

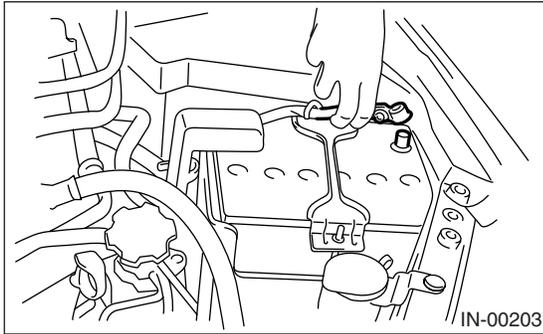
Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

3. Intake Manifold

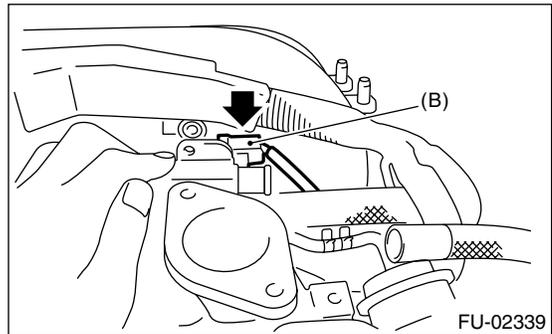
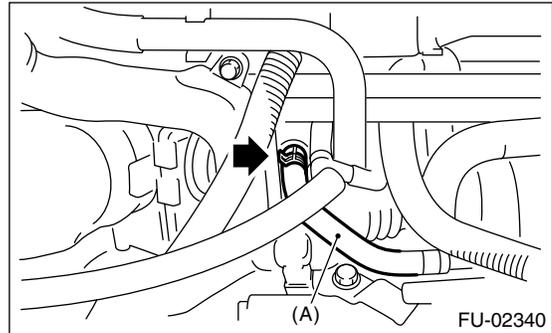
A: REMOVAL

- 1) Release the fuel pressure.
<Ref. to FU(H4DOTC)-44, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>
- 2) Open the fuel filler flap lid, and remove the fuel filler cap.
- 3) Remove the collector cover.
- 4) Disconnect the ground cable from battery.

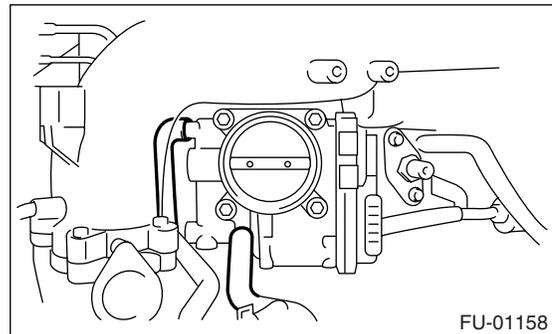


- 5) Lift-up the vehicle.
- 6) Remove the under cover.
- 7) Drain the coolant about 3.0 ℓ (3.2 US qt, 2.6 Imp qt).
- 8) Remove the intake duct from air cleaner case.
- 9) Remove the intercooler. <Ref. to IN(H4DOTC)-12, REMOVAL, Intercooler.>
- 10) Remove the generator. <Ref. to SC(H4SO)-20, REMOVAL, Generator.>
- 11) Remove the coolant filler tank. <Ref. to CO(H4DOTC)-31, REMOVAL, Coolant Filler Tank.>

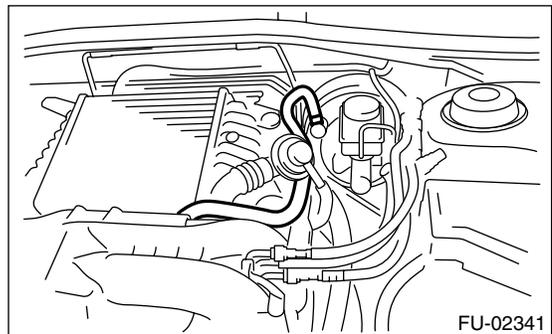
- 12) Disconnect the emission hose (A) and connector (B) from PCV hose assembly.



- 13) Disconnect the engine coolant hose from throttle body.



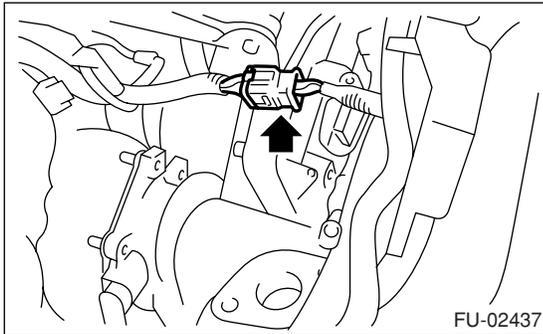
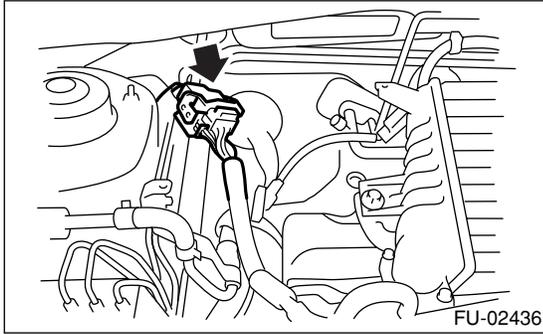
- 14) Disconnect the brake booster hose.



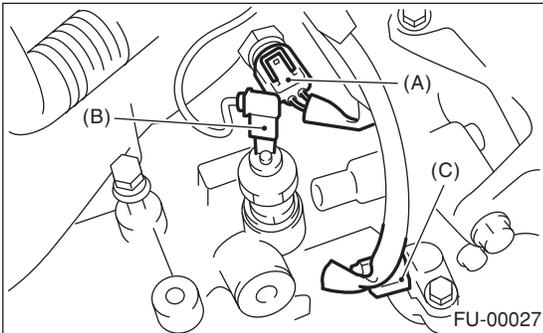
Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

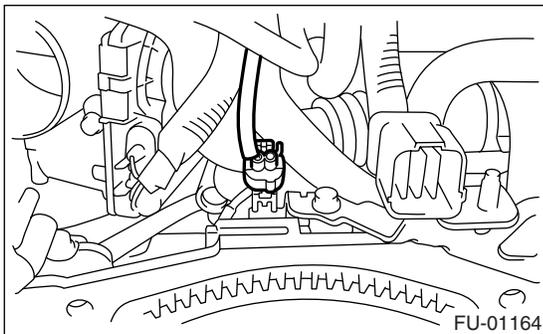
15) Disconnect the engine harness connectors from bulkhead harness connectors.



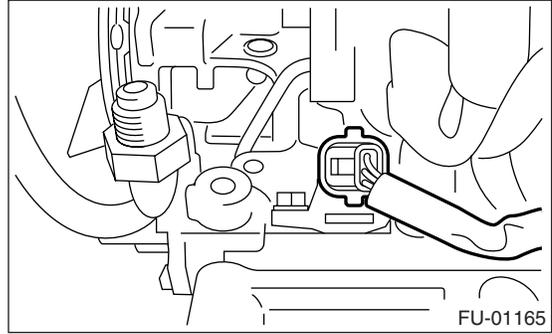
16) Disconnect the connectors from the engine coolant temperature sensor (A), oil pressure switch (B) and crankshaft position sensor (C).



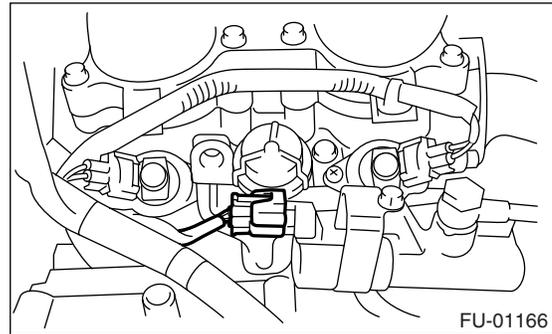
17) Disconnect the knock sensor connector.



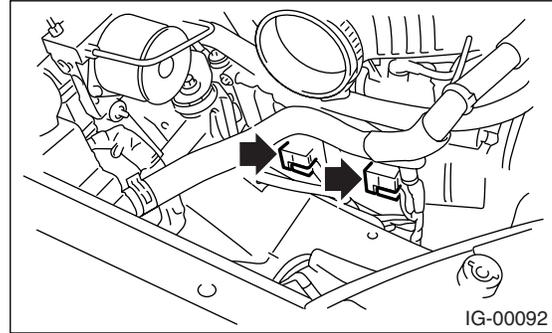
18) Disconnect the connector from camshaft position sensor.



19) Disconnect the connector from the oil flow control solenoid valve.



20) Disconnect the connector from ignition coil.



21) Disconnect the fuel delivery hose, return hose and evaporation hose.

(1) Disconnect the connectors of fuel delivery line and return line by pushing the ST in the direction of arrow.

ST 42099AE000 CONNECTOR REMOVER

(2) Remove the clip and disconnect the evaporation hose from pipe.

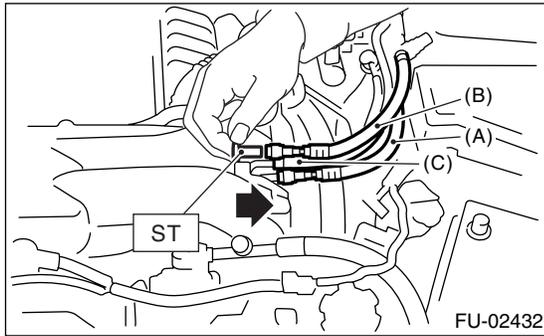
CAUTION:

- Be careful not to spill fuel.

Intake Manifold

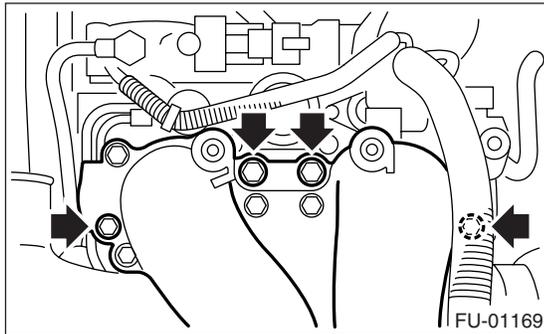
FUEL INJECTION (FUEL SYSTEMS)

- Catch the fuel from hoses using a container or cloth.



- (A) Fuel delivery hose
- (B) Fuel return hose
- (C) Evaporation hose

- 22) Remove the bolts which hold intake manifold onto the cylinder heads.



- 23) Remove the intake manifold.

B: INSTALLATION

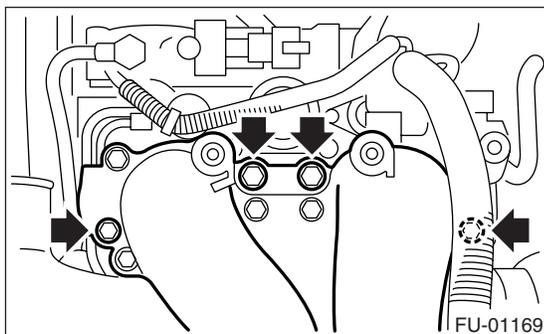
- 1) Install the intake manifold onto cylinder heads.

NOTE:

Use a new gasket.

Tightening torque:

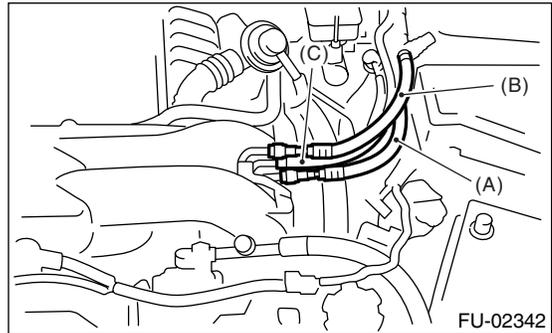
25 N·m (2.5 kgf·m, 18 ft·lb)



- 2) Connect the fuel delivery hose, return hose and evaporation hose. <Ref. to FU(H4DOTC)-61, INSTALLATION, Fuel Delivery, Return and Evaporation Lines.>

NOTE:

If fuel hoses or clamps are damaged, replace them with new ones.



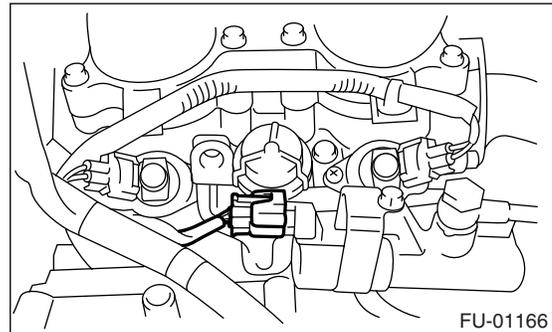
- (A) Fuel delivery hose
- (B) Fuel return hose
- (C) Evaporation hose

- 3) Tighten the hose clamp screws.

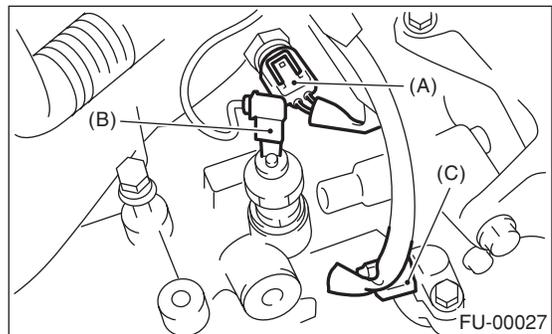
Tightening torque:

1.25 N·m (0.13 kgf·m, 0.94 ft·lb)

- 4) Connect the connector to oil flow control solenoid valve.



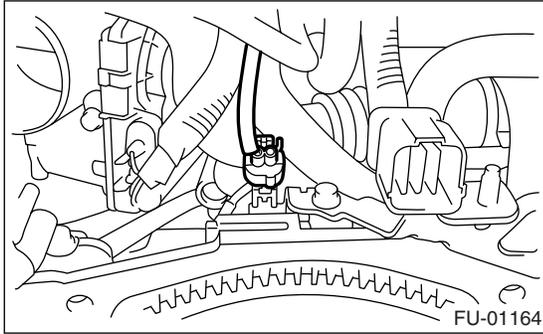
- 5) Connect the connector to the engine coolant temperature sensor (A), oil pressure switch (B) and crankshaft position sensor (C).



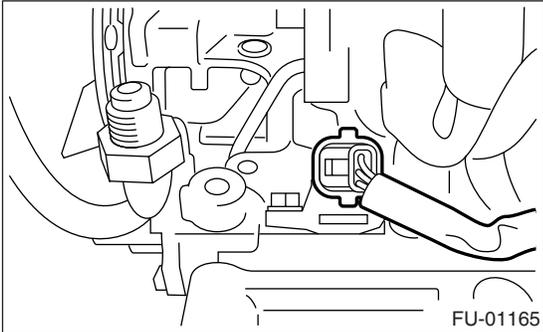
Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

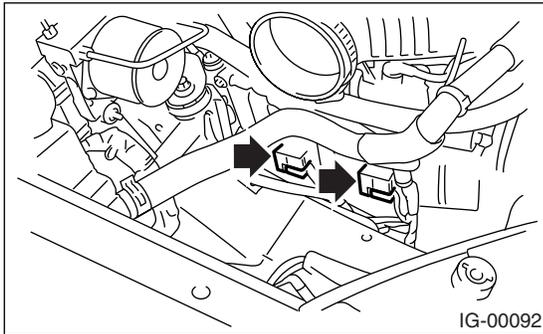
6) Connect the connector to knock sensor.



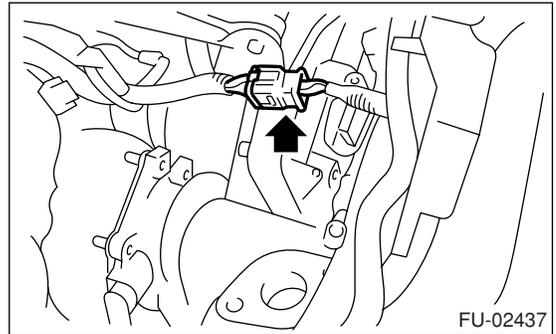
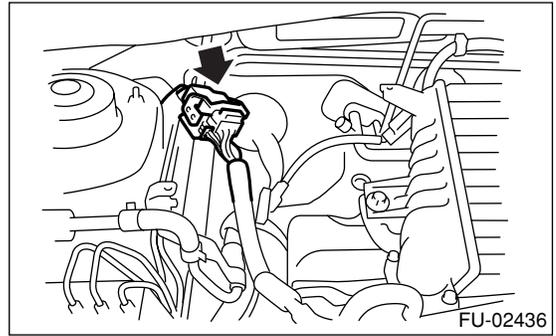
7) Connect the connector to camshaft position sensor.



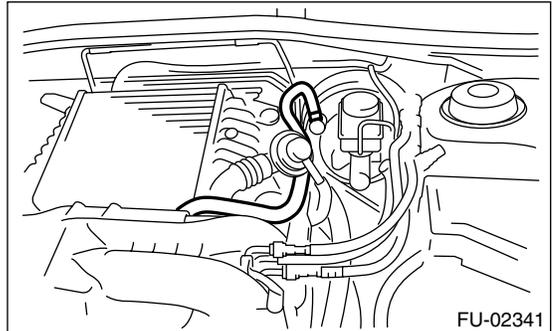
8) Connect the connector to ignition coil.



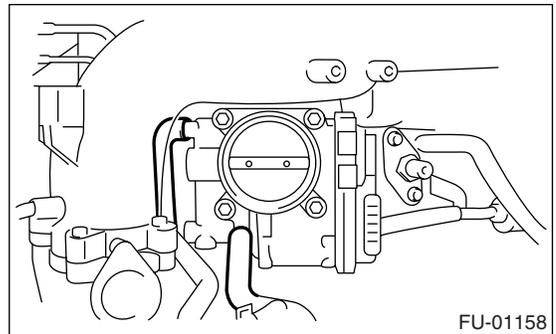
9) Connect the engine harness connector to bulk-head harness connector.



10) Connect the brake booster hose.



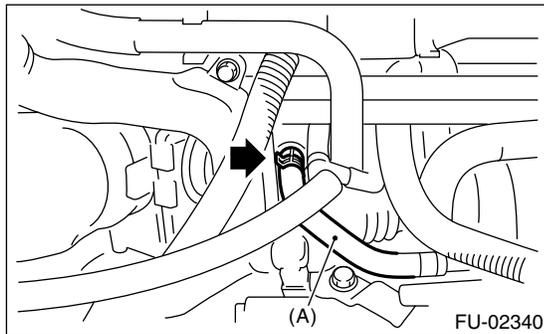
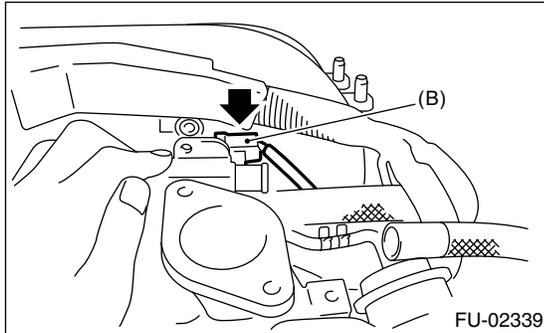
11) Connect the engine coolant hose to throttle body.



Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

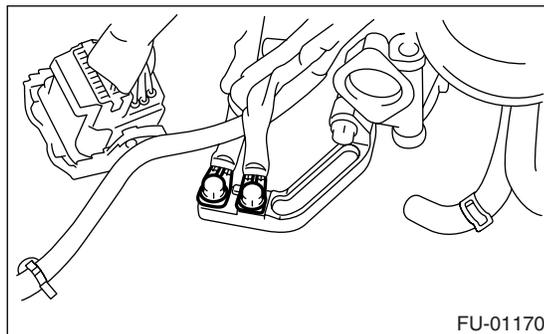
- 12) Connect the emission hose (A) and connector (B) to PCV hose assembly.



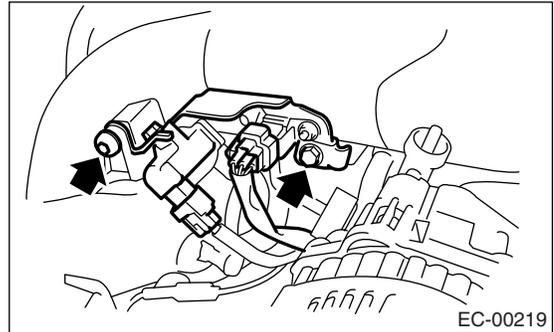
- 13) Install the coolant filler tank.
<Ref. to CO(H4DOTC)-31, INSTALLATION, Coolant Filler Tank.>
14) Install the intercooler. <Ref. to IN(H4DOTC)-12, INSTALLATION, Intercooler.>
15) Install the intake duct to air cleaner case.
16) Install the fuse of fuel pump to main fuse box.
17) Connect the battery ground cable to battery.
18) Lift-up the vehicle.
19) Install the under cover.
20) Fill with engine coolant. <Ref. to CO(H4DOTC)-13, FILLING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>
21) Install the collector cover.

C: DISASSEMBLY

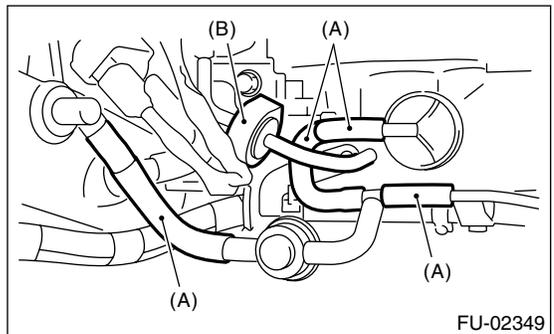
- 1) Disconnect the engine ground terminal from ground stay.



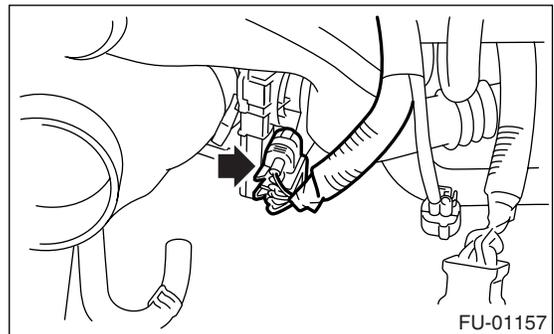
- 2) Remove the solenoid valve bracket assembly from intake manifold, and disconnect the connector from the wastegate control solenoid valve, manifold absolute pressure sensor and purge control solenoid valve.



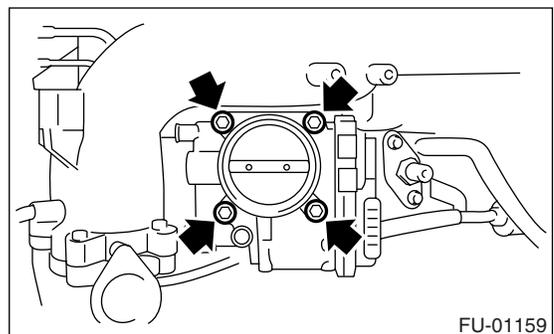
- 3) Disconnect the evaporation hoses (A) and filter assembly (B).



- 4) Disconnect the connector from throttle position sensor.



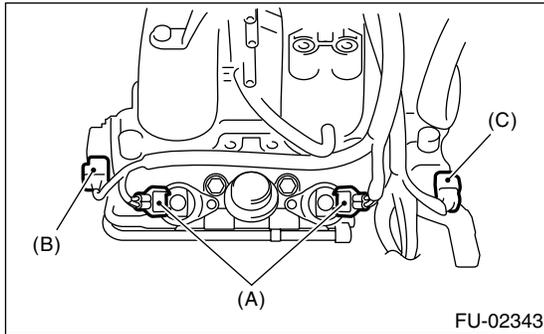
- 5) Remove the throttle body from intake manifold.



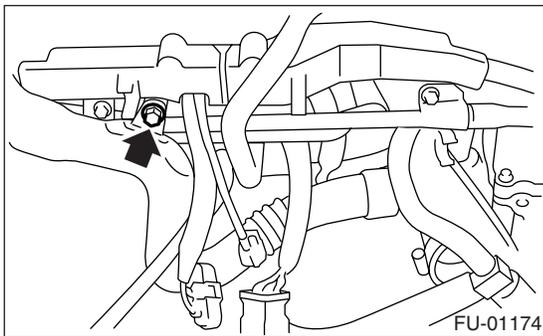
Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

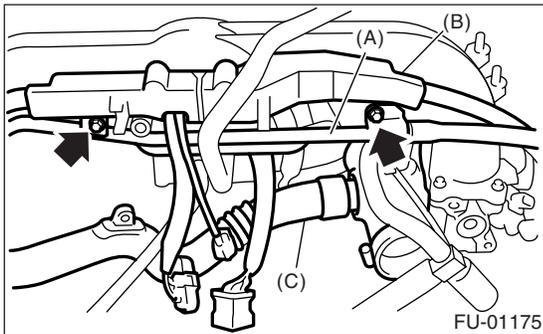
6) Disconnect the connectors from fuel injector (A), tumble generator valve position sensor (B) and tumble generator valve actuator (C).



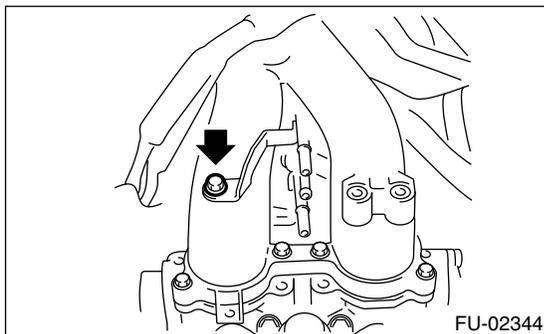
7) Remove the bolt which secures the air bypass pipe to intake manifold.



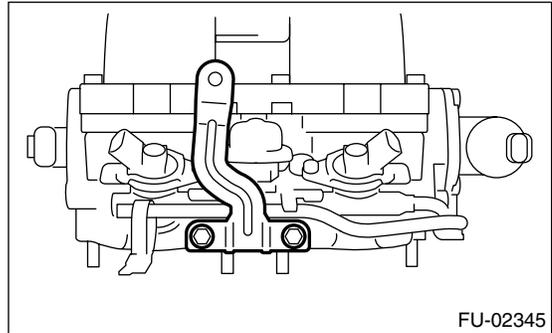
8) Disconnect the PCV pipe (A), harness assembly (B) and intake duct (C) from intake manifold.



9) Remove the bolt which holds fuel injector pipe LH onto the front side of intake manifold.

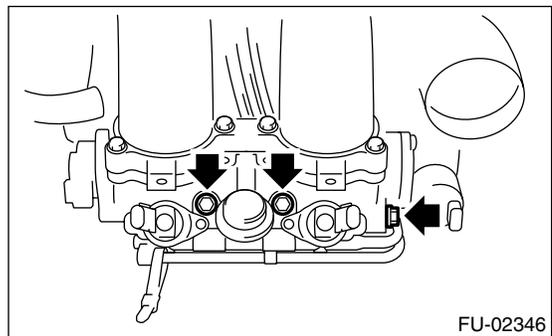


10) Remove the coolant filler tank stay from intake manifold.

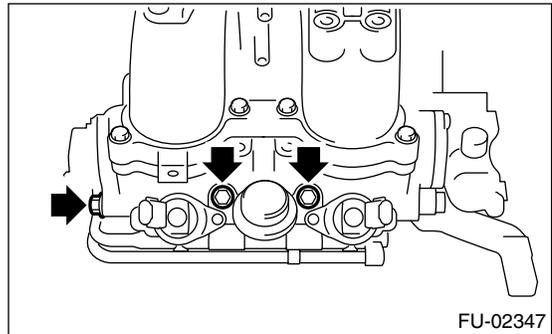


11) Remove the bolts which hold fuel injector pipe onto intake manifold.

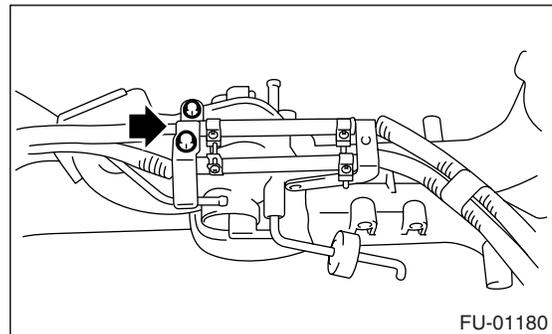
• RH side



• LH side



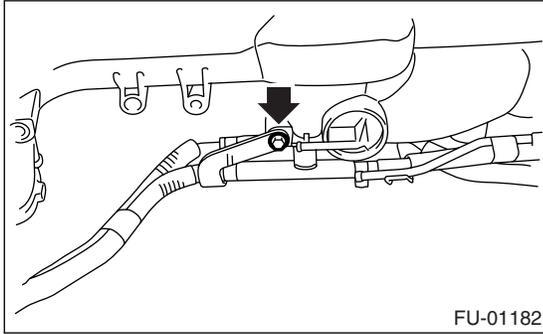
12) Remove the bolt which holds the fuel pipe to intake manifold.



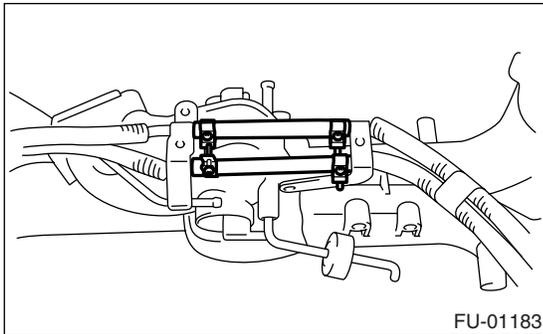
Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

13) Remove the bolts which hold the fuel injector pipe RH onto the lower side of intake manifold.

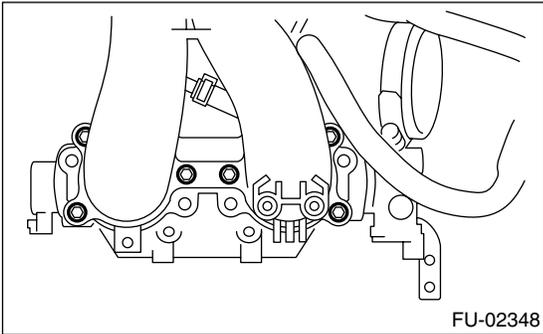


14) Loosen the clamp which holds fuel hose to injector pipe, and then disconnect the pipe from fuel hose.



15) Remove the fuel injector pipe.

16) Remove the intake manifold (upper) from intake manifold (lower).



D: ASSEMBLY

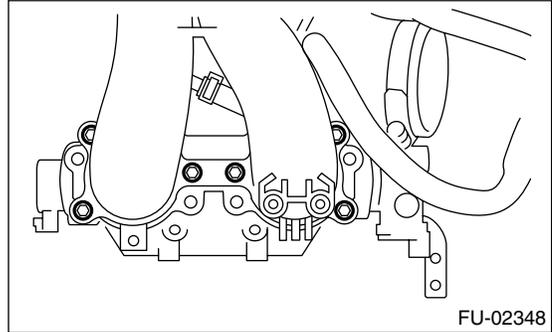
1) Install the intake manifold (lower) to intake manifold (upper).

NOTE:

Use new O-rings.

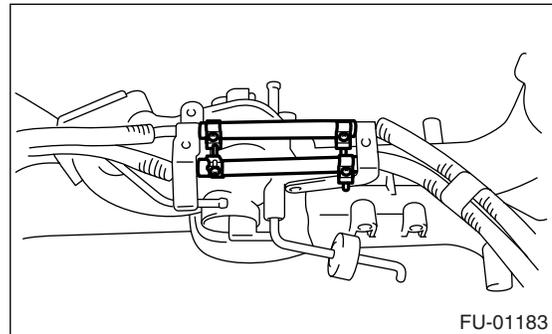
Tightening torque:

8.3 N-m (0.85 kgf-m, 6.1 ft-lb)



2) Install the fuel injector pipe.

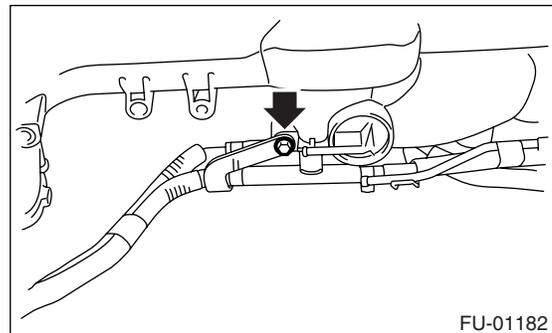
3) Connect the both fuel injector pipes with a fuel hose and secure them with clamps.



4) Tighten the bolt which secures the fuel injector pipe RH onto the lower side of intake manifold.

Tightening torque:

6.5 N-m (0.66 kgf-m, 4.8 ft-lb)

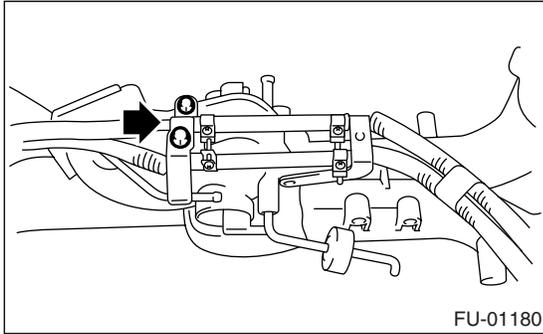


5) Tighten the bolt which secures fuel pipe onto intake manifold.

Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

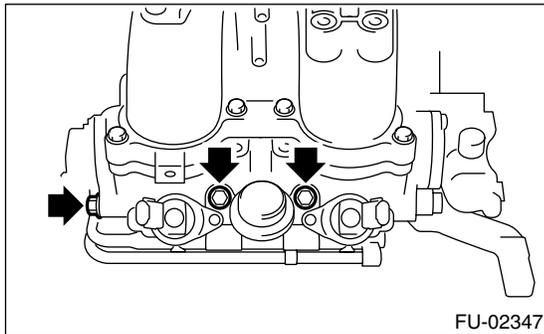
Tightening torque:
6.5 N-m (0.66 kgf-m, 4.8 ft-lb)



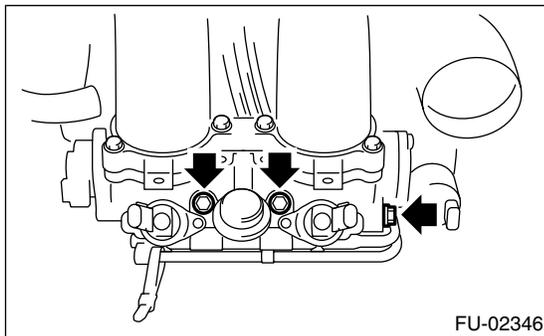
6) Tighten the bolts which secure fuel injector pipe onto intake manifold.

Tightening torque:
19 N-m (1.9 kgf-m, 14 ft-lb)

- LH side

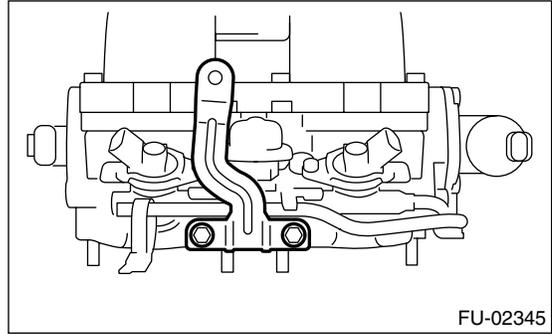


- RH side



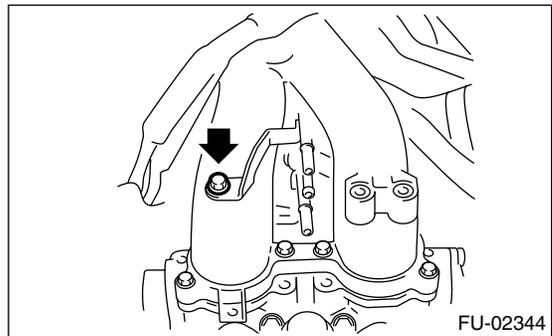
7) Install the coolant filler tank stay to intake manifold.

Tightening torque:
19 N-m (1.9 kgf-m, 14 ft-lb)



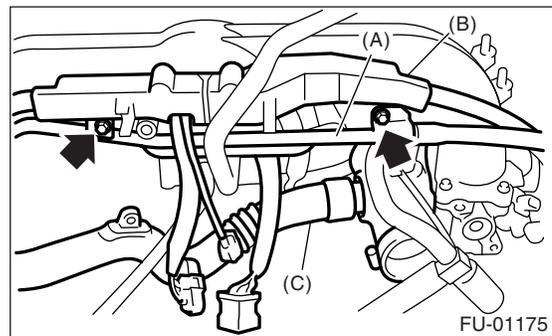
8) Tighten the bolt which installs fuel injector pipe LH on the front side of intake manifold.

Tightening torque:
6.5 N-m (0.66 kgf-m, 4.8 ft-lb)



9) Install the PCV pipe (A), harness assembly (B) and intake duct (C) to intake manifold.

Tightening torque:
6.5 N-m (0.66 kgf-m, 4.8 ft-lb)



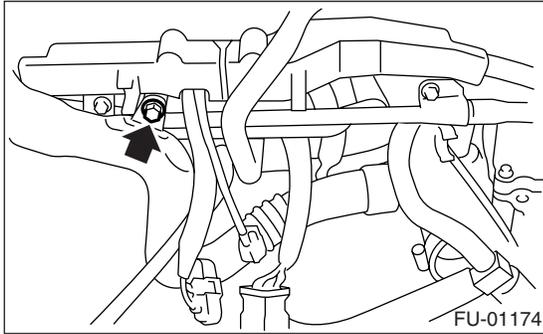
10) Tighten the bolt which secures air bypass pipe onto intake manifold.

Intake Manifold

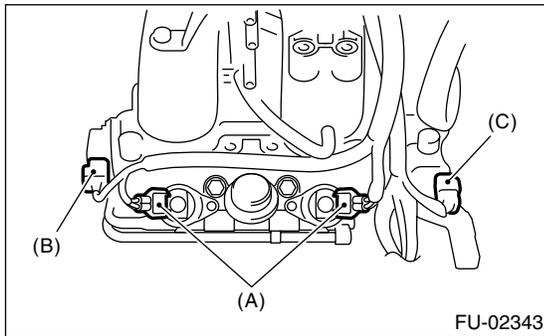
FUEL INJECTION (FUEL SYSTEMS)

Tightening torque:

6.5 N·m (0.66 kgf-m, 4.8 ft-lb)



11) Install the connectors to fuel injector (A), tumble generator valve position sensor (B) and tumble generator valve actuator (C).



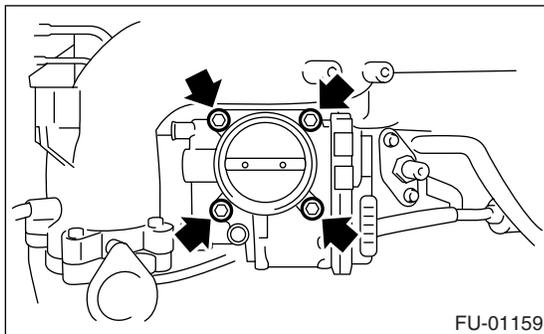
12) Install the throttle body to intake manifold.

NOTE:

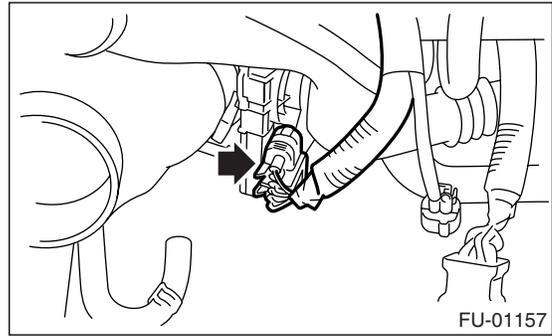
Use new O-rings.

Tightening torque:

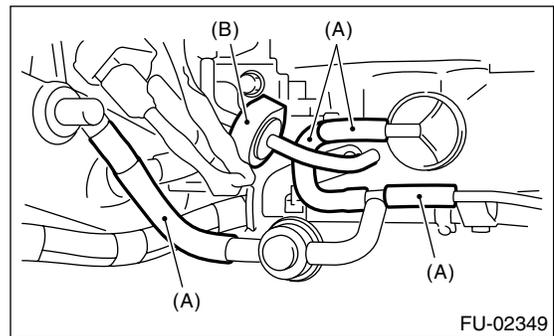
8 N·m (0.8 kgf-m, 5.9 ft-lb)



13) Connect the connector to throttle position sensor.

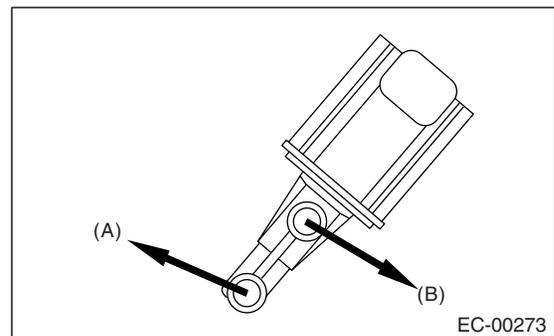


14) Connect the evaporation hoses (A) and filter assembly (B).



NOTE:

Connect the evaporation hose as shown in the figure.



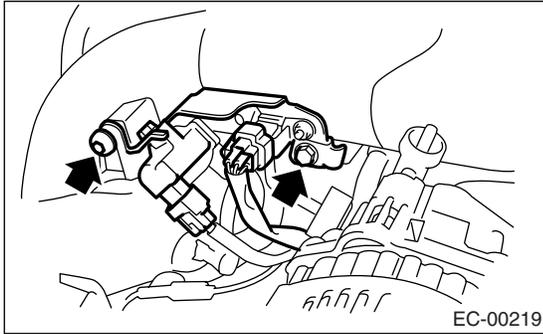
(A) To intake manifold

(B) To evaporation pipe

15) Connect the connector to the wastegate control solenoid valve, manifold absolute pressure sensor and purge control solenoid valve, and install the solenoid valve bracket assembly to intake manifold.

Tightening torque:

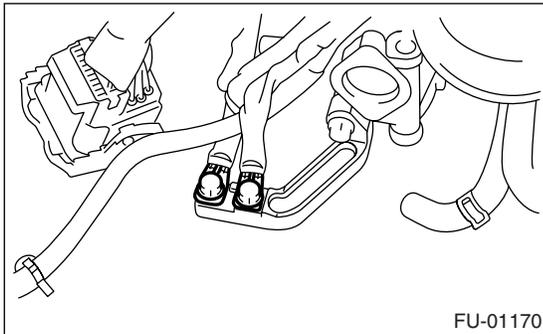
19 N·m (1.9 kgf-m, 14 ft-lb)



16) Install the engine ground terminal to ground stay.

Tightening torque:

19 N·m (1.9 kgf-m, 14 ft-lb)



E: INSPECTION

Make sure that the fuel hoses and fuel pipes are not cracked and that connections are tight.