75ZT Community

How To Replace Worn Out Brushes in the Fan Motor By French Mike and T-Cut

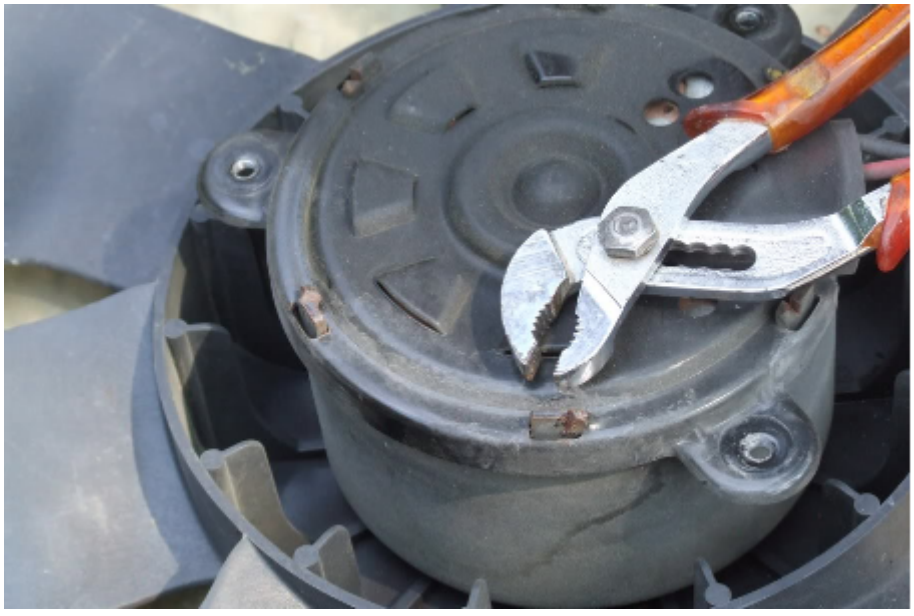
This How To was edited and expanded by me on behalf of FrenchMike, who did all the work and produced the original draft and the photos.

SYMPTOMS

In all Rover 75 and MG ZT models, the aircon requires the operation of the slow speed radiator fan in order to cool the condenser. This is mounted on the main radiator. In the earlier 3-speed stystem, the slow speed usually breaks down after 50-60K miles. This is due to wear and tear on the slow speed brush located in the fan motor. This results in a lack of cooling when the car is stationary and may lead to compressor damage. The usual solution is to replace the fan system completely, which is expensive. A possible solution is to replace the slow speed brush (and any others if necessary) with a new one. Suitable brushes are now available from several sources including eBay. If the motor is otherwise servicable, replacing the worn out brush/brushes is a practical and cheaper fix. This particular example was a 2002 Rover 75 CDT with 100K kilometers on the clock.

PROCEDURE

1. Remove the bumper and slam panel as described in Jules' tips.
2. Cut the fan cowling around the aircon pipes in order to swing out the fan/motor assembly. A heated knife blade is good for slicing through the frame.
3. Extract the fan motor from the frame assembly (3 Torx screws). There's no need to remove the fan. It is better to leave in place to avoid snapping the plastic clips which hold the blade to the drive flange.
4. Using a pair of pliers, straighten out the lugs holding the end plate to the motor body as shown below.



- - and withdraw the end plate
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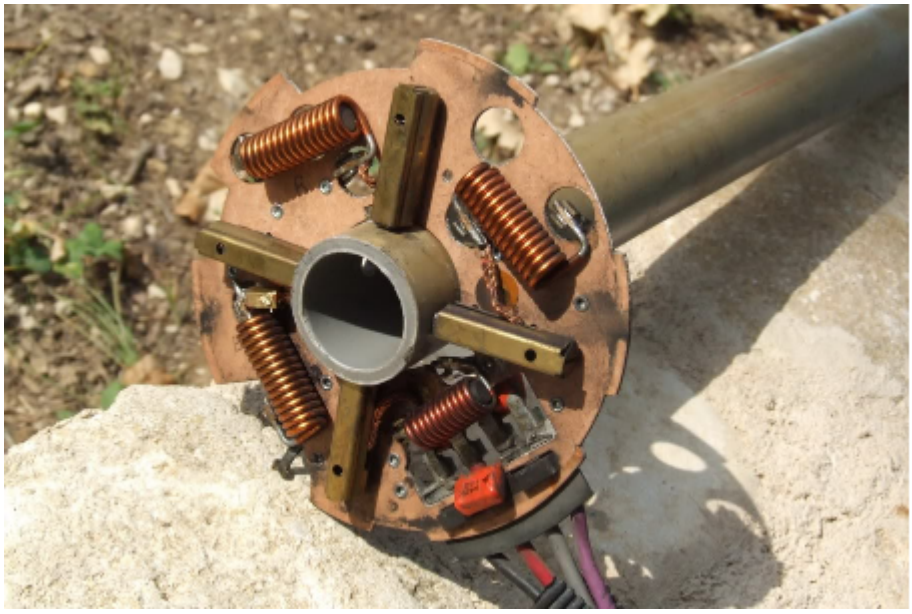
Don't hammer on the motor or the field magnets may fracture.
5. Release the brush mounting disc and examine the four carbon brushes. Also check the commutator and the shaft bearing for wear. The slow speed brush may be worn away completely, the others less so. The armature may be scored or badly worn. A severely worn armature may make the job futile, so judgement is required.
6. The original brushes are hard soldered to the choke wires and are difficult to remove. The simplest solution is to cut the braid, leaving enough length to attach the new one using a home made connector. To make this, I used the brass inner from a small block connector (3mm hole). This was cut into two pieces with a junior hacksaw as shown below.

7. Insert the old and new braids into the connector from opposite sides. Ensure they overlap within the connector, then tighten the clamp screw. Hold the connector with pliers and cut off the head with a junior hacksaw.

8. Using a heavy duty soldering iron (300w), solder the screw in place as seen here.

9. Repeat this operation on any other worn down brushes.

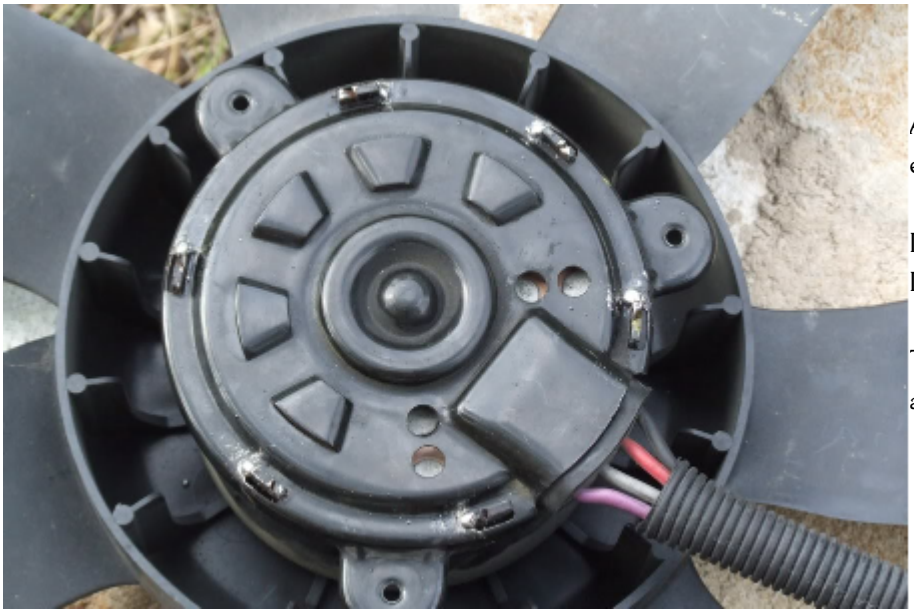
10.With the new brushes in place, retract them into their retainers and hold them in position using a short length of plastic waste pipe (about 32mm dia.) This will allow you to enter the commutator into the brush gear.



11. Carefully withdraw the tubing, to allow the brushes to spring onto the commutator.

12. Replace the end plate, after putting a smear of high temperature grease on the shaft end and entering the bearing. Check that the brush plate is properly located.

13. With the end plate securing lugs located in their slots, hold everything together firmly and apply a good blob of solder to each joint. This will make any future dismantling easier and avoid the lugs shearing off. The area around the slots should be abraided down to bare metal to ensure the solder takes properly. This preparatory work can be done while the brushes are being replaced.



A heavy duty soldering iron is essential.

REFITTING
Reverse the dismantling procedure.

Test the three fan speeds as appropriate.