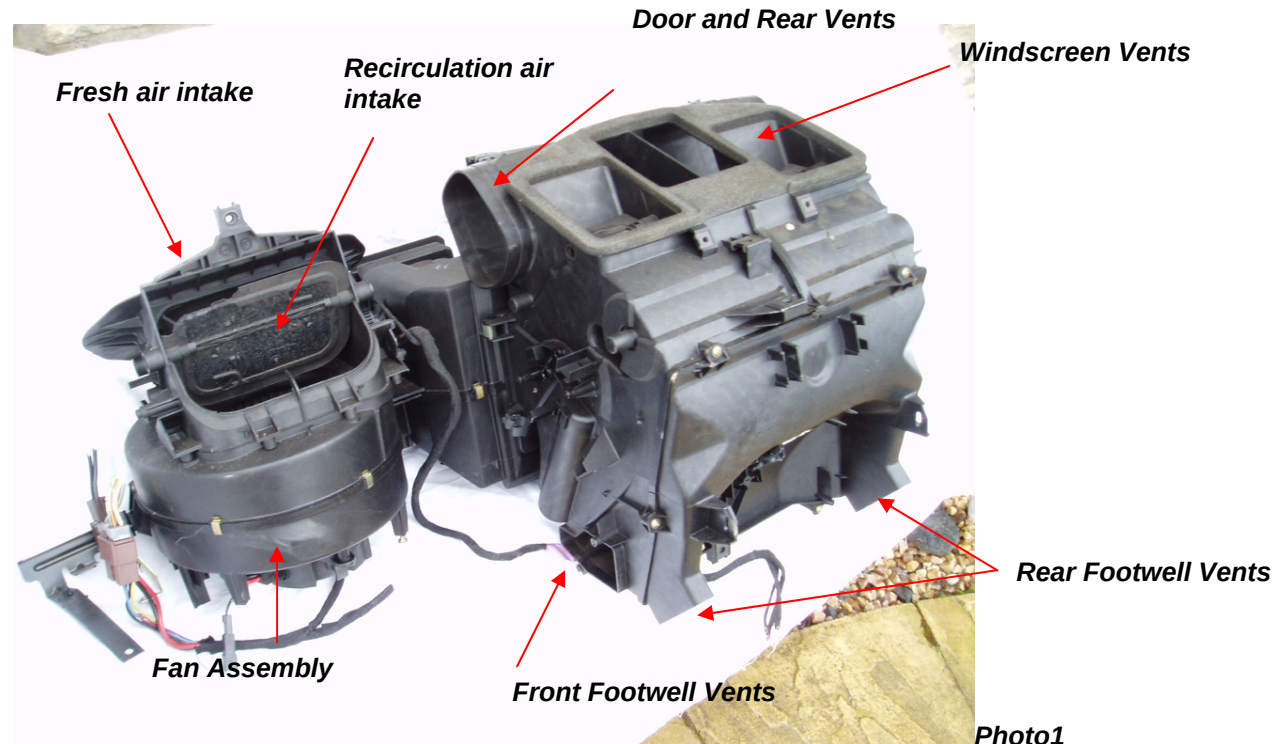


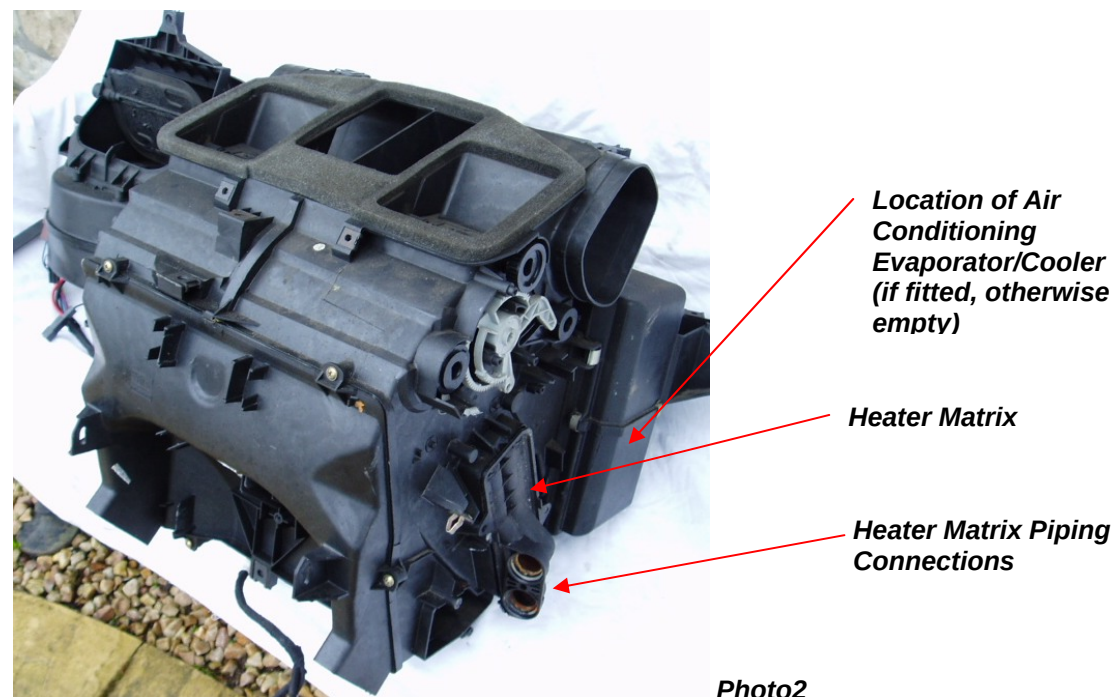
Dismantling the Heater Unit / Fan Assembly on a Citroen XM

The heater unit is a large complex assembly of plastic mouldings. In order to remove it from the scrap car I had to remove absolutely everything before it would come out. It must be the first component fitted to the car after the carpets. After that the entire dash is built around it. There's no way of getting this unit out of the car without dismantling the whole dash including the steel frame which supports the dash.

You can see the whole unit viewed from the nearside (RH Drive) here:



..... and viewed from the offside here:



Control Knob Assembly on dash

The heater controls are all centred around the panel shown in the photo below. The purpose of the three large knobs from left to right are:

Fan Speed

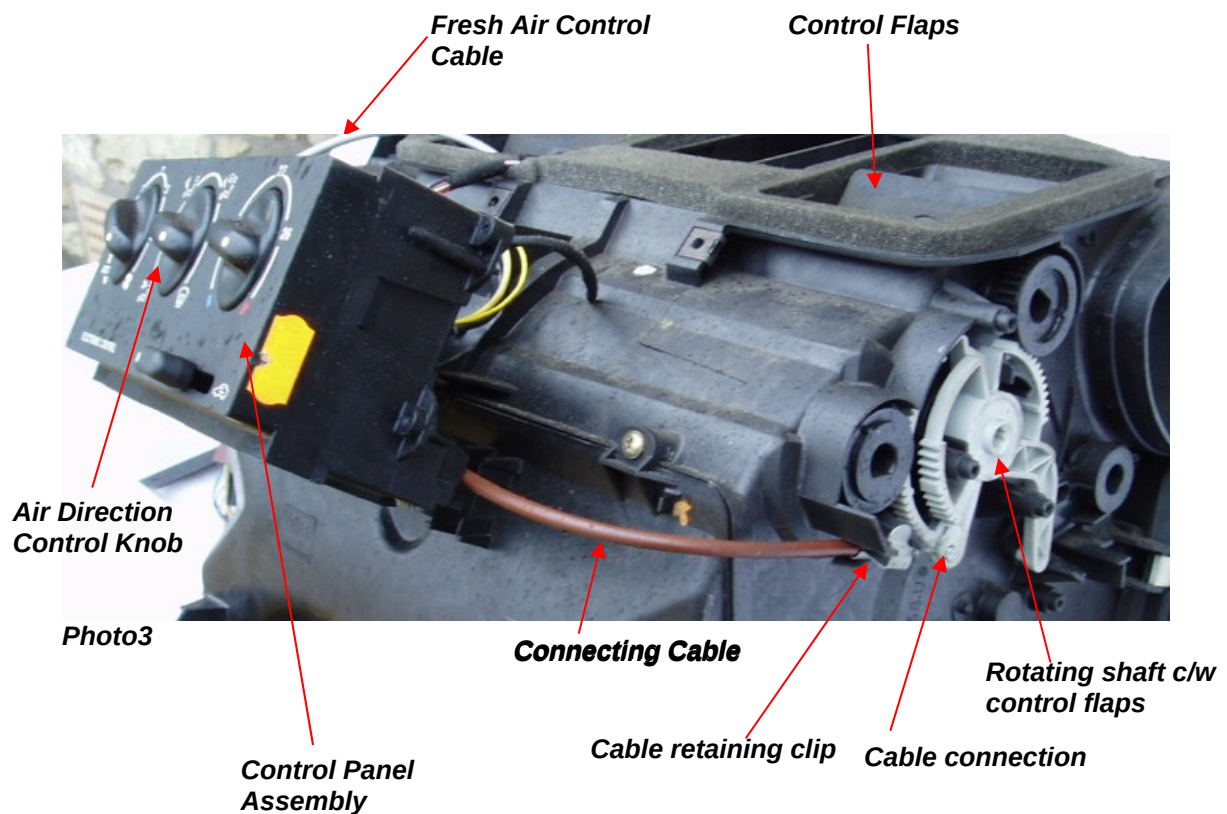
Air Direction

Temperature Setpoint

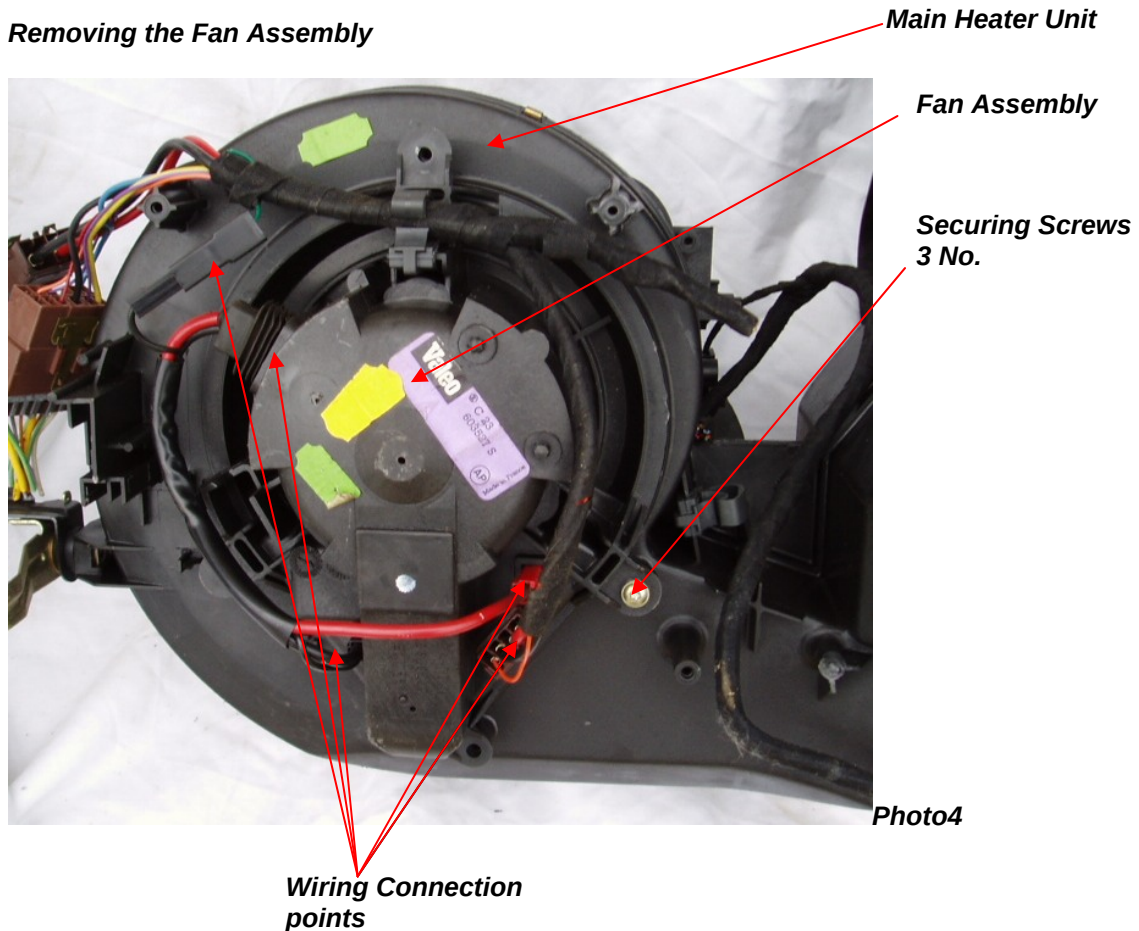
The slider knob at the bottom determines the air mix from Full Fresh to Full Recirculation.

For the air direction control you can see the connecting cable which joins the knob to the flap control shaft. The Temperature Setpoint Knob feeds information on the desired temperature to the controller located inside the controls assembly. The temperature sensor which is located within the central interior light is also connected to this unit. After comparing the setpoint with the sensed temperature the controller sends the correcting information to the servo motor shown in Photo 13.

The slider which controls the fresh air is connected to the flap in Photo 1 by the grey cable shown just at the top of Photo3

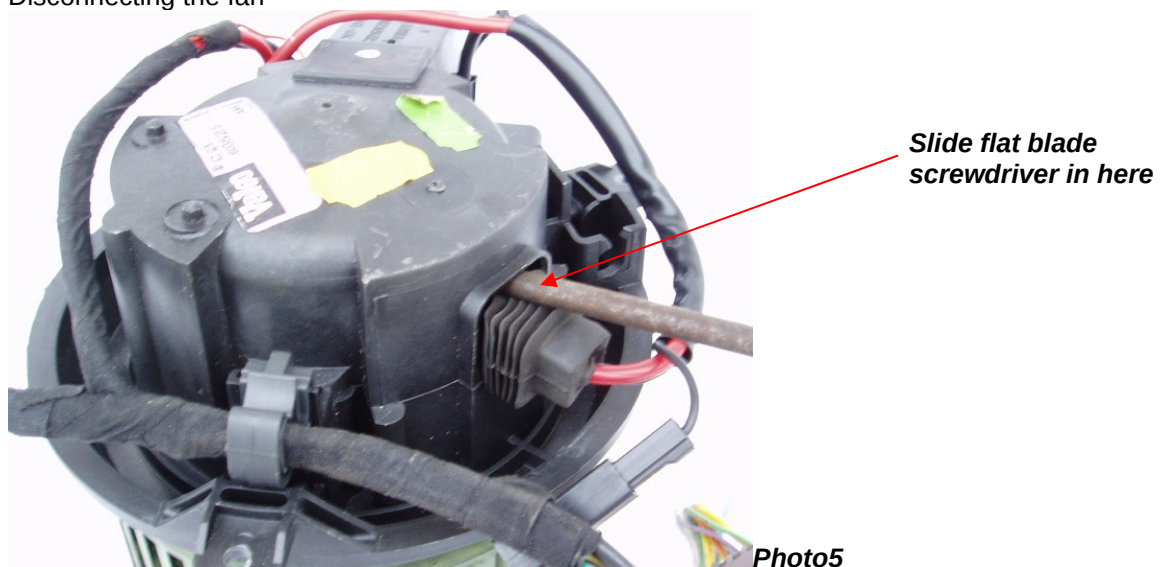


Removing the Fan Assembly



The Main Heater Unit is shown removed from the car for clarity. To remove the fan in situ first remove the carpeted panel above the passenger footwell which hides the fan. Next, disconnect the cabling to the fan at the two large brown multiplugs. Next, unscrew the 3 fixing screws which hold the fan in place. The fan assembly should now fall into your hands. Disconnect all the wiring except the fan at the 4 connector plugs shown in Photo 4

Disconnecting the fan



Slide a flat blade screwdriver in beside the electrical connector as shown in Photo5. Inside there is a clip which is holding the connector in place. Prise it upwards slightly and pull on the connector. It should come out fairly easily.

Fan Assembly:



**Fan Assembly with
all wiring removed**

Photo6

Fan Removal

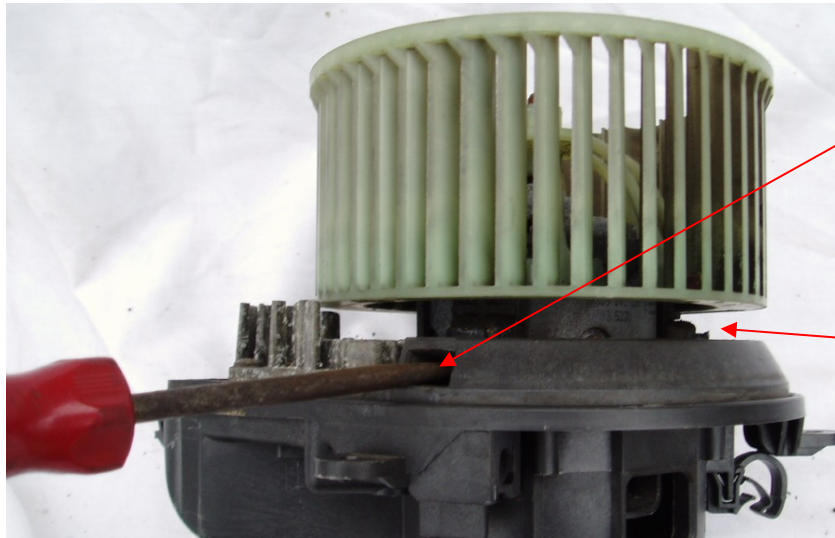
The Fan is mounted on 3 rubber mountings and is located in the plastic motor support assembly as shown in Photo7. To remove the fan and motor from the assembly the three rubber mountings must be prised from the plastic support unit. There are three locations around the perimeter where rubber nodules clip into place. To remove insert a flat bladed screwdriver into each hole in turn. Working around the perimeter, insert the screwdriver into the hole until it pushes on the rubber. Push on the rubber at the same time as levering the rubber towards the fan impeller. Work around the fan edging the rubber mountings out a little bit at a time. Once the nodules are clear of the holes the fan and motor assembly will fall out of the plastic support unit.

First one side...



Photo7

...then the other side.

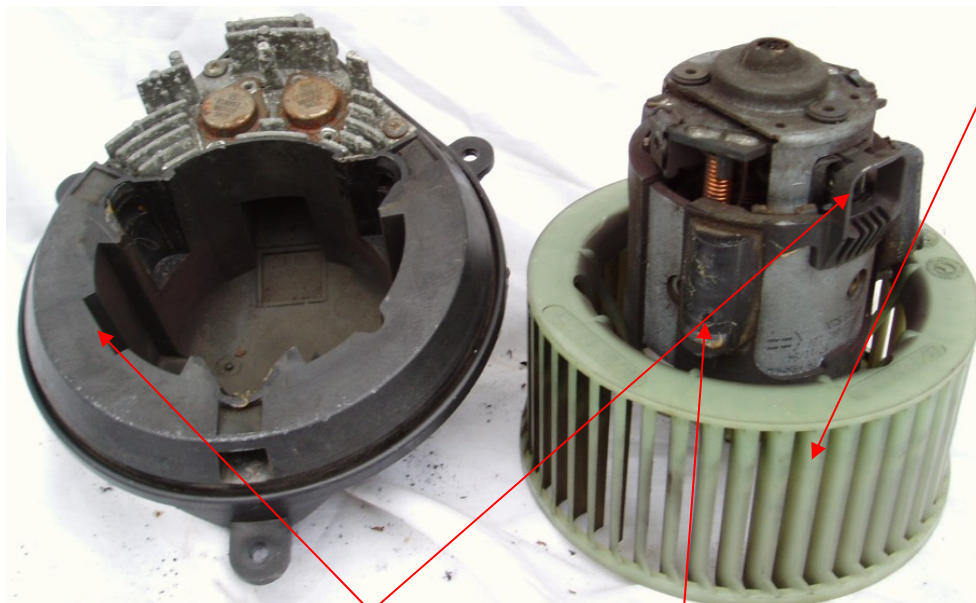


*Insert flat blade
screwdriver in
retaining hole*

*Fan motor will ease
out of support
assembly*

Photo8

Motor and support unit separated



Fan impeller

*Electrical connector
alignment*

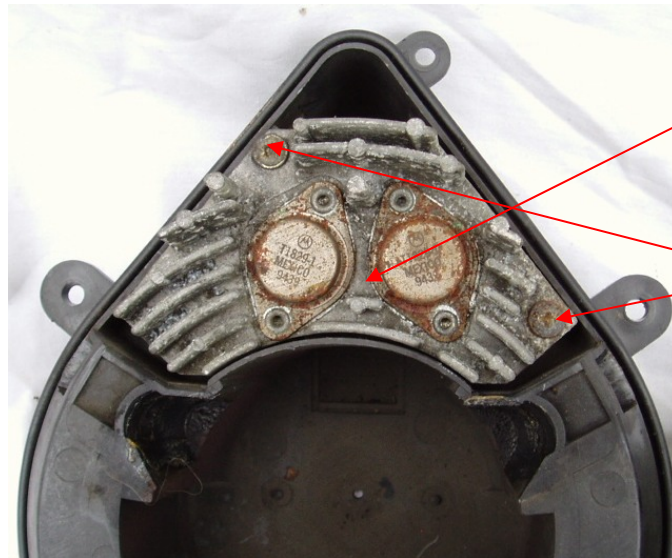
*Rubber retaining
nodule*

Photo9

When refitting the fan/motor assembly into the plastic support housing apply a smear of grease to the rubber nodules. It makes it much easier to assemble and disassemble again if necessary.

When refitting make sure the electrical connector for the motor aligns with the cut out in the plastic support unit.

Fan Speed Control Module

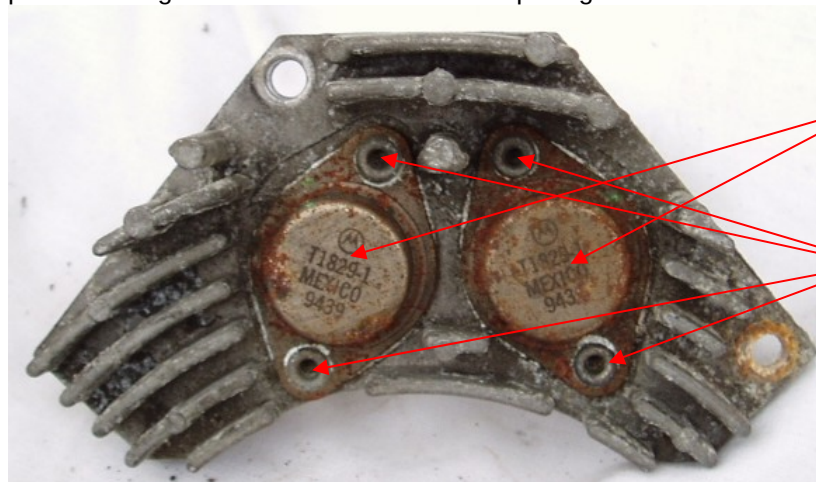


Fan Speed Control Module

**Retaining Screws
2 No.**

Photo10

Most of the time when Fan Failure occurs it is down to the two transistors you can see in Photo10. In my case they tested out OK. My problem was simply the connectors for the wiring. As they have got older they have relaxed and there's not as much pressure on the contacts. I cleaned up all the spade terminals and squeezed the connectors with a pair of pliers until a good bit of resistance was felt pulling them on and off.



Control Transistors

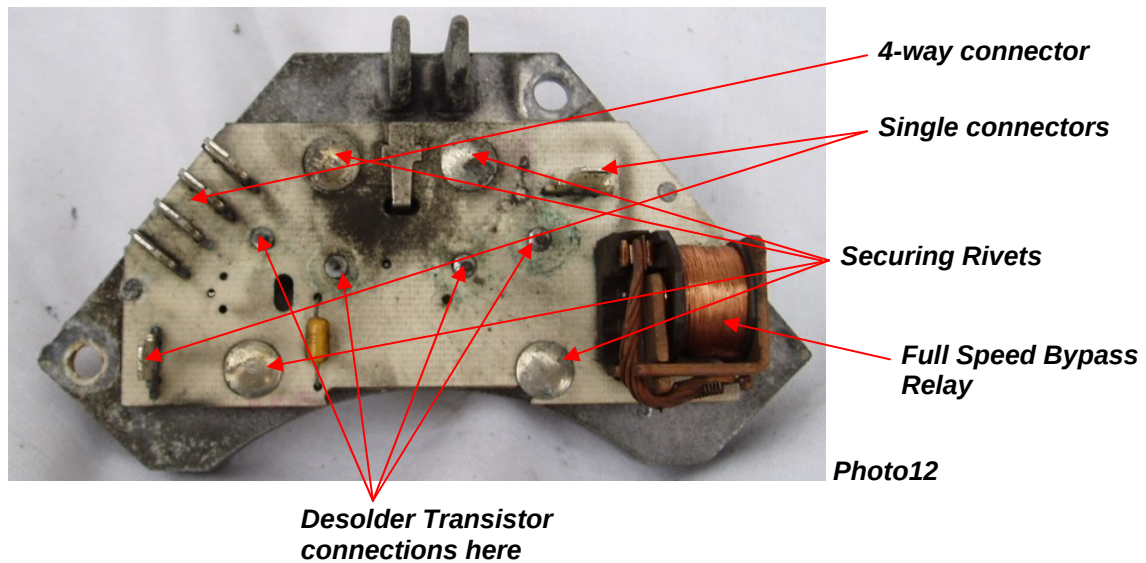
Securing Rivets

Photo11

To remove the transistors for replacement:
Firstly de-solder the transistor connections as shown in Photo12
Next, drill out the retaining rivets until the heads come off
Pull the transistors off the heatsink
Reassemble with new transistors
Re-rivet the transistors to the heatsink
Re solder the transistor connections onto the printed circuit board

The power for the fan is routed through the transistors when the requested speed on the dash is anywhere between zero and full speed. However, at full speed there's no need for the transistors and therefore the full speed bypass relay provides the full 12v straight to the windings of the motor

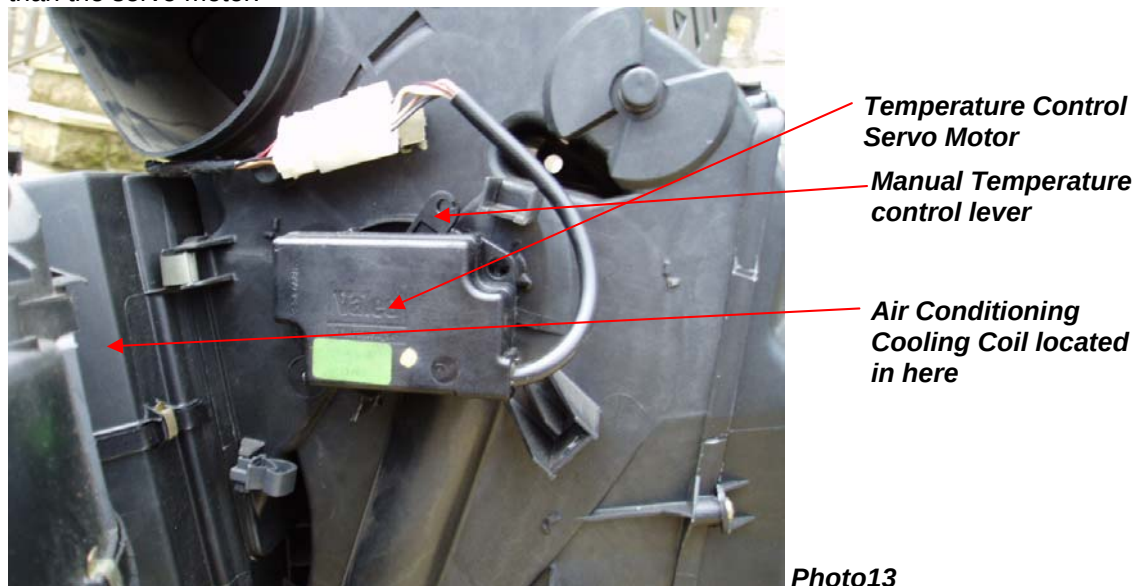
Back side of speed control module.



Temperature Control Servo Motor

The servo motor rotates a shaft inside the heater unit. The shaft has an asymmetric flap fixed to it. As the flap rotates it directs more or less of the air, pumped by the fan, to pass or bypass the heater matrix accordingly. If Air Conditioning is fitted then the evaporator (cooling coil) is located in the position shown. If no aircon is fitted then the section is left empty. When cooling, the temperature is controlled by the refrigerant controls and not the heater control flap.

On some earlier models there was no automatic climate control fitted. The knob on the front fascia, instead of being a rheostat, operated a cable. The cable operated the same flap rather than the servo motor.



Temperature Control Servo Motor

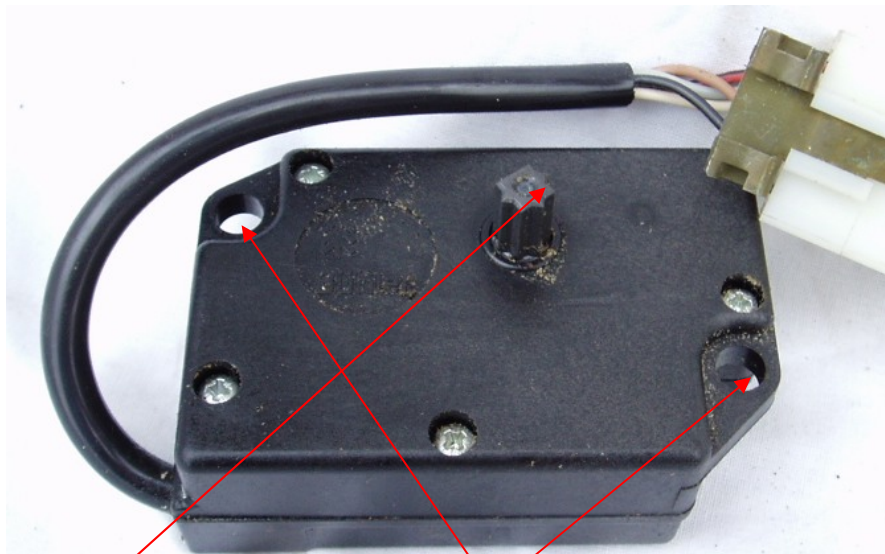


Photo14

Drive shaft

***Locating holes for
mounting pins***