

Rover SD1 Air Conditioning - Heater Matrix Replacement

Jamie Sandford-Morgan

Over the years we have all replaced some of the components in the Rover SD1 Cooling System. Water pump, hoses, radiator, etc, but the prospect of changing a heater matrix always evokes a significant level of self doubt. And rightly so!

It all started after noticing a coolant puddle on the floor central to where the car had been standing. After checking it was not a leak running back from the front of the car the source was traced to the cabin drain orifice located on top of the transmission, its purpose to drain A/C water condensation and coolant if/when the matrix leaks!

The removal process is taken from a good account in the factory workshop manual:

Under the bonnet:

- Disconnect battery
- De-gas the air-conditioning system
- Disconnect fittings to the heater unit and cap/seal them off best you can
- Partially drain the cooling system
- Remove the heater hoses from the bulkhead (firewall) connections
- Connect 16mm I/D slave hoses to these connections, a short one (say 400mm) going to a collection container, and longer one to blow down or fix to a compressor to empty the matrix so fluid does not escape onto the cabin floor during removal
- Undo the two 10mm nuts with large flat washers that attach the soundproofing and the A/C heater unit to the bulkhead

In the cabin:

- Remove both glove boxes, glove box lights, switches and hinge rods from the heater unit and car
- Remove steering wheel, associated trim, column switchgear and drop column to lowest position
- Undo the screw that attaches the fuse box unit to the dash
- Remove the binnacle cover allowing access to disconnect all the wiring from the instruments and switches
- The rear wiper switch and sunroof switch (if fitted) can be pushed from behind as the illumination wires have to be undone from these switches with the switch removed from its position
- Undo the wiring from the door mirror controls
- Remove the radio, also trim around gear stick allowing access from behind the trip computer key pad to prevent the key pad from disintegrating. Otherwise gently pry the unit out from the front
- Remove the center console assembly disconnecting cigarette lighter and speaker balance connectors
- Undo 3 10mm fascia retention bolts both sides adjacent to glove box locations
- Note ducting locations and release as much as is possible from the heater box
- With help, remove the fascia assembly from the car whilst feeding the wiring loom through its access hole

Heater Unit Removal

- Detach the “heater unit to the blower fan” fixing plate
- Likewise, two bolts through the radio aperture, fixing the heater unit to the transmission tunnel
- Undo the heater wiring loom and blower fan connector
- Remove the footwell connections, being two rectangular trim pieces near the seats held with plastic rivets which are released by pushing out a small pin so that gentle prizing will release the trim
- Remove the triangular trims similarly
- Fold back the carpet and unscrew the fixings for the heater diffusers on each side of the transmission tunnel
- Slide them down from the heater unit to disconnect and remove
- Note and disconnect the vacuum hoses
- With help, lift out the heater unit through the passenger door
- It now looks like this:

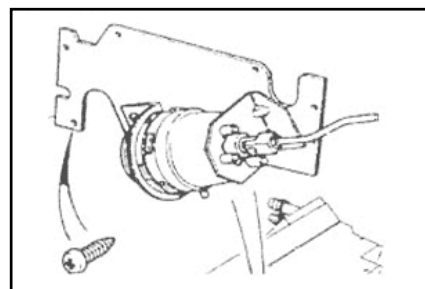


Heater Unit Disassembly

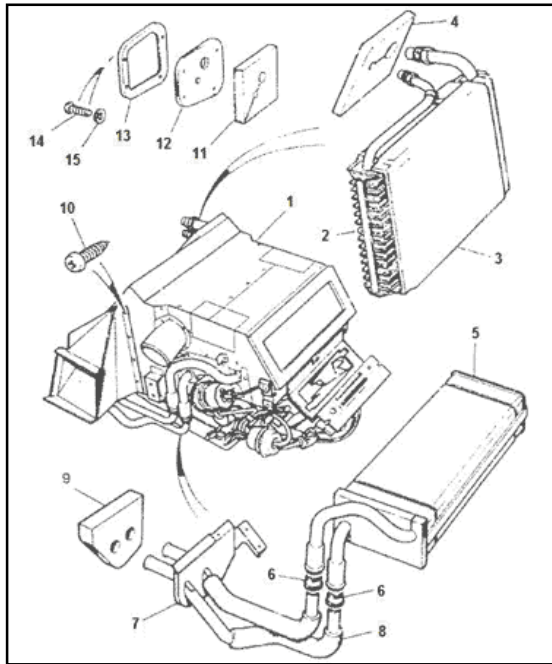
- With the unit out of the car drill out pop rivets that hold the air con evaporator cover plate in place
- Likewise, the anchor bracket for the heater pipe work
- Remove the evaporator cover plate
- Lift out the evaporator core including a small mesh with remnants of some filter foam
- Remove the fan input duct and clean out the collection of debris therein
- Clean any debris off the evaporator and renew the 1” x ¼” foam sealing strips
- Make new seals for the evaporator and pipe work connections
- Re-seal and re-rivet the box tog together with new filter foam fixed to the mesh on the cabin side of the evaporator

Heater Matrix Removal and Repair

- Remove the end plate complete with the vacuum servo and rod
- Slide out the heater matrix
- Coax the metal pipes/bracket assembly (7 and 8) from the two sealing grommets (6)
- Many years of corrosion may have damaged this assembly beyond repair, also a cause of leaks into the passenger footwell detected by coolant loss and/or smell inside the car



- With replacements obsolete an alternative is to re-engineer the existing assembly
- Use two (shorter) 16mm copper pipes about 5" long, bent to the shape and attitude of the originals
- Silver solder these to the bulkhead fixing plate adding some support around and below the soft copper pipe with thick half-washers soldered to the plate/pipe junction
- The additional strength needed to resist any undue forces when re-attaching the engine heater hoses
- Saw off the swaged ends from the heater matrix pipes where the seals (6) were fitted and complete the job with 16 mm heater hose
- Clamp the hoses and replace the pipe lagging as seen in the image below
- Fabricate a replacement rubber seal for the 'heater to bulkhead' fixing plate
- In time-honored fashion, to refit the heater and fascia, reverse the steps



Precautionary Notes

- Before refitting, examine the blower fan power connector for prior over-heating damage and correct if needed
- Reseal the underside of the heater unit where it mounts on the transmission tunnel to prevent condensation or other liquid from entering the cabin
- For a simple test squirt water into one of the heater unit air ducts from where it should exit via the drain
- To test the integrity of the blower and heater unit seal, block all outlets with rags and temporarily engage the fan on full power, looking/feeling for leaks
- Operate the unit to make sure all the flaps are sealed and working correctly, the vacuum system is not leaking and is selecting the mode functions OK
- Because they are completely inaccessible after the fascia is place, fix the demister pipes to their outlets prior to refitting the fascia/dash
- Depending upon time and ability, two weekends should see the job completed and hopefully, some or all of the above, will help to allay any fear of difficulty and to plan and shorten the task to a successful outcome?

