# 2016.0 RANGE ROVER (LG), 412-01

DESCRIPTION AND OPERATION

COMPONENT LOCATION

#### NOTE:

RHD (right-hand drive) installation shown, LHD (left-hand drive) installation similar.



ITEM

DESCRIPTION

1	Air extraction grille
2	Ventilation outlet
3	Climate control assembly
4	Air intake duct
5	Air intake grille
6	Ventilation outlet
7	Air extraction grille

OVERVIEW

The heating and ventilation system consists of:

- An air intake duct
- A climate control assembly
- Two ventilation outlets.

Fresh or recirculated air flows into the climate control assembly from the intake duct, then through the distribution ducts to the vehicle interior. Fresh air is taken from an intake grille in the leaf screen Air from the vehicle interior exhausts through the ventilation outlets via air extraction grilles in the luggage compartment side trim.

# DESCRIPTION

## AIR INTAKE DUCT

## NOTE:

RHD air intake duct shown, LHD air intake duct is mirror image.



ITEM	DESCRIPTION
1	Recirculation air intake
2	Pollution sensor
3	Air outlet to climate control assembly
4	Automatic temperature control module
5	Blower
6	Recirculation door
7	Fresh air intake
8	Air filter
9	Recirculation motor
10	Condensate drain tubes

The air intake duct is installed behind the instrument panel, on the front passenger side, and connects the fresh air intake in the bulkhead panel to the climate control assembly. The air intake duct also contains:

- An intake for recirculation air
- The blower
- The air filter.

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

A recirculation door is installed between the fresh and recirculation air intakes, to control the source of incoming air. The door is driven by a recirculation motor, which is controlled by the ATC (automatic temperature control) module using a LIN (local interconnect network) bus signal. Power for the motor is also supplied by the ATC module.

The recirculation door has automatic and manual modes of operation. In the automatic mode the ATC module uses comfort algorithms to set the door position. In the manual mode, the ATC module sets the door to the position selected on the ICP (integrated control panel).

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

# BLOWER

The blower is installed below the air filter, and consists of an open hub, centrifugal fan powered by a brushless electric motor. Operation of the blower is controlled by the ATC module, using the blower relay in the RJB (rear junction box) and a control module integrated into the blower motor.

When the blower is required, the ATC module energizes the blower relay, which then supplies battery power to the blower motor. The speed of the blower is controlled by the integral control module, which regulates the blower motor voltage in response to a PWM (pulse width modulation) signal from the ATC module.

When the blower is in the automatic mode the ATC module determines the blower speed required from comfort algorithms. When the blower is in the manual mode, the ATC module operates the blower at the speed selected on the ICP.

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

# CLIMATE CONTROL ASSEMBLY

# NOTE:

RHD climate control assembly shown, LHD climate control assembly similar.



ITEM	DESCRIPTION
1	Demist distribution motor
2	Demist air outlets
3	Rear foot air outlets
4	Rear face air outlets
5	Rear face/foot distribution motor
6	Left rear temperature blend motor
7	Left front foot air outlet
8	Left front temperature blend motor
9	Left front face/foot distribution motor
10	Front face air outlets
11	Air conditioning pipe connector block
12	Coolant pipe connections
13	Right front temperature blend motor
14	Right rear temperature blend motor
15	Right front foot air outlet

16	Right front face/foot distribution motor
17	Cool air bypass motor

The climate control assembly is installed on the vehicle center-line, between the instrument panel and the bulkhead panel. The climate control assembly consists of a casing, which contains an evaporator, heater core, distribution doors and temperature blend doors. Internal passages integrated into the casing guide the air through the casing and separate it into two flows, one for the left outlets and one for the right outlets.

When the A/C (air conditioning) system is operating, the evaporator cools the air entering the climate control assembly. For additional information, refer to: Air Conditioning (412-01A Climate Control, Description and Operation).

The heater core is an aluminum two pass, fin and tube heat exchanger, installed across the width of the climate control assembly housing. Two aluminum tubes attached to the heater core extend through the bulkhead panel to connect with the engine cooling system. When the engine is running, coolant is constantly circulated through the heater core by the engine coolant pump. On vehicles with a FFBH (fuel fired booster heater), when the FFBH is active the coolant flow is assisted by an electric FFBH coolant pump.

For additional information, refer to: Fuel Fired Booster Heater (412-02A Auxiliary Climate Control, Description and Operation).

The distribution doors direct the air flow to the face, foot and demist vents as required. A cool air bypass distribution door directs additional air bypassing the heater core for the face vents.

The temperature blend doors regulate the flow of air through the heater core to control the temperature of the air leaving the climate control assembly. The left front and right front temperature blend doors operate independently to allow different temperatures to be set for the front zones. The left rear and right rear temperature blend doors operate together on 3 zone vehicles and independently on 4 zone vehicles.

## DISTRIBUTION AND TEMPERATURE BLEND MOTORS

Separate motors operate each of the five distribution doors and four temperature blend doors. If a motor is to be replaced, ensure it is replaced with the correct replacement part. Although similar in appearance, each of the motors is different and faults will occur if an incorrect motor is fitted.

Operation of the distribution and temperature blend door motors is controlled by the ATC module, which is connected to the motors by LIN bus, power and ground connections. A Hall effect sensor in each motor provides a position signal for the ATC module.

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

#### VENTILATION OUTLETS

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The ventilation outlets are installed in the left and right rear quarters, behind the tail lamp assemblies.

Each ventilation outlet consists of a grille covered by soft rubber flaps, and is effectively a non-return valve, preventing any odors from entering the vehicle. The flaps open and close automatically depending on the differential between passenger compartment and outside air pressures.