

3. Intake Manifold

A: REMOVAL

1) Release the fuel pressure. <Ref. to FU(H4DO(HEV))-98, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>

2) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:

For the 12 volt engine restart battery, disconnect the ground terminal from 12V engine restart battery sensor.

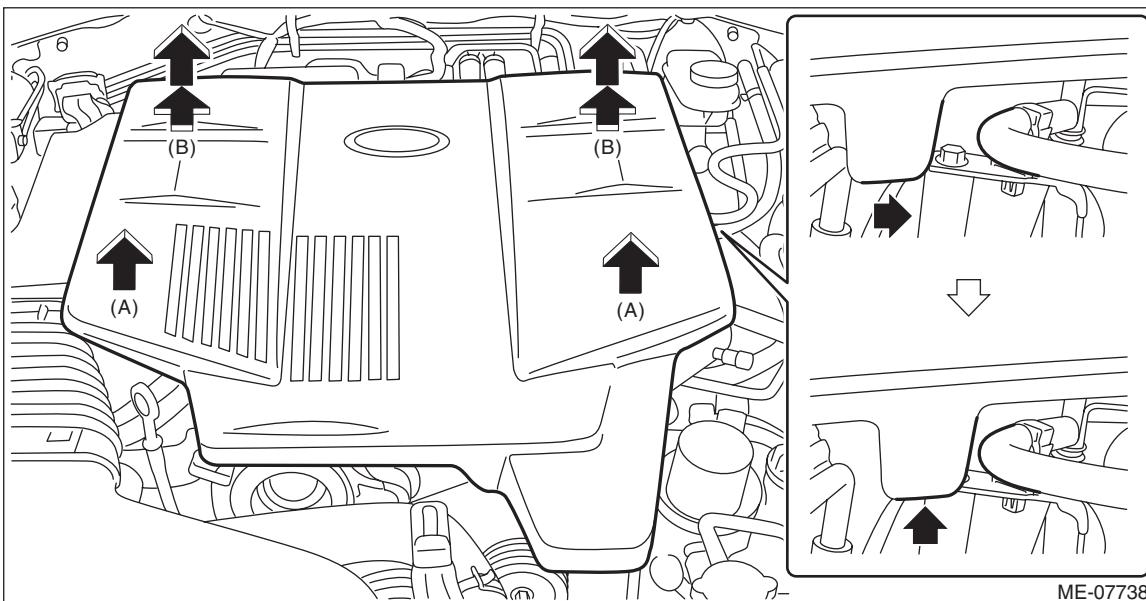
3) Remove the collector cover.

(1) Carefully pull up the front of collector cover at two positions (A).

(2) Carefully pull up the rear of collector cover at two positions (B) while moving it backward.

NOTE:

Be careful not to contact the fuel delivery tube when moving the collector cover rearward.



4) Open the fuel filler lid and remove the fuel filler cap.

NOTE:

This operation is required to release the inner pressure of the fuel tank.

5) Lift up the vehicle.

6) Remove the under cover. <Ref. to EI-32, REMOVAL, Front Under Cover.>

7) Drain approximately 3.0 L (3.2 US qt, 2.6 Imp qt) of coolant. <Ref. to CO(H4DO(w/o HEV))-16, DRAINING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>

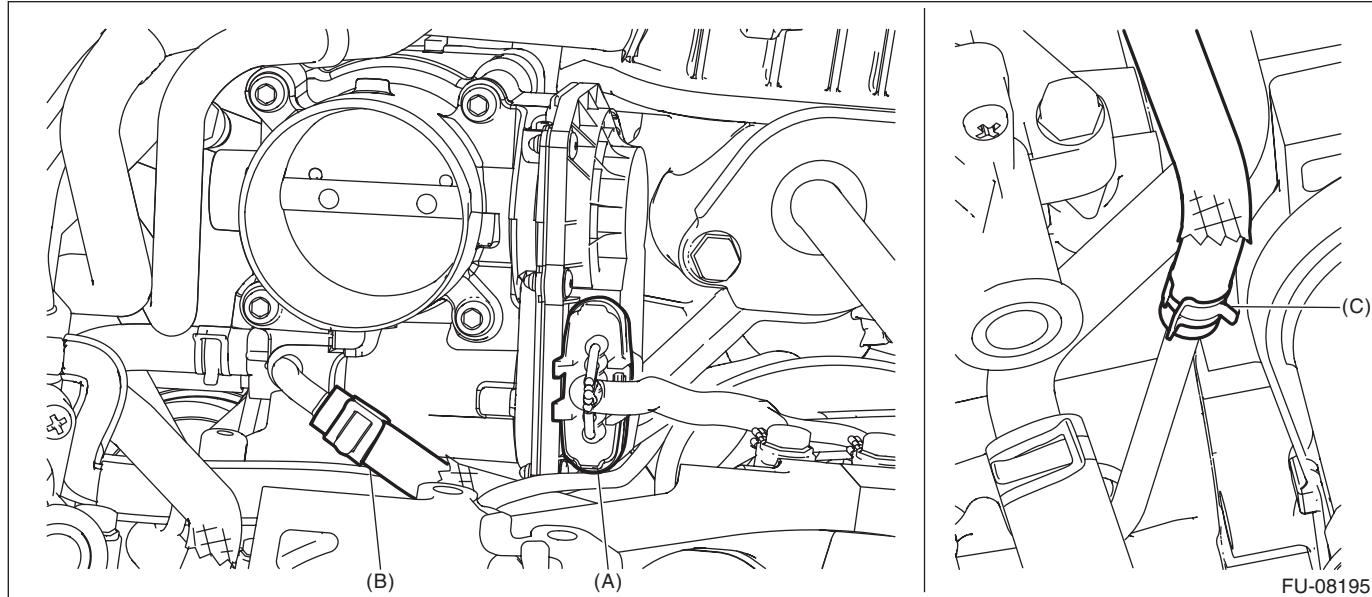
8) Remove the air cleaner case. <Ref. to IN(H4DO(HEV))-6, REMOVAL, Air Cleaner Case.>

9) Remove the air intake boot No. 2. <Ref. to IN(H4DO(HEV))-11, AIR INTAKE BOOT NO. 2, REMOVAL, Air Intake Boot.>

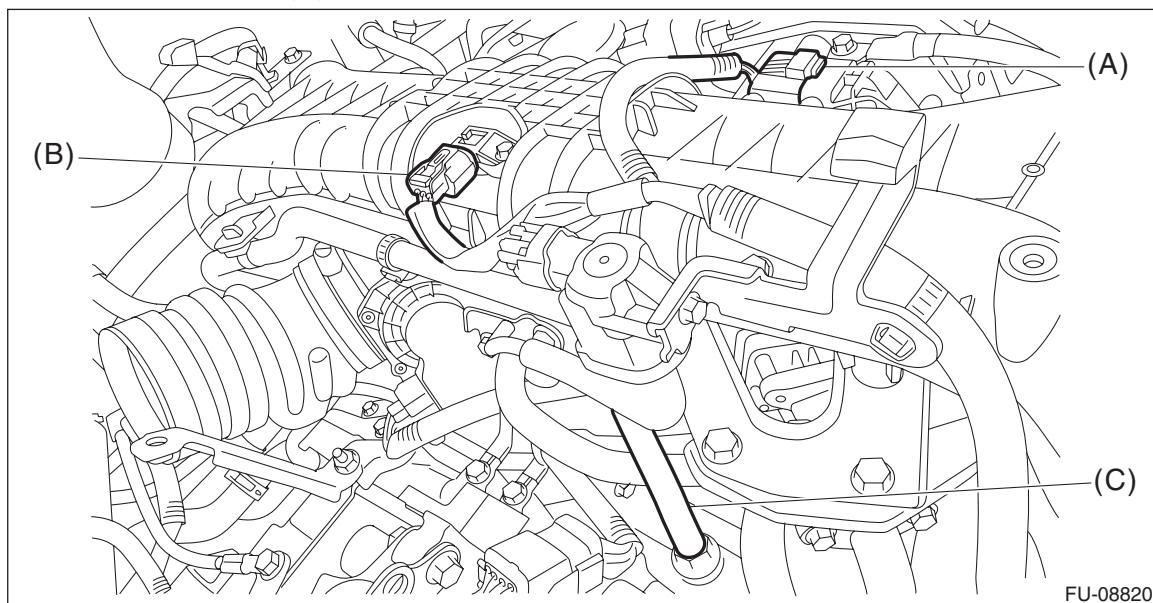
Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

- 10) Disconnect the connectors (A) from the throttle position sensor.
- 11) Disconnect the preheater hose (B) from the throttle body.
- 12) Disconnect the preheater hose (C) from the water pipe assembly LH.



- 13) Disconnect the connector (A) from ISG.
- 14) Disconnect the connector (B) from manifold absolute pressure sensor.
- 15) Disconnect the PCV hose (C) from the PCV valve.

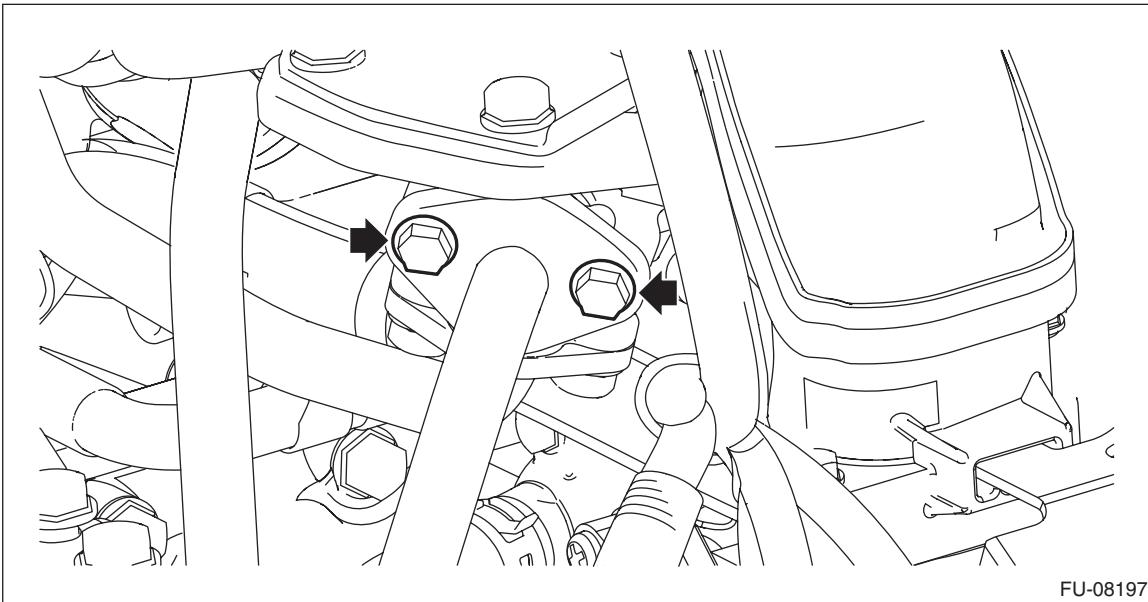


- 16) Remove the purge control solenoid valve. <Ref. to EC(H4DO(HEV))-21, REMOVAL, Purge Control Solenoid Valve.>

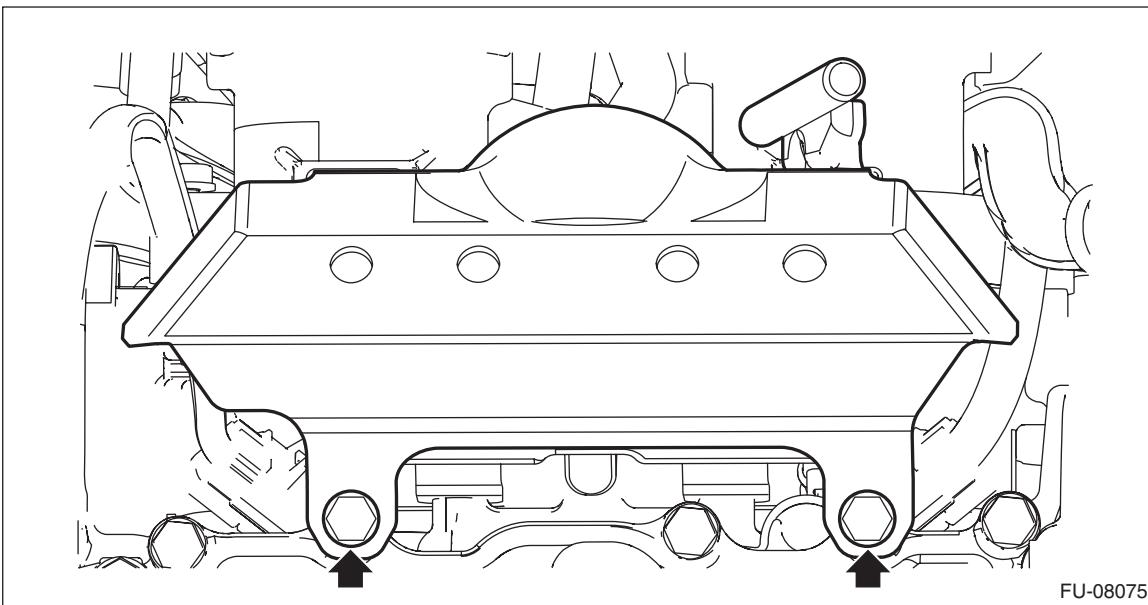
Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

17) Remove the bolts securing the EGR cooler to the EGR control valve.



18) Remove the intake manifold protector RH.



Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

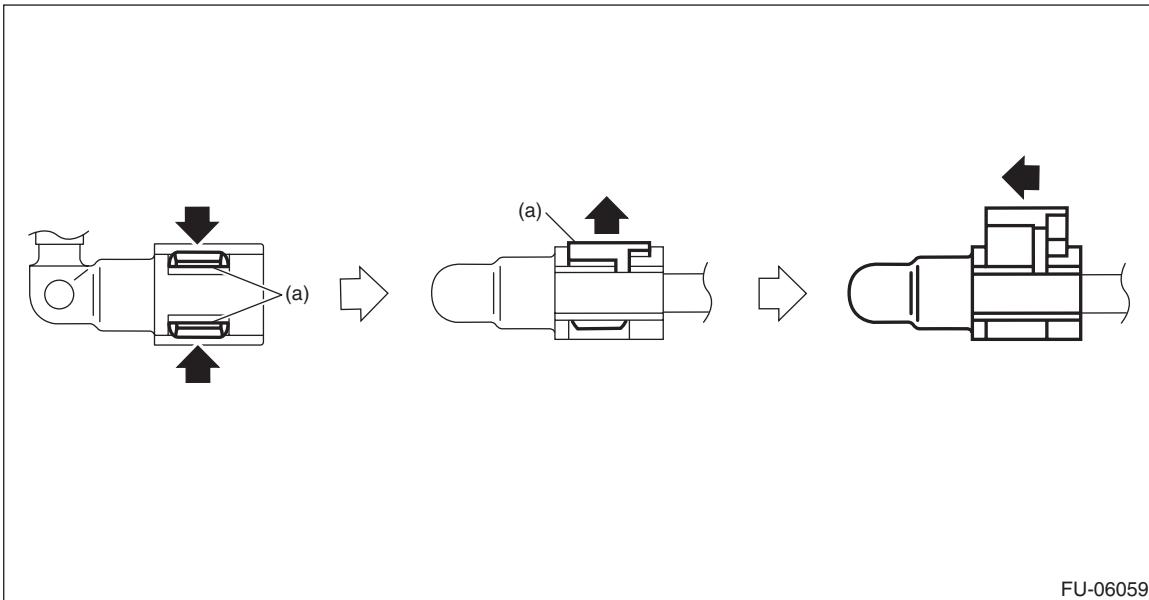
19) Disconnect the fuel delivery pipe from the fuel pipe RH.

CAUTION:

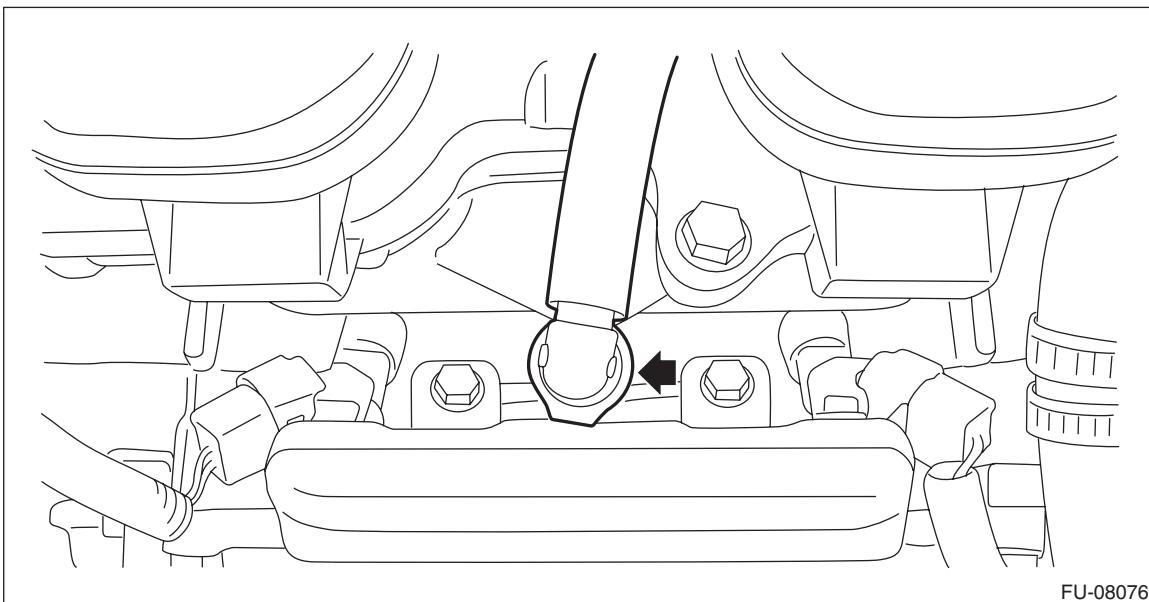
- Be careful not to spill fuel.
- Catch the fuel from the pipes using a container or cloth.

NOTE:

Disconnect the quick connector as shown in the figure.



(a) Slider



20) Remove the intake manifold protector LH in the same manner, and disconnect the fuel delivery pipe from the fuel pipe LH.

21) Disconnect the fuel delivery tube and evaporation hose.

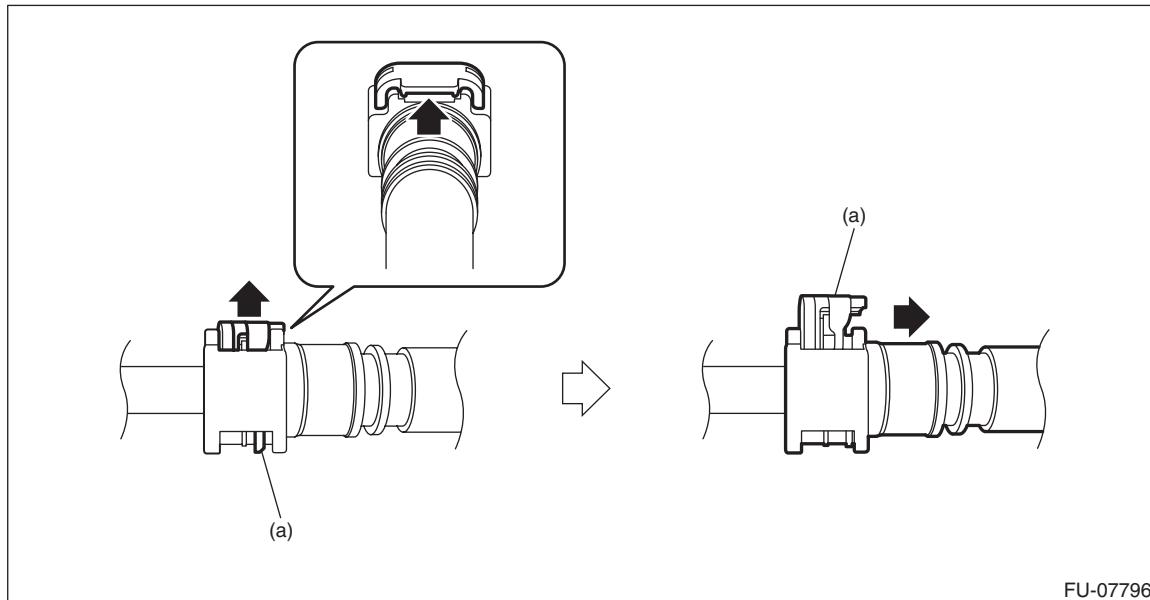
CAUTION:

- **Be careful not to spill fuel.**
- **Catch the fuel from the tubes using a container or cloth.**

(1) Disconnect the quick connector (A) of the fuel delivery tube from the fuel pipe assembly, and remove the clip (B) securing the fuel delivery tube.

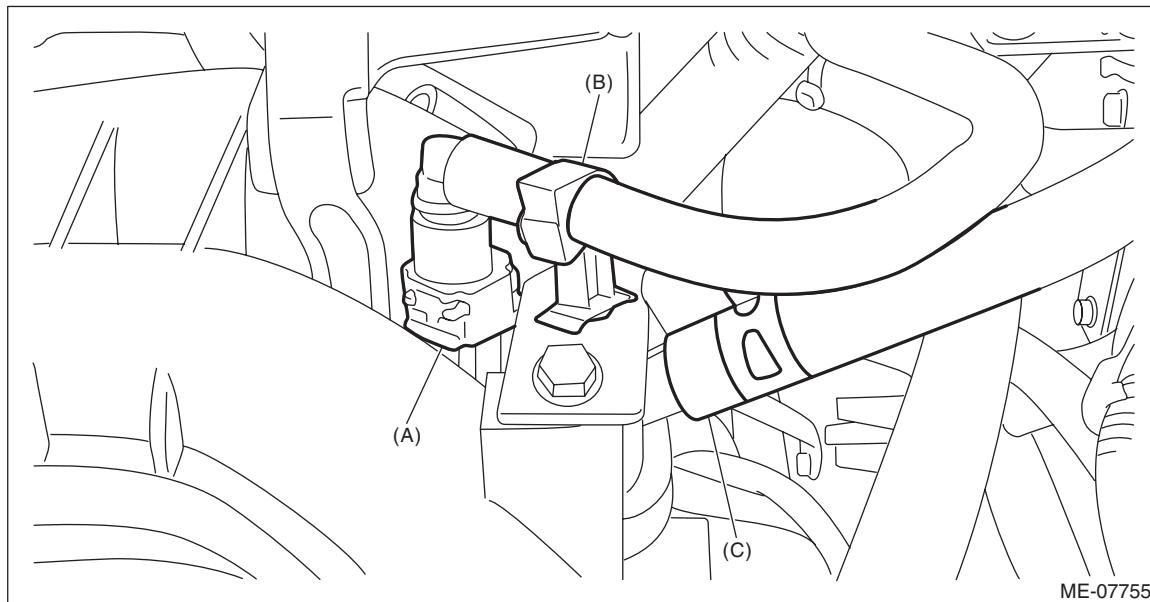
NOTE:

Disconnect the quick connector as shown in the figure.



(a) Slider

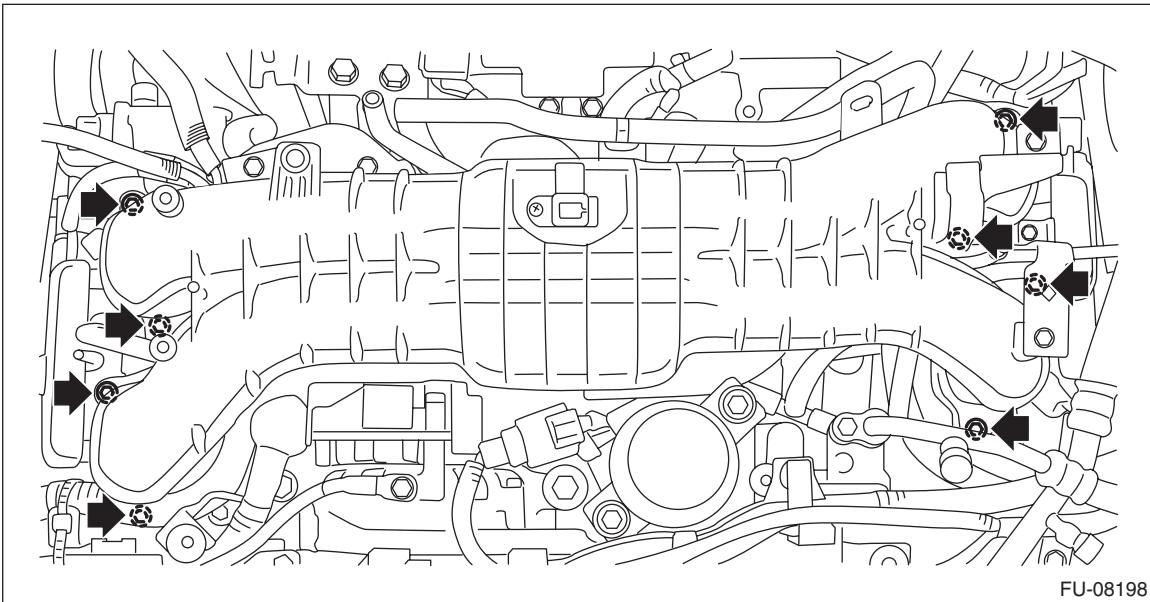
(2) Disconnect the evaporation hose (C) from the fuel pipe assembly.



Intake Manifold

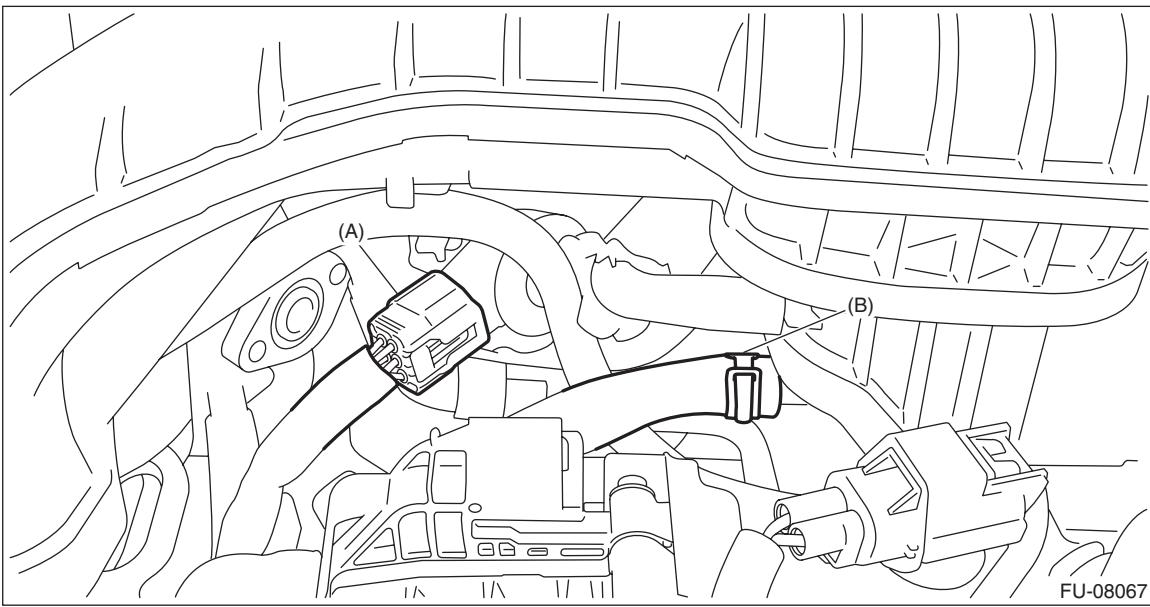
FUEL INJECTION (FUEL SYSTEMS)

22) Remove the bolts which hold the intake manifold to the tumble generator valve assembly.



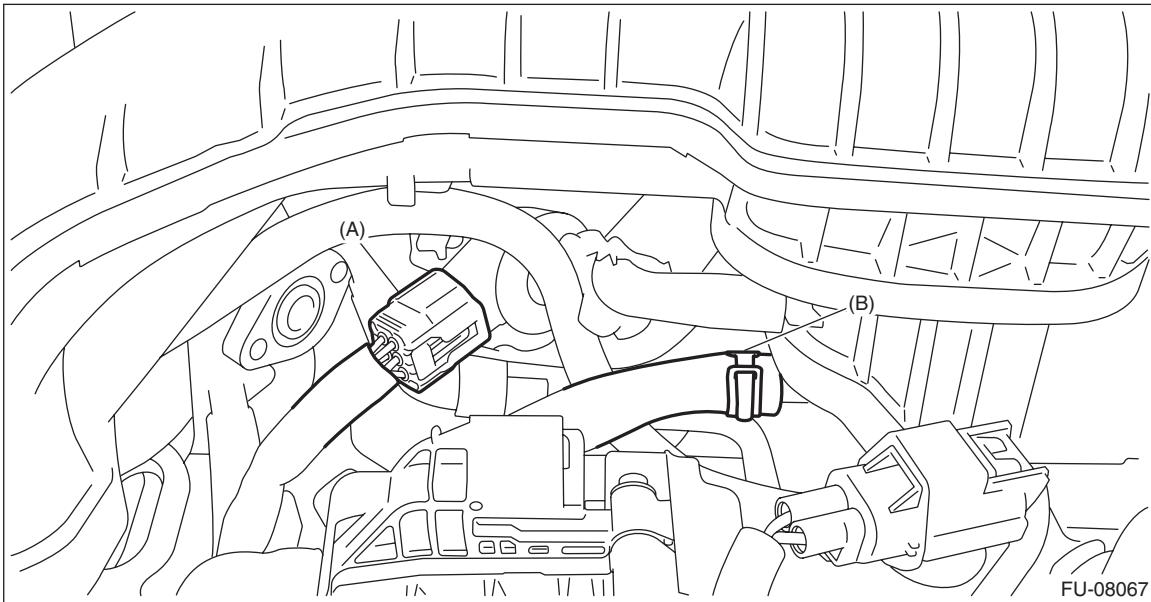
23) Lift the intake manifold, and disconnect the connector (A) from the EGR control valve.

24) Disconnect the brake vacuum hose (B) from the intake manifold, and remove the intake manifold.



B: INSTALLATION

- 1) Connect the connector (A) to the EGR control valve, and connect the brake vacuum hose (B) to the intake manifold.



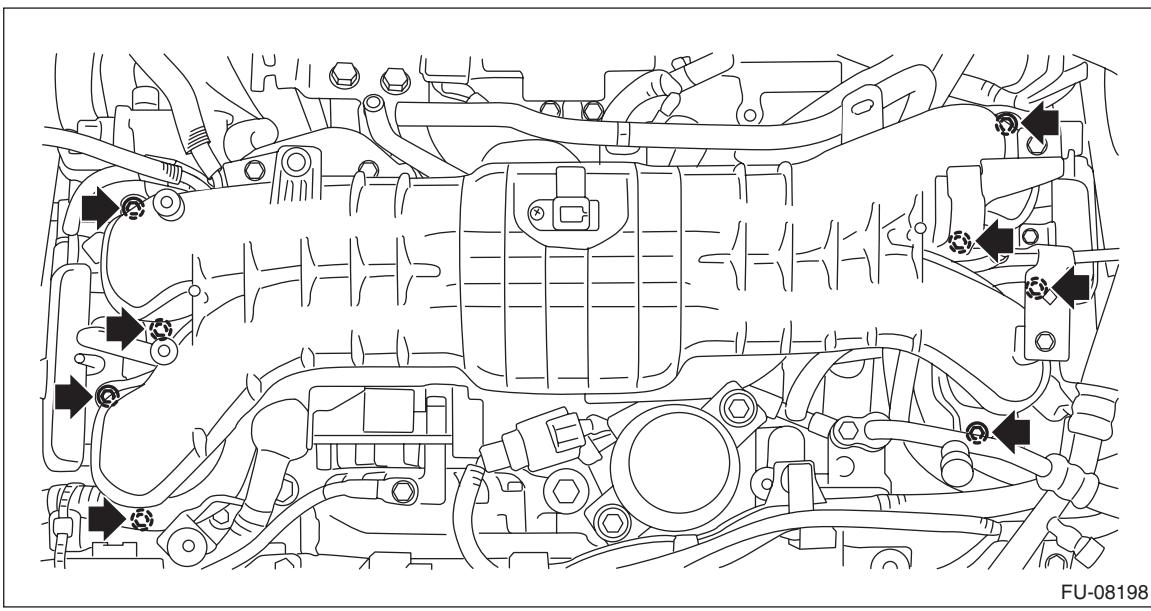
- 2) Install the intake manifold to the tumble generator valve assembly.

NOTE:

Use a new gasket.

Tightening torque:

8.3 N·m (0.8 kgf-m, 6.1 ft-lb)



Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

3) Connect the fuel delivery tube and evaporation hose.

(1) Connect the evaporation hose (C) to fuel pipe assembly.

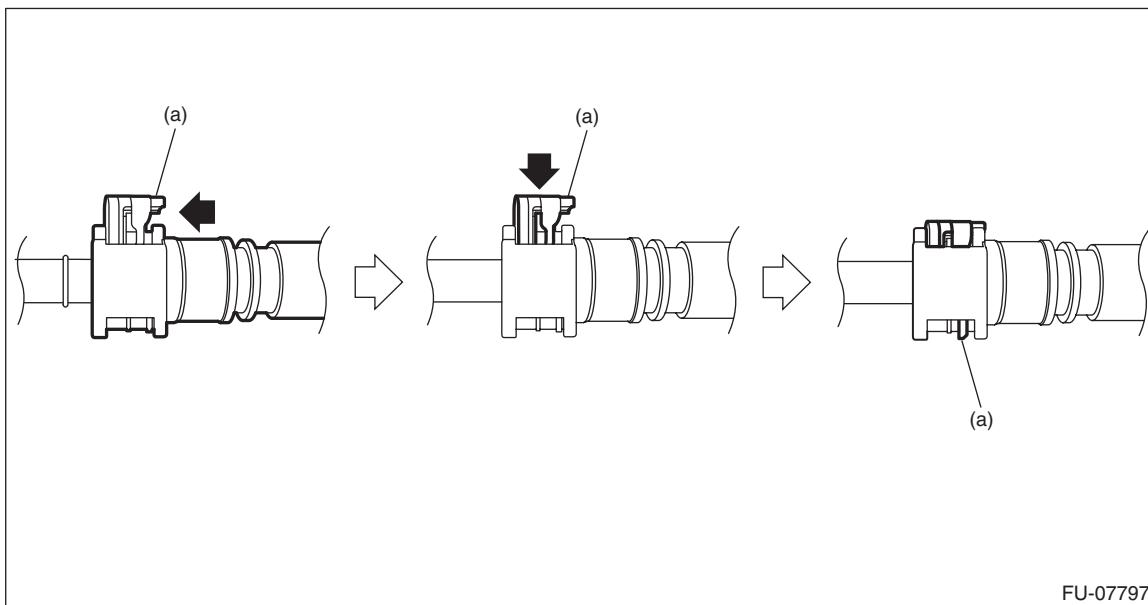
(2) Connect the quick connector (A) of the fuel delivery tube to the fuel pipe assembly, and secure the fuel delivery tube using clip (B).

CAUTION:

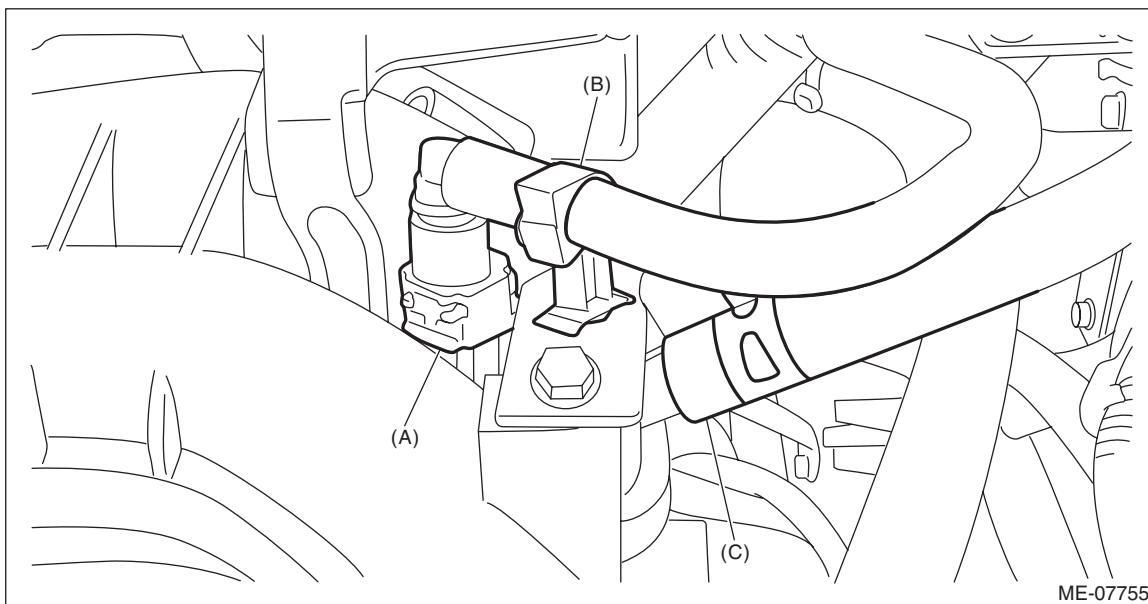
- Check that there is no damage or dust on the quick connector. If necessary, clean the seal surface of the pipe.
- When connecting the quick connector, make sure to insert it all the way in before locking the slider.
- When it is difficult to lock the slider, check that the connector is fully inserted.
- After locking the slider, check again that the quick connector is securely connected.

NOTE:

Connect the quick connector as shown in the figure.



(a) Slider



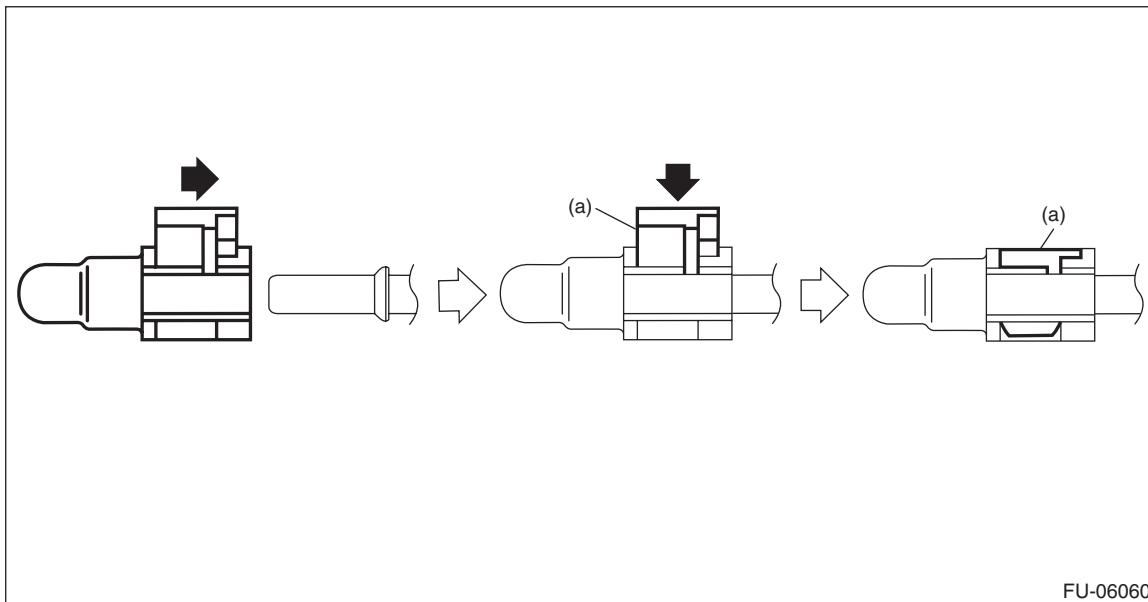
4) Connect the fuel delivery pipe to the fuel pipe RH.

CAUTION:

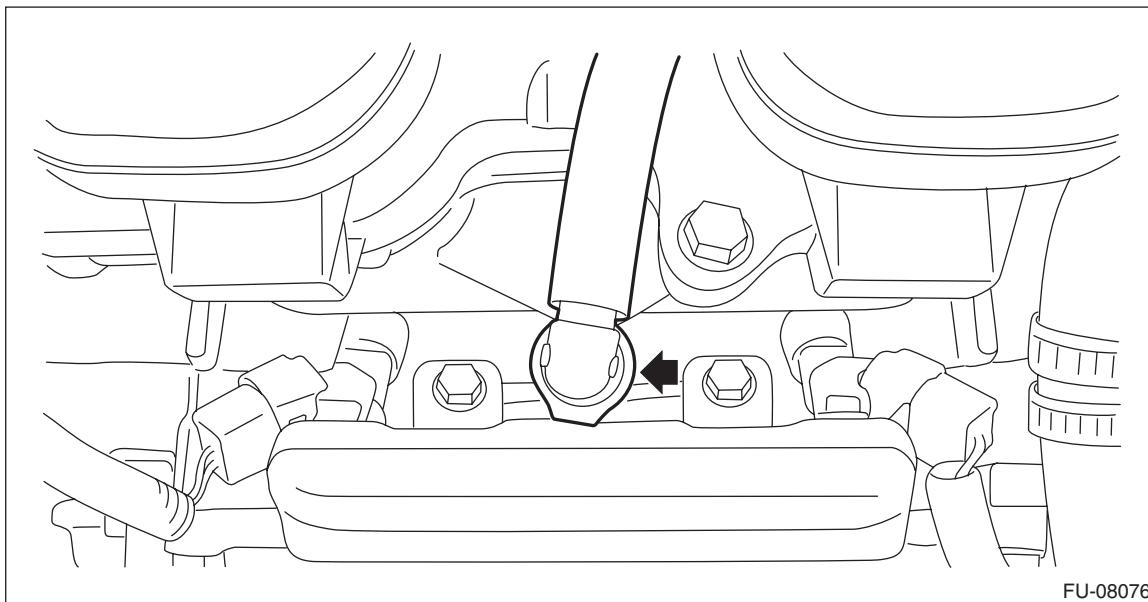
- Check that there is no damage or dust on the quick connector. If necessary, clean the seal surface of the pipe.
- When connecting the quick connector, make sure to insert it all the way in before locking the slider.
- When it is difficult to lock the slider, check that the connector is fully inserted.
- After locking the slider, check again that the quick connector is securely connected.

NOTE:

Connect the quick connector as shown in the figure.



(a) Slider



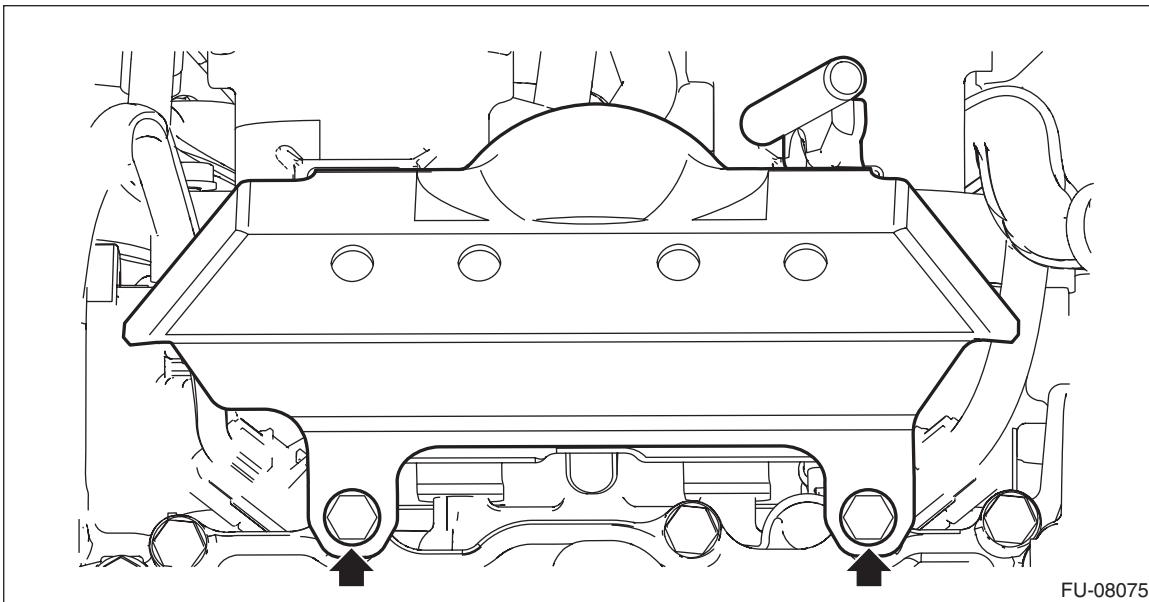
Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

- 5) Install the intake manifold protector RH.

Tightening torque:

6.4 N·m (0.7 kgf-m, 4.7 ft-lb)



- 6) Connect the fuel delivery pipe to the fuel pipe LH in the same manner, and install the intake manifold protector LH.

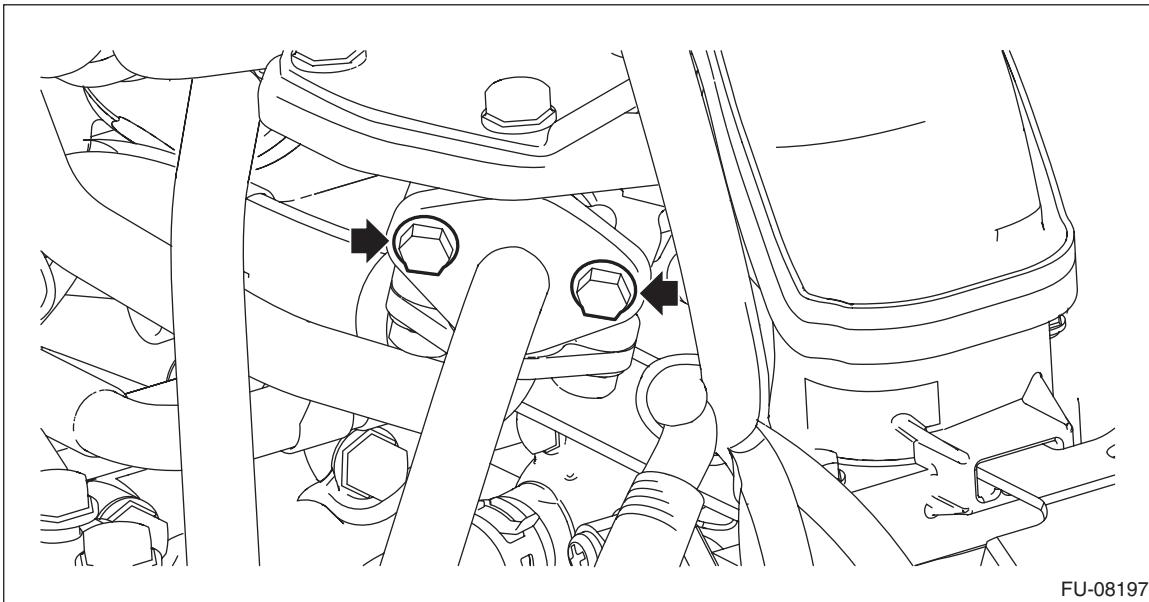
- 7) Tighten the bolt which secures the EGR cooler to the EGR control valve.

NOTE:

Use a new gasket.

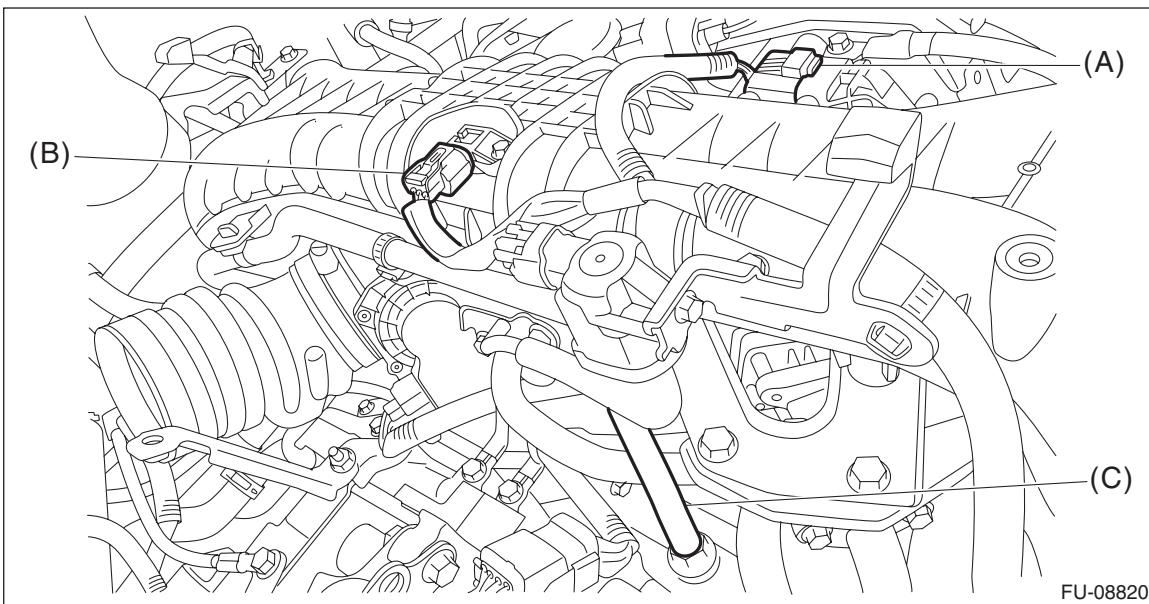
Tightening torque:

6.4 N·m (0.7 kgf-m, 4.7 ft-lb)

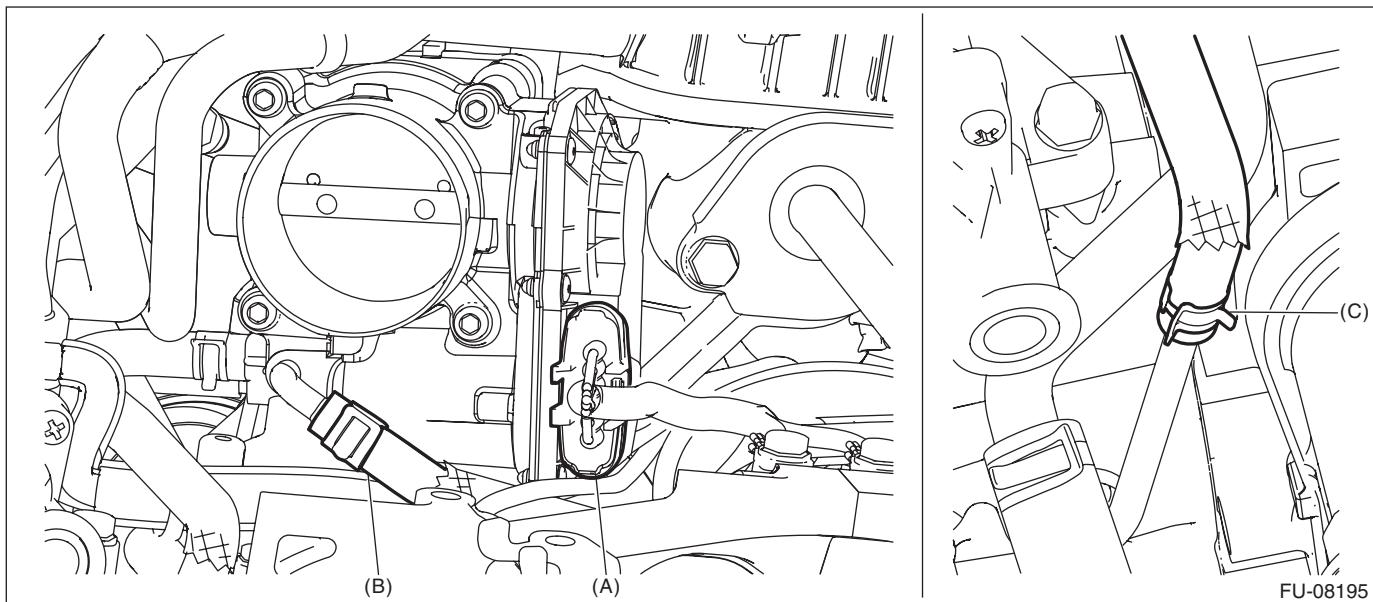


- 8) Install the purge control solenoid valve. <Ref. to EC(H4DO(HEV))-22, INSTALLATION, Purge Control Solenoid Valve.>

- 9) Connect the connector (A) to ISG.
- 10) Connect the connector (B) to the manifold absolute pressure sensor.
- 11) Install the PCV hose (C) to the PCV valve.



- 12) Connect the connector (A) to the throttle position sensor.
- 13) Connect the preheater hoses (B) to the throttle body.
- 14) Connect the preheater hose (C) to the water pipe assembly LH.



- 15) Install the air intake boot No. 2. <Ref. to IN(H4DO(HEV))-14, AIR INTAKE BOOT NO. 2, INSTALLATION, Air Intake Boot.>
- 16) Install the air cleaner case. <Ref. to IN(H4DO(HEV))-8, INSTALLATION, Air Cleaner Case.>
- 17) Lift up the vehicle.
- 18) Install the under cover. <Ref. to EI-32, INSTALLATION, Front Under Cover.>
- 19) Lower the vehicle.
- 20) Install the collector cover.
- 21) Connect the battery ground terminal. <Ref. to NT-5, BATTERY, NOTE, Note.>
- 22) Fill engine coolant. <Ref. to CO(H4DO(w/o HEV))-16, FILLING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>

Intake Manifold

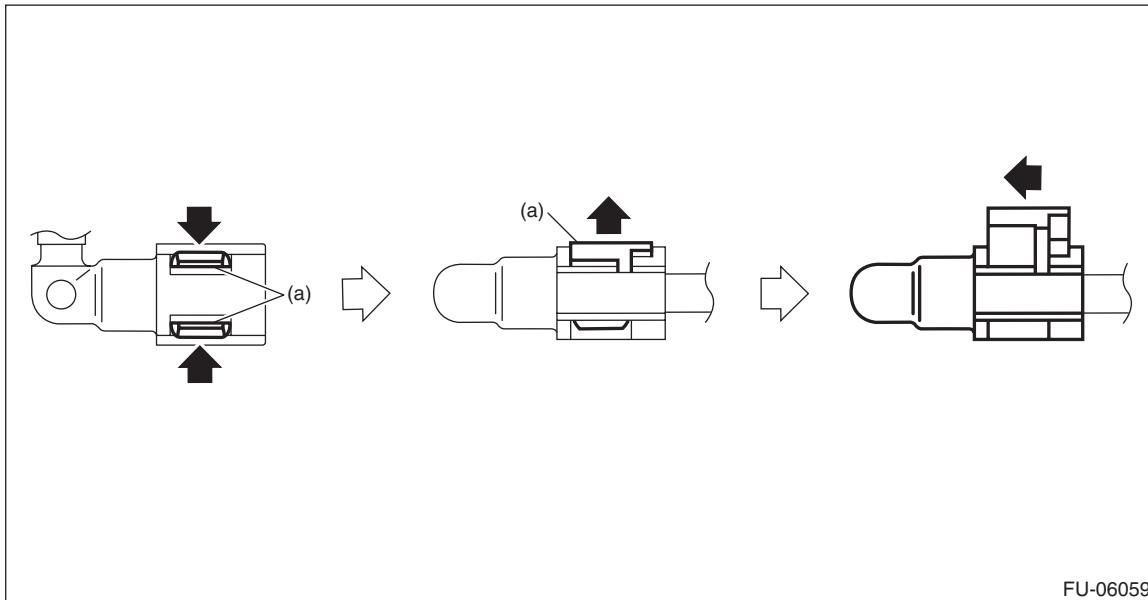
FUEL INJECTION (FUEL SYSTEMS)

C: DISASSEMBLY

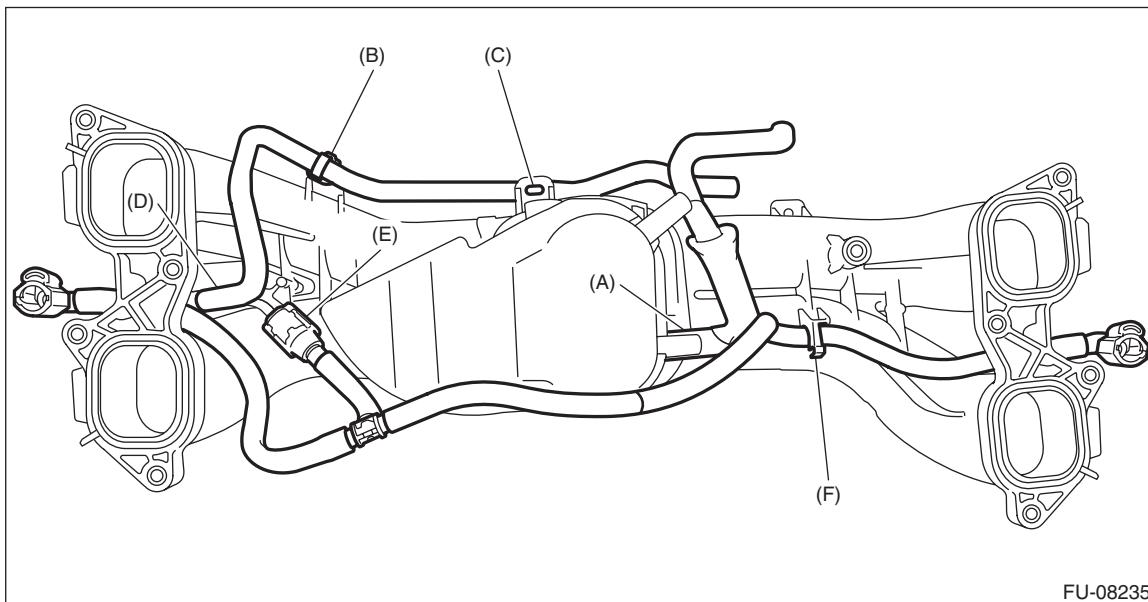
- 1) Remove the throttle body. <Ref. to FU(H4DO(HEV))-14, REMOVAL, Throttle Body.>
- 2) Remove the manifold absolute pressure sensor. <Ref. to FU(H4DO(HEV))-66, REMOVAL, Manifold Absolute Pressure Sensor.>
- 3) Remove the EGR pipe and the EGR control valve. <Ref. to EC(H4DO(HEV))-29, REMOVAL, EGR Pipe.>
<Ref. to EC(H4DO(HEV))-26, REMOVAL, EGR Control Valve.>
- 4) Remove the PCV hose A. <Ref. to EC(H4DO(HEV))-51, REMOVAL, PCV Hose.>
- 5) Remove the vacuum hose (A) from the intake manifold.
- 6) Remove the clip (B) and the clip (C) securing the vacuum hose to the intake manifold, and remove the vacuum hose (D).
- 7) Disconnect the quick connector of the fuel delivery pipe (E) from the fuel pipe assembly, and remove the fuel delivery pipe (E) from the clip (F).

NOTE:

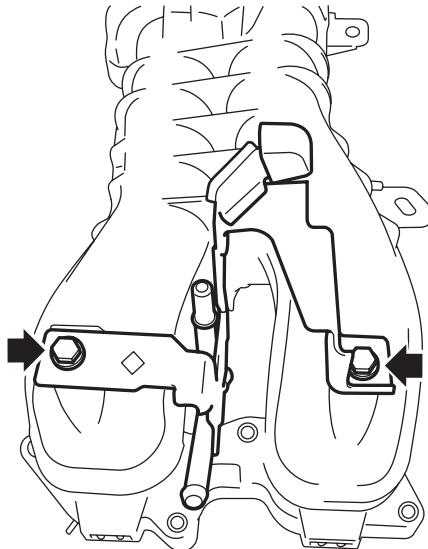
Disconnect the quick connector as shown in the figure.



(a) Slider



8) Remove the fuel pipe assembly from the intake manifold.



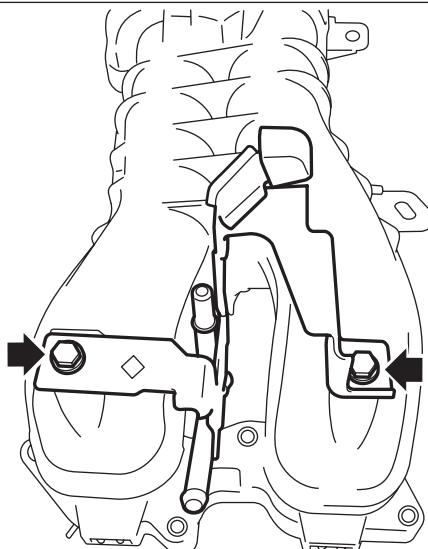
FU-08069

D: ASSEMBLY

1) Install the fuel pipe assembly to the intake manifold.

Tightening torque:

6.4 N·m (0.7 kgf·m, 4.7 ft-lb)



FU-08069

Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

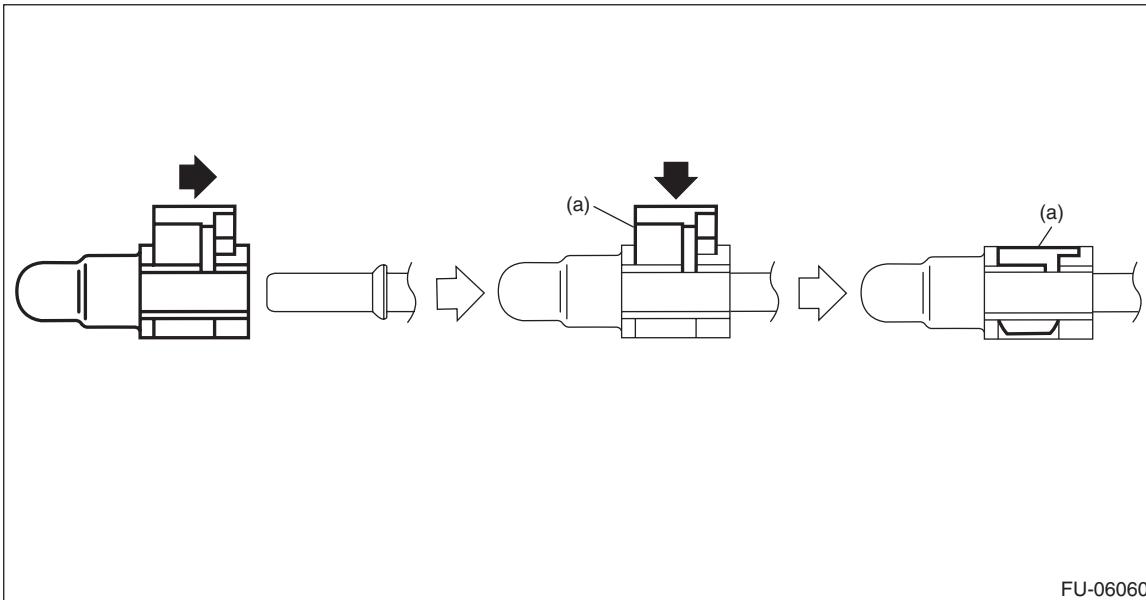
2) Install the fuel delivery pipe (E) to the clip (F), and connect the quick connector of the fuel delivery pipe (E) to the fuel pipe assembly.

CAUTION:

- Check that there is no damage or dust on the quick connector. If necessary, clean the seal surface of the pipe.
- When connecting the quick connector, make sure to insert it all the way in before locking the slider.
- When it is difficult to lock the slider, check that the connector is fully inserted.
- After locking the slider, check again that the quick connector is securely connected.

NOTE:

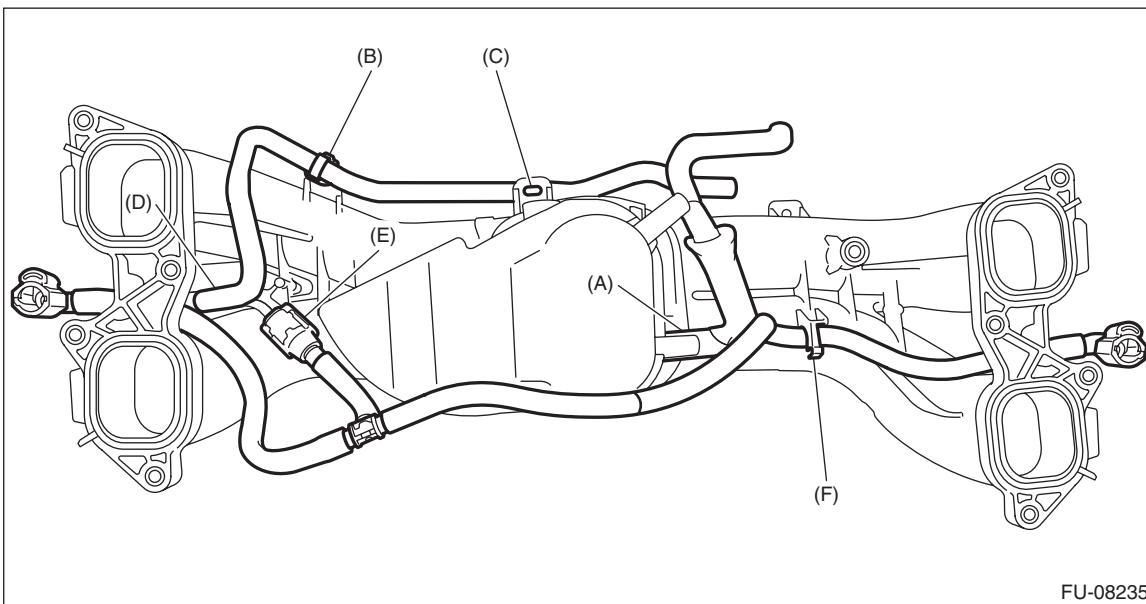
Connect the quick connector as shown in the figure.



(a) Slider

3) Install the clip (B) and the clip (C) securing the vacuum hose to the intake manifold, and connect the vacuum hose (D).

4) Connect the vacuum hose (A) to the intake manifold.



- 5) Install the PCV hose A. <Ref. to EC(H4DO(HEV))-52, INSTALLATION, PCV Hose.>
- 6) Install the EGR pipe and the EGR control valve. <Ref. to EC(H4DO(HEV))-30, INSTALLATION, EGR Pipe.> <Ref. to EC(H4DO(HEV))-27, INSTALLATION, EGR Control Valve.>
- 7) Install the manifold absolute pressure sensor. <Ref. to FU(H4DO(HEV))-67, INSTALLATION, Manifold Absolute Pressure Sensor.>
- 8) Install the throttle body. <Ref. to FU(H4DO(HEV))-16, INSTALLATION, Throttle Body.>

E: INSPECTION

- 1) Check that the intake manifold, fuel pipe assembly and fuel delivery pipe have no deformation, cracks and other damages.
- 2) Check that the hose has no cracks, damage or loose part.