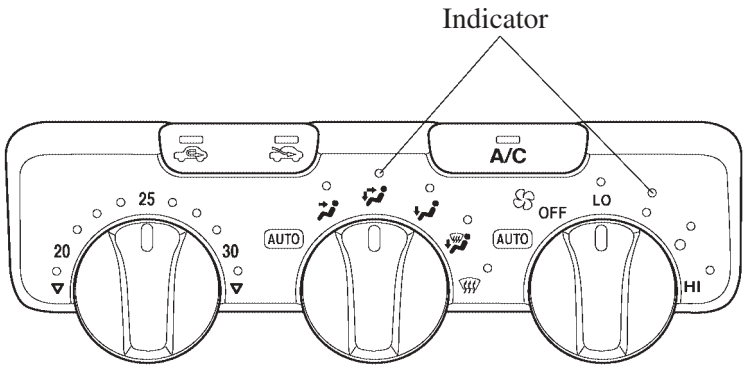
■CONSTRUCTION AND OPERATION

1. Front Heater Control Panel

- An easy-to-use rotary switch type front heater control panel is used. The design of the switches has been optimized to realize excellent ease of use.
- On models with automatic air condiitoner, an indicator is provided above the blower switch and the mode switch so that the airflow volume and the air outlet mode can be verified in the automatic mode.



147BE05

Automatic Air Conditioner Model

2. Air Conditioning Unit

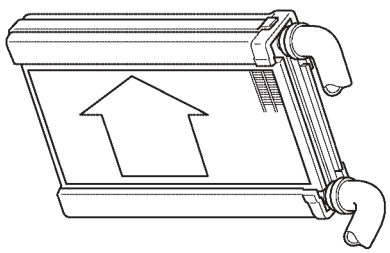
The air conditioning unit incorporates a blower, heater and cooler units. This provides low ventilating resistance and improves quietness and performance.

Blower Fan

A shroud fan has been adopted for the blower fan to achieve both increased airflow and decreased noise. Along with the adoption of the shroud fan, the air inlet at the bottom of the blower unit that was provided in the previous model has been discontinued.

Heater Core

The flow of the heater water in the heater core has been changed from the previous U-turn flow to a full-path flow. Due to the resulting improvement in the heat exchanging efficiency of the heater core, the heater core itself could be made thinner.



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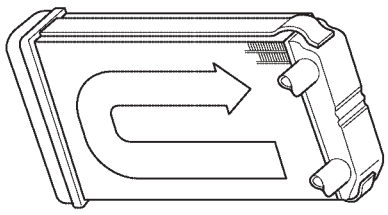
New



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Previous

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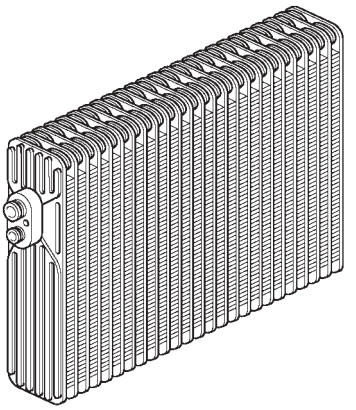
Evaporator

By placing the tanks at the top and the bottom of the evaporator unit and by adopting an inner fin construction, the heat exchanging efficiency has been improved and the evaporator unit's temperature distribution has been made more uniform. As a result, it has become possible to realize a thinner evaporator construction.



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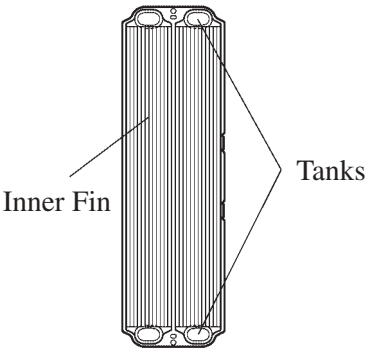

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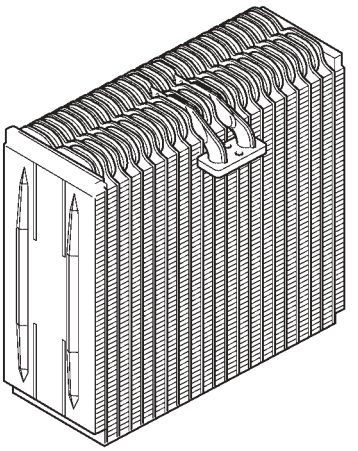
New



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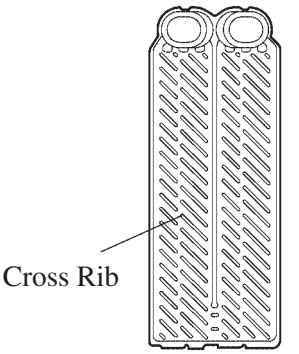


155BE30

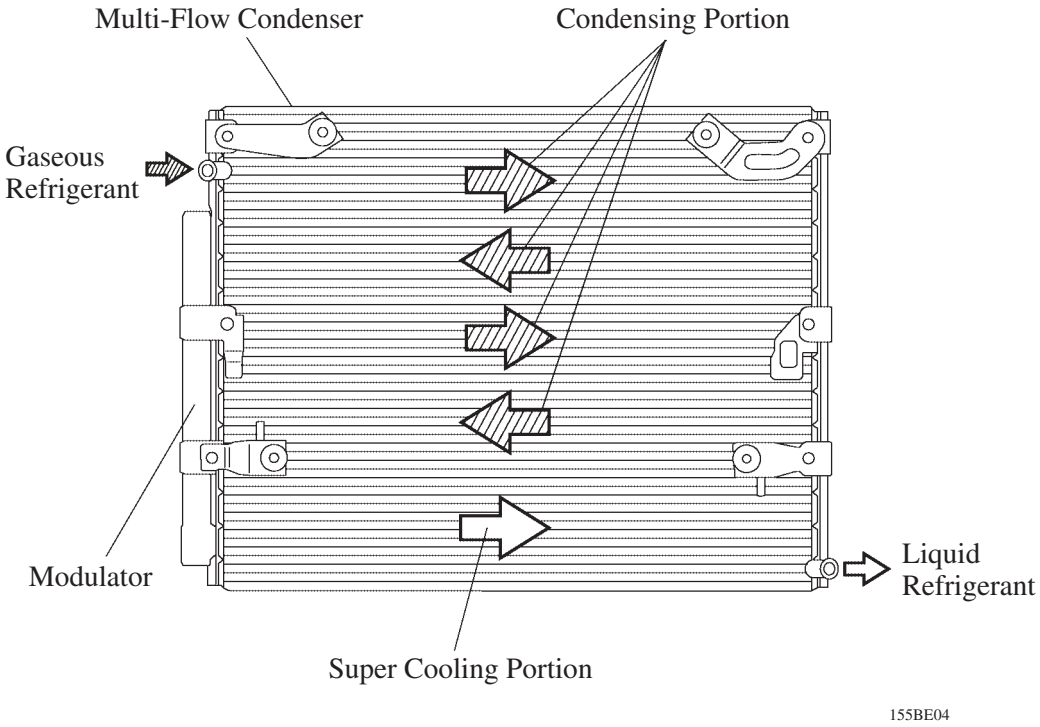
Previous

3. Condenser

The Land Cruiser has newly adopted a 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.

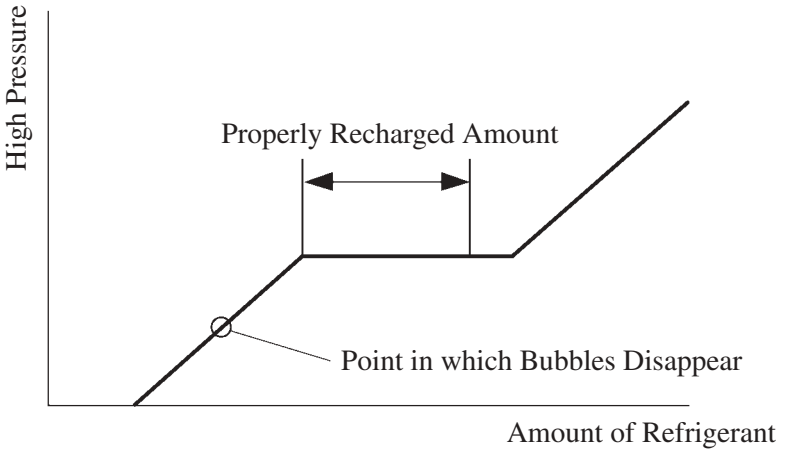
Sub-Cool Cycle

The receiver cycle of the previous condenser could not convert the gaseous refrigerant that was sent by the compressor into a completely liquefied state in the condenser. Thus, a portion of the refrigerant remained in the gaseous state as it was sent to the evaporator.
In the sub-cool cycle of the sub-cool condenser that has been adopted on the new model, 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.



Models with Front and Rear Air Conditioner

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 Land Cruiser Chassis and Body Repair Manual (Pub. No. RM616E).



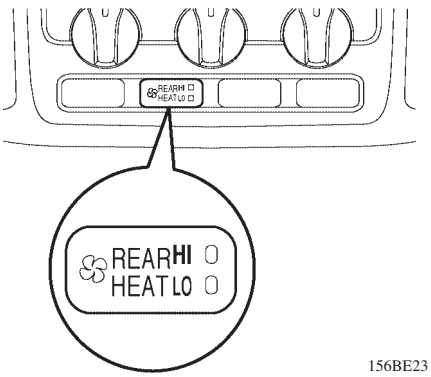
155BE24

4. Power Heater

A viscous type power heater is provided as optional equipment for the cold area specification model with 1HD-FTE engine for Europe.
The power heater raises the coolant temperature by the shearing heat that is generated by the silicon oil when the silicon oil that is sealed in the heater is stirred by a rotor. Consequently, the temperature of the coolant that flows through the heater core becomes higher than normal, thus improving the output performance of the heater.
For details, see page 123.

5. Rear Heater Control Switch

On models with rear heater, a rear heater control switch is provided in the center console.
On the new model, the construction of the switch has been changed from the seesaw type of the previous model to a momentary type.



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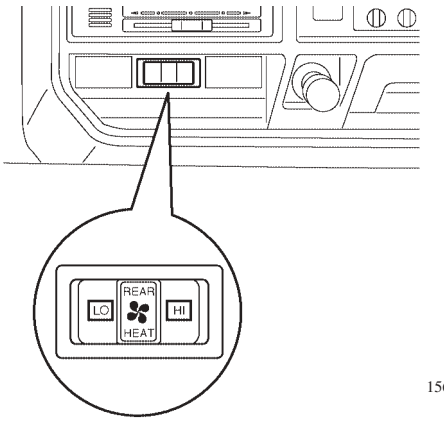
New



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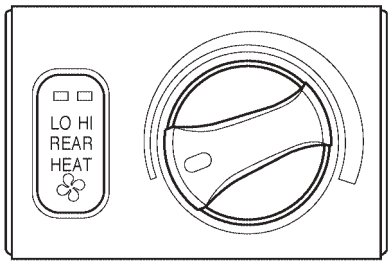
Previous

6. Rear Heater Control Panel

There are two types of rear heater control panels, depending on whether the vehicle is equipped with rear heater or rear air conditioner.
The models with rear heater or rear manual air conditioner has adopted a push and rotary switch type heater control panel. This control panel is located on the back of the rear console box.
The models with rear automatic air conditioner has adopted a push switch type heater control panel. This control panel is provided on the ceiling above the No.2 rear seat.
A rear heater is not provided on the models for the G.C.C. countries. Therefore, the rear heater control panel of the model with rear automatic air conditioner for the G.C.C. countries is not provided with a mode select switch to switch between the rear cooler and the rear heater.



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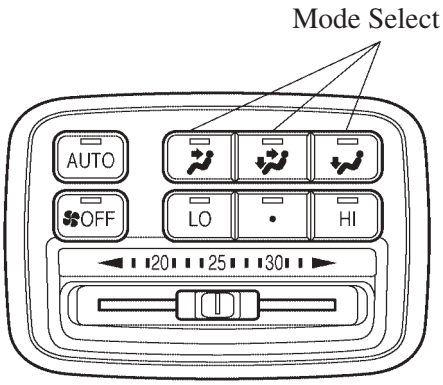
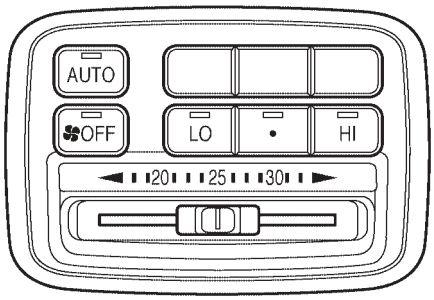
Push and Rotary Switch Type Control Panel



146BE03

Models for Australia



146BE04

Models for G.C.C. Countries

Push Switch Type Control Panel

▶ Mode Select Switches Control Unit ◀

Cooler	Cooler and Heater	Heater

146BE23

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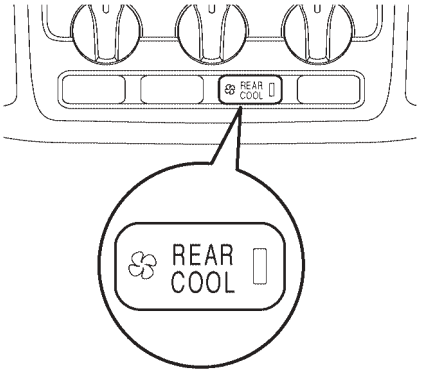
7. Rear Cooler Switch and Rear Cooler Control Panel

On models with rear manual air conditioner, a rear cooler switch is provided in the center cluster. Also, a slide switch type rear cooler control panel is provide on the ceiling above the No.2 rear seat.



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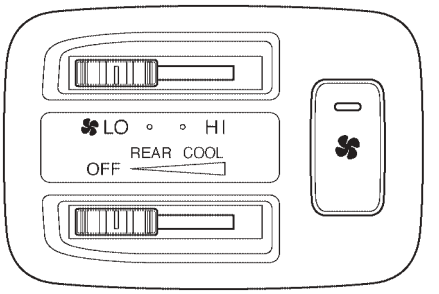
Rear Cooler Switch



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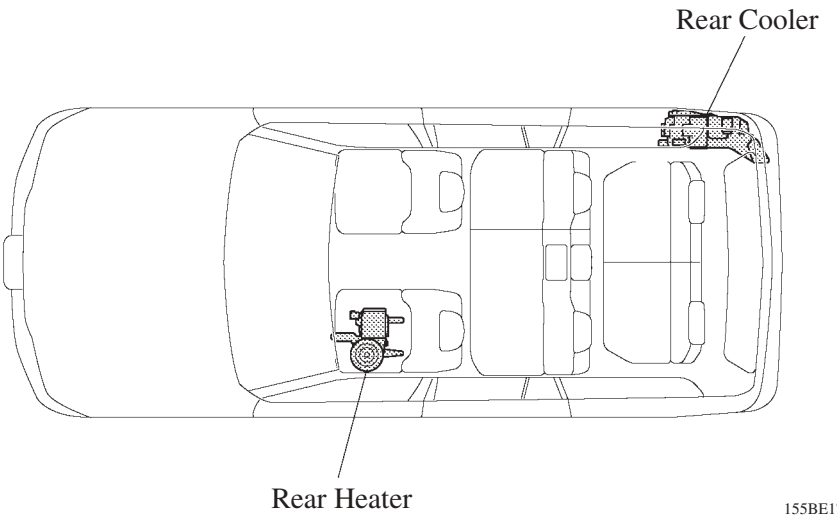
Rear Cooler Control Panel

8. Rear Air Conditioning Unit

The rear air conditioner is separated into the rear heater unit and the rear cooler unit.



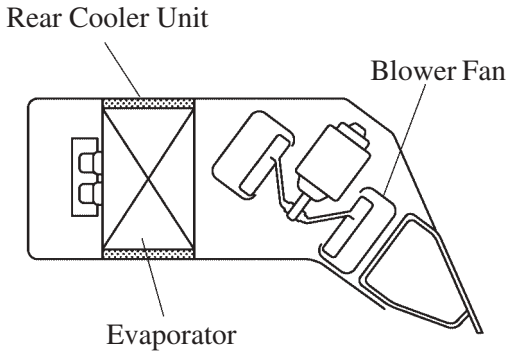
155BE17

Rear Heater Unit

- The rear heater unit is located under the front seat.
- The rear heater with a full-air mix type temperature control is used.

Rear Cooler Unit

- The rear cooler unit is mounted inside the right rear quarter trim.
- A suction-type rear cooler unit that provides a blower fan downstream from the evaporator has been adopted to reduce noise.



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9. Duct

- The rear cooler ducts are enclosed entirely inside the pillar garnish and the roof lining for improved looks.
- The blower outlet of the rear cooler is located in front of the occupants. The occupants' comfort has been improved by directing the cool air from the front of the occupants, to their face level.