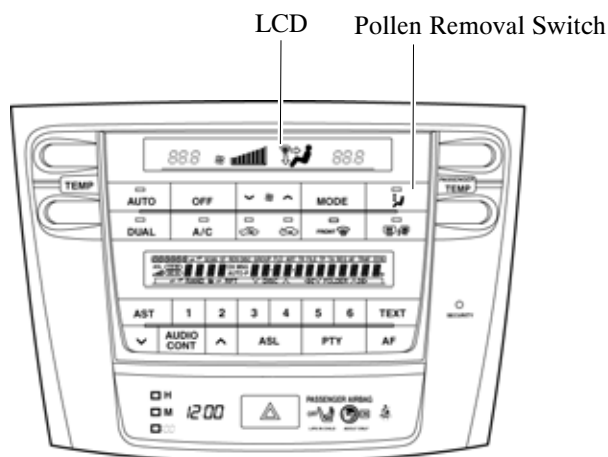


■ CONSTRUCTION AND OPERATION

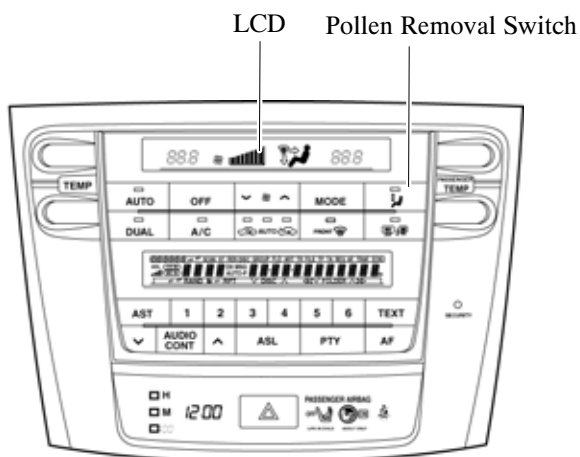
1. Heater Control Panel

A push-button type heater control panel is used. Temperature control switches for the driver and front passenger are provided on the heater control panel to enhance their ease of use.

- On the models without multi display, the air conditioner status is displayed on an LCD (Liquid Crystal Display).
- On the models with multi display, the air conditioner status is displayed on the multi display.
- Along with the adoption of the pollen removal mode, a pollen removal switch is provided.

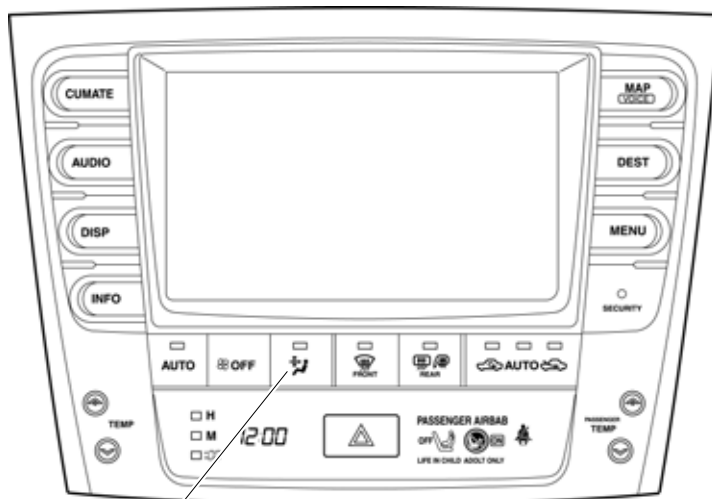


**Models without Multi Display
(without Automatic Recirculation Control)**



**Models without Multi Display
(with Automatic Recirculation Control)**

0150BE63C



**Pollen Removal
Switch**

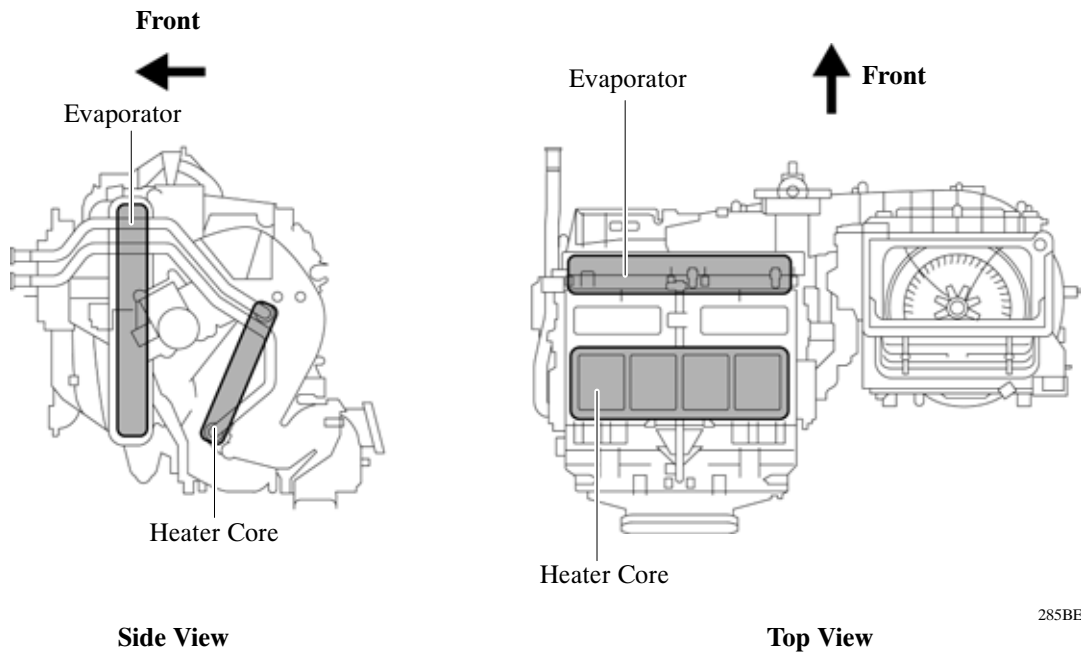
Models with Multi Display

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2. Air Conditioning Unit

General

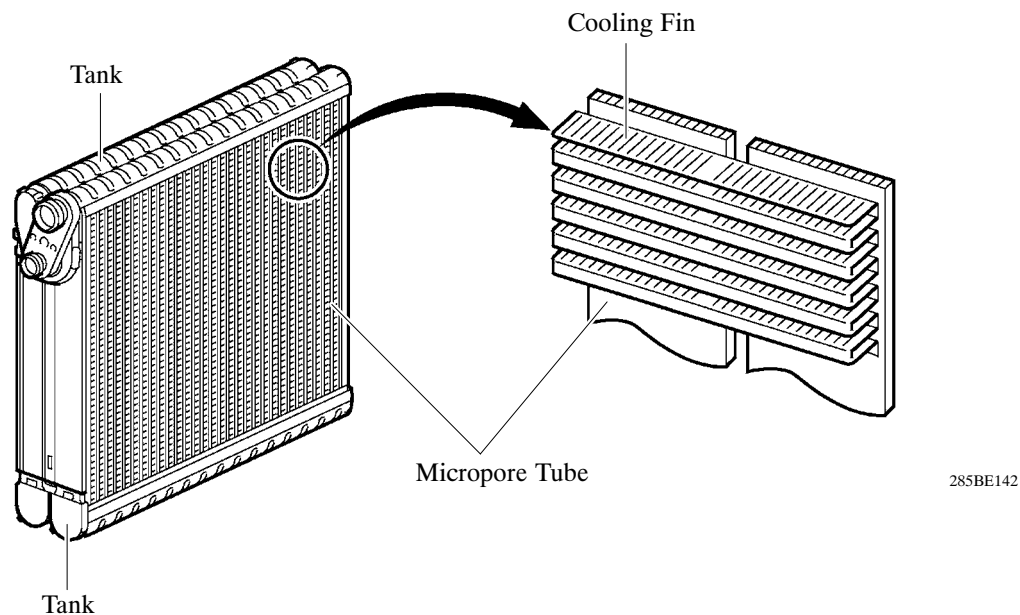
A semi-centrally located air conditioner unit, in which the evaporator and heater core are mounted transversely, is used. As result, the air conditioning unit is made compact and lightweight.



Evaporator

A RS (Revolutionary super-slim Structure) type evaporator is used. Placing the tanks at the top and the bottom of the evaporator and adopting a micropore tube construction have realized the following effects:

- The heat exchange efficiency is improved.
- The temperature distribution is made more uniform.
- The evaporator is made thinner. 58 mm (2.3 in.) → 38 mm (1.5 in.)

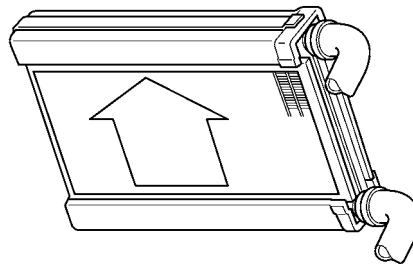


Evaporator Temp. Sensor

Evaporator temp. sensor detects the temperature of the cool air immediately past the evaporator in the form of resistance changes, and outputs it to the A/C ECU.

Heater Core

A compact, lightweight, and highly efficient SFA (Straight Flow Aluminum)-II type heater core is used.



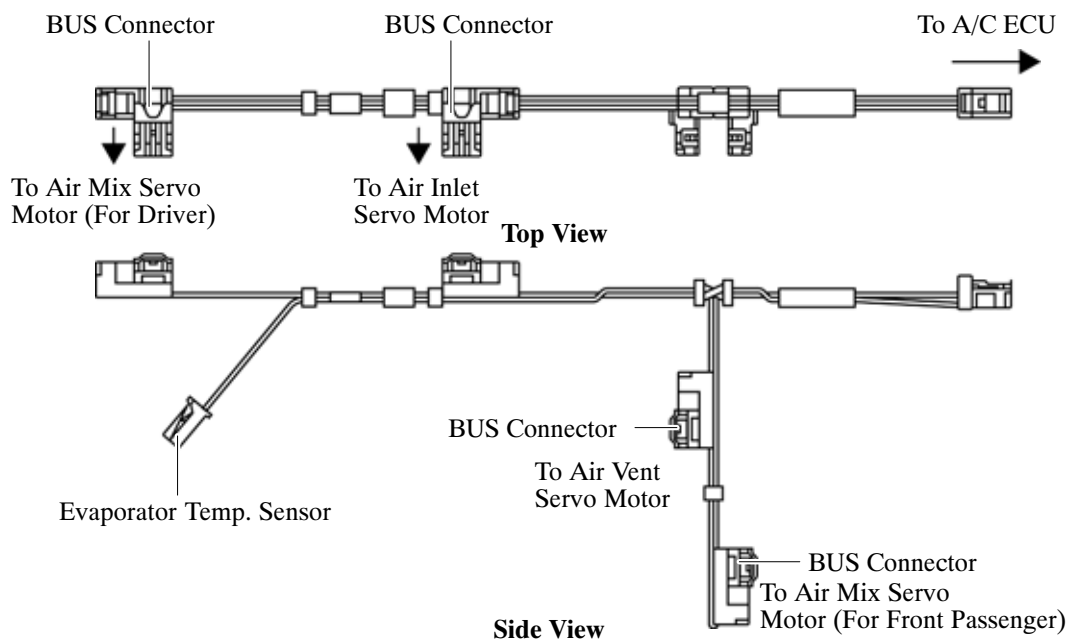
152BE21

Blower Motor

The blower motor has a built-in blower controller, and is controlled using duty control performed by the A/C ECU.

BUS Connector

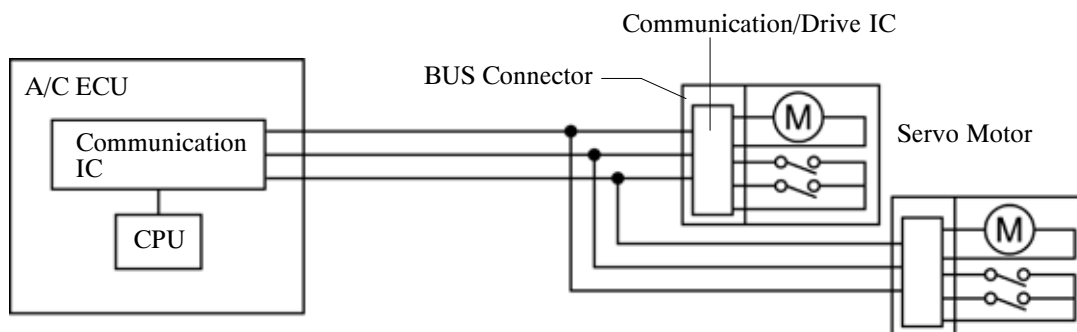
A BUS connector is used in the wire harness connection that connects the servo motor from the A/C ECU.



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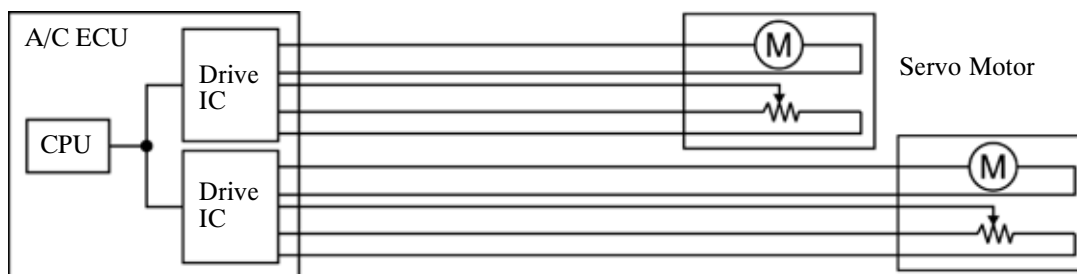
The BUS connector has a built-in/driver IC which communicates with each servo motor connector, actuates the servo motor, and has a position detection function. This enables bus communication for the servo motor wire harness, for a more lightweight construction and a reduced number of wires.

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With BUS Connector

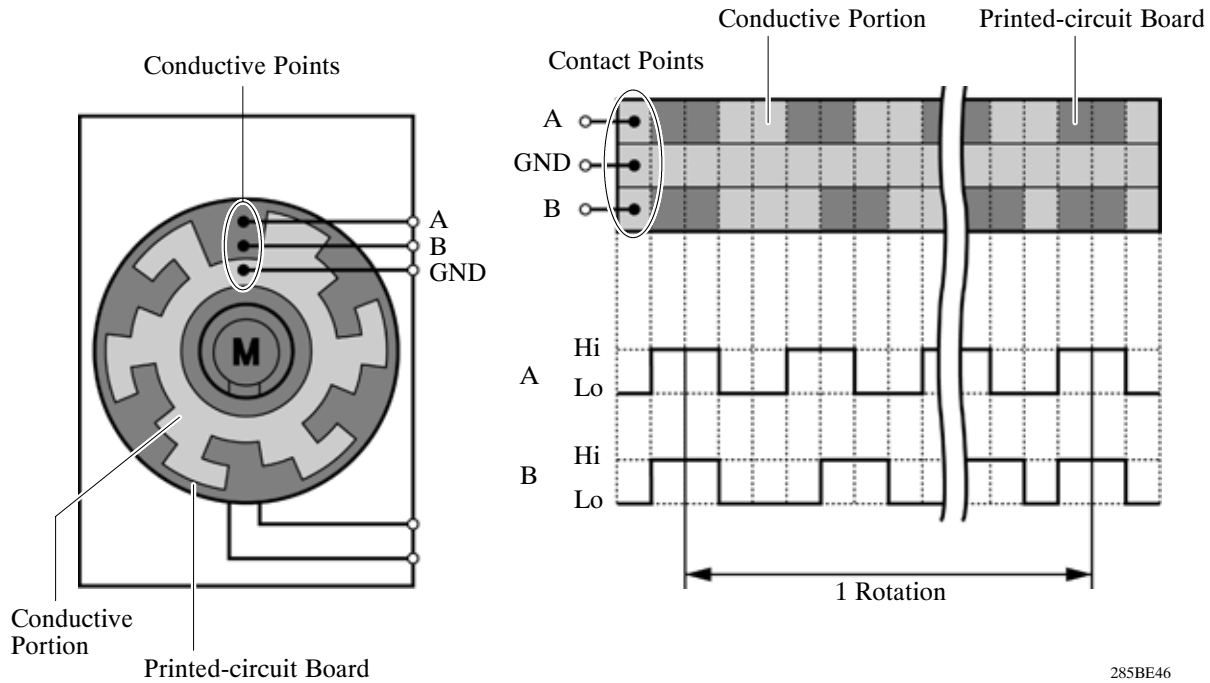


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Without BUS Connector

Servo Motor

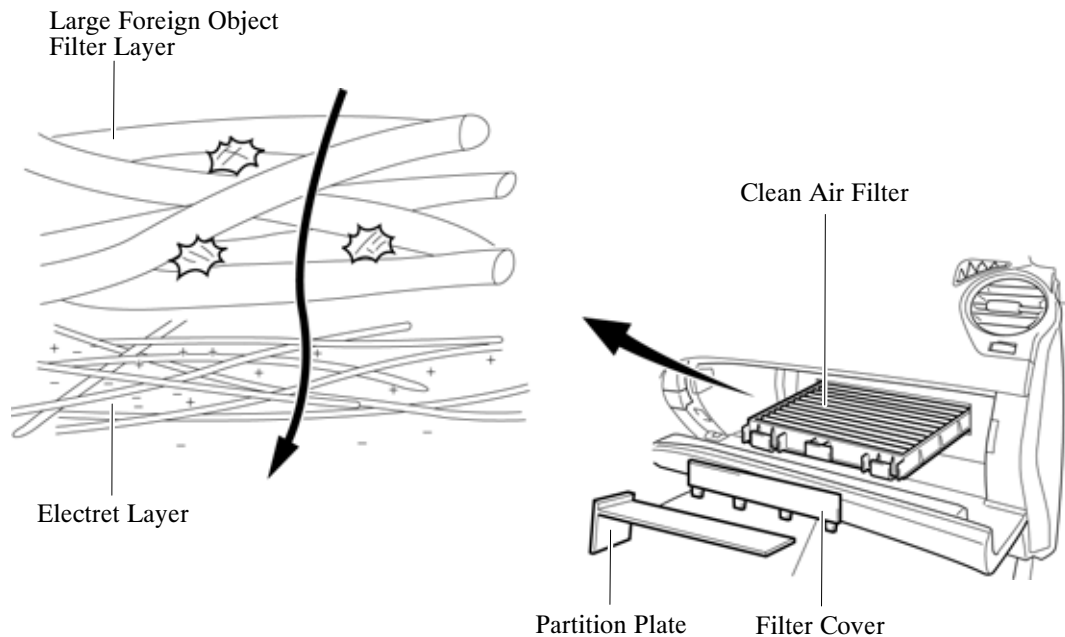
The pulse pattern type servo motor consists of a printed circuit board and a servo motor. The printed circuit board has three contact points, and can transmit two ON-OFF signals to the A/C ECU based on the difference of the pulse phases. The BUS connector can detect the damper position and movement direction with this signal.



285BE46

Clean Air Filter

A pollen removal type clean air filter is used. This filter excels in the removal of dust and pollen. The filter made of polyester. Thus, it can be disposed of easily as a non hazardous combustible material, a feature that is provided in consideration of the environment.



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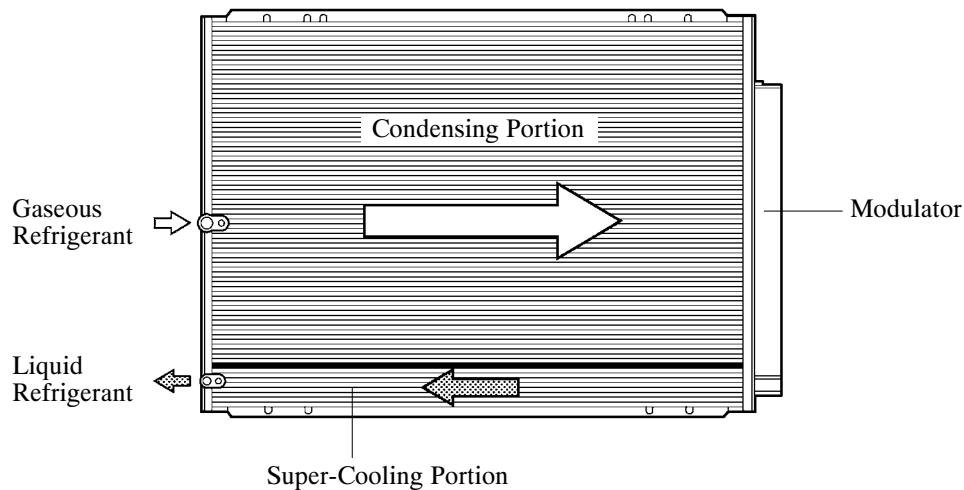
Service Tip

The replacement interval for the clean air filter is 30000 km or 18000 mile in the normal condition, and 15000 km or 9000 mile in the dusty condition. However, observation of these guidelines should depend on the usage conditions (or environment).

3. Condenser

A MF (Multi-Flow) type condenser is used. The condenser consists of two cooling portions: a condensing portion and a super-cooling portion, and gas-liquid separator (modulator) are integrated together. This condenser uses a sub-cool cycle that offers excellent heat-exchange performance.

- In the sub-cool cycle, after the refrigerant passes through the condensing portion of the condenser, both the liquid refrigerant and the gaseous refrigerant that could not be liquefied are cooled again in the super-cooling portion. Thus, the refrigerant is sent to the evaporator in an almost completely liquefied state.

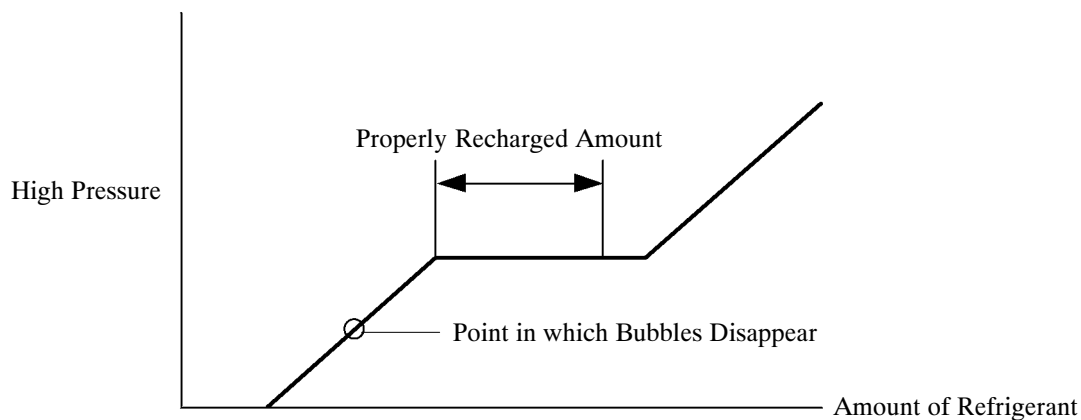


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Service Tip

The point at which the air bubbles disappear in the refrigerant of the sub-cool cycle is lower than the proper amount of refrigerant with which the system must be filled. Therefore, if the system recharged with refrigerant based on the point at which the air bubbles disappear, the amount of refrigerant would be insufficient. As a result, the cooling performance of the system will be affected. If the system is overcharged with refrigerant, this will also lead to a reduced performance.

For the proper method of verifying the amount of the refrigerant and for instructions on how to recharge the system with refrigerant, see the LEXUS IS250 Repair Manual (Pub. No. RM0150E).



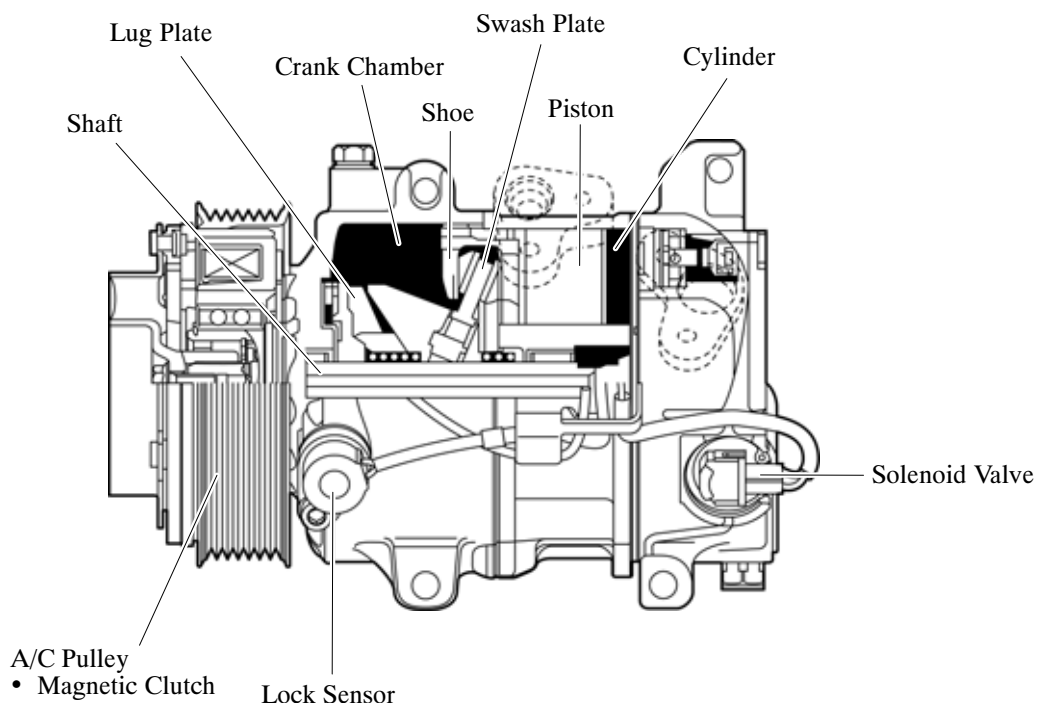
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4. A/C Compressor

General

A/C compressor is continuously variable capacity type in which its capacity can be varied in accordance with the cooling load of the air conditioner.

- This compressor consists of the A/C pulley, shaft, lug plate, swash plate, piston, shoe, crank chamber, cylinder, and solenoid valve.
- A solenoid valve that adjusts the suction pressure so that the compressor capacity can be controlled as desired is provided.

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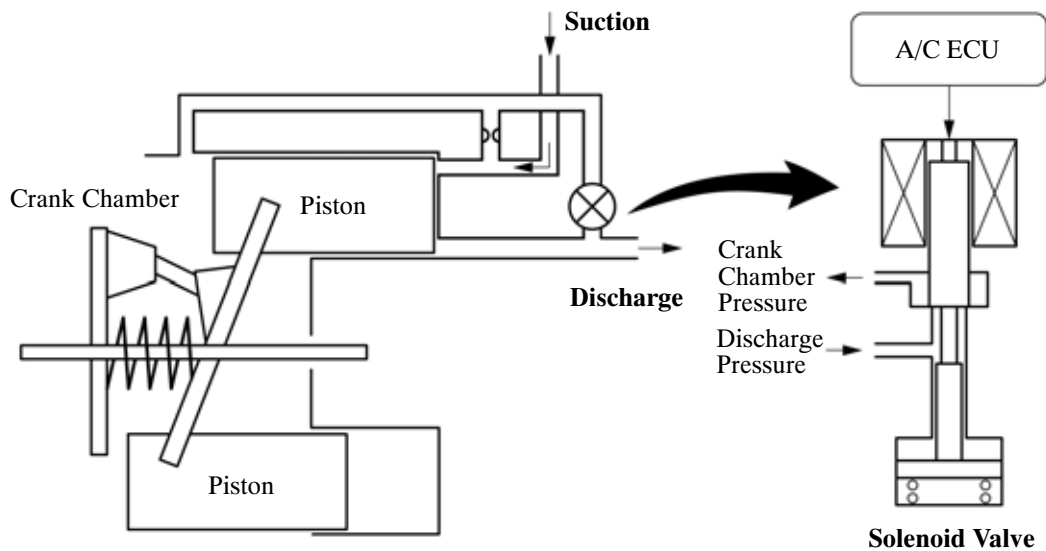
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Lock Sensor

The lock sensor sends an A/C pulley speed signal to the Engine ECU. The Engine ECU compares this signal with an engine speed signal sent from the crankshaft position sensor. If the Engine ECU determines that the A/C pulley has locked, the Engine ECU turns the magnetic clutch off.

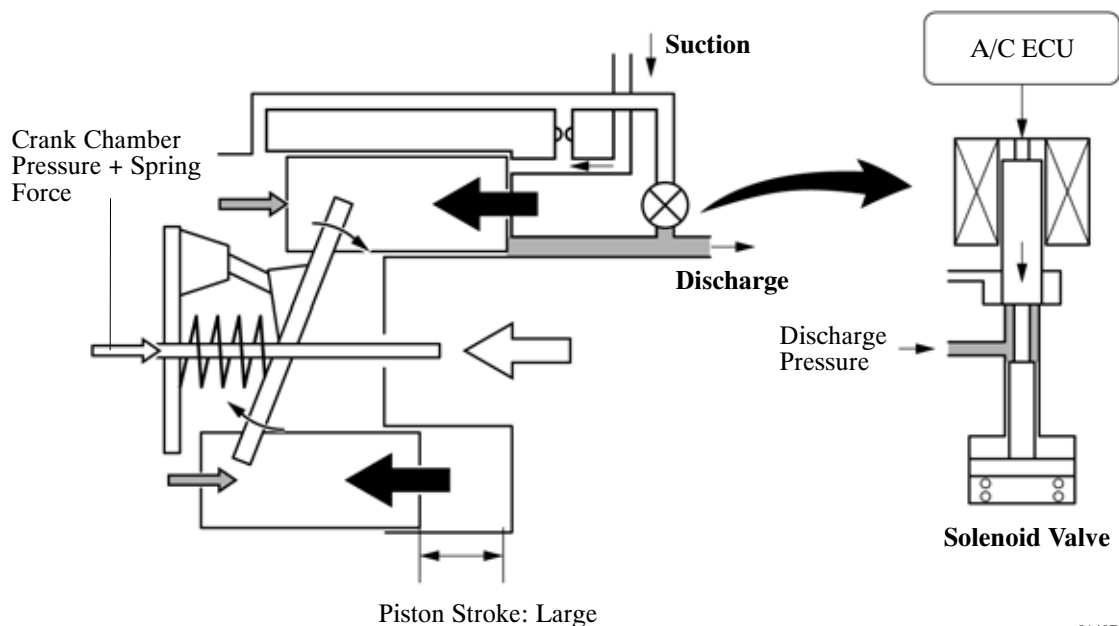
Operation

- The crank chamber is connected to the suction passage. A solenoid valve is provided between the suction passage (LO pressure) and the discharge passage (HI pressure).
- The solenoid valve operates under duty cycle control in accordance with the signals from A/C ECU.



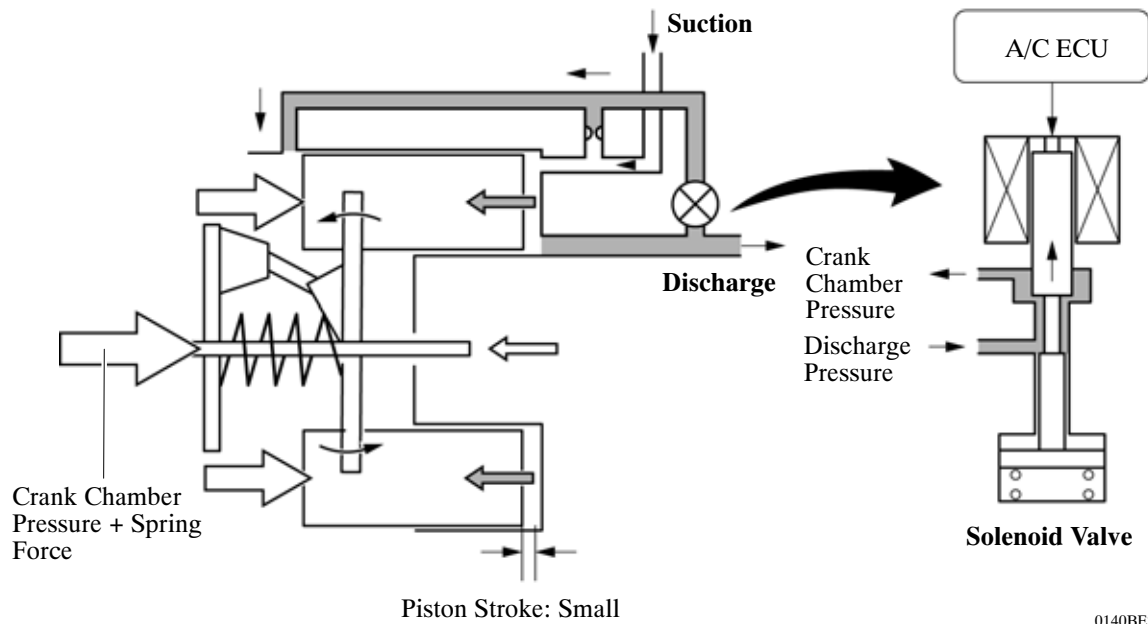
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- When the solenoid valve closes (solenoid coil is energized), a difference in pressure is created and the pressure in the crank chamber decreases. Then, the pressure that is applied to the right side of the piston becomes greater than the pressure that is applied to the left side of the piston. This compresses the spring and tilts the swash plate. As a result, the piston stroke increases and the discharge capacity increases.



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- When the solenoid valve opens (solenoid coil is not energized), the difference in pressure disappears. Then, the pressure that is applied to the left side of the piston becomes the same as the pressure that is applied to the right side of the piston. Thus, the spring elongates and eliminates the tilt of the swash plate. As a result, there is no piston stroke and the discharge capacity is reduced.



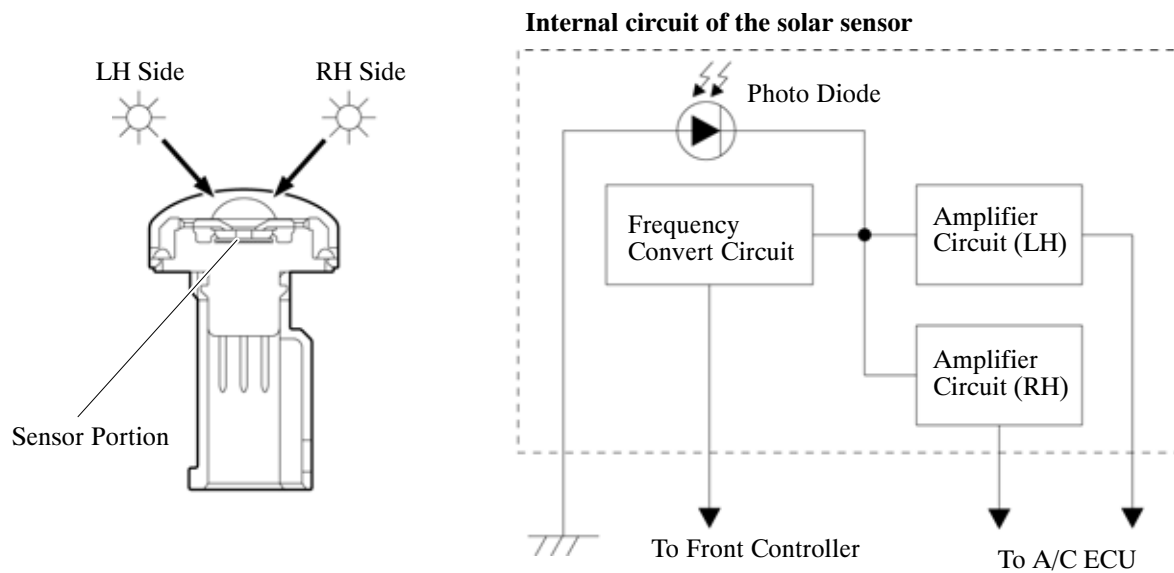
5. Room Temp. Sensor and Outside Temp. Sensor

- The room temperature sensor detects the room temperature based on changes in the resistance of its built-in thermistor and sends a signal to the A/C ECU.
- The outside temperature sensor detects the outside temperature based on changes in the resistance of its built-in thermistor and sends a signal to the A/C ECU.

6. Solar Sensor

The solar sensor consists of a photo diode, two amplifier circuits for the solar sensor, and frequency converter circuit for the light control sensor.

- A solar sensor detects (in the form of changes in the current that flows through the built-in photo diode) the changes in the amount of sunlight from the LH and RH sides (2 directions) and outputs these sunlight strength signals to the A/C ECU.



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7. A/C Pressure Sensor

A/C pressure sensor detects the refrigerant pressure and outputs it to the A/C ECU in the form of voltage changes.

8. Low Pressure Sensor

Low pressure sensor detects the refrigerant pressure for low pressure and outputs it to the A/C ECU in the form of voltage changes.

9. Smog Ventilation Sensor

The smog ventilation sensor detects harmful elements such as CO, HC, and NOx, which are present in the air outside of the vehicle. The sensor outputs it to the A/C ECU.

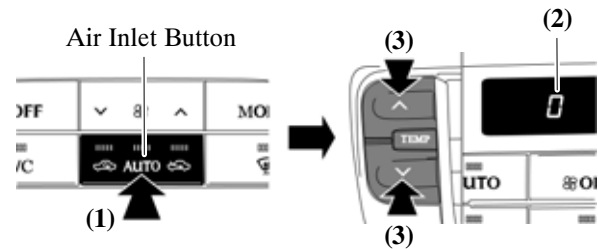
- The sensitivity of the smog ventilation sensor can be adjusted. Adjustment can be done using the heater control panel or multi display.

Service Tip

Sensitivity Adjust Method of Smog Ventilation Sensor

a) Heater Control Panel Type

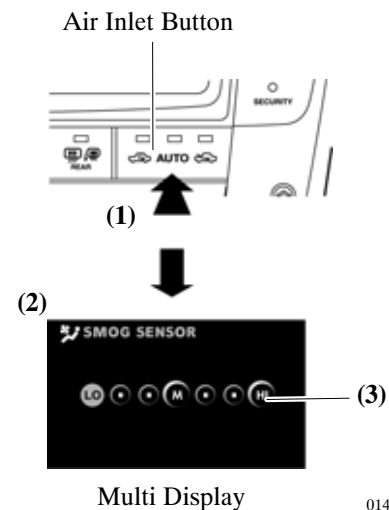
- (1) Press and hold the air inlet button for 2 seconds or more.
- (2) The current sensitivity level is displayed on the LCD on the heater control panel.
- (3) The sensitivity level can be adjusted between -3 and 3 by operating the TEMP switch.
- (4) Pressing the air inlet button again or pressing another switch ends the setting adjustment mode.



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b) Multi Display Type

- (1) Press and hold the air inlet button for 2 seconds or more.
- (2) The sensitivity level adjustment screen appears on the multi display.
- (3) The sensitivity level can be adjusted to seven different levels from HI to LO by touching the screen.
- (4) Pressing the air inlet button again or pressing another switch ends the setting adjustment mode.



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