

EVAPORATIVE EMISSION CONTROL SYSTEM

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

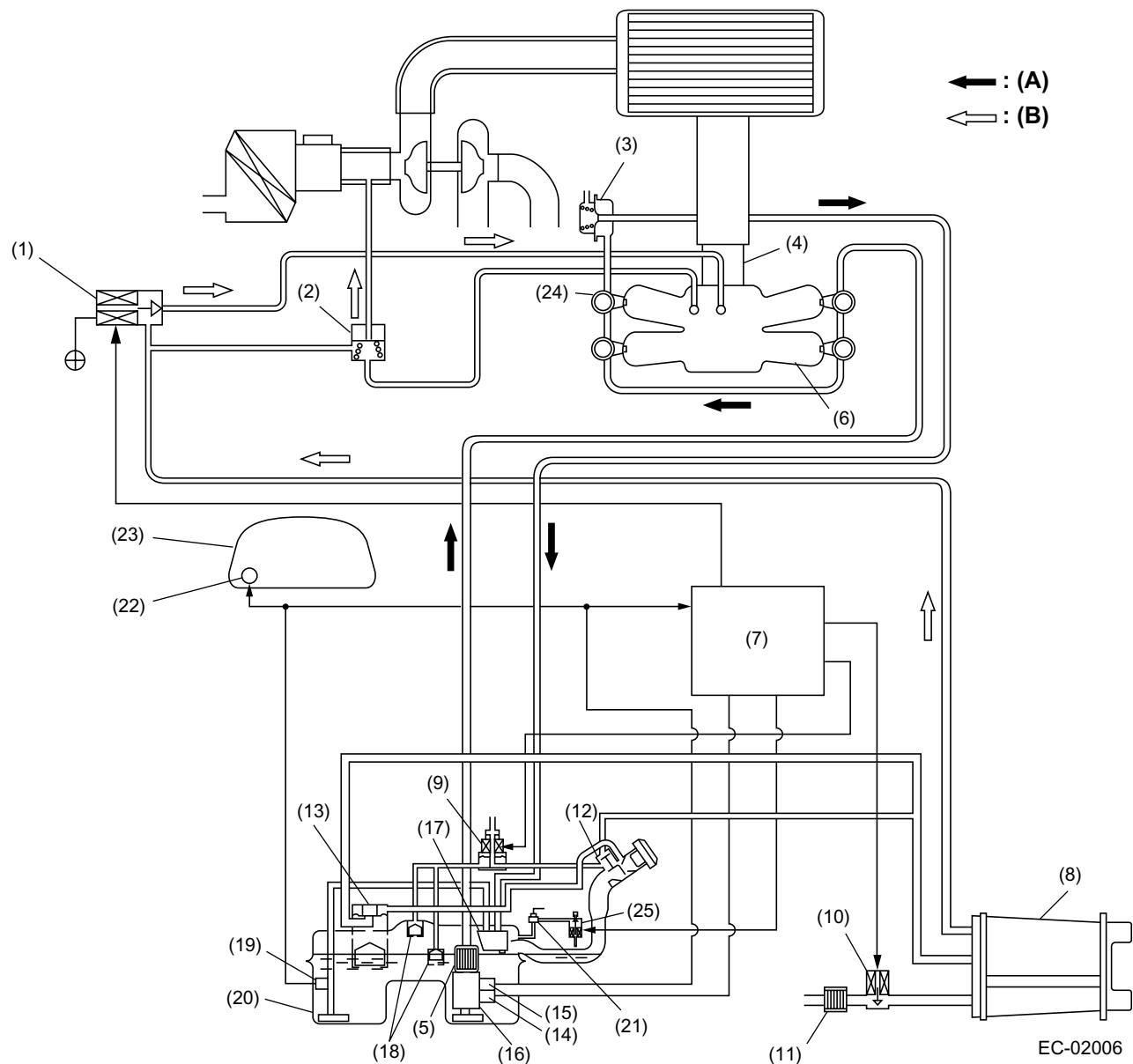
7. Evaporative Emission Control System

A: GENERAL

- The evaporative emission control system prevents fuel vapors from escaping into atmosphere. This system includes a canister, purge control solenoid valve, fuel cut valve, and the lines connecting them.
- Fuel vapors in the fuel tank are introduced into the canister through the evaporation line, and are absorbed by activated carbon in it. The fuel cut valve is also incorporated in the fuel tank line.
- The purge control solenoid valve is controlled optimally by the ECM according to the engine condition.
- The pressure control solenoid valve incorporated in the fuel tank evaporation line regulates the pressure/vacuum in the fuel tank under the control of the ECM which uses the signal from the fuel tank pressure sensor.
- The diagnosis of the evaporative emission control system is performed by turning each solenoid valve ON/OFF to vary the pressure inside the fuel tank and measure this pressure change with the fuel tank pressure sensor in order to check for leaks and proper valve operation.

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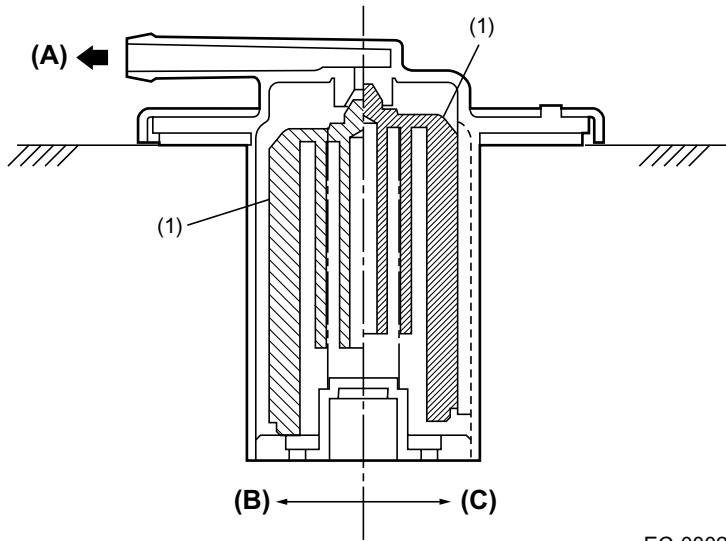
(1) Purge control solenoid valve	(11) Drain filter	(21) Fuel tank pressure sensor
(2) Purge valve	(12) Shut-off valve	(22) Fuel gauge
(3) Pressure regulator	(13) Vent valve	(23) Combination meter
(4) Throttle valve	(14) Fuel temperature sensor	(24) Fuel injector
(5) Fuel filter	(15) Fuel level sensor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

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B: FUEL CUT VALVE

The fuel cut valve is built onto the evaporation pipe of the fuel tank. The rising level of the fuel in the fuel tank causes the float to move up and close the cap hole so that no fuel can enter the evaporation line.



EC-00022

(1) Float

(A) To canister

(B) Valve open

(C) Valve closed

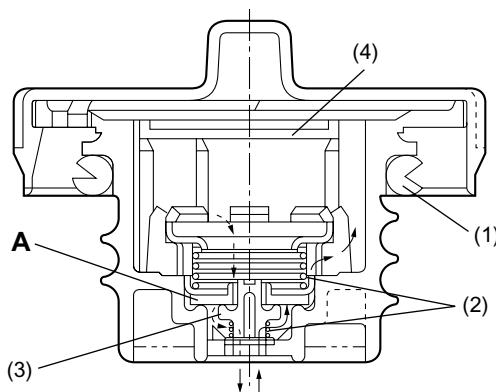
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C: FUEL TANK CAP

The fuel tank cap has a relief valve which prevents development of vacuum in the fuel tank in the event of a problem with the fuel vapor line.

When there is no problem with the fuel vapor line, the filler pipe is sealed at the portion (A) and by the seal pressed against the filler pipe end. If vacuum develops in the fuel tank, the atmospheric pressure forces the spring down to open the valve; consequently outside air flows into the fuel tank, thus controlling the inside pressure.



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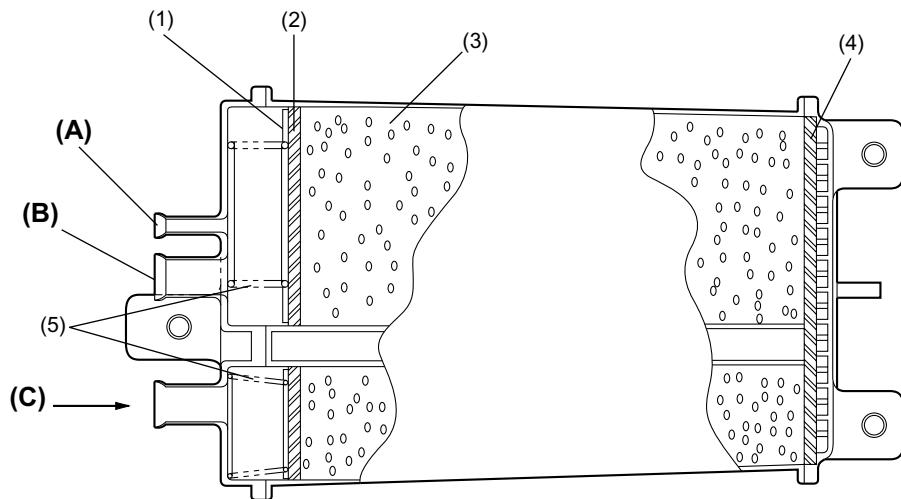
- (1) Seal
- (2) Spring
- (3) Valve
- (4) Filter

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D: CANISTER

The charcoal filled in the canister temporarily stores fuel vapors. When the purge control solenoid valve is opened by a signal from the ECM, the external fresh air entering the canister carries the fuel vapors into the collector chamber.



EC-00024

- (1) Grid
- (2) Filter
- (3) Activated charcoal
- (4) Filter
- (5) Spring

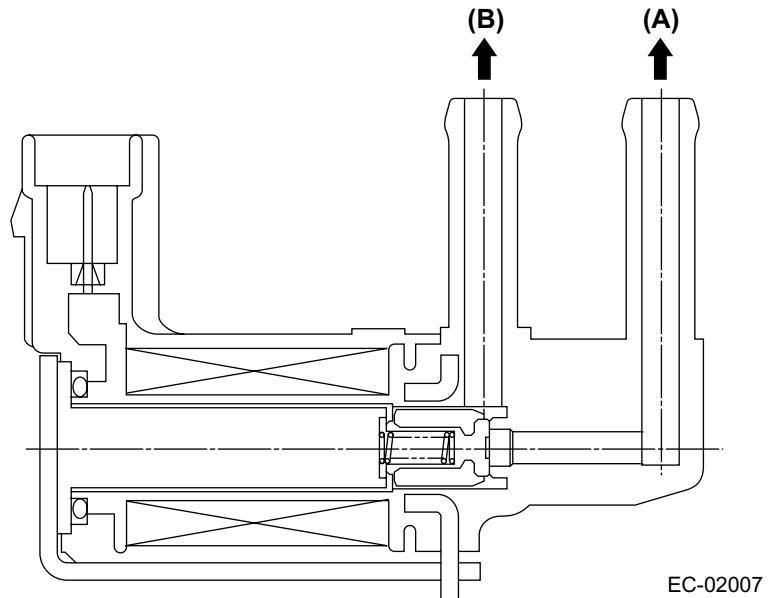
- (A)** To purge control solenoid valve
- (B)** From fuel tank
- (C)** Air

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E: PURGE CONTROL SOLENOID VALVE

The purge control solenoid valve is on the evaporation line between the canister and intake manifold. The valve is installed under the intake manifold and lets the evaporative gas absorbed by the canister be drawn into the intake manifold.



- (A) To canister
- (B) To intake manifold

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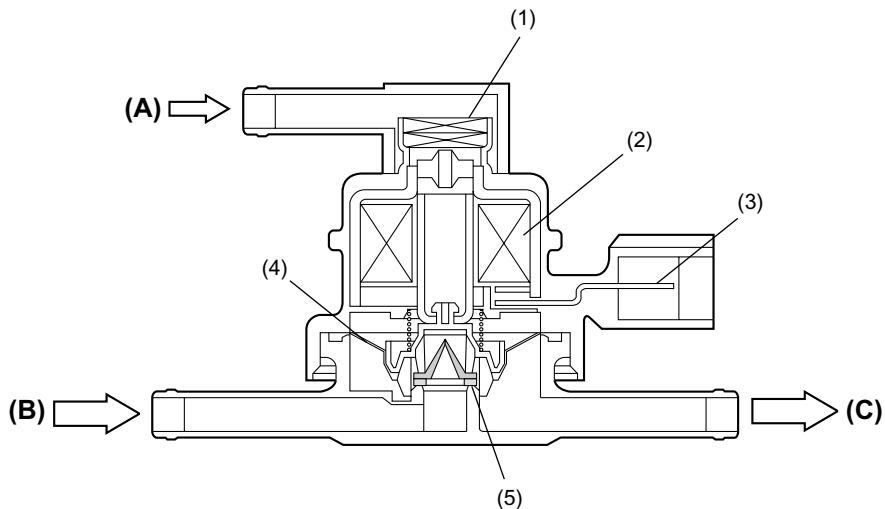
F: PRESSURE CONTROL SOLENOID VALVE

The fuel tank pressure control solenoid valve is located in the evaporation line between the canister and the fuel tank. It adjusts the fuel tank inside pressure under the control of the ECM.

When the tank inside pressure becomes higher than the atmospheric pressure, the valve is opened allowing fuel vapors to be introduced into the canister.

On the other hand, when the tank inside pressure becomes lower than the atmospheric pressure, external air is taken through the drain valve into the canister.

The pressure control solenoid valve can also be electrically closed for diagnosis of the evaporative emission control system.



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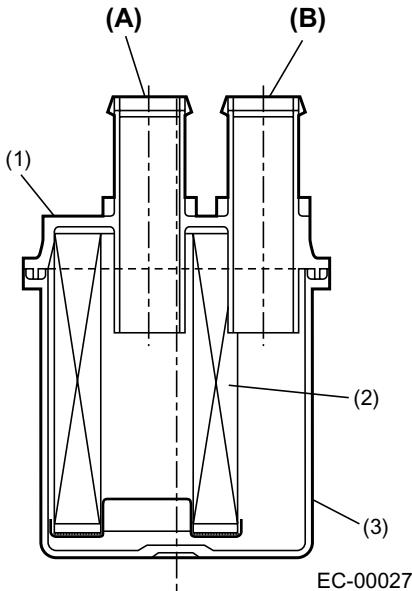
(1) Filter	(A) Atmospheric pressure
(2) Coil	(B) Shut-off valve
(3) Connector terminal	(C) To fuel tank
(4) Diaphragm	
(5) Valve	

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G: DRAIN FILTER

The drain filter is installed at the air inlet port of the vent control solenoid valve. It cleans the air taken in the canister through the vent control solenoid valve.



- (1) Cap
- (2) Element
- (3) Case

- (A) To drain valve
- (B) To atmosphere

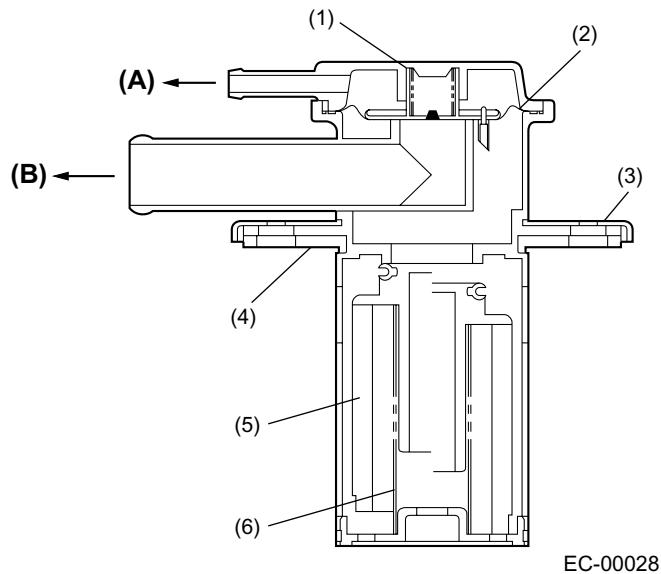
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H: VENT VALVE

The vent valve is located in the fuel tank. During filling the fuel tank, fuel vapors are introduced into the canister through the vent valve.

When the fuel vapor pressure becomes higher than the atmospheric pressure and overcomes the spring force which is applied to the back side of the diaphragm, the port toward the canister is opened. The vent valve also contains a float which closes the port toward the canister when the fuel level rises.



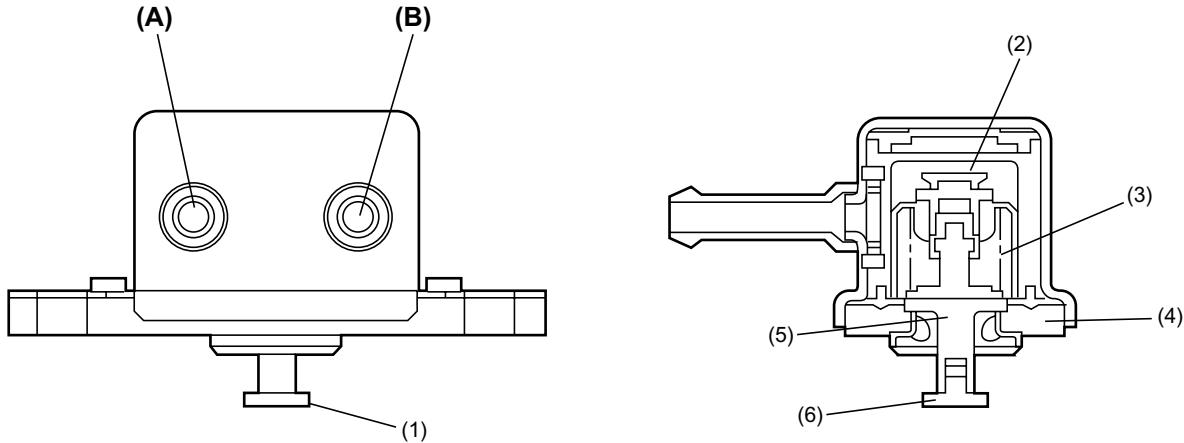
(1) Spring	(A) To filler pipe
(2) Diaphragm	(B) To canister
(3) Plate cover	
(4) Packing	
(5) Float	
(6) Float spring	

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I: SHUT-OFF VALVE

The shut-off valve is located at the top of the fuel filler pipe. When a filler gun is inserted into the filler pipe, the shut-off valve closes the evaporation line.



EC-00029

- (1) Pin
- (2) Valve
- (3) Spring
- (4) Plate
- (5) Shaft
- (6) Pin

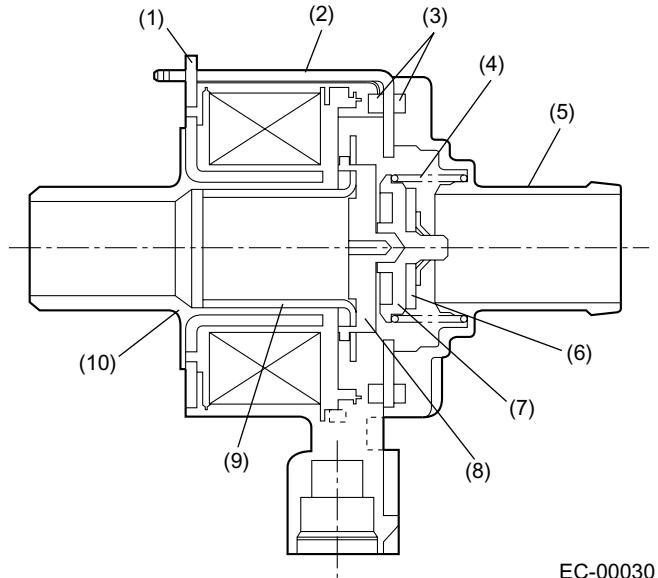
- (A) To canister
- (B) To fuel tank

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J: DRAIN VALVE

The drain valve is located on the line connecting the drain filter and canister, just below the drain filter. The drain valve is forcibly closed by a signal from the ECM while the evaporation system diagnosis is being conducted.



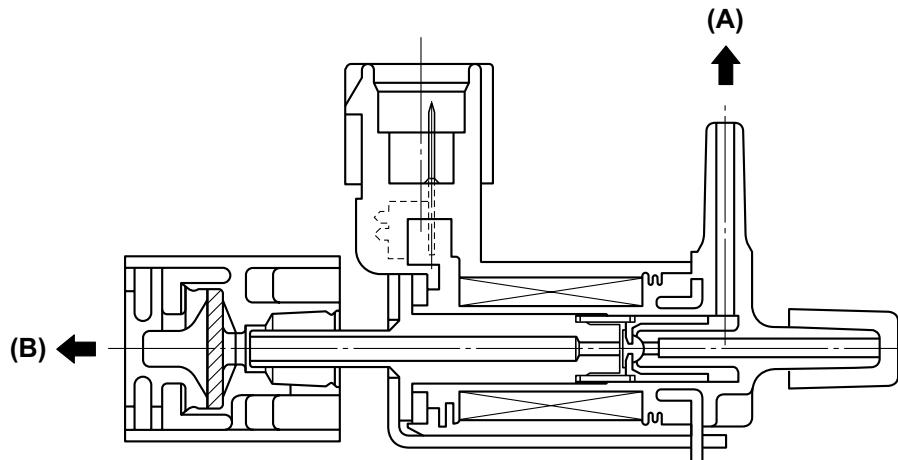
EC-00030

(1) Magnetic plate	(6) Valve
(2) Yoke	(7) Plate
(3) Packing	(8) Retainer
(4) Spring	(9) Moving core
(5) Valve seat	(10) Bobbin

K: FUEL TANK SENSOR CONTROL VALVE

The fuel tank sensor control valve is installed on the top of the fuel tank and its one end is connected to the fuel tank pressure sensor while its other end is open to the atmosphere.

Normally the passage to the fuel tank pressure sensor is open to the atmosphere, however, the passage is closed when the ECM sends a signal to make a diagnosis of the evaporative emission control system.



EC-00214

(A) Fuel tank pressure sensor

(B) Outside air

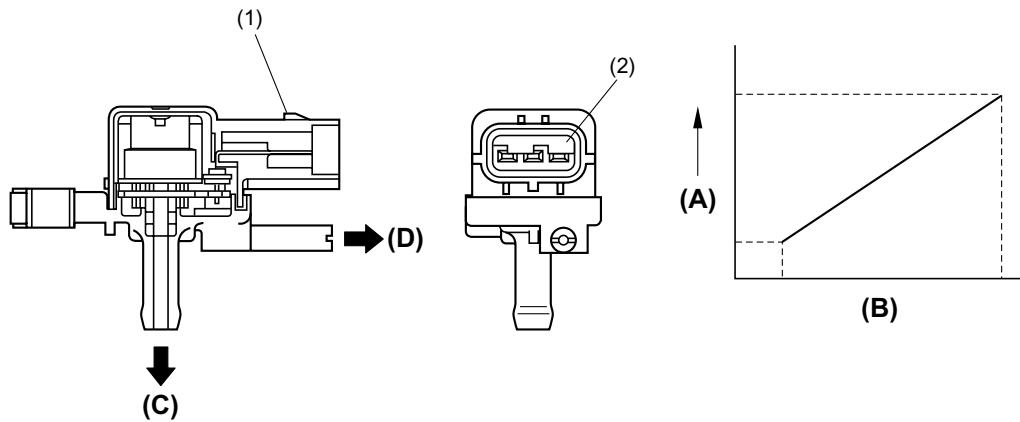
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L: FUEL TANK PRESSURE SENSOR

The fuel tank pressure sensor is installed on the top of the fuel tank and measures the pressure in the fuel tank.

The measured pressure is converted into an electrical signal and sent to the ECM for diagnosis of the evaporative emission control system.



EC-00213

- (1) Connector
- (2) Terminal

- (A) Output voltage
- (B) Input pressure
- (C) To fuel tank
- (D) To fuel tank sensor control valve