

How to replace broken window cables on a Mk1 MX5.

Guide written by Stephen Quinn

I own a mk1 1989/90 UK Mazda MX5 of which this guide has been based upon.

I have written this guide to replace broken window cables on an MX5 as so many garages, including dealers will not or can not replace broken window mechanisms on MK1 MX5's. This doesn't stop them from charging you hundred's of pounds to have a go, do it half arsed and get it wrong though.

This guide has been written so that even beginners can fix the electric windows.

Please read the manual first, make sure you have the tools and parts required. If replacing a cable is required it is best advised to replace both cables and the capstan drum.

DO YOU REQUIRE NEW CABLES?

The most obvious signs of needing a new cable are:

A window that will not close but the motor can still be heard straining.

A window will not open whilst the motor is straining.

A window that is slow and judders as it moves down.

A window that requires assistance to move close.

A window that neither opens or closes but the motor can be heard spinning effortlessly.

Basically if any one of the above is evident it is likely that you require new window cables.

A broken motor is less likely. A motor will break if it is continuously used with a broken cable or put under unnecessary stress.

Checking and maintaining the cables can prevent failures of the cables and motor.

Parts you'll need per door

1 x Long cable with guides and sleeves *available here:*

http://www.mx5parts.co.uk/product_info.php/products_id/226

1 x Short cable with guides and sleeves *available here:*

http://www.mx5parts.co.uk/product_info.php/products_id/226

1 x Capstan (please note these differ from side to side) *available here:*

http://www.mx5parts.co.uk/product_info.php/products_id/227

Tools

Flat blade screw driver

Phillips head screw driver

Ratchet

Ratchet extension

10mm socket

14mm socket

Rubber mallet OR Marker Pen OR Tipex fluid

High temperature grease, lithium or copper grease

Latex gloves (just to keep it tidy)

Screw and bolt tin (just to keep it tidy)

Difficulty rankings

1* easiest

2* easy

3* moderate

4* difficult

5* frustratingly difficult

Time

How long I took rounded up to the nearest 5 minutes

Steps and Task

The objective is split into Steps and Tasks. Each Step is a milestone to the objective which is made up of a number of tasks in order to complete the step.

KEY INFORMATION

Total Time taken for complete task approximately 90minutes

Total difficulty **3***

Fitting the window cables to the motor is the only difficult task. Do not believe the dealer's when they claim this is more difficult than an engine transplant.

Fitting a motor complete with cables to the existing regulator will be easier.

Easier still is fitting a complete window mechanism. Either would give this task a 2* rating.

Step 1

Remove Door Card

Time I took 5 minutes

Total Difficulty 1* of 5

Remove speaker grille. 1*

This is held on by four (4) push pins. Pull the grille at each corner to remove.

Remove door pull. 1*

Three (3) screws hold this on. Two (2) underneath the rest in two recessions. One (1) at the top of the handle behind a square block, remove this by prying it out with a flat blade screwdriver.

Remove handle trim. 1*

One (1) screw in the middle of the trim. Remove the screw, pull the handle to the open position and slide the trim out from behind the handle.

Remove door card. 2* *due to care required*

Held on by multiple pop push pins around the edge and seats into a recession at the top of the door. Carefully check around for any other screws attached through the door card. Start at each corner at the bottom of the door. Pull each section of the door card without creasing the card. Once all pop pins have been pulled, the door card should swing forward from the bottom easily, lift the card out of the recession and put to one side.

Remove plastic water sheet. 1*

Held on by black waterproof sealant. **DO NOT GET THIS ON YOUR CLOTHES.** Simply pull the sheet away from the large recession at the bottom and the line of bolts at the top of the door for access. Tuck the sheet around the door handle to keep it out of the way.

Step 2

Remove Window Glass

Time I took 5 minutes

Total Difficulty 2* of 5

Remove glass stops. 1*

Look down the door from the recession. Notice two metal tabs that stick out at 90° each held by a bolt and a slot runner, one either side of the door. Using a 10mm socket and an extension, tap the bolt head once and sharp with the mallet. This should leave a ring mark where the bolt was for reference later. Holding onto the stop, remove the bolt. Slide the stop out of the runner and repeat for the second stop.

Remove glass screws. 2*

Three (3) screws hold the glass onto the regulator. Wind the window down to about half way. Look through the large cut out in the middle of the door and you should be able to see two (2) screws attached to the regulator and glass, if necessary raise or lower the glass as required. Remove these screws. Look nearer to the car and you should find an oval cut out and find the third screw at the front of the glass. Remove this whilst supporting the glass.

Remove glass. 2*

The glass should lift off the regulator. Once the glass is free of the regulator lift the glass out of the door and put it to one side.

Disconnect motor. 1*

Look at the motor, it is the round-ish block with a large black cuboid shape pointing up. From the bottom attached to the door is a cable & connection, using a flat blade screwdriver depress the catch on the top of the connection and pull the motor connection free.

Step 3

Remove regulator and motor

Time I took 5 minutes, would have taken 10 minutes if cables still attached.

Total difficulty 2* of 5*

If both cables are broken, this next task isn't required, however refitting does require this task so it is worth doing this now. I did this next task later as both my cables were broken.

Slacken A Pillar. 2*

The A-Pillar is the long metal runner that the glass itself slides down, it also supports the quarter glass. To remove and refit the motor this must be moved. Held on by two (2) bolts, one at the bottom of the door and one towards the top of the door. Remove both bolts and leave the pillar as it is for now, it should move with persuasion but feel sturdy, leave it resting in its normal position.

Remove cable catches. 2*

Looking inside the door notice that the cables are pinned to the door by plastic catches. Simply pop the cables off the catches, note the locations as these can be replaced. The black two cable catch must be re-used and note that this is the crossover for the two cables.

Prepare the removal of the regulator. 1*

Held on by four (4) 14mm bolts. Two (2) towards the top of the door and two on the underside of the door. Mark the bolt locations, I used the mallet technique. Remove the bolts but leave the regulator where it is for now.

Prepare the removal of the regulator. 1*

Held on by three (3) 10mm bolts in the middle of the door. Remove these bolts. There are three other holes in the skin and a large hole where the black part of the motor can be seen. I believe these other holes are the manual winder mounting points.

Remove regulator and motor. 2*

Move the A pillar out of the motors' way, following the cables, slide the motor free and out of the way of the regulator. Lift the regulator out of its lower mounting points and then away from its upper mounts. Tilt the regulator so that the bottom can be lifted out of the door through the large cut towards the bottom of the door. Once free remove the motor.

Step 4

Cable Change

Time I took. 50 minutes.

Total Difficulty 4* of 5*

Preparation for cable change. 1*

Lay the regulator and motor out as if they were in the car, that's bolts facing towards you. Notice how the cables cross. Also notice how the cables attach to the regulator over the pulley at either end.

Remove cables from motor. 1*

Looking at the motor, remove the two small screws that hold the capstan cap on. The cap is a D shape. With the motor open, use a flat bade screw driver to pry out the old capstan drum. Watch as the old capstan spins out and the cables sprawl everywhere. Unhook the old capstan from the cable ends and pull the cables out of the motor. Take note of which cable goes where, the down cable goes through the upper motor lug and the up cable through the lower motor lug.

Remove cables from regulator. 1*

Unhook the cables from the regulator lift. The end cap slide out of a hole on the back and the cable is free.

Preparing cables. 1*

Insert the springs over the white lug stops at the motor end of the cable.

Insert new cables into regulator. 2*

Attach the new cables into the lift mechanism, the ends simply slide through the hole in the lift mechanism then pull tightly towards the pulleys. Run the cables around the pulleys and guides and attach the sheath catches. Move the lift slide mechanism into the middle of the regulator.

!!!Take the UP cable off the pulley for now!!!

The UP cable goes through the lower lug, the DOWN cable through the upper lug.

Fitting cables to capstan. 5*

The capstan will only fit in one way, make sure you have this the correct way up.

Start with the DOWN cable, this cable winds anticlockwise around the capstan and sits at the bottom of the motor.

Start by clipping the end cap into position and wind the capstan around a number of times, push the capstan halfway into the motor so that this cable can not unwind which is rather annoying.

The UP cable must now be fitted, this time the cable is wound around the capstan. This is wound clockwise and you finish by clipping the end cap into place. If the cable appears to be too short, this is normal, this is why the adjustment caps are there, however do not touch these yet otherwise you will have too much slack for this task. This is why I removed the cable from the pulley.

It doesn't actually matter how many times the cable is wound as long as it is tight, but for reference, with the lift slide in the middle, each cable should be wound around two and a half times. I wound my DOWN cable almost 3 and a half times around, the UP cable just one and a half. The up cable fit due to the additional slack taken from the pulley.

With the cables finally wound around the new capstan push it into the motor and celebrate your triumphant victory over the cables. Be careful and smear grease around the capstan, wedge a nice amount of grease into the gaps around the capstan.

Fit the capstan lid and tighten it shut.

Motor cable adjustment. 3*

In order for the cables to gain enough slack to fit around the upper pulley both the black plastic lug screws must be adjusted. Screw both lugs into the motor body using mole grips.

Fit UP cable over top pulley. 4*

Put your feet on the regulator bottom and pull the lift slide up.

Make sure that both white cable stops are fully pressed against the springs and black adjustment lug screws at the motor end.

There should be enough cable to pull over the top pulley, with some final persuasion the cable catch should clip onto the mount. If the cable still isn't long enough, you need to tighten the adjusters. They must BOTH be flush to gain the required slack.

Motor cable tightening. 3*

Using mole grips un-screw the lugs until the spring is constantly under a little pressure, do not un-screw these too much or they'll come away from the motor and damage the white stop and spring.

Un-screwing the motor lugs not only tightens the cables and stops them from popping off the pulley's but also ensures that the white stops can not fall out of position and catch against the lug, effectively destroying the cable.

Check the motor and cable operation. 1*

Simply reconnect the motor and check the operation of the regulator. Make sure that the lift slide works the correct way.

Grease components. 1*

With the regulator working apply grease to the regulator runners, pulleys and cables. Also apply grease to the rear runner in the door and the A-Pillar where the glass slides. Basically anything that moves.

Step 5

Refit regulator mechanism and motor

Time I took 10 minutes

Total difficulty 2*

Fit regulator mechanism. 1*

Lift the regulator into the door with a tilt, the top end in first. Turn the regulator and seat the bottom threads through the mounting holes at the bottom of the door. Seat the top threads in the mounting holes towards the top.

Fit motor mechanism. 2*

Lift the motor into the door. Push the A-Pillar back and push the motor in front of the A-Pillar to its mounting location. It will only fit one way. Once mounted fit three (3) 10mm bolts and tighten. Connect the electrical connection.

Tighten regulator bolts. 2*

These must line up with how they were removed. Start with the two upper bolts. Screw a bolt on and adjust the regulator position as required. Tighten the bolt when the location ring/mark match. Repeat for all four (4) bolts.

Check the operation of the window regulator mechanism. 1*

Re-fit A-pillar. 2*

Start at the top, fit one (1) 10mm bolt and screw it finger tight. Fit the lower bolt and screw tight with a ratchet. Tighten the upper bolt.

Step 6

Re-fit glass window

Total time I took 10 minutes

Total Difficulty 2*

Position glass. 3* *due to care required.*

Move the regulator position to half open, line up the regulator with the oval cut out. Slide glass from the top down and seat it onto the regulator slide mechanism.

This can be fiddly. I used a flat blade screwdriver to push the weather strip back to give the plastic mounts the room required to pass.

!!!!Do not apply a lot of pressure on any one point of the glass or it may crack.!!!

Attach glass to regulator. 1*

3 screws attach the glass to regulator. Start with the one closest the car and fit loosely. Fit the screw on the far end of the regulator next, also loosely. Fit the third screw and tighten this one. Now tighten the other two screws.

Re-Fit Glass Stops. 2*

Slide one (of two) into its mount. Screw the bolt into the stop but allow some movement of the stop. Line up the bolt head with the original mounting ring or mark and tighten. Repeat for other the stop.

Check the operation of the window. Make sure the window moves both ways freely without hesitation of a difference in level.

If the glass stops too high or too low then the glass stops need repositioning.

If the glass lifts unevenly, the regulator needs repositioning.

Re-Grease components as required. 1*

Cables, regulator shafts ect.

Step 7

Refit Door Card

Time I took 5 minutes

Total Difficulty 1* of 5

Refit plastic water sheet. 1*

Held on by black waterproof sealant do not get this on your clothes. Simply push the sheet back into position. The original sealant should seal this. Fix any tears or sections not holding with duct tape.

Refit door card. 1*

Held on by multiple pop push pins around the edge and seats into a recession at the top of the door. Start at the top, lower the door card into the recession. It should sit fairly snug. Bang each pin around the edge of the card into the door.

Refit handle trim. 1*

One (1) screw in the middle of the trim. Pull the handle to the open position and slide the trim behind the handle. Fit the screw and tighten.

Refit door pull. 1*

Three (3) screws hold this on. Two (2) underneath the rest in two recessions. One (1) at the top of the handle. Start with the uppermost screw and the finish with the middle screw. Re-fit the upper screw cover by simply pushing it into place.

Refit speaker grille. 1*

This is held on by four (4) push pins. Push the grille at each corner to fit.

STEP 8

Maintenance 1*

The cables can be maintained without removing the motor or regulator.

Remove the door card as described previously.

Remove the plastic sheet from the lower section of the door.

Apply grease to the cables, pulleys and runners. Pull back the rubber lug covers to gain access to the plastic lugs. Apply grease to the cables, springs and lugs. Re-fit the rubber covers.

Occasionally open and close the window to move the grease around the mechanism. Apply more grease as required.

It is advisable to spray WD40 onto the cables covered by the sheaths. WD40 can also be sprayed through the lugs and over the regulator.

Smear grease along the inside of the A pillar to reduce friction between the window and pillar.

Refit the door card as described previously.

These cables break as consequence of poor maintenance. Once a cable starts to rust, it will break. Maintaining the cables will prevent failure of the cables and motor.