

3. Fuel System

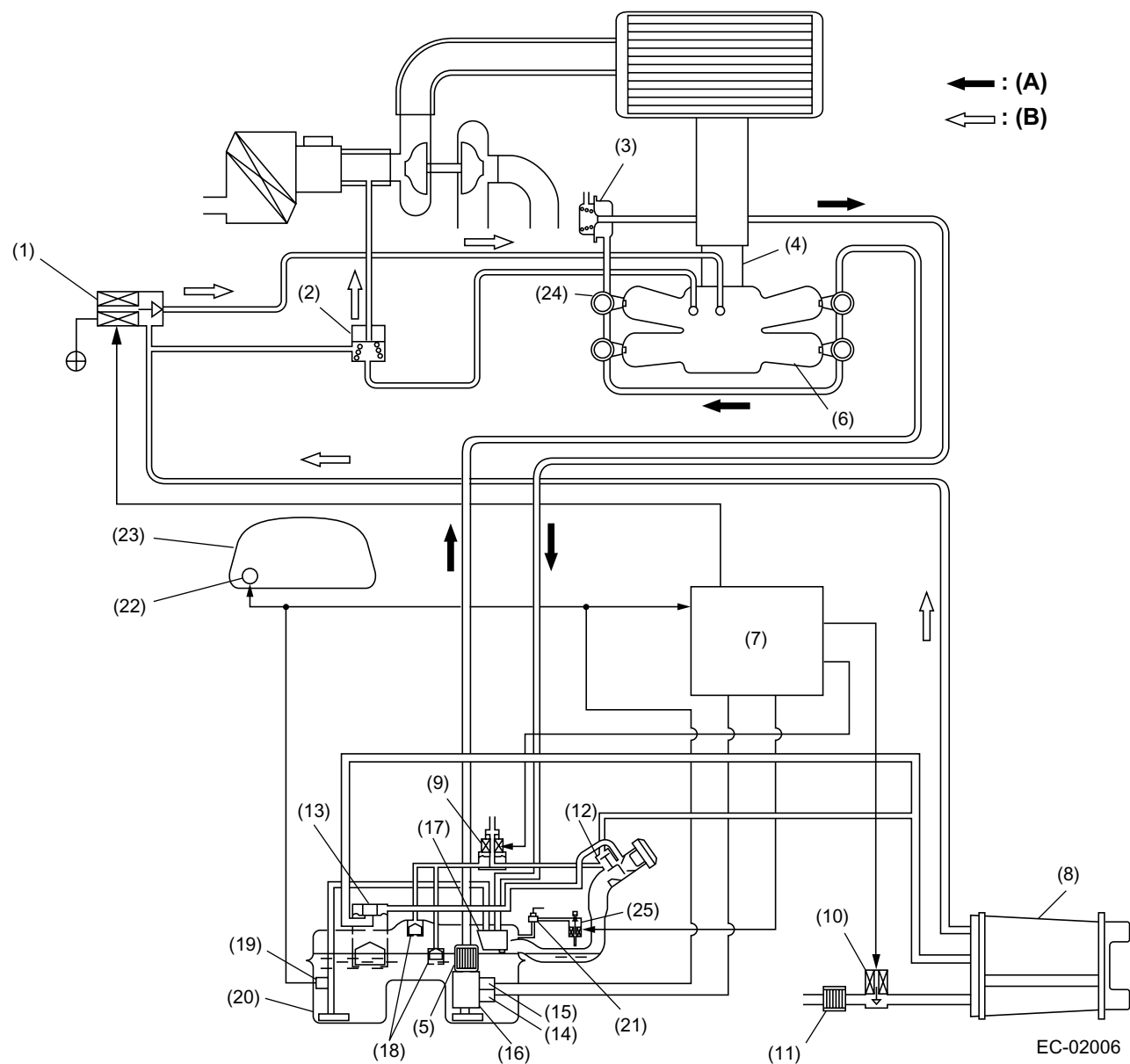
A: GENERAL

- The fuel pressurized by the fuel tank inside pump is delivered to each fuel injector by way of the fuel pipe and fuel filter. Fuel injection pressure is regulated to an optimum level by the pressure regulator.
- Each injector injects fuel into the intake port of the corresponding cylinder where the fuel is mixed with air. The mixture then enters the cylinder.

Fuel injection amount and timing are regulated by the ECM.

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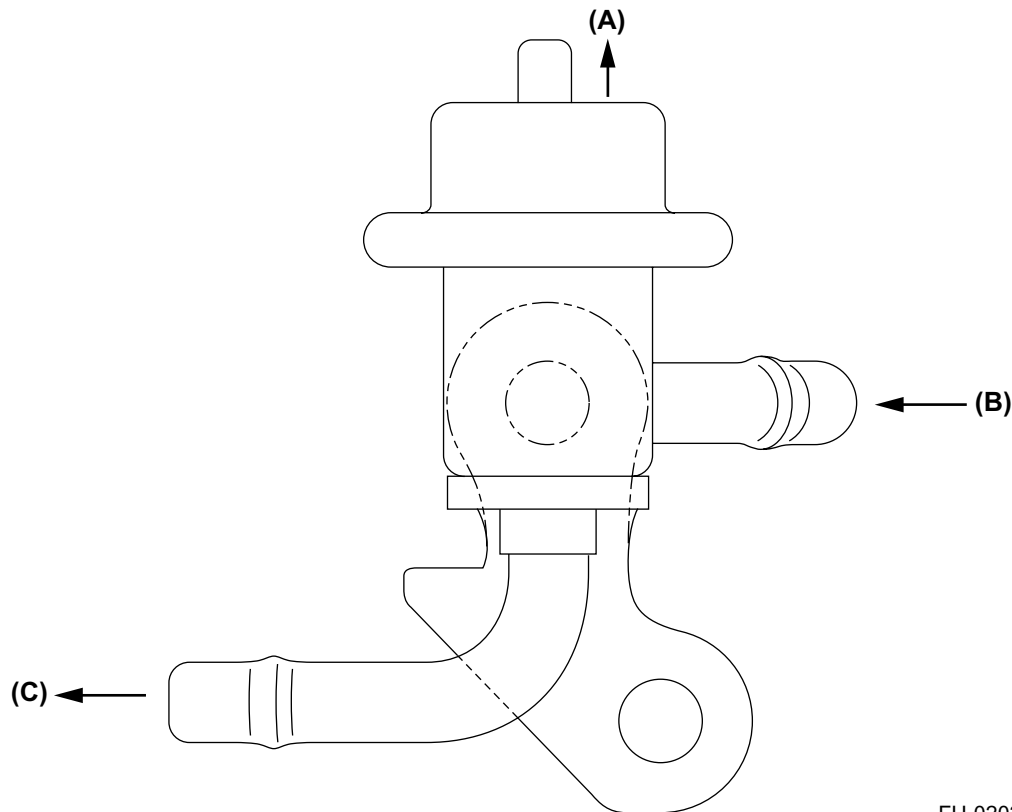
FUEL INJECTION (FUEL SYSTEM)



- | | | |
|-------------------------------------|------------------------------|-------------------------------------|
| (1) Purge control solenoid valve | (10) Drain valve | (19) Fuel sub level sensor |
| (2) Purge valve | (11) Drain filter | (20) Fuel tank |
| (3) Pressure regulator | (12) Shut-off valve | (21) Fuel tank pressure sensor |
| (4) Throttle body | (13) Vent valve | (22) Fuel gauge |
| (5) Fuel filter | (14) Fuel temperature sensor | (23) Combination meter |
| (6) Intake manifold | (15) Fuel level sensor | (24) Fuel injector |
| (7) ECM | (16) Fuel pump | (25) Fuel tank sensor control valve |
| (8) Canister | (17) Jet pump | (A) Fuel line |
| (9) Pressure control solenoid valve | (18) Fuel cut valve | (B) Fuel evaporation line |

B: PRESSURE REGULATOR

The pressure regulator is installed at the injector end of the fuel supply line. It has a fuel chamber and spring chamber separated by a diaphragm. The fuel chamber is connected to the fuel supply line and the spring chamber is connected to the intake manifold. Fuel chamber also has a relief valve connected to the fuel return line through which fuel returns to the fuel tank. When the intake manifold vacuum increases, the diaphragm is pulled and the relief valve opens to decrease the fuel supply line pressure (or fuel injection pressure). When the intake manifold vacuum decreases, the diaphragm is pushed by the spring to increase the fuel supply line pressure. Thus, the difference between the fuel injection pressure and the intake manifold vacuum is kept at a constant level of 294 kPa (3.00 kgf/cm², 43.0 psi) to precisely control the amount of injected fuel.



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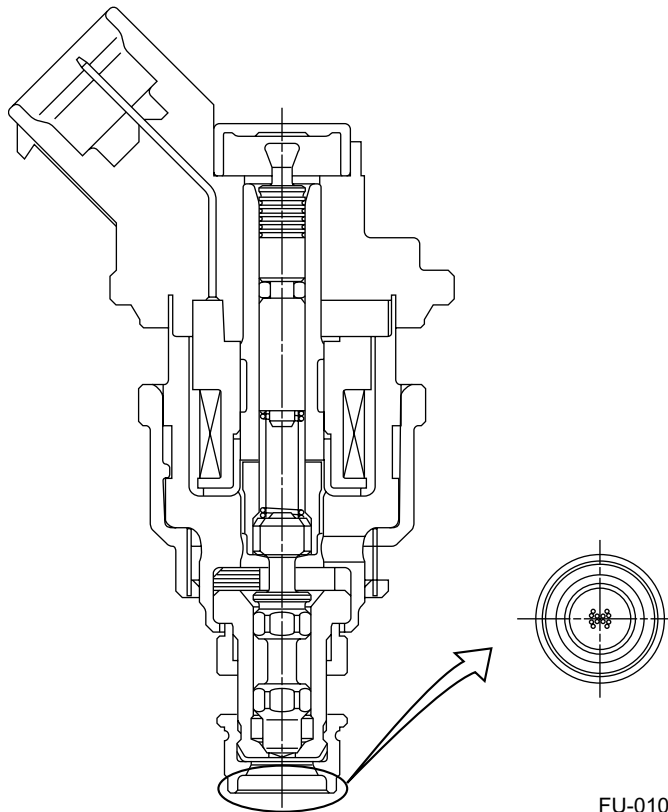
- (A) To intake manifold
- (B) Fuel IN
- (C) Fuel OUT

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C: FUEL INJECTOR

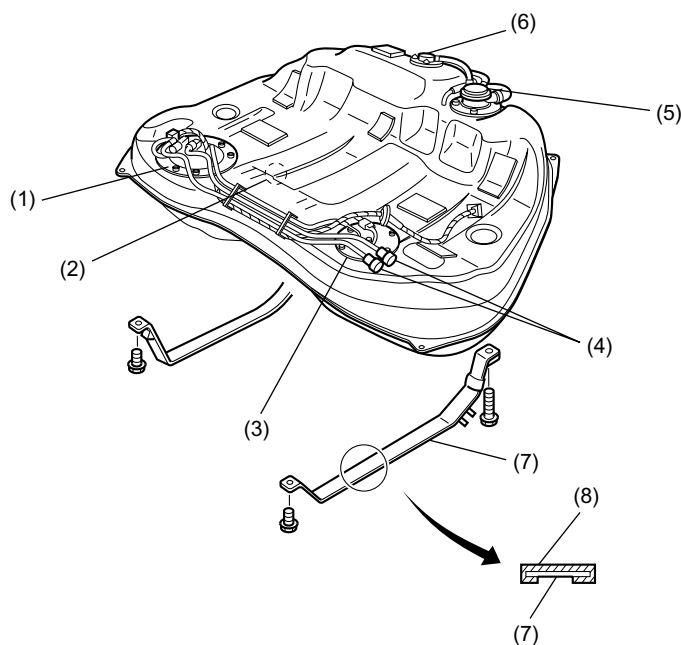
- The MFI system employs side feed type fuel injectors.
- Each injector is installed in the fuel pipe in such a way that the injector is cooled by fuel.
- The features of this type of fuel injector are as follows:
 - 1) High heat resistance
 - 2) Low driving noise
 - 3) Easy to service
- The injector injects fuel according to the valve open signal from the ECM. The needle valve is lifted by the solenoid which is energized on arrival of the valve open signal.
- Since the injector's nozzle hole area, the lift of valve and the fuel pressure are kept constant, the amount of fuel injected is controlled only by varying the duration of the valve open signal from the ECM.
- The multi-hole nozzle makes it possible for the injector to produce fine fuel particles, which enhances the combustion efficiency and output performance of the engine.



D: FUEL TANK

The fuel tank utilizes a two-compartment design to ensure sufficient capacity without interfering with the rear differential. It is provided with a suction jet pump (included in the fuel pump and fuel level sensor assembly) which transfers fuel from one compartment to the other.

Each compartment has an individual fuel level sensor. The fuel tank is located under the rear seat and secured with hold-down bands.



FU-00509

- (1) Fuel pump and fuel level sensor assembly
- (2) Fuel cut valve (sub-compartment)
- (3) Fuel sub level sensor
- (4) Quick connector

- (5) Vent valve
- (6) Fuel cut valve (main compartment)
- (7) Cushion
- (8) Steel

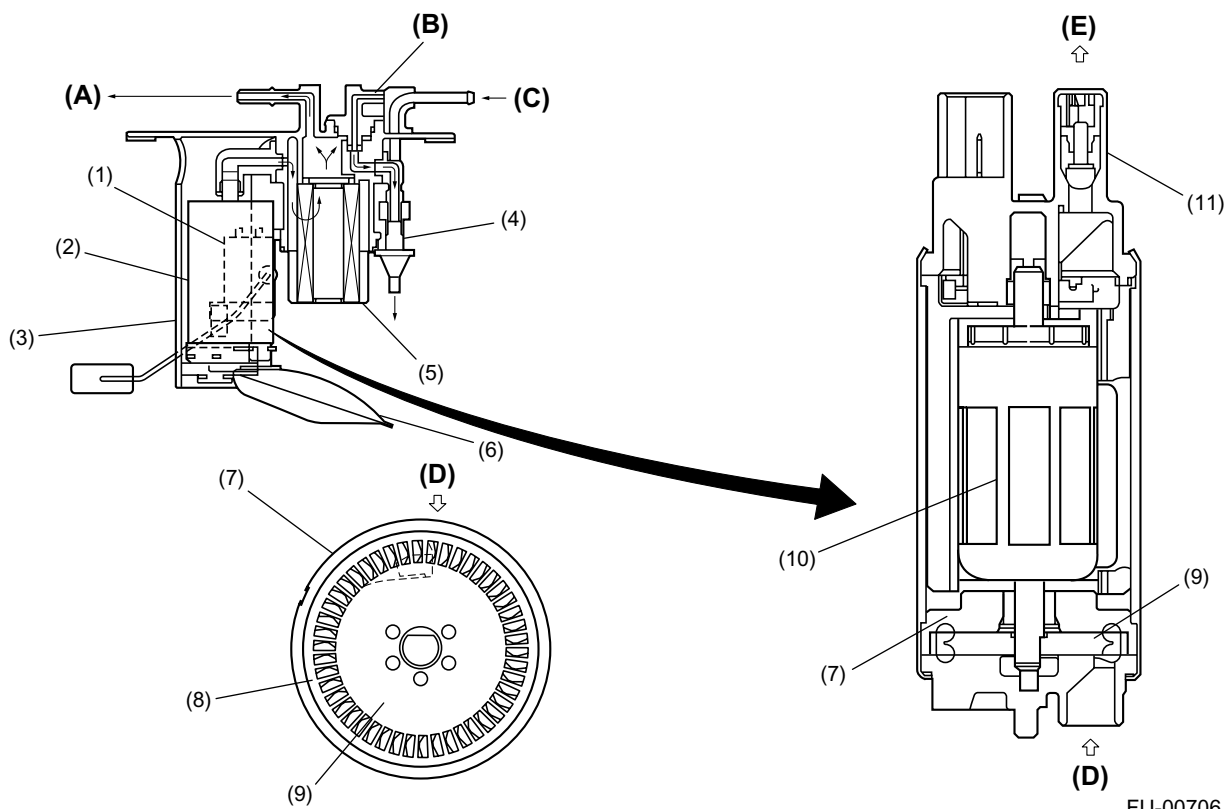
FUEL SYSTEM

FUEL INJECTION (FUEL SYSTEM)

E: FUEL PUMP AND FUEL LEVEL SENSOR ASSEMBLY

1. FUEL PUMP

The fuel pump consists of a motor, impeller, pump casing, pump cover, check valve and filter. It is located in the fuel tank and combined with the fuel level sensor into a single unit. The operation of this impeller type pump is very quiet.



- (1) Fuel level sensor
- (2) Fuel pump
- (3) Pump cover
- (4) Jet pump
- (5) Cartridge filter
- (6) Mesh filter

- (7) Pump casing
- (8) Fuel passage
- (9) Impeller
- (10) Motor armature
- (11) Check valve

- (A) To engine (delivery line)
- (B) From engine (return line)
- (C) From sub tank
- (D) Suction
- (E) Discharge

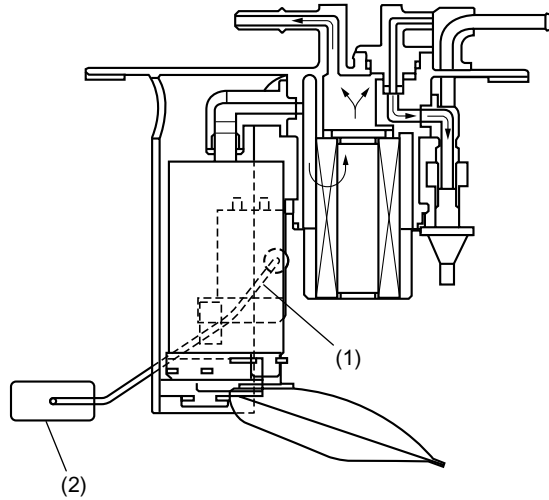
- When the ignition switch is turned ON, fuel pump relay is activated. Then the motor operates to rotate the impeller.
- As the impeller rotates, fuel in a vane groove of the impeller flows along the fuel passage into the next vane groove by centrifugal force. When fuel flows from one groove to the next, a pressure difference occurs due to friction. This creates a pumping effect.
- The fuel pushed up by rotation of the impeller then passes through the clearance between the armature and the magnet of the motor and is discharged through the check valve.
- When the fuel discharge pressure reaches the specified level, the relief valve opens and excess fuel is released into the fuel tank. In this manner, the relief valve prevents an abnormal increase in fuel pressure.
- When the engine and the fuel pump stop, spring force acts on the check valve to close the discharge port, so that the fuel pressure in the fuel delivery line is retained.

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2. FUEL LEVEL SENSOR

The fuel level sensor is integrated with the fuel pump which is located in the fuel tank. The sensor outputs an electric resistance signal that varies with movement of its float to indicate the level of the fuel remaining in the tank.

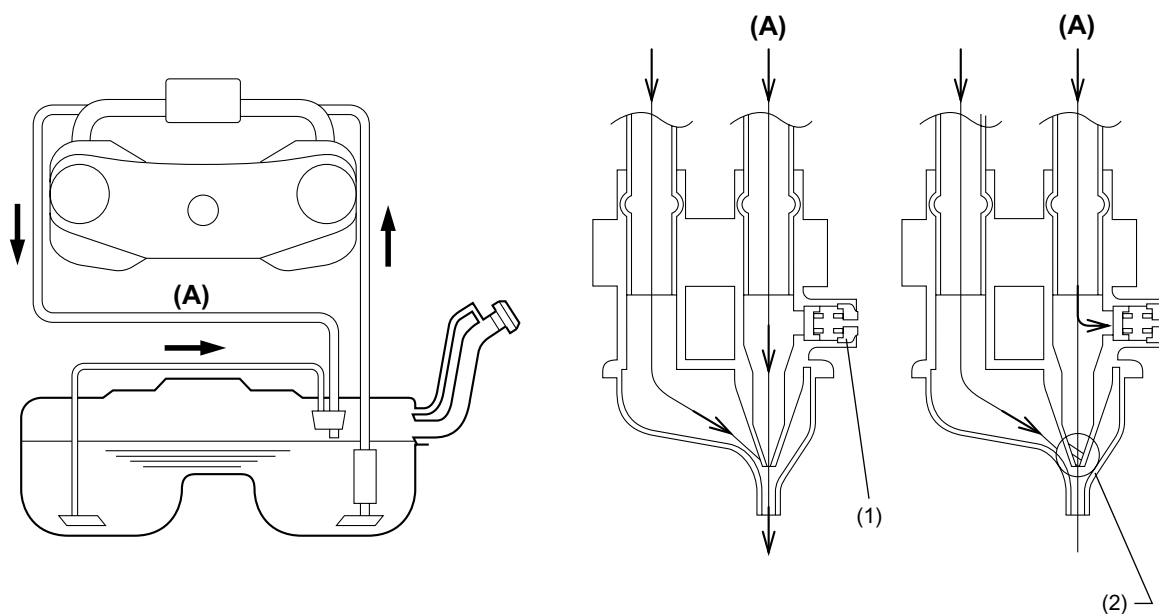


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- (1) Fuel level sensor
- (2) Float

3. JET PUMP

- The jet pump utilizes the velocity of fuel returning from the engine to produce vacuum in it.
- Using the pumping effect produced by the vacuum, the jet pump transfers fuel from the sub-compartment to the main compartment of the fuel tank.
- When the return line nozzle is clogged, the fuel sent back through the return line flows back into the fuel tank via the relief valve.



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- (1) Relief valve
- (2) Nozzle

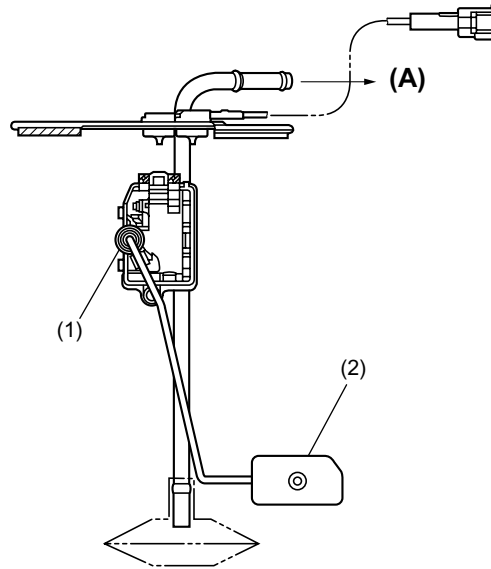
(A) Return line

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F: SUB-COMPARTMENT FUEL LEVEL SENSOR

This sensor detects the level of the fuel in the sub-compartment (the compartment in which the fuel pump is not located) and acts as part of the fuel transfer line when the jet pump is in operation to maintain the fuel in both compartments at the same level.



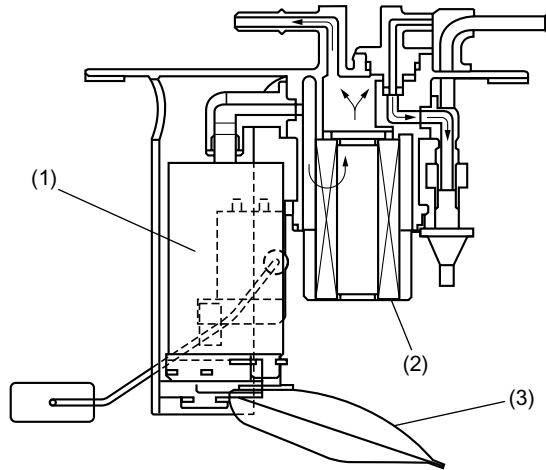
FU-00512

- (1) Fuel level sensor
- (2) Float

(A) To jet pump

G: FUEL FILTER

There are two different types of fuel filters inside fuel tank, forming integral part of the fuel pump. The filter at the inlet of the fuel pump is a mesh type which removes relatively large particles in the fuel before it enters the pump. The filter at the outlet of the pump is a pressure resistant cartridge type whose inside filtering element can remove small particles in the pressurized fuel.



FU-00708

- (1) Fuel pump
- (2) Cartridge filter
- (3) Mesh filter