

EMISSION CONTROL (AUX. EMISSION
CONTROL DEVICES)

EC(H4DOTC)

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General Description

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

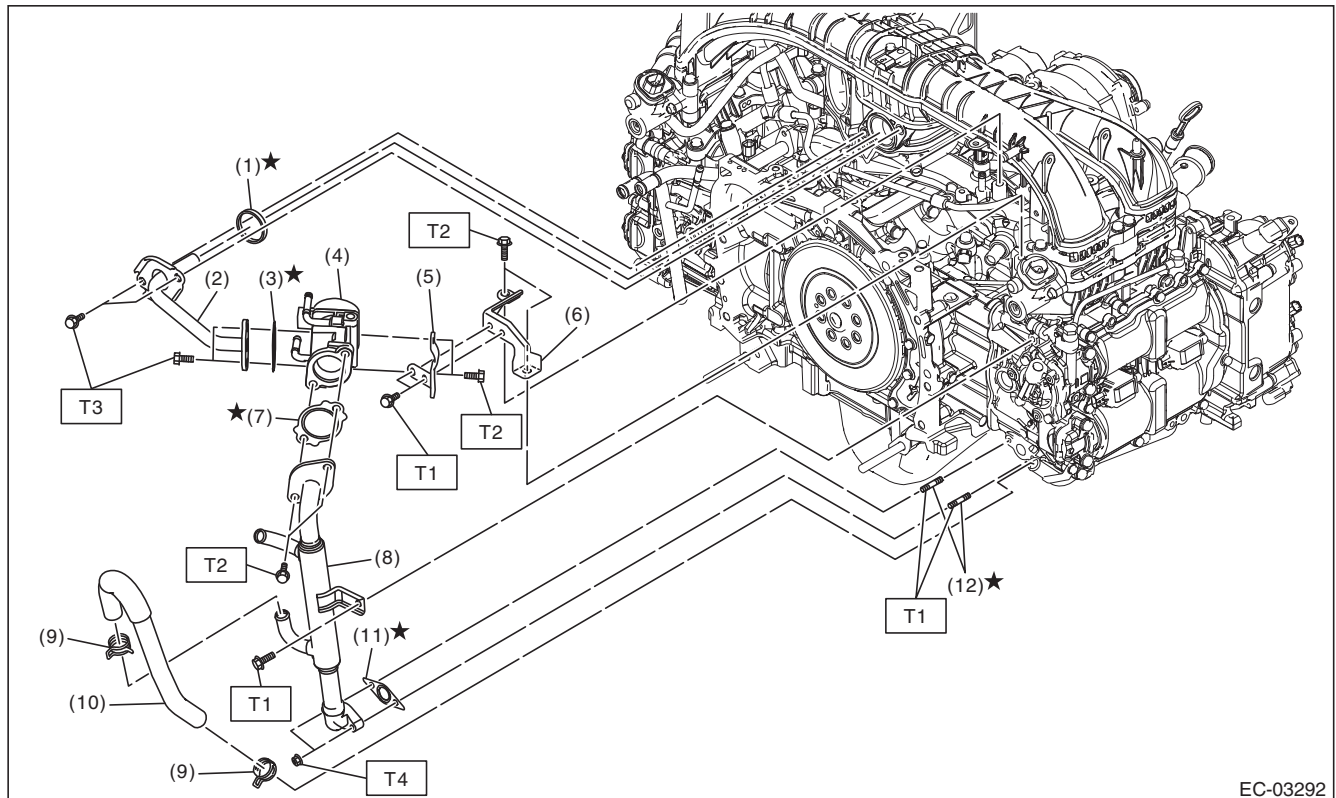
1. General Description

A: COMPONENT

1. CANISTER, PURGE CONTROL SOLENOID VALVE, AND LEAK CHECK VALVE ASSEMBLY

For components of canister, purge control solenoid valve, and leak check valve assembly, refer to FU(H4DOTC). <Ref. to FU(H4DOTC)-3, COMPONENT, General Description.>

2. EXHAUST GAS RECIRCULATION CONTROL CIRCUIT RANGE/PERFORMANCE



- | | |
|---------------------------------|-----------------|
| (1) O-ring | (7) Gasket |
| (2) EGR pipe | (8) EGR cooler |
| (3) Gasket | (9) Clip |
| (4) EGR control valve | (10) Water hose |
| (5) EGR control valve bracket A | (11) Gasket |
| (6) EGR control valve bracket B | (12) Stud bolt |

Tightening torque: N·m (kgf-m, ft-lb)

T1: 6.4 (0.7, 4.7)

T2: 19 (1.9, 14.0)

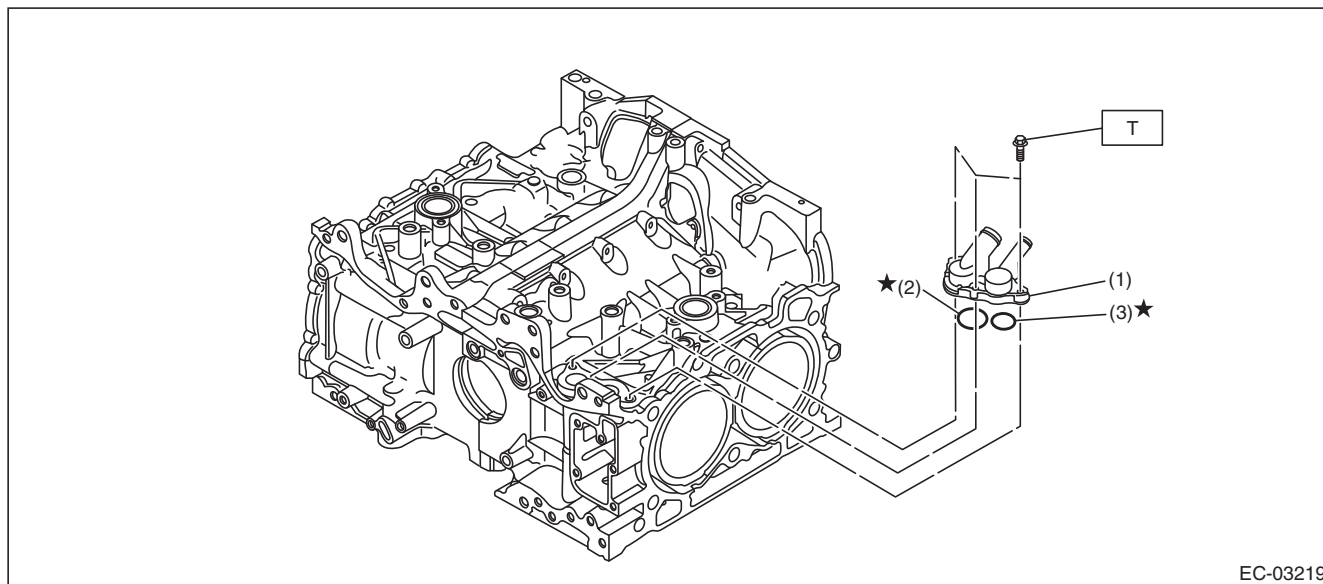
T3: <Ref. to EC(H4DOTC)-27, INSTALLATION, EGR Pipe.>

T4: <Ref. to EC(H4DOTC)-38, INSTALLATION, EGR Cooler.>

General Description

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

3. PCV SYSTEM 1



EC-03219

(1) PCV connector

(3) O-ring

Tightening torque: N·m (kgf-m, ft-lb)

(2) O-ring

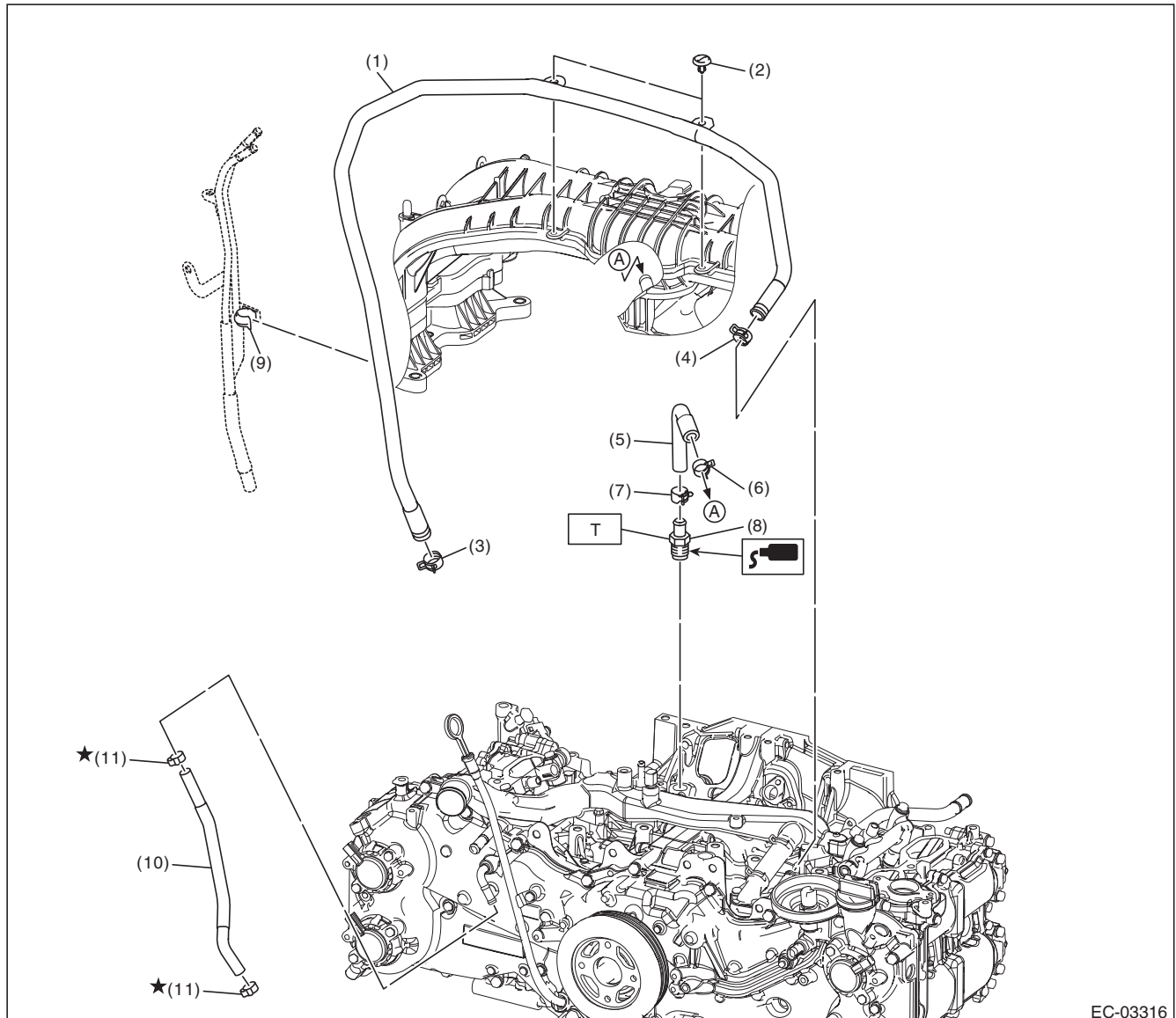
T: 6.4 (0.7, 4.7)



General Description

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

4. PCV SYSTEM 2



- | | | |
|----------------|-----------------|------------|
| (1) PCV pipe | (6) Clip | (11) Clamp |
| (2) Clip | (7) Clip | |
| (3) Clip | (8) PCV valve | |
| (4) Clip | (9) Clip | |
| (5) PCV hose A | (10) PCV hose B | |

Tightening torque: N·m (kgf-m, ft-lb)
T: 23 (2.3, 17.0)

General Description

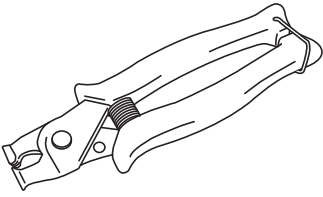
EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

B: CAUTION

- Prior to starting work, pay special attention to the following:
 1. Always wear work clothes, a safety cap, protective shoes. Additionally, wear a helmet, protective goggles, etc. if necessary.
 2. Protect the vehicle using a seat cover, fender cover, etc.
 3. Prepare the service tools, clean cloth, containers to catch grease and oil, etc.
- Vehicle components are extremely hot immediately after driving. Be wary of receiving burns from heated parts.
- When performing a repair, identify the cause of trouble and avoid unnecessary removal, disassembly and replacement.
- Before disconnecting connectors of sensors or units, be sure to disconnect the ground cable from battery.
- Always use the jack-up point when the shop jacks or rigid racks are used to support the vehicle.
- Remove contamination including dirt and corrosion before removal, installation, disassembly or assembly.
- Keep the removed parts in order and protect them from dust and dirt.
- All removed parts, if to be reused, should be reinstalled in the original positions with attention to the correct directions, etc.
- Bolts, nuts and washers should be replaced with new parts as required.
- Be sure to tighten the fasteners including bolts and nuts to the specified torque.

C: PREPARATION TOOL

1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST18353AA000	18353AA000	CLAMP PLIERS	• Used for removing and installing the PCV hose assembly. • This tool is made by the French company CAILLAU. (code) 54.0.000.205 To make it easier to obtain, it has been provided with a tool number.

2. GENERAL TOOL

TOOL NAME	REMARKS
Circuit tester	Used for measuring resistance and voltage.
Mighty Vac	Used for inspection of the two-way valve.

Front Catalytic Converter

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

2. Front Catalytic Converter

A: REMOVAL

The front catalytic converter is integrated into the center exhaust pipe (front). Refer to "Center Exhaust Pipe" for removal procedures. <Ref. to EX(H4DOTC)-30, REMOVAL, Center Exhaust Pipe.>

B: INSTALLATION

The front catalytic converter is integrated into the center exhaust pipe (front). Refer to "Center Exhaust Pipe" for installation procedures. <Ref. to EX(H4DOTC)-35, INSTALLATION, Center Exhaust Pipe.>

C: INSPECTION

- 1) Check the connections and welded parts 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

The rear catalytic converter is integrated into the center exhaust pipe (rear). Refer to "Center Exhaust Pipe" for removal procedures. <Ref. to EX(H4DOTC)-30, REMOVAL, Center Exhaust Pipe.>

B: INSTALLATION

The rear catalytic converter is integrated into the center exhaust pipe (rear). Refer to "Center Exhaust Pipe" for installation procedures. <Ref. to EX(H4DOTC)-35, INSTALLATION, Center Exhaust Pipe.>

C: INSPECTION

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



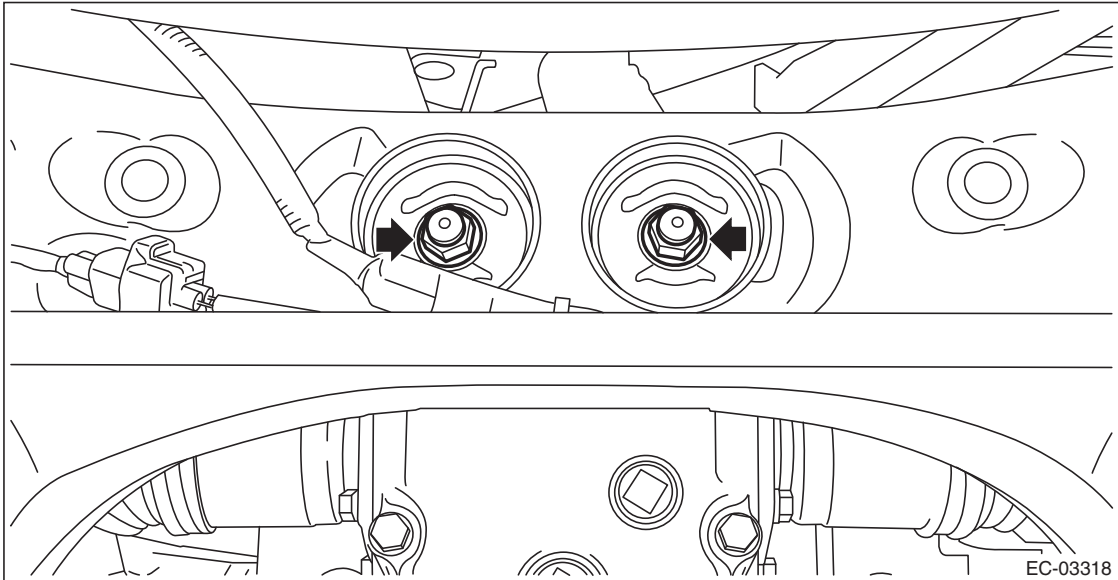
Canister

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

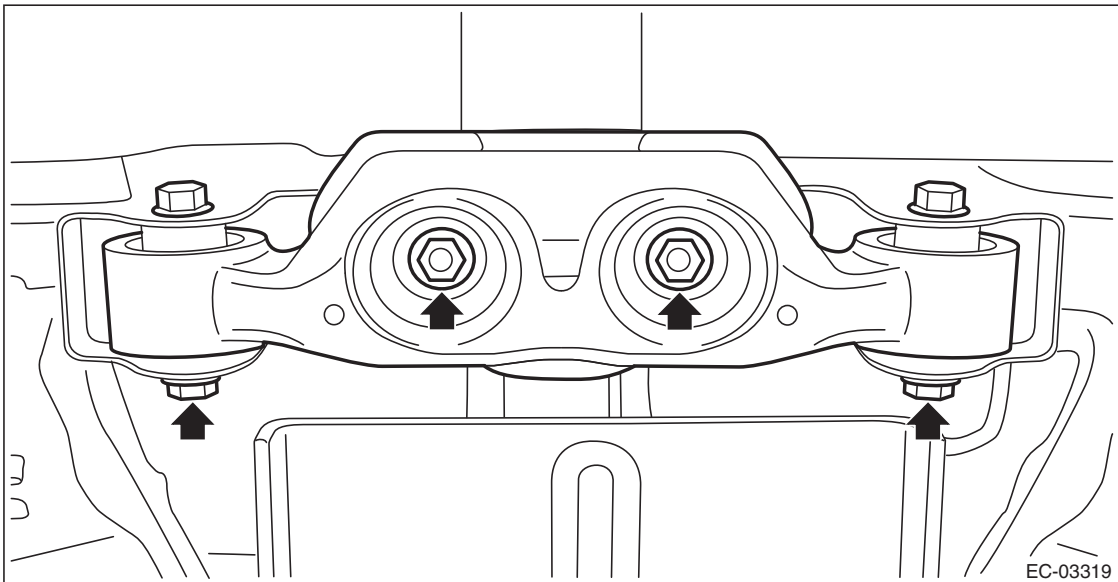
4. Canister

A: REMOVAL

- 1) Lift up the vehicle.
- 2) Remove the rear exhaust pipe. <Ref. to EX(H4DOTC)-45, REMOVAL, Rear Exhaust Pipe.>
- 3) Remove the propeller shaft. <Ref. to DS-11, REMOVAL, Propeller Shaft.>
- 4) Support the rear differential with the transmission jack.
- 5) Remove the self-locking nuts which hold the rear differential to the rear sub frame assembly.



- 6) Remove the rear differential member from the rear sub frame assembly and the rear differential.



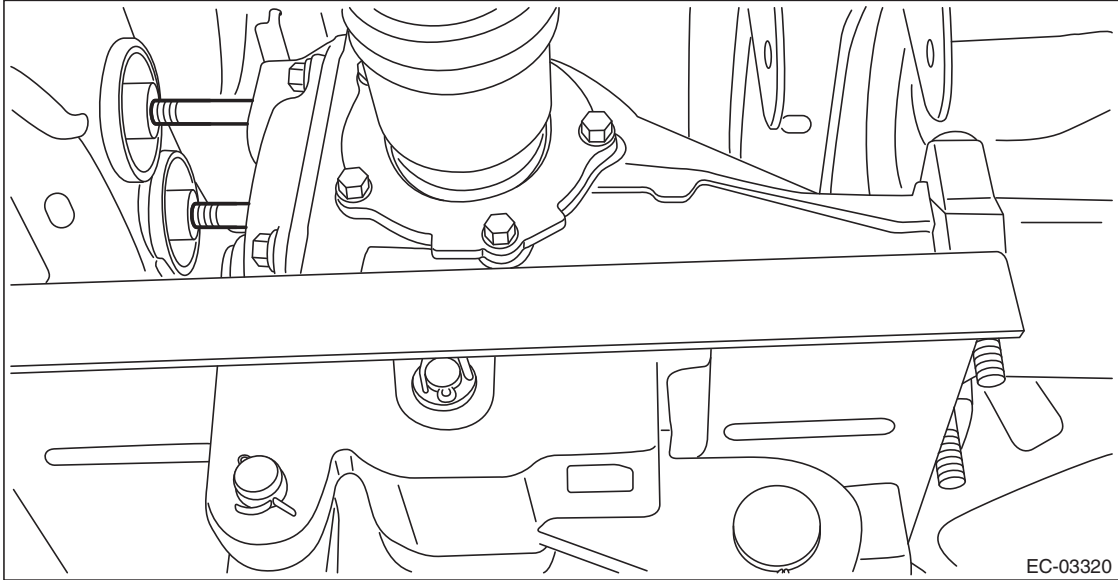
Canister

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

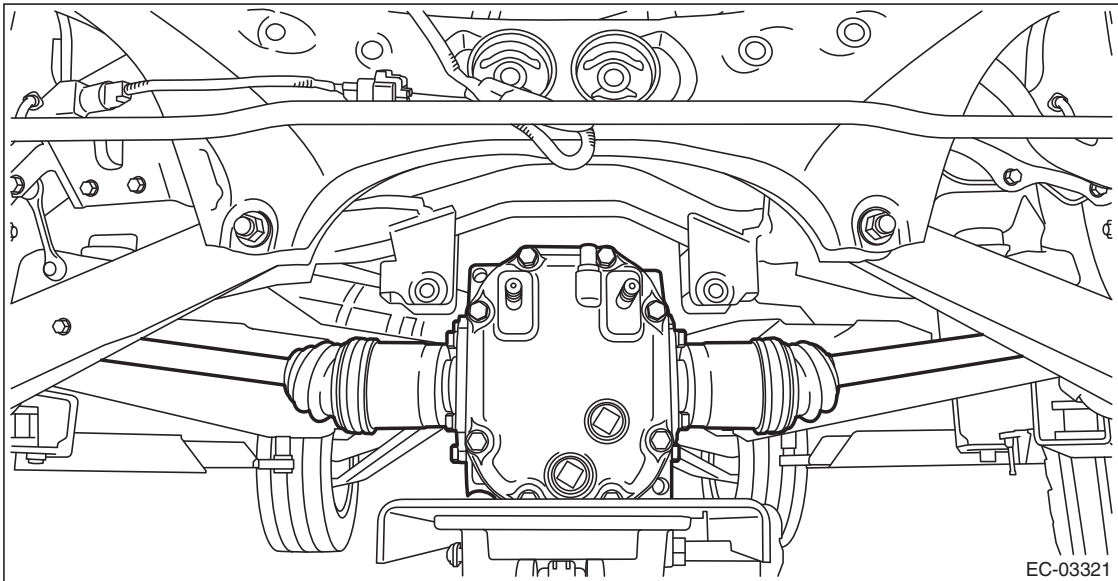
7) Lower the transmission jack gradually until the rear differential is at the position shown in the figure.

NOTE:

- When pulling out the stud bolt from the bushing portion of the rear sub frame assembly, adjust the angle and location of transmission jack and jack stand.



- Do not lower the rear differential excessively. Doing so may add extra load to the drive shaft or cause the falling-off of the drive shaft.



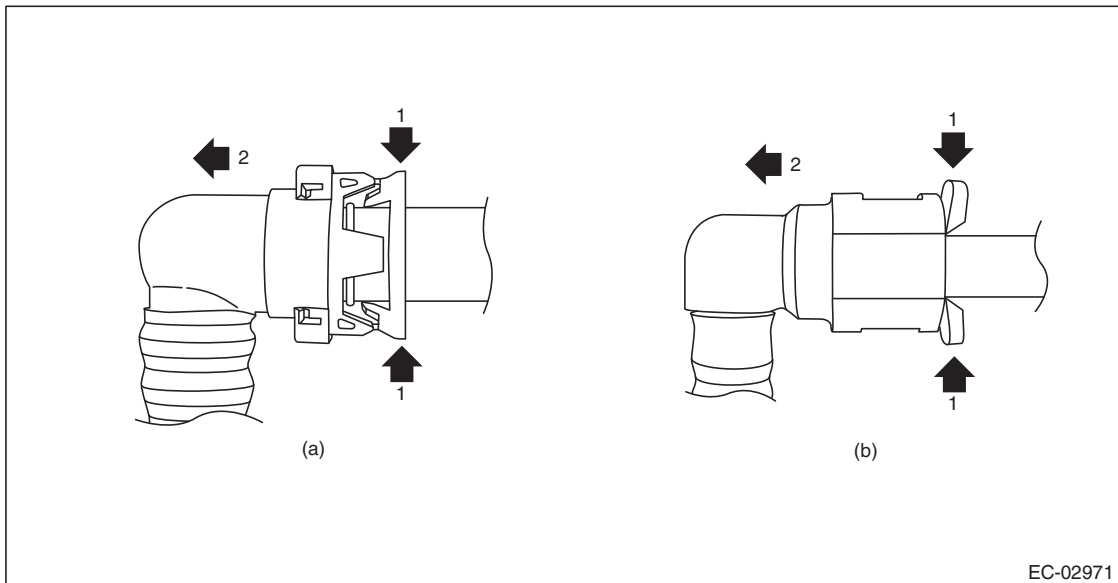
Canister

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

8) Disconnect the drain tube (A), vent tube (B) and purge tube (C) from the canister.

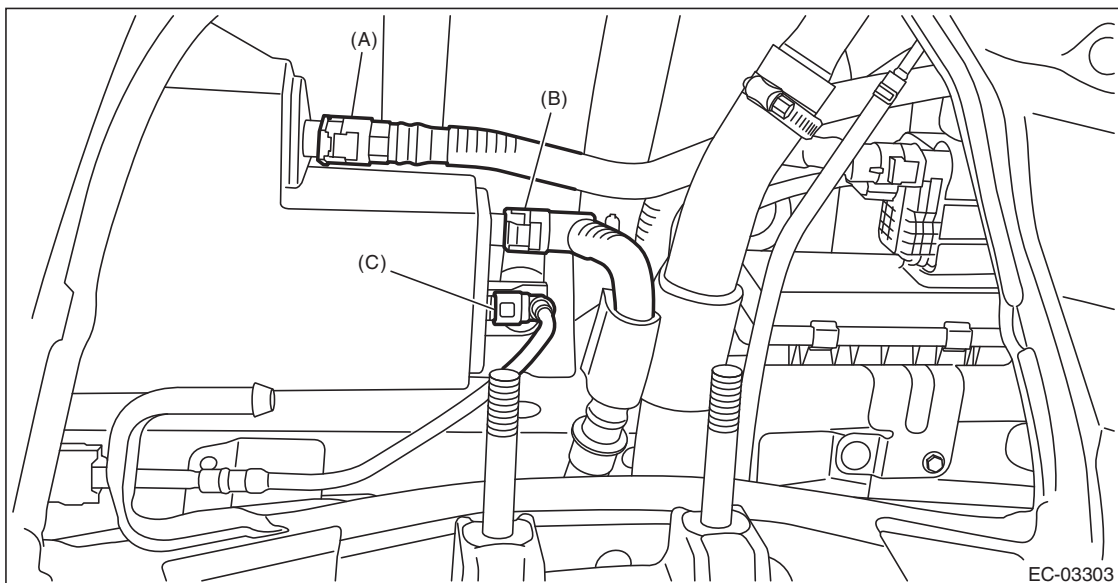
NOTE:

Disconnect the quick connector as shown in the figure.



(a) Drain tube and vent tube

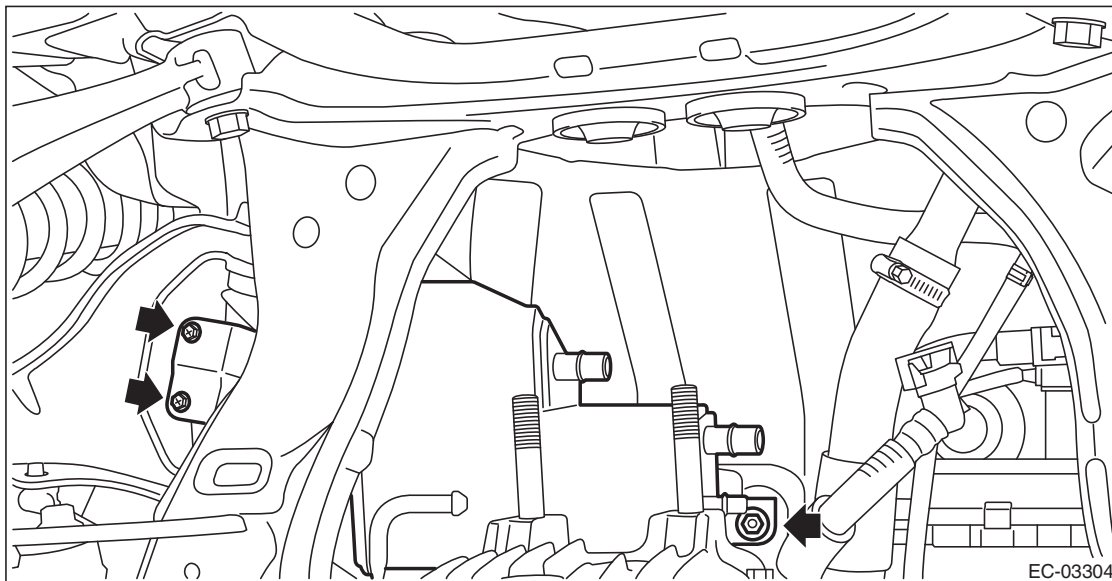
(b) Purge tube



Canister

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

9) Remove the canister from vehicle.

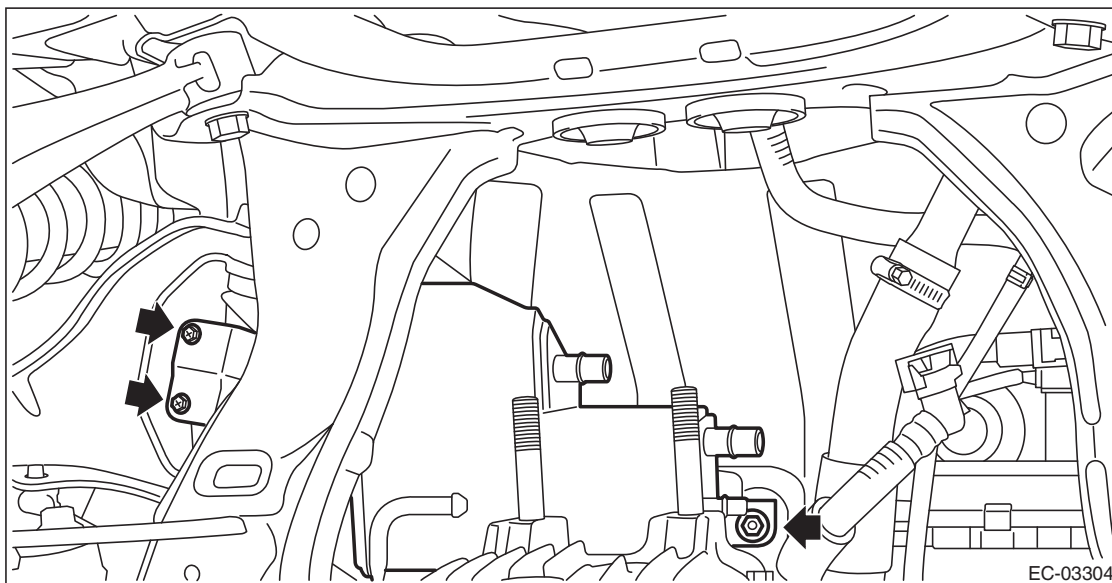


B: INSTALLATION

1) Install the canister to the vehicle.

Tightening torque:

7.5 N·m (0.8 kgf-m, 5.5 ft-lb)



Canister

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

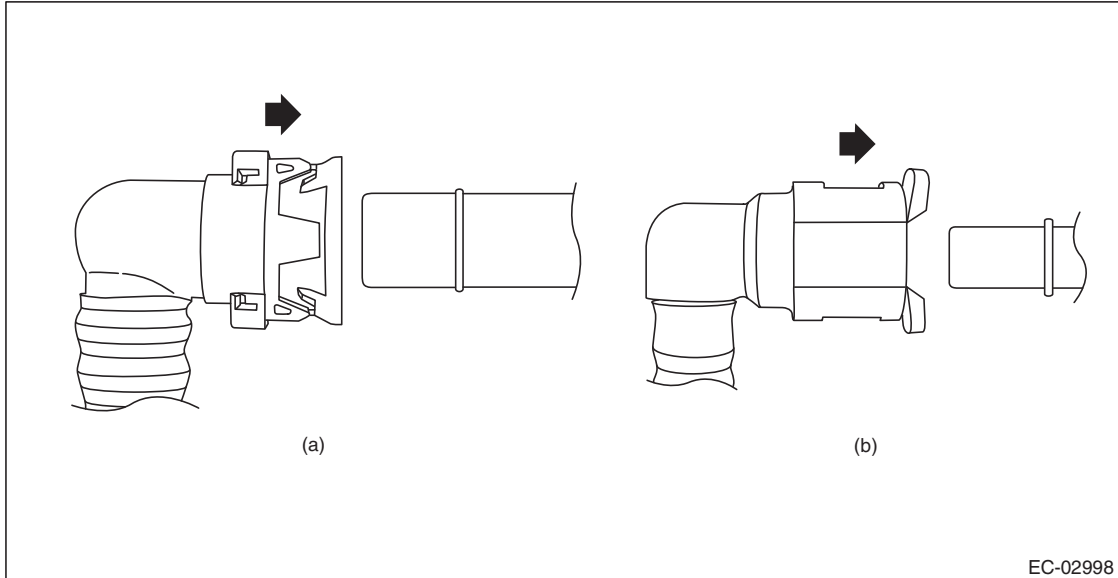
2) Install the drain tube (A), vent tube (B) and purge tube (C) to the canister.

CAUTION:

- Check that there is no damage or dust on the quick connector. If necessary, clean the seal surface of the pipe.
- Make sure that the quick connector is securely connected.

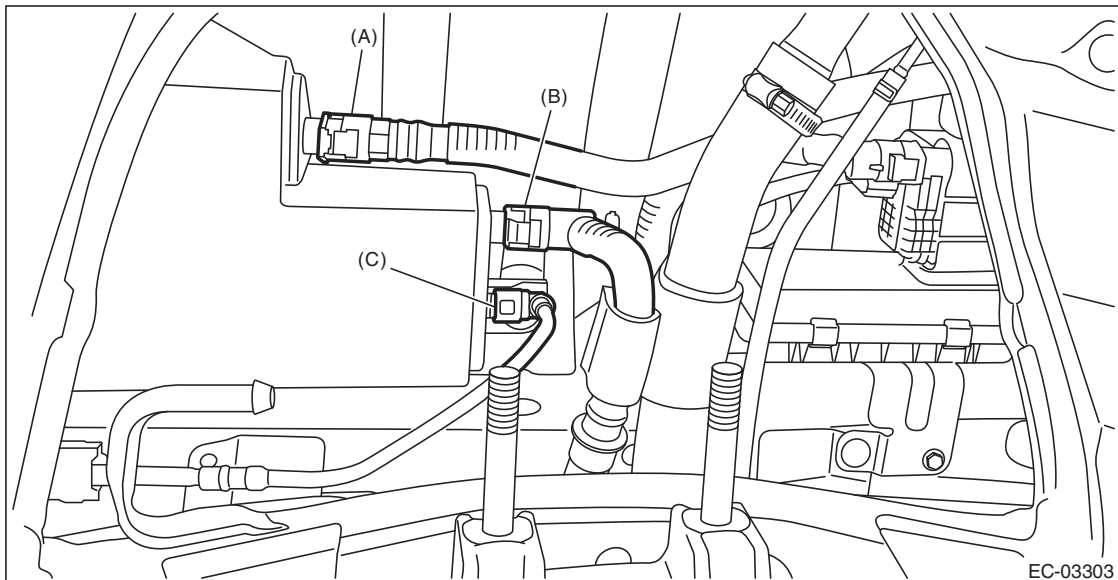
NOTE:

Install the quick connector as shown in the figure.



(a) Drain tube and vent tube

(b) Purge tube



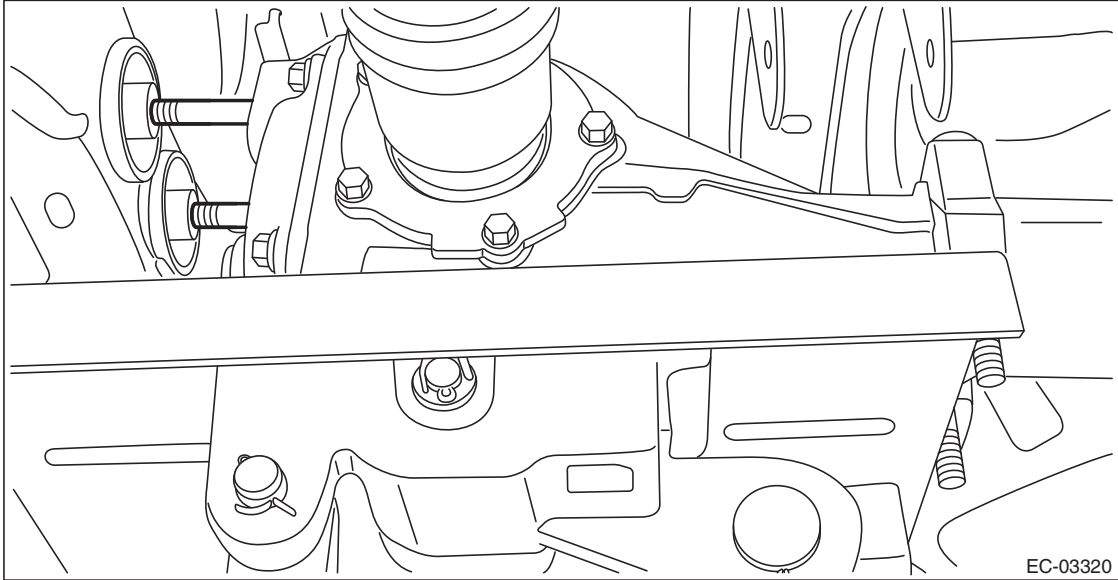
Canister

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

3) Lift up the transmission jack gradually, and set the rear differential to the rear sub frame assembly.

NOTE:

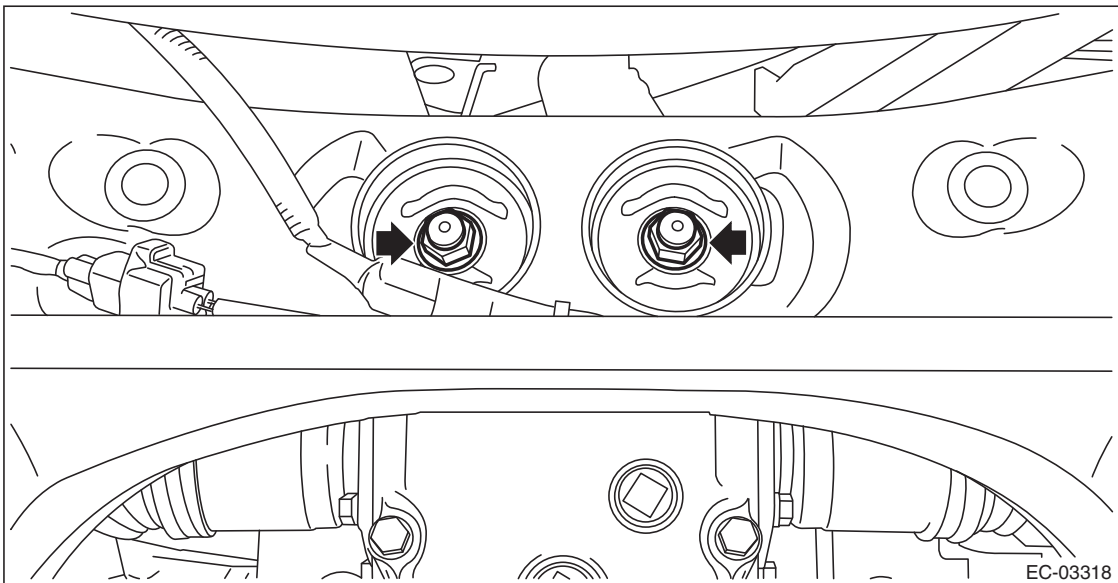
When inserting the stud bolt into the bushing portion of the rear sub frame assembly, adjust the angle and location of transmission jack and jack stand.



4) Temporarily tighten the self-locking nuts which hold the rear differential to the rear sub frame assembly.

NOTE:

Use a new self-locking nut.



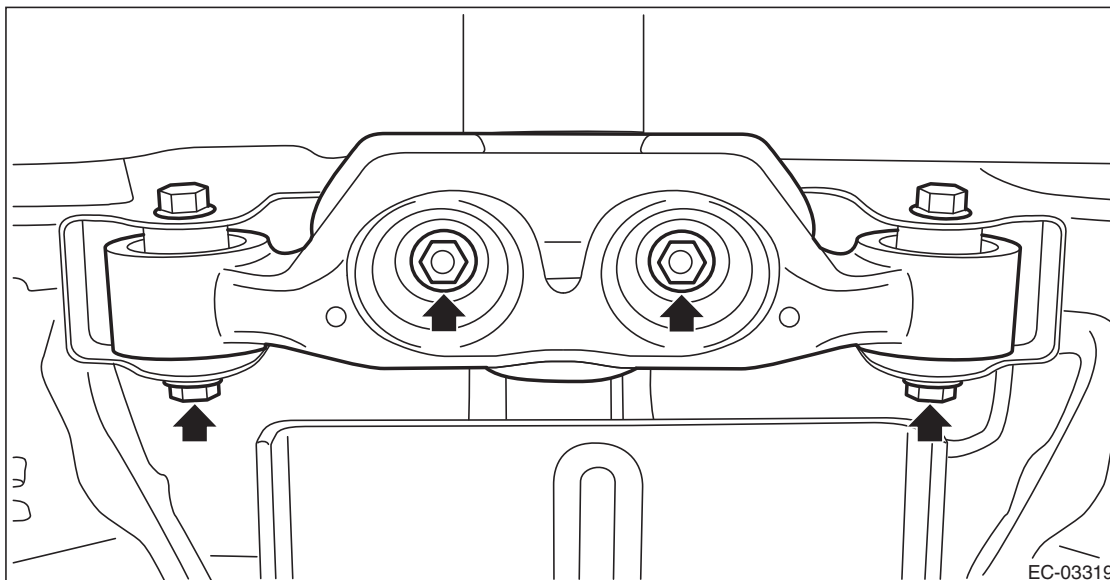
Canister

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

5) Set the rear differential member to the rear sub frame assembly and rear differential, and temporarily tighten the self-lock nuts which secure the rear differential member to the rear sub frame assembly and rear differential.

NOTE:

Use a new self-locking nut.



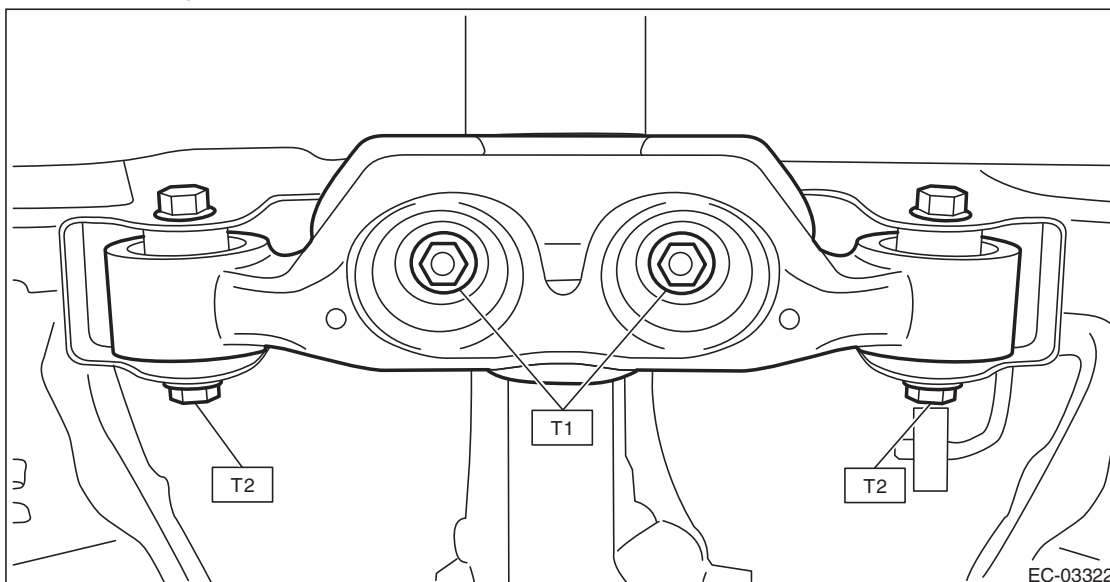
6) Remove the transmission jack from the rear differential.

7) Tighten the self-locking nuts which secure the rear differential member to the rear sub frame assembly and rear differential.

Tightening torque:

T1: 50 N·m (5.1 kgf-m, 36.9 ft-lb)

T2: 110 N·m (11.2 kgf-m, 81.1 ft-lb)



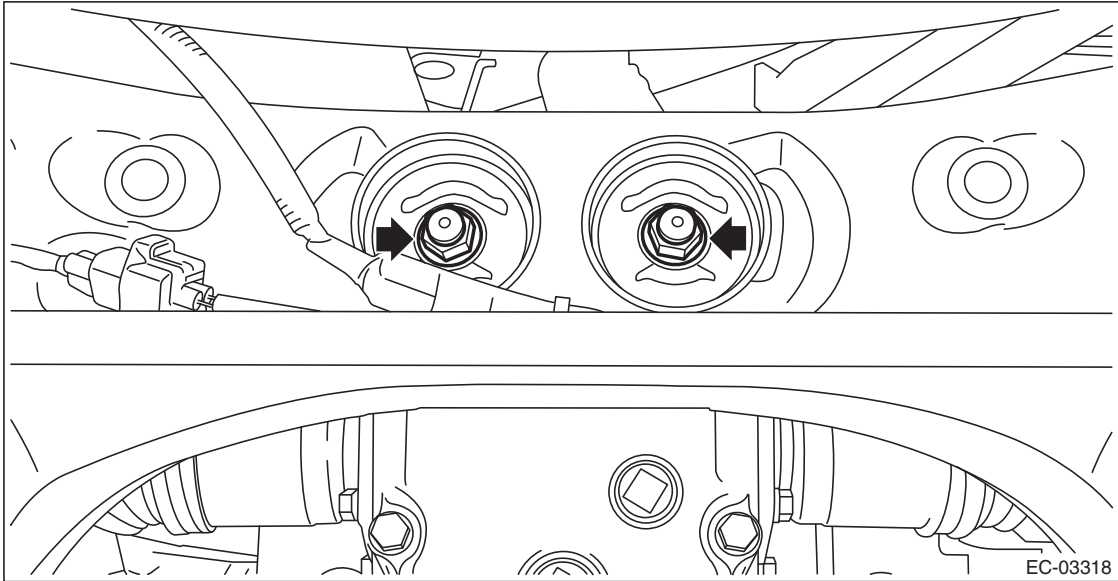
Canister

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

8) Tighten the self-locking nuts which secure the rear differential to the rear sub frame assembly.

Tightening torque:

70 N·m (7.1 kgf-m, 51.6 ft-lb)



9) Install the propeller shaft. <Ref. to DS-13, INSTALLATION, Propeller Shaft.>

10) Install the rear exhaust pipe. <Ref. to EX(H4DOTC)-46, INSTALLATION, Rear Exhaust Pipe.>

11) Lower the vehicle.

C: INSPECTION

- 1) Check that the canister has no deformation, cracks or other damages.
- 2) Check that the tube has no cracks, damage or loose part.

Purge Control Solenoid Valve

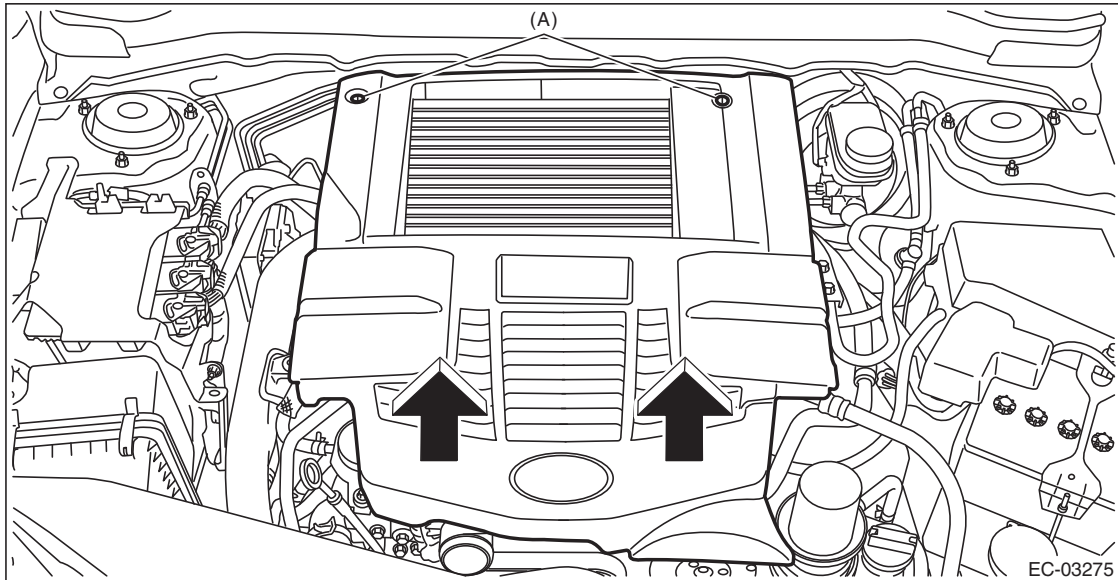
EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

5. Purge Control Solenoid Valve

A: REMOVAL

1. PURGE CONTROL SOLENOID VALVE 1

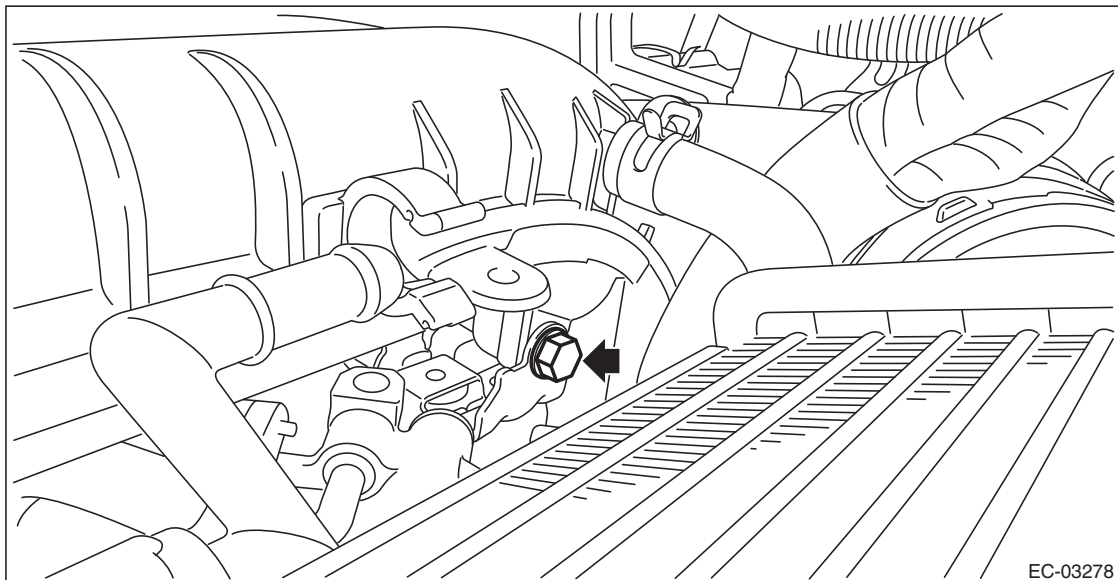
1) Remove the clip (A), lift the front of the collector cover in the direction of arrow, and then remove the collector cover.



2) Disconnect the ground cable from battery.

3) Remove the brake vacuum pump. <Ref. to BR-79, REMOVAL, Brake Vacuum Pump.>

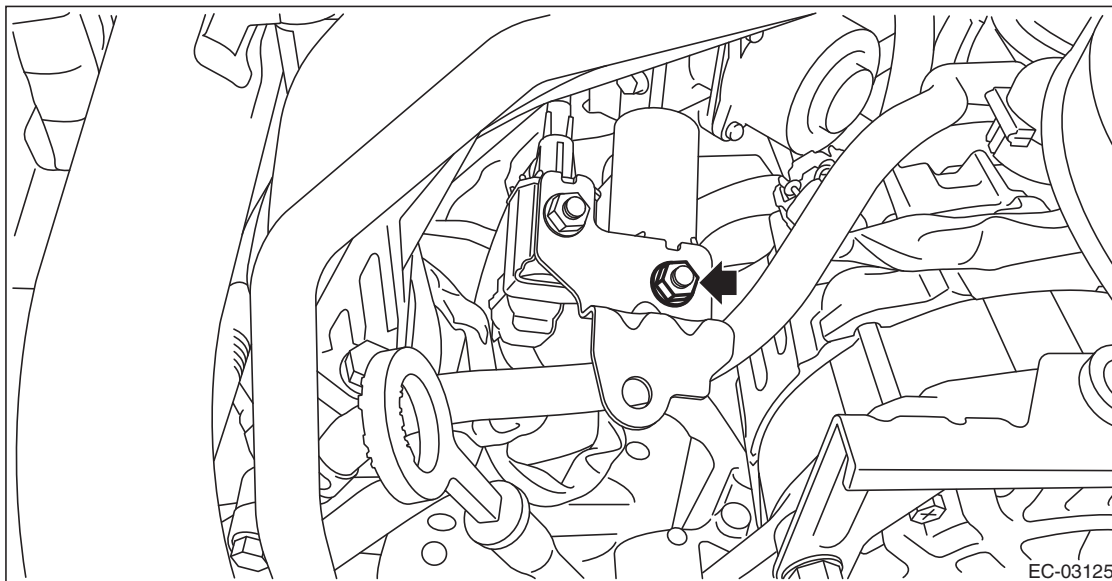
4) Remove the bolt which secure the solenoid valve bracket from the intake manifold.



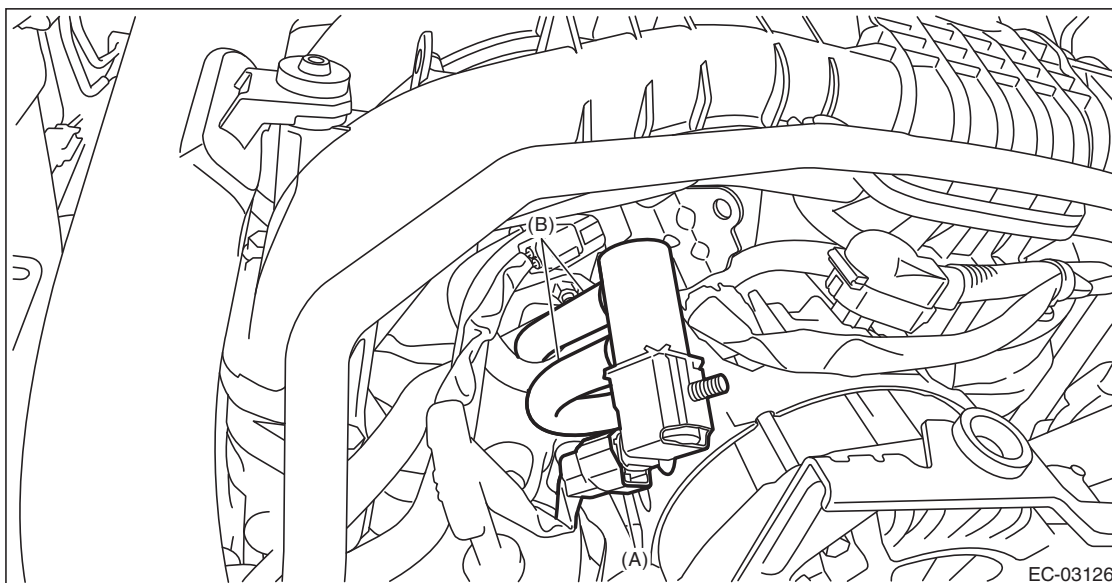
Purge Control Solenoid Valve

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

- 5) Remove the nut which secures the purge control solenoid valve 1 to the solenoid valve bracket.



- 6) Disconnect the connector (A) and vacuum hose (B) from the purge control solenoid valve 1, and remove the purge control solenoid valve 1.

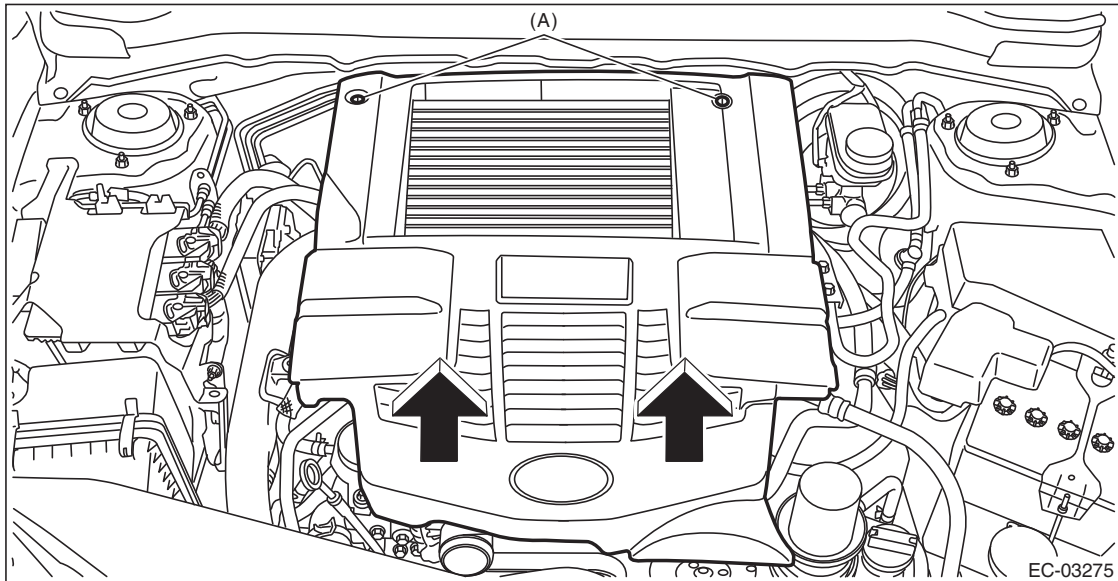


Purge Control Solenoid Valve

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

2. PURGE CONTROL SOLENOID VALVE 2

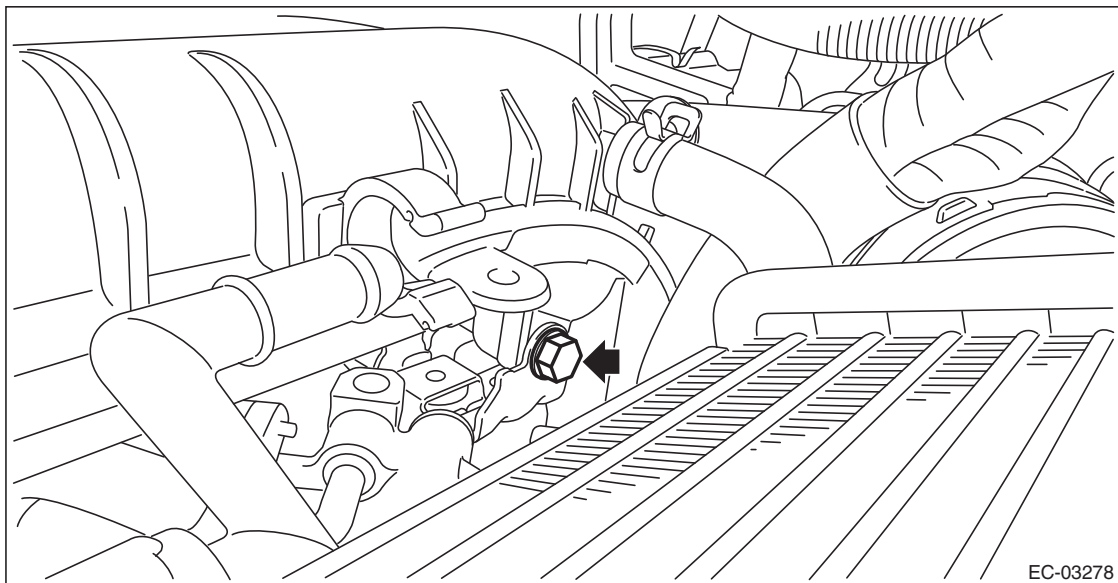
1) Remove the clip (A), lift the front of the collector cover in the direction of arrow, and then remove the collector cover.



2) Disconnect the ground cable from battery.

3) Remove the brake vacuum pump. <Ref. to BR-79, REMOVAL, Brake Vacuum Pump.>

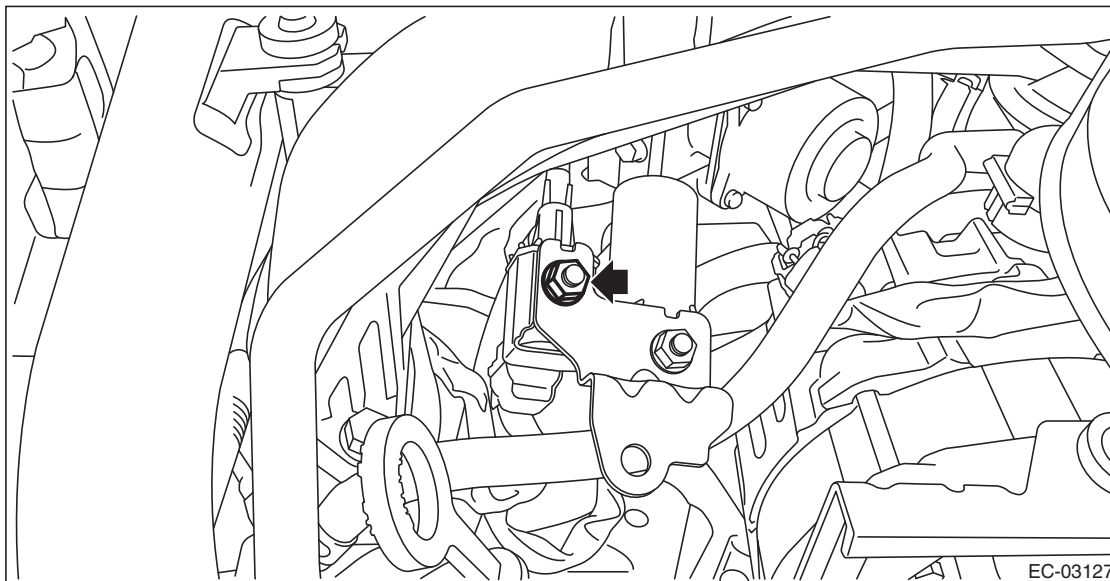
4) Remove the bolt which secure the solenoid valve bracket from the intake manifold.



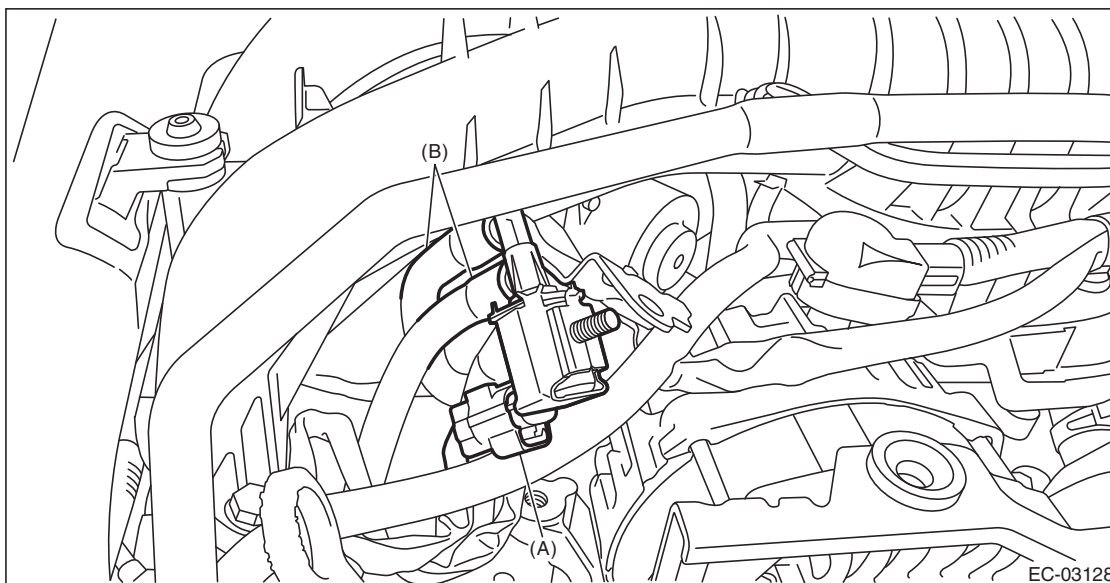
Purge Control Solenoid Valve

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

- 5) Remove the nut which secures the purge control solenoid valve 2 to the solenoid valve bracket.



- 6) Disconnect the connector (A) and vacuum hose (B) from the purge control solenoid valve 2, and remove the purge control solenoid valve 2.



Purge Control Solenoid Valve

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

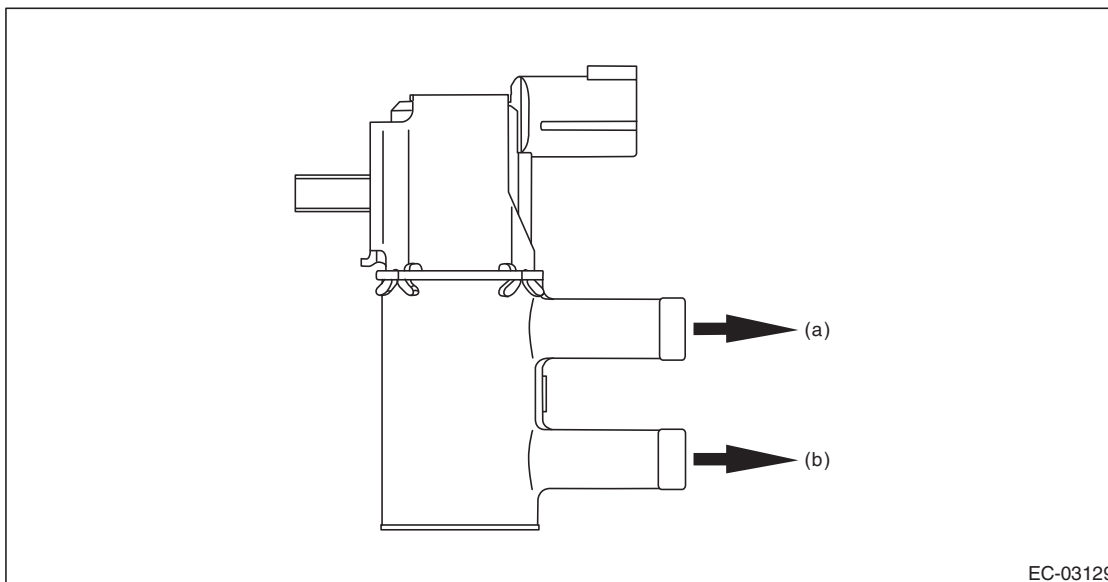
B: INSTALLATION

1. PURGE CONTROL SOLENOID VALVE 1

Install in the reverse order of removal.

NOTE:

Connect the vacuum hose as shown in the figure.

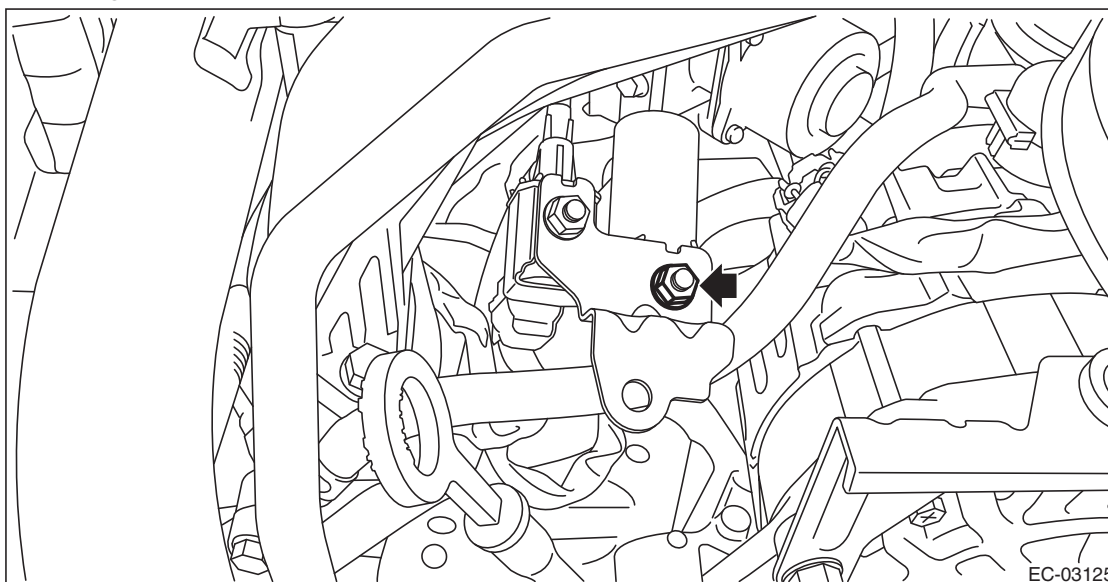


(a) To intake manifold

(b) To fuel pipe

Tightening torque:

6.4 N·m (0.7 kgf-m, 4.7 ft-lb)

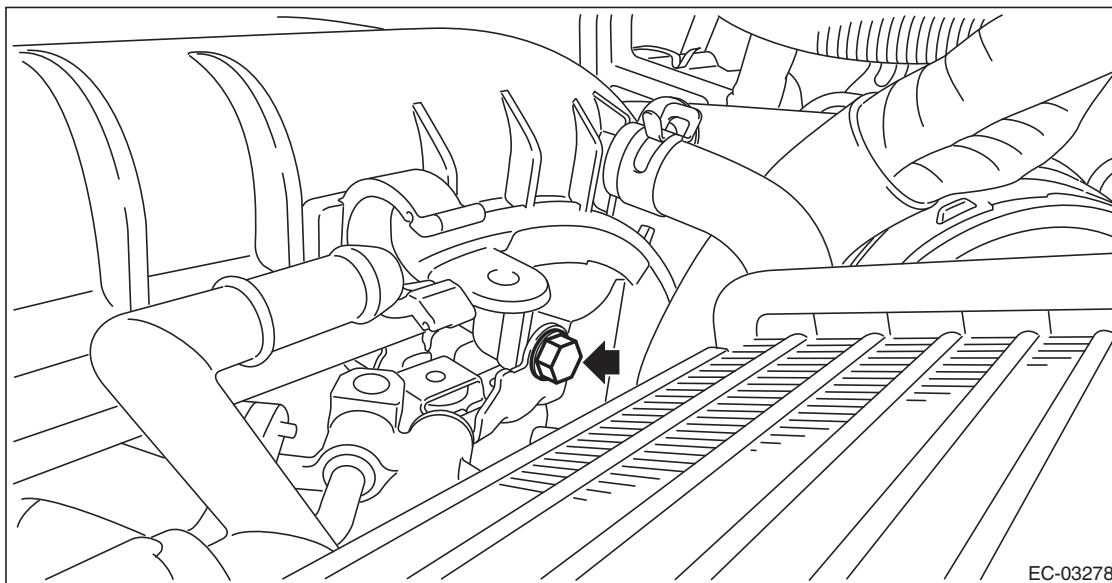


Purge Control Solenoid Valve

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

Tightening torque:

19 N·m (1.9 kgf-m, 14.0 ft-lb)

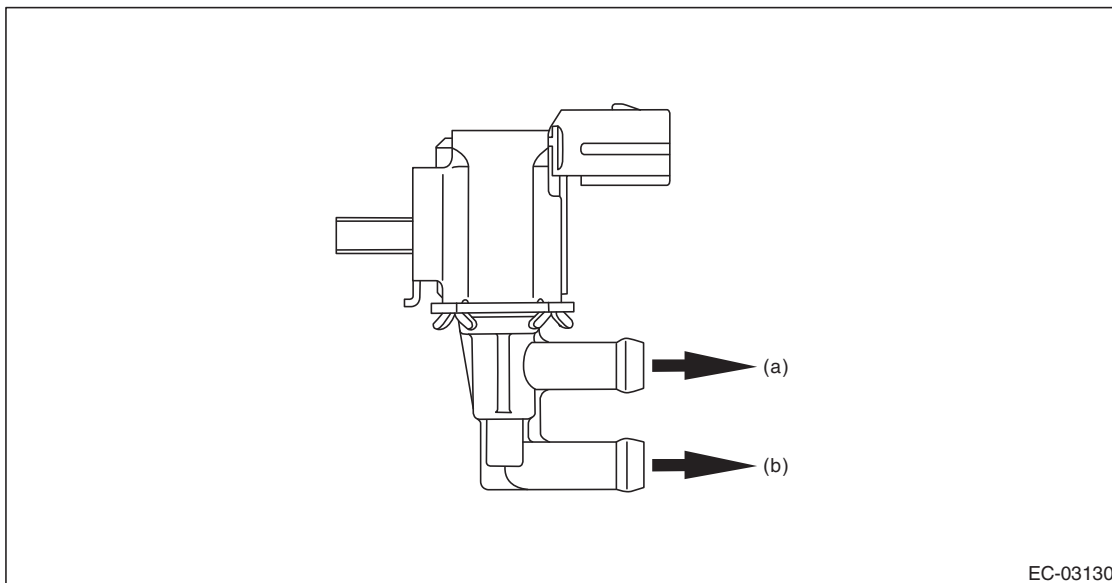


2. PURGE CONTROL SOLENOID VALVE 2

Install in the reverse order of removal.

NOTE:

Connect the vacuum hose as shown in the figure.



(a) To intake duct

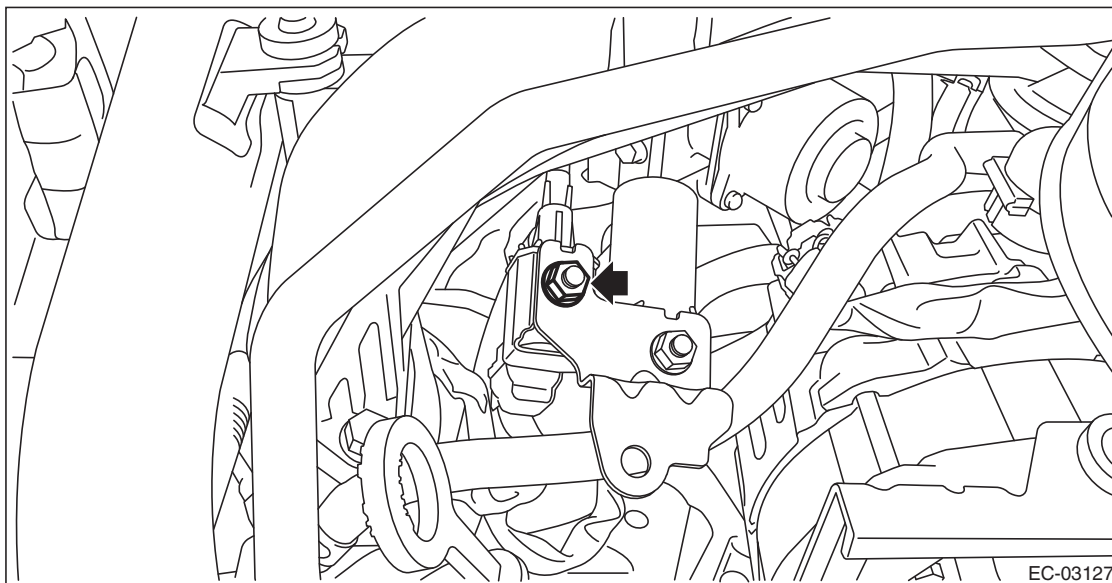
(b) To fuel pipe

Purge Control Solenoid Valve

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

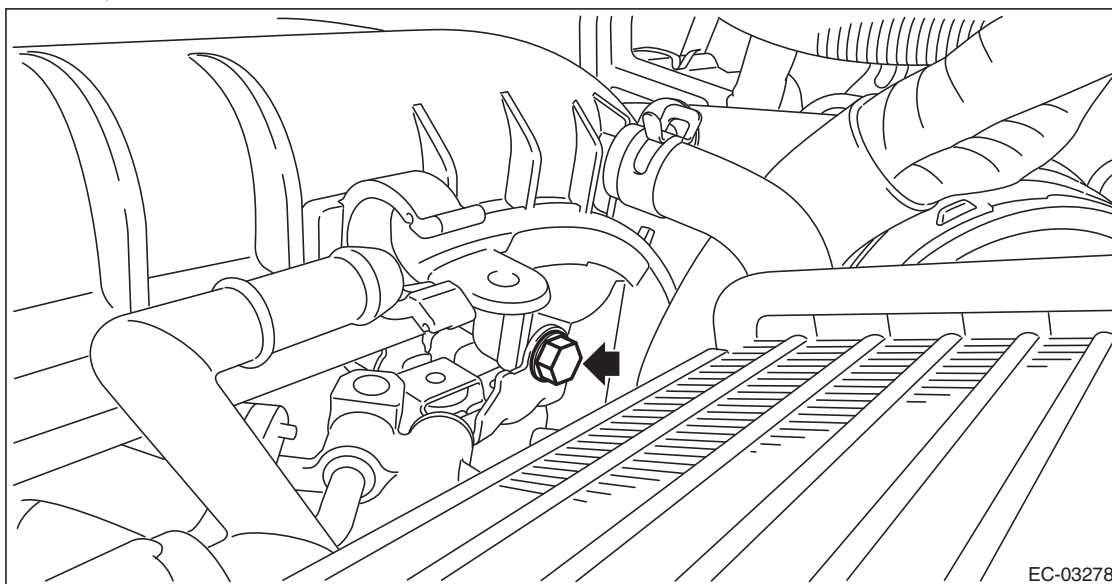
Tightening torque:

6.4 N·m (0.7 kgf-m, 4.7 ft-lb)



Tightening torque:

19 N·m (1.9 kgf-m, 14.0 ft-lb)



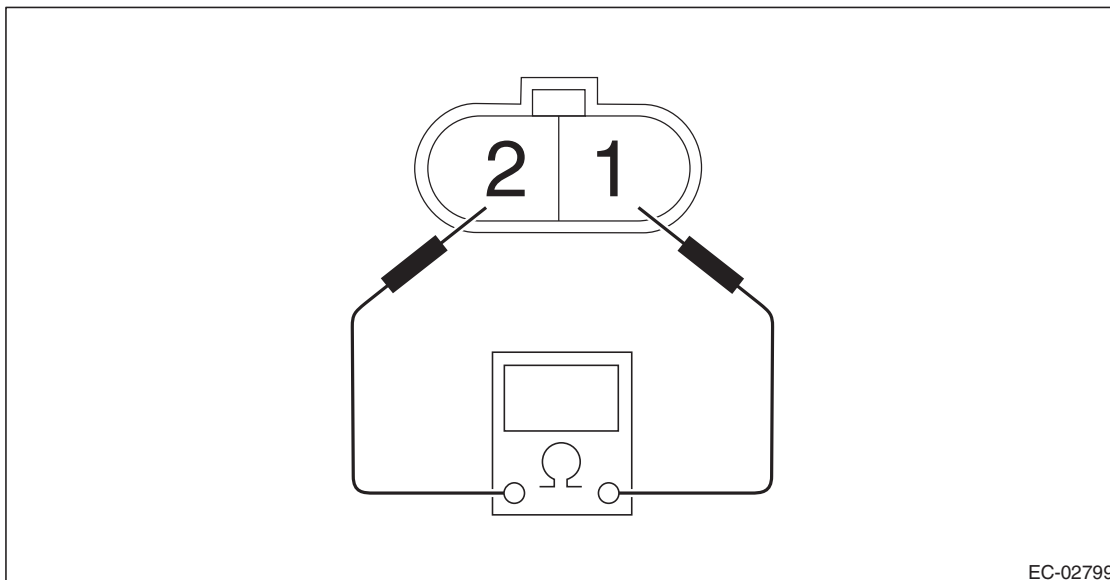
Purge Control Solenoid Valve

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

C: INSPECTION

1. PURGE CONTROL SOLENOID VALVE

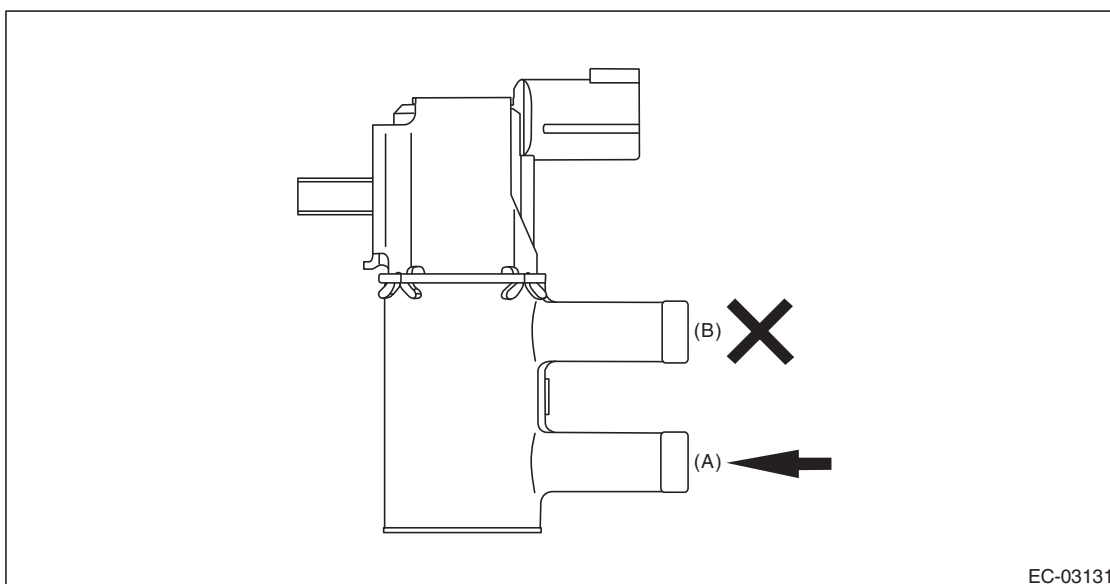
- 1) Check that the purge control solenoid valve has no deformation, cracks or other damages.
- 2) Measure the resistance between the purge control solenoid valve terminals.



Terminal No.	Standard
1 and 2	$24 \pm 3 \Omega$ (20°C (68°F))

- 3) Check that air does not come out from (B) when air is blown into (A).

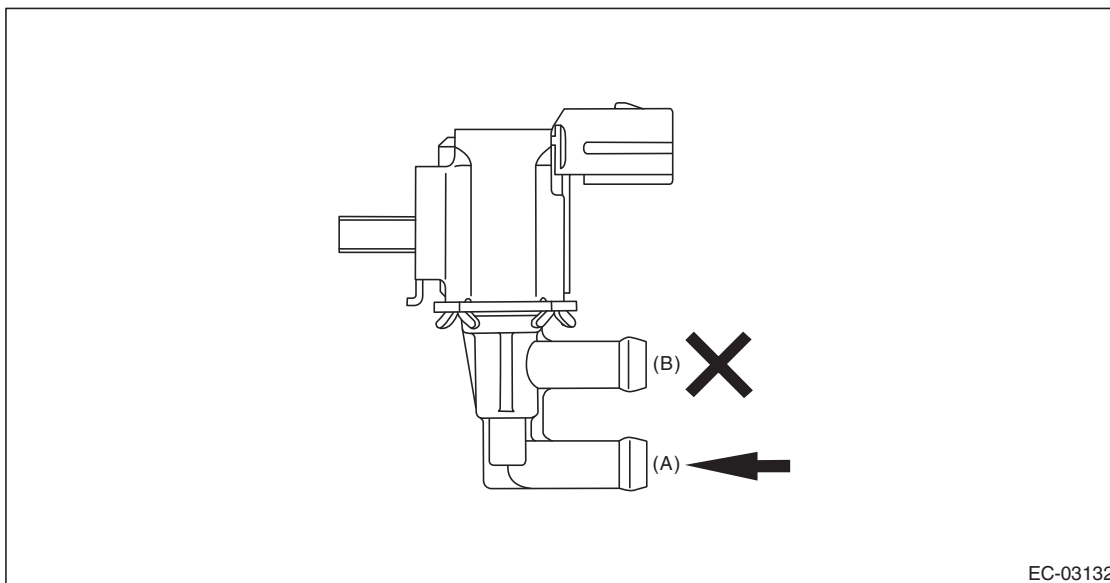
- Purge control solenoid valve 1



Purge Control Solenoid Valve

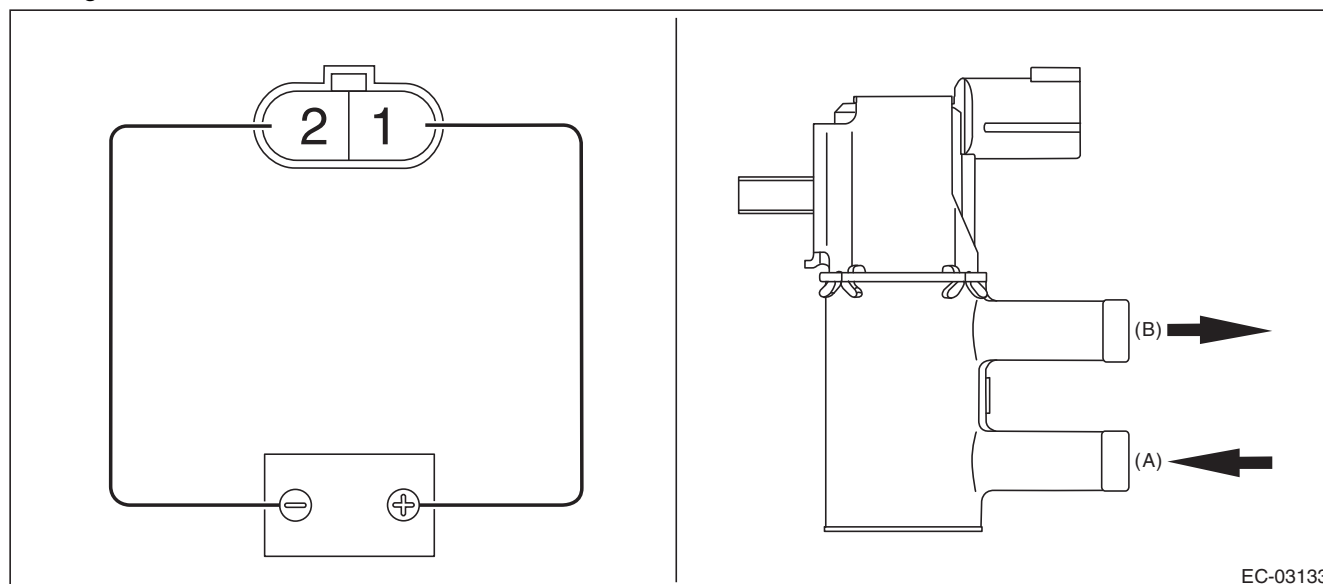
EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

- Purge control solenoid valve 2



4) Connect the battery positive terminal to the terminal No. 1 and the battery negative terminal to the terminal No. 2. Check that air is discharged from (B), when supplying air to (A).

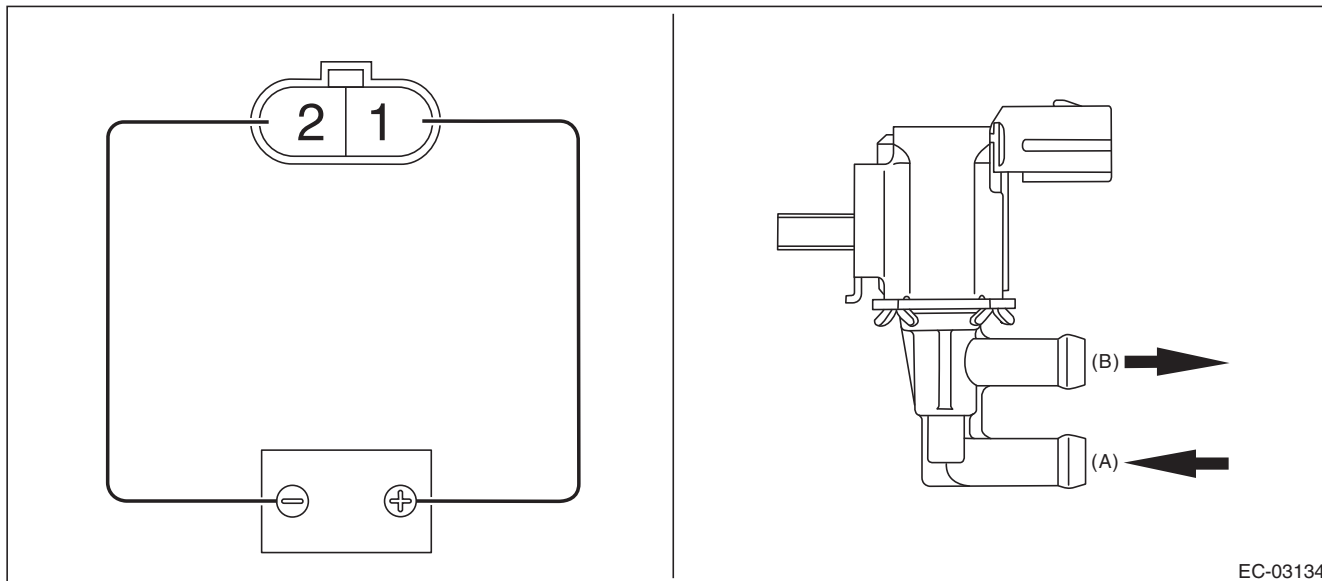
- Purge control solenoid valve 1



Purge Control Solenoid Valve

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

- Purge control solenoid valve 2



2. OTHER INSPECTIONS

Check the vacuum hose for cracks, damage or looseness.

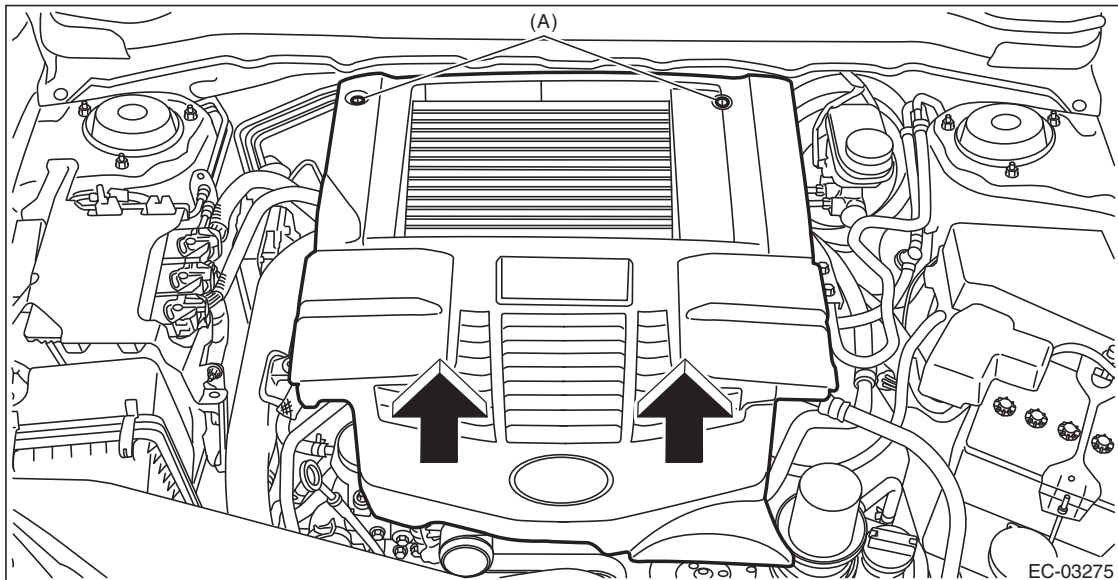
EGR Pipe

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

6. EGR Pipe

A: REMOVAL

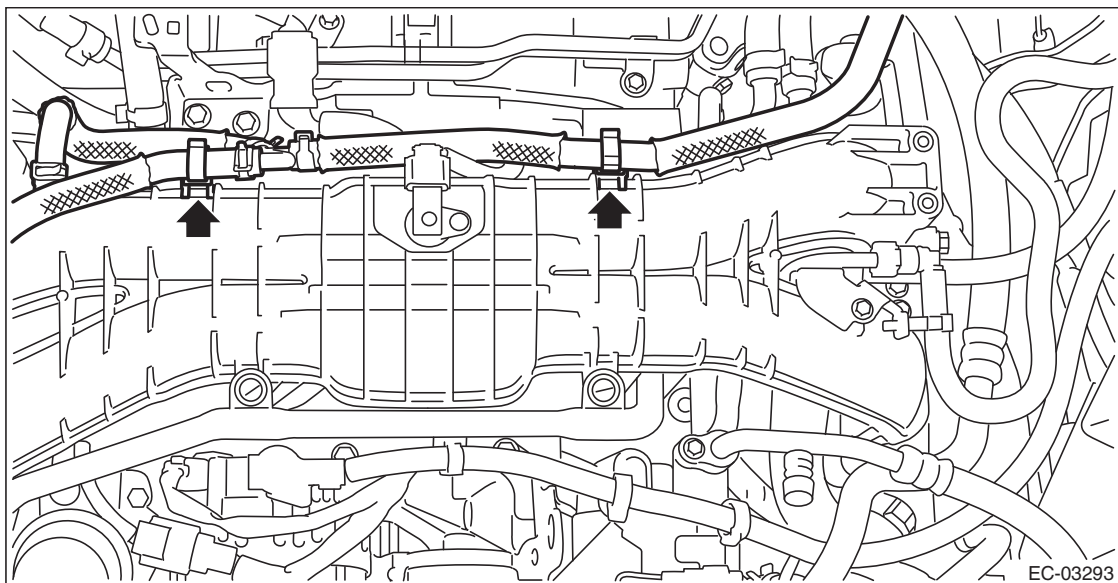
1) Remove the clip (A), lift the front of the collector cover in the direction of arrow, and then remove the collector cover.



2) Disconnect the ground cable from battery.

3) Remove the intercooler. <Ref. to IN(H4DOTC)-35, REMOVAL, Intercooler.>

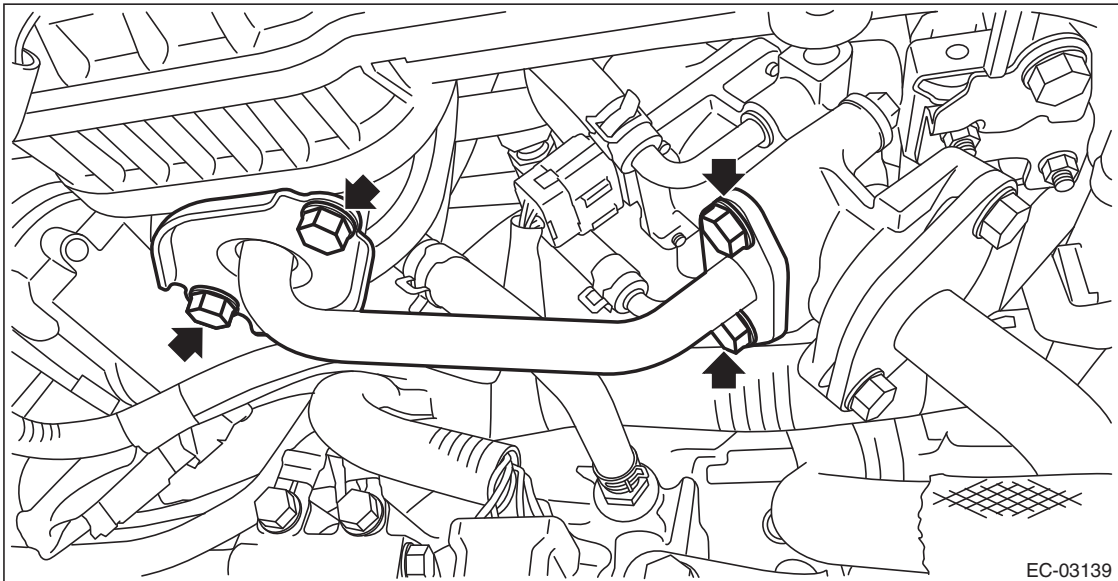
4) Remove the clip securing the brake booster vacuum hose to the intake manifold, and move the brake booster vacuum hose at the locations that do not interfere operation.



EGR Pipe

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

5) Remove the bolts which secure the EGR pipe to the intake manifold and EGR control valve, and remove the EGR pipe.



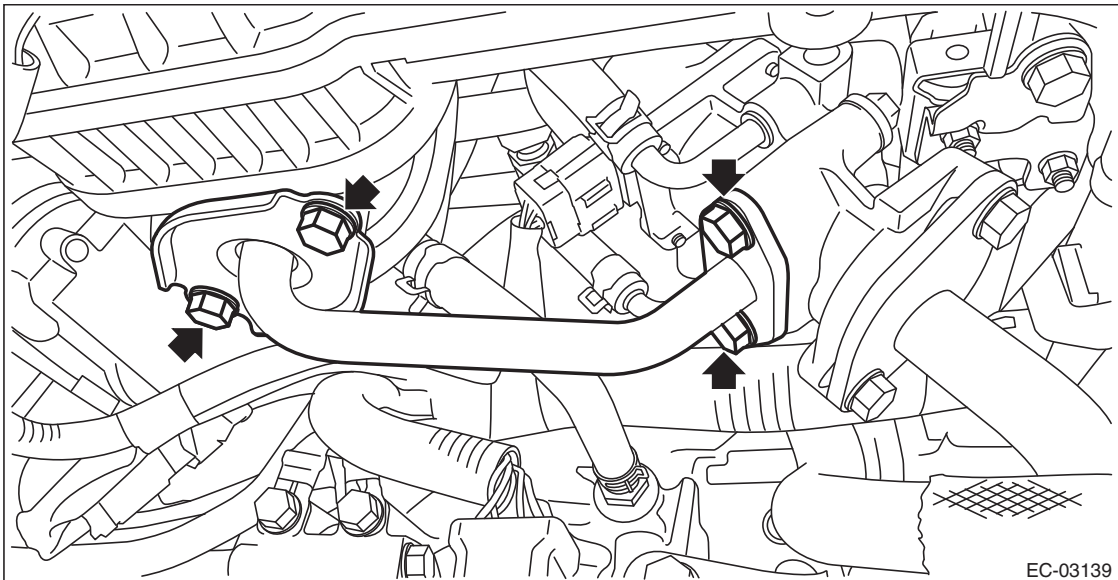
B: INSTALLATION

1) Install the EGR pipe to the intake manifold and EGR control valve.

(1) Set the EGR pipe to the intake manifold and EGR control valve, and temporarily tighten the bolts which secure the EGR pipe to the intake manifold and EGR control valve.

NOTE:

Use new gaskets and O-rings.



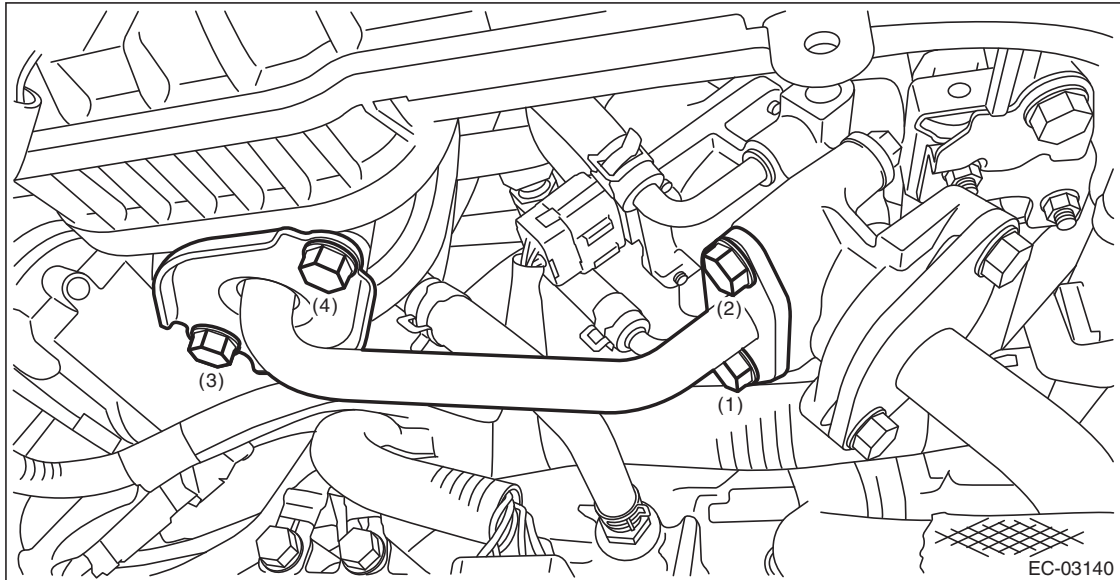
EGR Pipe

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

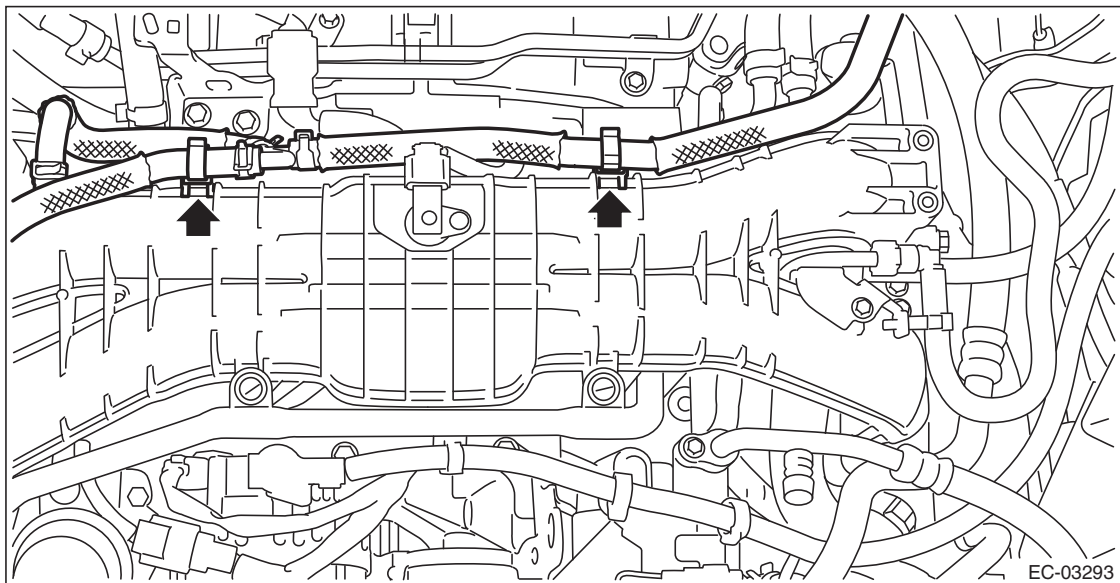
(2) Tighten the bolts which secure the EGR pipe to the intake manifold and EGR control valve in numerical order as shown in the figure.

Tightening torque:

19 N·m (1.9 kgf-m, 14.0 ft-lb)



2) Install the clip which secures the brake booster vacuum hose to the intake manifold.



3) Install the intercooler. <Ref. to IN(H4DOTC)-37, INSTALLATION, Intercooler.>

4) Connect the battery ground terminal.

5) Install the collector cover.

C: INSPECTION

Check that the EGR pipe has no deformation, cracks or other damages.

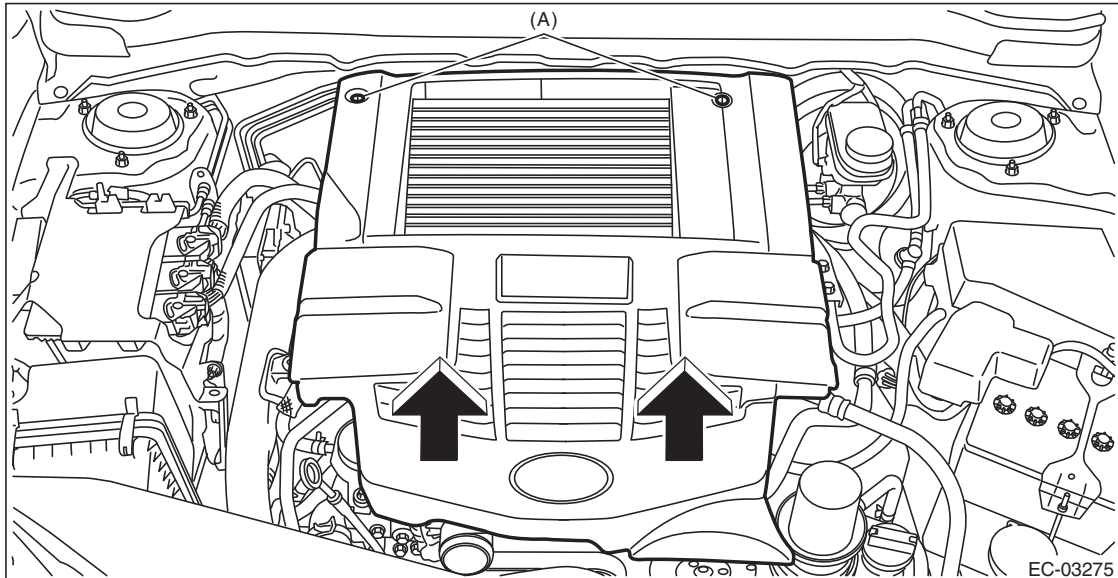
EGR Control Valve

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

7. EGR Control Valve

A: REMOVAL

1) Remove the clip (A), lift the front of the collector cover in the direction of arrow, and then remove the collector cover.



2) Disconnect the ground cable from battery.

3) Lift up the vehicle.

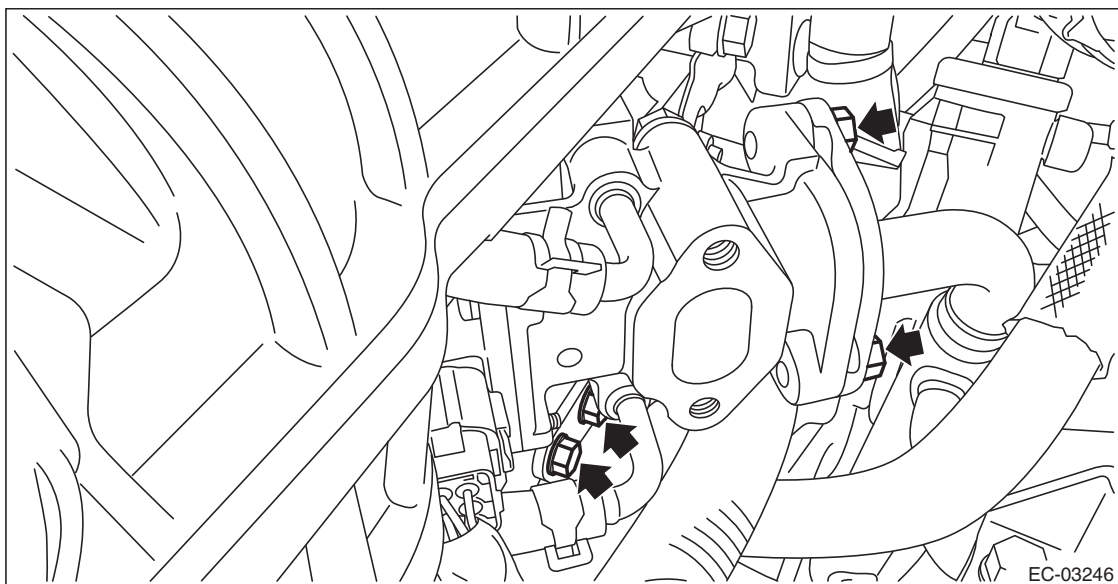
4) Remove the under cover. <Ref. to EI-22, REMOVAL, Front Under Cover.>

5) Drain approximately 3.0 L (3.2 US qt, 2.6 Imp qt) of coolant. <Ref. to CO(H4DOTC)-13, DRAINING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>

6) Remove the intercooler. <Ref. to IN(H4DOTC)-35, REMOVAL, Intercooler.>

7) Remove the EGR pipe. <Ref. to EC(H4DOTC)-26, REMOVAL, EGR Pipe.>

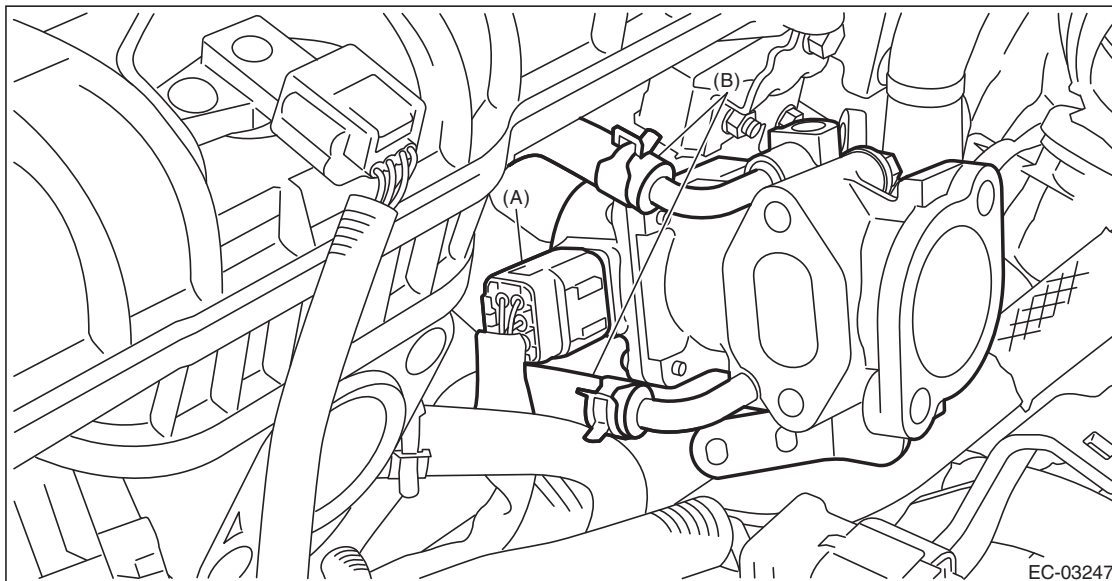
8) Remove the bolts which secure the EGR cooler to the EGR control valve, and remove the bolts which secure the EGR control valve bracket A to the EGR control valve bracket B.



EGR Control Valve

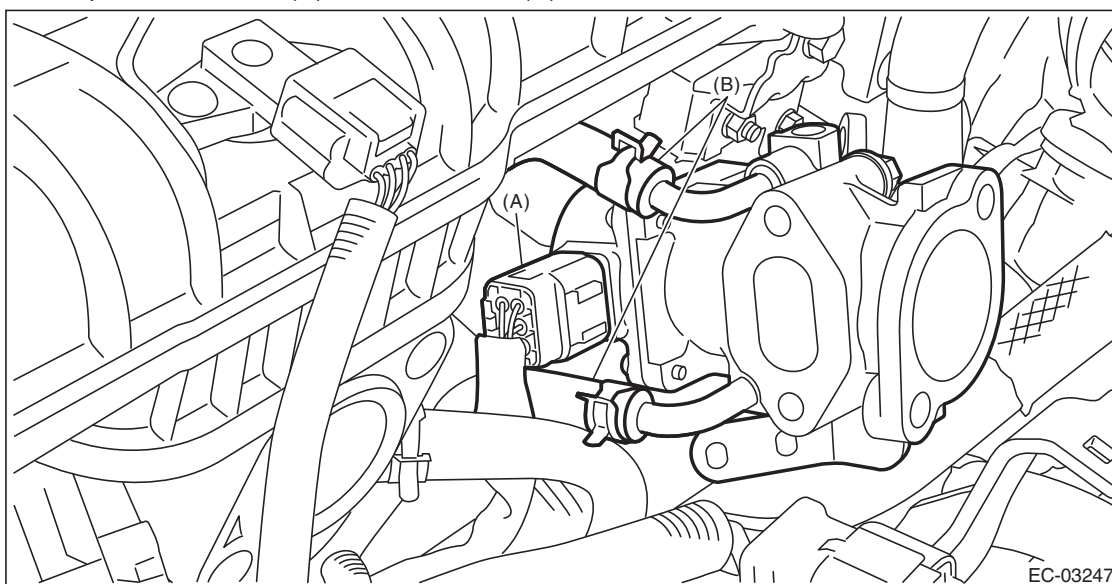
EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

9) Disconnect the connector (A) and preheater hose (B) from EGR control valve, and remove the EGR control valve.



B: INSTALLATION

1) Connect the preheater hose (B) and connector (A) to the EGR control valve.



EGR Control Valve

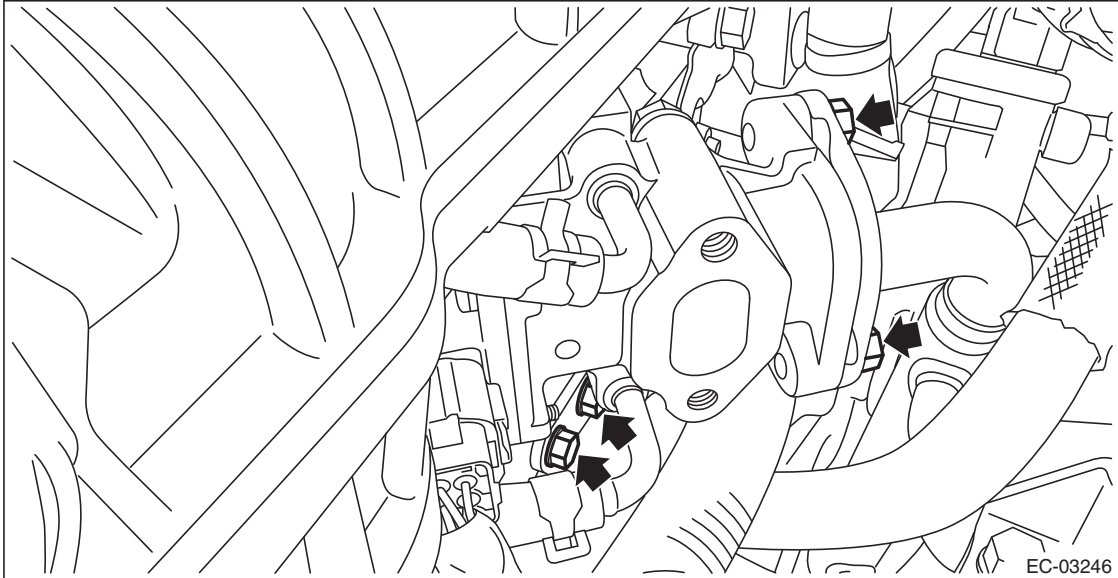
EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

2) Install the EGR control valve and EGR control valve bracket A to the EGR cooler and EGR control valve bracket B.

(1) Set the EGR control valve and EGR control valve bracket A to the EGR cooler and EGR control valve bracket B, and temporarily tighten the bolts which secure the EGR control valve and EGR control valve bracket A to the EGR cooler and EGR control valve bracket B.

NOTE:

Use a new gasket.

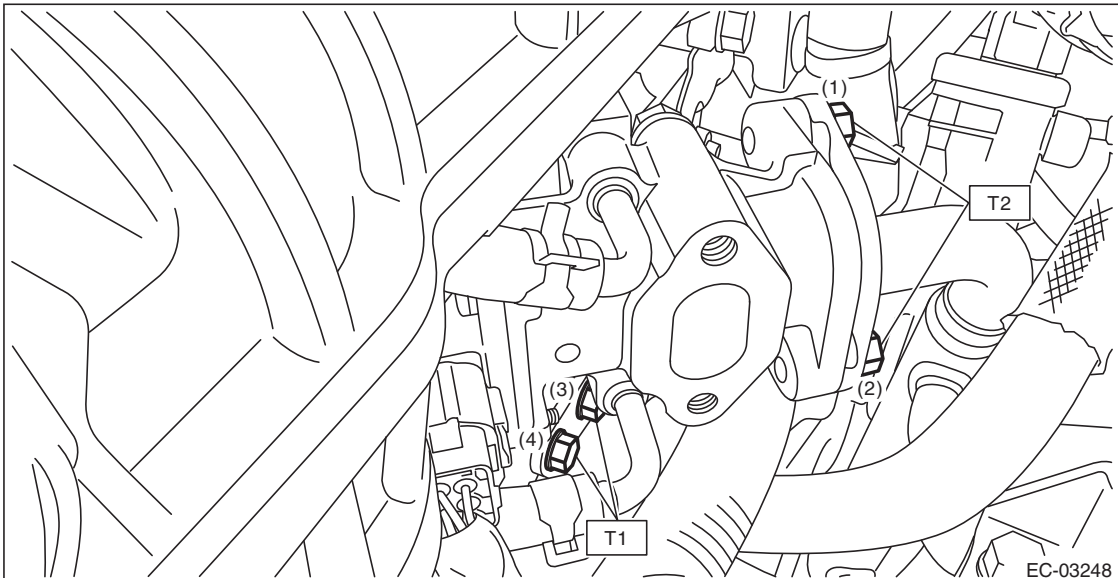


(2) Tighten the bolts which secure the EGR control valve and EGR control valve bracket A to the EGR cooler and EGR control valve bracket B in numerical order as shown in the figure.

Tightening torque:

T1: 6.4 N·m (0.7 kgf-m, 4.7 ft-lb)

T2: 19 N·m (1.9 kgf-m, 14.0 ft-lb)



3) Install the EGR pipe. <Ref. to EC(H4DOTC)-27, INSTALLATION, EGR Pipe.>

4) Install the intercooler. <Ref. to IN(H4DOTC)-37, INSTALLATION, Intercooler.>

5) Lift up the vehicle.

6) Install the under cover. <Ref. to EI-22, INSTALLATION, Front Under Cover.>

7) Lower the vehicle.

EGR Control Valve

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

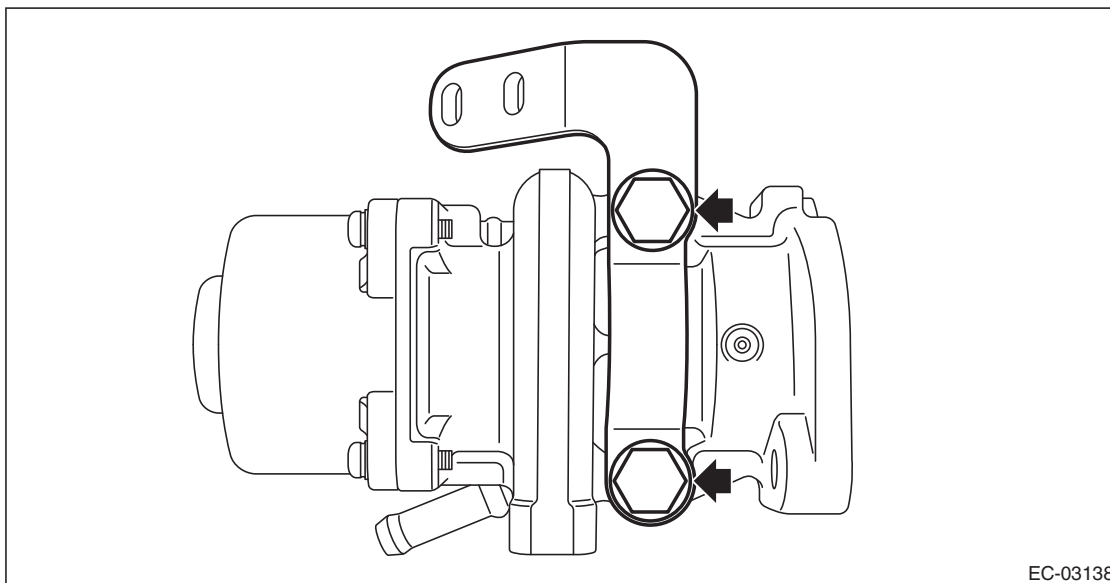
8) Connect the battery ground terminal.

9) Fill engine coolant. <Ref. to CO(H4DOTC)-14, FILLING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>

10) Install the collector cover.

C: DISASSEMBLY

Remove the EGR control valve bracket A from the EGR control valve.



EC-03138

D: ASSEMBLY

Assemble in the reverse order of disassembly.

Tightening torque:

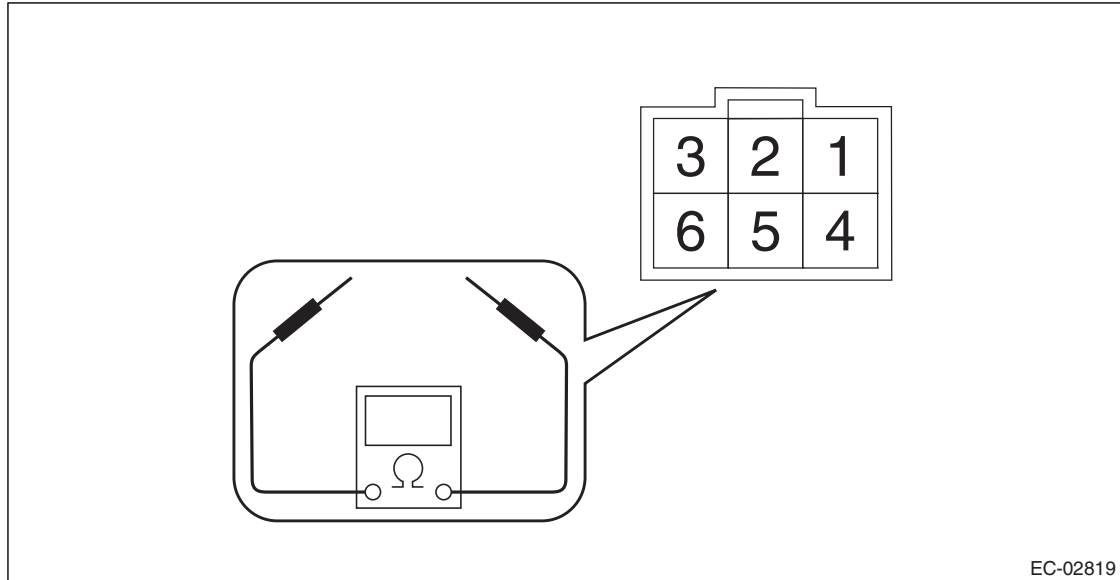
19 N·m (1.9 kgf-m, 14.0 ft-lb)

EGR Control Valve

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

E: INSPECTION

- 1) Check that the EGR control valve and EGR control valve bracket A have no deformation, cracks or other damages.
- 2) Measure the resistance between EGR control valve terminals.



Terminal No.	Standard
2 and 1	15±2 Ω (20°C (68°F))
2 and 3	
5 and 4	
5 and 6	



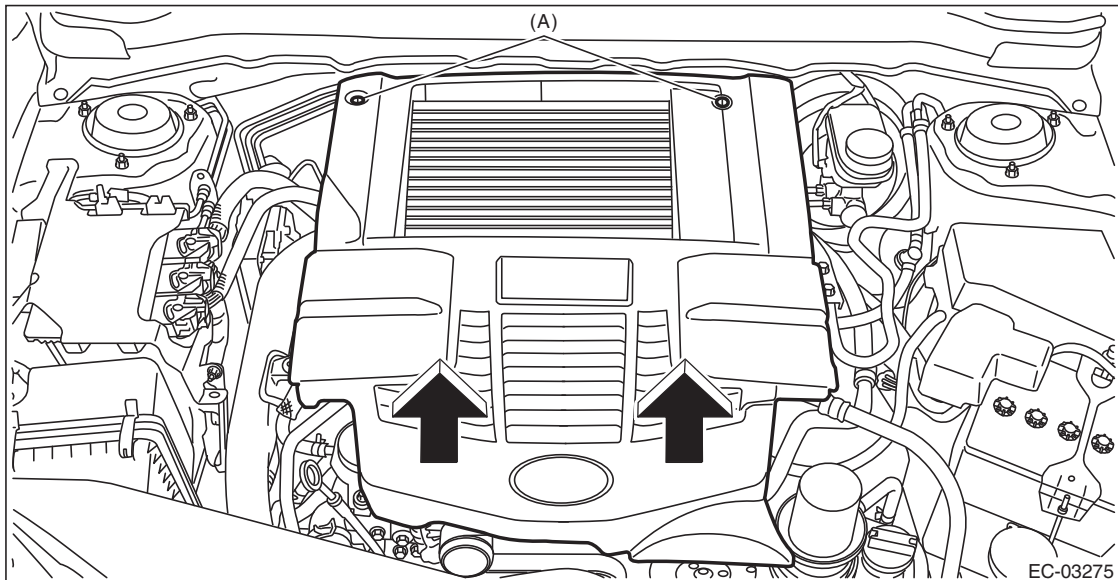
EGR Cooler

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

8. EGR Cooler

A: REMOVAL

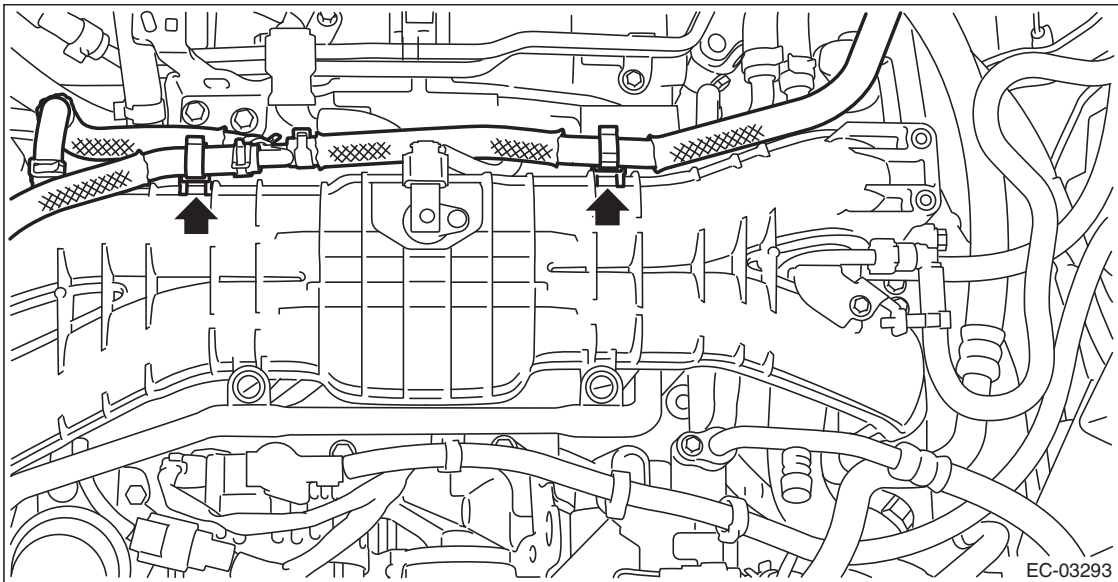
1) Remove the clip (A), lift the front of the collector cover in the direction of arrow, and then remove the collector cover.



2) Disconnect the ground cable from battery.

3) Remove the intercooler. <Ref. to IN(H4DOTC)-35, REMOVAL, Intercooler.>

4) Remove the clip securing the brake booster vacuum hose to the intake manifold, and move the brake booster vacuum hose at the locations that do not interfere operation.



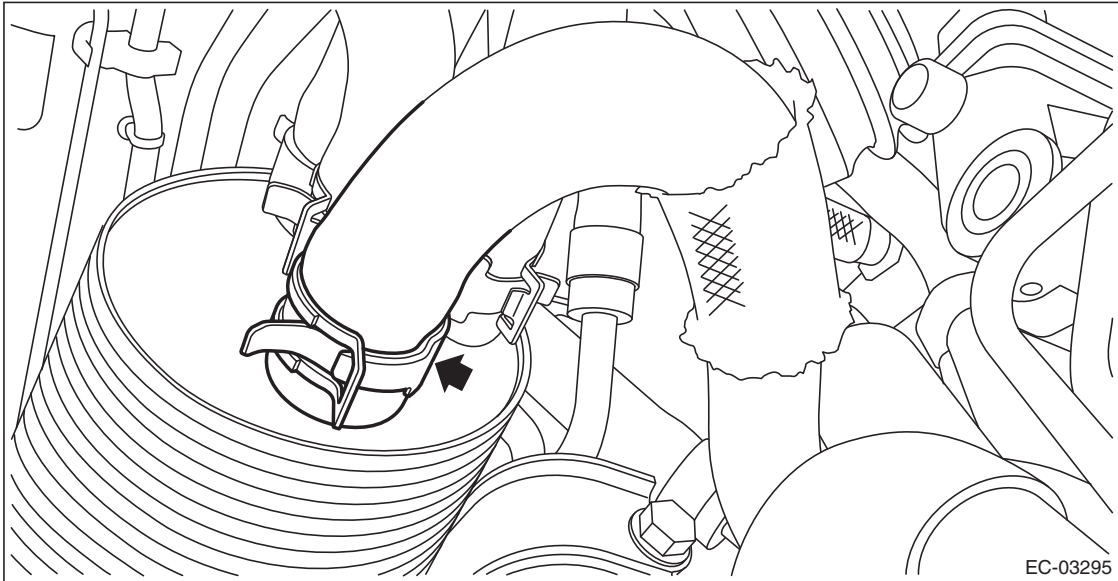
5) Lift up the vehicle.

6) Drain engine coolant. <Ref. to CO(H4DOTC)-13, DRAINING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>

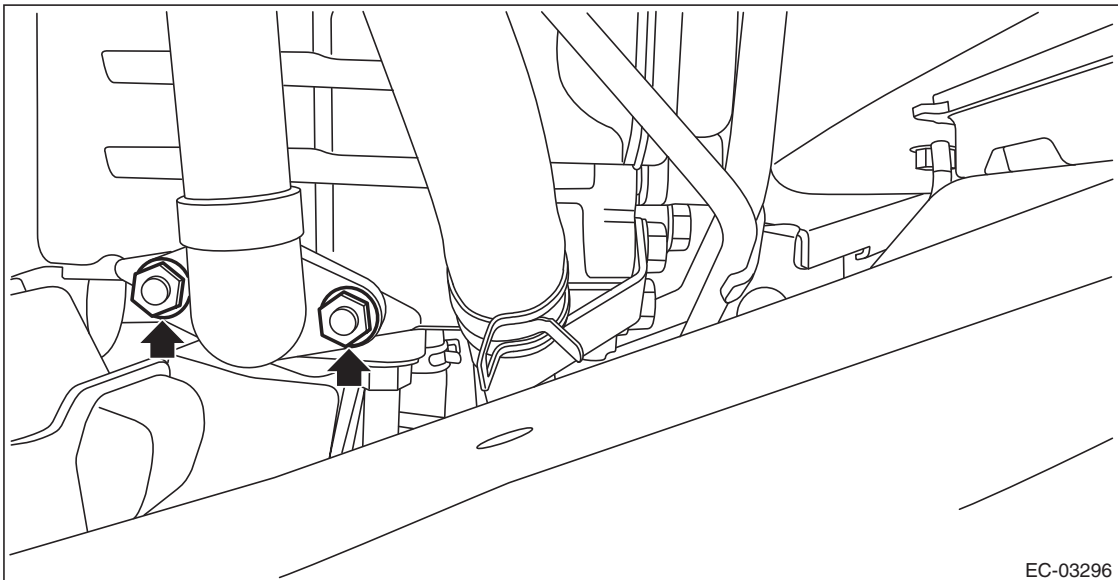
EGR Cooler

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

- 7) Disconnect the engine coolant outlet hose from the CVTF cooler (with warmer feature).



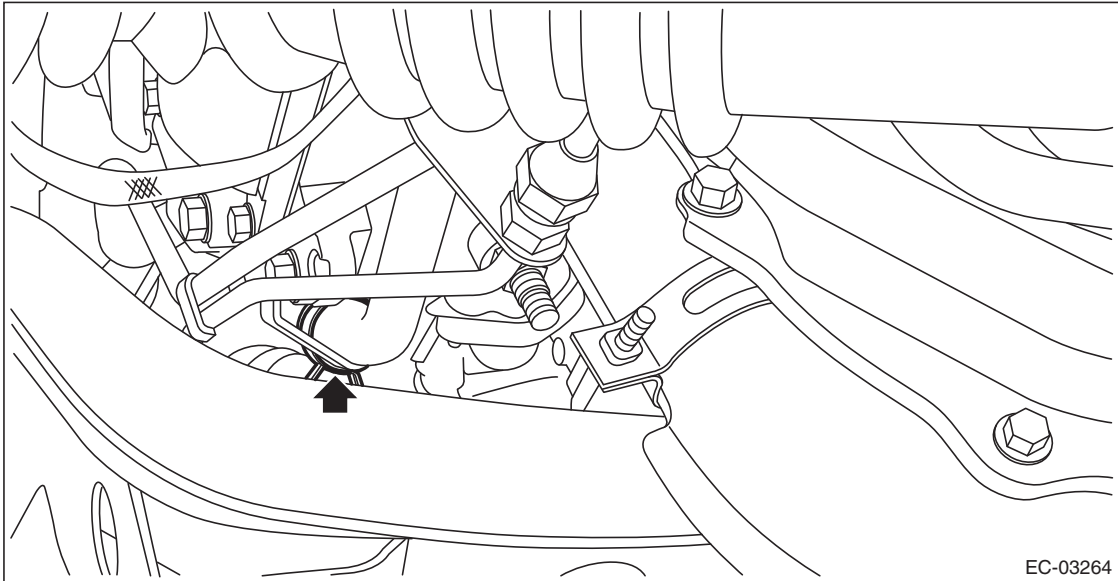
- 8) Remove the nut which secures the EGR cooler to the cylinder block RH.



EGR Cooler

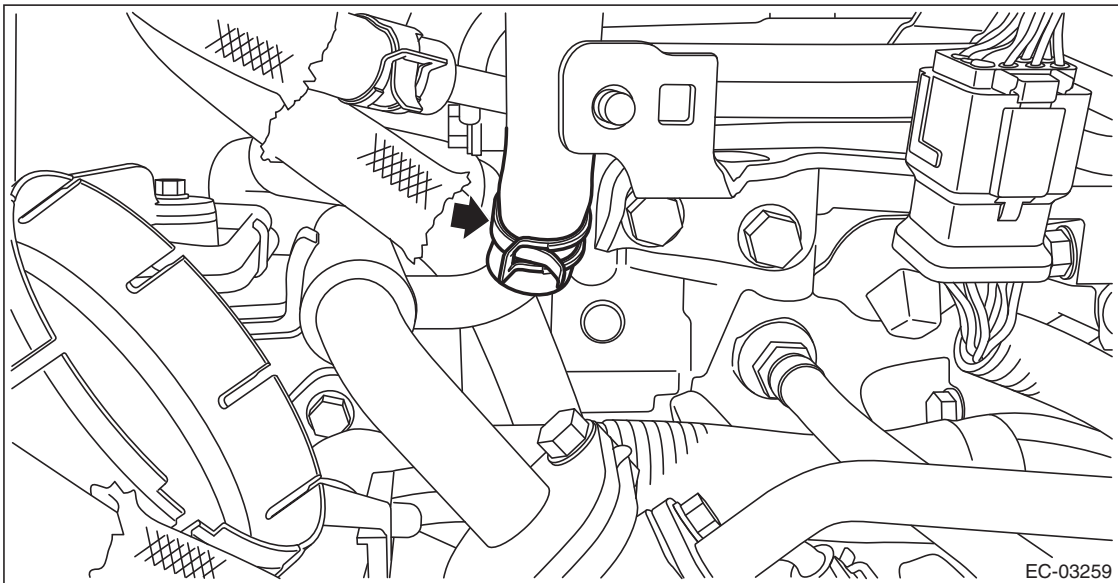
EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

- 9) Disconnect the water hose from the water pipe RH.



- 10) Lower the vehicle.

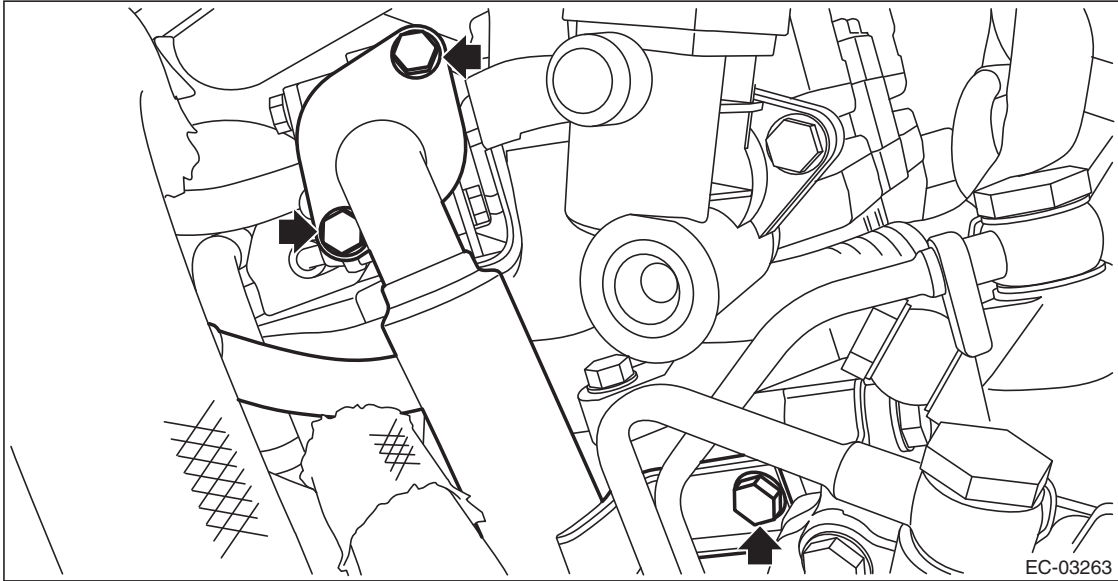
- 11) Disconnect the engine coolant inlet hose from the EGR cooler.



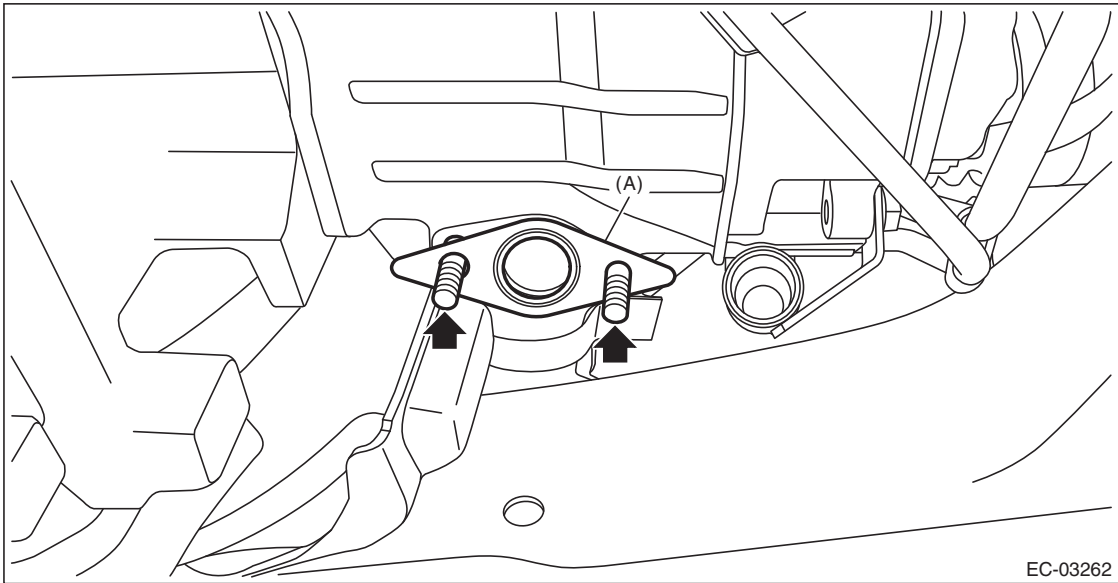
EGR Cooler

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

- 12) Remove the bolts which secure the EGR cooler to the EGR control valve and cylinder head RH, and remove the EGR cooler.



- 13) Remove the gasket (A) from the stud bolt, and remove the stud bolt from the cylinder head RH.



EGR Cooler

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

B: INSTALLATION

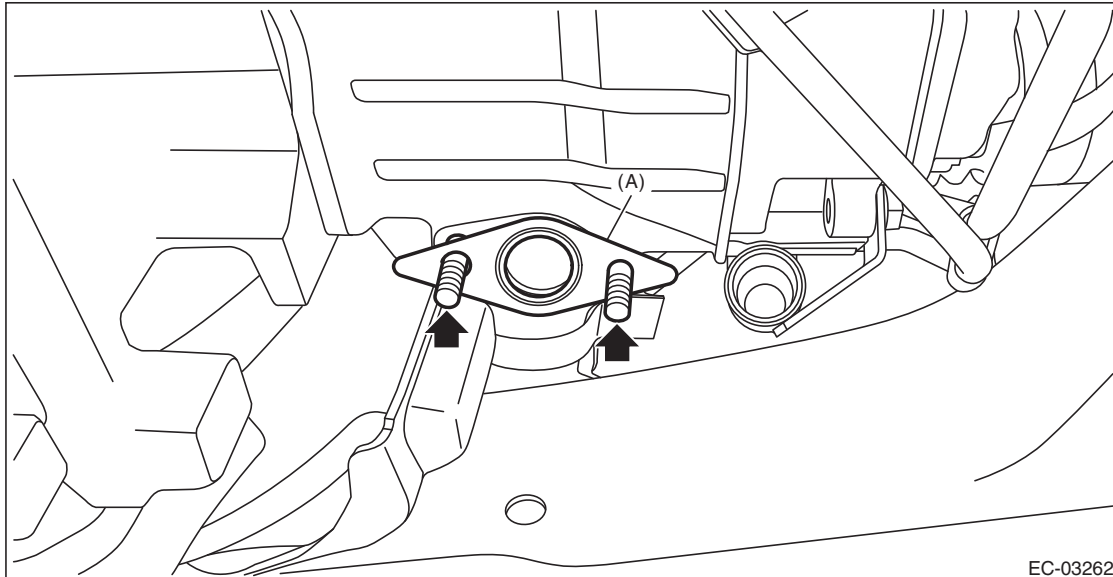
1) Install the stud bolt to the cylinder head RH, and set the gasket (A) to the stud bolt.

NOTE:

Use a new stud bolt and gasket.

Tightening torque:

6.4 N·m (0.7 kgf-m, 4.7 ft-lb)



2) Set the EGR cooler to the EGR control valve and cylinder head RH, and install the bolts which secure the EGR cooler to the EGR control valve and cylinder head RH.

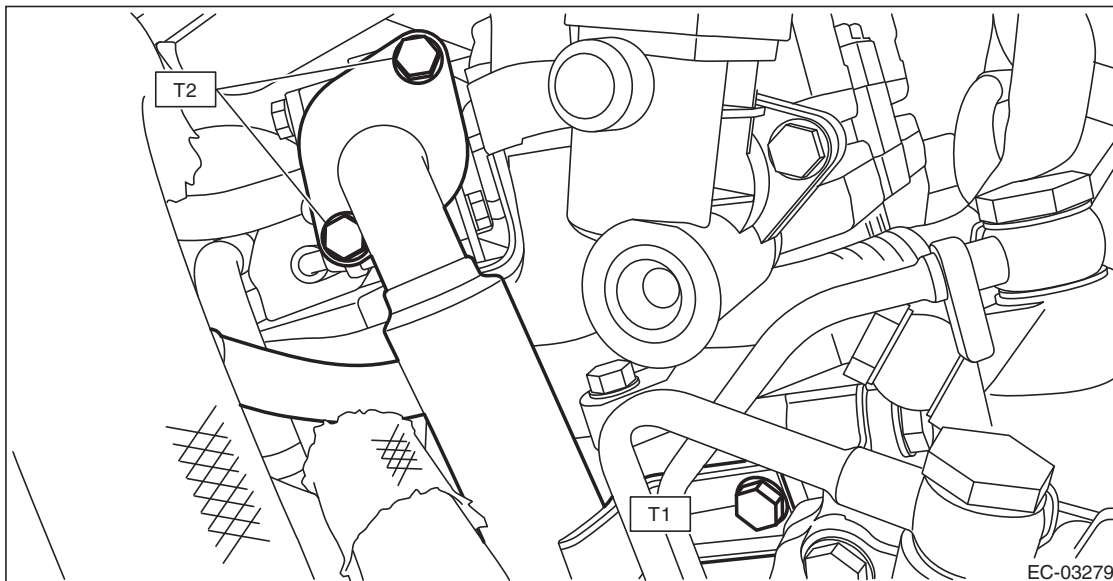
NOTE:

Use a new gasket.

Tightening torque:

T1: 6.4 N·m (0.7 kgf-m, 4.7 ft-lb)

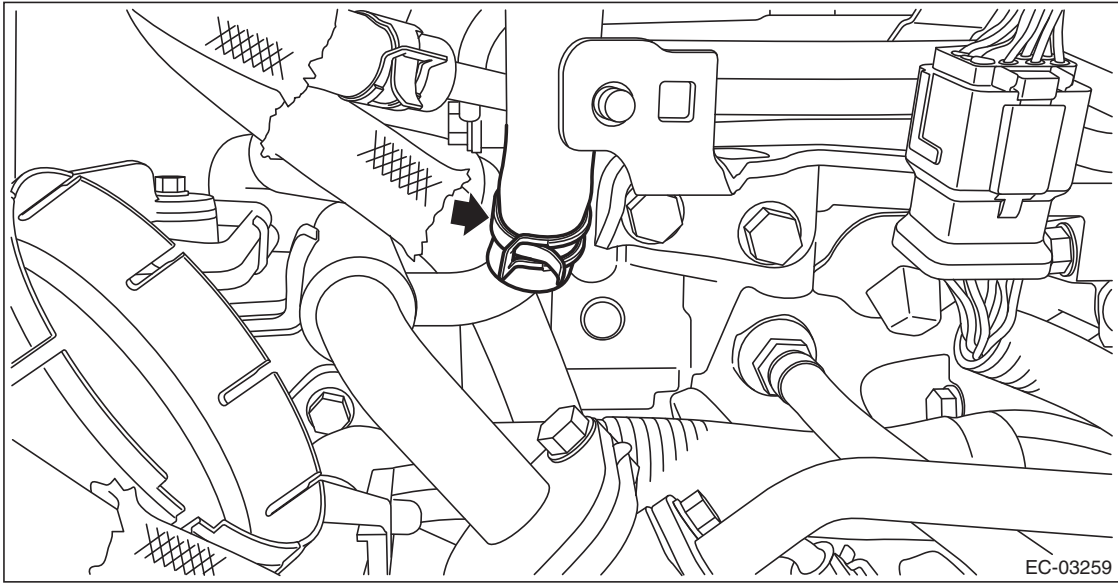
T2: 19 N·m (1.9 kgf-m, 14.0 ft-lb)



EGR Cooler

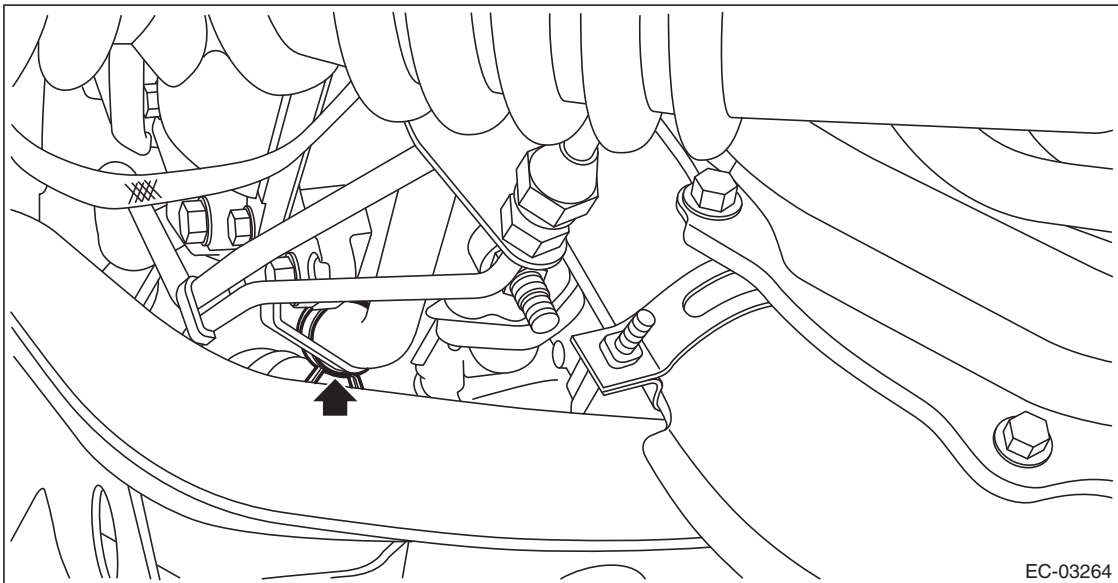
EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

- 3) Connect the engine coolant inlet hose to the EGR cooler.



- 4) Lift up the vehicle.

- 5) Connect the water hose to the water pipe RH.



EGR Cooler

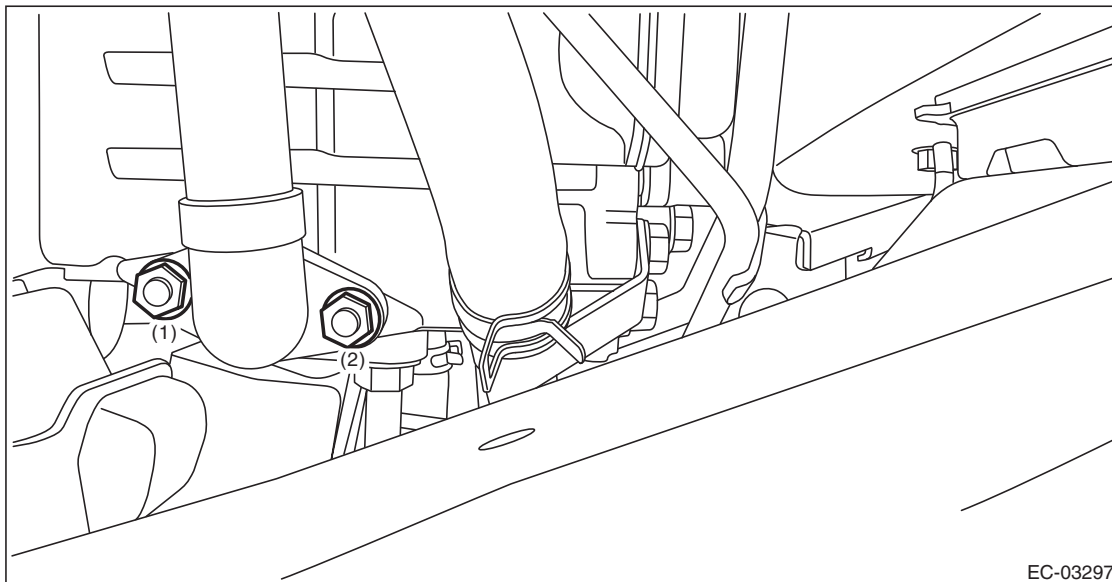
EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

6) Install the EGR cooler to the cylinder block RH.

(1) Tighten the nuts which secure the EGR cooler to the cylinder block RH in numerical order as shown in the figure.

Tightening torque:

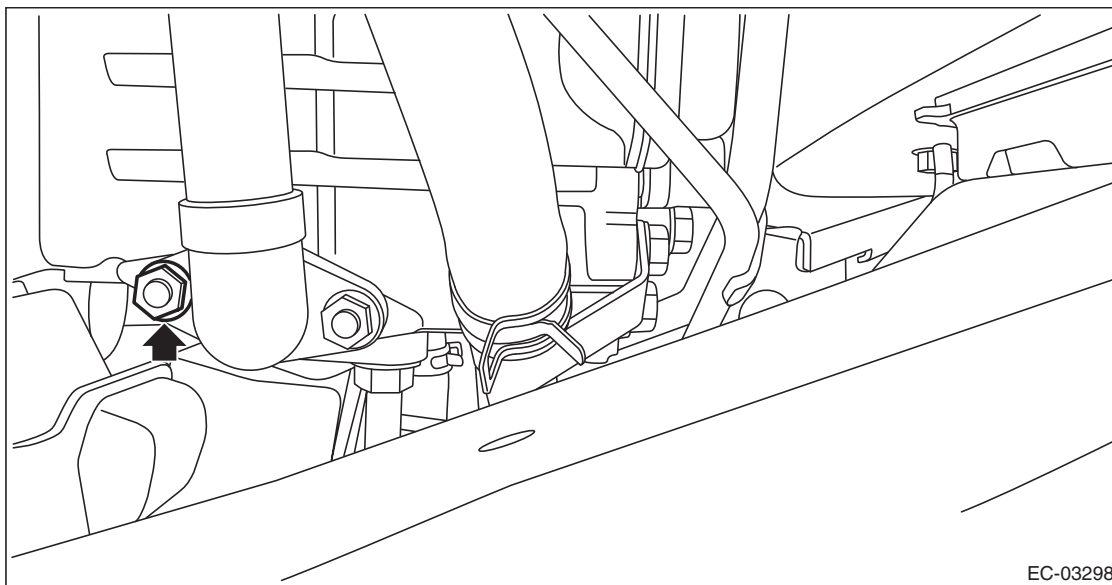
9 N·m (0.9 kgf-m, 6.6 ft-lb)



(2) Retighten the nut shown in the figure.

Tightening torque:

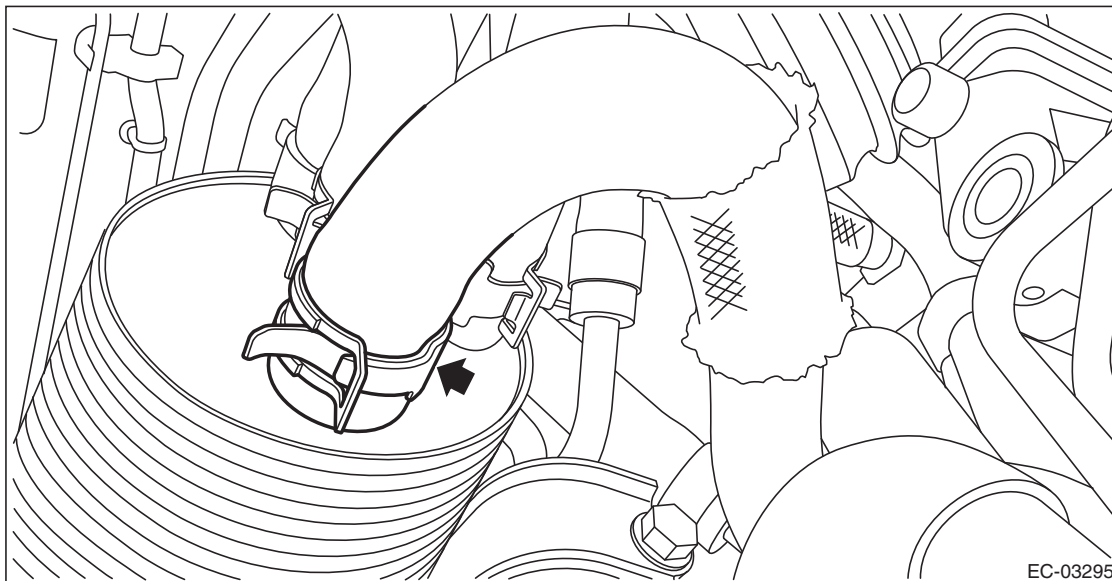
9 N·m (0.9 kgf-m, 6.6 ft-lb)



EGR Cooler

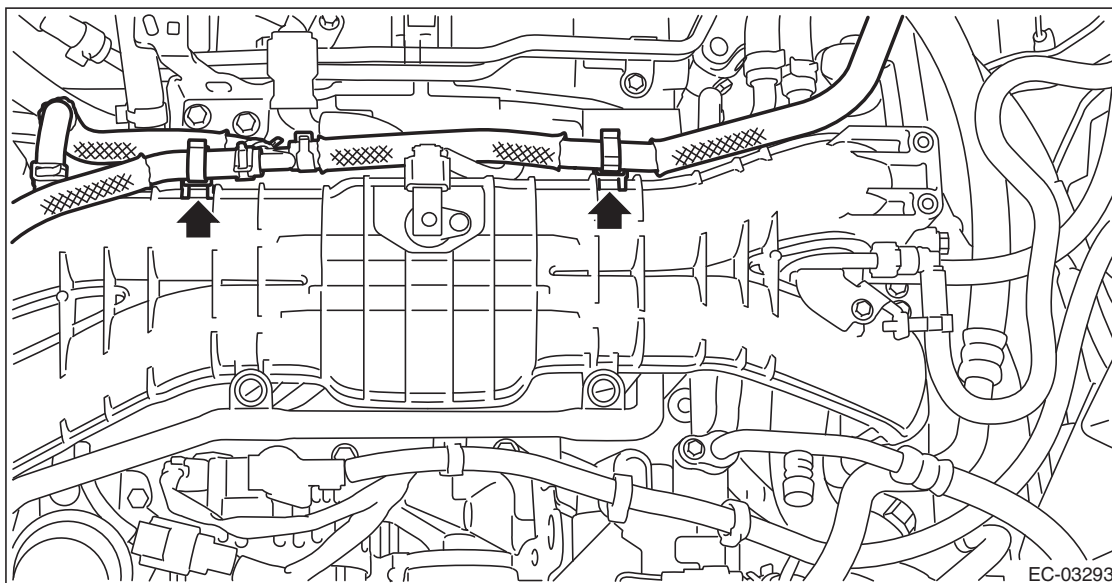
EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

- 7) Connect the engine coolant outlet hose to the CVTF cooler (with warmer feature).



- 8) Lower the vehicle.

- 9) Install the clip which secures the brake booster vacuum hose to the intake manifold.



- 10) Install the intercooler. <Ref. to IN(H4DOTC)-37, INSTALLATION, Intercooler.>

- 11) Connect the battery ground terminal.

- 12) Fill engine coolant. <Ref. to CO(H4DOTC)-14, FILLING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>

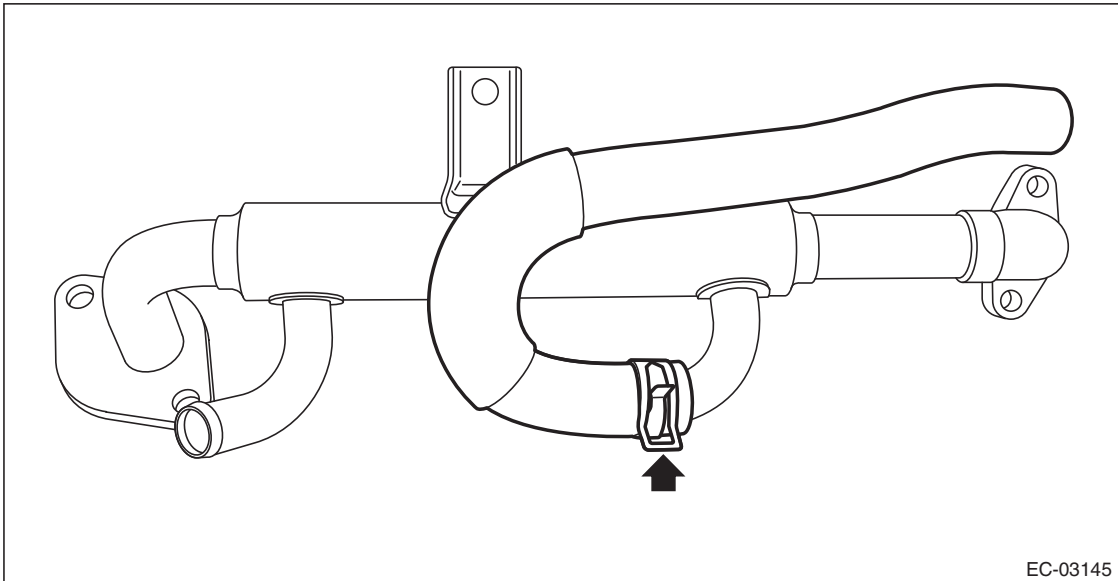
- 13) Install the collector cover.

EGR Cooler

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

C: DISASSEMBLY

Remove the water hose from EGR cooler.



D: ASSEMBLY

Assemble in the reverse order of disassembly.

E: INSPECTION

- 1) Check that the EGR cooler has no deformation, cracks or other damages.
- 2) Check that the water hose has no cracks, damage or loose part.

Fuel Level Sensor

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

9. Fuel Level Sensor

A: REMOVAL

Refer to "Fuel Level Sensor" for removal procedure of the fuel level sensor. <Ref. to FU(H4DOTC)-184, REMOVAL, Fuel Level Sensor.>

B: INSTALLATION

Refer to "Fuel Level Sensor" for installation procedure of the fuel level sensor. <Ref. to FU(H4DOTC)-185, INSTALLATION, Fuel Level Sensor.>

C: INSPECTION

Refer to "Fuel Level Sensor" for the fuel level sensor inspection procedure. <Ref. to FU(H4DOTC)-186, INSPECTION, Fuel Level Sensor.>

Fuel Sub Level Sensor

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

10. Fuel Sub Level Sensor

A: REMOVAL

Refer to "Fuel Sub Level Sensor" for removal procedure of the fuel sub level sensor. <Ref. to FU(H4DOTC)-187, REMOVAL, Fuel Sub Level Sensor.>

B: INSTALLATION

Refer to "Fuel Sub Level Sensor" for installation procedure of the fuel sub level sensor. <Ref. to FU(H4DOTC)-191, INSTALLATION, Fuel Sub Level Sensor.>

C: INSPECTION

Refer to "Fuel Sub Level Sensor" for the fuel sub level sensor inspection procedure. <Ref. to FU(H4DOTC)-193, INSPECTION, Fuel Sub Level Sensor.>

Drain Filter

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

11.Drain Filter

A: SPECIFICATION

The leak check valve assembly is a non-disassembled part. Do not remove the drain filter from the leak check valve assembly. Refer to "Leak Check Valve Assembly" for removal and installation procedures. <Ref. to EC(H4DOTC)-46, REMOVAL, Leak Check Valve Assembly.> <Ref. to EC(H4DOTC)-52, INSTALLATION, Leak Check Valve Assembly.>

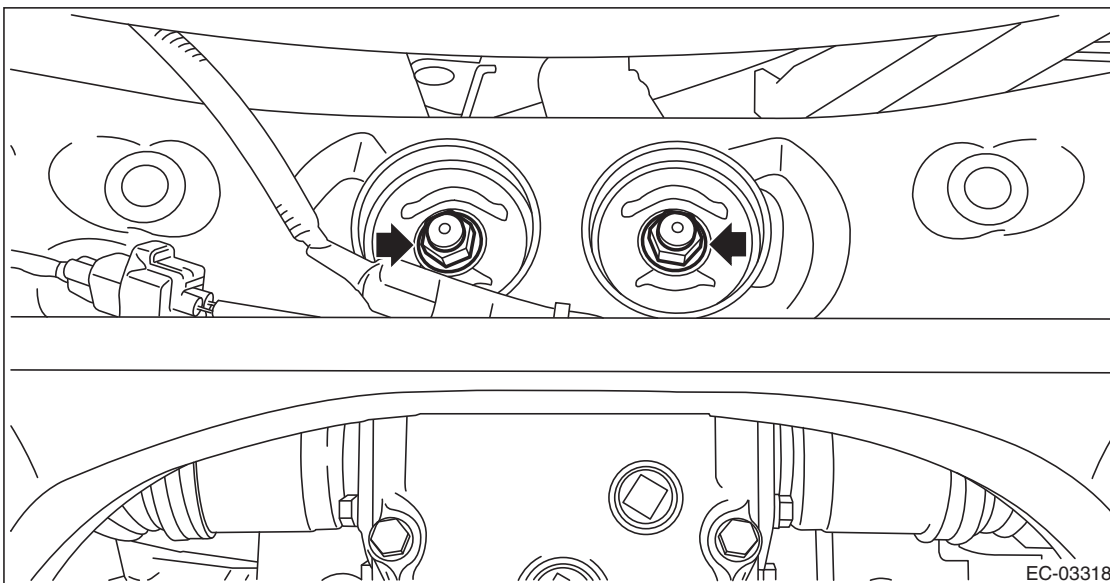
Leak Check Valve Assembly

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

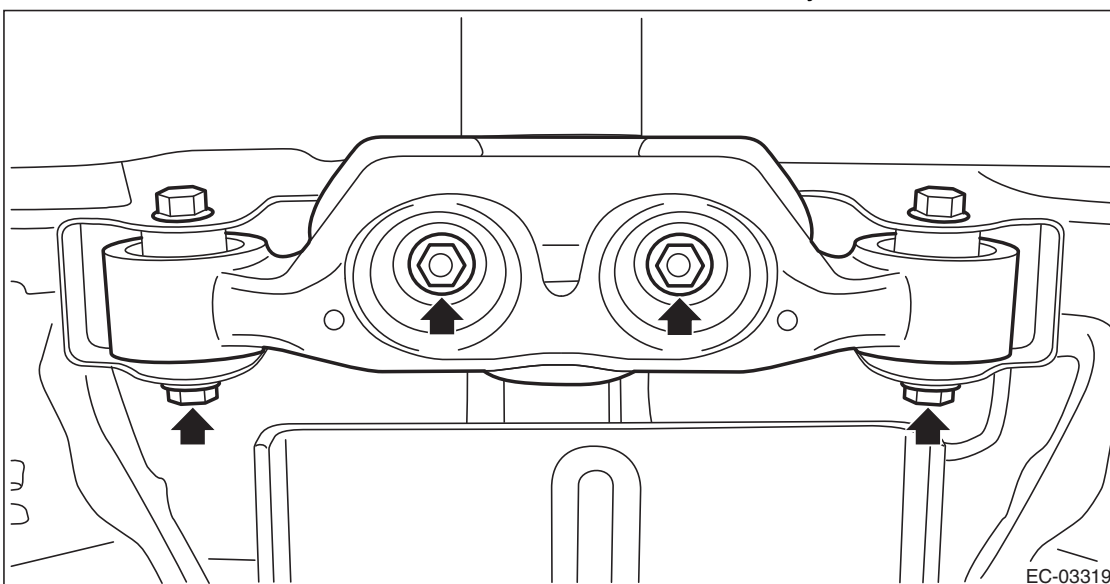
12. Leak Check Valve Assembly

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Lift up the vehicle.
- 3) Remove the rear exhaust pipe. <Ref. to EX(H4DOTC)-45, REMOVAL, Rear Exhaust Pipe.>
- 4) Remove the propeller shaft. <Ref. to DS-11, REMOVAL, Propeller Shaft.>
- 5) Support the rear differential with the transmission jack.
- 6) Remove the self-locking nuts which hold the rear differential to the rear sub frame assembly.



- 7) Remove the rear differential member from the rear sub frame assembly and the rear differential.



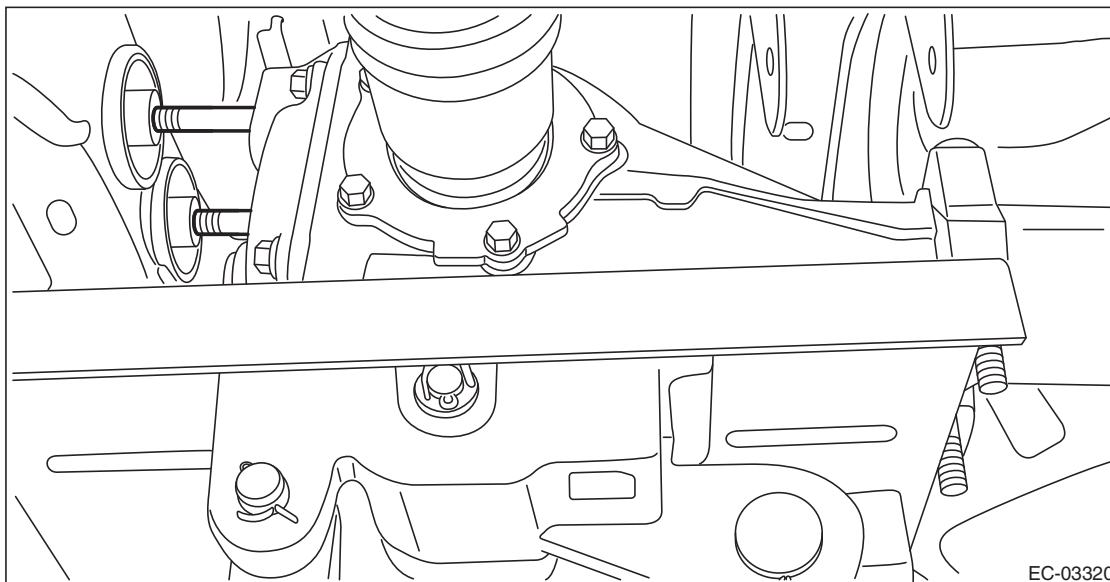
Leak Check Valve Assembly

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

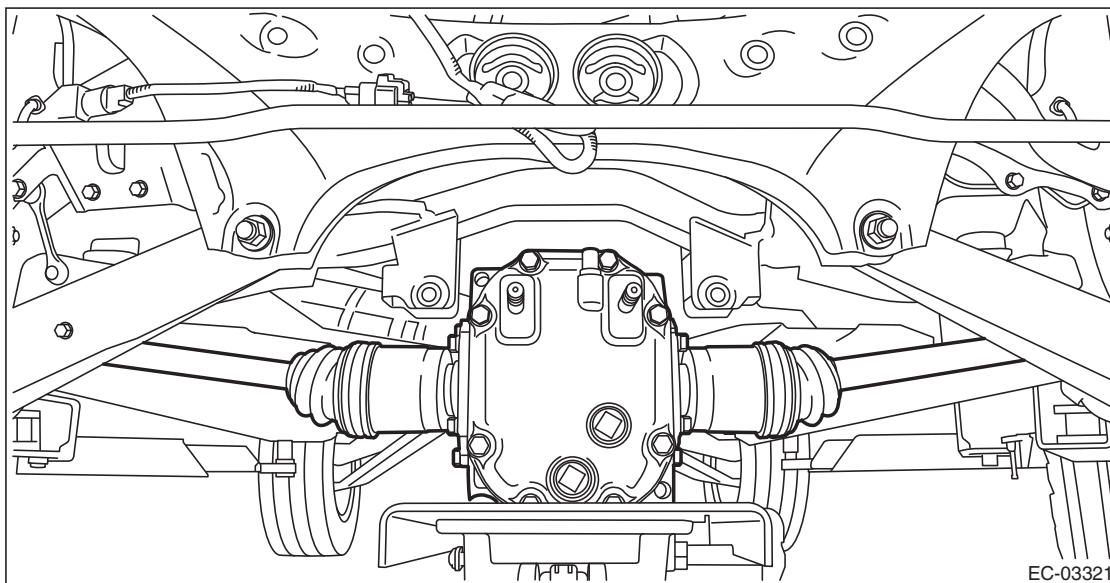
8) Lower the transmission jack gradually until the rear differential is at the position shown in the figure.

NOTE:

- When pulling out the stud bolt from the bushing portion of the rear sub frame assembly, adjust the angle and location of transmission jack and jack stand.



- Do not lower the rear differential excessively. Doing so may add extra load to the drive shaft or cause the falling-off of the drive shaft.



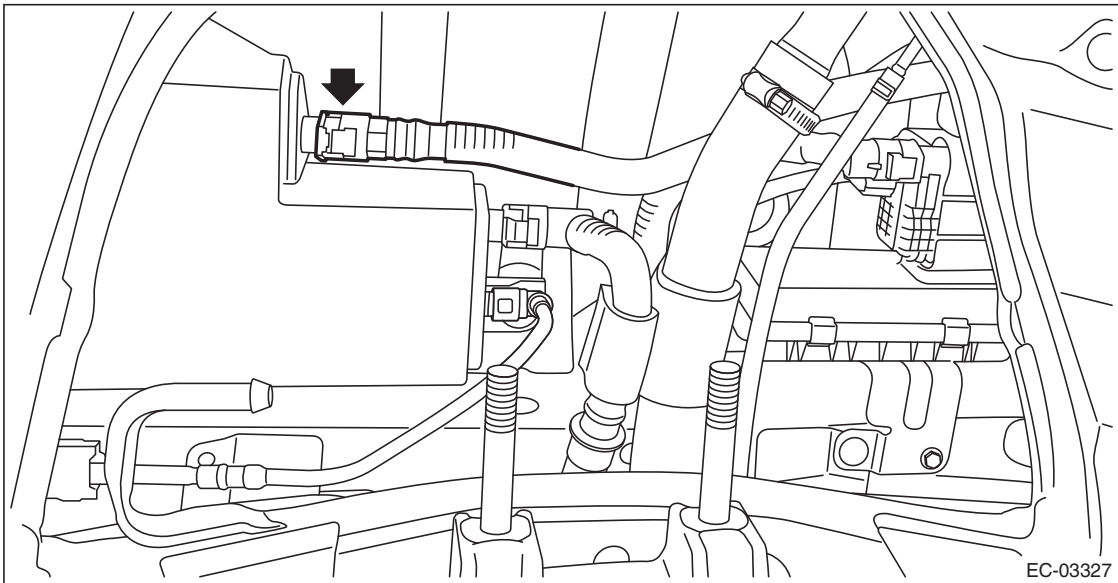
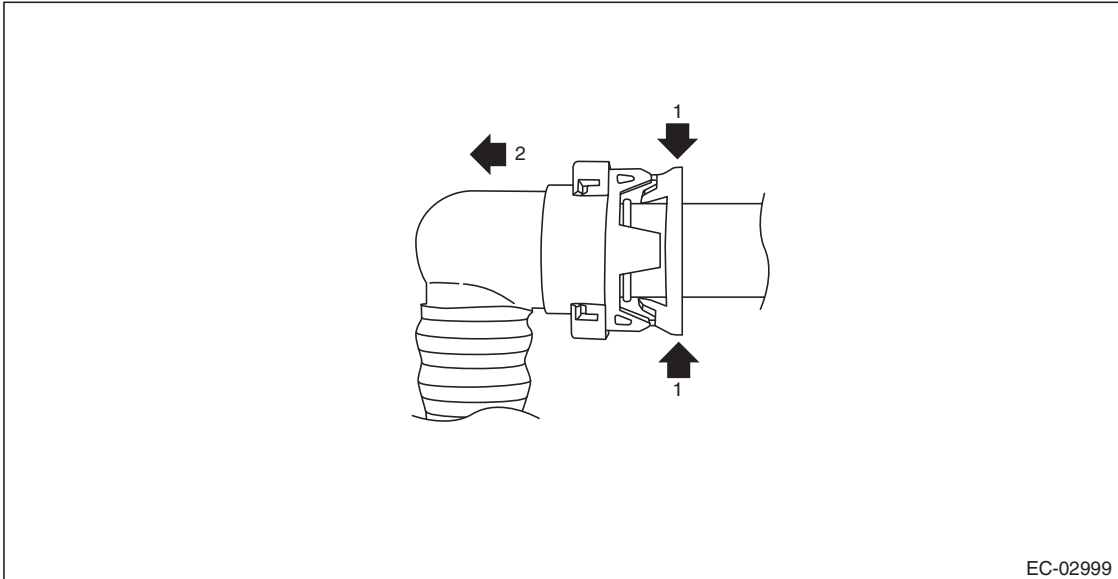
Leak Check Valve Assembly

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

9) Disconnect the drain tube from the canister.

NOTE:

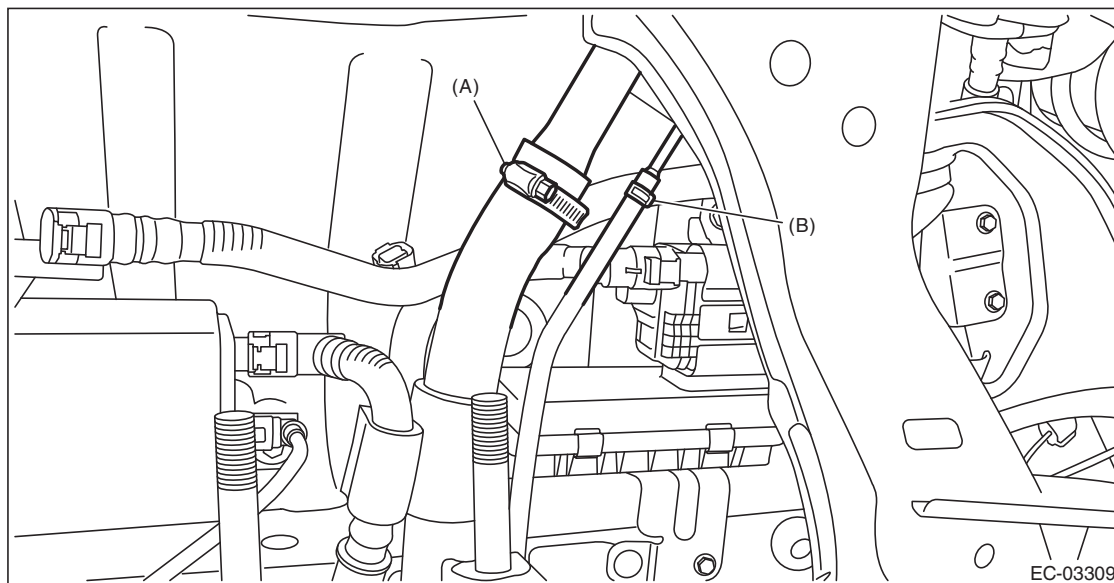
Disconnect the quick connector as shown in the figure.



Leak Check Valve Assembly

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

- 10) Disconnect the fuel filler hose (A) and evaporation hose (B).



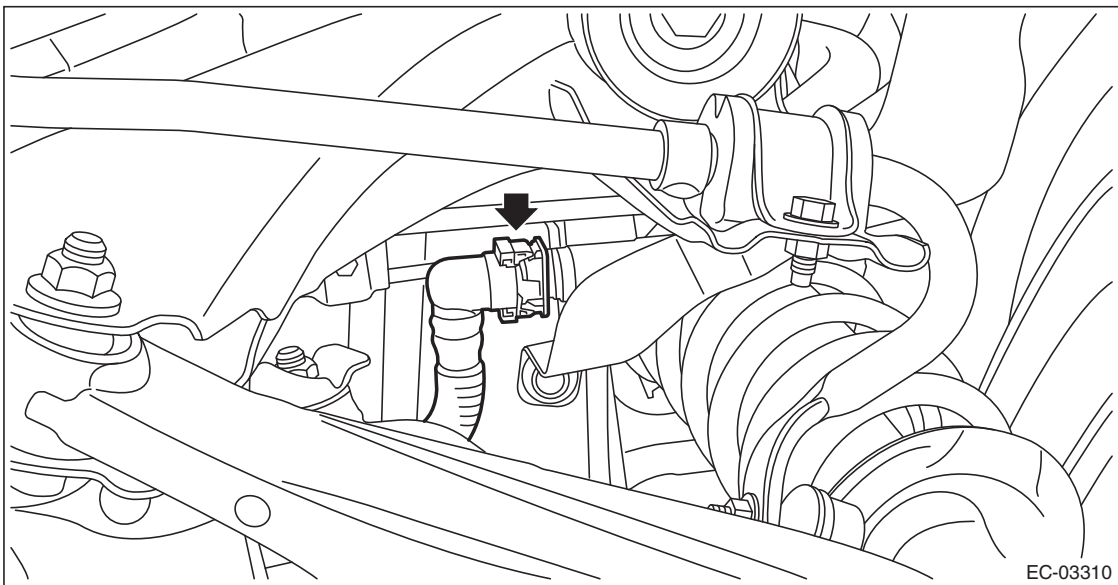
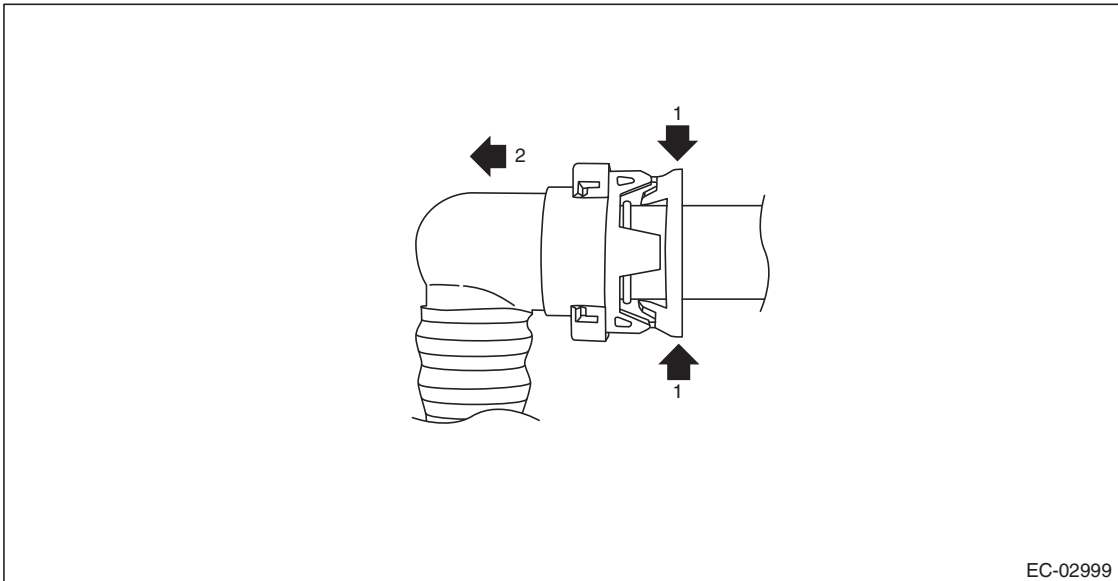
Leak Check Valve Assembly

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

11) Disconnect the drain tube from the drain pipe of the fuel filler pipe assembly.

NOTE:

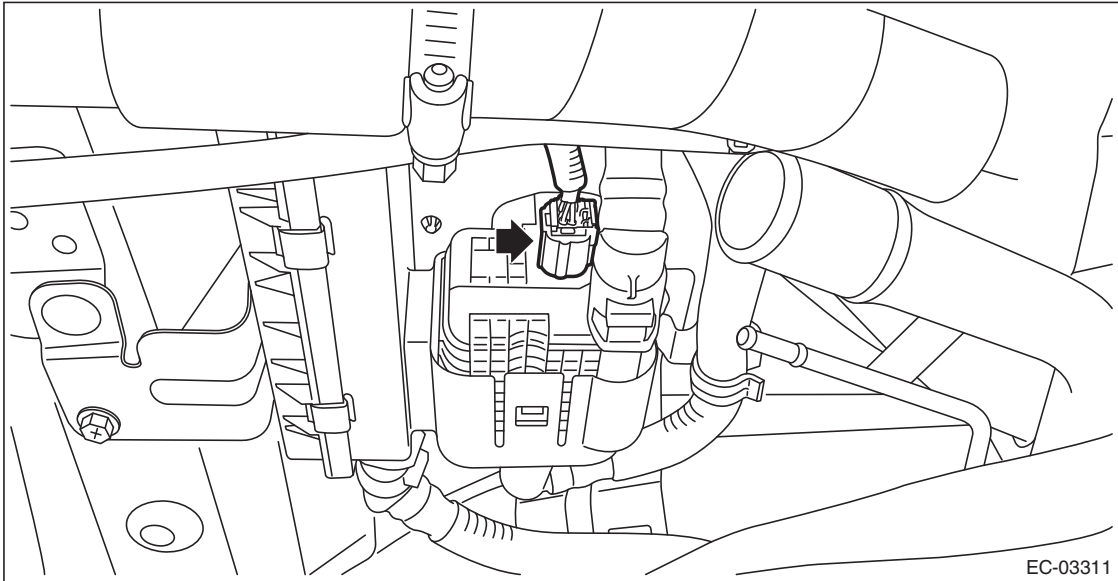
Disconnect the quick connector as shown in the figure.



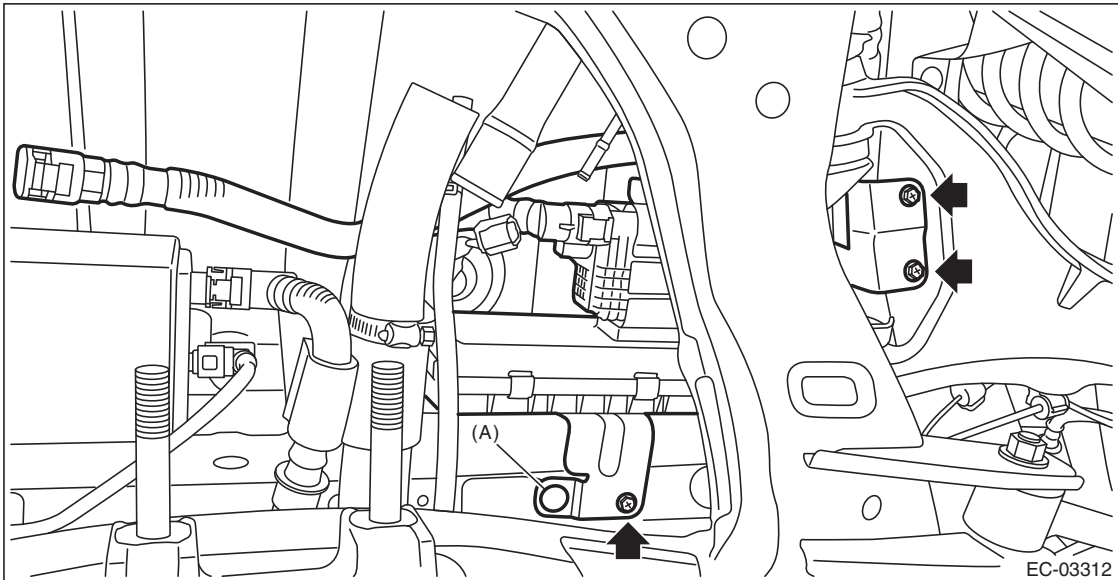
Leak Check Valve Assembly

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

- 12) Disconnect the connector from the leak check valve assembly.



- 13) Remove the bolt and clip (A) which secure the leak check valve assembly to the vehicle, and remove the leak check valve assembly.



Leak Check Valve Assembly

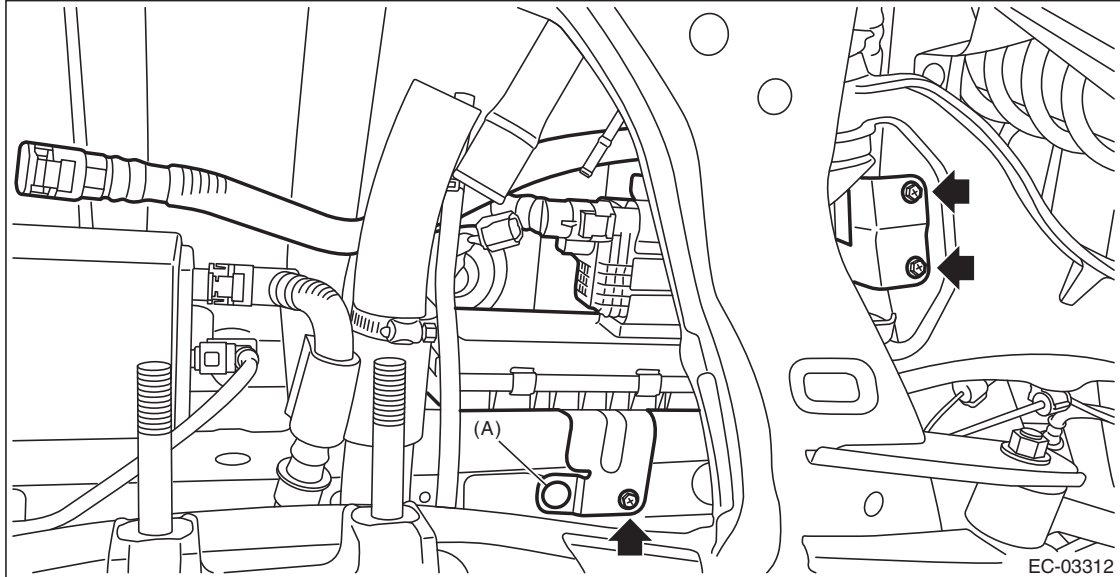
EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

B: INSTALLATION

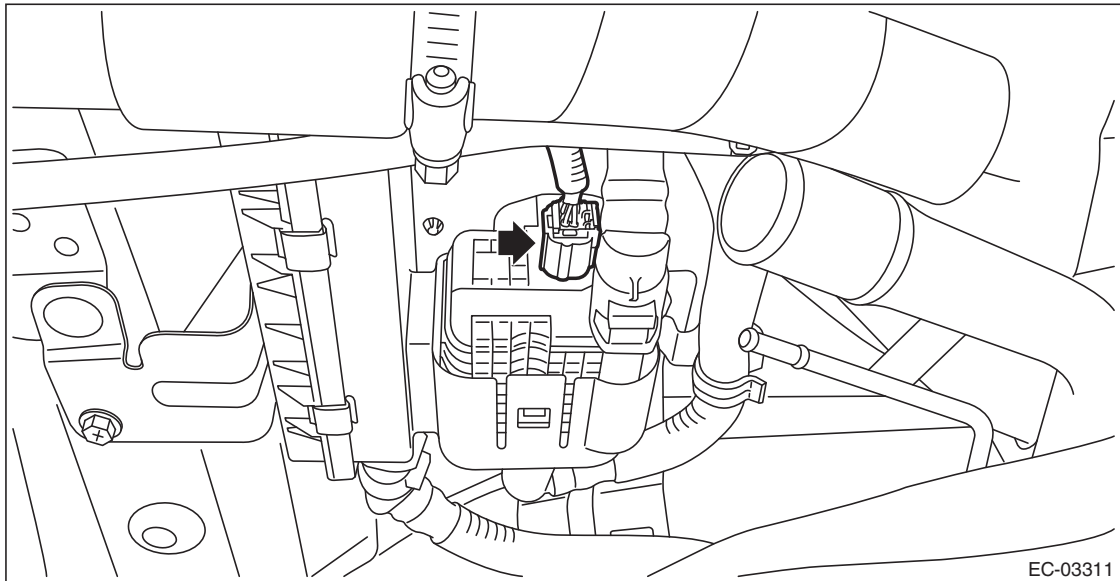
1) Install the leak check valve assembly to the vehicle with the bolt and clip (A).

Tightening torque:

7.5 N·m (0.8 kgf-m, 5.5 ft-lb)



2) Connect the connector to the leak check valve assembly.



Leak Check Valve Assembly

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

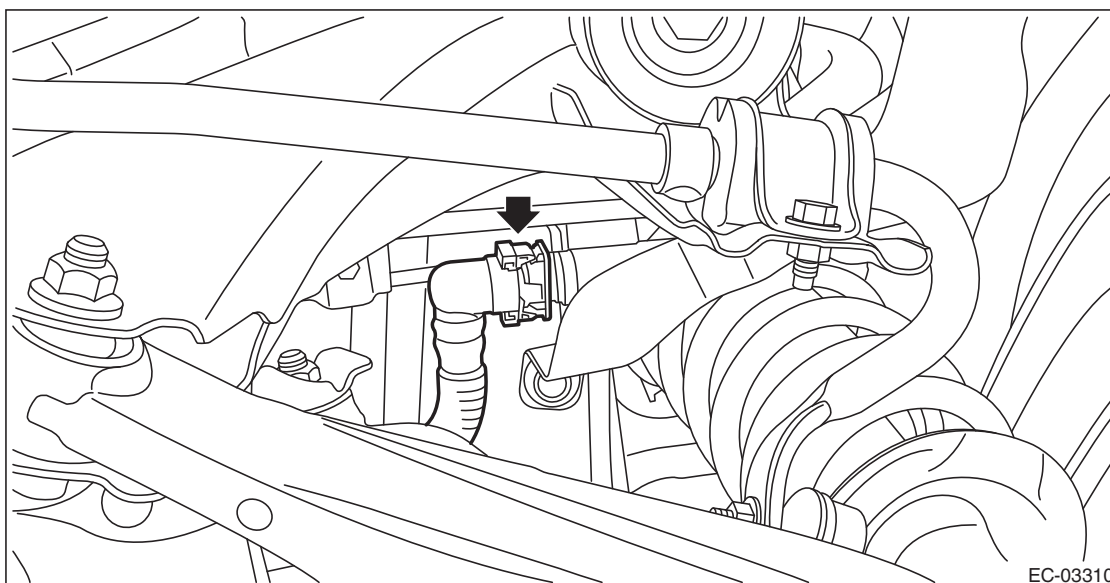
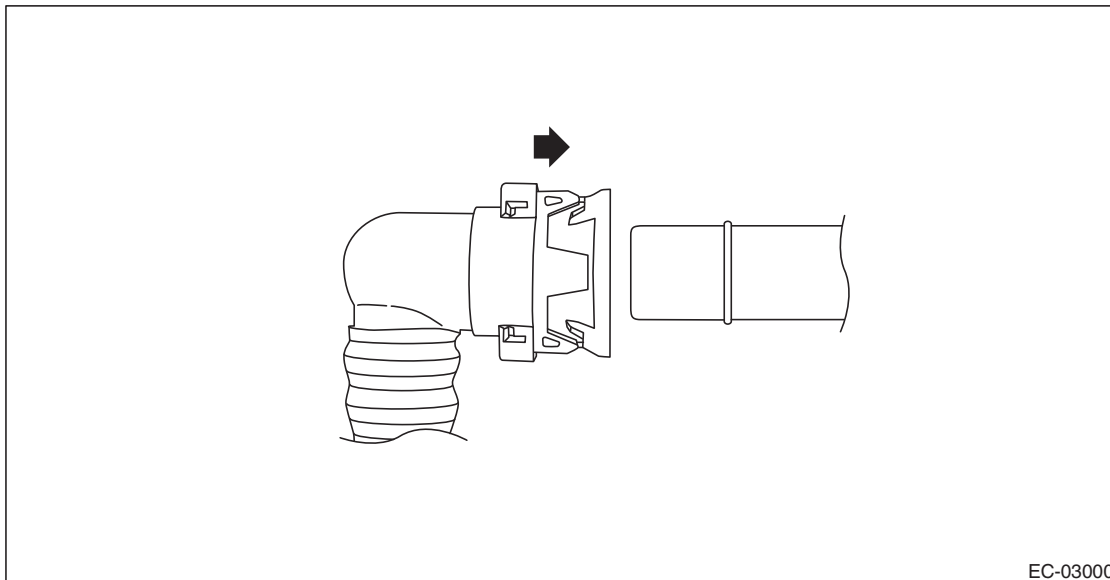
3) Connect the drain tube to the drain pipe of the fuel filler pipe assembly.

CAUTION:

- Check that there is no damage or dust on the quick connector. If necessary, clean the seal surface of the pipe.
- Make sure that the quick connector is securely connected.

NOTE:

Connect the quick connector as shown in the figure.



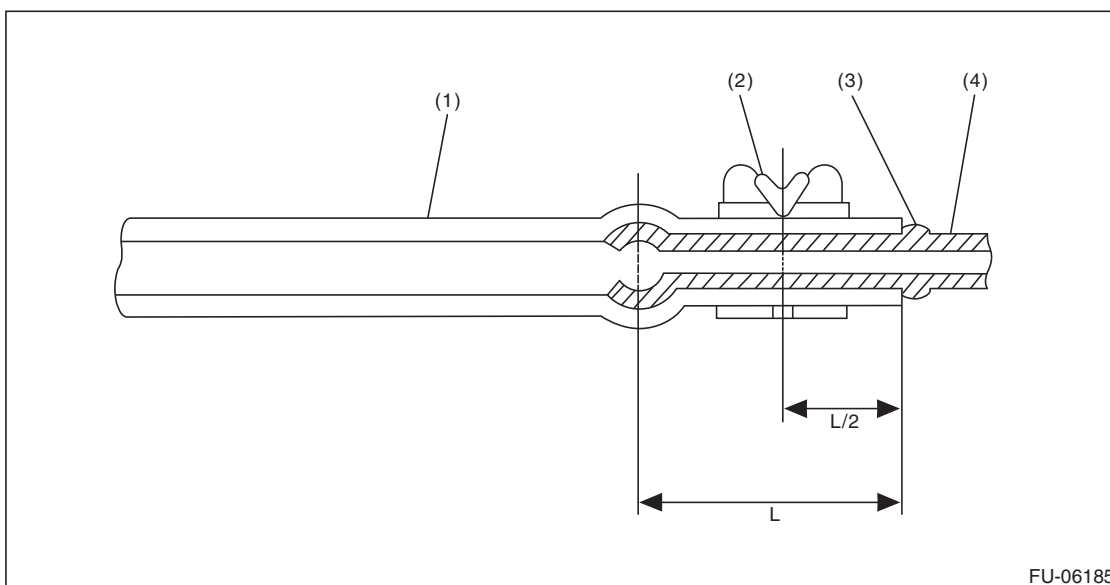
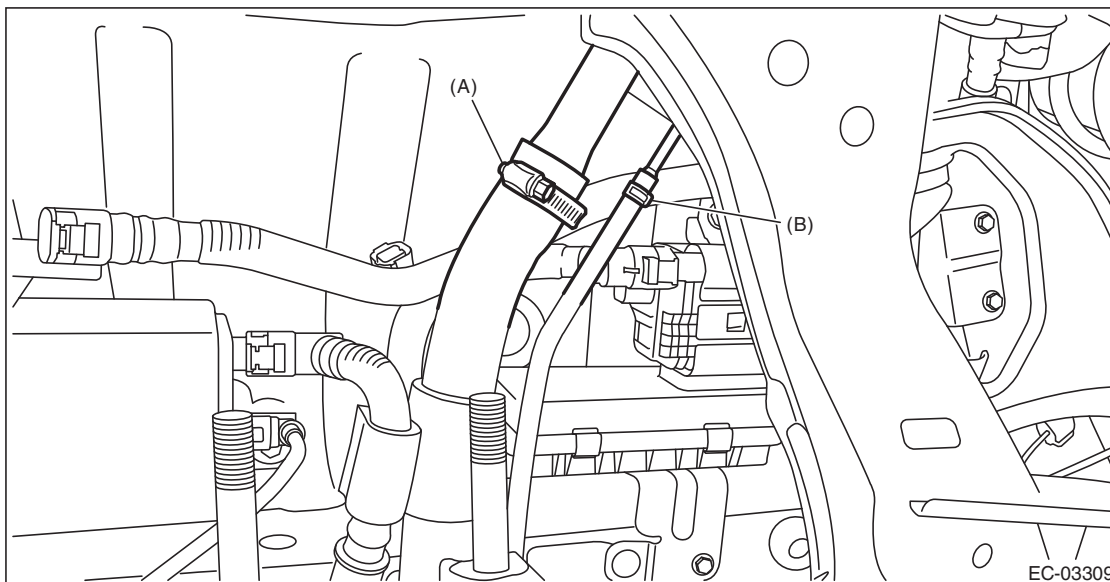
Leak Check Valve Assembly

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

4) Securely insert the fuel filler hose (A) and evaporation hose (B) until the hose end contacts the spool, then attach the clamp and clip as shown in the figure.

Tightening torque:

2.5 N·m (0.3 kgf-m, 1.8 ft-lb)



(1) Hose

(3) Spool

(4) Pipe

(2) Clamp and clip

Leak Check Valve Assembly

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

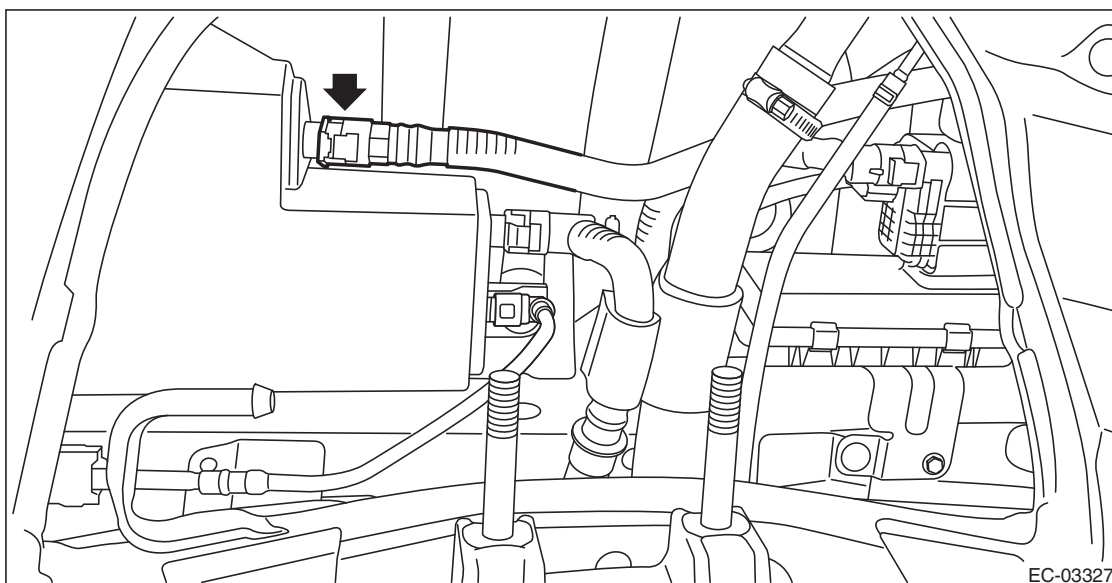
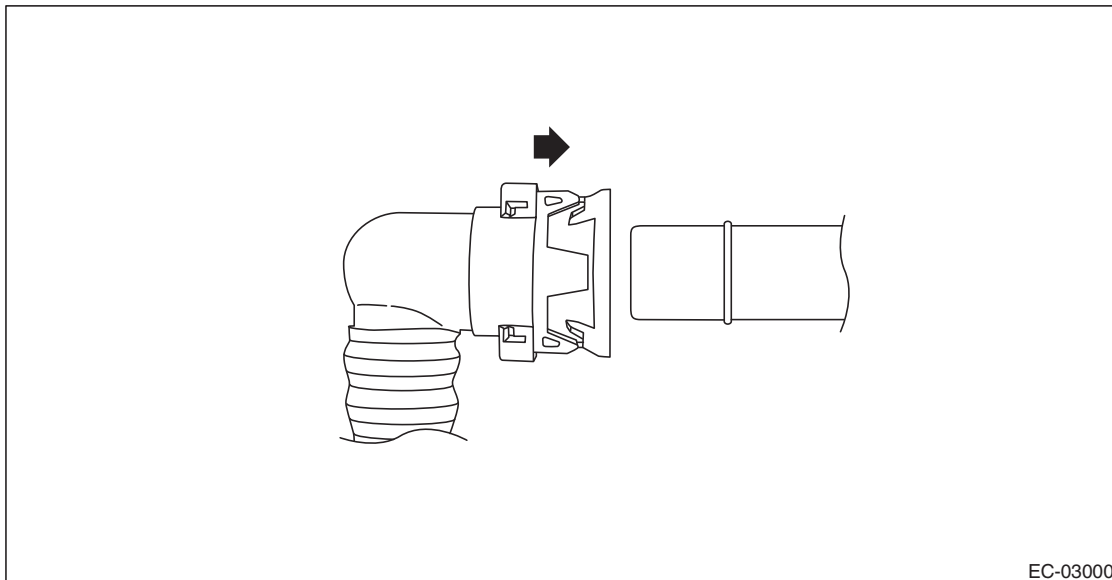
5) Connect the drain tube to the canister.

CAUTION:

- Check that there is no damage or dust on the quick connector. If necessary, clean the seal surface of the pipe.
- Make sure that the quick connector is securely connected.

NOTE:

Connect the quick connector as shown in the figure.



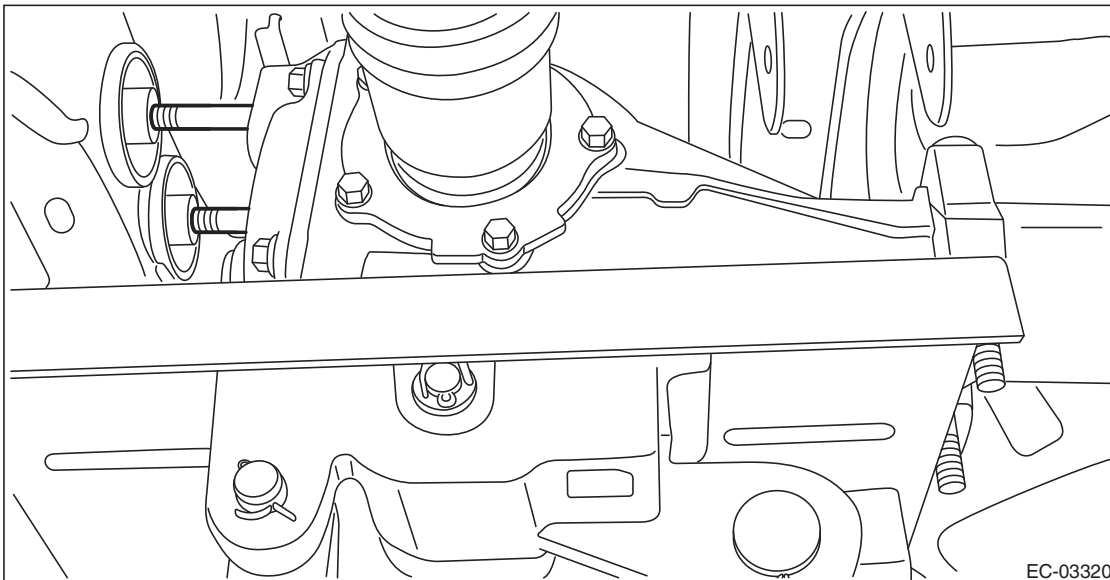
Leak Check Valve Assembly

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

6) Lift up the transmission jack gradually, and set the rear differential to the rear sub frame assembly.

NOTE:

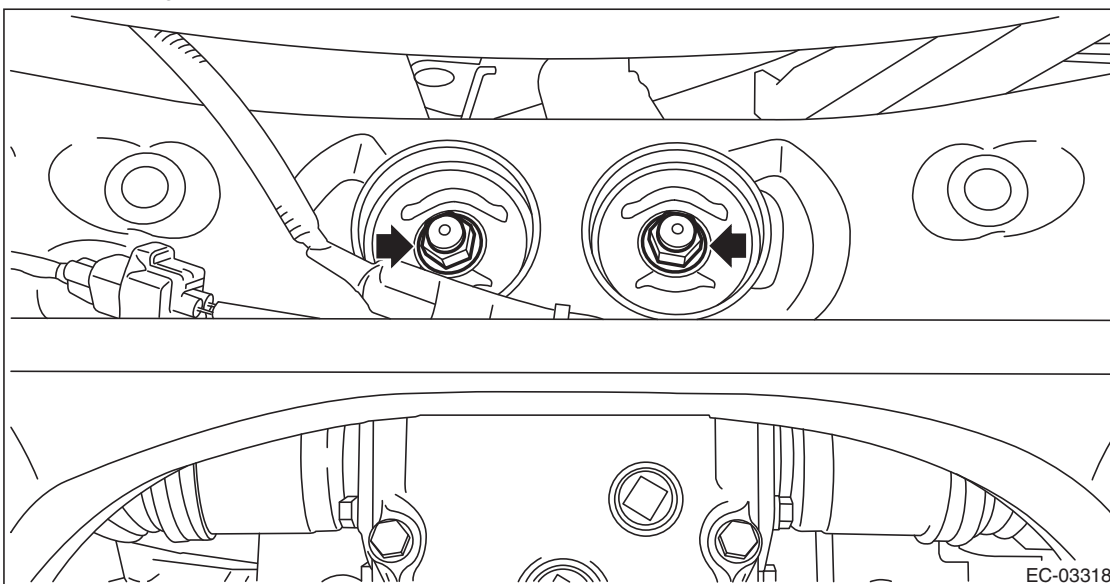
When inserting the stud bolt into the bushing portion of the rear sub frame assembly, adjust the angle and location of transmission jack and jack stand.



7) Temporarily tighten the self-locking nuts which hold the rear differential to the rear sub frame assembly.

NOTE:

Use a new self-locking nut.



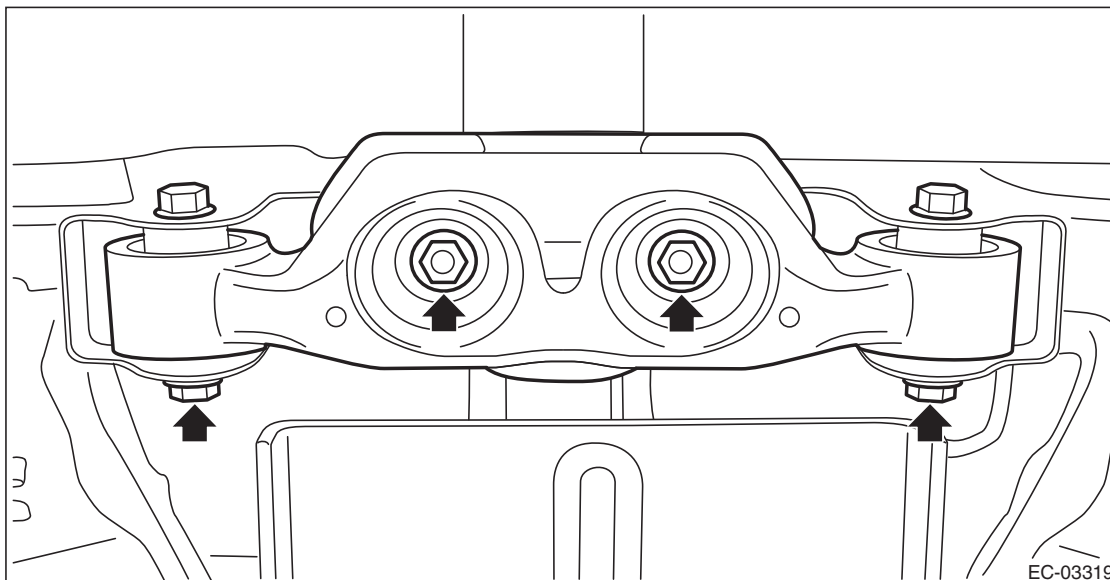
Leak Check Valve Assembly

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

8) Set the rear differential member to the rear sub frame assembly and rear differential, and temporarily tighten the self-lock nuts which secure the rear differential member to the rear sub frame assembly and rear differential.

NOTE:

Use a new self-locking nut.



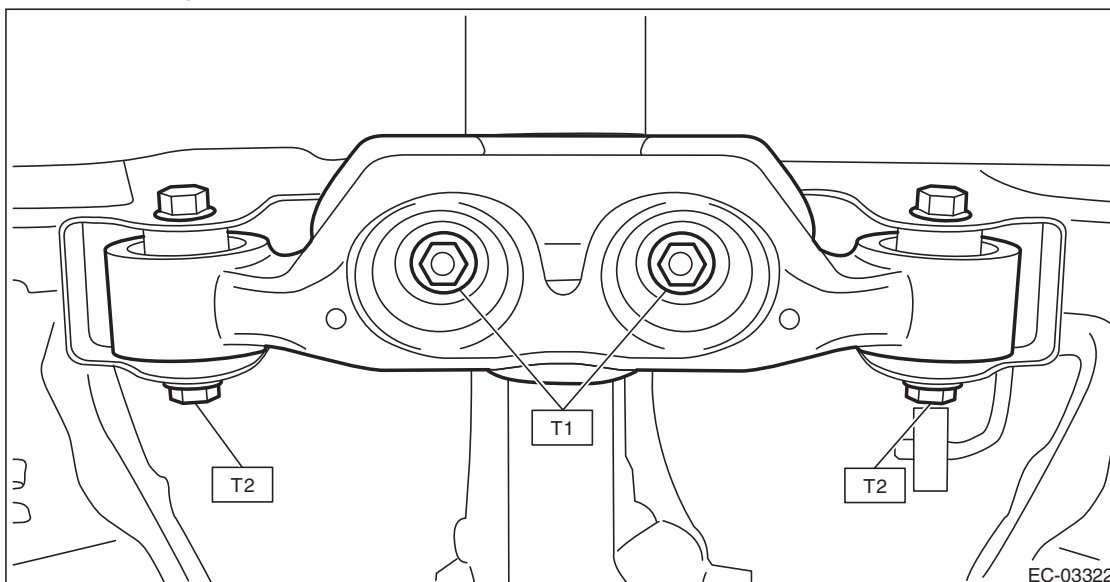
9) Remove the transmission jack from the rear differential.

10) Tighten the self-locking nuts which secure the rear differential member to the rear sub frame assembly and rear differential.

Tightening torque:

T1: 50 N·m (5.1 kgf-m, 36.9 ft-lb)

T2: 110 N·m (11.2 kgf-m, 81.1 ft-lb)



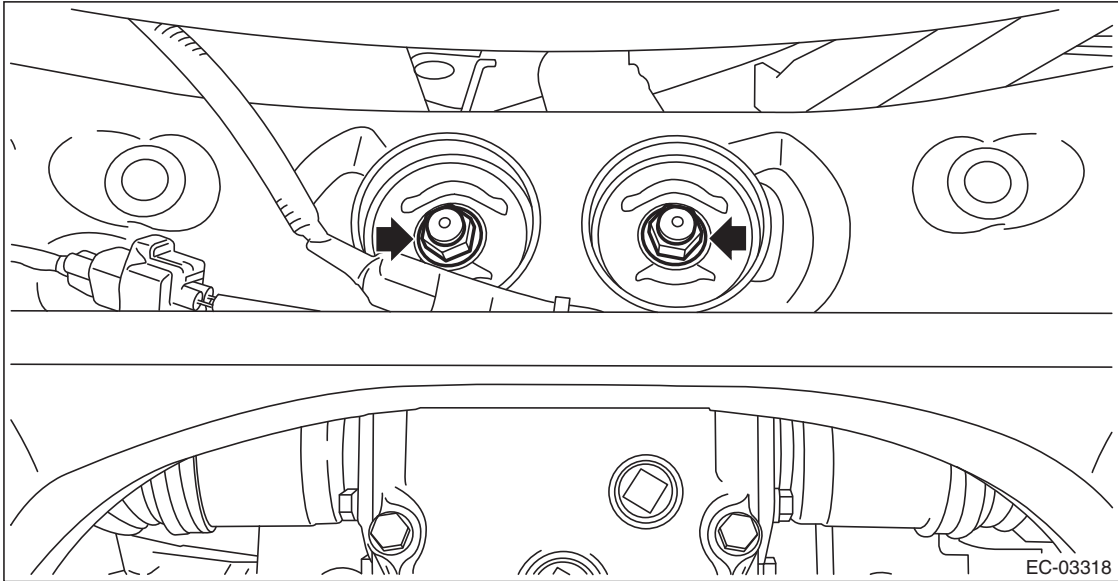
Leak Check Valve Assembly

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

11) Tighten the self-locking nuts which secure the rear differential to the rear sub frame assembly.

Tightening torque:

70 N·m (7.1 kgf-m, 51.6 ft-lb)



12) Install the propeller shaft. <Ref. to DS-13, INSTALLATION, Propeller Shaft.>

13) Install the rear exhaust pipe. <Ref. to EX(H4DOTC)-46, INSTALLATION, Rear Exhaust Pipe.>

14) Lower the vehicle.

15) Connect the battery ground terminal.



Leak Check Valve Assembly

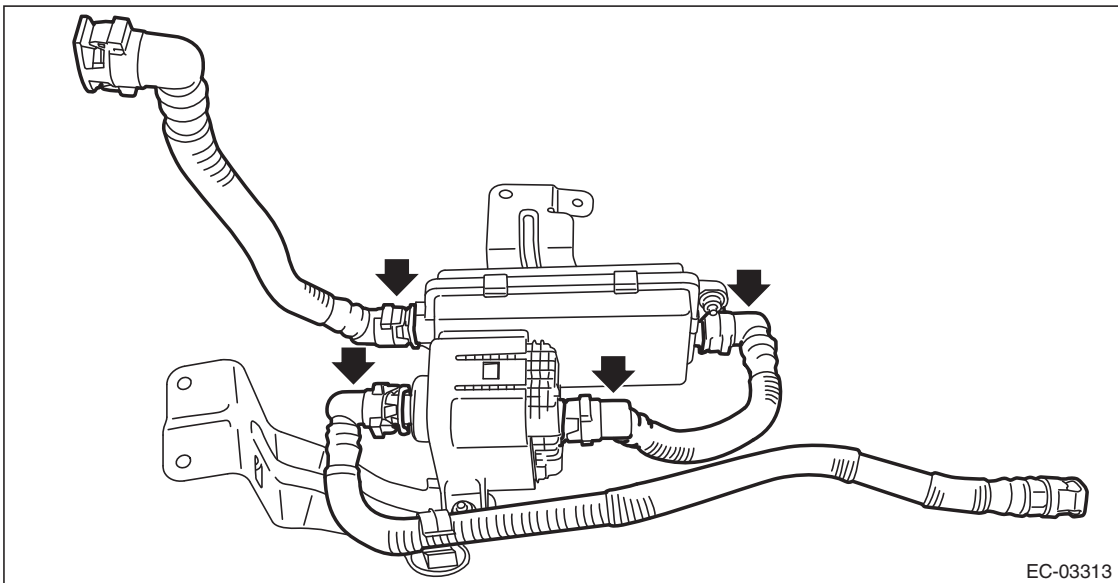
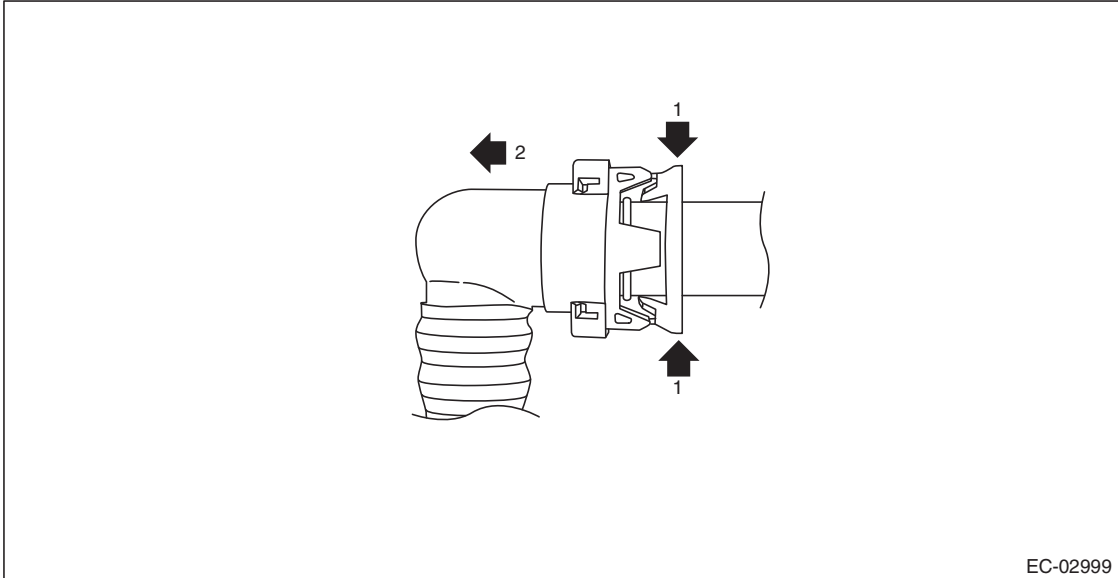
EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

C: DISASSEMBLY

1) Disconnect the drain tube from the leak check valve assembly.

NOTE:

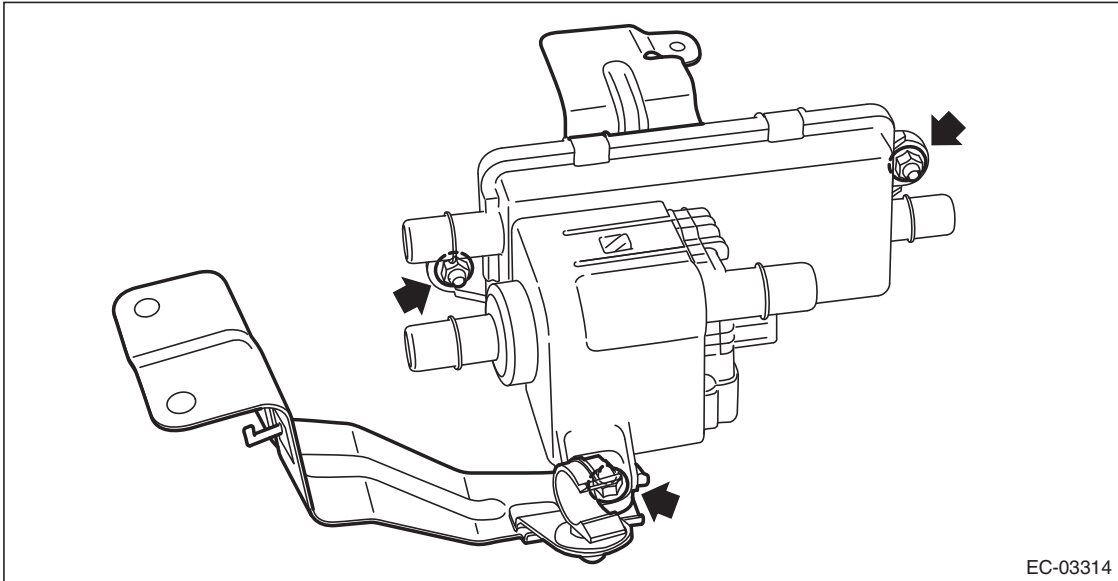
Disconnect the quick connector as shown in the figure.



Leak Check Valve Assembly

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

- 2) Remove the bracket from the leak check valve assembly.



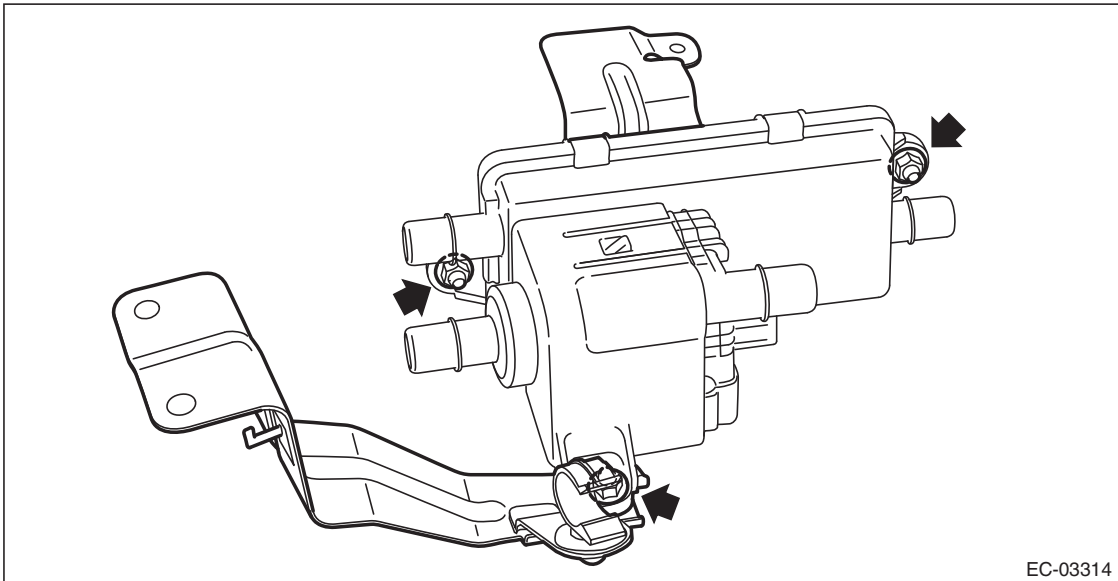
EC-03314

D: ASSEMBLY

- 1) Install the bracket to the leak check valve assembly.

Tightening torque:

18 N·m (1.8 kgf-m, 13.3 ft-lb)



EC-03314

Leak Check Valve Assembly

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

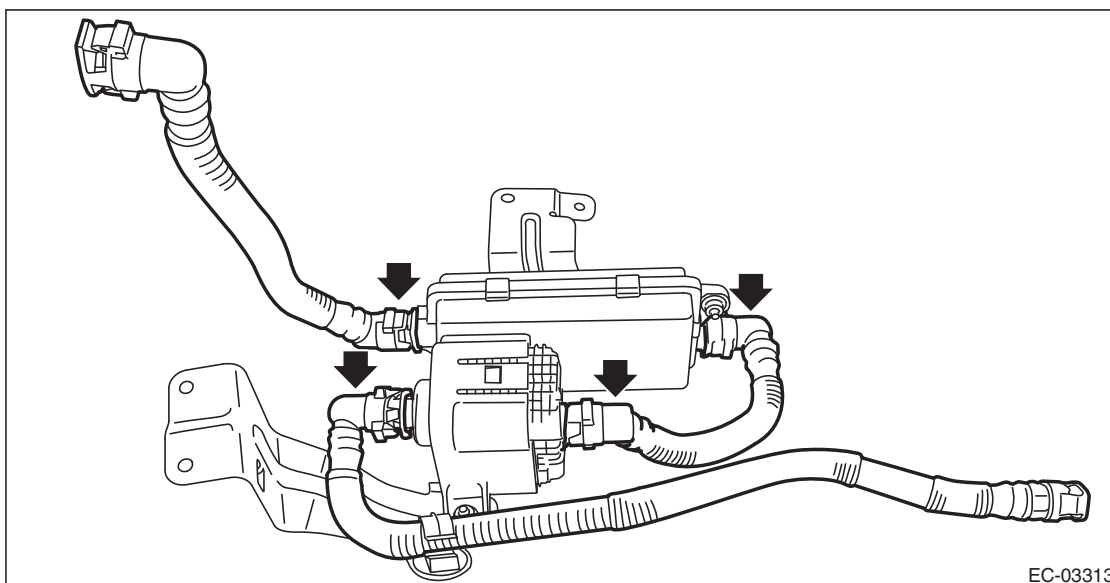
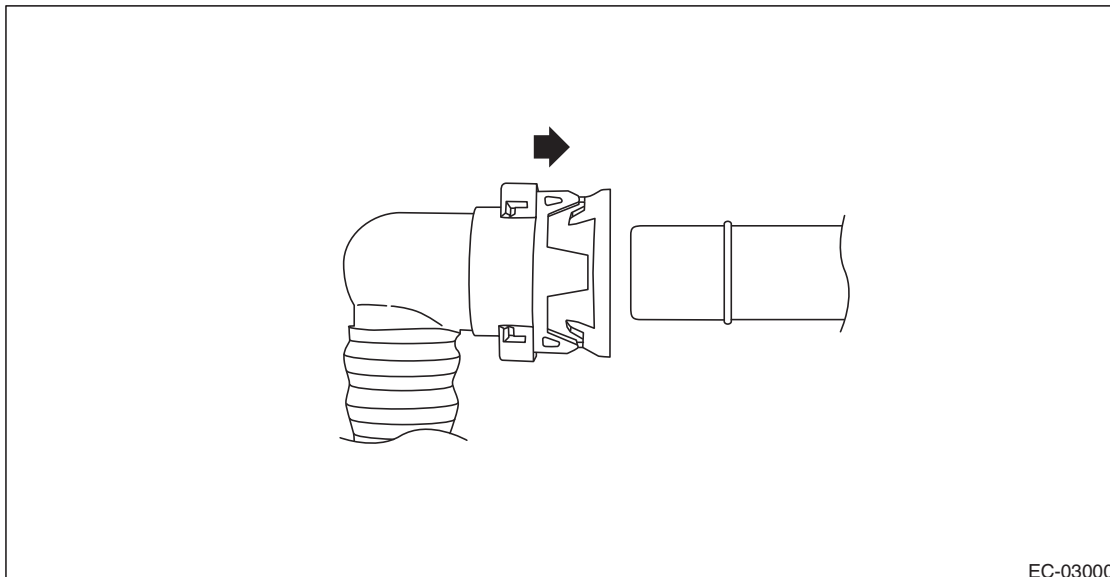
2) Install the drain tube to the leak check valve assembly.

CAUTION:

- Check that there is no damage or dust on the quick connector. If necessary, clean the seal surface of the pipe.
- Make sure that the quick connector is securely connected.

NOTE:

Connect the quick connector as shown in the figure.



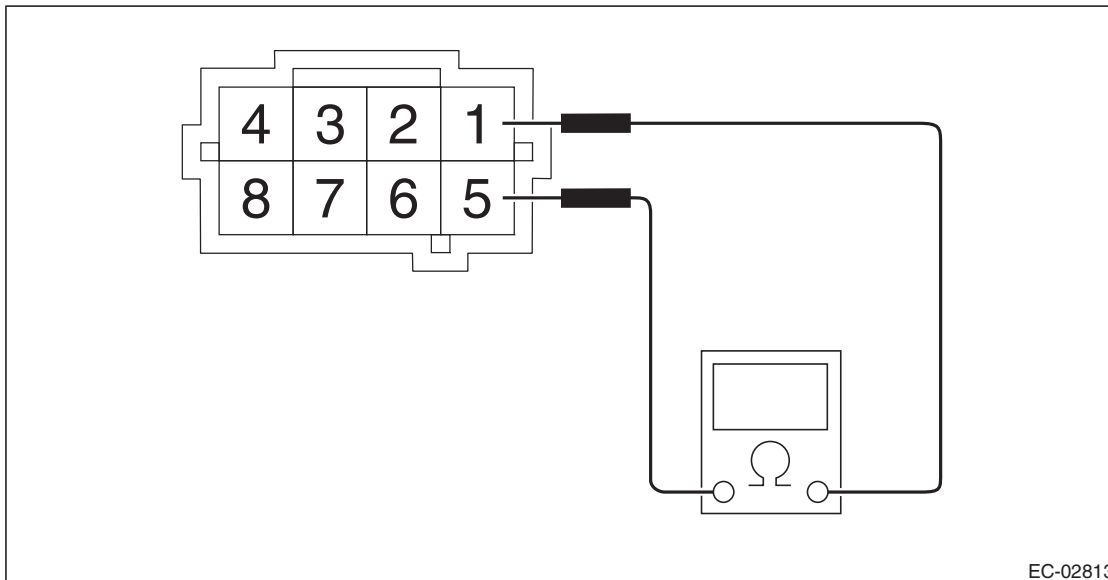
Leak Check Valve Assembly

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

E: INSPECTION

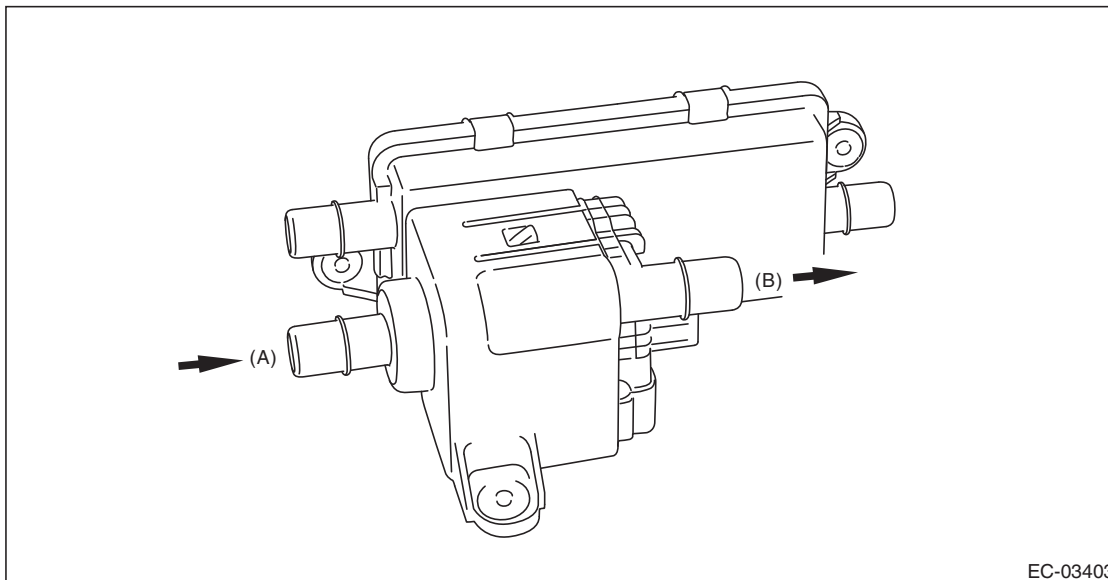
1. CHECK SWITCHING VALVE

1) Check the resistance between switching valve terminals.



Terminal No.	Standard
1 and 5	$27^{+3}_{-2} \Omega$ (when 20°C (68°F))
	$31 \pm 4 \Omega$ (60°C (140°F))

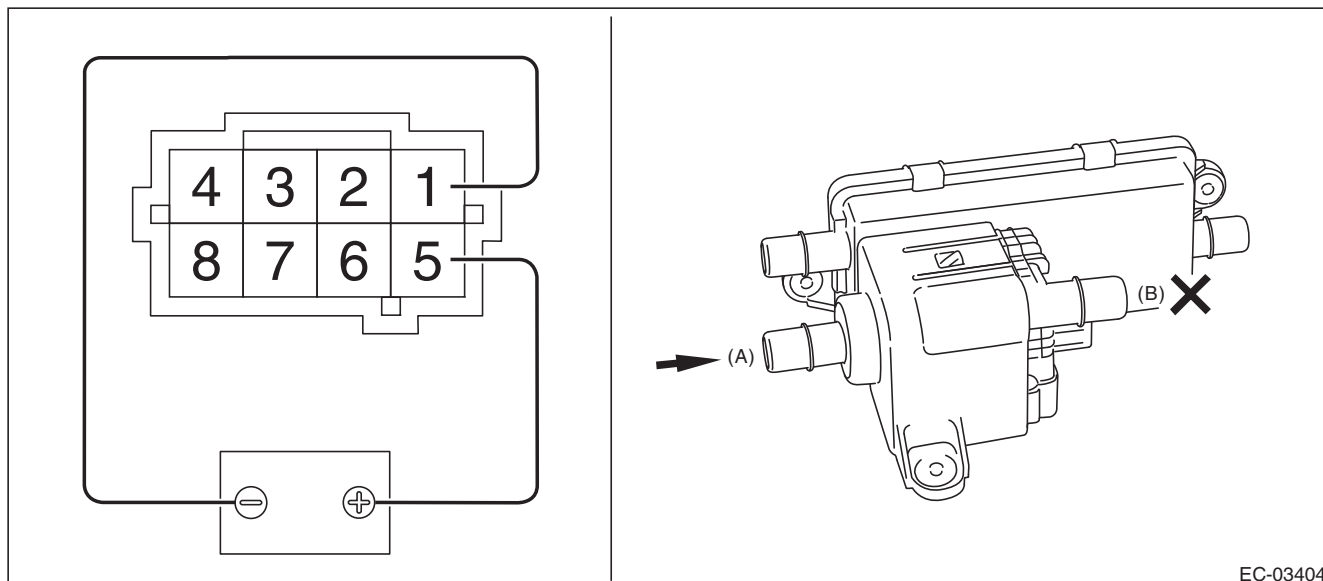
2) Check that air is discharged from (B) when air is blown into (A).



Leak Check Valve Assembly

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

3) Connect the battery positive terminal to the terminal No. 5 and the battery negative terminal to the terminal No. 1. Check that air does not come out from (B) when air is blown into (A).

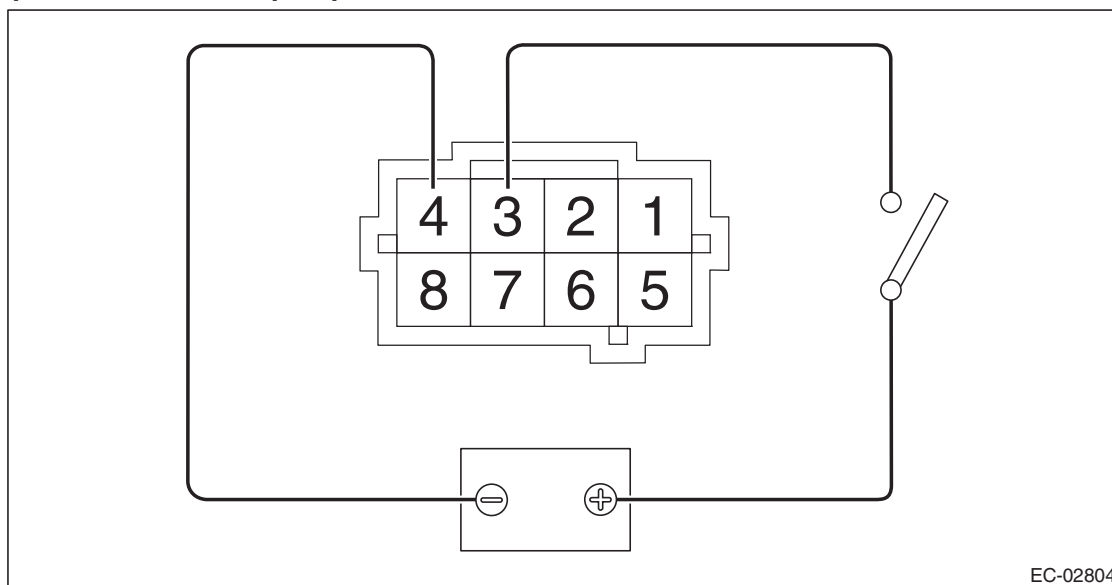


2. CHECK VACUUM PUMP

1) Connect the battery positive terminal to terminal No. 3 and the battery ground terminal to terminal No. 4, and inspect the vacuum pump operation.

CAUTION:

Do not operate the vacuum pump for 5 minutes or more.



Leak Check Valve Assembly

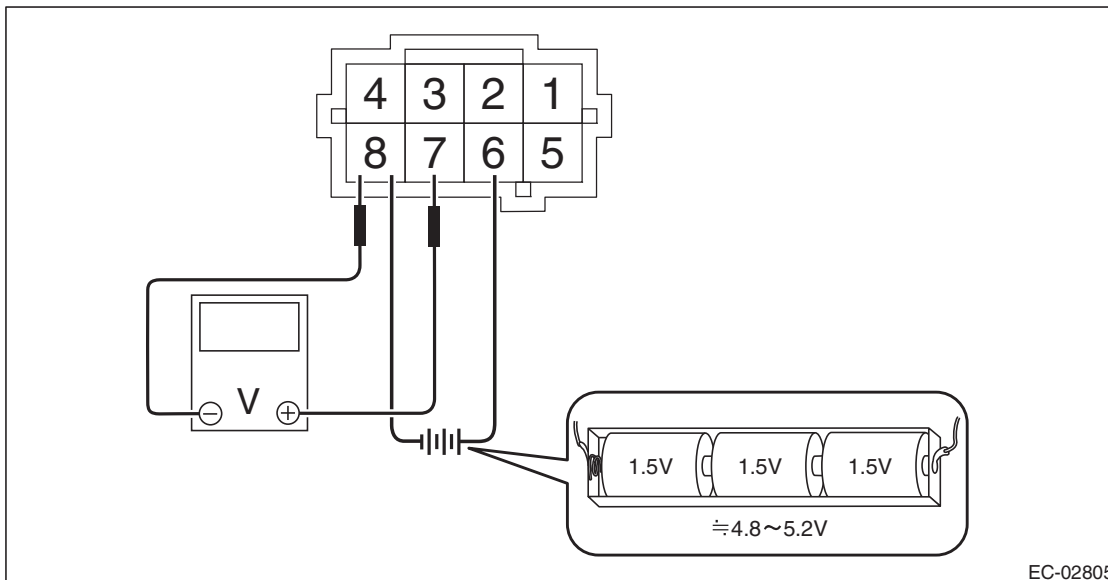
EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

3. CHECK PRESSURE SENSOR

1) Connect dry-cell battery positive terminal to terminal No. 6 and dry-cell battery ground terminal to terminal No. 8, circuit tester positive terminal to terminal No. 7 and the circuit tester negative terminal to terminal No. 8.

NOTE:

- Use new dry-cell batteries.
- Using circuit tester, check the voltage of a single dry-cell battery is 1.6 V or more. And also check the voltage of three batteries in series is between 4.8 V and 5.2 V.



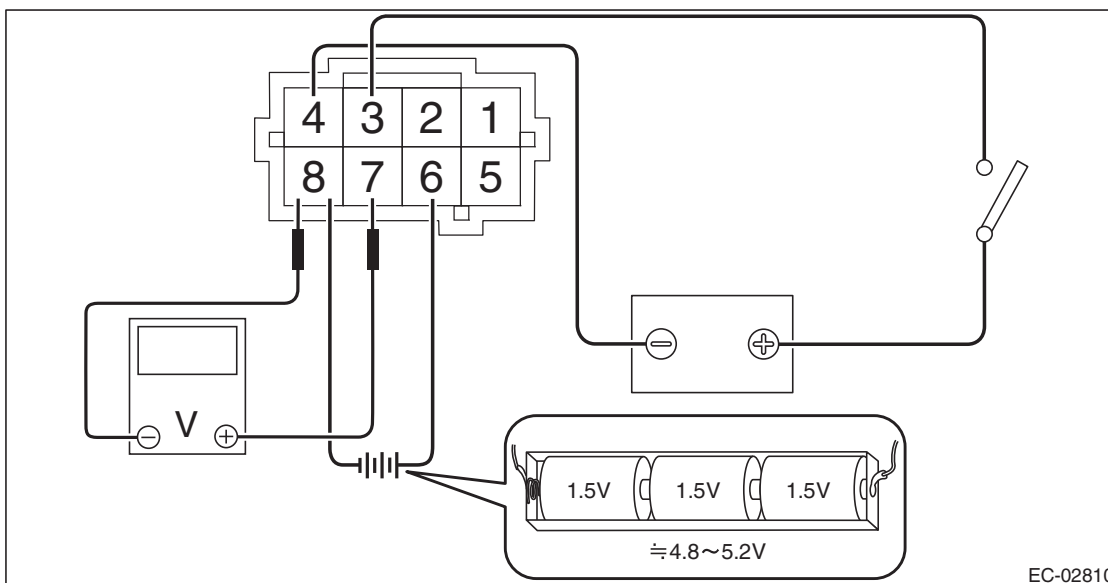
2) Check the voltage at a normal atmospheric pressure.

NOTE:

The atmospheric pressure at higher altitude is lower than normal. Therefore, the voltage is lower than the standard value.

Terminal No.	Standard
7 (+) and 8 (-)	Approx. 3.5 V (when 25°C (77°F))

3) Connect the battery positive terminal to terminal No. 3 and the battery ground terminal to terminal No. 4, and check that there is a voltage drop from the voltage measured in step 2) when the vacuum pump is operated.



Leak Check Valve Assembly

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

4. OTHER INSPECTIONS

- 1) Check that the leak check valve assembly has no deformation, cracks or other damages.
- 2) Check that the tube or hose have no cracks, damage or loose part.

PCV Pipe

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

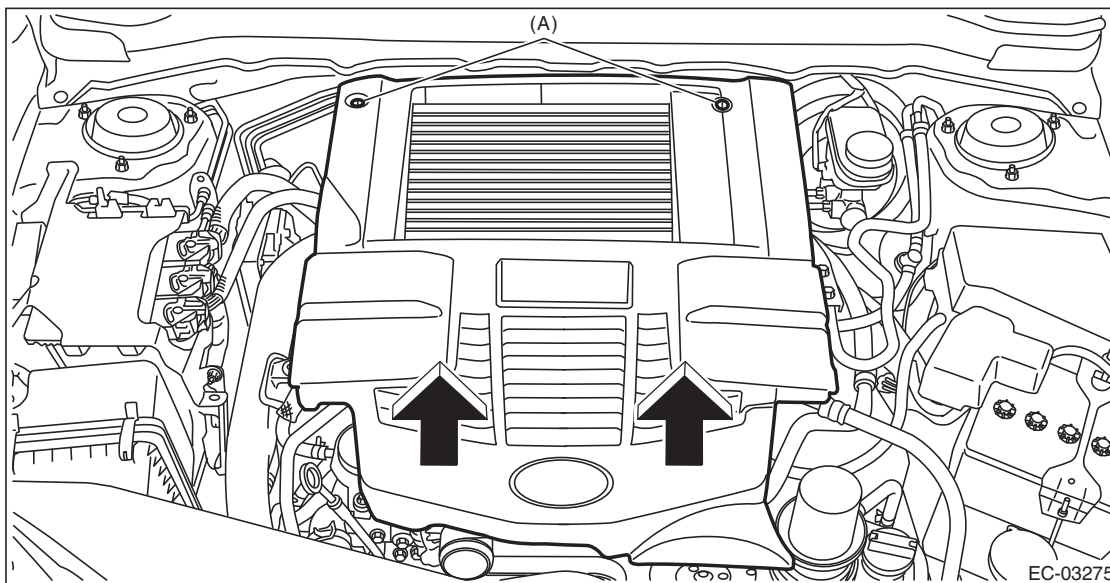
13.PCV Pipe

A: REMOVAL

CAUTION:

Do not remove except when the PCV pipe is broken.

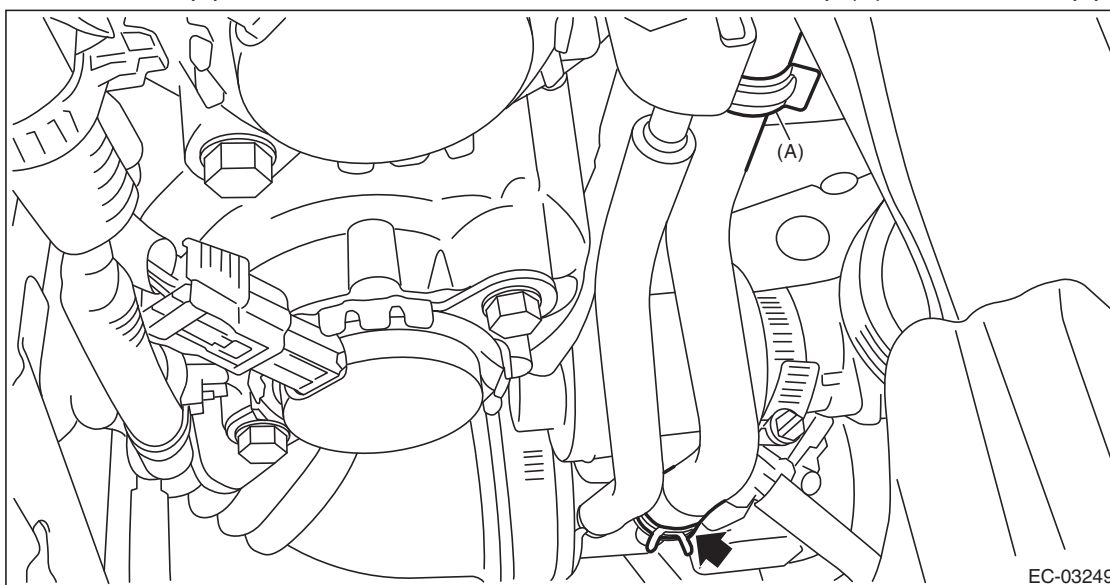
1) Remove the clip (A), lift the front of the collector cover in the direction of arrow, and then remove the collector cover.



2) Collect the refrigerant from A/C system. <Ref. to AC-26, Refrigerant Recovery Procedure.>

3) Disconnect the ground cable from battery.

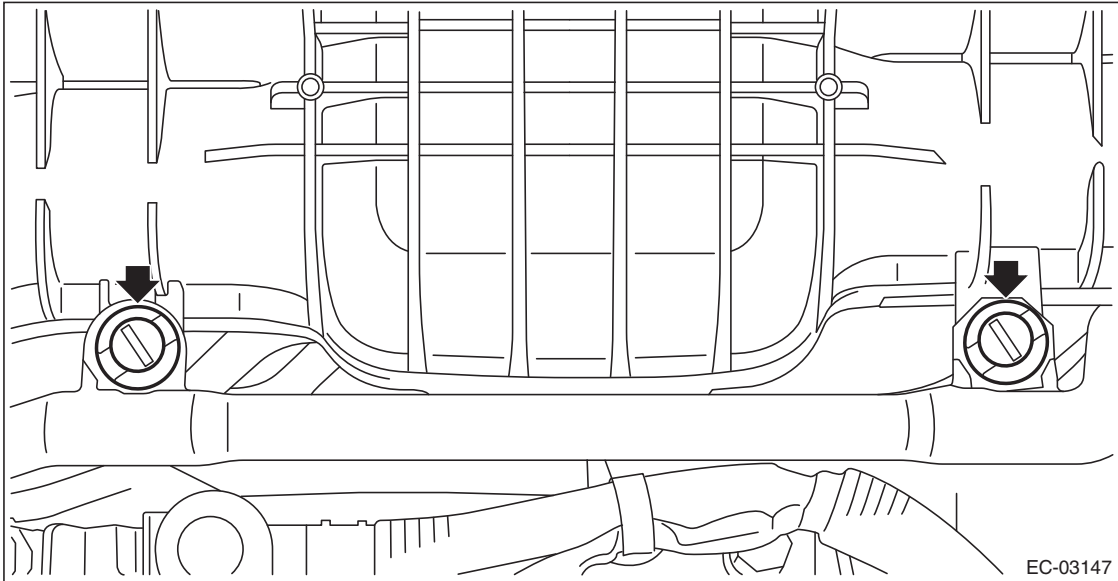
4) Disconnect the PCV pipe from the intake duct No. 1, and remove the clip (A) from the PCV pipe.



PCV Pipe

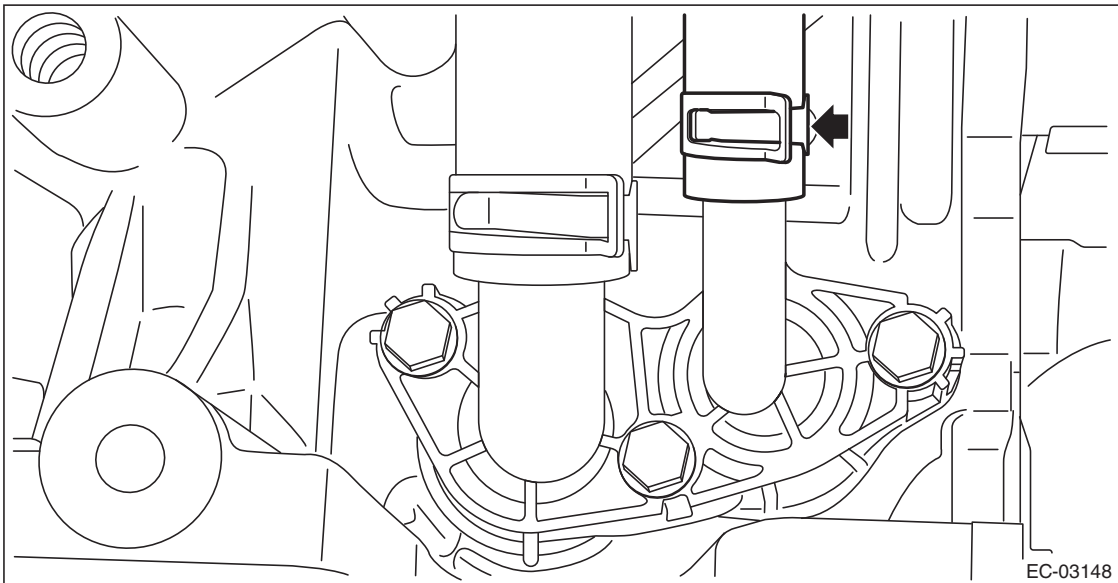
EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

- 5) Remove the clip securing the PCV pipe to the intake manifold.



- 6) Remove the A/C compressor. <Ref. to AC-52, REMOVAL, Compressor.>

- 7) Remove the PCV pipe from the PCV connector.



B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

Check that the PCV pipe has no cracks, damage or loose part.

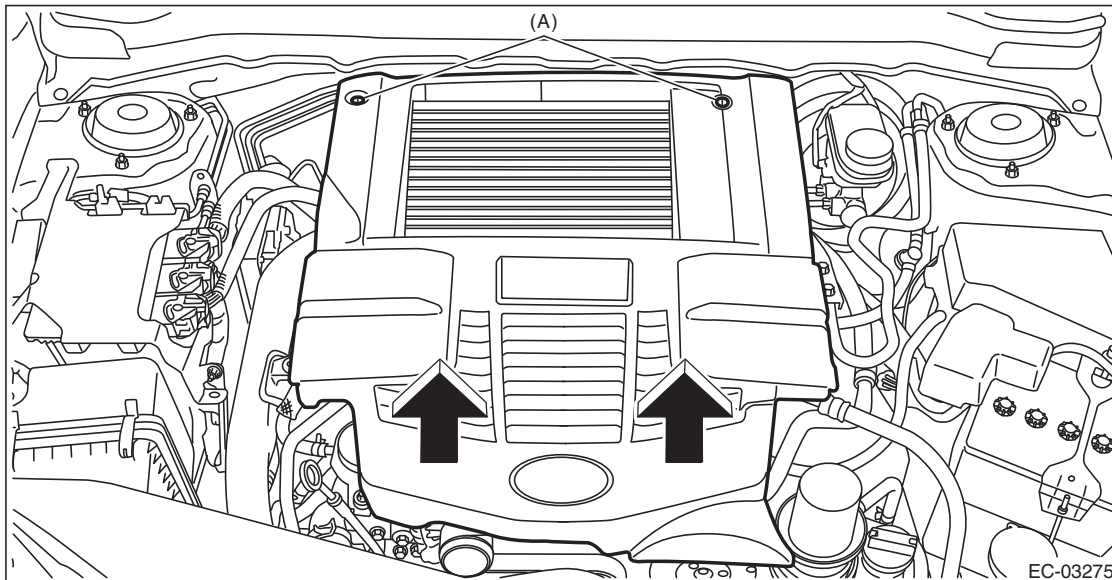
PCV Connector

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

14.PCV Connector

A: REMOVAL

1) Remove the clip (A), lift the front of the collector cover in the direction of arrow, and then remove the collector cover.



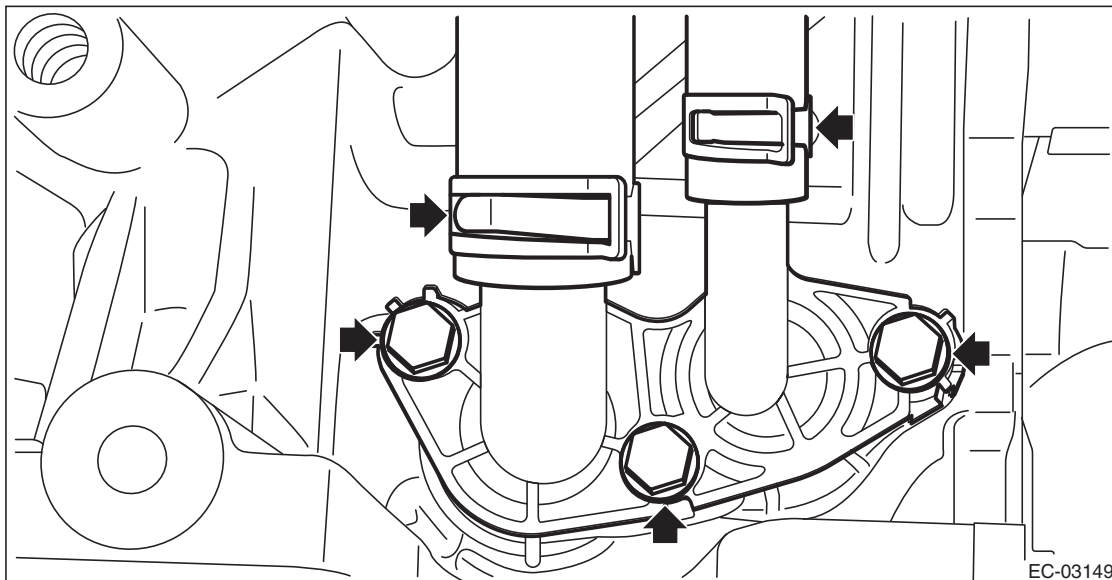
2) Collect the refrigerant from A/C system. <Ref. to AC-26, Refrigerant Recovery Procedure.>

3) Disconnect the ground cable from battery.

4) Drain engine coolant. <Ref. to CO(H4DOTC)-13, DRAINING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>

5) Remove the A/C compressor. <Ref. to AC-52, REMOVAL, Compressor.>

6) Disconnect the preheater hose and PCV pipe from the PCV connector, and remove the PCV connector from the cylinder block LH.



PCV Connector

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

B: INSTALLATION

Install in the reverse order of removal.

NOTE:

Use new O-rings.

Tightening torque:

6.4 N·m (0.7 kgf-m, 4.7 ft-lb)

C: INSPECTION

Check that the PCV connector has no deformation, cracks or other damages.

PCV Hose

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

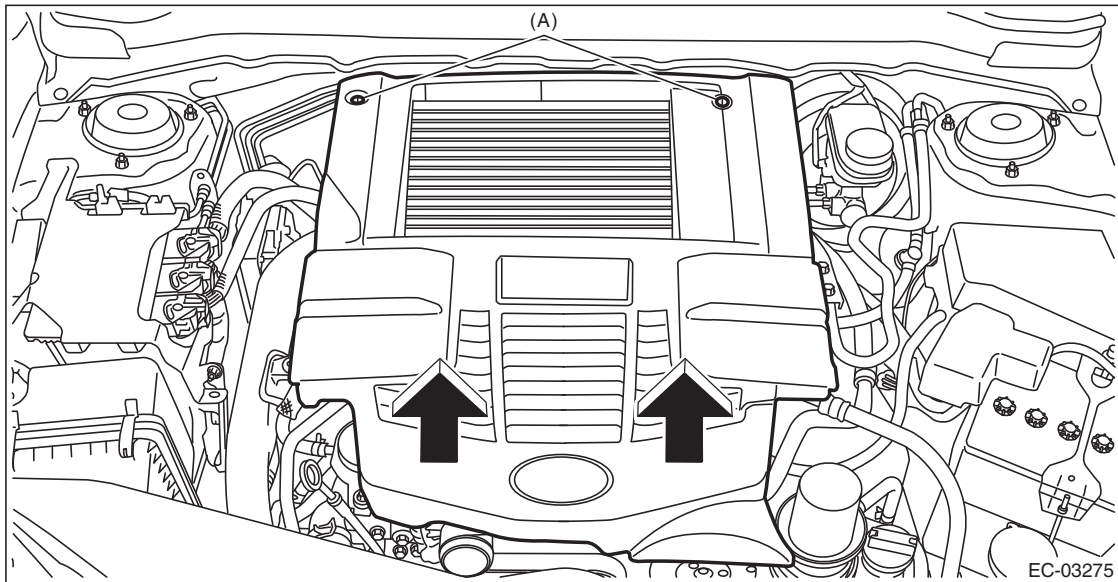
15.PCV Hose

A: REMOVAL

CAUTION:

Do not remove except when the PCV hose is broken.

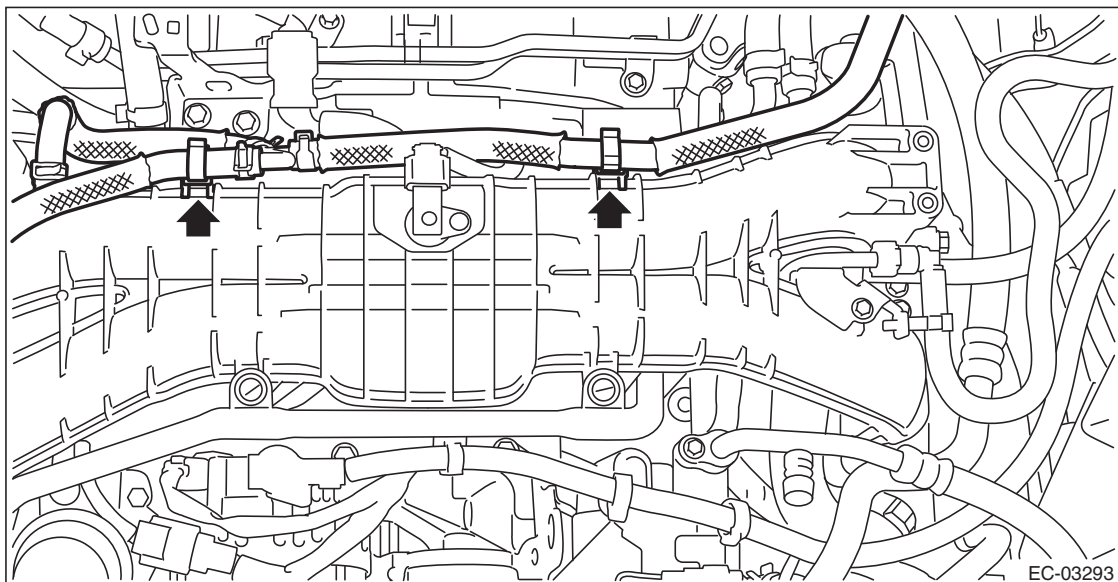
1) Remove the clip (A), lift the front of the collector cover in the direction of arrow, and then remove the collector cover.



2) Disconnect the ground cable from battery.

3) Remove the intercooler. <Ref. to IN(H4DOTC)-35, REMOVAL, Intercooler.>

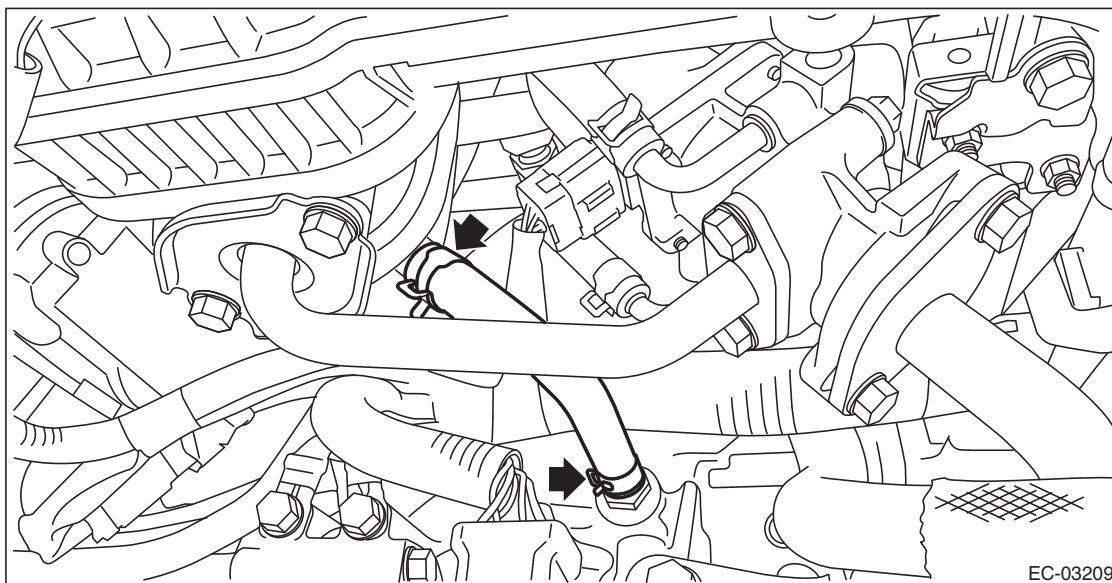
4) Remove the clip securing the brake booster vacuum hose to the intake manifold, and move the brake booster vacuum hose at the locations that do not interfere operation.



PCV Hose

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

- 5) Disconnect the PCV hose A from the intake manifold, and remove the PCV hose A from the PCV valve.



B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

Check that the PCV hose has no cracks, damage or loose part.



PCV Hose Assembly

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

16.PCV Hose Assembly

A: REMOVAL

CAUTION:

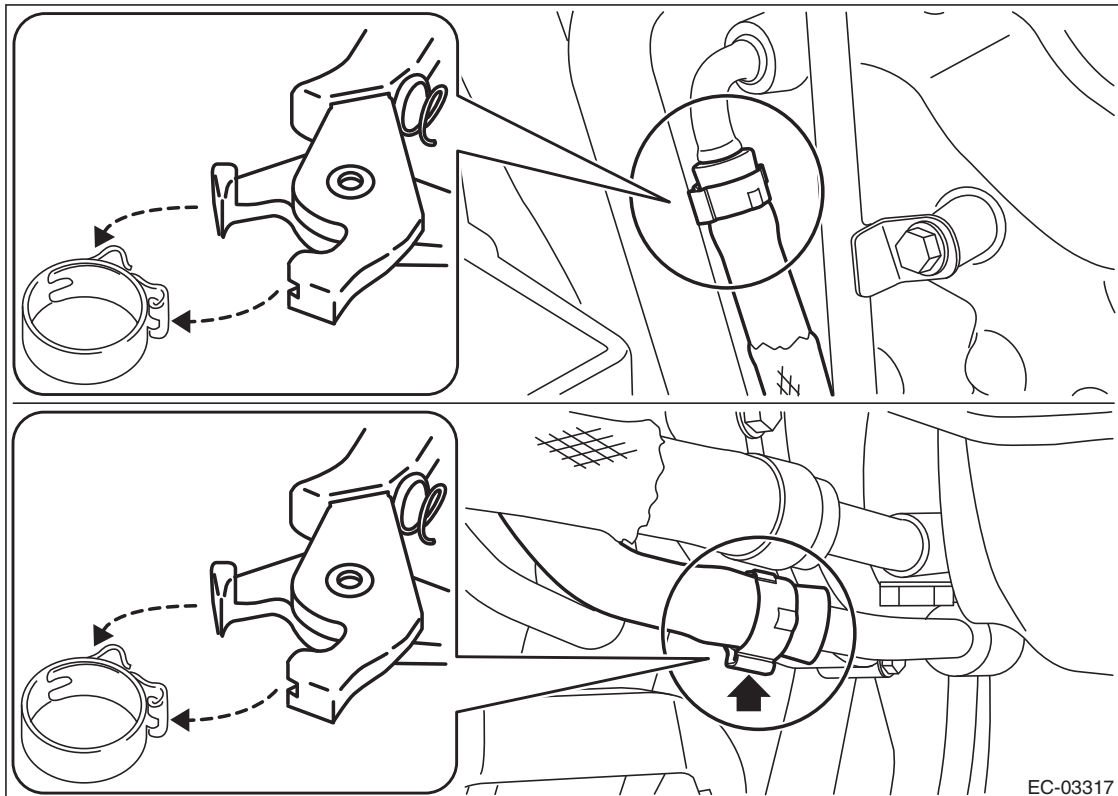
Do not remove except when the PCV hose assembly is broken.

- 1) Remove the air intake duct (rear). <Ref. to IN(H4DOTC)-19, REMOVAL, Air Intake Duct.>
- 2) Disconnect the PCV hose assembly from the chain cover, and remove the PCV hose assembly from the oil catch tank.

NOTE:

To disconnect the PCV hose assembly, fit the cut outs of the ST with the protrusions on the clamp as shown in the figure, squeeze the ST's handles together and unlock the clamp.

ST 18353AA000 CLAMP PLIERS



EC-03317

PCV Hose Assembly

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

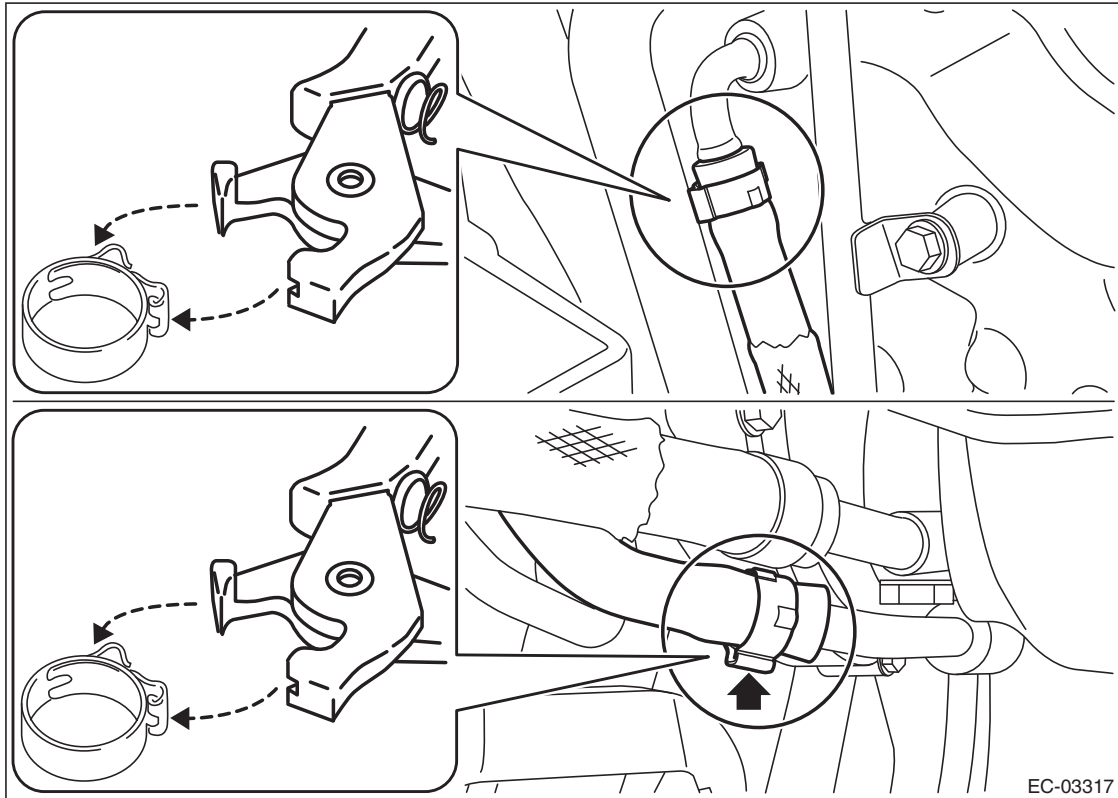
B: INSTALLATION

Install in the reverse order of removal.

NOTE:

Use a new clamp. To connect the PCV hose assembly, fit the cut outs of the ST with the protrusions on the clamp as shown in the figure, squeeze the ST's handles together and lock the clamp.

ST 18353AA000 CLAMP PLIERS



C: INSPECTION

Check the PCV hose assembly for cracks, damage or looseness.

PCV Valve

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

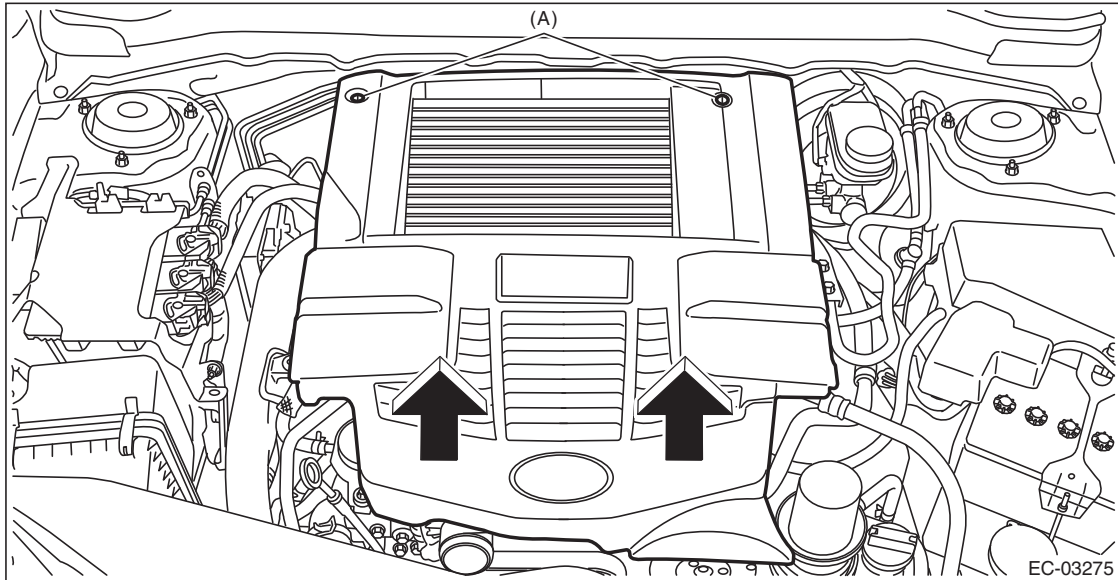
17.PCV Valve

A: REMOVAL

CAUTION:

Do not remove unless the PCV valve is broken.

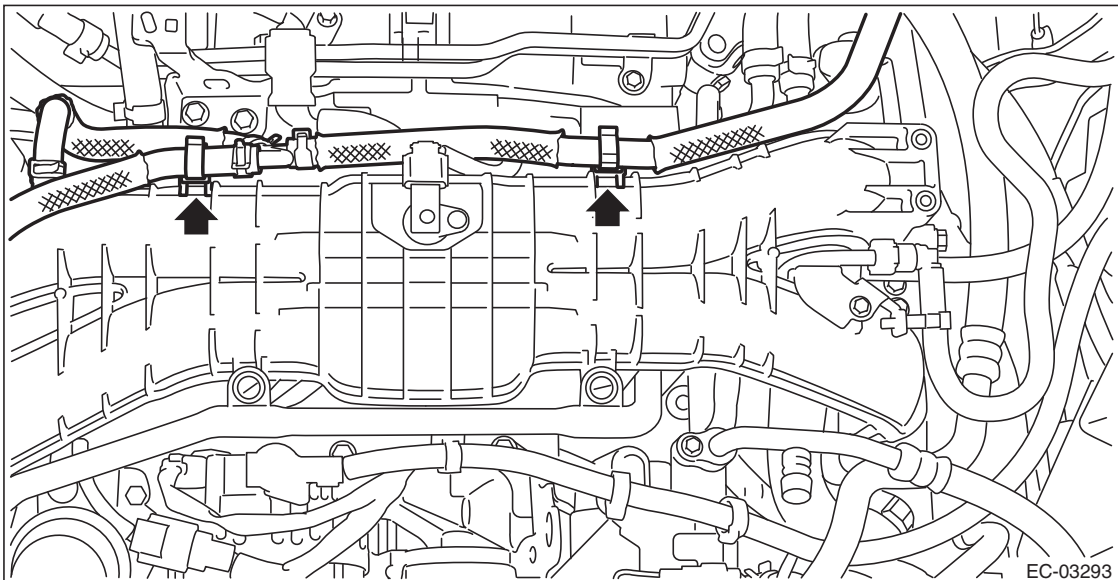
1) Remove the clip (A), lift the front of the collector cover in the direction of arrow, and then remove the collector cover.



2) Disconnect the ground cable from battery.

3) Remove the intercooler. <Ref. to IN(H4DOTC)-35, REMOVAL, Intercooler.>

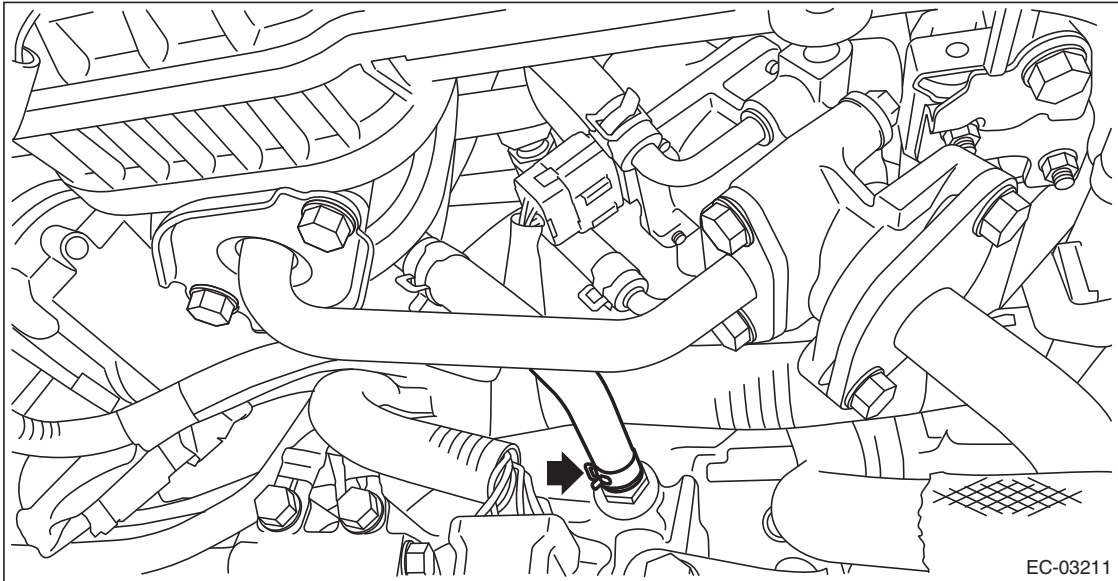
4) Remove the clip securing the brake booster vacuum hose to the intake manifold, and move the brake booster vacuum hose at the locations that do not interfere operation.



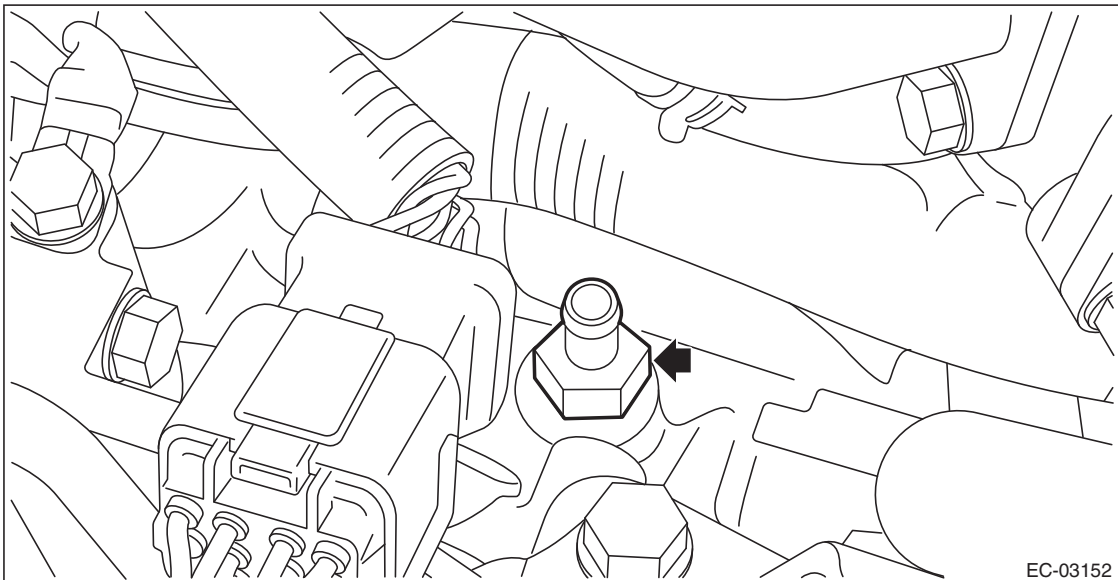
PCV Valve

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

- 5) Disconnect the PCV hose from the PCV valve.



- 6) Remove the PCV valve from the cylinder block RH.



B: INSTALLATION

Install in the reverse order of removal.

NOTE:

Apply liquid gasket to the bolt threads of PCV valve.

Liquid gasket:

THREE BOND 1324 (Part No. 004403042) or equivalent

Tightening torque:

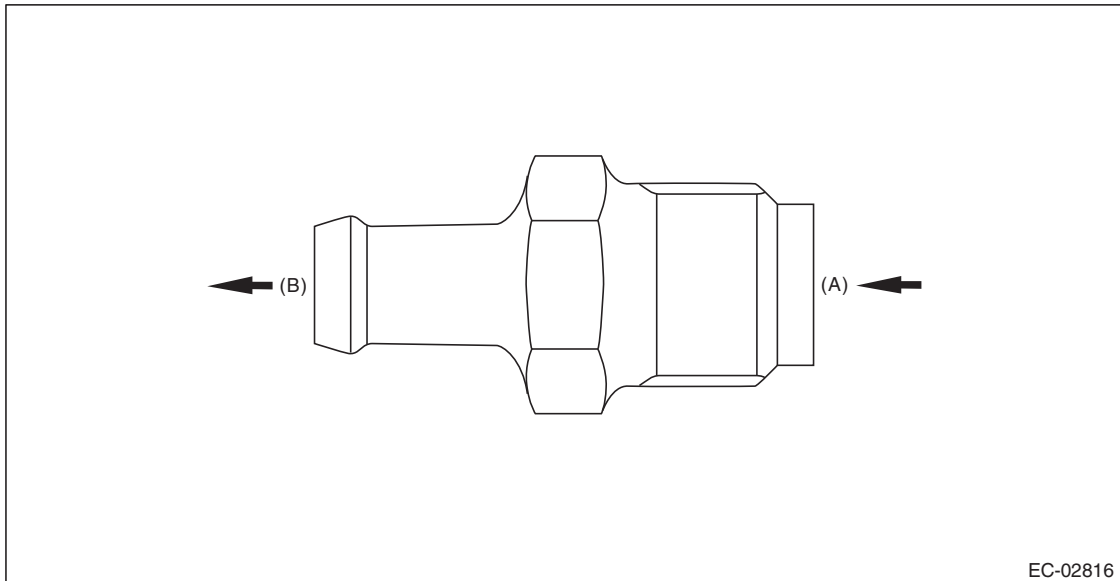
23 N·m (2.3 kgf-m, 17.0 ft-lb)

PCV Valve

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

C: INSPECTION

- 1) Check that the PCV valve has no deformation, cracks or other damages.
- 2) Check that air is discharged from (B) when air is blown into (A).



- 3) Check that air does not come out from (B) when air is blown into (A).

