

Auxiliary Climate Control -

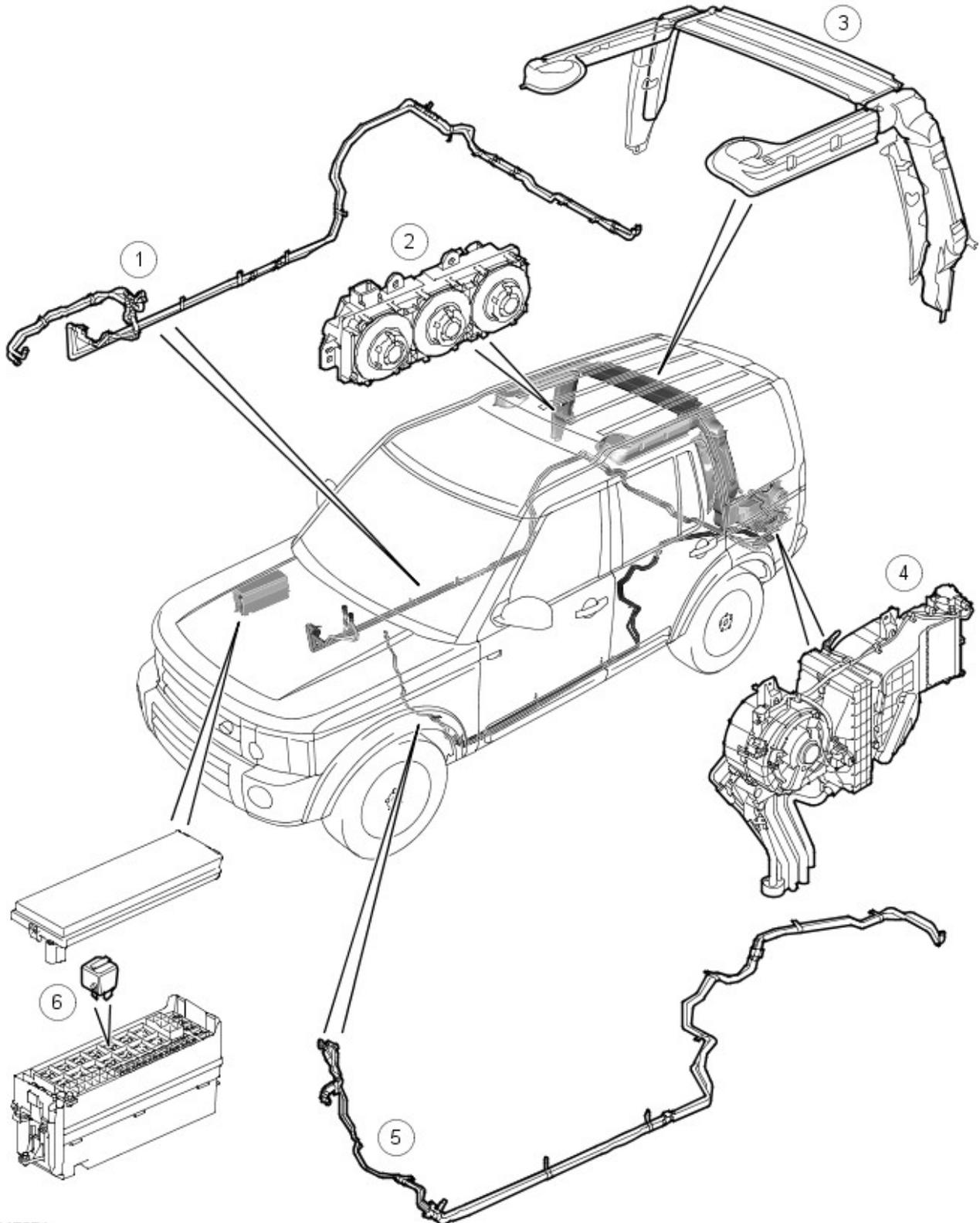
Torque Specifications

| Description | Nm | lb-ft |
|---|----|-------|
| TVX assembly bolts | 10 | 7 |
| Auxiliary climate control assembly bolts | 10 | 7 |
| Auxiliary climate control sealing plate bolts | 10 | 7 |
| A/C pipe bolts | 10 | 7 |
| TVX assembly bolts | 10 | 7 |

Auxiliary Climate Control - Auxiliary Climate Control

Description and Operation

COMPONENT LOCATIONS



E47874

| Item | Part Number | Description |
|------|-------------|---|
| 1 | - | Heater lines |
| 2 | - | ACCM (auxiliary climate control module) |
| 3 | - | Air distribution ducts |
| 4 | - | Auxiliary climate control assembly |
| 5 | - | Refrigerant lines |
| 6 | - | Rear blower relay |

GENERAL

The auxiliary climate control system provides additional air conditioning for the second and third row seat occupants. The auxiliary climate control system consists of:

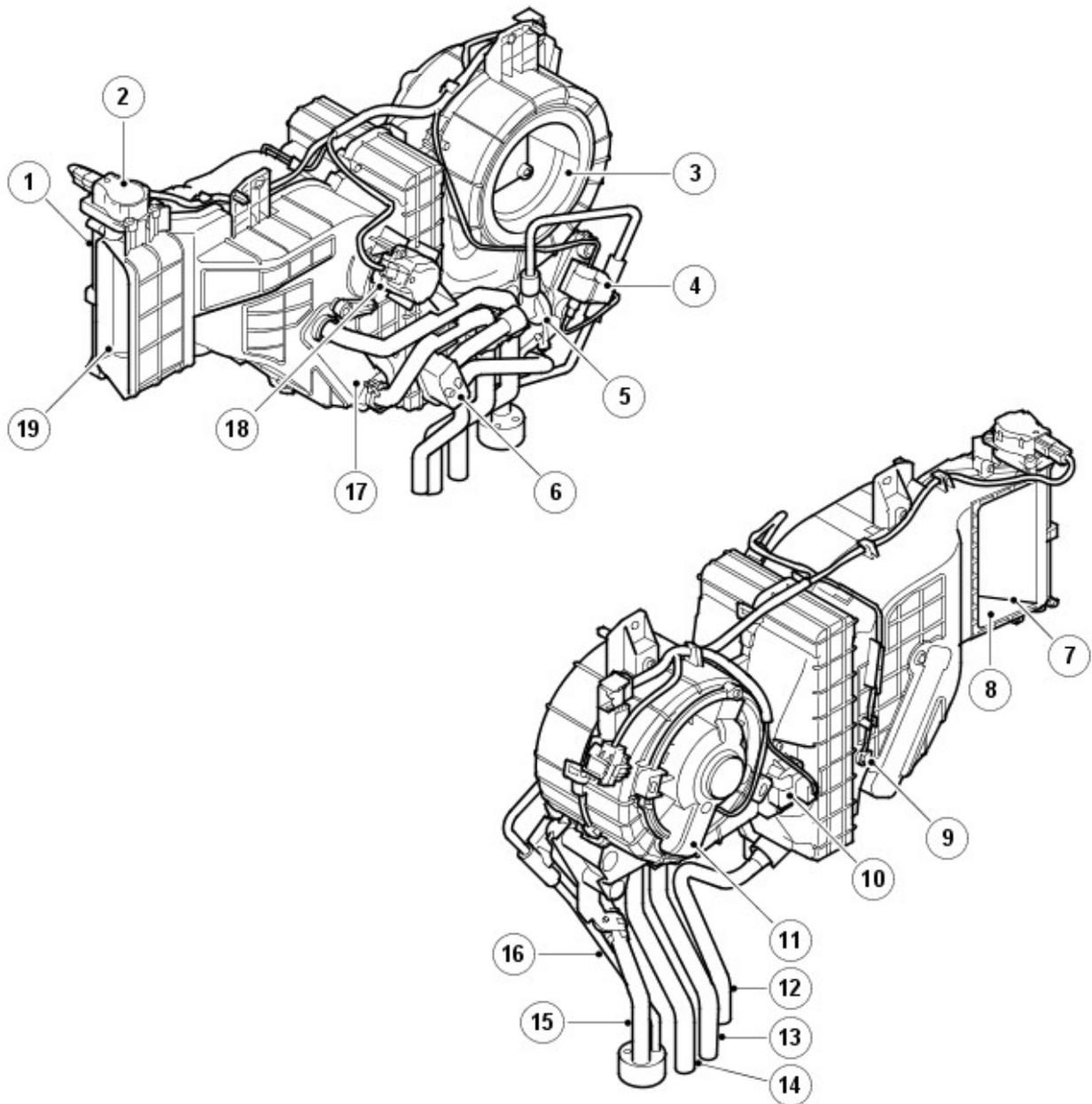
- An auxiliary climate control assembly.
- A refrigerant circuit.
- A heating circuit.
- A distribution system.
- An ACCM.

The automatic temperature control (ATC) module, of the main air conditioning system, is also used in the control of the auxiliary climate control system.

For additional information, refer to: Control Components (412-04 Control Components, Description and Operation).

Cabin air is recirculated through the auxiliary climate control assembly, where the air is temperature regulated and then directed through the distribution system to registers in the roof, on the C pillars and on the left side of the loadspace. The volume, temperature and distribution of the air from the auxiliary climate control assembly can be manually controlled by the ACCM or automatically controlled by the ATC module.

AUXILIARY CLIMATE CONTROL ASSEMBLY



E47875

| Item | Part Number | Description |
|------|-------------|------------------------------|
| 1 | - | Casing |
| 2 | - | Distribution door motor |
| 3 | - | Blower inlet |
| 4 | - | Solenoid valve |
| 5 | - | Thermostatic expansion valve |

| | | |
|----|---|-------------------------------|
| 6 | - | Evaporator connector block |
| 7 | - | Distribution door |
| 8 | - | Footwell outlet |
| 9 | - | Evaporator temperature sensor |
| 10 | - | Blower control module |
| 11 | - | Blower |
| 12 | - | Evaporator drain tube |
| 13 | - | Heater core inlet pipe |
| 14 | - | Heater core outlet pipe |
| 15 | - | Evaporator outlet pipe |
| 16 | - | Evaporator inlet pipe |
| 17 | - | Heater core |
| 18 | - | Temperature blend door motor |
| 19 | - | Face level outlet |

The auxiliary climate control assembly is a reheat unit, which cools the air to a constant value then reheats it as necessary to produce the required temperature. The assembly is installed on the left side of the loadspace, behind the rear quarter panel. A grille in the rear quarter panel allows air to flow from the loadspace into the auxiliary climate control assembly.

The auxiliary climate control assembly consists of a casing, formed from a series of plastic molding, which contains:

- A blower
- A blower control module
- An evaporator
- A heater core
- A temperature blend door
- A distribution door
- An evaporator temperature sensor.

Refrigerant and coolant lines from the engine compartment are connected to pipes from the evaporator and the heater core immediately below the loadspace floor. Where the pipes, and the evaporator drain tube, pass through the loadspace floor, the aperture is sealed by a seal plate.

Internal passages, integrated into the casing of the auxiliary climate control assembly, guide the air from the blower through the evaporator and heater core to the distribution outlets.

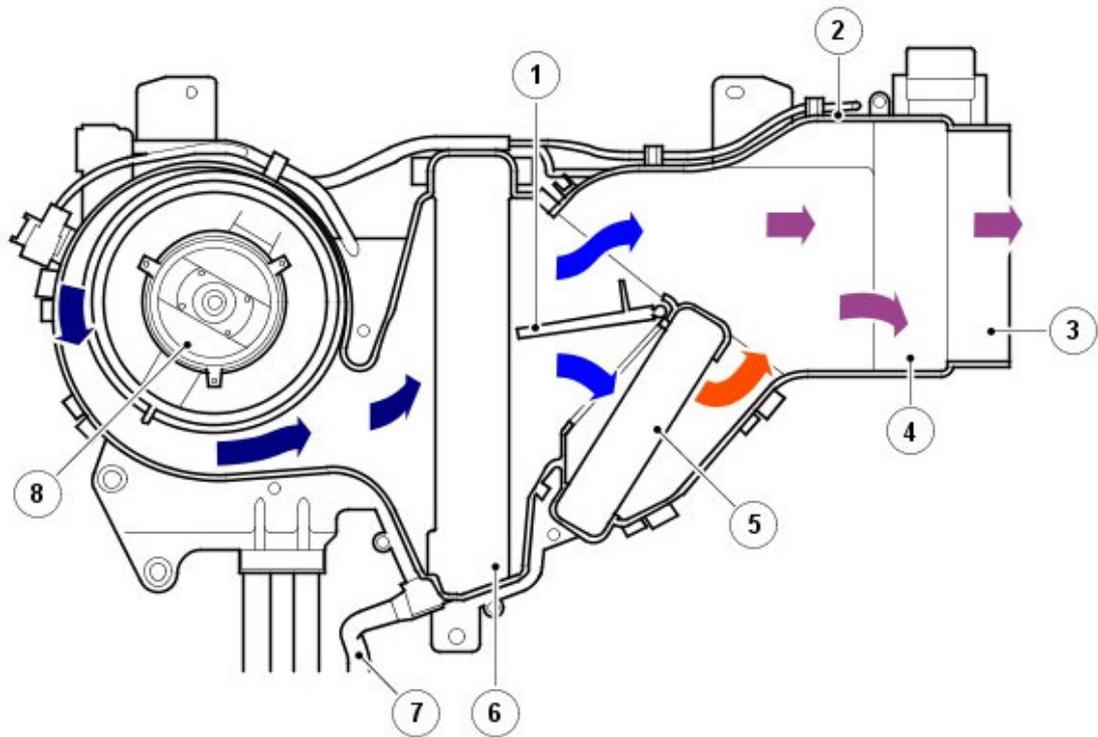
The temperature blend door regulates the flow of air through the heater core to control the temperature of the air leaving the auxiliary climate control assembly. A stepper motor installed on the rear of the casing operates the temperature blend door.

The distribution door regulates the flow of air through the face level outlet and the foot level outlet. A stepper motor installed on the top of the casing operates the distribution door.

The temperature blend stepper motor and the distribution stepper motor are both connected to a Local Interconnect (LIN) bus, which also connects the ACCM with the ATC module. Each stepper motor incorporates a microprocessor which operates the motor in response to LIN bus messages from the ACCM. The stepper motors are powered by a feed from the ATC module, and share a ground connection with the rear blower control module.

The ACCM determines the positions of the distribution and temperature blend doors by using either their closed or open position as a datum and memorizing the steps that it drives the individual stepper motors. Each time the ACCM is activated by the ATC module, it checks the memorized position of the stepper motors against fixed values for the current distribution and temperature settings on the control panel. If there is an error, the ACCM calibrates the applicable stepper motor, to re-establish the datums, by driving them fully closed or open before re-setting them to their nominal selected position. A calibration run can also be invoked using T4.

Air Flow Through Auxiliary Climate Control Assembly

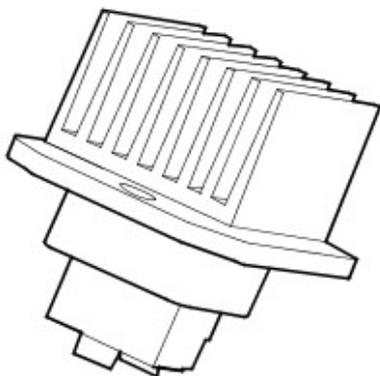


E47876

| Item | Part Number | Description |
|------|-------------|---|
| 1 | - | Temperature blend door |
| 2 | - | Auxiliary climate control assembly casing |
| 3 | - | Face level outlet |
| 4 | - | Distribution door |
| 5 | - | Heater core |
| 6 | - | Evaporator |
| 7 | - | Evaporator drain tube |
| 8 | - | Blower |

The blower is in the air inlet of the auxiliary climate control assembly, and consists of an open hub, centrifugal fan powered by an electric motor. Operation of the blower is controlled by the ACCM, using the rear blower relay in the battery junction box (BJB) and the blower control module. The blower control module is installed in the auxiliary climate control assembly downstream of the blower, where any heat generated during operation is dissipated by the air flow. A wiring harness on the auxiliary climate control assembly connects the blend door motor, distribution door motor, blower and blower control module to the vehicle wiring.

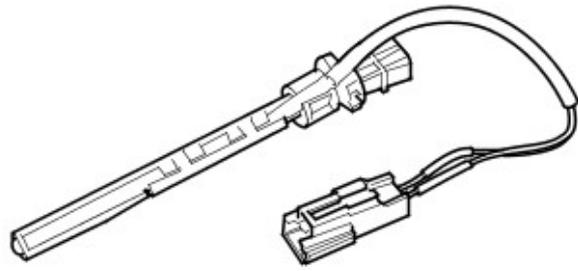
Blower Control Module



E47886

When the blower is required, the ACCM energizes the coil of the rear blower relay. The energized rear blower relay supplies battery power to the blower motor, which is connected to ground through the blower control module. The speed of the blower is controlled by the blower control module, which regulates the blower motor voltage in response to a pulse width modulation (PWM) signal from the ACCM. To vary the blower motor voltage the ACCM varies the duty cycle of the signal.

Evaporator Temperature Sensor



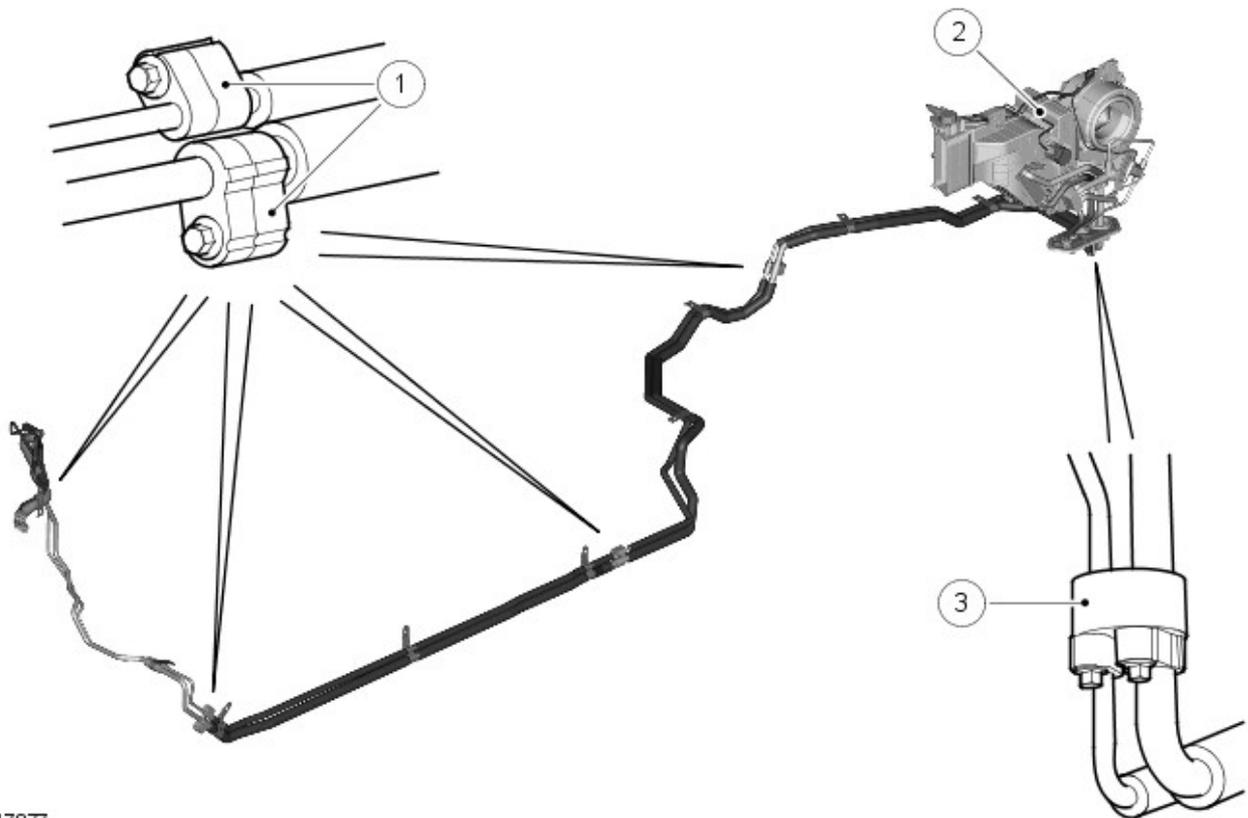
E47884

The evaporator temperature sensor is a negative temperature coefficient (NTC) thermistor installed in the auxiliary climate control assembly on the downstream side of the evaporator. The evaporator temperature sensor supplies a temperature signal to the ACCM.

REFRIGERANT CIRCUIT

Two refrigerant lines, low pressure and high pressure, connect the evaporator in the auxiliary climate control assembly to the front air conditioning (A/C) refrigerant system. On the auxiliary climate control assembly, a solenoid valve and a thermostatic expansion valve control the flow of refrigerant through the evaporator.

Refrigerant Lines

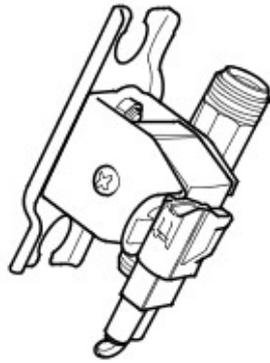


E47877

| Item | Part Number | Description |
|------|-------------|---|
| 1 | - | In-line connections |
| 2 | - | Auxiliary climate control assembly |
| 3 | - | Connections to auxiliary climate control assembly |

The refrigerant lines are routed around the left rear wheel arch and along the left-hand (LH) underside of the vehicle, and connected to the front A/C refrigerant system at the rear of the engine compartment. The refrigerant lines consist of sections of aluminum alloy pipes. All except the front section of the pipes are insulated with foam rubber sleeving.

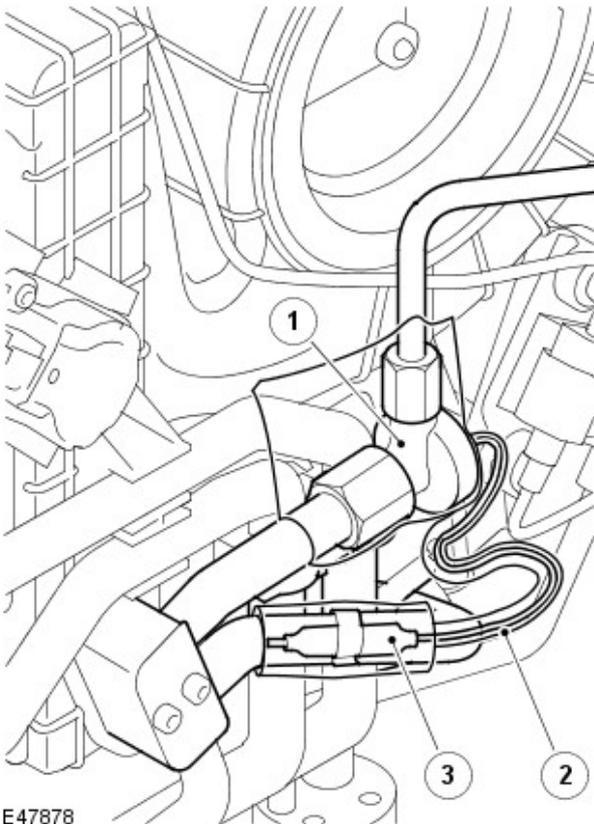
Solenoid Valve



E47885

The solenoid valve allows the auxiliary climate control assembly to be isolated from the front A/C refrigerant system. Operation of the solenoid valve is controlled by the ACCM switching a ground.

Thermostatic Expansion Valve



E47878

| Item | Part Number | Description |
|------|-------------|------------------------------|
| 1 | - | Thermostatic expansion valve |
| 2 | - | Capillary tube |
| 3 | - | Temperature bulb |

The thermostatic expansion valve meters the flow of refrigerant into the evaporator, to match the heat load of the air passing through the auxiliary climate control assembly.

The thermostatic expansion valve is installed in the inlet line to the evaporator. Liquid refrigerant flows through the valve to the evaporator. The restriction across the valve reduces the pressure and temperature of the refrigerant and changes it to a fine spray, which improves the evaporation process. Valve opening is controlled by the pressure in a capillary tube containing a temperature sensitive fluid. One end of the capillary tube is connected to a diaphragm housing on the thermostatic expansion valve, the other end of the capillary tube is sealed and attached to the refrigerant outlet line of the evaporator. As the temperature of the refrigerant leaving the evaporator changes, a corresponding change of capillary tube pressure and valve opening are produced. The warmer the refrigerant leaving the evaporator becomes, the greater the volume of refrigerant allowed through the valve.

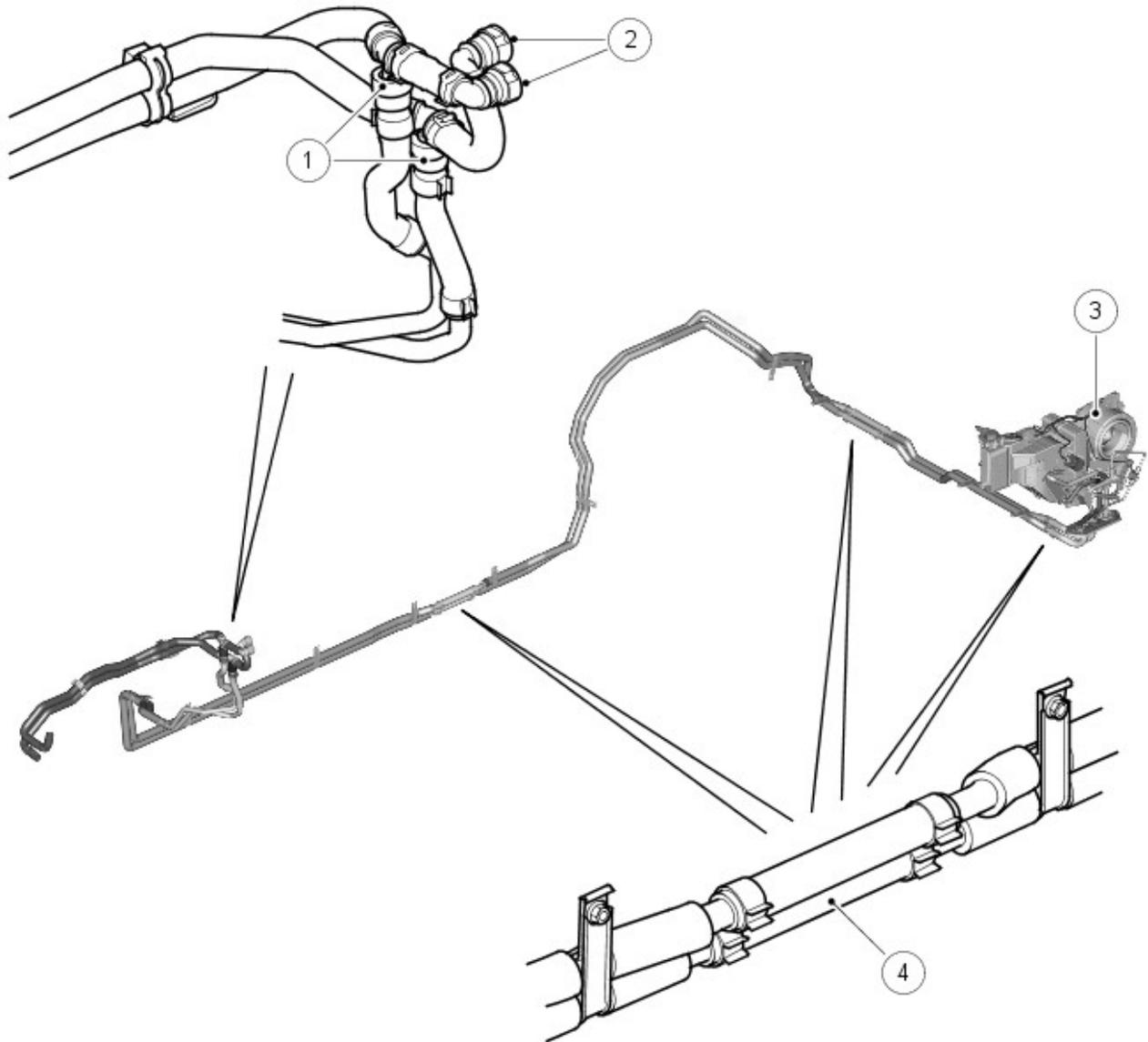
Evaporator

The evaporator is installed in the auxiliary climate control assembly between the blower and the heater matrix, to absorb heat from the recirculated air. Low pressure, low temperature refrigerant changes from liquid to vapor in the evaporator, absorbing large quantities of heat as it changes state. Most of the moisture in the air passing through the evaporator condenses into water, which drains out of the auxiliary climate control assembly through the evaporator drain tube.

HEATING CIRCUIT

Two heater lines, supply and return, connect the heater core in the auxiliary climate control assembly to the engine cooling system. The heater lines are routed along the rear crossmember, around the right rear wheel arch and along the RH underside of the vehicle. The heater lines are connected to the engine cooling system at the rear of the engine compartment. The heater lines consist of sections of aluminum alloy pipes, insulated with foam rubber, which are connected together with rubber hose joints. Quick release fittings connect the heater lines to the engine cooling system.

Heater Lines

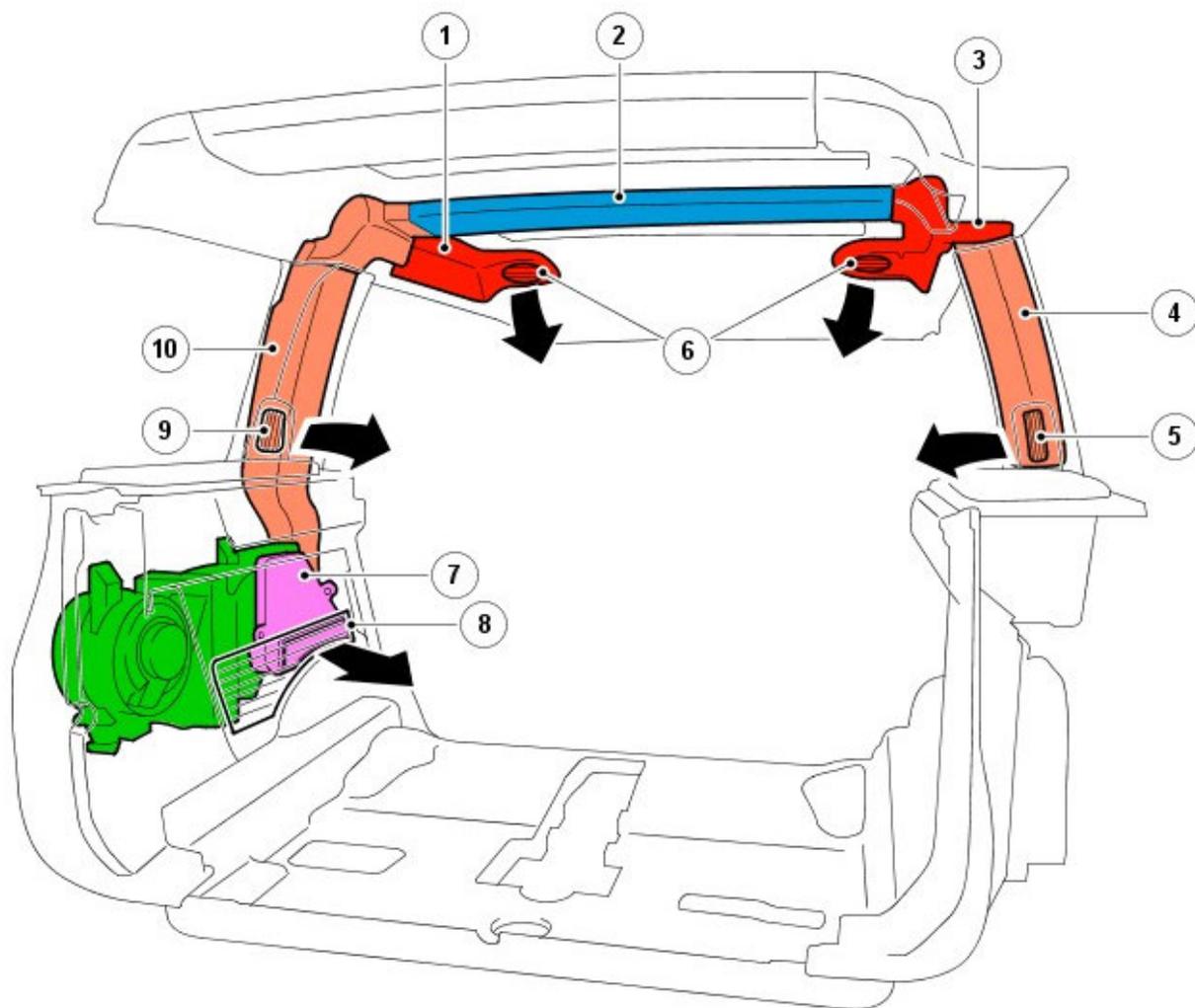


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E47879

| Item | Part Number | Description |
|------|-------------|--|
| 1 | - | Quick release connections to engine cooling system |
| 2 | - | Quick release connections to main heater |
| 3 | - | Auxiliary climate control assembly |
| 4 | - | In-line connections |

DISTRIBUTION SYSTEM



E47880

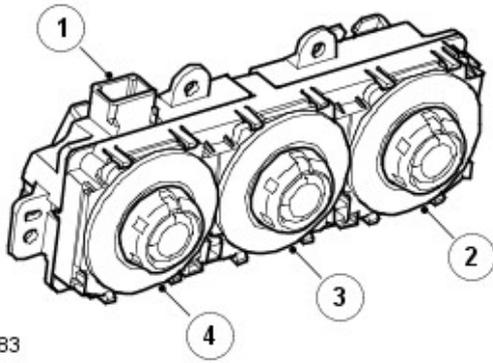
| Item | Part Number | Description |
|------|-------------|--------------------------------------|
| 1 | - | Second row left face level air duct |
| 2 | - | Cross-car air duct |
| 3 | - | Second row right face level air duct |
| 4 | - | Right C pillar air duct |
| 5 | - | Third row right face level register |
| 6 | - | Second row face level registers |
| 7 | - | Third row foot level air duct |
| 8 | - | Third row foot level registers |
| 9 | - | Third row left face level register |
| 10 | - | Left C pillar air duct |

The distribution system consists of a network of air ducts that supply air from the outlets of the auxiliary climate control assembly to registers installed in:

- The headliner, to the left and right of the second row interior lamp, to provide face level ventilation for second row seat occupants
- The left and right C pillar finishers, to provide face level ventilation for third row seat occupants
- The loadspace left side molding, to provide foot level ventilation for third row passengers.

The registers can all be adjusted to control the direction and volume of the air flow.

ACCM



E47883

| Item | Part Number | Description |
|------|-------------|----------------------|
| 1 | - | Electrical connector |
| 2 | - | Blower switch |
| 3 | - | Distribution switch |
| 4 | - | Temperature switch |

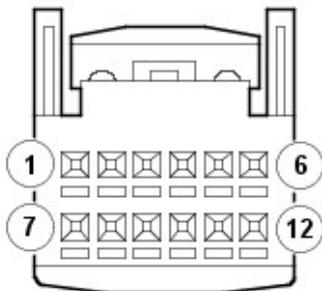
The ACCM allows manual adjustment of the output from the auxiliary climate control assembly. The ACCM is installed in the headliner immediately behind the row 2 interior lamp. An integral control panel contains separate rotary switches for temperature, distribution and blower speed. When the ACCM is in manual mode, amber light emitting diode (LED)s in the switch surrounds illuminate to indicate the current settings of the system and function symbols in the switch surrounds are illuminated when the side lamps or headlamps are on.

The ACCM is disabled when the auxiliary climate control switch on the ATC module is selected off. When the auxiliary climate control switch is selected to automatic or manual, the ACCM is enabled by the connection of a power feed from the ATC module. The same power feed also supplies the stepper motors in the auxiliary climate control assembly.

When it is enabled, the ACCM operates as a slave unit to the ATC module. The ACCM sends status signals on the LIN (local interconnect network) bus to the ATC module, which replies with command signals of the required temperature, distribution and blower settings. The ACCM then outputs the necessary drive signals to the auxiliary climate control assembly:

- In the automatic mode, the command signals are derived from the comfort strategy in the ATC module. The temperature setting is calculated from the mean of the two temperature settings on the ATC module.
- In the manual mode, the command signals reflect the temperature, distribution and blower speed set by the switches on the ACCM control panel. Temperature control by the auxiliary climate control system may be compromised if the temperature settings on the ATC module are set to maximum hot or cold.

ACCM Harness Connector C0695



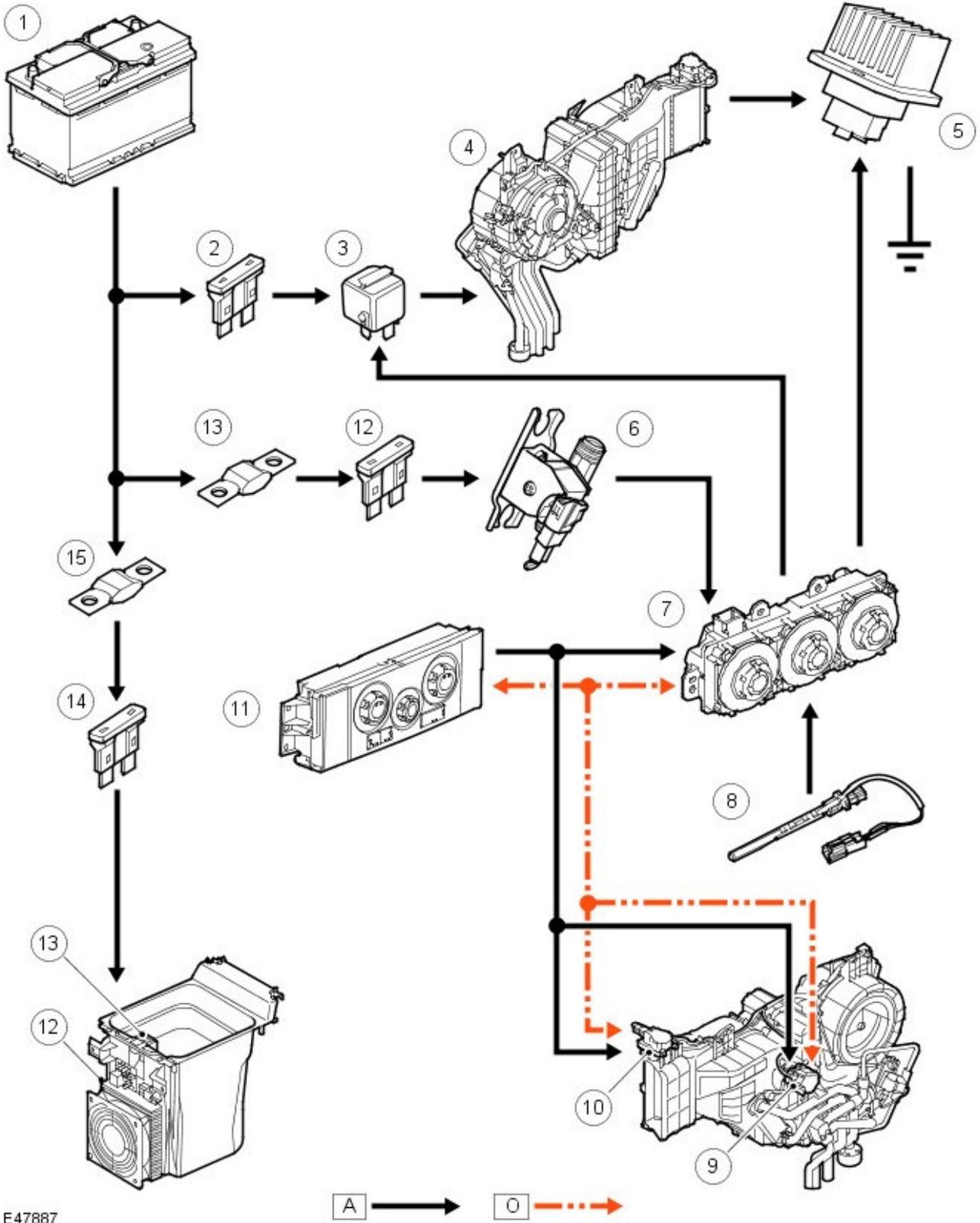
E47930

ACCM Harness Connector C0695 Pin Details

| Pin No. | Description | Input/Output |
|---------|--------------------------------------|--------------|
| 1 | Power supply from ATC module | Input |
| 2 | LIN bus | Input/Output |
| 3 | Ground | Output |
| 4 | Rear blower module power drive | Output |
| 5 | Blower motor voltage sense | Input |
| 6 | Cabin temperature sensor signal | Input |
| 7 and 8 | Not used | - |
| 9 | Sensor ground | Output |
| 10 | Rear blower relay coil drive | Output |
| 11 | Solenoid valve drive | Output |
| 12 | Evaporator temperature sensor signal | Input |

CONTROL DIAGRAM

 NOTE: A = Hardwired connection; O = LIN bus



E47887

| Item | Part Number | Description |
|------|-------------|--------------------------------------|
| 1 | - | Battery |
| 2 | - | Fuse 22B, central junction box (CJB) |
| 3 | - | Rear blower relay |
| 4 | - | Rear blower |
| 5 | - | Rear blower control module |
| 6 | - | Solenoid valve |
| 7 | - | ACCM |
| 8 | - | Evaporator temperature sensor |
| 9 | - | Temperature blend door motor |

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- 10 - Distribution door motor
- 11 - ATC module
- 12 - Fuse 51P, CJB
- 13 - Fusible link, 17E, BJB

Auxiliary Climate Control - Auxiliary Climate Control

Diagnosis and Testing

Principle of Operation

For a detailed description of the auxiliary climate control system and operation, refer to the relevant Description and Operation section of the workshop manual. REFER to: Auxiliary Climate Control (412-03 Auxiliary Climate Control, Description and Operation).

Inspection and Verification



CAUTION: Diagnosis by substitution from a donor vehicle is **NOT** acceptable. Substitution of control modules does not guarantee confirmation of a fault and may also cause additional faults in the vehicle being checked and/or the donor vehicle.



NOTE: Check and rectify basic faults before beginning diagnostic routines involving pinpoint tests.

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical or electrical damage.

Visual Inspection

| Mechanical | Electrical |
|---|---|
| <ul style="list-style-type: none"> • Auxiliary drive belt condition and tension • Air conditioning compressor condition and installation • Air conditioning condenser condition and installation/blockage • Air conditioning hoses and pipes • Air conditioning receiver/drier condition and installation • Cooling fan | <ul style="list-style-type: none"> • Fuses • Harnesses • Electrical connector(s) • Relays • Sensors • Control panel(s) • Air conditioning compressor |

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
4. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart, alternatively check for Diagnostic Trouble Codes (DTCs) and refer to the DTC Index.

Symptom Chart

| Symptom | Possible Causes | Action |
|------------------------|--|--|
| Poor or no cooling | <ul style="list-style-type: none"> • Auxiliary drive belt fault • Air conditioning compressor fault • Distribution motor/flap fault • Refrigerant leak • In-vehicle temperature sensor fault • Refrigerant pressure sensor fault | <ul style="list-style-type: none"> • Check the auxiliary drive belt condition and tension (see visual inspection) • Check the compressor operation (observe the compressor as the engine is idling with the air conditioning switched on) • Carry out the distribution motor self test • Using the manufacturer approved diagnostic system, check the Automatic Temperature Control Module (ATC) for related DTCs and refer to the relevant DTC index • Check the refrigerant system using the charging station |
| Noise | <ul style="list-style-type: none"> • Auxiliary drive belt fault • Air conditioning compressor fault • Air conditioning compressor pulley fouling • Refrigerant overcharged | <ul style="list-style-type: none"> • Confirm the air conditioning as the source of the noise by listening for the noise with the air conditioning switched off • Check the refrigerant system using the charging station |
| Water entry into cabin | <ul style="list-style-type: none"> • Heater matrix leak • Blocked evaporator drain tubes | <ul style="list-style-type: none"> • Check for coolant loss. Pressure test the cooling system as necessary • Check and clear the evaporator drain tubes as necessary |

DTC Index

For a list of Diagnostic Trouble Codes (DTCs) that could be logged on this vehicle, please refer to Section 100-00.

REFER to: Diagnostic Trouble Code (DTC) Index - DTC: Automatic Temperature Control Module (ATC) (100-00 General Information, Description and Operation).

Auxiliary Climate Control - Thermostatic Expansion Valve

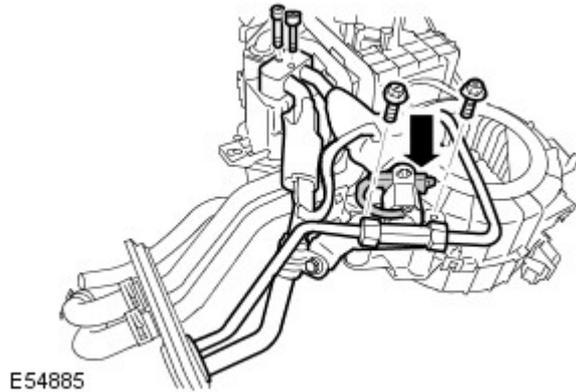
Removal and Installation

Removal



WARNING: Eye protection must be worn.

1. Remove the climate control assembly.
For additional information, refer to: Auxiliary Climate Control Assembly (412-03, Removal and Installation).



2.  **CAUTION:** Before disconnecting or removing the components, ensure the area around the joint faces and connections are clean. Plug open connections to prevent contamination.



NOTE: The receiver drier need only be changed under the following circumstances: There is dirt in the refrigerant circuit (eg. compressor seizure). The system is leaking and refrigerant has been lost to atmosphere. Refrigerant circuit has been open more than 24 hours due to repair.

Remove the TXV assembly.

- Disconnect the electrical connector.
- Remove the 2 bolts.
- Remove the 2 screws.
- Discard the O-ring seals.

Installation

1. Install the TXV assembly.
 - Install new O-ring seals.
 - Install the bolts and tighten to 10 Nm (7 lb.ft).
 - Tighten the screws.
2. Install the climate control assembly.
For additional information, refer to: Auxiliary Climate Control Assembly (412-03, Removal and Installation).

Auxiliary Climate Control - Heater Core

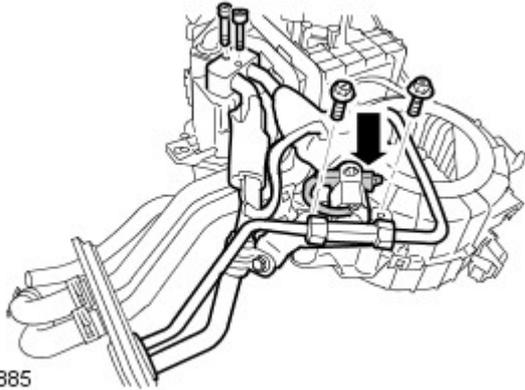
Removal and Installation

Removal



WARNING: Eye protection must be worn.

1. Remove the climate control assembly.
For additional information, refer to: Auxiliary Climate Control Assembly (412-03, Removal and Installation).



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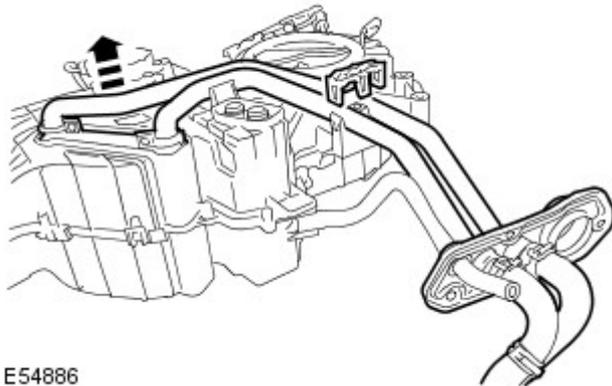
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NOTE: The receiver drier need only be changed under the following circumstances: There is dirt in the refrigerant circuit (eg. compressor seizure). The system is leaking and refrigerant has been lost to atmosphere. Refrigerant circuit has been open more than 24 hours due to repair.

Remove the TXV assembly.

- Disconnect the electrical connector.
- Remove the 2 bolts.
- Remove the 2 screws.
- Discard the O-ring seals.

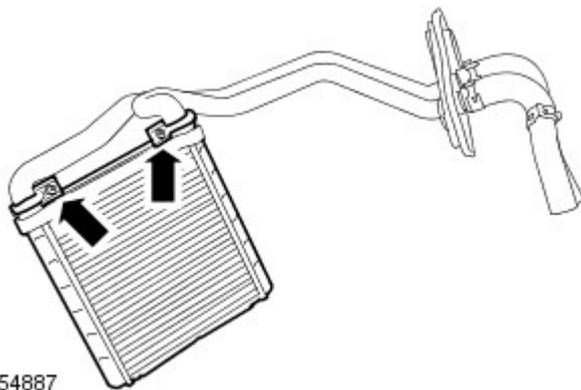


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3. **CAUTION:** Engine coolant will damage the paint finished surfaces. If spilt, immediately remove the coolant and clean the area with water.

Remove the heater core.

- Carefully release the clips.



E54887

4. **NOTE:** Do not disassemble further if the component is removed for access only.

Remove the heater core, inlet and outlet pipes.

- Release the 2 clips.
- Discard the O-ring seals.

Installation

1. Connect the heater core inlet and outlet pipes.
 - Install the new O-ring seals.
 - Position and secure in the clips.
2. Install the heater core.

- Install the heater core.
- Secure in the 2 clips.
3. Install the TXV assembly.
 - Install new O-ring seals.
 - Install the bolts and tighten to 10 Nm (7 lb.ft).
 - Tighten the screws.
 4. Install the climate control assembly.
For additional information, refer to: Auxiliary Climate Control Assembly (412-03, Removal and Installation).

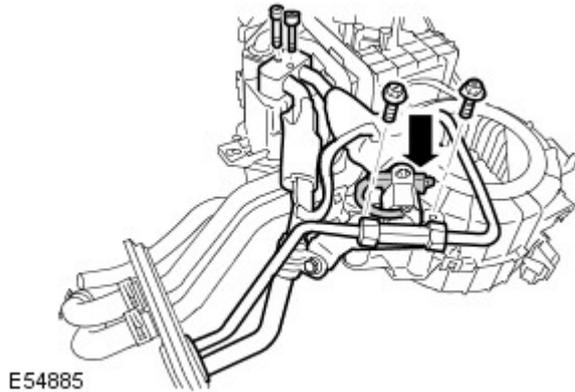
Auxiliary Climate Control - Evaporator Core

Removal and Installation

Removal

 **WARNING:** Eye protection must be worn.

1. Remove the climate control assembly.
For additional information, refer to: Auxiliary Climate Control Assembly (412-03, Removal and Installation).

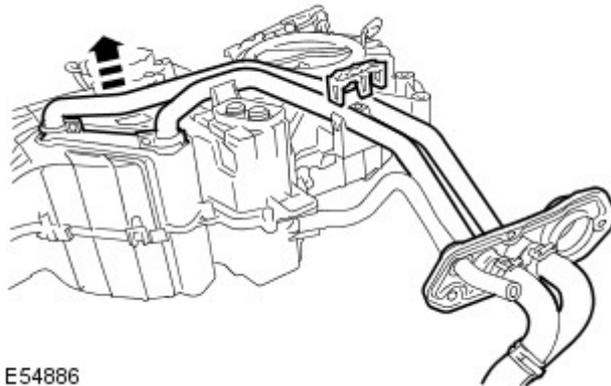


2.  **CAUTION:** Before disconnecting or removing the components, ensure the area around the joint faces and connections are clean. Plug open connections to prevent contamination.

 **NOTE:** The receiver drier need only be changed under the following circumstances: There is dirt in the refrigerant circuit (eg. compressor seizure). The system is leaking and refrigerant has been lost to atmosphere. Refrigerant circuit has been open more than 24 hours due to repair.

Remove the TXV assembly.

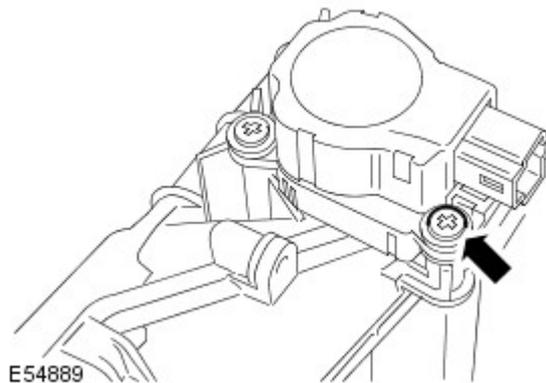
- Remove the 2 bolts.
- Remove the 2 screws.
- Discard the O-ring seals.
- Disconnect the electrical connector.



3.  **CAUTION:** Engine coolant will damage the paint finished surfaces. If spilt, immediately remove the coolant and clean the area with water.

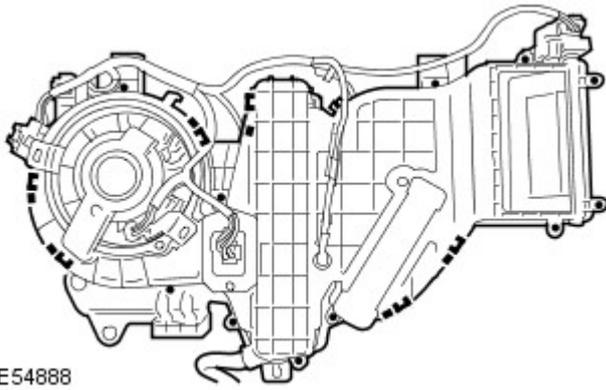
Remove the heater core.

- Carefully release the clips.



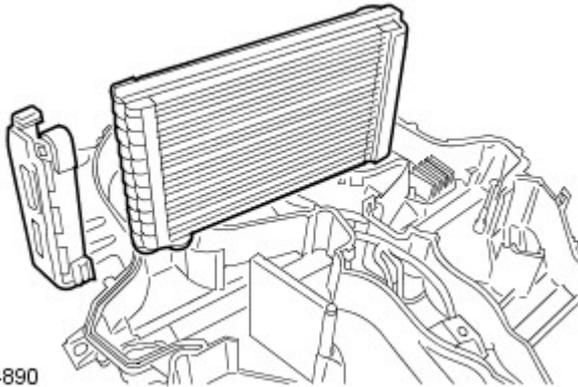
4. Remove 1 screw from the air distribution servo.

5. Separate the climate control unit.
 - Remove the 11 screws.
 - Remove the 6 clips.
 - Release the 7 clips.



E54888

6. Remove the evaporator core.
 - Remove the evaporator end trim.



E54890

Installation

1. Install the evaporator core.
 - Install the evaporator end trim
2. Assemble the climate control unit.
 - Secure the clips.
 - Install the screws.
 - Install the clips.
3. Install the distribution motor.
 - Tighten the screw.
4. Install the heater core.
 - Install the heater core.
 - Secure in the 2 clips.
5. Install the TXV assembly.
 - Install new O-ring seals.
 - Install the bolts and tighten to 10 Nm (7 lb.ft).
 - Tighten the screws.
6. Install the climate control assembly.
For additional information, refer to: Auxiliary Climate Control Assembly (412-03, Removal and Installation).

Auxiliary Climate Control - Auxiliary Climate Control Assembly

Removal and Installation

Removal



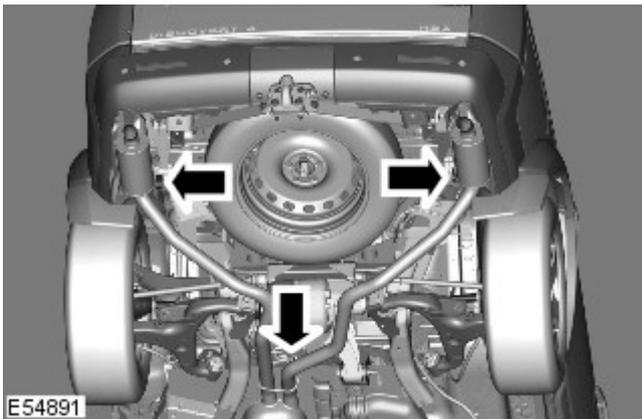
WARNING: Since injury such as scalding could be caused by escaping steam or coolant, do not remove the filler cap from the coolant expansion tank while the system is hot.

1. Disconnect the battery ground cable.
For additional information, refer to: Specifications (414-00, Specifications).
2. Remove the LH C-pillar lower trim panel
For additional information, refer to: C-Pillar Lower Trim Panel (501-05, Removal and Installation).
3. Evacuate the A/C system.
For additional information, refer to: Air Conditioning (A/C) System Recovery, Evacuation and Charging (412-00, General Procedures).

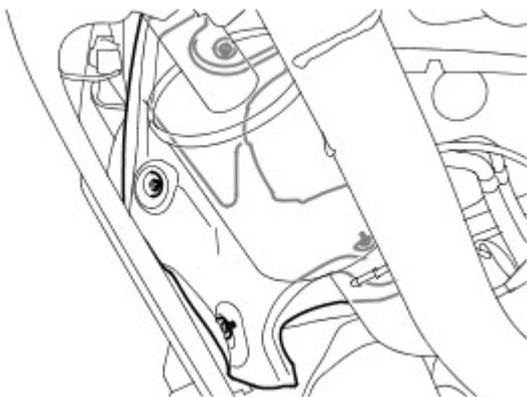


4. **WARNING:** Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.

Raise and support the vehicle.



5. Support the exhaust system. Release the center, left and right rear mountings.



6. Remove the exhaust heat shield.
 - Remove the 4 nuts.

7. Remove the spare wheel and tire.
8. Clamp the relevant hose, to minimise coolant loss.



9. **CAUTION:** Before disconnecting or removing the components, ensure the area around the joint faces and connections are clean. Plug open connections to prevent contamination.

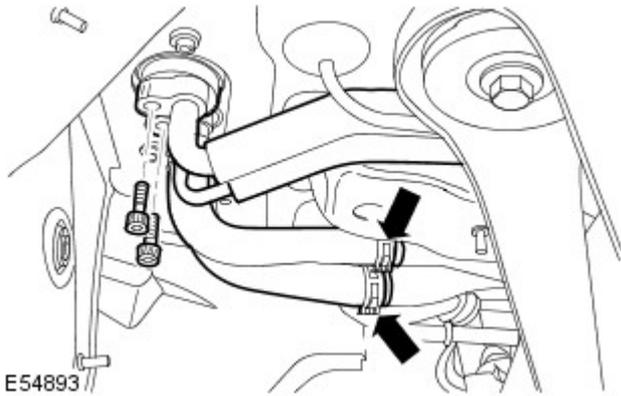


NOTE: The receiver drier need only be changed under

the following circumstances: There is dirt in the refrigerant circuit (eg. compressor seizure). The system is leaking and refrigerant has been lost to atmosphere. Refrigerant circuit has been open more than 24 hours due to repair.

Disconnect the A/C pipes.

- Remove the 2 bolts.
- Discard the O-ring seals.

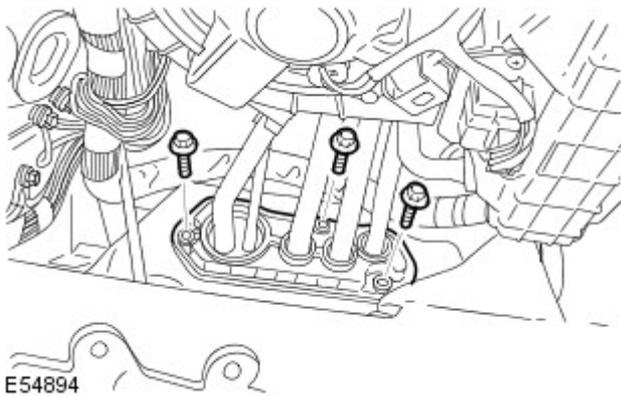


10.  **CAUTION:** Engine coolant will damage the paint finished surfaces. If spilt, immediately remove the coolant and clean the area with water.

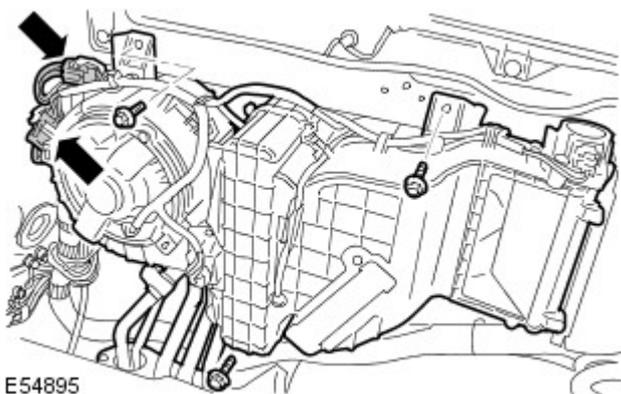
 **NOTE:** Some fluid spillage is inevitable during this operation.

Disconnect the 2 coolant hoses.

- Position a container to collect the fluid.
- Release the 2 clips.



11. Release the sealing plate.
- Remove the 3 bolts.



12. Remove the climate control assembly.
- Disconnect the 2 electrical connectors.
 - Remove the 3 bolts.

Installation

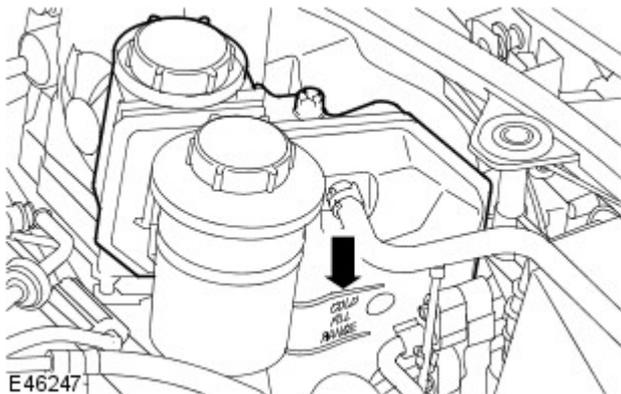
1. Install the climate control assembly.
 - Tighten the bolts to 10 Nm (7 lb.ft).
 - Connect and secure the electrical connectors.
2. Install the sealing plate.
 - Tighten the bolts to 10 Nm (7 lb.ft).
3. Connect and secure the coolant hoses.
 - Secure the clips.
 - Remove the hose clamps.
4. Connect the A/C pipes.
 - Clean the component mating faces.
 - Install the O-ring seals.
 - Tighten the 2 bolts to 10 Nm (7 lb.ft).

5. Install the heat shield.
 - Tighten the 4 nuts.
6. Secure the exhaust mountings.
7. Fill the A/C system.
For additional information, refer to: Air Conditioning (A/C) System Recovery, Evacuation and Charging (412-00, General Procedures).
8. Install the C-pillar lower trim panel.
For additional information, refer to: C-Pillar Lower Trim Panel (501-05, Removal and Installation).
9. Connect the battery ground cable.
For additional information, refer to: Specifications (414-00, Specifications).
10. Install the spare wheel and tire.
 - Stow the tool kit.
11. Connect the exhaust extraction hoses to the tail pipes.
12. Remove the coolant expansion tank cap.
 - Top-up the coolant.
13. Start and run the engine.
 - Hold the engine speed at 2,500 RPM for 30 seconds.
 - Return the engine to idle for 30 seconds.
 - Repeat the above procedure a further four times.

14.  **NOTE:** When the coolant bleed is complete and prior to installing the expansion tank cap, top up the expansion tank 30mm above the maximum level.

Install the coolant expansion tank cap.

15. Run the engine until the thermostat opens.
16. Switch the engine off and allow to cool.
17. Check and top-up the coolant if required.

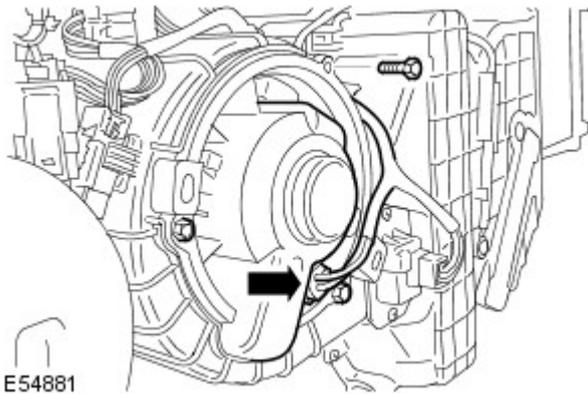


Auxiliary Climate Control - Auxiliary Blower Motor

Removal and Installation

Removal

1. Disconnect the battery ground cable.
For additional information, refer to: Specifications (414-00, Specifications).
2. Remove the LH C-pillar lower trim panel
For additional information, refer to: C-Pillar Lower Trim Panel (501-05, Removal and Installation).



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3.  **NOTE:** Note the fitted position.

Remove the blower motor.

- Disconnect the electrical connector.
- Remove the 3 screws.

Installation

1. Install the blower motor.
 - Tighten the screws.
 - Connect and secure the electrical connector.
2. Install the C-pillar lower trim panel.
For additional information, refer to: C-Pillar Lower Trim Panel (501-05, Removal and Installation).
3. Connect the battery ground cable.
For additional information, refer to: Specifications (414-00, Specifications).

Auxiliary Climate Control - Auxiliary Temperature Blend Door Actuator

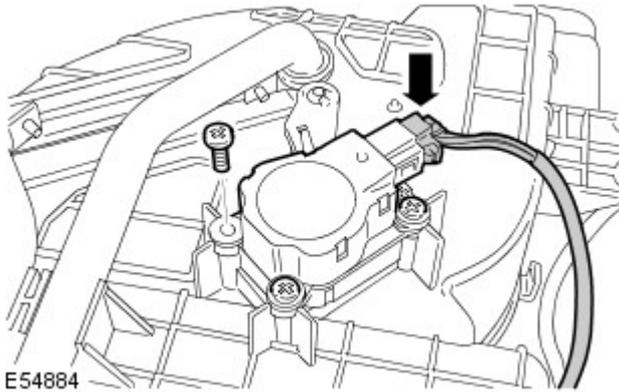
Removal and Installation

Removal



WARNING: Eye protection must be worn.

1. Remove the climate control assembly.
For additional information, refer to: Auxiliary Climate Control Assembly (412-03, Removal and Installation).



2.  **NOTE:** Note the fitted position.

Remove the blend door motor.

- Disconnect the electrical connector.
- Remove the 3 screws.

Installation

1.  **NOTE:** Align to the position noted on removal.

Install the blend motor.

- Tighten the screws.
- Connect and secure the electrical connector.

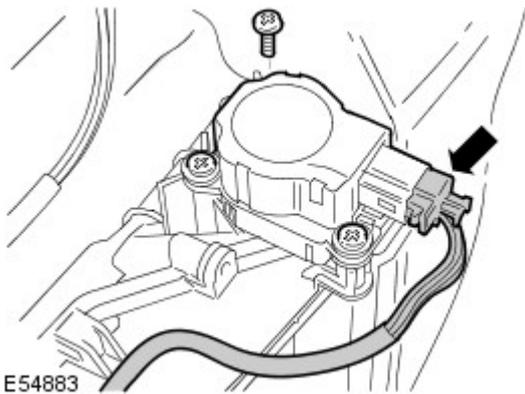
2. Install the climate control assembly.
For additional information, refer to: Auxiliary Climate Control Assembly (412-03, Removal and Installation).

Auxiliary Climate Control - Auxiliary Blend Door Actuator

Removal and Installation

Removal

1. Disconnect the battery ground cable.
For additional information, refer to: Specifications (414-00, Specifications).
2. Remove the LH C-pillar lower trim panel
For additional information, refer to: C-Pillar Lower Trim Panel (501-05, Removal and Installation).



3.  **NOTE:** Note the fitted position.

Remove the air distribution motor.

- Disconnect the electrical connector.
- Remove the 3 screws.

Installation

1.  **NOTE:** Align to the position noted on removal.

Install the distribution motor.

- Tighten the screws.
- Connect and secure the electrical connector.

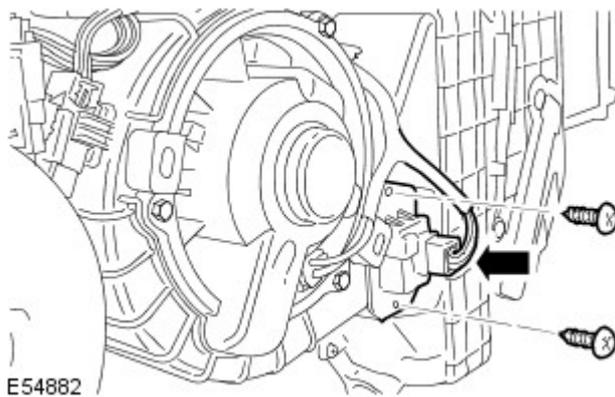
2. Install the C-pillar lower trim panel.
For additional information, refer to: C-Pillar Lower Trim Panel (501-05, Removal and Installation).
3. Connect the battery ground cable.
For additional information, refer to: Specifications (414-00, Specifications).

Auxiliary Climate Control - Auxiliary Blower Motor Control Module

Removal and Installation

Removal

1. Disconnect the battery ground cable.
For additional information, refer to: Specifications (414-00, Specifications).
2. Remove the LH C-pillar lower trim panel
For additional information, refer to: C-Pillar Lower Trim Panel (501-05, Removal and Installation).



3.  **NOTE:** Note the fitted position.

Remove the blower motor resistor.

- Disconnect the electrical connector.
- Remove the 2 screws.

Installation

1.  **NOTE:** Align to the position noted on removal.

Install the resistor.

- Tighten the screws.
- Connect and secure the electrical connector.

2. Install the C-pillar lower trim panel.
For additional information, refer to: C-Pillar Lower Trim Panel (501-05, Removal and Installation).

3. Connect the battery ground cable.
For additional information, refer to: Specifications (414-00, Specifications).