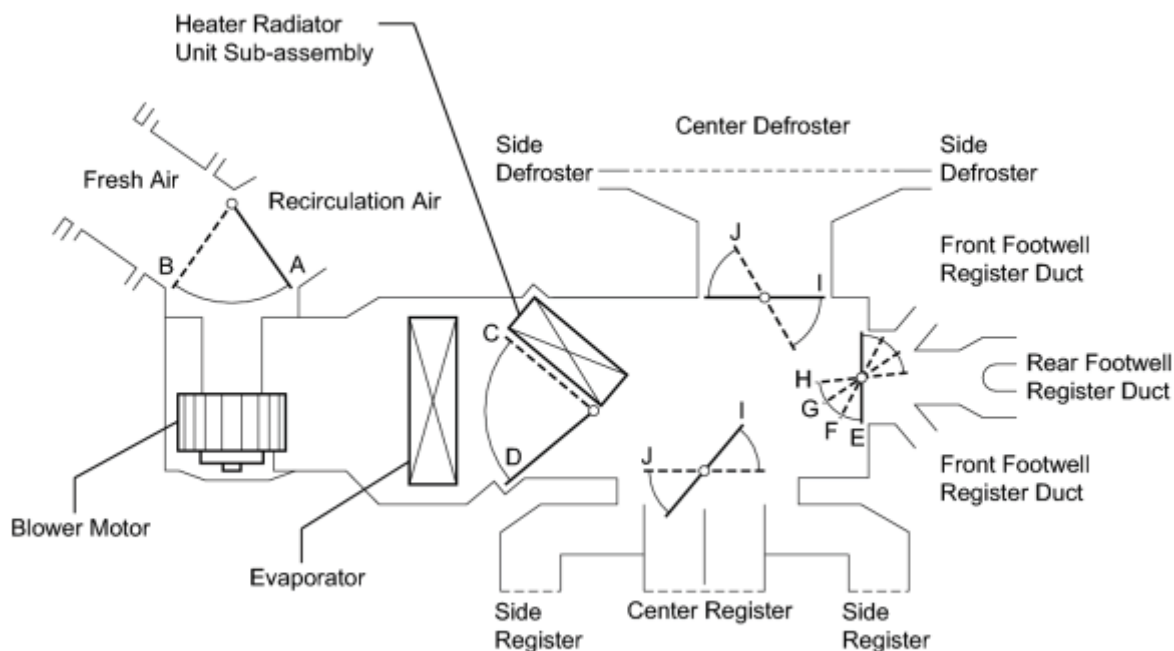




H

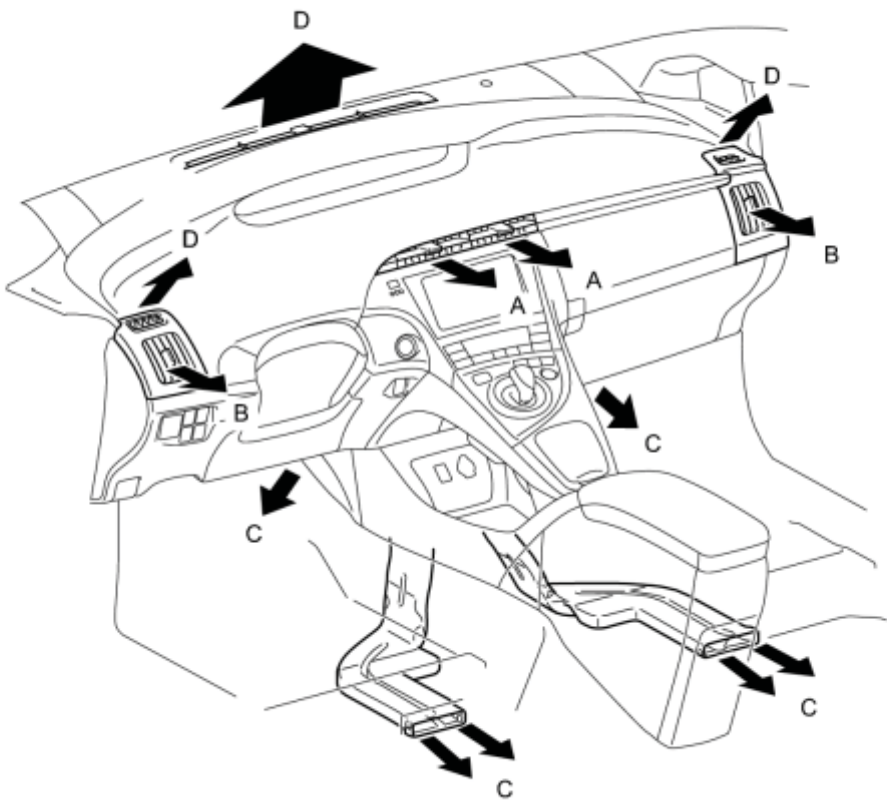
Functions of Main Dampers

Control Damper	Operation Position	Damper Position	Operation
Air Inlet Control Damper	FRESH	A	Allows fresh air to enter.
	RECIRCULATION	B	Causes internal air to recirculate.
Air Mix Control Damper	MAX COLD to MAX HOT Temperature Setting	C - D	Varies the mixture ratio of warm air and cool air in order to regulate the temperature continuously between hot and cold.
Air Outlet Control Damper	DEF 	J, E	Defrosts the windshield through the center defroster, side defroster and side registers.
	FOOT/DEF 	J, F	Defrosts the windshield through the center defroster, side defrosters, side registers while air is also blown out from the front and rear footwell register ducts.
	FOOT 	J, H	Air blows out of the front and rear footwell register ducts, and side registers. In addition, air blows out slightly from the center defroster and side defrosters.

Control Damper	Operation Position	Damper Position	Operation
	BI-LEVEL 	I, G	Air blows out of the front and rear center register, side register and front and rear footwell register ducts.
	FACE 	I, E	Air blows out of the front center register and side register ducts.

4. AIR OUTLETS AND AIRFLOW VOLUME

(a) Air Outlets and Airflow Volume



H

Indication	Mode	FACE		FOOT	DEF
		CTR	SIDE		
		A	B		

Indication	Mode	FACE		FOOT	DEF
		CTR	SIDE	C	D
		A	B		
	FACE	○	○	—	—
	B/L	○	○	○	—
	FOOT	—	○	○	○
	F/D	—	○	○	○
	DEF	—	○	—	○

The size of each circle ○ indicates the ratio of airflow volume.

5. OUTLINE OF REMOTE AIR CONDITIONING SYSTEM

(a) Outline

(1) When the remote A/C switch on the key (electrical transmitter) is pressed, the air conditioning system is automatically controlled and operated for a maximum of 3 minutes using power from the HV battery.

HINT:

The remote air conditioning system starts operating when all of the following operating conditions are met:

Operating Condition

Item	Condition
Power switch	- Off - Power switch is not pressed
Door Lock	- All doors are closed and locked. - Hood is closed.
Brake Pedal	Not operated (not depressed)
Security	Not in alarm sounding state
Shift Selection	Park (P) is selected.
HV Battery	HV battery state of charge is sufficient. (Reference value: level 3 or higher)

Item	Condition
Cabin Temperature	- Higher than air conditioning temperature set by user - Air conditioning (cooling) is necessary

(b) Function of Main Components

(1) Each component of the remote air conditioning system has the functions described in the table:

Function of Main Components

Component	Outline
Key (electrical transmitter)	Sends remote air conditioning system on/off signals to the certification ECU.
Certification ECU	Receives a signal from the key (electrical transmitter) and sends a signal to the main body ECU.
Main body ECU	- Locks all of the doors. - Checks that all of the doors are closed and locked. - Checks that the hood is closed. - When the remote air conditioning system starts, the main body ECU operates the wireless door lock system.
Power management control ECU	- Turns the vehicle power (12 V) on/off. - Checks the state of charge of the HV battery. - Starts/stops the HV system. - Controls the inverter with converter assembly. - Checks the power switch condition. - Checks if park (P) is selected. - Checks the brake pedal condition. - Permits/prohibits remote air conditioning system operation.
A/C amplifier	- Judges whether the cooling function is operating during remote air conditioning system operation. - Checks the operation of the air conditioning system based on signals from various sensors. - Controls the air conditioning system. - Judges when to stop the remote air conditioning system.
Inverter with converter assembly	Supplies DC power from the HV battery to the inverter of the compressor with motor assembly.
Compressor with motor assembly	Compresses refrigerant using power from the HV battery.

6. EJECTOR CYCLE SYSTEM

(a) In the conventional refrigerant cycle, liquid refrigerant gas is sent into the evaporator using the expansion valve, generating cold air. However, a rapid decrease in the refrigerant pressure forms swirls, causing energy loss. In this ejector cycle, the energy loss caused by the cooler expansion valve is utilized by the operation of the ejector that injects and expands a high-pressure refrigerant, thus improving energy consumption efficiency.

(b) The ejector includes nozzle, mixing and diffuser portions.

(c) A high temperature and pressure liquid refrigerant flowing from the condenser is introduced into the mixing section through the nozzle at high speeds as the nozzle is inwardly tapered. This decreases the refrigerant pressure in the vicinity of the nozzle, introducing low temperature and pressure gaseous refrigerant into the nozzle from the evaporator. Thus, both refrigerants are mixed in the mixing section and are introduced into the diffuser section.

(d) As the diffuser section is outwardly flared, the refrigerant flow rate in the diffuser decreases and the refrigerant pressure rises.

(e) Through these operations, the refrigerant pressure in the evaporator on the downwind side can be constantly kept lower than that on the upwind side, creating the lower temperature conditions. Therefore, air cooled by the evaporator on the upwind side can be further cooled by that on the downwind side, thus improving the efficiency of the evaporator.

7. MICRO DUST AND POLLEN FILTER MODE CONTROL

(a) When the micro dust and pollen filter mode switch is pressed, the micro dust and pollen filter mode control is activated.

(b) Then, the air vent is switched to the FACE mode and recirculated pollen-free air flows in the area around the upper part of the bodies of the driver and front passenger.

(c) When the micro dust and pollen filter mode switch signal is input to the A/C amplifier, the A/C amplifier controls the compressor with motor assembly, air inlet control servo motor, air outlet control servo motor and blower motor as shown in the timing chart below.

(d) This control usually operates for approximately 3 minutes. However, when the outside temperature is low (5°C (41°F) maximum), it will operate for approximately 1 minute.

(e) After this control stops operating, the A/C amplifier controls the air conditioning system using AUTO mode.