

Climate Control System - General Information -

Climate Control

Type	Description
Heating, ventilation and air conditioning unit	Manual single zone or a dual zone automatic system fitted. Both systems controlled by ATC module.
Compressor:	
3.2L Petrol	Zexel-Valeo KC-88 externally controlled variable displacement A/C compressor
2.2L Diesel	Visteon VS16 internally controlled variable displacement A/C compressor

Lubricants, Fluids, Sealers and Adhesives

Item	Specification
Compressor oil	WSH-M1C321-B
Refrigerant	R134a (CF ³ CH ₂ F)

General Specification

Item	Description
Compressor - 3.2L Petrol	Zexel-Valeo KC-88
Compressor - 2.2L Diesel	Visteon VS16
Sensor locations:	
Ambient temperature sensor	LH Door mirror
Cabin temperature sensor (dual zone systems only)	Mounted behind a grill on the drivers side of the instrument panel, adjacent the steering column.
cabin humidity sensor (Optional fit)	located within the interior mirror and comprises 3 individual elements
Evaporative temperature sensor	Mounted on the LH side of the heater casing
High pressure sensor	Located between the condenser and the thermostatic expansion valve
Pollution sensor	RH side of the heater casing.
Solar sensor	Center of dash top

Capacities

Item	Capacity
Total system capacity	730 grams ± 10 grams

Climate Control System - General Information - Climate Control System

Diagnosis and Testing

Principles of Operation

For a detailed description of the climate control system, refer to the relevant Description and Operation section in the workshop manual. REFER to:

[Air Distribution and Filtering](#) (412-01 Climate Control, Description and Operation),
[Heating and Ventilation](#) (412-01 Climate Control, Description and Operation),
[Air Conditioning](#) (412-01 Climate Control, Description and Operation),
[Control Components](#) (412-01 Climate Control, Description and Operation),
[Electric Booster Heater](#) (412-02B Auxiliary Climate Control, Description and Operation),
[Fuel Fired Booster Heater](#) (412-02B 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 tested and/or the donor vehicle.

1. **1.** Verify the customer concern.
2. **2.** Visually inspect for obvious signs of damage and system integrity.

Visual Inspection

Mechanical	Electrical
● Coolant level ● Refrigerant leaks (UV lamp) ● Drive belt ● Compressor ● Cooling fan ● Control flap(s) ● Duct(s) ● Register(s) ● Cabin air filter ● Hose(s) ● Coolant pump ● Fuel Fired Booster Heater ● Fuel Fired Booster Heater fuel pump ● Fuel Fired Booster Heater fuel pipes	● Fuse(s) ● Circuit ● Blower motor ● Electrical connector(s) ● Compressor ● Cooling fan ● Actuators ● Climate control assembly

3. **3.** Listen for any unusual noises during climate control system operation.
4. **4.** Inspect the refrigerant system with an ultraviolet (UV) lamp for traces of UV sensitive leak trace dye.
5. **5.** If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step
6. **6.** If the cause is not visually evident, check Climate Control Module, Engine Control Module (ECM), Fuel Fired Booster Heater and Central Junction Box (CJB) for Diagnostic Trouble Codes (DTCs) and refer to the DTC Index.

Climate Control System

• **NOTE:** If a control module or component is suspect and the vehicle remains under manufacturer warranty, refer to the Warranty Policy and Procedures manual (section B1.2), or determine if any prior approval program is in operation, before the replacement of a component.

• **NOTE:** Generic scan tools may not read the codes listed, or may read only 5-digit codes. Match the 5 digits from the scan tool to the first 5 digits of the 7-digit code listed to identify the fault (the last 2 digits give extra information read by the manufacturer-approved diagnostic system).

• **NOTE:** When performing voltage or resistance tests, always use a digital multimeter (DMM) accurate to three decimal places, and with an up-to-date calibration certificate. When testing resistance always take the resistance of the DMM leads into account.

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

• **NOTE:** Inspect connectors for signs of water ingress, and pins for damage and/or corrosion.

• **NOTE:** If DTCs are recorded and, after performing the pinpoint tests, a fault is not present, an intermittent concern may be the cause. Always check for loose connections and corroded terminals.

Climate Control System

For a complete list of all 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: Heating Ventilation and Air Conditioning Control Module \(HVAC\)](#) (100-00 General Information, Description and Operation).

Climate Control System - General Information - Air Conditioning (A/C) System Recovery, Evacuation and Charging

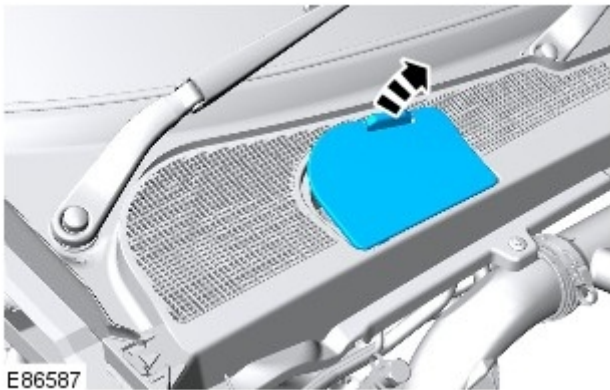
General Procedures

1.  **WARNING:** Servicing must be carried out by personnel familiar with both vehicle system and the charging and testing equipment. All operations must be carried out in a well ventilated area away from open flame and heat sources.

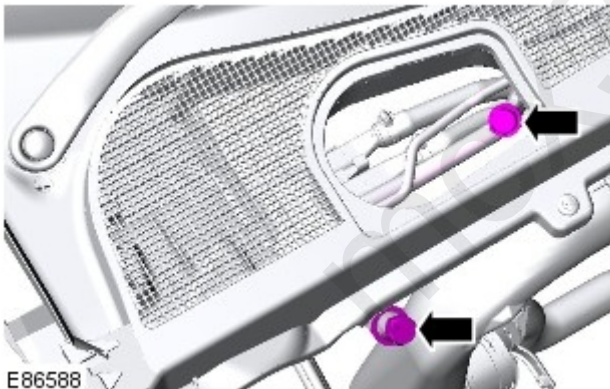
• **NOTE:** The receiver drier need only be changed under the following circumstances: There is dirt in the refrigerant circuit (eg. compressor seizure), the system is leaking and refrigerant has been lost to atmosphere, or the refrigerant circuit has been open more than 24 hours, due to repair.

Refrigerant recovery and recycle.

2. Remove the access cover.



3. Remove the dust covers from the high and low pressure connections.



4. Connect the high and low pressure lines to the appropriate connections.
5. Open the valves on the connections.
6. Turn the valves on the station to the correct positions.
7. Allow the system to recover the refrigerant from the system.
8. Close the valves on the refrigerant station.
9. Close the valves on the connections.
10. Disconnect the high and low pressure connections.
11. Install the dust covers to the connectors.
12. Evacuation.

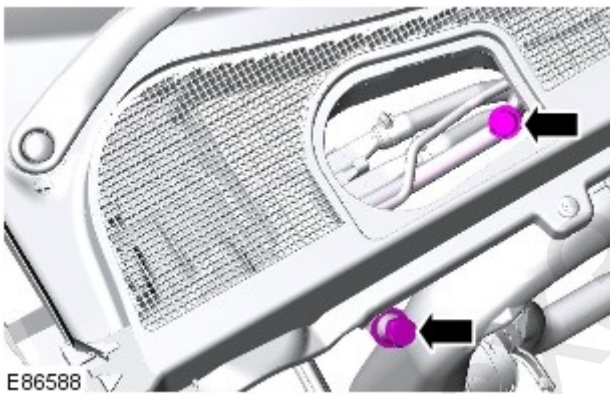
13. Remove the dust covers from the high and low pressure connections.
14. Connect the high and low pressure lines to the appropriate connections.
15. Open the valves on the connections.
16. Allow the station to evacuate the A/C system.
17. **17. ⚠ CAUTION:** The system must be evacuated immediately before recharging commences. Delay between evacuation and recharging is not permitted

Recharging

18. Close the valves on the refrigerant station.
19. Close the valves on the connections.
20. Disconnect the high and low pressure connections.

21. Install the dust covers to the connectors.

Torque: 6 Nm



22. Install the access cover.

