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EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

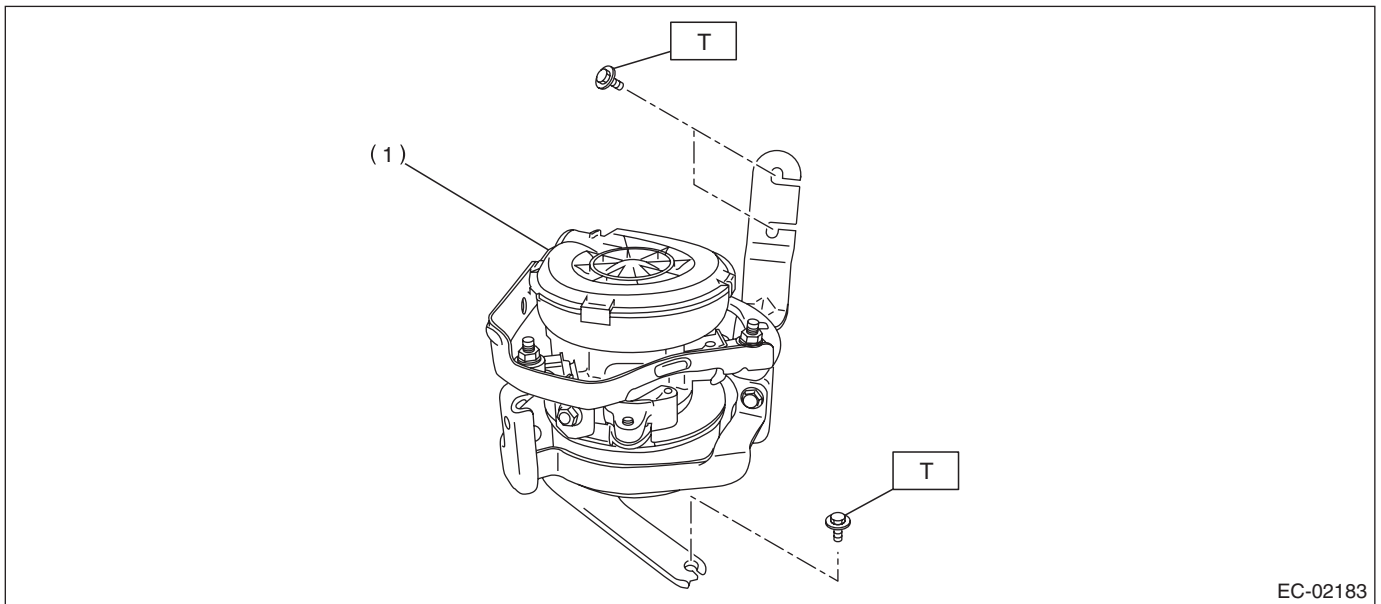
General Description

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

1. General Description

A: COMPONENT

1. SECONDARY AIR PUMP



EC-02183

(1) Secondary air pump

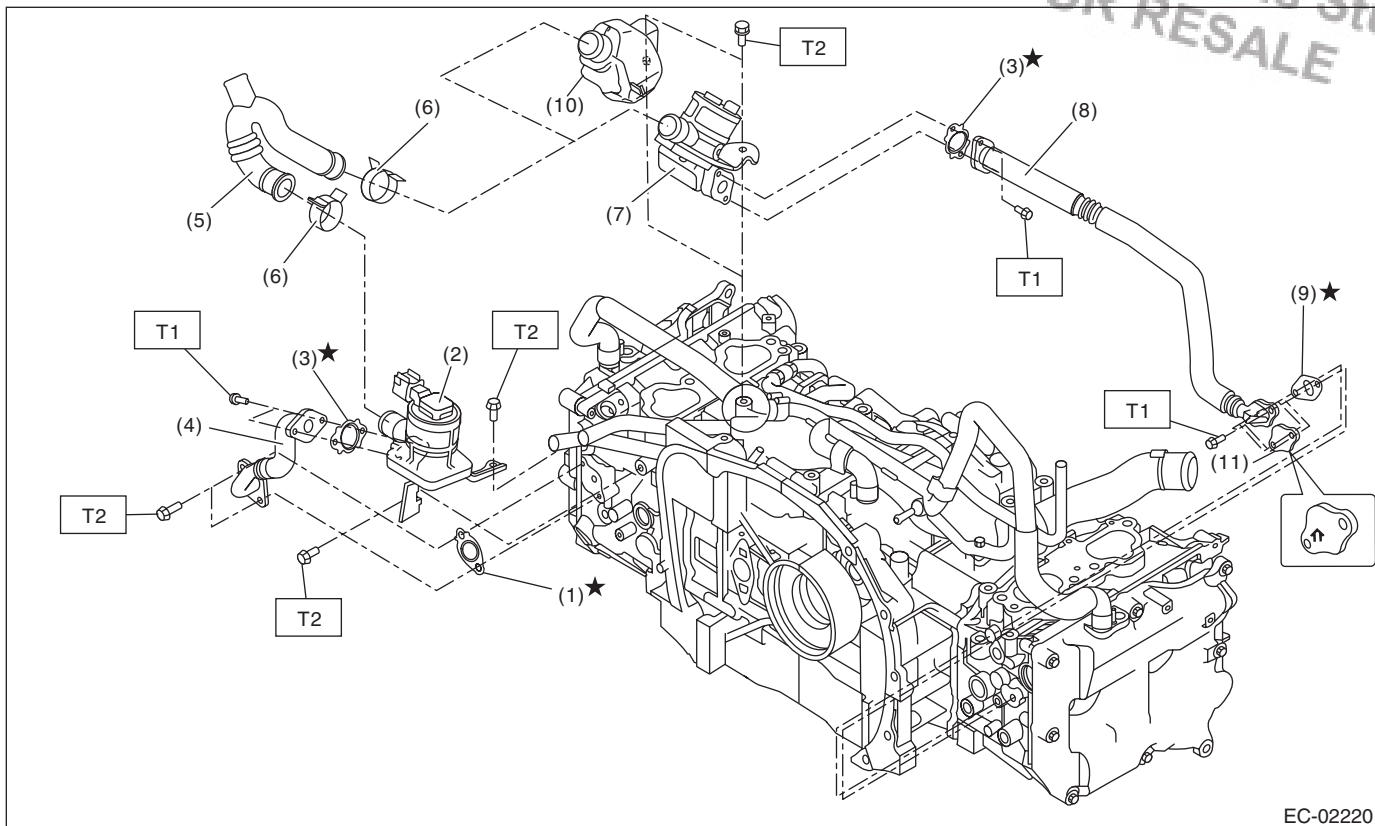
Tightening torque: N·m (kgf·m, ft·lb)

T: 5 (0.5, 3.7)

General Description

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

2. SECONDARY AIR COMBINATION VALVE



EC-02220

- | | | |
|--|---|------------------------|
| (1) Gasket | (6) Clamp | (11) Plate (STI model) |
| (2) Secondary air combination valve LH | (7) Secondary air combination valve RH (except for STI model) | |
| (3) Gasket | (8) Pipe RH (except for STI model) | |
| (4) Pipe LH | (9) Gasket | |
| (5) Air duct | (10) Air suction duct (STI model) | |

Tightening torque: N·m (kgf·m, ft·lb)

T1: 9 (0.9, 6.6)

T2: 19 (1.9, 14.0)

B: CAUTION

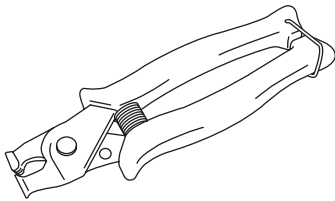
- Wear appropriate work clothing, including a cap, protective goggles and protective shoes when performing any work.
- Remove contamination including dirt and corrosion before removal, installation or disassembly.
- Keep the disassembled parts in order and protect them from dust and dirt.
- Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly and replacement.
- Vehicle components are extremely hot after driving. Be wary of receiving burns from heated parts.
- 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 connectors of sensors or units, be sure to disconnect the ground cable from the battery.

General Description

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

C: PREPARATION TOOL

1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST18353AA000	18353AA000	CLAMP PLIERS	<ul style="list-style-type: none">• Used for removing and installing the PCV hose.• This is a general tool made by the French company CAILLAU. (Code: 54.0.000.205) To make this easier to obtain in the same way as genuine Subaru parts, it has been provided with a tool number as an ST.

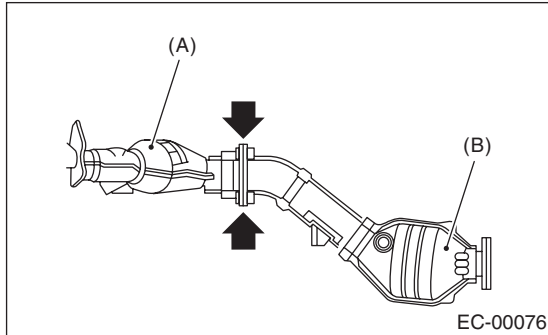
Front Catalytic Converter

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

2. Front Catalytic Converter

A: REMOVAL

- 1) Remove the center exhaust pipe.
<Ref. to EX(H4DOTC)-10, REMOVAL, Center Exhaust Pipe.>
- 2) Disconnect the front catalytic converter (A) from the rear catalytic converter (B).



B: INSTALLATION

Install in the reverse order of removal.

NOTE:

Use a new gasket.

C: INSPECTION

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

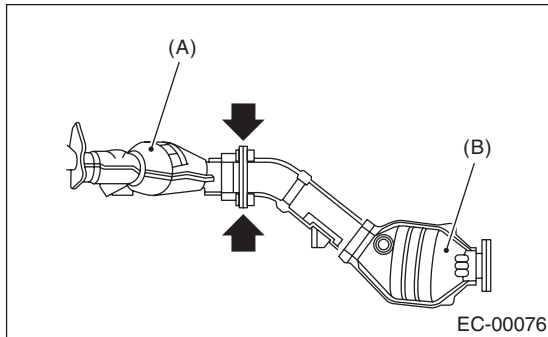
Rear Catalytic Converter

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

3. Rear Catalytic Converter

A: REMOVAL

- 1) Remove the center exhaust pipe.
<Ref. to EX(H4DOTC)-10, REMOVAL, Center Exhaust Pipe.>
- 2) Disconnect the rear catalytic converter (B) from the front catalytic converter (A).



B: INSTALLATION

Install in the reverse order of removal.

NOTE:

Use a new gasket.

C: INSPECTION

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

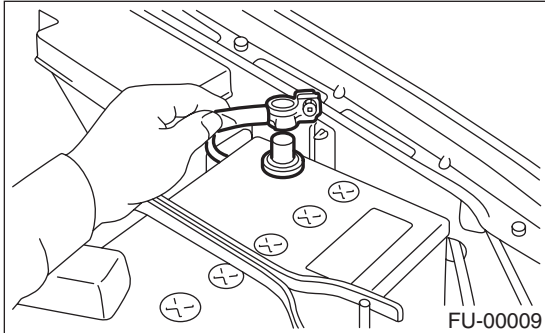
Canister

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

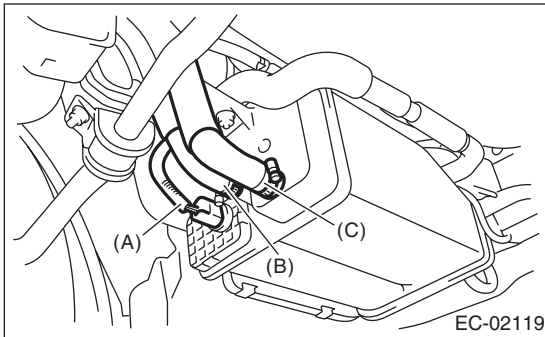
4. Canister

A: REMOVAL

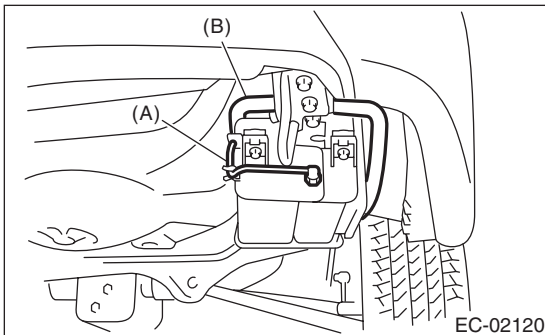
- 1) Set the vehicle on a lift.
- 2) Disconnect the ground cable from the battery.



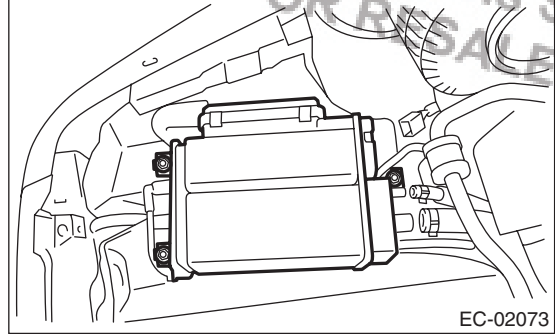
- 3) Lift up the vehicle.
- 4) Disconnect the connector (A) from the drain valve.
- 5) Disconnect the evaporation hoses (B) and (C) from the canister.



- 6) Disconnect the quick connector (A) from the canister.
- 7) Disconnect the drain hose (B) from the canister.



- 8) Remove the canister from the vehicle body.



B: INSTALLATION

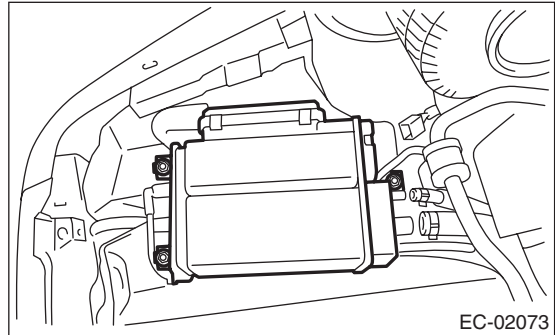
Install in the reverse order of removal.

NOTE:

Use a new retainer.

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.

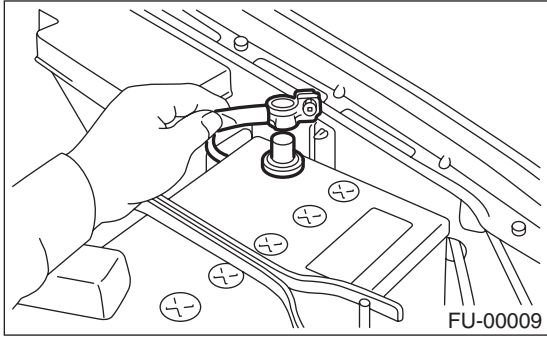
Purge Control Solenoid Valve

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

5. Purge Control Solenoid Valve

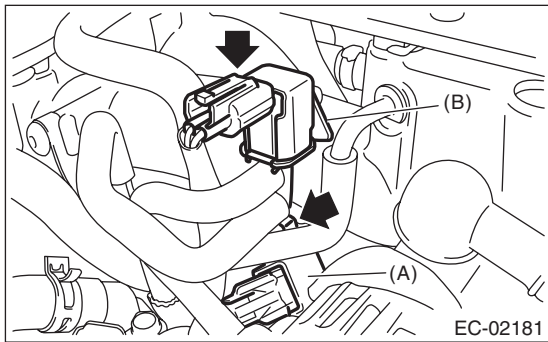
A: REMOVAL

1) Disconnect the ground cable from the battery.



2) Disconnect the connector and hoses from purge control solenoid valve.

3) Loosen the bolt and remove the purge control solenoid valve from the intake manifold.



- (A) Purge control solenoid valve 1
- (B) Purge control solenoid valve 2

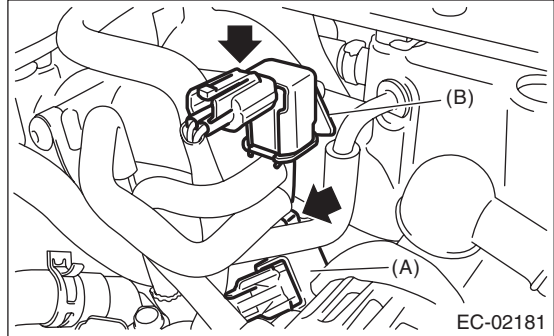
B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:

(A): 19 N·m (1.9 kgf-m, 14.0 ft-lb)

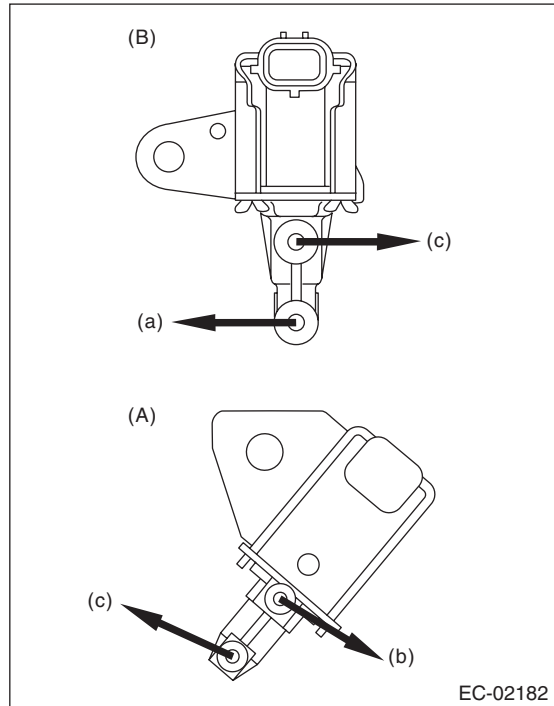
(B): 6.4 N·m (0.65 kgf-m, 4.7 ft-lb)



- (A) Purge control solenoid valve 1
- (B) Purge control solenoid valve 2

NOTE:

Connect the evaporation hose as shown in the figure.



- (A) Purge control solenoid valve 1
- (B) Purge control solenoid valve 2
- (a) To intake duct
- (b) To intake manifold
- (c) Branch pipe → fuel pipe

C: INSPECTION

Make sure the hoses are not cracked or loose.

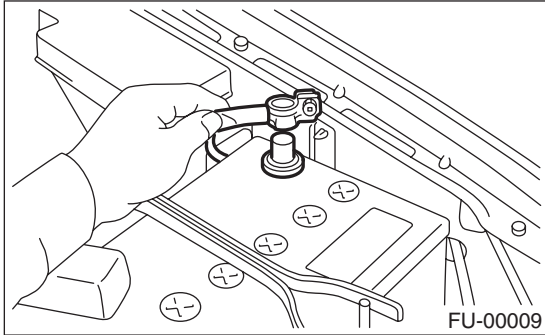
Secondary Air Pump

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

6. Secondary Air Pump

A: REMOVAL

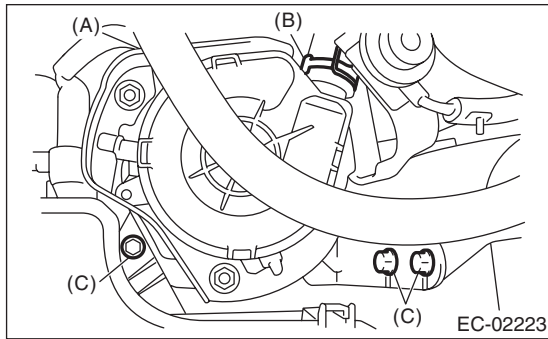
1) Disconnect the ground cable from the battery.



2) Disconnect the connector (A) from secondary air pump.

3) Disconnect the hose (B) from secondary air pump.

4) Remove the bolt (C) which secures the secondary air pump to the body.

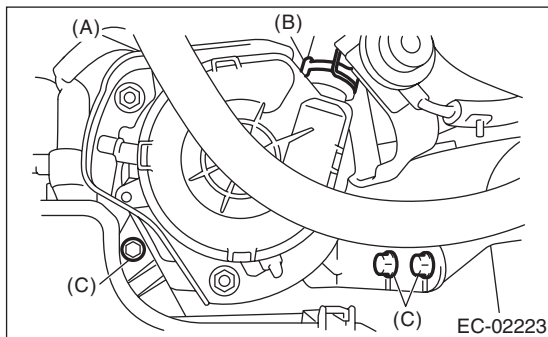


B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:

5 N·m (0.5 kgf·m, 3.7 ft·lb)



C: INSPECTION

Make sure the hoses are not cracked or loose.

Secondary Air Combination Valve

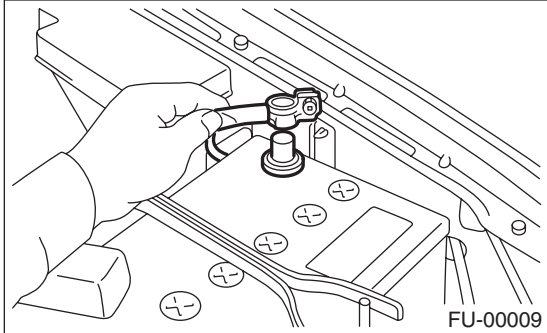
EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

7. Secondary Air Combination Valve

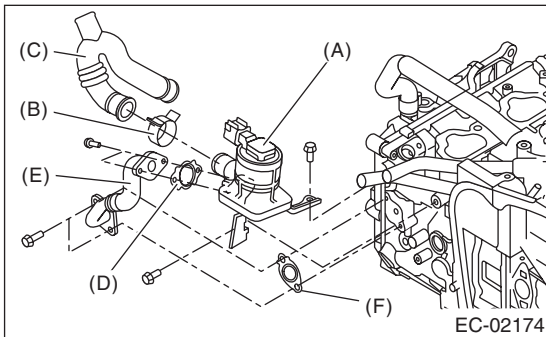
A: REMOVAL

1. SECONDARY AIR COMBINATION VALVE LH

1) Disconnect the ground cable from the battery.



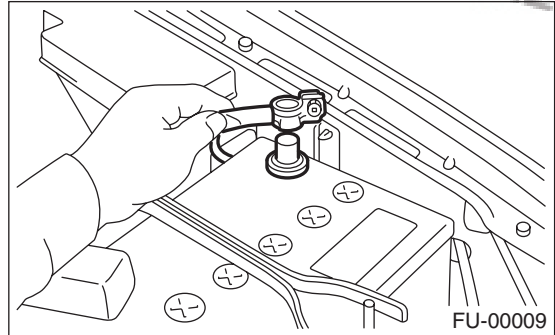
- 2) Remove the intercooler. <Ref. to IN(H4DOTC)-13, REMOVAL, Intercooler.>
- 3) Disconnect the connector from the secondary air combination valve LH.
- 4) Disconnect the air duct.
- 5) Disconnect the pipe LH.
- 6) Remove the secondary air combination valve LH.



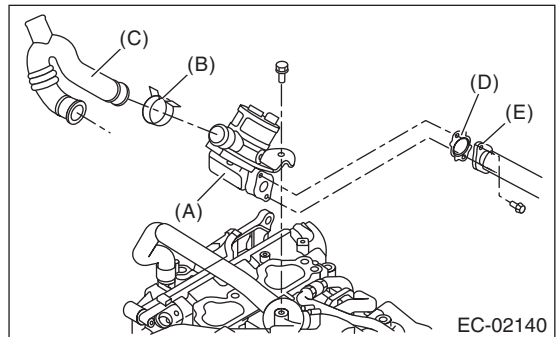
- (A) Secondary air combination valve LH
- (B) Clamp
- (C) Air duct
- (D) Gasket
- (E) Pipe LH
- (F) Gasket

2. SECONDARY AIR COMBINATION VALVE RH

1) Disconnect the ground cable from the battery.



- 2) Remove the intercooler. <Ref. to IN(H4DOTC)-13, REMOVAL, Intercooler.>
- 3) Remove the secondary air combination valve LH. <Ref. to EC(H4DOTC)-10, SECONDARY AIR COMBINATION VALVE LH, REMOVAL, Secondary Air Combination Valve.>
- 4) Remove the intake manifold. <Ref. to FU(H4DOTC)-17, REMOVAL, Intake Manifold.>
- 5) Disconnect the connector from the secondary air combination valve RH.
- 6) Disconnect the pipe RH.
- 7) Remove the secondary air combination valve RH.



- (A) Secondary air combination valve RH
- (B) Clamp
- (C) Air duct
- (D) Gasket
- (E) Pipe RH

Secondary Air Combination Valve

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

B: INSTALLATION

1. SECONDARY AIR COMBINATION VALVE LH

Install in the reverse order of removal.

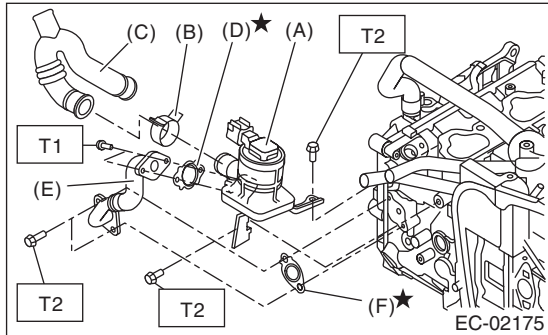
NOTE:

Use a new gasket.

Tightening torque:

T1: 9 N·m (0.9 kgf-m, 6.6 ft-lb)

T2: 19 N·m (1.9 kgf-m, 14.0 ft-lb)



- (A) Secondary air combination valve LH
- (B) Clamp
- (C) Air duct
- (D) Gasket
- (E) Pipe LH
- (F) Gasket

2. SECONDARY AIR COMBINATION VALVE RH

Install in the reverse order of removal.

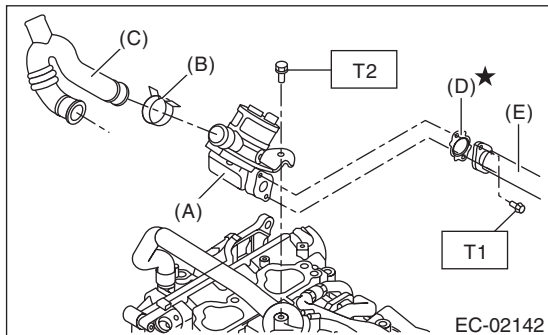
NOTE:

Use a new gasket.

Tightening torque:

T1: 9 N·m (0.9 kgf-m, 6.6 ft-lb)

T2: 19 N·m (1.9 kgf-m, 14.0 ft-lb)



- (A) Secondary air combination valve RH
- (B) Clamp
- (C) Air duct
- (D) Gasket
- (E) Pipe RH

C: INSPECTION

Check the air duct and pipe for looseness.

Fuel Level Sensor

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

8. Fuel Level Sensor

A: REMOVAL

For removal procedure, refer to the FU(H4DOTC) section. <Ref. to FU(H4DOTC)-65, REMOVAL, Fuel Level Sensor.>

B: INSTALLATION

For installation procedure, refer to the FU(H4DOTC) section. <Ref. to FU(H4DOTC)-65, INSTALLATION, Fuel Level Sensor.>

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Fuel Temperature Sensor

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9. Fuel Temperature Sensor

A: REMOVAL

The fuel temperature sensor and fuel level sensor are integrated into one unit; therefore, refer to "Fuel Level Sensor" for removal procedure. <Ref. to FU(H4DOTC)-65, REMOVAL, Fuel Level Sensor.>

B: INSTALLATION

The fuel temperature sensor and fuel level sensor are integrated into one unit; therefore, refer to "Fuel Level Sensor" for installation procedure. <Ref. to FU(H4DOTC)-65, INSTALLATION, Fuel Level Sensor.>

Fuel Sub Level Sensor

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

10. Fuel Sub Level Sensor

A: REMOVAL

For removal procedure, refer to the FU(H4DOTC) section. <Ref. to FU(H4DOTC)-66, REMOVAL, Fuel Sub Level Sensor.>

B: INSTALLATION

For installation procedure, refer to the FU(H4DOTC) section. <Ref. to FU(H4DOTC)-66, INSTALLATION, Fuel Sub Level Sensor.>

Fuel Tank Pressure Sensor

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

11. Fuel Tank Pressure Sensor

A: REMOVAL

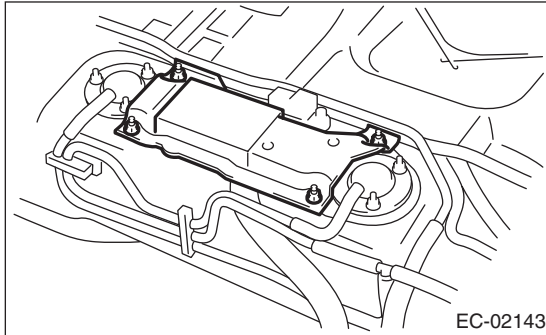
WARNING:

Place "NO OPEN FLAMES" signs near the working area.

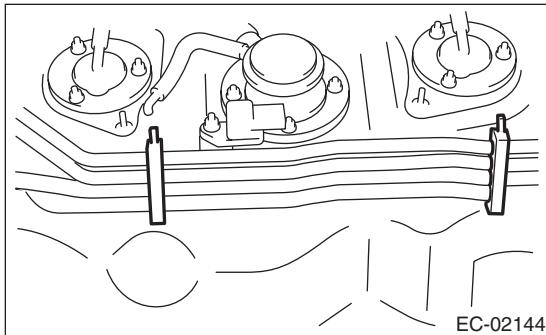
CAUTION:

Be careful not to spill fuel.

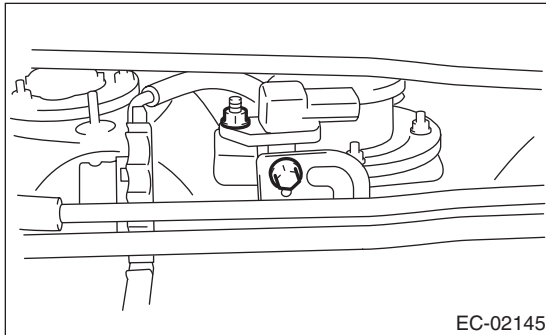
- 1) Remove the fuel tank. <Ref. to FU(H4DOTC)-56, REMOVAL, Fuel Tank.>
- 2) Remove the protector cover.



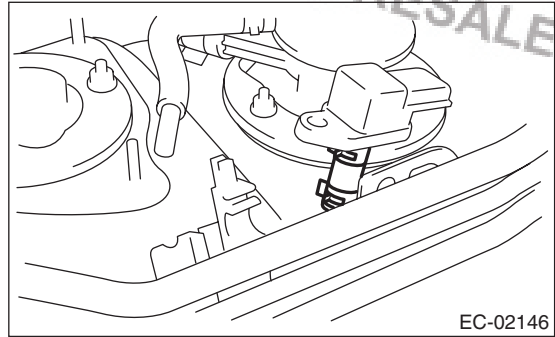
- 3) Disconnect the connector from the fuel tank pressure sensor.
- 4) Release the clips which secure the fuel pipe to the fuel tank.



- 5) Remove the bolts and nuts which hold the fuel tank pressure sensor to the bracket.



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

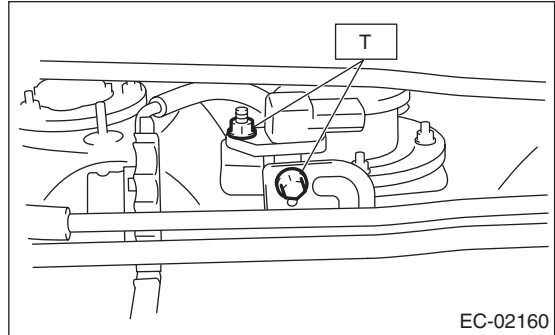


B: INSTALLATION

Install in the reverse order of removal.

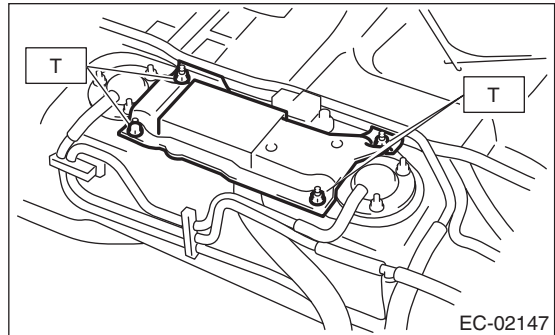
Tightening torque:

7.4 N·m (0.75 kgf-m, 5.4 ft-lb)



Tightening torque:

T: 4.4 N·m (0.45 kgf-m, 3.3 ft-lb)



C: INSPECTION

Make sure the hoses are not cracked or loose.

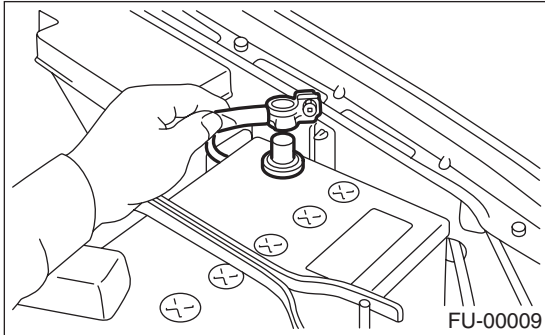
Pressure Control Solenoid Valve

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

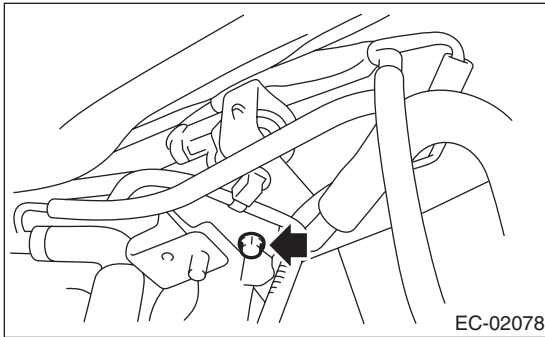
12. Pressure Control Solenoid Valve

A: REMOVAL

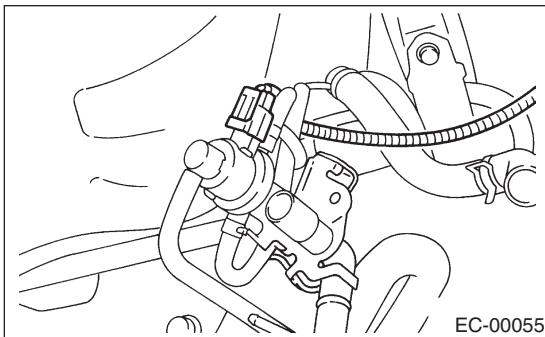
- 1) Set the vehicle on a lift.
- 2) Disconnect the ground cable from the battery.



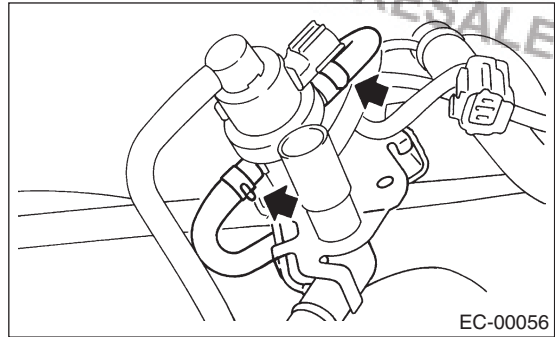
- 3) Lift up the vehicle.
- 4) Remove the canister. <Ref. to EC(H4DOTC)-7, REMOVAL, Canister.>
- 5) Remove the bolt which holds the pressure control solenoid valve holding bracket to the vehicle body.



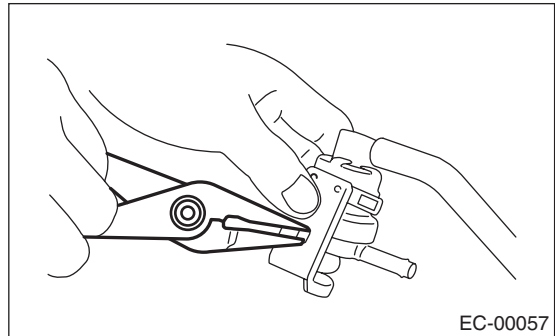
- 6) Remove the pressure control solenoid valve and bracket as a unit.
- 7) Disconnect the connector from the pressure control solenoid valve.



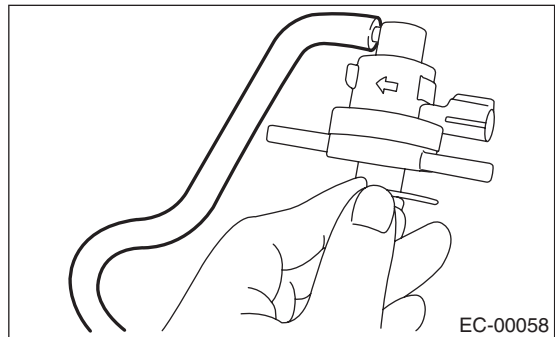
- 8) Disconnect the two evaporation hoses from the pressure control solenoid valve.



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



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

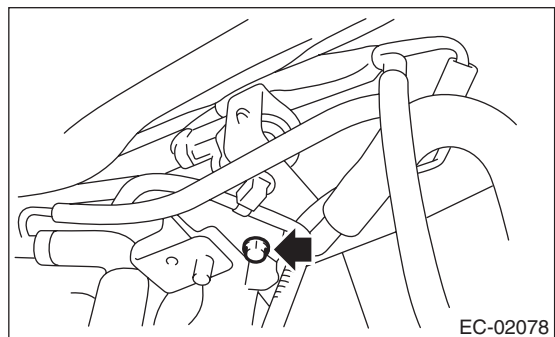


B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:

25 N·m (2.6 kgf·m, 18.8 ft·lb)



C: INSPECTION

Make sure the hoses are not cracked or loose.

Drain Filter

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

13. Drain Filter

A: SPECIFICATION

The drain filter is integrated with the canister, and cannot be disassembled.

Vent Valve

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

14. Vent Valve

A: REMOVAL

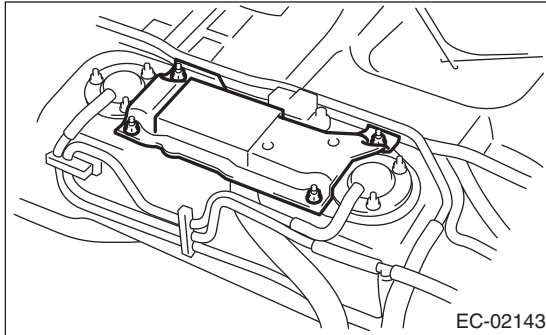
WARNING:

Place "NO OPEN FLAMES" signs near the working area.

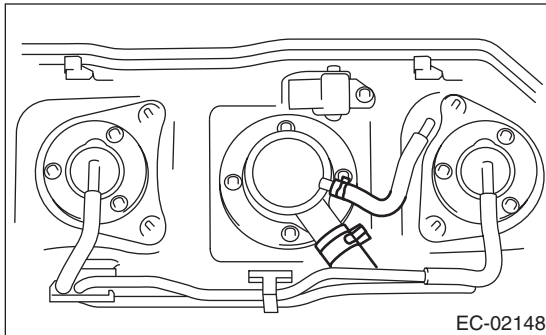
CAUTION:

Be careful not to spill fuel.

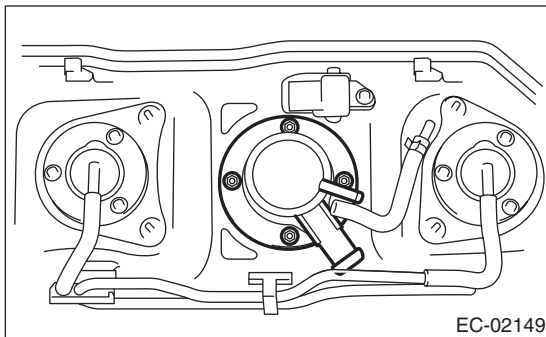
- 1) Remove the fuel tank. <Ref. to FU(H4DOTC)-56, REMOVAL, Fuel Tank.>
- 2) Remove the protector cover.



- 3) Remove the clip and disconnect the hose from the vent valve.



- 4) Remove the nut to remove the vent valve.



B: INSTALLATION

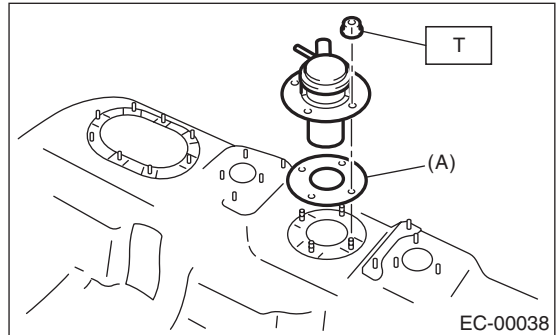
Install in the reverse order of removal.

NOTE:

Use a new gasket.

Tightening torque:

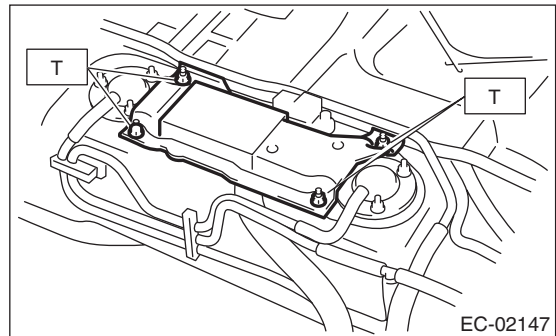
T: 4.4 N·m (0.45 kgf-m, 3.3 ft-lb)



(A) Gasket

Tightening torque:

T: 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 OPEN FLAMES" signs near the working area.

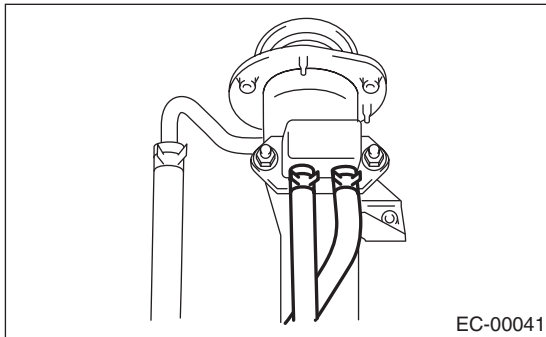
CAUTION:

Be careful not to spill fuel.

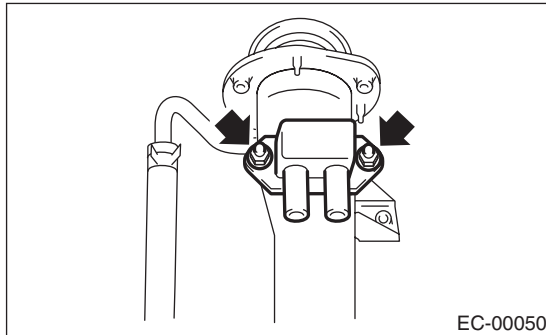
1) Remove the fuel filler pipe.

<Ref. to FU(H4DOTC)-59, REMOVAL, Fuel Filler Pipe.>

2) Disconnect the evaporation hose from the shut valve.



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

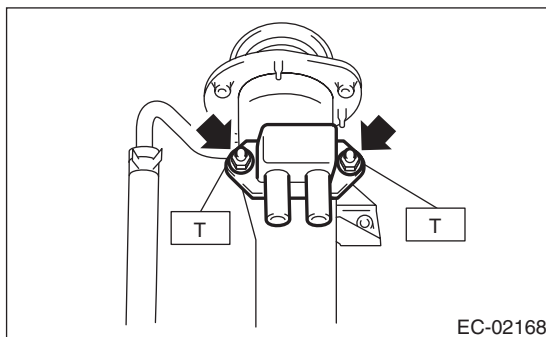


B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:

4.5 N·m (0.46 kgf-m, 3.3 ft-lb)



C: INSPECTION

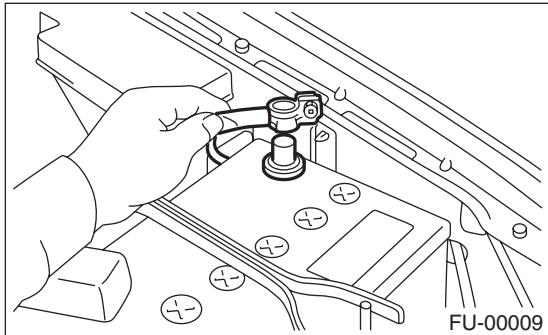
Make sure the hoses are not cracked or loose.

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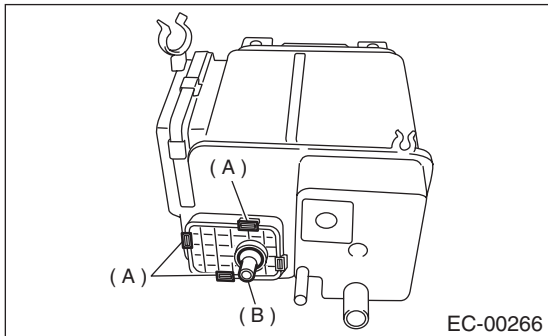
16. Drain Valve

A: REMOVAL

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



- 3) Lift up the vehicle.
- 4) Remove the canister. <Ref. to EC(H4DOTC)-7, REMOVAL, Canister.>
- 5) Remove the clip (A) and remove the drain valve (B) from the canister.
- 6) Remove the filter from the drain valve (B).

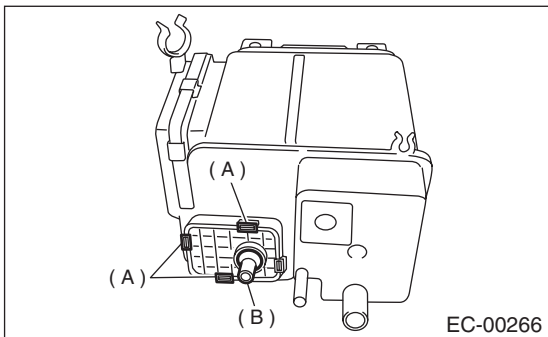


B: INSTALLATION

Install in the reverse order of removal.

NOTE:

Use a new clip.



- (A) Clip
- (B) Drain valve

C: INSPECTION

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

17.PCV Hose Assembly

A: REMOVAL

CAUTION:

Do not remove unless the PCV hose, diagnostics connector and PCV valve are damaged.

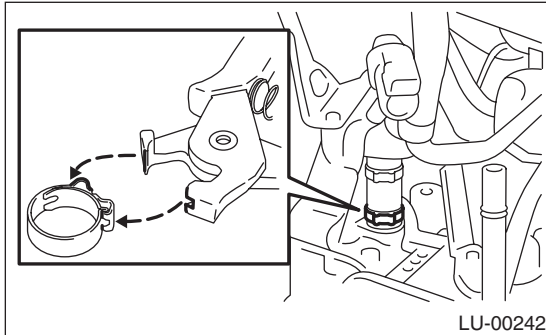
1) Remove the intake manifold.

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

2) Fit the depression in the ST with the protrusion on the clamp to unlock.

3) Remove the PCV hose assembly.

ST 18353AA000 CLAMP PLIERS



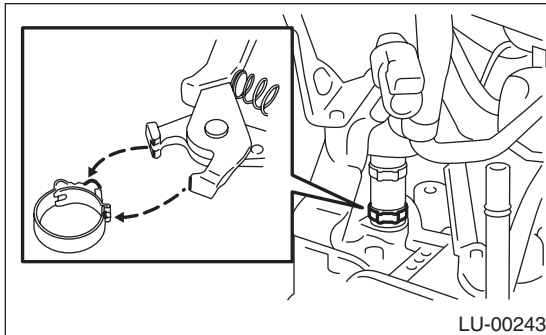
B: INSTALLATION

NOTE:

Use a new clamp.

1) Install the PCV hose assembly, then lock by fitting the ST on the clamp protrusion.

ST 18353AA000 CLAMP PLIERS



2) Install the intake manifold.

<Ref. to FU(H4DOTC)-20, INSTALLATION, Intake Manifold.>

PCV Hose Assembly

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

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