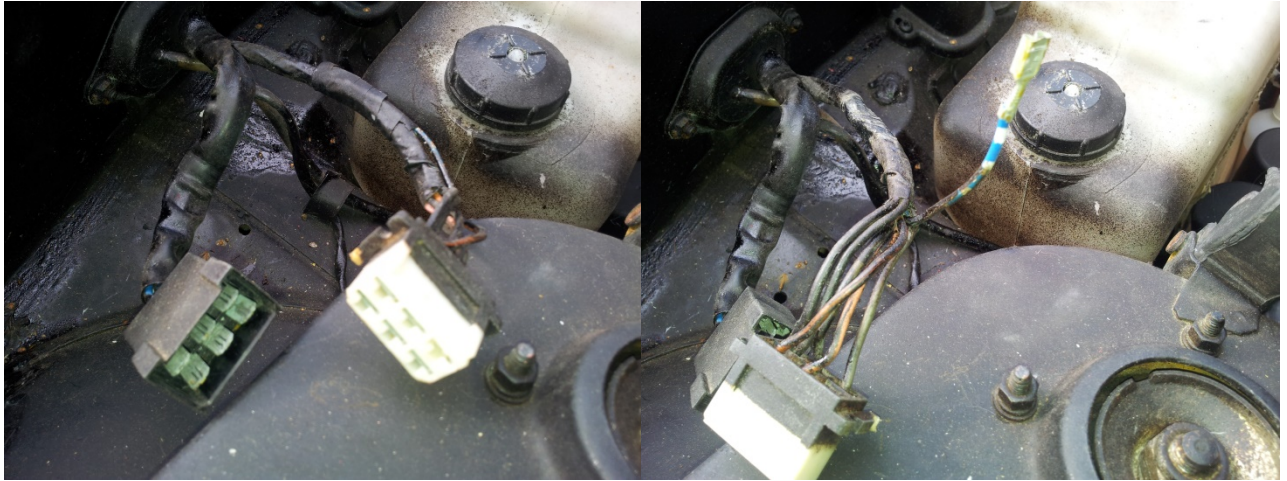


How to insert relays to your wiper motor circuit to improve its speed and preserve the wiper switch.

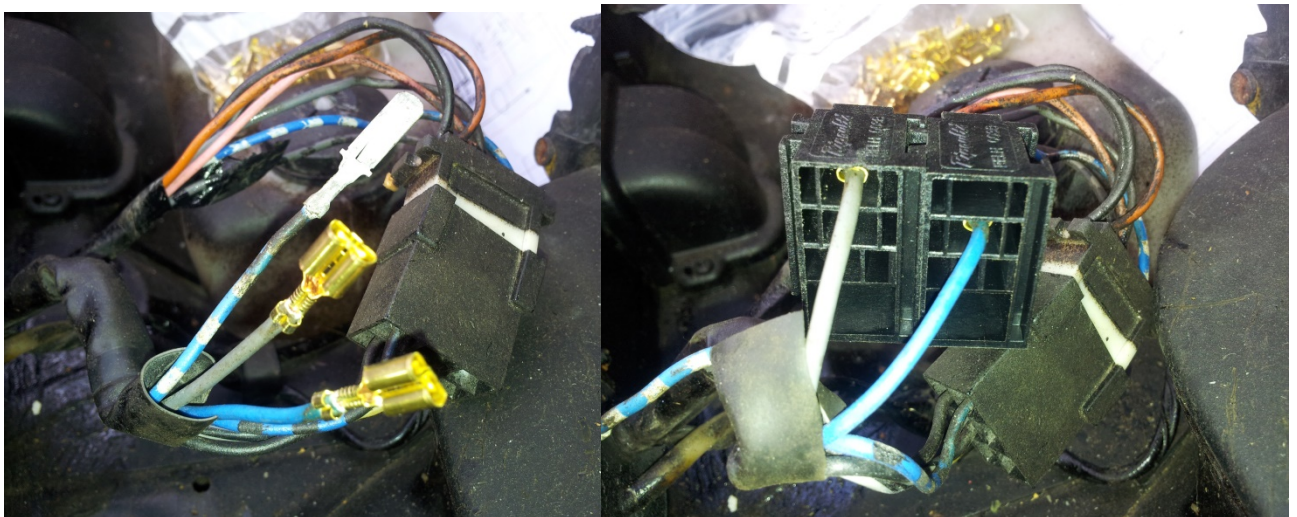
You will need one 5 pin change-over type relay, one 4 pin relay, a couple of metres of 1.5 mm² or 2 mm² wire, a selection of 0.5 or 0.75 mm² wires, some 6.3 mm spade crimp terminals, both male and female and some 4.8 mm female crimp terminals if you wish to use micro relays. You also need an in line 10 or 15 A fuse.

This is the connector we will be modifying:



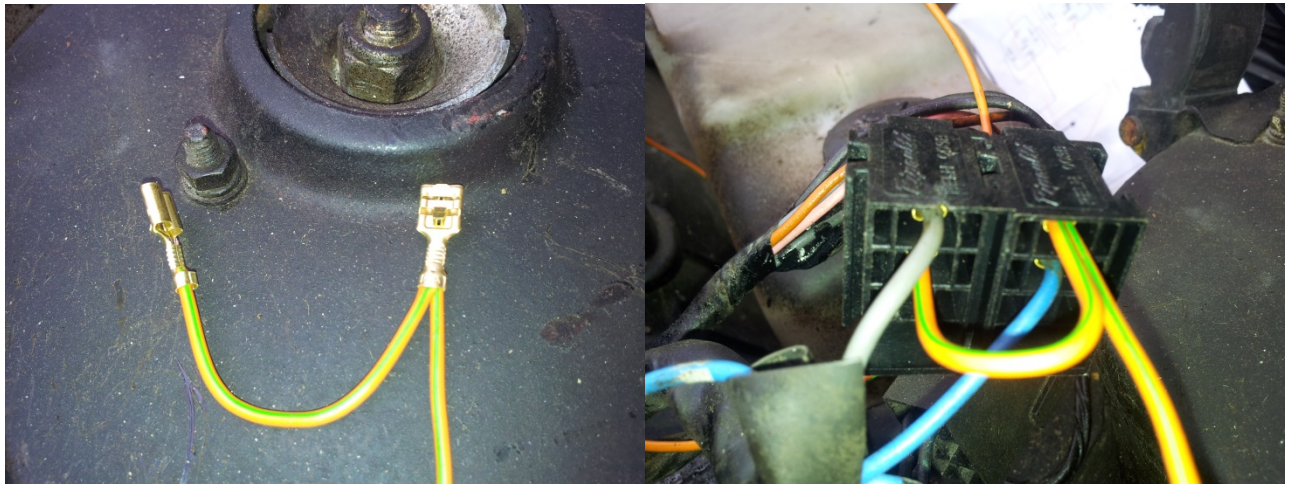
This connector is located just behind the strut tower, clipped into two holes in the body. Hopefully your car won't be covered in black underseal paint in this area! Note that for some reason the blue/white wire on this car was disconnected and taped up. I will have to investigate that. For now I have reinserted it in its proper place.

From the motor side (male) connector, remove the grey, blue and blue/white wire terminals.



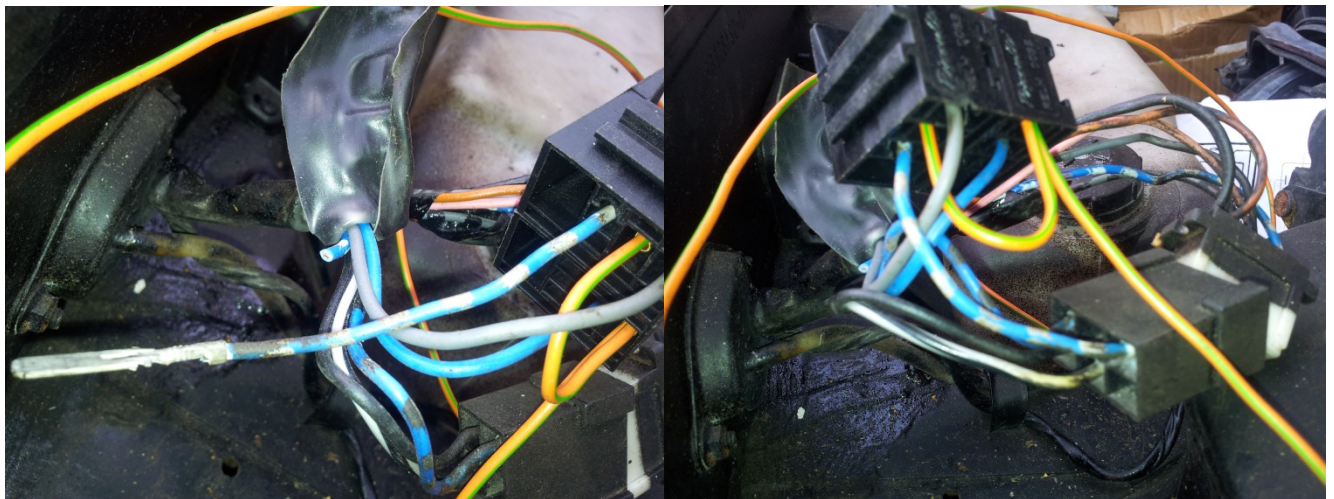
Cut off the original male spade terminals and crimp on two new 6.3 mm (1/4") female terminals on the grey and the blue wires. Insert these into the relay holders as shown above. These are a pair of micro relay holders with fixing tabs. For guidance, in the picture above the holders' fixing tabs are at the bottom. The grey wire goes into terminal 3 (30) of one holder. The blue wire goes into terminal 5 (87) of the other holder. The relay terminal numbers and crimp terminal sizes shown in brackets are for use if you decide to use a pair of regular 1" cube relays. Note that on 1" cube relays all the terminals are 6.3 mm spade, micro relays have a mix of 6.3 mm and 4.8 mm spades.

Obtain a new length of wire for your new power feed to the relays. This needs to be 1.5 mm² or 2 mm². The wire I have chosen is 2 mm². You need enough length to reach your battery + terminal or your 12 V busbar if you have added one while doing the “brown wire mod” for instance. Crimp on two 6.3 mm female terminals as shown, the “extension loop” piece of wire is about 90 mm long.



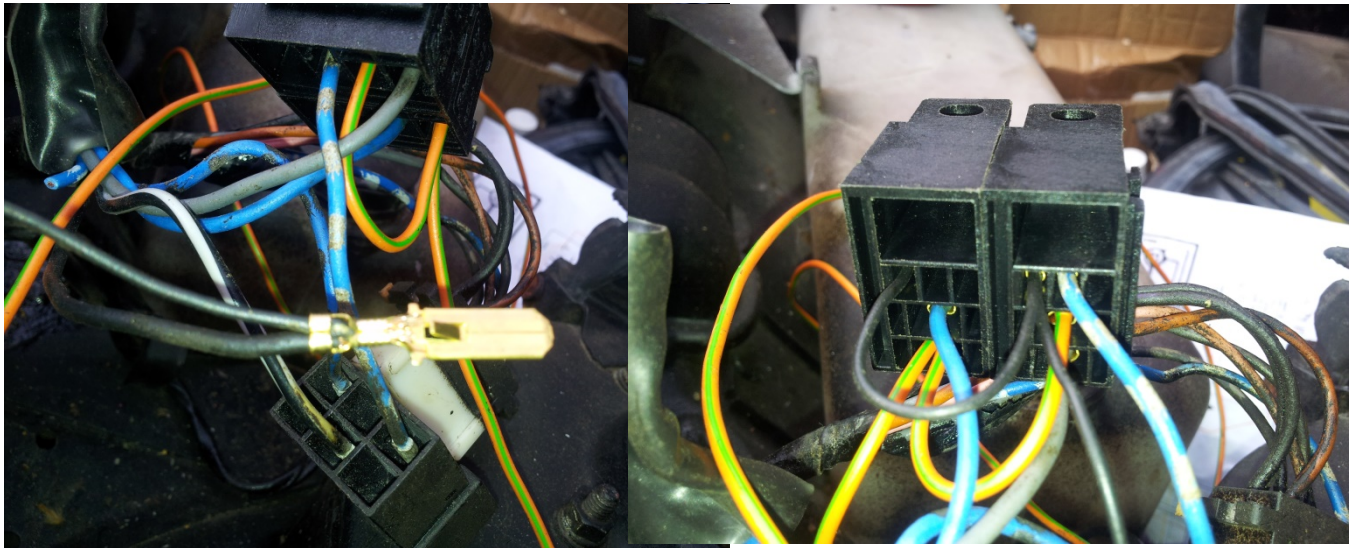
Insert these terminals into terminal 3 (30) of one relay holder and terminal 5 (87) of the other as shown above. At the battery end of your new wire, install an in-line fuse of 10 A rating. Crimp on a suitable terminal depending on how you want to connect your new power wire.

Now uncover enough of the blue/white wire such that you have enough length to comfortably reach between the relay holders and the connector as shown below, about 100 mm or so. Snip off the wire as shown. The remaining wire going to the motor is redundant. Crimp a female 4.8 mm (6.3 mm) terminal onto the cut end and insert it into terminal 4 (87a) of the relay holder with the grey wire as shown below.



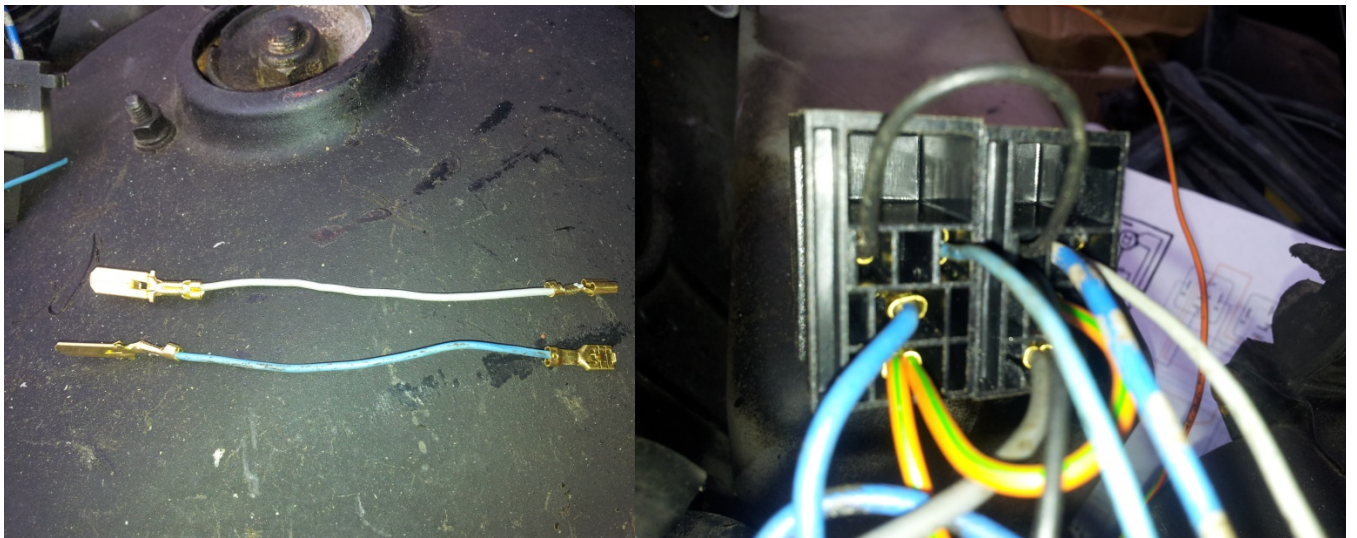
Now reinsert the male terminal (ensure the little locking tab is raised so it can lock) into its correct position in the 6 way connector as shown above. This wire provides electromagnetic braking of the motor so it stops quickly and correctly in the parked position when you switch off the wipers.

Now remove the black wire from the 6 way connector, cut off the male spade terminal, keeping as much wire as you can. Add an additional small earth wire (0.5 or 0.75 mm²) about 100 mm long, and crimp them together into a new male terminal as shown below.



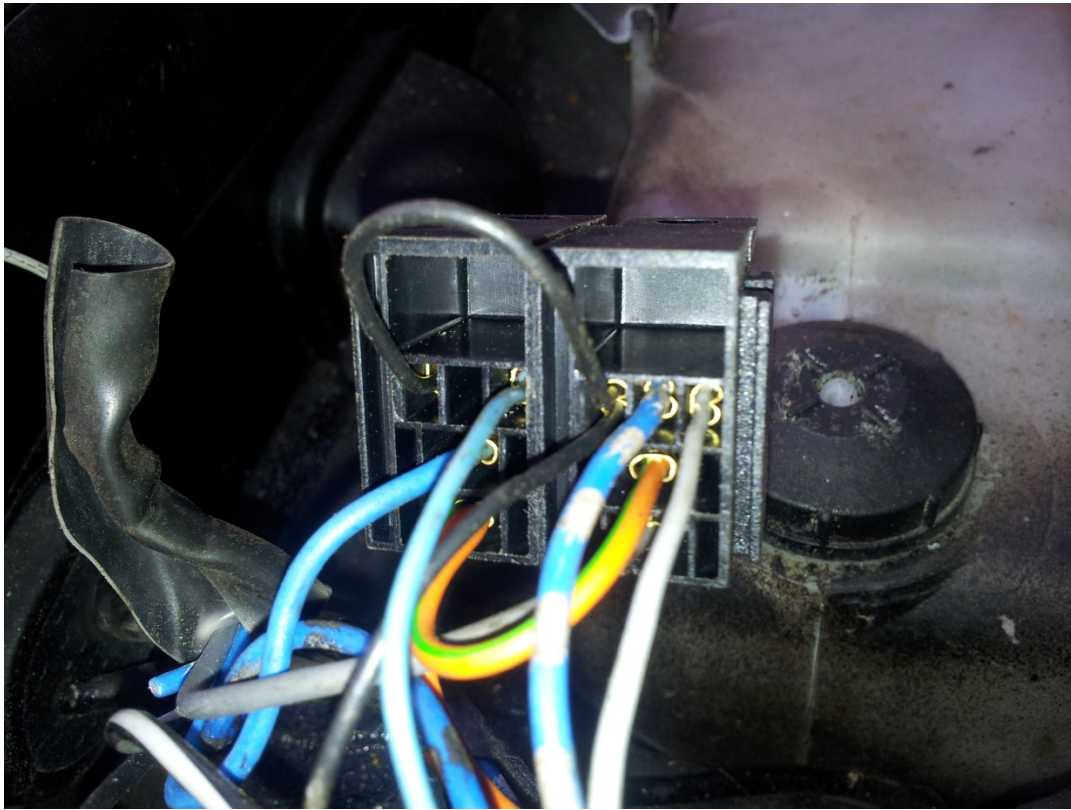
Add a 90 mm long “extension” piece of black wire to the other end, with crimped on 4.8 mm (6.3 mm) female terminals, similar to what we did with the power wire “extension” previously. Insert the female terminals into terminal 2 (86) of each relay holder as shown above. Reinsert the male spade in its proper place in the 6 way connector.

Now make up two new 0.5 or 0.75 mm² wires about 100 mm long, with a male spade terminal on one end and a 4.8 mm (6.3 mm) female terminal on the other end. I used grey and blue to match the original motor wires.



Insert the male ends into the 6 way connector, one to match the grey wire in the car side, the other to match the pink wire (yes, pink connects to blue!), as shown above. Insert the small grey wire female terminal into terminal 1 (85) of the relay holder with the grey wire and the blue wire terminal into terminal 1 (85) of the other relay holder as shown above.

Here's another shot of the wiring to help in getting the wire locations right! You will see that one relay has three 4.8 mm terminals used, the other only two. The relay with the grey and blue/white wires is the 5 pin relay.



The relay holders can be fixed to the bulkhead adjacent to the grommet where the wires enter the front boot as shown below. An M5 bolt through the right hand holder is sufficient as the two holders lock together.

