

Climate Control System - General Information -

General Specification

Type	Description
Heating, ventilation and air conditioning unit: • Front unit - Manual version • Front unit Automatic Temperature Control (ATC) version • Rear unit	• Centrally mounted with offset (handed) blower unit • Dual zone with side to side temperature control • Located behind right hand rear quarter panel. Includes heater, evaporator, in-line TVX, blower motor and drain tube. Air intake is 100% recirculation.
Compressor	Clutchless, belt driven from engine with electronically controlled outputs.

Climate Control System - General Information - Climate Control System

Diagnosis and Testing

Principle of Operation

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

[Air Distribution and Filtering](#) (412-01 Air Distribution and Filtering, Description and Operation),
[Heating and Ventilation](#) (412-02A Heating and Ventilation, Description and Operation),
[Auxiliary Heater](#) (412-02B Auxiliary Heating, Description and Operation),
[Air Conditioning](#) (412-03A Air Conditioning - TDV6 2.7L Diesel, Description and Operation),
 Air Conditioning (412-03 Air Conditioning - 4.0L, Description and Operation),
[Auxiliary Climate Control](#) (412-03E Auxiliary Climate Control, Description and Operation),
 Control Components (412-04 Control Components, 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
• Coolant level • Air vents (contaminated/blocked) • Auxiliary drive belt condition and tension • Air conditioning compressor	• Fuses • Harnesses • Electrical connector(s) • Relays • Control module(s) • 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.

Distribution motor self-test

The motor and flap operation can be checked using the on-board distribution motor self-test function.

The self-test can be initiated by pressing and holding the **ECON** and **RECIRC** buttons while turning the ignition switch to the **ON** position.

The control module will then compare the current motor position with the values stored in the module and will indicate an error by flashing the **ECON** LED (light emitting diode).

If there are no errors, the LED will go out and the system will function normally.

To confirm that there are no errors, turn the ignition switch to the **OFF** position, then back to the **ON** position.

Observe the operation of the **programmed defrost** LED.

If there are errors present, the **programmed defrost** LED will flash and the system will attempt to calibrate itself.

Symptom Chart

Symptom	Possible Causes	Action
No climate control function, flashing LED at start-up	• The system is in calibration mode	Check the motors and levers at the heating and ventilation assembly for damage/foreign objects jamming the movement of the flaps. For additional information on the self-calibration process, see the distribution motor self-test above
Poor or no cooling	• Air conditioning function	Carry out the checks from the visual inspection, refer to the relevant section of the workshop manual

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: (100-00 General Information)

[Diagnostic Trouble Code \(DTC\) Index - DTC: Climate Control Module \(HVAC\)](#) (Description and Operation),
[Diagnostic Trouble Code \(DTC\) Index - DTC: Fuel Fired Booster Heater Module \(AHCM\)](#) (Description and Operation).

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

General Procedures



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; refrigerant circuit has been open more than 24 hours due to repair.



1. Refrigerant recovery: Remove the dust covers from the high and low pressure connections.

2. Connect the high and low pressure lines to the appropriate connections.
3. Open the valves on the connections.
4. Turn the valves on the station to the correct positions.
5. Turn the process switch to the correct position.
6. Turn the main switch to 'ON'.

7. WARNING: Refrigerant must always be recycled before re-use to ensure that the purity of the refrigerants high enough for safe use in the air conditioning system. Recycling should always be carried out with equipment which is design certified by Underwriter Laboratory Inc. for compliance with SEA J1991. Other equipment may not recycle refrigerant to the required level of purity. R143a Refrigerant Recover Recycling Recharging station must not be used with any other type of refrigerant. Refrigerant R134a from domestic and commercial sources must not be used in motor vehicles air conditioning systems.

Allow the system to recover the refrigerant from the system.

8. Close the valves on the refrigerant station.
9. Turn the main switch 'OFF'.
10. Close the valves on the connections.
11. Disconnect the high and low pressure connections.
12. Install the dust covers to the connectors.
13. Open the tap at the rear of the station to drain the refrigerant oil.
14. Measure and record the quantity of refrigerant oil recovered from the system.
15. Close the tap at the rear of the station.
16. **Evacuation:** Remove the dust covers from the high and low pressure connections.
17. Connect the high and low pressure lines to the appropriate connections.
18. Open the valves on the connections.
19. Turn the valves on the station to the correct positions.
20. Turn the process switch to the correct position.
21. Turn the main switch to 'ON'.
22. Allow the station to evacuate the A/C system.

23.  **CAUTION:** The system must be evacuated immediately before recharging commences. Delay between evacuation and recharging is not permitted

Recharging: Close the valves on the refrigerant station.

- 24.** Close the valve on the oil charger.
- 25.** Disconnect the yellow line from the refrigerant station.
- 26.** Remove the cover from the oil charger.
- 27.** Pour the correct quantity of refrigerant oil into the oil charger.
- 28.** Install the cover to the oil charger.
- 29.** Connect the yellow line to the refrigerant station.
- 30.** Open the valve on the oil charger.
- 31.** Move the pointer on the refrigerant gauge to mark the position of the refrigerant drop.
- 32.** Slowly open the correct valve on the refrigerant to allow the vacuum to pull the refrigerant into the system.
- 33.** Close the valve on the refrigerant station when the correct amount of refrigerant has been drawn into the air conditioning system.
- 34.** Turn the main switch 'OFF'.
- 35.** Close the valves on the connections.
- 36.** Disconnect the high and low pressure connections.