

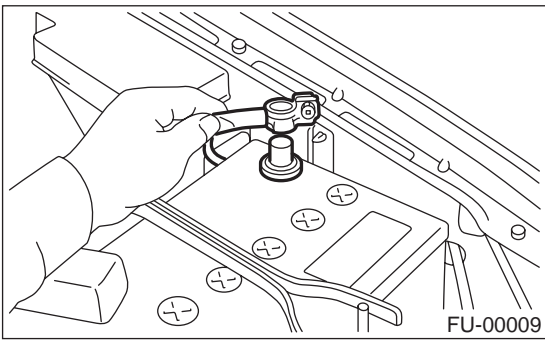
INTAKE MANIFOLD

FUEL INJECTION (FUEL SYSTEMS)

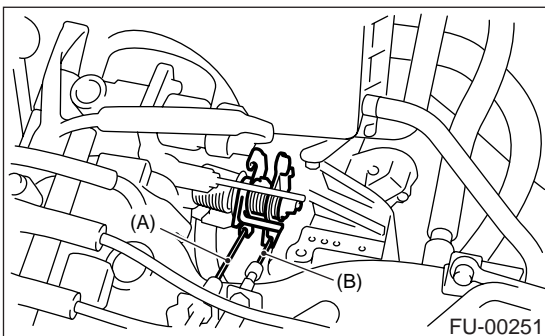
3. Intake Manifold

A: REMOVAL

- 1) Release fuel pressure. <Ref. to FU(H4SO)-50, RELEASING OF FUEL PRESSURE, OPERATION, Fuel.>
- 2) Open fuel flap lid, and remove fuel filler cap.
- 3) Disconnect battery ground cable.



- 4) Remove air intake duct and air cleaner case. <Ref. to IN(H4SO)-6, REMOVAL, Air Intake Duct.> and <Ref. to IN(H4SO)-5, REMOVAL, Air Cleaner Case.>
- 5) Disconnect accelerator cable (A).
- 6) Disconnect cruise control cable (B). (With cruise control model)

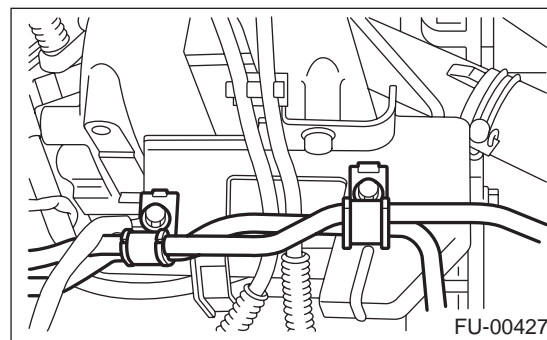


- 7) Remove power steering pump and tank from brackets.

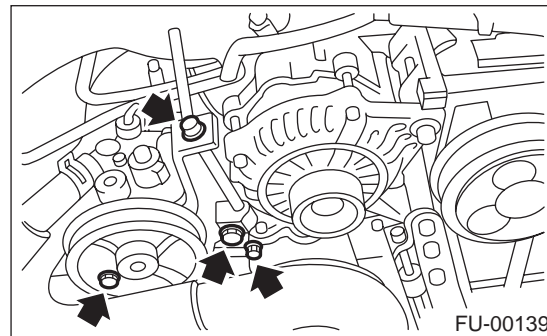
- (1) Remove resonator chamber. <Ref. to IN(H4SO)-7, REMOVAL, Resonator Chamber.>
- (2) Remove front V-belt. <Ref. to ME(H4SO)-42, REMOVAL, V-belt.>
- (3) Remove bolts which hold power steering pipes onto intake manifold protector.

NOTE:

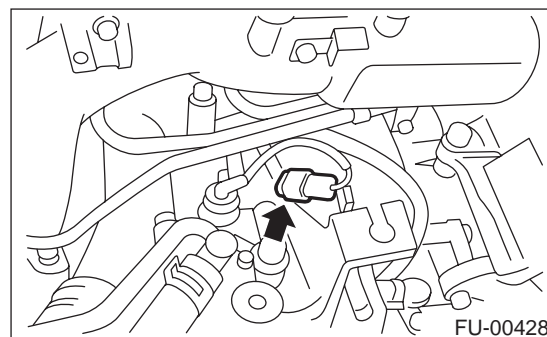
Do not disconnect power steering hose.



- (4) Remove bolts which install power steering pump bracket.



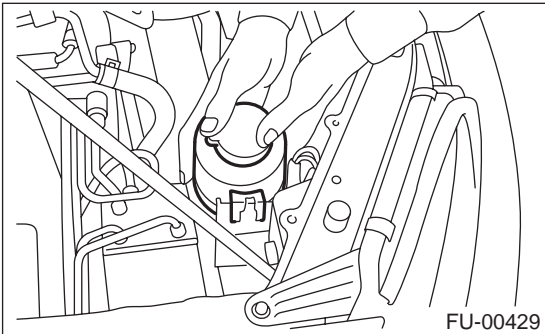
- (5) Disconnect connector from power steering pump switch.



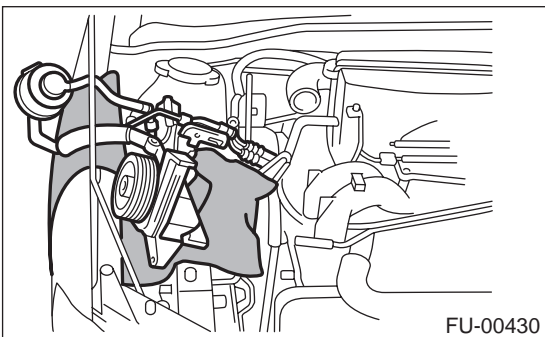
INTAKE MANIFOLD

FUEL INJECTION (FUEL SYSTEMS)

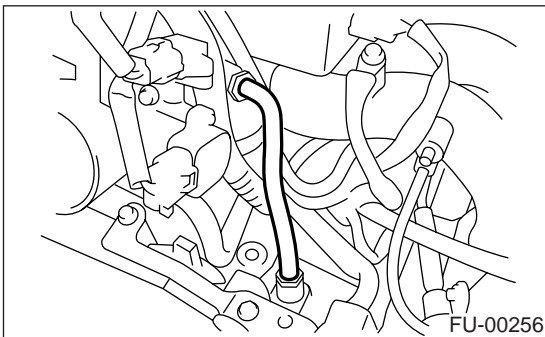
(6) Remove power steering tank from the bracket by pulling it upwards.



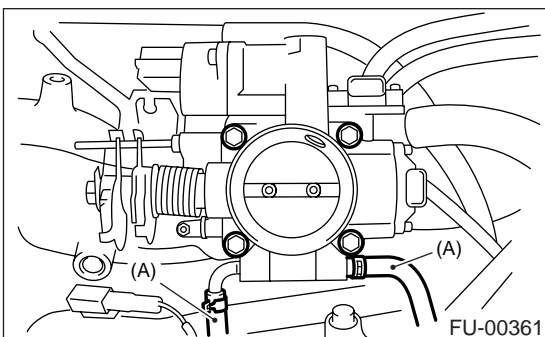
(7) Place power steering pump and tank on the right side wheel apron.



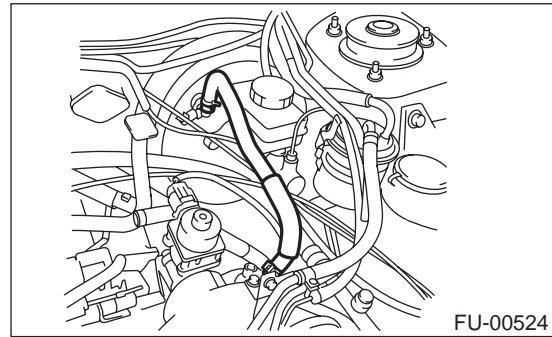
8) Disconnect spark plug cords from spark plugs.
9) Disconnect PCV hose from intake manifold.



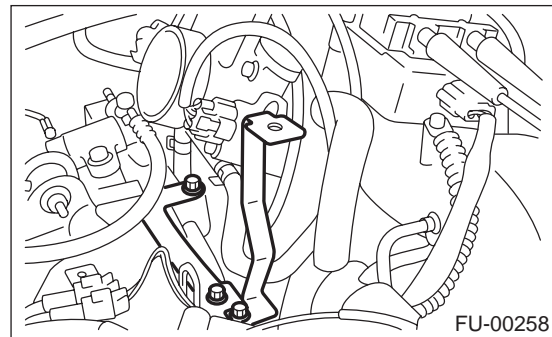
10) Disconnect engine coolant hose (A) from throttle body.



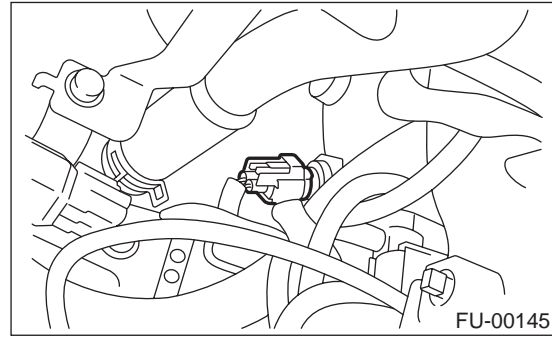
11) Disconnect brake booster hose.



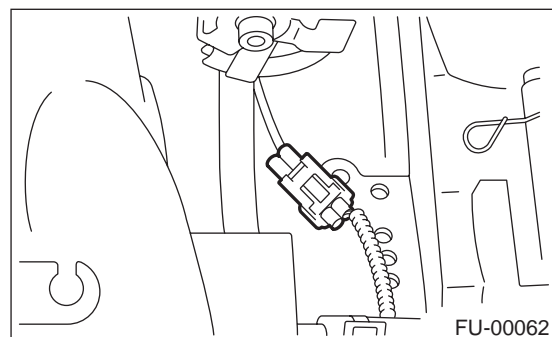
12) Remove air cleaner case stay RH and engine harness bracket, and disconnect engine harness connectors from bulkhead harness connectors.



13) Disconnect connectors from engine coolant temperature sensor.



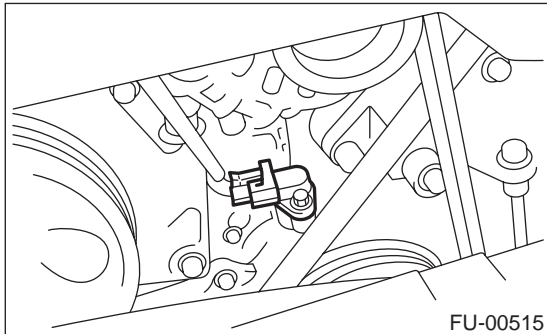
14) Disconnect knock sensor connector.



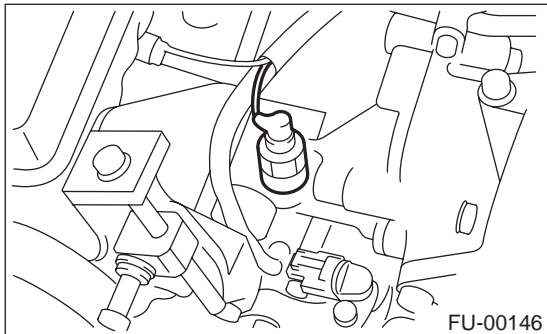
INTAKE MANIFOLD

FUEL INJECTION (FUEL SYSTEMS)

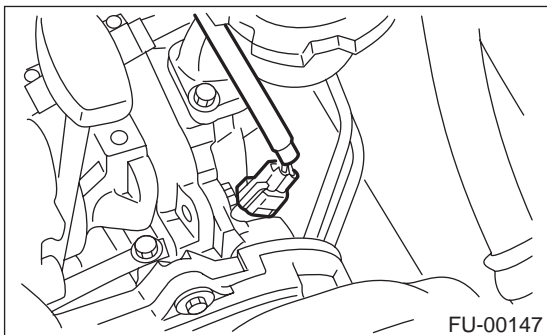
15) Disconnect connector from crankshaft position sensor.



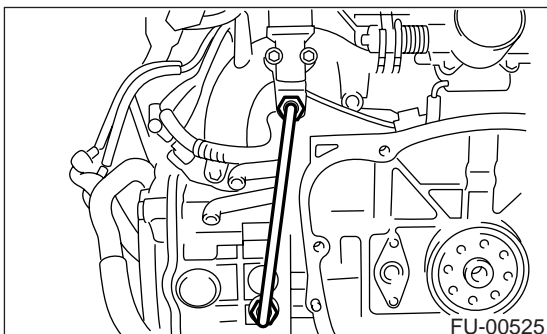
16) Disconnect connector from oil pressure switch.



17) Disconnect connector from camshaft position sensor.



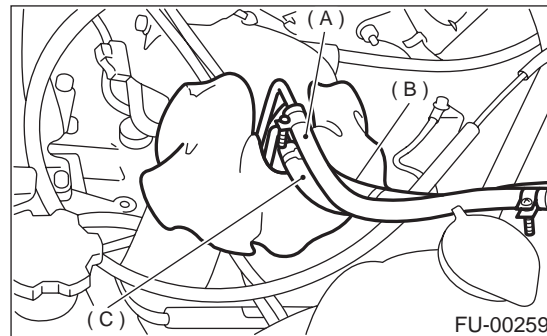
18) Remove EGR pipe from intake manifold and cylinder head.



19) Disconnect fuel hoses from fuel pipes.

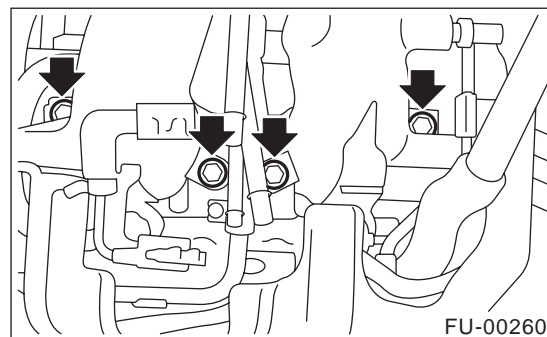
WARNING:

- Do not spill fuel.
- Catch fuel from hoses in a container or cloth.



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

20) Remove bolts which hold intake manifold onto cylinder heads, and remove intake manifold.



INTAKE MANIFOLD

FUEL INJECTION (FUEL SYSTEMS)

B: INSTALLATION

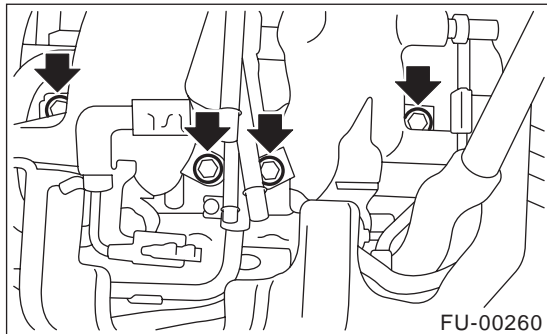
1) Install intake manifold onto cylinder heads.

NOTE:

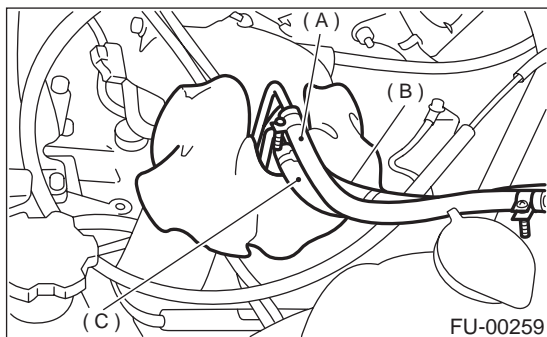
Always use new gaskets.

Tightening torque:

25 N·m (2.5 kgf-m, 18.1 ft-lb)



2) Connect fuel hoses.

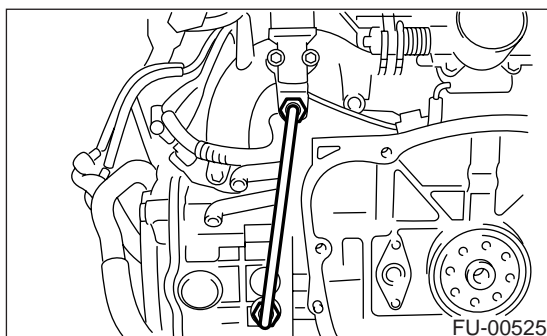


- (A) Fuel delivery hose
- (B) Return hose
- (C) Evaporation hose

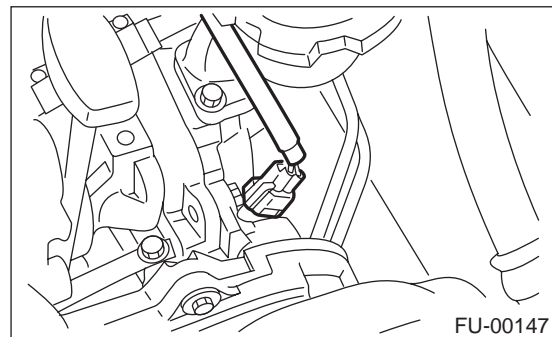
3) Install EGR pipe to intake manifold and cylinder head.

Tightening torque:

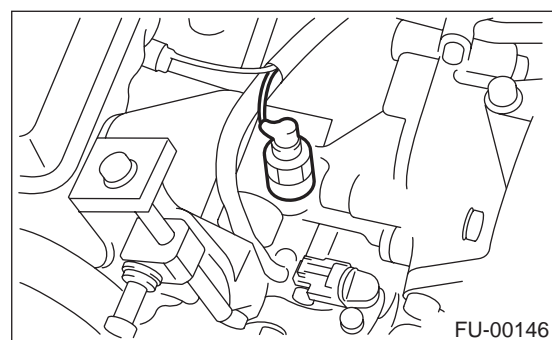
33 N·m (3.4 kgf-m, 24.6 ft-lb)



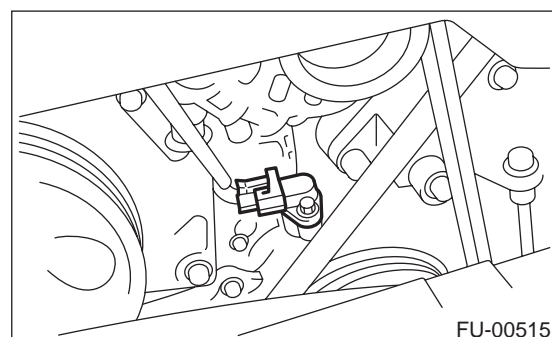
4) Connect connector to camshaft position sensor.



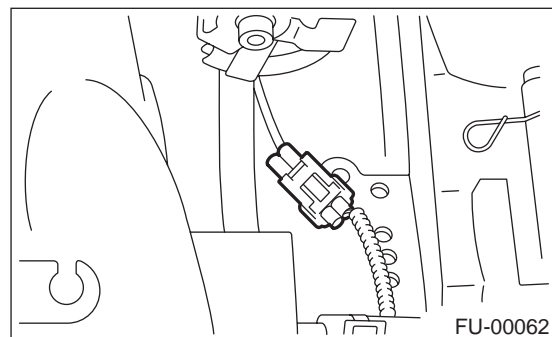
5) Connect connector to oil pressure switch.



6) Connect connector to crankshaft position sensor.



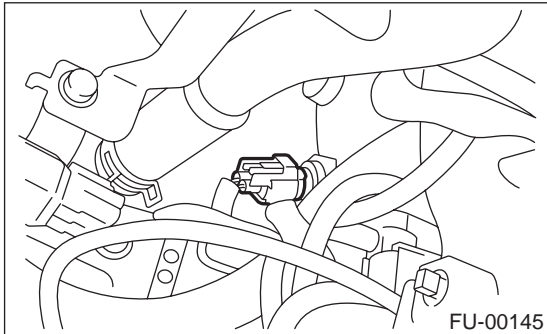
7) Connect knock sensor connector.



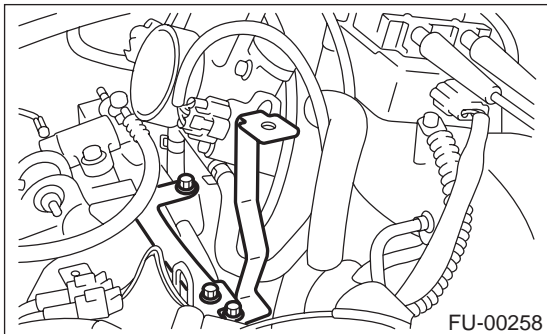
INTAKE MANIFOLD

FUEL INJECTION (FUEL SYSTEMS)

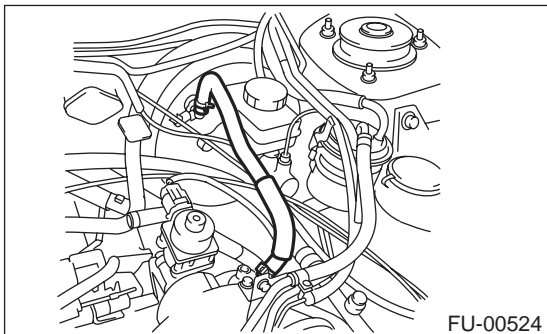
8) Connect connectors to engine coolant temperature sensor.



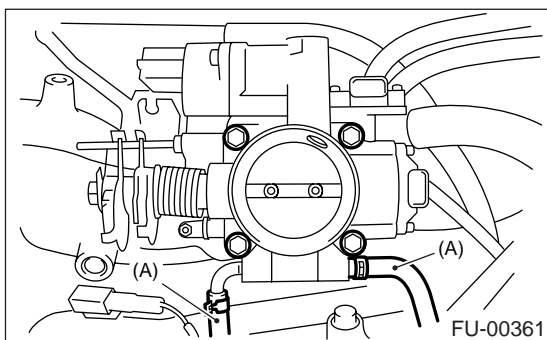
9) Install air cleaner case stay RH and engine harness bracket, and connect engine harness connectors to bulkhead connectors.



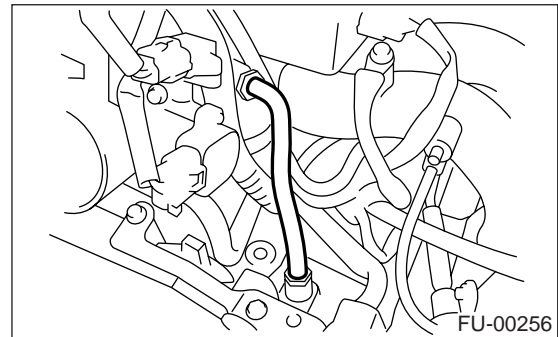
10) Connect brake booster hose.



11) Connect engine coolant hose (A) to throttle body.



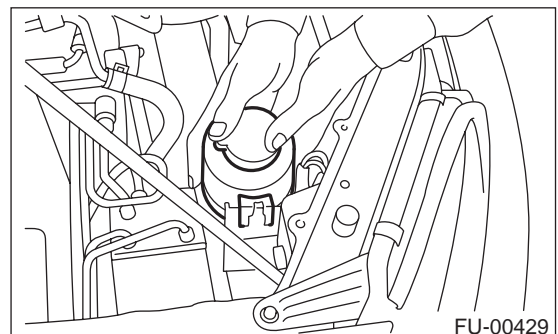
12) Connect PCV hose to intake manifold.



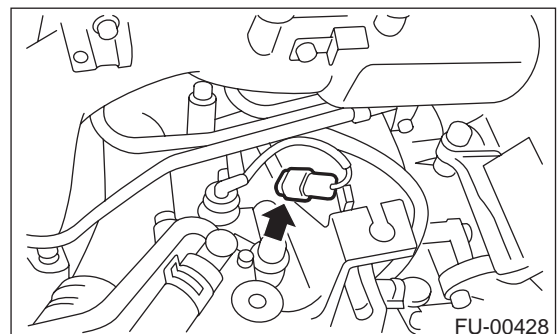
13) Connect spark plug cords to spark plugs.

14) Install power steering pump and tank on brackets.

(1) Install power steering tank on bracket.



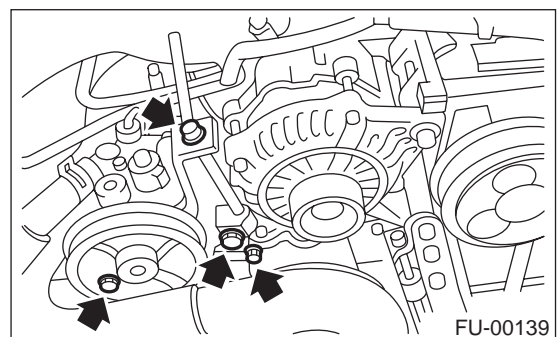
(2) Connect connector to power steering pump switch.



(3) Tighten bolts which install power steering pump on bracket.

Tightening torque:

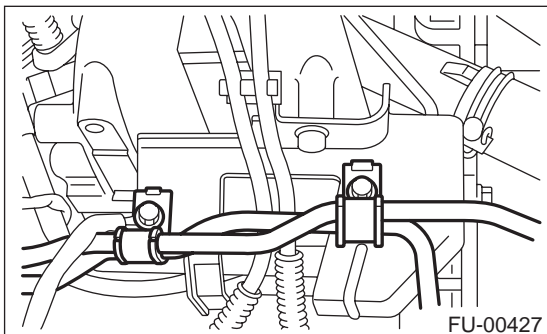
22 N·m (2.2 kgf·m, 15.9 ft·lb)



INTAKE MANIFOLD

FUEL INJECTION (FUEL SYSTEMS)

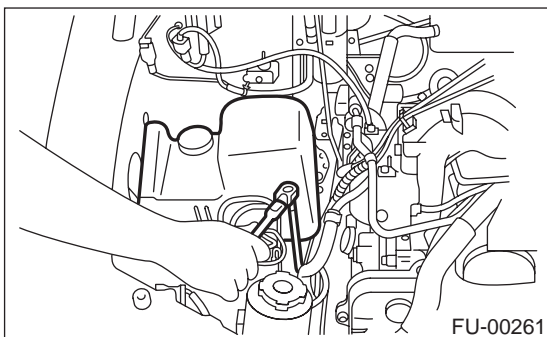
- (4) Install power steering pipes onto right side intake manifold protector.



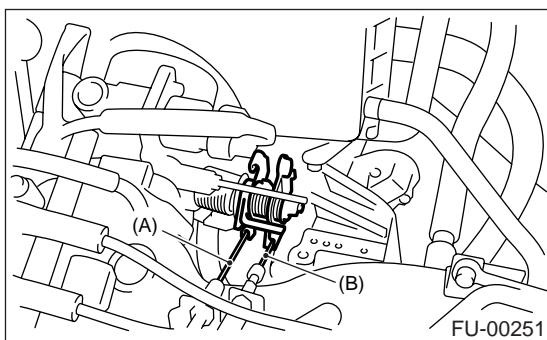
- (5) Install front V-belt.
<Ref. to ME(H4SO)-42, INSTALLATION, V-belt.>
(6) Install resonator chamber.

Tightening torque:

33 N·m (3.4 kgf-m, 24.6 ft-lb)

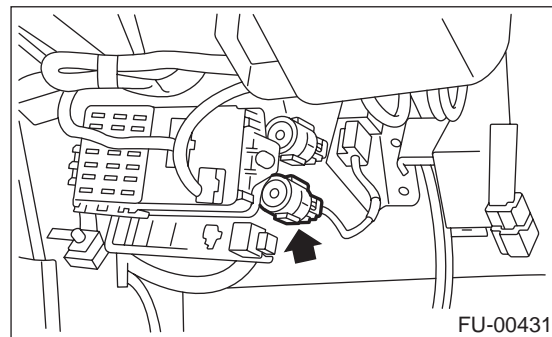


- 15) Connect accelerator control cable (A).
<Ref. to SP(H4SO)-6, INSTALLATION, Accelerator Control Cable.>
16) Connect cruise control cable (B). (With cruise control models)

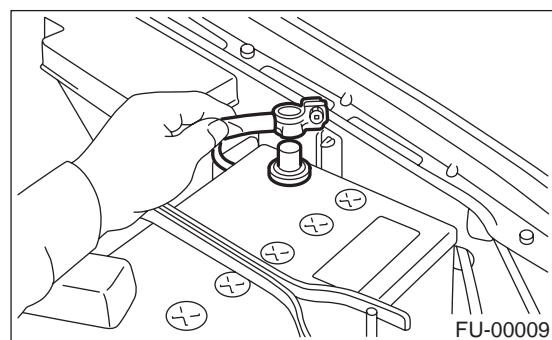


- 17) Install air intake duct and air cleaner case.
<Ref. to IN(H4SO)-6, INSTALLATION, Air Intake Duct.> and <Ref. to IN(H4SO)-4, INSTALLATION, Air Cleaner.>

- 18) Connect connector to fuel pump relay.



- 19) Connect battery ground cable.

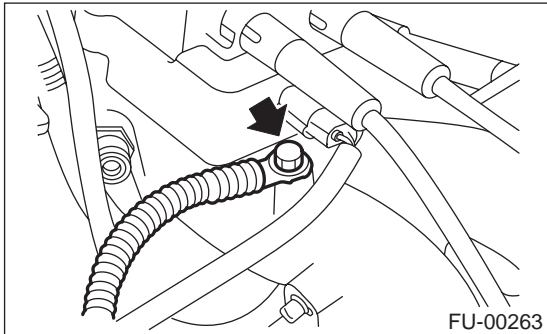


INTAKE MANIFOLD

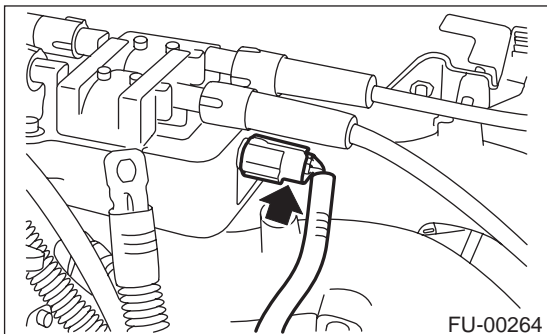
FUEL INJECTION (FUEL SYSTEMS)

C: DISASSEMBLY

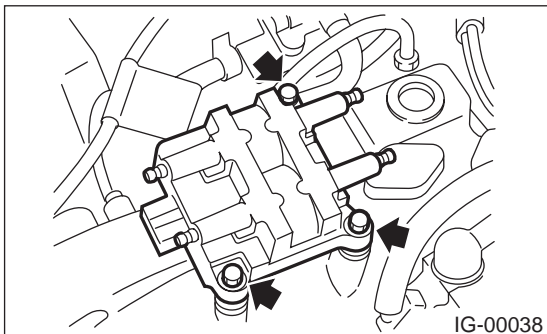
1) Disconnect engine ground terminal from intake manifold.



2) Disconnect connector from ignition coil and ignitor assembly.



3) Remove ignition coil and ignitor assembly.

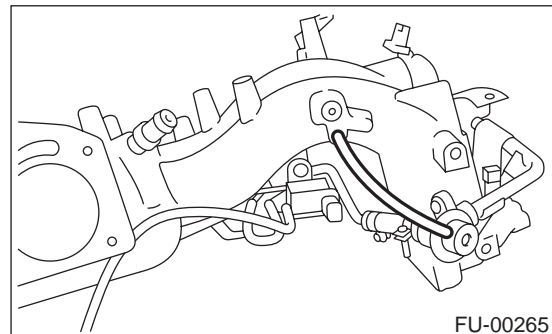


4) Remove throttle body.
<Ref. to FU(H4SO)-14, REMOVAL, Throttle Body.>

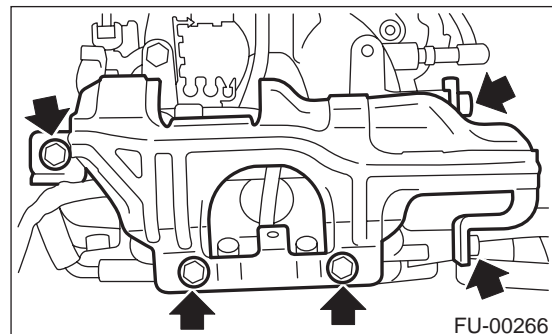
5) Remove air assist injector solenoid valve.
<Ref. to FU(H4SO)-36, REMOVAL, Air Assist Injector Solenoid Valve.>

6) Remove EGR valve.
<Ref. to FU(H4SO)-37, REMOVAL, EGR Valve.>

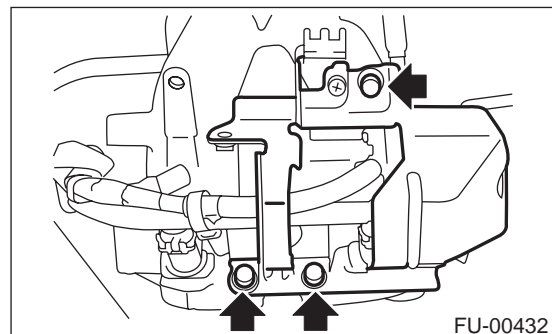
7) Disconnect pressure regulator vacuum hose from intake manifold.



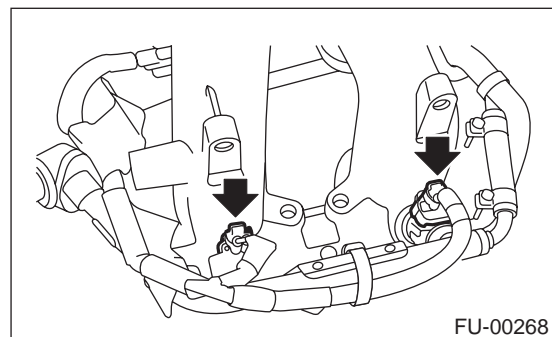
8) Remove fuel pipe protector LH.



9) Remove fuel pipe protector RH.



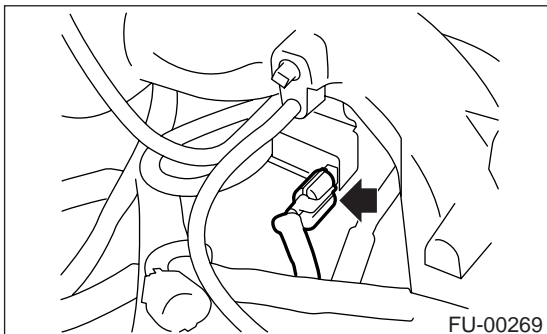
10) Disconnect connectors from fuel injectors.



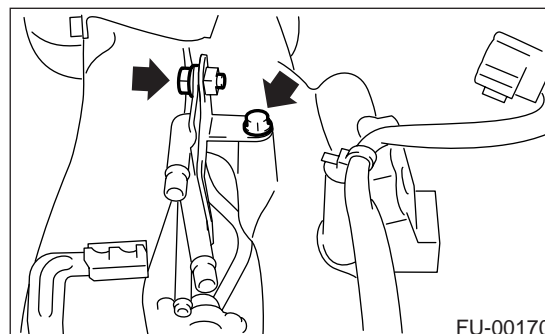
INTAKE MANIFOLD

FUEL INJECTION (FUEL SYSTEMS)

11) Disconnect connector from purge control solenoid valve.

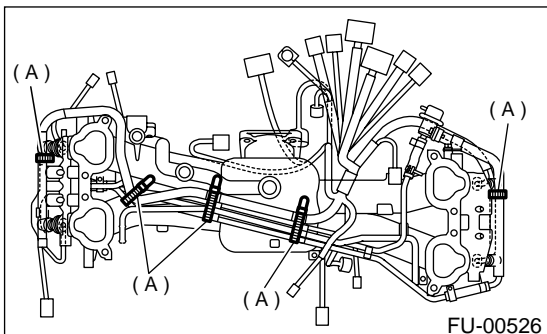


17) Remove two bolts which hold fuel pipes on the left side of intake manifold.



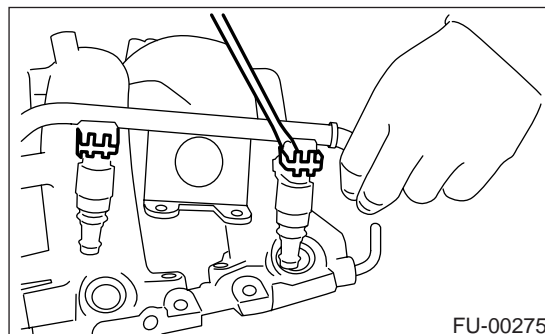
12) Disconnect air by-pass hose from purge control solenoid valve.

13) Remove harness bands (A) which hold engine harness onto intake manifold.

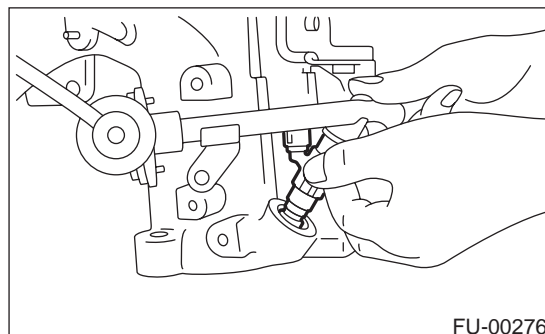


18) Remove fuel injectors.

(1) Remove fuel injector securing clip.

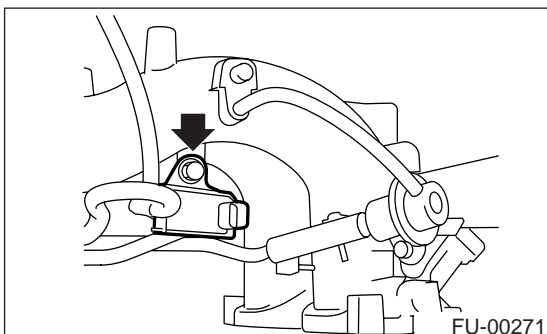


(2) Remove fuel injector while lifting up fuel injector pipe.

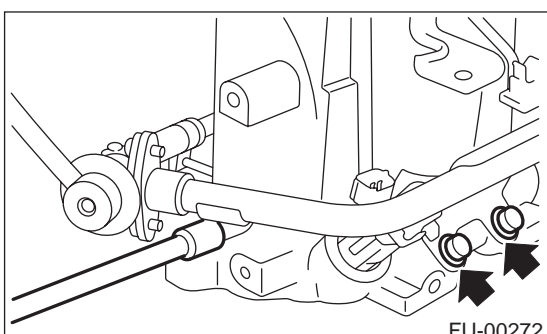


14) Remove engine harness from intake manifold.

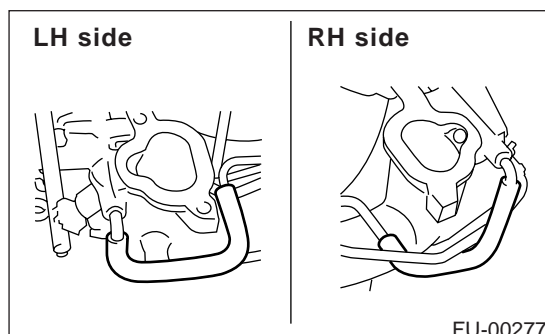
15) Remove purge control solenoid valve.



16) Remove bolt which installs injector pipe on intake manifold as shown in figure.



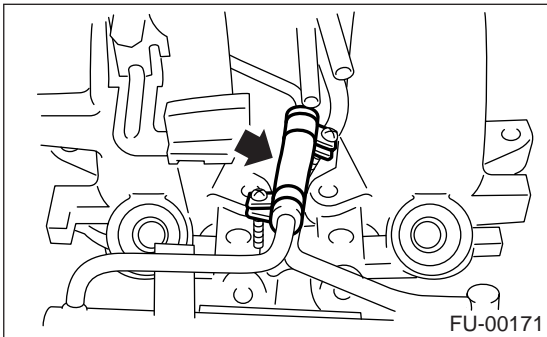
19) Disconnect air by-pass hoses from intake manifold.



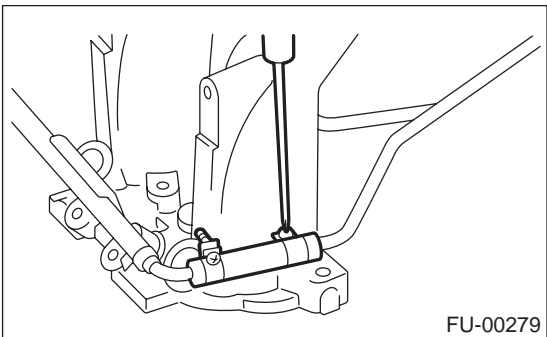
INTAKE MANIFOLD

FUEL INJECTION (FUEL SYSTEMS)

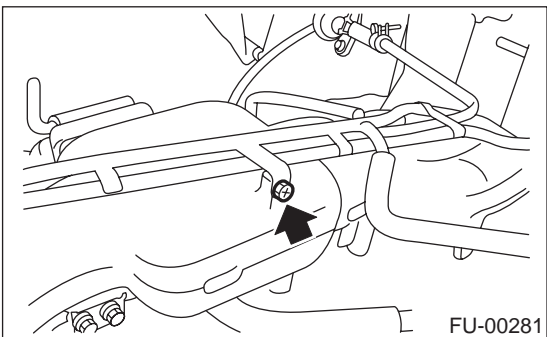
20) Loosen clamp which holds front left side fuel hose to injector pipe and remove the pipe from clamp.



21) Loosen clamp which holds front right side fuel hose to injector pipe and remove the pipe from clamp.



22) Remove fuel injector pipe.
23) Remove bolt which installs fuel pipes on intake manifold.



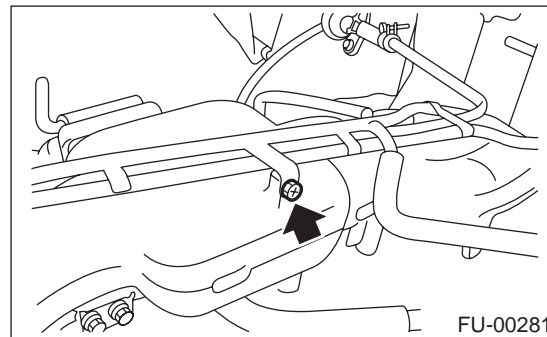
24) Remove fuel pipe assembly and pressure regulator, from intake manifold.

D: ASSEMBLY

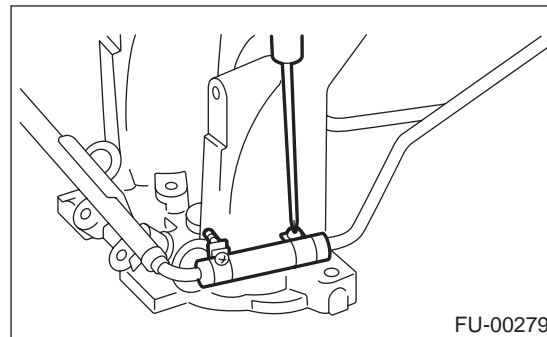
- 1) Install fuel pipe assembly and pressure regulator, etc. to intake manifold.
- 2) Tighten bolt which installs fuel pipes on intake manifold.

Tightening torque:

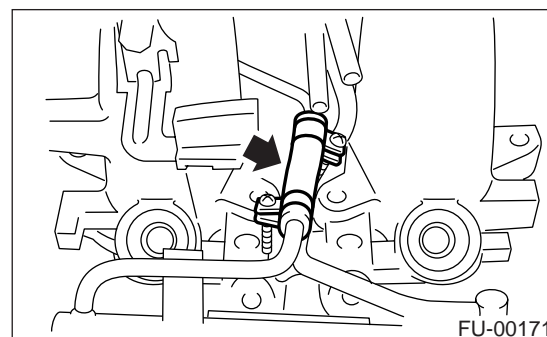
4.9 N·m (0.5 kgf-m, 3.6 ft-lb)



- 3) Connect right side fuel hose to injector pipe, and tighten clamp screw.



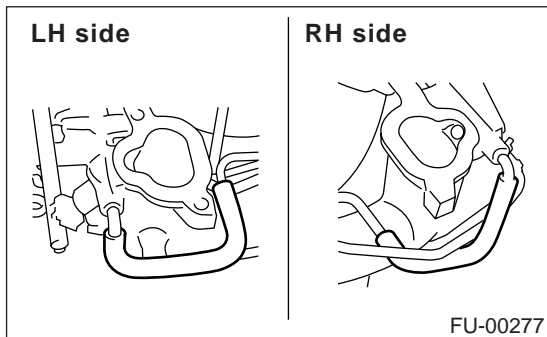
- 4) Install fuel injector pipe.
- 5) Connect left side fuel hose to injector pipe, and tighten clamp screw.



INTAKE MANIFOLD

FUEL INJECTION (FUEL SYSTEMS)

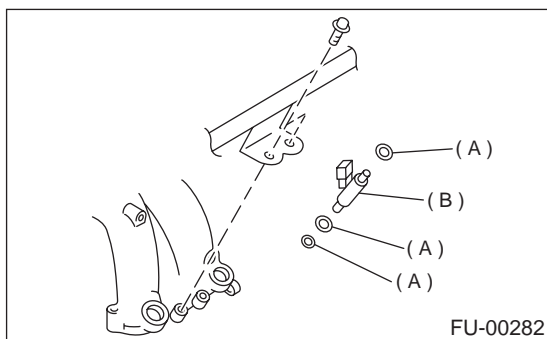
6) Connect air assist hoses.



7) Install fuel injectors.

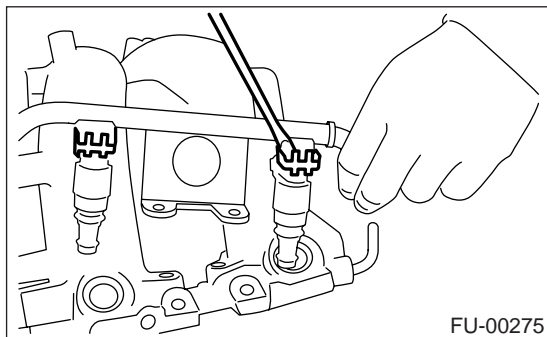
NOTE:

Always use new o-rings.



- (A) O-ring
- (B) Fuel injector

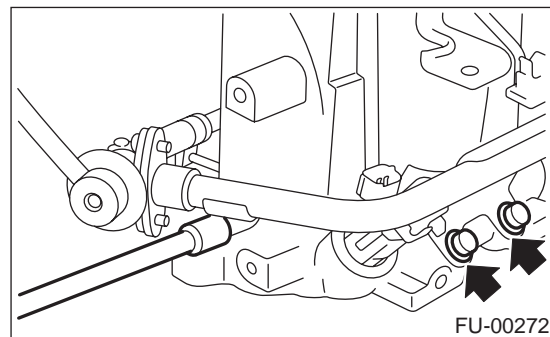
8) Do not forget to install the fuel injector securing clip.



9) Tighten bolt which installs injector pipe on intake manifold.

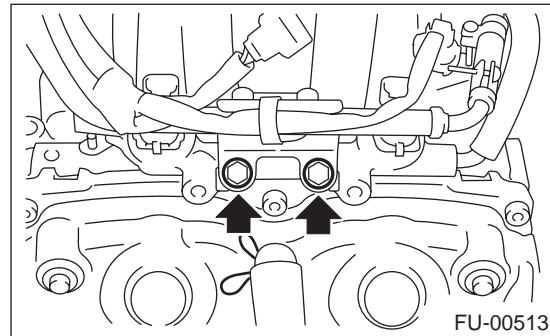
Tightening torque:

5.0 N·m (0.51 kgf-m, 3.7 ft-lb)



Tightening torque:

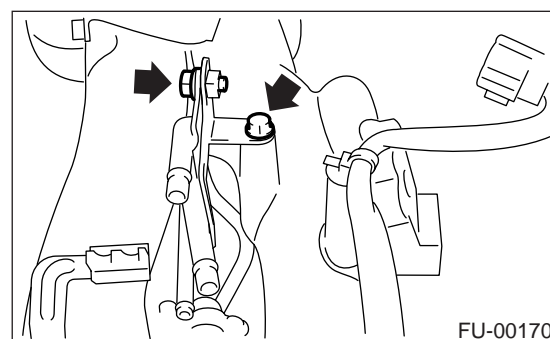
19 N·m (1.9 kgf-m, 13.7 ft-lb)



10) Tighten two bolts which install fuel pipes on the left side of intake manifold.

Tightening torque:

5.0 N·m (0.51 kgf-m, 3.7 ft-lb)



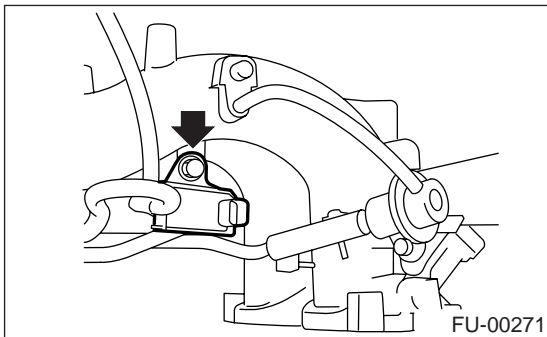
INTAKE MANIFOLD

FUEL INJECTION (FUEL SYSTEMS)

11) Install purge control solenoid valve.

Tightening torque:

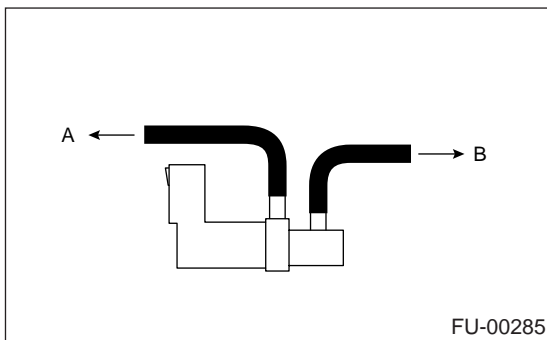
16 N·m (1.6 kgf-m, 11.8 ft-lb)



12) Connect hoses to purge control solenoid valve.

CAUTION:

Connect evaporation hoses as shown in the figure.



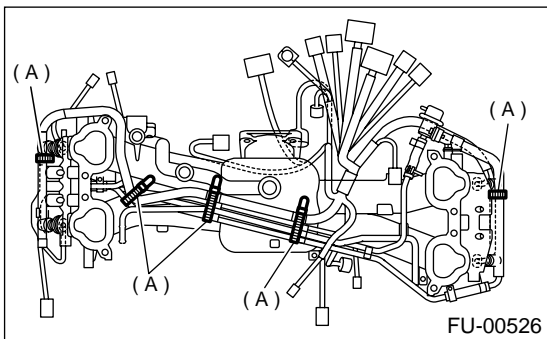
(A) To fuel pipe

(B) To intake manifold

13) Install engine harness onto intake manifold.

14) Connect connectors to fuel injectors and purge control solenoid valve.

15) Hold engine harness by harness bands (A).



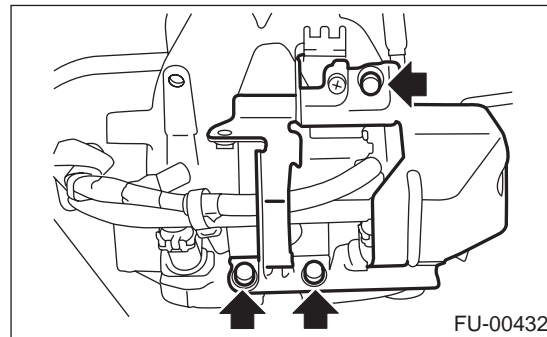
NOTE:

Do not use harness band on harnesses where they are supposed to be protected by the fuel pipe protector.

16) Install fuel pipe protector RH.

Tightening torque:

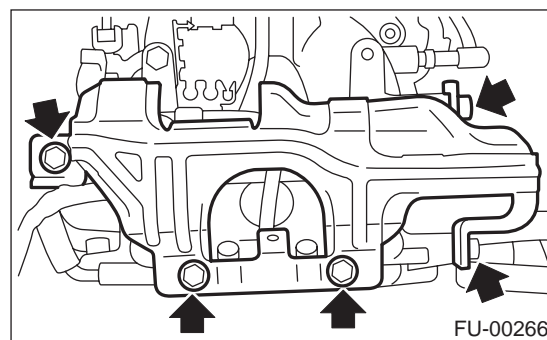
19 N·m (1.9 kgf-m, 13.7 ft-lb)



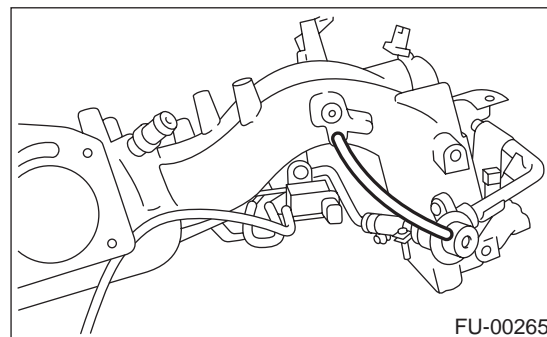
17) Install fuel pipe protector LH.

Tightening torque:

19 N·m (1.9 kgf-m, 13.7 ft-lb)



18) Connect pressure regulator vacuum hose to intake manifold.



INTAKE MANIFOLD

FUEL INJECTION (FUEL SYSTEMS)

19) Install air assist injector solenoid valve to bracket.

<Ref. to FU(H4SO)-36, INSTALLATION, Air Assist Injector Solenoid Valve.>

20) Install EGR valve.

<Ref. to FU(H4SO)-37, INSTALLATION, EGR Valve.>

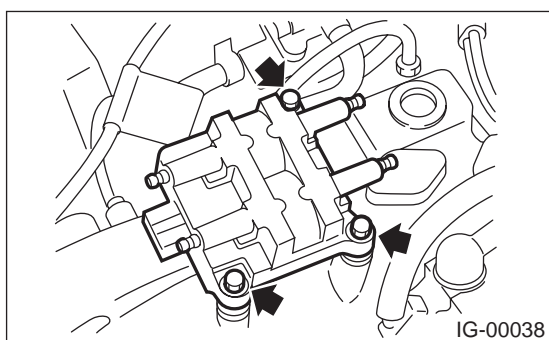
21) Install throttle body to intake manifold.

<Ref. to FU(H4SO)-14, INSTALLATION, Throttle Body.>

22) Install ignition coil and ignitor assembly.

Tightening torque:

6.4 N·m (0.65 kgf-m, 4.7 ft-lb)

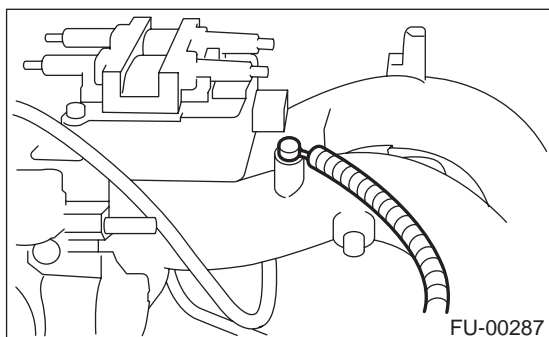


23) Connect connector to ignition coil and ignitor assembly.

24) Install engine ground terminal to intake manifold.

Tightening torque:

19 N·m (1.9 kgf-m, 13.7 ft-lb)



E: INSPECTION

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