER BLUE			
HU	EXT-	HU NEO GREEN			
HZ	EXT-	HZ SUNBURST YELLOW			
PZ	EXT-	PZ BRILLIANT BLACK			
SU	EXT-	SU CLASSIC RED			
UC	EXT-	UC CRYSTAL WHITE			
3L	EXT-	3L SILVER STONE METALLIC			
NA30-R1-810A	1	OPTION, (W/DETACHABLE TOP-PART COLOR, W/RR DEFG.)			1801-
00	EXT-	DU HU HZ PZ SU UC 3L BLACK			
NA07-R1-810A	1	OPTION, (W/DETACHABLE TOP-B. COLOR, W/RR DEFG.)			1801-
DU	EXT-	DU MARINER BLUE			
HU	EXT-	HU NEO GREEN			
HZ	EXT-	HZ SUNBURST YELLOW			

0801 NA35**-205068
1801 NA35**-300014

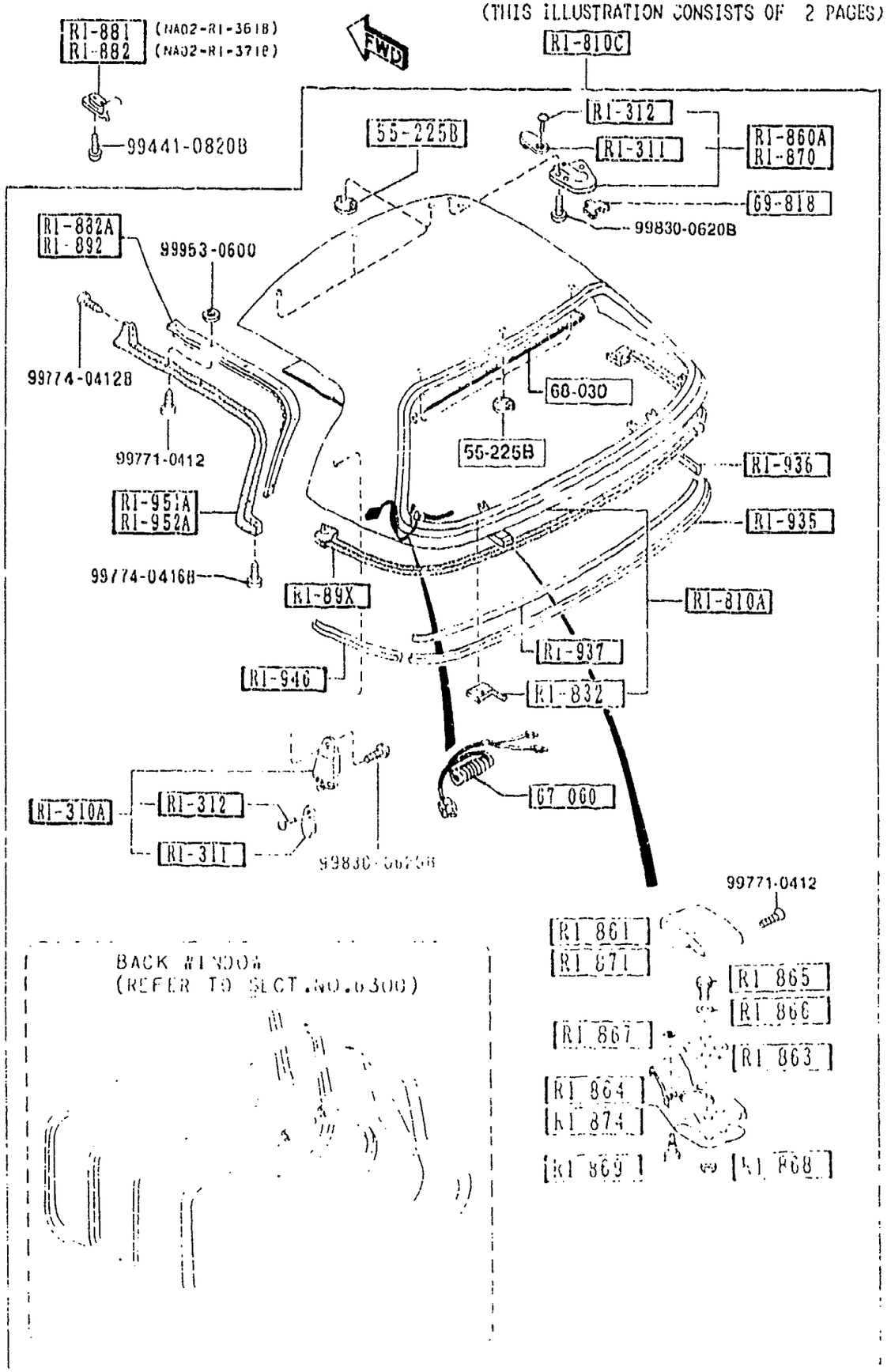


6330 -7 SUNROOF

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
PZ	EXT-	PZ BRILLIANT BLACK			
SU	EXT-	SU CLASSIC RED			
UC	EXT-	UC CRYSTAL WHITE			
3L	EXT-	3L SILVER STONE METALLIC			
R1-832		PLATE,CUSHION-D. TOP			
NA01-R1-832A	2	OPTION, (W/DETACHABLE TOP)			
R1-860A		LOCK(R),TOP			
NA01-R1-310B	1	BASE, (W/O DETACHABLE TOP)			
NA01-R1-310B	2	OPTION, (W/DETACHABLE TOP)			
R1-860B		BOOT,TOP			
NA01-R1-960B A (NA01-R1-960C)	1				-0801
66	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
NA01-R1-960C A (NA01-R1-960D)	1				0801-0820
66	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
NA01-R1-960D	1				0820-
66	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
R1-861		COVER(R),DECK LOCK			
NA01-R1-861	1				1201-
R1-863		PLATE,DECK LOCK			
NA01-R1-863	2				1201-
R1-864		SHEET(R),DECK LOCK			
NA01-R1-864	1				1201-
R1-865		BOLT,DECK LOCK			
NA01-R1-865	4				1201-

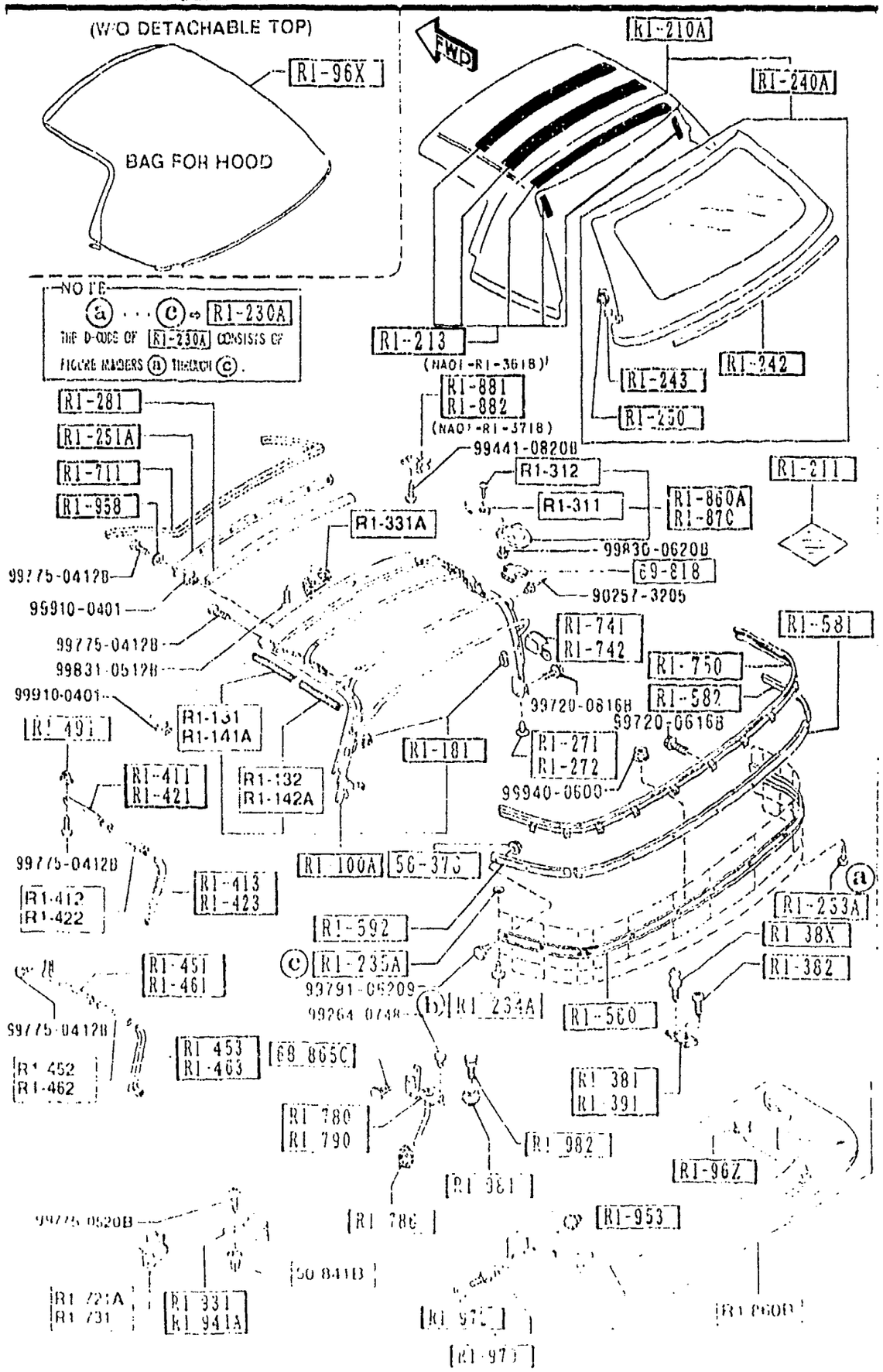
0801 NA3E**-205068
0820 NA35**-206394
1201 NA35**-228219

(THIS ILLUSTRATION CONSISTS OF 2 PAGES)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
R1-866		WASHER'A',DECK LOCK			
NA01-R1-866	4				1201-
R1-867		WASHER'B',DECK LOCK			
NA01-R1-867	2				1201-
R1-868		NUT,DECK LOCK			
NA01-R1-868	4				1201-
R1-869		PIN,DECK LOCK			
NA01-R1-869	2				1201-
R1-870		LOCK(L),TOP			
NA01-R1-320B	1	BASE, (W/O DETACHABLE TOP)			
NA01-R1-320B	2	OPTION, (W/DETACHABLE TOP)			
R1-871		COVER(L),DECK LOCK			
NA01-R1-871	1				1201-
R1-874		SHEET(L),DECK LOCK			
NA01-R1-874	1				1201-
R1-881		STRIKER(R),LOCK-TOP			
NA01-R1-361B	1				
NA02-R1-361B	1	OPTION, (W/DETACHABLE TOP)			
R1-882		STRIKER(L),LOCK-TOP			
NA01-R1-371B	1				
NA02-R1-371B	1	OPTION, (W/DETACHABLE TOP)			
R1-882A		RETAINER(R),WTHSTP-D .TOP			
NA01-R1-882	1	OPTION, (W/DETACHABLE TOP)			
R1-89X		WEATHERSTRIP,D.TOP-R EAR			
NA01-R1-89XA	1	OPTION, (W/DETACHABLE TOP)			

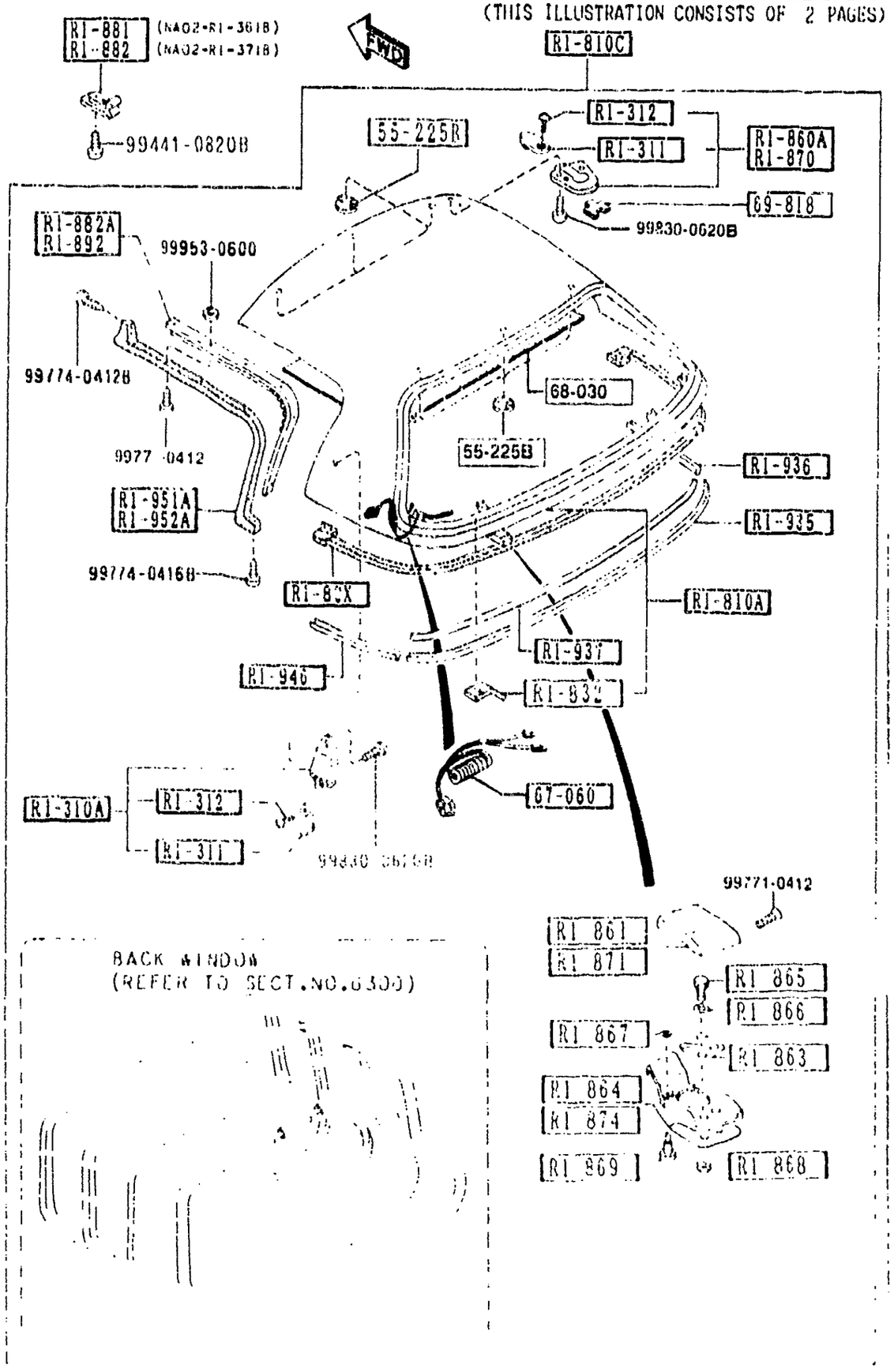
1201 NA5**-228219



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
R1-892		RETAINER(L),WTHSTP-D,TOP			
NA01-R1-892	1	OPTION, (W/DETACHABLE TOP)			
R1-931		COVER(R),BELT LINE			
NA01-R1-931A	1				
R1-935		PROTECTOR(C),EDGE-D.TOP			
NA01-R1-935A	1	OPTION, (W/DETACHABLE TOP)			-0A03
NA01-R1-935B	1	OPTION, (W/DETACHABLE TOP)			0A03-
R1-936		PROTECTOR(R),EDGE-D.TOP			
NA01-R1-936	1	OPTION, (W/DETACHABLE TOP)			-0A03
NA01-R1-936A	1	OPTION, (W/DETACHABLE TOP)			0A03-
R1-937		TAPE,EDGE PROTECTOR-CTR			
NA01-R1-937	1				
R1-941A		COVER(L),BELT LINE			
NA01-R1-941A	1				
R1-946		PROTECTOR(L),EDGE-D.TOP			
NA01-R1-946	1	OPTION, (W/DETACHABLE TOP)			-0A03
NA01-R1-946A	1	OPTION, (W/DETACHABLE TOP)			0A03-
R1-951A		WTHSTP(R),ROOF PANEL			
NA01-R1-881B	1	OPTION, (W/DETACHABLE TOP)			
R1-952A		WTHSTP(L),ROOF PANEL			
NA01-R1-891B	1	OPTION, (W/DETACHABLE TOP)			
R1-953		HOOK,HOOD-REAR CORNER			
B235-R1-953	4				
R1-958		WASHER,HOOK'A'&'B'			
B235-R1-958A	7				

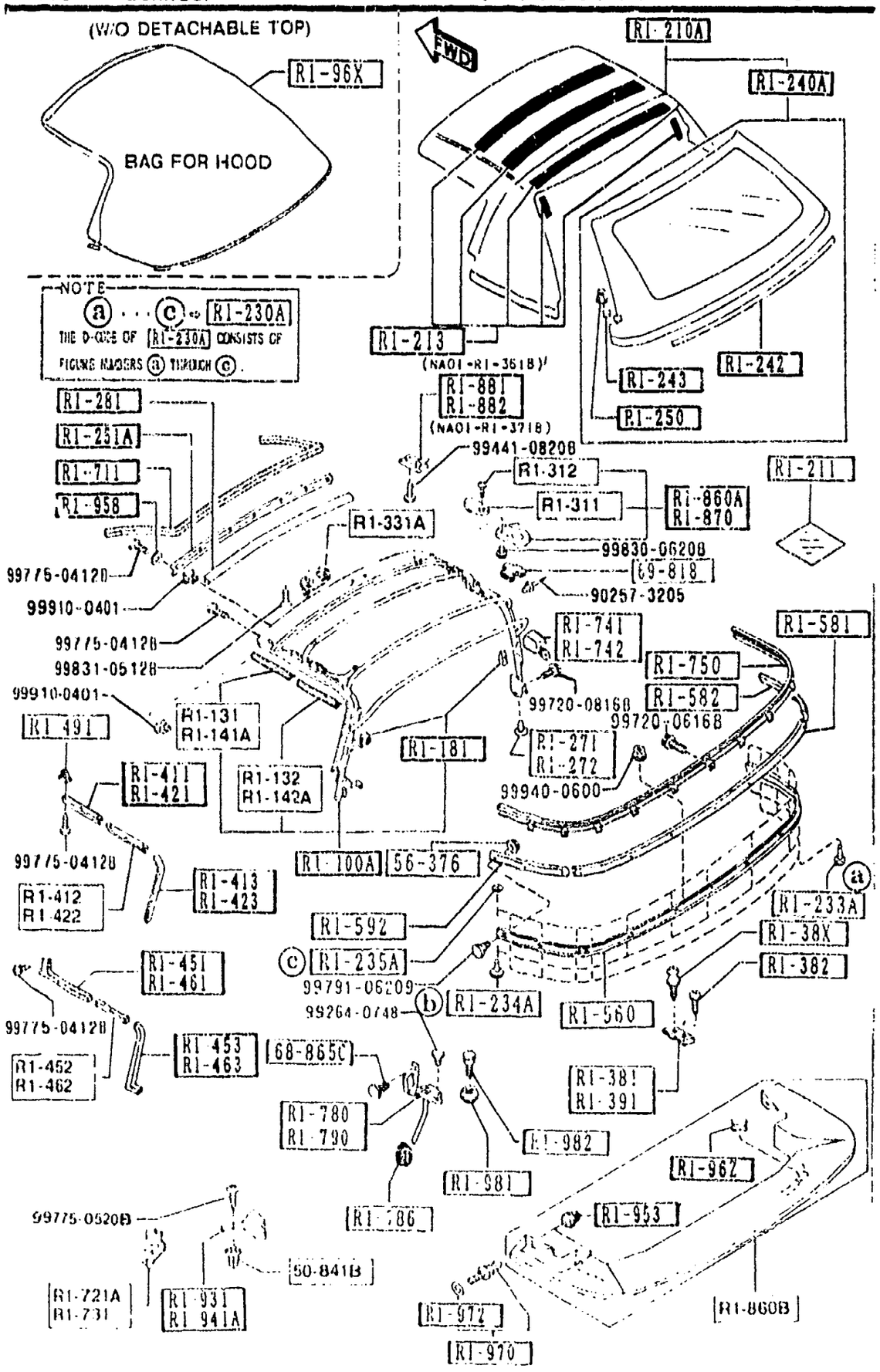
0A03 NA35**-213510

(THIS ILLUSTRATION CONSISTS OF 2 PAGES)



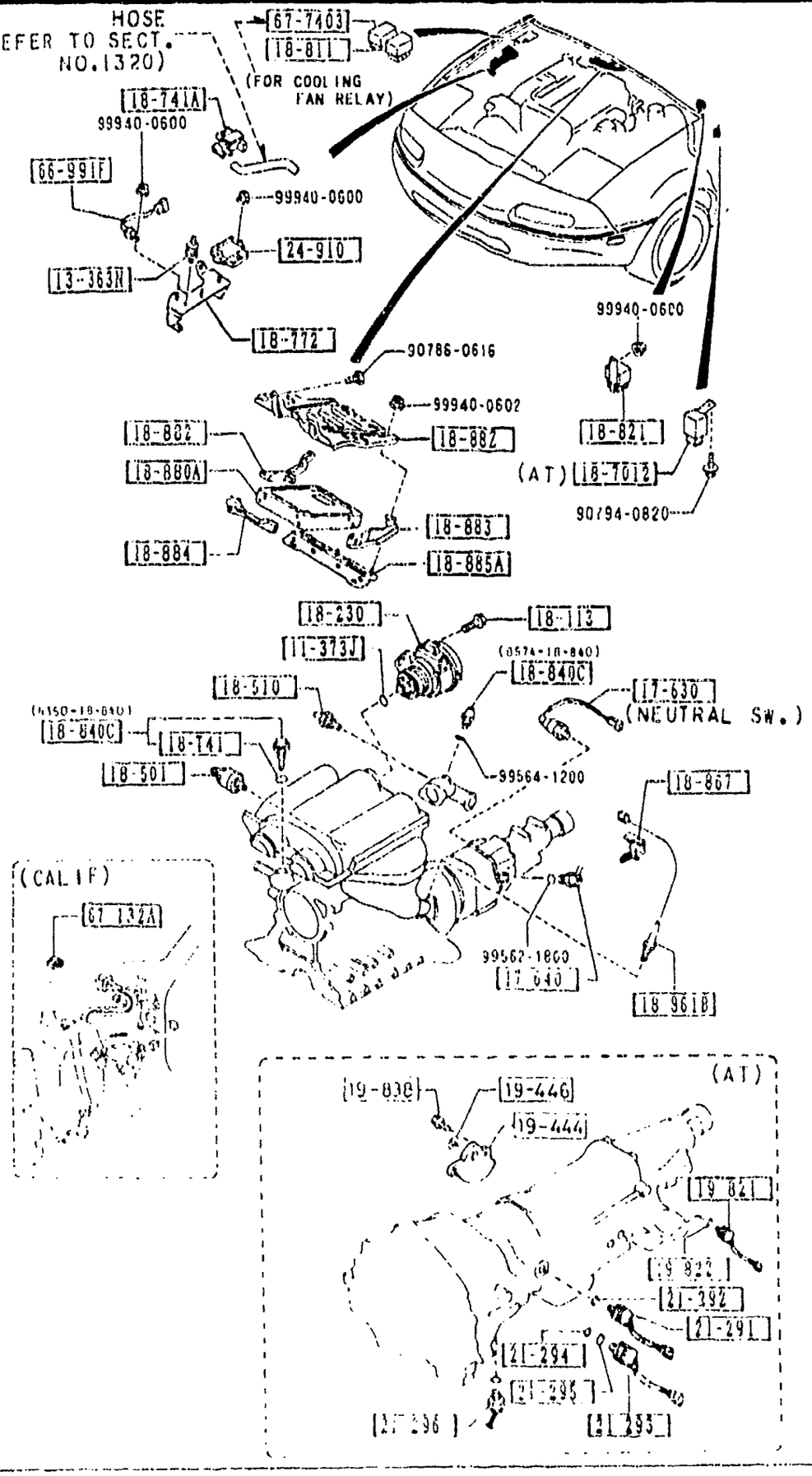
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
R1-96X		COVER,TOP FABRIC			
NA01-R1-96XB A (NA01-R1-96XC)	1				-0A17
NA01-R1-96XC	1	BASE, (W/O DETACHABLE TOP)			0A17-
R1-96Z		HOOK,TOP BOOT			
NA01-R1-96Z	7				0801-
00	INT-	NA0 BLACK			
75	INT-	NA1 NA2 SILVER			
R1-970		HOOK,REAR DECK			
NA01-R1-970A	4				
R1-972		WASHER,HOOK'A'			
NA01-R1-926	4				
R1-981		STOPPER,SOFT TOP			
NA01-R1-981A	2				
R1-982		BOLT,STOPPER-SOFT TOP			
NA01-R1-982A	2				
50-8418		GROMMET,SCREW			
H260-50-841	2				
55-225B		COVER,HOLE			
G030-55-225	6	OPTION, (W/DETACHABLE TOP)			
00	INT-	NA0 NA1 NA2 BLACK			
56-376		NUT,SELF LOCK			
B001-56-376	13				
67-060		HARNESS NO.2,REAR			
N007-67-060A	1				1801-
68-030		CEILING,TOP			
N007-68-031	1				1801-
00	INT-	NA0 NA1 NA2 BLACK			

0801 NA35**-205068
0A17 NA35**-215349
1801 NA35**-300014



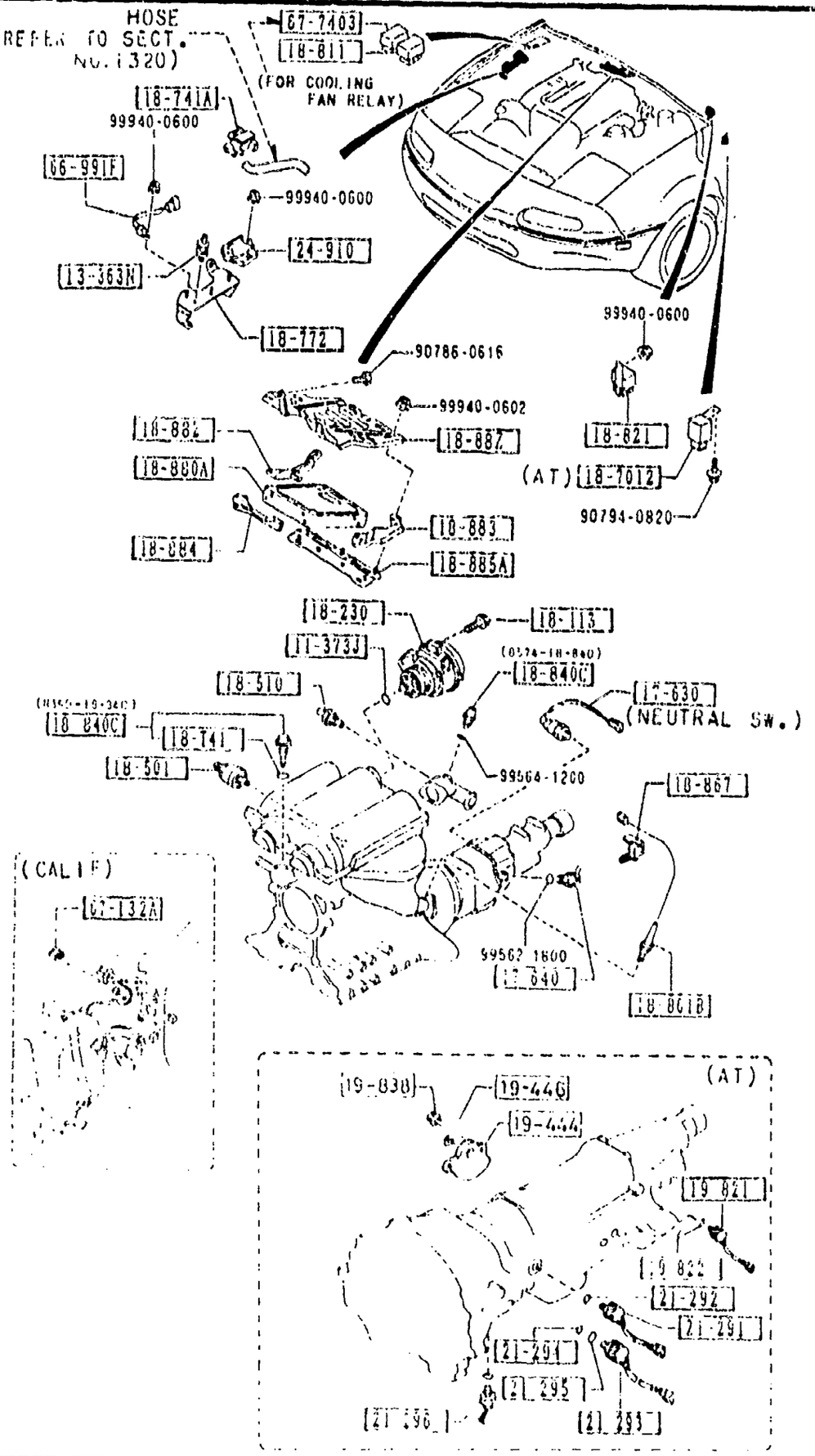
6330 -11* SUNROOF

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
68-865C		FASTENER			
G032-68-865A	2				
00	INT-	NA0 NA1 BLACK			
69-818		PAD			
NA01-R1-313	2	OPTION, (W/DETACHABLE TOP-0. COLOR,)			



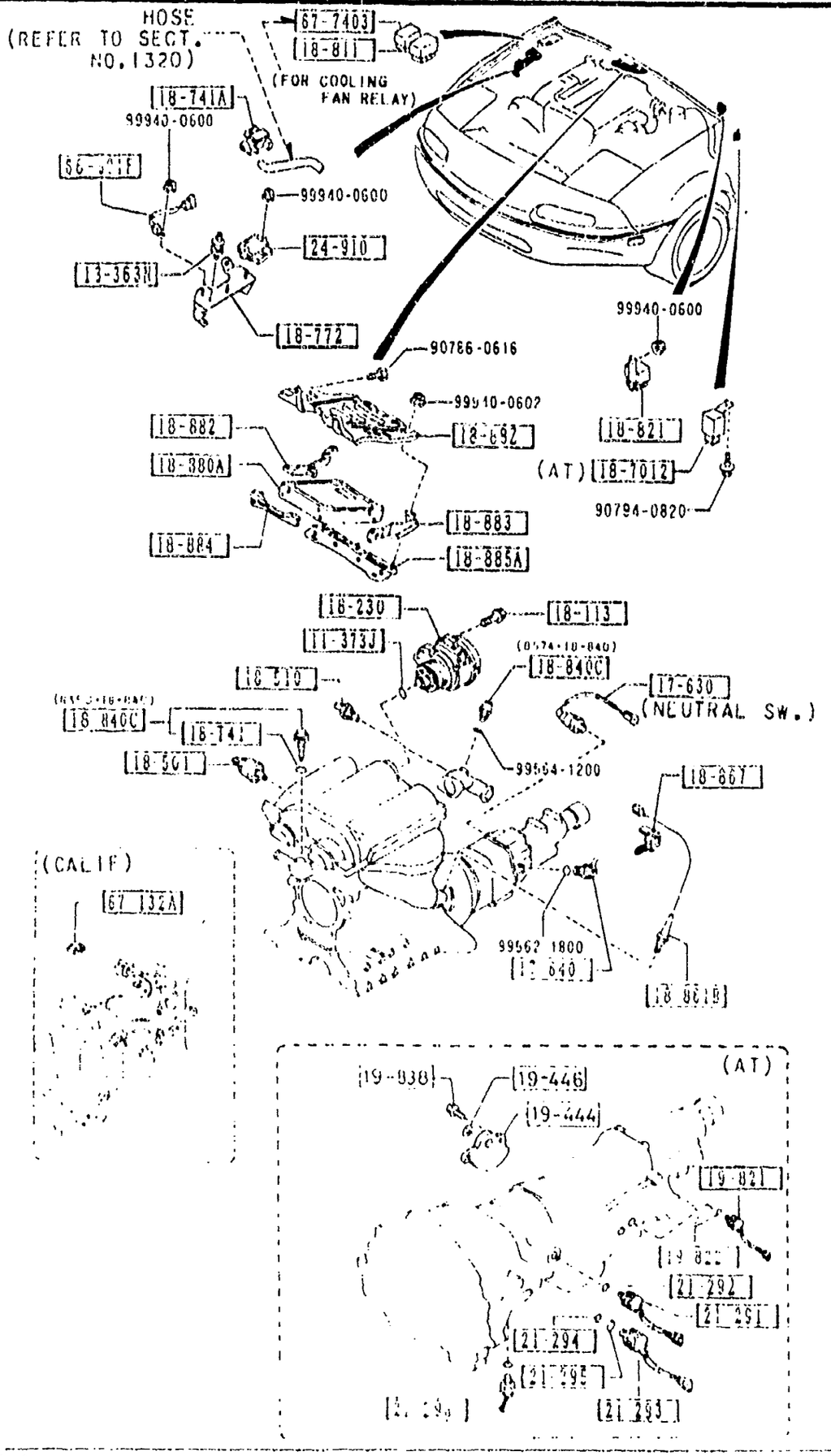
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
11-373J		RING,'O'			
99541-03801	1				
13-363N		RUBBER,MOUNTING			
0222-13-363	1				
17-630		SWITCH			
8118-17-640B	1	(MT)			
17-640		SWITCH,BACK UP LAMP			
M506-17-640 A (M506-17-640A)	1				-2216
M506-17-640A	1	(MT)			2216-
18-T41		RING,'O'-WATER THERM O SW.			
F805-18-T41	1				
18-113		BOLT			
B366-18-1A5	1				
18-230		SENSOR,CRANKSHAFT POSI.			
B61P-18-230 AN(B61P-18-230A)	1				-2408
B61P-18-230A	1				2408-
18-501		SWITCH,OIL PRESSURE			
B61P-18-501	1				
18-510		UNIT,HEAT GAUGE			
B541-18-51X	1	PANASONIC			
18-7012		UNIT,CONTROL			
B64J-18-780B	1	(AT)			
18-741?		VALVE,THREE WAY			
JE16-18-741	1	NIHON OIL SEAL			
18-772		BRACKET,IGNITER			
B61P-18-2F0B	1				

2216 NA35##-318291
2408 NA35##-323024



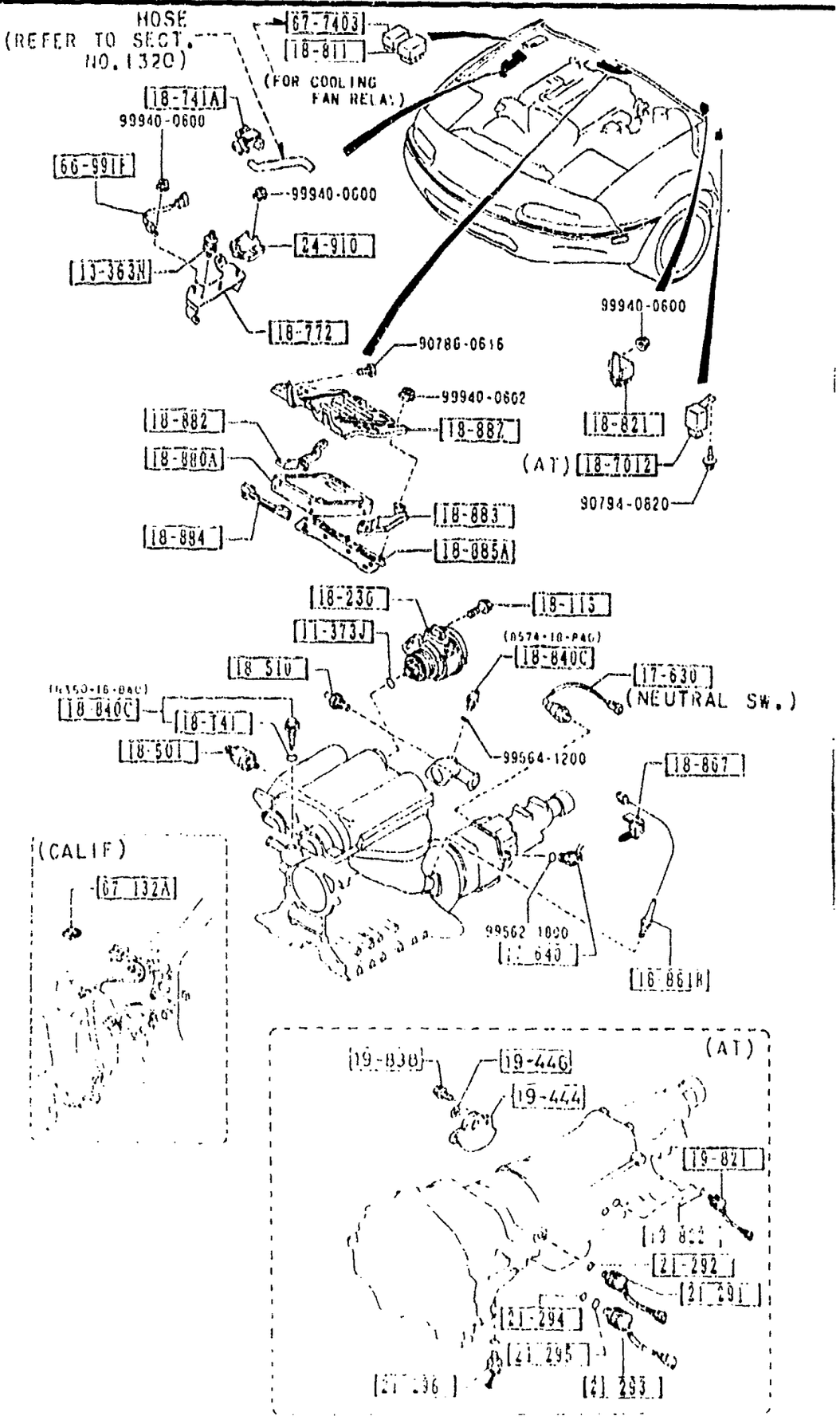
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
18-811		RELAY,MAIN			
B6S8-18-811	1				
18-821		RELAY,FUEL PUMP			
N236-18-821	1				
18-840C		SENSOR,TEMP.-ENG.COOLANT			
N350-18-840	1	DENSO			
8574-18-840	1	DENSO			
18-861B		SENSOR,OXYGEN			
B61R-18-861A	1				
18-867		CLIP			
FE30-18-867A	2				
18-88Z		COVER,CONTROL UNIT			
B65K-18-88Z	1				
18-880A		MODULE,POWERTRAIN CONTROL			
B64J-18-881	1	(AT)			
B61P-18-881A (B61P-18-881B)	1				-0926
B61P-18-881B	1	(MT)			0926-
18-882		BRACKET,CONTROL UNIT			
B61P-18-882	1				
18-883		BRACKET,CONTROL UNIT			
B61P-18-883	1				
18-884		BRACKET,CONTROL UNIT			
B61P-18-884	1				
18-885A		BRACKET,CONTROL UNIT			
B61P-18-885	1				
19-444		SWITCH,INHIBITOR			
BU55-19-444A	1	(AT)			

0926 NA35**-21**200

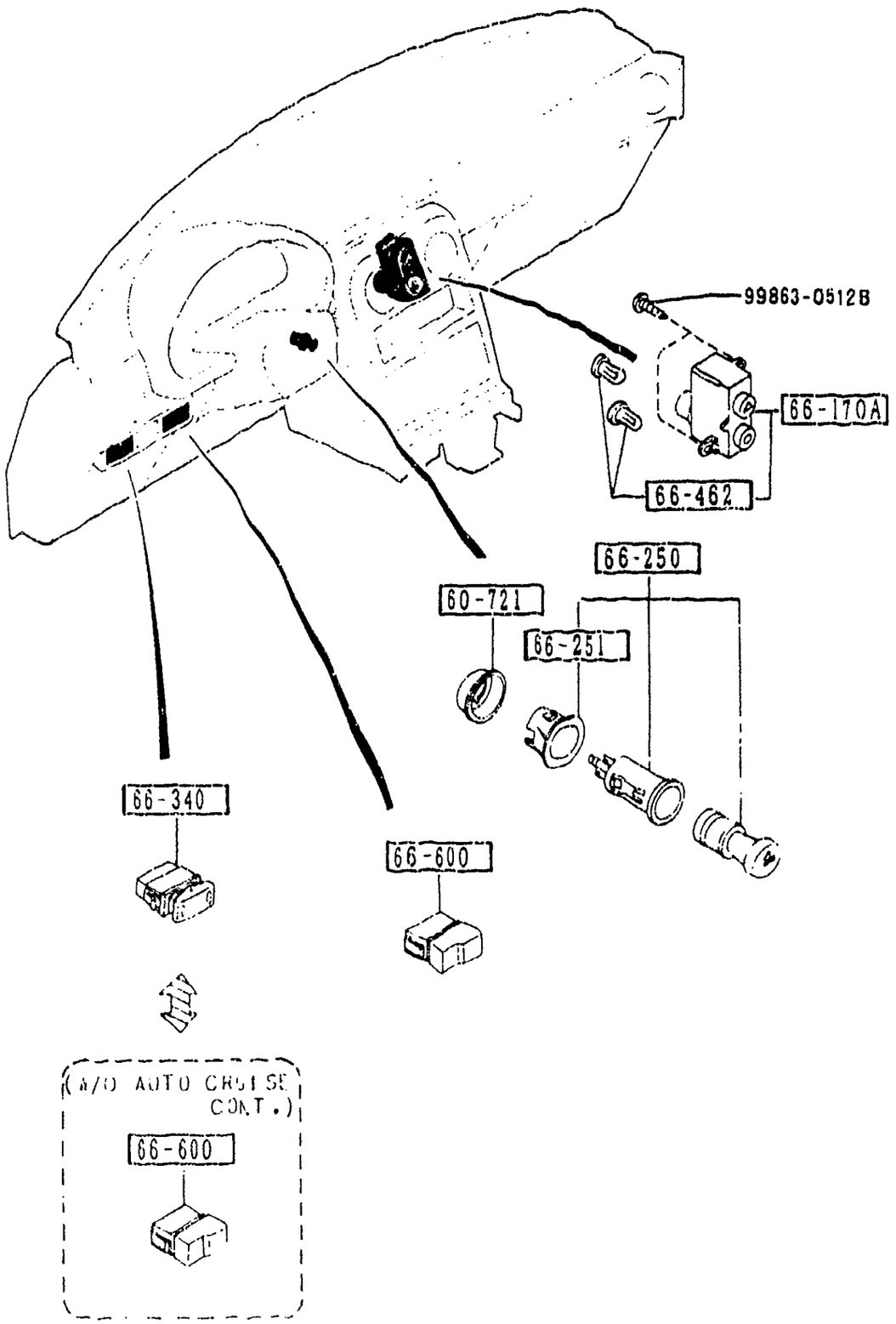


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-446		RING,'O'			
0338-19-446	1	(AT)			
19-821		SOLENOID,DOWN SHIFT			
BU55-19-821	1	(AT)			
19-822		SEAL,'O'RING			
0338-19-822	2	(AT)			
19-838		BOLT-HEX,HD WASHER			
1758-19-838 A (1758-19-838A)	2				-1301
1758-19-838A	2	(AT)			1301-
21-291		SWITCH,OIL PRESSURE			
BU55-21-2J1	1	(AT)			
21-292		RING,'O'			
BU01-21-292A	1	(AT)			
21-293		SOLENOID,OVER DRIVE			
BU55-21-2J3	1	(AT)			
21-294		RING,'O'			
BU01-21-294	1	(AT)			
21-295		RING,'O'			
BU01-21-295	1	(AT)			
21-296		SOLENOID,LOCK UP CONTROL			
BU55-21-3A5	1	(AT)			
24-910		IGNITION,ELECTRIC			
B61P-18-251	1				
66-991F		CONDENSER			
B376-66-991	1				
67-132A		CONNECTOR,SHORT			
HB23-67-741	1	(CALIF.)			

1301 NA35**-231464

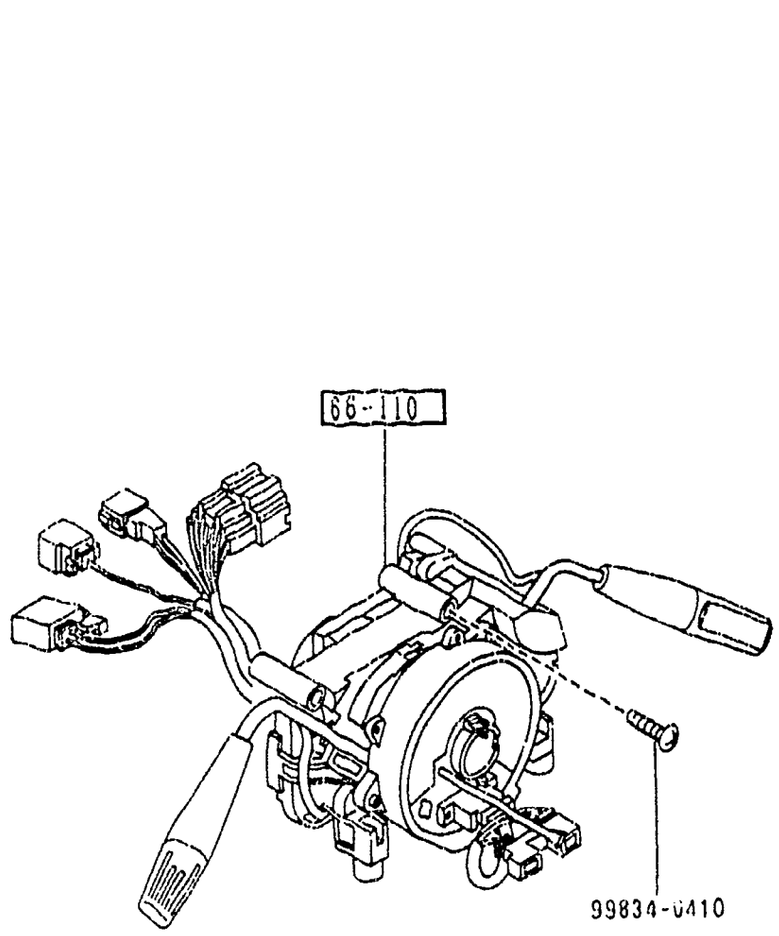


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
67-7403		RELAY,N.O.			
LA10-67-740	1	10A (FOR COOLING FAN RELAY)			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
60-721		PROTECTOR			
B092-66-241A	1				
66-170A		SWITCH(R),CLUSTER			
NA01-66-170	1				
66-250		LIGHTER,CIGAR			
B150-66-250	1				
66-251		RING,ILLUMINATION			
B001-66-251	1				
66-340		SWITCH,MAIN			
NA01-66-340A	1	PKG-OPT, (W/AUTO CRUISE CONT)			
66-462		BULB'B',SWITCH-RR DEFOGER			
NA01-66-462	2				
66-600		COVER,HOLE			
B481-55-225	2	BASE, (W/O AUTO CRUISE CONT.)			

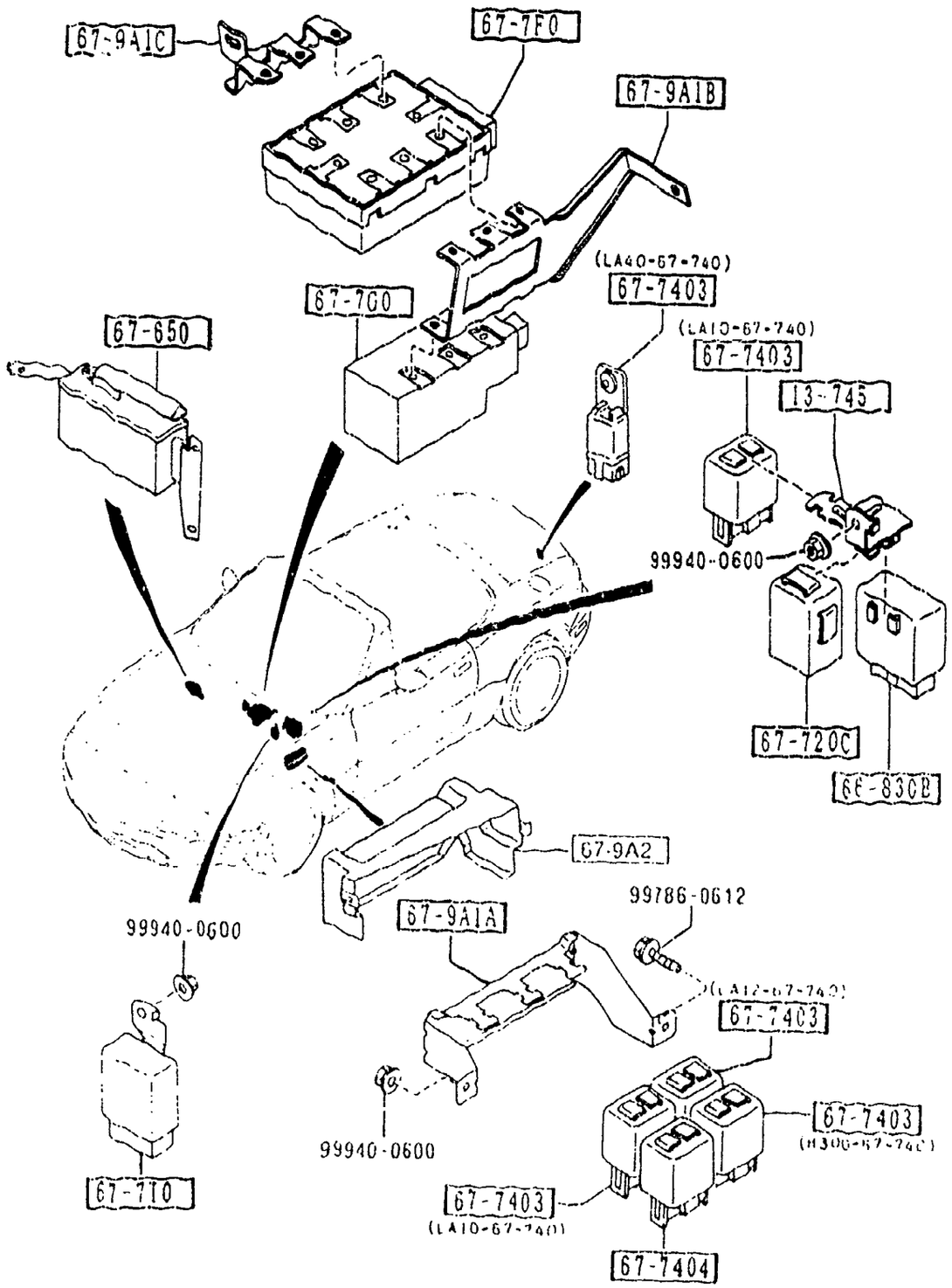
(W/O AUTO CRUISE CONT.)
(W/AUTO CRUISE CONT)



6611 -1 * COMBINATION SWITCH

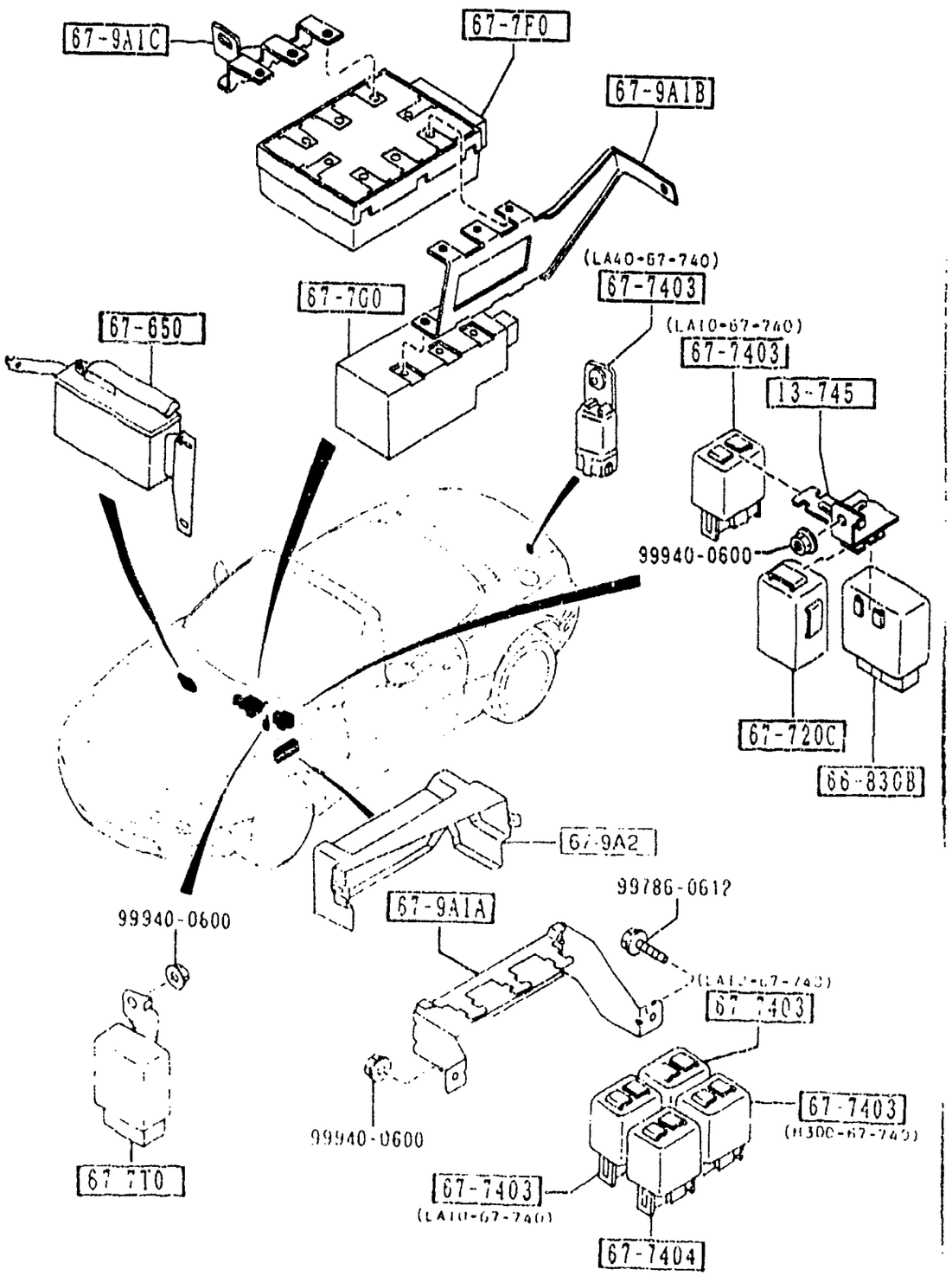
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
66-110		SWITCH,COMBINATION			
NA01-66-120A	1	BASE, (W/O AUTO CRUISE CONT.)			
NA02-66-120A	1	PKG-OPT, (W/AUTO CRUISE CONT)			

6630 -1 RELAYS & UNIT (BODY)



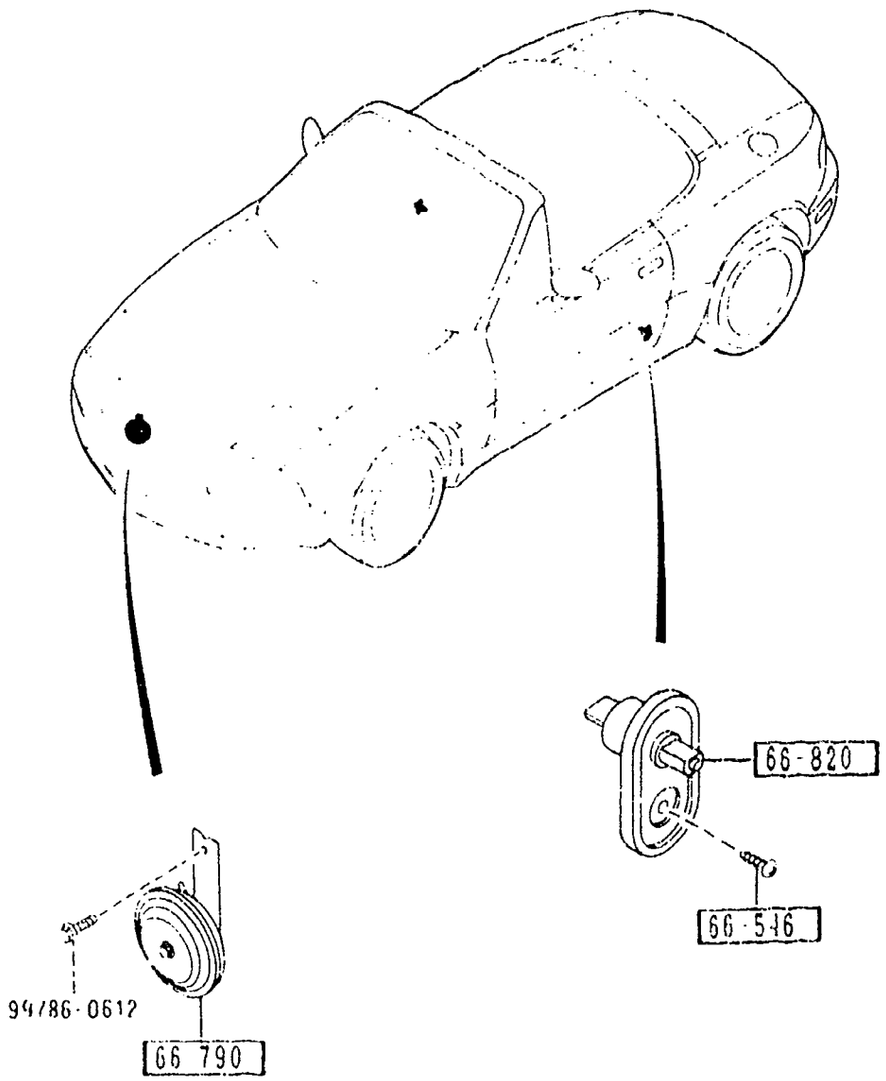
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
13-745		BRACKET,RELAY			
NA02-67-9A1	1				
66-830B		UNIT,FLASHER			
HE01-66-830	1				
67-650		BOX,CONTROL-A.B.S.			
NA17-67-650A	1				
67-7F0		UNIT,DIAGNOSIS-AIR BAG			
NA01-67-7F0A	1				
67-7G0		UNIT,BACK UP POWER-A.BAG			
NA01-67-7G0A	1				
67-7T0		UNIT,TIMER-REAR DEFG.			
NA01-67-7T0	1				1801-
67-720C		TIMER & BUZZER			
NA02-67-720	1				
67-7403		RELAY,N.O.			
H300-67-740	1	30A (HEAD LAMP RELAY)			
LA10-67-740	2	10A (HORN RELAY) (SMALL LAMP RELAY) (MT)			
LA10-67-740	3	10A (HORN RELAY) (KICK DOWN RELAY) (SMALL LAMP RELAY) (AT)			
LA12-67-740	1	(RETRACTOR RELAY)			
LA40-67-740	1	(REAR DEFOGGER RELAY)			1801-
67-7404		RELAY,TRANSFER			
HD22-67-740	1				
67-9A1A		BRACKET,RELAY			
NA01-67-9A1	1				

1801 NA35##-300014



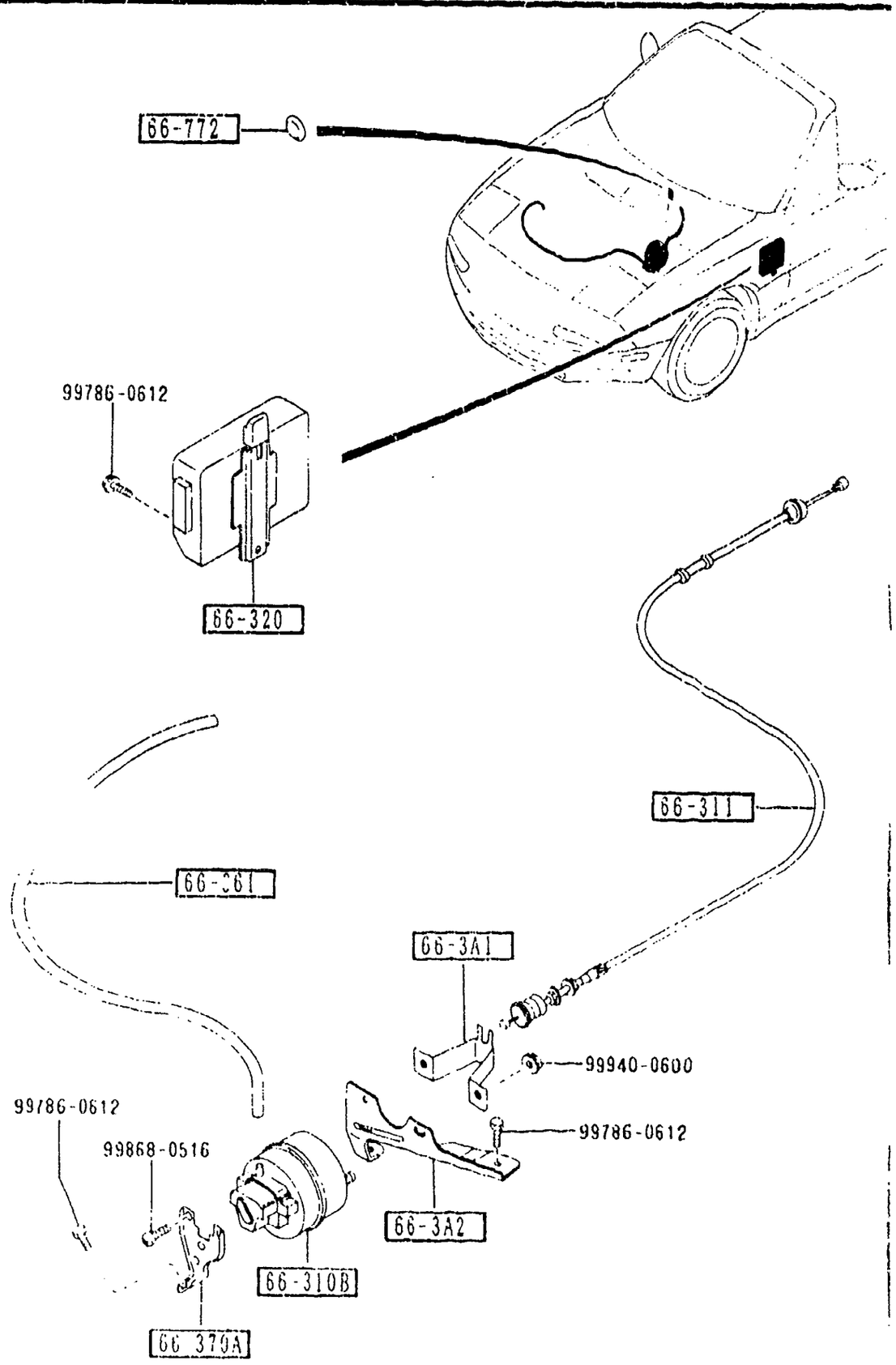
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
67-9A1B		BRKT,DIAGNOSIS UNIT			
NA06-67-9A1B	1				
67-9A1C		BRKT,DIAGNOSIS/POWER UNIT			
NA05-67-9A1B	1				
67-9A2		COVER,RELAY			
*NA02-67-9A2	1				

6635 DOOR SWITCH & HORNS

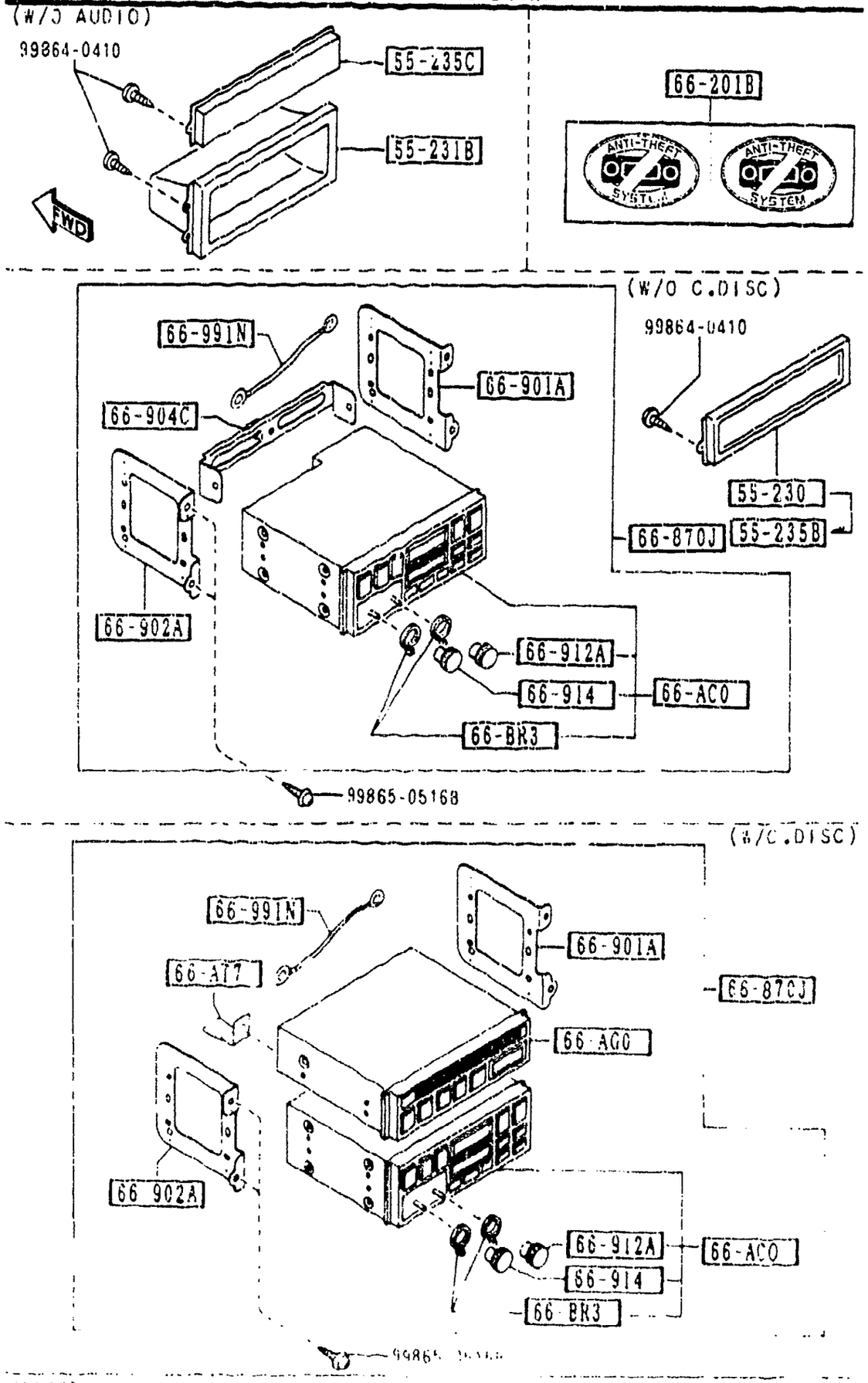


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
66-546		SCREW,DOOR SWITCH			
LA01-66-546	2				
66-790		HORN,LOW TONE			
SA59-66-790	1				
66-820		SWITCH,DOOR			
B455-66-540	2				

6640 AUTO CRUISE CONTROL SYSTEM



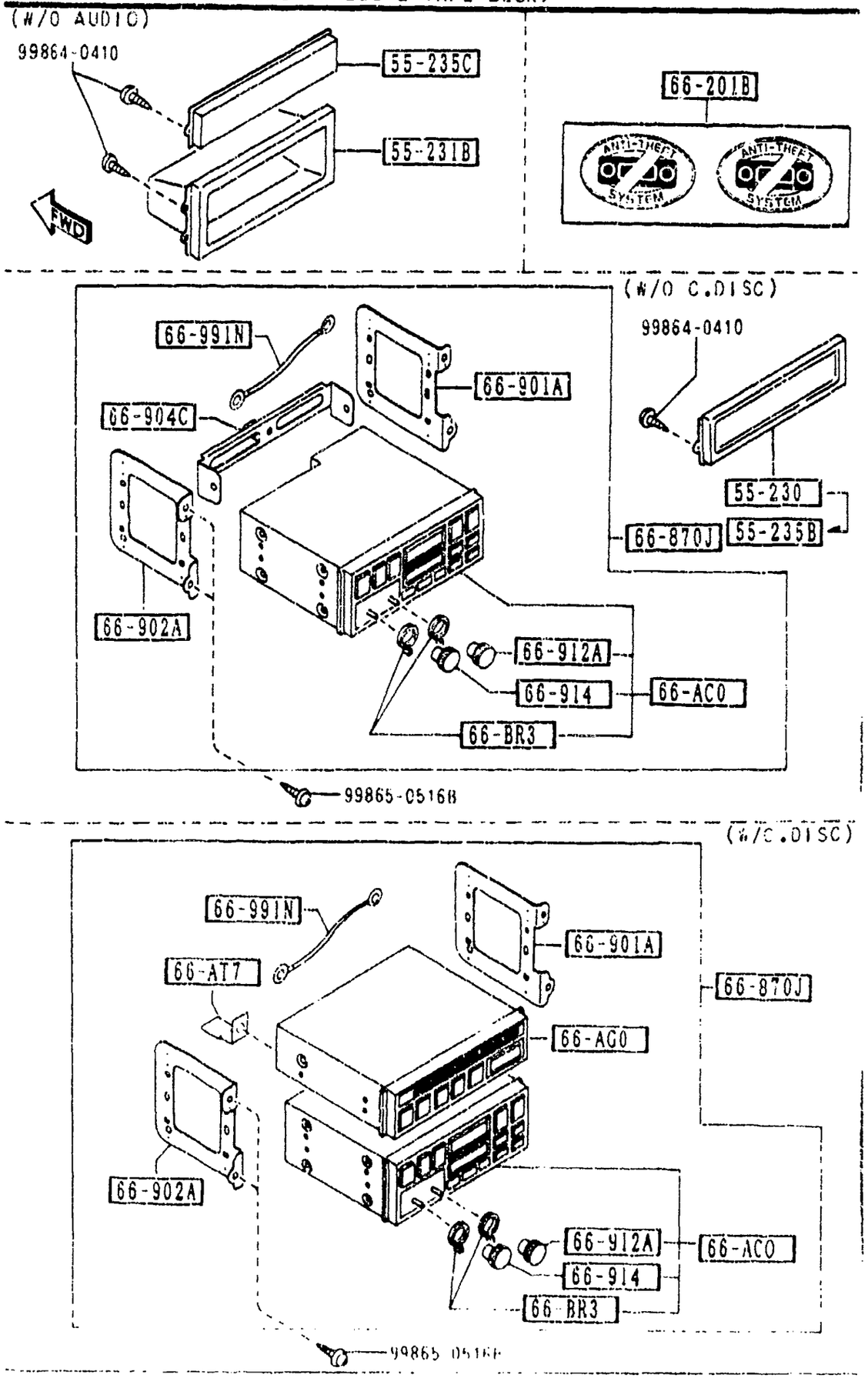
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
66-3A1		BRACKET,ACTUATOR-A.C.C.			
LA01-66-3A1	1				
66-3A2		BRACKET,ACTUATOR-FRONT			
NA01-66-3A2A	1				
66-310B		ACTUATOR,A.C.C.			
LA01-66-310A	1				
66-311		WIRE,A.C.C.			
NA01-66-311A	1				
66-320		BOX,A.C.C.			
NA01-66-320	1				
66-361		PIPE,AUTO CRUISE CONTROL			
NA01-66-361	1				
66-370A		BRACKET,ACTUATOR			
NA01-66-3A3A	1				
66-772		GROMMET			
B092-41-661	1	BASE, (W/O AUTO CRUISE CONT.)			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
55-230		PANEL,AUDIO			
NA01-55-231	1	PKG-OPT, (W/AUDIO,W/O C.DISC)			-1801
55-231B		ORNAMENT,STEREO			
FC02-55-235A	1	BASE, (W/O AUDIO)			
55-235B		ORNAMENT,STEREO-UPPER			
LA03-55-235A	1	PKG-OPT, (W/AUDIO,W/O C.DISC)			1801-
55-235C		ORNAMENT,STEREO-LOWER			
LA02-55-235	1	BASE, (W/O AUDIO)			
66-AC0		TUNER & DECK,COMB.			
NA01-66-AC0	1	PKG-OPT, (W/AUDIO)			-1628
NA01-66-AC0A	1	PKG-OPT, (W/AUDIO)			1628-
66-AG0		PLAYER,COMPACT DISC			
NA01-66-AG0	1	OPTION, (W/C.DISC)			
66-AT7		BRACKET(RR),AUDIO			
NA03-66-AT7	1	OPTION, (W/C.DISC)			
66-BR3		KNOB,BALANCE-TUNER			
NA01-66-BR3	2	PKG-OPT, (W/AUDIO)			
66-201B		LABEL,ANTI THEFT-AUDIO			
NA01-66-201	1	PKG-OPT, (W/AUDIO)			
66-870J		AUDIO SET			
NA02-66-9C0	1	PKG-OPT (W/AUDIO,W/O C.DISC)			-1628
NA03-66-9W0	1	OPTION, (W/C DISC)			-1628

1628 NA35**-235561
1801 NA35**-300014

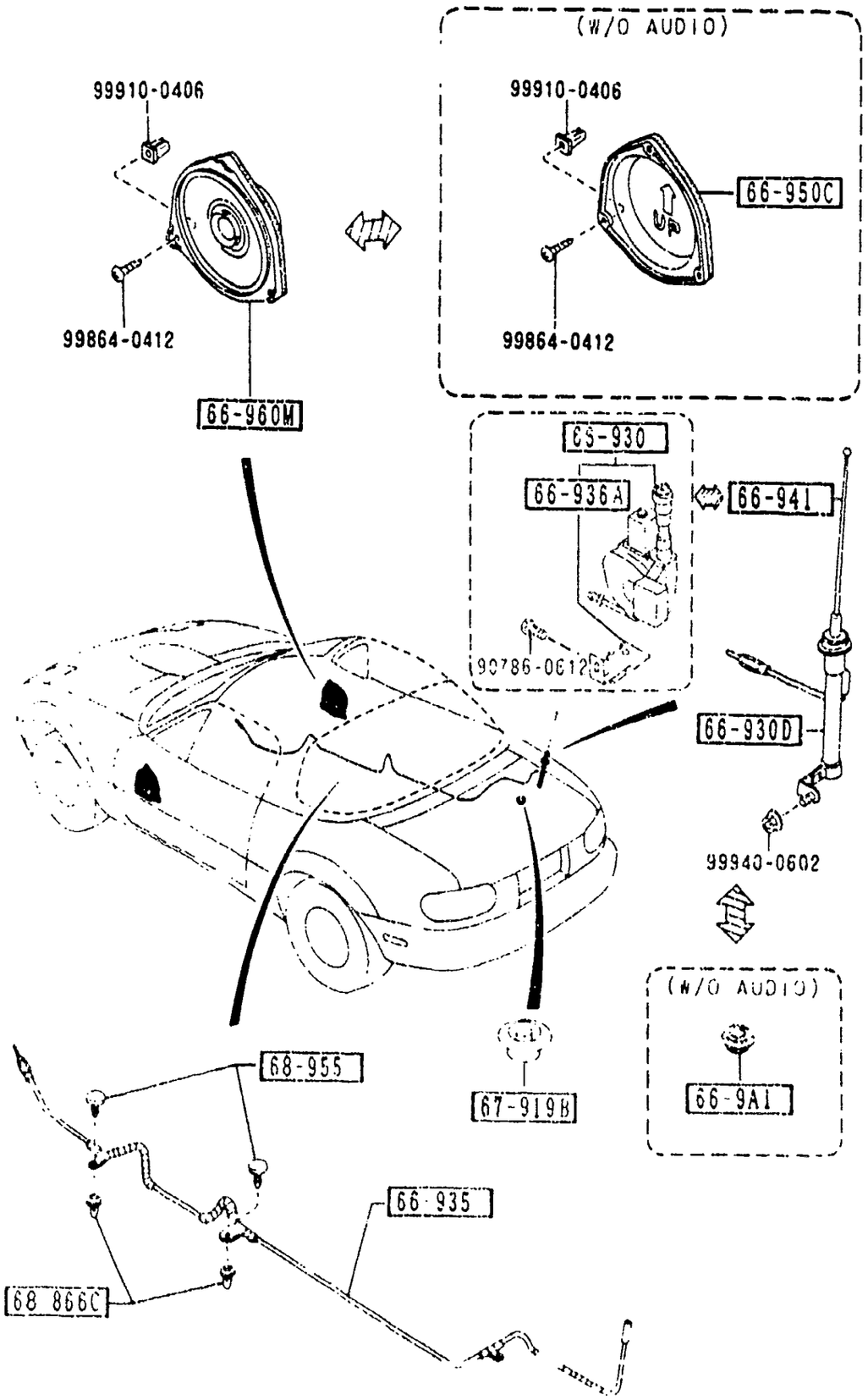
6680 AUDIO SYSTEMS (RADIO & TAPE DECK)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL RESTRICTION	FROM-TO
CONT'D					
NA02-66-9C0A	1	PKG-OPT, (W/AUDIO,W/O C.DISC)			1628-
NA03-66-9W0A	1	OPTION, (W/C.DISC)			1628-
66-901A		BRACKET(R).TUNER			
NA01-66-AT1	1				
66-902A		BRACKET(L).TUNER			
NA01-66-AT2	1				
66-904C		BRACKET,LOW			
NA01-66-AT6	1	PKG-OPT, (W/AUDIO,W/O C.DISC)			
66-912A		KNOB.TONE-TUNER			
NA01-66-BR2	1	PKG-OPT, (W/AUDIO)			
66-914		KNOB.VOLUME-TUNER			
NA01-66-BR1	1	PKG-OPT, (W/AUDIO)			
66-991N		CORD.EARTH			
NA01-66-997	1				

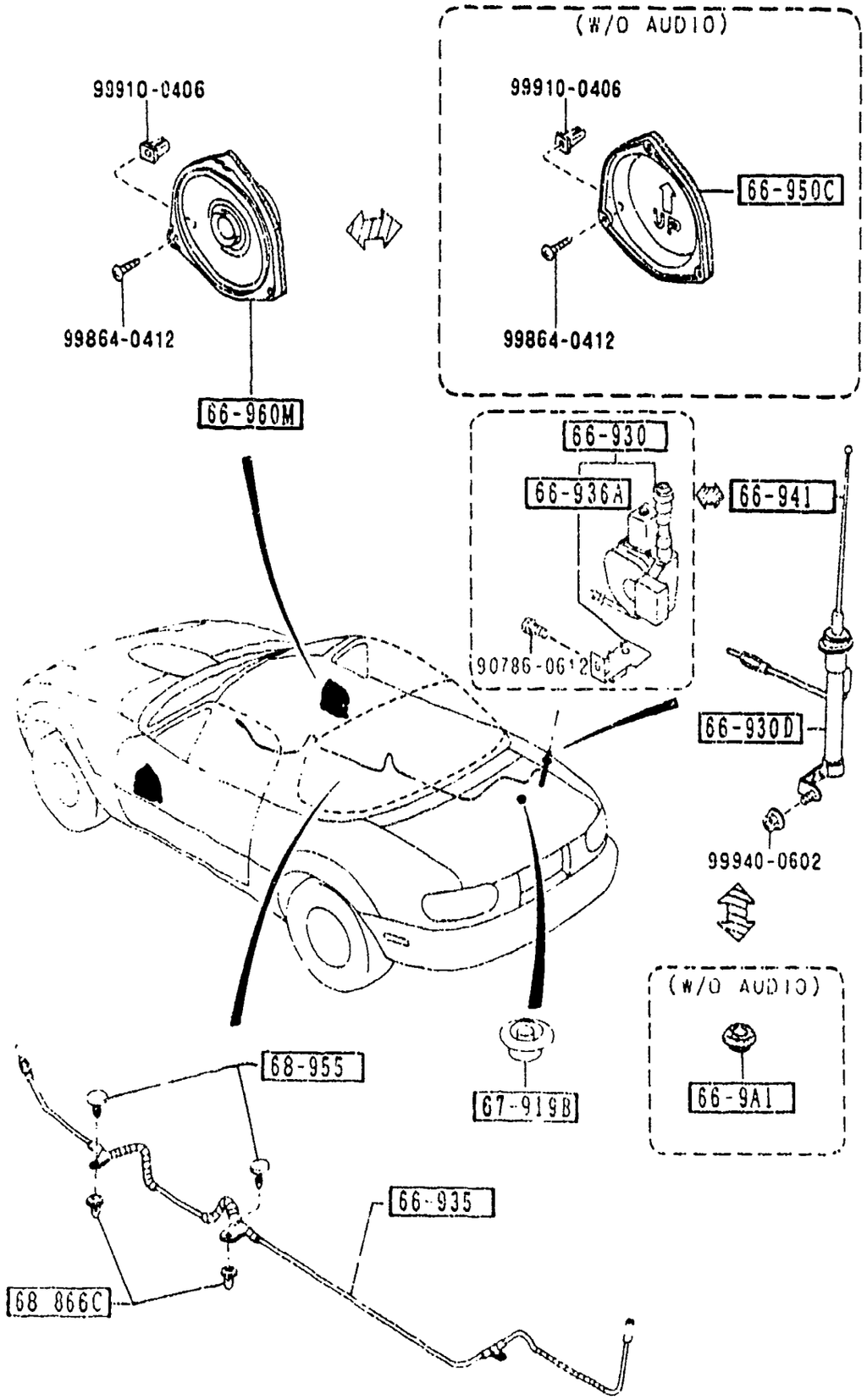
1628 NA35**-235561

6682 -1 AUDIO SYSTEMS (ANTENNA & SPEAKER)

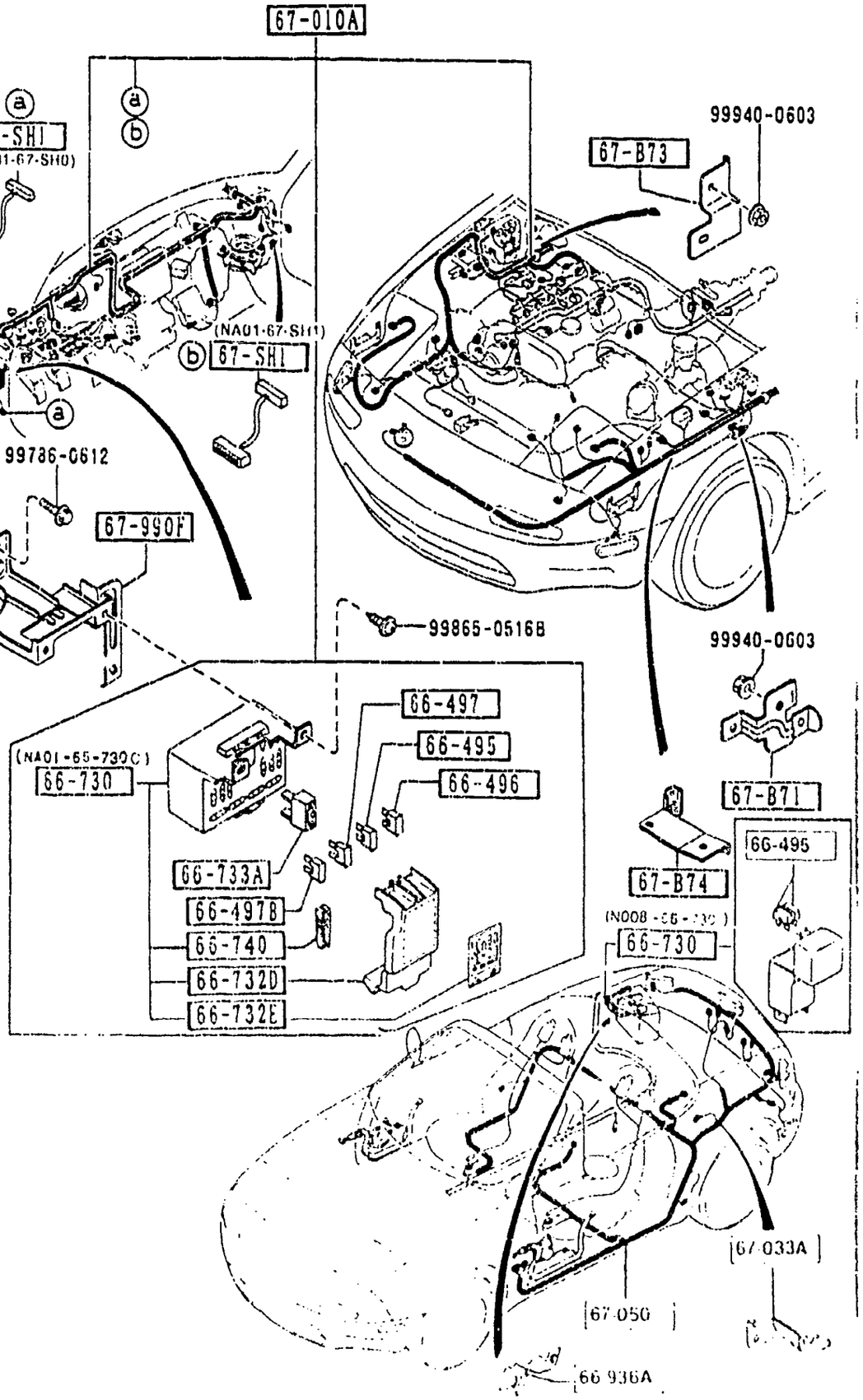


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
66-9A1		COVER,HOLE-ANTENNA			
FB01-66-9A1A	1	BASE, (W/O AUDIO)			
66-930		ANTENNA,RADIO			
N007-66-930 A (N007-66-930A)	1				-1801
N007-66-930A	1	(W/ELECT. ANTENNA)			1801-
66-930D		BODY,LOW-RADIO ANTENNA			
NA01-66-A3X	1	(W/MANUAL ANTENNA)			-1801
NA01-66-A3XA	1	(W/MANUAL ANTENNA)			1801-
66-935		FEEDER-ANTENNA			
NA01-66-940 A (NA01-66-940B)	1				-1801
NA01-66-940B AN(NA01-66-940C)	1				1801-1801
NA01-66-940C	1				1801-
66-936A		BRKT,MOTOR-ANTENA			
N007-66-A9X	1	(W/ELECT. ANTENNA)			
66-941		POLE,ANTENNA			
N001-66-A30	1	(W/MANUAL ANTENNA)			
66-950C		BRACKET,LOUD SPEAKER			
NA01-66-980A	2	BASE, (W/O AUDIO)			
66-960M		SPEAKER,DOOR			
NA03-66-96X	2	PKG-OPT, (W/AUDIO)			
67-919B		GROMMET			
N007-67-G11	1	(W/MANUAL ANTENNA) (W/O ANTENNA)			1801-
68-866C		FASTENER,SEAL			
B235-68-865A	2				
68-955		FASTENER,LIFT GATE TRIM			
GJ37-68-955	2				

1801 NA35**-300014
1801 NA35**-306993

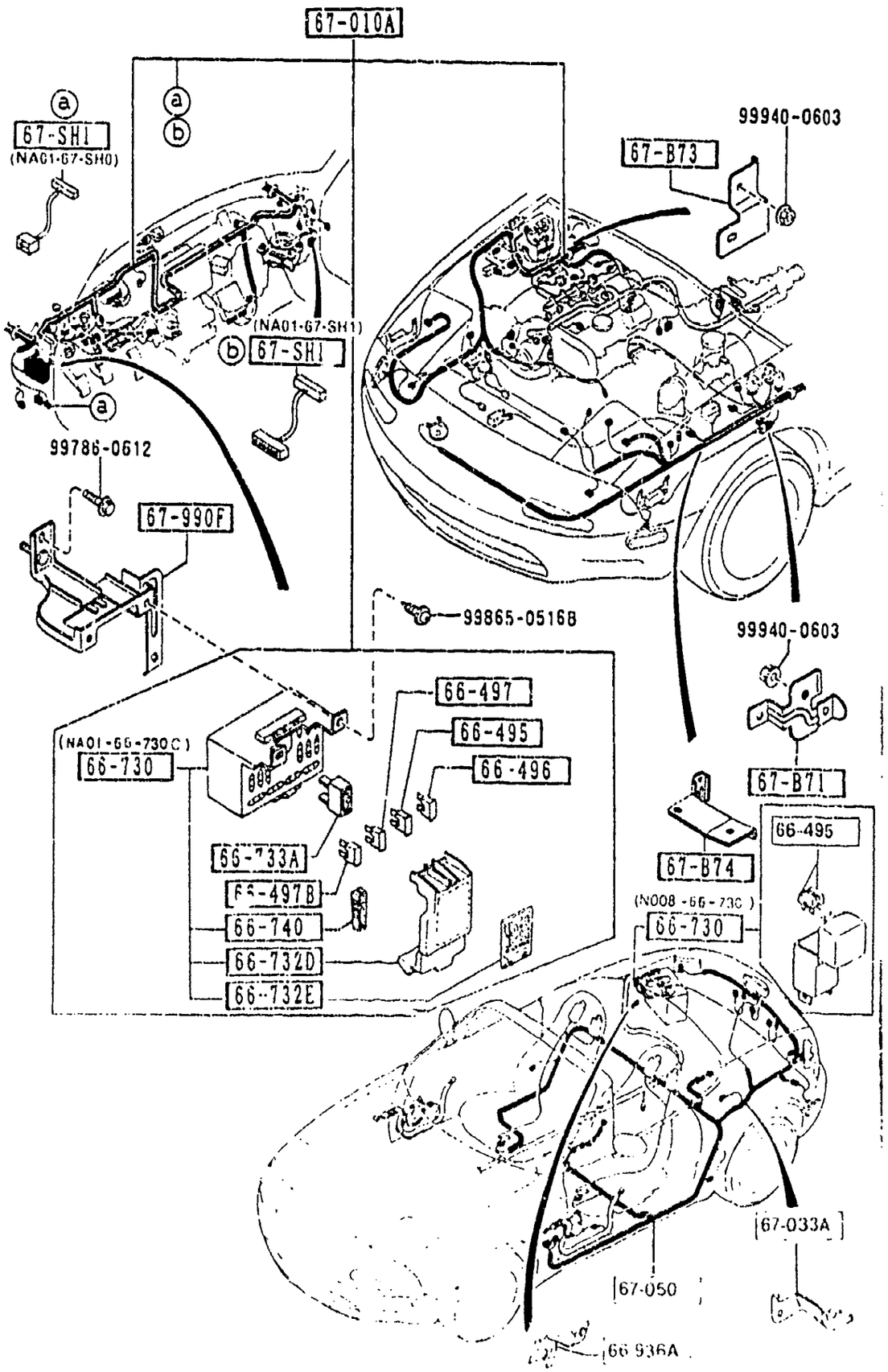


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
00	INT-	NA0 NA1 NA2 BLACK			



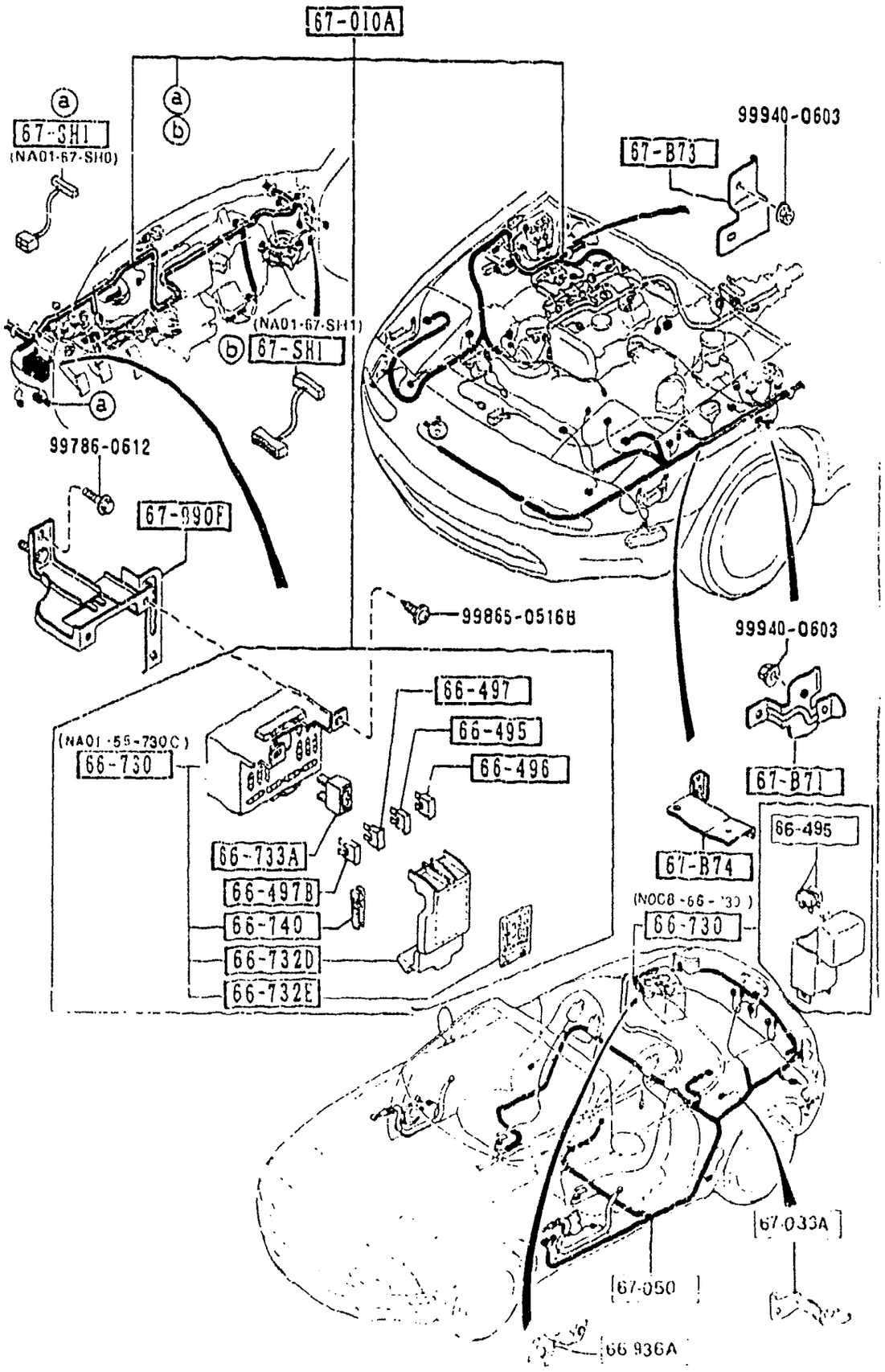
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
66-495		FUSE(10A)			
99705-1110	2				-1801
99705-1110	4				1801-
66-496		FUSE(15A)			
99705-1115	7				
66-497		FUSE(20A)			
99705-1120	1				
66-497B		FUSE(30A)			
99705-1130	1				
66-730		BLOCK,FUSE			
NA01-66-730C	1				
N008-66-730	1				1801-
66-732D		COVER,FUSE BLOCK			
NA01-66-731A	1	FURUKAWA			
66-732E		LABEL,CAUTION-FUSE COVER			
NA01-66-732A	1				
66-733A		BREAKER			
H001-66-733	1				
66-740		HOLDER,FUSE			
H001-66-739	1				
66-936A		BRKT,MOTOR-ANTENA			
N007-66-A9X	1	(W/O ANTENNA)			
67-B71		BRACKET,HARNESS			
NA05-67-BW1B	1				
67-B73		BRACKET,HARNESS			
NA05-67-BW2	1				
67-B74		BRACKET,HARNESS			
NA05-67-BW0A	1				

1801 NA35**-300014



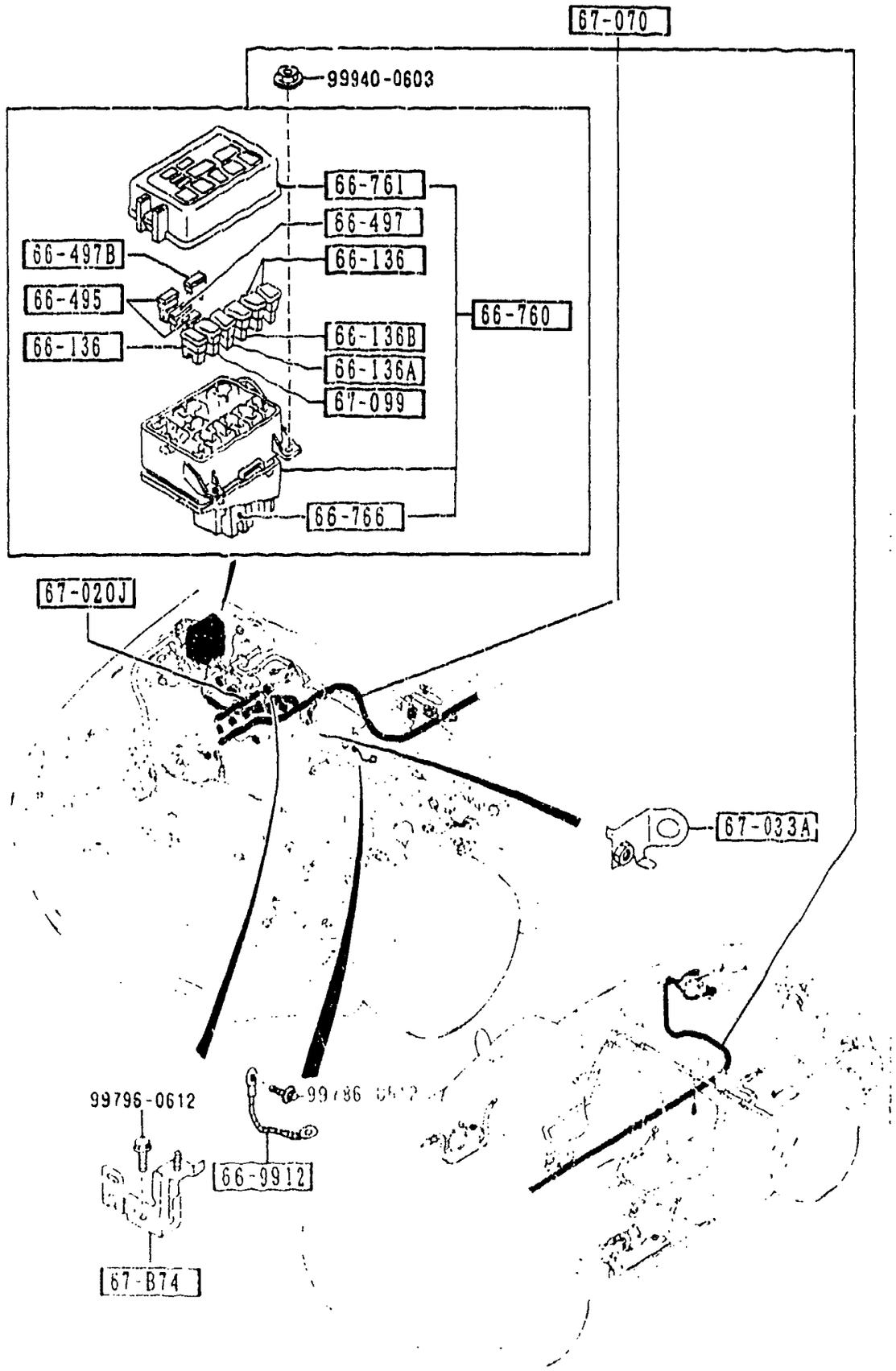
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
67-SH1		CORD,SHORT			
NA01-67-SH0	1	((AT))(W/O A.LOCK BRAKE))			
NA01-67-SH1	1	((MT))(W/O A.LOCK BRAKE))			
67-010A		HARNESS,FRONT			
NA23-67-010D AN(NA23-67-010E)	1				-0A01
NA25-67-010E AN(NA25-67-010F)	1				-0A01
NA04-67-010E AN(NA04-67-010F)	1				-1301
NA05-67-010E AN(NA05-67-010F)	1				-1301
NA03-67-010G	1	((AT))(W/O A.LOCK BRAKE))			-1301
NA23-67-010E AN(NA23-67-010F)	1				0A01-1301
NA25-67-010F	1	((AT))(A.LOCK BRAKE))			0A01-1801
NA04-67-010F	1	BASE, (W/O POWER WIND.) ((MT))(W/O A.LOCK BRAKE))			1301-1801
NA05-67-010F	1	PKG-OPT, V-SPECIAL, (W/POWER WIND.) ((MT))(W/O A.LOCK BRAKE))			1301-1801
NA23-67-010F	1	((MT))(A.LOCK BRAKE))			1301-1801
NA03-67-010K	1	((AT))(W/O A.LOCK BRAKE))			1801-
NA04-67-010J	1	BASE, (W/O POWER WIND.) ((MT))(W/O A.LOCK BRAKE))			1801-
NA05-67-010J	1	PKG-OPT, V-SPECIAL, (W/POWER WIND.) ((MT))(W/O A.LOCK BRAKE))			1801-
NA23-67-010J	1	((MT))(A.LOCK BRAKE))			1801-
NA25-67-010J	1	((AT))(A.LOCK BRAKE))			1801-
67-033A		BRACKET,WIRING			
N007-67-B10A	1				

0A01 NA35**-213219
1301 NA35**-231464
1801 NA35**-300014



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
67-050		HARNESS,REAR			
NA23-67-050A AN(NA23-67-050B)	1				-0A01
NA01-67-050E	1	BASE, (W/O HEAD SPEAKER) (W/O A.LOCK BRAKE)			-1801
NA02-67-050E	1	PKG-OPT, (W/HEAD SPEAKER) (W/O A.LOCK BRAKE)			-1801
NA23-67-050B	1	(A.LOCK BRAKE)			0A01-1801
NA01-67-050H AN(NA01-67-050J)	1				1801-1C01
NA02-67-050H AN(NA02-67-050J)	1				1801-1C01
NA23-67-050E AN(NA23-67-050F)	1				1801-1C01
NA01-67-050J	1	BASE, (W/O HEAD SPEAKER) (W/O A.LOCK BRAKE)			1C01-
NA02-67-050J	1	PKG-OPT, (W/HEAD SPEAKER) (W/O A.LOCK BRAKE)			1C01-
NA23-67-050F	1	(A.LOCK BRAKE)			1C01-
67-990F		BRACKET,HARNESS			
NA01-67-BJ0	1				

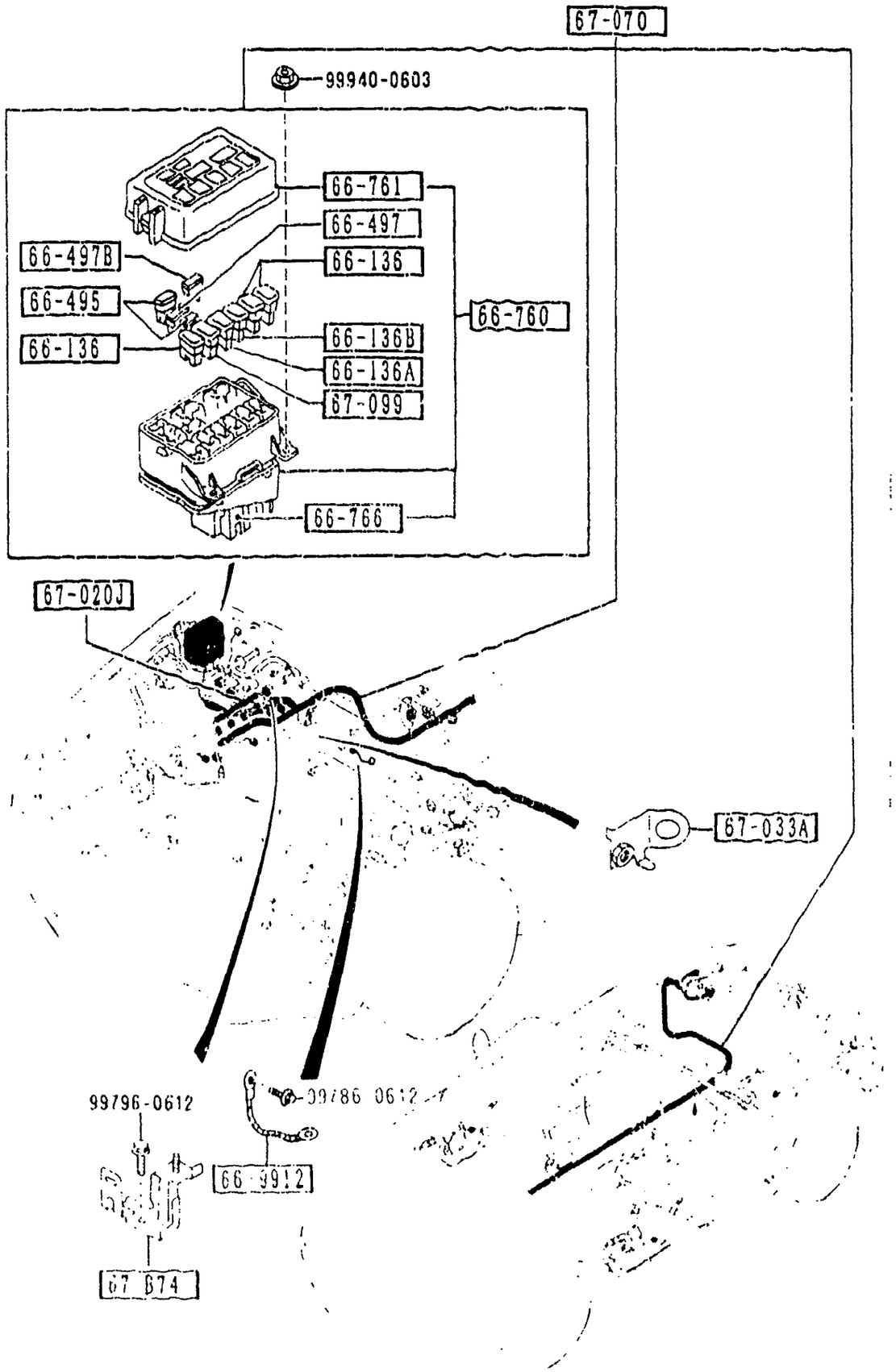
0A01 NA35**-213219
1801 NA35**-300014
1C01 NA35**-309801



6701 -1 WIRING HARNESSES(ENGINE & T/MISSION)

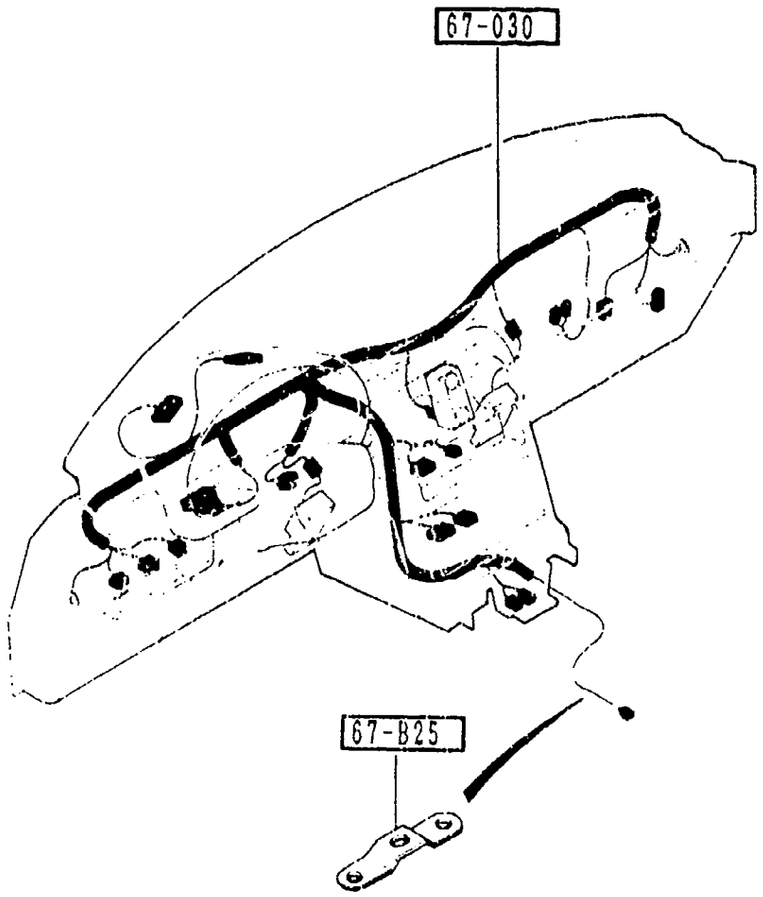
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
66-136 H115-67-099	3	FUSE(30A)			
66-136A H116-67-099	1	FUSE(40A)			
66-136B H117-67-099	1	FUSE(80A)			
66-495 99705-1110	2	FUSE(10A)			
66-497 99705-1120	1	FUSE(20A)			
66-497B 99705-1130	1	FUSE(30A)			
66-760		BLOCK,MAIN FUSE			
NA01-66-760B	1	(W/O A.LOCK BRAKE)			
NA23-66-760	1	(A.LOCK BRAKE)			
66-761 NA02-66-762B	1	COVER,MAIN FUSE BLOCK YAZAKI (W/O A.LOCK BRAKE)			
NA23-66-762	1	(A.LOCK BRAKE)			
66-766 B465-66-767	1	COVER,UNDER-MAIN FUSE BLK			
66-9912 NA01-67-EW1B	1	WIRE,EARTH			
67-B74 NA01-67-080A	1	BRACKET,HARNESS			
67-020J NA01-67-080C	1	HARNESS,INJECTOR			
67-033A NA01-67-B10B	1	BRACKET,WIRING			

6701 -2 * WIRING HARNESSES(ENGINE & T/MISSION)



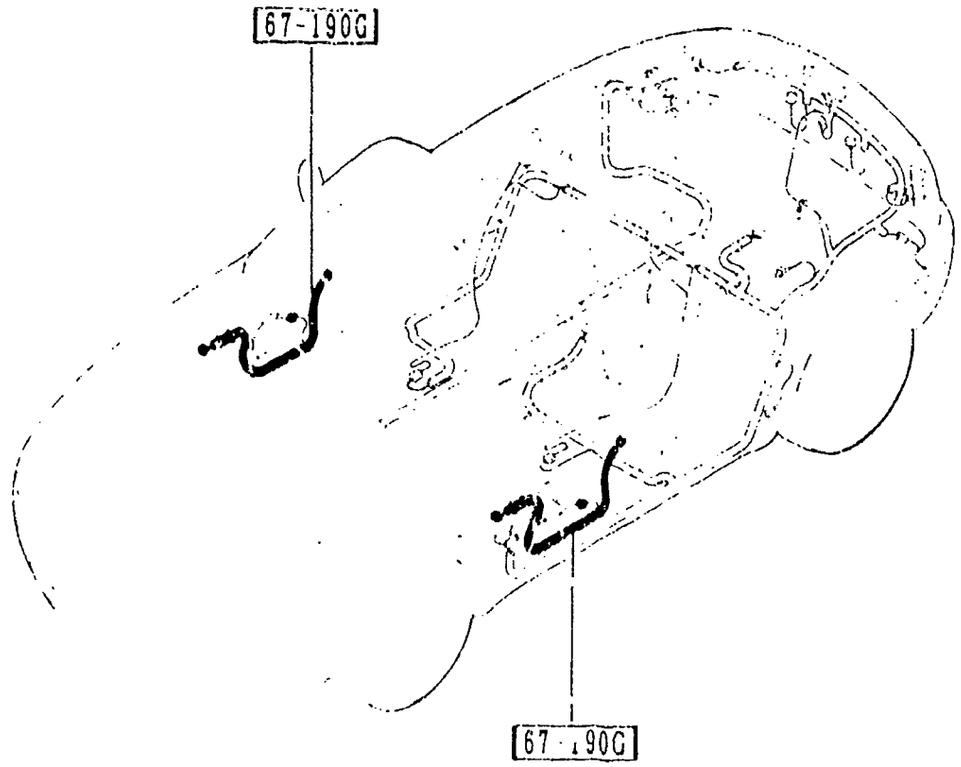
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
67-070		HARNESS,ENGINE			
NA01-67-070K	1	((MT))(W/O A.LOCK BRAKE))			-1801
NA03-67-070D	1	((AT))(W/O A.LOCK BRAKE))			-1801
NA23-67-070B	1	((MT))(A.LOCK BRAKE))			-1801
NA25-67-070B	1	((AT))(A.LOCK BRAKE))			-1801
NA01-67-070L	1	((MT))(W/O A.LOCK BRAKE))			1801-
NA03-67-070E	1	((AT))(W/O A.LOCK BRAKE))			1801-
NA23-67-070D	1	((MT))(A.LOCK BRAKE))			1801-
NA25-67-070D	1	((AT))(A.LOCK BRAKE))			1801-
67-099		LINK,FUSIBLE			
FB01-67-099	1	60A			

1801 NA35**-300014



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
67-B25		BRACKET,HARNESS			
NA01-67-B31	1	(MT)			
67-030		HARNESS,INSTRUMENT			
NA23-67-030A	1	(MT)			-1301
NA25-67-030B	1	(AT)			-1801
NA01-67-030N	1	((MT)>(W/O A.LOCK BRAKE))			1801-
NA02-67-030N	1	((MT)>(A.LOCK BRAKE))			1801-
NA03-67-030G	1	(AT)			1801-

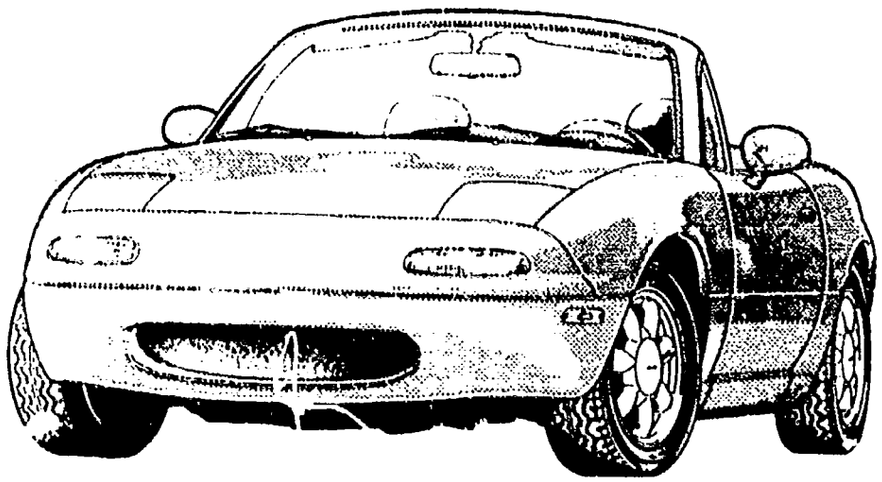
1801 NA35**-300014



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL.RESTRICTION	FROM TO
67-190G		HARNESS,DOOR			
NA01-67-190A	2	BASE, (W/O POWER WIND.)			
NA02-67-190A	2	PKG-OPT, V-SPECIAL, (W/POWER WIND.)			

Parts Catalog

Mazda MX-5 MIATA
U.S.A.
('91►'92)



NA35**-200001~350000

Jan.'94 (FINAL)

Catalog No. AU-NA02-07

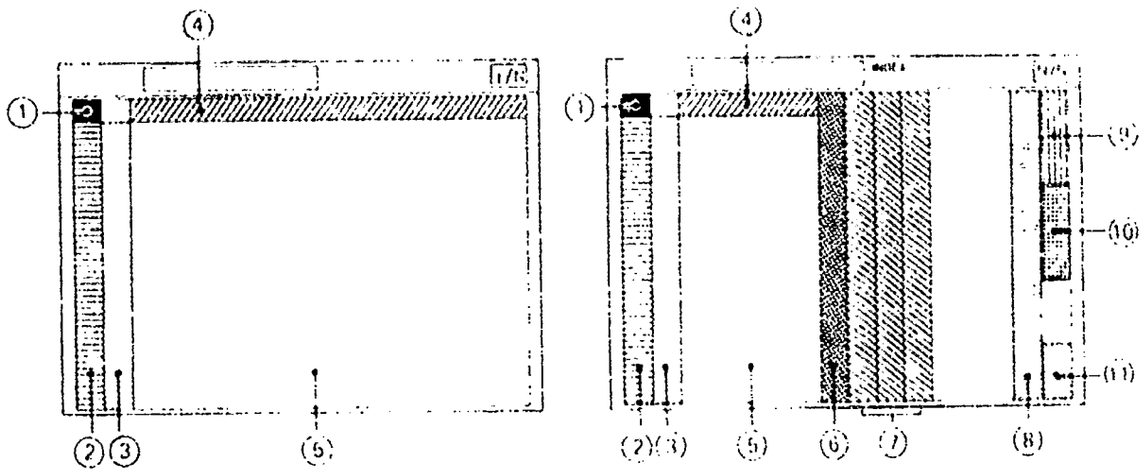
mazda

1994 Mazda Motor Corporation

3-B 1

LAYOUT OF CONTENTS / DISPOSITION TYPOGRAPHIQUE DE CONTENU / DISPOSICION DEL CONTENIDO / ANORDNUNG DES INHALTS

- The following is a typical example of the layout of contents on Mazda microfiche parts catalog
- Voici un exemple typique de la disposition typographique de contenu dans les microfiches de catalogue des pièces de Mazda.
- El siguiente es un ejemplo típico de la disposición del contenido en una microficha del catálogo de repuestos de Mazda.
- Folgendes ist ein typisches Beispiel der Inhaltsanordnung des Mazda-Mikrofiche-Teilekatalogs



Remark : The items listed under ④ have been deleted from each fiche since Dec. '93

① · Layout of contents
· Disposition Typographique de Contenu
· Disposición del contenido
· Anordnung des Inhalts

② · Pictorial Index
· Index par Schémas
· Indice Gráfico
· Illustrierter Index

③ · Master Section No. Index
· Index des Numéros des Sections Totale
· Indice del Número de la Sección Maéstra
· Hauptabschnittsnummer Index

~~④ · Section No. Index for the Column~~
~~· Index des Numéros des Sections pour les Colonnes~~
~~· N° de la Sección para el Indice~~
~~· Abschnittsnummer-Index für die Spalte~~

⑤ · Illustration & Text
· Illustrations et Textes
· Ilustración y Texto
· Abbildung und Text

⑥ · Part No. Index
· Index des Numéros des Pièces
· Indice del N° de Pieza
· Teile Nr. Index

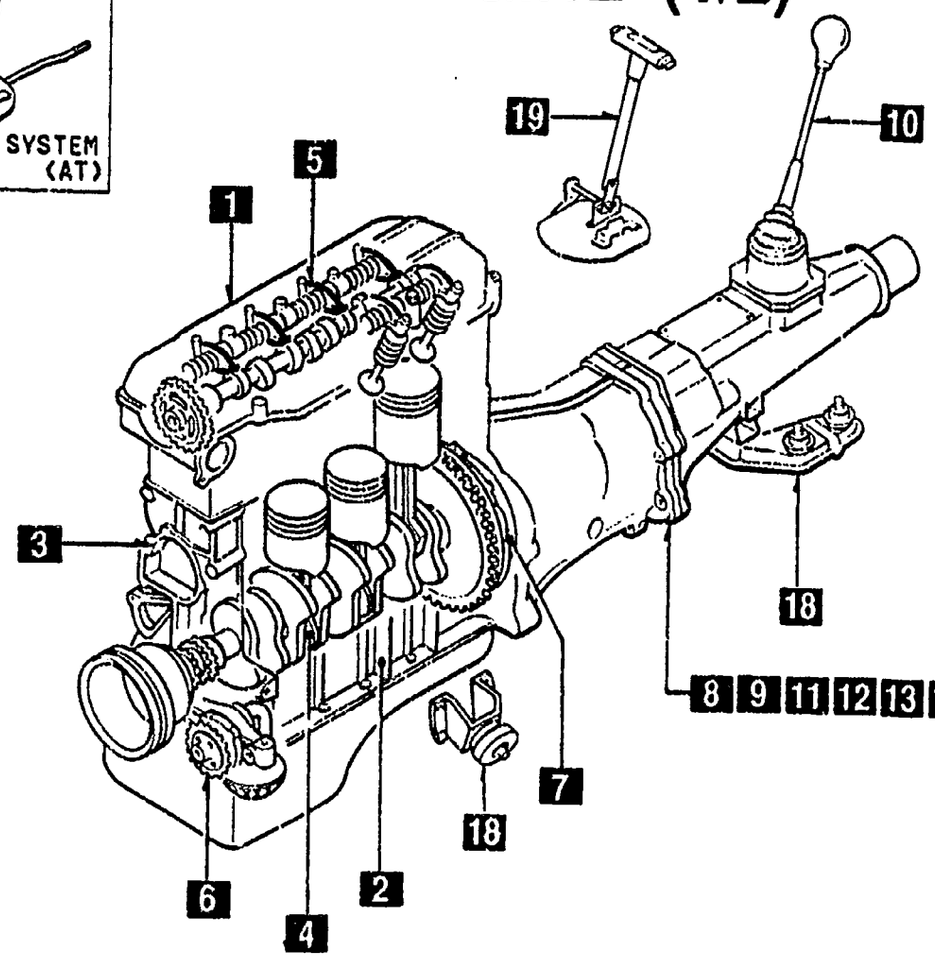
⑦ · Alphabetical Index
· Index Alphabétique
· Indice Alfabético
· Alphabetischer Index

⑧ · Model Identification
· Identification des Modèles
· Identificación del Modelo
· Modell Kennzeichnung

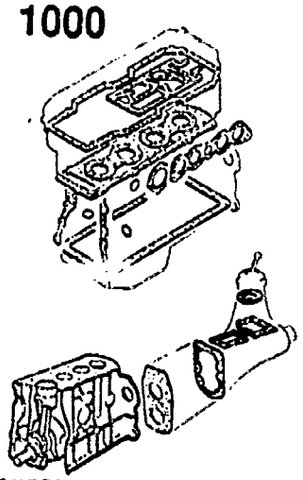
⑨ · Vehicle Identification System
· Système d'Identification de Véhicule
· Sistema de Identificación de Vehiculo
· Fahrzeug Identifikations system

PICTORIAL INDEX

ENGINE (1/2)

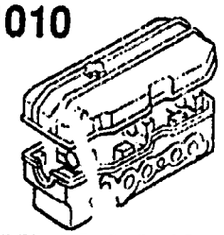


1000



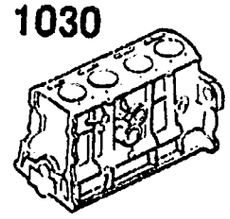
SHORT ENGINE & GASKET SETS

1 1010



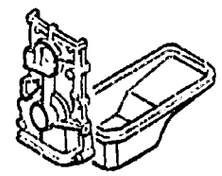
CYLINDER HEAD & COVER

2 1030



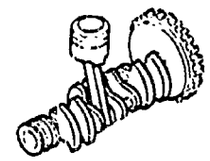
CYLINDER BLOCK

3 1040



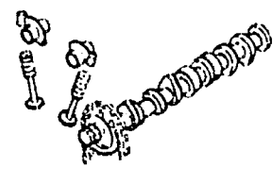
OIL PAN & TIMING COVER

4 1100



PISTON, CRANKSHAFT & FLYWHEEL

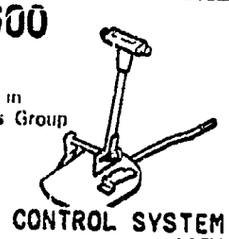
5 1200



VALVE SYSTEM

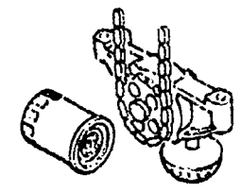
19 4600

Given in Chassis Group



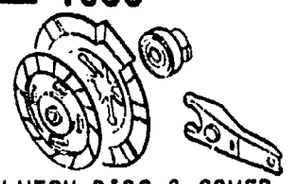
CHANGE CONTROL SYSTEM (AT)

6 1400



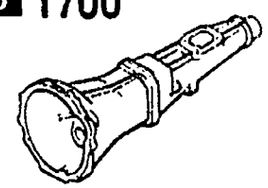
OIL PUMP & FILTER

7 1600



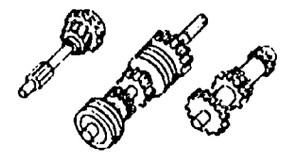
CLUTCH DISC & COVER (MANUAL)

8 1700



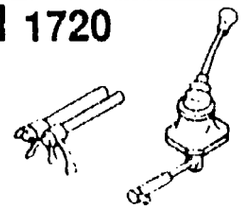
TRANSMISSION CASE (MANUAL)

9 1710



TRANSMISSION GEARS (MANUAL)

10 1720

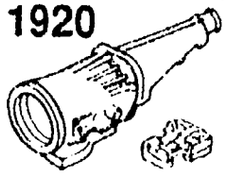


CHANGE CONTROL SYSTEM (MANUAL)

11 1910

TORQUE CONVERTER, OIL PUMP & PIPINGS (AUTOMATIC)

12 1920

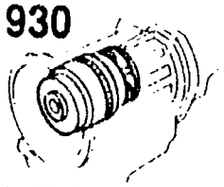


TRANSMISSION CASE & MAIN CONTROL SYSTEM (AUTOMATIC)

13 1925

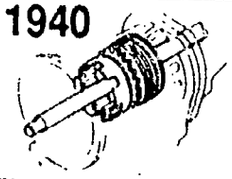
CONTROL VALVE (AUTOMATIC)

14 1930



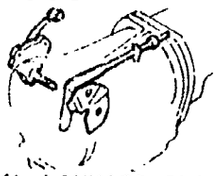
CLUTCHES & PLANETARY GEARS (AUTOMATIC)

15 1940



GOVERNOR, LOW & REVERSE PISTON (AUTOMATIC)

16 1950



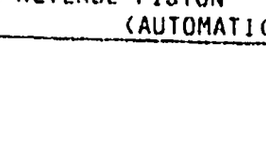
MANUAL LINKAGE SYSTEM (AUTOMATIC)

17 1960

GASKET & SEAL KIT (AUTOMATIC)

18 3900

Given in Chassis Group

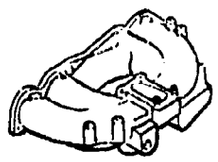


ENGINE & T/MISSION MOUNTINGS

As this illustration is prepared to be applicable to all models, some parts are different in specifications from the parts listed in this parts Catalog

PICTORIAL INDEX

1 1300

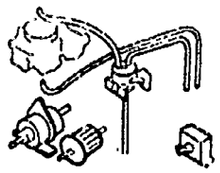


INLET MANIFOLD

2 1310

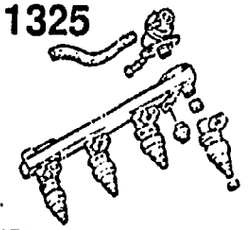
EXHAUST MANIFOLD

3 1320



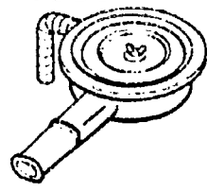
FUEL SYSTEM

4 1325



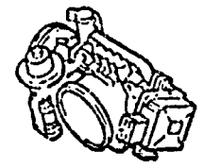
FUEL DISTRIBUTOR

5 1330



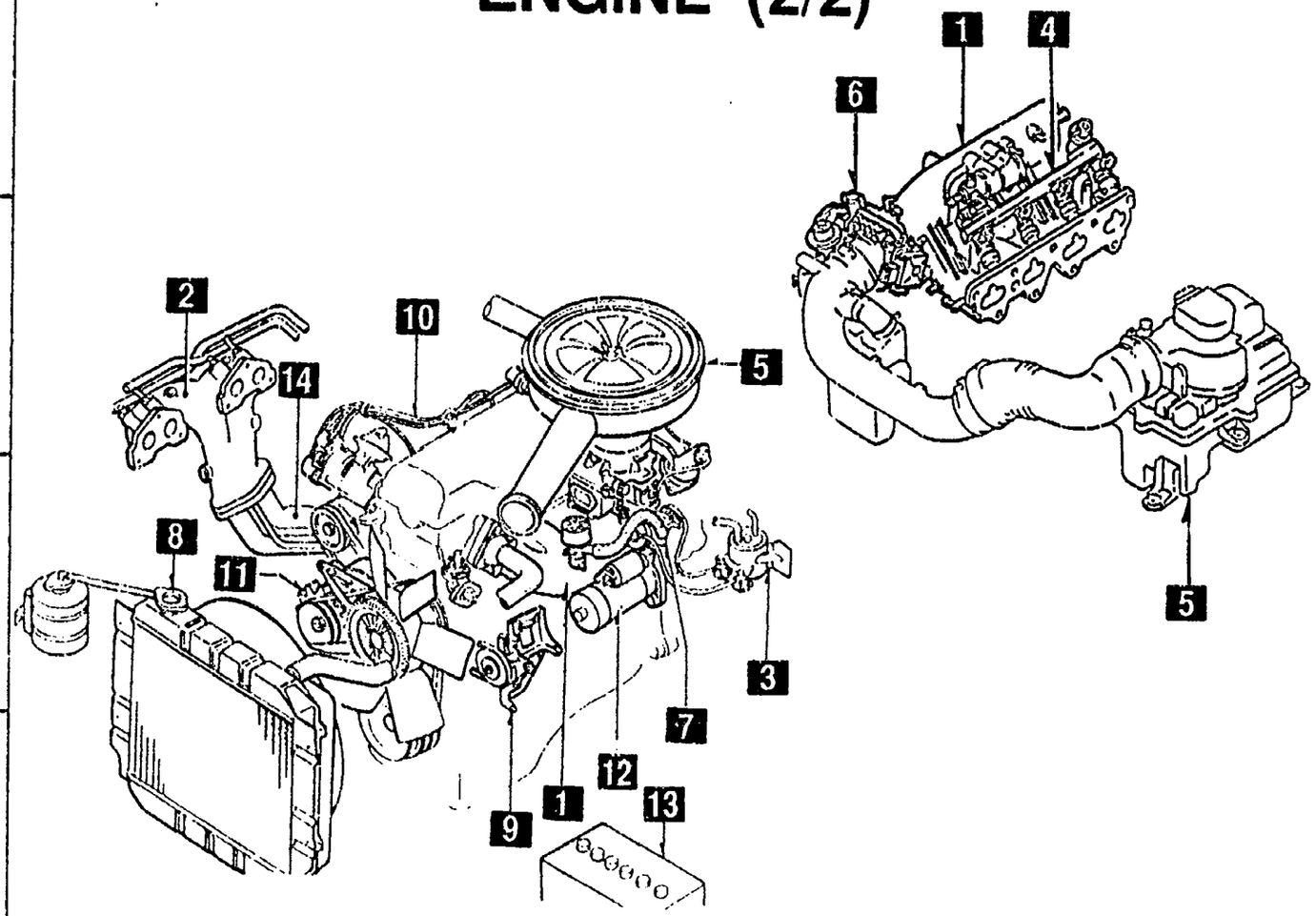
AIR CLEANER

6 1364



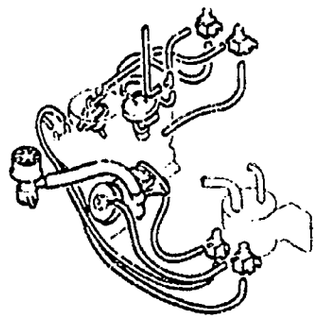
THROTTLE BODY

ENGINE (2/2)



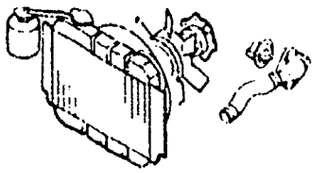
As this illustration is prepared to be applicable to all models, some parts are different in specifications from the parts listed in this parts Catalog

7 1370



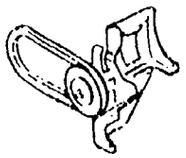
EMISSION CONTROL SYSTEM (INLET SIDE)

8 1500



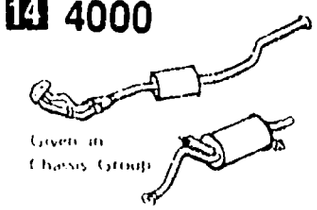
COOLING SYSTEM

9 1580



BRACKET, PULLEY & BELT

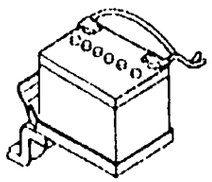
14 4000



Given in Chassis Group

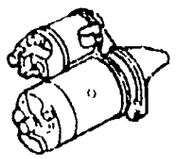
EXHAUST SYSTEM

13 1850



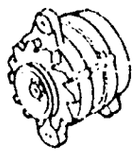
BATTERY

12 1840



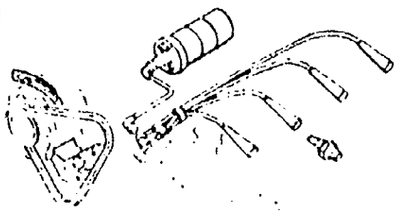
STARTER

11 1830



ALTERNATOR

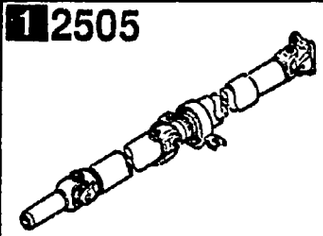
10 1800



ENGINE ELECTRICAL SYSTEM

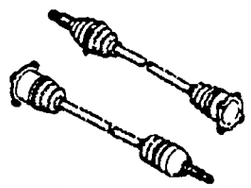
PICTORIAL INDEX

1 2505



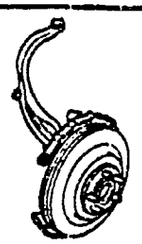
REAR PROPELLER SHAFT

2 2550



REAR DRIVE SHAFT

3 2600

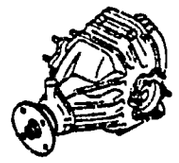


REAR AXLE

4 2610

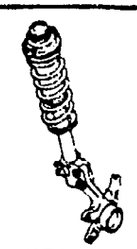
REAR BRAKE MECHANISMS

5 2710



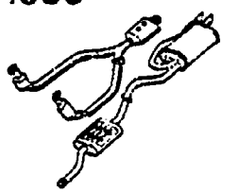
REAR DIFFERENTIALS

6 2800



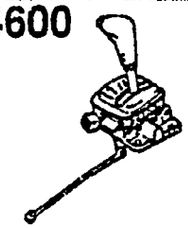
REAR SUSPENSION MECHANISMS

20 4000



EXHAUST SYSTEM

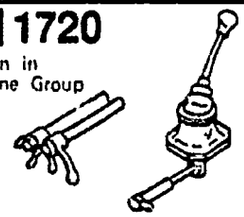
21 4600



CHANGE CONTROL SYSTEM

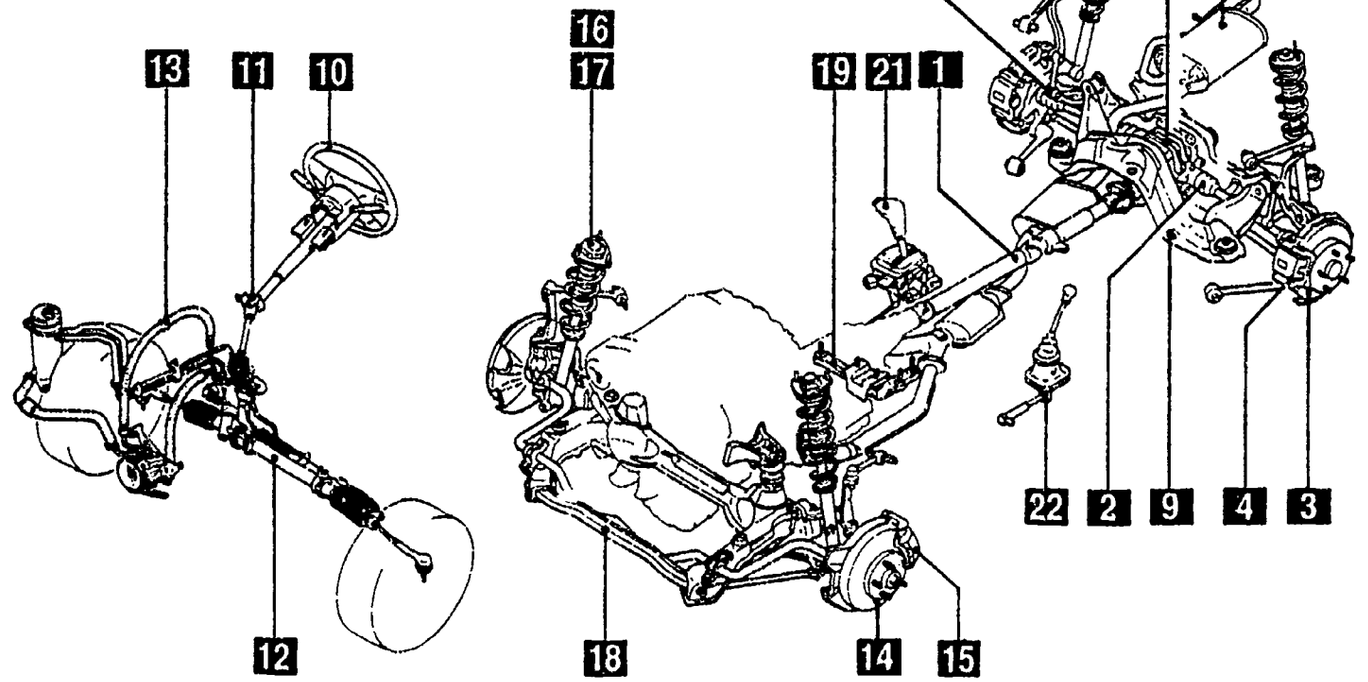
22 1720

Given in Engine Group



CHANGE CONTROL SYSTEM (MANUAL TRANSMISSION)

CHASSIS (1/2)

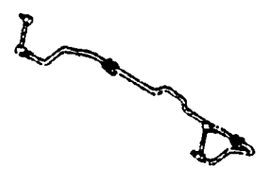


As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.

7 2801

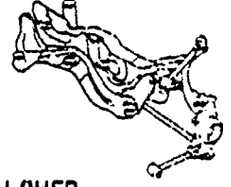
REAR SPRING & DAMPER

8 2810



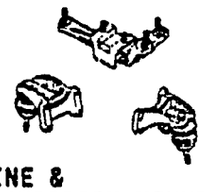
REAR STABILIZER

9 2830



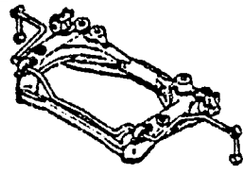
REAR LOWER ARMS & SUB FRAME

19 3900



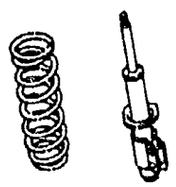
ENGINE & T/MISSION MOUNTINGS

18 3410



CROSSMEMBER & STABILIZER

17 3401

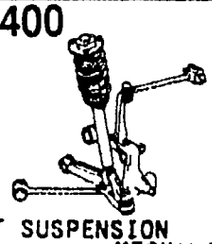


FRONT SPRING & DAMPER

10 3200

STEERING WHEEL

16 3400



FRONT SUSPENSION MECHANISMS

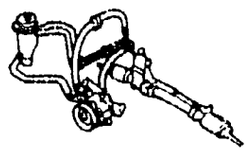
15 3310

FRONT BRAKE MECHANISMS

14 3300

FRONT AXLE

13 3240



POWER STEERING SYSTEM (FRONT)

12 3220

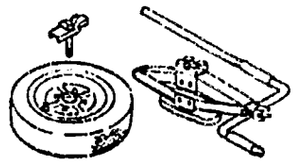
STEERING GEAR

11 3210

STEERING COLUMN & SHAFTS

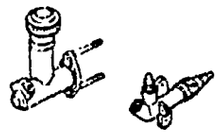
PICTORIAL INDEX

1 3700



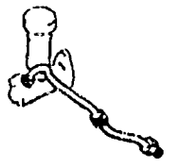
TIRES & JACK

2 4140



CLUTCH RELEASE & MASTER CYLINDERS

3 4145

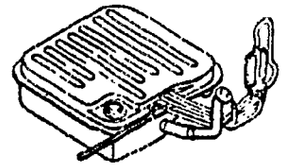


CLUTCH PIPINGS

4 4160

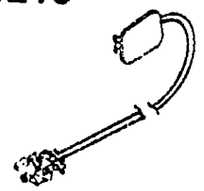
ACCELERATOR CONTROL SYSTEM

5 4200



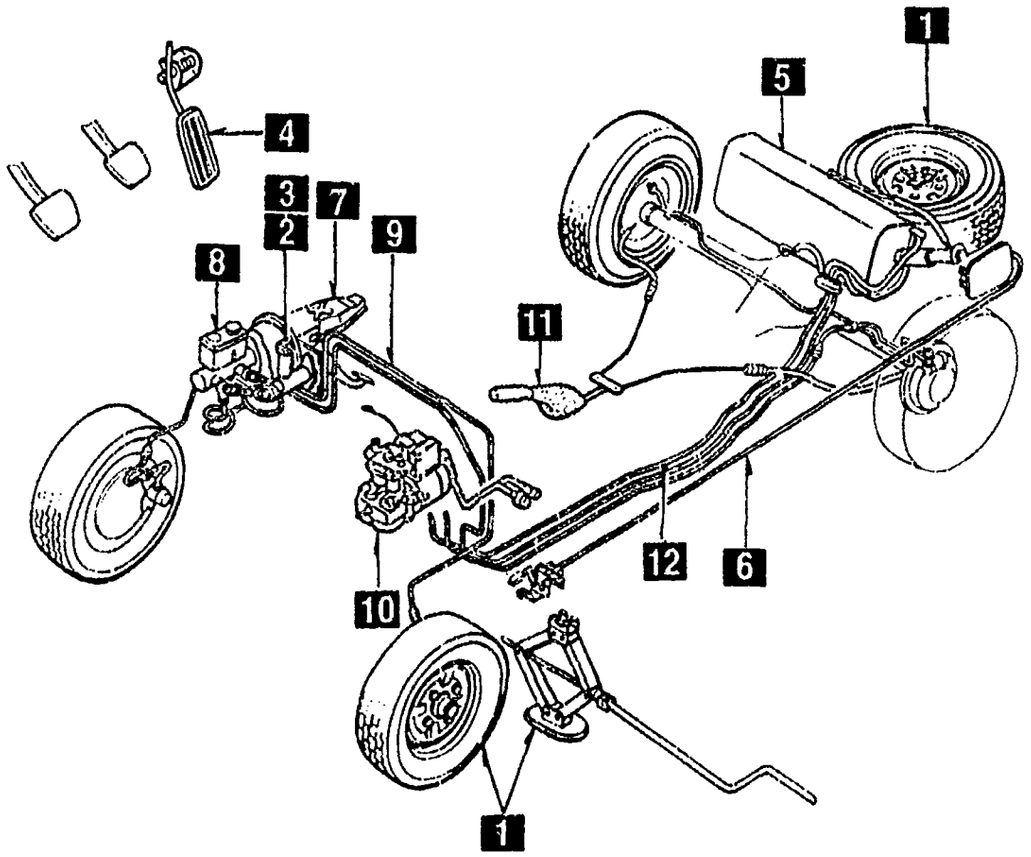
FUEL TANK

6 4210



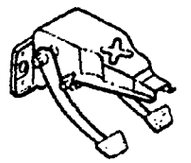
FUEL LID OPENER

CHASSIS (2/2)



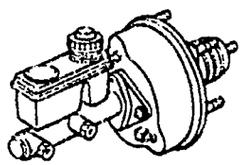
As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.

7 4300



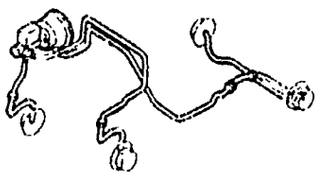
CLUTCH & BRAKE PEDALS

8 4340



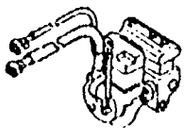
BRAKE MASTER CYLINDER & POWER BRAKE

9 4360



BRAKE PIPINGS

10 4370



ANTILOCK BRAKE SYSTEM

12 4500

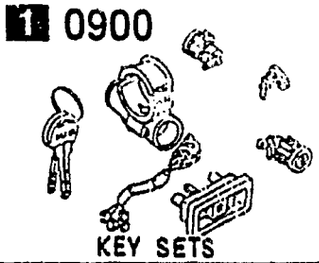
FUEL PIPINGS

11 4400

PARKING BRAKE SYSTEM

PICTORIAL INDEX

1 0900



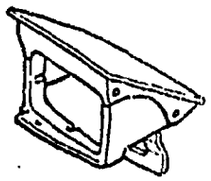
KEY SETS

2

3 5100

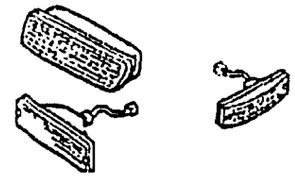
HEAD LAMPS

4 5103



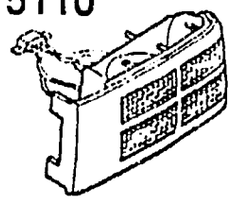
HEAD LAMP RETRACTORS

5 5105



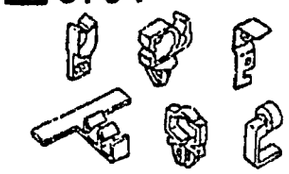
FRONT COMBINATION LAMPS

6 5110



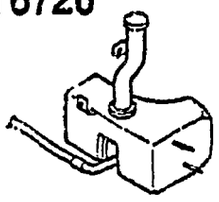
REAR COMBINATION LAMPS

19 6704



WIRING HARNESS CLAMPS

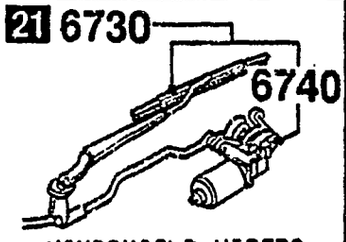
20 6720



WINDSHIELD WASHER

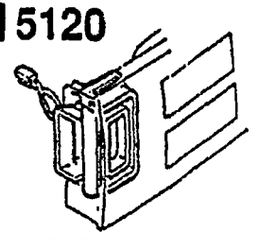
21 6730

6740



WINDSHIELD WIPERS

7 5120

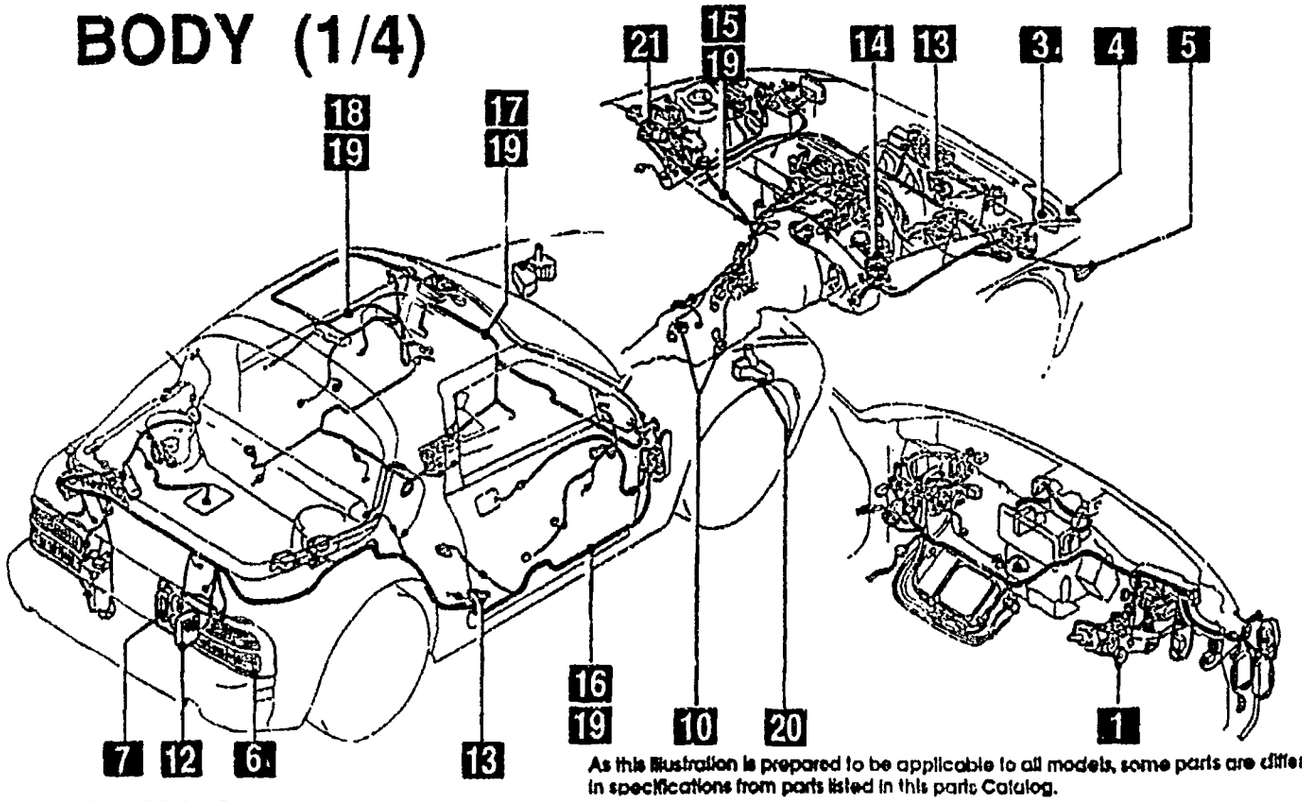


LICENSE LAMPS

18 6703

WIRING HARNESSES (DOOR, FLOOR/CEILING)

BODY (1/4)

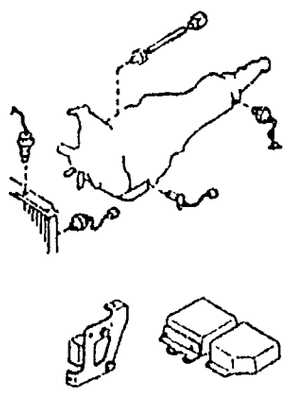


As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.

8

9

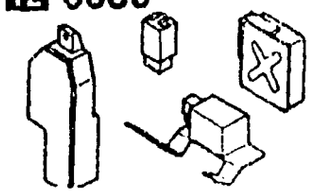
10 6600



SWITCHES & RELAYS (ENGINE)

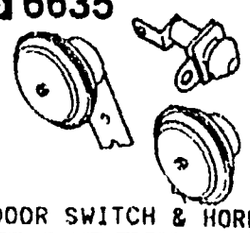
11

12 6630



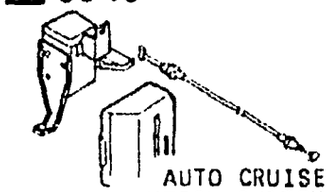
RELAYS & UNIT (BODY)

13 6635



DOOR SWITCH & HORNS

14 6640

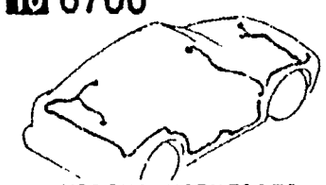


AUTO CRUISE CONTROL SYSTEM

15 6701

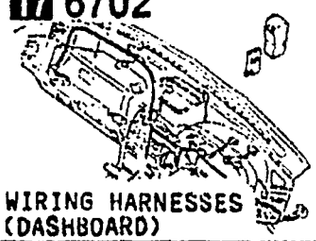
WIRING HARNESSES (ENGINE & T/MISSION)

16 6700



WIRING HARNESSES (FRONT & REAR)

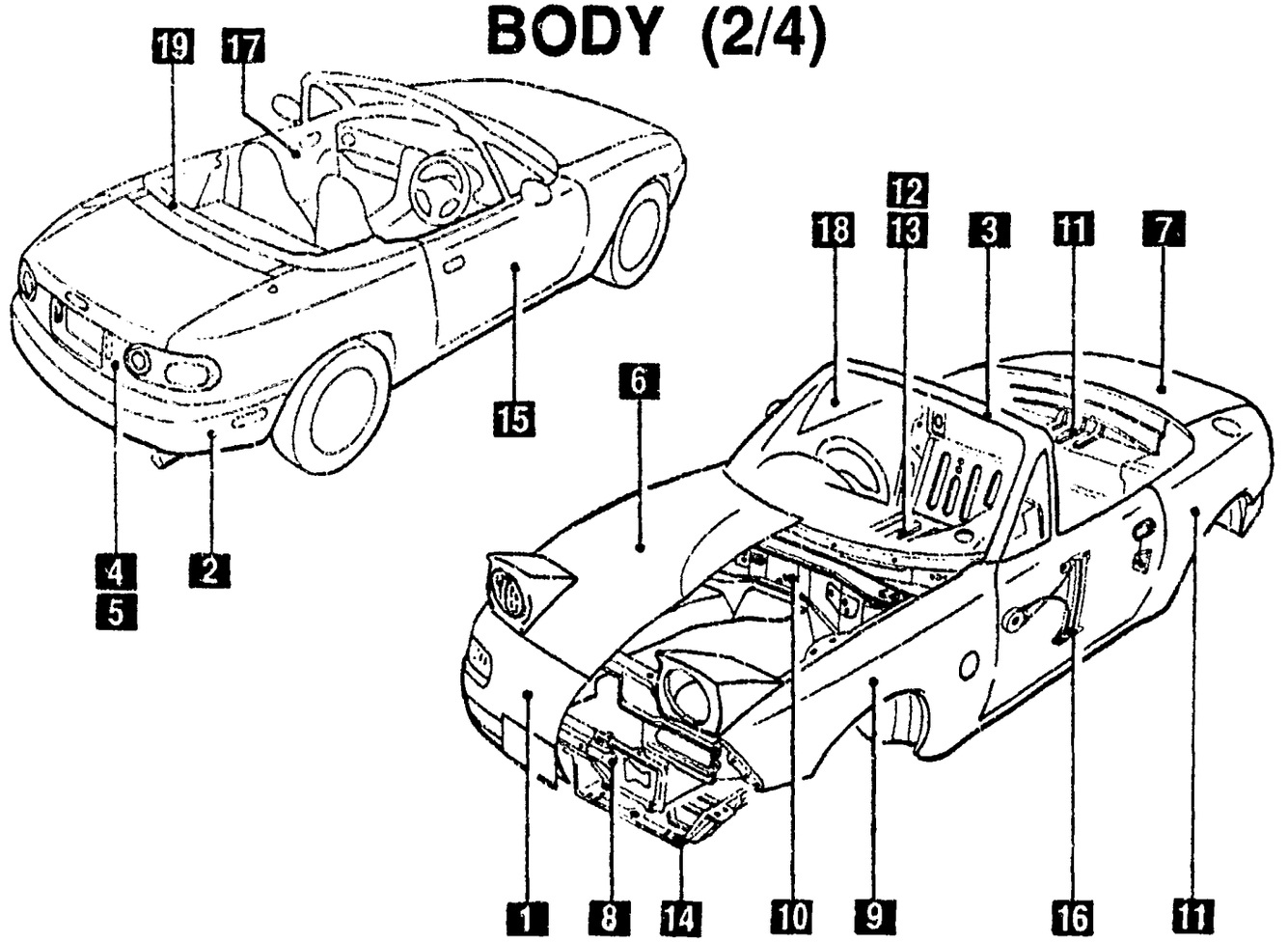
17 6702



WIRING HARNESSES (DASHBOARD)

PICTORIAL INDEX

BODY (2/4)

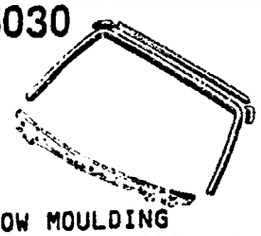


1 5000

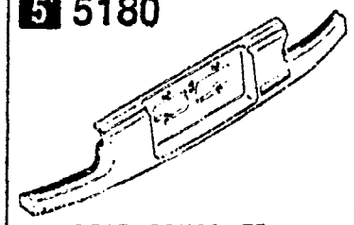
FRONT BUMPER

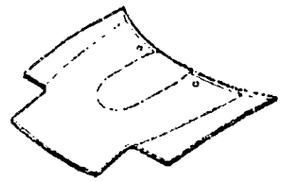
2 5010

REAR BUMPER

3 5030

WINDOW MOULDING & COWL GRILLES

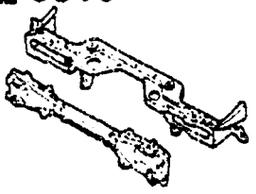
4 5170
ORNAMENTS

5 5180

REAR FINISHER

6 5230

BONNET

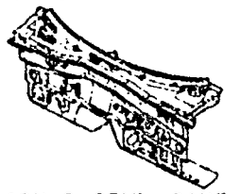
7 5260

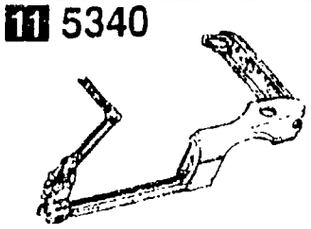
TRUNK LID

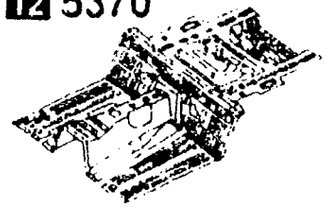
8 5310

FRONT PANELS

9 5320

FENDER & WHEEL APRON PANELS

10 5330

DASH & COWL PANELS

11 5340

SIDE PANELS

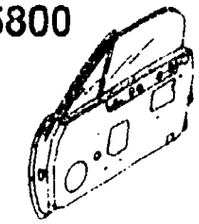
12 5370

FLOOR PANELS

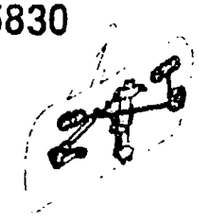
13 5380

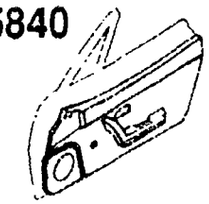
FLOOR ATTACHMENTS (HOLE COVERS)

14 5390

FLOOR ATTACHMENTS

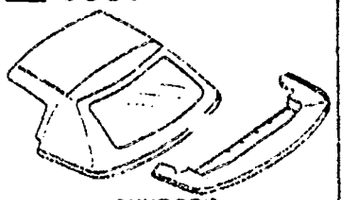
15 5800

FRONT DOORS

16 5830

FRONT DOOR MECHANISMS

17 5840

FRONT DOOR TRIMS & RELATED PARTS

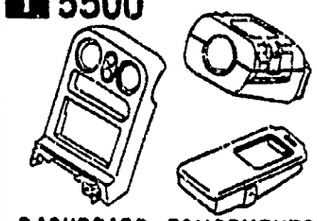
18 6300

WINDOW GLASSES

19 6330

SUNROOF

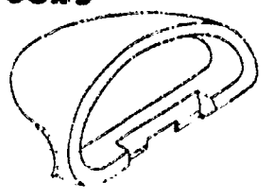
PICTORIAL INDEX

1 5500



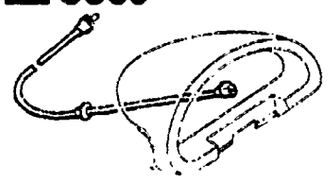
DASHBOARD EQUIPMENTS

2 5520



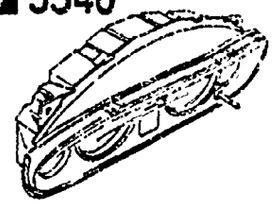
METER HOOD

3 5530



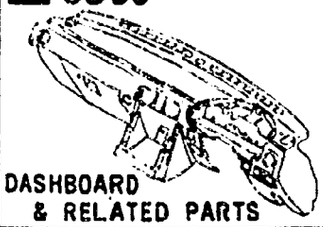
SPEEDOMETER CABLE

4 5540



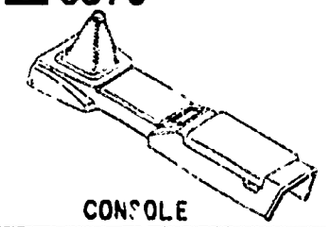
METER COMPONENTS

5 5560



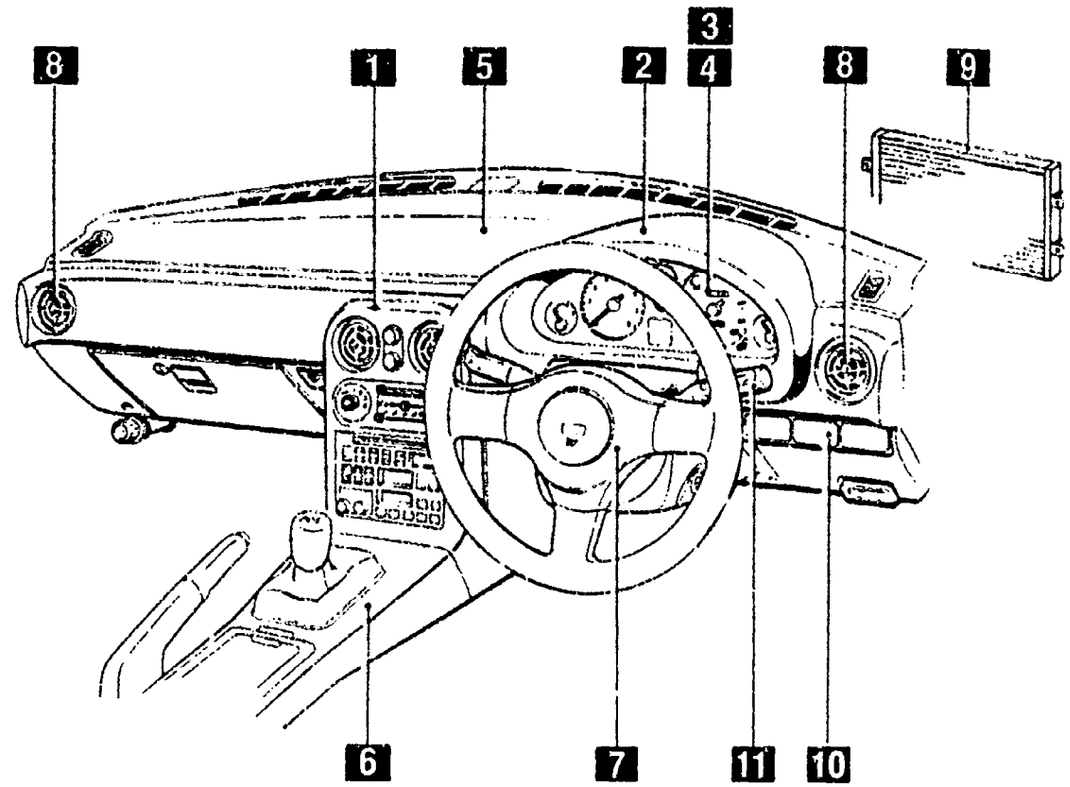
DASHBOARD & RELATED PARTS

6 5570

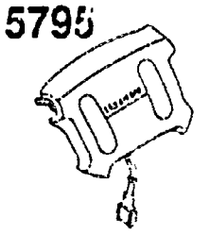


CONSOLE

BODY (3/4)

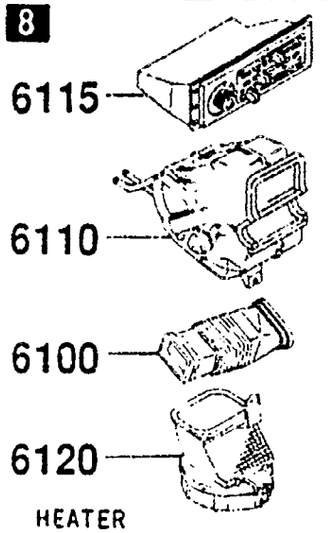


7 5795



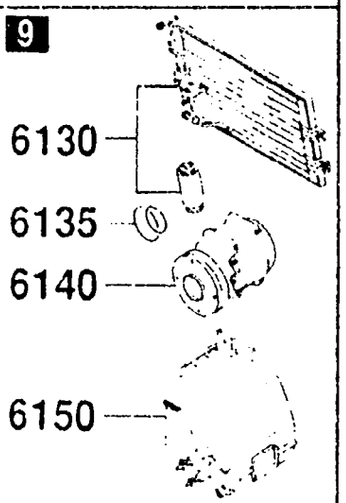
AIR BAG

8



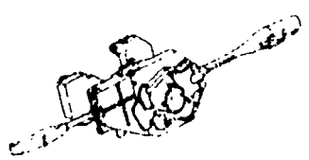
HEATER

9



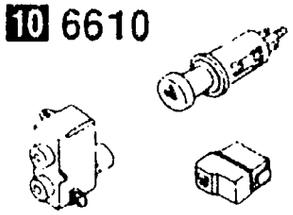
AIR CONDITIONER

11 6611



COMBINATION SWITCH

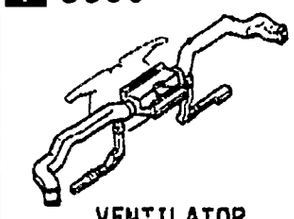
10 6610



DASHBOARD SWITCHES

PICTORIAL INDEX

1 5580

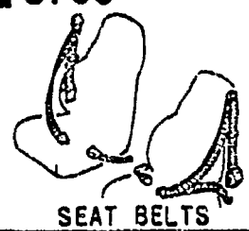


VENTILATOR

2 5700

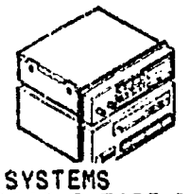
SEATS

3 5790



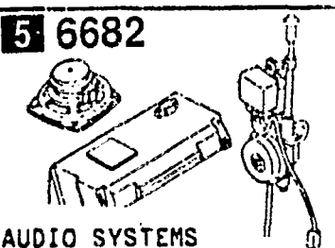
SEAT BELTS

4 6680



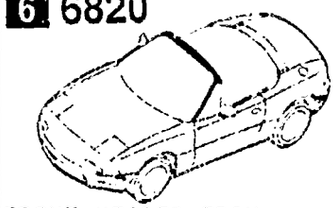
AUDIO SYSTEMS (RADIO & TAPE DECK)

5 6682



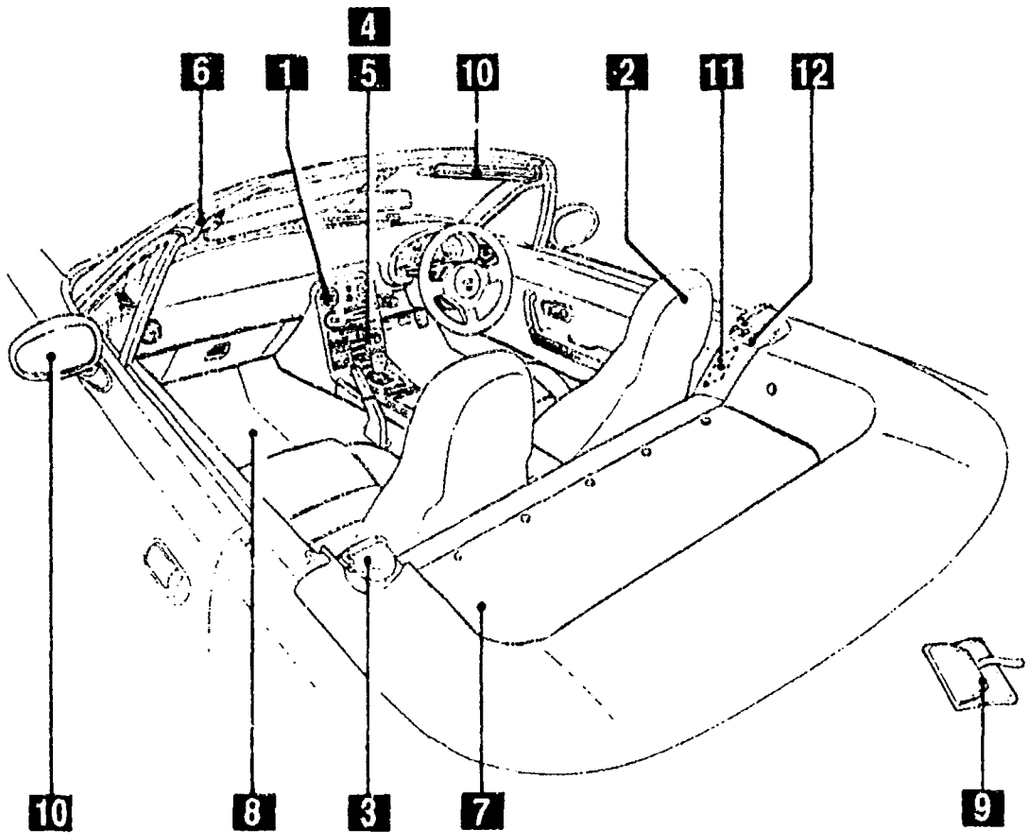
AUDIO SYSTEMS (ANTENNA & SPEAKER)

6 6820



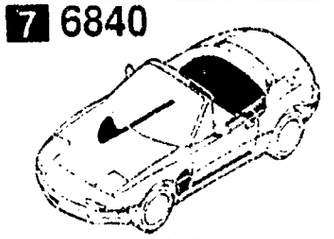
FRONT HEADER TRIM & PILLAR TRIMS

BODY (4/4)



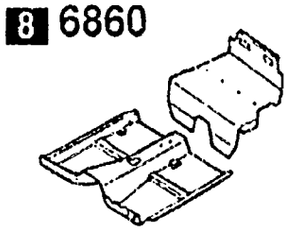
As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.

7 6840



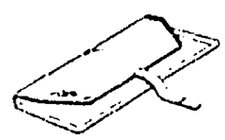
TRIMS & SCUFF PLATES

8 6860



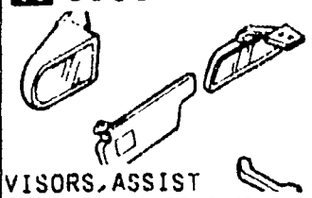
FLOOR MATS & PADS

9 6870



SERVICE TOOLS

10 6900

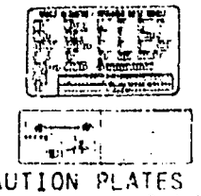


VISORS, ASSIST HANDLES & MIRRORS

12 7250

QUARTER WINDOW & TRIMS

11 6930



CAUTION PLATES & LABELS

SECTION NAME INDEX (ENGINE)

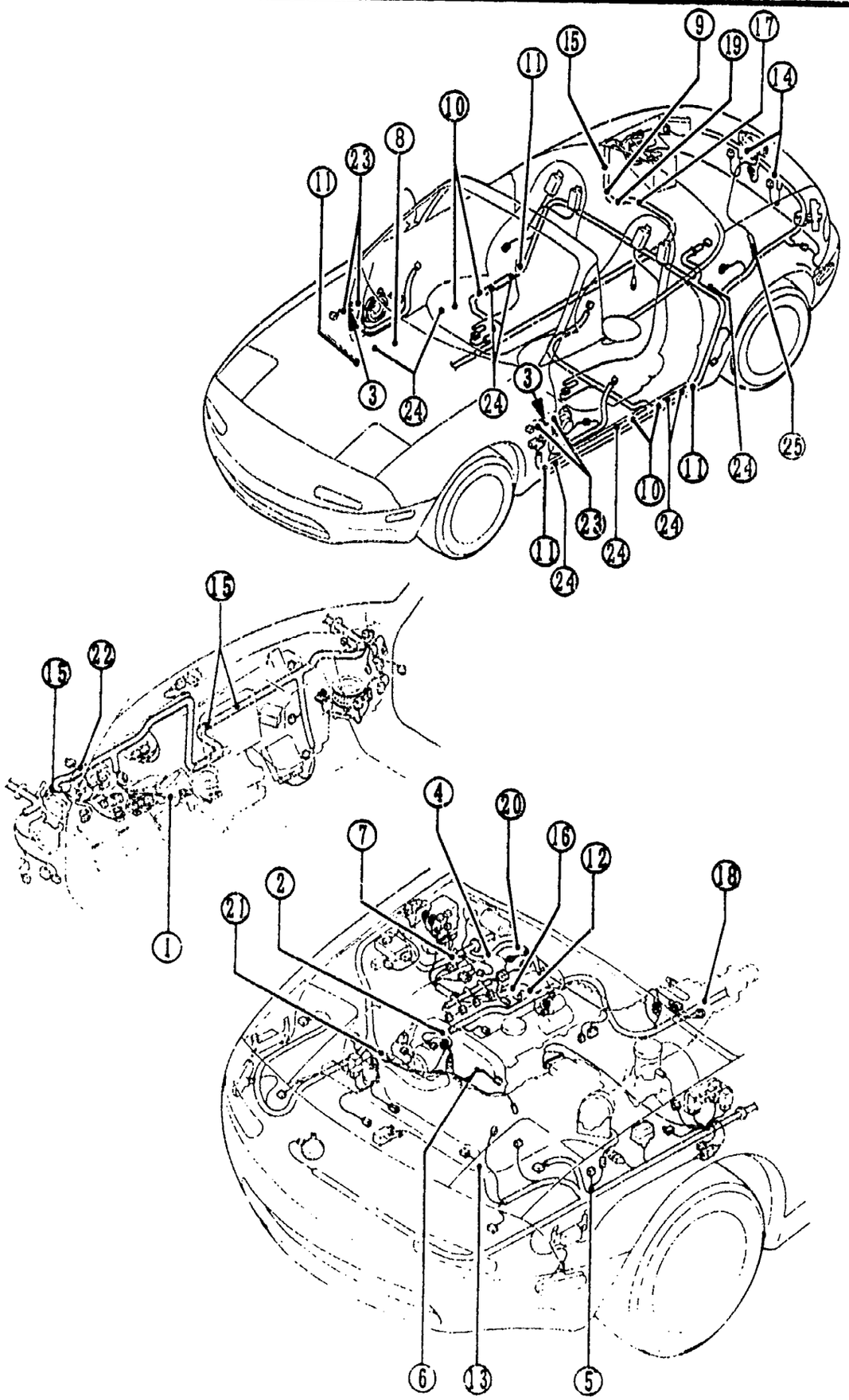
LO.NO	SEC.NO	SECTION NAME	LO.NO	SEC.NO	SECTION NAME	LO.NO	SEC.NO	SECTION NAME
1-C03	1000	ENGINE & GASKET SETS						
1-D03	1010	CYLINDER HEAD & COVER						
1-G03	1030	CYLINDER BLOCK						
1-I03	1040	OIL PAN & TIMING COVER						
1-K03	1100	PISTON,CRANKSHAFT & FLYWHEEL						
1-N03	1200	VALVE SYSTEM						
1-D04	1300	INLET MANIFOLD						
1-E04	1310	EXHAUST MANIFOLD						
1-F04	1320	FUEL SYSTEM						
1-H04	1325	FUEL DISTRIBUTOR						
1-I04	1330	AIR CLEANER						
1-K04	1364	THROTTLE BODY						
1-L04	1370	EMISSION CONTROL SYSTEM (INLET SIDE)						
1-M04	1400	OIL PUMP & FILTER						
1-C05	1500	COOLING SYSTEM						
1-G05	1580	BRACKET,PULLEY & BELT						
1-C06	1600	CLUTCH DISC & COVER (MANUAL)						
1-D06	1700	TRANSMISSION CASE (MANUAL)						
1-E06	1710	TRANSMISSION GEARS(MANUAL)						
1-K06	1720	CHANGE CONTROL SYSTEM (MANUAL)						
1-N06	1800	ENGINE ELECTRICAL SYSTEM						
1-D07	1830	ALTERNATOR						
1-G07	1840	STARTER						
1-I07	1850	BATTERY						
1-J07	1910	TORQUE CONVERTER,OIL PUMP & PIPINGS (AUTOMATIC)						
1-M07	1920	TRANSMISSION CASE & MAIN CONTROL SYSTEM (AUTOMATIC)						
1-G08	1925	CONTROL VALVE (AUTOMATIC)						
1-K08	1930	CLUTCHES & PLANETARY GEARS (AUTOMATIC)						
1-F09	1940	GOVERNOR, LOW & REVERSE PISTON (AUTOMATIC)						
1-I09	1950	MANUAL LINKAGE SYSTEM (AUTOMATIC)						
1-K09	196.	GASKET & SEAL KIT (AUTOMATIC)						

SECTION NAME INDEX (CHASSIS)

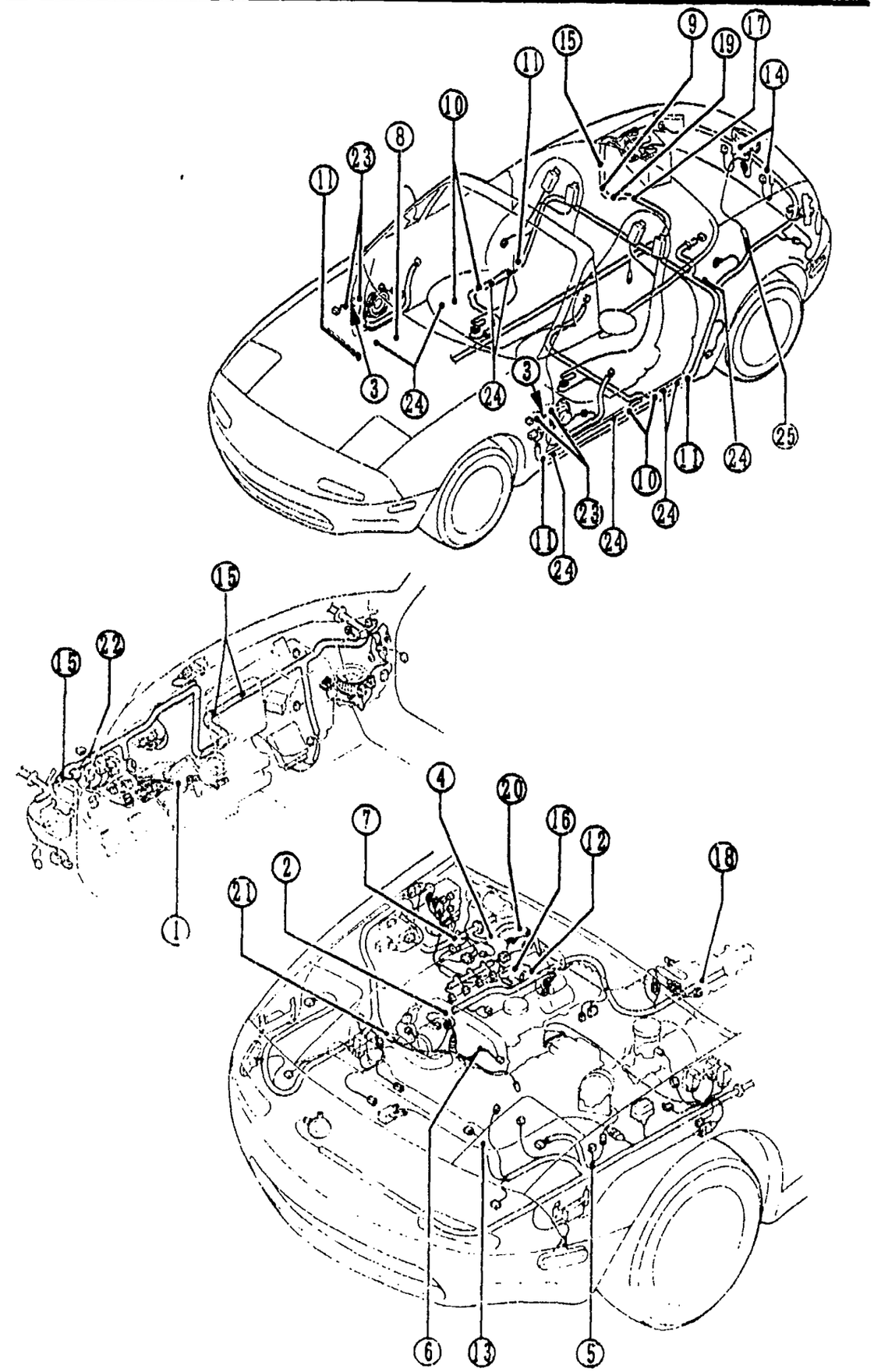
LO.NO	SEC.NO	SECTION NAME	LO.NO	SEC.NO	SECTION NAME	LO.NO	SEC.NO	SECTION NAME
1-C11	2505	REAR PROPELLER SHAFT	1-H16	4360	BRAKE PIPINGS			
1-D11	2550	REAR DRIVE SHAFT	1-L16	4370	ANTILOCK BRAKE SYSTEM			
1-E11	2600	REAR AXLE	2-C03	4400	PARKING BRAKE SYSTEM			
1-G11	2610	REAR BRAKE MECHANISMS	2-E03	4500	FUEL PIPINGS			
1-I11	2710	REAR DIFFERENTIALS (NORMAL DIFF.)	2-G03	4600	CHANGE CONTROL SYSTEM (AT)			
1-N11	2710 A	REAR DIFFERENTIALS (LIMITED SLIP DIFF.)						
1-G12	2800	REAR SUSPENSION MECHANISMS						
1-H12	2801	REAR SPRING & DAMPER						
1-I12	2810	REAR STABILIZER						
1-J12	2830	REAR LOWER ARMS & SUB FRAME						
1-L12	3200	STEERING WHEEL						
1-M12	3210	STEERING COLUMN & SHAFTS						
1-N12	3220	STEERING GEAR (W/O POWER STEERING)						
1-D13	3220 A	STEERING GEAR (W/ POWER STEERING)						
1-G13	3240	POWER STEERING SYSTEM						
1-I13	3300	FRONT AXLE						
1-J13	3310	FRONT BRAKE MECHANISMS						
1-L13	3400	FRONT SUSPENSION MECHANISMS						
1-N13	3401	FRONT SPRING & DAMPER						
1-C14	3410	CROSSMEMBER & STABILIZER						
1-D14	3700	TIRES & JACK						
1-C15	3900	ENGINE & T/MISSION MOUNTINGS						
1-D15	4000	EXHAUST SYSTEM						
1-F15	4140	CLUTCH RELEASE & MASTER CYLINERS (MANUAL TRANSMISSION)						
1-G15	4145	CLUTCH PIPINGS (MANUAL TRANSMISSION)						
1-H15	4160	ACCELERATOR CONTROL SYSTEM						
1-I15	4200	FUEL TANK						
1-L15	4210	FUEL LID OPENER						
1-M15	4300	CLUTCH & BRAKE PEDALS (MANUAL TRANSMISSION)						
1-D16	4300A	BRAKE PEDALS (AUTOMATIC TRANSMISSION)						
1-F16	4340	BRAKE MASTER CYLINDER & POWER BRAKE						

SECTION NAME INDEX (BODY)

LO.NO	SEC.NO	SECTION NAME
2-C05	0900	KEY SETS
2-F05	5000	FRONT BUMPER
2-I05	5010	REAR BUMPER
2-K05	5030	WINDOW MOULDING & COWL GRILLES
2-L05	5100	HEAD LAMPS
2-M05	5103	HEAD LAMP RETRACTORS
2-D06	5105	FRONT COMBINATION LAMPS
2-F06	5110	REAR COMBINATION LAMPS
2-I06	5120	LICENSE LAMPS
2-J06	5170	ORNAMENTS
2-K06	5180	REAR FINISHER
2-[illegible]06	5230	BONNET
2-C07	5260	TRUNK LID
2-E07	5310	FRONT PANELS
2-F07	5320	FENDER & WHEEL APRON PANELS
2-I07	5330	DASH & COWL PANELS
2-J07	5340	SIDE PANELS
2-C08	5370	FLOOR PANELS
2-F08	5380	FLOOR ATTACHMENTS (HOLE COVERS)
2-G08	5390	FLOOR ATTACHMENTS
2-C09	5500	DASHBOARD EQUIPMENTS
2-E09	5520	METER HOOD
2-F09	5530	SPEEDOMETER CABLE
2-G09	5540	METER COMPONENTS
2-J09	5560	DASHBOARD & RELATED PARTS
2-M09	5570	CONSOLE
2-E10	5580	VENTILATOR
2-G10	5700	SEATS
2-E11	5790	SEAT BELTS
2-F11	5795	AIR BAG
2-G11	5800	FRONT DOORS
2-J11	5830	FRONT DOOR MECHANISMS
2-N11	5840	FRONT DOOR TRIMS & RELATED PARTS
2-C13	6100	HEATER
2-D13	6110	HEATER UNIT COMPONENTS
2-E13	6115	HEATER CONTROLS COMPONENTS
2-G13	6120	HEATER BLOWER COMPONENTS
2-H13	6130	AIR CONDITIONER
2-L13	6135	O RING SET,PIPING
2-M13	6140	COMPRESSOR COMPONENTS (AIR CONDITIONER)
2-C14	6150	COOLING UNIT (AIR CONDITIONER)
2-D14	6300	WINDOW GLASSES
2-E14	6330	SUNROOF
2-E15	6600	SWITCHES & RELAYS (ENGINE)
2-I15	6610	DASHBOARD SWITCHES
2-J15	6611	COMBINATION SWITCH
2-K15	6630	RELAYS & UNIT (BODY)
2-M15	6635	DOOR SWITCH & HORNS
2-N15	6640	AUTO CRUISE CONTROL SYSTEM
2-C16	6680	AUDIO SYSTEMS (RADIO & TAPE DECK)
2-E16	6682	AUDIO SYSTEMS (ANTENNA & SPEAKER)
2-G16	6700	WIRING HARNESSES(FRONT & REAR)
2-J16	6701	WIRING HARNESSES(ENGINE & T/MISSION)
2-L16	6702	WIRING HARNESSES(DASHBOARD)
2-M16	6703	WIRING HARNESSES(DOOR,FLOOR/CEILING)
3-C03	6704	WIRING HARNESS CLAMPS
3-F03	6720	WINDSHIELD WASHER
3-K03	6730	WINDSHIELD WIPERS
3-M03	6740	WIPER MOTOR COMPONENTS(FRONT)
3-N03	6820	FRONT HEADER TRIM & PILLAR TRIMS
3-C04	6840	TRIMS & SCUFF PLATES
3-F04	6860	FLOOR MATS & PADS
3-H04	6870	SERVICE TOOLS
3-I04	6900	VISORS,ASSIST HANDLES & MIRRORS
3-K04	6930	CAUTION PLATES & LABELS
3-M04	7250	QUARTER WINDOW & TRIMS



① 14-726	② 18-996A	③ 45-961B	④ 67-CS1 99786-0612	⑤ 67-CT2	⑥ 67-011C
⑦ 67-013A	⑧ 67-013D	⑨ 67-014F 99786-0620	⑩ 67-022	⑪ 67-026	⑫ 67-048A 99786-0612
⑬ 67-051E	⑭ 67-051J	⑮ 67-052H	⑯ 67-062B 99786-0612	⑰ 67-072H 99786-0620	⑱ 67-073 90845-0612
⑲ 67-073A	⑳ 67-073B 99940-0603	㉑ 67-074 99786-0612	㉒ 67-076	㉓ 67-191	㉔ 68-865
㉕ 67-KW1					

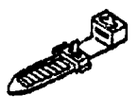
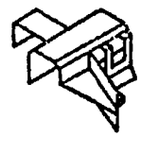
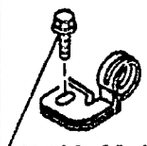
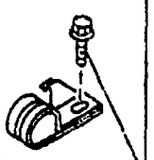
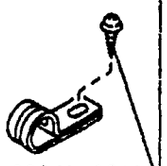
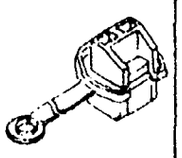


6704 -1 WIRING HARNESS CLAMPS

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
14-726		BAND			
N304-14-726	1				
18-996A		CLIP			
BF67-67-996	1				
45-961B		CAP			
H002-45-961	2				
67-CS1		CLIP,HARNESS			
N001-67-CS1C	1				
67-CT2		CLIP,HARNESS			
NA01-67-CH5	1				
67-KW1		CAP,CONNECTOR-REAR HARNESS			
N007-67-KW1	1				1801-
67-011C		CLIP			
E356-18-141	1				
67-013A		CLIP			
UB42-67-013	1				-0901
67-013D		PROTECTOR,HARNESS			
NA01-67-P54	1				
67-014F		PROTECTOR,HARNESS			
NA01-67-P71	1				
67-022		CLIP,HARNESS			
NA01-67-CW5A	4				
67-026		CLIP,HARNESS			
NA02-67-CW5A	4				
67-048A		CLIP,HARNESS			
NA01-67-CS1	1				
67-051E		CLIP			
UB42-67-051	1				

0901 NA35**-208969
1801 NA35**-300014

(THIS ILLUSTRATION CONSISTS OF 2 PAGES)

① 14-726 	② 18-996A	③ 45-961B	④ 67-CS1 99786-0612	⑤ 67-CT2 	⑥ 67-011C
⑦ 67-013A	⑧ 67-013D	⑨ 67-014F 99786-0620	⑩ 67-022	⑪ 67-026	⑫ 67-048A 99786-0612
⑬ 67-051E	⑭ 67-051J	⑮ 67-052H	⑯ 67-062B  99786-0612	⑰ 67-072H  99786-0620	⑱ 67-073  90845-0612
⑲ 67-073A	⑳ 67-073B 99940-0603	㉑ 67-074 99786-0612	㉒ 67-076	㉓ 67-191	㉔ 68-865
㉕ 67-KW1 					

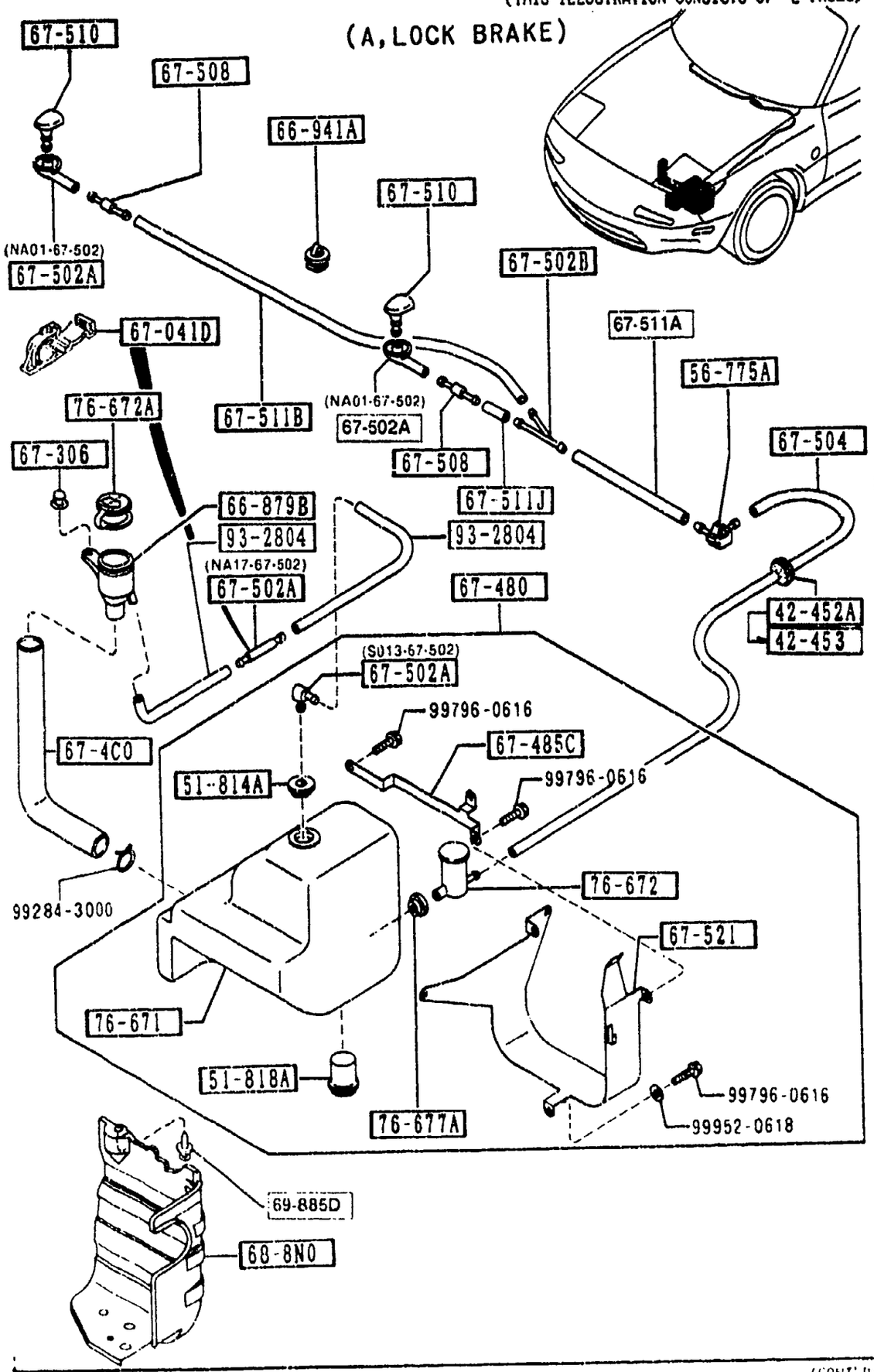
6704 -2 * WIRING HARNESS CLAMPS

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
67-051J		CLIP			
G031-67-053A	2				
67-052H		CLIP			
G030-67-018A	3				-0901
G030-67-013A	4				0901-
67-062B		CLIP,HARNESS			
NA02-67-CS1A	1				
67-072H		CLIP,ENGINE HARNESS			
NA01-67-CS6	1				
67-073		CLIP			
UB73-67-073A	1				
67-073A		CLIP			
NA01-67-CH7	1				-1801
67-073B		CLIP			
H261-67-073	1				
67-074		CLIP,HARNESS			
NA01-67-CS5	1				
67-076		CLIP,ENGINE HARNESS			
NA01-67-CH8	1				
67-191		GROMMET			
B300-67-HD1	4				
68-865		FASTENER			
B003-68-865	8				
00	INT-	NA0 NA2 BLACK			
81	INT-	NA1 BEIGE			

0901 NA35**-208969
1801 NA35**-300014

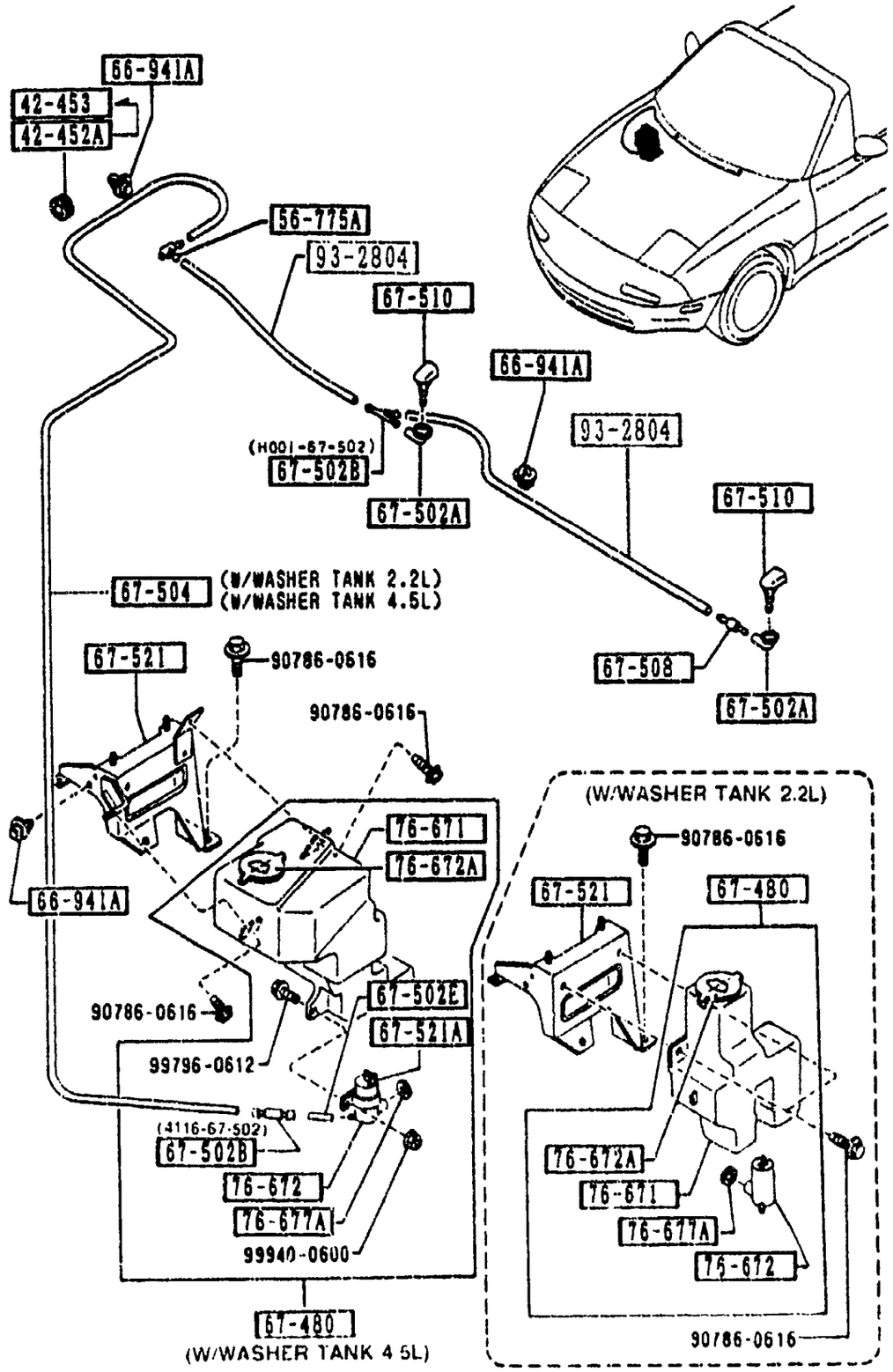
(THIS ILLUSTRATION CONSISTS OF 2 PAGES)

(A,LOCK BRAKE)

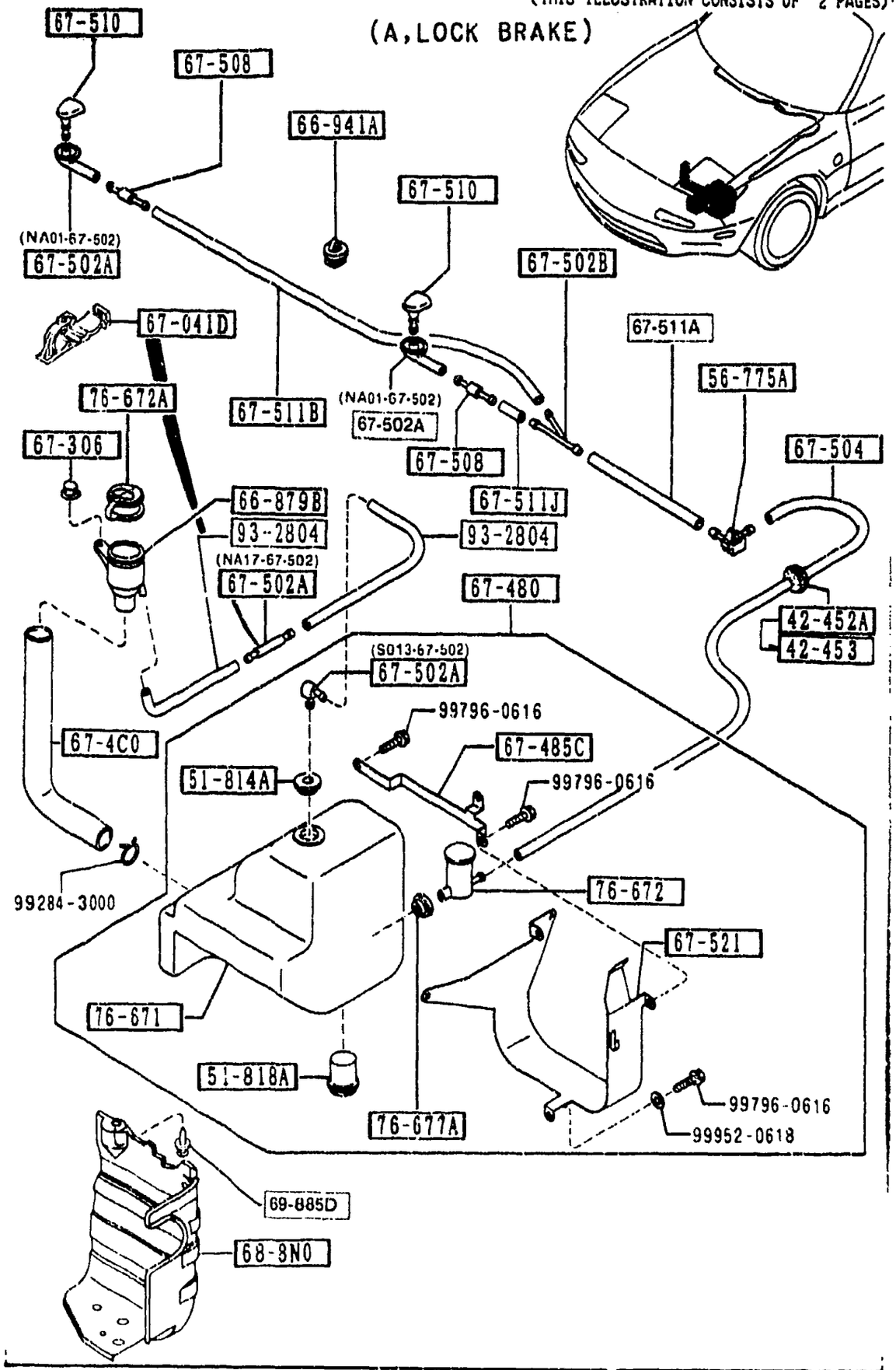


(THIS ILLUSTRATION CONSISTS OF 2 PAGES)

(W/O A,LOCK BRAKE)



(THIS ILLUSTRATION CONSISTS OF 2 PAGES)



AUNA02

(CONT'D)

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
42-452A		GROMMET			
0111-41-692	1				-0717
42-453		PROTECTOR,CABLE			
B048-42-453	1				0717-
51-814A		GROMMET,WASHER TANK			
B002-51-814	1	(A.LOCK BRAKE)			
51-818A		SWITCH,LEVEL-WASHER TANK			
NA17-67-488	1	(A.LOCK BRAKE)			
56-775A		CLIP,WASHER HOSE			
LA01-67-505A AN(LA01-67-505B)	1				-1730
LA01-67-505B	1				1730-
66-879B		JOINT			
NA17-67-4C2	1	(A.LOCK BRAKE)			
66-941A		CLIP			
GB08-66-941	3	(A LOCK BRAKE)			
GB08-66-941	4	(W/O A.LOCK BRAKE)			
67-041D		CLIP,HARNESS			
B092-67-041	1	(A.LOCK BRAKE)			
67-306		NUT,WIPER LINK			
GJ21-67-306	1	(A.LOCK BRAKE)			
67-4C0		PIPE,FILLER-F.WASHER TANK			
NA17-67-4C1	1	(A.LOCK BRAKE)			
67-480		TANK,WASHER-FRONT			
NA17-67-4T0 A (NA17-67-4T0A)	1				-2427
NA01-67-480 A (NA01-67-480A)	1				-2427
NA04-67-480A A (NA04-67-480B)	1				-2427
NA17-67-4T0A	1	(A.LOCK BRAKE)			2427-

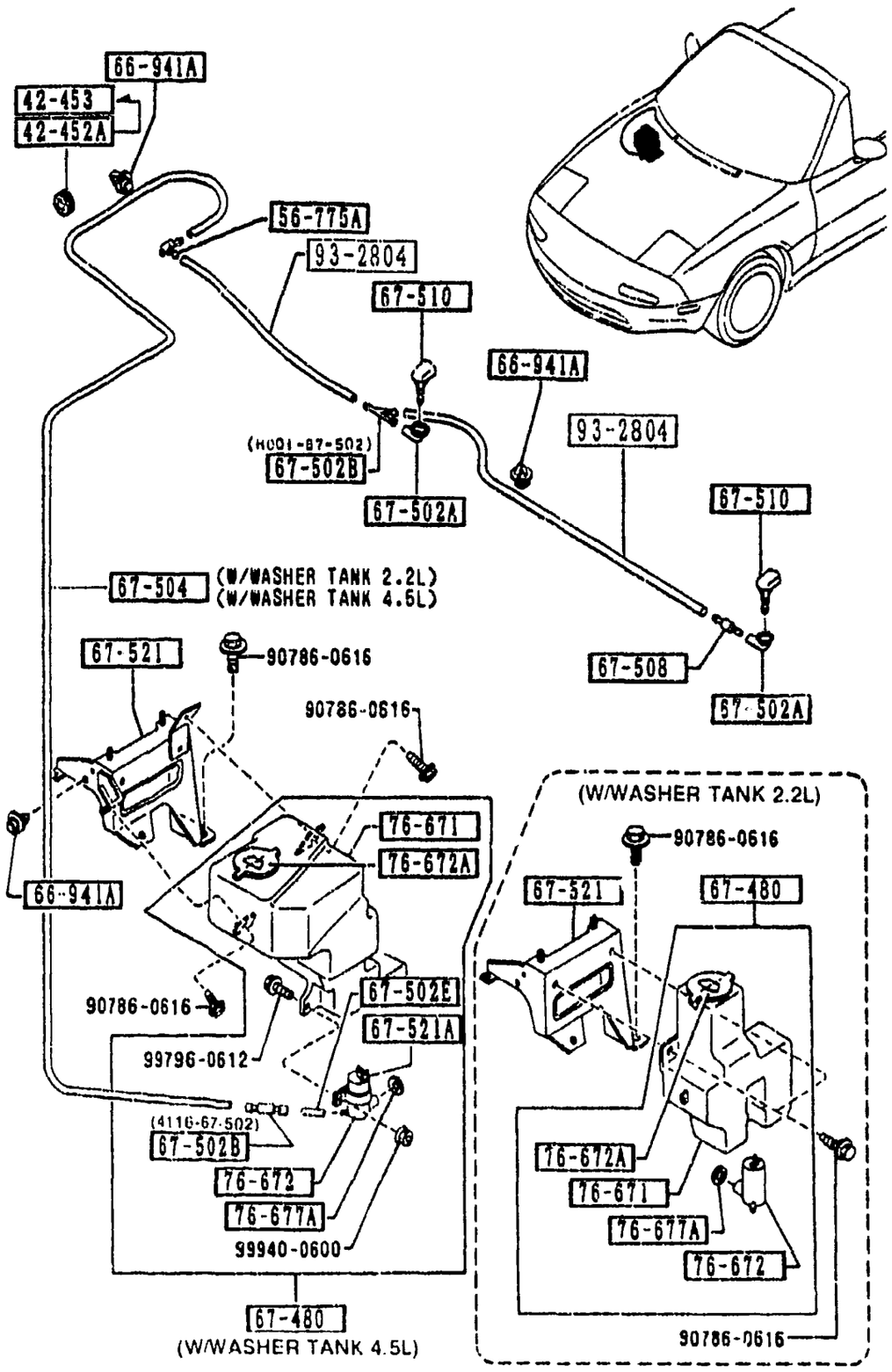
0717 NA35**-202687
1730 NA35**-235561
2427 NA35**-326019

CAT. AUNA02-07

1993-12

(THIS ILLUSTRATION CONSISTS OF 2 PAGES)

(W/O A,LOCK BRAKE)

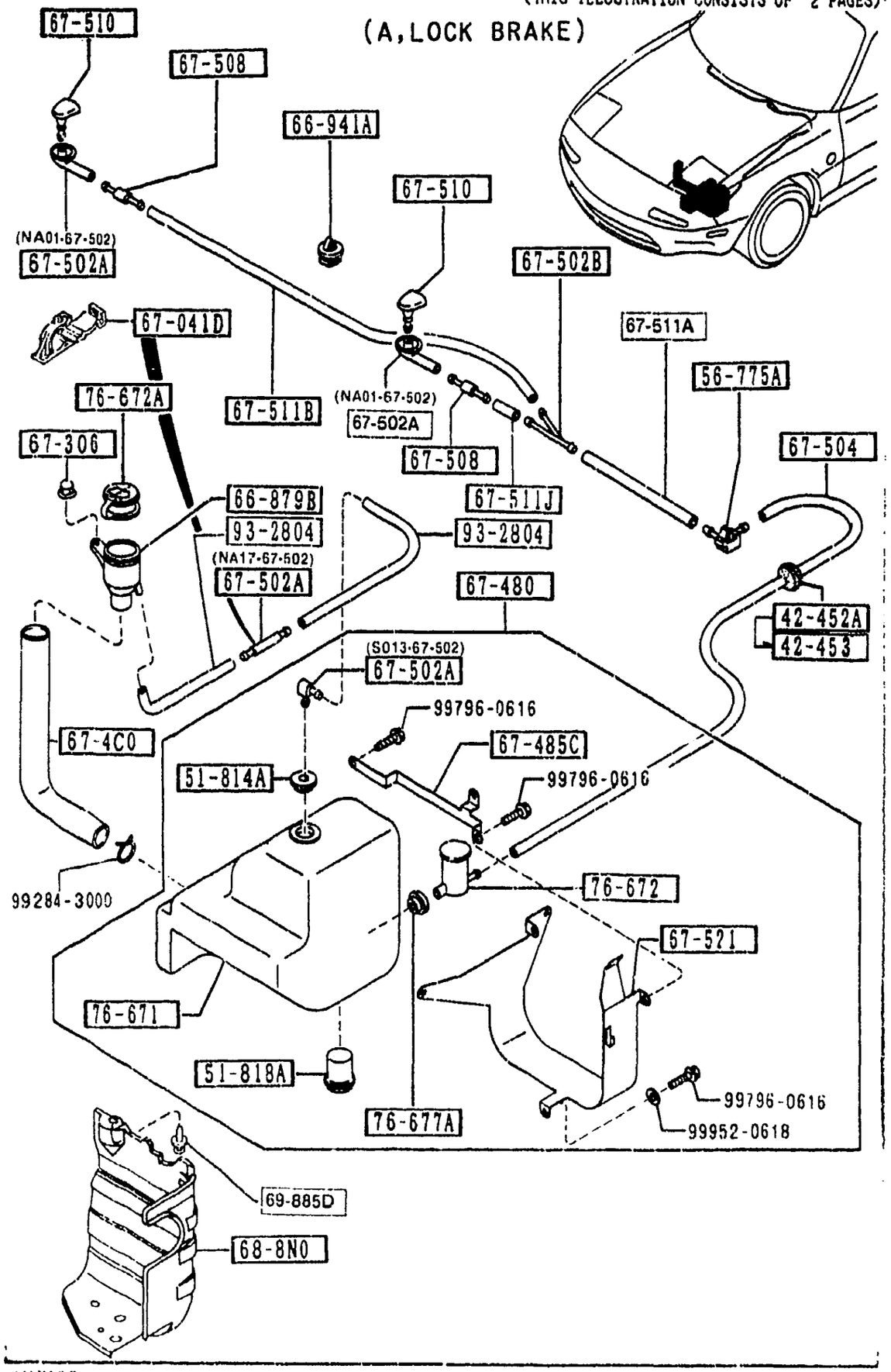


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA01-67-480A	1	BASE, (W/WASHER TANK 2.2L) (W/O A.LOCK BRAKE)			2427-
NA04-67-480B	1	PKG-OPT, (W/WASHER TANK 4.5L) (W/O A.LOCK BRAKE)			2427-
67-485C		BRKT'A',WASHER TANK-FRT			
NA18-67-521	1	(A.LOCK BRAKE)			
67-502A		JOINT,HOSE			
NA01-67-502	2				
NA17-67-502	1	(A.LOCK BRAKE)			
S013-67-502	1	(A.LOCK BRAKE)			
67-502B		JOINT,HOSE			
H001-67-502	1				
4116-67-502	1	PKG-OPT, (W/WASHER TANK 4.5L) (W/O A.LOCK BRAKE)			
67-502E		JOINT,ELBOW-W.TANK			
S084-67-502	1	PKG-OPT, (W/WASHER TANK 4.5L) (W/O A.LOCK BRAKE)			
67-504		HOSE'C',WASHER			
NA01-67-501A	1	(W/O A.LOCK BRAKE)			
NA17-67-501	1	(A.LOCK BRAKE)			
67-508		VALVE,CHECK			
FA54-67-508	1	(W/O A.LOCK BRAKE)			
FA54-67-508	2	(A.LOCK BRAKE)			
67-510		NOZZLE,WASHER-F.WIND			
NA01-67-510	2				
67-511A		PIPE,SCREEN WASHER			
NA18-67-501	1	(A.LOCK BRAKE)			

2427 NA35**-326019

3-H 3

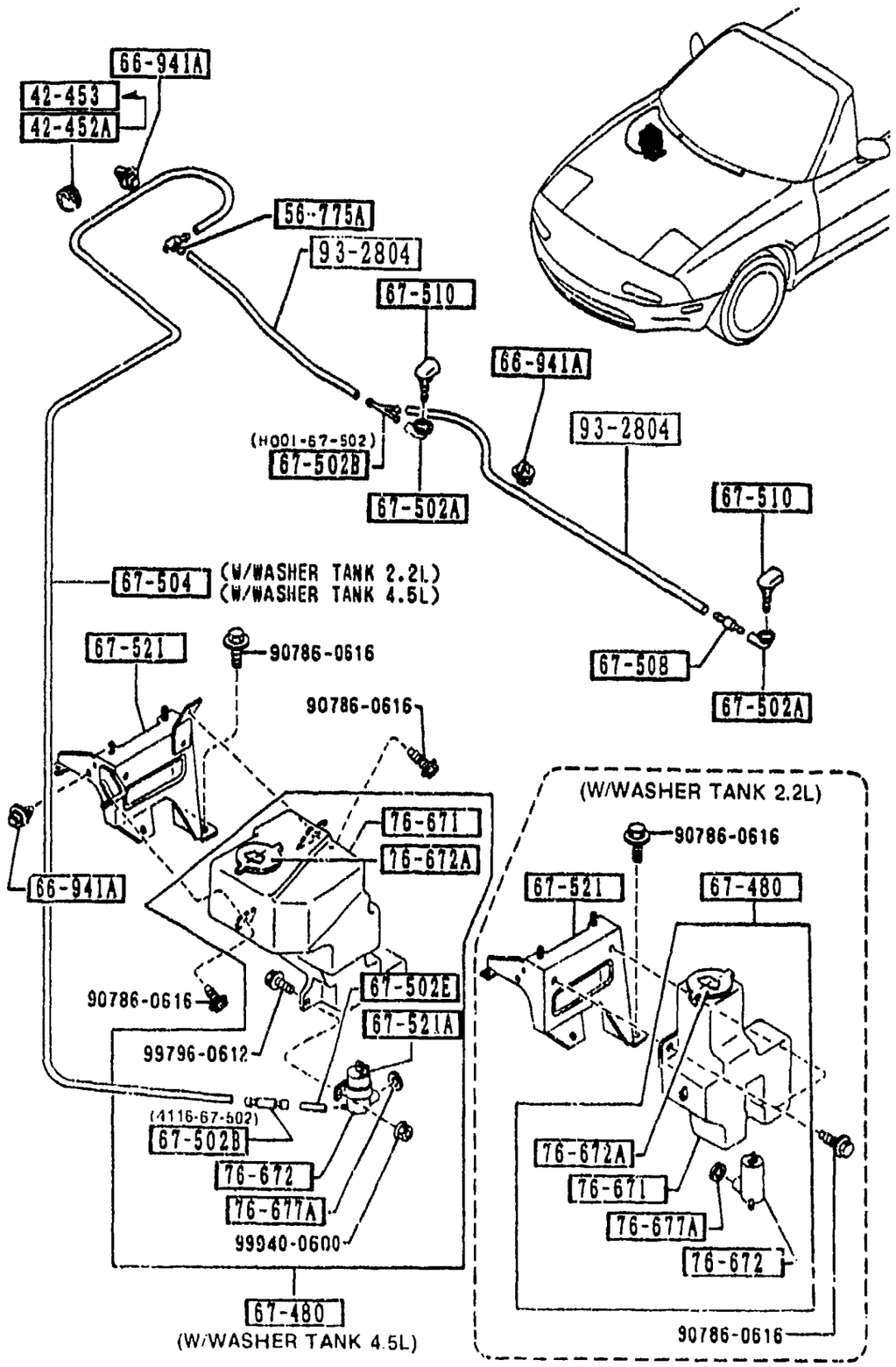
(THIS ILLUSTRATION CONSISTS OF 2 PAGES)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
67-511B		PIPE,SCREEN WASHER			
NA19-67-501	1	(A.LOCK BRAKE)			
67-511J		PIPE,SCREEN WASHER			
NA15-67-501	1	(A.LOCK BRAKE)			
67-521		BRACKET,WASHER TANK			
NA01-67-520	1	BASE, (W/WASHER TANK 2.2L) (W/O A.LOCK BRAKE)			
NA04-67-520	1	PKG-OPT, (W/WASHER TANK 4.5L) (W/O A.LOCK BRAKE)			
NA17-67-521	1	(A.LOCK BRAKE)			
67-521A		BRACKET			
S095-67-521	1	PKG-OPT, (W/WASHER TANK 4.5L) (W/O A.LOCK BRAKE)			
68-8N0		COVER,WASHER TANK			
NA20-56-181A	1	(A.LOCK BRAKE)			
69-885D		FASTENER			
NA01-56-145	3	(A.LOCK BRAKE)			
76-671		TANK,WASHER			
NA17-67-4T1	1	(A.LOCK BRAKE)			
NA01-67-481	1	BASE, (W/WASHER TANK 2.2L) (W/O A.LOCK BRAKE)			
NA04-67-481	1	PKG-OPT, (W/WASHER TANK 4.5L) (W/O A.LOCK BRAKE)			
76-672		PUMP,WASHER			
LA01-67-482	1	(A.LOCK BRAKE)			
S084-76-672	1	(W/O A.LOCK BRAKE)			
76-672A		CAP,TANK			
UB39-51-815	1	(W/O A.LOCK BRAKE)			

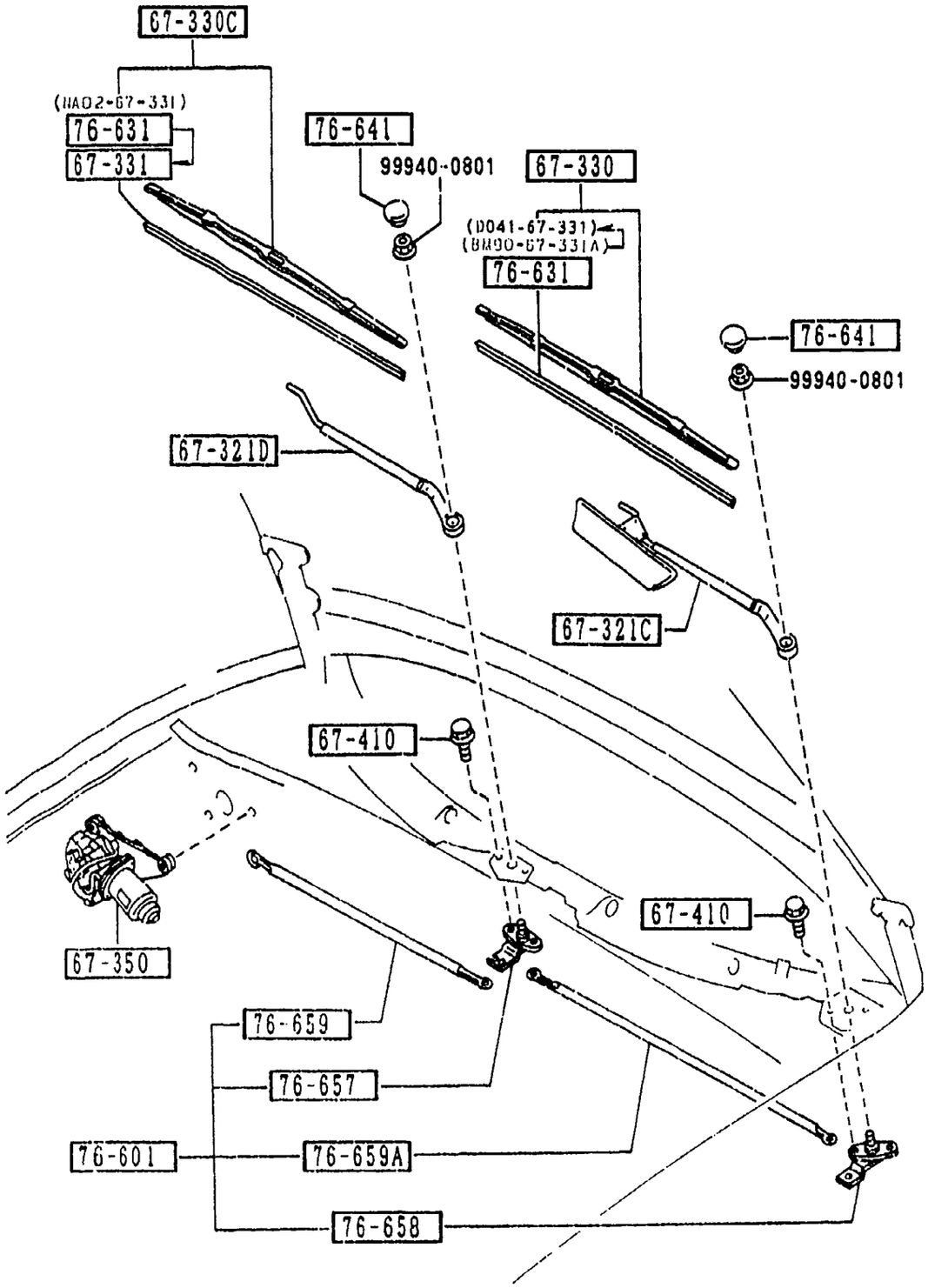
(THIS ILLUSTRATION CONSISTS OF 2 PAGES)

(W/O A,LOCK BRAKE)



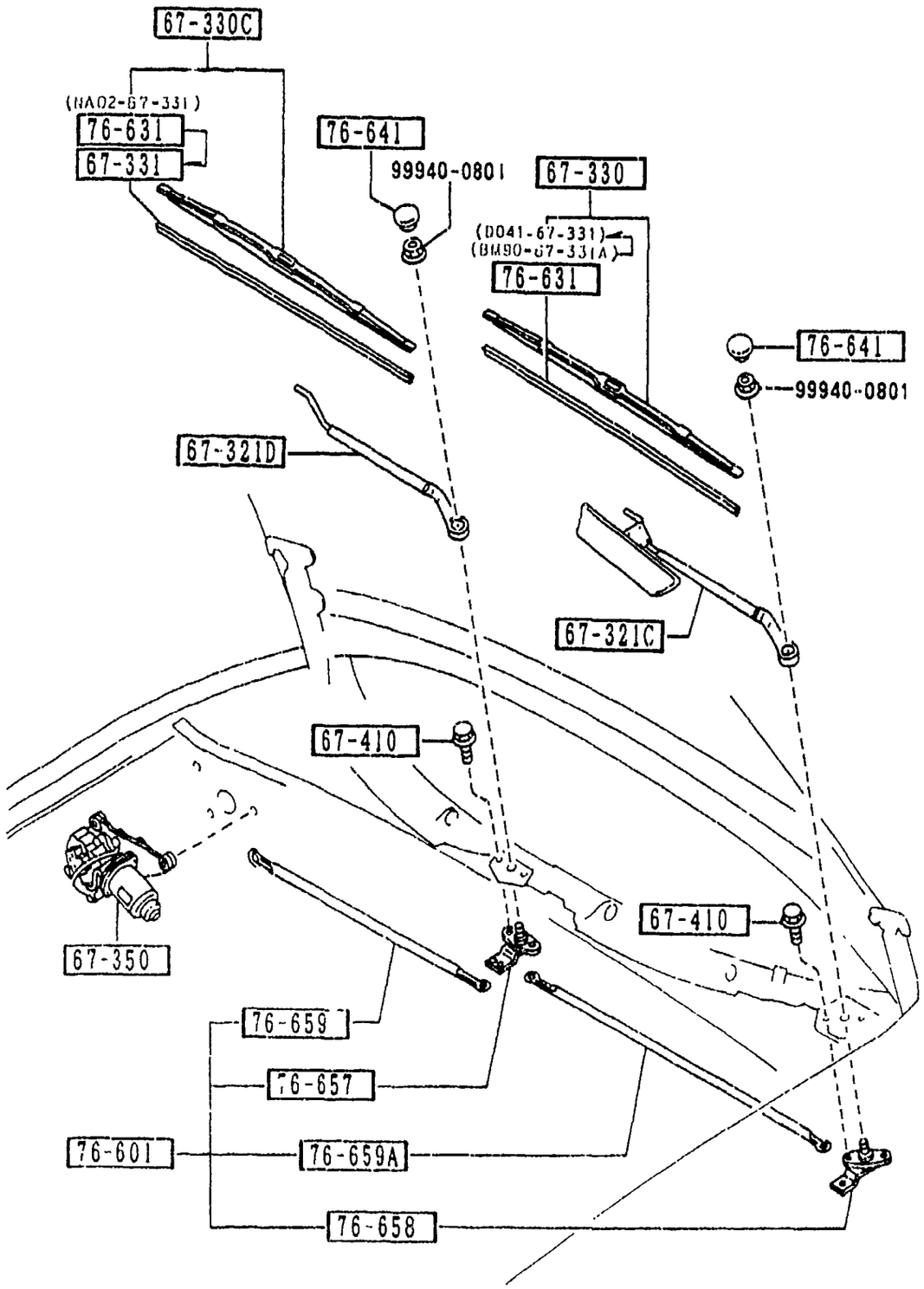
6720 -4 * WINDSHIELD WASHER

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
GJ21-67-483	1	(A.LOCK BRAKE)			
76-677A		GROMMET,WASHER TANK			
S084-76-677	1				
93-2804		PIPE,VINYL			
99328-04010	1	L=10M			



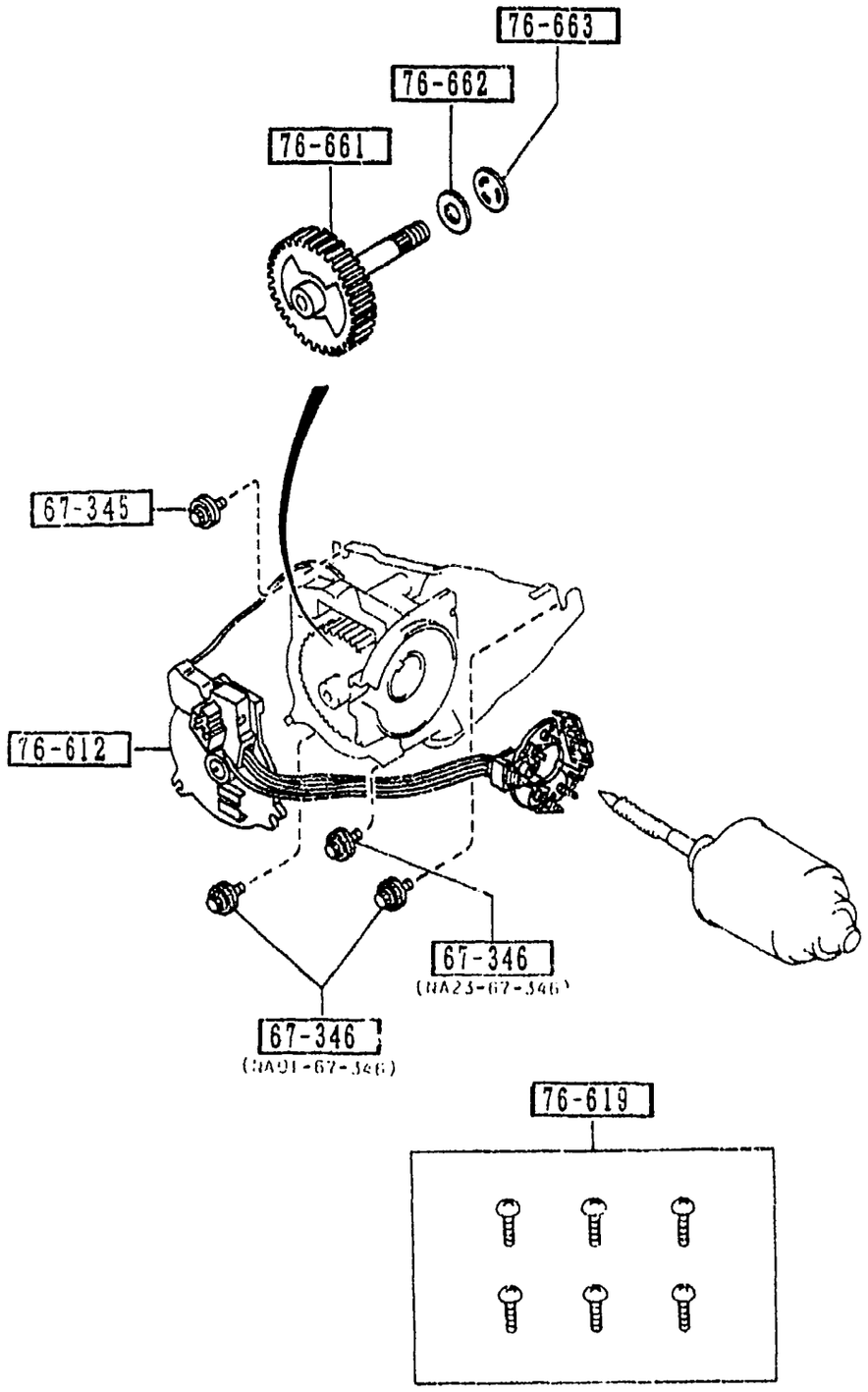
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
67-321C		ARM,WIPER-DRIVER SIDE			
NA01-67-321	1				
67-321D		ARM,WIPER-CO DRIVER SIDE			
NA02-67-321	1				
67-330		BLADE,WIPER-FRONT			
BM90-67-330A	1				-2512
AN(BM90-67-330B)					
*BM90-67-330B	1				2512-
67-330C		BLADE(R),WIPER-FRONT			
NA02-67-330	1				-2512
AN(NA02-67-330A)					
*NA02-67-330A	1				2512-
67-331		RUBBER,BLADE-FRONT			
*N002-67-331	1				2512-
67-350		MOTOR,WIPER			
NA01-67-340B	1	(EXC.COLD SPEC.)			
NA04-67-340A	1	(COLD SPEC.)			
67-410		BOLT			
B455-67-369	4				
76-601		LINK,WIPER			
NA01-67-360A	1				
76-631		RUBBER,BLADE-FRONT			
BM90-67-331A	1				-2512
AN(D041-67-331)					
NA02-67-331	1				-2512
AN(N002-67-331)					
*D041-67-331	1				2512-
76-641		COVER,WIPER ARM-FRONT			
LA01-67-395A	2				
76-657		SHAFT,DRIVE NO.1			
NA01-67-363	1				

2512 NA35**-327166

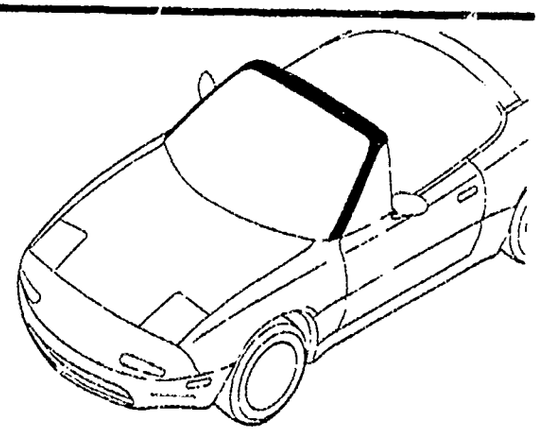


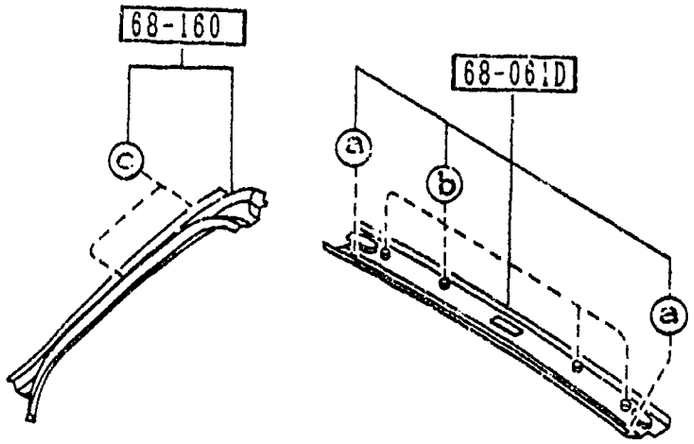
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
76-658		SHAFT,DRIVE NO.2			
NA01-67-364	1				
76-659		ARM NO.1,LINK			
NA01-67-361	1				
76-659A		ARM NO.2,LINK			
NA01-67-362	1				

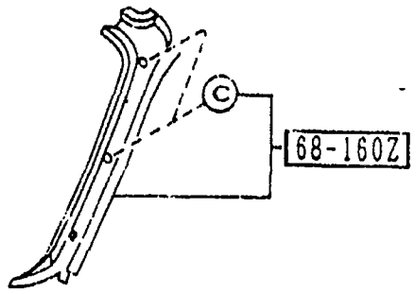
COMPONENTS OF NA01-67-340B
NA04-67-340A



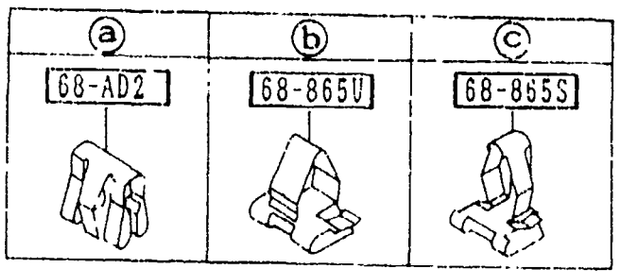
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
67-345		SCREW,EARTH SET-MOTOR BRK			
NA01-67-345	1				
67-346		SCREW,BRACKET-WIPER MOTOR			
NA01-67-346	2				
NA23-67-346	1				
76-612		PLATE,HOLDER-BRUSH			
NA23-67-351	1	(EXC.COLD SPEC.)			
NA26-67-351	1	(COLD SPEC.)			
76-619		PARTS SET			
H043-76-619A	1				
76-661		GEAR,SHAFT			
NA23-67-354	1				
76-662		WASHER			
B094-76-662	1				
76-663		WASHER,TOOTHED			
B094-76-663	1				

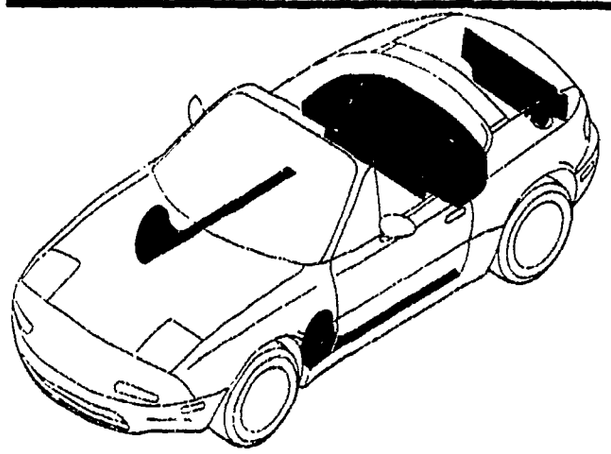


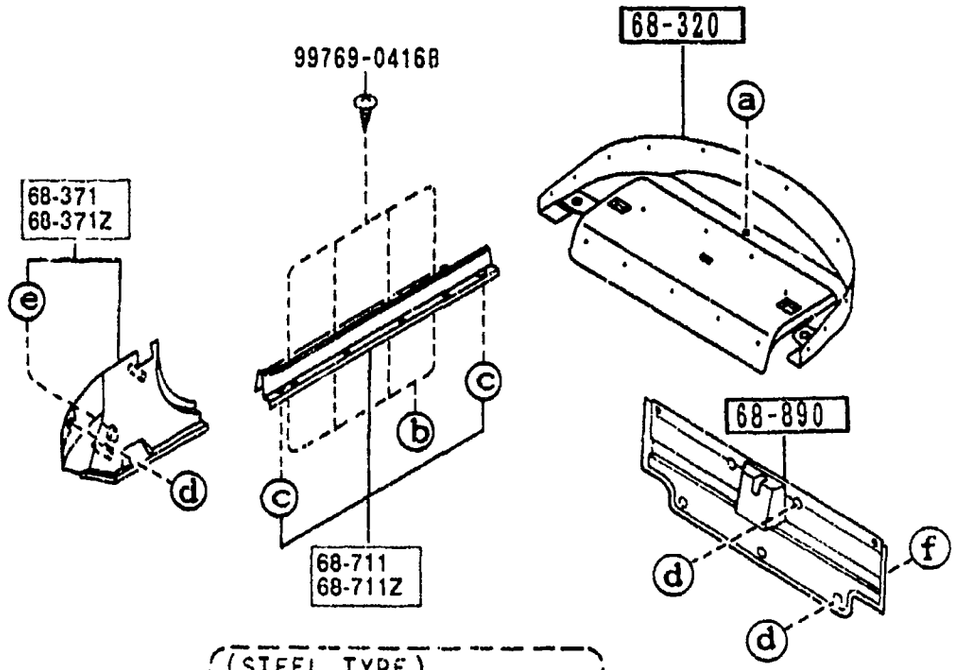




PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
68-AD2		CLIP			
B455-68-AD2	2				
68-061D		TRIM,FRONT HEADER			
NA01-68-090A	1				
00	INT-	NA0 NA1 BLACK			
68-160		TRIM(R),'A'PILLAR			
NA01-68-160	1				
00	INT-	NA0 NA1 BLACK			
68-160Z		TRIM(L),'A'PILLAR			
NA01-68-170	1				
00	INT-	NA0 NA1 BLACK			
68-865S		CLIP,TRIM			
GJ12-68-865	4				
68-865U		CLIP,TRIM			
GJ21-68-865	4				

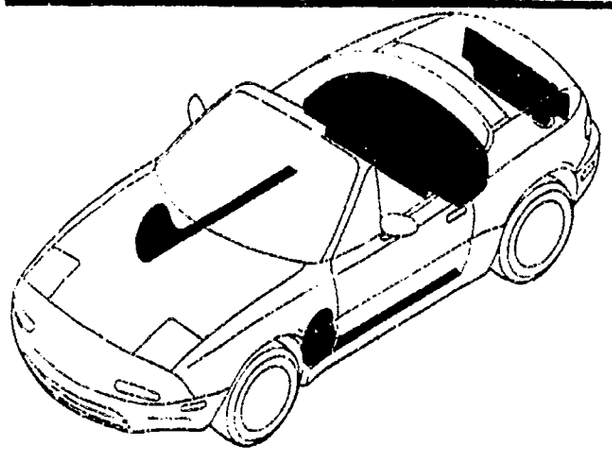


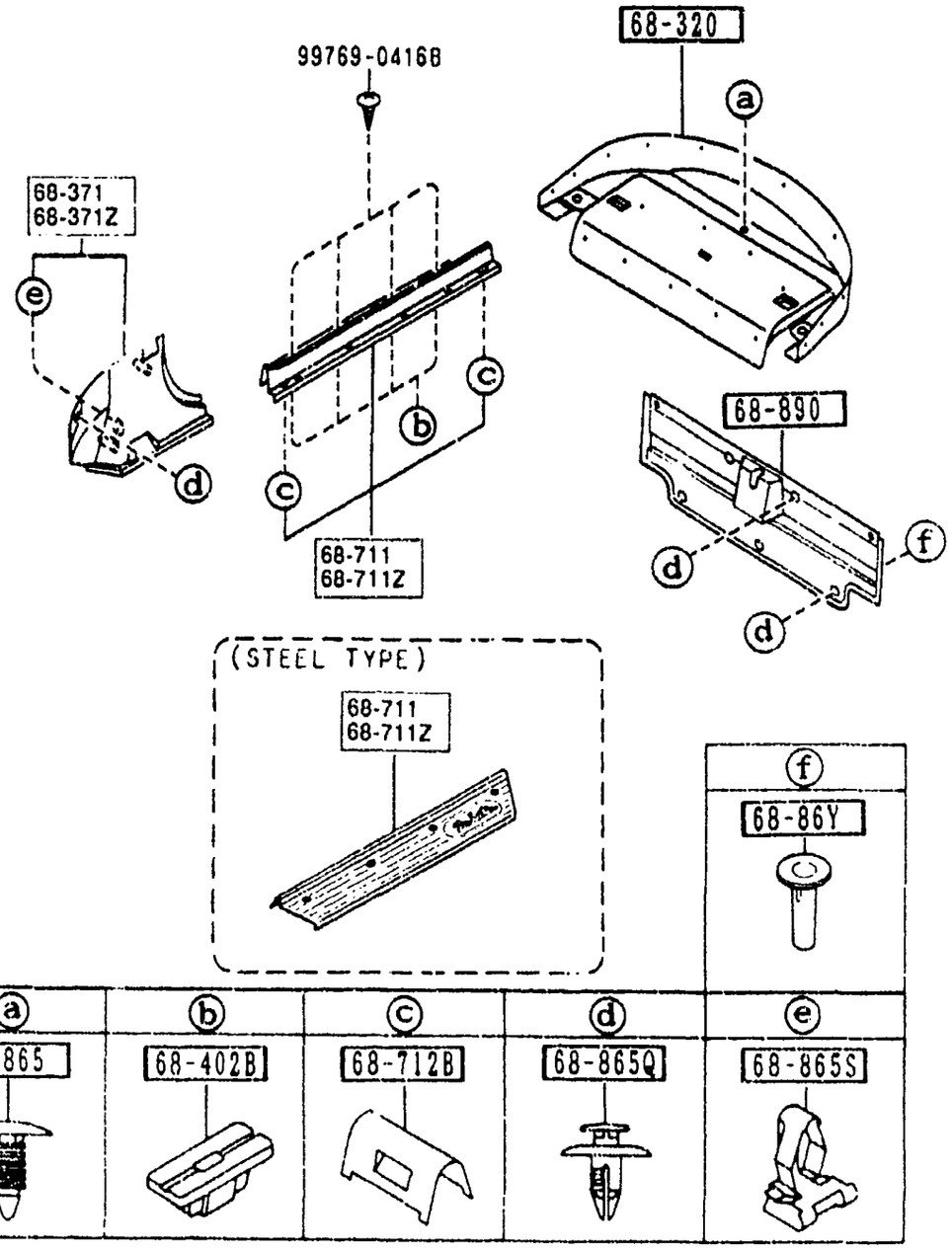




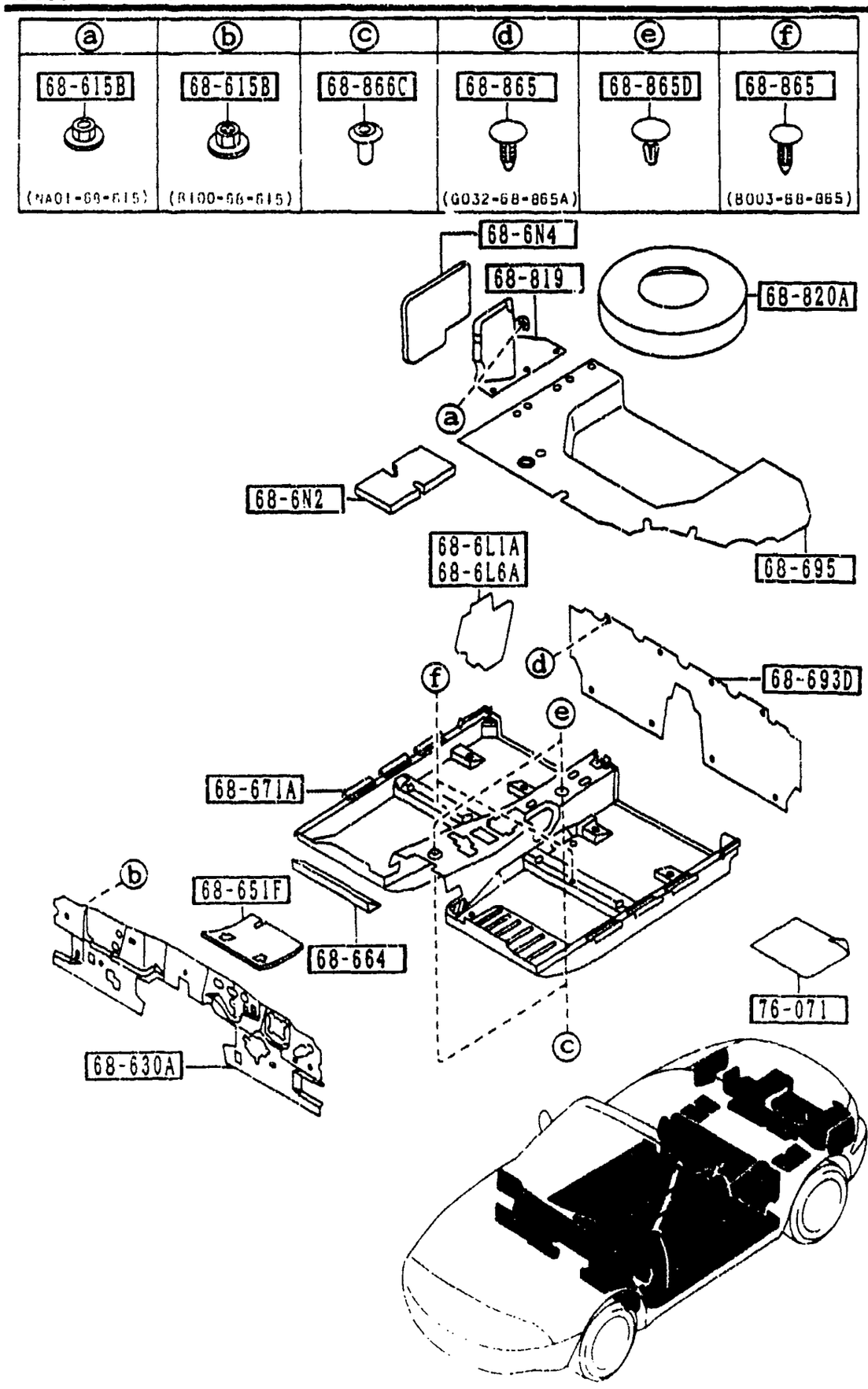
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
68-320		TRAY,REAR PACKAGE			
NA01-68-3F1B	1				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
68-371		TRIM(R),FRONT SIDE			
NA01-68-370	1				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
68-371Z		TRIM(L),FRONT SIDE			
NA01-68-390	1				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
68-402B		GROMMET,SCREW			
FA54-68-719B	8				
68-711		PLATE(R),FRONT SCUFF			
NA01-68-710	1	BASE, (PLASTIC TYPE)			
00	INT-	NA0 NA1 BLACK			
NA02-68-710	1	V-SPECIAL, (STEEL TYPE)			
68-711Z		PLATE(L),FRONT SCUFF			
NA01-68-720	1	BASE, (PLASTIC TYPE)			
00	INT-	NA0 NA1 BLACK			
NA02-68-720	1	V-SPECIAL, (STEEL TYPE)			
68-712B		CLIP			
B235-68-712	4	BASE, (PLASTIC TYPE)			
68-86Y		CAP,SEAL-TRUNK END TRIM			
KA01-68-86Y	3				-1301
A (KA01-68-86YA)					
KA01-68-86YA	3				1301-

1301 NA35**-231464



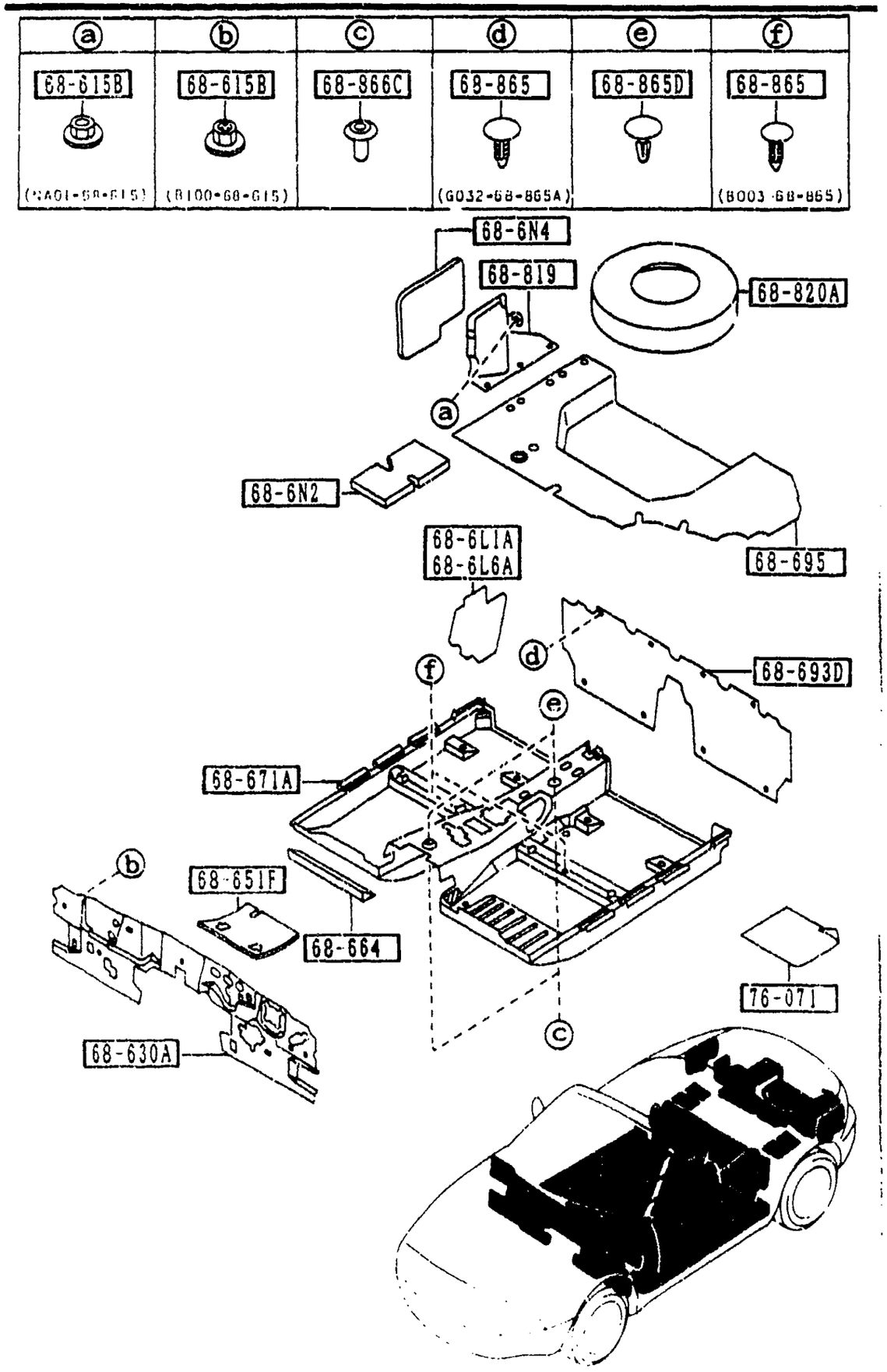


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
68-865		FASTENER			
G032-68-865A	20				
00	INT-	NA0 NA1 BLACK			
68-865Q		FASTENER			
GJ21-68-885B	9				
00	INT-	NA0 NA1 NA2 BLACK			
88	INT-	NA1 TAN			
68-865S		CLIP,TRIM			
GJ12-68-865	2				
68-890		TRIM,TRUNK END			
NA01-68-891	1				
00	INT-	NA0 NA1 NA2 BLA.			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
68-6L1A		COVER(R),HOLE			
NA01-68-6L1	1				
68-6L6A		COVER(L),HOLE			
NA01-68-6L6	1				
68-6N2		INSULATOR,RR FLOOR			
NA01-68-6N2	2				
68-6N4		PAD,RR FENDER			
NA01-68-6N4	1				
68-615B		NUT,FLANGE-CAP			
B100-68-615	5				
NA01-68-615	1				
68-630A		INSULATOR,DASHBOARD			
NA01-68-631B A (NA01-68-631C)	1				-0809
NA01-68-631C	1				0809-
68-651F		PAD,FRONT FLOOR			
FB01-68-652	1				
68-664		CUSHION,UNIT COVER			
NA01-68-664A	1				
68-671A		MAT,FLOOR			
NA20-68-67X	1				-0901
00	INT-	NA0 BLACK			
NA13-68-67XC A (NA13-68-67XD)	1				-1801
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
NA01-68-67XD A (NA01-68-67XE)	1				0901-1801
00	INT-	NA0 BLACK			
NA01-68-67XE	1	(BLACK-USA)			1801-
00	INT-	NA0 BLACK			
NA13-68-67XD	1	(TAN-JAPAN)			1801-

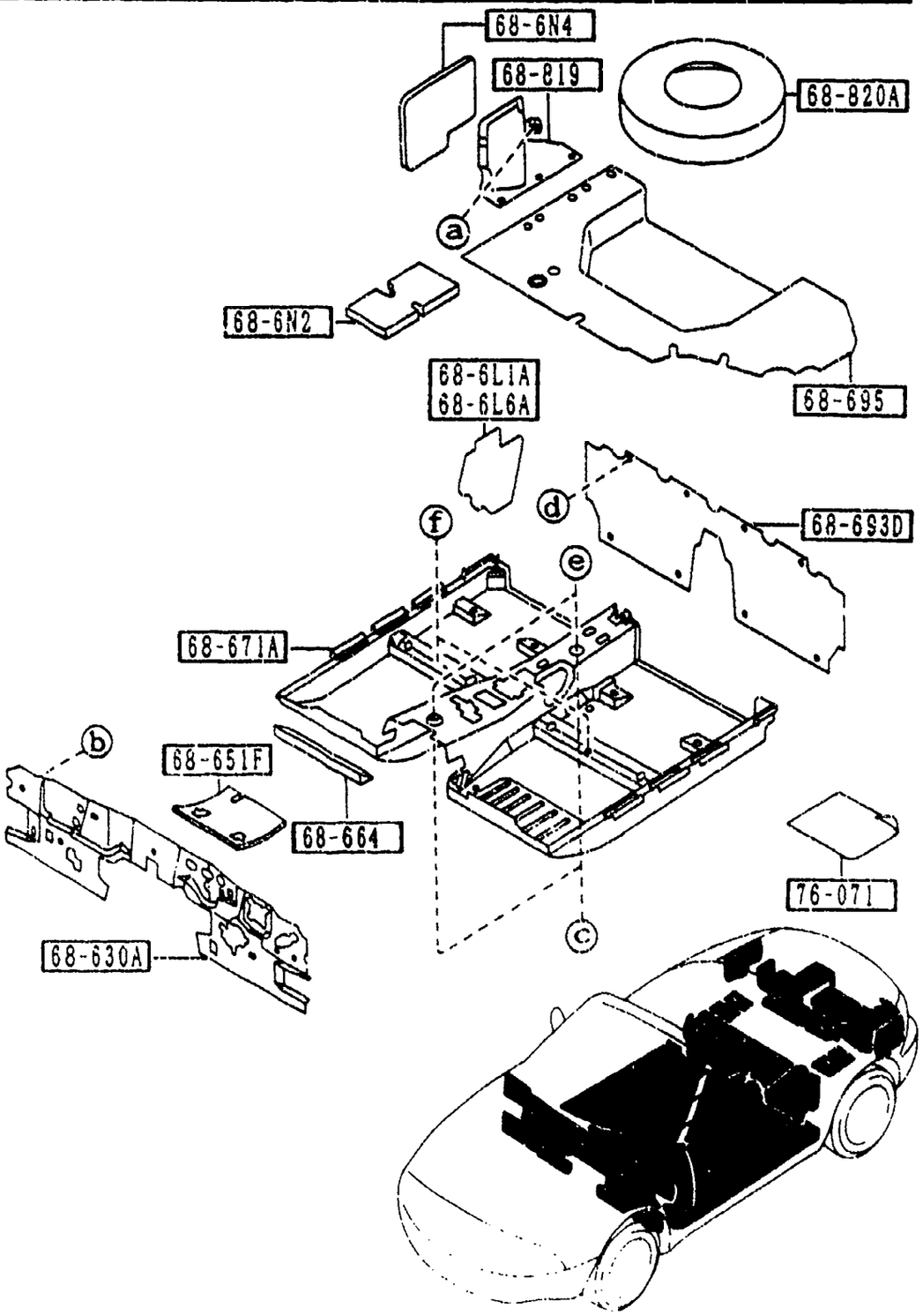
0809 NA35**-206196
0901 NA35**-208969
1801 NA35**-300014



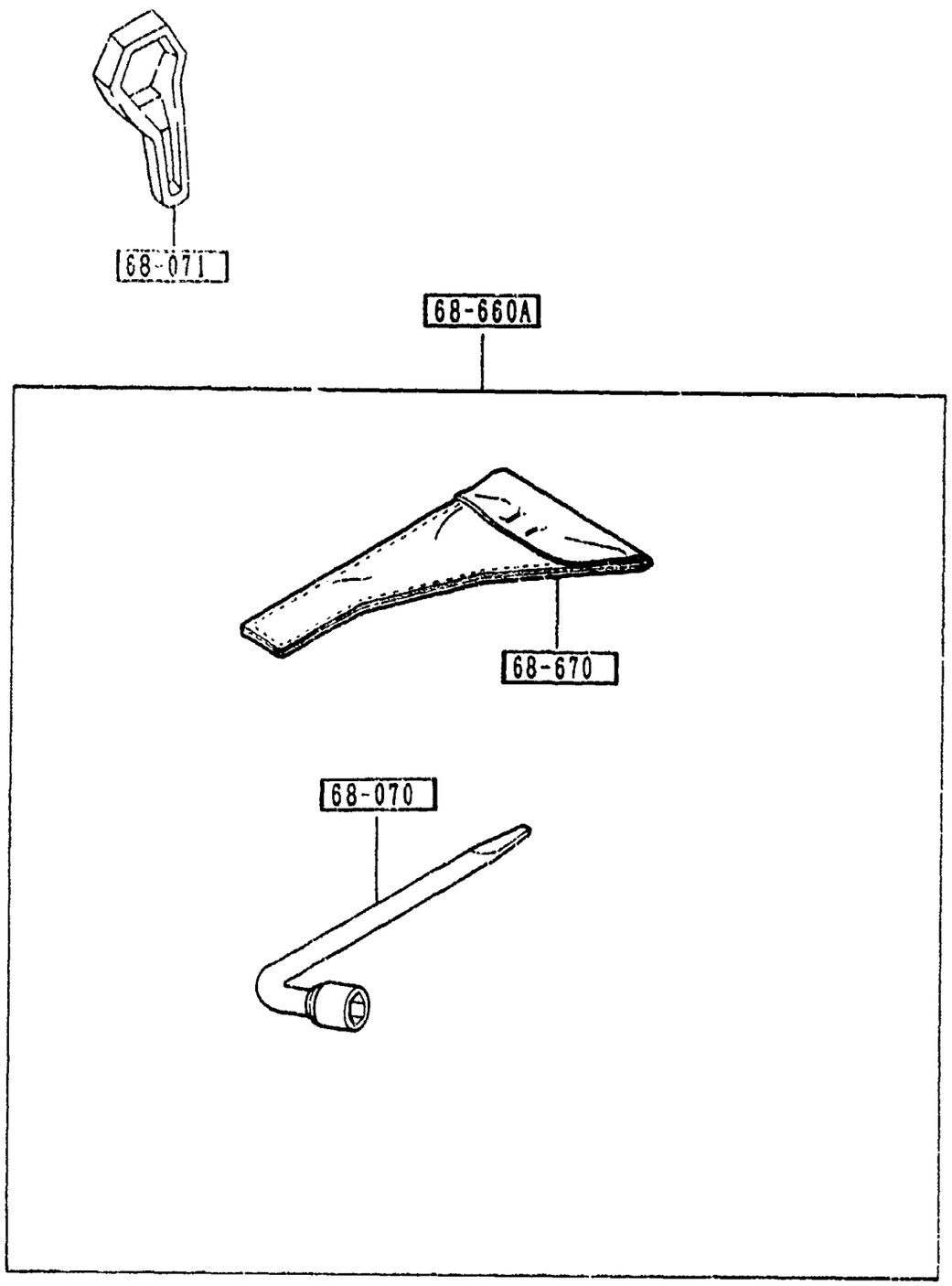
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
68-693D		MAT,REAR END			
NA01-68-693	1	(BLACK-USA)			
00	INT-	NA0 BLACK			
N001-68-693	1	(TAN-JAPAN)			
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
68-695		MAT,TRUNK ROOM			
NA01-68-811	1				
00	INT-	NA0 NA1 NA2 BLACK			
68-819		COVER,BATTERY			
NA01-68-819B	1				
00	INT-	NA0 NA1 NA2 BLACK			
68-820A		COVER,SPARE TIRE			
NA01-68-8P9A	1				
68-865		FASTENER			
B003-68-865	2				
00	INT-	NA0 BLACK			
81	INT-	NA1 BEIGE			
G032-68-865A	4				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
68-865D		FASTENER			
S083-68-865A	6				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
68-866C		FASTENER,SEAL			
B235-68-865A	6				

6860 FLOOR MATS & PADS

ⓐ	ⓑ	ⓒ	ⓓ	ⓔ	ⓕ
68-615B	68-615B	68-866C	68-865	68-865D	68 [illegible]5
(NA01-68-615)	(5130-68-615)		(6032-68-865A)		(B003-68-865)



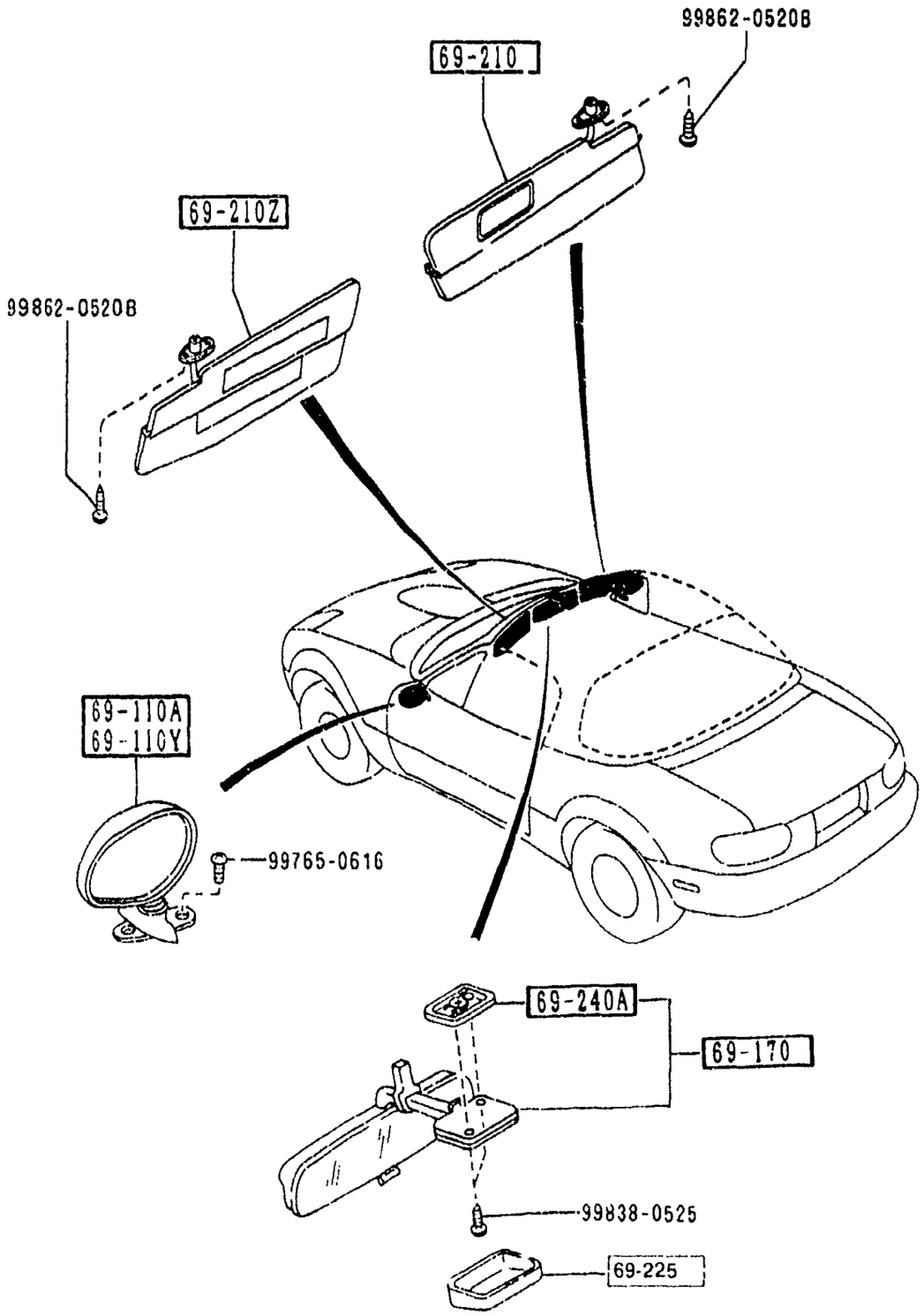
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
76-071 0208-76-071	1	SILENCER,FLOOR 30CMX30CM			



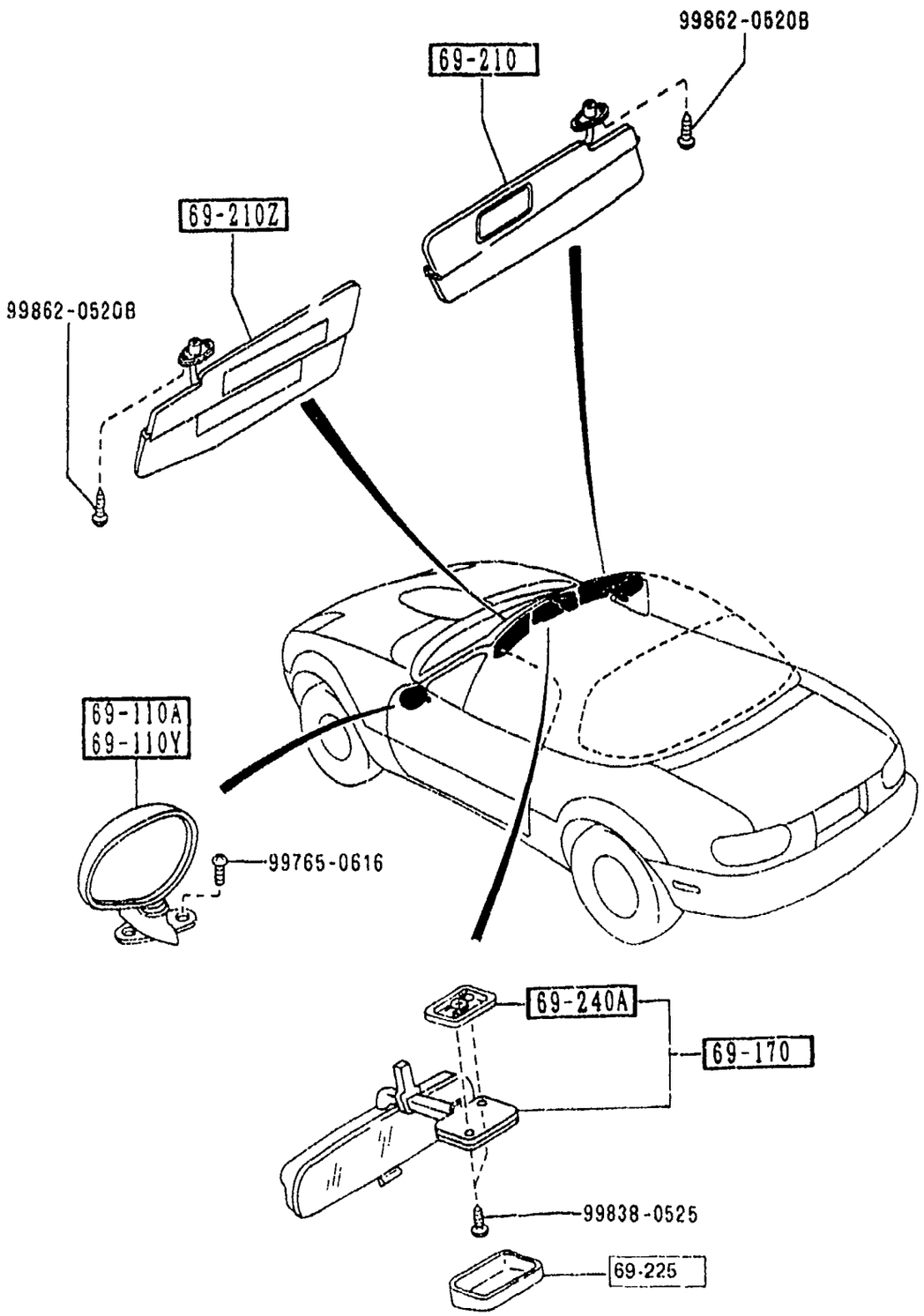
6870 -1 * SERVICE TOOLS

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
68-070		WRENCH,HUB NUT			
NA01-68-070	1				
68-071		WRENCH,WHEEL CAP			
*F057-68-071	1	SP-AD, (BBS ALUMI.WHEEL)			1801-
68-660A		TOOL SET			
NA01-69-650	1				
68-670		BAG,TOOL			
NA01-69-670	1				

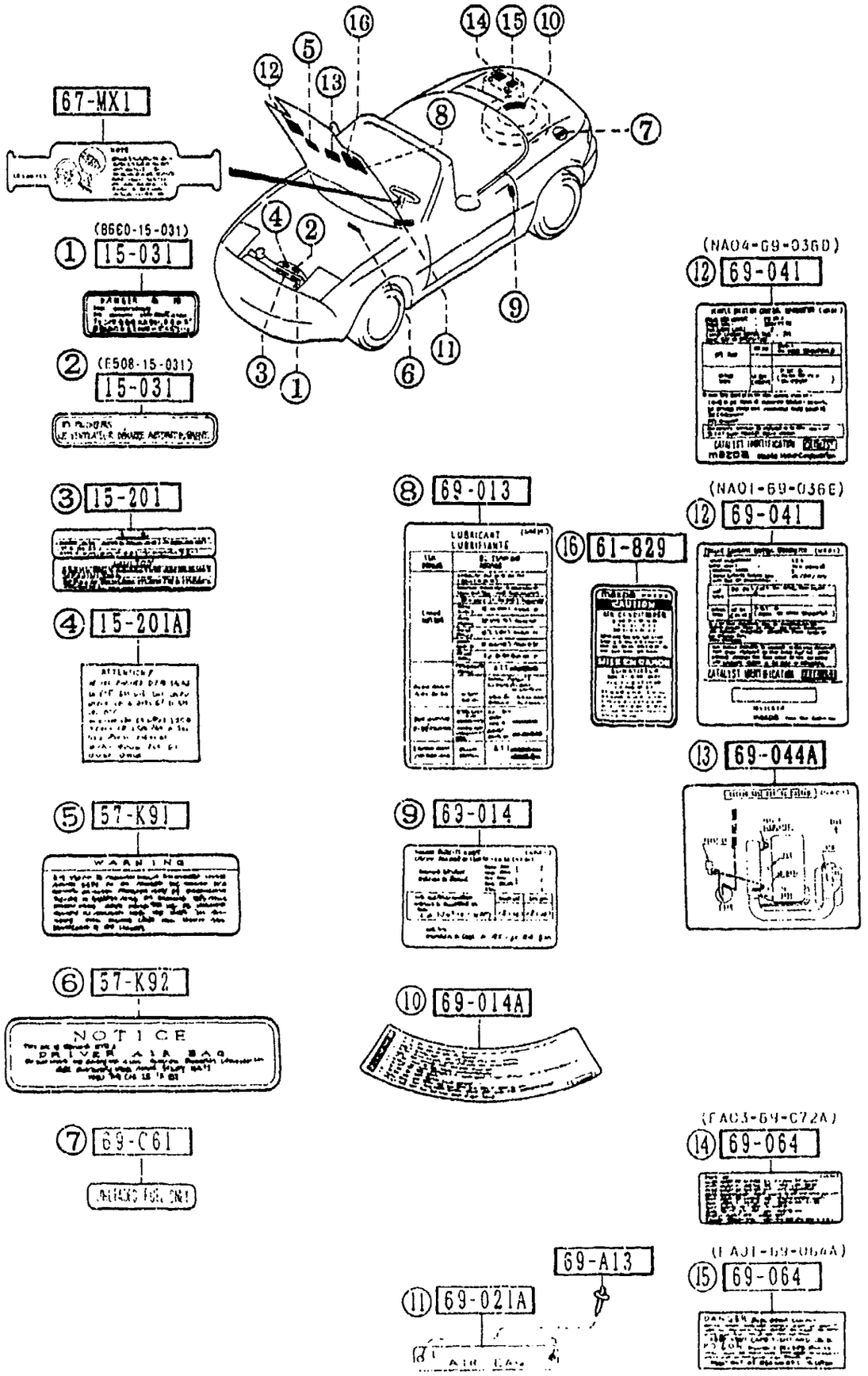
1801 NA35**-300014



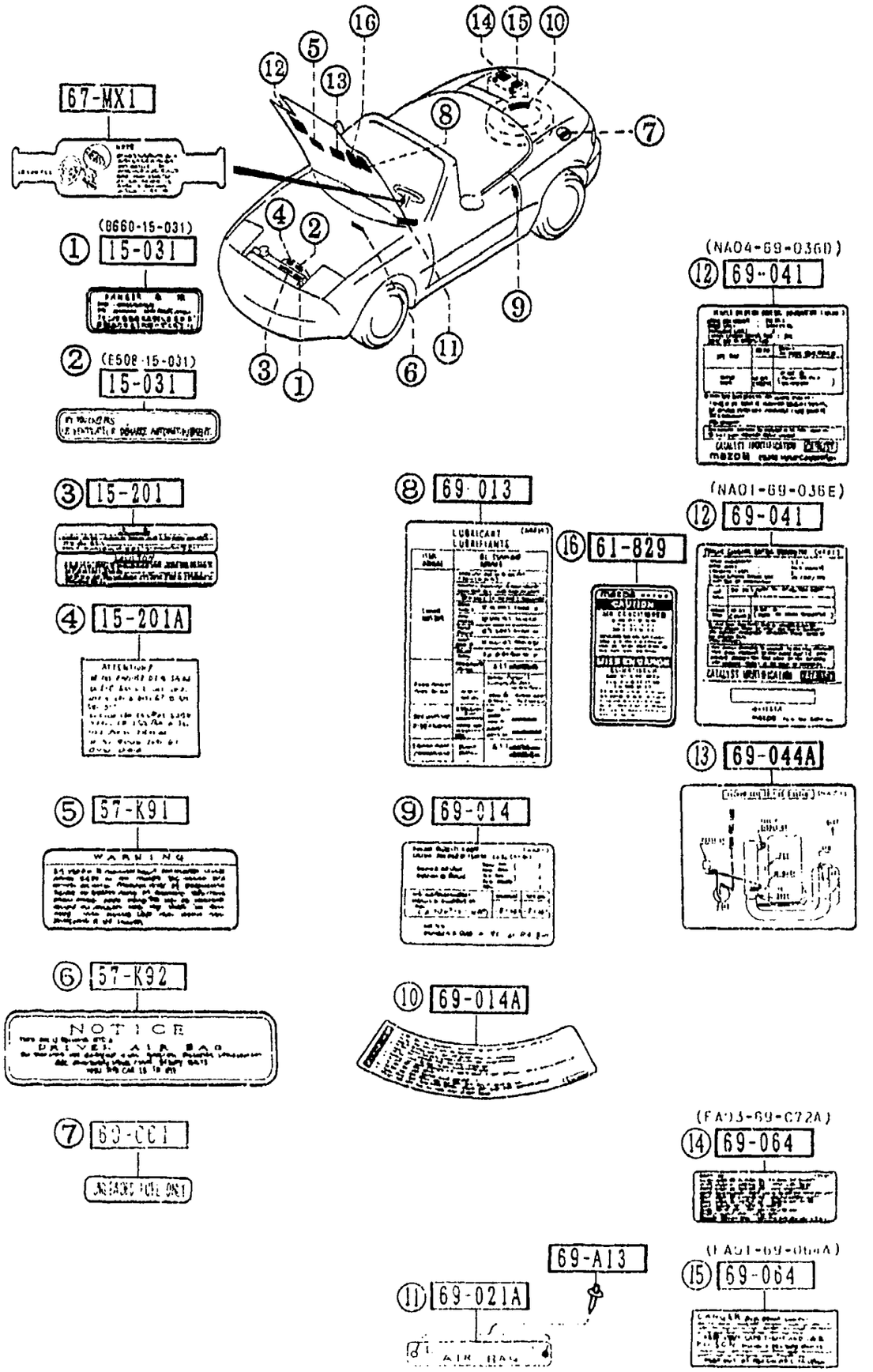
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
69-110A		MIRROR(R),DOOR			
NA05-69-120	1				
DU	EXT-	DU MARINER BLUE			
HU	EXT-	HU NEO GREEN			
HZ	EXT-	HZ SUNBURST YELLOW			
PZ	EXT-	PZ BRILLIANT BLACK			
SU	EXT-	SU CLASSIC RED			
UC	EXT-	UC CRYSTAL WHITE			
3L	EXT-	3L SILVER STONE METALLIC			
69-110Y		MIRROR(L),DOOR			
NA05-69-180	1				
DU	EXT-	DU MARINER BLUE			
HU	EXT-	HU NEO GREEN			
HZ	EXT-	HZ SUNBURST YELLOW			
PZ	EXT-	PZ BRILLIANT BLACK			
SU	EXT-	SU CLASSIC RED			
UC	EXT-	UC CRYSTAL WHITE			
3L	EXT-	3L SILVER STONE METALLIC			
69-170		MIRROR,INTERIOR			
NA01-69-220	1				
00	INT-	NA0 NA1 NA2 BLACK			
69-210		SUN VISOR(R)			
NA01-69-270B	1				
02	INT-	NA0 NA1 NA2 BLACK			
69-210Z		SUN VISOR(L)			
NA01-69-320C	1				
02	INT-	NA0 NA1 NA2 BLACK			
69-225		COVER,INTERIOR MIRROR			
GJ21-69-225	1				
00	INT-	NA0 NA1 NA2 BLACK			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
69-240A		BASE,INTERIOR MIRROR			
NA01-69-240	1				



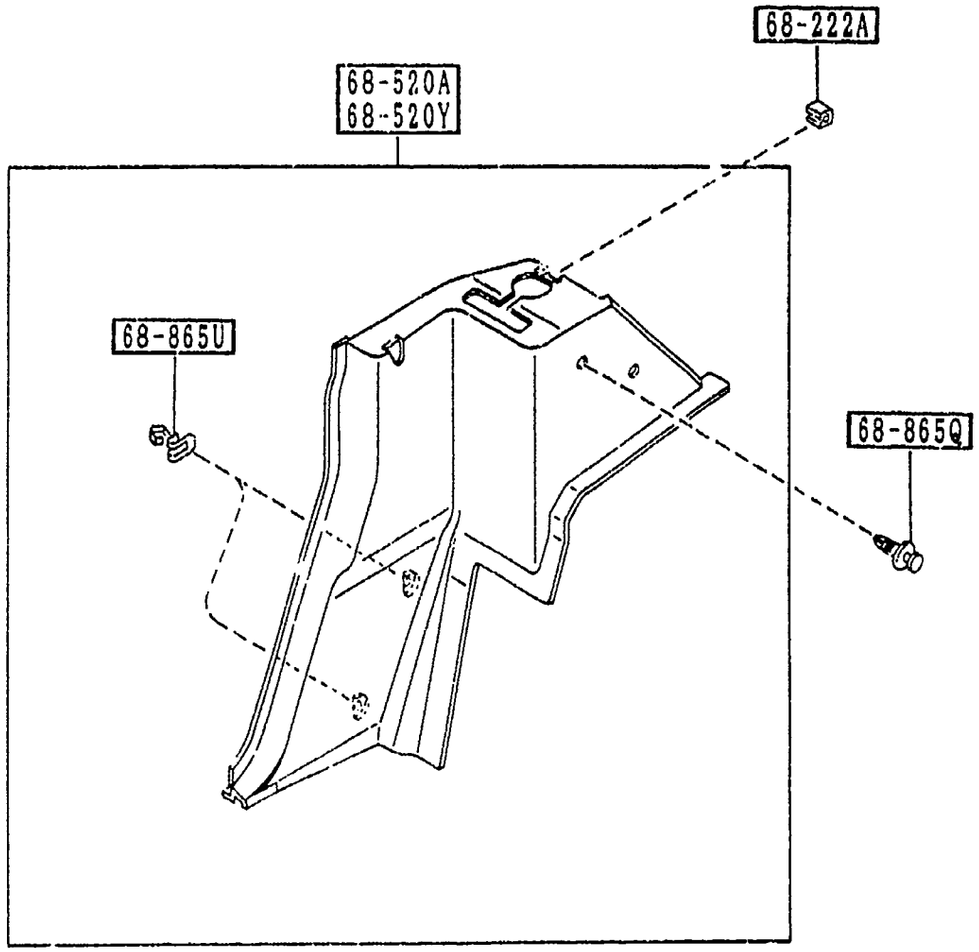
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
15-031		LABEL,CAUTION			
B660-15-031	1				
E508-15-031	1				
15-201		PLATE,CAUTION			
0488-15-201	1				
15-201A		LABEL,CAUTION-RADIATOR			
8791-15-201	1				
57-K91		LABEL'A',CAUTION-A/B			
NA01-57-K91	1				
57-K92		LABEL'B',CAUTION-A/B			
NA01-57-K92	1				
61-829		LABEL,CAUTION			
NA01-61-439	1	(A)			
67-MX1		LABEL,CAUTION-AIR BAG			
NA01-67-MX1	1				
69-A13		RIVET,BAND-MODEL PLATE			
GJ21-69-A13	2				
69-C61		LABEL,UNLEADED FUEL			
UB40-69-C61	1				
69-013		LABEL,OIL			
NA01-69-D21C	1				
69-014		LABEL,TIRE			
NA01-69-014	1				
69-014A		LABEL,TEMPORARY TIRE			
BF68-69-073	1	ENGLISH			
BF69-69-073B	1	FRENCH			



6930 -2 * CAUTION PLATES & LABELS

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
69-021A		PLATE,CAUTION			
NA01-69-068 A (NA01-69-068A)	1				-0B01
NA01-69-068A	1				0B01-
69-041		LABEL,EMISSION			
NA01-69-036D	1	(EM LABEL-CALIF.)			-1801
NA04-69-036C	1	(EM LABEL-FED)			-1801
NAC1-69-036E	1	(EM LABEL-CALIF.)			1801-
NA04-69-036D	1	(EM LABEL-FED)			1801-
69-044A		LABEL,VAC.DIAPHRAGM			
NA01-69-044	1	(EM LABEL-CALIF.)			
69-064		LABEL,BATTERY			
FA03-69-C72A	1				
FA01-69-064A	1				

0B01 NA35**-217311
1801 NA35**-300014



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
68-222A		COVER,HOLE			
NA01-68-222A	2				
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
68-520A		TRIM(R),QUARTER			
NA01-68-520A	1	BASE, (W/O DETACHABLE TOP)			
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
NA02-68-520A	1	OPTION, (W/DETACHABLE TOP)			
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
68-520Y		TRIM(L),QUARTER			
NA01-68-550A	1	BASE, (W/O DETACHABLE TOP)			
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
NA02-68-550A	1	OPTION, (W/DETACHABLE TOP)			
00	INT-	NA0 BLACK			
88	INT-	NA1 TAN			
68-865Q		FASTENER			
GJ21-68-885B	2				
00	INT-	NA0 NA2 NA1 BLACK			
88	INT-	NA1 TAN			
68-865U		CLIP,TRIM			
GJ21-68-865	4				

PART NUMBER INDEX

This index is listed in the following sequence.

INDEX DES NOMBRES DE PIECES

Cet index a été compose selon la sequence suivante.

NUMERO INDICE DE PIEZA

Este indice se ordena en la siguiente secuencia.

TEILENUMMERN

Die Teilenummern setzen sich wie folgt zusammen.

GENERAL PARTS

EXAMPLE

❶ Model/Type
Third, in the sequence of model/typs (1st-4th digits)

❷ Group
First, in the sequence of group (5th & 6th digits)

❸ Part
Second, in the sequence of part (7th-9th digits)

PIECES GENERALES

EXEMPLE

❶ Modèle/type
Troisièmement, séquence du modèle/type (1er à 4eme chiffres)

❷ Groupe
Premierement, sequence du groupe (5eme et 6eme chiffres)

❸ Pièce
Deuxièmement, sequence de la piece (7eme à 9eme chiffres)

PIEZAS GENERALES

EJEMPLO

❶ Tipo de modelo
Tercero, en la secuencia de tipo de modelo (entre las cifras 1ro-4to lugar)

❷ Grupo
Primero, en la secuencia de grupo (las cifras en 5to y 6to lugar)

❸ Pieza
Segundo, en la secuencia de pieza (entre las cifras 7mo-9no lugar)

ALLGEMEINE TEILE

BEISPIEL

❶ Modell/Typ
Angabe des Modells bzw. Typs (1. bis 4. Ziffer)

❷ Baugruppe
Angabe der Baugruppe (5. und 6. Ziffer)

❸ Teil
Angabe des Teils (7. bis 9. Ziffer)

❶ ❷ ❸

B A 0 1 6 0 3 5 0

STANDARD PARTS

Standard Parts are listed in numerical sequence after General Parts.
(Note: Those parts which do not have D-Code are not listed in the index.)

PIECES STANDARD

Les pièces standard sont énumérées selon une séquence numérique, après les pièces générales.
(Remarque: Les pièces qui ne possèdent pas de code D ne sont pas mentionnées dans cet index.)

PIEZAS NORMALES

Las piezas normales se numeran secuencialmente despues de las Piezas generales.
(Nota: Las piezas que no tienen un codigo D no estan en el indice.)

STANDARDTEILE

Die Standardteile sind nach den allgemeinen Teilen mit fortlaufender Numerierung aufgeführt.
(Hinweis: Teile ohne D-Code sind nind nicht aufgeführt.)

PART NUMBER INDEX / INDEX DES NUMEROS DE PIECES / TEILENUMNER-INDEX / INDICE DE NUMERO DE PARTES

**********		
* *		
* R1-000 *		
* *		
**********		
NA01-R1-100D	2-F14	
NA01-R1-100E	2-F14	
NA01-R1-131	2-F14	
NA01-R1-132	2-F14	
NA01-R1-141	2-F14	
NA01-R1-142	2-F14	
NA01-R1-181	2-F14	
NA01-R1-210G	2-F14	
NA01-R1-210H	2-F14	
NA02-R1-210	2-F14	
NA02-R1-210A	2-F14	
NA02-R1-210B	2-F14	
NAY1-R1-211	2-F14	
NAY2-R1-211	2-F14	
NA02-R1-213	2-F14	
NA01-R1-230	2-F14	
NA01-R1-233	2-F14	
NA01-R1-234	2-G14	
NA01-R1-235	2-G14	
NAY1-R1-240C	2-G14	
NAY1-R1-240D	2-G14	
NAY1-R1-240E	2-G14	
NAY2-R1-240	2-G14	
NAY2-R1-240A	2-G14	
NAY2-R1-240B	2-G14	
NAY1-R1-242	2-G14	
NAY1-R1-243	2-G14	
NAJ1-R1-250A	2-G14	
NA01-R1-250B	2-G14	
NA01-R1-271	2-G14	
NA01-R1-272	2-G14	
NA01-R1-281	2-H14	
NA01-R1-291	2-G14	
NA01-R1-310B	2-L14	
NA02-R1-310B	2-H14	
NA01-R1-311	2-H14	
NA01-R1-312	2-H14	
NA01-R1-313	2-D15	
NA01-R1-320B	2-M14	
NA01-R1-331	2-H14	
NA01-R1-361B	2-M14	
NA02-R1-361B	2-M14	
NA01-R1-371B	2-M14	
NA02-R1-371B	2-M14	
NA01-R1-38XB	2-H14	
NA01-R1-381B	2-H14	
NA01-R1-382A	2-H14	
NA01-R1-391B	2-H14	
NA01-R1-411B	2-I14	
NA01-R1-412B	2-I14	
NA01-R1-413B	2-I14	
NA01-R1-421B	2-I14	
NA01-R1-422B	2-I14	
NA01-R1-423B	2-I14	
NA01-R1-461	2-H14	
NA01-R1-462	2-H14	
NA01-R1-463	2-H14	
NA01-R1-471	2-I14	
NA01-R1-472	2-I14	
NA01-R1-473	2-I14	
NA01-R1-491	2-I14	
NA01-R1-560C	2-I14	
NA01-R1-581B	2-I14	
NA01-R1-582A	2-I14	
NA01-R1-592A	2-J14	
NA01-R1-711B	2-J14	
NA01-R1-721B	2-J14	
NA01-R1-731B	2-J14	
NA01-R1-741B	2-J14	
NA01-R1-742B	2-J14	
NA01-R1-750D	2-J14	
NA01-R1-780C	2-J14	
NA01-R1-786A	2-J14	
NA01-R1-790C	2-J14	
NA02-R1-810F	2-K14	
NA03-R1-810	2-K14	
NA04-R1-810	2-K14	
NA06-R1-810 DU	2-K14	
NA06-R1-810 HU	2-K14	
NA06-R1-810 HZ	2-K14	
NA06-R1-810 PZ	2-K14	
NA06-R1-810 SU	2-K14	
NA06-R1-810 UC	2-K14	
NA06-R1-810 3L	2-K14	
NA30-R1-810A00	2-K14	
N007-R1-810ADU	2-K14	
N007-R1-810AHU	2-K14	
N007-R1-810AH?	2-K14	
N007-R1-810AP2	2-L14	
N007-R1-810ASU	2-L14	
N007-R1-810AUC	2-L14	
N007-R1-810A3L	2-L14	
NA01-R1-82XA	2-J14	
NA01-R1-82XA00	2-J14	
NA02-R1-82XA	2-J14	
NA03-R1-82X	2-J14	
NA04-R1-82X	2-J14	
NA06-R1-82X DU	2-K14	
NA06-R1-82X HU	2-K14	
NA06-R1-82X HZ	2-K14	
NA06-R1-82X PZ	2-K14	
NA06-R1-82X SU	2-K14	
NA06-R1-82X UC	2-K14	
NA06-R1-82X 3L	2-K14	
NA01-R1-832A	2-L14	
NA01-R1-861	2-L14	
NA01-R1-863	2-L14	
NA01-R1-864	2-L14	
NA01-R1-865	2-L14	
NA01-R1-866	2-M14	
NA01-R1-867	2-M14	
NA01-R1-868	2-M14	
NA01-R1-869	2-M14	
NA01-R1-871	2-M14	
NA01-R1-874	2-M14	
NA01-R1-881B	2-N14	
NA01-R1-882	2-M14	
NA01-R1-89XA	2-M14	
NA01-R1-891B	2-N14	
NA01-R1-892	2-N14	
NA01-R1-926	2-C15	
NA01-R1-931A	2-N14	
NA01-R1-935A	2-N14	
NA01-R1-935B	2-N14	
NA01-R1-936	2-N14	
NA01-R1-936A	2-N14	
NAY1-R1-937	2-N14	
NA01-R1-941A	2-N14	
NA01-R1-946	2-N14	
NA01-R1-946A	2-N14	
B235-R1-953	2-N14	
B235-R1-958A	2-N14	
NA01-R1-96XB	2-C15	
NA01-R1-96XC	2-C15	
NA01-R1-96Z 00	2-C15	
NA01-R1-96Z 75	2-C15	
NA01-R1-960B66	2-L14	
NA01-R1-960B88	2-L14	
NA01-R1-960C66	2-L14	
NA01-R1-960C88	2-L14	
NA01-R1-960D66	2-L14	
NA01-R1-960D88	2-L14	
NA01-R1-970A	2-C15	
NA01-R1-981A	2-C15	
NA01-R1-982A	2-C15	
**********		
* *		
* 02-000 *		
* *		
**********		
B64E-02-200B	1-C3	
B64E-02-200C	1-C3	
B64E-02-200D	1-C3	
B64J-02-200A	1-C3	
B64J-02-200B	1-C3	
**********		
* *		
* 09-000 *		
* *		
**********		
NA01-09-010C00	2-C5	
NA01-09-010C88	2-C5	
NA01-09-010E00	2-C5	
NA01-09-010E88	2-C5	
NA01-09-010F00	2-C5	
NA01-09-010F88	2-C5	
NA03-09-010A00	2-C5	
NA03-09-010A83	2-C5	
NA03-09-010C00	2-C5	
NA03-09-010C88	2-C5	
NA03-09-010D00	2-C5	
NA03-09-010D88	2-C5	
**********		
* *		
* 10-000 *		
* *		
**********		
B61P-10-100B	1-D3	
B61P-10-100C	1-D3	
B61P-10-100D	1-D3	
B660-10-104A	1-D3	
B661-10-104	1-D3	
B660-10-106	1-D3	
B660-10-126	1-D3	
B660-10-135A	1-D3	
B630-10-138A	1-D3	
B660-10-155	1-N3	
B61P-10-210C	1-D3	
B61P-10-210D	1-D3	
B61P-10-22X	1-D3	
B6S7-10-22Y	1-D3	
B6S7-10-225	1-D3	
B61P-10-227	1-D3	
B61P-10-235	1-E3	
B61P-10-235A	1-E3	
8AN1-10-235	1-C3	
8AN1-10-235A	1-C3	
B660-10-241	1-E3	
B660-10-244	1-E3	
0453-10-250A	1-E3	
0324-10-252	1-E3	
B6F4-10-271A	1-E3	
8AN1-10-271	1-C3	
8AN1-10-271B	1-C3	
B6Z0-10-280	1-F3	
B6Z0-10-290	1-F3	
B64J-10-300	1-G3	
B366-10-305	1-G3	
B630-10-306	1-G3	
B6F4-10-308	1-I3	
B630-10-319	1-G3	
0221-10-327	1-G3	
B660-10-328	1-G3	
B630-10-352	1-G3	
0290-10-353	1-J7	
B61P-10-40YA	1-I3	
B6Y0-10-400C	1-I3	
B6S7-10-404A	1-I3	
B6F4-10-427	1-I3	
B6F4-10-428	1-I3	
B61P-10-440	1-G3	
B61P-10-450C	1-G3	
B6S7-10-465	1-I3	
B660-10-500E	1-I3	
B660-10-502B	1-I3	
B61P-10-510	1-I3	
B61P-10-512	1-I3	
B61P-10-513	1-I3	
B61P-10-514	1-I3	
B660-10-520B	1-J3	
B660-10-522	1-J3	
B61P-10-540B	1-J3	
B61P-10-540C	1-J3	
B660-10-543B	1-E5	
B61P-10-544	1-J3	
B660-10-561	1-E3	
B61P-10-565	1-E3	
B660-10-580A	1-G3	
B3C7-10-602	1-M4	
B3C7-10-602A	1-M4	
B630-10-602	1-M4	
F285-10-602	1-J3	
F801-10-602	1-J3	
SE01-10-715	1-G3	
SE01-10-730	1-G3	
B61P-10-901A	1-J3	
B64J-10-901	1-J3	
B64J-10-903	1-J3	
**********		
* *		
* 11-000 *		
* *		
**********		
B6Z2-11-SA0C	1-M3	
B6Z5-11-SA0	1-M3	
B6Z2-11-SBXC	1-M3	
B6Z5-11-SBX	1-M3	
B6Z2-11-SB0C	1-M3	
B6Z5-11-SB0	1-M3	
B6Y3-11-SC0	1-L3	
B6Y3-11-SC0A	1-M3	
B6Y4-11-SC0A	1-L3	
B6Y4-11-SC0B	1-M3	
B6Y3-11-SDX	1-L3	
B6Y3-11-SDXA	1-M3	
B6Y4-11-SDXA	1-L3	
B6Y4-11-SDXB	1-M3	
B6Y3-11-SD0	1-L3	
B6Y3-11-SD0A	1-M3	
B6Y4-11-SD0A	1-M3	
B6Y4-11-SD0B	1-M3	
B6Y1-11-SE0	1-L3	
B6Y1-11-SFX	1-L3	
B6Y1-11-SFY	1-L3	
B6Y1-11-SF0	1-L3	
B6Y2-11-SG0	1-M3	
B6Y1-11-SHX	1-M3	
B6Y1-11-SH0	1-M3	
B6Y1-11-SJ0	1-M3	
B6Y1-11-SKX	1-M3	
B6Y1-11-SKY	1-M3	
B6Y1-11-SK0	1-M3	
0221-11-205	1-K3	
B6S7-11-210D	1-K3	
B6S7-11-215A	1-K3	
B6S7-11-300	1-K3	
B616-11-300B	1-K3	
F801-11-303	1-L3	
B366-11-310B	1-J3	
B366-11-310C	1-J3	
BP05-11-312	1-J3	
B630-11-312	1-J3	
B3C7-11-317	1-K3	
B630-11-317A	1-K3	
B3C7-11-321	1-K3	
B366-11-321A	1-K3	
B3C7-11-400	1-L3	
B6S7-11-401A	1-K3	
B6S8-11-401	1-K3	
B541-11-404	1-K3	
B541-11-404A	1-K3	
B3C7-11-405	1-K3	
B631-11-405	1-K3	
JF01-11-405	1-K3	
B3C7-11-406	1-K3	
B630-11-406C	1-K3	
B3C7-11-408	1-L3	
B630-11-408B	1-L3	
B631-11-414	1-L3	
B61P-11-500	1-L3	
B367-11-502	1-L3	
F201-11-511	1-L3	
**********		
* *		
* 12-000 *		
* *		
**********		
B660-12-101	1-N3	
B6S7-12-111	1-N3	
BJ01-12-113	1-N3	
B660-12-113	1-N3	
B660-12-114	1-N3	
B660-12-121	1-N3	
B660-12-123	1-N3	
B660-12-123A	1-N3	
BJ01-12-125	1-N3	
B61P-12-125	1-N3	
B6S7-12-205A	1-N3	
B64J-12-420	1-N3	
B660-12-420C	1-N3	
B6S7-12-425A	1-N3	
B6A7-12-440A	1-C4	
B61P-12-440	1-C4	
B660-12-700C	1-C4	
B660-12-700D	1-C4	
B660-12-711C	1-C4	
B660-12-730B	1-C4	
B660-12-730C	1-C4	
**********		
* *		
* 13-000 *		
* *		
**********		
B551-13-W75A	1-K4	
B551-13-W8X	1-K4	
B61P-13-W80	1-K4	
B551-13-W89	1-K4	
B6S7-13-ZC7	1-L4	
B61P-13-ZE0	1-I15	
B61P-13-ZE1	1-I15	
FEH2-13-ZE4	1-I15	
B61P-13-ZE5	1-I15	
B61P-13-Z01	1-J4	
B6S7-13-Z40	1-J4	
B61P-13-Z66	1-J4	
B61P-13-100D	1-D4	
B551-13-104	1-K4	
FEA7-13-104	1-E3	
F8L7-13-104	1-D4	
1010-13-104	1-D4	
B61P-13-111	1-D4	
B61P-13-121	1-D4	
B61P-13-140	1-D4	
FE4J-13-146	1-D3	
B61P-13-150	1-H4	
8574-13-157	1-F4	
	2-E3	
B675-13-158	1-H4	
E580-13-161	1-I15	
F8B3-13-164	1-H4	
B61P-13-190A	1-L4	
B64J-13-190	1-L4	
B61P-13-200B	1-I4	
B61P-13-200C	1-I4	
B61P-13-206A	1-I4	
B6S7-13-210A	1-I4	
B6S7-13-211A	1-I4	
B61P-13-221B	1-I4	
E5A1-13-225	1-I4	
B61P-13-245	1-I4	
B6S7-13-250	1-H4	
8574-13-252	1-H4	
G601-13-253	1-H4	
8574-13-253	1-H4	
JE06-13-257	1-H4	
B61P-13-280	1-H4	
JE16-13-298	1-F4	
F201-13-302A	1-I4	
B61P-13-311B	1-I4	
B61P-13-320A	1-I4	
SLA1-13-321	1-J4	
FE51-13-329	1-I4	
B61P-13-330E	1-I4	
B64J-13-330	1-I4	
E301-13-338A	1-E3	
B61P-13-348	1-N6	
S501-13-349	1-J4	
B61P-13-350B	1-I15	
B61P-13-363A	1-N6	
FE51-13-363	1-J4	
N326-13-363B	1-F4	
0222-13-363	2-E15	
B61P-13-366	1-E3	
B61P-13-380B	1-E4	
B61P-13-380C	1-E4	
B61P-13-428	1-F4	
B61P-13-447	1-F4	
	1-L4	
B61P-13-450A	1-E4	
B61P-13-450B	1-E4	
2306-13-456	1-E4	
B695-13-460A	1-E4	
B695-13-462	1-E4	
B6S7-13-465	1-E4	
B61P-13-468	1-E4	
B61P-13-640B	1-K4	
B64J-13-640	1-K4	
B6S7-13-655	1-L4	
B61P-13-665	1-D4	
B61P-13-681B	1-L4	
B61P-13-682A	1-L4	
B61P-13-685A	1-L4	
B61P-13-691A	1-L4	
B61P-13-735	1-I4	
B630-13-736	1-J4	
F249-13-736	1-J4	
B61P-13-74XA	1-E3	
B61P-13-740A	1-F3	
B61P-13-741	1-F3	
B61P-13-742A	1-F3	
B61P-13-743A	1-F3	
B61R-13-765	1-J4	
BP05-13-890	1-F3	
B61P-13-960	1-F4	
B61P-13-97YA	1-F4	
B61P-13-970	1-F4	
B61P-13-971	1-F4	
B61P-13-972A	1-F4	
B61P-13-973A	1-F4	
B61P-13-986	1-F3	
**********		
* *		
* 14-000 *		
* *		
**********		
B6S8-14-100	1-M4	
B6S8-14-100A	1-M4	
B6S8-14-100B	1-M4	
B6S8-14-100C	1-M4	
B660-14-100E	1-M4	
B630-14-113	1-M4	
0221-14-115	1-M4	
BPC8-14-116	1-M4	
0324-14-116A	1-M4	
B6S7-14-118	1-M4	
B3C7-14-121	1-M4	
B630-14-121	1-M4	
FE1H-14-124	1-M4	
B6S7-14-132	1-M4	
B660-14-132	1-M4	
B6S7-14-141	1-N4	
B660-14-141	1-N4	
0810-14-171A	1-N4	
B61P-14-240	1-N4	
B6Y1-14-302	1-N4	
N304-14-726	3-D3	
**********		
* *		
* 15-000 *		
* *		
**********		
B6S8-15-T52	1-C5	
8AB8-15-010	1-C5	
B660-15-031	3-K4	
E508-15-031	3-K4	
B61P-15-106	1-C5	
B621-15-116A	1-C5	
B366-15-131A	1-C5	
B6S8-15-140A	1-C5	
B61P-15-140	1-C5	
B61P-15-140A	1-C5	
B64J-15-140	1-C5	
B61P-15-150A	1-E5	
B61P-15-150B	1-E5	
B64J-15-150	1-E5	
B64J-15-150A	1-E5	
B61P-15-160	1-C5	
B366-15-165	1-C5	
B621-15-165	1-C5	
B61P-15-170B	1-C5	
8AN1-15-171	1-C5	
B61P-15-172	1-D5	
B366-15-173	1-D5	
B621-15-173	1-D5	
B61P-15-179A	1-D5	
B366-15-182	1-D5	
B61P-15-184	1-D5	
B61P-15-185	1-D5	
B61P-15-186	1-D5	
B61P-15-190	1-D5	
B61P-15-200	1-D5	
B61P-15-200A	1-D5	
B61P-15-200B	1-D5	
B64J-15-200A	1-D5	
B64J-15-200B	1-D5	
B64J-15-200C	1-D5	
0488-15-201	3-K4	
8791-15-201	3-K4	
E501-15-202	1-J4	
N326-15-203	1-E5	
D316-15-205	1-D5	
B61P-15-210A	1-E5	
B61P-15-210B	1-E5	
B61P-15-240	2-E7	
B61P-15-250	2-E7	
B61P-15-261A	1-C5	
E301-15-287	1-E5	
B61P-15-290B	1-E5	
B61P-15-350C	1-E5	
B61P-15-350D	1-E5	
B61P-15-355A	1-E5	
F201-15-388A	1-E5	
JF02-15-538	1-E5	
	1-F3	
	1-L4	
R230-15-538	1-H3	
B61P-15-547	1-E5	
SE01-15-612	1-G3	
F801-15-713	1-E5	
B61P-15-810A	1-G5	
B61P-15-907A	1-G5	
B63H-15-908	1-G5	
B63H-15-909	1-G5	
BP01-15-930	1-G5	
B631-15-932	1-G5	
BP01-15-933	1-G5	
E564-15-934	1-G5	
BP01-15-940	1-G5	
E564-15-942	1-G5	

BP01-15-951	1-G5	R502-17-306A	1-E6	M501-17-655	1-I6	B61P-18-180B	1-C7	BU01-19-332A	1-M7	BV01-19-540A	1-N8	0338-19-773	1-G8
FE38-15-966	1-N6	M510-17-308	1-H6	W501-17-724	1-J6	B61P-18-190B	1-C7	0338-19-336	1-F9	BV04-19-560	1-N8	BU55-19-774	1-G8
		M501-17-309	1-H6	V501-17-725	1-J6	B61P-18-190C	1-C7	0338-19-337	1-F9	BV04-19-565	1-N8	BU55-19-775	1-G8
**********		M509-17-310A	1-H6	W501-17-732B	1-J6	B61P-18-2F0B	2-E15	0338-19-338	1-F9	BV04-19-566	1-N8	0338-19-777	1-G8
* *		M501-17-313	1-H6			B61P-18-230	2-E15	0338-19-341	1-N7	BU02-19-567	1-C9	0338-19-778	1-G8
* 16-000 *		4077-17-314A	1-H6	**********		B61P-18-230A	2-E15	0338-19-360B	1-L8	BV01-19-570A	1-C9	1758-19-781	1-G8
* *		4077-17-315A	1-H6	* *		B61P-18-251	2-G15	0338-19-361B	1-N7	BV04-19-581	1-F9	0338-19-782	1-G8
**********		M504-17-316	1-K6	* 18-000 *		B61R-18-266A	1-C7	BU17-19-363	1-N7	0338-19-590	1-F9	BU55-19-785	1-G8
		R502-17-316	1-H6	* *		B61P-18-300D	1-D7	BU20-19-368	1-N7	0338-19-591	1-F9	BU55-19-786	1-G8
0603-16-102B	1-C6	4077-17-316	1-H6	**********		B61P-18-300E	1-D7	BU06-19-381	1-N7	0338-19-593	1-F9	BU55-19-787	1-H8
FE86-16-214	1-C6	8086-17-326	1-D6			B64J-18-300A	1-D7	BV03-19-381	1-N7	0338-19-594	1-F9	FT21-19-788	1-H8
B622-16-220	1-C6	0305-17-327	1-I6	F8B5-18-T41	2-E15	B64J-18-300B	1-D7	BU10-19-384	1-N7	0338-19-595	1-F9	BU17-19-789	1-H8
FE50-16-225A	1-C6	0305-17-328	1-I6	B3C7-18-W05	1-E7	B61P-18-360A	1-C7	BU55-19-384	1-N7	0338-19-596	1-G9	FT27-19-791A	1-H8
1416-16-232A	1-C6	M519-17-330	1-G6	B366-18-W10	1-E7	F201-18-363	1-C7	FT03-19-385	1-N7	0338-19-598	1-C9	FT37-19-792	1-H8
B622-16-410	1-C6	M507-17-335	1-D6	B61P-18-W10	1-E7		1-H5	0842-19-385	1-N7	BT08-19-600	1-G9	0338-19-793A	1-H8
B622-16-460A	1-C6		1-M7	RF71-18-W20	1-E7	B6S7-18-381B	1-C7	0338-19-386A	1-N7	0338-19-603	1-G9	0338-19-795B	1-H8
B630-16-460	1-C6	M507-17-335A	1-D6	B61P-18-W25	1-D7	B61R-18-400A	1-G7	0338-19-388A	1-N7	0338-19-604	1-G9	0338-19-797	1-H8
B622-16-510	1-C6		1-M7	B64J-18-W25	1-D7	B61P-18-410	1-C7	0338-19-389	1-N7	0338-19-606	1-G9	0338-19-798	1-H8
B622-16-520	1-C6	M503-17-341	1-I6	RF71-18-W26	1-E7	B660-18-411C	1-C7	BU06-19-391	1-N7	0338-19-607	1-G9	BV01-19-8A4	1-H8
		1281-17-341	1-F9	F811-18-W27	1-E7	B61P-18-501	2-E15	1758-19-392A	1-N7	0338-19-609	1-G9	BV01-19-8B1	1-H8
**********													
* *		0114-17-351	1-K6	PN16-18-W27	1-E7	B541-18-51X	2-E15	0842-19-394	1-C8	BU17-19-610	1-G9	0338-19-801	1-H8
* 17-000 *		M503-17-402	1-K6	B366-18-W35A	1-E7	B6AC-18-520	1-I7	1758-19-394A	1-C8	1758-19-613	1-G9	0338-19-802	1-H8
* *		M501-17-404B	1-K6	B61P-18-W35	1-E7	B61R-18-520B	1-I7	0338-19-395	1-C8	1758-19-614	1-G9	BU01-19-803A	1-H8
**********		M504-17-406A	1-K6	B61R-18-W35	1-E7	B61R-18-520C	1-I7	0338-19-397	1-F9	1758-19-615	1-G9	BU55-19-805	1-I8
		M503-17-411	1-K6	B61R-18-W35A	1-E7	B61P-18-524	1-I7	1758-19-397	1-C8	1758-19-616	1-G9	BU01-19-807	1-I8
M526-17-100	1-D6	0014-17-411	1-K6	B64J-18-W35	1-E7	B61P-18-526	1-I7	0338-19-398	1-C8	1758-19-617	1-G9	BU17-19-807	1-I8
H501-17-103	1-C6	0103-17-411	1-M6	B64J-18-W35A	1-E7	JE16-18-741	2-E15	BU67-19-431	1-I9	1758-19-618	1-G9	0338-19-808	1-I8
0810-17-121	1-D6	M507-17-412	1-K6	N336-18-W36	1-D7	B64J-18-780B	2-E15	0338-19-432	1-I9	0338-19-619	1-G9	BU55-19-810	1-I8
	1-I11	3648-17-415	1-K6	B3C7-18-W45	1-D7	B6S8-18-811	2-F15	BU36-19-440	1-I9	0338-19-621	1-C9	0338-19-814	1-I8
	1-N11	M501-17-416	1-K6	B366-18-W45	1-D7	N236-18-821	2-F15	BU55-19-440	1-I9	FT01-19-622	1-C9	BU01-19-815	1-I8
8086-17-140A	1-H6	M504-17-416	1-K6	G608-18-W45	1-D7	N350-18-840	2-F15	BU55-19-444A	2-F15		1-G9	0338-19-816	1-I8
M516-17-201	1-E6	M505-17-416	1-K6	B61P-18-W50	1-D7	8574-18-840	2-F15	0338-19-446	2-G15	0338-19-623A	1-C9	0338-19-817	1-I8
M503-17-204	1-E6	M503-17-421	1-K6	B61P-18-W50A	1-D7	B61R-18-861A	2-F15	0338-19-449	1-I9	0338-19-624	1-C9	0338-19-818	1-I8
M501-17-205	1-E6	M507-17-422	1-K6	B64J-18-W50	1-D7	FE30-18-867A	1-C7	BU17-19-450	1-I9	0338-19-631	1-C9	0338-19-819	1-I8
M501-17-210	1-E6	M506-17-431A	1-K6	B64J-18-W50A	1-D7		2-F15	BU55-19-460	1-L8	0338-19-632	1-C9	BU55-19-821	2-G15
M505-17-221B	1-E6	M508-17-432	1-L6	B3C7-18-W51	1-D7	B65K-18-88Z	2-F15	BU55-19-470	1-L8	0338-19-633	1-C9	0338-19-822	1-C8
0317-17-225	1-E6	R502-17-435	1-L6	B366-18-W51	1-D7	B61P-18-881A	2-F15	0338-19-475	1-L8	0338-19-634	1-C9		2-G15
M513-17-231	1-E6	BU55-17-441	1-M7	B675-18-W59	1-D7	B61P-18-881B	2-F15	BV01-19-476	1-L8	0338-19-635	1-C9	BU55-19-823	1-C8
M502-17-240C	1-E6	1472-17-441A	1-D6	B366-18-W60	1-D7	B64J-18-881	2-F15	0338-19-476	1-L8	0338-19-636	1-C9	BU55-19-825	1-C8
M502-17-240D	1-E6	BU55-17-442	1-M7	B61P-18-W60	1-D7	B61P-18-882	2-F15	BV01-19-480	1-L8	0338-19-639	1-C9	0338-19-825	1-C8
M501-17-241B	1-E6	1669-17-442B	1-D6	B61R-18-W60	1-D7	B61P-18-883	2-F15	0338-19-480	1-L8	0338-19-641	1-C9	0338-19-826	1-C8
M501-17-241C	1-E6	1011-17-443	1-D6	B64J-18-W60	1-D7	B61P-18-884	2-F15	0338-19-486	1-L8	0338-19-642	1-C9	0338-19-827	1-D8
F401-17-242A	1-E6		1-M7	B61P-18-W70	1-E7	B61P-18-885	2-F15	0338-19-487	1-L8	0338-19-643	1-D9	0338-19-828	1-D8
F401-17-243A	1-E6	M516-17-450	1-L6	B64J-18-W70	1-E7	B6S8-18-911	1-K4	0338-19-488	1-L8	0338-19-644	1-D9	0338-19-829	1-D8
M515-17-251	1-F6	M508-17-461	1-L6	B64J-18-W70A	1-E7	B630-18-911	1-K4	BU17-19-498	1-L8	0338-19-645	1-D9	0338-19-831	1-D8
M515-17-251A	1-F6	0398-17-462A	1-L6	B3C7-18-W77	1-E7			0338-19-498	1-L8	0338-19-646	1-D9	0338-19-832	1-D8
M505-17-260A	1-F6	R501-17-47X	1-L6	FE2H-18-W77	1-E7	**********		BU55-19-499	1-L8	0338-19-647	1-D9	0338-19-833	1-D8
M505-17-260B	1-F6	M510-17-470C	1-L6	N337-18-W80	1-F7	* *		FT01-19-499	1-L8	0338-19-648	1-D9	0338-19-835B	1-D8
M505-17-260C	1-F6	M501-17-474	1-L6	B61R-18-X00	1-G7	* 19-000 *		BU55-19-5J0	1-L8	BU55-19-650	1-H9	0338-19-836A	1-D8
M502-17-261	1-F6	0303-17-474	1-L6	F210-18-X01	1-G7	* *		BV01-19-5K0	1-F9	0338-19-655	1-H9	0338-19-837	1-D8
M503-17-262	1-F6	M501-17-475	1-L6	E356-18-X05	1-G7	**********		BU17-19-500	1-M8	BU55-19-660	1-H9	BU27-19-838	1-L7
M503-17-262A	1-F6	M502-17-476A	1-L6	E356-18-X10	1-H7			BU17-19-500A	1-M8	BU55-19-661	1-H9	1758-19-838	2-G15
M503-17-262B	1-F6	M514-17-480A	1-L6	E356-18-X30	1-G7	BU55-19-020	1-J7	1758-19-503	1-M8	0338-19-663	1-H9	1758-19-838A	2-G15
F401-17-264A	1-F6	M505-17-482	1-L6	B630-18-X45	1-G7	FU60-19-025	1-J7	3959-19-503	1-M8	0338-19-664	1-H9	BU55-19-870	1-D8
G401-17-264	1-F6	M504-17-490A	1-M6	B6S8-18-X60	1-G7	BU55-19-031	1-I9	1758-19-504	1-M8	BU55-19-665	1-H9	BU17-19-880B	1-D8
G501-17-265A	1-F6	0183-17-491	1-M6	B61R-18-X65	1-G7	FT31-19-063	1-J7	3959-19-504	1-M8	BU55-19-666	1-H9	BU55-19-890	1-D8
M502-17-265A	1-F6	M501-17-501	1-M6	B630-18-X66	1-H7	FT31-19-064	1-J7	BV02-19-505	1-M8	0338-19-66	1-H9	0338-19-904A	1-K7
M502-17-265B	1-F6	M524-17-510A	1-M6	B660-18-X66	1-H7	FU51-19-065	1-J7	1758-19-505	1-M8	BU55-19-670	1-H9	BU55-19-910A	1-K7
M502-17-265C	1-F6	M524-17-510B	1-M6	B61R-18-X70	1-H7	BUY2-19-090A	1-J7	3959-19-505	1-M8	0338-19-676	1-H9	BU17-19-917	1-K7
M504-17-265A	1-F6	M515-17-520 00	1-M6	E356-18-X80	1-G7	BU55-19-100	1-J7	BV02-19-506	1-M8	BUY2-19-7A0	1-C8	BU55-19-920C	1-K7
M516-17-271	1-F6	M517-17-520	1-M6	E356-18-X81	1-G7	BU55-19-211	1-J7	3959-19-506	1-M8	BU17-19-701	1-I9	BU55-19-930C	1-K7
M516-17-271A	1-G6	0884-17-530	1-D6	B630-18-X90	1-G7	BU01-19-215	1-J7	BV02-19-507	1-M8	0338-19-701A	1-I9	BU55-19-933A	1-K7
0259-17-274A	1-G6	M509-17-540	1-D6	E356-18-X92	1-G7	BU01-19-216	1-J7	3959-19-507	1-	0338-19-702A	1-I9	BU55-19-934A	1-K7
8540-17-275A	1-G6	M501-17-543A	1-D6	E356-18-X95	1-G7	BU55-19-217	1-J7	BV02-19-508		BU17-19-703	1-I9	BU55-19-970A	1-L7
0259-17-276	1-G6	M504-17-552	1-M6	B366-18-1A5	2-E15	BU55-19-220	1-J7	3959-19-508		0338-19-703	1-I9	BU29-19-980	1-L7
0259-17-277	1-G6	M517-17-611	1-I6	B61P-18-1A5A	1-N6	BU55-19-220A	1-J7	BV01-19-509		BU17-19-704	1-I9	BU55-19-980A	1-D8
0259-17-278	1-G6	M505-17-620	1-I6	B61P-18-10XC	1-N6	BU55-19-223	1-K7	0338-19-509	1	0338-19-704	1-I9	BU29-19-985	1-L7
0259-17-279	1-G6	M505-17-621	1-I6	B61P-18-10XD	1-N6	0338-19-223A	1-K7	3959-19-509	1-M8	0338-19-706	1-I9	BV01-19-986	1-D8
M509-17-281A	1-G6	8601-17-629	1-I6	BP01-18-110	1-N6	BU55-19-240	1-K7	BV01-19-510	1-N8	0338-19-731	1-I9		
4069-17-283A	1-G6	0884-17-632B	1-I6	BP02-18-110	1-N6	BU55-19-240A	1-K7	BV01-19-510A	1-N8	BU17-19-732	1-J9	**********	
4069-17-284E	1-G6	0884-17-633B	1-I6	BP03-18-110	1-N6	0338-19-255	1-K7	1758-19-511	1-N8	0338-19-733C	1-J9	* *	
M502-17-295C	1-E6	0884-17-634B	1-I6	BP04-18-110	1-N6	BU01-19-256	1-M7	1758-19-511A	1-N8	0338-19-734A	1-J9	* 20-000 *	
M502-17-297A	1-G6	0884-17-635B	1-I6	BP05-18-110	1-N6	BU01-19-257	1-M7	BV04-19-530	1-N8	0338-19-735	1-C8	* *	
M502-17-298A	1-G6	M506-17-640	2-E15	BP06-18-110	1-N6	0338-19-258	1-K7	BV04-19-531	1-N8	0338-19-737	1-C8	**********	
M502-17-299A	1-H6	M506-17-640A	2-E15	B61P-18-140B	1-N6		1-M7	BV01-19-533	1-N8	0338-19-739	1-C8		
M528-17-301	1-G6	8118-17-640B	2-E15	B61P-18-140C	1-N6	BV11-19-3C4	1-M7	BV04-19-533	1-F9	BU55-19-750	1-G8	B61P-20-211	1-J4
M512-17-302A	1-H6	M501-17-651	1-I6	E356-18-141	3-D3	BU55-19-3C8	1-M7		1-N8	BU55-19-760	1-G8	B61P-20-361	1-F4
M501-17-304B	1-H6	M501-17-652	1-I6	B61P-18-160B	1-N6	BU55-19-3F3	1-N7	BU03-19-534	1-N8	0338-19-768	1-G8	B61P-20-371	1-L4
M504-17-304	1-H6	M501-17-653	1-I6	B61P-18-160C	1-N6	BU55-19-310A	1-M7	0338-19-534	1-F9	BU01-19-771	1-G8	B61P-20-490	1-F4
0839-17-305B	1-H6	M501-17-654	1-I6	B61P-18-170B	1-N6	0338-19-331A	1-M7		1-N8	0338-19-772	1-G8	B61P-20-600	1-D15

B61P-20-660	1-K4
**********	
* *	
* 21-000 *	
* *	
**********	
BU55-21-182	1-E8
BU55-21-2J1	2-G15
BU55-21-2J3	2-G15
BU01-21-212	1-E8
BU55-21-250	1-E8
BU01-21-253	1-E8
BU01-21-255	1-E8
BU01-21-273	1-E8
BU01-21-274	1-E8
BU01-21-277	1-E8
BU01-21-292A	2-G15
BU55-21-293	1-E8
BU01-21-294	2-G15
BU01-21-295	2-G15
BU55-21-3A5	2-G15
BU55-21-3B1	1-E8
BU55-21-320	1-E8
BU01-21-322	1-E8
BV01-21-330	1-E8
BU01-21-386	1-F8
BU20-21-390	1-F8
BV02-21-391	1-F8
BU01-21-395	1-F8
BU67-21-465	1-J9
BU55-21-5A0	1-D9
BV01-21-5A2	1-D9
BV01-21-5A3	1-D9
BV01-21-5A4	1-D9
BV01-21-5A5	1-D9
BU55-21-5C0A	1-L7
BU55-21-510	1-D9
BU05-21-525	1-M8
BU05-21-528	1-M8
BV01-21-533	1-E9
BV01-21-534	1-D9
BV01-21-535	1-D9
BV01-21-536	1-D9
BU03-21-540	1-D9
BU03-21-560	1-D9
BU03-21-565	1-E9
BU03-21-567	1-E9
BU01-21-631	1-E9
BU01-21-632	1-E9
BU01-21-633	1-E9
BU01-21-634	1-E9
BU01-21-635	1-E9
BU01-21-636	1-E9
BU55-21-660	1-L7
BU01-21-665	1-L7
BU01-21-666	1-L7
BU17-21-666	1-L7
BU01-21-677	1-L7
BU55-21-678	1-K7
BU01-21-679	1-E9
BU35-21-681A	1-I8
BU35-21-682	1-I8
BU03-21-683A	1-I8
BU35-21-684	1-J8
BV01-21-821A	1-E9
**********	
* *	
* 22-000 *	
* *	
**********	
M090-22-510	1-D11
M091-22-510	1-D11
M090-22-520	1-D11
M090-22-530	1-D11
M090-22-540	1-D11
M090-22-550	1-D11
**********	
* *	
* 24-000 *	
* *	
**********	
8599-24-521	1-E7
8028-24-533	1-E7
0222-24-752A	1-H7
**********	
* *	
* 25-000 *	
* *	
**********	
M091-25-100	1-C11
N010-25-123	1-C11
1368-25-124	1-D11
1456-25-125	1-C11
F001-25-421A	1-I11
	1-N11
F002-25-421	1-I11
	1-N11
M090-25-500	1-D11
M091-25-500	1-D11
**********	
* *	
* 26-000 *	
* *	
**********	
0730-26-060	1-I11
	1-N11
B455-26-071	1-I13
NA01-26-130A	1-E11
NA01-26-130B	1-E11
NA23-26-130	1-E11
NA23-26-130A	1-E11
NA01-26-140A	1-E11
NA01-26-140B	1-E11
NA23-26-140	1-E11
NA23-26-140A	1-E11
0603-26-161	1-D14
NA01-26-251A	1-E11
NA01-26-261A	1-E11
NA10-26-28X	1-G11
NA10-26-29X	1-G11
NAY0-26-43Z	1-G11
NAY1-26-44Z	1-H11
BWYH-26-45Z	1-H11
NA01-26-61X	1-G11
BWOH-26-668	1-G11
BWOH-26-669	1-G11
BWOH-26-680	1-G11
BWOH-26-683	1-G11
BWOH-26-691	1-H11
BWOH-26-700	1-G11
NA01-26-71X	1-G11
BWOH-26-731	1-G11
BWOH-26-733	1-G11
BWOH-26-800	1-G11
BWOH-26-810	1-G11
BWOH-26-812	1-H11
BWOH-26-816	1-H11
GA2E-26-J16	1-H11
BWOH-26-851	1-H11
BWOH-26-86?	1-H11
NA01-26-98?A	1-H11
NA01-26-99?A	1-H11
BWOH-26-996A	1-H11
**********	
* *	
* 27-000 *	
* *	
**********	
3919-27-012	1-I11
	1-N11
T020-27-100K	1-I11
T020-27-100L	1-I11
T025-27-100J	1-N11
T025-27-100L	1-N11
T020-27-110B	1-I11
	1-N11
T020-27-110C	1-I11
	1-N11
T002-27-120B	1-I11
	1-N11
3919-27-130	1-I11
	1-N11
T020-27-150D	1-I11
	1-N11
T020-27-150E	1-C12
	1-J11
T020-27-158A	1-C12
	1-J11
T020-27-159A	1-C12
	1-J11
T020-27-165	1-I11
	1-N11
T020-27-171	1-C12
	1-J11
T016-27-200B	1-C12
T016-27-200C	1-C12
0755-27-210	1-I11
	1-N11
3919-27-220	1-I11
	1-N11
T005-27-231	1-J11
3919-27-235	1-C12
	1-J11
3919-27-236	1-C12
	1-J11
T020-27-238	1-C12
	1-J11
F035-27-251	1-J11
F001-27-252	1-J11
F001-27-253	1-J11
F001-27-254	1-J11
T020-27-255	1-J11
T020-27-255A	1-J11
F001-27-261A	1-J11
0114-27-262	1-K11
T005-27-270B	1-K11
T005-27-270C	1-K11
T015-27-270	1-C12
T015-27-270A	1-C12
T015-27-280	1-C12
T015-27-280A	1-C12
0180-27-301A	1-C12
	1-K11
0290-27-302	1-C12
	1-K11
0249-27-350	1-C12
	1-K11
T006-27-401	1-D12
	1-L11
0259-27-401	1-D12
	1-K11
T006-27-402	1-D12
	1-L11
0259-27-402	1-D12
	1-K11
T006-27-403	1-D12
	1-L11
0259-27-403	1-D12
	1-K11
T006-27-404	1-D12
	1-L11
0259-27-404	1-D12
	1-K11
T006-27-405	1-D12
	1-L11
0259-27-405	1-D12
	1-K11
T006-27-406	1-D12
	1-L11
0259-27-406	1-D12
	1-K11
T006-27-407	1-D12
	1-L11
0259-27-407	1-D12
	1-K11
T006-27-408	1-D12
	1-L11
0259-27-408	1-D12
	1-K11
T006-27-409	1-E12
	1-L11
0259-27-409	1-D12
	1-K11
T020-27-410	1-E12
	1-L11
T021-27-410	1-E12
	1-L11
T022-27-410	1-E12
	1-L11
T023-27-410	1-E12
	1-L11
T024-27-410	1-E12
	1-L11
T025-27-410	1-E12
	1-L11
T026-27-410	1-E12
	1-L11
T027-27-410	1-E12
	1-M11
T028-27-410	1-E12
	1-M11
T006-27-411	1-E12
	1-L11
0259-27-411	1-D12
	1-K11
T006-27-412	1-E12
	1-L11
0259-27-412	1-D12
	1-K11
T006-27-413	1-E12
	1-L11
0259-27-413	1-D12
	1-K11
T006-27-414	1-E12
	1-L11
0259-27-414	1-D12
	1-K11
T006-27-415	1-E12
	1-L11
0259-27-415	1-D12
	1-L11
TA01-27-431	1-E12
	1-M11
T001-27-431	1-E12
	1-M11
T020-27-600F	1-E12
	1-M11
T020-27-600G	1-E12
	1-M11
G0A0-27-604A	1-E12
	1-M11
M0A1-27-609A	1-F12
	1-M11
T025-27-609	1-F12
	1-M11
**********	
* *	
* 28-000 *	
* *	
**********	
NA01-28-011B	1-H
NA01-28-011C	1-H
NA03-28-011	1-H12
NA03-28-011A	1-H12
G030-28-013A	1-G12
	1-L13
B037-28-091	1-J12
	1-L13
FB01-28-091A	1-L13
LA01-28-091	1-L13
NA01-28-092	1-J12
NA01-28-111	1-G12
	1-L13
NA01-28-113	1-J12
NA01-28-151A	1-I12
FB01-28-155	1-I12
FB01-28-156	1-I12
NA01-28-2A0B	1-J12
NA01-28-300	1-J12
H001-28-333	1-G12
	1-L13
NA01-28-350	1-J12
NA01-28-380A	1-G12
	1-L13
NA01-28-380B	1-G12
	1-L13
NA01-28-4A0	1-J12
	1-L13
NA01-28-4B0	1-J12
NA01-28-4D0	1-J12
H266-28-448	1-L13
NA01-28-460	1-J12
NA01-28-473	1-J12
	1-L13
NA01-28-700	1-H12
NA01-28-8C0B	1-J12
NA23-28-800	1-J12
N007-28-800C	1-J12
N007-28-800D	1-J12
N007-28-845A	1-K12
NA01-28-880B	1-K12
GJ21-28-89X	2-F7
NA01-28-890	1-F12
	1-M11
**********	
* *	
* 32-000 *	
* *	
**********	
NA01-32-AZ1B	1-M12
NA01-32-AZ2A	1-M12
G238-32-C24	1-G13
NA01-32-019	1-L12
NA01-32-049	1-L12
NA01-32-090B	1-M12
NA01-32-090C	1-M12
NA02-32-090B	1-M12
NA02-32-090C	1-M12
B455-32-099	1-M12
NA01-32-100B	1-M12
NA02-32-11X	1-D13
NA01-32-110	1-N12
NA02-32-110	1-D13
GJ21-32-111	1-N12
NA02-32-112	1-D13
NA02-32-114	1-D13
G030-32-115	1-N12
NA02-32-115	1-D13
NA01-32-118	1-N12
NA01-32-119	1-N12
NA02-32-119	1-D13
NA01-32-12X	1-N12
NA01-32-120	1-N12
NA02-32-120	1-D13
NA02-32-121	1-D13
NA01-32-122	1-N12
NA01-32-123	1-N12
NA02-32-123	1-D13
NA01-32-124	1-N12
NA02-32-124	1-D13
NA02-32-125	1-D13
G030-32-126	1-N12
NA02-32-126	1-E13
HE01-32-129	1-N12
NA02-32-129	1-D13
NA02-32-131	1-D13
BC51-32-133	1-N12
NA02-32-133	1-E13
NA01-32-134	1-C13
NA02-32-134	1-E13
NA02-32-135	1-D13
G030-32-136	1-C13
S030-32-137	1-C13
S083-32-137	1-N12
HA14-32-146	1-C13
G030-32-147	1-C13
NA02-32-147	1-E13
D002-32-148	1-E13
NA02-32-151	1-E13
NA02-32-152	1-E13
NA02-32-153	1-E13
NA02-32-154	1-E13
NA02-32-180	1-E13
HE01-32-201	1-C13
HE09-32-201	1-C13
NA01-32-217	1-M12
B456-32-230	1-G13
NA01-32-240	1-C13
NA02-32-240	1-E13
B455-32-279	1-C13
	1-E13
8AN1-32-280	1-C13
	1-E13
NA02-32-380	1-E13
NA02-32-410A	1-G13
NA02-32-452	1-F13
NA02-32-481	1-F13
NA02-32-482	1-F13
NA02-32-490B	1-G13
NA02-32-490C	1-G13
N002-32-5M0	1-G13
N002-32-600B	1-G13
NA02-32-609	1-G13
N002-32-609	1-G13
N002-32-610	1-G13
N002-32-613	1-G13
B456-32-615	1-G13
B456-32-616	1-G13
NA02-32-680	1-H13
NA02-32-682	1-H13
NA02-32-684B	1-H13
NA02-32-690A	1-H13
NA02-32-691	1-G13
NA01-32-750	1-L12
NA01-32-850	1-M12
NA01-32-850A	1-M12
G030-32-961	1-C13
	1-F13
NA01-32-980B	1-L12
NA01-32-980C	1-L12
NA02-32-980B	1-L12
NA02-32-980C	1-L12
**********	
* *	
* 33-000 *	
* *	
**********	
NA01-33-020A	1-I13
NA23-33-021A	1-I13
NA01-33-030A	1-I13
NA23-33-031A	1-I13
NA01-33-04X	1-I13
NA23-33-04XA	1-I13
NA01-33-042A	1-E11
	1-I13
NA01-33-042B	1-E11
	1-I13
B455-33-047A	1-E11
B455-33-047B	1-E11
H260-33-048	1-E11
B455-33-061	1-E11
B455-33-062	1-E11
	1-I13
G304-33-065	1-E11
NAY0-33-23ZA	1-J13
N0Y1-33-23Z	1-J13
NAY1-33-24Z	1-J13
NA01-33-25X	1-I13
NAY1-33-25Z	1-K13
NA01-33-261	1-I13
NA23-33-261	1-I13
NA01-33-271	1-I13
NA23-33-271	1-I13
NA01-33-281	1-J13
NA01-33-291	1-J13
B603-33-471	1-F11
NA23-33-471B	1-I13
NA01-33-61X	1-J13
B001-33-691	1-J13
0259-33-691	1-F15
0259-33-693	1-F15
	1-H11
	1-J13
	2-F5
NA01-33-71X	1-J13
NA10-33-980A	1-J13
NA10-33-980C	1-J13
N001-33-980	1-J13
NA10-33-990A	1-J13
NA10-33-990C	1-J13
N001-33-990	1-J13
**********	
* *	
* 34-000 *	
* *	
**********	
NA01-34-011A	1-N13
NA03-34-011	1-N13
NA01-34-019	1-L13
NA01-34-09XA	1-C14
FB01-34-091	1-C14
	1-K12
NA01-34-112	1-L13
NA01-34-117A	1-L13
NA01-34-151A	1-C14
FB01-34-155	1-C14
NA01-34-156A	1-C14
NA01-34-170	1-C14
	1-K12
NA01-34-200A	1-L13
NA23-34-200	1-M13
8871-34-222	1-C15
	1-K12
NA23-34-250	1-M13
NA01-34-300A	1-M13
NA01-34-350A	1-M13
NA01-34-460A	1-M13
NA01-34-480A	1-M13
NA01-34-490	1-M13
NA01-34-548	1-M13
NA01-34-550	1-M13
NA01-34-700	1-N13
NA23-34-700B	1-N13
NA01-34-800A	1-C14
**********	
* *	
* 37-000 *	
* *	
**********	
B002-37-160	1-D14
B455-37-190	1-D14
M011-37-190	1-D14
NA01-37-190	1-D14
B001-37-192	1-D14
M011-37-192	1-D14
8BN1-37-600	1-F14
8BN?-37-600	1-F14
8BN4-37-600	1-F14
B455-37-790A	1-F14
GJ21-37-810	1-F14

**********	
* 39-000 *	
**********	
NA01-39-020	1-C15
NA01-39-030	1-C15
NA01-39-040	1-C15
NA01-39-041	1-C15
S251-39-041	1-C15
NA01-39-710	1-C15
NA03-39-710	1-C15
NA01-39-721	1-C15
NA01-39-722	1-C15
NA01-39-723	1-C15
NA01-39-724	1-C15
NA01-39-730A	1-C15
**********	
* 40-000 *	
**********	
RF03-40-061	1-D15
B690-40-080A	1-D15
B6B4-40-100B	1-D15
B6B4-40-100C	1-E15
B6B4-40-100D	1-E15
B6B4-40-100E	1-E15
B690-40-100F	1-E15
B690-40-100G	1-E15
B690-40-100H	1-E15
B690-40-100J	1-E15
B322-40-305	1-D15
B690-40-305	1-D15
JE10-40-355	1-D15
2158-40-355	1-D15
B6A5-40-356	1-D15
B690-40-356	1-D15
B690-40-450	1-D15
B690-40-500A	1-D15
B690-40-690	1-D15
**********	
* 41-000 *	
**********	
0727-41-023	1-M15
NA01-41-030B	1-M15
NA01-41-030C	1-M15
0727-41-061	1-M15
NA01-41-070A	1-M15
BR70-41-081	1-M15
B092-41-081	1-D16
	1-N15
B104-41-114	1-H15
NA01-41-130A	1-H15
0824-41-131	1-M15
NA01-41-140B	1-M15
0750-41-308	2-C3
H266-41-341	1-F15
NA01-41-360A	1-G15
NA01-41-370A	1-G15
NA02-41-370	1-G15
GK67-41-380A	1-G15
NA01-41-390	1-G15
NA01-41-400A	1-F15
NA01-41-413	1-D16
	1-M15
B312-41-470	1-F15
NA01-41-610A	1-H15
NA02-41-610A	1-H15
NA01-41-619	1-H15
B092-41-644	1-H15
0259-41-644	1-H15
NA01-41-660A	1-H15
B092-41-661	2-N15
1456-41-682	1-M15
0111-41-692	3-G3
NA01-41-920	1-F15
**********	
* 42-000 *	
**********	
BC88-42-045	1-I15
B596-42-045	1-I15
0866-42-046	1-I15
NA01-42-110A	1-I15
NA03-42-110	1-I15
NA01-42-210A	1-I15
NA01-42-230	1-I15
NA01-42-233	1-J15
NA01-42-241B	1-I15
NA01-42-249B	1-J15
NA02-42-250	1-J15
BF67-42-252	1-J15
H260-42-270	1-J15
NA01-42-291A	1-J15
0866-42-366B	1-I15
NA01-42-410A	1-L15
H043-42-431D	1-L15
B048-42-453	3-G3
NA01-42-561	1-J15
NA03-42-561	1-J15
NA03-42-562	1-J15
NA03-42-563	1-J15
NA03-42-564	1-J15
NA01-42-761	1-K15
NA01-42-762	1-K15
NA01-42-77X	1-J15
NA01-42-771	1-K15
NA01-42-772	1-K15
GN51-42-795	1-K15
H260-42-910B	1-J15
NA03-42-910	1-K15
FB01-42-980	1-J15
FB01-42-985	1-K15
**********	
* 43-000 *	
**********	
B092-43-028	1-M15
0268-43-028	1-D16
B001-43-029	1-D16
	1-M15
G030-43-029	1-M15
NA01-43-030	1-N15
NA03-43-030	1-D16
NA01-43-041	1-D16
	1-N15
0866-43-062	1-D16
	1-N15
BR70-43-065	1-N15
NA01-43-070A	1-D16
	1-N15
NA02-43-070A	1-D16
	1-N15
NA03-43-090	1-D16
HF23-43-099	1-D16
1524-43-140	1-D16
	1-N15
1524-43-141	1-D16
	1-N15
D001-43-152	1-E16
	1-N15
	2-G3
FB02-43-152A	2-G3
B180-43-302	1-N15
NA23-43-310B	1-L16
NA23-43-330B	1-L16
NA01-43-360A	1-I16
NA23-43-360A	1-I16
NA01-43-370	1-I16
NA23-43-370A	1-I16
NAY3-43-402	1-G16
NA01-43-400D	1-G16
NAY3-43-412	1-G16
H001-43-443	1-F16
NA01-43-481	1-F16
W023-43-504	1-F16
	1-L16
W023-43-505	1-F16
NA23-43-515	1-G16
GA97-43-540	1-F16
3597-43-542	1-F16
NA23-43-552	1-F16
G309-43-607	1-I16
BW0A-43-612	1-G16
BW0A-43-622	1-G16
NA23-43-625	1-G16
BW0A-43-632	1-G16
NA23-43-632	1-G16
W023-43-635	1-G15
	1-I16
	2-C3
0136-43-635	1-G15
NA01-43-640	1-F16
NA01-43-670A	1-I16
B001-43-694A	1-I16
	1-L16
NA23-43-7A0B	1-L16
NA23-43-7A2	1-L16
NA23-43-7A3	1-L16
NA23-43-7A4	1-L16
NA23-43-7A6	1-L16
NA23-43-7A7	1-L16
NA23-43-7A8	1-L16
NA23-43-70XB	1-L16
NA23-43-70XD	1-L16
NA23-43-705	1-M16
NA23-43-71YB	1-M16
NA23-43-72YB	1-M16
NA23-43-73XB	1-L16
NA23-43-73XD	1-M16
NA01-43-750	1-F16
NA02-43-750A	1-F16
NA23-43-780D	1-M16
NA23-43-780E	1-M16
NA01-43-800	1-F16
NA23-43-800	1-F16
NA01-43-810A	1-I16
NA01-43-820A	1-J16
NA01-43-830A	1-G16
NA23-43-830A	1-G16
NA23-43-830B	1-G16
NA23-43-9Z0A	1-I16
NA01-43-900	1-I16
NA17-43-902	1-I16
NA01-43-980	1-I16
NA01-43-990	1-I16
**********	
* 44-000 *	
**********	
NA01-44-010	2-C3
N001-44-010A	2-C3
G030-44-031	2-C3
NA01-44-032	2-C3
FB01-44-033	2-C3
FB01-44-034	2-C3
N001-44-034A	2-C3
N001-44-034B	2-C3
FB01-44-061B	2-C3
FB01-44-062A	2-C3
FC01-44-063	2-C3
FC01-44-063A	2-C3
N001-44-063	2-C3
NA01-44-150B	2-C3
0866-44-187A	2-D3
0866-44-189	2-D3
NA01-44-410B	2-D3
NA01-44-420B	2-D3
1011-44-439	2-D3
**********	
* 45-000 *	
**********	
NA01-45-111	2-E3
NA01-45-112A	2-E3
NA20-45-230C	1-J16
NA20-45-240C	1-J16
NA01-45-280B	1-J16
NA20-45-280B	1-J16
NA01-45-320B	1-J16
NA01-45-320C	1-J16
NA20-45-320C	1-J16
NA01-45-360B	1-J16
NA20-45-360D	1-J16
NA20-45-510D	1-G15
NA01-45-611	2-E3
NA01-45-711A	2-E3
H266-45-910A	2-E3
NA20-45-910A	1-J16
NA01-45-911	1-J16
H260-45-912	2-E3
H266-45-912	2-E3
NA01-45-912	2-E3
NA01-45-913	2-E3
FB01-45-914	2-E3
NA01-45-914	2-E3
B001-45-915	1-J16
NA01-45-915A	1-J16
NA20-45-915	1-I16
B001-45-916	1-J16
H115-45-916A	2-M6
B210-45-917	2-F3
B001-45-919B	1-J16
G030-45-919	1-G15
	1-K16
H266-45-920A	2-E3
NA20-45-920A	1-K16
NA20-45-920B	1-K16
H260-45-930	2-F3
H266-45-930A	2-F3
H002-45-961	3-D3
**********	
* 46-000 *	
**********	
NA03-46-AT0A	2-G3
GN52-46-AT1B	2-G3
N002-46-AT3	2-M9
H338-46-AT8	2-G3
H338-46-AT9	2-G3
H338-46-027	2-G3
NA03-46-030B	2-G3
NA03-46-040B	2-G3
FB02-46-058C	2-G3
1015-46-085	1-L16
	1-N15
NA03-46-088	2-G3
NA03-46-100E	2-G3
NA03-46-100F	2-G3
NA03-46-300B	2-G3
NA16-46-302	2-G3
NA03-46-570	2-H3
0223-46-683	1-N15
1015-46-684A	2-H3
**********	
* 49-000 *	
**********	
8173-49-114	1-J13
8239-49-114	1-J13
H005-49-460	1-F15
H005-49-470	1-F15
B093-49-580	1-F15
B252-49-620A	1-G16
GA02-49-638	1-F16
D001-49-650A	1-F16
B216-49-680A	1-F16
0305-49-686B	1-F15
	1-G16
**********	
* 50-000 *	
**********	
NA01-50-A20A	2-F5
NA23-50-A20	2-F5
LA01-50-H90	2-J9
NA01-50-0G8	2-I5
NA01-50-0G9	2-F5
NA01-50-0J1	2-F5
NA01-50-0J5	2-F5
NA01-50-0K0B	2-F5
NA01-50-0Z2	2-F5
NAY1-50-030	2-F5
B092-50-032	2-G5
GJ21-50-032	2-I5
BF67-50-033	2-F5
	2-I5
NA01-50-068	2-G5
NA01-50-070	2-F5
NA01-50-1AYB	2-G5
NA01-50-1B0	2-G5
NA01-50-1C0	2-G5
NA01-50-1E2	2-G5
KA01-50-1G2	2-F5
NA01-50-1ZY	2-G5
NA01-50-101A	2-G5
NA01-50-114	2-G5
FB01-50-132	2-F5
FB01-50-133	2-H5
FB01-50-133A	2-H5
FB01-50-133B	2-H5
FB01-50-133C	2-H5
NA01-50-133	2-J5
FB01-50-144	2-G5
NA01-50-160	2-G5
NA01-50-18X	2-G5
NA01-50-180A	2-F5
NA01-50-2A0A	2-G5
NA01-50-2C6	2-I5
NA01-50-2J0	2-I5
NA01-50-2S4	2-I5
NA01-50-2S5	2-I5
NAY1-50-220A	2-I5
BF82-50-233	2-H5
	2-I5
NA01-50-260	2-I5
NA01-50-28XC	2-I5
NA01-50-28YC	2-I5
NA01-50-280A	2-I5
NA01-50-290A	2-I5
NA01-50-6B1	2-K5
NA01-50-6B2	2-K5
NAY1-50-601	2-K5
NA01-50-741	2-N5
G043-50-742	2-K6
B481-50-744	2-M5
B481-50-75X	2-N5
NA01-50-751	2-N5
G043-50-753	2-K6
G030-50-786	2-K6
NA01-50-788	2-K5
NA01-50-790D	2-K5
NA01-50-792A	2-K5
NA01-50-794	2-K5
UB39-50-795	2-C6
B455-50-796	2-K5
NA01-50-797	2-K5
NA01-50-798	2-K5
B467-50-8C5	2-K6
G158-50-803	2-D6
	2-F6
H260-50-841	2-C15
NA01-50-850DDU	2-K6
NA01-50-850DHU	2-K6
NA01-50-850DSU	2-K6
NA01-50-850DUC	2-K6
NA01-50-850D3L	2-K6
NA01-50-850EDU	2-K6
NA01-50-850EHU	2-K6
NA01-50-850ESU	2-K6
NA01-50-850EUC	2-K6
NA01-50-850E3L	2-K6
NA01-50-850GDU	2-K6
NA01-50-850GHU	2-K6
NA01-50-850GHZ	2-K6
NA01-50-850GPZ	2-K6
NA01-50-850GSU	2-K6
NA01-50-850GUC	2-K6
NA01-50-850G3L	2-K6
NA01-50-852	2-L6
LA01-50-853	2-L6
B388-50-855	2-L6
GJ21-50-891	2-D14
NA01-50-894	2-D14
NA01-50-894A	2-D14
**********	
* 51-000 *	
**********	
H272-51-RC6	2-K5
NA01-51-SAX	2-M5
NA01-51-SA5	2-M5
NA01-51-SA7	2-M5
NA01-51-SA8	2-M5
NA01-51-SBX	2-M5
NA01-51-SC0B	2-N5
NA01-51-SC1A	2-N5
NA01-51-SC5B	2-N5
KA01-51-SC6	2-M5
NA01-51-SD0B	2-N5
NA01-51-SD1A	2-N5
NA01-51-SD5B	2-N5
KA01-51-SD6	2-N5
KA01-51-SD7	2-N5
NA01-51-SE1	2-M5
NA01-51-SE2	2-M5
NA01-51-SH1B	2-N5
NA01-51-SH2B	2-N5
NA01-51-SJ2	2-M5
NA01-51-SJ3	2-M5
NA01-51-SK2	2-M5
NA04-51-S02	2-N5
BS34-51-S25	2-M5
BS34-51-S25A	2-M5
B481-51-0E3	2-L5
8BN1-51-030	2-L5
NA02-51-031	2-L5
NA01-51-032	2-L5
NA01-51-033	2-L5
NA01-51-034	2-L5
NA01-51-037	2-L5
8BN1-51-040	2-L5
NA01-51-046	2-L5
NA01-51-06XA	2-D6
8BN1-51-060	2-D6
NA01-51-064	2-D6
NA01-51-069	2-D6
NA01-51-07XA	2-D6
8BN1-51-070	2-D6
NA01-51-1E6	2-F6
8BN1-51-120	2-D6
8BN1-51-130	2-D6
NA01-51-15XB	2-F6
8BN1-51-150	2-F6
N001-51-155A	2-F6
NA01-51-158	2-G6
NA01-51-159	2-F6
NA01-51-16XB	2-G6
8BN1-51-160	2-F6
N001-51-165A	2-F6
NA01-51-169	2-G6
NA01-51-170B	2-F6
G030-51-172	2-G6
NA01-51-173	2-G6
NA01-51-180B	2-G6
NA01-51-183	2-G6
8BF1-51-270	2-I6
FB67-51-272	2-I6
FB67-51-273	2-I6
FB67-51-276	2-I6
NA01-51-490B00	2-C9
H197-51-491A00	2-C9
NA01-51-5D3	2-E6
NA01-51-5D3A	2-E6
NA01-51-5EX	2-D6
NA01-51-5EXA	2-D6
NA01-51-5E2	2-E6
NA01-51-5FX	2-D6
NA01-51-5FXA	2-D6
NA01-51-5G0	2-G6
NA01-51-5H1B	2-G6
NA01-51-5H1C	2-G6
NA01-51-5H2A	2-G6
NA01-51-5J1B	2-G6
NA01-51-5J1C	2-G6
NA01-51-5J2A	2-G6
8BN1-51-550	2-H6
8BN1-51-560	2-H6
NA01-51-58XA	2-H6
NA01-51-580B	2-H6
BJ38-51-584	2-F6
NA01-51-592B	2-H6
NA01-51-599	2-H6
FB01-51-665	2-C6
NA01-51-669	2-C6
NA01-51-711	2-J6
NA04-51-711 14	2-J6
NA04-51-711 18	2-J6
NA01-51-721	2-J6
BB1H-51-731	2-J6
NA01-51-789	2-K5
B002-51-814	3-G3
UB39-51-815	3-I3
F044-51-912	2-I7
**********	
* 52-000 *	
**********	
NAY1-52-110	2-F7
NAY1-52-210	2-F7
NAY1-52-310A	2-M6
NAY1-52-310B	2-M6
NA01-52-410A	2-M6
NA01-52-420A	2-M6
B092-52-518	2-N6
NAY1-52-610	2-C7
NAY1-52-610A	2-C7
NAY1-52-610B	2-C7
NA01-52-710A	2-C7
NA01-52-720A	2-C7
NA01-52-791A	2-C7
NA01-52-792A	2-C7

**********	
* *	
* 53-000 *	
* *	
**********	
NA01-53-100F	2-E7
0187-53-134	2-F8
NA01-53-16XC	2-E7
NAY1-53-200B	2-F7
NAY1-53-200D	2-F7
NA01-53-210B	2-F7
NA01-53-210E	2-F7
NA01-53-31XE	2-F7
NA01-53-32XB	2-G7
NA01-53-330	2-F7
NA01-53-37Y	2-F7
NA01-53-37ZA	2-G7
NA01-53-380	2-G7
NA01-53-391	2-G7
NA01-53-482	2-C8
NA01-53-510D	2-I7
NA01-53-591	2-G7
NA01-53-600A	2-C8
NA01-53-602	2-D8
NA01-53-650	2-C8
NA01-53-670	2-C8
NA01-53-710B	2-C8
NA01-53-720	2-C8
NA01-53-725A	2-C8
NA01-53-740B	2-E8
NA01-53-740C	2-E8
B455-53-750C	2-C8
NA01-53-750	2-C8
NA01-53-760	2-C8
0305-53-781A	2-I7
NA01-53-810D	2-C8
NA01-53-810E	2-C8
NA01-53-810F	2-C8
NA01-53-819	2-C8
NA01-53-830C	2-E8
NA01-53-880	2-D8
NA01-53-880A	2-D8
NA01-53-900	2-C8
NA01-53-900B	2-D8
NA01-53-931	2-D8
NA01-53-960B	2-J7
NA01-53-980B	2-J7
**********	
* *	
* 54-000 *	
* *	
**********	
NA01-54-180	2-E7
NAY1-54-200B	2-G7
NAY1-54-200D	2-G7
NA01-54-210B	2-F7
NA01-54-210D	2-F7
NA01-54-210E	2-F7
NA01-54-210F	2-F7
0259-54-292A	1-I7
NA01-54-31XE	2-G7
NA01-54-32XC	2-H7
NA01-54-330	2-G7
NA01-54-36X	**2-F7**
NA01-54-37Y	**2-G7**
NA01-54-37ZA	2-G7
NA01-54-380	2-G7
NA01-54-380B	2-G7
NA01-54-391	2-G7
NA01-54-400G	2-I7
NA01-54-480	2-I7
NA01-54-482	2-D8
NA01-54-590	2-G7
NA01-54-610	2-E8
NA01-54-650	2-D8
NA01-54-660	2-D8
NA01-54-660B	2-D8
NA01-54-670	2-D8
NA01-54-725A	2-D8
NA01-54-740A	2-E8
NA01-54-750	2-D8
NA01-54-810D	2-D8
NA01-54-810E	2-D8
NA01-54-810F	2-D8
NA01-54-830C	2-E8
NA01-54-96XB	2-J7
NA01-54-971	2-J7
NA01-54-980B	2-J7
**********	
* *	
* 55-000 *	
* *	
**********	
NA01-55-182	2-E9
NA01-55-210A00	2-C9
NA01-55-210B00	2-C9
B481-55-225	2-I15
G030-55-225 00	2-C15
NA01-55-231	2-C16
FC02-55-235A	2-C16
LA02-55-235	2-C16
LA03-55-235A	2-C16
NA01-55-241A00	2-J9
1316-55-261	2-G9
8548-55-261	2-G9
NA01-55-280	2-M9
NA03-55-280A	2-H3
NA06-55-280	2-M9
NA01-55-4A1	2-G9
NA01-55-420B00	2-E9
NA02-55-420 00	2-E9
GJ21-55-428	2-C9
	2-E9
NA01-55-430C	2-G9
NA01-55-430D	2-G9
NA01-55-430E	2-G9
NA03-55-430B	2-G9
NA03-55-430C	2-G9
NA03-55-430D	2-G9
NA23-55-430	2-G9
NA23-55-430A	2-G9
NA23-55-430B	2-G9
NA25-55-430	2-G9
NA25-55-430A	2-G9
NA25-55-430B	2-G9
BR70-55-431	2-C9
B491-55-431	2-I9
NA01-55-431	2-H9
NA01-55-432	2-H9
NA01-55-437	2-H9
NA01-55-441C	2-H9
NA23-55-441	2-H9
NA01-55-442B	2-H9
NA01-55-442C	2-H9
NA03-55-442B	2-H9
NA03-55-442C	2-H9
NA23-55-442	2-H9
NA23-55-442A	2-H9
NA25-55-442	2-H9
NA25-55-442A	2-H9
NA01-55-446A	2-H9
NA01-55-446B	**2-H9**
NA01-55-461A	**2-H9**
NA03-55-461A	2-H9
N007-55-467	2-H9
NA01-55-471A	2-I9
NA01-55-471B	2-I9
NA01-55-481	2-I9
BR70-55-490	2-C9
NA01-55-491	2-I9
B455-55-561	2-J9
**********	
* *	
* 56-000 *	
* *	
**********	
NA01-56-03XA	1-I7
B095-56-032	1-I7
NA01-56-032A	1-I7
NA01-56-033A	1-I7
B001-56-051	2-F8
NA01-56-051	2-C7
	2-F8
1011-56-051	2-F8
B092-56-052	2-F8
8545-56-052	2-F8
8545-56-053	2-F8
FB01-56-056	2-F8
NA01-56-111C	2-G8
NA01-56-112	2-G8
NA01-56-131A	2-H7
B455-56-135	2-G8
LA01-56-135	2-F7
NA01-56-141C	2-H7
NA01-56-145	2-F11
	2-H7
	2-H8
	3-I3
B455-56-149	2-G8
B001-56-170C	1-F14
NA01-56-171A	2-G8
G030-56-176	1-K15
NA01-56-181A	2-F11
NA20-56-181A	3-I3
NA01-56-191A	2-F11
1219-56-211	1-F14
NA01-56-221B	2-E7
NA01-56-241B	2-G8
0118-56-241	2-F8
8477-56-241	2-F8
0118-56-242B	2-F8
	2-J11
NA01-56-260	1-K15
NA01-56-29XC	2-G8
NA01-56-290C	2-G8
NA01-56-294	2-G8
NA01-56-311	2-G8
NA01-56-311A	2-G8
NA01-56-321	2-G8
NA01-56-321A	2-G8
NA01-56-34XC	2-H7
NA01-56-34YC	2-H7
NA01-56-35X	2-I7
G211-56-355A	2-I7
B001-56-376	2-C15
NA01-56-39Y	2-J7
NA01-56-411	2-G8
NA01-56-451	2-G8
0208-56-615	2-F8
NA01-56-620A	2-M6
LA01-56-631	2-M6
NA01-56-650	2-M6
G030-56-693	2-M6
NA01-56-720C	2-M6
NA01-56-720D	2-M6
NA01-56-720D00	2-M6
H260-56-724	**2-I7**
NA01-56-760	**2-N6**
NA01-56-772	2-J7
NA01-56-78X	2-M6
B481-56-786	2-C7
FB01-56-787A	2-M6
NA01-56-787	2-M6
NA01-56-803	2-C7
NA01-56-805	2-C7
NA01-56-820A	2-C7
N007-56-820	2-C7
NA01-56-840	2-C7
NA01-56-850A	1-L15
N007-56-850A	1-L15
N007-56-880A	1-L15
B095-56-890A	1-L15
NA01-56-890A	1-L15
NA01-56-896	1-L15
NA01-56-951	2-C7
NA01-56-971	2-J7
**********	
* *	
* 57-000 *	
* *	
**********	
NA01-57-K00A00	2-F11
NA01-57-K00B00	2-F11
NA01-57-K10H	2-F11
NA01-57-K2XJ	2-F11
NA01-57-K2YJ	2-F11
NA01-57-K40D	2-F11
NA01-57-K45B	2-F11
NA01-57-K46B	2-F11
NA01-57-K47B	2-F11
NA01-57-K9ZB	2-F11
NA01-57-K91	3-K4
NA01-57-K92	3-K4
J001-57-041 40	2-I10
N005-57-042 40	2-I10
N005-57-043 40	2-I10
B455-57-05X	2-I10
J001-57-051 40	2-I10
NA01-57-100F00	2-I10
NA01-57-100G00	2-I10
NA02-57-100F00	2-I10
NA02-57-100G00	2-I10
NA23-57-100 88	2-I10
NA23-57-100A88	2-J10
NA24-57-100 88	2-I10
NA24-57-100A88	2-J10
NA01-57-150F00	2-J10
NA01-57-150G00	2-J10
NA02-57-150F00	2-J10
NA02-57-150G00	2-J10
NA23-57-150 88	2-J10
NA23-57-150A88	2-J10
NA24-57-150 88	2-J10
NA24-57-150A88	2-J10
NA01-57-620 00	2-E11
NA01-57-630C00	2-E11
NA01-57-630C88	2-E11
NA01-57-631B00	2-E11
NA01-57-680 00	2-E11
NA01-57-690A00	2-E11
NA01-57-690A88	2-E11
**********	
* *	
* 58-000 *	
* *	
**********	
NAY1-58-020	2-G11
NAY1-58-020A	2-G11
NA01-58-030A	2-G11
NA01-58-030B	2-G11
B092-58-201A	2-G11
FB01-58-210	2-G11
BA54-58-225	2-H11
B455-58-225	**2-G11**
S085-58-225	**2-H11**
GJ21-58-226	2-G11
B156-58-240	2-G11
H260-58-265C	2-J11
NA01-58-270A	2-J11
HG30-58-302A	2-J11
NA01-58-303 00	2-J11
NA01-58-310B	2-J11
G030-58-315	2-C5
	2-J11
NA01-58-330A00	2-J11
FB01-58-335	2-J11
B092-58-355	2-K11
B001-58-361A	2-L11
NA01-58-410C	2-K11
NA01-58-410D	2-K11
BR75-58-492	2-C5
FD01-58-492	2-C5
FD01-58-493	2-C5
LA02-58-493	2-C5
G211-58-495	2-K11
B235-58-502	2-H11
UB39-58-502A	2-H11
B092-58-505	2-H11
NA01-58-510	2-H11
NA01-58-560B	2-K11
NA01-58-560C	2-K11
NA02-58-560B	2-K11
NA02-58-560C	2-K11
B092-58-569	2-L11
B092-58-580 00	2-K11
B001-58-582A00	2-K11
B001-58-585	2-L11
NA01-58-603A	2-H11
NA01-58-603C	2-H11
NA01-58-604B	2-H11
NA01-58-651A	2-H11
NA01-58-661	2-I11
NA01-58-760D	2-I11
G031-58-762	2-I11
1011-58-772	2-I11
	2-N11
NA01-58-810D	2-N11
B157-58-815	2-N11
NA01-58-815	2-N11
NA01-58-821	2-N11
NA02-58-821	2-N11
NA01-58-861A	2-L11
NA02-58-861A	2-L11
B092-58-863A	2-L11
H272-58-911	2-I11
**********	
* *	
* 59-000 *	
* *	
**********	
NAY1-59-020	2-G11
NAY1-59-020A	2-G11
NAC1-59-030A	2-G11
NA01-59-030B	2-G11
FB01-59-210	2-G11
B156-59-240	2-G11
NA01-59-310B	2-J11
G030-59-315	2-C5
	2-D7
	2-L11
NA01-59-330A00	2-J11
B001-59-335	2-J11
NA01-59-410C	2-K11
NA01-59-410D	2-K11
NA01-59-510	2-H11
NA01-59-560B	2-K11
NA01-59-560C	2-L11
NA02-59-560B	2-K11
NA02-59-560C	2-L11
NA01-59-603A	2-H11
NA01-59-603C	2-H11
NA01-59-604B	2-H11
NA01-59-651A	**2-H11**
NA01-59-661	2-I11
NA01-59-760D	2-I11
NA01-59-810D	2-N11
NA01-59-861A	2-L11
NA02-59-861A	2-L11
**********	
* *	
* 60-000 *	
* *	
**********	
NA01-60-070B	2-F9
NA03-60-070A	2-F9
NA03-60-071	2-F9
NA01-60-075	2-F9
B092-60-076A	1-D6
NA01-60-121	2-E10
NA01-60-141	2-E10
NA01-60-161 00	2-E10
N002-60-161 00	2-E10
NA01-60-171 00	2-E10
N002-60-171 00	2-E10
NA01-60-183	2-E10
NA01-60-193	2-E10
NA01-60-220 00	2-C9
NA01-60-223 00	2-C9
NA01-60-230A00	2-C9
NA01-60-35X 00	2-J9
NA01-60-35X 88	2-J9
NA01-60-350 00	2-J9
NA01-60-350 88	2-J9
B092-60-376	2-M9
NA01-60-401C00	2-J9
NA01-60-401D00	2-J9
NA02-60-401 88	2-K9
NA01-60-407	2-J9
B092-60-408	2-J9
NA01-60-409	2-J9
NA01-60-420D	2-K9
NA01-60-430C	2-K9
NA01-60-435	2-K9
NA01-60-462A	2-K9
NA01-60-463	2-K9
NA01-60-960	1-K15
NA01-60-962	1-K15
**********	
* *	
* 61-000 *	
* *	
**********	
NA01-61-A01	2-D13
NA01-61-A02	2-D13
NA01-61-A10	2-D13
NA01-61-A15	2-D13
NA01-61-A20	2-D13
NA01-61-A30	2-D13
NA01-61-B01	2-G13
NA01-61-B02	2-G13
NA01-61-B10	2-G13
NA01-61-B15	2-G13
NA01-61-B20	2-G13
NA01-61-C04	2-E13
NA01-61-C04A	2-E13
NA02-61-C04A	2-E13
H260-61-C09	2-E13
NA01-61-C25	2-E13
NA01-61-C35	2-E13
NA01-61-C45	2-E13
NA01-61-C50	2-E13
NA01-61-C95	2-E13
NA02-61-C95	2-E13
NA03-61-C95	2-E13
NA01-61-D22	2-E13
NA01-61-J01	2-C14
NA01-61-J02	2-C14
NA01-61-J04	2-C14
GJY1-61-J1X	2-L13
GJY2-61-J1X	**2-L13**
GJY3-61-J1X	2-L13
NA01-61-J10	2-C14
NA01-61-J14	2-C14
NA01-61-J15	2-C14
NA01-61-J20	2-C14
NA02-61-K00	2-M13
NA02-61-K10	2-M13
NA02-61-K11	2-M13
NA02-61-K12	2-M13
F065-61-K19	2-M13
NA02-61-K2X	2-M13
NA02-61-K23	2-M13
NA02-61-L24	2-M13
F065-61-K25	2-M13
NA02-61-K28	2-M13
F065-61-K31	2-M13
NA02-61-K35	2-M13
NA02-61-K39	2-N13
NA02-61-L10	2-N13
F065-61-L11	2-N13
NA02-61-L12	2-N13
F065-61-L13	2-N13
F065-61-L14	2-N13
F065-61-L16	2-N13
KA10-61-L22	2-N13
KA10-61-L23	2-N13
1708-61-031	2-F8
NA01-61-130A	2-D13
NA01-61-140A	2-G13
NA01-61-150A	2-C13
NA01-61-161	2-E10
NA01-61-161A	2-E10
NA01-61-190A	2-E13
NA01-61-190B	2-E13
NA02-61-190A	2-E13
NA01-61-191	2-F13
NA01-61-193	2-H13
NA01-61-195	2-F13
NA01-61-197	2-H13
NA01-61-211	2-C13
NA01-61-212A	2-C13
N007-61-212	2-C13
8871-61-219A	2-C13
NA01-61-253	2-E10
NA01-61-4H1	2-H13
NA01-61-4J4	2-H13
NA01-61-435	2-J13
NA02-61-435	2-K13
NA01-61-439	3-K4
NA02-61-450A	2-N13
NA01-61-46X	2-H13
BR71-61-46Y	2-H13
BR76-61-46Y	2-H13
BR77-61-46Y	2-H13
NA01-61-46YB	2-H13
NA01-61-461B	2-H13
NA01-61-462C	2-H13
NA01-61-466	2-H13
NA02-61-466C	2-H13
NA01-61-467C	2-H13
NA01-61-468A	2-I13
BF67-61-471	2-I13
NA02-61-471A	2-I13
NA01-61-472	2-I13
NA02-61-472A	2-I13
NA01-61-474	2-I13
NA02-61-474A	2-I13
NA02-61-476	2-I13
NA01-61-480	2-I13
UB39-61-486A	2-I13
NA01-61-487	2-I13
NA01-61-500	2-I13
NA01-61-503	2-I13
NA01-61-52YA	2-J13
NA01-61-52Z	2-J13
NA01-61-520B	2-C14
NA01-61-526	2-J13
NA01-61-529	2-J13
NA01-61-546B	2-J13
FB04-61-557	**2-J13**
BF67-61-558	2-J13
BF67-61-559	2-J13
NA01-61-695	2-J13
NA01-61-710	2-J13
B111-61-731	2-K13
**********	
* *	
* 62-000 *	
* *	
**********	

S084-62-671 2-L11
NA01-62-681 2-L11
B216-62-682 2-L11
B499-62-868 2-M11

****
* *
* 63-000 *
* *
****

NA01-63-895 2-D14
NA01-63-901 2-D14
NA01-63-930 2-D14
NA01-63-931C 2-D14
N007-63-931 2-D14
NA01-63-934 2-D14
NA01-63-936A 2-D14

****
* *
* 64-000 *
* *
****

NA01-64-03X 2-K9
NA01-64-03Y 2-K9
NA01-64-030D00 2-K9
NA01-64-030E00 2-K9
NA01-64-030E88 2-K9
NA01-64-032B00 2-K9
NA01-64-032B88 2-K9
NA01-64-032C00 2-K9
NA01-64-032C88 2-K9
B092-64-046 2-J9
2-M9
NA01-64-101 2-L9
NA01-64-270C00 2-D9
NA01-64-270D00 2-D9
NA01-64-270D88 2-D9
NA01-64-331 00 2-M9

NA01-64-344B 2-M9
NA03-64-350C 2-H3
NA01-64-410B00 2-M9
NA01-64-410C00 2-N9
NA01-64-410D00 2-N9
NA02-64-410B00 2-N9
NA02-64-410C00 2-N9
NA02-64-410D00 2-N9
NA03-64-410A00 2-N9
NA03-64-410B00 2-N9
NA03-64-410C00 2-C10
NA06-64-410B00 2-N9
NA06-64-410C00 2-N9
NA06-64-410D00 2-C10
N007-64-410 00 2-N9
N007-64-410A00 2-N9
N007-64-410B00 2-C10
N008-64-410 00 2-N9
N008-64-410A00 2-N9
N008-64-410B00 2-C10

NA01-64-414 2-C10
NA01-64-416 2-M9
H260-64-419 2-C10
NA01-64-424 2-M9
FB01-64-430 2-C10
NA01-64-437 00 2-M9
NA01-64-45XA00 2-C10
NA01-64-450A00 2-C10
NA01-64-452 00 2-C10
NA01-64-481A 2-C10
H001-64-493 2-D10
FB01-64-495 2-D10
NA01-64-610 00 2-D9
NA01-64-610A00 2-D9
NA01-64-610B00 2-D9
NA01-64-612 2-D9
NA01-64-613 2-D9
NA01-64-617 00 2-D9
NA01-64-618 2-D9
NA01-64-622 2-D9

NA01-64-623 00 2-D9
NA01-64-741 2-E10
NA01-64-81X 00 2-F10
N001-64-81X 00 2-F10
NA01-64-841 2-E10
NA01-64-905 00 2-L9
N002-64-905 00 2-L9
NA01-64-912 00 2-L9
NA01-64-912 88 2-L9
GJ21-64-996 2-L9
W201-64-999 2-F10
2-L9

****
* *
* 66-000 *
* *
****

NA01-66-AC0 2-C16

NA01-66-AC0A 2-C16
NA01-66-AG0 2-C16
NA01-66-AT1 2-D16
NA01-66-AT2 2-D16
NA01-66-AT6 2-D16
NA03-66-AT7 2-C16
NA01-66-A3X 2-E16
NA01-66-A3XA 2-E16
N001-66-A30 2-E16
N007-66-A9X 2-E16
2-G16
NA01-66-BR1 2-D16
NA01-66-BR2 2-D16
NA01-66-BR3 2-C16
0483-66-061A 2-L5
NA01-66-120A 2-J15
NA02-66-120A 2-J15
D001-66-151 2-D5
H043-66-154 2-D5
NA01-66-170 2-I15

NA01-66-201 2-C16
B092-66-241A 2-I15
B150-66-250 2-I15
B001-66-251 2-I15
LA01-66-3A1 2-N15
NA01-66-3A2A 2-N15
NA01-66-3A3A 2-N15
LA01-66-310A 2-N15
NA01-66-311A 2-N15
NA01-66-320 2-N15
NA01-66-340A 2-I15
NA01-66-350A00 2-D10
NA03-66-350 00 2-D10
NA01-66-361 2-N15
FB01-66-4D0 1-N15
GJ21-66-450A 2-D3
NA01-66-462 2-I15
H118-66-470 1-D16
BR70-66-490A 1-C16
1-E16

B001-66-490A 1-C16
1-E16
LA01-66-490A 1-M15
B455-66-540 2-M15
LA01-66-546 2-M15
NA01-66-730C 2-G16
N008-66-730 2-G16
NA01-66-731A 2-G16
NA01-66-732A 2-G16
H001-66-733 2-G16
H001-66-739 2-G16
NA01-66-760B 2-J16
NA23-66-760 2-J16
NA02-66-762B 2-J16
NA23-66-762 2-J16
B465-66-767 2-J16
SA59-66-790 2-M15
HE01-66-830 2-K15
0813-66-879 1-I7
FB01-66-9A1A 2-E16

NA01-66-9B0A 2-E16
NA02-66-9C0 2-C16
NA02-66-9C0A 2-D16
NA03-66-9W0 2-C16
NA03-66-9W0A 2-D16
N007-66-930 2-E16
N007-66-930A 2-E16
NA01-66-940 2-E16
NA01-66-940B 2-E16
NA01-66-940C 2-E16
GB08-66-941 3-G3
NA03-66-96X 2-E16
NA04-66-960A 2-J10
B376-66-991 2-G15
NA01-66-997 2-D16

****
* *
* 67-000 *
* *
****

NA01-67-BJ0 2-I16
NA05-67-BW0A 2-G16
NA05-67-BW1B 2-G16
NA05-67-BW2 2-G16
NA01-67-B10B 2-J16
N007-67-B10A 2-H16
NA01-67-B31 2-L16
NA01-67-B80A 2-J16
NA02-67-CH1 1-J4
NA01-67-CH5 3-D3
NA01-67-CH7 3-E3
NA01-67-CH8 3-E3
NA01-67-CS1 3-D3
NA02-67-CS1A 3-E3
N001-67-CS1C 3-D3
NA01-67-CS5 3-E3
NA01-67-CS6 3-E3
NA01-67-CW5A 3-D3
NA02-67-CW5A 3-D3

NA01-67-EW1B 2-J16
N007-67-G11 2-E16
B300-67-HD1 3-E3
N007-67-KW1 3-D3
NA01-67-MX1 3-K4
NA01-67-P54 3-D3
NA01-67-P71 3-D3
NA01-67-SH0 2-H16
NA01-67-SH1 2-H16
NA03-67-010G 2-H16
NA03-67-010K 2-H16
NA04-67-010E 2-H16
NA04-67-010F 2-H16
NA04-67-010J 2-H16
NA05-67-010E 2-H16
NA05-67-010F 2-H16
NA05-67-010J 2-H16
NA23-67-010D 2-H16
NA23-67-010E 2-H16
NA23-67-010F 2-H16

NA23-67-010J 2-H16
NA25-67-010E 2-H16
NA25-67-010F 2-H16
NA25-67-010J 2-H16
UB42-67-013 3-D3
G030-67-018A 3-E3
BE32-67-021 1-M16
NA01-67-030N 2-L16
NA02-67-030N 2-L16
NA03-67-030G 2-L16
NA23-67-030A 2-L16
NA25-67-030B 2-L16
B092-67-041 3-G3
NA01-67-050E 2-I16
NA01-67-050H 2-I16
NA01-67-050J 2-I16
NA02-67-050E 2-I16
NA02-67-050H 2-I16
NA02-67-050J 2-I16
NA23-67-050A 2-I16

NA23-67-050B 2-I16
NA23-67-050E 2-I16
NA23-67-050F 2-I16
B001-67-051 1-L15
UB42-67-051 3-D3
G031-67-053A 3-E3
H260-67-054 1-L15
N007-67-060A 2-C15
NA01-67-070K 2-K16
NA01-67-070L 2-K16
NA03-67-070D 2-K16
NA03-67-070E 2-K16
NA23-67-070B 2-K16
NA23-67-070D 2-K16
NA25-67-070B 2-K16
NA25-67-070D 2-K16
H261-67-073 3-E3
UB73-67-073A 3-E3
NA01-67-080C 2-J16
FB01-67-099 2-K16

H115-67-099 2-J16
H116-67-099 2-J16
H117-67-099 2-J16
NA01-67-190A 2-M16
NA02-67-190A 2-M16
GJ21-67-306 3-G3
NA01-67-321 3-K3
NA02-67-321 3-K3
BM90-67-330A 3-K3
BM90-67-330B 3-K3
NA02-67-330 3-K3
NA02-67-330A 3-K3
BM90-67-331A 3-K3
D041-67-331 3-K3
NA02-67-331 3-K3
N002-67-331 3-K3
NA01-67-340B 3-K3
NA04-67-340A 3-K3
NA01-67-345 3-M3
NA01-67-346 3-M3

NA23-67-346 3-M3
NA23-67-351 3-M3
NA26-67-351 3-M3
NA23-67-354 3-M3
NA01-67-360A 3-K3
NA01-67-361 3-L3
NA01-67-362 3-L3
NA01-67-363 3-K3
NA01-67-364 3-L3
B455-67-369 3-K3
LA01-67-395A 3-K3
NA17-67-4C1 3-G3
NA17-67-4C2 3-G3
NA17-67-4T0 3-G3
NA17-67-4T0A 3-G3
NA17-67-4T1 3-I3
NA01-67-480 3-G3
NA01-67-480A 3-H3
NA04-67-480A 3-G3
NA04-67-480B 3-H3

NA01-67-481 3-I3
NA04-67-481 3-I3
LA01-67-482 3-I3
GJ21-67-483 3-J3
NA17-67-488 3-G3
NA01-67-501A 3-H3
NA15-67-501 3-I3
NA17-67-501 3-H3
NA18-67-501 3-H3
NA19-67-501 3-I3
H001-67-502 3-H3
NA01-67-502 3-H3
NA17-67-502 3-H3
S013-67-502 3-H3
S084-67-502 3-H3
4116-67-502 3-H3
LA01-67-505A 3-G3
LA01-67-505B 3-G3
FA54-67-508 3-H3
NA01-67-510 3-H3

G030-67-519 2-N6
NA01-67-520 3-I3
NA04-67-520 3-I3
NA17-67-521 3-I3
NA18-67-521 3-H3
S095-67-521 3-I3
NA17-67-650A 2-K15
NA01-67-7F0A 2-K15
NA01-67-7G0A 2-K15
NA01-67-7T0 2-K15
NA02-67-720 2-K15
B462-67-740 2-K13
HD22-67-740 2-K15
H300-67-740 2-K15
LA10-67-740 2-H15
2-K15
LA12-67-740 2-K15
LA40-67-740 2-K15
HB23-67-741 2-G15
NA01-67-9A1 2-K15

NA02-67-9A1 2-K15
NA05-67-9A1B 2-L15
NA06-67-9A1B 2-L15
NA02-67-9A2 2-L15
BF67-67-996 3-D3

****
* *
* 68-000 *
* *
****

W201-68-AA5 00 2-L9
W201-68-AA5A00 2-L9
B455-68-AD2 3-N3
N007-68-031 00 2-C15
NA01-68-070 3-H4
F057-68-071 3-H4
NA01-68-090A00 3-N3
NA01-68-160 00 3-N3

NA01-68-170 00 3-N3
NA01-68-222A00 3-M4
NA01-68-222A88 3-M4
NA01-68-3F1B00 3-C4
NA01-68-3F1B88 3-C4
NA01-68-370 00 3-C4
NA01-68-370 88 3-C4
NA01-68-390 00 3-C4
NA01-68-390 88 3-C4
NA01-68-4H0 00 2-N11
NA01-68-4H0 88 2-N11
NA01-68-4W0 00 2-N11
NA01-68-4W0 88 2-N11
B100-68-401 2-N11
W201-68-401 2-N11
NA01-68-420B00 2-N11
NA01-68-420B88 2-N11
NA01-68-420C00 2-C12
NA01-68-420C88 2-C12
NA02-68-420B00 2-C12

NA02-68-420B88 2-C12
NA02-68-420C00 2-C12
NA02-68-420C88 2-C12
NA01-68-450B00 2-C12
NA01-68-450B88 2-C12
NA01-68-450C00 2-C12
NA01-68-450C88 2-C12
NA02-68-450B00 2-C12
NA02-68-450B88 2-C12
NA02-68-450C00 2-C12
NA02-68-450C88 2-C12
NA01-68-520A00 3-M4
NA01-68-520A88 3-M4
NA02-68-520A00 3-M4
NA02-68-520A88 3-M4
NA01-68-550A00 3-M4
NA01-68-550A88 3-M4
NA02-68-550A00 3-M4
NA02-68-550A88 3-M4
NA01-68-6L1 3-E4

NA01-68-6L6 3-E4
NA01-68-6N1 2-J7
NA01-68-6N2 3-E4
NA01-68-6N4 3-E4
B100-68-615 1-C16
3-E4
NA01-68-615 3-E4
NA01-68-631B 3-E4
NA01-68-631C 3-E4
FB01-68-652 3-E4
NA01-68-664A 3-E4
NA01-68-67XD00 3-E4
NA01-68-67XE00 3-E4
NA13-68-67XC00 3-E4
NA13-68-67XC88 3-E4
NA13-68-67XD00 3-F4
NA13-68-67XD88 3-F4
NA20-68-67X 00 3-E4
NA01-68-693 00 3-F4
N001-68-693 00 3-F4

N001-68-693 88 3-F4
NA01-68-710 00 3-C4
NA02-68-710 3-C4
B235-68-712 3-C4
FA54-68-719B 3-C4
NA01-68-720 00 3-C4
NA02-68-720 3-C4
NA01-68-8P9A 3-F4
NA01-68-811 00 3-F4
NA01-68-819B00 3-F4
KA01-68-86Y 3-C4
KA01-68-86YA 3-C4
B003-68-865 00 3-E3
3-F4
B003-68-865 81 3-E3
3-F4
B040-68-865A00 2-I7
B235-68-865A 2-E16
3-F4
GJ12-68-865 3-D4
3-N3
GJ21-68-865 3-M4
3-N3
G032-68-865A00 2-D15
3-D4
3-F4
G032-68-865A88 3-F4
S083-68-865A00 3-F4
S083-68-865A88 3-F4
GJ21-68-885B00 3-D4
3-M4
GJ21-68-885B88 3-D4
3-M4
NA01-68-891 00 3-D4
NA01-68-911 00 2-I11
GJ37-68-955 00 2-F16

****
* *
* 69-000 *
* *
****

GJ21-69-A13 3-K4
UB40-69-C61 3-K4
FA03-69-C72A 3-L4
NA01-69-D21C 3-K4
NA01-69-014 3-K4
NA01-69-036D 3-L4
NA01-69-036E 3-L4
NA04-69-036C 3-L4
NA04-69-036D 3-L4
NA01-69-044 3-L4
FA01-69-064A 3-L4
NA01-69-068 3-L4
NA01-69-068A 3-L4

****
* *
* 71-000 *
* *
****

NA05-69-120 DU 3-I4
NA05-69-120 HU 3-I4
NA05-69-120 HZ 3-I4

NA05-69-120 PZ 3-I4
NA05-69-120 SU 3-I4
NA05-69-120 UC 3-I4
NA05-69-120 3L 3-I4
NA05-69-180 DU 3-I4
NA05-69-180 HU 3-I4
NA05-69-180 HZ 3-I4
NA05-69-180 PZ 3-I4
NA05-69-180 SU 3-I4
NA05-69-180 UC 3-I4
NA05-69-180 3L 3-I4
NA01-69-220 00 3-I4
GJ21-69-225 00 3-I4
NA01-69-240 3-J4
NA01-69-270B02 3-I4
NA01-69-320C02 3-I4
B316-69-361 2-C12
BF70-69-370C00 2-C12
BF70-69-370C88 2-C12
BF70-69-372 00 2-D12

BF70-69-372 88 2-D12
BF70-69-390C00 2-D12
BF70-69-390C88 2-D12
BF70-69-392 00 2-D12
BF70-69-392 88 2-D12
NA01-69-650 3-H4
NA01-69-670 3-H4

****
* *
* 70-000 *
* *
****

NA01-70-J30 2-L7
NA01-70-020B 2-J7
B092-70-070A 2-L7
NA01-70-071A 2-J7
NA01-70-100G 2-K7
NA01-70-100H 2-K7
NA01-70-100K 2-K7
NA01-70-100L 2-K7
NA01-70-11Z 2-K7
NA01-70-111A 2-J7
NA01-70-111B 2-J7
NA01-70-111C 2-K7
NA01-70-116A 2-K7
NA01-70-12XA 2-K7
NA01-70-15X 2-K7
NA01-70-17XA 2-K7
NA01-70-19XB 2-K7
NA01-70-210 2-N7
NA01-70-230 2-K7
NA01-70-240B 2-K7
NA01-70-270B 2-L7
NA01-70-274 2-K7
NA01-70-275 2-K7
NA01-70-280B 2-N7
NAY1-70-400A 2-N7
NAY1-70-400B 2-N7

NA01-70-440A 2-L7
NA01-70-445 2-L7
NA01-70-460 2-L7
0187-70-491 1-L15
NA01-70-51Y 2-J7
NA01-70-521A 2-L7
NA01-70-530A 2-L7
NA01-70-62YB 2-I7
NA01-70-640 2-L7
NA01-70-650 2-L7
NA01-70-670 2-L7
NA01-70-750F 2-L7
NA01-70-750G 2-L7

****
* *
* 71-000 *
* *
****

NA01-71-J30 2-N7
NA01-71-020B 2-M7
NA01-71-071A 2-J7
NA01-71-100G 2-M7
NA01-71-11XA 2-M7
NA01-71-11Z 2-M7
NA01-71-116B 2-L7
NA01-71-12XA 2-M7
NA01-71-15XA 2-M7
NA01-71-19XB 2-M7
NA01-71-192 2-M7
NA01-71-210 2-N7
NA01-71-230 2-M7
NA01-71-240B 2-M7
NA01-71-270B 2-N7
NA01-71-274 2-M7
NA01-71-2'5 2-M7
NA01-71-280B 2-N7
NAY1-71-400A 2-N7
NAY1-71-400B 2-N7

NA01-71-421 2-M7
NA01-71-440A 2-N7
NA01-71-445 2-N7
NA01-71-453 2-N7
NA01-71-460 2-M7
NA01-71-670 2-N7
NA01-71-670B 2-N7

****
* *
* 72-000 *
* *
****

H043-72-411 2-J11
H260-72-864B 2-M11

****
* *
* 75-000 *
* *
****

3625-75-139 2-G9
2-M9

****
* *
* 76-000 *
* *
****

0208-76-071 3-G4
NA01-76-2B0 00 2-D5
NA01-76-2B0B00 2-E5
B545-76-201 2-E5
LA02-76-202 2-D5
NA01-76-210 2-D5
NA01-76-210B 2-D5
NA01-76-220 2-D5
NA01-76-220B 2-D5

NA01-76-230 2-D5
NA01-76-230B 2-D5
NA01-76-250 00 2-D5
NA01-76-250 88 2-D5
NA01-76-250B00 2-D5
NA01-76-250B88 2-D5
NA01-76-290A 2-D5
NA01-76-290C 2-D5
NA03-76-290A 2-D5
NA03-76-290C 2-D5
G030-76-448 2-M11
B001-76-526 2-F13
H043-76-619A 3-M3
B094-76-662 3-M3
BC94-76-663 3-M3
S084-76-672 3-I3
S084-76-677 3-J3
NA01-76-700 2-L13
B001-76-725 2-N13
B001-76-734 2-N13

****
* *
* 77-000 *
* *
****

8527-77-739 1-J3

****
* *
* 88-000 *
* *
****

NA01-88-031 00 2-L10
NA01-88-031 88 2-L10
NA01-88-033 2-J10
NA01-88-034 00 2-J10
NA01-88-034 88 2-K10

NA01-88-035 00 2-N10
NA01-88-035 88 2-N10
NA01-88-036 00 2-K10
NA01-88-036 88 2-K10
NA01-88-081 00 2-N10
NA01-88-081 88 2-N10
NA01-88-083 2-K10
NA01-88-084 00 2-K10
NA01-88-084 88 2-K10
NA01-88-085 00 2-C11
NA01-88-085 88 2-C11
NA01-88-086 00 2-N10
NA01-88-086 88 2-N10
NA01-88-101A 2-K10
NA01-88-102A 2-K10
NA01-88-103A 2-K10
H260-88-105 2-K10
NA01-88-106 2-K10
H260-88-107 2-L10
H260-88-108 02 2-K10

H260-88-108 88 2-K10
H260-88-109 2-K10
NA01-88-110 00 2-L10
NA23-88-110 88 2-L10
NA01-88-111 00 2-L10
NA23-88-111 88 2-L10
NA01-88-112 2-L10
NA01-88-113 2-L10
NA01-88-130 00 2-L10
NA01-88-130A00 2-M10
NA02-88-130 00 2-L10
NA02-88-130A00 2-M10
NA23-88-130 88 2-L10
NA23-88-130A88 2-M10
NA24-88-130 88 2-M10
NA24-88-130A88 2-M10
NA01-88-131 00 2-M10
NA23-88-131 88 2-M10
NA01-88-132 2-M10
NA01-88-132A 2-M10

NA01-88-137 2-M10
NA01-88-151A 2-M10
NA01-88-152A 2-M10
NA01-88-153A 2-M10
NA01-88-156 2-M10
NA01-88-160 00 2-N10
NA23-88-160 88 2-N10
NA01-88-161 00 2-N10
NA23-88-161 88 2-N10
NA01-88-162 2-N10
N005-88-162 2-N10
NA01-88-163 2-N10
NA01-88-180 00 2-C11
NA01-88-180A00 2-C11
NA02-88-180 00 2-C11
NA02-88-180A00 2-C11
NA23-88-180 88 2-C11
NA23-88-180A88 2-C11
NA24-88-180 88 2-C11
NA24-88-180A88 2-C11

NA01-88-181 00 2-C11
NA23-88-181 88 2-C11
NA01-88-732 2-C11
NA01-88-732A 2-D11
NA01-88-782 2-D11
NA01-88-782A 2-D11

****
* *
* 90-000 *
* *
****

90620-47614 1-D14
90623-06684 1-D14
90624-26684 1-D14

****
* *
* 99-000 *
* *
****

M505-99-178 1-L6
BU01-99-190A 1-K9
99324-07610 1-F5
99328-04010 3-J3
99344-05150 1-L7
99351-04999 1-F4
1-I7
1-L4
99351-06999 2-F3
99357-14999 1-K15
99358-08999 2-F3
99359-0815 2-E3
99359-0816 2-F3
99359-0817 2-F3
99359-0840 1-G4
99359-0840M 1-G4
99541-00403 1-G16
99541-00603 1-G16

99541-00907 1-G3
99541-01201 1-M7
99541-01601 1-D8
99541-03801 2-E15
99586-08166 1-D6
1-M7
99611-1500 1-F15
99636-04130 1-D14
99636-04140 1-D14
99651-54040 1-D14
99651-84040 1-D14
99655-30005 1-D14
99655-30010 1-E14
99655-30015 1-E14
99655-30020 1-E14
99655-30025 1-E14
99655-30030 1-E14
99655-30035 1-E14
99655-30040 1-E14

99655-30045 1-E14
99655-30050 1-E14
99655-30055 1-E14
99655-30060 1-E14
99655-90005 1-E14
99655-90010 1-E14
99655-90015 1-E14
99655-90020 1-E14
99655-90025 1-E14
99655-90030 1-E14
99655-90035 1-E14
99655-90040 1-E14
99655-90045 1-E14
99655-90050 1-E14
99655-90055 1-E14
99655-90060 1-E14
99700-7180 2-F6
99701-2070 2-I6
99701-3270 2-F6
99701-4278 2-F6

99701-42..Y 2-E6
99701-5050 2-C9
99701-6030 2-G9
99701-6038 2-D6
2-F6
99705-1115 2-G16
99705-1130 2-G16
2-J16
99963-6310 1-G6
99963-6315 1-G6
99963-6330 1-G6

A

ACTUATOR,A.C.C.---------- 2-N15
ACTUATOR,SHIFT LOCK------ 2-G3
ADAPTER,DRIVE PLATE------ 1-J7
ADJUSTER NO.3------------ 2-M10
ADJUSTER NO.4------------ 2-M10
ADJUSTER,HYDRAULIC LASH-- 1-N3
ADJUSTER,NO.1------------ 2-K10
ADJUSTER,NO.2------------ 2-K10
ALTERNATOR--------------- 1-D7
ANTENNA,RADIO------------ 2-E16
ANTILOCK BRAKE----------- 1-M16
ARM NO.1,LINK------------ 3-L3
ARM NO.2,LINK------------ 3-L3
ARM(L),LOWER------------- 1-M13
ARM(L),LOWER-REAR-------- 1-J12
ARM(L),UPPER------------- 1-M13
ARM(R),LOWER------------- 1-M13
ARM(R),LOWER-REAR-------- 1-J12
ARM(R),UPPER------------- 1-M13
ARM,UPPER-FRT------------ 1-L13
ARM,UPPER-REAR----------- 1-J12
ARM,WIPER-CO DRIVER SIDE- 3-K3
ARM,WIPER-DRIVER SIDE---- 3-K3
ARMATURE----------------- 1-G7
ARMATURE,MAGNETIC CLUTCH- 2-N13
AUDIO SET---------------- 2-C16
2-D16

B

BACK(L),FRONT SEAT------- 2-C11
BACK(R),FRONT SEAT------- 2-L10
2-M10
BAG,TOOL----------------- 3-H4
BALL JOINT,LOWER--------- 1-M13
BALL,STEEL--------------- 1-F15
BAND--------------------- 1-D15
2-J13
2-K13
3-D3
BAND,BRAKE--------------- 1-L8
BAR,REAR SUSPENSION------ 1-K12
BASE,INTERIOR MIRROR----- 3-J4
BATTERY------------------ 1-I7
BEARING------------------ 1-C12
1-G6
1-K11
BEARING,BALL------------- 1-H6
BEARING,BALL-ALT. FRONT-- 1-E7
BEARING,BALL-ALT. REAR--- 1-D7
BEARING,BALL-COUNTER SHAF 1-G6
BEARING,BALL-FLY WHEEL--- 1-L3
BEARING,BALL-MAIN DRIVE G 1-E6
BEARING,BALL-MAIN SHAFT-- 1-E6
BEARING,NEEDLE----------- 1-C9
1-E6
1-G6
1-G9
BEARING,PINION----------- 1-C13
1-E13
1-I11
1-N11
BEARING,ROLLER----------- 1-E6
BEARING,ST. GEAR--------- 1-D13
1-N12
BEARING,WHEEL------------ 1-E11
BELT,TIMING-------------- 1-N3
BELT'A',FRONT SEAT------- 2-E11
BELT'B'(L),FRT SEAT------ 2-E11
BELT'B'(R),FRT SEAT------ 2-E11
BELT'V'------------------ 1-C7
1-G5
BEZEL(L),HEAD LAMP------- 2-N5
BEZEL(R),HEAD LAMP------- 2-N5
BLADE(R),WIPER-FRONT----- 3-K3
BLADE,WIPER-FRONT-------- 3-K3
BLOCK,CYLINDER----------- 1-G3
BLOCK,FUSE--------------- 2-G16
BLOCK,MAIN FUSE---------- 2-J16
BLOWER UNIT-------------- 2-G13
BODY--------------------- 1-H9
BODY & PISTON(L),CALIPER- 1-G11
1-J13
BODY & PISTON(R),CALIPER- 1-G11
1-J13
BODY(L),FRONT DOOR------- 2-G11
BODY(R),FRONT DOOR------- 2-G11
BODY,CONTROL VALVE-UP---- 1-G8
BODY,LOW-RADIO ANTENNA--- 2-E16
BODY,LWR-CONT.VALVE------ 1-I8
BODY,THROTTLE------------ 1-K4
BOLT--------------------- 1-C8
1-C11
1-C13
1-C14
1-E3
1-E8
1-F9
1-F13
1-G11
1-G13
1-I3
1-I8
1-I9
1-J7
1-J12
1-K7
1-L7
1-L13
1-N6
2-E15
2-F5
2-G5
2-I5
3-K3
BOLT SET----------------- 1-G7
BOLT-HEX,HD WASHER------- 2-G15
BOLT,ADJUST-------------- 1-G5
1-J12
1-L13
1-N6
BOLT,AIR CLEANER--------- 1-I4
BOLT,AIR CON.------------ 2-K13
BOLT,ANCHOR END---------- 1-N7
BOLT,BAFFLE PLATE-------- 1-M7
BOLT,BEARING CAP--------- 1-G3
BOLT,CAMSHAFT CAP-------- 1-D3
BOLT,CARRIER------------- 1-E12
1-M11
BOLT,CLAMP--------------- 1-I7
BOLT,COMPRESSOR---------- 2-M13
BOLT,COMPRESSOR-AIR CON.- 2-M13
BOLT,CONNECTOR----------- 1-F16
1-I16
1-L7
1-L16
BOLT,CONTROL LINK-------- 1-J12
BOLT,CONTROL VALVE------- 1-D8
BOLT,CROSS MEMBER-------- 2-F7
BOLT,CYLINDER HEAD------- 1-D3
BOLT,CYLINDER HEAD COVER- 1-E3
BOLT,DECK LOCK----------- 2-L14
BOLT,FILLER PIPE--------- 1-J15
BOLT,FUEL DISTRIBUTOR---- 1-H4
BOLT,GARNISH-RR---------- 2-L6
BOLT,HINGE--------------- 2-N5
BOLT,HUB----------------- 1-E11
1-I13
BOLT,INST. PANEL--------- 2-J9
BOLT,JACK SET------------ 1-F14
BOLT,LAMP LID------------ 2-M5
BOLT,LINK---------------- 2-I10
2-K10
BOLT,LOCK---------------- 1-J7
BOLT,LOCK-C.SHAFT PULLEY- 1-K3
BOLT,LOCK-FLYWHEEL------- 1-L3
BOLT,MAGNET CLUTCH------- 2-N13
BOLT,MOTOR-RETRACT H/LAMP 2-C6
BOLT,OIL PAN------------- 1-D8
BOLT,PLANT FRAME--------- 1-C15
BOLT,PULLEY-------------- 1-K3
BOLT,RING GEAR----------- 1-C12
1-J11
BOLT,SET----------------- 2-D5
2-H11
BOLT,SETTING-HINGE LOWER- 2-G11
BOLT,SHAFT--------------- 1-M12
BOLT,STOPPER-SOFT TOP---- 2-C15
BOLT,VANE PUMP----------- 1-G13
BONNET------------------- 2-M6
BOOT KIT,FRT CALIPER----- 1-K13
BOOT KIT,RR CALIPER------ 1-H11
BOOT SET,INNER JOINT----- 1-D11
BOOT SET,OUTER JOINT----- 1-D11
BOOT SET,ST. GEAR-------- 1-N12
BOOT,CHANGE-------------- 2-M9
BOOT,DUST-CHANGE LEVER--- 1-L6
BOOT,MOTOR-RETRACT H/L--- 2-G6
BOOT,RACK---------------- 1-D13
BOOT,TOP----------------- 2-L14
BOSS,PULLEY-------------- 1-L3
BOSS,STEERING WHEEL------ 1-L12
BOX(L),TORQUE------------ 2-G7
BOX(R),TORQUE------------ 2-G7
BOX,A.C.C.--------------- 2-N15
BOX,COIN-CONSOLE--------- 2-M9
BOX,CONTROL-A.B.S.------- 2-K15
BOX,GLOVE---------------- 2-K9
BOX,INSTRUMENT PANEL----- 2-L9
BRACKET------------------ 1-D8
1-E8
1-K16
1-L4
1-L7
1-N7
2-I3
BRACKET NO 1,A.B.S.------ 1-L16
BRACKET NO.5,A.B.S.------ 1-L16
BRACKET(L),CABLE--------- 1-H11
BRACKET(L),ENGINE-------- 1-C15
BRACKET(L),F. BUMPER SIDE 2-G5
BRACKET(L),HINGE LAMP LID 2-N5
BRACKET(L),INST.--------- 2-J7
BRACKET(L),RADIATOR------ 2-E7
BRACKET(L),STABILIZER---- 2-G7
BRACKET(L),TUNER--------- 2-D16
BRACKET(R),CABLE--------- 1-H11
BRACKET(R),ENGINE-------- 1-C15
BRACKET(R),HINGE-LAMP LID 2-N5
BRACKET(R),INST.--------- 2-J7
BRACKET(R),RADIATOR------ 2-E7
BRACKET(R),STABILIZER---- 2-F7
BRACKET(R),TUNER--------- 2-D16
BRACKET(RR),AUDIO-------- 2-C16
BRACKET,ACCEL WIRE------- 1-D4
BRACKET,ACTUATOR--------- 2-N15
BRACKET,ACTUATOR A.C.C.-- 2-N15
BRACKET,ACTUATOR-FRONT--- 2-N15
BRACKET,AIR CLEANER------ 1-J4
BRACKET,BATTERY CLAMP---- 1-I7
BRACKET,BUMPER----------- 2-E7
BRACKET,CANISTER--------- 1-F4
BRACKET,CLAMP------------ 2-I13
BRACKET,CLIP------------- 2-F11
2-M5
BRACKET,COMPRESSOR------- 1-G5
BRACKET,CONTROL UNIT----- 2-F15
BRACKET,COUPLER---------- 1-L12
BRACKET,CRASH PAD-------- 2-K9
BRACKET,EX.MANIFOLD------ 1-E4
BRACKET,FENDER----------- 2-G5
2-L7
BRACKET,FRONT------------ 1-G7
BRACKET,GRILLE-C--------- 2-I7
BRACKET,HANGER----------- 1-D15
BRACKET,HARNESS---------- 2-G16
2-I16
2-J16
2-L16
BRACKET,HOSE------------- 2-H13
2-I13
BRACKET,IDLE PULLEY------ 1-G5
BRACKET,IGNITER---------- 2-E15
BRACKET,INST. PANEL------ 2-K9
BRACKET,JACK------------- 2-C8
BRACKET,LICENCE PLATE---- 2-G5
BRACKET,LOUD SPEAKER----- 2-E16
BRACKET,LOW-------------- 2-D16
BRACKET,MASTER CYL.------ 1-D16
1-M15
1-N15
BRACKET,MEMBER----------- 2-K9
BRACKET,PARKING CABLE-FLO 2-C8
BRACKET,PIPE------------- 2-I13
BRACKET,PLANT FRAME------ 1-C15
BRACKET,REAR------------- 1-G7
BRACKET,REAR CONSOLE----- 2-M9
BRACKET,RELAY------------ 2-J13
2-K15
BRACKET,STARTER---------- 1-C7
BRACKET,STOPPER-BATTERY-- 1-I7
BRACKET,VANE PUMP-------- 1-G13
1-H13
BRACKET,WASHER TANK------ 3-I3
BRACKET,WIRING----------- 2-H16
2-J16
BREAKER------------------ 2-G16
BREATHER----------------- 1-I11
1-L7
1-N11
BREATHER,AIR-T/MISSION--- 1-D6
BRKT SET,DASH POT-THROT-- 1-K4
BRKT(L),BUMPER-RR SKIRT-- 2-E8
BRKT(L),SEAT-F.FLOOR PAN- 2-D8
BRKT(L),TRK.BOARD-FENDER- 2-N7
BRKT(R),BUMPER-RR SKIRT-- 2-E8
BRKT(R),SEAT-F.FLOOR PAN- 2-C8
BRKT,AIR CLNR-WHL APRON-- 2-F7
BRKT,AIR FLOW METER------ 1-I4
BRKT,BATT.CLAMP-QTR PANEL 2-K7
BRKT,CAP-QUARTER PANEL--- 2-M7
BRKT,DIAGNOSIS UNIT------ 2-L15
BRKT,DIAGNOSIS/POWER UNIT 2-L15
BRKT,MOTOR-ANTENA-------- 2-E16
2-G16
BRKT,SURGE TANK---------- 1-D4
BRKT'A',WASHER TANK-FRT-- 3-H3
BRUSH-------------------- 1-E7
1-H7
BRUSH,YOKE--------------- 1-H7
BULB--------------------- 2-C9
2-D6
2-E6
2-F6
2-G9
2-I6
2-I9
2-M9
BULB & SOCKET------------ 2-H3
2-M9
BULB,MODE CONTROL-------- 2-E13
BULB,RESISTOR------------ 2-C9
2-H9
BULB'B',SWITCH-RR DEFOGER 2-I15
BUMPER,FRONT------------- 2-F5
BUMPER,REAR-------------- 2-I5
BUSH--------------------- 1-E16
1-H15
1-M15
1-N15
2-H3
BUSH SET,CHANGE LEVER---- 1-L6
BUSH,ELBOW JOINT--------- 1-F15
1-G14
BUSH,HINGE--------------- 2-K10
BUSH,RUBBER-------------- 1-D8
BUSH,RUBBER-LWR ARM------ 1-M13
BUSH,STABILIZER-RR------- 1-I12
BUSHING,LOWER ARM-------- 1-J12
BUSHING,RACK-ST. GEAR---- 1-C13
BUSHING,RUBBER----------- 1-J12
1-M13
BUSHING,RUBBER-LOWER ARM- 1-J12
1-M13
BUTTON,RELEASE----------- 2-C3

C

CABLE(L),R.-PARK.-------- 2-D3
CABLE(R),R.-PARK.-------- 2-D3
CABLE,ACCEL.------------- 1-H15
CABLE,F/LID OPENER------- 1-L15
CABLE,INTER LOCK--------- 2-G3
CABLE,PARKING-FRT-------- 2-C3
CABLE,SPEEDOMETER-------- 2-F9
CABLE,T/LID OPENER------- 1-L15
CALIPER(L),FRT BRAKE----- 1-J13
CALIPER(L),RR BRAKE------ 1-H11
CALIPER(R),FRT BRAKE----- 1-J13
CALIPER(R),RR BRAKE------ 1-H11
CAM,CHANGE LEVER--------- 2-G3
CAMSHAFT----------------- 1-N3
CAMSHAFT,EXHAUST--------- 1-C4
CANISTER----------------- 1-F4
CAP---------------------- 2-G6
2-K5
2-K11
3-D3
CAP SET,RESERVE TANK----- 1-F15
1-F16
CAP(L),PULL HANDLE------- 2-D12
CAP(R),PULL HANDLE------- 2-D12
CAP,BLEEDER SCREW-------- 1-F15
1-H11
1-J13
2-F5
CAP,BLIND---------------- 1-D4
1-K4
CAP,CENTER--------------- 1-D14
CAP,COLUMN COVER--------- 2-C9
CAP,CONNECTOR-REAR HARNES 3-D3
CAP,DAMPER--------------- 1-L13
CAP,FILLER--------------- 1-J15
CAP,HINGE-H.L.RETRACTABLE 2-N5
CAP,HUB------------------ 1-I13
CAP,OIL FILLER----------- 1-E3
CAP,PARK BRAKE LEVER----- 2-C3
CAP,RADIATOR------------- 1-D5
CAP,SEAL-TRUNK END TRIM-- 3-C4
CAP,SEALING-------------- 1-E3
CAP,SPRING--------------- 1-L6
1-M6
CAP,SUB TANK------------- 1-E5
CAP,TANK----------------- 3-I3
3-J3
CAP,TOP LOCK------------- 2-H14
CAP,VANE PUMP TANK------- 1-G13
CARRIER,DIFFERENTIAL-FRT- 1-C12
1-I11
1-J11
1-N11
CARRIER,FRONT------------ 1-N8
CARRIER,OVER DRIVE------- 1-D9
CARRIER,REAR------------- 1-C9
CARTRIDGE,OIL FILTER----- 1-N4
CASE--------------------- 1-J11
CASE,CHANGE CONTROL------ 1-L6
CASE,LAMP---------------- 2-C10
CASE,METER--------------- 2-H9
CASE,OVER DRIVE---------- 1-E8
CASE,T/MISSION----------- 1-D6
1-M7
CASE'A',BLOWER UNIT------ 2-G13
CASE'A',COOLING UNIT----- 2-C14
CASE'A',HEATER UNIT------ 2-D13
CASE'B',BLOWER UNIT------ 2-G13
CASE'B',COOLING UNIT----- 2-C14
CASE'B',HEATER UNIT------ 2-D13
CASE'OUT',ASHTRAY-------- 2-D9
CASING,DIFFERENTIAL------ 1-E12
1-M11
CASING,STOPPER----------- 1-C15
CATALYST,THREE WAY------- 1-D15
CEILING,TOP-------------- 2-C15
CHANNEL(L),DIVISION-DOOR- 2-H11

CHANNEL(R),DIVISION-DOOR- 2-H11
CHECKER,DOOR---------- 2-J11
CLAMP---------- 2-H9
CLAMP,BATTERY---------- 1-I7
CLAMP,HOSE---------- 1-D5
1-F4
1-H3
1-I4
1-J4
1-L4
CLAMP,HOSE-A.I.P./A. CLNR 1-J4
CLAMP,HOSE-P.S.---------- 1-G13
CLAMP,WATER HOSE---------- 1-E5
1-F3
1-L4
CLIP---------- 1-C7
1-F4
1-I11
1-K3
1-K7
1-L15
1-M16
1-N11
2-C5
2-D3
2-D7
2-E3
2-F5
2-F9
2-F13
2-F15
2-G3
2-G5
2-G6
2-I13
2-J11
2-K6
2-L11
2-M5
2-M11
3-C4
3-D3
3-E3
3-G3
3-N3
CLIP (R)---------- 2-C5
2-J11
CLIP SET,DRIVE SHAFT------ 1-D11
CLIP(L),FORM PLATE------- 2-G14
CLIP(L),INNER HANDLE------ 2-J11
CLIP(R),FORM PLATE------- 2-G14
CLIP,CABLE---------- 2-D3
CLIP,COUPLER---------- 1-C7
CLIP,ENGINE HARNESS------ 3-E3
CLIP,FLEXIBLE HOSE------- 1-G15
1-I16
2-C3
CLIP,HARNESS---------- 1-J4
3-D3
3-E3
3-G3
CLIP,HARNESS-HAND BRAKE-- 2-C10
CLIP,HEATER CONTROL------ 2-E13
CLIP,HOSE-SUB T.& WATER H 1-E5
CLIP,OIL PIPE---------- 1-L7
CLIP,PIPE---------- -- 1-G15
1-J16
1-K16
2-E3
2-F3
2-H13
2-I13
2-N6
CLIP,RR BRAKE PIPE------- 1-I16
CLIP,SENSOR HARNESS------ 1-M16
CLIP,TRIM---------- 3-D4
3-M4
3-N3
CLIP,VALVE GUIDE--------- 1-D3
CLIP,WASHER HOSE--------- 3-G3
CLIP,WEATHERSTRIP-OUTER-- 2-N11
CLIP'A',SPEEDOMETER CABLE 2-F9
CLIP'A',WEATHERSTRIP-OUT- 2-N11
CLIP'B',WIRE-BONNET------ 2-I7

CLOTH,REPAIR-TOP--------- 2-F14
CLOTH'C',TOP------------- 2-F14
CLUTCH,DIRECT------------ 1-D9
CLUTCH,FRONT------------- 1-L8
CLUTCH,MAGNET------------ 2-N13
CLUTCH,ONE WAY----------- 1-E9
1-F9
CLUTCH,OVER RUNNING------ 1-G7
CLUTCH,REAR-------------- 1-N8
COCK,DRAIN--------------- 1-E5
COIL & IGNITER----------- 1-N6
COIL,FIELD-MAGNET CLUTCH- 2-N13
COLLAR------------------- 1-G5
COLLAR,CLUTCH REL.------- 1-C6
COMPRESSOR--------------- 2-N13
COMPRESSOR,AIR CON.------ 2-M13
CONDENSER---------------- 2-G15
2-I13
CONNECTING,SHELL--------- 1-E9
CONNECTOR---------------- 1-F4
CONNECTOR,SHORT---------- 2-G15
CONNECTOR,STRAIGHT------- 1-M7
CONNECTOR,TUBE-BATTERY--- 1-I7
CONSOLE,REAR------------- 2-C10
2-M9
2-N9
CONTROL,COOLANT FAN------ 2-K13
CONTROL,HEATER----------- 2-E13
CONVERTER,TORQUE--------- 1-J7
CORD NO.1,HI.TENSION----- 1-N6
CORD NO.2,HI.TENSION----- 1-N6
CORD NO.3,HI.TENSION----- 1-C7
CORD NO.4,HI.TENSION----- 1-C7
CORD SET,HI.TENSION------ 1-N6
CORD,EARTH--------------- 2-D16
CORD,SHORT--------------- 2-H16
CORE,HEATER UNIT--------- 2-D13
COTTER.VALVE------------- 1-N3
COVER-------------------- 2-C3
COVER NO.1,ADJ-FRT------- 2-I10
COVER NO.2,ADJ-FRT------- 2-I10
COVER NO.3,ADJ-FRT------- 2-I10
COVER(C),SENSOR---------- 2-F11
COVER(L),BELT LINE------- 2-N14
COVER(L),DECK LOCK------- 2-M14
COVER(L),DRAIN-SOFT TOP-- 2-J14
COVER(L),DUST------------ 1-I13
COVER(L),HINGE----------- 2-C11
COVER(L),HOLE------------ 3-E4
COVER(L),KNUCKLE--------- 2-N10
COVER(L),SEAT BACK------- 2-N10
COVER(L),SENSOR---------- 2-F11
COVER(L),SENSOR-AIR BAG-- 2-F11
COVER(R),BELT LINE------- 2-N14
COVER(R),DECK LOCK------- 2-L14
COVER(R),DRAIN-SOFT TOP-- 2-J14
COVER(R),DUST------------ 1-I13
COVER(R),HINGE----------- 2-N10
COVER(R),HOLE------------ 3-E4
COVER(R),KNUCKLE--------- 2-L10
COVER(R),SEAT BACK------- 2-K10
COVER(R),SENSOR---------- 2-F11
COVER(R),SENSOR-AIR BAG-- 2-F11
COVER(UP.),TIMING CHAIN-- 1-I3
COVER,ADJUSTER-REAR------ 2-I10
COVER,AIR CLEANER-------- 1-J4
COVER,ANCHOR------------- 2-E11
COVER,BAFFLE-COWL PANEL-- 2-I7
COVER,BATTERY------------ 3-F4
COVER,BEARING------------ 1-D6
COVER,BLIND-------------- 1-J7
1-L6
COVER,BLIND-CYL. BLOCK--- 1-G3
COVER,BOX---------------- 2-K9
COVER,CLUTCH------------- 1-C6
COVER,COLUMN-LOWER------- 2-C9
COVER,COLUMN-UPPER------- 2-C9
COVER,CONTROL UNIT------- 2-F15
COVER,CYLINDER HEAD------ 1-D3
COVER,DUST--------------- 1-D13
1-E11
1-I15
COVER,DUST-CLUTCH FORK--- 1-C6
COVER,DUST-ST. GEAR------ 1-D13

COVER,DUST-ST. GEAR------ 1-N12
COVER,END PLATE---------- 1-J3
COVER,FRONT CLUTCH------- 1-C6
COVER,FRONT-ALTERNATOR--- 1-D7
COVER,FUEL FILTER-------- 2-G8
COVER,FUSE BLOCK--------- 2-G16
COVER,GAUGE-FUEL TANK---- 1-K15
COVER,GRILLE------------- 2-G5
COVER,HEAD REST---------- 2-M10
COVER,HOLE--------------- 2-C15
2-F8
2-I15
3-M4
COVER,HOLE-(C)----------- 2-L9
COVER,HOLE-ANTENNA------- 2-E16
COVER,HOLE-LIFT GATE----- 2-M11
COVER,INNER HANDLE------- 2-J11
COVER,INTERIOR MIRROR---- 3-I4
COVER,JOINT-LOWER-------- 1-M12
COVER,JOINT-UPPER-------- 1-M12
COVER,LEVER-OPENER------- 2-M9
COVER,MAIN FUSE BLOCK---- 2-J16
COVER,OIL PUMP----------- 1-K7
1-M4
COVER,REAR--------------- 1-C13
1-J3
COVER,REAR-ALTERNATOR---- 1-D7
COVER,RELAY-------------- 2-L15
COVER,ROD---------------- 1-M6
COVER,SELECT LEVER------- 2-G3
COVER,SERVICE HOLE------- 2-J7
COVER,SERVO-------------- 1-N7
COVER,SIDE--------------- 2-L9
COVER,SPARE TIRE--------- 3-F4
COVER,THERMO------------- 1-C5
COVER,THERMOSTAT--------- 1-D5
COVER,TIMING BELT-C.----- 1-J3
COVER,TIMING BELT-LWR---- 1-I3
COVER,TOP FABRIC--------- 2-C15
COVER,UNDER-------------- 2-G8
COVER,UNDER-MAIN FUSE BLK 2-J16
COVER,WASHER TANK-------- 3-I3
COVER,WHEEL CORE--------- 1-L12
COVER,WIPER ARM-FRONT---- 3-K3
COVER'L',HYDRAULIC UNIT-- 1-L16
COWLING,RADIATOR--------- 1-E5
CRANKSHAFT--------------- 1-K3
CUP,SECONDARY------------ 1-G16
CUSHION(L),FRT SEAT------ 2-N10
CUSHION(R),FRT SEAT------ 2-L10
CUSHION,LID HINGE-------- 2-C7
CUSHION,RUBBER----------- 2-J9
2-M9
CUSHION,UNIT COVER------- 3-E4
CYL.,CLUTCH MASTER------- 1-F15
CYL.,CLUTCH RELEASE------ 1-F15
CYL.,TANDEM MASTER------- 1-G16

****
* *
* D *
* *
****

DAM,FRONT-WIND.---------- 2-D14
DAM,REAR-WIND.----------- 2-C14
DAMPER,FRONT------------- 1-N13
DAMPER,REAR-------------- 1-H12
DIAPHRAGM,VACUUM--------- 1-C8
DIFFERENTIAL------------- 1-C12
DISC,CLUTCH-------------- 1-C6
DISTRIBUTOR,FUEL--------- 1-H4
DISTRIBUTOR,OIL---------- 1-H9
DOVETAIL,LIFT GATE------- 2-L11
DRIVING & DIFF.---------- 1-I11
1-N11
DRUM,CLUTCH-------------- 1-L8
DRUM,CONNECTING---------- 1-F9
DRUM,DIRECT-------------- 1-D9
DRUM,REAR CLUTCH--------- 1-N8
DUCT NO.1(L)------------- 2-E10
DUCT NO.1(R)------------- 2-E10
DUCT(L),SIDE DEMIST.----- 2-E10
DUCT(R),SIDE DEMIST.----- 2-E10

DUCT,AIR----------------- 2-C13
DUCT,CENTER-------------- 2-E10
DUCT,FRESH AIR----------- 1-I4

****
* *
* E *
* *
****

ELEMENT,AIR CLEANER------ 1-J4
EMBLEM,CAP-WHEEL--------- 1-D14
EMBLEM.CENTER------------ 1-D14
END,CONTROL LEVER-------- 1-L6
END,S/ROD(1ST&2ND)------- 1-K6
END,S/ROD(3RD&4TH)------- 1-K6
END,SHIFT ROD(O/TOP&REV.) 1-L6
ENGINE,SHORT------------- 1-C3
ESCUTCHEON--------------- 2-K11
EVAPORATOR--------------- 2-C14
EYE BOLT KIT,ST. GEAR---- 1-E13

****
* *
* F *
* *
****

FABRIC,TOP-SOFT TOP------ 2-F14
FAN DRIVE---------------- 1-E5
FAN,CONDENSER------------ 2-J13
FAN,COOLING-------------- 1-C5
FASTENER----------------- 2-D15
2-F5
2-F11
2-H7
2-H8
2-I5
2-I7
2-I11
2-K6
2-N11
3-D4
3-E3
3-F4
3-I3
3-M4
FASTENER SET,TOP CLOTH--- 2-F14
FASTENER,BONNET RELEASE-- 2-M6
FASTENER,DOOR TRIM------- 2-L9
2-N11
FASTENER,LIFT GATE TRIM-- 2-F16
FASTENER,RAIN RAIL-REAR-- 2-G14
FASTENER,RAIN RAIL-SIDE-- 2-F14
FASTENER.REAR BUMPER----- 2-H5
2-I5
FASTENER,SEAL------------ 2-E16
3-F4
FASTENER,STOP LAMP-HI.--- 2-H6
FEEDER-ANTENNA----------- 2-E16
FILTER,FUEL-------------- 1-F4
FILTER,FUEL PUMP--------- 1-I15
FINISHER,REAR------------ 2-K6
FLANGE------------------- 1-F9
FLANGE,COMPANION--------- 1-I11
1-N11
FLOAT-------------------- 1-F16
FORK,BRAKE--------------- 1-D16
1-N15
FORK,CLUTCH-------------- 1-M15
FORK,CLUTCH RELEASE------ 1-C6
FORK,SHIFT--------------- 1-K6
FORK,SHIFT(1ST&2ND)------ 1-K6
FORK,SHIFT(3RD&4TH)------ 1-K6
FRAM(L),FRONT------------ 2-G7
FRAM(R),FRONT------------ 2-F7
FRAME(L),CUSHION-FRT----- 2-N10
FRAME(L),FRONT-REAR------ 2-G7
FRAME(L),REAR SIDE------- 2-D8
FRAME(R),CUSHION-FRT----- 2-L10
FRAME(R),REAR SIDE------- 2-C8
FRAME(UP.,L),FRONT-FRT--- 2-G7
FRAME(UP.,R),FRONT-FRT--- 2-F7
FRAME(UP.L),FRONT-REAR--- 2-G7

FRAME(UP.R),FRONT-REAR--- 2-G7
FRAME,FRONT-FRT FLOOR PAN 2-D8
FRAME,INST.PANEL--------- 2-K9
FRAME,POWER PLANT-------- 1-C15
FUSE(15A)---------------- 2-G16
FUSE(30A)---------------- 2-G16
2-J16
FUSE(40A)---------------- 2-J16
FUSE(80A)---------------- 2-J16

****
* *
* G *
* *
****

GASKET------------------- 1-C8
1-D15
1-D16
1-E3
1-I4
1-K15
1-L4
1-M15
2-K6
GASKET & SEAL KIT-------- 1-K9
GASKET KIT,COMPRESSOR---- 2-M13
GASKET SET,CYL. HEAD----- 1-C3
GASKET SET,ENGINE-------- 1-C3
GASKET(C),TIMING BELT(L)- 1-I3
GASKET(INN),TIMING BELT(L 1-I3
GASKET(L)---------------- 1-I3
GASKET,CAP--------------- 1-J15
GASKET,COMPRESSOR-------- 2-M13
GASKET,CONVERTER--------- 1-D15
GASKET,COVER PLATE------- 1-L6
GASKET,CYLINDER HEAD----- 1-E3
GASKET,DRAIN PLUG-------- 1-I15
GASKET,DRUM SUPPORT------ 1-E8
GASKET,EX.MANIFOLD------- 1-E4
GASKET,EXH.PIPE-CONVERTER 1-D15
GASKET,EXTENSION--------- 1-C8
GASKET,FILLER PIPE------- 1-I15
GASKET,FRONT COVER------- 1-C6
GASKET,GUIDE SEAL-SPEEDO. 1-D6
GASKET,HEAD COVER-------- 1-E3
GASKET,IN.MANIFOLD------- 1-D4
GASKET,LICENSE LAMP------ 2-I6
GASKET,O/DRIVE CASE------ 1-E8
GASKET,OIL JET----------- 1-G3
GASKET,OIL PAN----------- 1-D8
1-I3
GASKET,OIL PUMP---------- 1-J7
1-M4
GASKET,OIL STRAINER------ 1-N4
GASKET,REAR FINISHER----- 2-L6
GASKET,RR.COMB.---------- 2-G6
GASKET,SIDE TURN--------- 2-E6
GASKET,SPRING CAP-------- 1-L6
GASKET,STOP LAMP-HI.MOUNT 2-H6
GASKET,T.B.COVER LWR----- 1-I3
GASKET,T.BELT COVER-C.--- 1-J3
GASKET,THERMO------------ 1-K4
GASKET,THERMOSTAT COVER-- 1-D5
GASKET,VAC POWER ASSIST- 1-F16
GASKET,VAPOR VALVE------- 1-K15
GASKET,W.PUMP INLET------ 1-C5
GASKET,WATER PUMP-------- 1-C5
GASKET,WINDOW REGULATOR-- 2-L11
GASKET'A',DUST COVER----- 1-J15
GAUGE,FUEL TANK---------- 1-K15
GAUGE,OIL LEVEL---------- 1-D8
1-G3
GEAR SET,FINAL----------- 1-I11
1-N11
GEAR,ADJUST-------------- 1-G11
GEAR,COUNTER------------- 1-H6
GEAR,COUNTER REVERSE----- 1-H6
GEAR,COUNTER SHAFT------- 1-G8
GEAR,DIFF.SIDE----------- 1-J11
GEAR,DRIVEN-------------- 1-D6
1-M7
GEAR,INNER--------------- 1-M4
GEAR,INTERNAL------------ 1-F9

GEAR,INTERNAL---------- 1-N8
GEAR,MAIN DRIVE-------- 1-E6
GEAR,OUTER------------- 1-N4
GEAR,OVER DRIVE-------- 1-D9
GEAR,OVER TOP---------- 1-I6
GEAR,REVERSE----------- 1-G6
GEAR,REVERSE IDLE------ 1-H6
GEAR,RING-FLY WHEEL---- 1-L3
GEAR,SHAFT------------- 3-M3
GEAR,SPEEDO.DRIVE------ 1-F9
1-I6
GEAR,STEERING---------- 1-D13
1-N12
GEAR,SUN--------------- 1-N8
GEAR,1ST--------------- 1-F6
1-G6
GEAR,2ND--------------- 1-F6
GEAR,3RD--------------- 1-E6
GLASS(L),DOOR-FRT------ 2-H11
GLASS(L),VENTILATOR---- 2-I11
GLASS(R),DOOR-FRT------ 2-H11
GLASS(R),VENTILATOR---- 2-I11
GLASS,BACK WINDOW------ 2-D14
GLASS,WINDSHIELD------- 2-D14
GRILLE(L),DEMISTER----- 2-E10
GRILLE(L),SPEAKER------ 2-N11
GRILLE(R),DEMISTER----- 2-E10
GRILLE(R),SPEAKER------ 2-N11
GRILLE,COWL------------ 2-K5
GROMMET---------------- 1-H4
1-M12
2-C13
2-E16
2-J13
2-N15
3-E3
3-G3
GROMMET,BRAKE PEDAL---- 1-N15
GROMMET,DRAIN HOSE-TOP- 2-J14
GROMMET,KNOB-METER SET- 2-H9
GROMMET,SCREW---------- 2-C12
2-C15
2-H11
2-I7
2-K5
2-L5
2-M5
3-C4
GROMMET,SCREW-BAFFLE--- 2-I7
GROMMET,SCREW-DOOR GLASS- 2-H11
GROMMET,SCREW-RETAINER-- 2-I14
GROMMET,WASHER TANK---- 3-G3
3-J3
GUARD(L),MUD----------- 2-H7
GUARD(R),MUD----------- 2-H7
GUIDE,AIR-------------- 2-F5
GUIDE,VALVE------------ 1-F3
GUIDE'B'(L),GLASS------ 2-H11
GUIDE'B'(R),GLASS------ 2-H11
GUSSET NO.3(L),C.FLOOR PA 2-D8
GUSSET NO.3(R),C.FLOOR PA 2-C8
GUSSET(L),REAR FENDER-RR- 2-N7
GUSSET(L),SIDE SILL OUTER 2-M7
GUSSET(R),REAR FENDER-RR- 2-L7
GUSSET(R),SIDE SILL OUTER 2-K7
GUSSET,FRONT FLOOR PAN--- 2-D8

****
* *
* H *
* *
****

HANDLE(L),INNER-------- 2-J11
HANDLE(L),OUT.--------- 2-K11
HANDLE(R),INNER-------- 2-J11
HANDLE(R),OUT.--------- 2-K11
HANDLE,JACK------------ 1-F14
HANDLE,REGULATOR------- 2-K11
HANDLE,SOFT TOP-------- 2-H14
HANGER,ENGINE---------- 1-E3
HANGER,ENGINE-REAR----- 1-E3
HANGER,SILENCER-------- 1-D15
HARNESS NO.2,REAR------ 2-C15
HARNESS,COMPRESSOR----- 2-M13
HARNESS,DOOR----------- 2-M16
HARNESS,ENGINE--------- 2-K16
HARNESS,FRONT---------- 2-H16
HARNESS,INJECTOR------- 2-J16
HARNESS,INSTRUMENT----- 2-L16
HARNESS,REAR----------- 2-I16
HARNESS,WIRE----------- 2-J13
HEAD,CYL.-COMPRESSOR--- 2-M13
HEAD,CYLINDER---------- 1-D3
HEAD,ZIPPER-BACK WINDOW-- 2-G14
HEADER,FRONT----------- 2-L7
HEADER,FRONT-UPPER----- 2-L7
HEATER UNIT------------ 2-D13
HINGE------------------ 2-C10
HINGE(L),BONNET-------- 2-M6
HINGE(L),DOOR-LOWER---- 2-G11
HINGE(L),DOOR-UPPER---- 2-G11
HINGE(L),GLOVE LID----- 2-K9
HINGE(L),LID-LAMP------ 2-N5
HINGE(L),TRUNK LID----- 2-C7
HINGE(R),BONNET-------- 2-M6
HINGE(R),DOOR-LOWER---- 2-G11
HINGE(R),DOOR-UPPER---- 2-G11
HINGE(R),GLOVE LID----- 2-K9
HINGE(R),LID-LAMP------ 2-N5
HINGE(R),TRUNK LID----- 2-C7
HOLDER,BALANCE SPRING--- 2-C7
HOLDER,BRAKE PIPE------ 1-I16
HOLDER,BRUSH----------- 1-H7
HOLDER,CLUTCH---------- 1-G15
HOLDER,FUSE------------ 2-G16
HOLDER,JACK HANDLE----- 1-K15
HOLDER,NO. PLATE------- 2-F5
HOLDER,P.C.VALVE------- 1-F16
HOLDER,PIPE------------ 1-G15
1-J16
2-E3
2-M6
HOLDER,PLATE----------- 1-D16
HOLDER,ROD------------- 2-M6
2-N6
HOLDER,STEERING GEAR---- 1-E13
HOLDER'A'-------------- 2-E3
HOLDER'B',PIPE--------- 2-E3
HOLDER'C',PIPE--------- 2-F3
HOOD,METER------------- 2-E9
HOOK(L),TIE DOWN------- 2-G8
HOOK(L),TIE DOWN-FRONT-- 2-H7
HOOK(R),TIE DOWN------- 2-G8
HOOK(R),TIE DOWN-FRONT-- 2-H7
HOOK,HOOD-REAR CORNER--- 2-N14
HOOK,REAR DECK--------- 2-C15
HOOK,SOFT TOP-REAR DECK-- 2-H14
HOOK,TOP BOOT---------- 2-C15
HORN,LOW TONE---------- 2-M15
HOSE------------------- 1-F4
1-G4
1-I7
1-K15
1-L4
1-L7
2-F3
HOSE NO.1,BREATHER----- 1-J15
HOSE NO.1,WATER-------- 2-C13
HOSE NO.2,BREATHER----- 1-J15
HOSE NO.2,WATER-------- 2-C13
HOSE NO.3,BREATHER----- 1-J15
HOSE NO.4,BREATHER----- 1-J15
HOSE(C),DEFROSTER------ 2-E10
HOSE(L),FLEXIBLE-FRT--- 1-J16
HOSE(L),FLEXIBLE-RR---- 1-I16
HOSE(R),FLEXIBLE-FRT--- 1-I16
HOSE(R),FLEXIBLE-RR---- 1-I16
HOSE,AIR--------------- 1-I4
1-J4
HOSE,DRAIN------------- 1-F4
2-J13
HOSE,EVAPORATION------- 1-F4
HOSE,FILLER------------ 1-I15
HOSE,FLEXIBLE---------- 1-G15
HOSE,FLEXIBLE-HIGH----- 2-H13
HOSE,FLEXIBLE-LOW------ 2-H13
HOSE,FUEL-------------- 2-E3
HOSE,OIL--------------- 1-K7
HOSE,P.C.V.------------ 1-F3
HOSE,PRESSURE---------- 1-G13
HOSE,RETURN------------ 1-H13
HOSE,VACUUM------------ 1-F4
1-F16
1-K7
HOSE,VENT-------------- 1-J15
HOSE,VENT.-PURGE CONT. V. 1-F3
HOSE,VENTILATION------- 1-F3
HOSE,WATER------------- 1-D5
1-F5
1-L4
HOSE,WATER BY-PASS----- 1-C5
HOSE'C',WASHER--------- 3-H3
HOUSING(L),LAMP-LID HINGE 2-N5
HOUSING(L),LAMP-RR FENDER 2-N7
HOUSING(R),LAMP-LID HINGE 2-N5
HOUSING(R),LAMP-RR FENDER 2-L7
HOUSING,AIR CLEANER---- 1-I4
HOUSING,CONVERTER------ 1-J7
HOUSING,EXTENSION------ 1-C3
1-D6
HOUSING,GEAR----------- 1-D13
1-N12
HUB SET,CLUTCH-O.T. & REV 1-I6
HUB SET,CLUTCH-1ST & 2ND- 1-F6
HUB SET,CLUTCH-3RD & 4TH- 1-E6
HUB,CLUTCH------------- 1-E6
1-F6
1-I6
HUB,DRIVE-------------- 1-F9
HUB,O.DRIVE CLUTCH----- 1-D9
HUB,REAR CLUTCH-------- 1-N8
HUB,WHEEL-------------- 1-E11
1-I13
HYDRAULIC UNIT,A B S--- 1-L16

****
* *
* I *
* *
****

IDLER,TIMING BELT------ 1-C4
IGNITION,ELECTRIC------ 2-G15
INDICATOR-------------- 2-H3
INJECTION,FUEL-M.P.ELECT. 1-H4
INLET,WATER PUMP------- 1-C5
INSERT----------------- 1-K15
INSULATOR-------------- 1-J4
2-G8
INSULATOR NO.1,CHANGE--- 2-C10
INSULATOR,BALK HEAD PANEL 2-J7
INSULATOR,CHG LEVER---- 1-M6
INSULATOR,DASHBOARD---- 3-E4
INSULATOR,FUEL DIST.--- 1-H4
INSULATOR,HEAT--------- 1-E4
INSULATOR,HEAT-FRONT--- 2-G8
INSULATOR,INJECTION---- 1-H4
INSULATOR,RR FLOOR----- 3-E4

****
* *
* J *
* *
****

JACK------------------- 1-F14
JET,OIL---------------- 1-G3
JOINT------------------ 1-G3
1-I7
2-J11
3-G3
JOINT SET(R),INNER----- 1-D11
JOINT SET,BALL--------- 1-C13
1-E13
JOINT SET,OUTER-------- 1-D11
JOINT,BACK WINDOW MOULD-- 2-D14
JOINT,BALL------------- 1-C13
1-E13
JOINT,ELBOW-W.TANK----- 3-H3
JOINT,HOSE------------- 3-H3
JOINT,PIPE------------- 1-F16
JOINT,PIPE------------- 1-L16
JOINT,RUBBER----------- 1-I4
JOINT,STEERING--------- 1-M12
JOINT'T'--------------- 1-I15
JUNCTION(L),CORNER-Q/PANE 2-M7
JUNCTION(L),FRT. FLOOR--- 2-D8
JUNCTION(R),FRT. FLOOR--- 2-C8
JUNCTION,DASH SIDE-S.SILL 2-I7

****
* *
* K *
* *
****

KEY SET---------------- 2-C5
KEY SUB SET(L),DOOR---- 2-D5
KEY SUB SET(R),DOOR---- 2-D5
KEY SUB SET,CONSOLE---- 2-D5
2-E5
KEY SUB SET,GLOVE------ 2-D5
KEY SUB SET,ST.LOCK---- 2-D5
KEY SUB SET,TRUNK------ 2-D5
KEY,BLANK-------------- 2-D5
KEY,BLANK-PRIMARY------ 2-E5
KEY,PRIMARY------------ 2-C5
KEY,SECONDARY---------- 2-C5
KEY,SYNCHRONIZER------- 1-E6
KEY,WOODRUFF-PULLEY---- 1-K3
KNOB NO.1-------------- 2-F13
KNOB(L),KNUCKLE-------- 2-K10
KNOB(R),KNUCKLE-------- 2-J10
2-K10
KNOB,AIR CON.---------- 2-H13
KNOB,BALANCE-TUNER----- 2-C16
KNOB,CHANGE LEVER------ 1-M6
2-G3
KNOB,FAN SWITCH-------- 2-F13
2-H13
KNOB,TONE-TUNER-------- 2-D16
KNOB,VOLUME-TUNER------ 2-D16
KNUCKLE(L),REAR-------- 1-E11
KNUCKLE(L),RECLINING---- 2-M10
KNUCKLE(L),STEERING---- 1-I13
KNUCKLE(R),REAR-------- 1-E11
KNUCKLE(R),RECLINING---- 2-K10
KNUCKLE(R),STEERING---- 1-I13

****
* *
* L *
* *
****

LABEL,ANTI THEFT-AUDIO-- 2-C16
LABEL,BATTERY---------- 3-L4
LABEL,CAUTION---------- 3-K4
LABEL,CAUTION-AIR BAG--- 3-K4
LABEL,CAUTION-FUSE COVER- 2-G16
LABEL,CAUTION-RADIATOR-- 3-K4
LABEL,CAUTION-RETRACTABLE 2-N5
LABEL,CHANGE----------- 2-M9
LABEL,EMISSION--------- 3-L4
LABEL,OIL-------------- 3-K4
LABEL,TEMPORARY TIRE---- 3-K4
LABEL,TIRE------------- 3-K4
LABEL,UNLEADED FUEL---- 3-K4
LABEL,VAC.DIAPHRAGM---- 3-L4
LABEL'A',CAUTION-A/B---- 3-K4
LABEL'B',CAUTION-A/B---- 3-K4
LAMP SET(L),FRT COMB---- 2-D6
LAMP SET(L),HEAD-------- 2-L5
LAMP SET(L),RR.COMB.---- 2-F6
LAMP SET(L),SIDE TURN--- 2-D6
LAMP SET(L),SIDE TURN-RR- 2-H6
LAMP SET(R),FRT COMB---- 2-D6
LAMP SET(R),HEAD-------- 2-L5
LAMP SET(R),RR.COMB.---- 2-F6
LAMP SET(R),SIDE TURN--- 2-D6
LAMP SET(R),SIDE TURN-RR- 2-H6
LAMP,LICENSE----------- 2-I6
LAMP,PERSONAL---------- 2-C9
LAMP,STOP-HI MOUNT----- 2-H6
LENS & BODY(L)--------- 2-D6
LENS & BODY(L),RR COMB.-- 2-G6
LENS & BODY(L),RR SIDE TU 2-G6
LENS & BODY(R)--------- 2-D6
LENS & BODY(R),RR COMB.-- 2-F6
LENS & BODY(R),RR SIDE TU 2-G6
LENS & HOUSING(L)------ 2-D6
LENS & HOUSING(R)------ 2-D6
LENS(L),RR.COMB.------- 2-G6
LENS(R),RR.COMB.------- 2-F6
LENS,PERSONAL LAMP----- 2-C9
LENS,STOP LAMP-HI.MOUNT-- 2-H6
LEVER------------------ 1-G7
LEVER(L),OPERATING----- 1-G11
LEVER(R),OPERATING----- 1-G11
LEVER,ACCELERATOR------ 1-H15
LEVER,CHANGE----------- 1-M6
LEVER,PARKING BRAKE---- 2-C3
LEVER,SELECT----------- 1-I9
2-G3
LID(L),LAMP------------ 2-N5
LID(R),LAMP------------ 2-N5
LID,ASHTRAY------------ 2-D9
LID,CONSOLE------------ 2-C10
LID,FUEL FILLER-------- 1-L15
LID,TRUNK-------------- 2-C7
LIGHT,PLATE-ASHTRAY---- 2-D9
LIGHTER,CIGAR---------- 2-I15
LINK SET,MODE---------- 2-D13
LINK SET,TEMP---------- 2-D13
LINK,CONTROL-STAB------ 1-C14
1-K12
LINK,FUSIBLE----------- 2-K16
LINK,RECICLE & FRESH--- 2-G13
LINK,SOFT TOP---------- 2-F14
LINK,WIPER------------- 3-K3
LOCK(L),DOOR----------- 2-J11
LOCK(L),TOP------------ 2-M14
LOCK(R),DOOR----------- 2-J11
LOCK(R),TOP------------ 2-L14
LOCK,BONNET------------ 2-M6
LOCK,CONSOLE-REAR------ 2-C10
LOCK,DETACHABLE TOP---- 2-H14
LOCK,LID--------------- 2-C7
LOUVER,VENTILATOR------ 2-F10

****
* *
* M *
* *
****

MANIFOLD,EXHAUST------- 1-E4
MANIFOLD,INLET--------- 1-D4
MAT,FLOOR-------------- 3-E4
3-F4
MAT,REAR END----------- 3-F4
MAT,TRUNK ROOM--------- 3-F4
MEMBER NO.2(L),CROSS-FLOO 2-D8
MEMBER NO.2(R),CROSS-FLOO 2-C8
MEMBER NO.3,CROSS------ 2-C8
2-D8
MEMBER NO.4,CROSS------ 2-D8
MEMBER(R),INST. PANEL-- 2-K9
MEMBER,CROSS----------- 1-C14
1-J12
2-E7
MEMBER,REAR DECK------- 2-L7
METAL SET,CONN.ROD----- 1-L3
METAL SET,MAIN BRG.---- 1-M3
METAL SET,THRUST------- 1-M3
METER SET-------------- 2-G9
METER,FUEL------------- 2-I9
METER,OIL PRESSURE----- 2-G9
METER,THERMO----------- 2-I9
MIRROR(L),DOOR--------- 3-I4
MIRROR(R),DOOR--------- 3-I4
MIRROR,INTERIOR-------- 3-I4
MODULE,AIR BAG--------- 2-F11
MODULE,POWERTRAIN CONTROL 2-F15
MOTOR(L),RETRACTABLE HEAD 2-M5
MOTOR(R),RETRACTABLE HEAD 2-M5
MOTOR,FAN-BLOWER UNIT-- 2-G13
MOTOR,WIPER------------ 3-K3
MOULD(UP),FRT.WINDOW--- 2-K5

MOULD,BELTLINE-REAR------ 2-J14
MOULD,RR.WINDOW---------- 2-D14

****
* *
* N *
* *
****

NIPPLE,VANE PUMP--------- 1-G13
NOZZLE(L),DEFROSTER------ 2-E10
NOZZLE(R),DEFROSTER------ 2-E10
NOZZLE,WASHER-F.WIND----- 3-H3
NUT---------------------- 1-C11
1-C14
1-C15
1-D11
1-D15
1-E11
1-I8
1-I13
1-J7
1-J12
1-K12
1-L13
1-N7
2-G3
NUT SET------------------ 1-E7
NUT,ADJUST--------------- 1-E13
NUT,CLIP----------------- 2-F7
2-G8
2-H5
2-J5
NUT,CONNECTING ROD------- 1-K3
NUT,DECK LOCK------------ 2-M14
NUT,EX.MANIFOLD---------- 1-E4
NUT,EXPANSION------------ 2-L9
NUT,FLANGE--------------- 1-G12
1-L13
NUT,FLANGE-CAP----------- 1-C16
3-E4
NUT,HUB------------------ 1-D14
NUT,LOCK----------------- 1-C13
1-I11
1-N11
1-N12
NUT,LOCK-CLUTCH HUB------ 1-I6
NUT,LOCK-COUNTER SHAFT BR 1-H6
NUT,LOCK-RACK------------ 1-D13
NUT,SELF LOCK------------ 2-C15
NUT,SIDE PROTECTOR------- 2-D6
2-F6
NUT,SPRING--------------- 2-J9
NUT,STOPPER-LAMP HINGE--- 2-M5
NUT,TOP-CRASH PAD-------- 2-M9
NUT,WIPER LINK----------- 3-G3

****
* *
* O *
* *
****

OIL,COMPRESSOR----------- 2-N13
OPENER,FILLER LID-------- 1-L15
OPENER,T/LID & F/LID----- 1-L15
ORIFICE------------------ 1-F3
ORNAMENT,FRONT----------- 2-J6
ORNAMENT,MAKER NAME-FRONT 2-J6
ORNAMENT,MAKER NAME-REAR- 2-J6
ORNAMENT,REAR------------ 2-J6
ORNAMENT,STEREO---------- 2-C16
ORNAMENT,STEREO-LOWER---- 2-C16
ORNAMENT,STEREO-UPPER---- 2-C16
OUTLET,WATER------------- 1-D5

****
* *
* P *
* *
****

PACK,SILENT-------------- 2-D10
PAD---------------------- 2-D15
PAD---------------------- 2-L11
2-M11
PAD SET,FRT CALIPER------ 1-J13
PAD SET,RR CALIPER------- 1-G11
PAD(L),CUSHION-FRT------- 2-N10
PAD(R),BACK-FRT---------- 2-M10
PAD(R),CUSHION-FRT------- 2-L10
PAD,CHANGE BOOT---------- 2-D10
PAD,CRASH---------------- 2-J9
PAD,FRONT FLOOR---------- 3-E4
PAD,FUEL TANK------------ 1-K15
PAD,INSTRUMENT PANEL----- 2-J9
PAD,PEDAL---------------- 1-D16
1-M15
PAD,RR FENDER------------ 3-E4
PAD'B'(L),BACK-FRT------- 2-D11
PAD'B'(R),BACK-FRT------- 2-C11
2-D11
PAN(L),FLOOR------------- 2-E8
PAN(R),FLOOR------------- 2-D8
PAN,FLOOR-CENTER--------- 2-C8
PAN,FLOOR-FRONT---------- 2-C8
PAN,FLOOR-REAR----------- 2-C8
PAN,OIL------------------ 1-D8
1-I3
PANEL(L),COWL SIDE------- 2-M7
PANEL(L),FENDER-FRT.----- 2-F7
PANEL(L),FENDER-REAR----- 2-N7
PANEL(L),FLOOR SIDE------ 2-E8
PANEL(L),INSIDE---------- 2-M7
PANEL(L),OUT -FRT DOOR--- 2-G11
PANEL(L),QUARTER--------- 2-M7
PANEL(L),RR FENDER-LOWER- 2-M7
PANEL(L),WHEEL APRON----- 2-F7
2-G7
PANEL(R),COWL SIDE------- 2-J7
PANEL(R),FENDER-FRT.----- 2-F7
PANEL(R),FENDER-REAR----- 2-N7
PANEL(R),FLOOR SIDE------ 2-E8
PANEL(R),INSIDE---------- 2-K7
PANEL(R),OUT.-FRT DOOR--- 2-G11
PANEL(R),QUARTER--------- 2-J7
2-K7
PANEL(R),WHEEL APRON----- 2-F7
PANEL,AUDIO-------------- 2-C16
PANEL,BULK HEAD---------- 2-J7
PANEL,CENTER------------- 2-C9
PANEL,CENTER-LOWER------- 2-D9
PANEL,COWL-FRONT--------- 2-I7
PANEL,DASH-LOWER--------- 2-I7
PANEL,DASH-UPPER--------- 2-I7
PANEL,INSTRUMENT--------- 2-J9
2-K9
PANEL,PLATE-MODE CONTROL- 2-E13
PANEL,RAD.SHROUD--------- 2-E7
PANEL,REAR DECK---------- 2-L7
PANEL,REAR END----------- 2-L7
PANEL,ROOF--------------- 2-J14
2-K14
PARTS KIT,INN.-BRAKE----- 1-G16
PARTS KIT,INNER---------- 1-F15
PARTS SET---------------- 3-M3
PARTS SET,ST. WHEEL------ 1-L12
PASS,OIL----------------- 1-D6
PAWL,PARKING------------- 1-J9
PEDAL & ARM-------------- 1-H15
PEDAL,BRAKE-------------- 1-D16
1-N15
PEDAL,CLUTCH------------- 1-M15
PIECE,DISTANCE----------- 1-C12
1-J11
PILLAR(L),FRONT-OUT.----- 2-N7
PILLAR(L),FRT.-INNER----- 2-M7
PILLAR(L),HINGE---------- 2-M7
PILLAR(L),HINGE-OUT.----- 2-N7
PILLAR(R),FRONT-OUT.----- 2-N7
PILLAR(R),FRT.-INNER----- 2-K7
PILLAR(R),HINGE---------- 2-K7
PILLAR(R),HINGE-OUT.----- 2-N7
PIN----------------------- 1-K11
1-N15
PIN,CHECKER-------------- 2-J11
PIN,DECK LOCK------------ 2-M14
PIN,GUIDE---------------- 1-H11
PIN,INTER LOCK----------- 1-K6
PIN,PIVOT-CLUTCH REL.FORK 1-C6
PIN,SLIDER--------------- 1-J13
PIN,SNAP----------------- 1-E16
1-N15
2-G3
PIN,SPRING-PARKING ROD--- 1-J9
PIN,TUBULAR-------------- 1-C12
1-G3
1-I3
1-J11
PINION,DIFFERENTIAL------ 1-J11
PINION,STEERING GEAR----- 1-N12
PIPE NO.1,BRAKE-FRT------ 1-J16
PIPE NO.1,COOLER--------- 2-H13
PIPE NO.2,BRAKE-FRT.----- 1-J16
PIPE NO.2,BRAKE-REAR----- 1-J16
PIPE NO.2,COOLER--------- 2-H13
PIPE NO.4,COOLER--------- 2-H13
PIPE NO.5,COOLER--------- 2-I13
PIPE(L),BRAKE-FRONT------ 1-J16
PIPE(R),BRAKE-FRONT------ 1-J16
PIPE,AUTO CRUISE CONTROL- 2-N15
PIPE,BRAKE--------------- 1-I16
PIPE,BRAKE-REAR---------- 1-I16
PIPE,BYPASS-------------- 1-E5
PIPE,CLUTCH-------------- 1-G15
PIPE,COOLING UNIT-------- 2-C14
PIPE,DRAIN-RR FENDER----- 2-J7
PIPE,EVAPORATION--------- 2-E3
PIPE,EXHAUST-FRONT------- 1-D15
PIPE,FILLER-------------- 1-I15
PIPE,FILLER-F.WASHER TANK 3-G3
PIPE,FUEL-MAIN----------- 2-E3
PIPE,FUEL-RETURN--------- 2-E3
PIPE,HEATER UNIT--------- 2-D13
PIPE,OIL----------------- 1-K7
PIPE,OIL LEVEL GAUGE----- 1-G3
PIPE,PEDAL--------------- 1-D16
1-N15
PIPE,RETURN-------------- 1-G13
PIPE,SCREEN WASHER------- 3-H3
3-I3
PIPE,SUCTION------------- 1-G13
PIPE,VACUUM-------------- 1-G16
1-K7
PIPE,VENTILATION--------- 1-E3
PIPE,VINYL--------------- 3-J3
PIPE,WATER--------------- 1-D5
PIPE'A',CYLINDER--------- 1-F13
PIPE'B',CYLINDER--------- 1-F13
PIPE'B',ST. GEAR--------- 1-F13
PISTON SET--------------- 1-M3
PISTON,ACCUMULATOR------- 1-E8
PISTON,BAND SERVO-------- 1-N7
PISTON,CLUTCH------------ 1-L8
PISTON,FLOATING---------- 1-G16
PISTON,LOW & REVERSE----- 1-G9
PISTON,PRIMARY----------- 1-G16
PLATE-------------------- 1-D16
PLATE NO.1,SEAL---------- 2-J13
PLATE NO.2(L),SET-F.BUMPE 2-G5
PLATE NO.2(R),SET-F.BUMPE 2-G5
PLATE NO.2,SEAL---------- 2-J13
PLATE NO.3,SEAL---------- 2-J13
PLATE SET---------------- 2-I5
PLATE(C),SET-TOP FABRIC-- 2-I14
PLATE(FRT),SET-ROOF PANEL 2-G14
PLATE(L),CLOSING-QTR PANE 2-N7
PLATE(L),FRONT SCUFF----- 3-C4
PLATE(L),HOOK-REAR DECK-- 2-H14
PLATE(L),SEAL------------ 2-M7
PLATE(L),SET-TOP FABRIC-- 2-J14
PLATE(L),SIDE-REAR FLOOR- 2-D8
PLATE(OUT),TIMING BELT--- 1-L3
PLATE(R),CLOSING-QTR PANE 2-L7
PLATE(R),END------------- 2-K7
PLATE(R),FRONT SCUFF----- 3-C4
PLATE(R),HOOK-REAR DECK-- 2-H14
PLATE(R),SEAL------------ 2-K7
PLATE(R),SET-TOP FABRIC-- 2-I14
PLATE(R),SIDE-REAR FLOOR- 2-C8
PLATE,ASHTRAY------------ 2-D9
PLATE,BACK-BOOTS RING---- 2-M9
PLATE,BACKING------------ 1-J7
PLATE,BAFFLE------------- 1-D3
PLATE,BAFFLE-DIFF CASING- 1-F12
1-M11
PLATE,CAM-SUB FRAME------ 1-J12
1-L13
PLATE,CAUTION------------ 3-K4
3-L4
PLATE,CLAMP-------------- 1-C13
1-E13
1-I3
1-J11
PLATE,CLAMP-JACK--------- 1-F14
PLATE,CRANKSHAFT PULLEY-- 1-L3
PLATE,CUSHION-D. TOP----- 2-L14
PLATE,DECK LOCK---------- 2-L14
PLATE,DISC--------------- 1-E11
1-I13
PLATE,DISHED------------- 1-L8
PLATE,DRIVE-------------- 1-J7
PLATE,DRIVEN------------- 1-G9
1-L8
1-M8
PLATE,END---------------- 1-J3
PLATE,HOLDER-BRUSH------- 3-M3
PLATE,LOCK--------------- 1-C12
1-K11
PLATE,MANUAL------------- 1-I9
PLATE,NUT-TRUNK FLOOR PAN 2-C8
PLATE,OIL BAFFLE--------- 1-D3
PLATE,OIL BAFFLE-CYL. BLK 1-I3
PLATE,OIL BAFFLE-EX.----- 1-D3
PLATE,OIL BAFFLE-IN.SIDE- 1-D3
PLATE,PRINT-------------- 2-H9
PLATE,RETAINER----------- 1-H9
PLATE,RETAINING---------- 1-E9
1-G9
1-I9
1-M8
PLATE,SEAL-T.BELT COVER U 1-J3
PLATE,SEPARATOR---------- 1-I8
PLATE,SET NO.1----------- 2-G5
PLATE,SIDE'A'------------ 1-H8
PLATE,SIDE'B'------------ 1-H8
PLATE,SIDE'D'------------ 1-G8
PLATE,STABILIZER--------- 1-C14
PLATE,STABILIZER-RR------ 1-I12
PLATE,TIMING BELT GUIDE-- 1-K3
PLATE,WINDOW------------- 2-H9
PLAYER,COMPACT DISC------ 2-C16
PLUG--------------------- 1-D7
1-G3
2-F8
PLUG,ACCUMULATOR--------- 1-E8
PLUG,BLIND--------------- 1-G3
PLUG,COMPRESSOR---------- 2-M13
PLUG,DRAIN--------------- 1-I3
1-I15
2-C7
2-F8
2-J11
PLUG,HOLE---------------- 2-F8
PLUG,MAGNET-------------- 1-D6
1-I11
1-N11
PLUG,PINION-------------- 1-D13
1-N12
PLUG,PINION-ST.GEAR------ 1-E13
PLUG,REGULATOR----------- 1-G8
PLUG,SCREW--------------- 1-G11
PLUG,SPARK--------------- 1-N6
PLUG,SQUARE HEAD--------- 1-M7
PLUG,2-3 SHIFT----------- 1-H8
PLUG,3-4 SHIFT----------- 1-I8
PLUNGER,CONTROL---------- 1-M4
POLE,ANTENNA------------- 2-E16
PRESSURE RG.,FUEL-------- 1-H4
PROTECTOR---------------- 1-F4
1-G11
2-I15
2-K5
PROTECTOR(C),EDGE-D.TOP-- 2-N14
PROTECTOR(L),'A'--------- 2-G6
PROTECTOR(L),'B'--------- 2-G6
PROTECTOR(L),EDGE-D.TOP-- 2-N14
PROTECTOR(L),RETRA. FRONT 2-M5
PROTECTOR(L),RETRA. H/L-- 2-M5
PROTECTOR(L),RETRA. SIDE- 2-M5
PROTECTOR(L),SPLASH------ 2-M7
PROTECTOR(R),'A'--------- 2-F6
PROTECTOR(R),'B'--------- 2-G6
PROTECTOR(R),EDGE-D.TOP-- 2-N14
PROTECTOR(R),RETRA H/L--- 2-M5
PROTECTOR(R),RR FENDER--- 2-G8
PROTECTOR(R),SPLASH------ 2-K7
PROTECTOR,CABLE---------- 3-G3
PROTECTOR,COWL GRILLE---- 2-K5
PROTECTOR,HARNESS-------- 3-D3
PROTECTOR,HT.CORD-S.TANK- 1-E3
PROTECTOR,MOULD-FRT WIND- 2-K5
PROTECTOR,NO. PLATE------ 2-G5
PROTECTOR'A'(L),LINK----- 2-F14
PROTECTOR'A'(R),LINK----- 2-F14
PROTECTOR'A',FILLER PIPE- 1-J15
PROTECTOR'B'(L),LINK----- 2-F14
PROTECTOR'B'(R),LINK----- 2-F14
PROTR(L),MOULD-BELT LINE- 2-J14
PROTR(L),SEAT BELT------- 2-K10
PROTR(R),MOULD-BELT LINE- 2-J14
PROTR(R),SEAT BELT------- 2-J10
PROTR,BACK WINDOW-UPPER-- 2-D14
PULLEY------------------- 1-E7
PULLEY,CAMSHAFT---------- 1-N3
PULLEY,CRANKSHAFT-------- 1-K3
PULLEY,IDLE-------------- 1-G5
PULLEY,MAGNET CLUTCH----- 2-N13
PULLEY,TIMING BELT------- 1-K3
PULLEY,WATER PUMP-------- 1-C5
PUMP SET,WATER----------- 1-C5
PUMP,FUEL---------------- 1-I15
PUMP,OIL----------------- 1-J7
1-M4
PUMP,VANE---------------- 1-G13
PUMP,WASHER-------------- 3-I3

****
* *
* R *
* *
****

RACE,BEARING------------- 1-C9
RACE,BRG.HUB CLUTCH------ 1-E9
RACE,BRG.PUMP COVER------ 1-C9
RACE,INNER--------------- 1-F9
1-G6
RACE,OUTER--------------- 1-F9
RACE,OUTER-ONE WAY CLUTCH 1-D9
RACE,SHELL BEARING------- 1-N8
RACE,SIDE-ONE WAY CLUTCH- 1-D9
RACK,STEERING GEAR------- 1-D13
1-N12
RADIATOR----------------- 1-D5
RAIL(L),RAIN-REAR-------- 2-N7
RAIL(R),RAIN-REAR-------- 2-L7
RAIL,RAIN-SOFT TOP REAR-- 2-I14
RECTIFIER---------------- 1-D7
REGULATOR(L),WINDOW------ 2-K11
2-L11
REGULATOR(R),WINDOW------ 2-K11
REGULATOR,VOLTAGE-------- 1-E7
REINF.(L),BELT LINE-C.PIL 2-L7
REINF.(L),SIDE SILL------ 2-M7
REINF.(L),STRIKER-------- 2-M7
REINF.(L),TIE DOWN HOOK-- 2-H7
REINF.(L),WHEEL APRON---- 2-G7
REINF.(R),BELT LINE-C.PIL 2-K7
REINF.(R),SIDE SILL------ 2-K7
REINF.(R),STRIKER-------- 2-L7
REINF.(R),TIE DOWN HOOK-- 2-G7
REINF.(R),WHEEL APRON---- 2-G7
REINF.,FUEL TANK--------- 1-J15
REINFORCEMENT------------ 2-L6
REINFORCEMENT(R)--------- 2-G7
REINFORCEMENT,BUMPER----- 2-F5
2-I5
RELAY,FUEL PUMP---------- 2-F15
RELAY,MAIN--------------- 2-F15
RELAY,MOTOR-HYD. UNIT---- 1-L16

RELAY,N.O.---------- 2-H13
2-K15
RELAY,TRANSFER---------- 2-K15
RELAY,VALVE-HYD. UNIT---- 1-L16
RESISTOR,BLOWER UNIT----- 2-G13
RESISTOR,PANEL LIGHT----- 2-C9
REST(L),ARM---------- 2-D12
REST(R),ARM---------- 2-C12
REST,FOOT---------- 1-D16
1-N15
RETAINER---------- 1-I9
RETAINER(L),FRONT BUMPER- 2-F5
RETAINER(L),WTHSTP-D.TOP- 2-N14
RETAINER(R),FRONT BUMPER- 2-F5
RETAINER(R),WTHSTP-D.TOP- 2-M14
RETAINER,FASCIA---------- 2-F5
RETAINER,LOCK CYL.------- 2-K11
RETAINER,R.BUMPER-------- 2-I5
RETAINER,SERVO---------- 1-F8
1-N7
RETAINER,SPRING---------- 1-L8
RETAINER'A'(L),WTHSTP---- 2-I14
RETAINER'A'(R),WTHSTP---- 2-H14
RETAINER'B'(L),WTHSTP---- 2-I14
RETAINER'B'(R),WTHSTP---- 2-H14
RETAINER'C'(L),WTHSTP---- 2-I14
RETAINER'C'(R),WTHSTP---- 2-H14
RING---------- 1-H9
RING SET,'O'-AIR CON.---- 2-L13
RING SET,PISTON---------- 1-L3
1-M3
RING(L)MOUNTING---------- 2-L5
RING(R)MOUNTING---------- 2-L5
RING,'O'---------- 1-C8
1-D6
1-D8
1-E8
1-F8
1-G3
1-H4
1-I9
1-L7
1-M7
2-E15
2-G15
RING,'O'-AIR VALVE------- 1-L4
RING,'O'-FUEL PUMP------- 1-I15
RING,'O'-MASTER CYL.----- 1-G16
RING,'O'-NO.1---------- 2-L13
RING,'O'-NO.2---------- 2-L13
RING,'O'-NO.3---------- 2-L13
RING,'O'-WATER BYPASS---- 1-E5
RING,'O'-WATER PUMP------ 1-C5
RING,'O'-WATER THERMO SW. 2-E15
RING,BACK UP---------- 1-E13
RING,ILLUMINATION-------- 2-I15
RING,RETAINING---------- 1-E6
1-F16
1-L6
2-L5
RING,RETAINING-BALL BEARI 1-H6
RING,RETAINING-DISC PLATE 1-E11
RING,RETAINING-SHIFT ROD- 1-K6
RING,SEAL---------- 1-E8
1-H9
1-M7
RING,SNAP---------- ---- 1-C9
1-E6
1-E9
1-F9
1-G9
1-I9
1-L8
1-N8
2-L11
2-N13
RING,SNAP-MAGNET CLUTCH-- 2-N13
RING,SNAP-RR CALIPER----- 1-H11
RING,SYNCHRONIZER-------- 1-F6
1-J6
RING,THRUST WASHER------- 1-I6
RING'O'---------- 1-I16
RIVET---------- 2-C6
RIVET,BAND-MODEL PLATE--- 3-K4
ROD,CONNECTING---------- 1-K3
ROD,CONTROL---------- 1-L6
ROD,DIAPHRAGM---------- 1-C8
1-D8
ROD,PARKING---------- 1-I9
ROD,PUSH---------- 1-F15
1-M15
ROD,PUSH-FRT CALIPER----- 1-H11
ROD,RELEASE---------- 2-C3
ROD,RETRACTABLE---------- 2-M5
ROD,SELECTOR-REAR-------- 2-H3
ROD,SHIFT(1ST&2ND)-------- 1-K6
ROD,SHIFT(3RD&4TH)-------- 1-K6
ROD,SHIFT-OVER TOP & REVE 1-K6
ROLLER---------- 1-H15
ROOF,DETACHABLE TOP------ 2-K14
2-L14
ROTOR---------- 1-E7
ROTOR,SENSOR-FRT A.B.S.--- 1-F11
1-I13
RUBBER(C),CUSHION-BONNET- 2-M6
RUBBER(LWR),MOUNT-TANK--- 1-K15
RUBBER(UP),MOUNT-TANK---- 1-K15
RUBBER,BLADE-FRONT------- 3-K3
RUBBER,BLIND---------- 2-E9
RUBBER,CUSHION---------- 2-C7
RUBBER,CUSHION-BONNET FRT 2-M6
RUBBER,CUSHION-BONNET RR- 2-M6
RUBBER,DUST SEAL---------- 2-F8
RUBBER,ENGINE MT.-------- 1-C15
RUBBER,INS.-CONDR-------- 2-H13
RUBBER,INSULATION-------- 1-F4
RUBBER,INSULATOR---------- 2-I13
RUBBER,MOUNT---------- 1-J4
RUBBER,MOUNT-HYD. UNIT--- 1-L16
RUBBER,MOUNTING---------- 1-D13
1-G12
1-J4
1-L13
1-N6
1-N12
2-E15
RUBBER,SEAL---------- 1-D6
1-E5
RUBBER,SEAL-SEAL PLATE--- 1-J3
RUBBER,STAB -FRT--------- 1-C14
RUBBER,STOP---------- 1-M15
RUBBER,STOPPER---------- 1-D16
1-M15
RUBBER,SUB FRAME MTG----- 1-F12
1-M11
****
* *
* S *
* *
****
SCREEN(L),FRONT DOOR----- 2-L11
SCREEN(R),FRONT DOOR----- 2-L11
SCREW---------- 1-G8
1-I8
2-G3
2-L5
SCREW & WASHER SET------- 1-K4
SCREW SET---------- 1-E7
1-G7
SCREW SET,IDLE ADJUST-TH. 1-K4
SCREW,ADJUST---------- 1-C12
1-K11
2-D3
2-L5
SCREW,ASHTRAY---------- 2-D9
SCREW,BLEEDER---------- 1-F15
1-H11
1-J13
SCREW,BRACKET-WIPER MOTOR 3-M3
SCREW,CHANGE LEVER KNOB-- 2-G3
SCREW,DOOR SWITCH-------- 2-M15
SCREW,EARTH SET-MOTOR BRK 3-M3
SCREW,GROMMET---------- 2-K5
SCREW,HEAD LAMP BEZEL---- 2-N5
SCREW,HOOK-REAR DECK----- 2-H14
SCREW,KNUCKLE---------- 2-K10
SCREW,KNUCKLE---------- 2-L10
SCREW,MOTOR-ELECTRIC FAN- 1-C5
SCREW,MOULD-FRT WIND.---- 2-J9
SCREW,OIL PUMP COVER----- 1-M4
SCREW,RR HEATER UNIT----- 2-E13
SCREW,SIDE GARNNISH------ 2-K5
SCREW,TAPPING---------- 2-F6
2-F10
2-L9
SCREW,TAPPING-DOOR LOCK-- 2-J11
SCREW,TAPPING-MUD GUARD-- 2-G8
SCREW,TIE DOWN HOOK------ 2-G8
SCREW,TOP LOCK---------- 2-H14
SCREW,WEDGE-LIFT GATE---- 2-L11
SCREW,WINDOW REGULATOR--- 2-H13
SEAL KIT---------- 1-F15
SEAL KIT,CALIPER-FRT----- 1-J13
SEAL KIT,CALIPER-RR------ 1-H11
SEAL KIT,ST. GEAR-------- 1-E13
SEAL KIT,VANE PUMP------- 1-G13
SEAL,'O'RING---------- 1-C8
1-E8
1-G9
1-L8
2-G15
SEAL,COOLING UNIT-------- 2-C14
SEAL,CUT RING---------- 1-K7
1-M7
SEAL,DUST---------- 1-M13
SEAL,DUST-BALL JOINT----- 1-C13
1-E13
1-L13
SEAL,LATHE CUT---------- 1-C8
1-L8
SEAL,OIL---------- 1-C6
1-C12
1-D6
1-I11
1-J3
1-J11
1-K7
1-M4
1-M7
1-N11
SEAL,OIL-AXLE---------- 1-E11
SEAL,OIL-CRANKSHAFT------ 1-J3
SEAL,PISTON---------- 1-G9
1-N7
SEAL,RUBBER---------- 1-E3
SEAL,RUBBER-FRONT BUMPER- 2-F5
SEAL,RUBBER-REAR BUMPER-- 2-I5
SEAL,SHAFT---------- 1-N12
SEAL,SHAFT-COMPR.-------- 2-M13
SEAL,VALVE---------- 1-N3
SEAT(L),FRONT---------- 2-J10
SEAT(R),FRONT---------- 2-I10
2-J10
SEAT,REGULATOR SPRING---- 1-G8
SEAT,VALVE SPG.-LWR------ 1-N3
SEAT,VALVE SPG-UP.------- 1-N3
SENSOR(C),AIR BAG-------- 2-F11
SENSOR(L),AIR BAG-------- 2-F11
SENSOR(L),FRT-A.B.S.----- 1-L16
1-M16
SENSOR(L),RR-A.B.S.------ 1-M16
SENSOR(R),AIR BAG-------- 2-F11
SENSOR(R),FRT-A.B.S.----- 1-L16
SENSOR(R),RR A.B.S.------ 1-M16
SENSOR,AIR BAG-INNER----- 2-F11
SENSOR,AIR FLOW---------- 1-I4
SENSOR,CRANKSHAFT POSI.-- 2-E15
SENSOR,OXYGEN---------- 2-F15
SENSOR,RESERVE TANK------ 1-F16
SENSOR,STEERING PRESSURE- 1-G13
SENSOR,TEMP.-ENG.COOLANT- 2-F15
SENSOR,THROTTLE POSITION- 1-K4
SERVO,OVER DRIVE--------- 1-F8
SET PIN,SPRING---------- 1-E5
SET PLATE NO.1(R),RR BUMP 2-G5
SHADE,LAMP-LICENSE------- 2-I6
SHAFT---------- 1-H9
SHAFT(L),OUTPUT---------- 1-C12
SHAFT(R),OUTPUT---------- 1-C12
SHAFT,CYL -COMPRESSOR---- 2-M13
SHAFT,DIFF. PINION------- 1-J11
SHAFT,DRIVE---------- 1-D11
SHAFT,DRIVE NO.1--------- 3-K3
SHAFT,DRIVE NO.2--------- 3-L3
SHAFT,ENGY.ABSORBER------ 1-M12
SHAFT,INPUT---------- 1-K7
SHAFT,INTERMED.---------- 1-M12
SHAFT,INTERMEDIATE------- 1-E9
SHAFT,MAIN---------- 1-E6
SHAFT,MANUAL---------- 1-I9
SHAFT,OUTPUT---------- 1-K11
SHAFT,PARKING PAWL------- 1-I9
SHAFT,PROPELLER---------- 1-C11
SHAFT,PULLEY---------- 1-G5
SHAFT,REV. IDLE GEAR----- 1-H6
SHEET(L),DECK LOCK------- 2-M14
SHEET(R),DECK LOCK------- 2-L14
SHEET,RUBBER---------- 1-G12
1-L13
SHEET,SPRING---------- 1-L6
1-M4
SHELL,CONNECTING--------- 1-N8
SHIELD(L),SPLASH-R.BUMPER 2-I5
SHIELD(L),SPLASH-REAR---- 2-G8
SHIELD(R),SPLASH-R.BUMPER 2-I5
SHIELD(R),SPLASH-REAR---- 2-G8
SHIELD,SPLASH---------- 2-G8
SHIM,ADJUST---------- 1-G6
SHIM,ADJUST-COUNTER SHAFT 1-I6
SHIM,HINGE-DOOR---------- 2-G11
SILENCER,FLOOR---------- 3-G4
SILENCER,MAIN---------- 1-D15
1-E15
SILL(C),SIDE-INNER------- 2-J7
SILL(FRT.L),SIDE-INNER--- 2-J7
SILL(FRT.R),SIDE-INNER--- 2-J7
SILL(L),SIDE OUT.-------- 2-N7
SILL(R),SIDE OUT.-------- 2-L7
SILL(RR.L),SIDE-INNER---- 2-J7
SILL(RR.R),SIDE-INNER---- 2-J7
SLEEVE,BEARING-FRONT----- 1-G7
SLEEVE,BEARING-REAR------ 1-G7
SLEEVE,CLUTCH HUB-------- 1-E6
1-F6
1-J6
SLEEVE,GEAR---------- 1-G6
SLEEVE,REGULATOR PLUG---- 1-G8
SLEEVE,SPEEDOMETER------- 1-D6
1-M7
SLEEVE,3-4 SHIFT--------- 1-J8
SLIDE'A',BUMPER---------- 2-G5
SLIDE'UP.',BUMPER-------- 2-I5
SOCKET---------- 2-G9
SOCKET(L),RR SIDE TURN--- 2-G6
SOCKET(L),RR.COMB.------- 2-F6
SOCKET(R),RR SIDE TURN--- 2-G6
SOCKET(R),RR.COMB.------- 2-F6
SOCKET,F. COMB. LAMP----- 2-D6
SOCKET,LICENSE LAMP------ 2-I6
SOCKET,METER SET--------- 2-H9
SOCKET,SIDE TURN--------- 2-E6
2-F6
SOLENOID,DOWN SHIFT------ 2-G15
SOLENOID,LOCK UP CONTROL- 2-G15
SOLENOID,OVER DRIVE------ 2-G15
SPACE---------- 1-C12
1-J11
SPACER---------- 1-D12
1-E12
1-H6
1-I4
1-K6
1-K11
1-L11
1-M11
1-M15
1-N6
1-N15
2-C3
SPACER,AIR INT PIPE------ 1-J4
SPACER,DOWEL---------- 1-J9
SPACER,E.A.FOAM---------- 2-G5
SPACER,PLANT FRAME------- 1-C15
SPACER,STEERING GEAR----- 1-D13
SPACER,STRAP---------- 1-C7
1-H5
SPACER'B'---------- 2-D14
SPEAKER,DOOR---------- 2-E16
SPEAKER,PILLOW-SEAT------ 2-J10
SPEEDOMETER---------- 2-I9
SPINDLE,ADJUSTER--------- 1-G11
SPINDLE,SELECT LOCK------ 1-L6
SPRING---------- 1-F15
1-H9
1-I8
1-M6
2-L5
SPRING LIFT,LID---------- 1-L15
SPRING(L),BALANCE-------- 2-C7
SPRING(L),LEVER---------- 1-G11
SPRING(R),BALANCE-------- 2-C7
SPRING(R),LEVER---------- 1-G11
SPRING,ASHTRAY---------- 2-D9
SPRING,BALL PARK--------- 1-I9
SPRING,BRUSH---------- 1-E7
1-H7
SPRING,COIL-FRONT-------- 1-N13
SPRING,COIL-REAR--------- 1-H12
SPRING,CUSHION-PSTN.STEM- 1-N7
SPRING,DOWN SHIFT-------- 1-H8
SPRING,GOVERNOR---------- 1-H9
SPRING,METER HOOD-------- 2-C9
2-E9
SPRING,MODIFIER---------- 1-H8
SPRING,NO.1---------- 2-J9
SPRING,NO.2---------- 2-J9
SPRING,OUT.-VALVE-------- 1-N3
SPRING,PARKING REVER----- 2-C3
SPRING,PAWL RETURN------- 1-J9
SPRING,PISTON---------- 1-G9
SPRING,PISTON RETURN----- 1-L8
1-N7
SPRING,PRESSURE---------- 1-M4
SPRING,REGULATOR--------- 1-G8
SPRING,RETURN---------- 1-H15
1-M15
2-C3
SPRING,RETURN-BRAKE------ 1-D16
1-N15
SPRING,SECOND LOCK------- 1-G8
SPRING,SHIFT ROD END----- 1-K6
SPRING,SHIFT ROD-REVERSE- 1-K6
SPRING,SYNCHRO. KEY------ 1-F6
SPRING,SYNCHRO.KEY------- 1-J6
SPRING,SYNCHRONIZER------ 1-F6
SPRING,TENSIONER--------- 1-C4
SPRING,THROTTLE BACK-UP-- 1-H8
SPRING,VALVE---------- 1-N3
SPRING,1-2 SHIFT--------- 1-G8
SPRING,2-3 SHIFT--------- 1-H8
SPRING,3-4 SHIFT--------- 1-I8
STABILIZER,FRONT--------- 1-C14
STABILIZER,RR---------- 1-I12
STARTER---------- 1-G7
STATOR---------- 1-D7
STAY(L),RR. BUMPER------- 2-I5
STAY(R),RR. BUMPER------- 2-I5
STAY,BONNET---------- 2-M6
STAY,LOCK-BONNET--------- 2-E7
STAY,MANIFOLD---------- 1-D4
STEM,PISTON---------- 1-N7
STEM,PISTON BAND--------- 1-F8
STOPPER SET---------- 1-G7
STOPPER,BUMP---------- 1-G12
1-L13
STOPPER,CONSOLE LID------ 2-C10
STOPPER,FILLER LID------- 1-L15
STOPPER,GLASS---------- 2-I11
STOPPER,LINK-HOOD-------- 2-F14
STOPPER,SOFT TOP--------- 2-C15
STOPPER,ZIPPER-BACK WINDO 2-G14
STRAINER,OIL---------- 1-I8
1-N4
STRAP,ALTERNATOR--------- 1-C7
STRIKER---------- 2-L9
2-L11
STRIKER(L),LOCK-TOP------ 2-M14
STRIKER(R),LOCK-TOP------ 2-M14

STRIKER,LID---------- 2-C7
STRUT,BAND---------- 1-N7
STUD---------- 1-D3
1-E4
STUD,EX. MANIFOLD-------- 1-D3
STUD,HEX-HYD. UNIT------- 1-L16
SUN VISOR(L)---------- 3-I4
SUN VISOR(R)---------- 3-I4
SUPPORT(L),MOUNTING------ 1-G11
1-J13
SUPPORT(R),MOUNTING------ 1-G11
1-J13
SUPPORT,DRUM---------- 1-E8
SUPPORT,OIL PIPE--------- 1-L7
SUPPORTER,ACTUATOR------- 1-I9
SUPPORTER,FORK---------- 1-C6
SWITCH---------- 1-H7
2-E15
SWITCH(R),CLUSTER-------- 2-I15
SWITCH,BACK UP LAMP------ 2-E15
SWITCH,CLUTCH---------- 1-M15
SWITCH,CLUTCH CUT-------- 1-N15
SWITCH,COMBINATION------- 2-J15
SWITCH,DOOR---------- 2-M15
SWITCH,FAN-HEATER CONTROL 2-E13
SWITCH,IGNITION---------- 2-D5
SWITCH,INHIBITOR--------- 2-F15
SWITCH,KICK DOWN--------- 1-D16
SWITCH,LEVEL-WASHER TANK- 3-G3
SWITCH,MAIN---------- 2-I15
SWITCH,OIL PRESSURE------ 2-E15
2-G15
SWITCH,OVER DRIVE CONTROL 2-G3
SWITCH,PARKING LAMP------ 2-D3
SWITCH,POWER WINDOW------ 2-D10
SWITCH,PRESS-COOLER PIPE- 2-I13
SWITCH,STOP---------- 1-C16
1-E16

****
* *
* T *
* *
****

T/MISSION CPT.---------- 1-J7
TACHOMETER---------- 2-H9
TAG,CAUTION-CHANGE------- 2-G3
TANK SET,RESERVE--------- 1-F16
TANK,FUEL---------- 1-I15
TANK,LIQUID---------- 2-I13
TANK,SUB-RADIATOR-------- 1-E5
TANK,VANE PUMP---------- 1-H13
TANK,WASHER---------- 3-I3
TANK,WASHER-FRONT-------- 3-G3
3-H3
TAPE,EDGE PROTECTOR-CTR-- 2-N14
TAPE,SEAL-RAIN RAIL------ 2-G14
TENSIONER,T.BELT--------- 1-C4
TERMINAL SET---------- 1-F7
THERMOSTAT SET---------- 1-C5
THERMOSTAT,COOLING UNIT-- 2-C14
TIMER & BUZZER---------- 2-K15
TIRE---------- 1-D14
TOOL SET---------- 3-H4
TRAY,ASH---------- 2-D9
TRAY,BATTERY---------- 1-I7
TRAY,REAR PACKAGE-------- 3-C4
TRIM(L),'A'PILLAR-------- 3-N3
TRIM(L),DOOR---------- 2-C12
TRIM(L),FRONT SIDE------- 3-C4
TRIM(L),QUARTER---------- 3-M4
TRIM(L),SEAT BACK-------- 2-C11
TRIM(L),SEAT CUSHION----- 2-N10
TRIM(R),'A'PILLAR-------- 3-N3
TRIM(R),DOOR---------- 2-C12
2-N11
TRIM(R),FRONT SIDE------- 3-C4
TRIM(R),QUARTER---------- 3-M4
TRIM(R),SEAT BACK-------- 2-M10
TRIM(R),SEAT CUSHION----- 2-L10
TRIM,FRONT HEADER-------- 3-N3
TRIM,TRUNK END---------- 3-D4
TUBE,AIR INTAKE---------- 1-I4
TUBE,FILLER---------- 1-D8
TUBE,GOVERNOR---------- 1-L7
TUBE,HEAD LAMP---------- 2-D6
TUBE,OIL FILTER-UPPER---- 1-D8
TUBE,SILICON---------- 1-J3
TUBE,VACUUM---------- 1-F4
1-I7
1 L4
TUNER & DECK,COMB.------- 2-C16

****
* *
* U *
* *
****

UNIT,BACK UP POWER-A.BAG- 2-K15
UNIT,CONTROL---------- 2-E15
UNIT,COOLING---------- 2-C14
UNIT,DIAGNOSIS-AIR BAG--- 2-K15
UNIT,FLASHER---------- 2-K15
UNIT,HEAD LAMP---------- 2-L5
UNIT,HEAT GAUGE---------- 2-E15
UNIT,TIMER-REAR DEFG.---- 2-K15

****
* *
* V *
* *
****

VACUUM POWER ASSIST------ 1-F16
VALVE---------- 1-H9
VALVE,AIR---------- 1-D14
1-L4
VALVE,CHECK---------- 1-J15
3-H3
VALVE,CONTROL---------- 1-G8
VALVE,DOWN SHIFT--------- 1-H8
VALVE,DUAL PROPORTIONING- 1-I16
VALVE,EXHAUST---------- 1-N3
VALVE,EXPANSION---------- 2-C14
VALVE,FUEL VAPOR.-------- 1-J15
VALVE,GOVERNOR---------- 1-H9
VALVE,IDLE AIR CONTROL--- 1-K4
VALVE,INLET---------- 1-N3
VALVE,MANUAL---------- 1-G8
VALVE,MODIFIER---------- 1-H8
VALVE,NON RETURN-------- 1-J15
VALVE,OIL JET---------- 1-G3
VALVE,ONE WAY---------- 1-E8
VALVE,ORIFICE CHECK------ 1-H8
1-I8
VALVE,P.C.V.---------- 1-F3
VALVE,REGULATOR---------- 1-G8
VALVE,SECOND LOCK-------- 1-G8
VALVE,SHIFT 3-4---------- 1-I8
VALVE,ST. GEAR---------- 1-E13
VALVE,THREE WAY---------- 2-E15
VALVE,THROTTLE---------- 1-H8
VALVE,THROTTLE BACK-UP--- 1-H8
VALVE,1-2 SHIFT---------- 1-G8
VALVE,2-3 SHIFT---------- 1-H8
VALVE'A',CHECK-BREATHER-- 1-K15

****
* *
* W *
* *
****

WASHER---------- 1-C9
1-C13
1-D9
1-E13
1-I11
1-J11
1-L13
1-N11
2-M5
2-N13
3-M3
WASHER SET---------- 1-G7
WASHER,COMPRESSOR-------- 2-M13
WASHER,FASTENER-RAIN RAIL 2-G14
WASHER,HOOK'A'---------- 2-C15
WASHER,HOOK'A'&'B'------- 2-N14
WASHER,HYD. UNIT--------- 1-L16
WASHER,LID OPENER-------- 1-L15
WASHER,LOCK-PUMP FILTER-- 1-I15
WASHER,MAGNET CLUTCH----- 2-N13
WASHER,PLAIN---------- 1-C8
1-F9
1-J7
1-N7
WASHER,PLAIN CYL. HEAD--- 1-D3
WASHER,PLAIN-FRAME------- 1-C15
WASHER,SEAL---------- 1-L7
WASHER,SETTING---------- 2-G11
WASHER,STOP---------- 1-K12
WASHER,THRUST---------- 1-G6
1-H6
1-I6
WASHER,THRUST LOCK-OVER T 1-I6
WASHER,THRUST-REVERSE IDL 1-H6
WASHER,TOOTHED---------- 3-M3
WASHER,WAVE-CHANGE CONT.C 1-L6
WASHER'A',DECK LOCK------ 2-M14
WASHER'B',DECK LOCK------ 2-M14
WEATHERSTRIP NO.1-------- 2-N11
WEATHERSTRIP NO.2-------- 2-N11
WEATHERSTRIP(L)---------- 2-H11
WEATHERSTRIP(L),DOOR----- 2-I11
WEATHERSTRIP(L),OUT.----- 2-N11
WEATHERSTRIP(R)---------- 2-H11
WEATHERSTRIP(R),DOOR----- 2-I11
WEATHERSTRIP(R),OUT.----- 2-N11
WEATHERSTRIP,BONNET-REAR- 2-N6
WEATHERSTRIP,D.TOP-REAR-- 2-M14
WEATHERSTRIP,LID--------- 2-C7
WEDGE,DOOR-FRONT--------- 2-L11
WEIGHT,DISC WHEEL-ALUMI-- 1-E14
1-F14
WEIGHT,DISC WHEEL-STEEL-- 1-D14
1-E14
WELT,SEAMING---------- 2-I11
WELT,SEAMING-SOFT TOP---- 2-H14
WHEEL SET,DISC-ALUMI----- 1-F14
WHEEL,DISC-STEEL--------- 1-D14
WHEEL,FLY---------- 1-L3
WINDOW,BACK-D. TOP------- 2-G14
WIRE,A.C.C.---------- 2-N15
WIRE,CONNECT---------- 2-K10
2-M10
WIRE,EARTH---------- 2-J16
WIRE,MODE CONTROL-------- 2-E13
WIRE,RECYCLE & FRESH----- 2-E13
WIRE,RELEASE-BONNET------ 2-M6
WIRE,TEMP. CONTROL------- 2-E13
WRENCH,HUB NUT---------- 3-H4
WRENCH,WHEEL CAP--------- 3-H4
WTHSTP NO.1(L),LINK------ 2-I14
WTHSTP NO.1(R),LINK------ 2-I14
WTHSTP NO.2(L),LINK------ 2-I14
WTHSTP NO.2(R),LINK------ 2-I14
WTHSTP NO.3(L),LINK------ 2-I14
WTHSTP NO.3(R),LINK------ 2-I14
WTHSTP(L),CAB SIDE------- 2-J14
WTHSTP(L),ROOF PANEL----- 2-N14
WTHSTP(R),CAB SIDE------- 2-J14
WTHSTP(R),ROOF PANEL----- 2-N14
WTHSTP,FRONT HEADER------ 2-J14

****
* *
* Y *
* *
****

YOKE---------- 1-G7
YOKE SET,SUPPORT-ST. GEAR 1-D13
YOKE,SUPPORT---------- 1-N12

MODEL IDENTIFICATION

This parts catalog has been compile d to cover the following models.

Model No.	Specifications of vehicles																		VIN (Chassis No.)
	Basic spec.	Engine	CC	Cam shaft	T/ mission		Speed		Door	Brake	Diff.		Brake		Wheel drive	Production period		Model year	
	U.S.A.	Gasoline engine	1600cc	DOHC	Manual T/mission	Automatic T/mission	4 speed	5 speed	2 door	4 disc	Normal diff.	Limited slip diff.	Antilock brake system	W/O antilock brake system	2 WD	From:	To	1991	1992	
	(US)	(GE)	(1 6)	(DH)	(MT)	(AT)	(4S)	(5S)	(2D)	(4DS)	(ND)	(LS)	(AL)	W/O AL	(2W)					
NA01	US	GE	1 6	DH	MT			5S	2D	4DS	ND			W/O AL	2W	Jul '90	Aug '92	→	→	NA35[illegible] - 200001 - 350000
NA02	US	GE	1 6	DH	MT			5S	2D	4DS		LS		W/O AL	2W	Jul '90	Aug '92	→	→	NA35[illegible] - 200001 - 350000
NA03	US	GE	1 6	DH		AT	4S		2D	4DS	ND			W/ AL	2W	Jul '90	Aug '92	→	→	NA35[illegible] - 200001 - 350000
NA23	US	GE	1 6	DH	MT			5S	2D	4DS	ND		AL		2W	Jul '90	Aug '92	→	→	NA35[illegible] - 200001 ~ 350000
NA24	US	GE	1 6	DH	MT			5S	2D	4DS		LS	AL		2W	Jul '90	Aug '92	→	→	NA35[illegible] - 200001 - 350000
NA25	US	GE	1 6	DH		AT	4S		2D	4DS	ND		AL		2W	Jul '90	Aug '92	→	→	NA35[illegible] - 200001 - 350000

BODY PAINTS AND INTERIOR COLORS

THIS LIST SHOWS COMBINATION OF BODY PAINT AND INTERIOR COLOR. USING THIS LIST YOU WILL BE ABLE TO FIND OUT NECESSARY COLOR CODE OF PART YOU NEED IN THE TEXT.

BODY PAINT		INTERIOR COLOR CODE	
NAME	CODE		
MARINER BLUE	DU	NA0	
CLASSIC RED	SU	NA0	
CRYSTAL WHITE	UC	NA0	
SILVER STONE METALLIC	3L	NA0	
NEO GREEN	HU		NA1
SUNBURST YELLOW	HZ	NA0	
BRILLIANT BLACK	PZ		NA1

NOTE:1)
COLORS OF INTERIOR CODES ARE AS FOLLOWS.

NA0	BLACK
NA1	TAN

COMPLETE ASSEMBLY PARTS NUMBERS

Engine

(1/1)

Specifications of vehicles T/mission	Parts number
Manual T/mission	B61P – 02 – 000
Automatic T/mission	B64J – 02 – 000

T/mission

Specifications of vehicles T/mission	Parts number
Manual T/mission	M50S – 03 – 000
Automatic T/mission	BUY2 – 19 – 000B

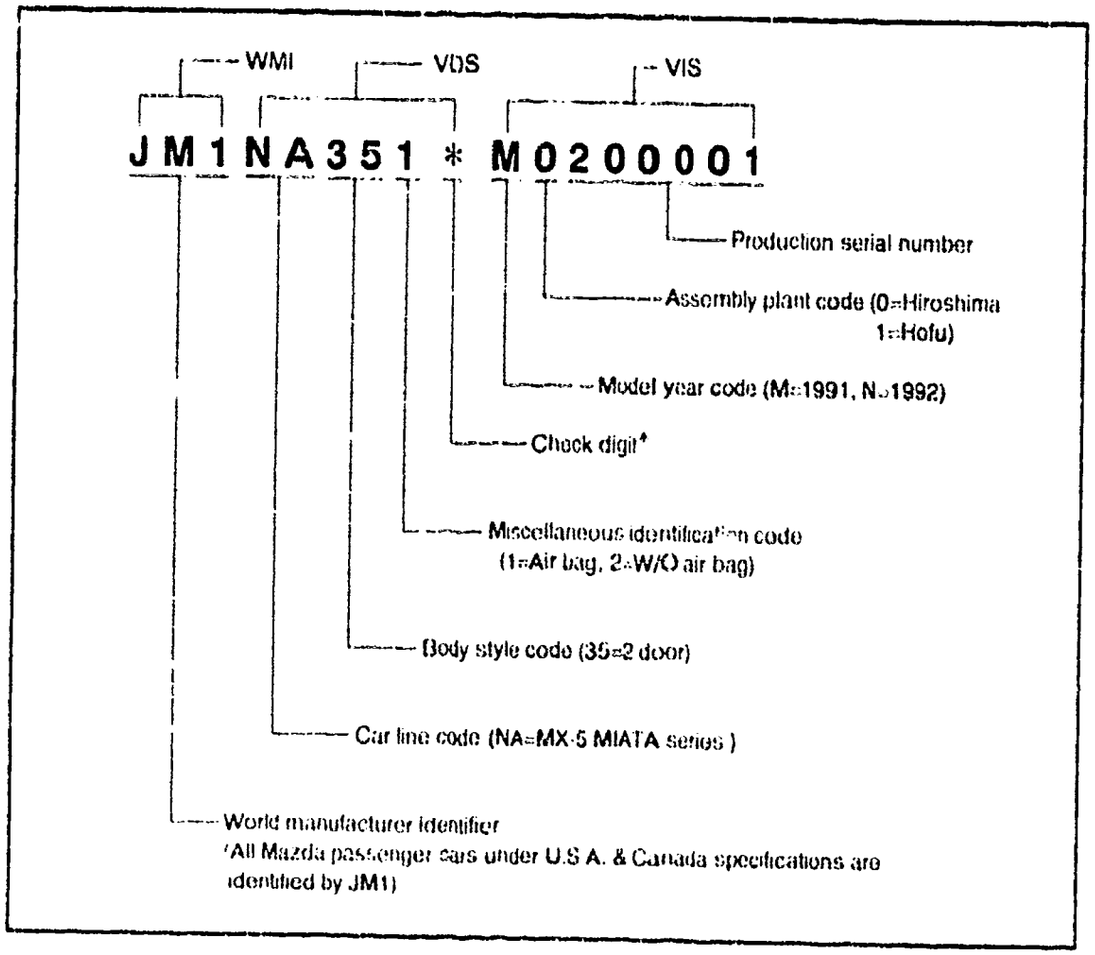
Cabin

Parts number
NA01 – 07 – 000

Complete assemblies are available and manufactured in accordance with current production specifications only

VEHICLE IDENTIFICATION SYSTEM FOR MX-5 MIATA SERIES (1991 ~ 1992)

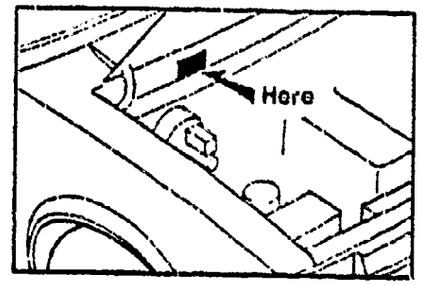
VIN (= Vehicle Identification Number) for MX-5 MIATA series (1991 & 1992 Year Model) consists of WMI(= World Manufacturer Identifier), VDS(= Vehicle Description Section) and VIS(= Vehicle Identification Section). VDS consisting of six alphanumeric characters denotes the "MODEL SERIES". VIS consisting of eight alphanumeric characters denotes the serial unit number of vehicle and is sequentially numbered within each VDS.



* Check digit is included as a VIN security feature to permit law enforcement verification of the authenticity of a suspected illegal VIN plate. This single digit number is determined, based upon a complex mathematical formula which is applied to each vehicle's VIN number.

LOCATION OF VIN PLATE

The plate is attached to the top ledge of the dash panel under the bonnet(engine hood), refer to the illustration shown right.



(Note)

If the VIN(Chassis) reference number in the PCM(Parts Catalog Microfiche) appeared as:

NA35 * * - 200001

the vehicle's VIN would be e.g. JM1NA351*M0200001

ABBREVIATIONS

The following abbreviations are used throughout Mazda Microfiche parts catalog : in the illustration, tex, section number index, alphabetical index.

Abbreviation	Definition
1ST	First
2ND	Second
2D.	2-Door
2-SEAT	2-Seater
3D.	3-Door
3RD	Third
3-SP	3-Speed
4D.	4-Door
4 SP or 4-SPD	4 Speed
4/5-SP	4-Speed/5-Speed
4TH	Fourth
5D.	5-Door
5-LINK	5-Link Suspension
5-SP or 5-SPD	5-Speed
10TH-ANNIV	10th-Anniversary
[A]	
A	Ampere
A.A.S. or A.A.SUSP	Automatic Adjusting Suspension
ABS.	Absorber
A.B.S	Anti-lock Brake System
A.B.S.V.	Air Bleed Solenoid Valve
A.C.	Air Conditioner
A.C.C.	Automatic Cruise Controls
ACCEL.	Accelerator
ACTR	Actuator
A.C.V.	Air Control Valve
ADJ.	Adjuster or Adjustable or Adjusting
ADJ SUSP	Adjustable Suspension
AIR P	Air Pipe
AIR CON.	Air Conditioner
ALTN	Alternator
ALUMI	Aluminum
AMP	Amplifier
ANALOG	Analogue
ANNIV	10th Anniversary
ANT	Antenna
ARG	Argent
A.S. ABSORBER	Adjust Shock Absorber
ASH	Ashtray
ASSY	Assembly
AT	Automatic Transmission
ATT	Attachment
AUS	Austria
AUST	Australia
AUTO	Automatic
[B]	
BAL.	Balance
BAT	Battery
B COLOR	Body Color
B DOOR	Back Door
BDY	Body
BELT	Beltline
BLK	Black
BLU	Blue
BLU GRY	Bluish Gray
BLU M	Blue Metallic
BLVA	Bolivia
BRG	Bearing
BRKT	Bracket
BRN	Brown
BRT	Britain (Great Britain)
B.S.V	Bleed Solenoid Valve
BTHR	Breather
BUMP	Bumper
BURG	Burglar
BY A.C.V	Bypass Air Control Valve
[C]	
C. or (C)	Center
CALIF.	California
C/AREA	Cold Area
CAN	Canada
CARB	Carburetor
CAT	Catalyst
C DISC	Compact Disc
CE	Conventional Engine (=Reciprocating Gasoline Engine)
C.G.R	Constant Gear Ratio
CH	Coach
CHG	Change
CHMBR	Chamber
CHK	Check
CLG	Cooling
CLNR	Cleaner
C/LTR	Cigarette Lighter
CLU	Clutch
.CM	Centimeter (s)
C MEMBER	Cross-member
CNTNR	Container
COMB	Combination
COMP	Companion
COMPR	Compressor
COMPS	Compensator
CONDSR	Condenser
CONN	Connector or Connecting
CONS	Console
CONT	Control
CONV	Conventional
CONVR	Convertor
COVR	Cover
CPE	Coupe
CPT	Complete Assembly
CPU	Computer
C.P.UNIT	Central Processing Unit
CRK	Crank
CRUST	Cruster
C/SHIFT	Column Shift
CTR	Center
CUSH	Cushion
CYL	Cylinder
[D]	
D or DR	Door
D.	Diameter
DBL CAB	Double Cab (=Crew Cab)
D BLUE	Dark Blue
D BRN	Dark Brown
DE	Diesel Engine
DEF	Defroster
DFRG	Defogger
DES	Design
DEMIST	Demister
D GRY	Dark Gray
DIAPH	Diaphragm
DIFF.	Differential
DISC/B	Disc Brake
DIST	Distributor
DMPR	Dumper
DOHC	Double Overhead Camshaft
D.P.	Dual Proportioning
DRUM/B	Drum Brake
D/TIRE or D.TIRE	Double Tire (=Dual Tire)
D.T. TOP	Detachable Top
DUMP.	Dump Truck
DX.	Deluxe
D. YLW	Dark Yellow
[E]	
ECE	Economic Commission for Europe
ECON	Economy
E.C.P.S. SYS	Electric Control Power Steering System
EGI	Electric Gasoline Injection
E.G.R.	Exhaust Gas Recirculation
ELECT.	Electric
EM	Emission Controls
ENEGY or ENGY	Energy
ENG.	Engine
EQLZR	Equalizer
EQUIP	Equipment
EX	Exhaust
EXC.	Except
EXC 10TH-ANNIV.	EXC 10th-Anniversary
EXT.	Extension
EXTRACT.	Extractor
[F]	
F.	Front-
F	feet (foot)
FED	Federal
FINIS	Finisher
F.I.P	Fuel Injection Pump
FLEX	Flexible
F.I.MIXER	Fuel Injection Mixer
FIX	Fixing
FLID	Filler Lid
F.L.DECK	Full Logic Deck
FOLD	Folding
FRA	France
FRT	Front
F/SHIFT	Floor Shift
FULL CON	Fully Controlled
[G]	
G	Gram(s)
GARN	Garnish
GAS	Gasoline
GASOH	Gasohol
GEN	General
G. ATCH	Glass Hatch
GLD M	Gold Metallic
GLS	Glass
GOV	Governor
GRN	Green
GRY	Gray
GRY GRN	Grayish Green
[H]	

Abbreviation	Definition
H	Head
HARN	Harness
H.A.C.	High. Altitude Compensator
H.A.CONPENSATOR	High. Altitude Conpensator
HB	Hatchback
H.B. RE	Hatchback Release
HC-A/T	Hydro Control Automatic T/Mission
H-DUTY	Heavy Duty
HEA. or HEAT.	Heater
HI -	High -
HI.ALTI	High Altitude
H.I.C.	Head Injury Criteria
HIGHT	High-Tension
HL or H.L or H/LAMP	Head Lamp
H KONG	Hong Kong
HNGR	Hanger
.HP	.Horsepower(s)
H.P.R.	High Penetration Resisted
HSG	Housing
HT H/T or H/TOP	Hardtop
HWI	Hawaii
[I]	
ID	Inner Diameter
IG or IGN	Ignition
IL	Island
ILLUMI.	Illumination
IN	Inlet
IND	Indicator
INHIB.	Inhibitor
INJ	Injection
INN	Inner
INS	Insulation
INSP	Inspection
INST	Instrument
INT	Interior
INT COOLER	Inter Cooler
INTER	Intermediate
INTMT or INTERMIT	Intermittent
I.R.S. or I.R. SUSP	Independent Rear Suspension
I.S.C	Idle Speed Control
IVRY	Ivory
[K]	
KG	Kilogram(s)
KM	Kilometer(s)
KW	Kilowatt(s)
[L]	
L or (L	Left
L -	Length -
L	Liter(s)
L.T	Liter(s) Tank
L.	Less (=Without)
L/A A SUSP	Less Automatic Adjusting Suspension
L.A.C	Less Air Conditioner
L.BODY	Long Body
L.BOX	Long Box
L.COMT	Luggage Compartment
L.C.DISPLAY	Liquid Crystal Display
L.E.GI	Less Electric Gasoline Injection

Abbreviation	Definition
L/EM	Less Emission Controls
L.H.D.	Left Hand Drive
LH. SIDE	Left Hand Side
LKOUT	Lockout
L. NOSE	Long Nose
L/NVGT CPU	Less Navigation Computer
LO.	Low
L.S. VALVE	Load Sensing Valve
L/PARTITION	Less Partition
L.P.G.	L.P. Gas (=Liquefied Petroleum Gas)
L.S.D. or L.S. DIFF	Less Slip Differential
.L.T	.Liter(s) Tank
L/TAILGATE	Less Tailgate
LVR	Lever
LWR	Lower
LRG.	Large
LX-P	LX with Performance Package
[M]	
M	.Meter(s)
MA. CYL.	Master Cylinder
MAINT.	Maintain or Maintenance
MAP	Manifold Absolute Pressure
M.A. SUSP	Multi-Adjustable Suspension
M. EAST	Middle East
M.F	Maintenance Free
MIR	Mirror
ML	Mainland
MLD or MLDG.	Moulding
MM	.Millimeter(s)
M.P	Multipoint
MPX	Multiplex
MRN	Maroon
MT & MTG	Mounting
MT	Manual Transmission
[N]	
N-	Number of Teeth
NARR	Narrow
N.C	Normal Close
N.O	Normal Open
NO	Number
NON SP	Non Special Equipment
NON TILT	Non-Tilting
NOR	Normal
NOZ	Nozzle
N.S.W	New South Wales (Aust.)
NVGT CPU	Navigation Computer
N.Z	New Zealand
[O]	
O	Over
OD	Outer Diameter
O.FLTR	Oil Filter
O.H	Over Head
OHC	Overhead Camshaft
OIL CONSUMP	Oil Consumption
OP	Optional
ORD BY	Order By
O.S	Oversize
O.T	Over Top
OUT	Outer
[P]	

Abbreviation	Definition
.P	Panel
(P)	Primary
PARK or PARKG	Parking
PASS.	Passenger
P.B.	Proportioning Brake
P.C.V.	Positive Crankcase Ventilation
PHLPPNS	Philippines
PILR.	Pillar
PIV	Pivot
PKG	Package
PNEUMA.	Pneumatic
PNL	Panel
PNT	Paint
POSI	Position
POSIT.	Positive
POW WINDOW	Power Window
P.P.	Polypropylene (Plastics)
PRESS	Pressure
PROTN	Protection
PROTR	Protector
PORTGL	Portugal
P.S	Power Steering
P.SOUND	Premium Sound
PSTN	Piston
PTC	Positive Temperature Coefficient
P.T.O	Power Take Off
PU	Pickup
P/W or P. WINDOW	Power Window
PWRGT LIFTR	Power Gate Lifter
PWT.	Powertrain
[Q]	
QTR	Quarter
QTY	Quantity
[R]	
R	Final Gear Ratio
.R or (R)	.Right
RAD	Radiator
RE	Rotary Engine
RECIPRO	Reciprocating Engine (=Conventional Engine)
REFRIGER	Refrigerator Van
REG or REGU	Regular
REG. GAS	Regular Gasoline
REGUL	Regulator
REL	Release
R.C.CON	Remote Controlled
.RET	Return
RETAIN	Retaining
RETRACT	Retractable
REV.	Reverse
R.H.D	Right Hand Drive
RICO	Puerto Rico
R.H. SIDE	Right Hand Side
REINF	Reinforcement
R or RR	Rear
[S]	
S	Side
(S)	Secondary
SAFE	Safety
S. AFRICA	South Africa
SAUDI	Saudi Arabia
S.BODY	Short Body
S.BOX	Short Box

Abbreviation	Definition	Abbreviation	Definition	Abbreviation	Definition
SDN	Sedan	U. LONG	Ultra Long		
S'DUTY	Standard Duty	UND	Under		
SELECT	Selective Use	UP	Upper		
SEN	Sensor	URETANE	Urethane Rubber		
SERV.	Service	U.S.	Undersize		
S.FORK	Shift Fork	[V]			
SG., SGN or SIG.	Signal	.V	..Volt(s)		
SHIFT	Shift	.V.	Valve		
SHRD	Shroud	VAC	Vacuum		
SHTR	Shutter	V.CHAMBER	Vacuum Chamber		
SILV. M or SILVER M.	Silver Metallic	Vent.	Ventilator or Ventilation		
SING	Singapore	V G.R	Variable Gear Ratio		
SILEN	Silencer	VNL	Vinyl		
SLDG	Sliding	[W]			
SLN	Saloon	.W	Watt(s)		
SML	Small	W or WIND	Window		
S NOSE	Short Nose	W..	Width=		
SOL	Solenoid	-W/..	With.. or Use with		
SP.	Speed	W/O L S. VALVE	W/O Long Sensing		
SPEC.	Specification		Valve		
SPEEDO.	Speedometer	W/O OIL CONSUMP.	W/O Oil Consumption		
SPG	Spring	W/O P.T.O.	W/O Power Take-Off		
SPK	Speaker	WARN.	Warning		
	(o Lo d-speaker)	WAS.	Washer		
SPLR	Spoiler	W/AUTO BELT	With Automatic		
ST	Steering		Shoulder Belt		
STAB.	Stabilizer	W/CHASSIS	Windshield Chassis		
STD	Standard	WAT	Water		
S/TIRE or S. TIRE	Single Tire	WGN	Wagon		
STYL	Styled	WHL	Wheel		
SUB-TRNS	Sub-transmission	WHT	White		
SUN SHLD	Sun Shield	WIND.	Window		
SURGT	Surge Tank	WIP	Wiper		
SUP GAS	Super Gasoline	W/O AUTO BELT	Without Automatic		
SUSP	Suspension		Shoulder Belt		
S V	Solenoid Valve	W/O	Without		
SW	Switch	WOOF	Woofer		
S WASHER	Screen Washer	W. PUMP	Water Pump		
	(Windshield Washer)	WSHLD or WNDSHLD	Windshield		
SWD	Sweden	WSTR or WTHSTP	Weatherstrip		
SYNC	Synchronizer	W/T	With Tube (Tire)		
[T]		[Y]			
T	Ton(s)	YLW	Yellow		
T=	Thickness	YLW/GRN	Yellowish Green		
TACH & TACHOM	Tachometer	YLW/WHT	Yellowish White		
T ADJUST	Time Adjusting	[Z]			
TACHOZ TACHOM	Tachometer	Z TEMP	Zone Tempered		
T BELT	Timing Belt				
T CEILING	Top Ceiling				
TEMP	Temperature				
TF	Transfer				
TH	Throttle				
THAI	Thailand				
THERM	Thermostat				
THROT	Throttle				
TL	Tubeless				
T MISSION	Transmission				
TRD CLMT	Tuned Climates				
TRK	Truck				
TRQ GLIDE	Torque Glide				
T TOBAGO	Trinidad and Tobago				
TURB	Turbocharge				
TWN	Twin				
[U]					
U K	The United Kingdom				