

FUEL INJECTION (FUEL SYSTEMS)

General Description

FUEL INJECTION (FUEL SYSTEMS)

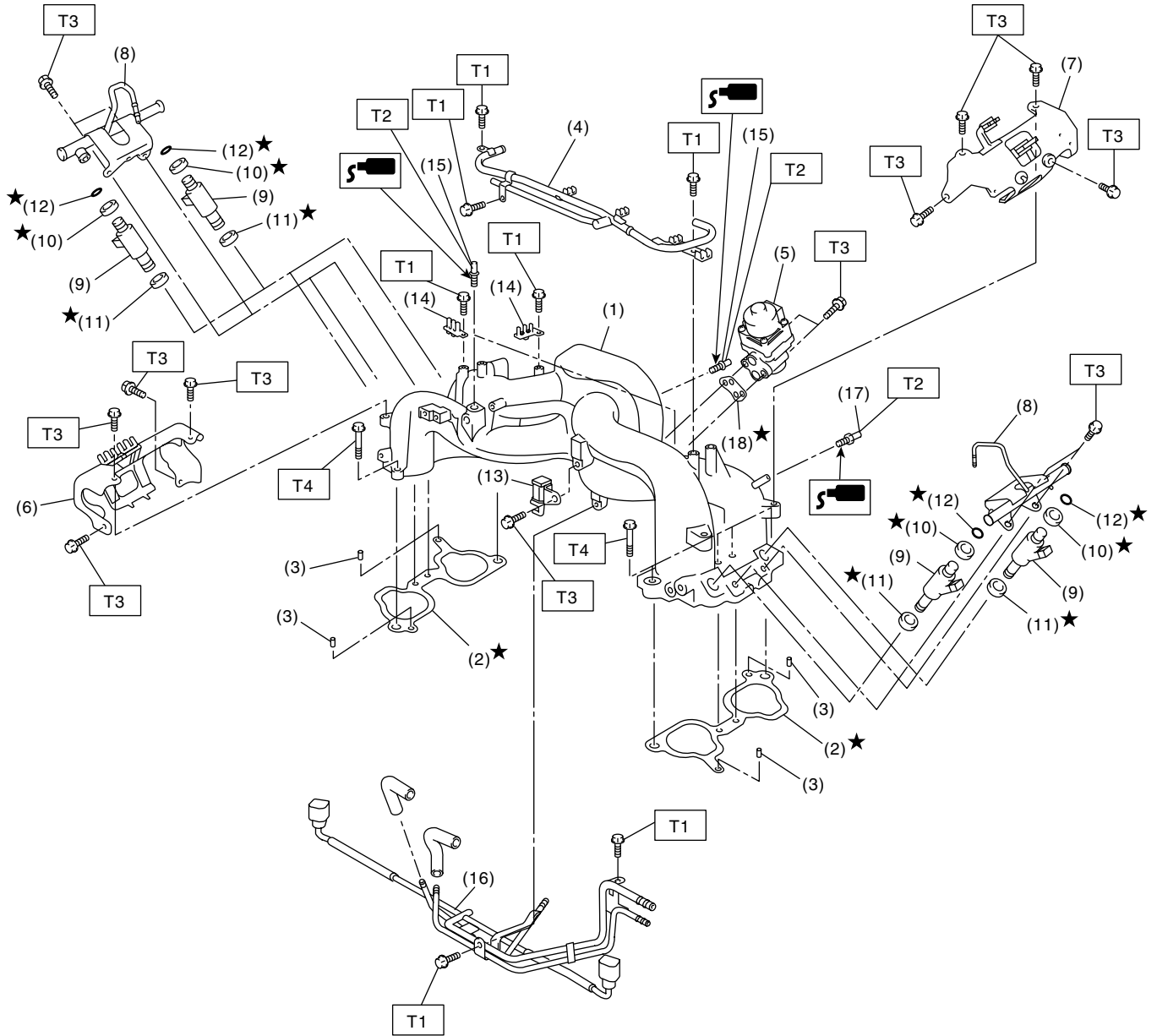
1. General Description

A: SPECIFICATION

Item		Specification
Fuel tank	Capacity	60 ℓ (15.9 US gal, 13.2 Imp gal)
	Location	Under rear seat
Fuel pump	Type	Impeller
	Shutoff discharge pressure	370 — 677 kPa (3.77 — 6.9 kgf/cm ² , 53.6 — 98 psi)
	Discharge flow	More than 105 ℓ (27.7 US gal, 23.1 Imp gal)/h. [12 V at 300 kPa (3.06 kgf/cm ² , 43.5 psi)]
Fuel filter		Cartridge type

B: COMPONENT

1. INTAKE MANIFOLD



General Description

FUEL INJECTION (FUEL SYSTEMS)

- | | | |
|----------------------------|-----------------------------------|-------------|
| (1) Intake manifold | (9) Fuel injector | (17) Nipple |
| (2) Gasket | (10) O-ring | (18) Gasket |
| (3) Guide pin | (11) O-ring | |
| (4) PCV pipe | (12) O-ring | |
| (5) EGR valve | (13) Purge control solenoid valve | |
| (6) Fuel pipe protector RH | (14) Plug cord holder | |
| (7) Fuel pipe protector LH | (15) Nipple | |
| (8) Fuel injector pipe | (16) Fuel pipe ASSY | |

Tightening torque: N·m (kgf-m, ft-lb)

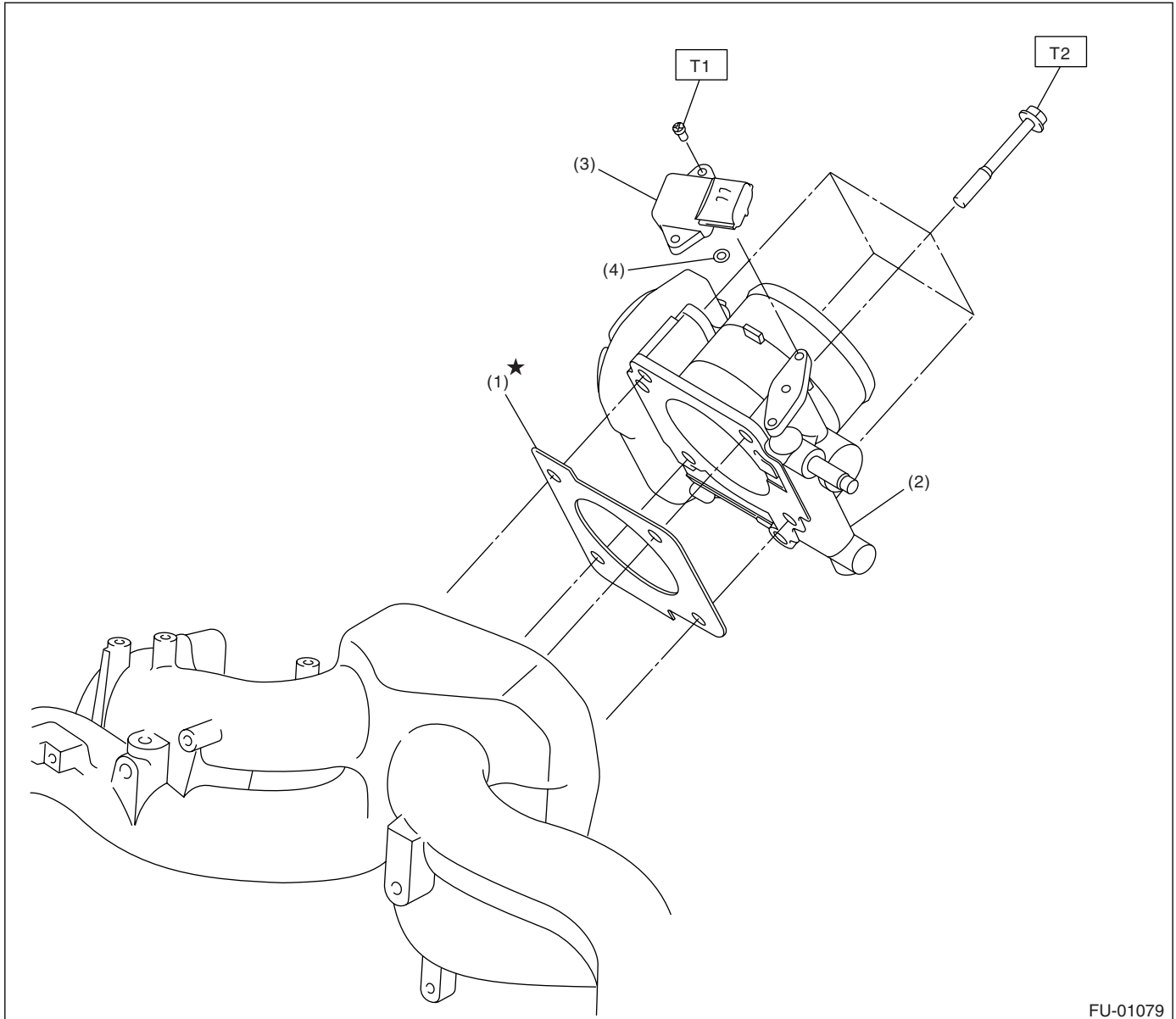
T1: 6.4 (0.65, 4.7)

T2: 17 (1.7, 12.5)

T3: 19 (1.9, 13.7)

T4: 25 (2.5, 18.1)

2. AIR INTAKE SYSTEM



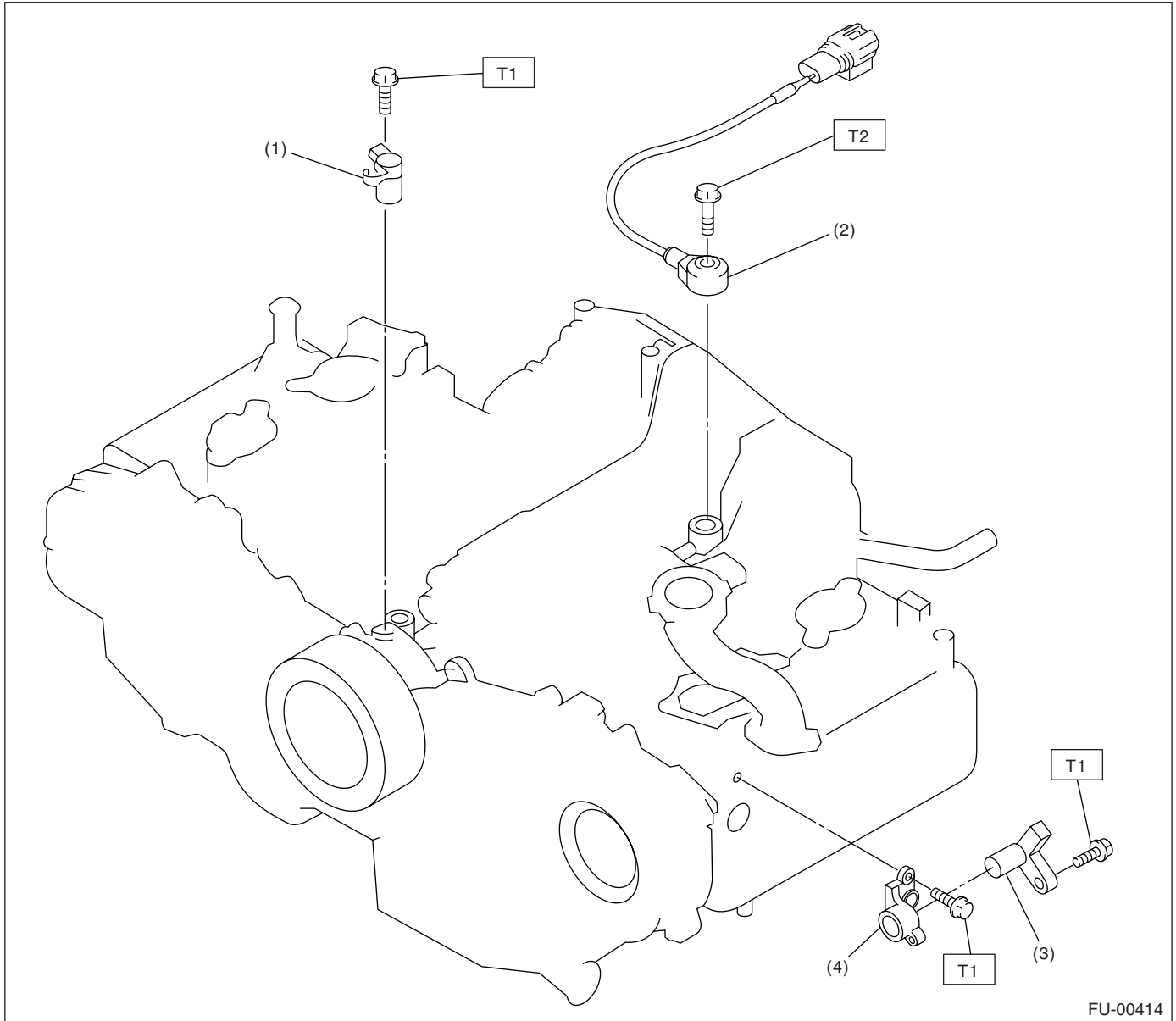
- | | |
|---------------------------------------|------------|
| (1) Gasket | (4) O-ring |
| (2) Throttle body | |
| (3) Manifold absolute pressure sensor | |

Tightening torque: N·m (kgf-m, ft-lb)

T1: 2.0 (0.20, 1.5)

T2: 8 (0.8, 5.8)

3. CRANKSHAFT POSITION, CAMSHAFT POSITION AND KNOCK SENSORS



FU-00414

(1) Crankshaft position sensor

(2) Knock sensor

(3) Camshaft position sensor

(4) Camshaft position sensor support

Tightening torque: N·m (kgf·m, ft·lb)

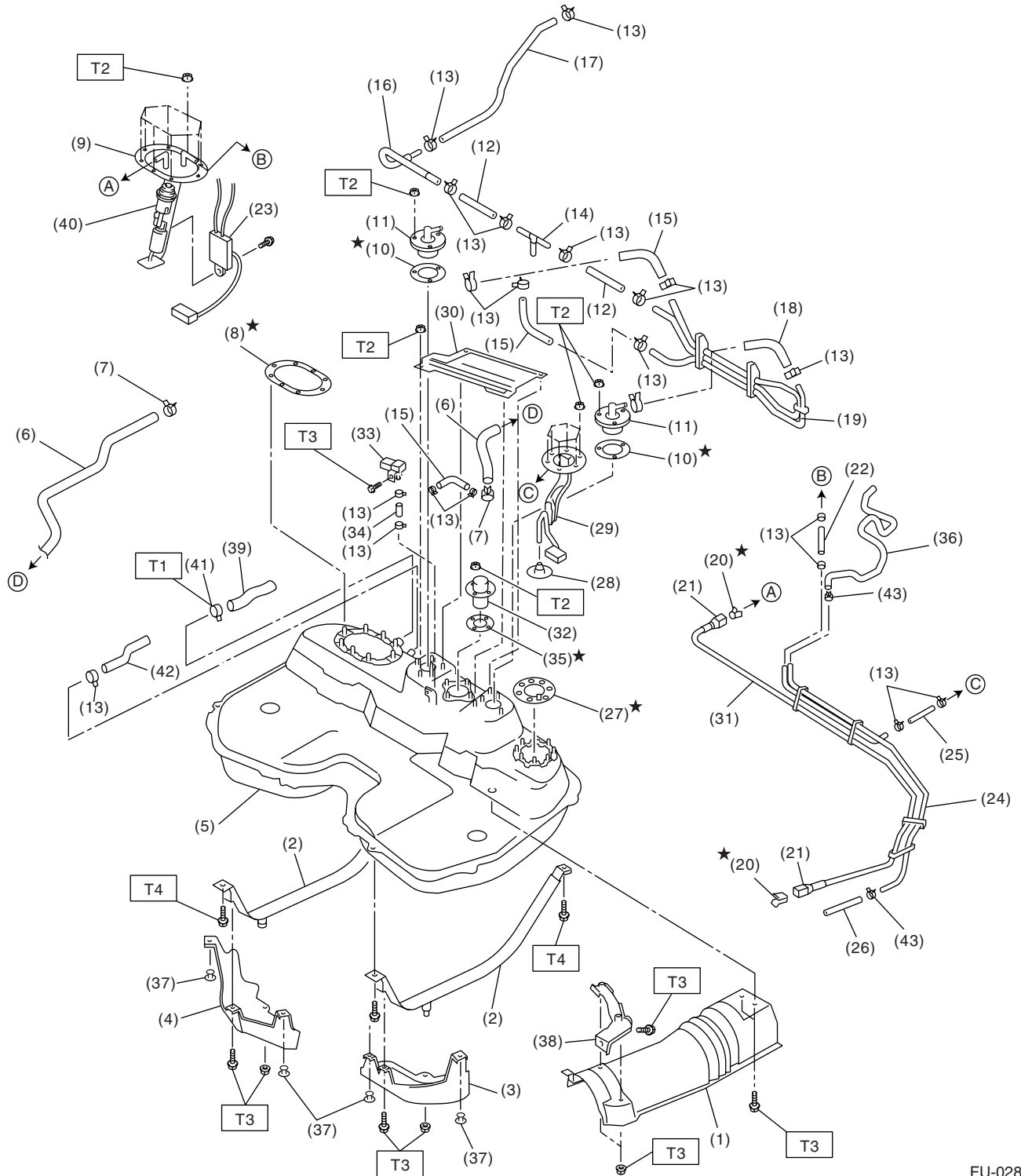
T1: 6.4 (0.65, 4.7)

T2: 24 (2.4, 17.4)

General Description

FUEL INJECTION (FUEL SYSTEMS)

4. FUEL TANK



FU-02860

General Description

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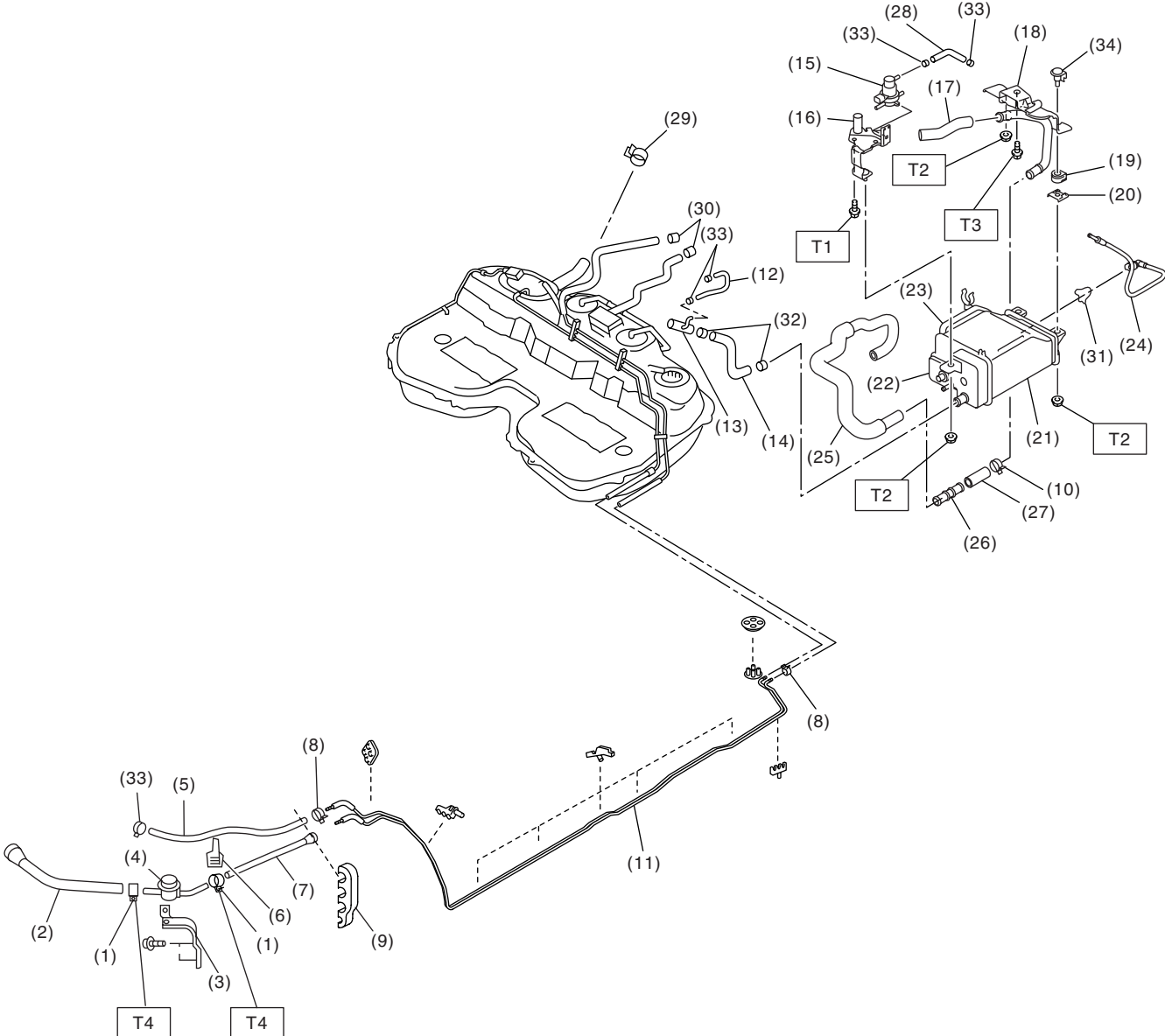
(1) Heat shield cover	(18) Evaporation hose D	(35) Vent valve gasket
(2) Fuel tank band	(19) Evaporation pipe ASSY	(36) Purge hose
(3) Protector LH	(20) Retainer	(37) Clip
(4) Protector RH	(21) Quick connector	(38) Cover bracket
(5) Fuel tank	(22) Jet pump hose A	(39) Fuel filler hose
(6) Canister hose	(23) Fuel level sensor	(40) Fuel filter
(7) Clamp	(24) Fuel pipe ASSY	(41) Clamp
(8) Fuel pump gasket	(25) Jet pump hose B	(42) Evaporation hose F
(9) Fuel pump ASSY	(26) Evaporation hose E	(43) Clamp
(10) Fuel cut valve gasket	(27) Fuel sub level sensor gasket	
(11) Fuel cut valve	(28) Jet pump filter	
(12) Evaporation hose A	(29) Fuel sub level sensor	
(13) Clip	(30) Protector cover	
(14) Joint pipe	(31) Fuel delivery tube	
(15) Evaporation hose B	(32) Vent valve	
(16) Evaporation pipe	(33) Fuel tank pressure sensor	
(17) Evaporation hose C	(34) Fuel tank pressure sensor hose	

Tightening torque: N·m (kgf-m, ft-lb)**T1: 1.96 (0.20, 1.45)****T2: 4.4 (0.45, 3.3)****T3: 7.4 (0.75, 5.4)****T4: 33 (3.4, 25)**

General Description

FUEL INJECTION (FUEL SYSTEMS)

5. FUEL LINE



FU-02823

General Description

FUEL INJECTION (FUEL SYSTEMS)

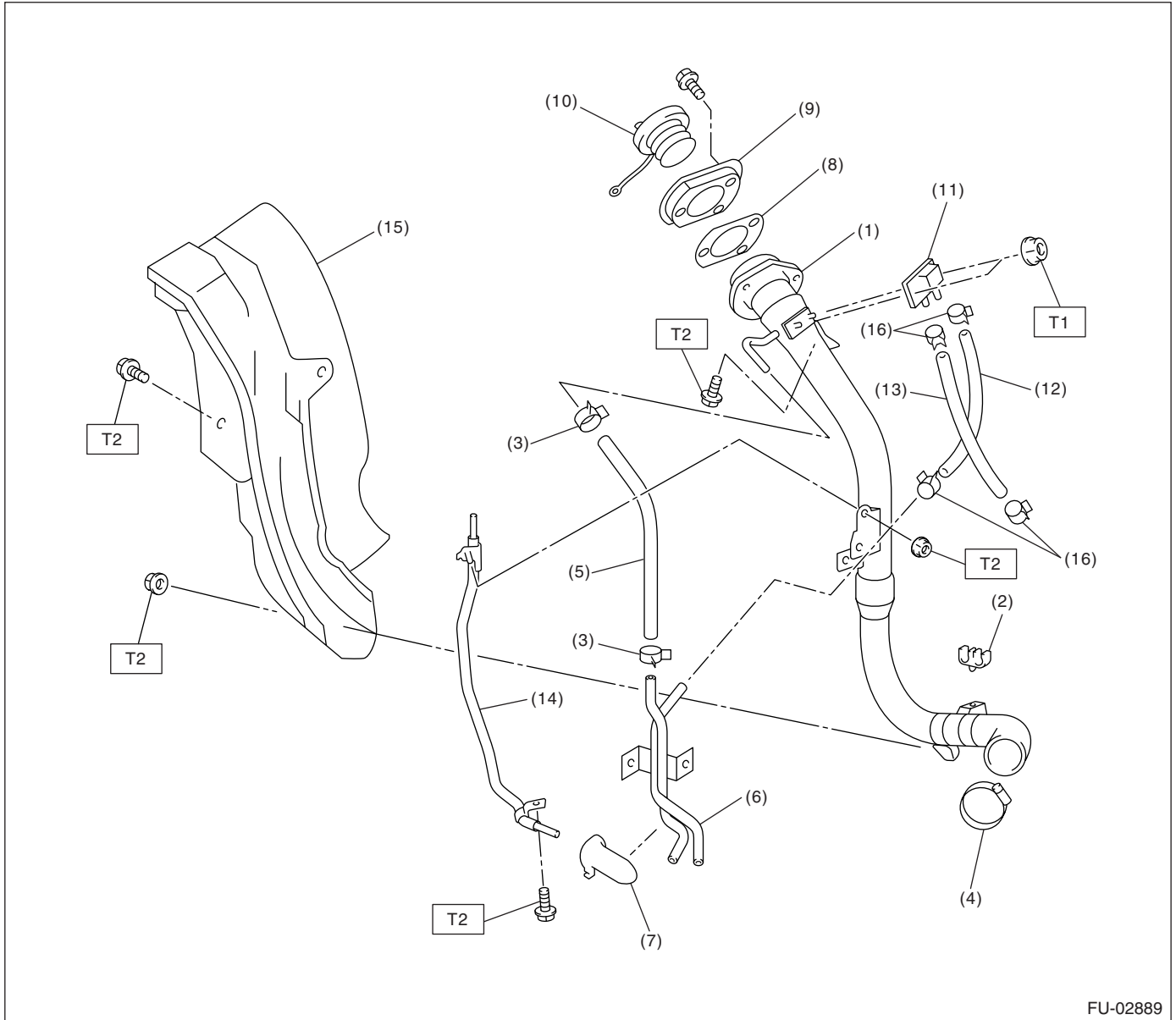
(1) Clamp	(16) Pressure control solenoid valve bracket	(28) Pressure control solenoid valve hose
(2) Fuel delivery hose A	(17) Drain hose C	(29) Clamp
(3) Fuel damper valve bracket	(18) Canister upper bracket	(30) Clamp
(4) Fuel damper valve (delivery)	(19) Cushion rubber	(31) Retainer
(5) Evaporation hose A	(20) Canister lower bracket	(32) Clamp
(6) Clip	(21) Canister	(33) Clamp
(7) Fuel delivery hose B	(22) Drain valve	(34) Canister bracket spacer
(8) Clamp	(23) Drain filter	
(9) Clip	(24) Pressure control solenoid valve tube	
(10) Clamp	(25) Drain hose A	
(11) Fuel pipe ASSY	(26) Drain connector	
(12) Evaporation hose B	(27) Drain hose B	
(13) Joint pipe		
(14) Canister hose A		
(15) Pressure control solenoid valve		

Tightening torque: N·m (kgf-m, ft-lb)
T1: 25 (2.5, 18.1)
T2: 23 (2.3, 16.6)
T3: 33 (3.4, 25)
T4: 1.25 (0.13, 0.94)

General Description

FUEL INJECTION (FUEL SYSTEMS)

6. FUEL FILLER PIPE



- | | | |
|-----------------------------|-------------------------|---------------------------------|
| (1) Fuel filler pipe ASSY | (8) Filler pipe packing | (15) Fuel filler pipe protector |
| (2) Evaporation hose holder | (9) Filler ring | (16) Clamp |
| (3) Clamp | (10) Filler cap | |
| (4) Clamp | (11) Shut valve | |
| (5) Evaporation hose A | (12) Evaporation hose B | |
| (6) Evaporation pipe | (13) Evaporation hose C | |
| (7) Evaporation pipe holder | (14) Joint pipe | |

Tightening torque: N·m (kgf·m, ft·lb)

T1: 4.4 (0.45, 3.3)

T2: 7.5 (0.76, 5.5)

General Description

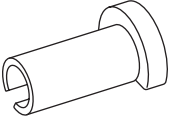
FUEL INJECTION (FUEL SYSTEMS)

C: CAUTION

- Wear work clothing, including a cap, protective goggles, and protective shoes during operation.
- Remove contamination including dirt and corrosion before removal, installation or disassembly.
- Keep the disassembled parts in order and protect them from dust and dirt.
- Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly, and replacement.

- Be careful not to burn yourself, because each part on the vehicle is hot after running.
- Be sure to tighten fasteners including bolts and nuts to the specified torque.
- Place shop jacks or rigid racks at the specified points.
- Before disconnecting electrical connectors of sensors or units, be sure to disconnect the ground cable from battery.
- Place "NO FIRE" signs near the working area.
- Be careful not to spill fuel on the floor.

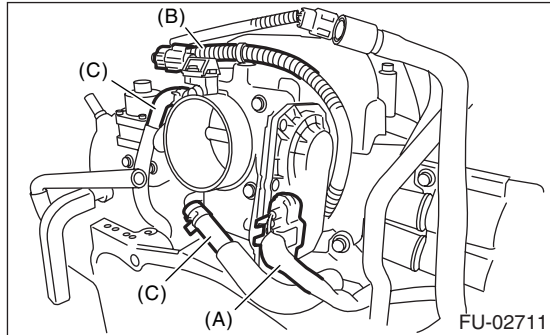
D: PREPARATION TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST42099AE000	42099AE000	CONNECTOR REMOVER	Used for removing quick connector in engine compartment.

2. Throttle Body

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the air intake chamber. <Ref. to IN(H4SO)-6, REMOVAL, Air Intake Chamber.>
- 3) Disconnect the connectors from the throttle position sensor and manifold absolute pressure sensor.
- 4) Disconnect the engine coolant hoses from throttle body.
- 5) Remove the bolts which secure throttle body to intake manifold.



- (A) Throttle position sensor
- (B) Manifold absolute pressure sensor
- (C) Engine coolant hose

B: INSTALLATION

Install in the reverse order of removal.

NOTE:

Use a new gasket.

Tightening torque:

8 N·m (0.8 kgf·m, 5.8 ft·lb)

3. Intake Manifold

A: REMOVAL

1) Release the fuel pressure. <Ref. to FU(H4SO)-42, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>

2) Disconnect the ground cable from battery.

3) Open the fuel filler flap lid, and remove the fuel filler cap.

4) Remove the air intake duct, air cleaner case and air intake chamber. <Ref. to IN(H4SO)-7, REMOVAL, Air Intake Duct.> <Ref. to IN(H4SO)-5, REMOVAL, Air Cleaner Case.> <Ref. to IN(H4SO)-6, REMOVAL, Air Intake Chamber.>

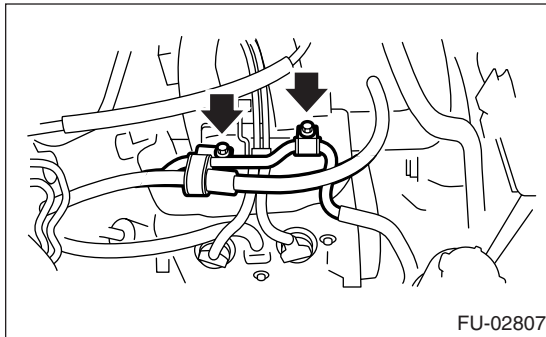
5) Remove the generator. <Ref. to SC(H4SO)-14, REMOVAL, Generator.>

6) Remove the power steering pump and reservoir tank from bracket.

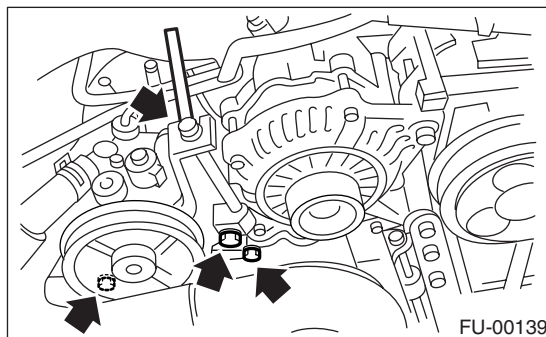
(1) Remove the bolts which hold power steering pipes onto the protector.

NOTE:

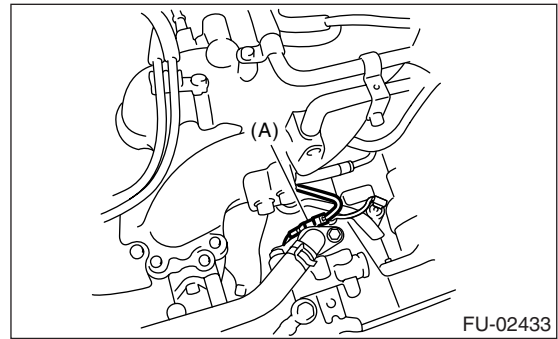
Do not disconnect the power steering hose.



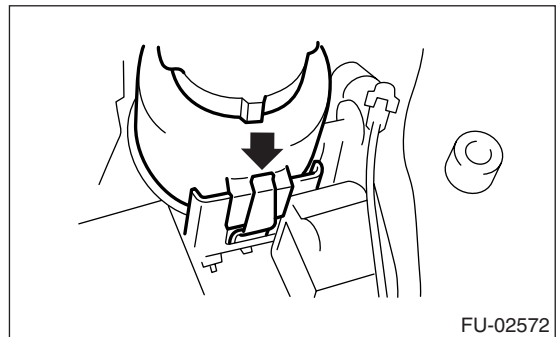
(2) Remove the bolts which install power steering pump bracket.



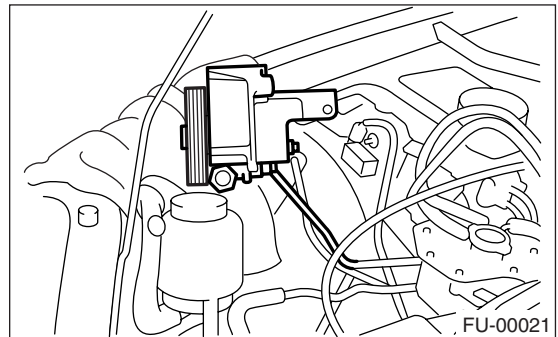
(3) Disconnect the connector (A) from the power steering pump switch.



(4) Remove the reservoir tank from the bracket by pulling it upwards.

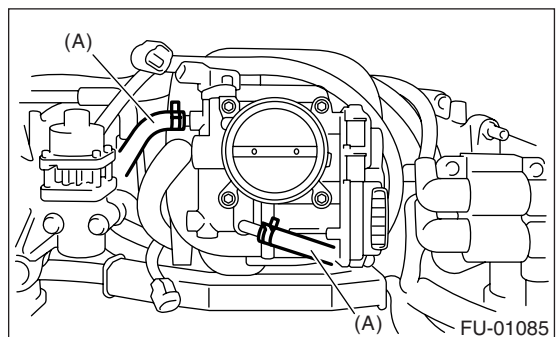


(5) Place the power steering pump on the right side wheel apron.



7) Disconnect the spark plug cords from spark plugs by pulling the plug cap. (Do not pull the cord.)

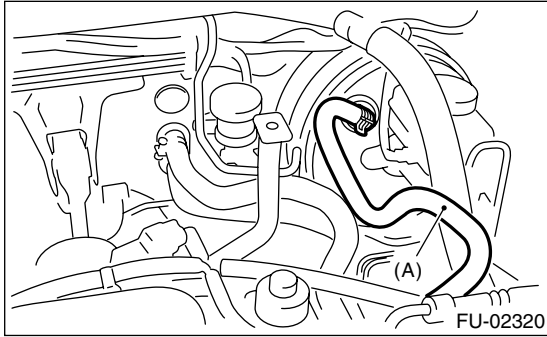
8) Disconnect the engine coolant hoses (A) from throttle body.



Intake Manifold

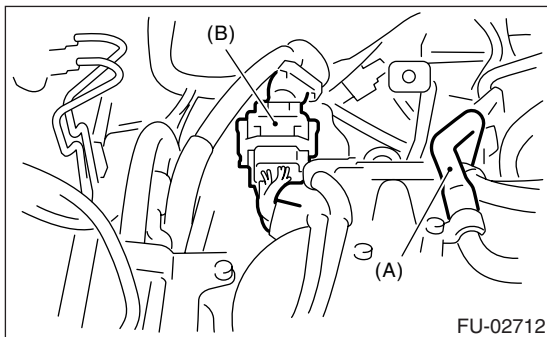
FUEL INJECTION (FUEL SYSTEMS)

9) Disconnect the brake booster hose (A).

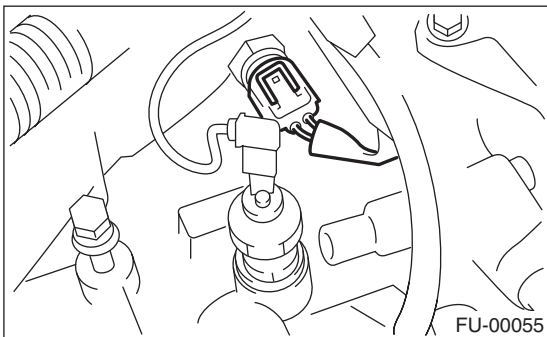


10) Disconnect the PCV hose (A) from intake manifold.

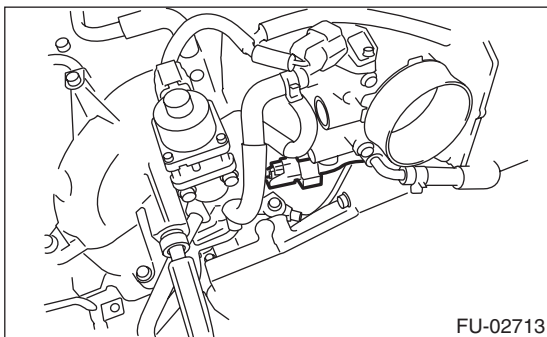
11) Disconnect the engine harness connectors (B) from bulkhead harness connectors.



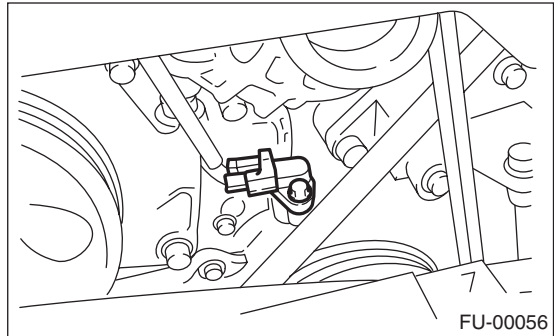
12) Disconnect the connectors from engine coolant temperature sensor.



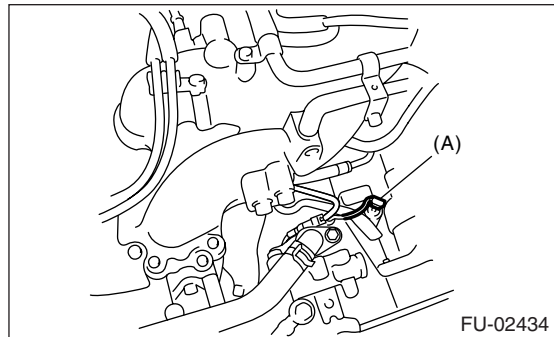
13) Disconnect the knock sensor connector.



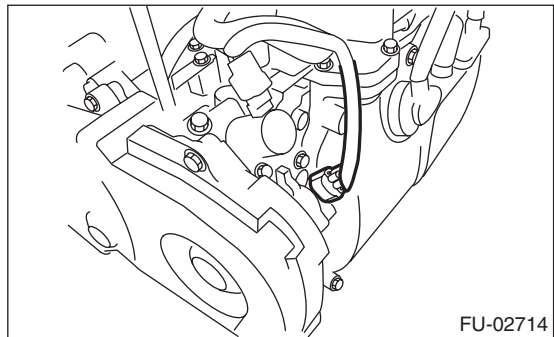
14) Disconnect the connector from crankshaft position sensor.



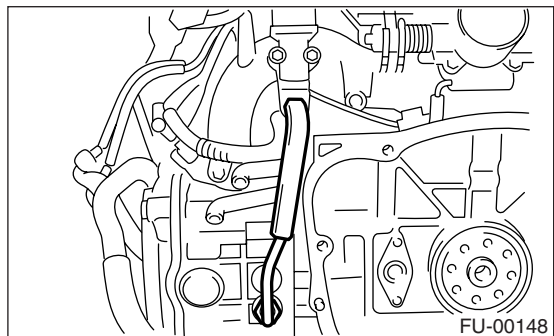
15) Disconnect the connector from oil pressure switch (A).



16) Disconnect the connector from camshaft position sensor.



17) Remove the EGR pipe from intake manifold.



18) Disconnect the fuel hoses from fuel pipes.

(1) Separate the quick connectors of fuel delivery line and return line by pushing the ST to the direction of arrow.

ST 42099AE000 CONNECTOR REMOVER

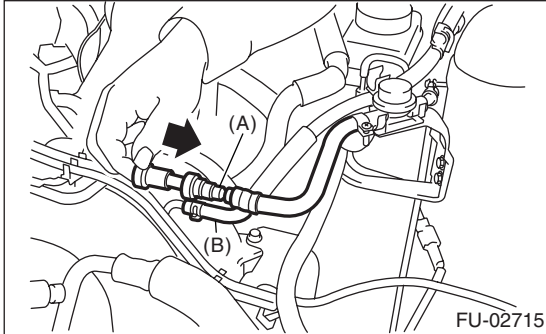
Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

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

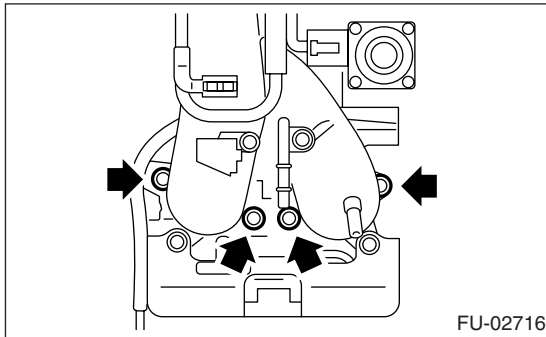
WARNING:

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



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

19) Remove the bolts which secure intake manifold to cylinder head.



20) Remove the intake manifold.

B: INSTALLATION

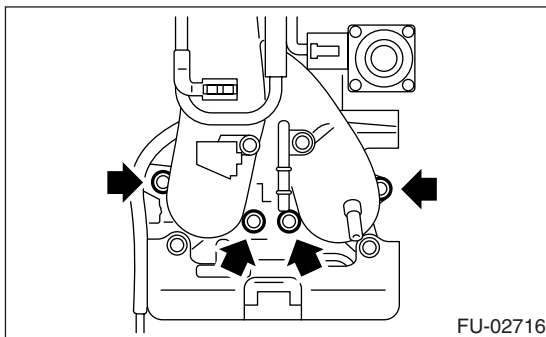
1) Install the intake manifold onto cylinder heads.

NOTE:

Use a new gasket.

Tightening torque:

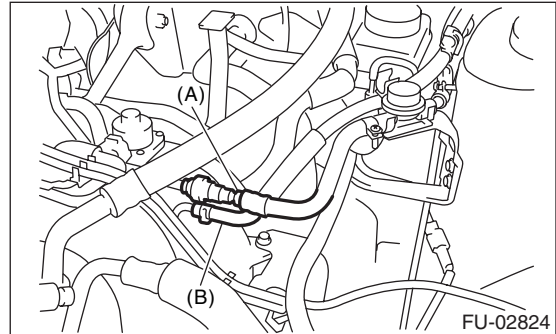
25 N-m (2.5 kgf-m, 18.1 ft-lb)



2) Connect the fuel hoses and evaporation hose to fuel pipe.

NOTE:

If hoses are damaged, replace them with new ones.

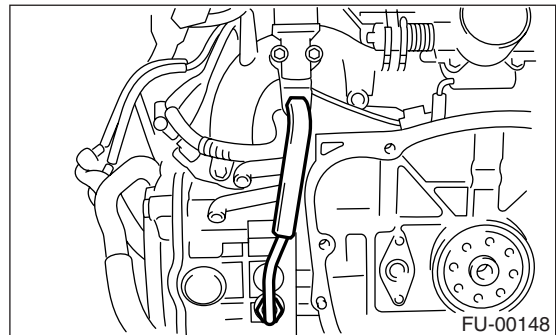


- (A) Fuel delivery hose
(B) Evaporation hose

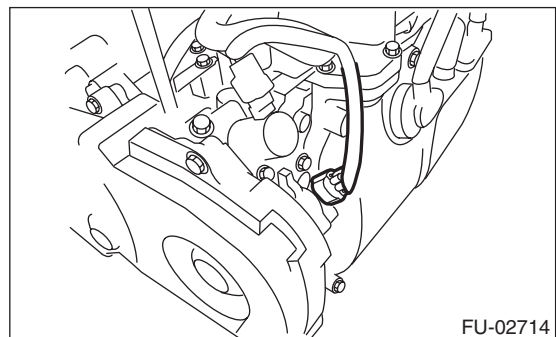
3) Install the EGR pipe to intake manifold.

Tightening torque:

34 N-m (3.4 kgf-m, 24.6 ft-lb)



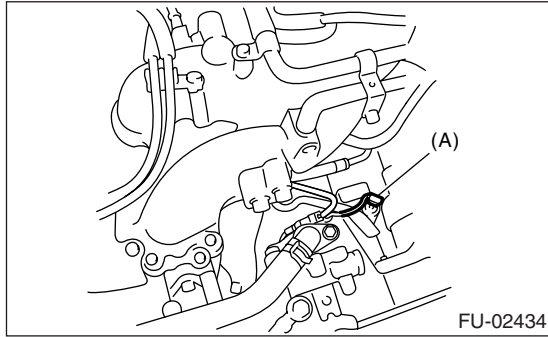
4) Connect the connector to camshaft position sensor.



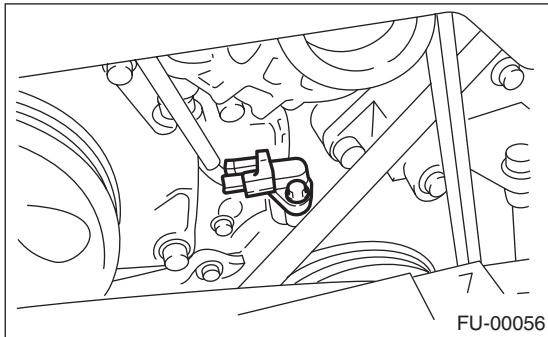
Intake Manifold

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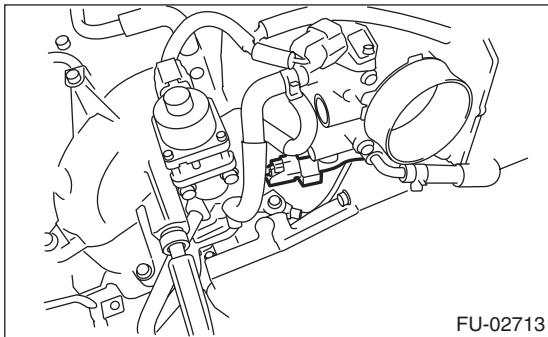
5) Connect the connector to oil pressure switch (A).



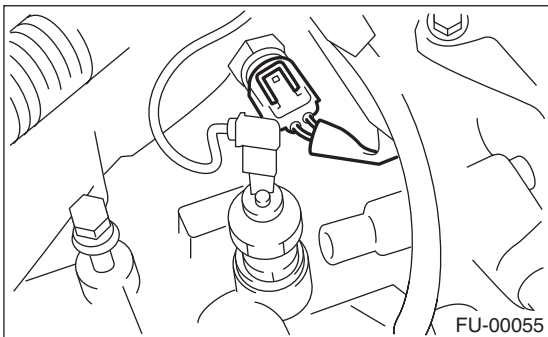
6) Connect the connector to crankshaft position sensor.



7) Connect the knock sensor connector.

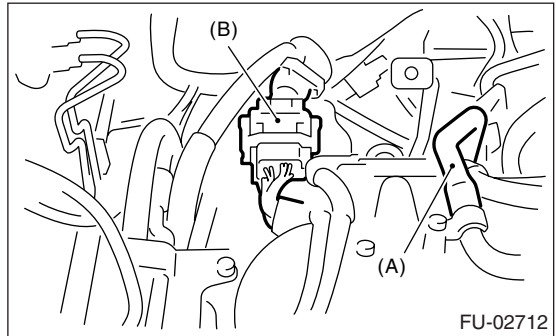


8) Connect the connectors to engine coolant temperature sensor.

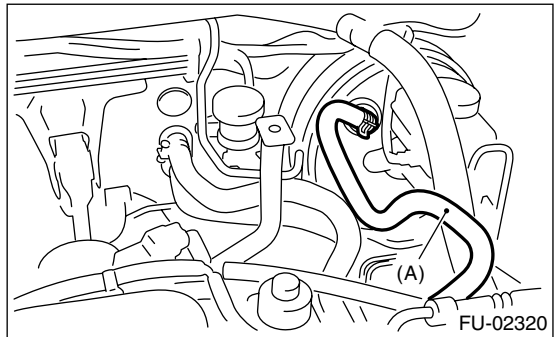


9) Connect the PCV hose (A) to intake manifold.

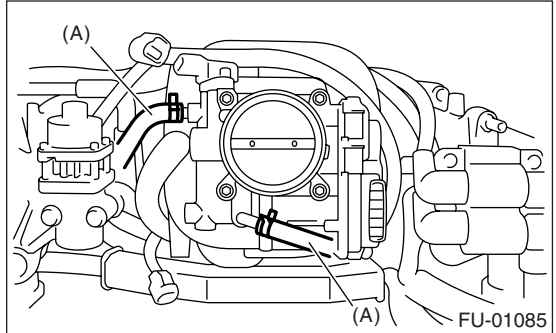
10) Connect the engine harness connectors (B) to bulkhead harness connectors.



11) Connect the brake booster hose (A).



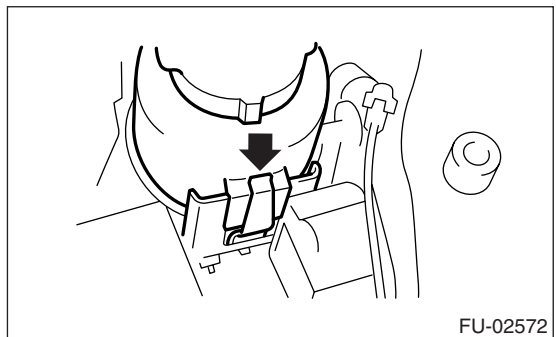
12) Connect the engine coolant hoses (A) to throttle body.



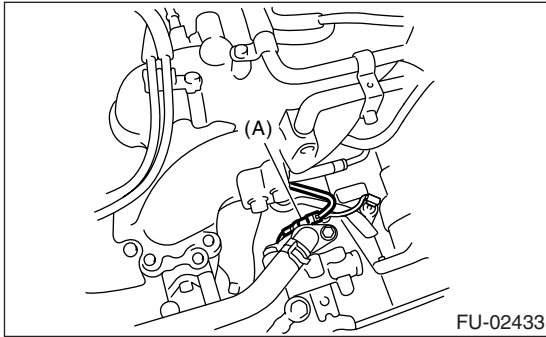
13) Connect the spark plug cords to spark plugs.

14) Install the power steering pump and reservoir tank to bracket.

(1) Install the reservoir tank to bracket.



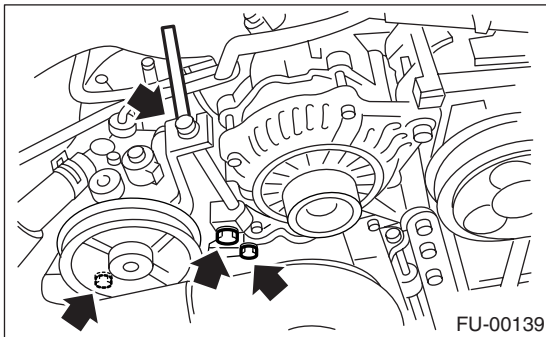
- (2) Connect the connector (A) to the power steering pump switch.



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

Tightening torque:

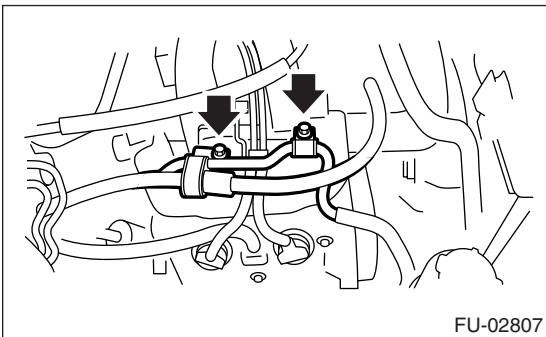
22 N·m (2.2 kgf·m, 15.9 ft·lb)



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

Tightening torque:

13 N·m (1.3 kgf·m, 9.4 ft·lb)



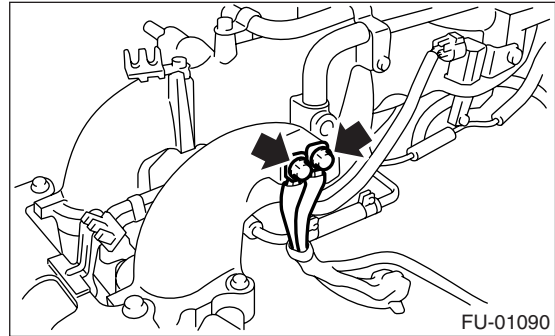
- 15) Install the generator. <Ref. to SC(H4SO)-14, INSTALLATION, Generator.>

- 16) Install the air intake duct, air cleaner case and air intake chamber. <Ref. to IN(H4SO)-7, INSTALLATION, Air Intake Duct.> <Ref. to IN(H4SO)-5, INSTALLATION, Air Cleaner Case.> <Ref. to IN(H4SO)-6, INSTALLATION, Air Intake Chamber.>

- 17) Connect the connector to fuel pump relay.
18) Connect the battery ground cable to battery.

C: DISASSEMBLY

- 1) Disconnect the engine ground terminal from intake manifold.

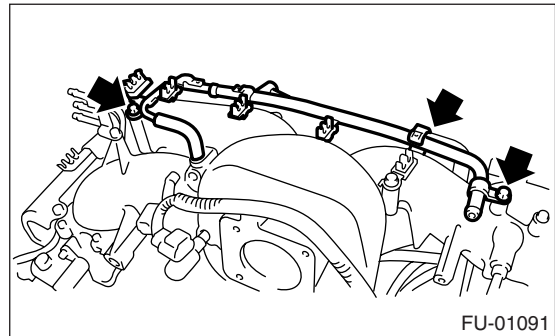


- 2) Remove the ignition coil and ignitor assembly. <Ref. to IG(H4SO)-7, REMOVAL, Ignition Coil and Ignitor Assembly.>

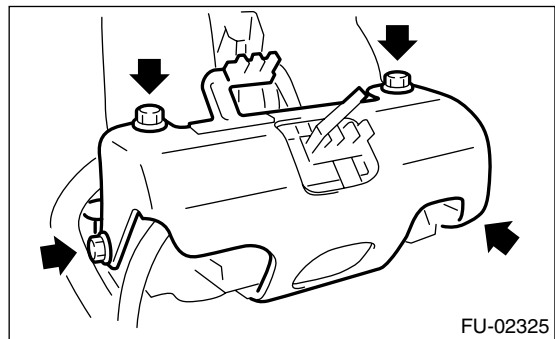
- 3) Remove the throttle body. <Ref. to FU(H4SO)-12, REMOVAL, Throttle Body.>

- 4) Remove the EGR valve. <Ref. to FU(H4SO)-29, REMOVAL, EGR Valve.>

- 5) Remove the PCV pipe.



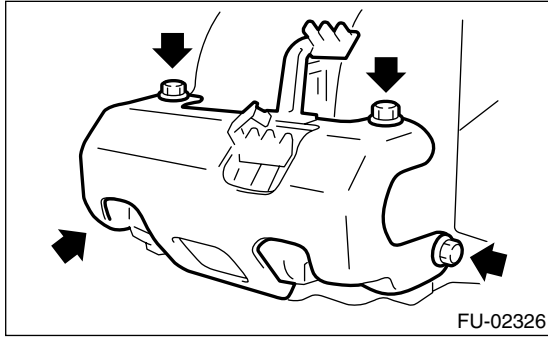
- 6) Remove the fuel pipe protector LH.



Intake Manifold

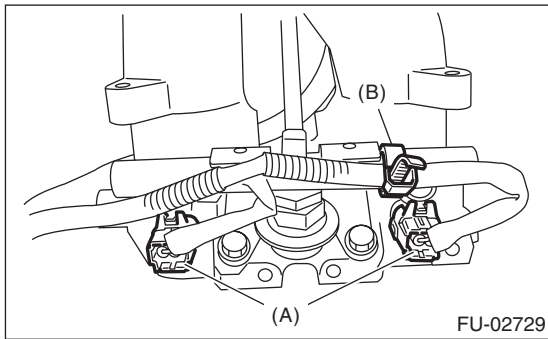
FUEL INJECTION (FUEL SYSTEMS)

7) Remove the fuel pipe protector RH.



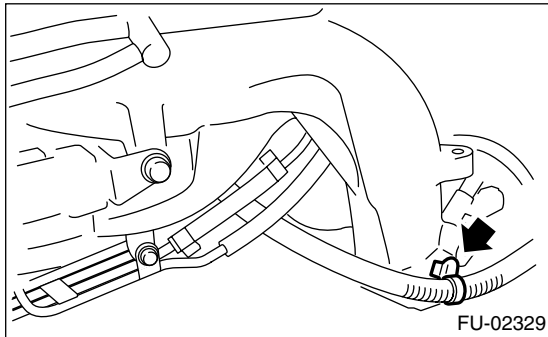
8) Disconnect the connectors (A) from fuel injector.

9) Remove the harness band (B) which holds engine harness to fuel injector pipe.

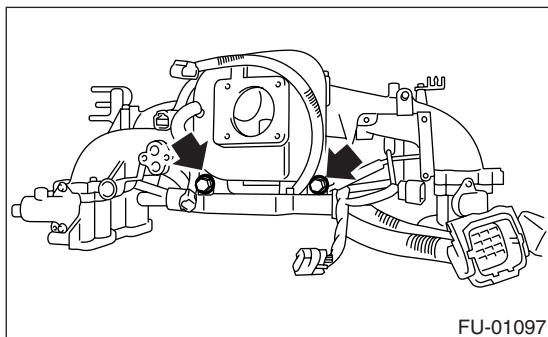


10) Remove the purge control solenoid valve.
<Ref. to EC(H4SO)-7, REMOVAL, Purge Control Solenoid Valve.>

11) Remove the harness band clips which install the engine harness.



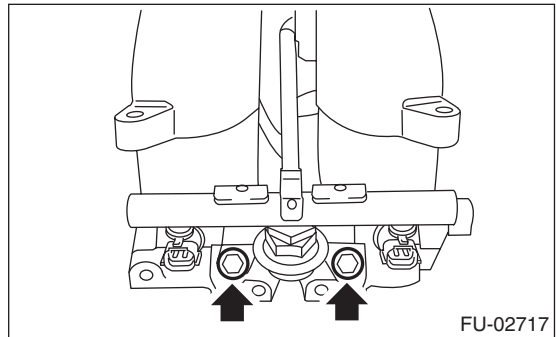
12) Remove the bolts which hold the engine harness to intake manifold.



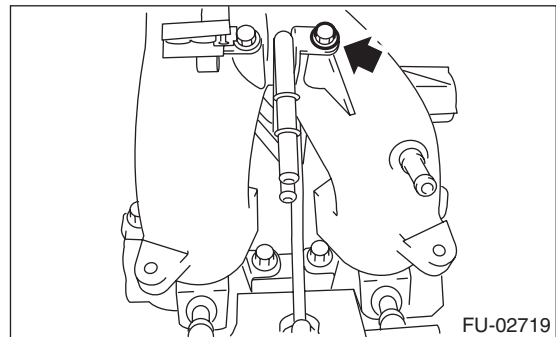
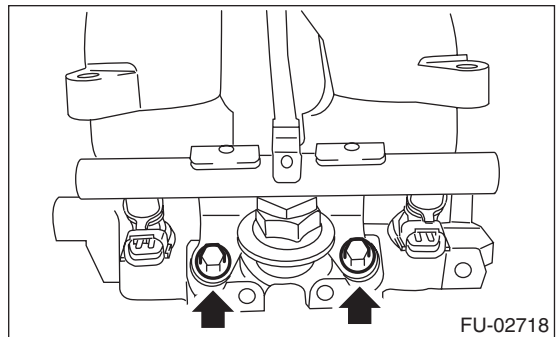
13) Remove the engine harness from intake manifold.

14) Remove the bolts which secure fuel injector pipe on the intake manifold as shown in the figure.

• RH side

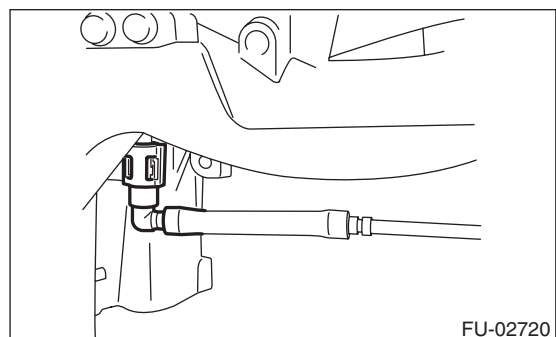


• LH side



15) Remove the fuel injectors from fuel injector pipe.

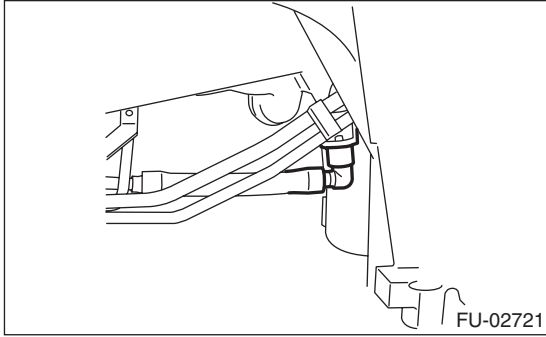
16) Disconnect the quick connector which holds the fuel injector pipe RH to fuel pipe.



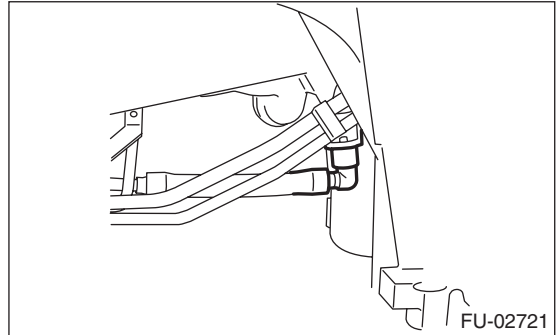
Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

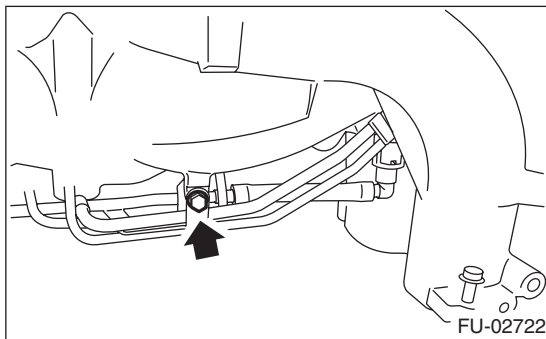
17) Disconnect the quick connector which holds the fuel injector pipe LH to fuel pipe.



NOTE:
Connect the quick connector securely.

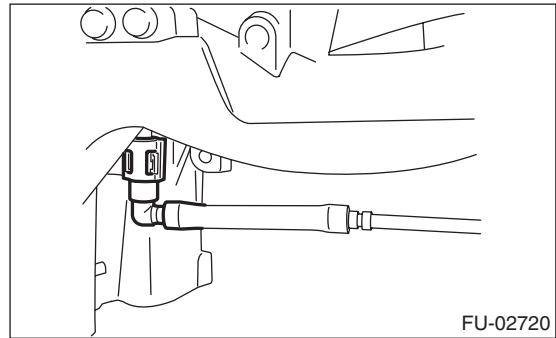


18) Remove the fuel injector pipes RH and LH.
19) Remove the bolt which installs the fuel pipe assembly on intake manifold.



3) Connect the fuel injector pipe RH to fuel pipe.

NOTE:
Connect the quick connector securely.



20) Remove the fuel pipe assembly from intake manifold.

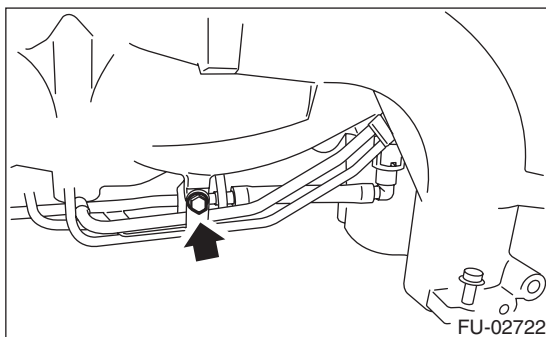
D: ASSEMBLY

NOTE:
When assembling the nipple, apply liquid gasket.

Liquid gasket:
THREE BOND 1105 (Part No. 004403010)

1) Tighten the bolt which installs the fuel pipe assembly on intake manifold.

Tightening torque:
6.4 N·m (0.65 kgf-m, 4.7 ft-lb)

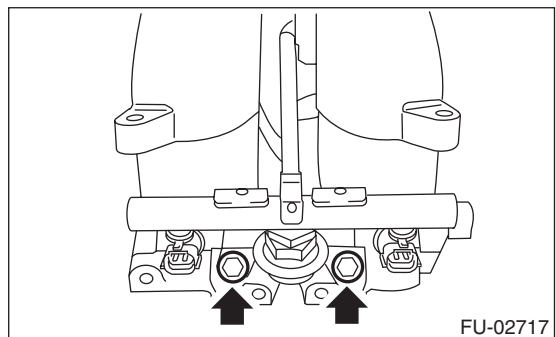


4) Install the fuel injectors.

5) Tighten the bolts which install fuel injector pipe on intake manifold.

- RH side

Tightening torque:
19 N·m (1.9 kgf-m, 13.7 ft-lb)



2) Connect the fuel injector pipe LH to fuel pipe.

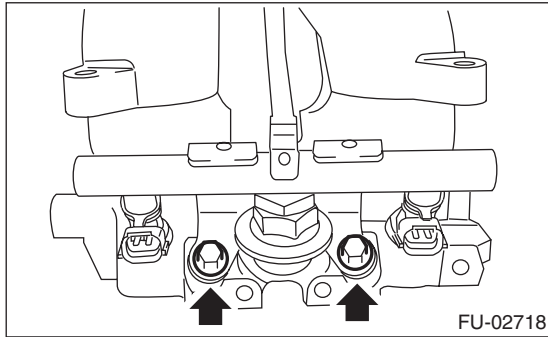
Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

- LH side

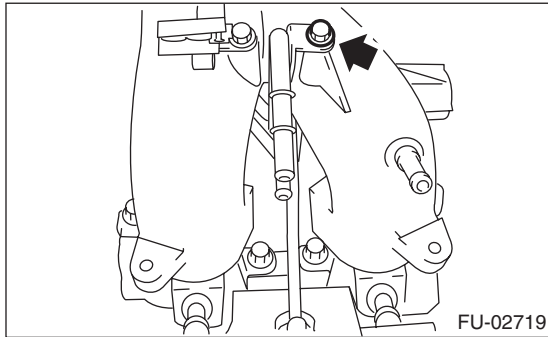
Tightening torque:

19 N·m (1.9 kgf-m, 13.7 ft-lb)



Tightening torque:

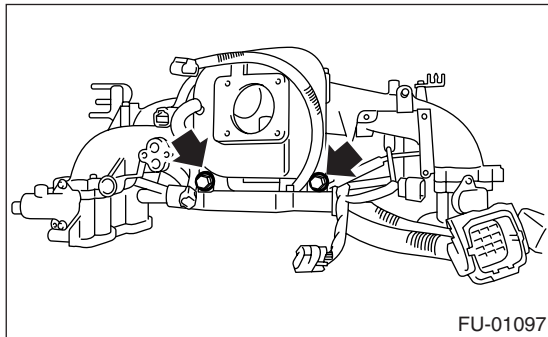
6.4 N·m (0.65 kgf-m, 4.7 ft-lb)



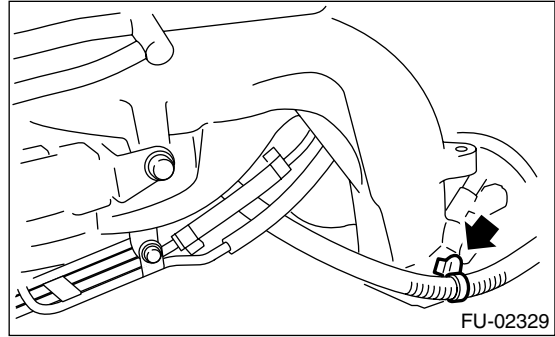
- 6) Install the engine harness onto intake manifold.
- 7) Tighten the bolts which install engine harness on intake manifold.

Tightening torque:

19 N·m (1.9 kgf-m, 13.7 ft-lb)



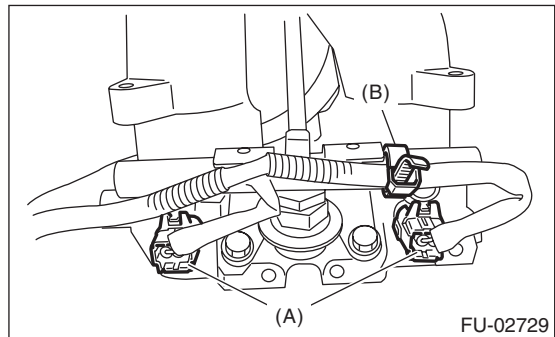
- 8) Hold the engine harness by harness band clips.



- 9) Install the purge control solenoid valve. <Ref. to EC(H4SO)-7, INSTALLATION, Purge Control Solenoid Valve.>

- 10) Connect the connectors (A) to fuel injector.

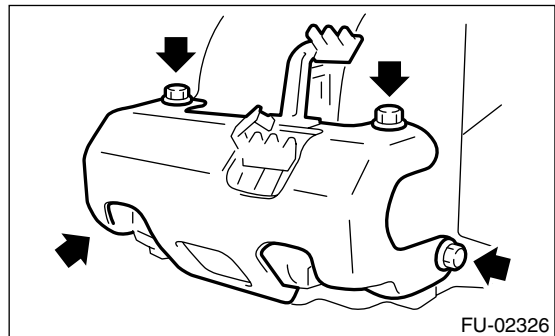
- 11) Hold the engine harness to fuel injector pipe by harness band (B).



- 12) Install the fuel pipe protector RH.

Tightening torque:

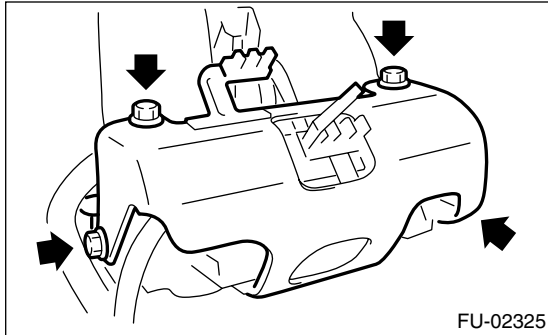
19 N·m (1.9 kgf-m, 13.7 ft-lb)



- 13) Install the fuel pipe protector LH.

Tightening torque:

19 N·m (1.9 kgf·m, 13.7 ft·lb)



E: INSPECTION

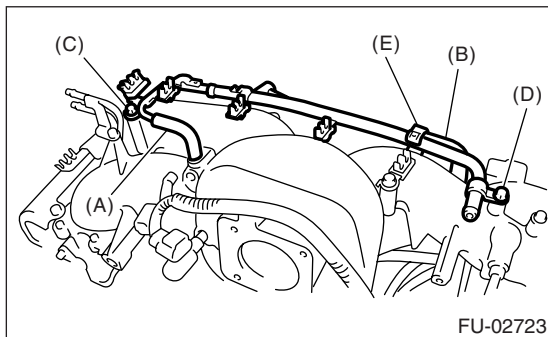
Make sure the fuel pipe and fuel hoses are not damaged and the connections are tightened firmly.

14) Install the PCV pipe.

- (1) Connect the hoses (A) and (B) to intake manifold.
- (2) Tighten the bolts (C) — (E) in alphabetical sequence.

Tightening torque:

6.4 N·m (0.65 kgf·m, 4.7 ft·lb)



15) Install the EGR valve. <Ref. to FU(H4SO)-29, INSTALLATION, EGR Valve.>

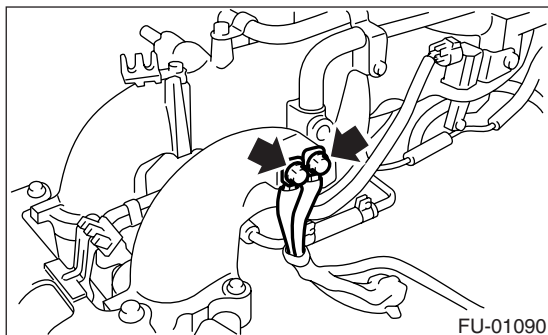
16) Install the throttle body to intake manifold. <Ref. to FU(H4SO)-12, INSTALLATION, Throttle Body.>

17) Install the ignition coil & ignitor ASSY. <Ref. to IG(H4SO)-7, INSTALLATION, Ignition Coil and Ignitor Assembly.>

18) Install the engine ground terminal to intake manifold.

Tightening torque:

19 N·m (1.9 kgf·m, 13.7 ft·lb)



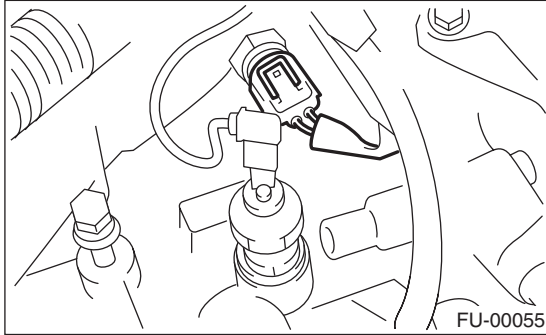
Engine Coolant Temperature Sensor

FUEL INJECTION (FUEL SYSTEMS)

4. Engine Coolant Temperature Sensor

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the generator. <Ref. to SC(H4SO)-14, REMOVAL, Generator.>
- 3) Disconnect the connectors from engine coolant temperature sensor.



- 4) Remove the engine coolant temperature sensor.

B: INSTALLATION

Install in the reverse order of removal.

NOTE:

Use a new gasket.

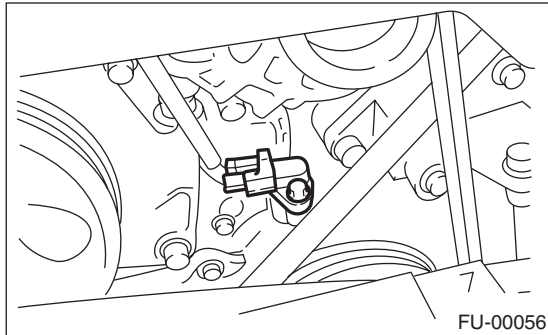
Tightening torque:

18 N·m (1.8 kgf-m, 13.0 ft-lb)

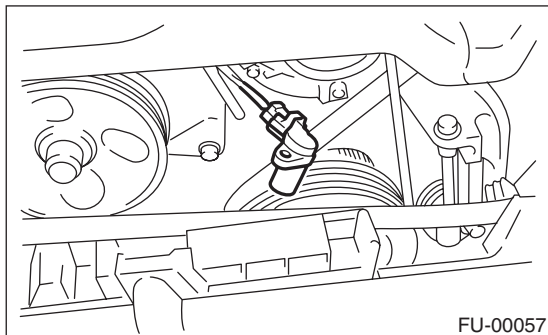
5. Crankshaft Position Sensor

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the generator. <Ref. to SC(H4SO)-14, REMOVAL, Generator.>
- 3) Remove the bolt which installs crankshaft position sensor to cylinder block.



- 4) Remove the crankshaft position sensor, and disconnect the connector from it.

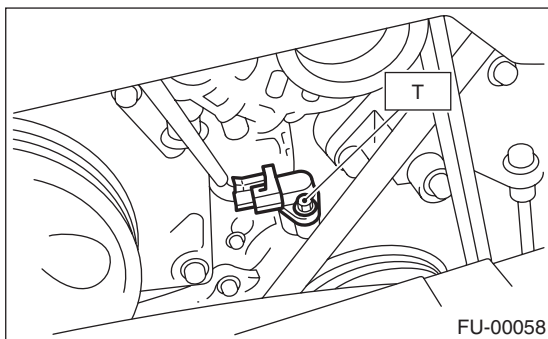


B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:

T: 6.4 N·m (0.65 kgf-m, 4.7 ft-lb)



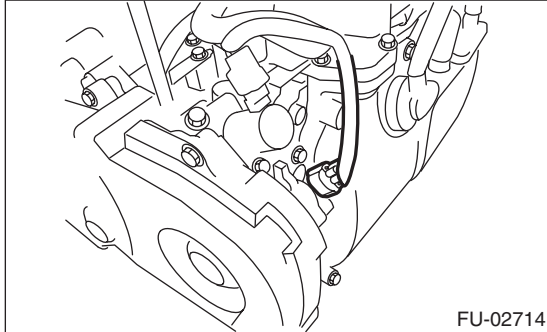
Camshaft Position Sensor

FUEL INJECTION (FUEL SYSTEMS)

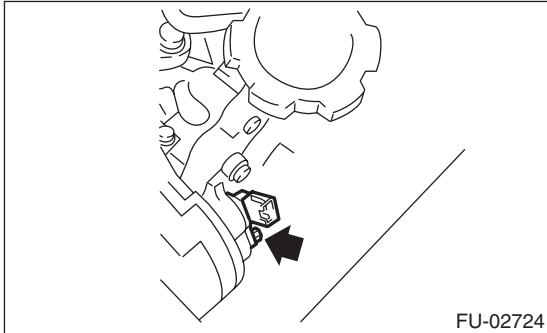
6. Camshaft Position Sensor

A: REMOVAL

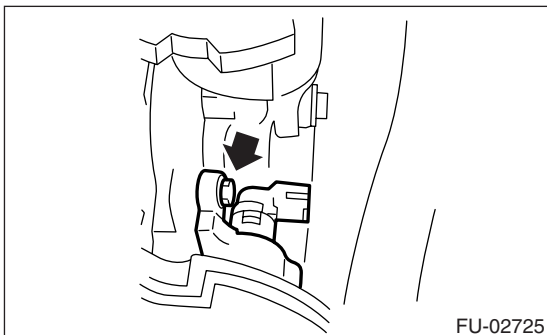
- 1) Disconnect the ground cable from battery.
- 2) Disconnect the connector from camshaft position sensor.



- 3) Remove the bolt which installs camshaft position sensor to the support.

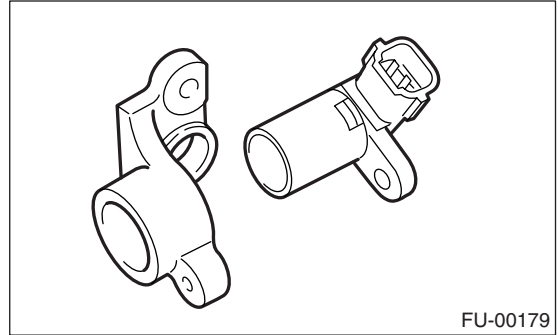


- 4) Remove the bolt which installs the camshaft position sensor support to camshaft cap LH.



- 5) Remove the camshaft position sensor and the support as a unit.

- 6) Remove the camshaft position sensor itself.



B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:

Camshaft position sensor support

6.4 N·m (0.65 kgf-m, 4.7 ft-lb)

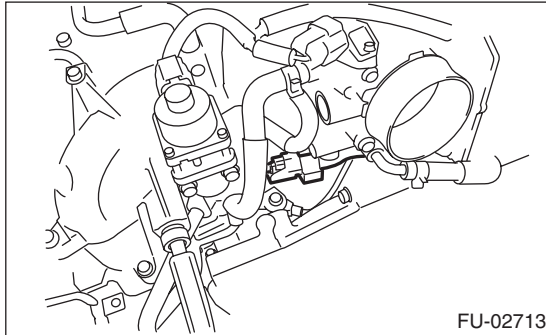
Camshaft position sensor

6.4 N·m (0.65 kgf-m, 4.7 ft-lb)

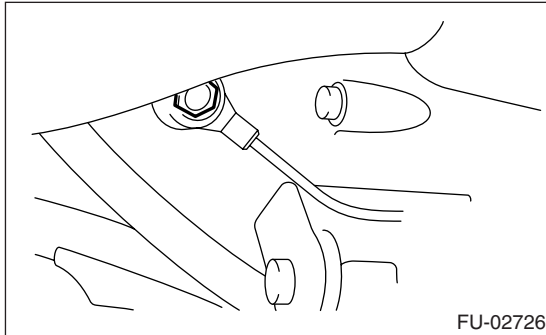
7. Knock Sensor

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the air intake chamber. <Ref. to IN(H4SO)-6, REMOVAL, Air Intake Chamber.>
- 3) Disconnect the knock sensor connector.



- 4) Remove the knock sensor from cylinder block.



B: INSTALLATION

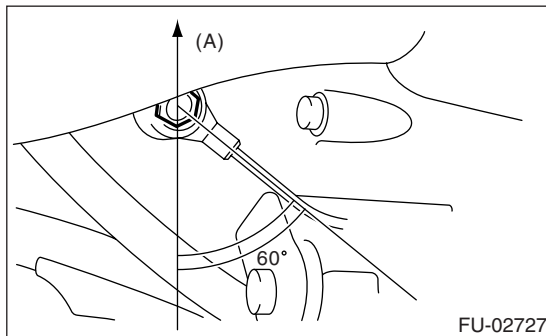
- 1) Install the knock sensor to cylinder block.

NOTE:

Extraction area of knock sensor cord must be positioned at a 60° angle relative to the engine rear.

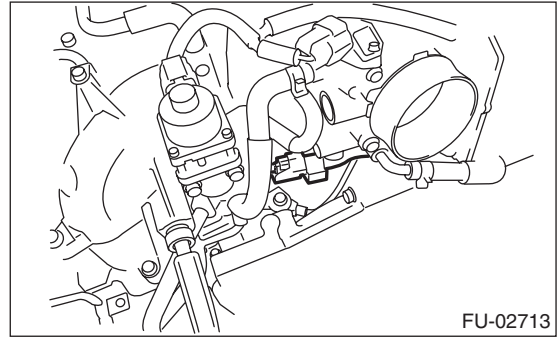
Tightening torque:

24 N·m (2.4 kgf·m, 17.4 ft·lb)



(A) Front side

- 2) Connect the knock sensor connector.



- 3) Install the air intake chamber. <Ref. to IN(H4SO)-6, INSTALLATION, Air Intake Chamber.>
- 4) Connect the battery ground cable to battery.

8. Throttle Position Sensor

A: SPECIFICATION

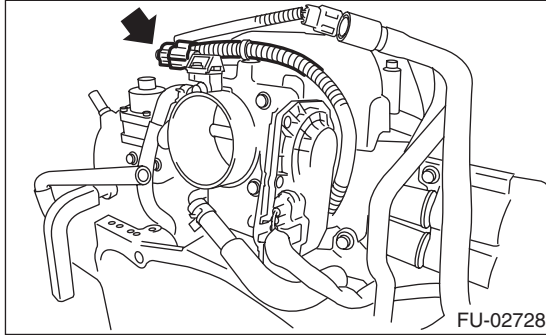
Throttle body is a non-disassembled part, so do not remove the throttle position sensor from throttle body.

Refer to “Throttle Body” for removal and installation procedure. <Ref. to FU(H4SO)-12, REMOVAL, Throttle Body.> <Ref. to FU(H4SO)-12, INSTALLATION, Throttle Body.>

9. Manifold Absolute Pressure Sensor

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Disconnect the connector from manifold absolute pressure sensor.



- 3) Remove the manifold absolute pressure sensor from throttle body.

B: INSTALLATION

Install in the reverse order of removal.

NOTE:

Use new O-rings.

Tightening torque:

2.0 N·m (0.20 kgf-m, 1.5 ft-lb)

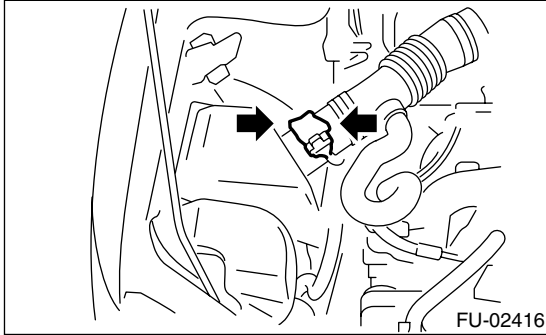
Mass Air Flow and Intake Air Temperature Sensor

FUEL INJECTION (FUEL SYSTEMS)

10. Mass Air Flow and Intake Air Temperature Sensor

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Disconnect the connector from mass air flow and intake air temperature sensor.
- 3) Remove the mass air flow and intake air temperature sensor.



B: INSTALLATION

Install in the reverse order of removal.

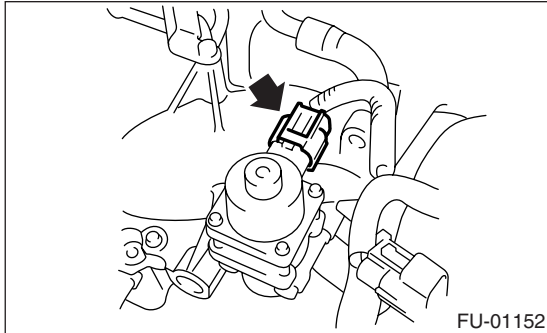
Tightening torque:

1.0 N·m (0.10 kgf-m, 0.74 ft-lb)

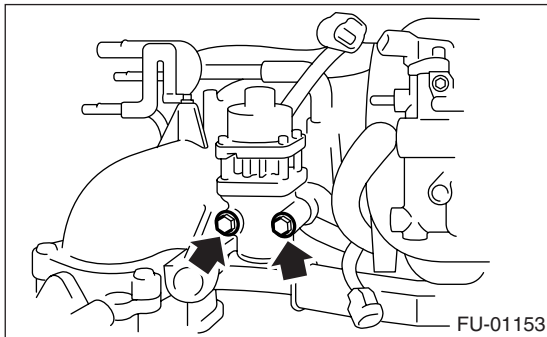
11.EGR Valve

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Disconnect the connector from EGR valve.



- 3) Remove the EGR valve from intake manifold.



B: INSTALLATION

Install in the reverse order of removal.

NOTE:

Use a new gasket.

Tightening torque:

19 N·m (1.9 kgf·m, 13.7 ft-lb)

12. Fuel Injector

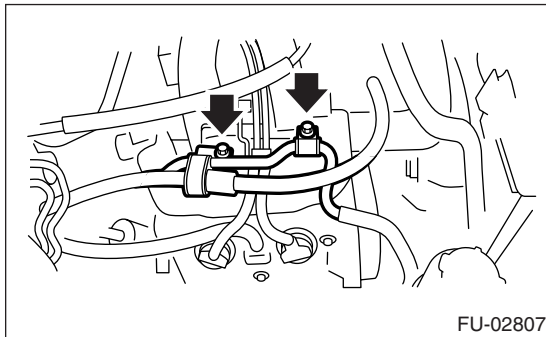
A: REMOVAL

1. RH SIDE

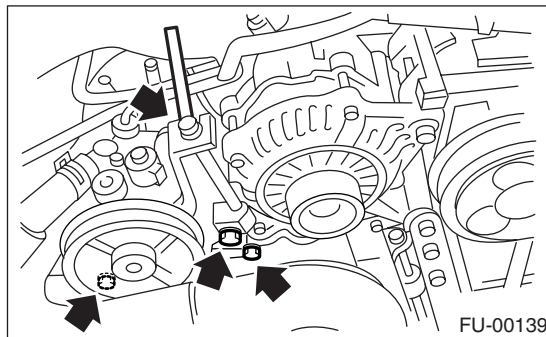
- 1) Release the fuel pressure.
<Ref. to FU(H4SO)-42, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>
- 2) Disconnect the ground cable from battery.
- 3) Open the fuel filler flap lid, and remove the fuel filler cap.
- 4) Remove the air intake chamber and air cleaner case. <Ref. to IN(H4SO)-7, REMOVAL, Air Intake Duct.> <Ref. to IN(H4SO)-5, REMOVAL, Air Cleaner Case.>
- 5) Remove the power steering pump and tank.
 - (1) Remove the front side V-belt. <Ref. to ME(H4SO)-40, REMOVAL, V-belt.>
 - (2) Remove the bolts which hold the power steering pipes onto the intake manifold protector RH.

NOTE:

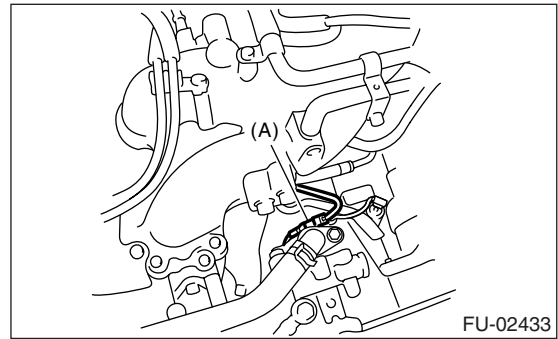
Do not disconnect the power steering hose.



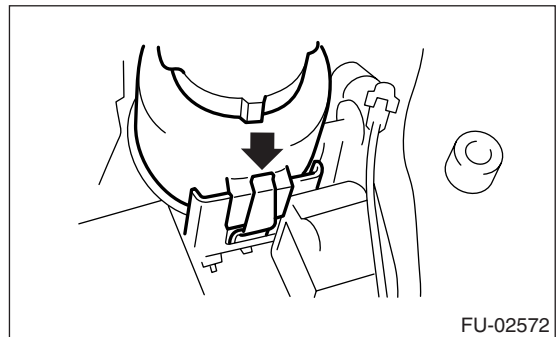
- (3) Remove the bolts which install the power steering pump to the bracket.



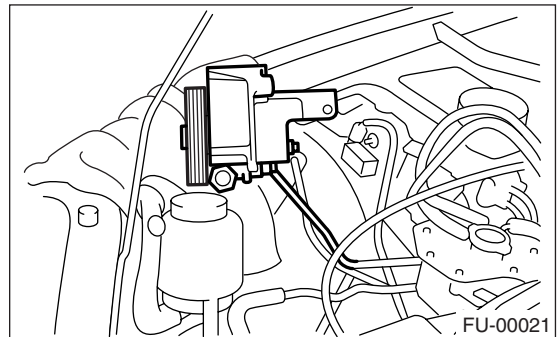
- (4) Disconnect the power steering pump switch connector (A).



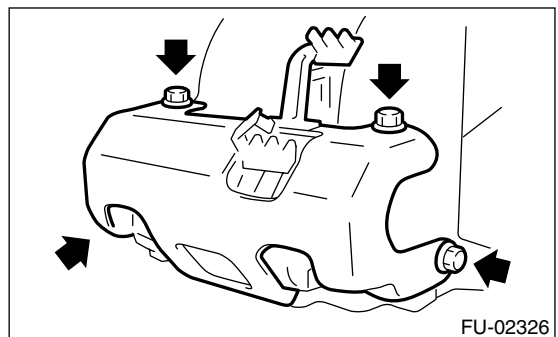
- (5) Remove the reservoir tank from the bracket by pulling it upwards.



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



- 6) Remove the spark plug cords from spark plugs (#1 and #3 cylinders).
- 7) Remove the fuel pipe protector RH.

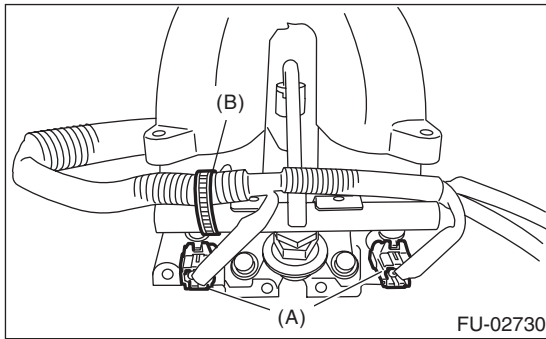


- 8) Disconnect the connector (A) from fuel injector.

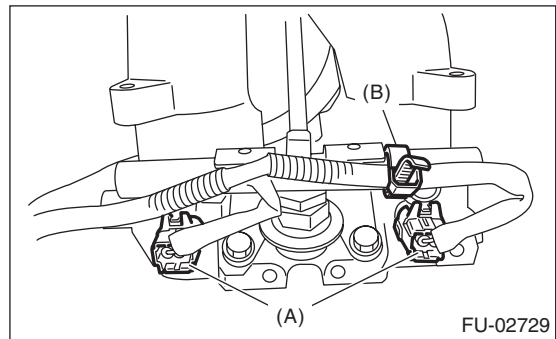
Fuel Injector

FUEL INJECTION (FUEL SYSTEMS)

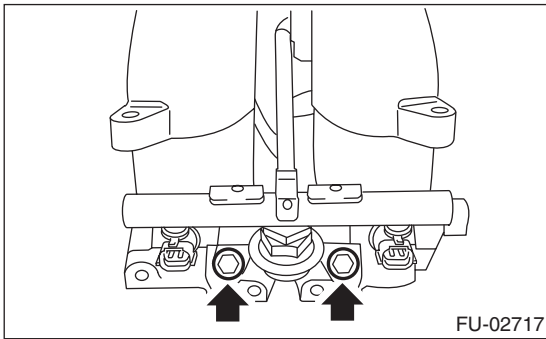
9) Remove the harness band (B) which holds engine harness to fuel injector pipe.



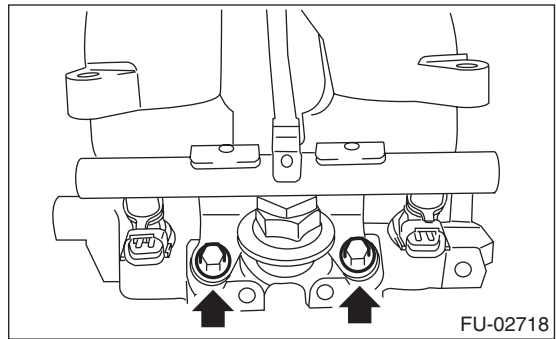
7) Remove the harness band (B) which holds engine harness to fuel injector pipe.



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



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



11) Remove the fuel injector while lifting up the fuel injector pipe.

2. LH SIDE

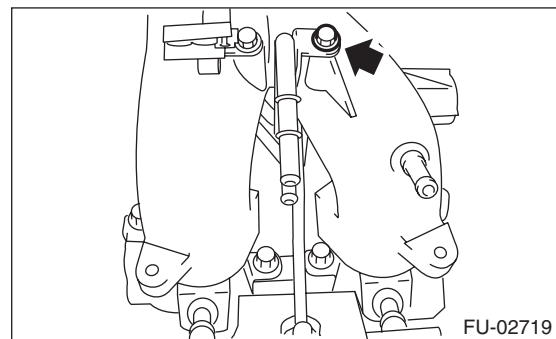
1) Release the fuel pressure. <Ref. to FU(H4SO)-42, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>

2) Remove the battery. <Ref. to SC(H4SO)-20, REMOVAL, Battery.>

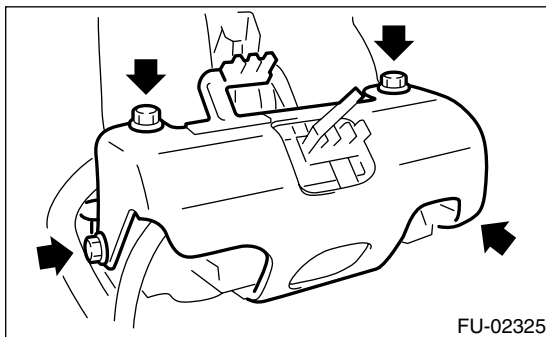
3) Open the fuel filler flap lid, and remove the fuel filler cap.

4) Remove the spark plug cords from spark plugs (#2 and #4 cylinders).

5) Remove the fuel pipe protector LH.



9) Remove the fuel injector while lifting up the fuel injector pipe.



6) Disconnect the connector (A) from fuel injector.

Fuel Injector

FUEL INJECTION (FUEL SYSTEMS)

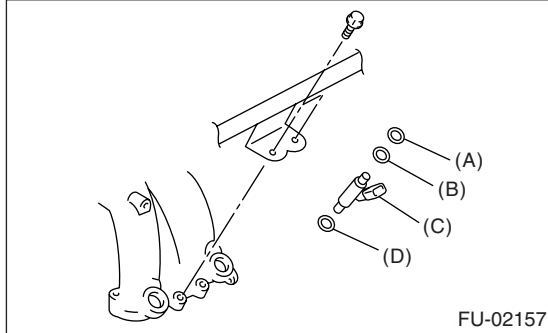
B: INSTALLATION

1. RH SIDE

Install in the reverse order of removal.

NOTE:

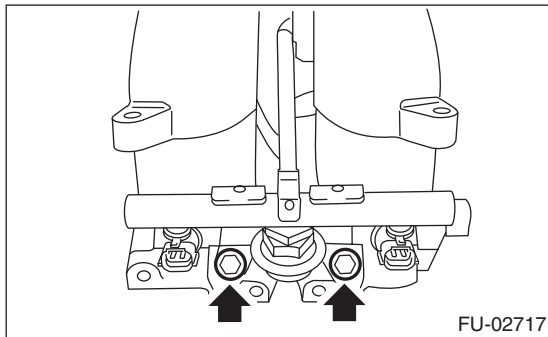
Use new O-rings.



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

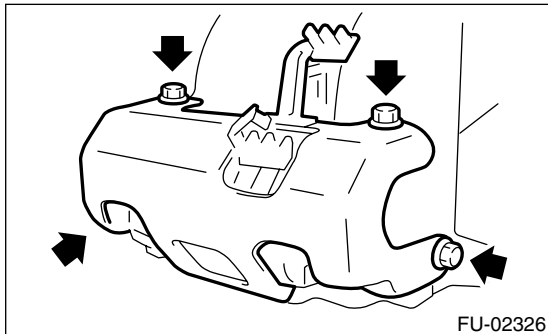
Tightening torque:

19 N·m (1.9 kgf-m, 13.7 ft-lb)



Tightening torque:

19 N·m (1.9 kgf-m, 13.7 ft-lb)

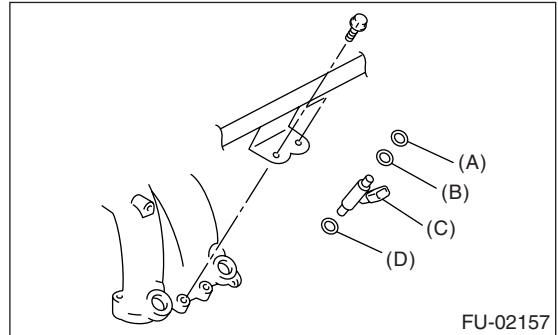


2. LH SIDE

Install in the reverse order of removal.

NOTE:

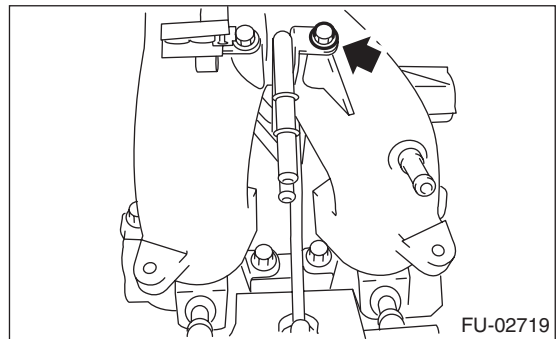
Use new O-rings.



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

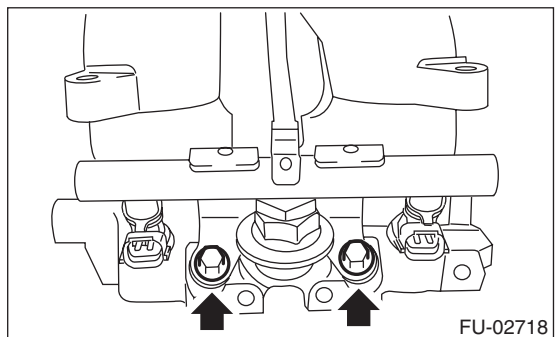
Tightening torque:

6.4 N·m (0.65 kgf-m, 4.7 ft-lb)



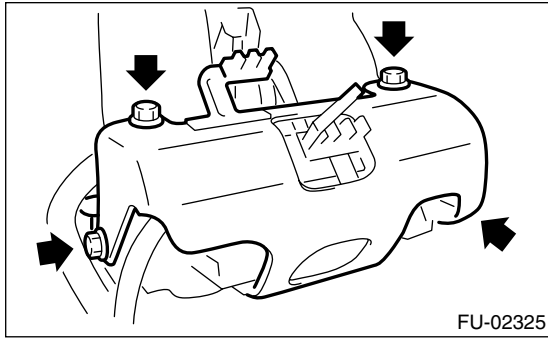
Tightening torque:

19 N·m (1.9 kgf-m, 13.7 ft-lb)



Tightening torque:

19 N·m (1.9 kgf-m, 13.7 ft-lb)



FU-02325

Variable Valve Lift Diagnosis Oil Pressure Switch

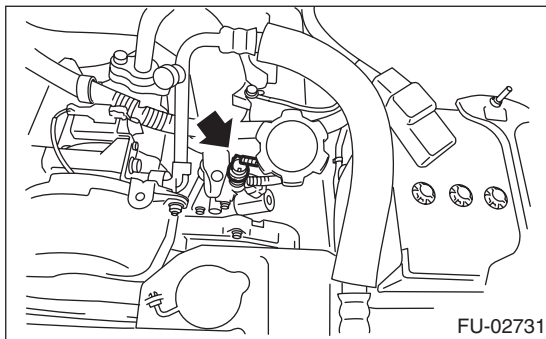
FUEL INJECTION (FUEL SYSTEMS)

13. Variable Valve Lift Diagnosis Oil Pressure Switch

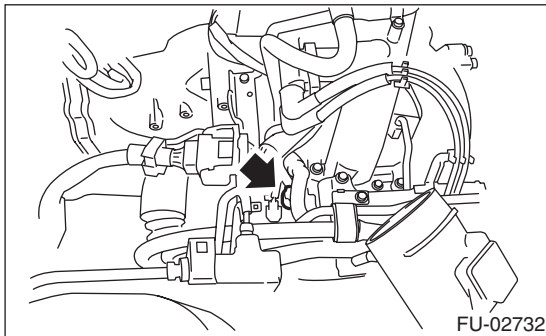
A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the air intake chamber.
<Ref. to IN(H4SO)-6, REMOVAL, Air Intake Chamber.>
- 3) Remove the engine harness connector from bracket.
- 4) Disconnect the connector from variable valve lift diagnosis oil pressure switch.
- 5) Remove the variable valve lift diagnosis oil pressure switch.

- LH side



- RH side



B: INSTALLATION

Install in the reverse order of removal.

NOTE:

Apply liquid gasket to the thread of variable valve lift diagnosis oil pressure switch.

Liquid gasket:

THREE BOND 1324 (Part No. 004403042) or equivalent

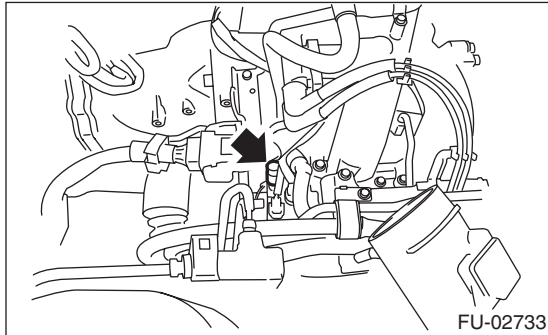
Tightening torque:

17 N·m (1.7 kgf·m, 12.5 ft·lb)

14. Oil Temperature Sensor

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the air intake chamber.
<Ref. to IN(H4SO)-6, REMOVAL, Air Intake Chamber.>
- 3) Remove the engine harness connector from bracket.
- 4) Disconnect the connector from oil temperature sensor.
- 5) Remove the oil temperature sensor.



B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:

18 N·m (1.8 kgf-m, 13.3 ft-lb)

Front Oxygen (A/F) Sensor

FUEL INJECTION (FUEL SYSTEMS)

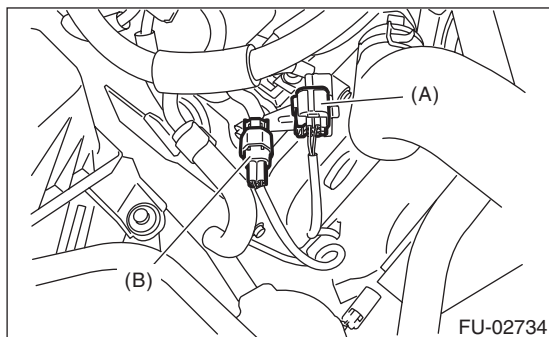
15. Front Oxygen (A/F) Sensor

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Disconnect the front oxygen (A/F) sensor connector.

NOTE:

Remove the harness clip from bracket.

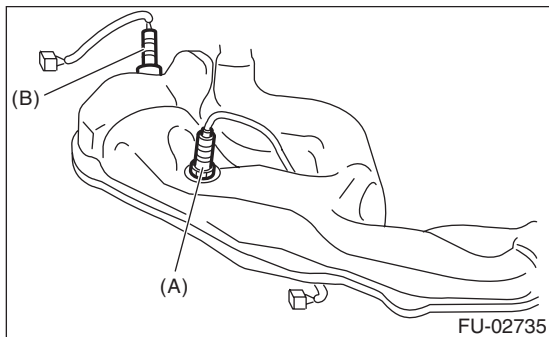


- (A) Front oxygen (A/F) sensor connector
- (B) Rear oxygen sensor connector

- 3) Lift up the vehicle.
- 4) Remove the under cover.
- 5) Apply spray type lubricant to the threaded portion of front oxygen (A/F) sensor, and leave it for one minute or more.
- 6) Remove the front oxygen (A/F) sensor.

CAUTION:

When removing the oxygen (A/F) sensor, wait until exhaust pipe cools, otherwise it will damage exhaust pipe.



- (A) Front oxygen (A/F) sensor
- (B) Rear oxygen sensor

B: INSTALLATION

- 1) Before installing front oxygen (A/F) sensor, apply the anti-seize compound only to the threaded portion of front oxygen (A/F) sensor to make the next removal easier.

Anti-seize compound:

NEVER-SEEZ NS-165 or equivalent

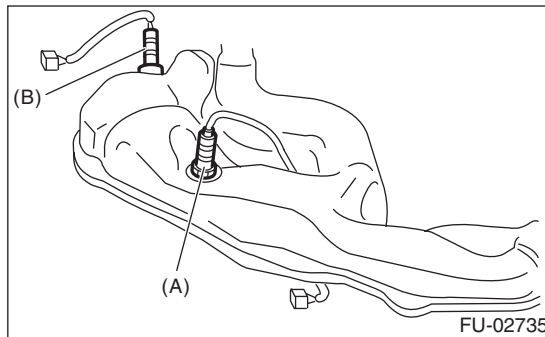
CAUTION:

Never apply anti-seize compound to protector of front oxygen (A/F) sensor.

- 2) Install the front oxygen (A/F) sensor.

Tightening torque:

21 N·m (2.1 kgf-m, 15.2 ft-lb)

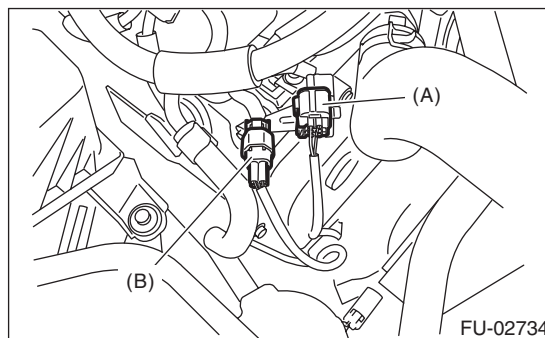


- (A) Front oxygen (A/F) sensor
- (B) Rear oxygen sensor

- 3) Install the under cover.
- 4) Lower the vehicle.
- 5) Connect the connector of front oxygen (A/F) sensor.

NOTE:

Install the harness clip to bracket.



- (A) Front oxygen (A/F) sensor connector
- (B) Rear oxygen sensor connector

- 6) Connect the battery ground cable to battery.

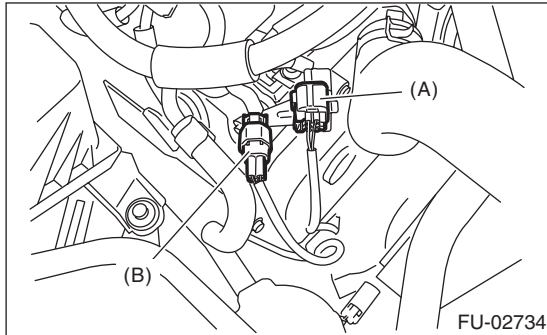
16.Rear Oxygen Sensor

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Disconnect the connector of rear oxygen sensor.

NOTE:

Remove the harness clip from bracket.

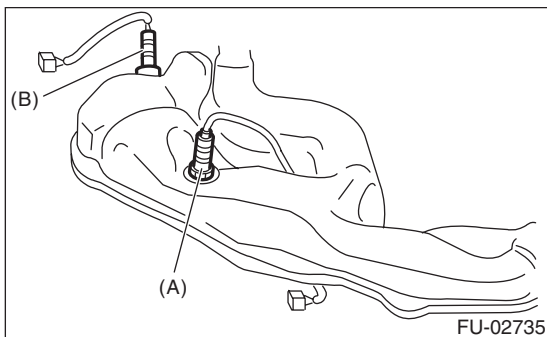


- (A) Front oxygen (A/F) sensor connector
- (B) Rear oxygen sensor connector

- 3) Lift up the vehicle.
- 4) Remove the under cover.
- 5) Apply spray type lubricant to the threaded portion of rear oxygen sensor, and leave it for one minute or more.
- 6) Remove the rear oxygen sensor.

CAUTION:

When removing the rear oxygen sensor, wait until the exhaust pipe cools, otherwise it will damage the exhaust pipe.



- (A) Front oxygen (A/F) sensor
- (B) Rear oxygen sensor

B: INSTALLATION

- 1) Before installing the rear oxygen (A/F) sensor, apply the anti-seize compound only to the threaded portion of the rear oxygen (A/F) sensor to make the next removal easier.

CAUTION:

Never apply anti-seize compound to protector of rear oxygen sensor.

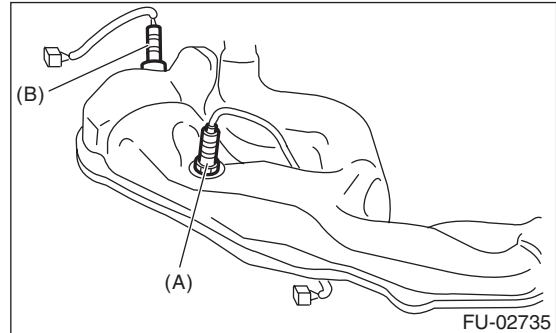
Anti-seize compound:

NEVER-SEEZ NS-165 or equivalent

- 2) Install the rear oxygen sensor.

Tightening torque:

21 N·m (2.1 kgf-m, 15.2 ft-lb)

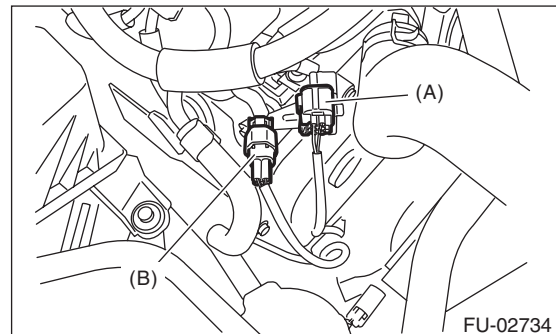


- (A) Front oxygen (A/F) sensor
- (B) Rear oxygen sensor

- 3) Install the under cover.
- 4) Lower the vehicle.
- 5) Connect the connector to the rear oxygen sensor.

NOTE:

Install the harness clip to bracket.



- (A) Front oxygen (A/F) sensor connector
- (B) Rear oxygen sensor connector

- 6) Connect the battery ground cable to battery.

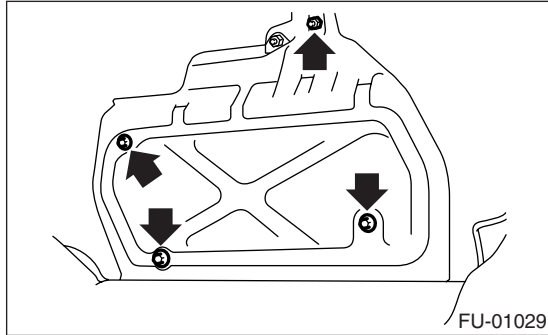
Engine Control Module (ECM)

FUEL INJECTION (FUEL SYSTEMS)

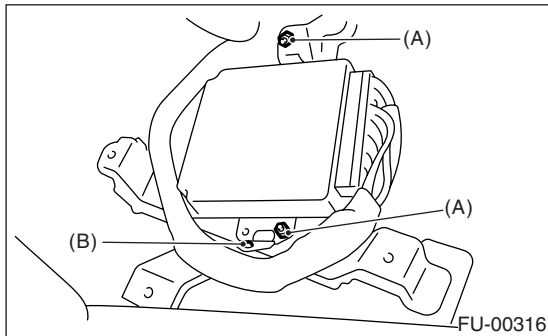
17.Engine Control Module (ECM)

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the lower inner trim of passenger side.
<Ref. to EI-51, REMOVAL, Lower Inner Trim.>
- 3) Detach the floor mat of front passenger seat.
- 4) Remove the protect cover.



- 5) Remove the nuts (A) which hold ECM to the bracket.
- 6) Remove the clip (B) from the bracket.



- 7) Disconnect the ECM connectors and take out the ECM.

B: INSTALLATION

Install in the reverse order of removal.

CAUTION:

- When replacing the ECM, be careful not to use the wrong spec. ECM to avoid any damage to fuel injection system.
- When replacing the ECM, be careful not to damage the harnesses and connectors.

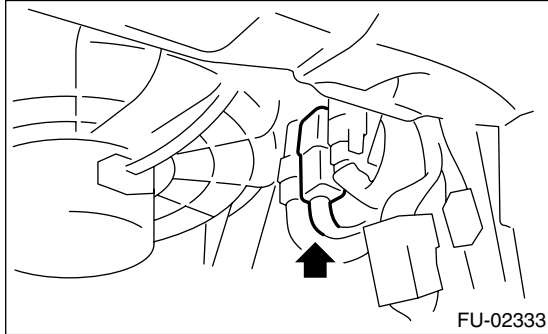
Tightening torque:

5 N·m (0.5 kgf·m, 3.7 ft·lb)

18.Main Relay

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the passenger's side front side sill cover.
- 3) Remove the bolt which holds the relay bracket on the body.
- 4) Disconnect the connectors from the main relay.



- 5) Remove the main relay from the mounting bracket.

B: INSTALLATION

Install in the reverse order of removal.

Fuel Pump

FUEL INJECTION (FUEL SYSTEMS)

24. Fuel Pump

A: REMOVAL

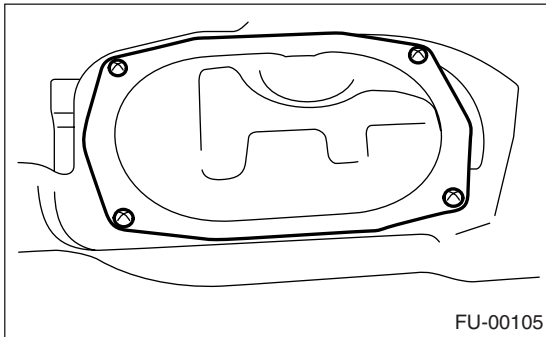
WARNING:

- Place “NO FIRE” signs near the working area.
- Be careful not to spill fuel on the floor.

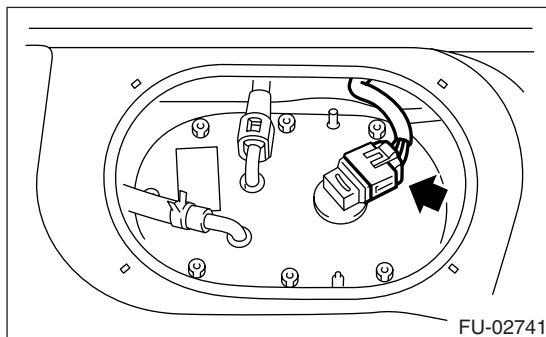
NOTE:

The fuel pump assembly consists of a fuel pump and a fuel level sensor.

- 1) Release the fuel pressure.
<Ref. to FU(H4SO)-42, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>
- 2) Disconnect the ground cable from battery.
- 3) Open the fuel filler flap lid and remove the fuel filler cap.
- 4) Lift up the vehicle.
- 5) Drain the fuel from the fuel tank.
<Ref. to FU(H4SO)-42, DRAINING FUEL, PROCEDURE, Fuel.>
- 6) Remove the luggage floor mat. <Ref. to EI-61, REMOVAL, Luggage Floor Mat.>
- 7) Remove the service hole cover.

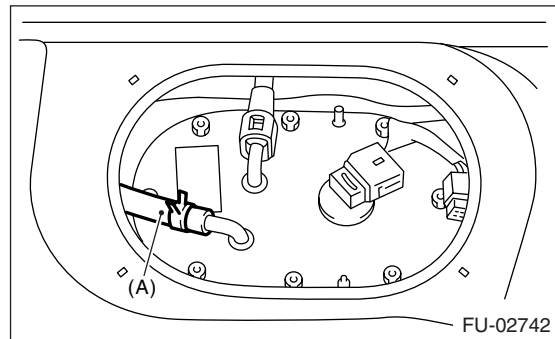


- 8) Disconnect the connector from fuel pump.

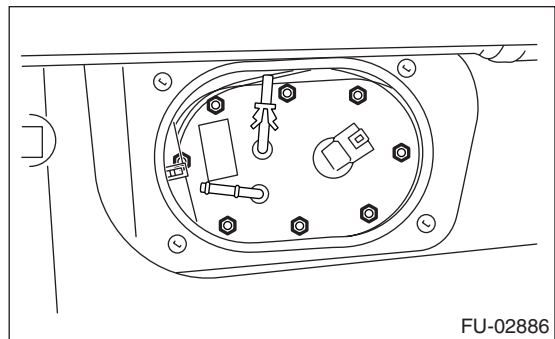


- 9) Disconnect the quick connector and then disconnect the fuel delivery hose. <Ref. to FU(H4SO)-57, REMOVAL, Fuel Delivery & Evaporation Lines.>

- 10) Move the clip and then disconnect the jet pump hose (A).



- 11) Remove the nuts which install the fuel pump assembly onto the fuel tank.



- 12) Take off the fuel pump assembly from the fuel tank.

B: INSTALLATION

Install in the reverse order of removal. Do the following:

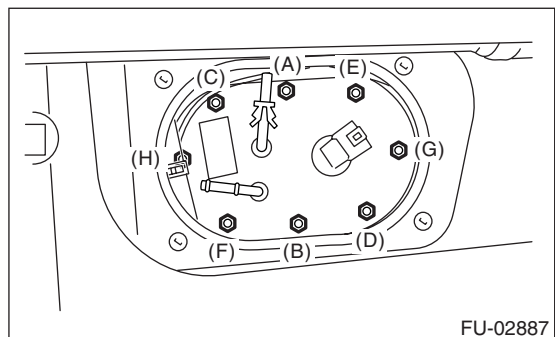
NOTE:

Use a new gasket and retainer.

- (1) Ensure the sealing portion is free from fuel or foreign particles before installation.
- (2) Tighten the nuts in alphabetical sequence shown in figure to specified torque.

Tightening torque:

4.4 N·m (0.45 kgf·m, 3.3 ft·lb)

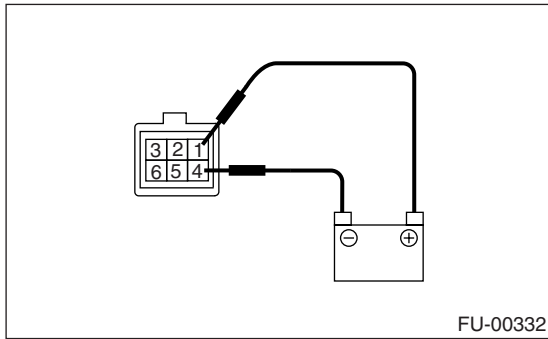


C: INSPECTION

Connect the lead harness to the connector terminal of fuel pump and apply the battery power supply to check whether the pump operates.

WARNING:

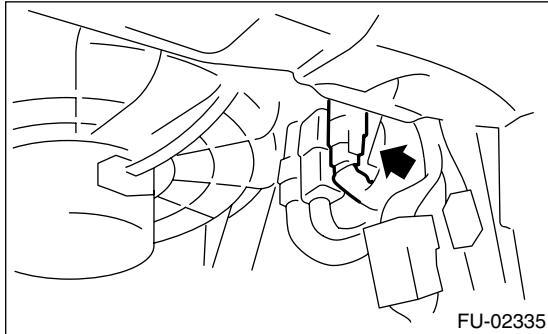
- Wipe off the fuel completely.
- Keep battery as far apart from fuel pump as possible.
- Be sure to turn the battery supply ON and OFF on the battery side.
- Do not run fuel pump for a long time under non-load condition.



20. Electronic Throttle Control Relay

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the passenger's side front side sill cover.
- 3) Remove the bolt which holds relay bracket on the body.
- 4) Disconnect the connector from electronic throttle control relay.



- 5) Remove the electronic throttle control relay from the mounting bracket.

B: INSTALLATION

Install in the reverse order of removal.

21. Fuel

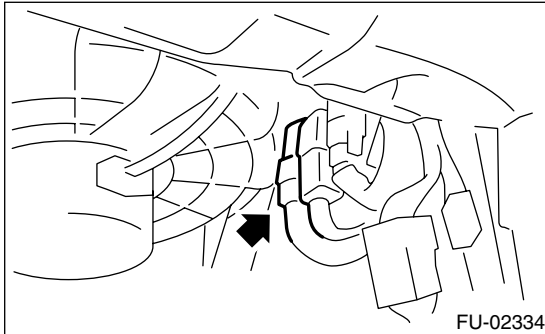
A: PROCEDURE

1. RELEASING OF FUEL PRESSURE

WARNING:

- Place “NO FIRE” signs near the working area.
- Be careful not to spill fuel on the floor.

- 1) Disconnect the connector from the fuel pump relay.



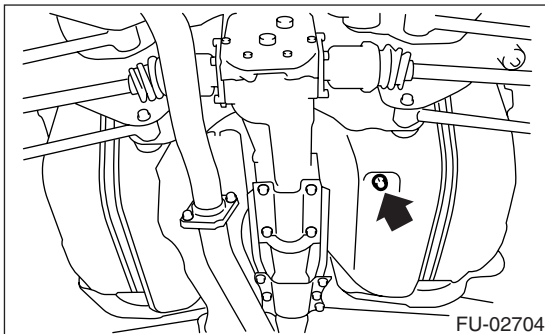
- 2) Start the engine and run it until it stalls.
- 3) After the engine stalls, crank it for five more seconds.
- 4) Turn the ignition switch to OFF.

2. DRAINING FUEL

WARNING:

- Place “NO FIRE” signs near the working area.
- Be careful not to spill fuel on the floor.

- 1) Set the vehicle on a lift.
 - 2) Disconnect the ground cable from battery.
 - 3) Open the fuel filler flap lid, and then remove the fuel filler cap.
 - 4) Lift up the vehicle.
 - 5) Drain the fuel from the fuel tank.
- Set a container under the vehicle and remove the fuel drain plug from the fuel tank.



- 6) Tighten the fuel drain plug.

NOTE:

Use a new gasket.

Tightening torque:

26 N·m (2.65 kgf·m, 19.2 ft·lb)

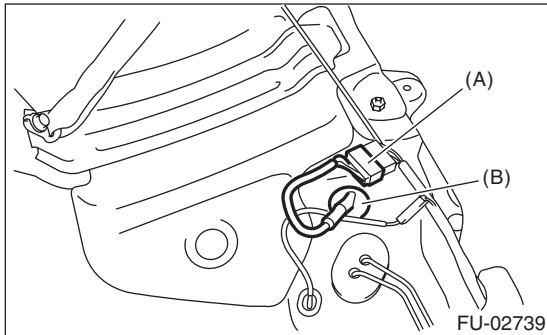
22. Fuel Tank

A: REMOVAL

WARNING:

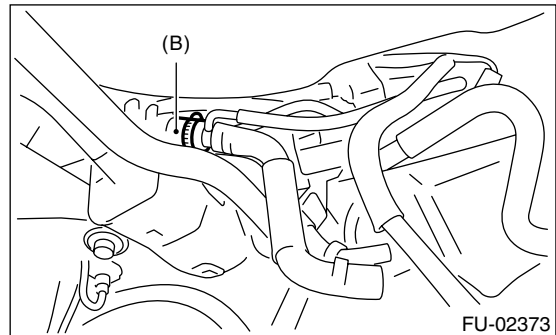
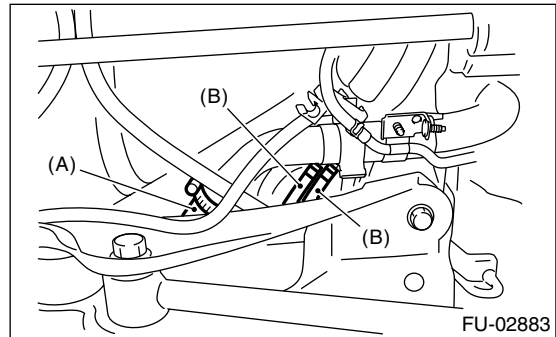
- Place “NO FIRE” signs near the working area.
- Be careful not to spill fuel on the floor.

- 1) Set the vehicle on a lift.
- 2) Release the fuel pressure.
<Ref. to FU(H4SO)-42, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>
- 3) Drain the fuel from the fuel tank.
<Ref. to FU(H4SO)-42, DRAINING FUEL, PROCEDURE, Fuel.>
- 4) Remove the rear seat.
- 5) Disconnect the connector (A) of fuel tank cord to the rear harness.
- 6) Push the grommet (B) which holds the fuel tank cord on floor panel into under the body.

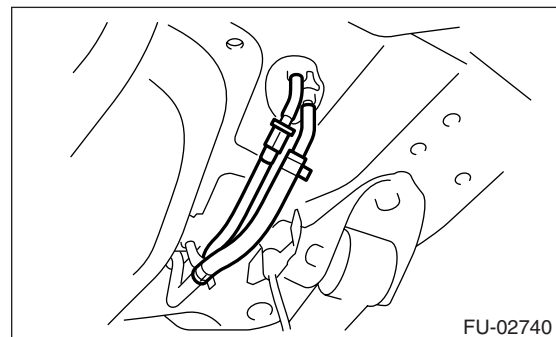


- 7) Remove the rear crossmember. <Ref. to RS-17, REMOVAL, Rear Crossmember.>
- 8) Remove the canister. <Ref. to EC(H4SO)-6, REMOVAL, Canister.>
- 9) Disconnect the connector from pressure control solenoid valve.

- 10) Loosen the clamp and disconnect the fuel filler hose (A) and evaporation hose (B) from the fuel filler pipe.



- 11) Move the clips, and disconnect the quick connector. <Ref. to FU(H4SO)-57, REMOVAL, Fuel Delivery & Evaporation Lines.>
- 12) Disconnect the fuel hoses.



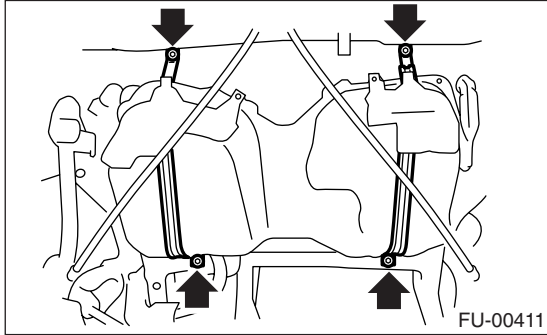
- 13) Support the fuel tank with a transmission jack, remove the bolts from bands and dismount the fuel tank from the vehicle.

Fuel Tank

FUEL INJECTION (FUEL SYSTEMS)

WARNING:

- An assistant is required to perform this work.
- Fuel may be left in the side, which has no drain plug, of the fuel tank. In this case, the tank is imbalanced between right and left sides. Be careful not to drop it when removing.

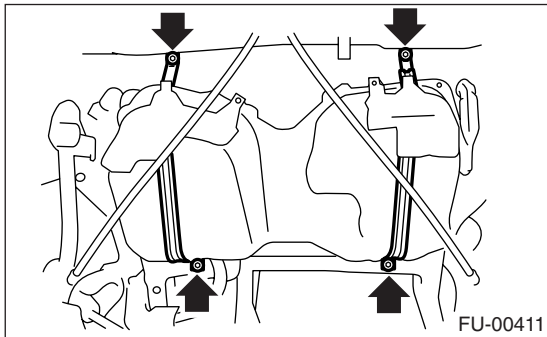


B: INSTALLATION

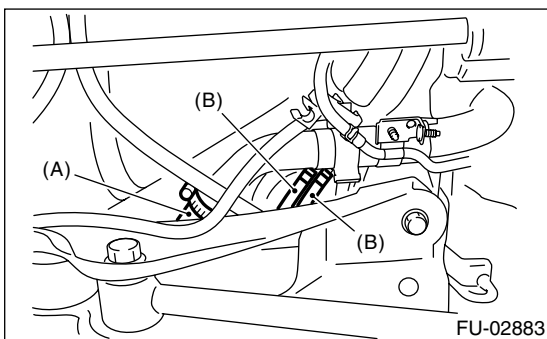
- 1) Support the fuel tank with a transmission jack and push the fuel tank harness into the access hole with the grommet.
- 2) Set the fuel tank and temporarily tighten the bolts of fuel tank bands.

WARNING:

An assistant is required to perform this work.

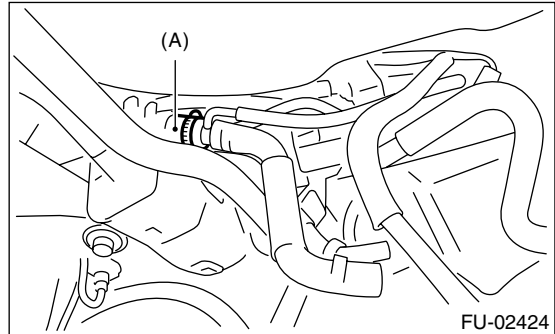


- 3) Insert the fuel filler hose (A) approx. 35 to 40 mm (1.38 to 1.57 in) over the lower end of fuel filler pipe, and tighten the clamp.
- 4) Insert the evaporation hose (B) to the lower end of evaporation pipe, and hold the clamp and clip.

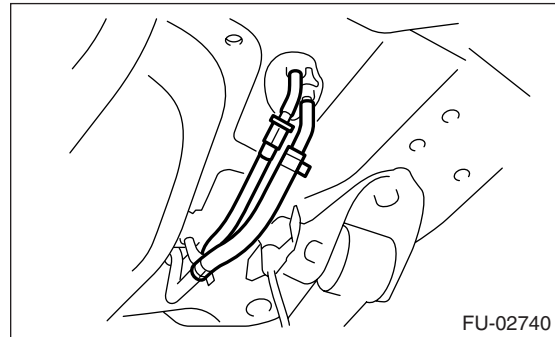


CAUTION:

Do not allow clips to touch hose (A) and rear suspension crossmember.



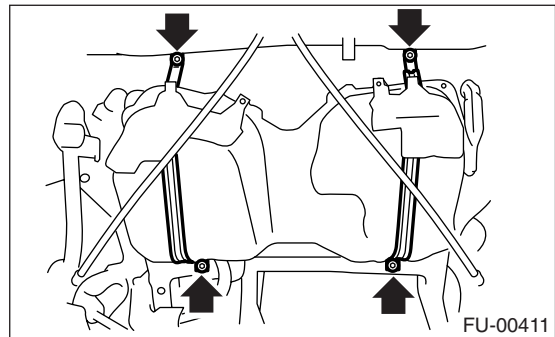
- 5) Connect the fuel hoses, and hold them with clips and quick connector. <Ref. to FU(H4SO)-57, REMOVAL, Fuel Delivery & Evaporation Lines.>



- 6) Connect the connector to the pressure control solenoid valve.
- 7) Install the canister. <Ref. to EC(H4SO)-6, INSTALLATION, Canister.>
- 8) Tighten the band mounting bolts.

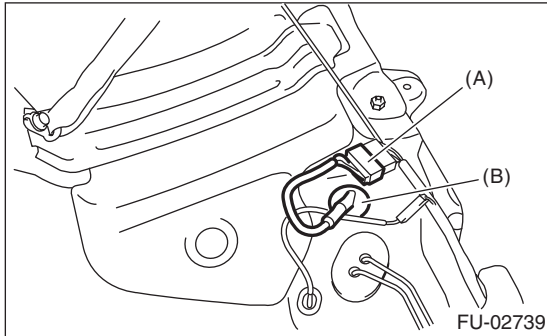
Tightening torque:

33 N·m (3.4 kgf-m, 25 ft-lb)

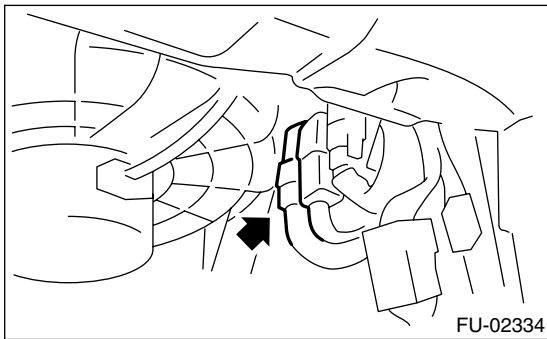


- 9) Install the rear crossmember. <Ref. to RS-17, INSTALLATION, Rear Crossmember.>

- 10) Connect the connectors (A) to the fuel tank cord and plug the service hole with grommet (B).



- 11) Set the rear seat and floor mat.
- 12) Connect the connector to the fuel pump relay.



C: INSPECTION

- 1) Make sure there are no cracks, holes, or other damage on the fuel tank.
- 2) Make sure that the fuel hoses and fuel pipes are not cracked and the connections are tight.

Fuel Filler Pipe

FUEL INJECTION (FUEL SYSTEMS)

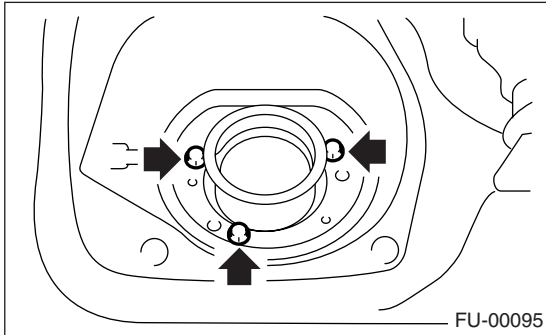
23. Fuel Filler Pipe

A: REMOVAL

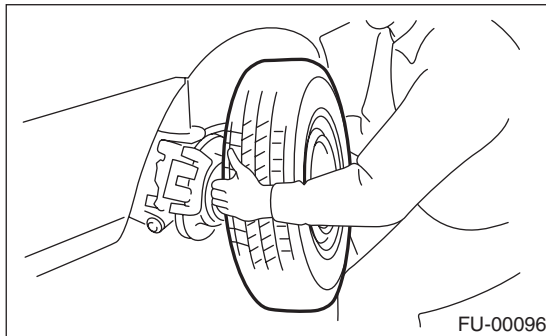
WARNING:

- Place "NO FIRE" signs near the working area.
- Be careful not to spill fuel on the floor.

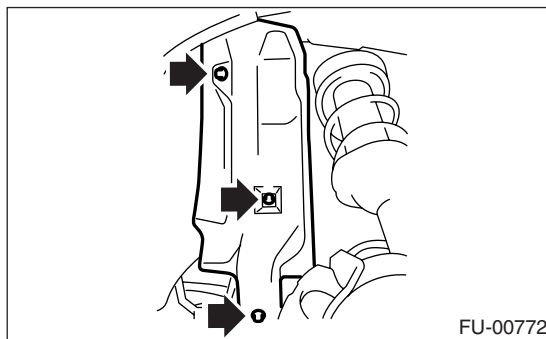
- 1) Disconnect the ground cable from battery.
- 2) Open the fuel filler flap lid and remove the filler cap.
- 3) Remove the screws holding packing in place.



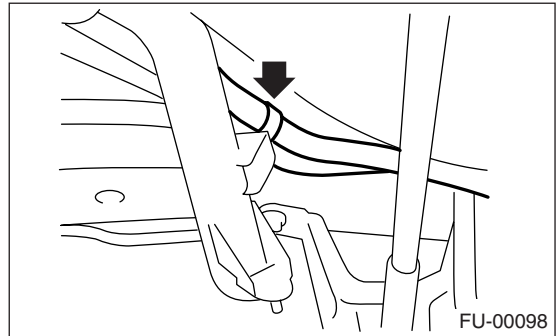
- 4) Lift up the vehicle.
- 5) Remove the rear right side wheel nuts.
- 6) Remove the rear right side wheel.



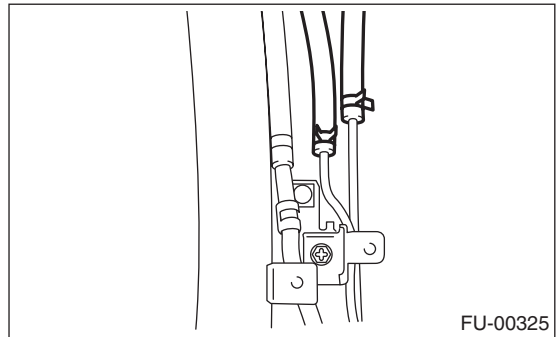
- 7) Drain the fuel from the fuel tank.
<Ref. to FU(H4SO)-42, DRAINING FUEL, PROCEDURE, Fuel.>
- 8) Remove the fuel filler pipe protector.



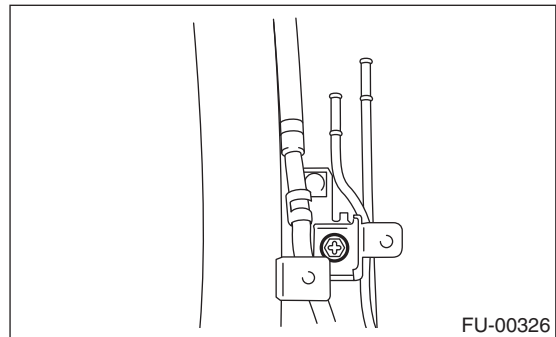
- 9) Separate the evaporation hoses from the clip of fuel filler pipe.



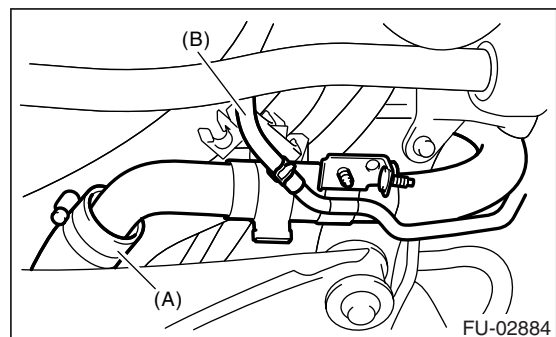
- 10) Disconnect the evaporation hoses from fuel pipes.



- 11) Remove the bolts which hold the fuel filler pipe bracket on the body.



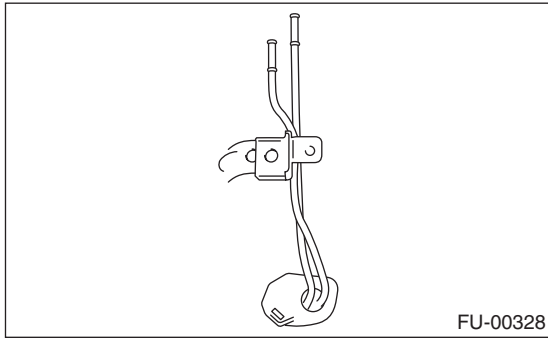
- 12) Loosen the clamp and separate the fuel filler hose (A) from the fuel filler pipe.
- 13) Move the clip and separate the evaporation hose (B).



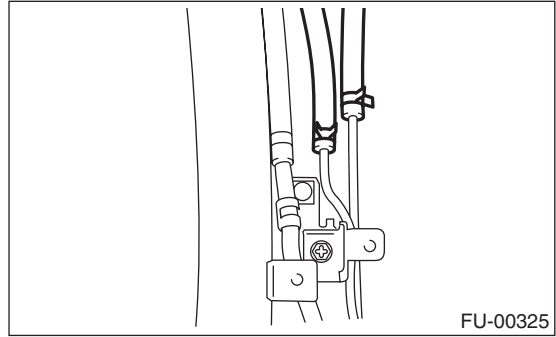
- 14) Remove the fuel filler pipe to under side of the vehicle.

Fuel Filler Pipe

15) Remove the evaporation pipe together with clip from the body.



5) Connect the evaporation hoses to fuel pipes.

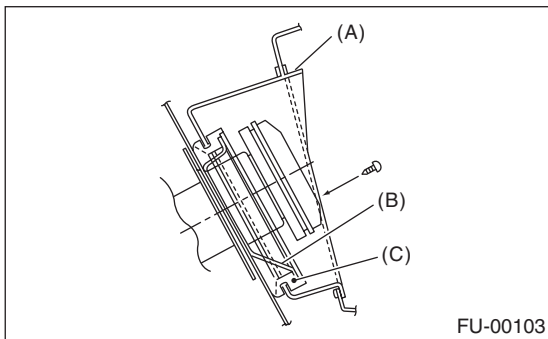


B: INSTALLATION

- 1) Open the fuel filler flap lid.
- 2) Set the fuel saucer (A) with rubber packing (C) and insert the fuel filler pipe into hole from the inner side of apron.
- 3) Align the holes in fuel filler pipe neck and set the cup (B), and tighten the screws.

NOTE:

If the edges of rubber packing are folded toward the inside, straighten it with a screwdriver.

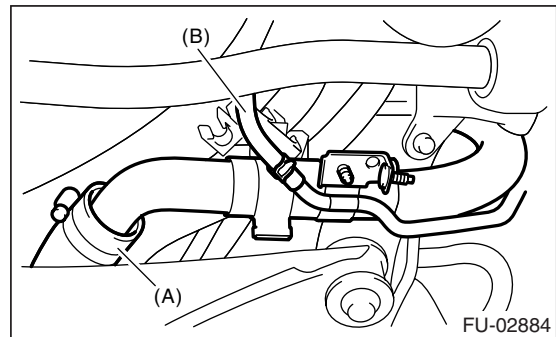


6) Insert the fuel filler hose (A) approximately 35 to 40 mm (1.38 to 1.57 in) over the lower end of fuel filler pipe and tighten the clamp.

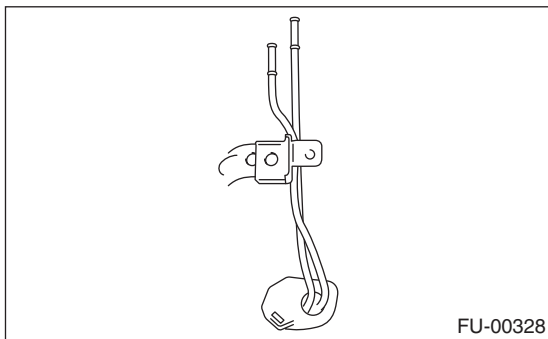
7) Insert the evaporation hose (B) approximately 25 to 30 mm (0.98 to 1.18 in) into the lower end of evaporation pipe and hold the clip.

CAUTION:

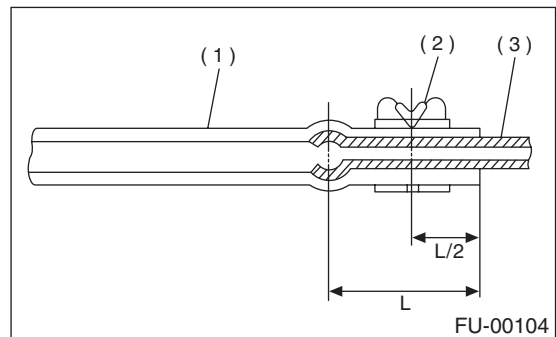
Do not allow clips to touch evaporation hose (B) and rear suspension crossmember.



4) Install the evaporation pipe.



$L = 27.5 \pm 2.5 \text{ mm (1.083} \pm 0.098 \text{ in)}$



- (1) Hose
- (2) Clip
- (3) Pipe

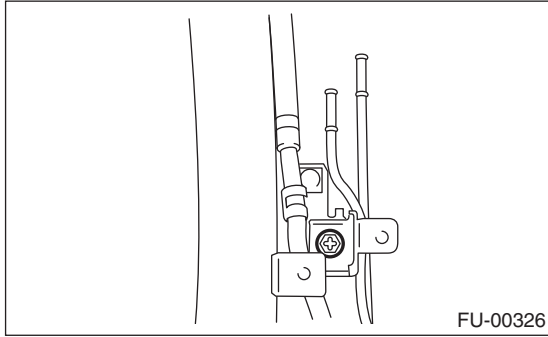
8) Tighten the bolt which holds the fuel filler pipe bracket on the body.

Fuel Filler Pipe

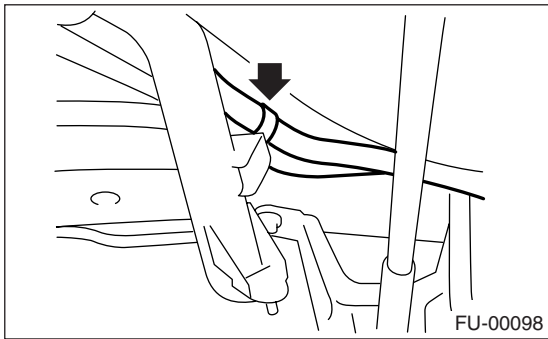
FUEL INJECTION (FUEL SYSTEMS)

Tightening torque:

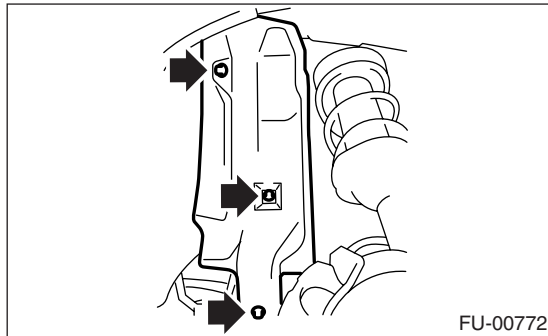
7.5 N·m (0.76 kgf-m, 5.5 ft-lb)



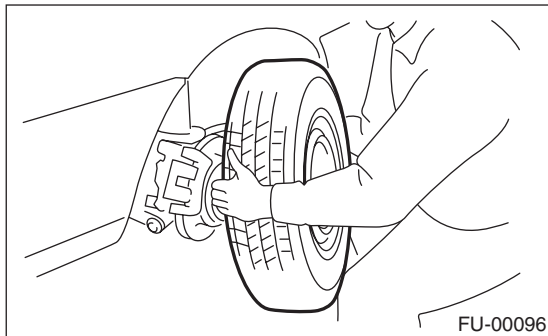
9) Secure the evaporation hose to clip of fuel filler pipe.



10) Install the fuel filler pipe protector.



11) Install the rear right wheel.



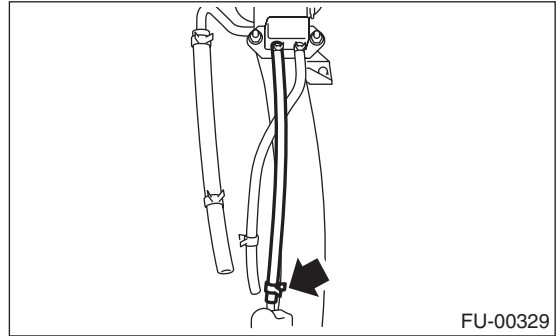
12) Lower the vehicle.

13) Tighten the wheel nuts.

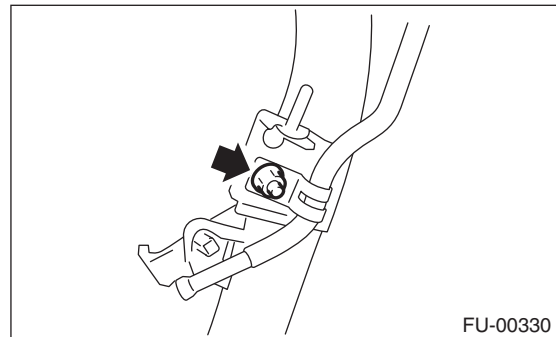
14) Connect the battery ground cable to battery.

C: DISASSEMBLY

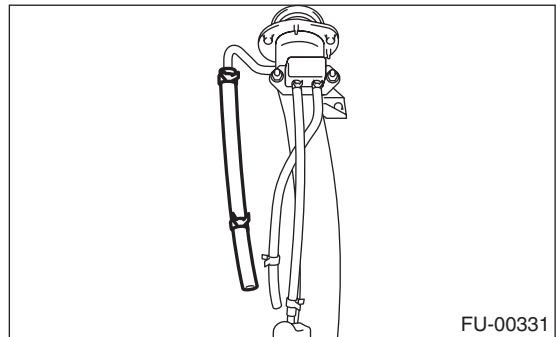
1) Move the clamp, and disconnect the evaporation hose from the joint pipe.



2) Remove the bolt which installs the joint pipe on the fuel filler pipe.



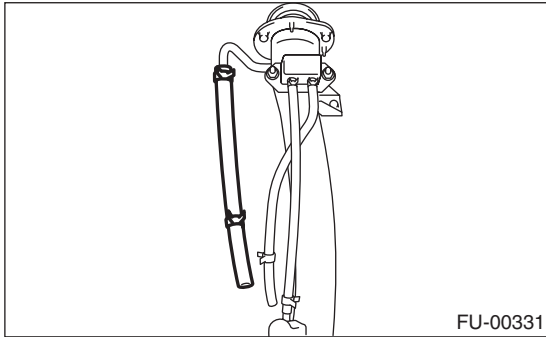
3) Disconnect the evaporation hose from the fuel filler pipe.



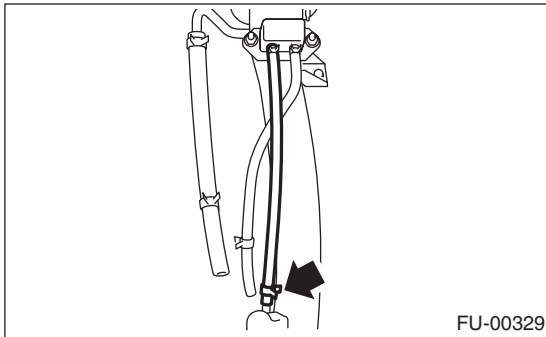
4) Remove the shut valve from the fuel filler pipe.
<Ref. to EC(H4SO)-15, REMOVAL, Shut Valve.>

D: ASSEMBLY

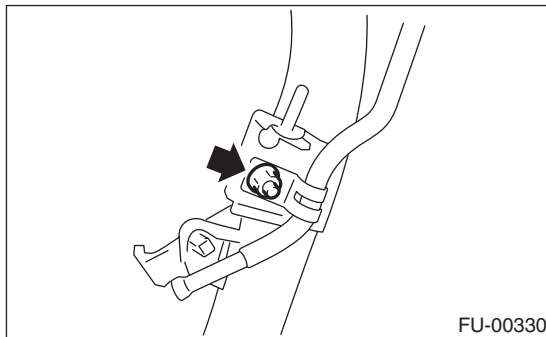
- 1) Install the shut valve on the fuel filler pipe. <Ref. to EC(H4SO)-15, INSTALLATION, Shut Valve.>
- 2) Connect the evaporation hose to the fuel filler pipe.



- 3) Connect the evaporation hose to the evaporation pipe.



- 4) Install the evaporation pipe to the fuel filler pipe.



Fuel Pump

FUEL INJECTION (FUEL SYSTEMS)

24. Fuel Pump

A: REMOVAL

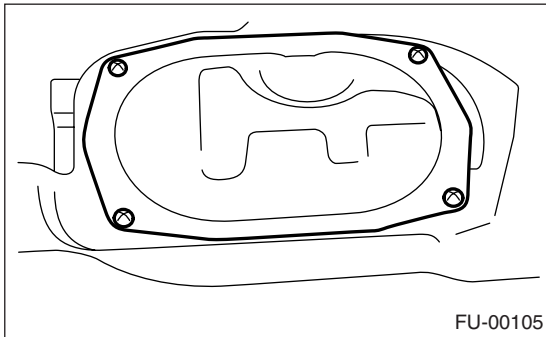
WARNING:

- Place “NO FIRE” signs near the working area.
- Be careful not to spill fuel on the floor.

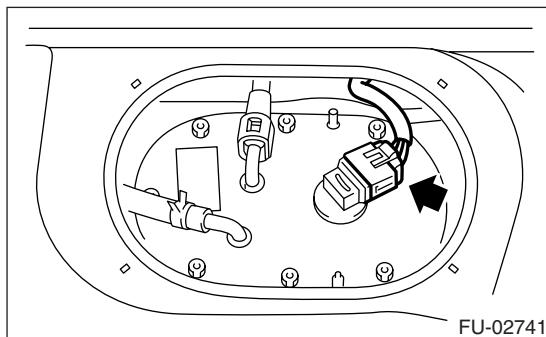
NOTE:

The fuel pump assembly consists of a fuel pump and a fuel level sensor.

- 1) Release the fuel pressure.
<Ref. to FU(H4SO)-42, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>
- 2) Disconnect the ground cable from battery.
- 3) Open the fuel filler flap lid and remove the fuel filler cap.
- 4) Lift up the vehicle.
- 5) Drain the fuel from the fuel tank.
<Ref. to FU(H4SO)-42, DRAINING FUEL, PROCEDURE, Fuel.>
- 6) Remove the luggage floor mat. <Ref. to EI-61, REMOVAL, Luggage Floor Mat.>
- 7) Remove the service hole cover.

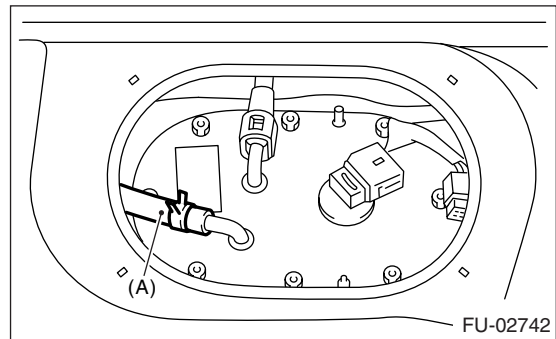


- 8) Disconnect the connector from fuel pump.

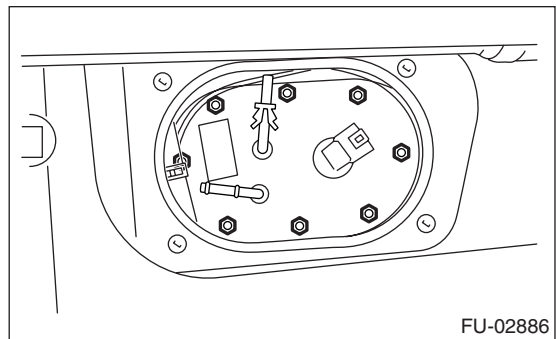


- 9) Disconnect the quick connector and then disconnect the fuel delivery hose. <Ref. to FU(H4SO)-57, REMOVAL, Fuel Delivery & Evaporation Lines.>

- 10) Move the clip and then disconnect the jet pump hose (A).



- 11) Remove the nuts which install the fuel pump assembly onto the fuel tank.



- 12) Take off the fuel pump assembly from the fuel tank.

B: INSTALLATION

Install in the reverse order of removal. Do the following:

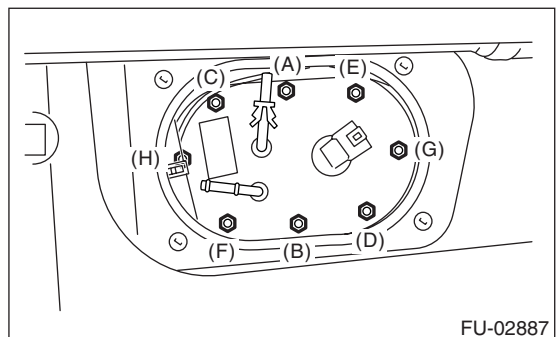
NOTE:

Use a new gasket and retainer.

- (1) Ensure the sealing portion is free from fuel or foreign particles before installation.
- (2) Tighten the nuts in alphabetical sequence shown in figure to specified torque.

Tightening torque:

4.4 N·m (0.45 kgf·m, 3.3 ft·lb)

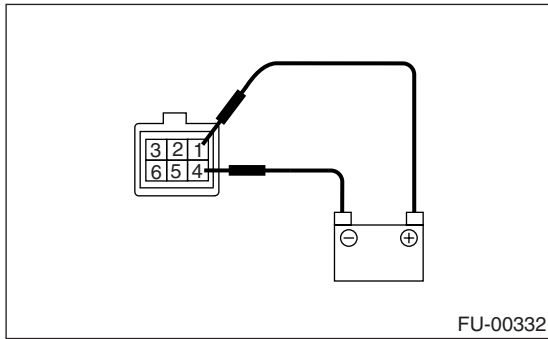


C: INSPECTION

Connect the lead harness to the connector terminal of fuel pump and apply the battery power supply to check whether the pump operates.

WARNING:

- Wipe off the fuel completely.
- Keep battery as far apart from fuel pump as possible.
- Be sure to turn the battery supply ON and OFF on the battery side.
- Do not run fuel pump for a long time under non-load condition.



25. Fuel Level Sensor

A: REMOVAL

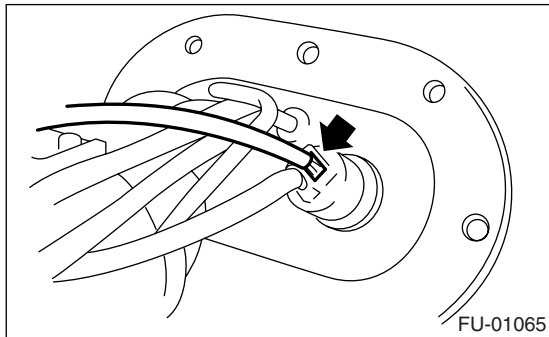
WARNING:

- Place “NO FIRE” signs near the working area.
- Be careful not to spill the fuel.

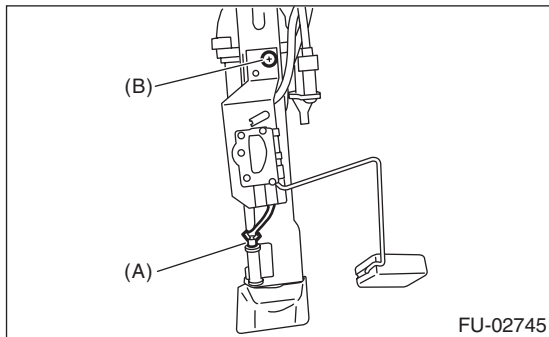
NOTE:

Fuel level sensor is built in fuel pump assembly.

- 1) Remove the fuel pump assembly.
<Ref. to FU(H4SO)-50, REMOVAL, Fuel Pump.>
- 2) Disconnect the connector from the fuel pump bracket.



- 3) Remove the fuel temperature sensor (A).
- 4) Remove the bolt (B) which installs the fuel level sensor on mounting bracket.



B: INSTALLATION

Install in the reverse order of removal.

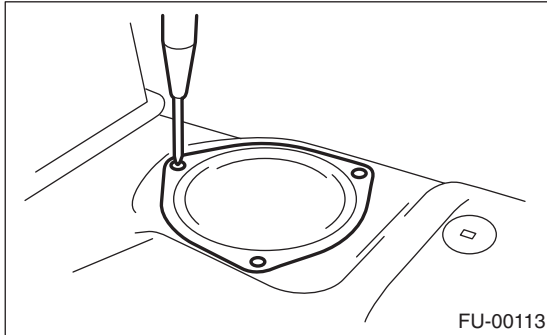
26. Fuel Sub Level Sensor

A: REMOVAL

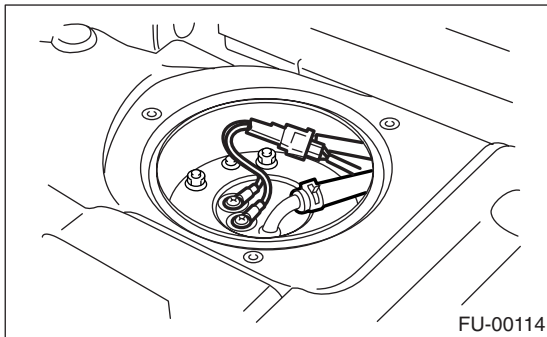
WARNING:

- Place “NO FIRE” signs near the working area.
- Be careful not to spill fuel on the floor.

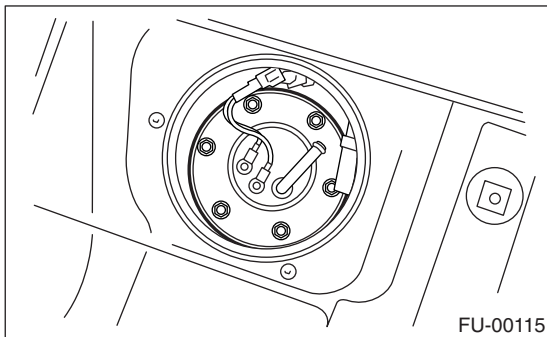
- 1) Disconnect the ground cable from battery.
- 2) Lift up the vehicle.
- 3) Drain the fuel from the fuel tank.
<Ref. to FU(H4SO)-42, DRAINING FUEL, PROCEDURE, Fuel.>
- 4) Remove the luggage floor mat. <Ref. to EI-61, REMOVAL, Luggage Floor Mat.>
- 5) Remove the service hole cover.



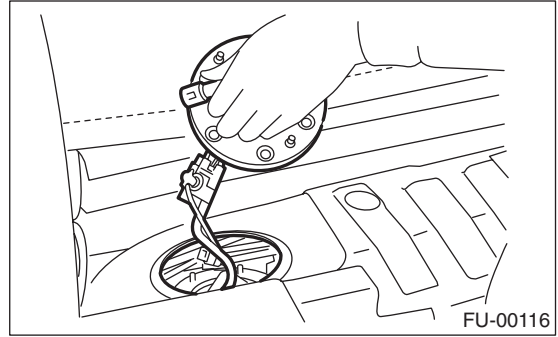
- 6) Disconnect the connector from the fuel sub level sensor.
- 7) Disconnect the fuel jet pump hose.



- 8) Remove the bolts which install the fuel sub level sensor on the fuel tank.



- 9) Remove the fuel sub level sensor.



B: INSTALLATION

Install in the reverse order of removal.

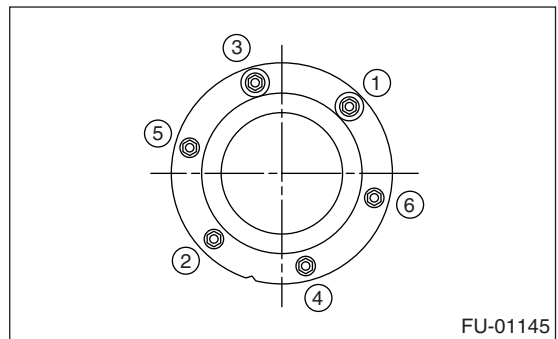
NOTE:

Use a new gasket.

- (1) Ensure the sealing portion is free from fuel or foreign particles before installation.
- (2) Tighten the nuts and bolts to specified torque in the order as shown in the figure.

Tightening torque:

4.4 N·m (0.45 kgf·m, 3.3 ft·lb)



Fuel Filter

FUEL INJECTION (FUEL SYSTEMS)

27. Fuel Filter

A: REMOVAL

WARNING:

- Place “NO FIRE” signs near the working area.
- Be careful not to spill the fuel.

NOTE:

Fuel filter is built into the fuel pump assembly.

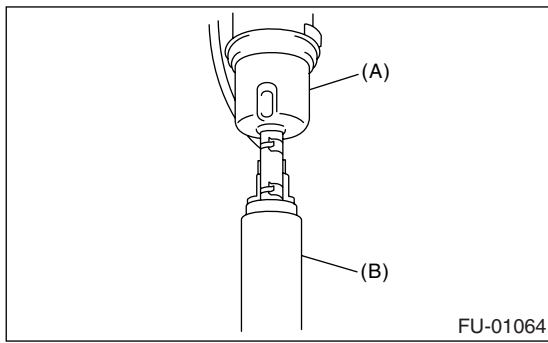
1) Release the fuel pressure.

<Ref. to FU(H4SO)-42, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>

2) Remove the fuel pump assembly. <Ref. to FU(H4SO)-50, REMOVAL, Fuel Pump.>

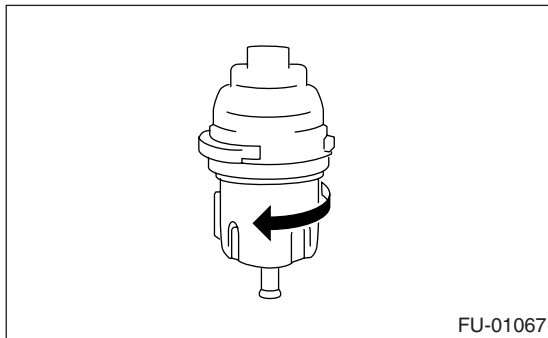
3) Remove the fuel pump. <Ref. to FU(H4SO)-50, REMOVAL, Fuel Pump.>

4) Separate the fuel filter from fuel pump.



- (A) Fuel filter
- (B) Fuel pump

5) Turn the filter holder around to the arrow direction, and then remove the filter.



B: INSTALLATION

CAUTION:

- If fuel hoses are damaged at the connecting portion, replace them with new ones.
- If clamps are badly damaged, replace them with new ones.

Install in the reverse order of removal.

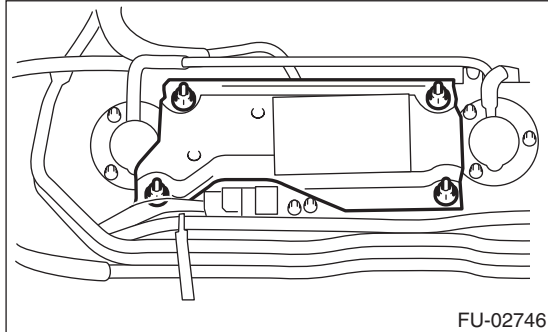
C: INSPECTION

- 1) Check the inside of fuel filter for dirt and water sediment.
- 2) If it is clogged, or if replacement interval has been reached, replace it.

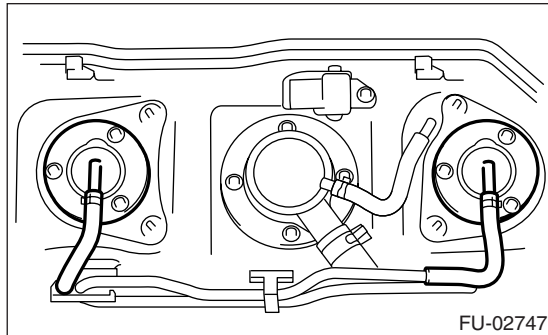
28. Fuel Cut Valve

A: REMOVAL

- 1) Remove the fuel tank.
<Ref. to FU(H4SO)-43, REMOVAL, Fuel Tank.>
- 2) Remove the protect cover.



- 3) Move the clip and disconnect the evaporation hose from fuel cut valve.



- 4) Remove the bolts which install the fuel cut valve.

B: INSTALLATION

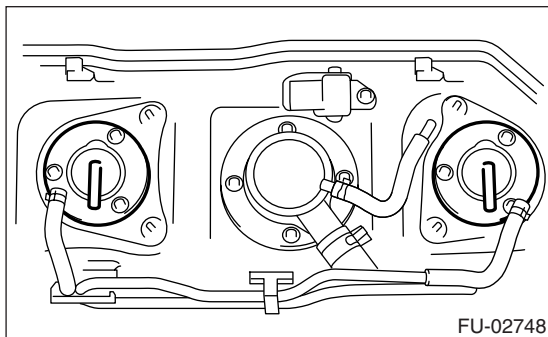
Install in the reverse order of removal.

NOTE:

Use a new gasket.

Tightening torque:

4.4 N·m (0.45 kgf-m, 3.3 ft-lb)



29. Fuel Damper Valve

A: REMOVAL

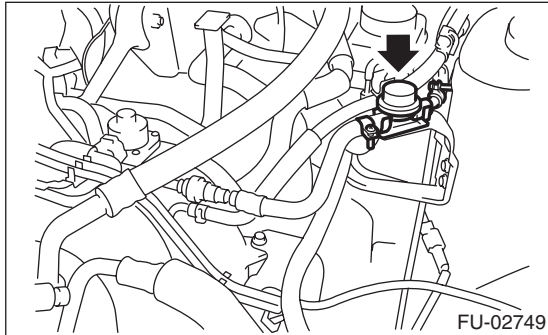
1) Release the fuel pressure.

<Ref. to FU(H4SO)-42, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>

2) Remove the fuel damper valve from the fuel delivery line.

WARNING:

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



B: INSTALLATION

Install in the reverse order of removal.

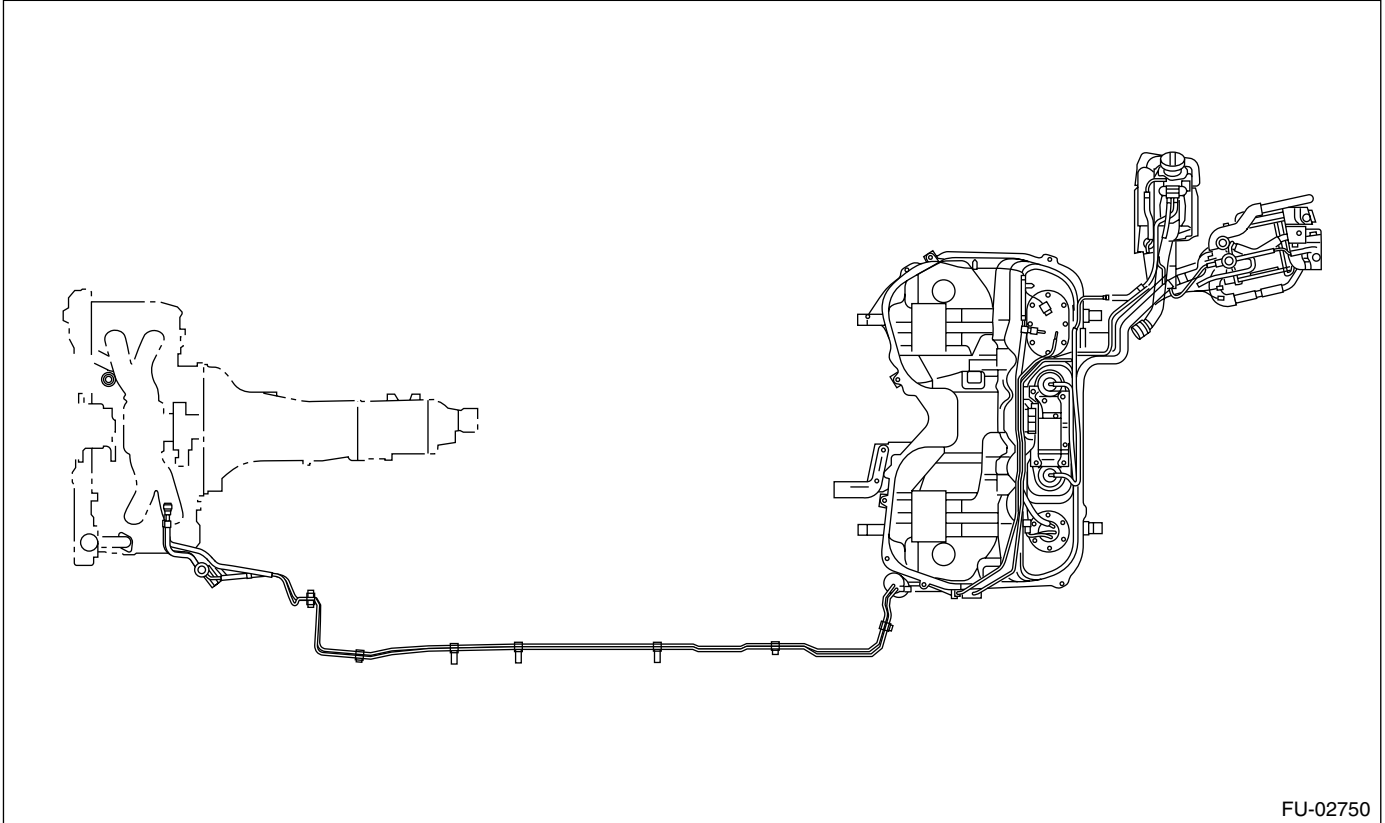
Tightening torque:

1.25 N·m (0.13 kgf-m, 0.94 ft-lb)

30. Fuel Delivery & Evaporation Lines

A: REMOVAL

- 1) Set the vehicle on a lift.
- 2) Release the fuel pressure. <Ref. to FU(H4SO)-42, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>
- 3) Open the fuel filler flap lid and remove the fuel filler cap.
- 4) Remove the floor mat. <Ref. to EI-60, REMOVAL, Floor Mat.>
- 5) Disconnect the fuel delivery pipes and hoses, and disconnect the evaporation pipes and hoses.



6) In engine compartment, detach the fuel delivery hoses and evaporation hose.

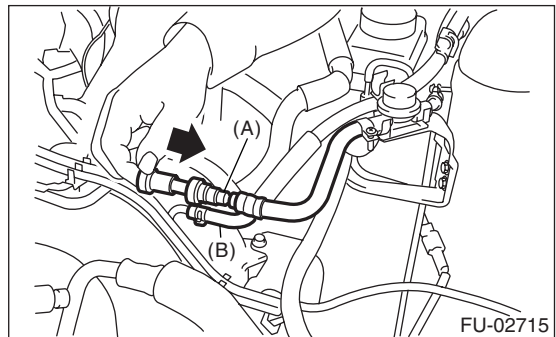
- (1) Separate the quick connectors of fuel delivery line by pushing the ST to the direction of arrow.

ST 42099AE000 CONNECTOR REMOVER

- (2) Remove the clip, and separate the evaporation hose from pipe.

WARNING:

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



(A) Fuel delivery hose

(B) Evaporation hose

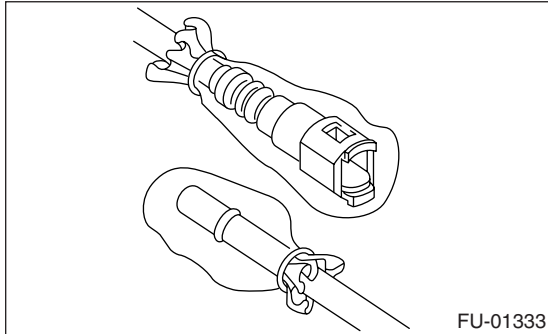
- 7) Lift up the vehicle.

Fuel Delivery & Evaporation Lines

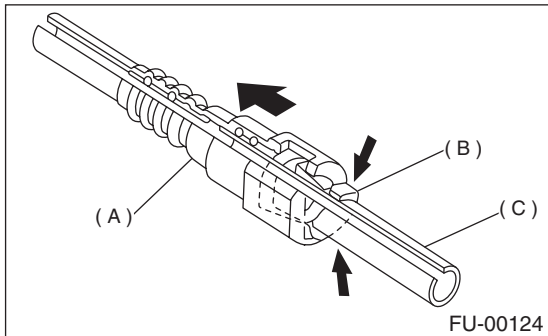
FUEL INJECTION (FUEL SYSTEMS)

8) Disconnect the quick connector on fuel line.

- (1) Clean the pipe and connector, if they are covered with dust.
- (2) To prevent from damaging or entering foreign matter, wrap the pipes and connectors with plastic bag, etc.



- (3) Hold the connector (A) and push retainer (B) down.
- (4) Pull out the connector (A) from retainer (B).



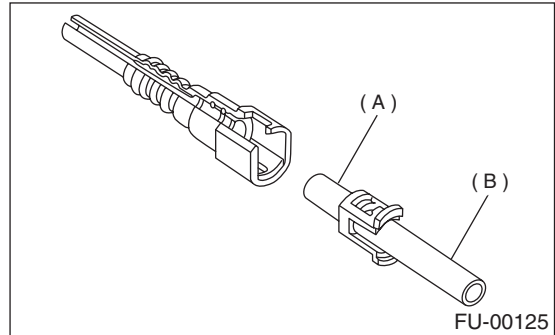
- (A) Connector
- (B) Retainer
- (C) Pipe

B: INSTALLATION

1) Connect the quick connector on fuel line.

CAUTION:

- Use a new retainer except for use of engine compartment.
- Make sure that the connected portion is not damaged or has dust. If necessary, clean seal surface of pipe.

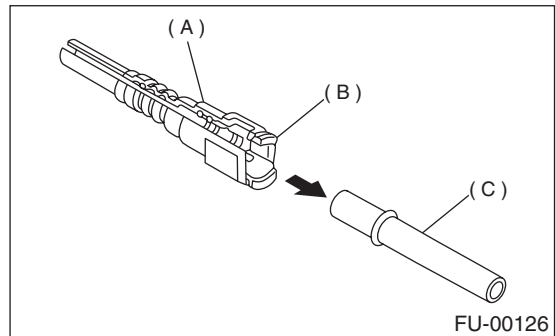


- (A) Seal surface
- (B) Pipe

- (1) Set the new retainer (B) to connector (A).
- (2) Push the pipe into the connector completely.

NOTE:

At this time, two clicking sounds are heard.



- (A) Connector
- (B) Retainer
- (C) Pipe

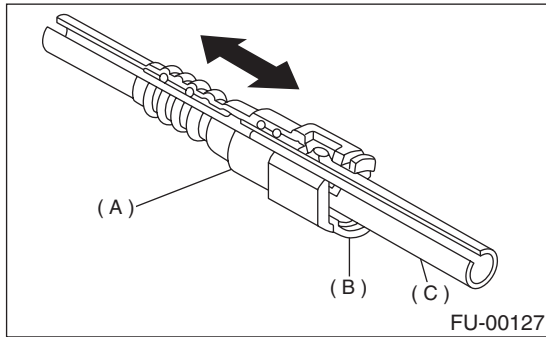
CAUTION:

- Pull the connector to ensure it is connected securely.
- Ensure the two retainer pawls are engaged in their mating positions in the connector.

Fuel Delivery & Evaporation Lines

FUEL INJECTION (FUEL SYSTEMS)

- Be sure to inspect hoses and their connections for any leakage of fuel.



- (A) Connector
- (B) Retainer
- (C) Pipe

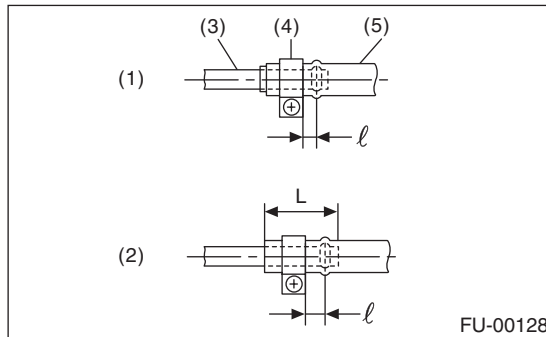
2) Connect the fuel delivery hose by inserting it into the pipe for 20 to 25 mm (0.79 to 0.98 in) in length.
 Type A: When the fitting length is specified.
 Type B: When the fitting length is not specified.

$\varnothing : 2.5 \pm 1.5 \text{ mm } (0.098 \pm 0.059 \text{ in})$

$L : 22.5 \pm 2.5 \text{ mm } (0.886 \pm 0.098 \text{ in})$

CAUTION:

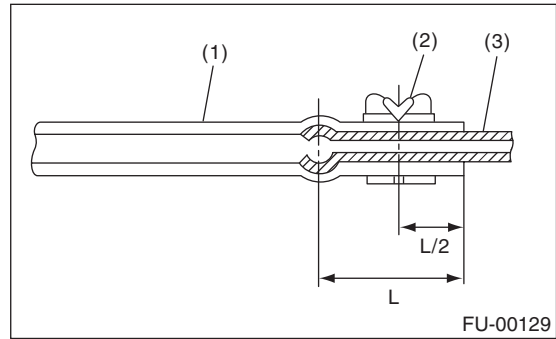
Be sure to inspect hoses and their connections for any leakage of fuel.



- (1) Type A
- (2) Type B
- (3) Pipe
- (4) Clamp
- (5) Hose

3) Connect the evaporation hose by inserting it into the pipe for 15 to 20 mm (0.59 to 0.79 in) in length.

$L = 17.5 \pm 2.5 \text{ mm } (0.689 \pm 0.098 \text{ in})$



- (1) Hose
- (2) Clip
- (3) Pipe

C: INSPECTION

- 1) Make sure that there are no cracks on the fuel pipes and fuel hoses.
- 2) Make sure that the fuel pipe and fuel hose connections are tight.

Fuel System Trouble in General

FUEL INJECTION (FUEL SYSTEMS)

31. Fuel System Trouble in General

A: INSPECTION

Trouble and possible cause		Corrective action
1. Insufficient fuel supply to injector		
1)	Fuel pump does not operate.	
	○ Defective terminal contact.	Inspect contact, especially ground, and tighten it securely.
	○ Trouble in electromagnetic or electronic circuit parts.	Replace the faulty parts.
2)	Lowering of fuel pump function.	Replace the fuel pump.
3)	Clogged dust or water in the fuel filter.	Replace fuel filter, clean or replace fuel tank.
4)	Clogged or bent fuel pipe or hose.	Clean, correct or replace the fuel pipe or hose.
5)	Air is mixed in the fuel system.	Inspect or retighten each connection part.
6)	Clogged or bent air breather tube or pipe.	Clean, correct or replace air breather tube or pipe.
7)	Damaged diaphragm of pressure regulator.	Replace.
2. Leakage or blow out of fuel		
1)	Loosened joints of the fuel pipe.	Retightening.
2)	Cracked fuel pipe, hose and fuel tank.	Replace.
3)	Defective welding part on the fuel tank.	Replace.
4)	Defective drain packing of the fuel tank.	Replace.
5)	Clogged air breather tube or air vent tube.	Clean, correct or replace air breather tube or air vent tube.
3. Gasoline smell inside of compartment		
1)	Loose joints at air breather tube, air vent tube and fuel filler pipe.	Retightening.
2)	Defective packing air tightness on the fuel saucer.	Correct or replace the packing.
3)	Inoperative fuel pump modulator or circuit.	Replace.
4. Defective fuel meter indicator		
1)	Defective operation of fuel level sensor.	Replace.
2)	Defective operation of fuel meter.	Replace.
5. Noise		
1)	Large operation noise or vibration of fuel pump.	Replace.

NOTE:

- When the vehicle is left unattended for an extended period of time, water may accumulate in the fuel tank. Fill fuel fully to prevent those problem. And also drain the water condensation from fuel filter.
- In snow-covered areas, mountainous areas, skiing areas, etc. where ambient temperatures drop below 0°C (32°F) throughout the winter season, use water removing agent in the fuel system to prevent freezing fuel system and accumulating water. Fill the water removing agent at the time when the fuel reduced at half to maintain the advantage.
- When water condensation is noticed in the fuel filter, drain the water from both the fuel filter and fuel tank or use water removing agent in the fuel tank.
- Before using a water removing agent, follow the cautions that noted on the bottle.