

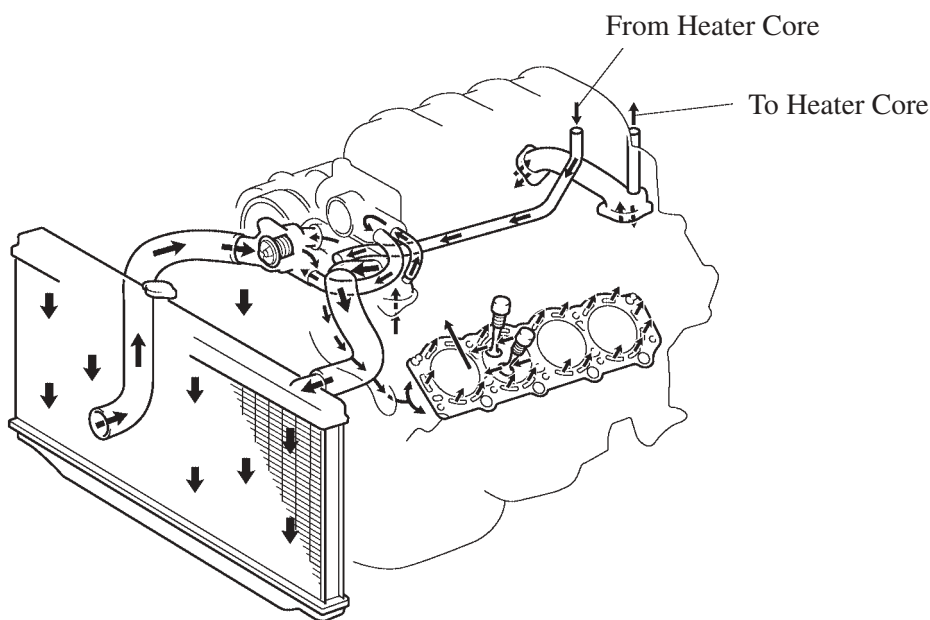
■ COOLING SYSTEM

1. General

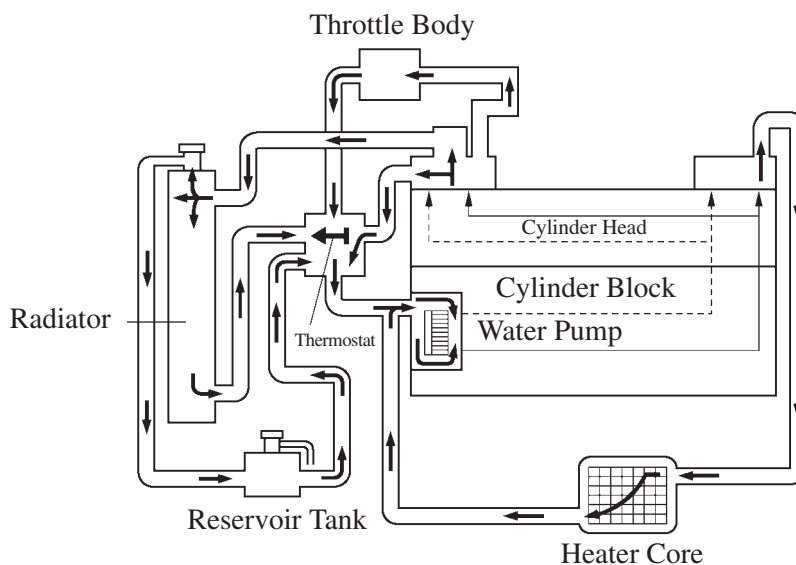
- The cooling system is a pressurized, forced-circulation type.
- A thermostat, having a by-pass valve, is located on the water pump inlet side of the cooling circuit. As the coolant temperature rises, the thermostat opens and the by-pass valve closes, so the system maintains suitable temperature distribution in the cylinder head.
- In contrast to the previous 1UZ-FE engine on the LS400, a pressurized reservoir tank that prevents the engine coolant from deteriorating upon contact with the external air has been adopted in the new 3UZ-FE engine on the GS430.

The shape of the water inlet housing has been optimized to achieve the smooth flow of the engine coolant.

- In contrast to the previous 1UZ-FE engine on the LS400, the shape of the water inlet housing has been optimized in the new 3UZ-FE engine on the GS430 to achieve the smooth flow of the engine coolant.



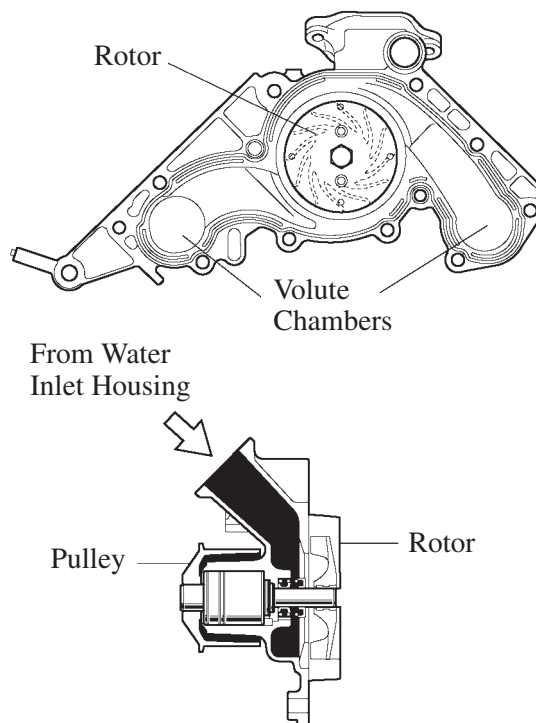
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188EG29

2. Water Pump

- The water pump has two volute chambers, and circulates coolant uniformly to the left and right banks of the cylinder block.
- The water pump is driven by the back of the timing belt.
- The rotor is made of resin.



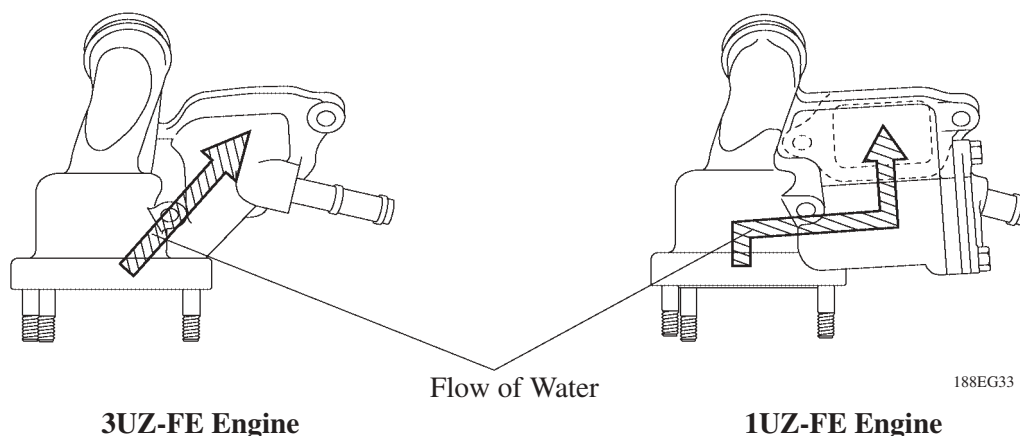
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3. Pressurized Reservoir Tank

The pressurized reservoir tank uses a conventional radiator cap on the reservoir tank, thus enabling the reservoir tank to also maintain pressure. The coolant passage is completely sealed to block the entry of air. The coolant is constantly circulated throughout the system because the reservoir tank has been made a part of the coolant passage. By eliminating any contact with the outside air in this manner, the loss or deterioration of the coolant through evaporation is prevented. Furthermore, because the air in the coolant passage is separated into gaseous and liquid forms in the reservoir tank, the gas-liquid separation performance has been improved.

4. Water Inlet Housing

In contrast to the previous 1UZ-FE engine on the LS400, the shape of the water inlet housing has been optimized in the new 3UZ-FE engine on the GS430 to achieve the smooth flow of the engine coolant.



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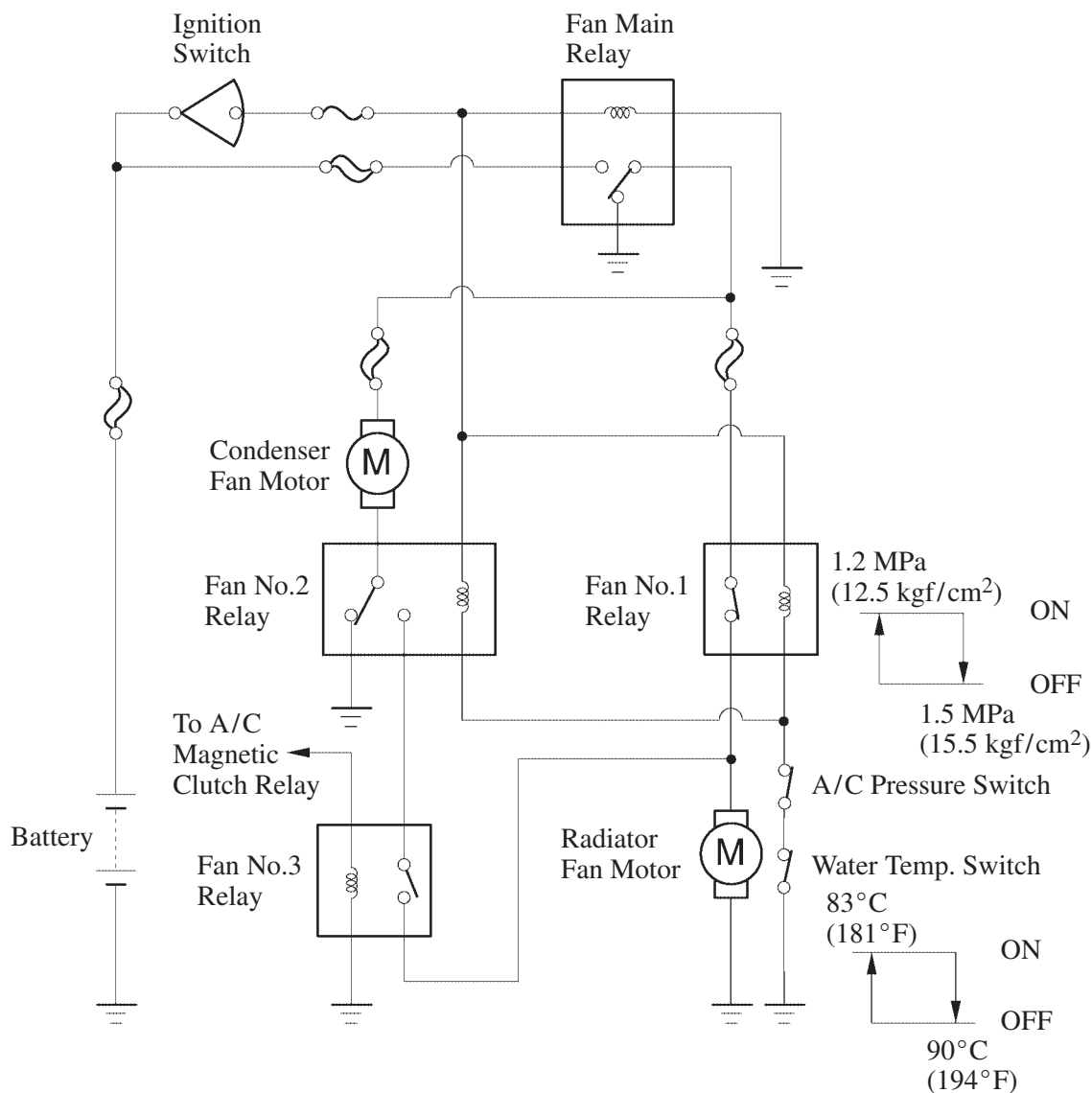
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5. Cooling Fan System

The same electric cooling fan system used on the previous GS300 has been adopted in the new 3UZ-FE engine on the GS430.

The cooling fan controls the fan speed in 3 steps (OFF, Low, High) by using the water temperature switch in accordance with the engine coolant temperature and the operating condition of the air conditioner and by turning the 3 fan relays ON and OFF and connecting 2 fan motors in a series or parallel circuit.

► Wiring Diagram ◀



188EG60

► Cooling Fan Operation ◀

Air Conditioner Condition		Water Temperature	
Compressor	Refrigerant Pressure	About 83°C (181°F) Or Lower	About 90°C (194°F) or Higher
OFF	1.2 MPa (12.5 kgf/cm ²) or Lower	OFF	High
ON	1.2 MPa (12.5 kgf/cm ²) or Lower	Low	High
	1.5 MPa (15.5 kgf/cm ²) or Higher	High	High