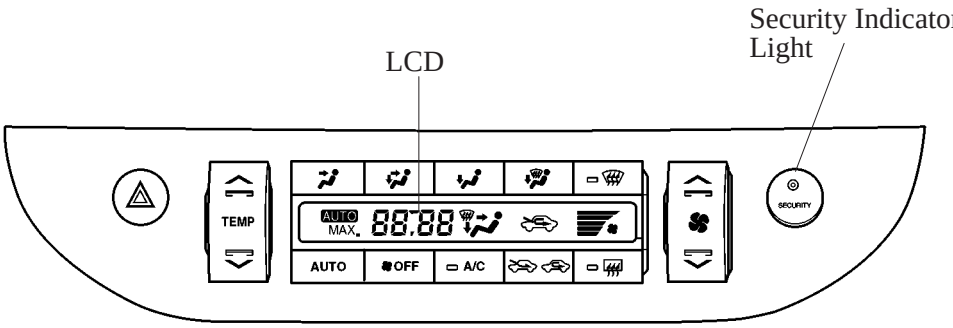
■CONSTRUCTION AND OPERATION

1. Air Conditioner Control Panel

- The air conditioner control panel uses push button controls and an LCD (Liquid Crystal Display) to display the set temperature, air outlet mode, and blower speed, to ensure excellent visibility.
  This system maintains unidirectional communication between the multi-information display in the center cluster and the air conditioner ECU via a local protocol. The ambient air temperature information that is received is then used by the air conditioner ECU to effect control.

NOTE: At times, it takes 2 to 3 seconds from the time the ignition switch is turned ON, the air conditioner ECU receives ambient air temperature information from the multi-information display, control is started, and the information appears on the LCD (Liquid Crystal Display) of the air conditioner control panel.

- This air conditioner control panel is integrated with the air conditioner ECU.



Automatic Control Type
Air Conditioner Control Panel

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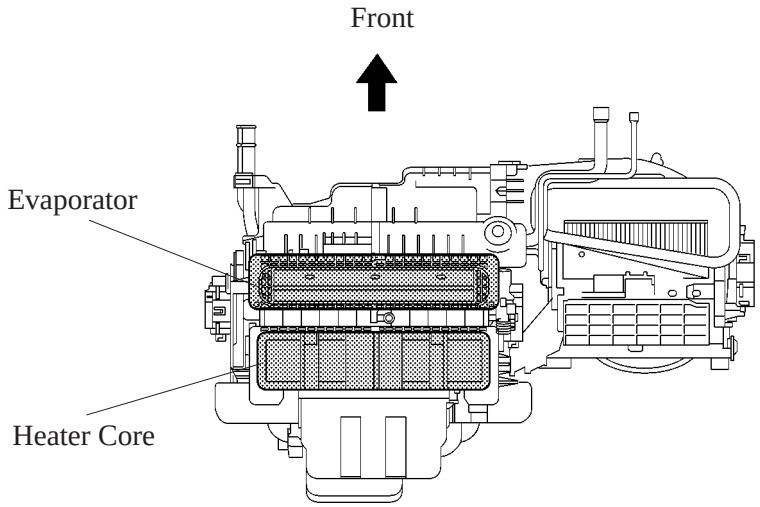
2. Air Conditioner Unit

General

A semi-center location air conditioner unit, in which the evaporator and heater core are placed in the vehicle's longitudinal direction. As a result, the air conditioner unit has been made compact and light weight.



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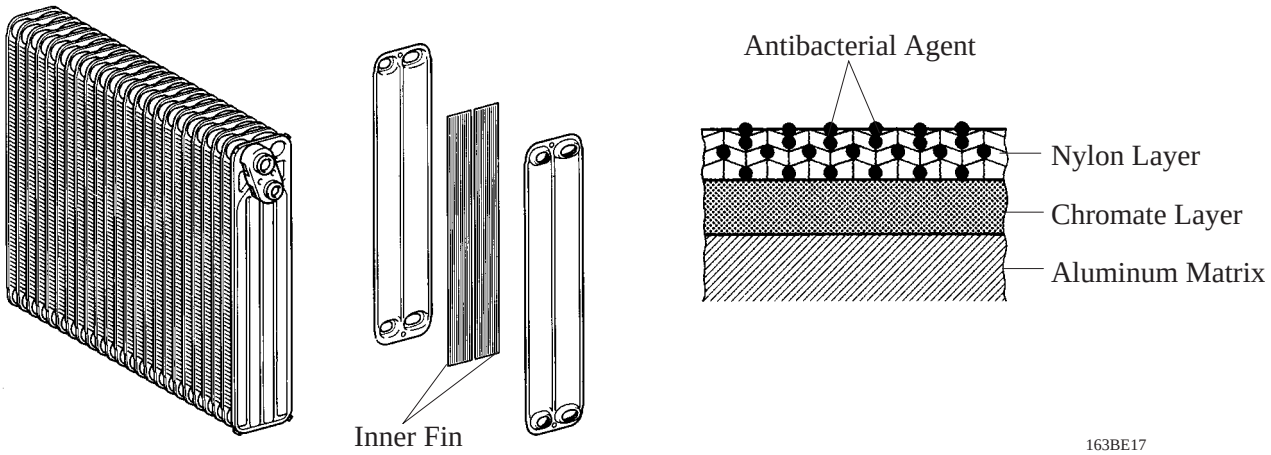
Evaporator

- By placing the tanks at the top and the bottom of the evaporator unit and by adopting an inner fin construction, the following effects have been realized:

  a) The heat exchanging efficiency has been improved.
  b) The temperature distribution has been made more uniform.
  c) The evaporator has been made thinner.

- The evaporator body has been coated with a type of resin that contains an antibacterial agent in order to minimize the source of foul odor and the propagation of bacteria.



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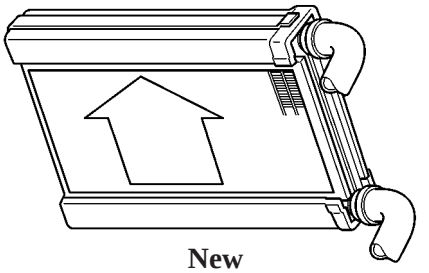
Heater Core

A compact, lightweight, and highly efficient straight flow (full-path flow) aluminum heater core has been adopted.



New

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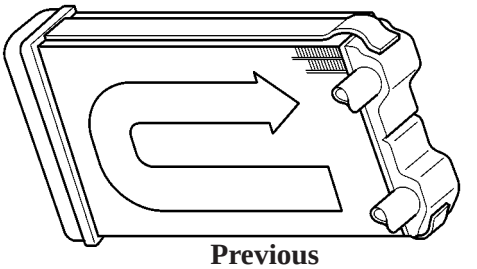

Previous

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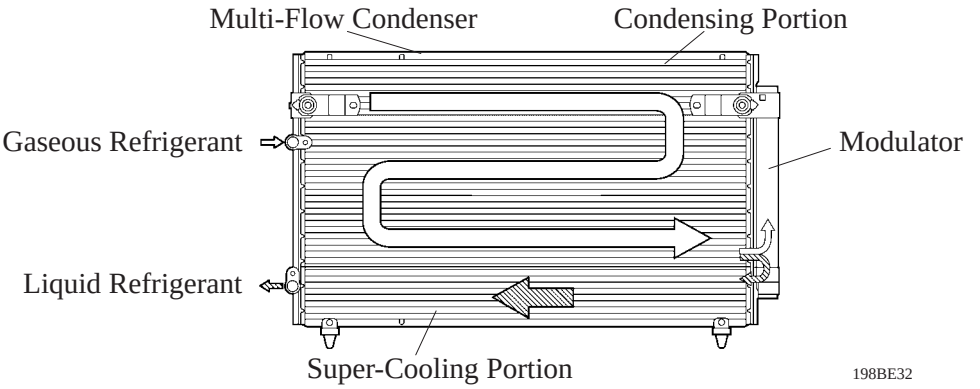
3. Condenser

General

The '02 Camry has adopted sub-cool condenser in which a multi-flow condenser (consisting of two cooling portions: a condensing portion and a super-cooling portion) and a gas-liquid separator (modulator) have been integrated. This condenser has adopted the sub-cool cycle for its cooling cycle system to improve the heat exchanging efficiency.

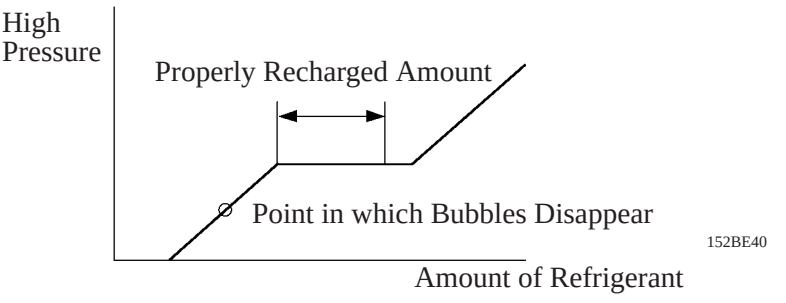
Sub-Cool Cycle

In the sub-cool cycle of the sub-cool condenser that has been adopted, 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 the evaporator in an almost completely liquefied state.



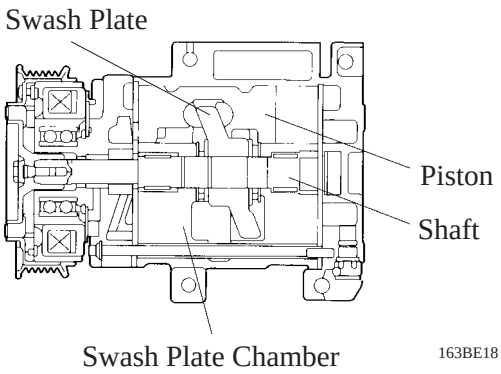
NOTE: The point at which the air bubbles disappear in the refrigerant of the sub-cool cycle is lower than the proper amount of refrigerant with which the system must be filled. Therefore, if the system is recharged with refrigerant based on the point at which the air bubbles disappear, the amount of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

For the proper method of verifying the amount of the refrigerant and to recharge the system with refrigerant, see the Camry Repair Manual (Pub. No. RM915E).



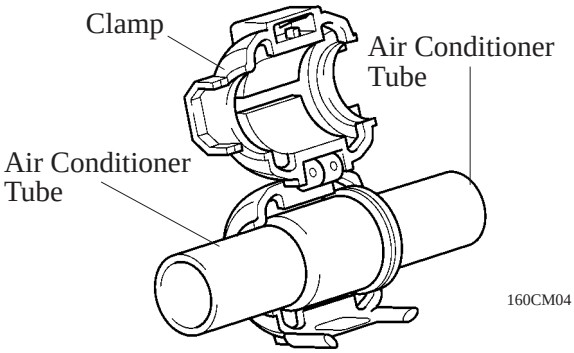
4. Compressor

A compact, lightweight, and low-noise swash plate type compressor has been adopted on the Camry.



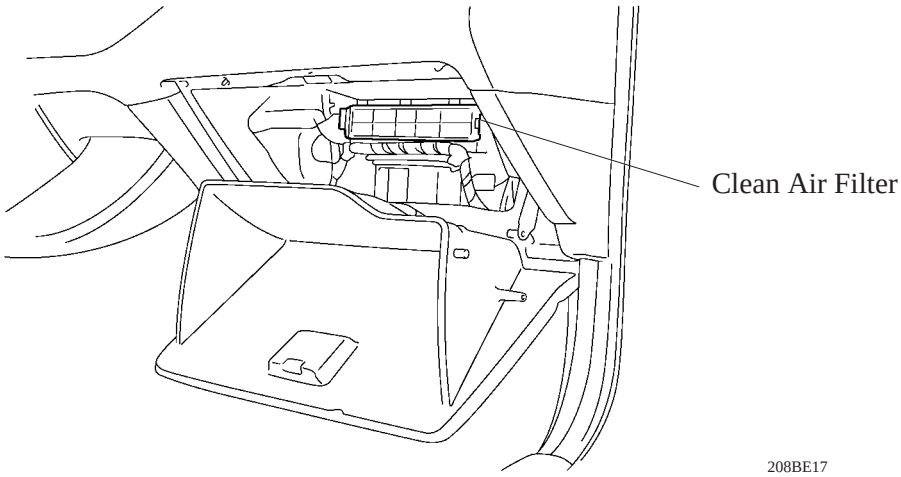
5. Quick Joint

The joint of the air conditioner tube, which passes through the dash panel, has been changed from the nut-and-union type that is used on the previous model to the clamp type quick joint. As a result, the ease of operation and service has been improved.



6. Clean Air Filter

A clean air filter that excels in removing dust is standard equipment.
This filter, which cleans the air in the cabin, is made of polyester. Thus, it can be disposed of easily as a combustible material, a feature that is provided in consideration of the environment.
To facilitate the replacement of the filter, a one-touch clip is used in the filter cover which is unified with filter case. Thus, a construction that excels in serviceability has been realized.



LHD Model

Service Tip

The replacement interval for the clean air filter is 15,000 km or 9,000 mile.
However, it varies with the use conditions (or environment).

7. Air Conditioner ECU

General

The air conditioner ECU has following control.

Control	Outline
Outlet Air Temp. Control	In response to the temperature control switch setting, the required outlet air temperature, evaporator temperature sensor, and water temperature sensor compensations are used by the air mix control damper control to calculate a tentative damper opening angle, through an arithmetic circuit in the air mix damper, to arrive at a target damper opening angle.
Blower Control	This function controls the operation of the blower motor in accordance with the signals from the water temperature sensor, evaporator temperature sensor, and the solar sensor. In addition, it protects the blower motor controller from the sudden drive current that occurs when the blower motor is activated.
Air Outlet Control	When the AUTO switch has been turned ON, automatic control causes the servomotor (for air mix control) to rotate to a desired position in accordance with the target damper opening, which is based on the calculation of the required outlet air temperature. Furthermore, under automatic control, the potentiometer in the servomotor (for air mix control) is used to detect the actual damper opening, as opposed to the calculated target damper opening, so that control can be effected to match the actual damper opening to the calculated target damper opening.
	In accordance with the water temperature, outside air temperature, amount of sunlight, required blower outlet temperature, and vehicle speed conditions, this control automatically switches the blower outlet to the FOOT/DEF mode to prevent the window from becoming fogged when the outside air temperature is low.
Air Inlet Control	Drives the servomotor (for air inlet) according to the operation of the air inlet control switch and fixes the dampers in the FRESH or RECIRC position.
	When the compressor is turned OFF through the manual operation of the switch or through automatic control, the air conditioner ECU switches the air inlet mode to the FRESH mode. When the outside air temperature is low, the air conditioner ECU automatically switches the air inlet mode to the FRESH mode in order to ensure the demisting performance of the window.
Compressor Control	This control turns OFF the magnetic clutch of the compressor when the blower motor is turned OFF at the time the water temperature is below a predetermined value, an abnormal refrigerant pressure has been input, or the discharge temperature of the evaporator is below a predetermined value.
	When the DEF mode switch is turned on, the magnetic clutch relay is activated automatically to engage the compressor. Also, when the blower is turned off, and the front defroster switch is turned on, the blower will turn on in the automatic control condition.
Rear Window Defogger Control	When switching the rear window defogger ON, the rear window defogger and outside rear view mirror heaters* will operate. Then, after 15 minutes have passed, the switch will automatically turn OFF.
Self-Diagnosis	Checks the sensor in accordance with operation of the air conditioner switches, then heater control panel display portion a DTC (Diagnosis Trouble Code) to indicate if there is a malfunction or not (sensor check function).
	Drives the actuators through a predetermined sequence in accordance with the operation of the air conditioner switches (actuator check function).

Bold frame: Controls added since the Previous Camry

*: Outside Rear View Mirror with Heater Model

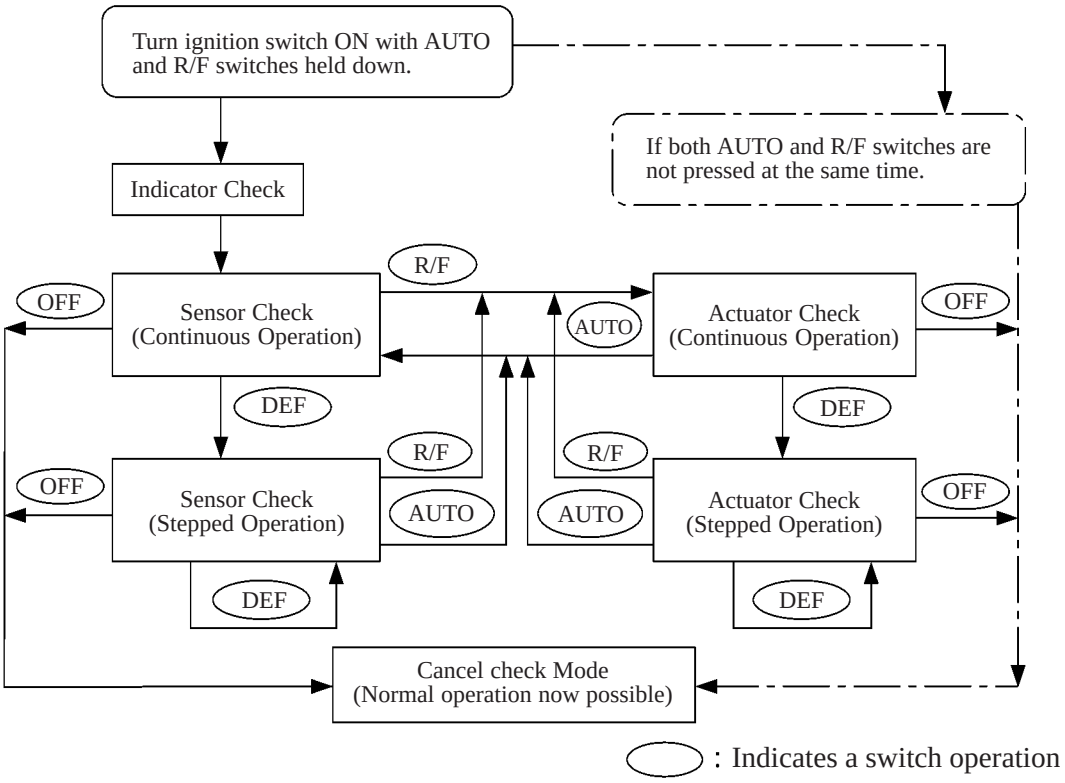
Self-Diagnosis

- The air conditioner ECU has a self-diagnosis function. It stores any operation failures in the air conditioner system memory in the form of a malfunction code. By operating switches on the air conditioner control switches, the stored malfunction code will be indicated. Since diagnostic results are stored directly by electric power from the battery, they are not cleared even when the ignition switch is turned off.

▶ Functions ◀

Function	Outline
Indicator Check	Checks indicator lights and temperature setting display.
Sensor Check	Checks the past and present malfunctions of the sensors, and clearing the past malfunction data.
Actuator Check	Checks against actuator check pattern if blower motor, servomotors and magnetic clutch are operating correctly according to signals from ECU.

- The check function can be started by the following procedure shown below.



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For details on the indicator check, sensor check, actuator check function, and clearing DTCs of this system, refer to the Camry Repair Manual (Pub. No. RM915E).

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