

# **EMISSION CONTROL**

## **(AUX. EMISSION CONTROL DEVICES)**

## General Description

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

### 1. General Description

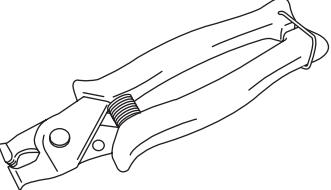
#### A: CAUTION

- Wear work clothing, including a cap, protective goggles and protective shoes during operation.
- Remove contamination including dirt and corrosion before removal, installation or disassembly.
- Keep the disassembled parts in order and protect them from dust and dirt.
- Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly, and replacement.

- Be careful not to burn yourself, because each part on the vehicle is hot after running.
- Be sure to tighten fasteners including bolts and nuts to the specified torque.
- Place shop jacks or rigid racks at the specified points.
- Before disconnecting electrical connectors of sensors or units, be sure to disconnect the ground cable from battery.

#### B: PREPARATION TOOL

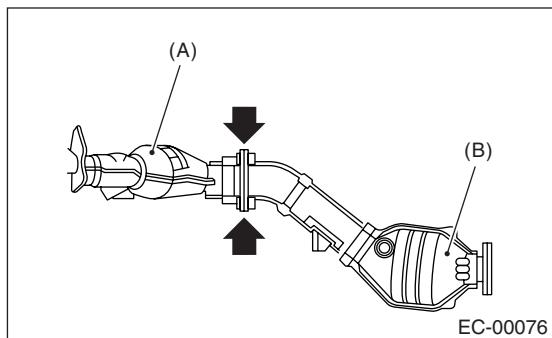
##### 1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST18353AA000	18353AA000	CLAMP PLIERS	<ul style="list-style-type: none"><li>• Used for removing and installing PCV hose.</li><li>• This tool is a general tool that is made by CAILLAU in France. (Code: 54.0.000.205)</li></ul> Tool number is fixed as special tool in order to obtain it as easily as SUBARU genuine parts.

## 2. Front Catalytic Converter

### A: REMOVAL

- 1) Remove the center exhaust pipe. <Ref. to EX(H4DOTC)-8, REMOVAL, Center Exhaust Pipe.>
- 2) Separate the front catalytic converter (A) from rear catalytic converter (B).



### B: INSTALLATION

#### NOTE:

- Replace the gaskets with new ones.
- Install in the reverse order of removal.

### C: INSPECTION

- 1) Make sure there are no exhaust leaks from connections and welds.
- 2) Make sure there are no holes or rusting.

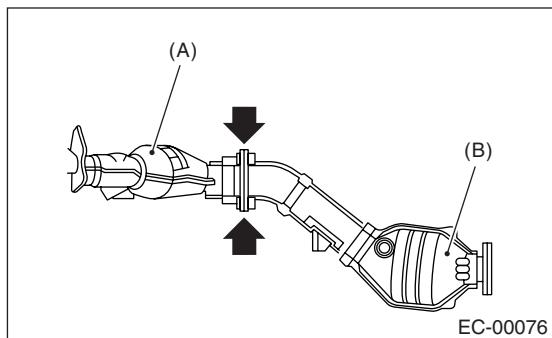
## Rear Catalytic Converter

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

### 3. Rear Catalytic Converter

#### A: REMOVAL

- 1) Remove the center exhaust pipe. <Ref. to EX(H4DOTC)-8, REMOVAL, Center Exhaust Pipe.>
- 2) Separate the rear catalytic converter (B) from front catalytic converter (A).



#### B: INSTALLATION

NOTE:

- Replace the gaskets with new ones.
- Install in the reverse order of removal.

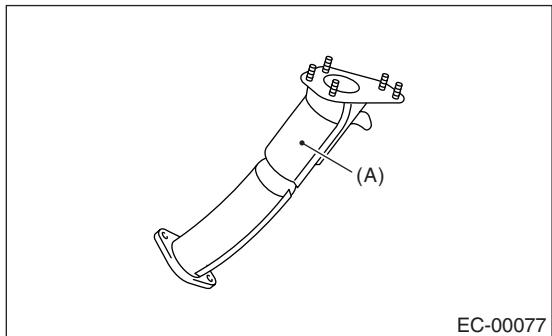
#### C: INSPECTION

- 1) Make sure there are no exhaust leaks from connections and welds.
- 2) Make sure there are no holes or rusting.

### 4. Precatalytic Converter

#### A: REMOVAL

Precatalytic converter (A) is built in the joint pipe. Refer to the removal of joint pipe for removal procedure. <Ref. to EX(H4DOTC)-12, REMOVAL, Joint Pipe.>



EC-00077

#### B: INSTALLATION

Install in the reverse order of removal.

#### C: INSPECTION

- 1) Make sure there are no exhaust leaks from connections and welds.
- 2) Make sure there are no holes or rusting.

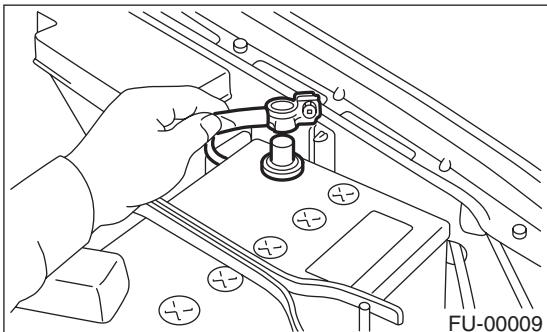
# Canister

## EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

### 5. Canister

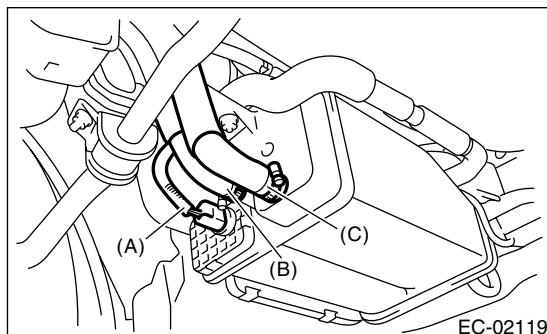
#### A: REMOVAL

- 1) Disconnect the ground cable from battery.

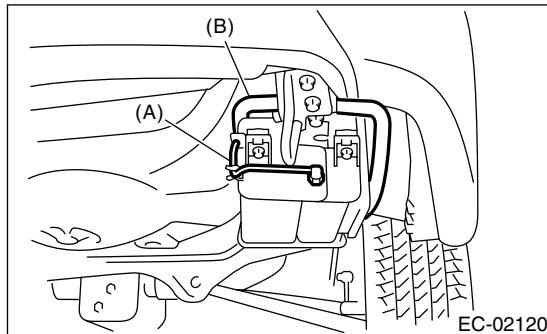


- 2) Lift up the vehicle.

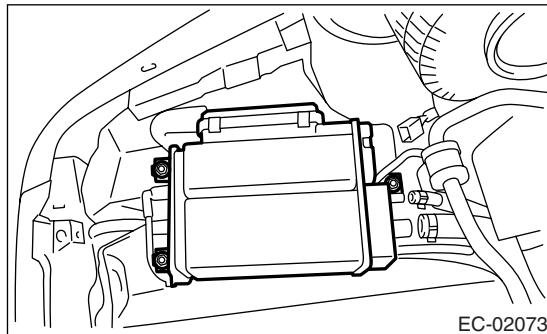
- 3) Disconnect connector (A) from drain valve.
- 4) Disconnect evaporation hoses (B) and (C) from canister.



- 5) Disconnect quick connector (A) from canister.
- 6) Disconnect drain hoses (B) from canister.



- 7) Remove the canister from vehicle.

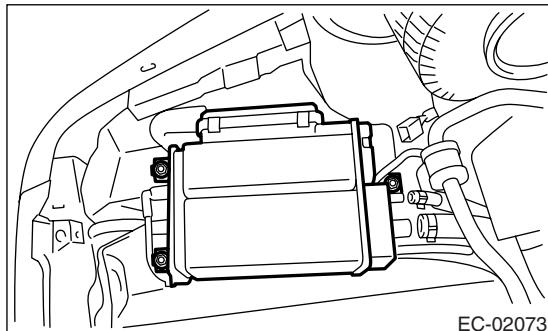


#### B: INSTALLATION

Install in the reverse order of removal.

#### Tightening torque:

23 N·m (2.3 kgf·m, 17 ft-lb)



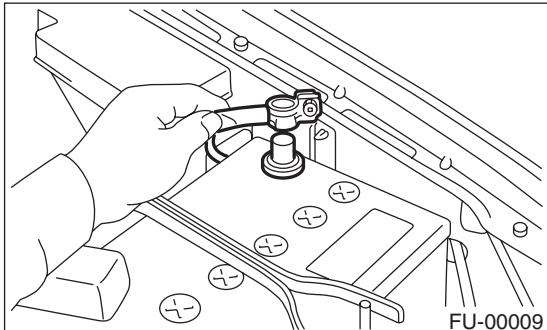
#### C: INSPECTION

Make sure the canister and canister hoses are not cracked or loose.

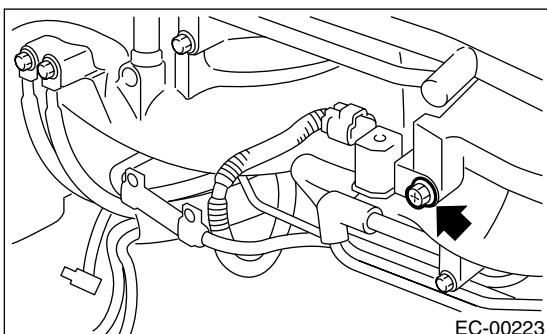
## 6. Purge Control Solenoid Valve

### A: REMOVAL

- 1) Disconnect the ground cable from battery.



- 2) Disconnect the connector and hoses of purge control solenoid valve, and then remove the purge control solenoid valve.

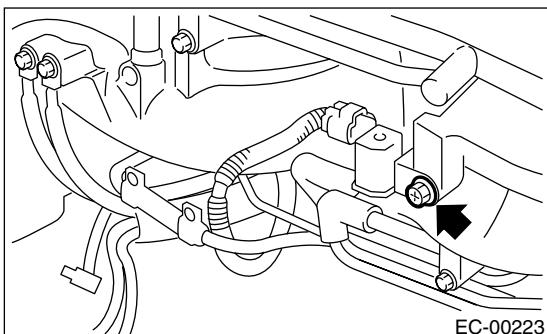


### B: INSTALLATION

Install in the reverse order of removal.

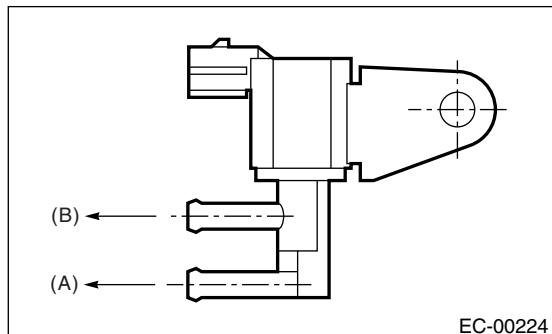
#### ***Tightening torque:***

**19 N·m (1.9 kgf·m, 14.0 ft·lb)**



### NOTE:

Connect the evaporation hose as shown in the figure.



(A) To fuel pipe (Evaporation line)

(B) To intake manifold

### C: INSPECTION

Make sure the hoses are not cracked or loose.

### 7. Fuel Level Sensor

#### A: REMOVAL

For removal procedure, refer to FU(H4DOTC) section. <Ref. to FU(H4DOTC)-62, REMOVAL, Fuel Level Sensor.>

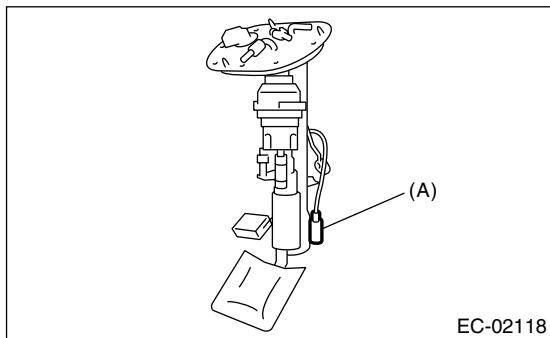
#### B: INSTALLATION

For installation procedure, refer to FU(H4DOTC) section. <Ref. to FU(H4DOTC)-62, INSTALLATION, Fuel Level Sensor.>

## 8. Fuel Temperature Sensor

### A: REMOVAL

Fuel temperature sensor and fuel level sensor are integrated into one unit; therefore, the removal procedure is the same as that for fuel level sensor.  
<Ref. to FU(H4DOTC)-62, REMOVAL, Fuel Level Sensor.>

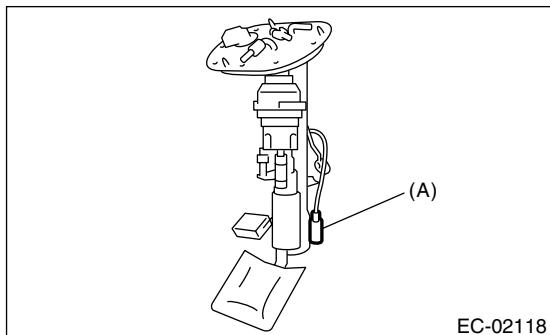


EC-02118

(A) Fuel temperature sensor

### B: INSTALLATION

Fuel temperature sensor and fuel level sensor are integrated into one unit; therefore, the installation procedure is the same as that for fuel level sensor.  
<Ref. to FU(H4DOTC)-62, INSTALLATION, Fuel Level Sensor.>



EC-02118

(A) Fuel temperature sensor

### **9. Fuel Sub Level Sensor**

#### **A: REMOVAL**

For removal procedure, refer to FU(H4DOTC) section. <Ref. to FU(H4DOTC)-63, REMOVAL, Fuel Sub Level Sensor.>

#### **B: INSTALLATION**

For installation procedure, refer to FU(H4DOTC) section. <Ref. to FU(H4DOTC)-63, INSTALLATION, Fuel Sub Level Sensor.>

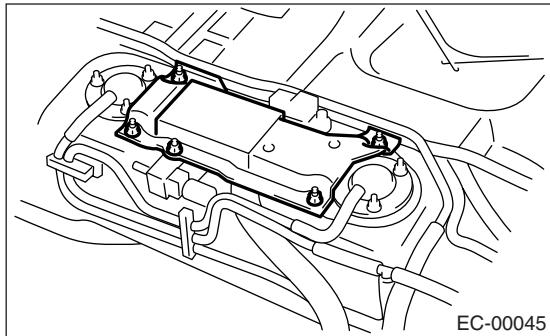
## 10. Fuel Tank Pressure Sensor

### A: REMOVAL

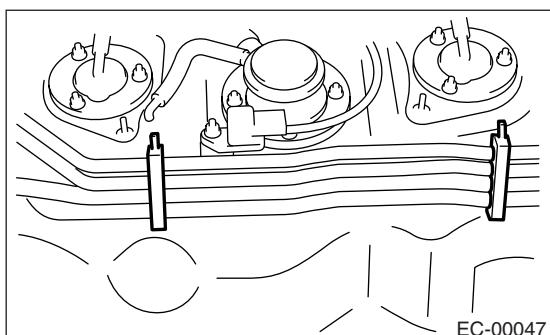
**WARNING:**

- Place "NO FIRE" signs near the working area.
- Be careful not to spill fuel.

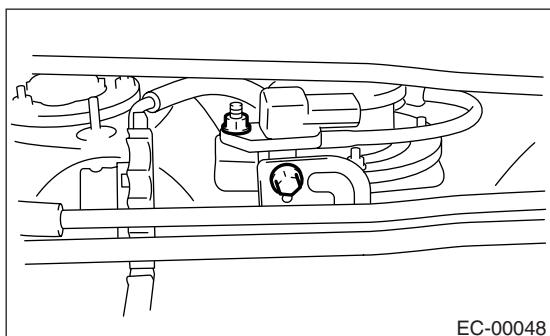
- 1) Remove the fuel tank. <Ref. to FU(H4DOTC)-53, REMOVAL, Fuel Tank.>
- 2) Remove the protector cover.



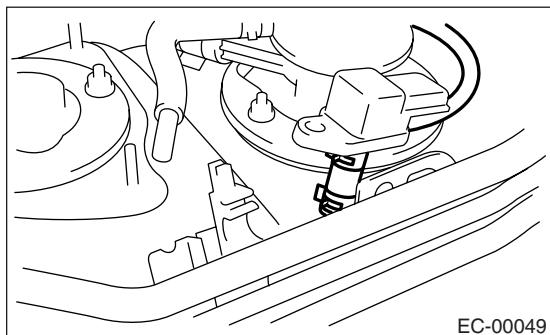
- 3) Disconnect the connector from fuel pressure sensor.
- 4) Release the clips which hold fuel pipes onto fuel tank.



- 5) Remove the bolt and nut which hold the fuel tank pressure sensor onto the bracket.



- 6) Disconnect the pressure hose from fuel tank pressure sensor.

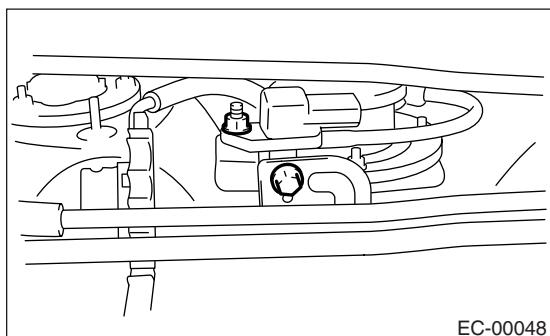


### B: INSTALLATION

Install in the reverse order of removal.

**Tightening torque:**

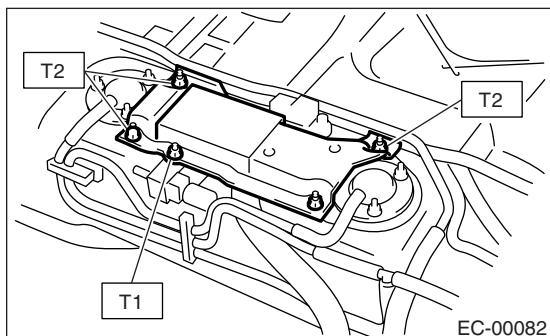
**7.4 N·m (0.75 kgf·m, 5.4 ft-lb)**



**Tightening torque:**

**T1: 7.4 N·m (0.75 kgf·m, 5.4 ft-lb)**

**T2: 4.4 N·m (0.45 kgf·m, 3.3 ft-lb)**



### C: INSPECTION

Make sure the hoses are not cracked or loose.

## 11. Fuel Tank Sensor Control Valve

### A: REMOVAL

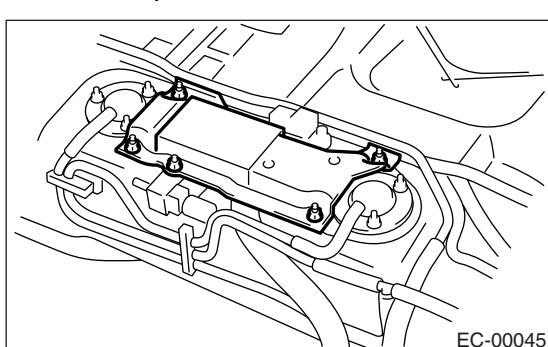
**WARNING:**

- Place "NO FIRE" signs near the working area.
- Be careful not to spill fuel.

1) Remove the fuel tank. <Ref. to FU(H4DOTC)-

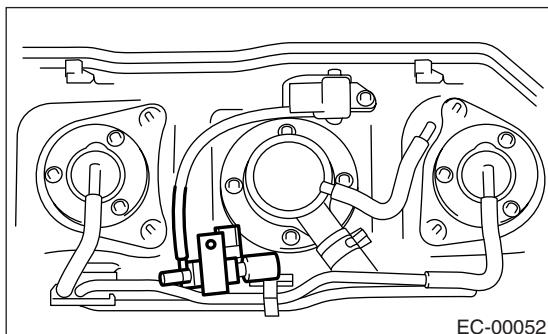
53, REMOVAL, Fuel Tank.>

2) Remove the protector cover.



3) Disconnect the connector from fuel tank sensor control valve.

4) Disconnect hose and remove fuel tank sensor control valve.



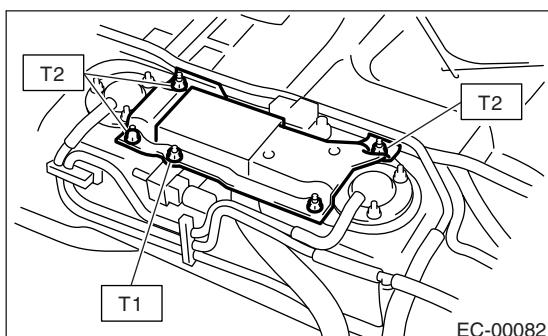
### B: INSTALLATION

Install in the reverse order of removal.

**Tightening torque:**

**T1: 7.4 N·m (0.75 kgf-m, 5.4 ft-lb)**

**T2: 4.4 N·m (0.45 kgf-m, 3.3 ft-lb)**



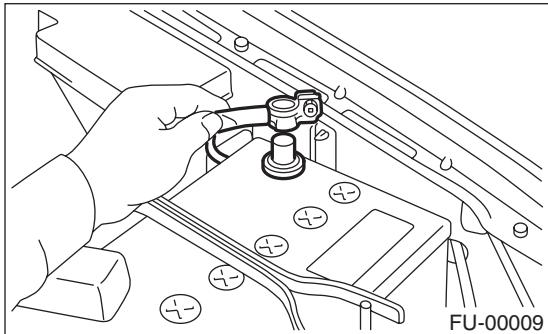
### C: INSPECTION

Make sure the hoses are not cracked or loose.

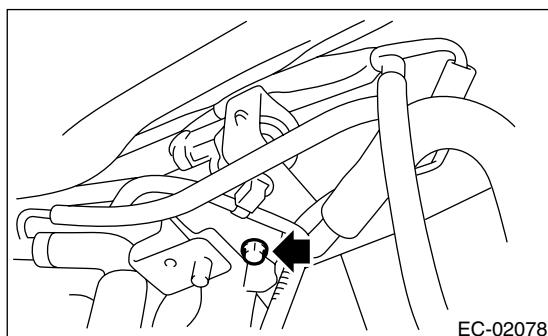
## 12. Pressure Control Solenoid Valve

### A: REMOVAL

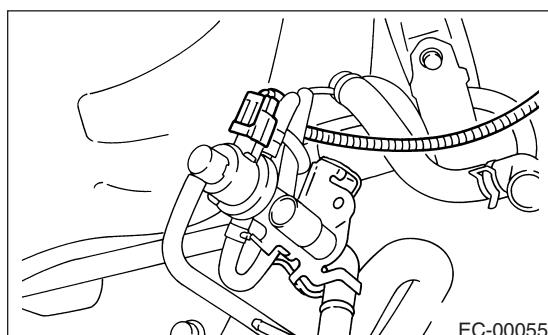
- 1) Set the vehicle on a lift.
- 2) Disconnect the ground cable from battery.



- 3) Lift up the vehicle.
- 4) Remove the canister. <Ref. to EC(H4DOTC)-6, REMOVAL, Canister.>
- 5) Remove the bolt which installs the pressure control solenoid valve holding bracket on body.

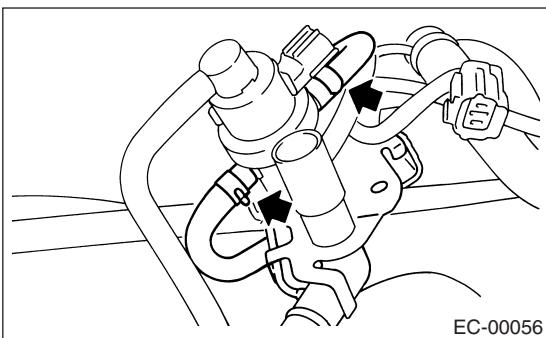


- 6) Disconnect the connector from pressure control solenoid valve.

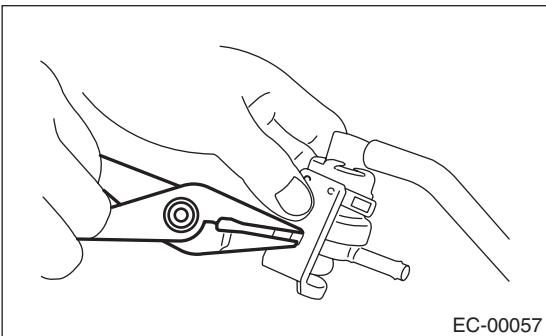


- 7) Disconnect the two evaporation hoses from pressure control solenoid valve.

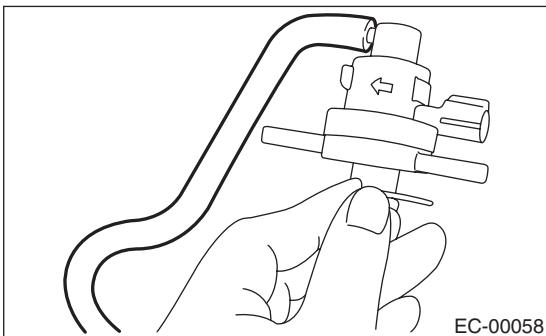
- 8) Remove the pressure control solenoid valve with bracket.



- 9) Remove the pressure control solenoid valve from bracket.



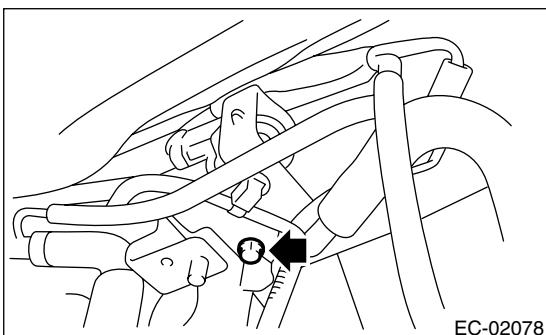
- 10) Disconnect the vacuum hose from pressure control solenoid valve.



### B: INSTALLATION

Install in the reverse order of removal.

**Tightening torque:**  
 $17.6 \text{ N}\cdot\text{m} (1.8 \text{ kgf}\cdot\text{m}, 13.0 \text{ ft-lb})$



## **Pressure Control Solenoid Valve**

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

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### **C: INSPECTION**

Make sure the hoses are not cracked or loose.

## **13.Drain Filter**

### **A: SPECIFICATION**

Drain filter is built in the canister, and it is a part which cannot be disassembled.

## Vent Valve

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

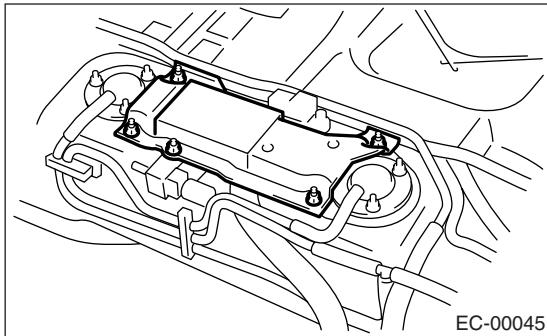
### 14. Vent Valve

#### A: REMOVAL

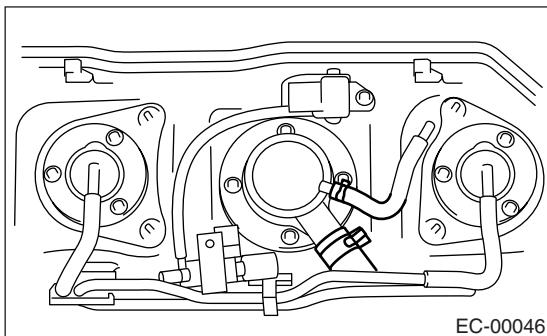
##### WARNING:

- Place "NO FIRE" signs near the working area.
- Be careful not to spill fuel.

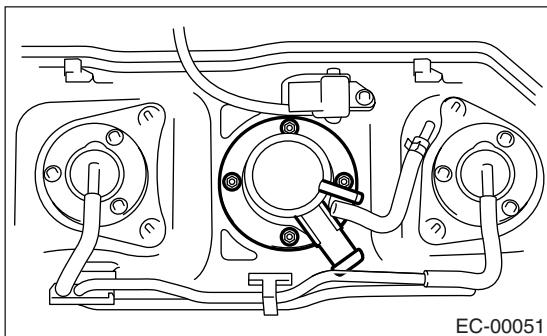
- 1) Remove the fuel tank. <Ref. to FU(H4DOTC)-53, REMOVAL, Fuel Tank.>
- 2) Remove the protector cover.



- 3) Remove the clips, and disconnect the hoses from vent valve.



- 4) Remove the nuts and then remove the vent valve.



#### B: INSTALLATION

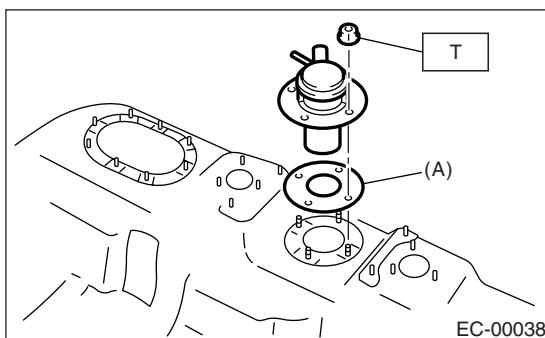
Install in the reverse order of removal.

##### NOTE:

Replace the rubber seat with a new one.

#### Tightening torque:

T: 4.4 N·m (0.45 kgf·m, 3.3 ft·lb)

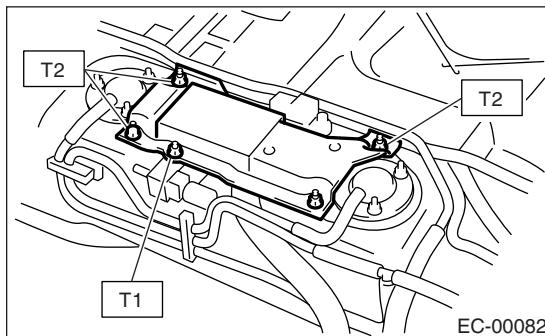


(A) Rubber seat

#### Tightening torque:

T1: 7.4 N·m (0.75 kgf·m, 5.4 ft·lb)

T2: 4.4 N·m (0.45 kgf·m, 3.3 ft·lb)



#### C: INSPECTION

Make sure the hoses are not cracked or loose.

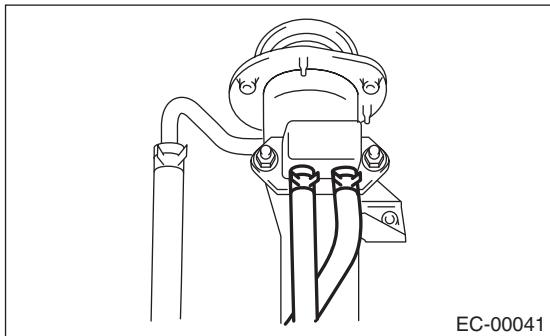
### 15. Shut Valve

#### A: REMOVAL

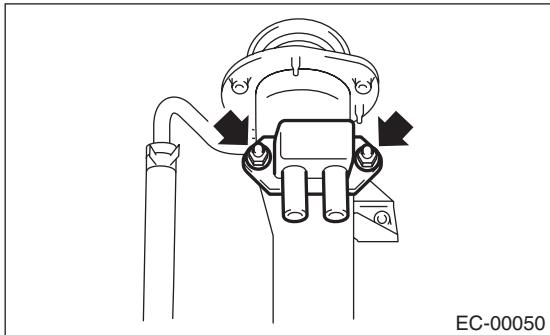
**WARNING:**

- Place “NO FIRE” signs near the working area.
- Be careful not to spill fuel.

- 1) Remove the fuel filler pipe. <Ref. to FU(H4DOTC)-56, REMOVAL, Fuel Filler Pipe.>
- 2) Disconnect the evaporation hoses from shut valve.



- 3) Remove the shut valve from fuel filler pipe.

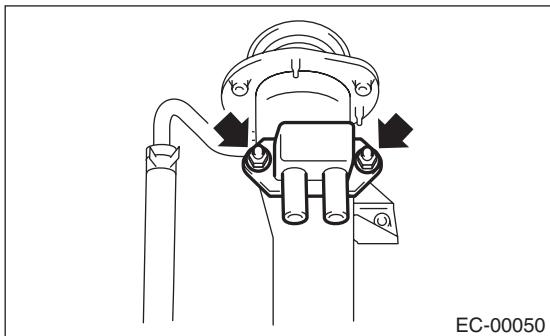


#### B: INSTALLATION

Install in the reverse order of removal.

**Tightening torque:**

4.5 N·m (0.46 kgf·m, 3.3 ft-lb)



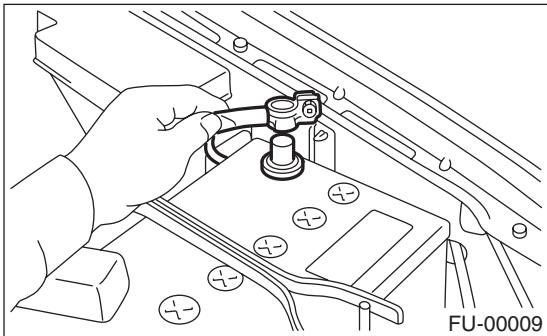
#### C: INSPECTION

Make sure the hoses are not cracked or loose.

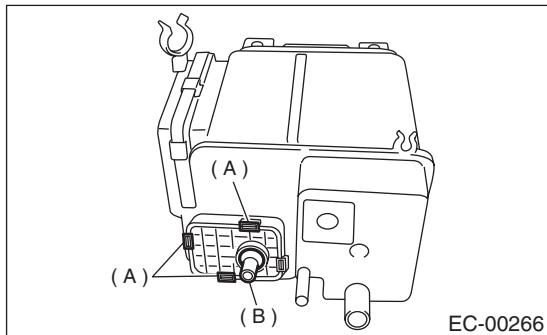
## 16.Drain Valve

### A: REMOVAL

- 1) Set the vehicle on the lift.
- 2) Disconnect the ground cable from battery.



- 3) Lift up the vehicle.
- 4) Remove the canister. <Ref. to EC(H4DOTC)-6, REMOVAL, Canister.>
- 5) Remove clip (A), and then remove drain valve (B) from canister.
- 6) Remove the filter from drain valve (B).



### B: INSTALLATION

Install in the reverse order of removal.

#### CAUTION:

- Assemble the drain valve filter without any clearance.
- Make sure the packing in the groove before assembling drain valve to canister.
- Replace the clip with a new one.

### C: INSPECTION

- 1) Make sure that all hoses are installed securely.
- 2) Make sure that hoses are not cracked or loose.

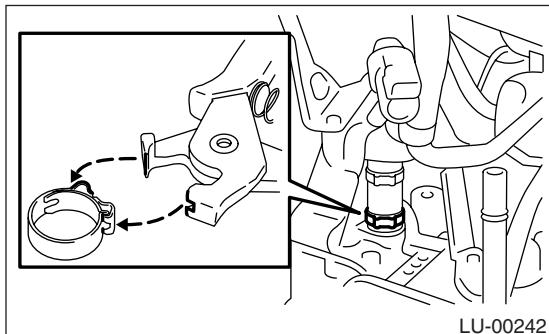
## 17.PCV Hose Assembly

### A: REMOVAL

**CAUTION:**

Removal is not allowed except for the damage of PCV hose, diagnosis connector and PCV valve.

- 1) Remove the intake manifold.  
<Ref. to FU(H4DOTC)-14, REMOVAL, Intake Manifold.>
- 2) Clip the protrusion of clamp after aligning the concave portion of ST with protrusion of clamp, and then unlock the lock.
- 3) Remove the PCV hose assembly.  
ST 18353AA000 CLAMP PLIERS



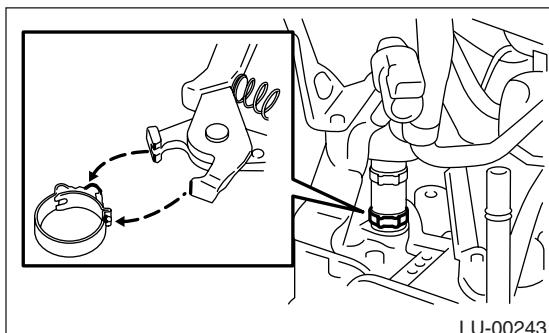
### B: INSTALLATION

**NOTE:**

Replace the clamp with a new one.

- 1) Install the PCV hose assembly, and then lock the clamp with protrusion of clamp clipped by pliers.

ST 18353AA000 CLAMP PLIERS



- 2) Install the intake manifold.

<Ref. to FU(H4DOTC)-17, INSTALLATION, Intake Manifold.>

## **PCV Hose Assembly**

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

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