

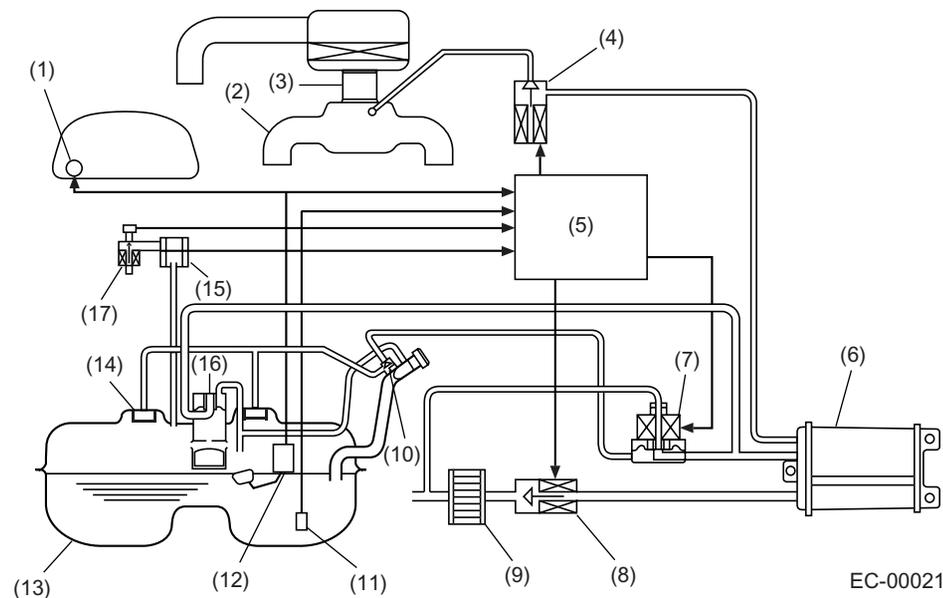
EVAPORATIVE EMISSION CONTROL SYSTEM

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 is 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.



- | | | |
|----------------------------------|-------------------------------------|-------------------------------------|
| (1) Fuel gauge | (7) Pressure control solenoid valve | (13) Fuel tank |
| (2) Intake manifold | (8) Drain valve | (14) Fuel cut valve |
| (3) Throttle body | (9) Drain filter | (15) Fuel tank pressure sensor |
| (4) Purge control solenoid valve | (10) Shut-off valve | (16) Vent valve |
| (5) Engine control module (ECM) | (11) Fuel temperature sensor | (17) Fuel tank sensor control valve |
| (6) Canister | (12) Fuel level sensor | |

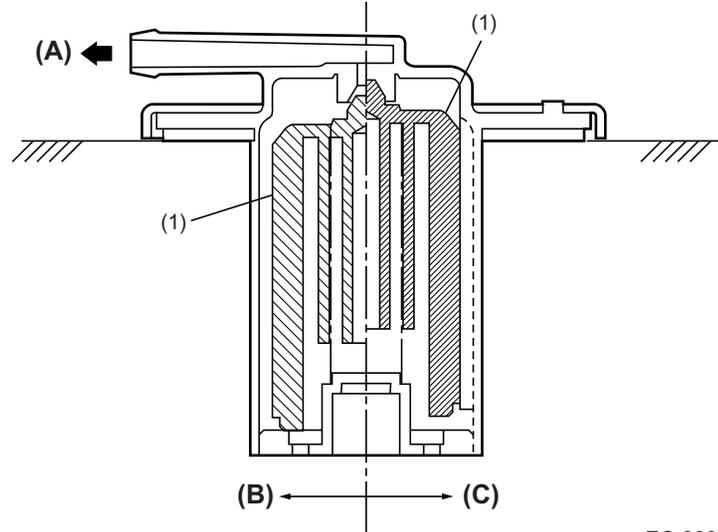
EC(H4SO)-11

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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 flow to the evaporation line.



EC-00022

(1) Float

- (A) To canister
- (B) Valve open
- (C) Valve closed

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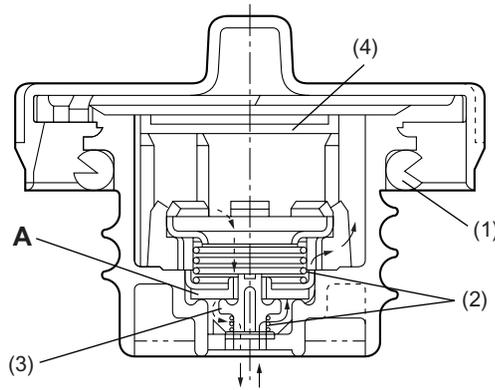
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EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

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.



EC-00023

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

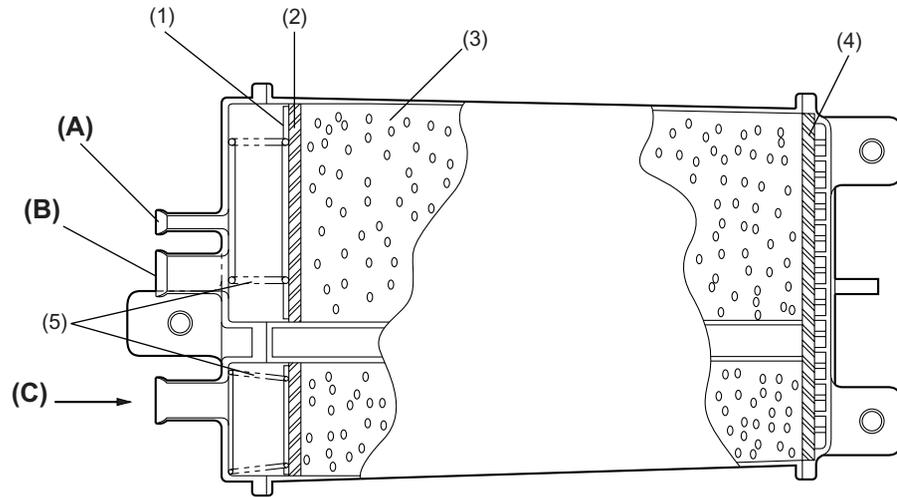
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EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

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 intake manifold.



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

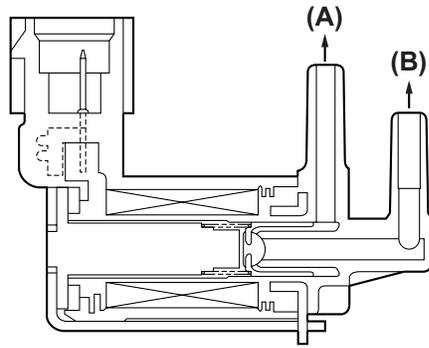
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EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

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.



EC-00025

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

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EVAPORATIVE EMISSION CONTROL SYSTEM

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

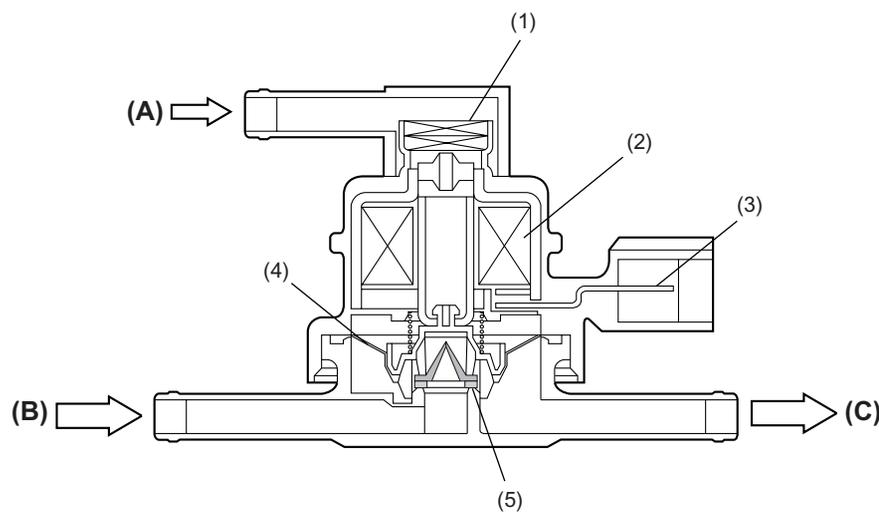
F: PRESSURE CONTROL SOLENOID VALVE

The fuel tank pressure control solenoid valve is located in the evaporation line between the canister and the fuel tank.

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 from the drain valve into the canister.

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



EC-00026

- (1) Filter
- (2) Coil
- (3) Connector terminal
- (4) Diaphragm
- (5) Valve

- (A) Atmospheric pressure
- (B) Shut-off valve
- (C) To fuel tank

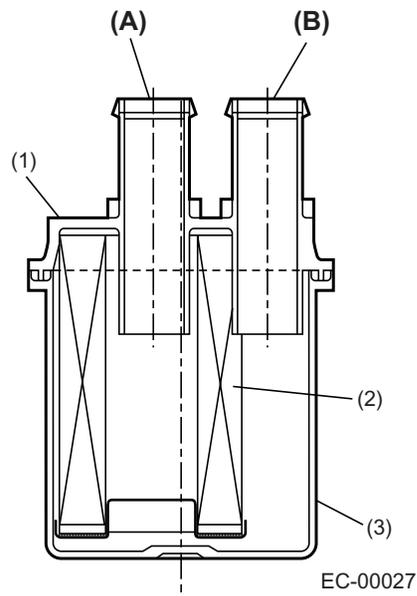
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EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

G: DRAIN FILTER

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



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

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

EC(H4SO)-17

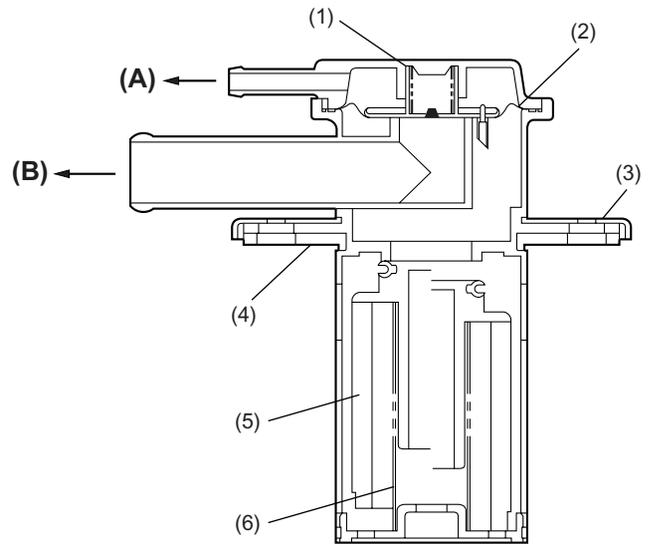
EVAPORATIVE EMISSION CONTROL SYSTEM

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

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 has a float which rises and block the port toward the canister when the fuel is full.



EC-00028

- (1) Spring
- (2) Diaphragm
- (3) Plate cover
- (4) Packing
- (5) Float
- (6) Float spring

- (A) To filler pipe
- (B) To canister

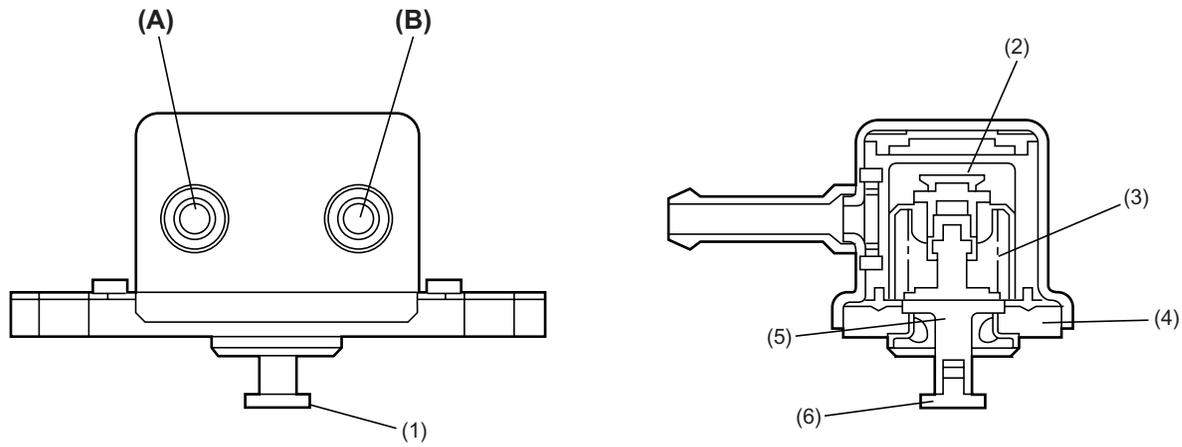
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EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

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

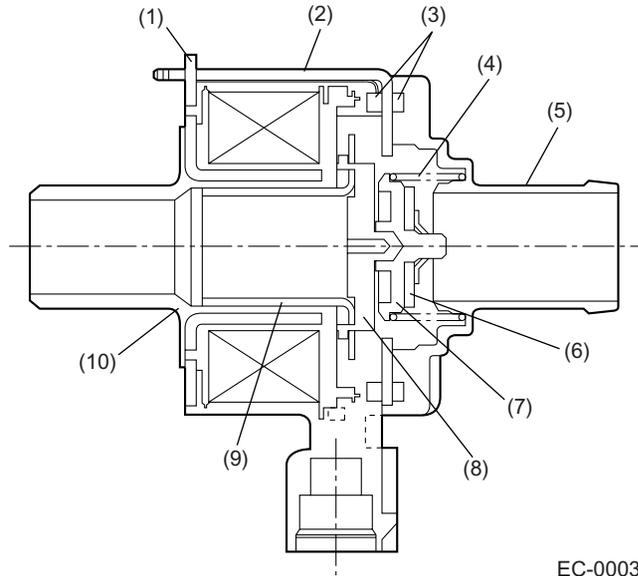
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EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

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 |

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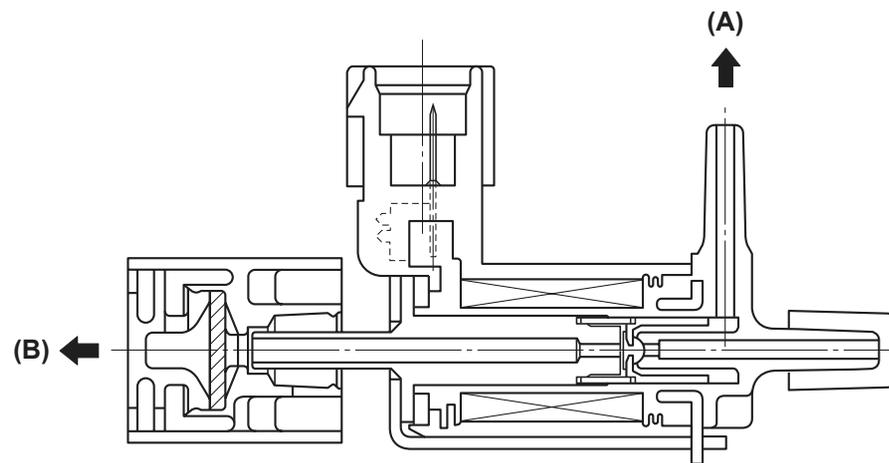
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EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

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) Atmosphere

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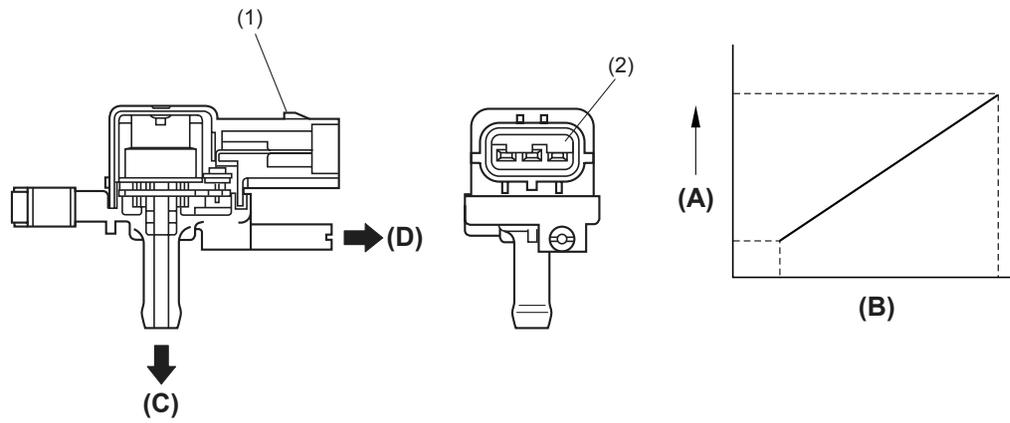
EVAPORATIVE EMISSION CONTROL SYSTEM

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

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

EC(H4SO)-22