

Remove, strip and clean the sunroof motor

The sunroof motor seems to get tired over time. It's also possible for its mounting bolts to work loose allowing the motor to turn without moving the sunroof.

If the motor fails with the sunroof open, there's a concealed emergency screw which can be used to close it, assuming the motor hasn't disengaged from the drive.



Here's the light unit; the small plastic plate at the back can be removed along with the single screw.

This picture has the light unit removed (see 'how to stop the mirror wobbling')



but this is not necessary to access the large screw-head visible through the circular cut-out. It's not apparent that this is a screw-socket since there's a spring-located internal cover, but poking it with a large screwdriver will yield dividends.

If you want/need to remove the motor then you must start by removing the light unit and mirror (see 'how to stop the mirror wobbling'), and then remove the A-pillar trims on both sides: There are two Allen keys concealed behind these plastic covers which can be levered out.



Three plastic trim clips locate the trim - try not to break them when removing them.



The back of the trim is tucked under the A-pillar edge.



Remove the sunshades and retaining clips from both sides.

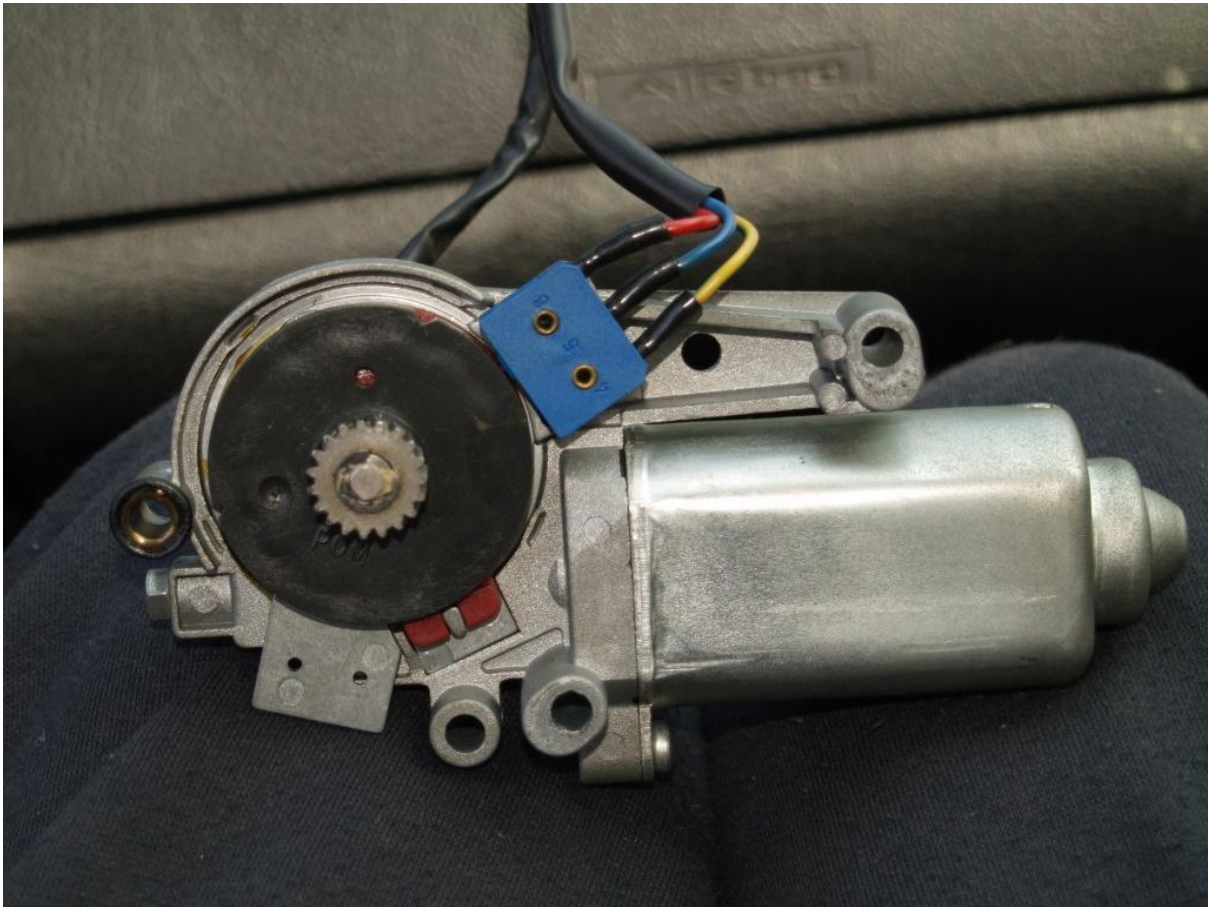


Remove the two screws that locate the front of the headlining



you don't need to remove the two which locate the black plate above it. Now the front of the headlining can be gently bent downward. I **think** that if you wish you can remove the trim around the sunroof opening to improve access but I haven't found it necessary.

The motor is held in with three cross-head screws (impossible to photograph all at once!)



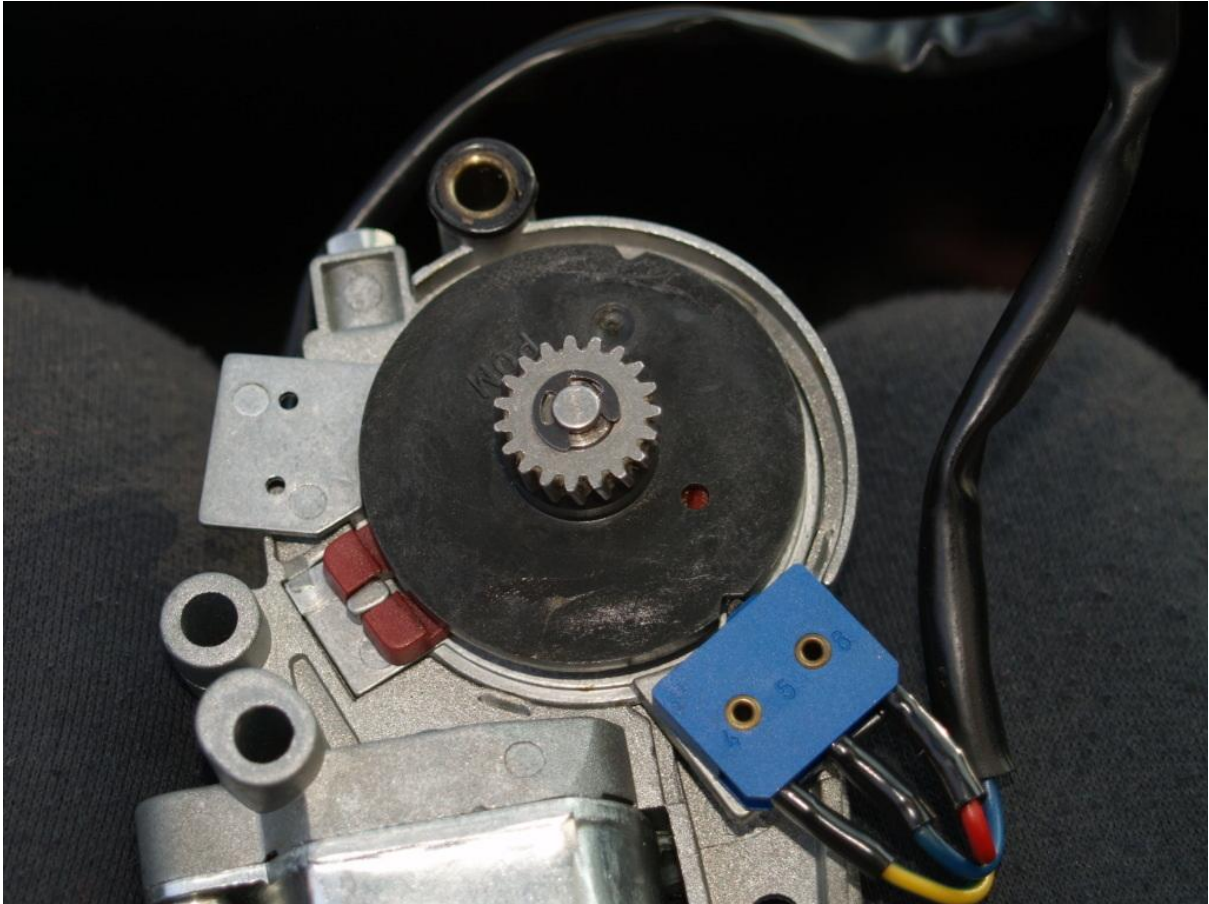
so remove the cable connection and then remove the screws - the motor will drop on your head so watch it!

There are three parts to the motor:

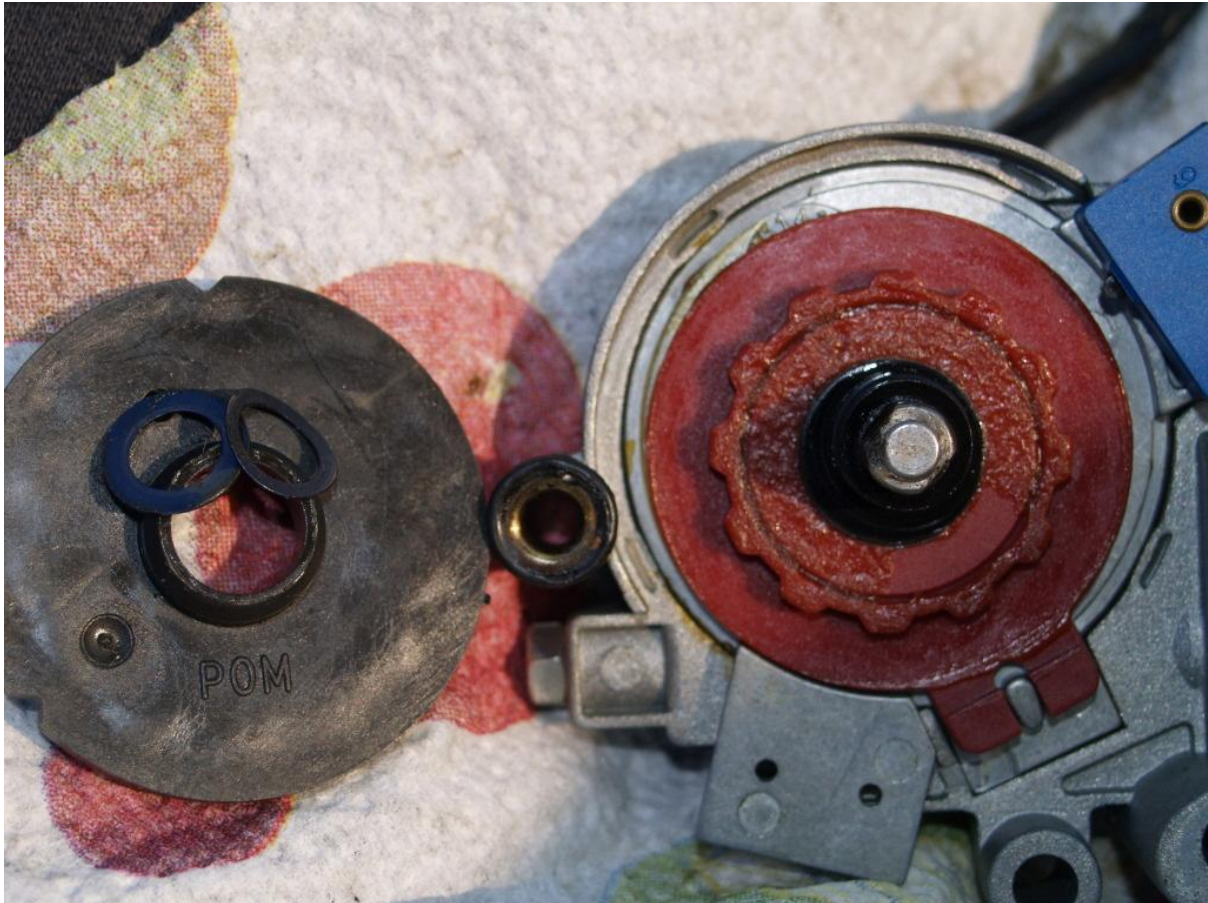


the casing (removed by undoing two screws), the rotor, and the gearbox, brushes, and switches. Clean the commutator and make sure the separations between the copper segments aren't full of carbon from the brushes. You'll want to ensure that the axle is greased where it goes into its bearing at the back of the housing, the front bearing, and the worm drive.

The view from the drive gear side



it can be removed - there are two washers which need to go back the right way; straight first then the spring washer, then the circlip which holds it all together.



Removing the cam reveals an odd plastic bit which allows the axle to be turned without stripping the gears on the worm drive. There's no way to go further since the gearbox is punched in place. Don't use any grease on the nylon parts.

To reassemble, replace the cam, washers, and circlip. Grease the worm drive and front bearing of the rotor. Pull the spring clips on the bushes back and sideways into the slots provided (you'll see them on the plastic supports) so the brushes aren't being forced inwards; move the brushes out from the centre of the axle to give clearance for the commutator. Now slide the rotor in, worm gear first. Once it is home, you can pop the springs back on the back of the brushes. Finally, grease the rear bearing surface of the rotor axle and replace the housing and screws. Note that it only goes on one way.

Having done all that reconnect the power and use the sunroof switch to rotate the cam. You need to have the sunroof in one of two positions: either fully forward but lifted to its maximum height at the rear, or completely closed. The position shown in 'reset position' above is that for the tilted sunroof position; if the roof is closed then rotate the motor clockwise until it stops with the other notch under the microswitch.

Now the motor can be offered up to its position in roof, and the three bolts replaced - note that one is longer than the other. Give it all a rattle as you tighten the screws to ensure that everything is centred correctly. Test it.

Now reassembly is the reverse of the removal; the two screws at the front of the headlining, the sunscreen mounts and retainers, then the A-pillar trim, then the light unit.