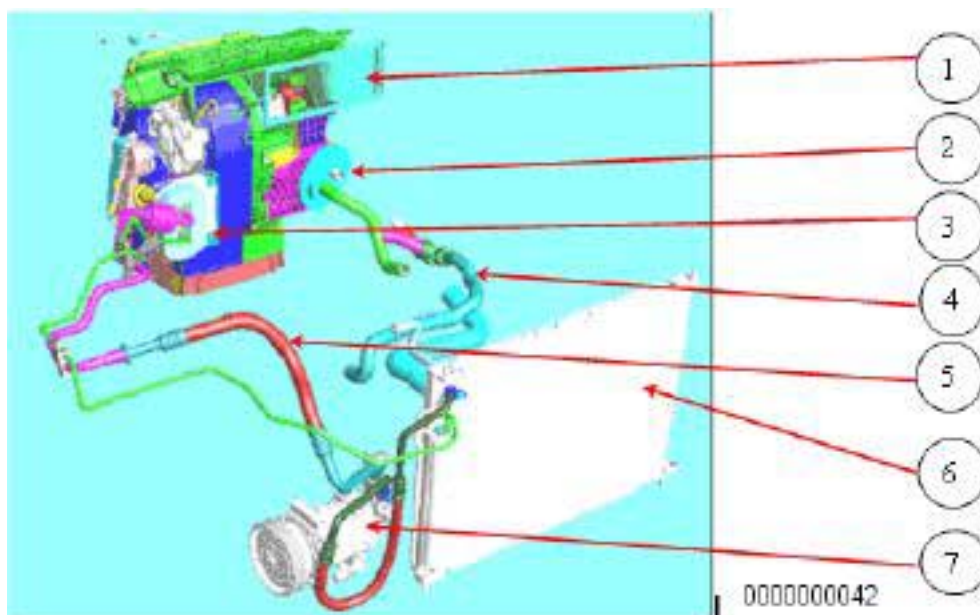


System (cold loop, hot loop and components)



- 1 Air conditioning unit
- 2 Heater matrix
- 3 Expansion valve and evaporator
- 4 Coolant circuit
- 5 Cold loop
- 6 Condenser and radiator
- 7 Compressor

● COLD LOOP COMPONENTS:

- **Compressor:** This is located at the bottom on the left-hand side, next to the radiator in the engine compartment.
- **Condenser:** This is located between the radiator and the cooling fan assembly.
- **Dehydrator reservoir:** This is located on the left-hand side of the condenser outlet.
- **Heating and air conditioning unit:** This is located under the dashboard.
- **Thermostatic expansion valve:** This is located to the left of the heating and air conditioning unit on the bulkhead.
- **Evaporator:** This is located to the right of the **thermostatic expansion valve** in the heating and air conditioning unit.
- **High pressure pipe:** this pipe connects the compressor, condenser, dehydrator reservoir, and expansion valve inlet in series (it is located in the engine compartment on the left-hand side).
- **Low pressure pipe:** this pipe connects the expansion valve, buffering capacity, evaporator, and compressor inlet in series (it is located in the engine compartment on the left-hand side).

● **HEATING COMPONENTS**

- **Heater matrix:** This is located at the bottom of the heating and air conditioning unit.
- **Heating resistors:** These are located at the bottom of the heater matrix on the driver's side (depending on the equipment).

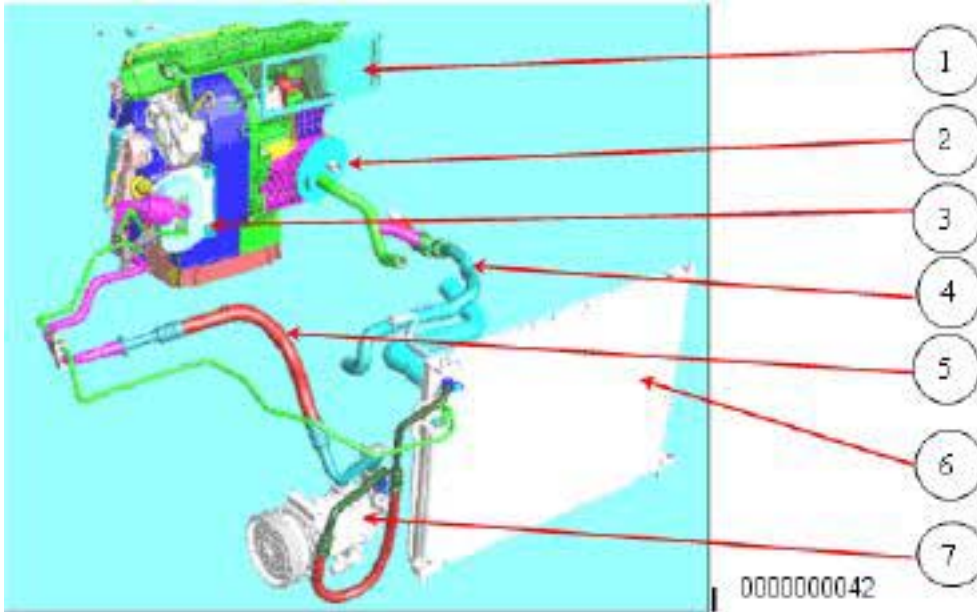
● **ACTUATORS:**

- **Air distribution flap:** This is located in the heating and air conditioning unit.
- **Air mixing flap:** This is located in the heating and air conditioning unit.
- **Recirculation flap:** This is located behind the dashboard.
- **Flap motors:** These are located close to the flaps (climate control).

● **OTHERS**

- **Passenger compartment blower unit:** This is located in the heating and air conditioning unit.
- **Cooling fan assembly:** This is located in the front panel of the vehicle, in front of the condenser.
- **Air pipes:** These are located under the dashboard.

COLD LOOP COMPONENTS



System assembly

- 1 Air conditioning unit
- 2 Heater matrix
- 3 Expansion valve and evaporator
- 4 Coolant circuit
- 5 Cold loop
- 6 Condenser and radiator
- 7 Compressor

Figure 1: System assembly

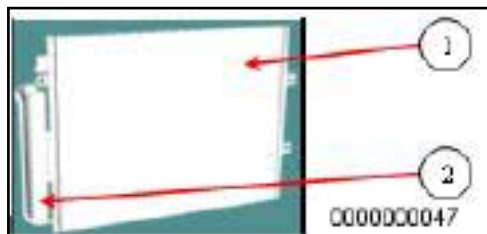
– Compressor:

The compressor is not activated when the exterior temperature is less than 0°; it is used to compress the refrigerant fluid into gas. The pressure can reach up to **28 bar**.



– Condenser:

The condenser is composed of flat horizontal aluminium tubes. The pipes are divided by the vanes in order to increase the air heat exchange and therefore cool the refrigerant fluid to produce condensation.



- 1 Condenser
- 2 Dehydration canister

– Dehydrator reservoir:

The dehydrator reservoir is used to:

- Check the condition of the refrigerant.
- Absorb the variations in volume (expansion bottle principle).
- Filter impurities.
- Absorb moisture (water in the circuit).

– Air conditioning unit:

This unit acts as an air mixing box. It is equipped with a system of flaps which allow the air to be directed in accordance with the requirements of the occupants whilst simultaneously allowing the temperature of the air entering the passenger compartment to be modified by mixing hot and cold air.

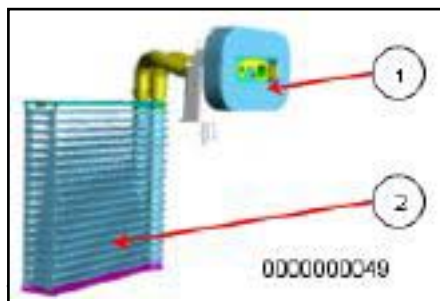
– Thermostatic expansion valve: (see figure below)

This thermostatic-type expansion valve is used to check refrigerant expansion. It is located at the evaporator inlet.

– Evaporator: (see figure below)

- The evaporator is a heat exchanger which enables the air entering the passenger compartment to be cooled.

Note: Condensation of the air may occur thereby causing normal drops of water to form under the body.



- 1 Expansion valve
- 2 Evaporator