

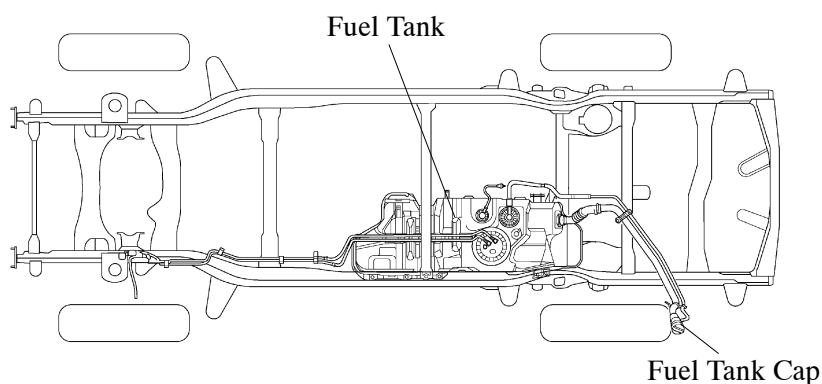
■ FUEL SYSTEM

1. General

- On the 5-door model new Land Cruiser/Land Cruiser Prado with the 5L-E engine, the fuel tank has been located in the center of the vehicle. On the 5-door with dual fuel tank model, the main fuel tank has been located in the center of the vehicle, and the sub tank in the rear of the vehicle.
On the 3-door model, the fuel tank has been located in the rear of the vehicle, just as in the previous model.
- To improve evaporative emission performance, the new model has adopted the following items:
 - A multiplex layer plastic fuel tank has been adopted on the 5-door with single fuel tank model, and as the main fuel tank on the 5-door with dual fuel tank model.
 - A tether has been provided on the fuel tank cap to prevent the cap from being lost, which results in preventing the leakage of fuel or the evaporative gas.
- The quick-turn type fuel tank cap has been adopted to improve usability.
- A dedicated injection pump has been adopted along with the adoption of the diesel EFI system.

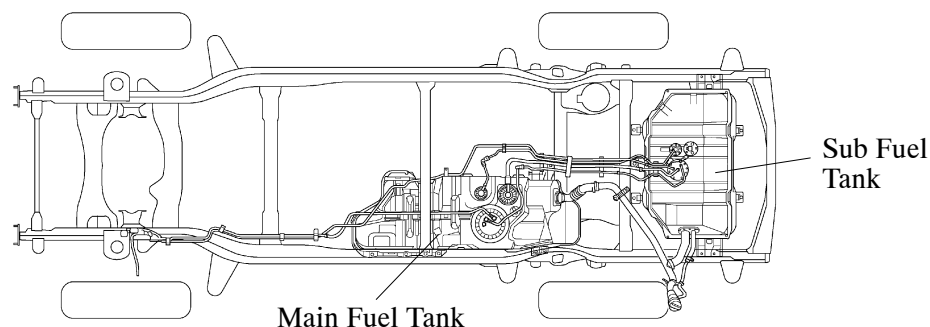
► Specifications ◀

Model				New	Previous
Fuel Tank Capacity liter (US qts, Imp. qts)	5-Door	Single		95 (100.4, 83.6)	87 (91.9, 76.6)
		Dual	Main	95 (100.4, 83.6)	90 (95.1, 79.2)
			Sub	85 (89.8, 74.8)	70 (74.0, 61.6)
	3-Door		87 (91.9, 76.6)		←



5-Door Single Fuel Tank Model

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5-Door Dual Fuel Tank Model

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2. Fuel Tank

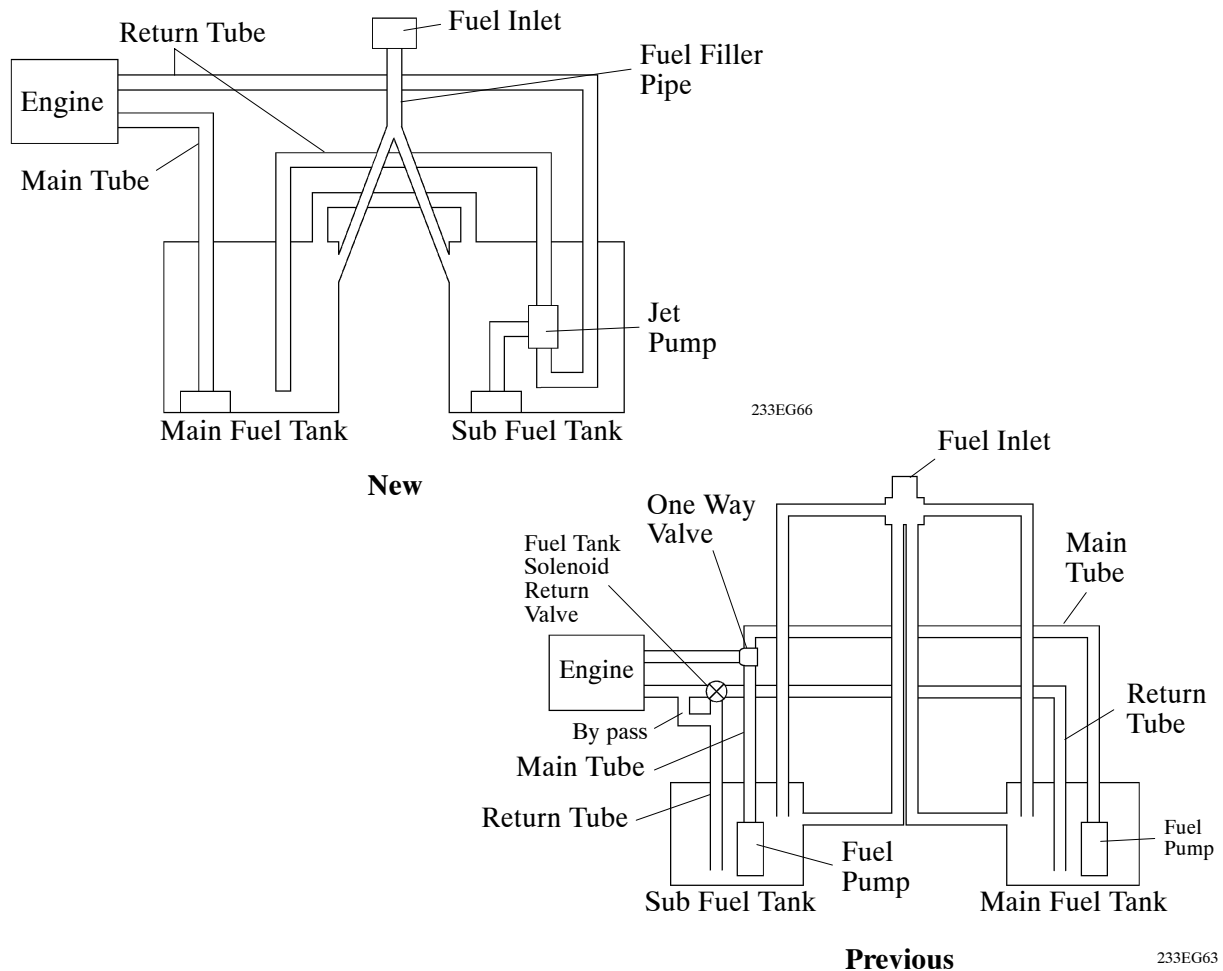
A multiplex layered plastic fuel tank consists of six layers of four types of materials. For details, refer to the 3RZ-FE Engine Fuel System Section on page EG-8.

3. Construction of Dual Fuel Tank

General

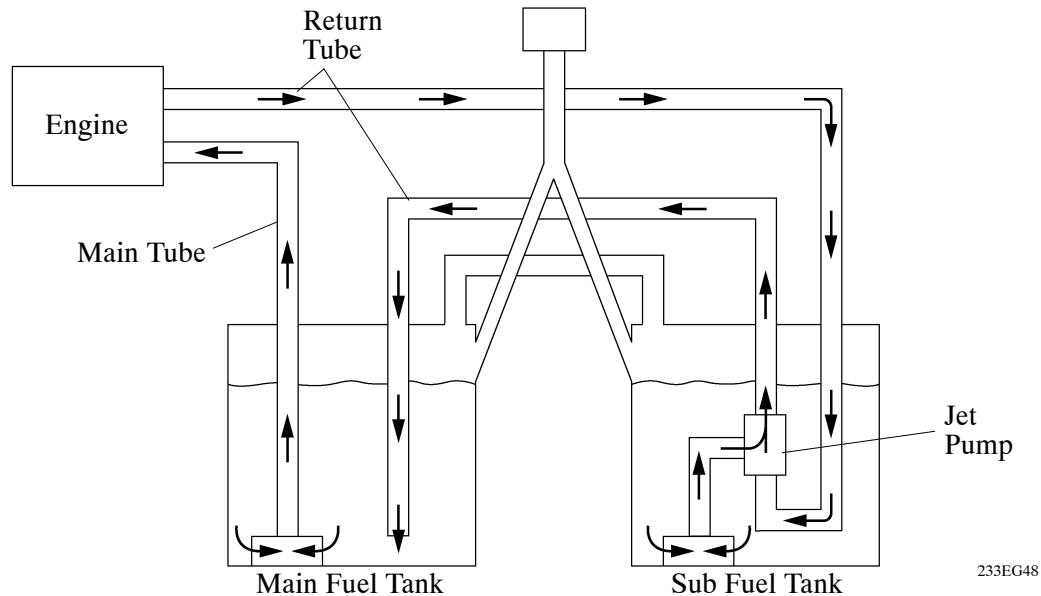
- On the previous model, a switch was manually operated to change the valve from the main fuel tank to the sub fuel tank. In contrast, a jet pump is provided in the main fuel tank of the new model in order to automatically transfer fuel from the sub fuel tank to the main fuel tank.
- On the dual fuel tank model, the return tube passes through the sub fuel tank and returns to the main fuel tank. This construction utilizes the heat of the return fuel that has been warmed by the engine to prevent the temperature in the sub fuel tank from decreasing.
- On the previous model, the fuel filler pipe has branched into two pipes directly below the fuel inlet. Therefore, the driver had to select whether to fill the main fuel tank or the sub fuel tank during refueling. On the new model, there is only one fuel filler pipe directly below the fuel inlet, which branches into two pipes at a midway point. Therefore, the driver can refuel without the need to distinguish the main fuel tank from the sub fuel tank. For details, refer to the 3RZ-FE Engine Fuel System Section on page EG-9.

► System Diagram ◀

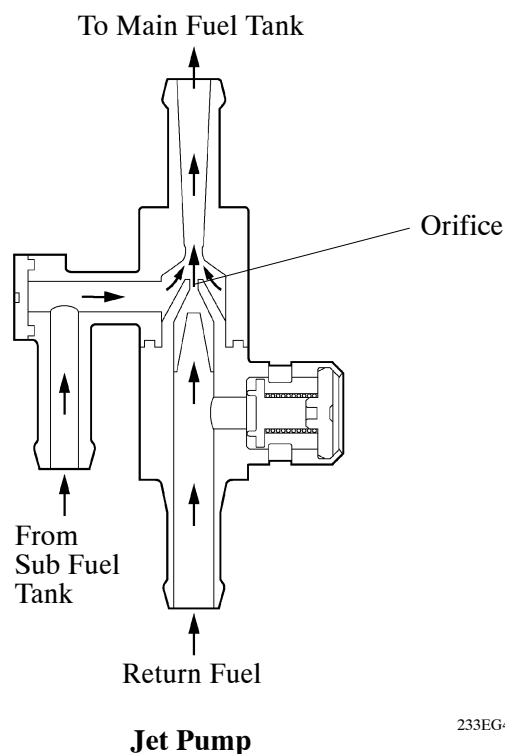


Operation

- The fuel to the engine is always supplied from the main fuel tank. The return fuel passes through the sub fuel tank and returns to the main fuel tank. During this process, the return fuel from the engine actuates the jet pump located in the sub fuel tank. A prescribed volume of fuel is then drawn from the sub fuel tank, and flows to the main fuel tank together with the return fuel.
- In this system, the fuel amount fed from the jet pump is more than the fuel amount consumed by the engine, therefore, the fuel in the sub fuel tank side runs out quicker than the other.



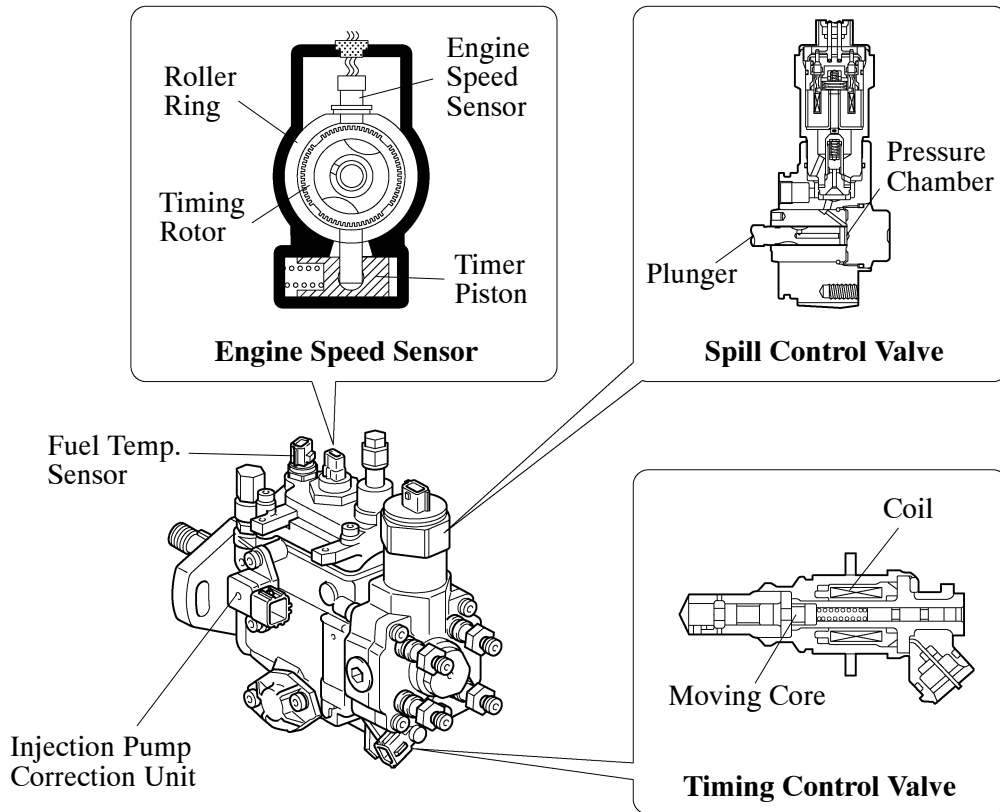
- The return fuel from the engine passes through the orifice in the jet pump and returns to the main fuel tank. Because the flow speed of the return fuel increases as it passes through the orifice, a vacuum is created near the exit of the orifice. This vacuum causes the fuel to be drawn from the sub fuel tank, and a prescribed volume of fuel flows to the main fuel tank together with the return fuel.



4. Injection Pump

General

Along with the adoption of the Diesel EFI system, a spill control valve, timing control valve, fuel temperature sensor, engine speed sensor, and injection pump correction unit has been adopted on injection pump.



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Spill Control Valve

The spill control valve is to control the fuel injection volume in accordance with the signals received from the engine ECU. When the current applied to the spill control valve is shut off, the valve in the spill control valve opens by the difference in pressures. Thus, the pressure in the plunger decreases causing the injection nozzle to stop injection fuel.

The length of time until the spill control valve is turned OFF becomes the fuel injection time. Thus, the fuel injection volume is controlled by increasing or decreasing the length of time until the spill control valve is turned OFF.

Timing Control Valve

In accordance with the signals from the engine ECU, the timing control valve opens the valve in the fuel passage between the high-pressure chamber and the low-pressure chamber, thus controlling the injection timing. When the current flows to the coil of the timing control valve, the stator core becomes an electromagnet to push and compress the spring. This causes the moving core to retract and open the fuel passage.

Engine Speed Sensor

The engine speed sensor is attached to the roller ring in the injection pump to detect the engine speed. The timing rotor is attached to the drive shaft. Missing 2 teeth at each of the 4 locations, the timing rotor generates a signal every 11.25° (crankshaft angle) with its 56 teeth.

Injection Pump Correction Unit

To compensate for the shift in injection volume and injection timing caused by the variance in the injection pump itself, a correction is made by using the data that is stored in the ROM in the fuel pump correction unit.

Fuel Temperature Sensor

The fuel temperature sensor uses an internal thermistor to detect the fuel temperature.