

Section 2F

HVAC Occupant Climate Control (Auto A/C) – Removal and Installation

ATTENTION

Before performing any service operation or other procedure described in this Section, refer to Section 00 Warnings, Cautions and Notes for correct workshop practices with regard to safety and / or property damage.

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1 General Information

This Section describes the removal and installation procedures of the electronic control components of the occupant climate control (OCC) system. For removal and installation procedures of the heater and air-conditioner components not covered in this Section, refer to [Section 2C HVAC Climate Control \(Manual A/C\) – Removal and Installation](#).

2 Service Operations

2.1 OCC Control Module

Replace

For removal and installation of the OCC control module, refer to [Section 1A3 Instrument Panel and Console](#).

NOTE

If the OCC control module is replaced, the air mix door / motor function must be calibrated to the new OCC control module. Failure to do so may cause poor OCC system performance. Refer to [2.8 Air Mix Door Motor](#).

2.2 Sun Load Sensor

Replace

For removal and installation of the sun load sensor, refer to [Section 1A3 Instrument Panel and Console](#).

2.3 In-car Temperature Sensor

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Replace

For removal and installation of the in-car temperature sensor, refer to [Section 1A3 Instrument Panel and Console](#).

Test

- 1 Using an ohmmeter, measure the resistance across the in-car temperature sensor terminals.
- 2 Using a digital thermometer placed as close to the sensor as possible, measure the temperature.
- 3 Compare the readings with the table (should be within $\pm 3^{\circ}\text{C}$).
- 4 If the in-car temperature sensor fails any part of the test, replace the sensor with a serviceable item.

Air Temperature °C	Sensor Resistance Ω
5	7009 – 7536
10	5477 – 5856
15	4310 – 4583
20	3416 – 3612
25	2725 – 2865
30	2175 – 2299
35	1746 – 1857
40	1410 – 1508
45	1145 – 1231
50	935 – 1010

2.4 Evaporator Temperature Sensor

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Remove

- 1 Remove the instrument panel, refer to [Section 1A3 Instrument Panel and Console](#).
- 2 Remove the HVAC unit and access the evaporator, refer to [Section 2C HVAC Climate Control \(Manual A/C\) – Removal and Installation](#).
- 3 Disconnect the sensor wiring harness connector at the front of the HVAC case.
- 4 Remove the clamp (1) from the evaporator (2) and remove the evaporator temperature sensor (3).

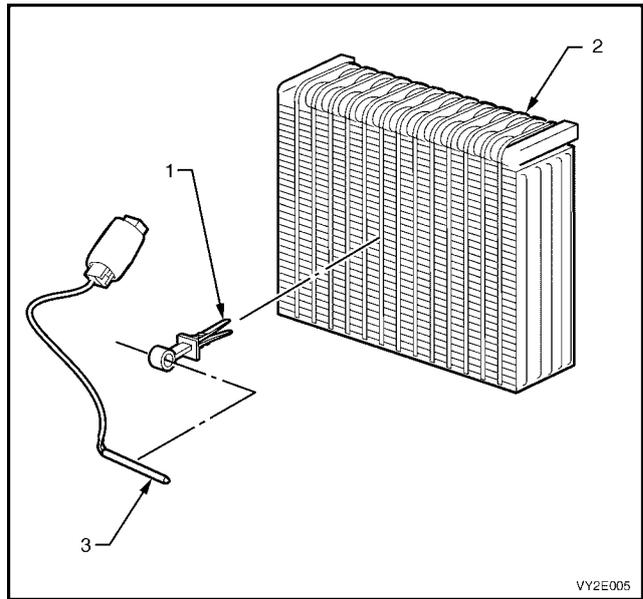


Figure 2F – 1

Test

- 1 Using an ohmmeter, measure the resistance across the evaporator temperature sensor terminals.
- 2 Using a digital thermometer, placed as close to the sensor as possible, measure the temperature.
- 3 Compare the readings with the table (should be within $\pm 3^{\circ}\text{C}$).
- 4 If the evaporative temperature sensor fails any part of the test, replace the sensor with a serviceable item.

Air Temperature °C	Resistance Ω
5	4300 – 4850
10	3600 – 4050
15	2950 – 3250
20	2320 – 2625
25	1990 – 2200
30	1675 – 1850
35	1330 – 1470
40	1140 – 1260
45	950 – 1050
50	850 – 950

Reinstall

Reinstallation of the evaporator temperature sensor is the reverse of the removal procedure, noting the following:

- 1 Ensure the clamp (1) is fitted over the sensor (2) 25 mm from the end.
- 2 Insert the clamp firmly into the evaporator fins (3) at the dimensions shown.
- 3 Ensure the sensor harness is correctly installed in the recess provided in the evaporator cover when the cover is assembled to the case.

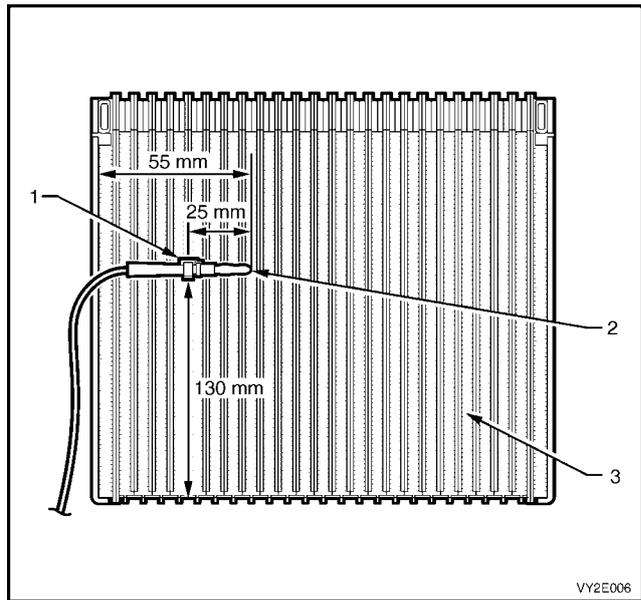


Figure 2F – 2

2.5 Aspirator Tube and Venturi

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Remove

- 1 Remove the instrument panel assembly, refer to [Section 1A3 Instrument Panel and Console](#).
- 2 Remove HVAC unit, refer to [Section 2C HVAC Climate Control \(Manual A/C\) – Removal and Installation](#).
- 3 Note the location then remove any adhesive tape retaining the aspirator tube (1) to the HVAC case (2).
- 4 Remove the aspirator tube and the venturi (3) as an assembly from the HVAC case.
- 5 Remove the aspirator tube from the venturi.

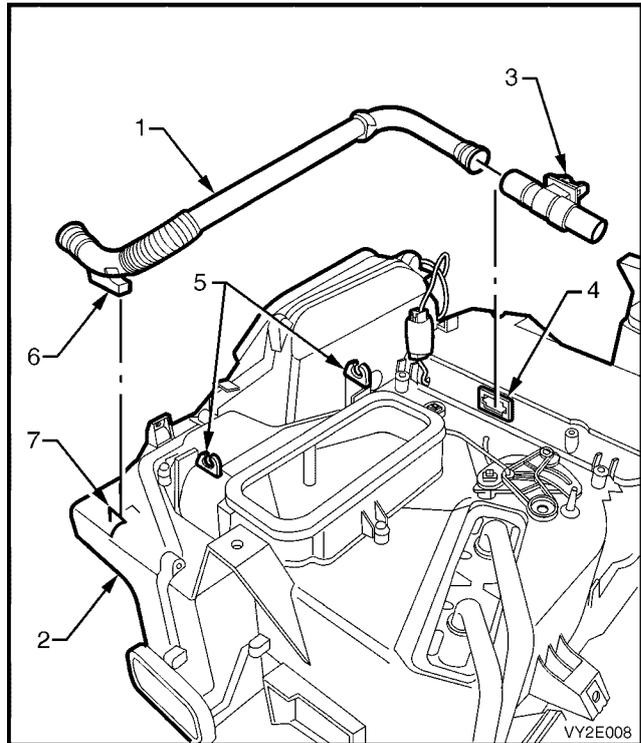


Figure 2F – 3

Reinstall

Reinstallation of the aspirator tube and venturi is the reverse of the removal procedure, noting the following:

- 1 When installing the venturi into the aspirator tube, ensure the tube is fully engaged into the venturi.
- 2 Ensure the venturi is fully seated into the HVAC case venturi hole (4) and the aspirator tube is correctly installed into the retaining clips (5) and the lug (6) is secured to the recess (7), refer to Figure 2F – 3.
- 3 Install adhesive tape to the original locations as noted on removal.

2.6 Ambient Temperature Sensor

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Remove

- 1 Raise front of vehicle and support on safety stands. Refer to [Section 0A General Information](#) for the location of jacking and support points.
- 2 Remove the wiring harness connector (1) from the ambient temperature sensor (2).
- 3 Using a flat blade screwdriver, carefully lever the sensor away from the retaining bracket (3).

NOTE

The retaining bracket is not to be removed from the condenser (4).

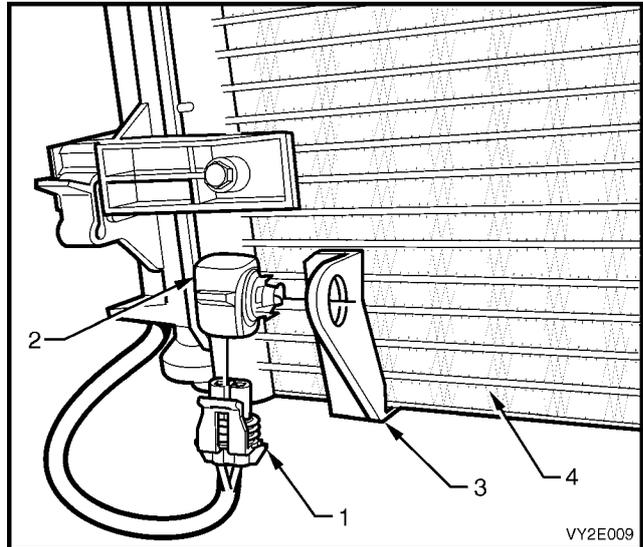


Figure 2F – 4

Test

- 1 Using an ohmmeter, measure the resistance across the ambient temperature sensor terminals.
- 2 Using a digital thermometer placed as close to the sensor as possible, measure the temperature.
- 3 Compare the readings with the table (should be within $\pm 3^{\circ}\text{C}$).
- 4 If the ambient temperature sensor fails any part of the test, replace the sensor with a serviceable item.

Air Temperature °C	Resistance Ω
0	15920 – 16750
10	9715 – 10193
20	6107 – 6389
30	3943 – 4115
40	2610 – 2717
50	1767 – 1836
60	1201 – 1291

Reinstall

Reinstallation of the ambient temperature sensor is the reverse of the removal procedure.

2.7 Vacuum Solenoid Pack

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Remove

- 1 Remove the left-hand instrument panel lower trim plate assembly, refer to [Section 1A3 Instrument Panel and Console](#).
- 2 Disconnect the wiring harness connector (1) from the vacuum solenoid pack (2).
- 3 Remove the vacuum lines from the retaining clips in the HVAC unit (3) at the left-hand end of the solenoid pack.
- 4 Remove the two screws (4) attaching the solenoid pack to the lugs (5) on the HVAC unit case and move the solenoid pack away from the case.
- 5 Disconnect the vacuum manifold (6) from the solenoid pack and remove the pack.

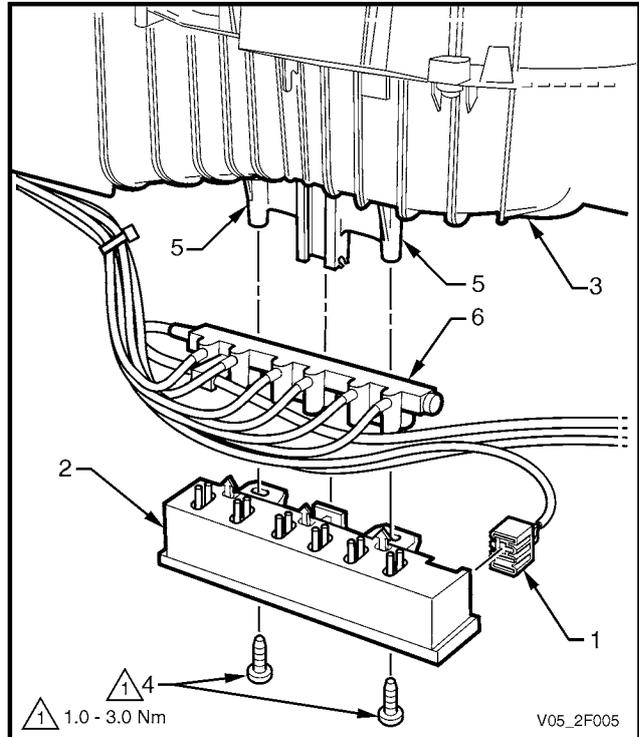


Figure 2F - 5

Test

NOTE

To test the vacuum retention of the vacuum solenoid pack, refer to [Section 2C HVAC Climate Control \(Manual A/C\) – Removal and Installation](#).

- 1 Using an ohmmeter, measure the resistance across the vacuum solenoid pack terminals and compare the readings to the following tables.
- 2 If the resistance readings are not to specification or there is continuity between any terminals other than those listed, the solenoid pack is faulty.
- 3 If the solenoid pack fails any part of the test, replace the complete solenoid pack.

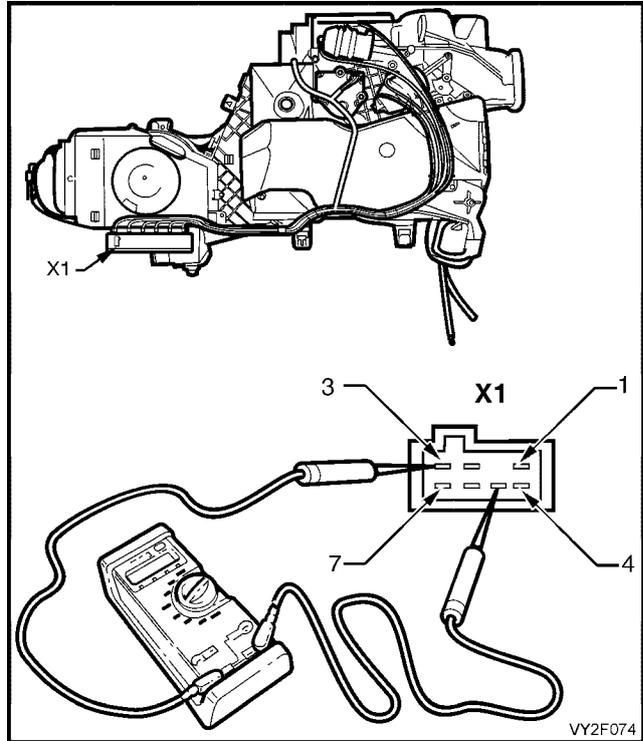


Figure 2F – 6

Table 1

Connector Details	
Pin Number	Function
X1-1	Solenoid 4 – Foot 1
X1-2	Solenoid 2 – Face 1
X1-3	Solenoid 1 – Intake
X1-4	12 V Power
X1-5	Solenoid 6 – Water
X1-6	Solenoid 2 – Face 2
X1-7	Solenoid 5 – Foot 2
X1-8	Not Connected

Table 2

Solenoid Pack Contacts	Resistance Ω
X1-4 and X1-1	109 – 111
X1-4 and X1-2	109 – 111
X1-4 and X1-3	109 – 111
X1-4 and X1-5	109 – 111
X1-4 and X1-6	109 – 111
X1-4 and X1-7	109 – 111

Reinstall

Reinstallation of the vacuum solenoid pack is the reverse of the removal procedure. Tighten the attaching screws to the correct torque specification.

Vacuum solenoid pack attaching screw torque specification..... 1.0 – 3.0 Nm
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2.8 Air Mix Door Motor

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NOTE

If an air mix door motor is replaced, the air mix door / motor function must be calibrated to the OCC control module. Failure to do so may cause poor OCC system performance. Refer to Tech 2 Information in [Section 2E HVAC Occupant Climate Control \(Auto A/C\) – Diagnostics](#).

Single Zone A/C

Remove

- 1 Remove the instrument panel assembly, refer to [Section 1A3 Instrument Panel and Console](#).
- 2 Remove the HVAC unit, refer to [Section 2C HVAC Climate Control \(Manual A/C\) – Removal and Installation](#).
- 3 From the underside of the HVAC unit (1), locate the air mix door motor (2) and disconnect the wiring harness connector (3).
- 4 Remove the three screws (4) attaching the motor to the HVAC unit and remove the motor.

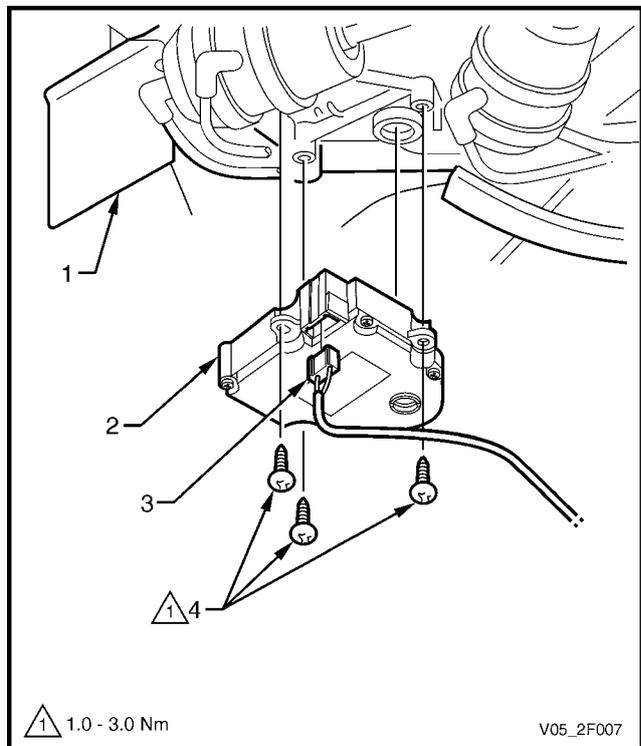


Figure 2F – 7

Reinstall

Reinstallation of the air mix door motor is the reverse of the removal procedure, noting the following:

- 1 Tighten the three screws attaching the motor to the specified torque.

Air mix door motor attaching screw torque specification	1.0 – 3.0 Nm
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- 2 If required, perform the air mix door motor calibration procedure, refer to Tech 2 Information in [Section 2E HVAC Occupant Climate Control \(Auto A/C\) – Diagnostics](#).

Dual Zone A/C

Remove

- 1 Remove the instrument panel, refer to [Section 1A3 Instrument Panel and Console](#).
- 2 Remove the HVAC unit, refer to [Section 2C HVAC Climate Control \(Manual A/C\) – Removal and Installation](#).

CAUTION

Prior to removing the harness connectors, note which connector is installed to the driver's side air mix door motor and which connector is installed to the front passenger's side air mix door motor. Do not swap the connectors.

- 3 From the underside of the HVAC unit (1), locate the driver's side air mix door motor harness connector (2) and disconnect from the motor (3).
- 4 Remove the three screws (4) attaching the air mix door motors to the HVAC unit and remove the driver's side air mix door motor along with the intermediate mounting plate (5) and activating lever (6).
- 5 Disconnect the harness connector (7) from the front passenger's side air mix door motor (8).
- 6 Remove the front passenger's side air mix door motor from the HVAC unit.

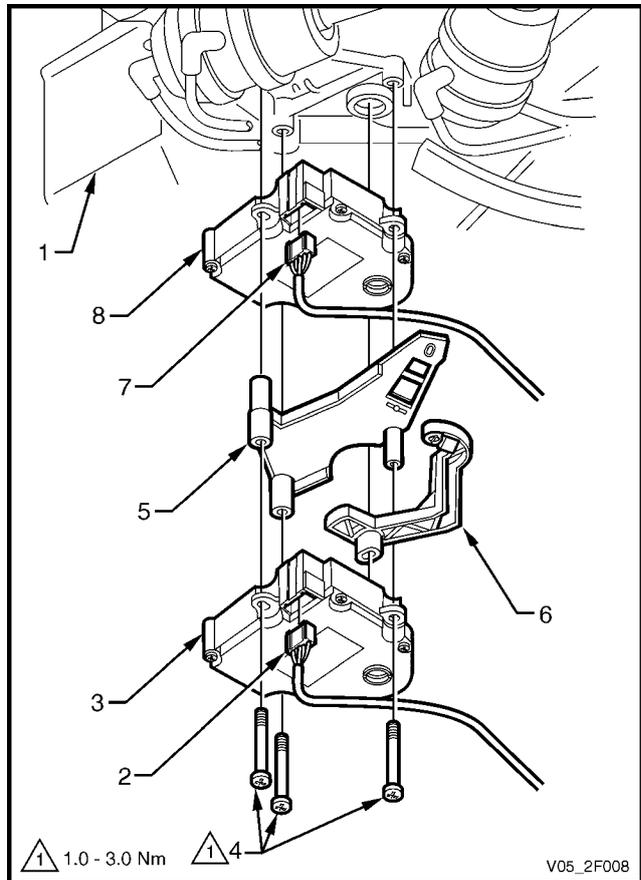


Figure 2F – 8

Reinstall

Reinstallation of the air mix door motor is the reverse of the removal procedure, noting the following:

- 1 Tighten the three screws attaching the motors to the correct torque specification.

Air mix door motor attaching screw torque specification 1.0 – 3.0 Nm

- 2 Ensure the correct connector is fitted to the corresponding air mix door motor, as noted on removal.
- 3 If required, perform the air mix door motor calibration procedure, refer to Tech 2 Information in [Section 2E HVAC Occupant Climate Control \(Auto A/C\) – Diagnostics](#).

3 Torque Wrench Specifications

Vacuum Solenoid Pack Attaching Screw.....	1.0 – 3.0 Nm
Air Mix Door Motor Attaching Screw.....	1.0 – 3.0 Nm