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2020.0 DEFENDER (LE), 412-01

CLIMATE CONTROL

HEATING AND VENTILATION (G2342525)

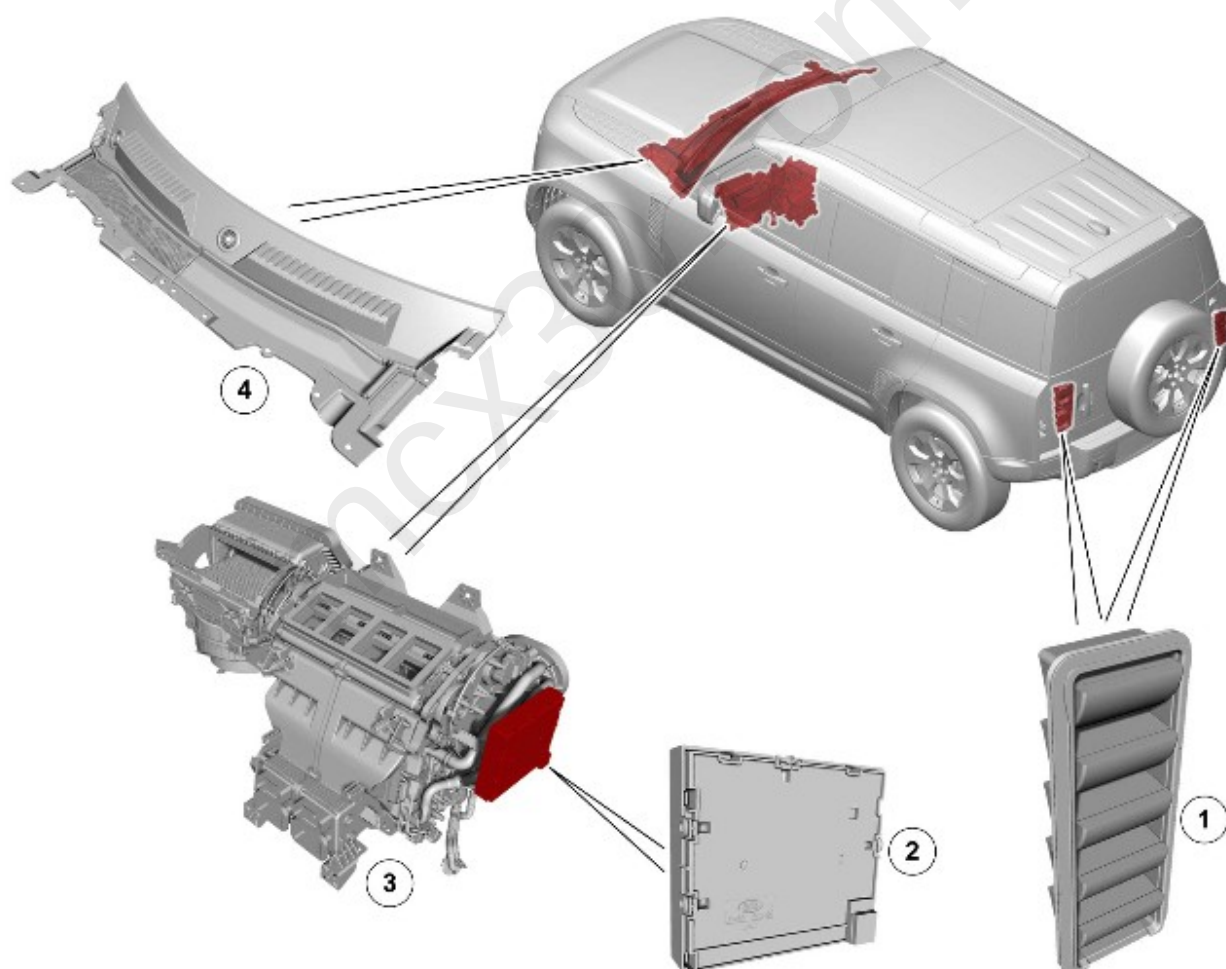
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COMPONENT LOCATION

COMPONENT LOCATION - 1 OF 1

NOTES:

- Right Hand Drive (RHD) vehicle is shown, Left Hand Drive (LHD) vehicle is similar.
- Vehicle with 5 doors is shown, vehicle with 3 doors is similar.



ITEM	DESCRIPTION
1	Rear outlet vents (quantity 2)
2	Heating, ventilation, and air conditioning (HVAC) control module
3	Climate control assembly
4	Cowl panel

OVERVIEW

The heating and ventilation system consists of:

- A cowl panel.
- HVAC control module.
- A climate control assembly with air inlets and outlets.
- The rear outlet vents.

Fresh or recirculated air flows into the climate control assembly from the cowl panel. The front blower, and the ram effect when the vehicle is moving, forces the air through the climate control assembly. Air from the passenger compartment exits through the outlet vents.

Vehicles are equipped with either a 2 zone or a 3 zone climate control system:

- The 2 zone climate control system provides different temperature settings for the left and right of the passenger compartment.
- The 3 zone climate control system provides different temperature settings for all 3 occupants of the passenger compartment.

The system may also be equipped with a pollution sensor to control the quality of air in the passenger compartment.

The HVAC control module controls the operation of the blower through the blower control module.

For additional information, refer to: [Air Distribution and Filtering](#) (412-01 Climate Control, Description and Operation).

For additional information, refer to: [Air Conditioning](#) (412-01 Climate Control, Description and Operation).

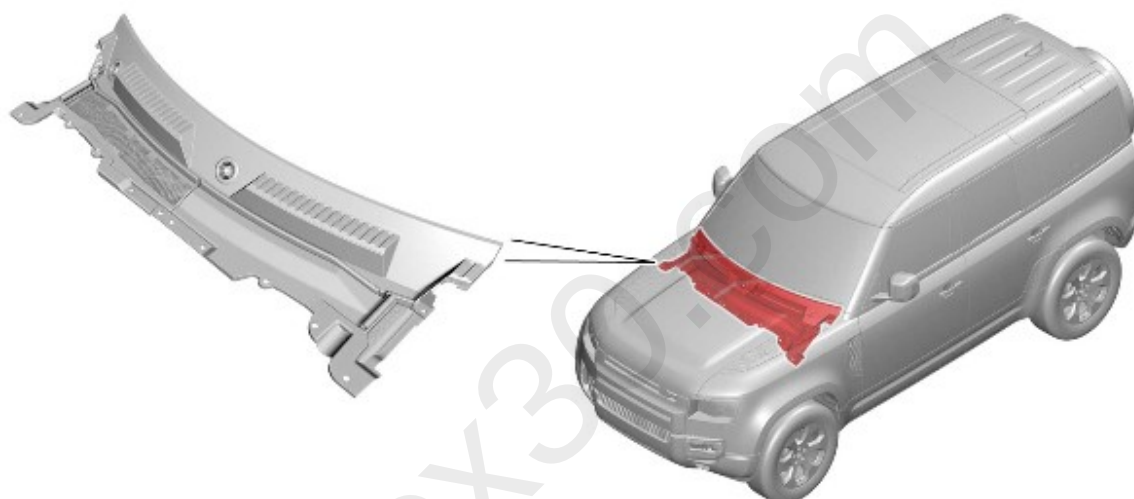
For additional information, refer to: [Control Components](#) (412-01 Climate Control, Description and Operation).

DESCRIPTION

COWL PANEL

NOTES:

- RHD vehicle is shown, LHD vehicle is similar.
- Vehicle with 5 doors is shown, vehicle with 3 doors is similar.



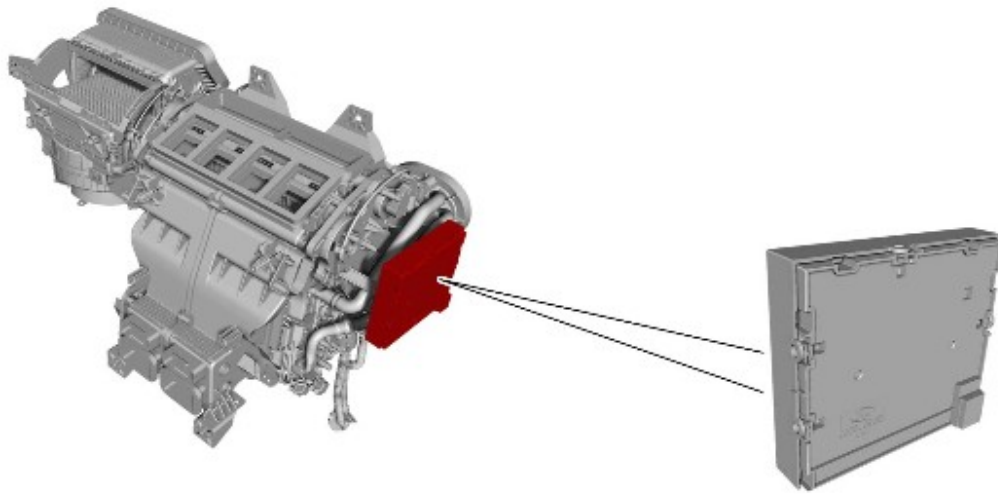
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The cowl panel is attached to the front of the bulkhead panel, supplies the fresh air to the climate control assembly.

HVAC CONTROL MODULE

NOTE:

- RHD vehicle is shown, LHD vehicle is similar.



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The HVAC control module is located behind the driver side of the instrument panel. The HVAC control module controls the air distribution and temperature.

The HVAC control module processes inputs from the following:

- The climate control system sensors.
- The Integrated Control Panel (FCIM).
- The Rear Integrated Control Panel (FCIMB) and other systems.

The HVAC control module then outputs the appropriate control signals to the Air Conditioning (A/C) system and the heating and ventilation system.

For additional information, refer to: [Control Components](#) (412-01 Climate Control, Description and Operation).

The HVAC control module also controls the following:

- The windshield washer jet heaters (if equipped).
 - For additional information, refer to: [Wipers and Washers](#) (501-16 Wipers and Washers, Description and Operation).
- The temperature control for the front seats and rear seats (if equipped).
 - For additional information, refer to: [Seats - \[+\] 5 Seat Configuration](#) (501-10 Seating, Description and Operation).

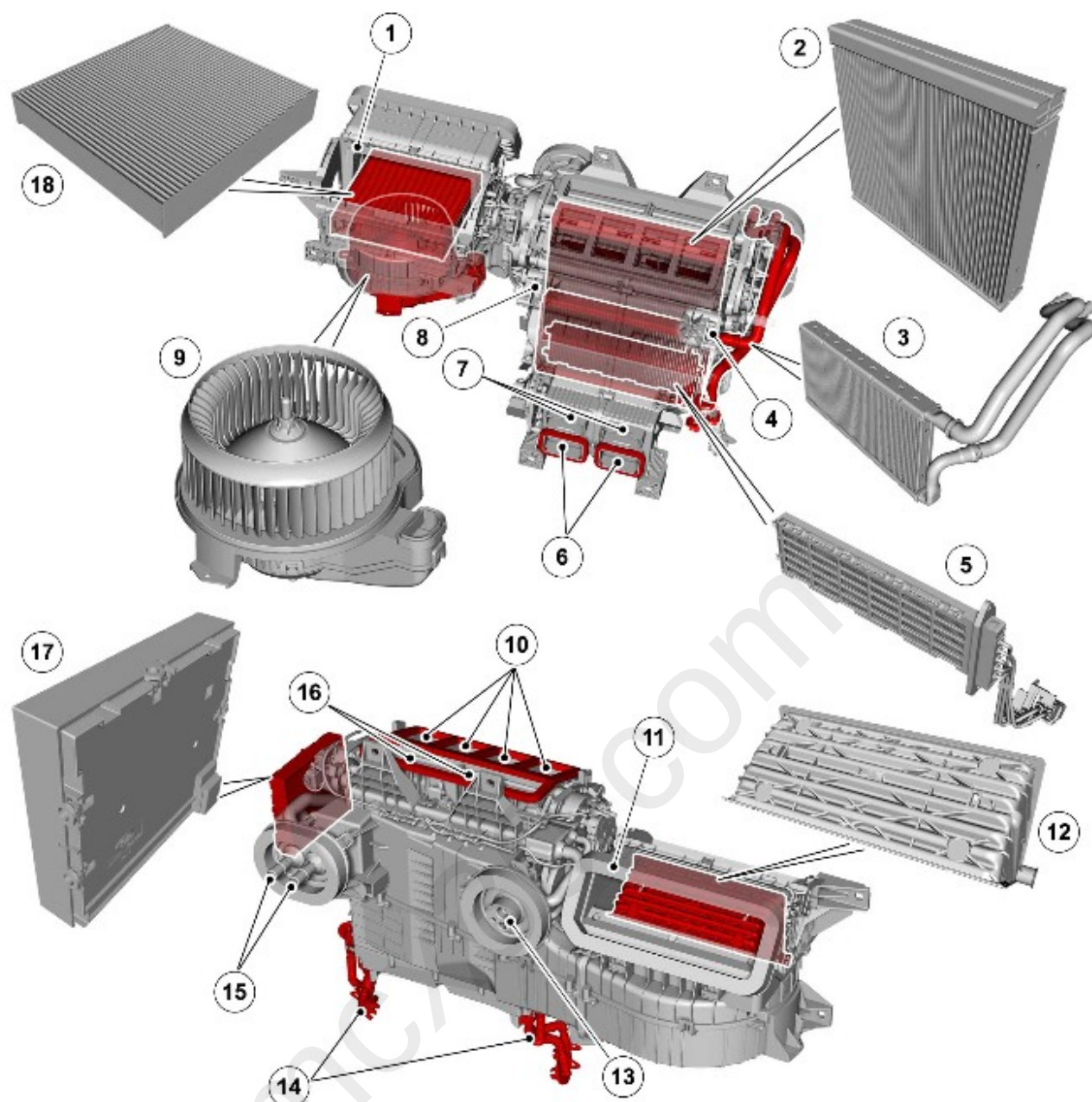
- For additional information, refer to: [Seats - \[+\] 6 Seat Configuration](#) (501-10 Seating, Description and Operation).
- For additional information, refer to: [Seats - \[+\] 7 Seat Configuration](#) (501-10 Seating, Description and Operation).
- Fuel Fired Booster Heater (FFBH) (if equipped).
 - For additional information, refer to: [Fuel Fired Booster Heater](#) (412-02 Auxiliary Climate Control, Description and Operation).
- Electric booster heater (if equipped).
 - For additional information, refer to: [Electric Booster Heater](#) (412-02 Auxiliary Climate Control, Description and Operation).

CLIMATE CONTROL ASSEMBLY



NOTE:

RHD vehicle is shown, LHD vehicle is similar.



E247663

ITEM	DESCRIPTION
1	Recirculation air intake
2	Evaporator
3	Heater core
4	Front right foot air outlet
5	Electric booster heater
6	Rear face air outlet (quantity 2)
7	Rear foot air outlet (quantity 2)
8	Front left foot air outlet

ITEM	DESCRIPTION
9	Front blower
10	Front face air outlet (quantity 4)
11	Fresh air intake
12	Recirculation door
13	A/C pipe connection
14	Evaporator drain tube (quantity 2)
15	Engine coolant pipe connection (quantity 2)
16	Demist air outlet (quantity 2)
17	HVAC control module
18	Air filter

The climate control assembly is installed behind the instrument panel. The climate control assembly controls the temperature of the air supplied to the air distribution ducts, as directed by the HVAC control module.

The climate control assembly comprises the following components:

- Front blower.
- Heater core.
- Air filter.
 - For additional information, refer to: [Air Distribution and Filtering](#) (412-01 Climate Control, Description and Operation).
- Evaporator.
 - For additional information, refer to: [Air Conditioning](#) (412-01 Climate Control, Description and Operation).
- Electric booster heater.
 - For additional information, refer to: [Electric Booster Heater](#) (412-02 Auxiliary Climate Control, Description and Operation).
- Recirculation, distribution and temperature blend motors.

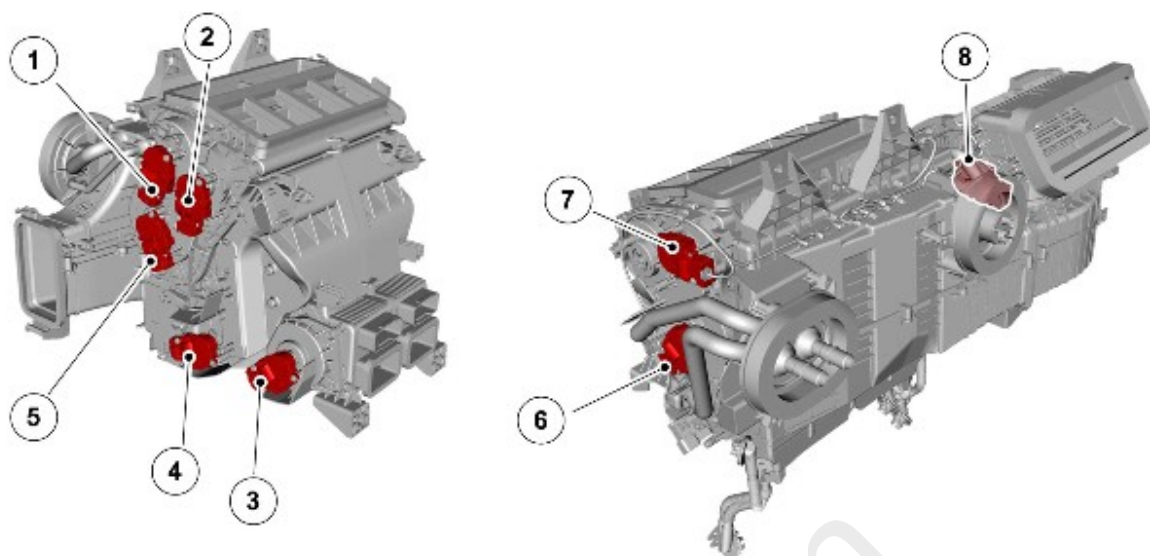
A recirculation door is installed between the fresh and recirculation air intakes, to control the source of incoming air. The recirculation door has automatic and manual modes of operation. In the automatic mode, the HVAC control module uses comfort algorithms and the pollution sensor input to set the door position. In the manual mode, the HVAC control module sets the door to the position selected on the FCIM.

Recirculation, Distribution And Temperature Blend Motors - Vehicles With 2 Zone Climate Control System



NOTE:

RHD vehicle is shown, LHD vehicle is similar.



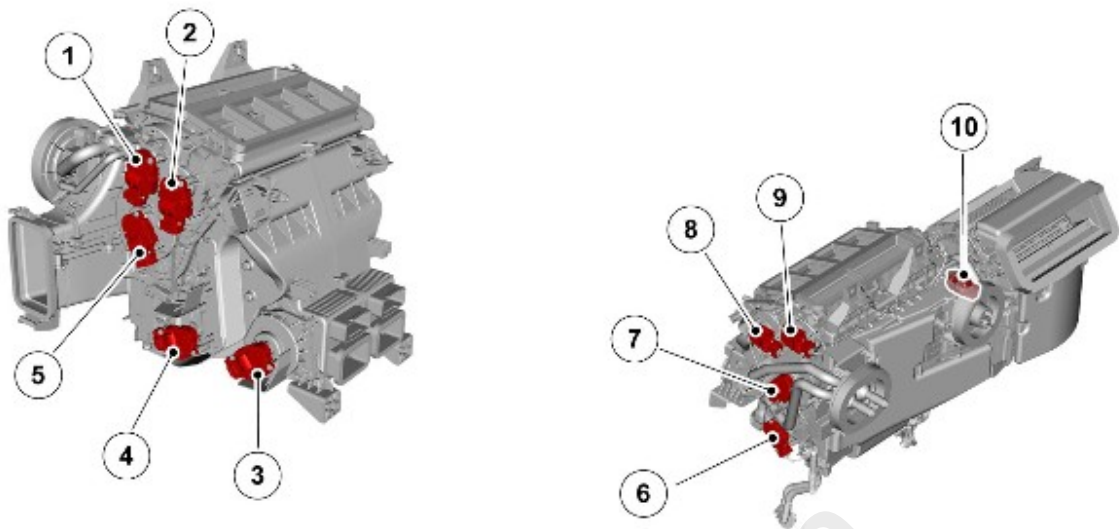
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ITEM	DESCRIPTION
1	Demist distribution motor
2	Front face/foot distribution motor
3	Rear face/foot distribution motor
4	Rear left temperature blend motor
5	Front left temperature blend motor
6	Front right temperature blend motor
7	Cool air bypass motor
8	Recirculation motor

Recirculation, Distribution And Temperature Blend Motors - Vehicles With 3 Zone Climate Control System

NOTE:

RHD vehicle is shown, LHD vehicle is similar.



E247665

ITEM	DESCRIPTION
1	Demist distribution motor
2	Front left face/foot distribution motor
3	Rear face/foot distribution motor
4	Rear left temperature blend motor
5	Front left temperature blend motor
6	Rear right temperature blend motor
7	Front right temperature blend motor
8	Front right face/foot distribution motor
9	Cool air bypass motor
10	Recirculation motor

Operation of the distribution and temperature blend door motors is controlled by the HVAC control module. The HVAC control module is connected to the motors by the Local Interconnect Network (LIN), power and ground connections. Separate motors operate each of the distribution doors and temperature blend doors.

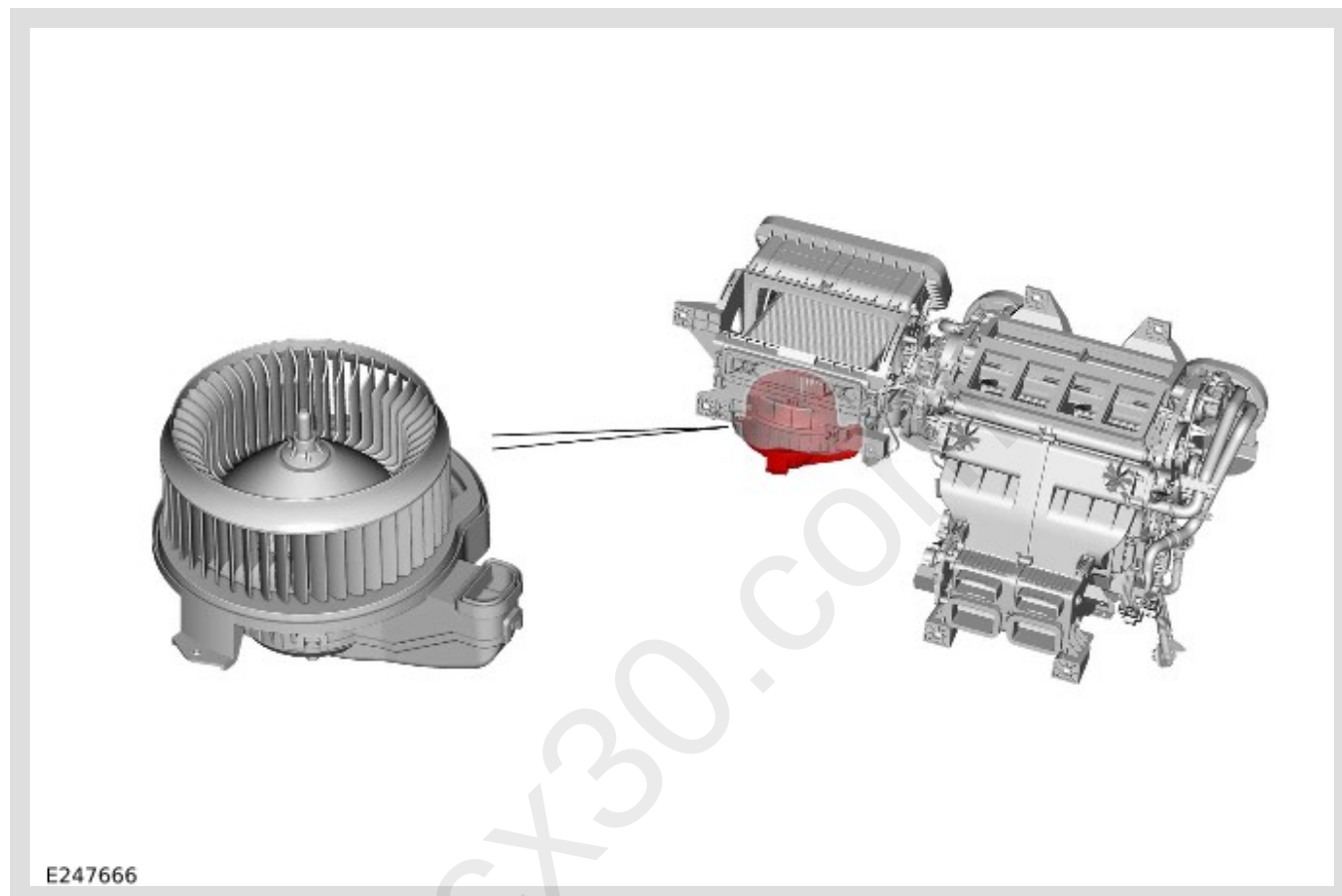
The recirculation door is driven by a recirculation motor, which is controlled by the HVAC control module through the LIN. Power for the recirculation motor is also supplied by the HVAC control module.

For additional information, refer to: [Control Components](#) (412-01 Climate Control, Description and Operation).

Front Blower

NOTE:

RHD vehicle is shown, LHD vehicle is similar.



The front blower is installed below the air filter, consists of a blower hub and centrifugal fan powered by an electric motor. The front blower is controlled by the HVAC control module. Operation of the front blower is by a relay in the Engine Junction Box (EJB) and blower control module integrated into the electric motor. When the front blower is required, the HVAC control module energizes the relay in the EJB, which then supplies battery power to the front blower.

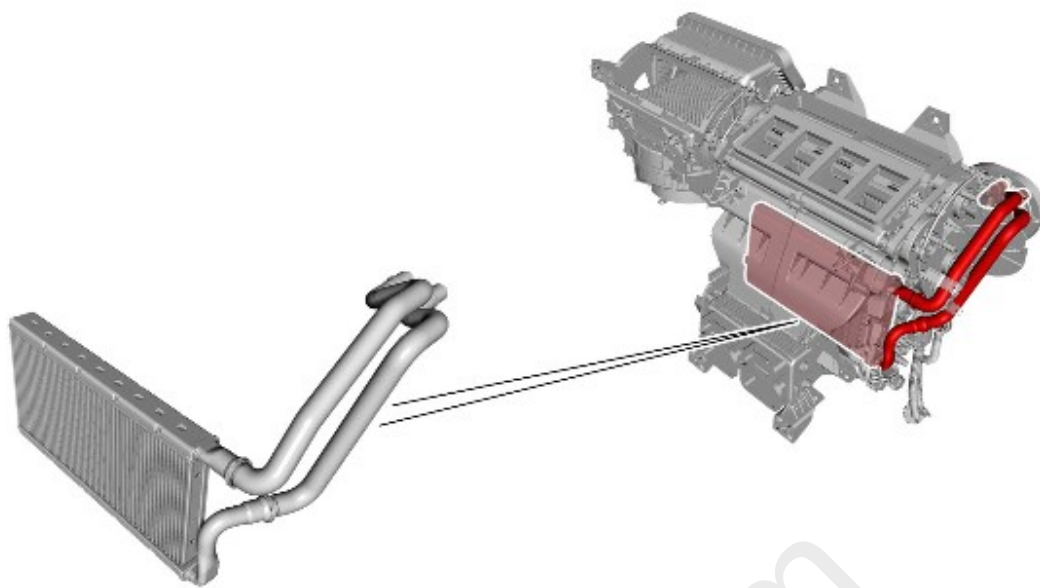
The speed of the front blower is controlled by the FCIM. The HVAC control module provides a LIN signal to the blower control module based on the required blower speed.

For additional information, refer to: [Control Components](#) (412-01 Climate Control, Description and Operation).

Heater Core

NOTE:

RHD vehicle is shown, LHD vehicle is similar.



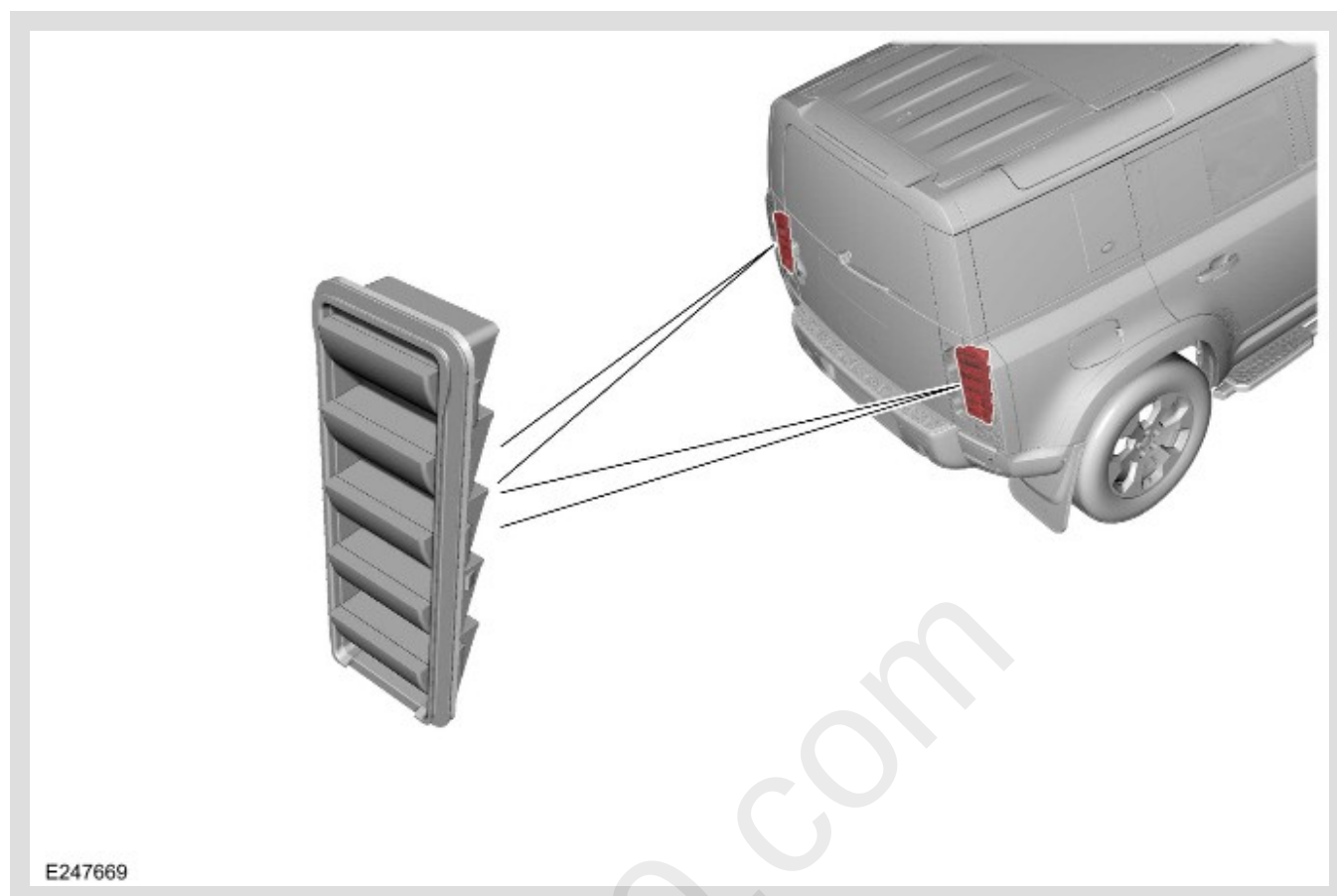
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The heater core is located in the climate control assembly.

The heater core provides the heat source to warm the air being supplied into the passenger compartment. There are 2 aluminum pipes attached to the heater core that extend through the engine bulkhead and connect to the engine cooling system.

When in Power Mode 7 (engine running), engine coolant is constantly circulated through the heater core by the coolant pump.

REAR OUTLET VENTS



The rear outlet vents allow the free flow of air through the passenger compartment. The rear outlet vents are installed in the rear left and rear right quarter panels, behind the tail lamps.

Each rear outlet vent comprises a grille covered by a soft rubber vent flap, and is effectively a valve. The vent flaps open and close automatically depending on the differential pressure between the passenger compartment and the outside air pressures.

OPERATION

Operation of the heating and ventilation system is controlled by the HVAC control module.

For additional information, refer to: [Control Components](#) (412-01 Climate Control, Description and Operation).