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# **FUEL INJECTION (FUEL SYTEMS)**

## General Description

FUEL INJECTION (FUEL SYSTEMS)

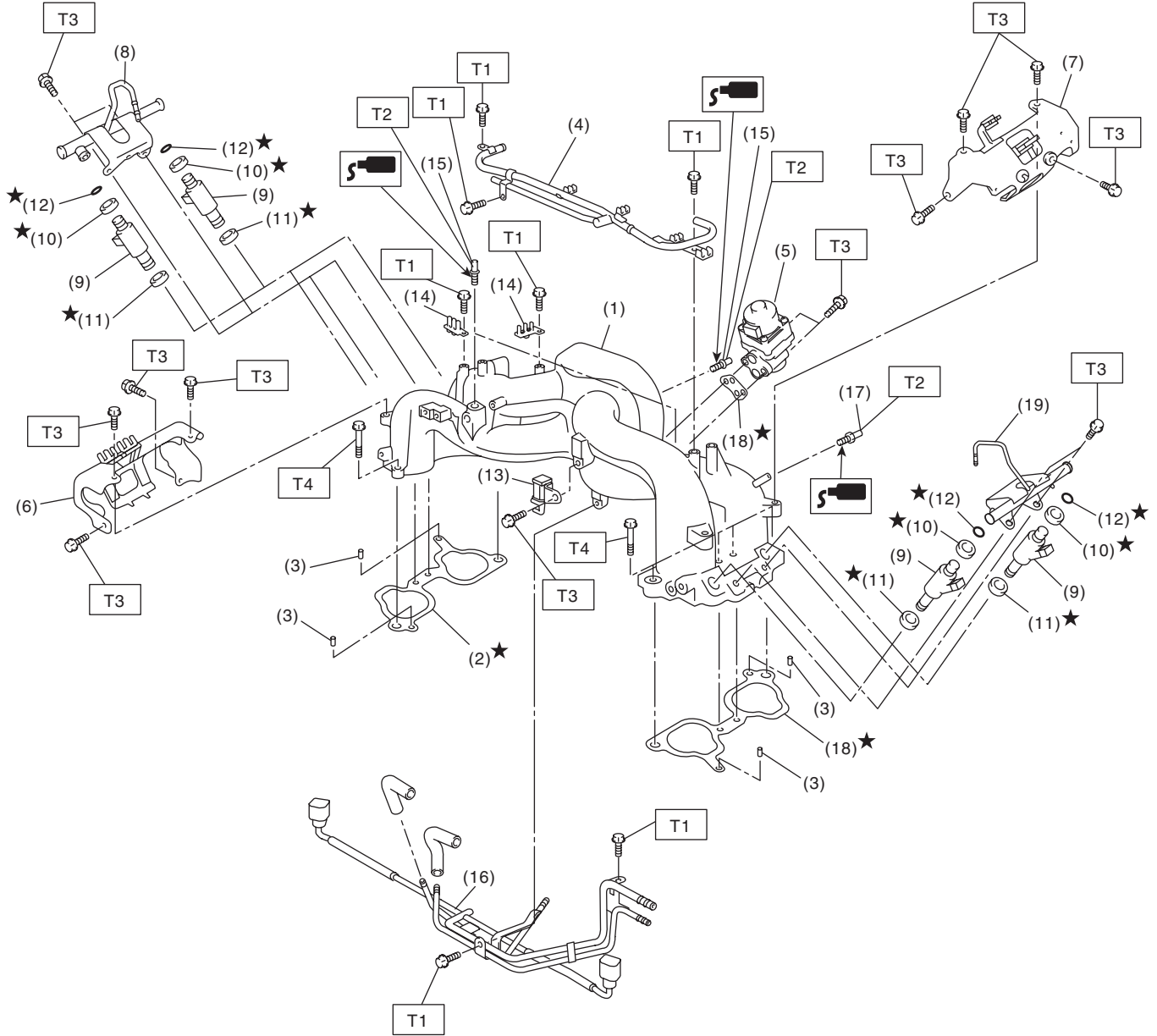
### 1. General Description

#### 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 <sup>2</sup> , 53.6 — 98 psi)
	Discharge rate	105 ℓ (27.7 US gal, 23.1 Imp gal)/h or more [12 V at 300 kPa (3.06 kgf/cm <sup>2</sup> , 43.5 psi)]
Fuel filter		In-tank type

### B: COMPONENT

#### 1. INTAKE MANIFOLD



FU-03102

# General Description

## FUEL INJECTION (FUEL SYSTEMS)

- |                            |                                   |                            |
|----------------------------|-----------------------------------|----------------------------|
| (1) Intake manifold        | (10) O-ring                       | (18) Gasket LH             |
| (2) Gasket RH              | (11) O-ring                       | (19) Fuel injector pipe LH |
| (3) Guide pin              | (12) O-ring                       |                            |
| (4) PCV pipe               | (13) Purge control solenoid valve |                            |
| (5) EGR valve              | (14) Plug cord holder             |                            |
| (6) Fuel pipe protector RH | (15) Nipple                       |                            |
| (7) Fuel pipe protector LH | (16) Fuel pipe ASSY               |                            |
| (8) Fuel injector pipe RH  | (17) Nipple                       |                            |
| (9) Fuel injector          |                                   |                            |

**Tightening torque:N·m (kgf-m, ft-lb)**

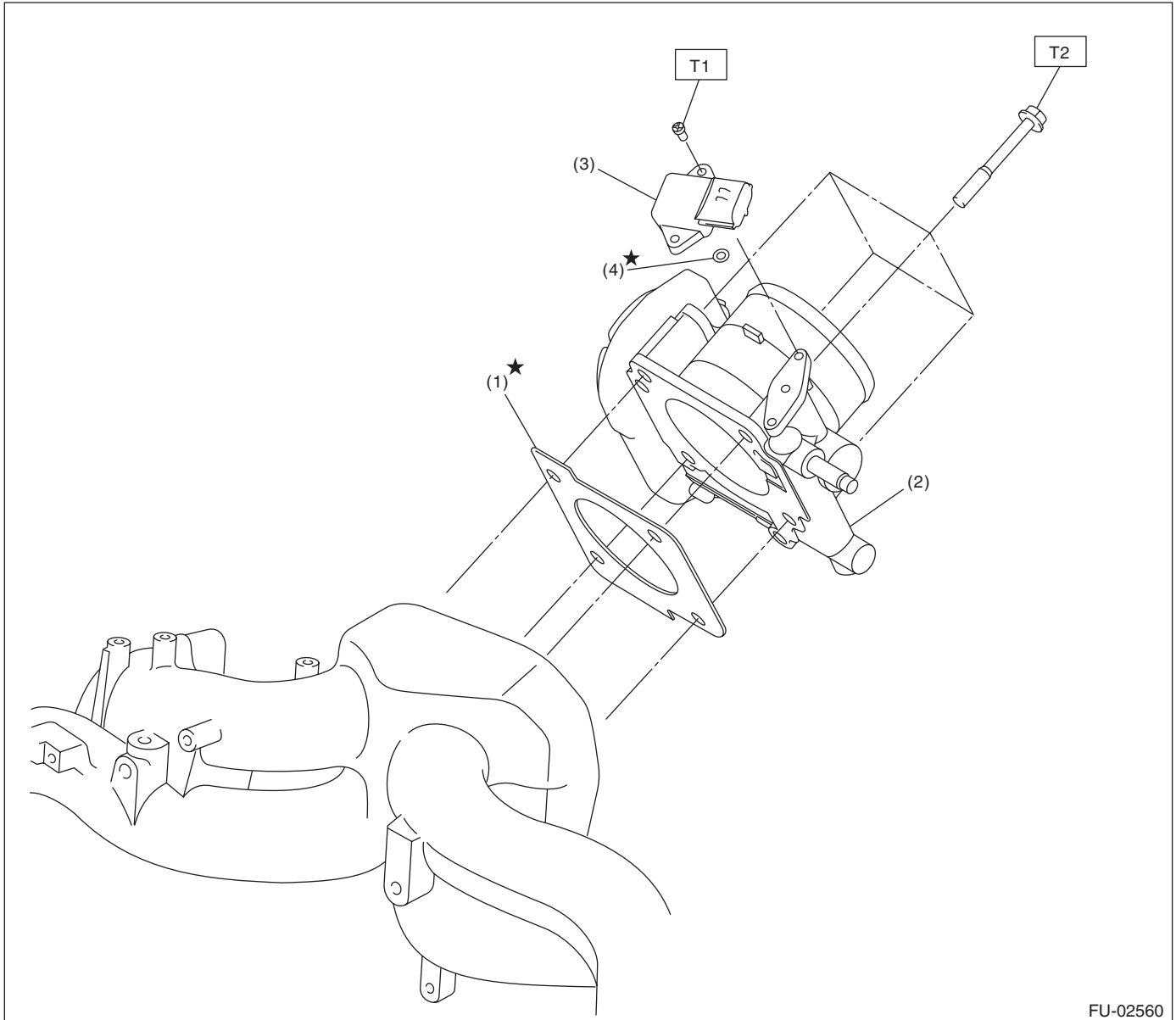
**T1: 6.4 (0.65, 4.7)**

**T2: 17 (1.7, 12.5)**

**T3: 19 (1.9, 13.7)**

**T4: 25 (2.5, 18.1)**

## 2. AIR INTAKE SYSTEM



FU-02560

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

**Tightening torque:N·m (kgf-m, ft-lb)**

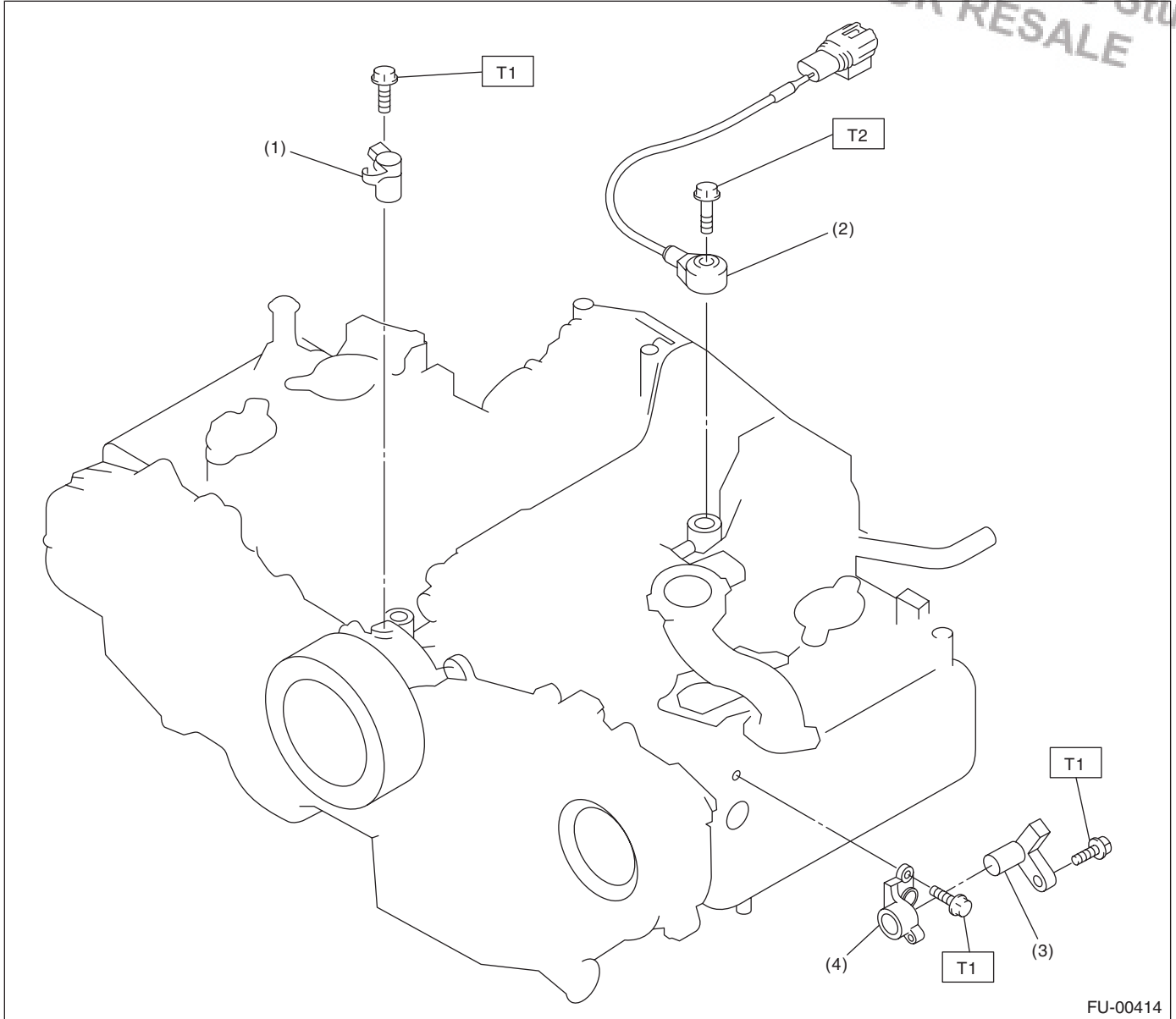
**T1: 2.0 (0.20, 1.5)**

**T2: 8 (0.8, 5.8)**

# General Description

FUEL INJECTION (FUEL SYSTEMS)

## 3. CRANKSHAFT POSITION, CAMSHAFT POSITION AND KNOCK SENSORS



FU-00414

(1) Crankshaft position sensor

(3) Camshaft position sensor

**Tightening torque: N·m (kgf·m, ft·lb)**

(2) Knock sensor

(4) Camshaft position sensor support

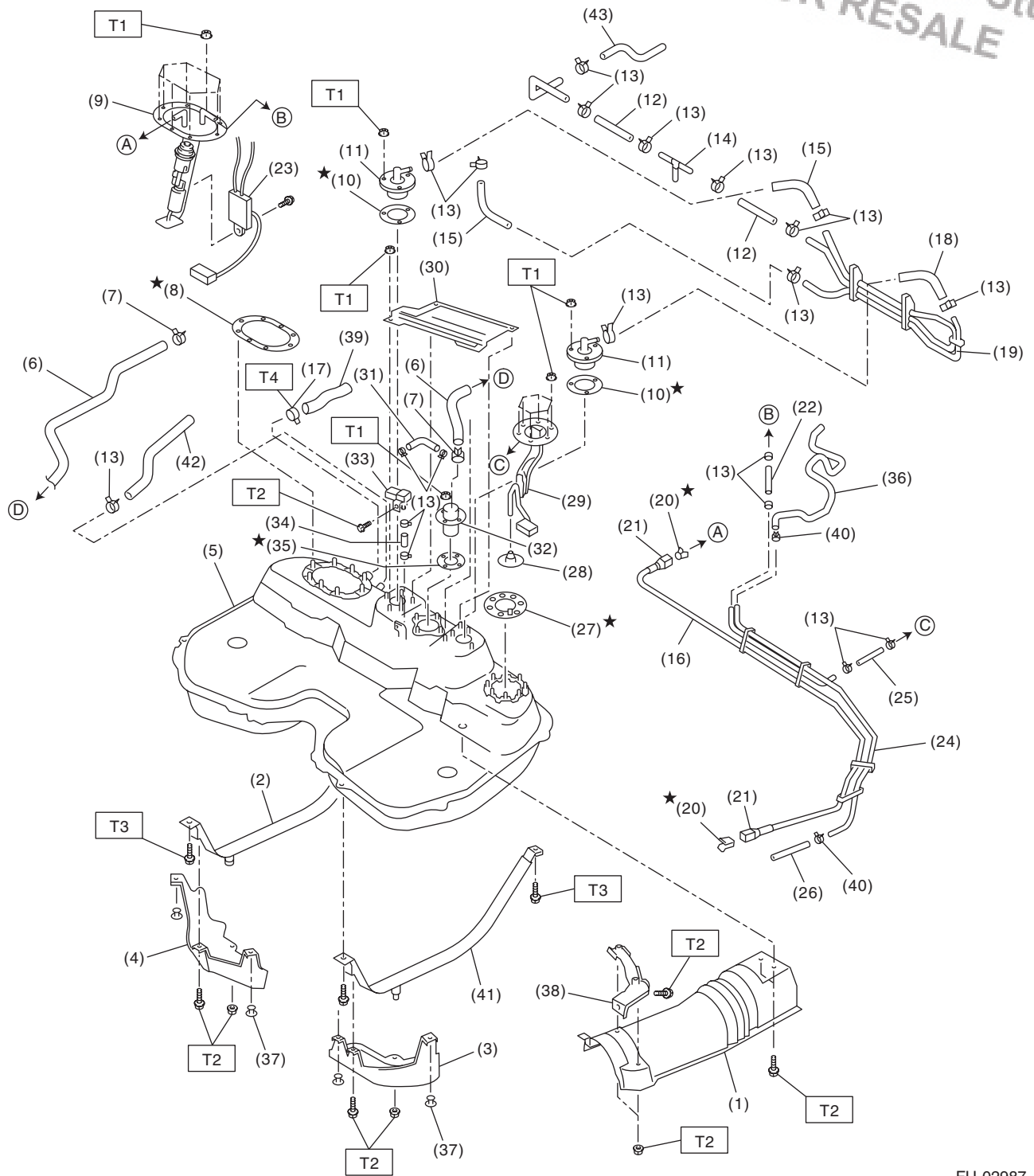
**T1: 6.4 (0.65, 4.7)**

**T2: 24 (2.4, 17.4)**

# General Description

## FUEL INJECTION (FUEL SYSTEMS)

### 4. FUEL TANK



FU-02987

# General Description

## FUEL INJECTION (FUEL SYSTEMS)

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

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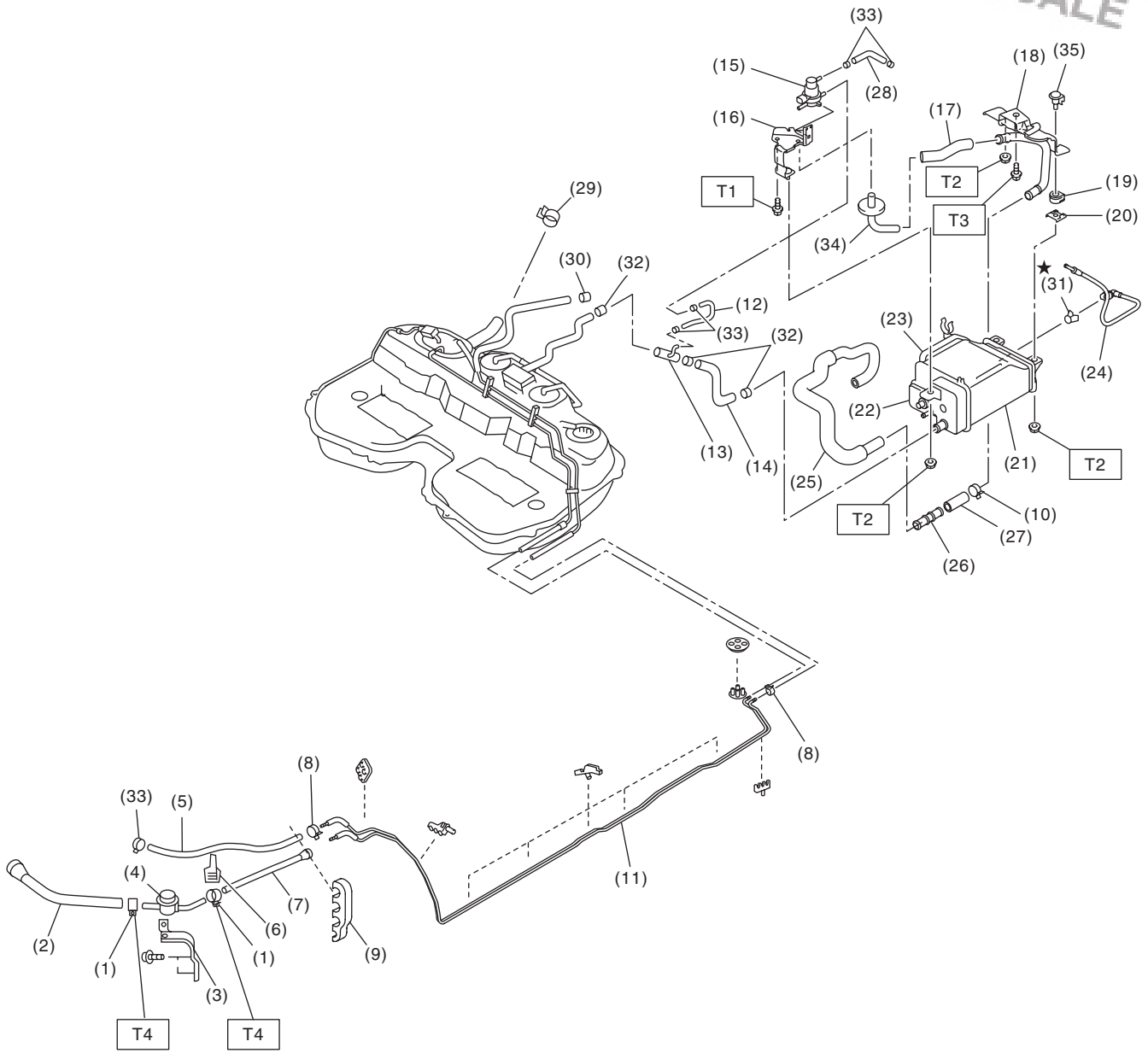
**Tightening torque:N·m (kgf·m, ft·lb)****T1: 4.4 (0.45, 3.3)****T2: 7.4 (0.75, 5.4)****T3: 33 (3.4, 25)****T4: 1.96 (0.20, 1.45)**

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# General Description

## FUEL INJECTION (FUEL SYSTEMS)

### 5. FUEL LINE



FU-03103



# General Description

## FUEL INJECTION (FUEL SYSTEMS)

(1) Clamp	(15) Pressure control solenoid valve	(28) Pressure control solenoid valve hose
(2) Fuel delivery hose A	(16) Pressure control solenoid valve bracket	(29) Clamp
(3) Fuel damper valve bracket	(17) Drain hose C	(30) Clamp
(4) Fuel damper valve (Delivery)	(18) Canister upper bracket	(31) Retainer
(5) Evaporation hose A	(19) Cushion rubber	(32) Clamp
(6) Clip	(20) Canister lower bracket	(33) Clamp
(7) Fuel delivery hose B	(21) Canister	(34) Drain pipe
(8) Clamp	(22) Drain valve	(35) Canister bracket spacer
(9) Clip	(23) Drain filter	
(10) Clamp	(24) Pressure control solenoid valve tube	
(11) Fuel pipe ASSY	(25) Drain hose A	
(12) Evaporation hose B	(26) Drain connector	
(13) Joint pipe	(27) Drain hose B	
(14) Canister hose A		

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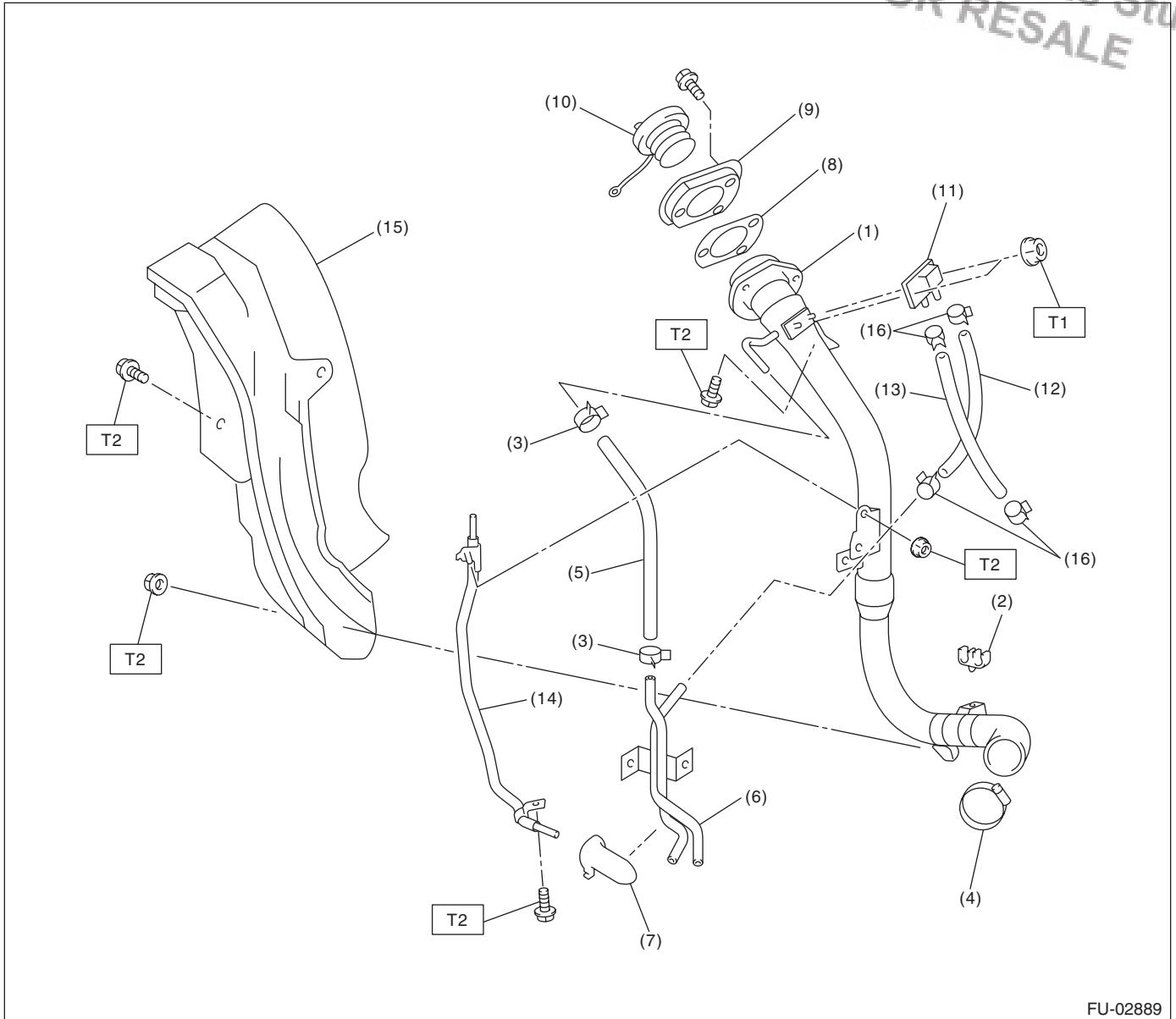
**Tightening torque: N·m (kgf·m, ft·lb)****T1: 25 (2.5, 18.1)****T2: 23 (2.3, 16.6)****T3: 33 (3.4, 25)****T4: 1.25 (0.13, 0.94)**

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# General Description

## FUEL INJECTION (FUEL SYSTEMS)

### 6. FUEL FILLER PIPE



FU-02889

- |                             |                         |                                 |
|-----------------------------|-------------------------|---------------------------------|
| (1) Fuel filler pipe ASSY   | (8) Filler pipe gasket  | (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

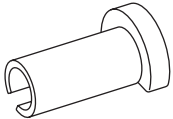
## FUEL INJECTION (FUEL SYSTEMS)

### C: CAUTION

- Wear appropriate work clothing, including a cap, protective goggles and protective shoes when performing any work.
- 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.
- Vehicle components are extremely hot after driving. Be wary of receiving burns from heated parts.
- 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 connectors of sensors or units, be sure to disconnect the ground cable from the battery.
- Place "NO OPEN FLAMES" signs near the working area.
- Prepare a container and cloth to prevent scattering of fuels when performing work where fuels can be spilled. If the fuel spills, wipe it off immediately to prevent from penetrating into floor or flowing out for environmental protection.
- Follow all government and local regulations concerning disposal of refuse when disposing fuel.

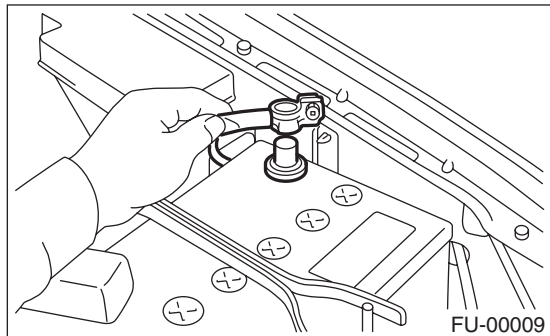
### D: PREPARATION TOOL

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

### 2. Throttle Body

#### A: REMOVAL

1) Disconnect the ground cable from the battery.

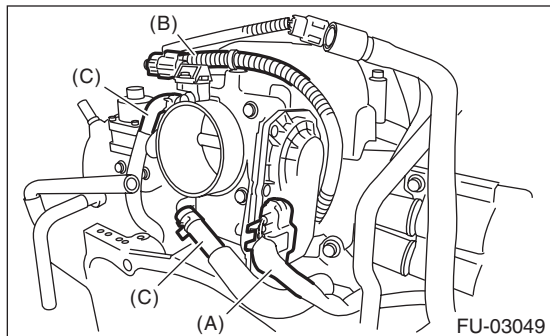


2) Remove the air intake chamber. <Ref. to IN(H4SO)-6, REMOVAL, Air Intake Chamber.>

3) Disconnect the connectors from throttle position sensor and manifold absolute pressure sensor.

4) Disconnect the engine coolant hoses from the throttle body.

5) Remove the bolts which secure the throttle body to the 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.

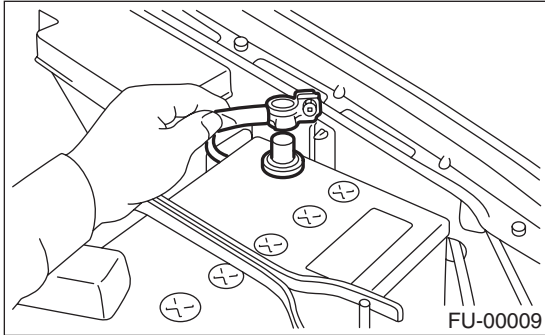
**Tightening torque:**

**8 N·m (0.8 kgf·m, 5.8 ft·lb)**

### 3. Intake Manifold

#### A: REMOVAL

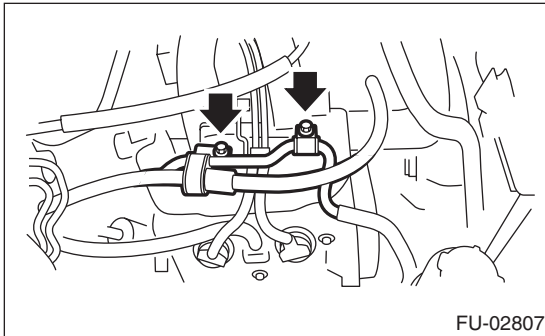
- 1) Release the fuel pressure. <Ref. to FU(H4SO)-43, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>
- 2) Disconnect the ground cable from the battery.



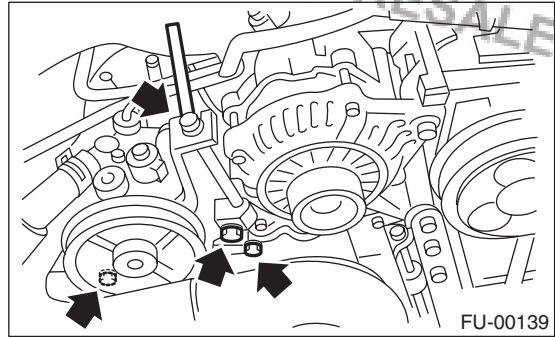
- 3) Open the fuel filler flap lid, and remove the fuel filler cap.
- 4) Remove the air intake duct, air cleaner case and air intake chamber. <Ref. to IN(H4SO)-7, REMOVAL, Air Intake Duct.> <Ref. to IN(H4SO)-5, REMOVAL, Air Cleaner Case.> <Ref. to IN(H4SO)-6, REMOVAL, Air Intake Chamber.>
- 5) Remove the generator. <Ref. to SC(H4SO)-14, REMOVAL, Generator.>
- 6) Remove the power steering pump and power steering reservoir tank from the bracket.
  - (1) Remove the bolts which hold the power steering pipes onto the fuel pipe protector RH.

**NOTE:**

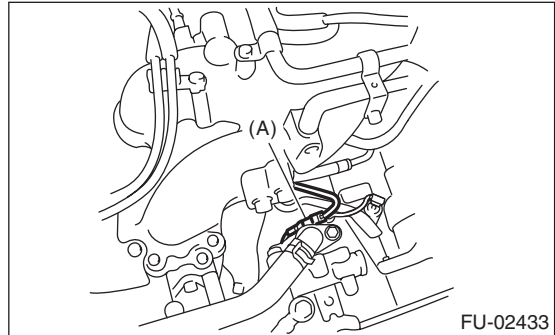
Do not disconnect the power steering hose.



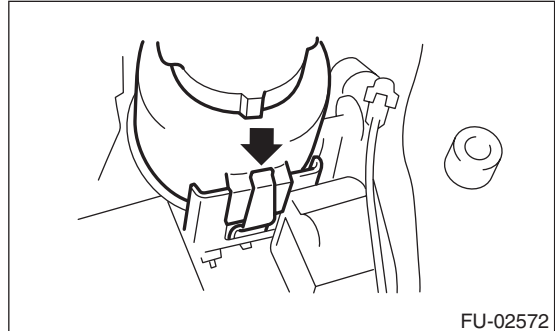
- (2) Remove the installation bolt installing the power steering pump bracket.



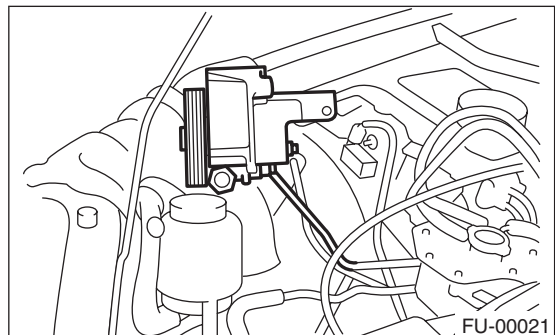
- (3) Disconnect the connector (A) from the power steering pump switch.



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



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

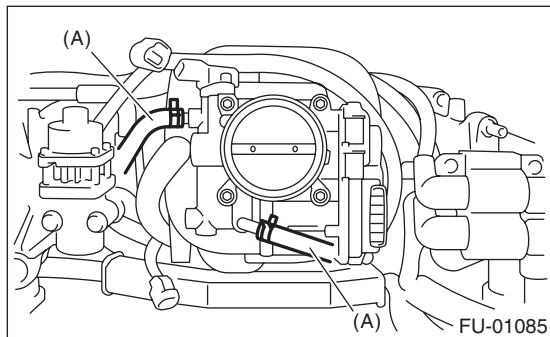


- 7) Remove the spark plug cords from the spark plugs by pulling the plug caps. (Do not pull the cord.)

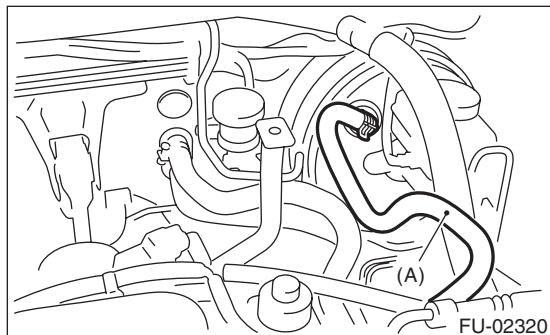
# Intake Manifold

## FUEL INJECTION (FUEL SYSTEMS)

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

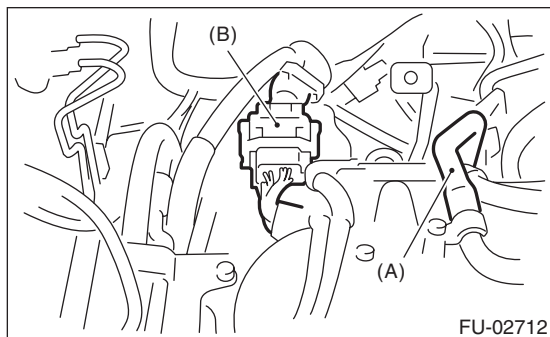


9) Disconnect the brake booster hose (A).

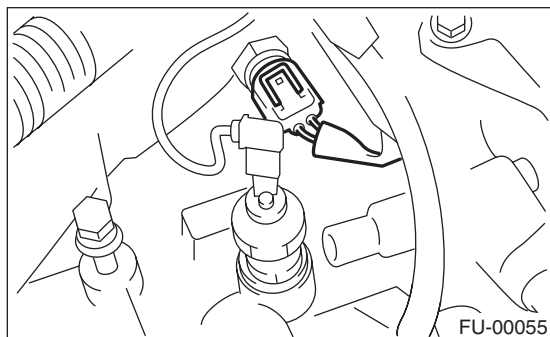


10) Disconnect the PCV hose (A) from intake manifold.

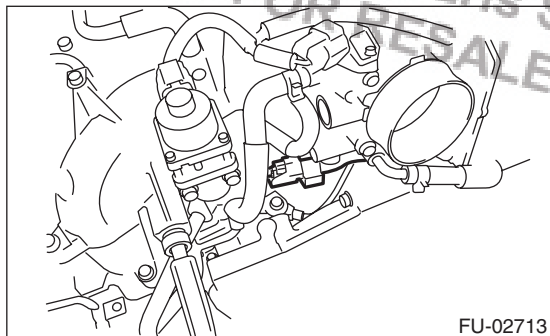
11) Disconnect the engine harness connectors (B) from bulkhead harness connectors.



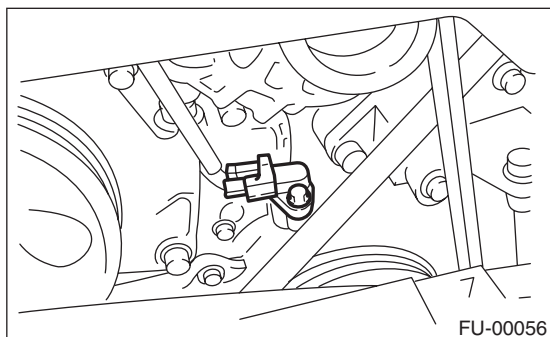
12) Disconnect the connectors from the engine coolant temperature sensor.



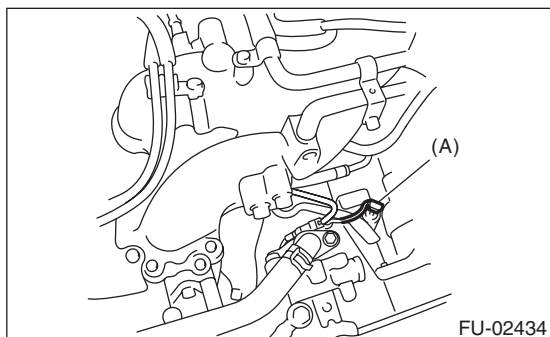
13) Disconnect the knock sensor connector.



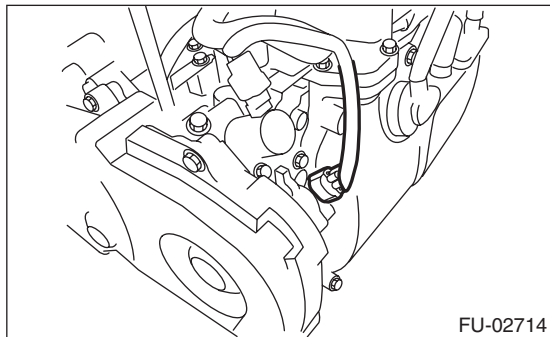
14) Disconnect the connector from crankshaft position sensor.



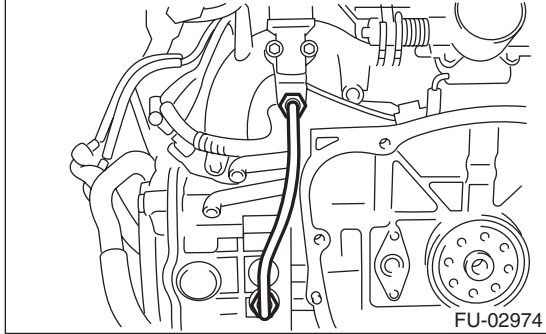
15) Disconnect the connector from the oil pressure switch (A).



16) Disconnect the connector from the camshaft position sensor.



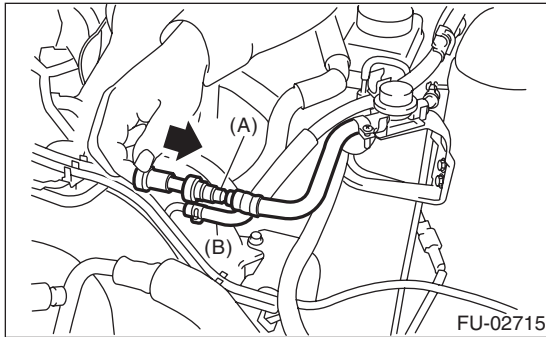
17) Remove the EGR pipe from intake manifold.



18) Disconnect the fuel hoses from fuel pipe.  
(1) Disconnect the quick connector on the fuel delivery line and return line by pushing the ST in the direction of the arrow.  
ST 42099AE000 CONNECTOR REMOVER  
(2) Remove the clip and disconnect the evaporation hose from the pipe.

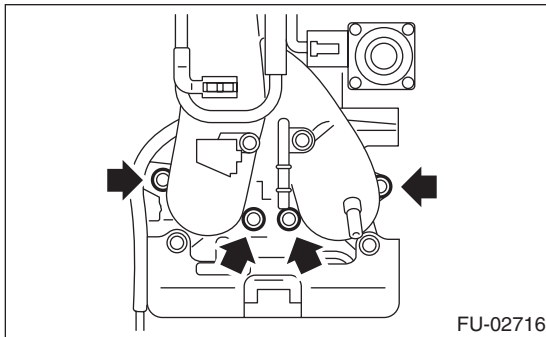
### CAUTION:

- 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

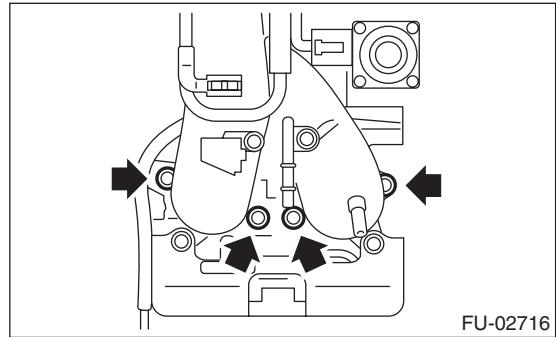
1) Install the intake manifold onto cylinder heads.

### NOTE:

Use a new gasket.

### Tightening torque:

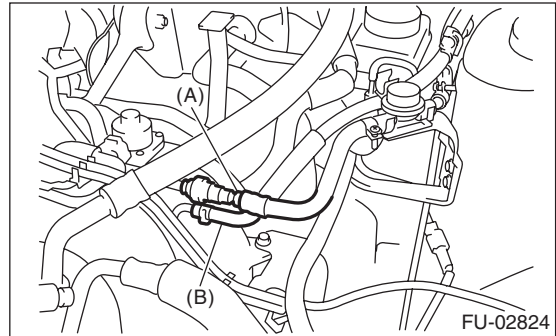
**25 N·m (2.5 kgf-m, 18.1 ft-lb)**



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

### NOTE:

If the hose is damaged, replace with a new part.

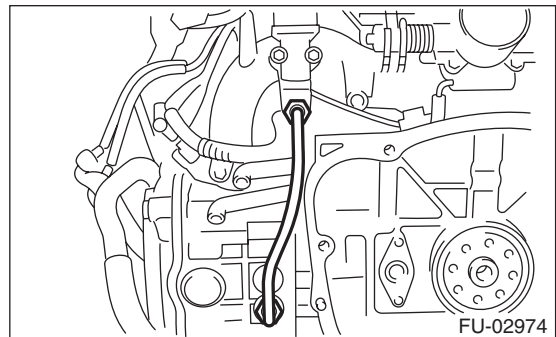


- (A) Fuel delivery hose
- (B) Evaporation hose

3) Install the EGR pipe to intake manifold.

### Tightening torque:

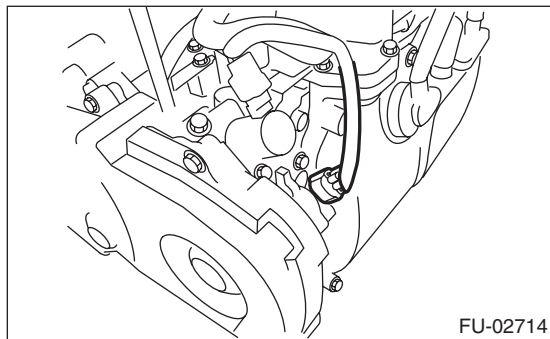
**34 N·m (3.4 kgf-m, 24.6 ft-lb)**



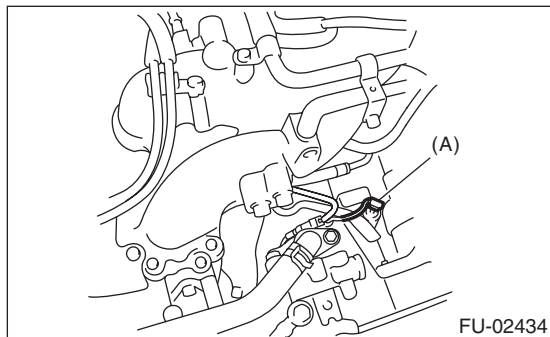
# Intake Manifold

## FUEL INJECTION (FUEL SYSTEMS)

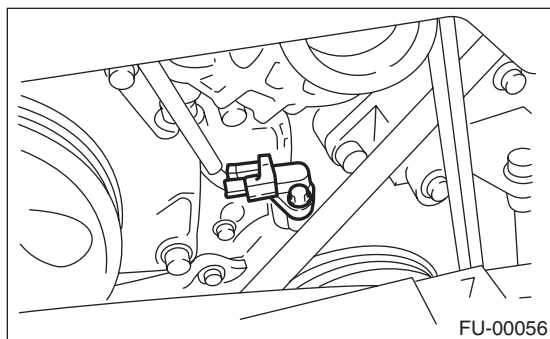
4) Connect the connectors to camshaft position sensor.



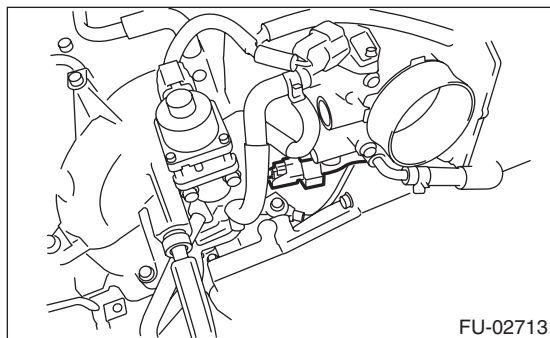
5) Connect the connector to oil pressure switch (A).



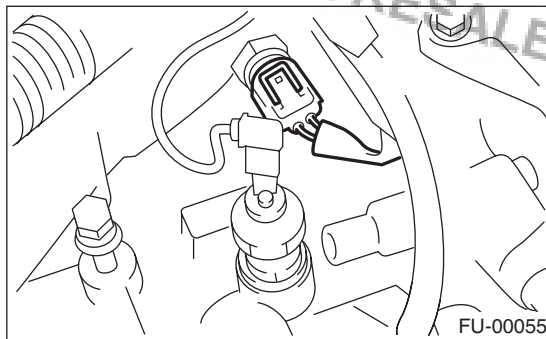
6) Connect the connector to crankshaft position sensor.



7) Connect the knock sensor connector.

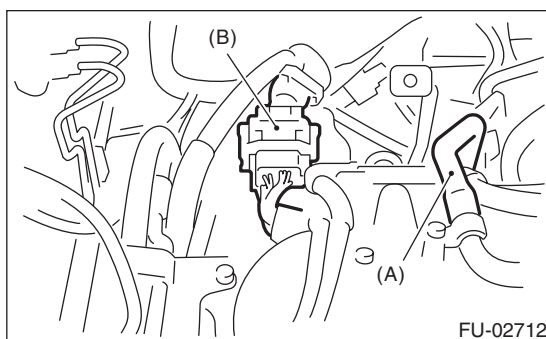


8) Connect the connector to engine coolant temperature sensor.

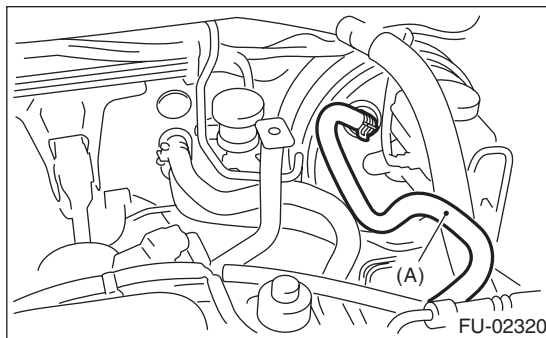


9) Connect the PCV hose (A) to intake manifold.

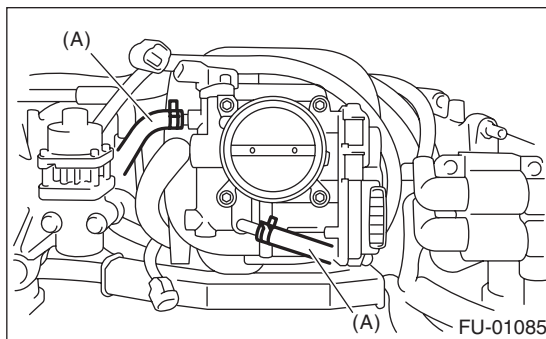
10) Connect the engine harness connectors (B) to bulkhead harness connectors.



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.

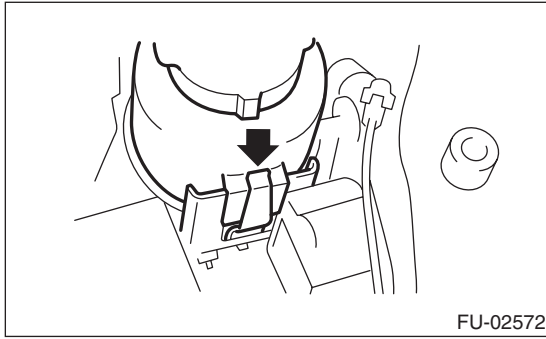
14) Install the power steering pump and power steering reservoir tank to the bracket.



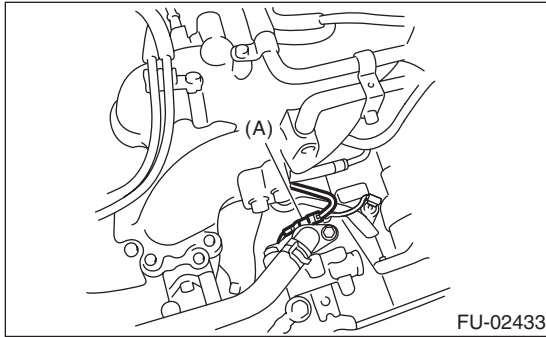
# Intake Manifold

## FUEL INJECTION (FUEL SYSTEMS)

(1) Install the power steering reservoir tank to the bracket.



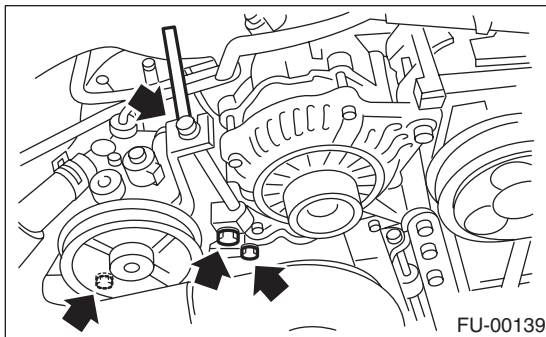
(2) Connect the connector (A) to the power steering pump switch.



(3) Attach the mounting bolts of the power steering pump bracket.

### Tightening torque:

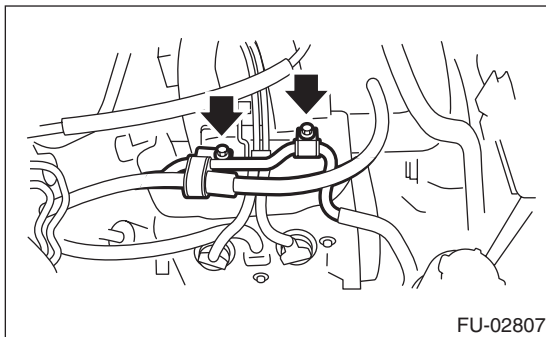
**22 N·m (2.2 kgf-m, 15.9 ft-lb)**



(4) Install the power steering pipes onto the fuel pipe protector RH.

### Tightening torque:

**13 N·m (1.3 kgf-m, 9.4 ft-lb)**

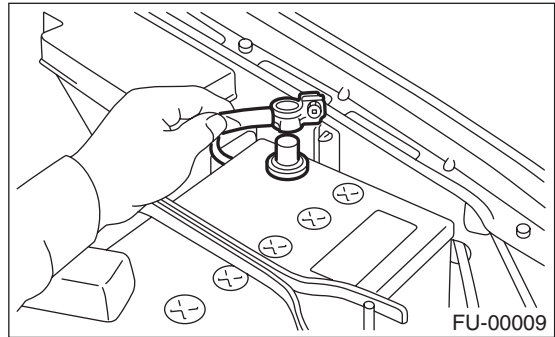


15) Install the generator. <Ref. to SC(H4SO)-14, INSTALLATION, Generator.>

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.>

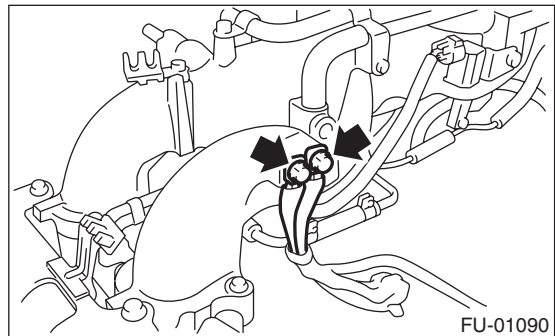
17) Connect the connector to the fuel pump relay.

18) Connect the ground cable to the battery.



## C: DISASSEMBLY

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

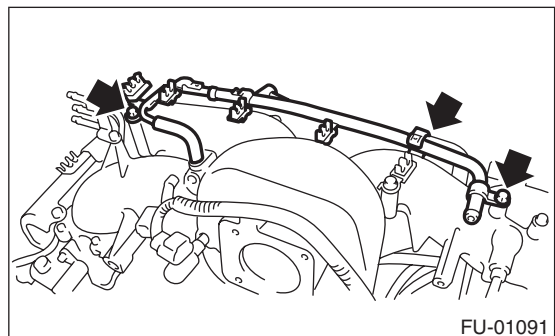


2) Remove the ignition coil and ignitor assembly. <Ref. to IG(H4SO)-6, REMOVAL, Ignition Coil and Ignitor Assembly.>

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.>

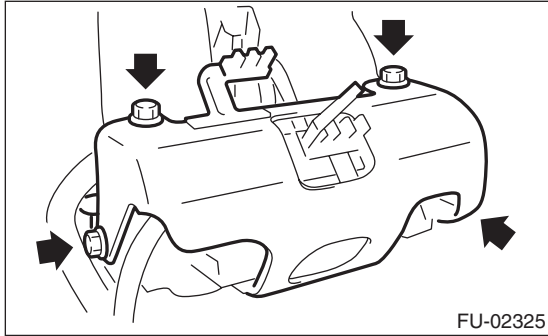
5) Remove the PCV pipe.



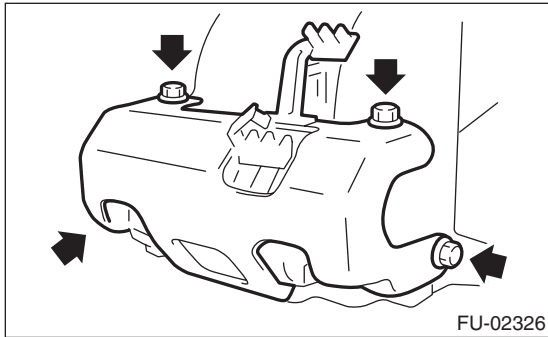
# Intake Manifold

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6) Remove the fuel pipe protector LH.

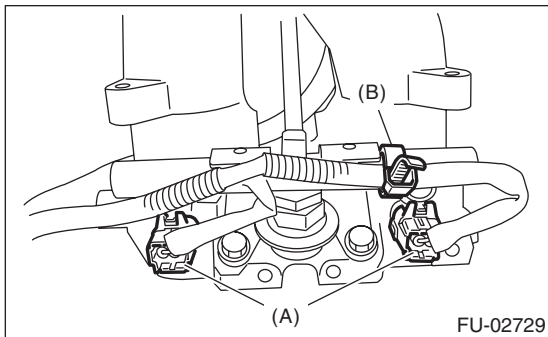


7) Remove the fuel pipe protector RH.



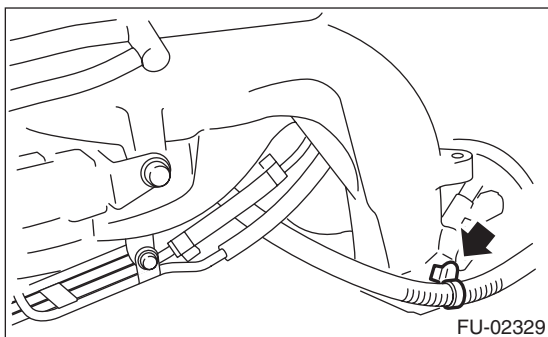
8) Disconnect the connectors (A) from fuel injector.

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

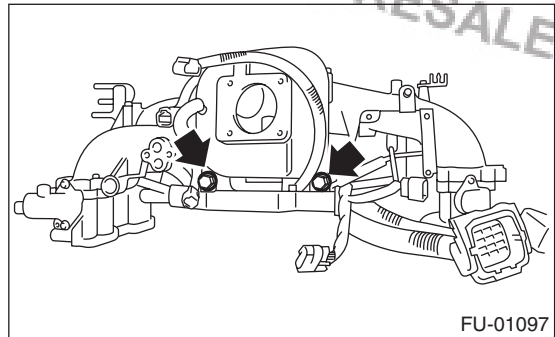


10) Remove the purge control solenoid valve.  
<Ref. to EC(H4SO)-7, REMOVAL, Purge Control Solenoid Valve.>

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



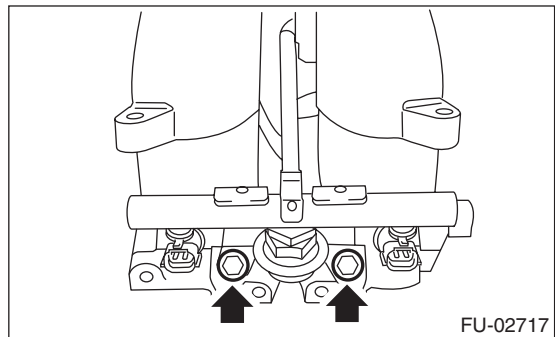
12) Remove the bolts which hold engine harness to the intake manifold.



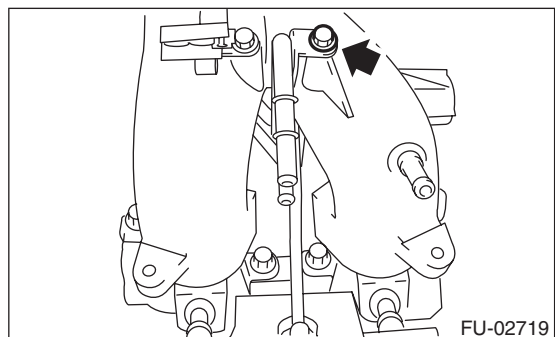
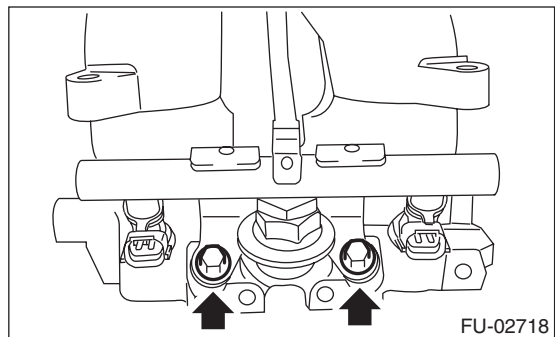
13) Remove the engine harness from the intake manifold.

14) Remove the bolts which hold the fuel injector pipe to the intake manifold, as shown in the figure.

• RH side



• LH side

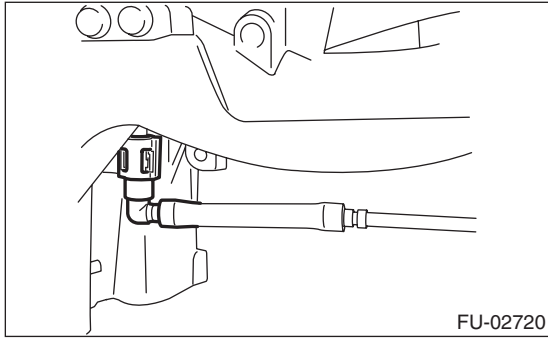


15) Remove the fuel injector from fuel injector pipe.

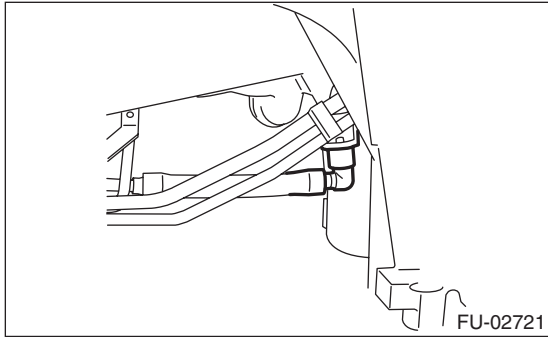
# Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

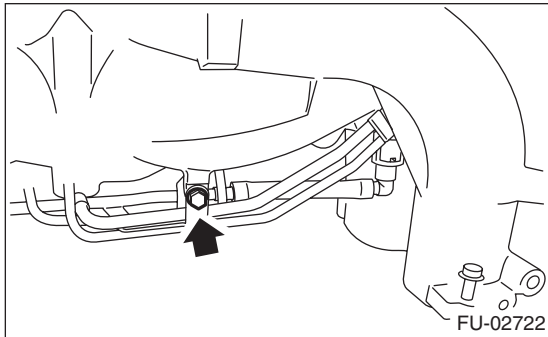
16) Disconnect the quick connector that fastens the fuel injector pipe RH to the fuel pipe.



17) Disconnect the quick connector that fastens the fuel injector pipe LH to the fuel pipe.



18) Remove the fuel injector pipe RH and LH.  
19) Remove the bolts which install fuel pipe assembly on intake manifold.



20) Remove the fuel pipe assembly from intake manifold.

## D: ASSEMBLY

NOTE:

When assembling the nipple, apply liquid gasket.

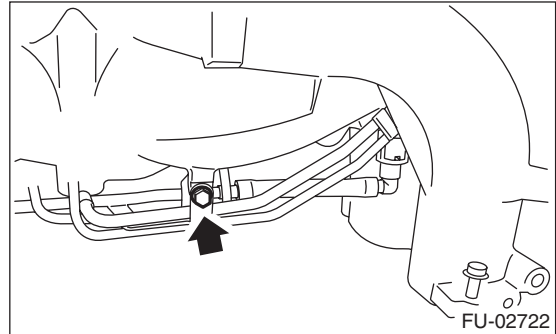
**Liquid gasket:**

**THREE BOND 1105 (Part No. 004403010)**

1) Tighten the bolts which install fuel pipe assembly on intake manifold.

**Tightening torque:**

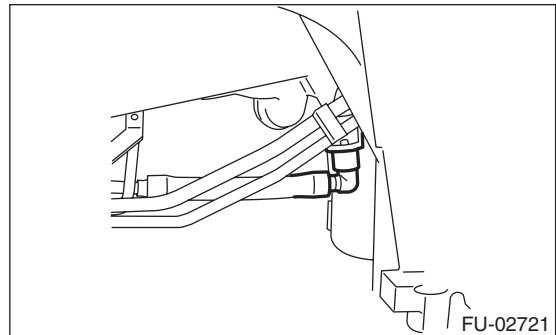
**6.4 N·m (0.65 kgf-m, 4.7 ft-lb)**



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

NOTE:

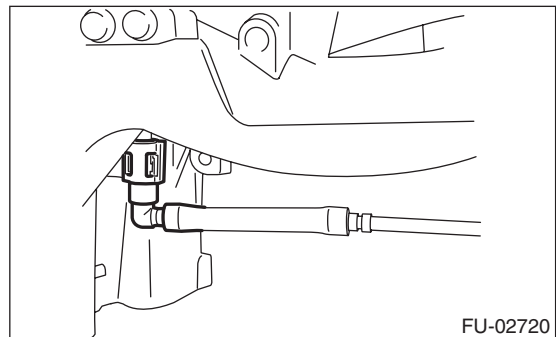
Connect the quick connector securely.



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

NOTE:

Connect the quick connector securely.



4) Install the fuel injector.

# Intake Manifold

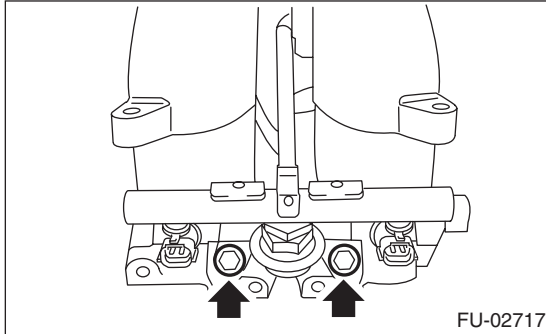
## FUEL INJECTION (FUEL SYSTEMS)

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

- RH side

**Tightening torque:**

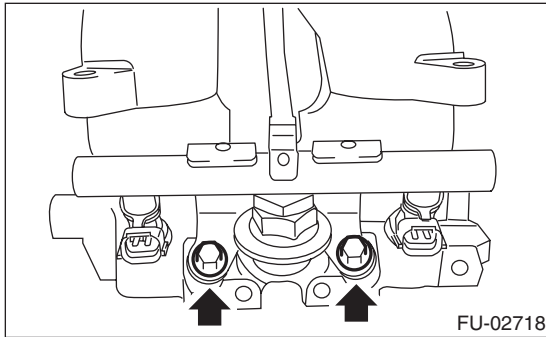
**19 N·m (1.9 kgf-m, 13.7 ft-lb)**



- LH side

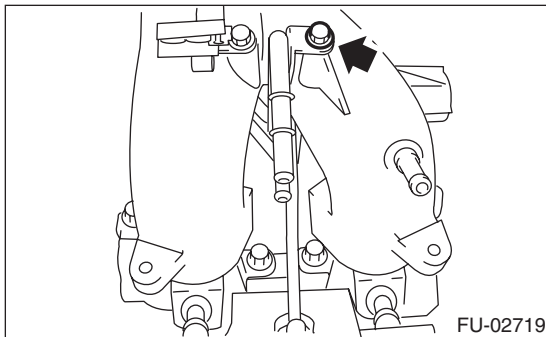
**Tightening torque:**

**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)**

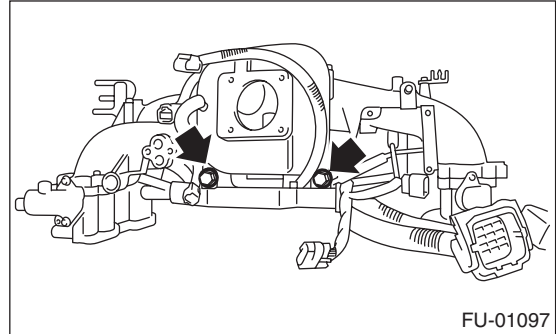


6) Install the engine harness to the intake manifold.

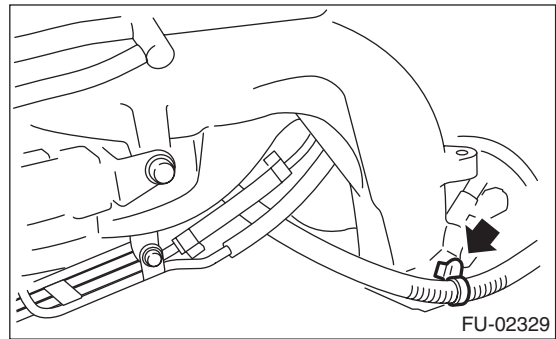
7) Tighten the bolts which install engine harness on intake manifold.

**Tightening torque:**

**19 N·m (1.9 kgf-m, 13.7 ft-lb)**



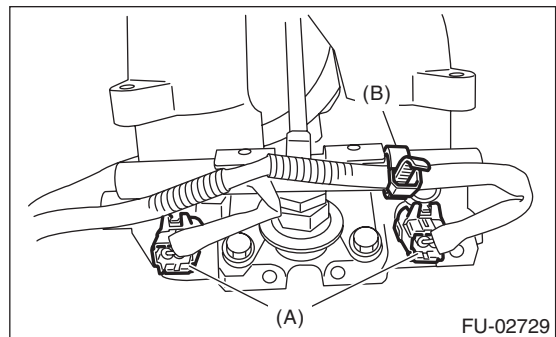
8) Hold the engine harness using the harness band clips.



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.

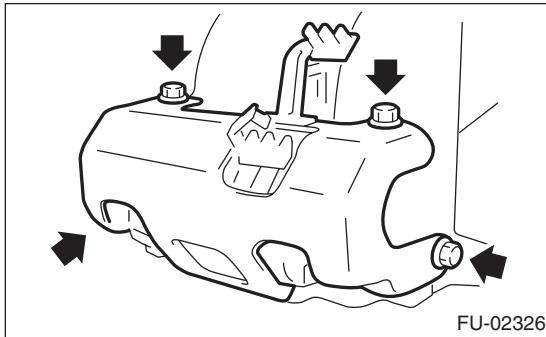
11) Hold the engine harness to fuel injector pipe by harness band (B).



12) Install the fuel pipe protector RH.

**Tightening torque:**

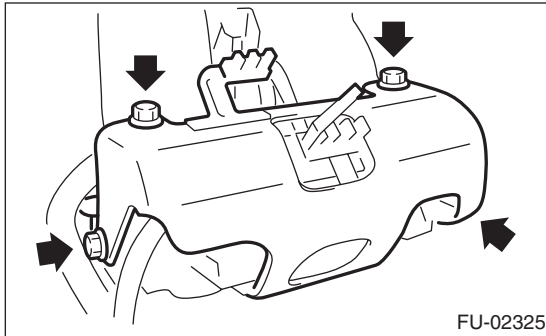
**19 N·m (1.9 kgf-m, 13.7 ft-lb)**



13) Install the fuel pipe protector LH.

**Tightening torque:**

**19 N·m (1.9 kgf-m, 13.7 ft-lb)**



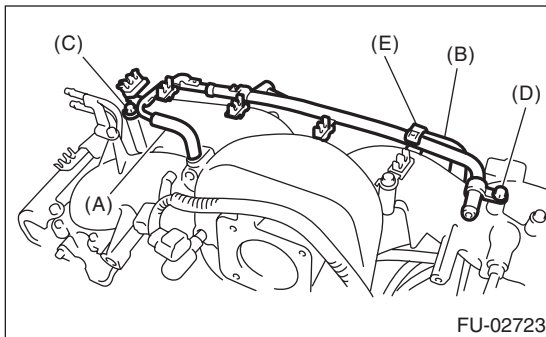
14) Install the PCV pipe.

(1) Connect the hose (A) and (B) to the intake manifold.

(2) Tighten the bolts (C) through (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.>

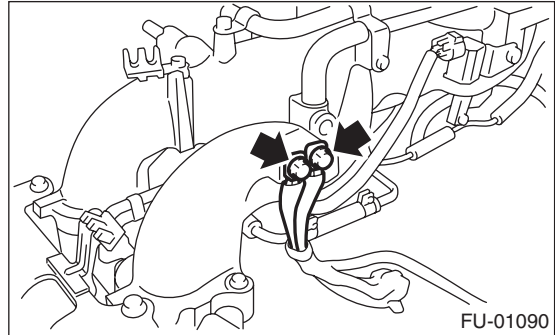
16) Install the throttle body to the intake manifold. <Ref. to FU(H4SO)-12, INSTALLATION, Throttle Body.>

17) Install the ignition coil and ignitor assembly. <Ref. to IG(H4SO)-6, 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)**



### E: INSPECTION

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

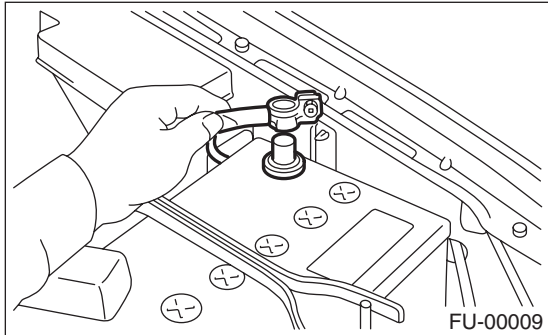
# Engine Coolant Temperature Sensor

FUEL INJECTION (FUEL SYSTEMS)

## 4. Engine Coolant Temperature Sensor

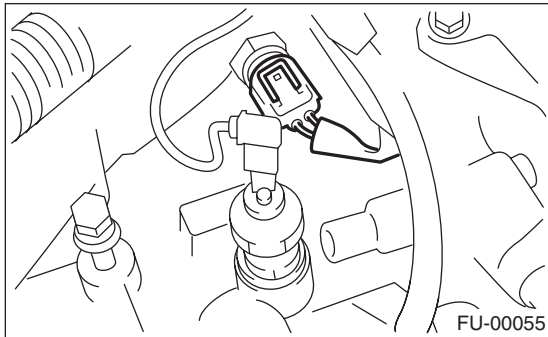
### A: REMOVAL

1) Disconnect the ground cable from the battery.



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

3) Disconnect the connectors from the 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)**

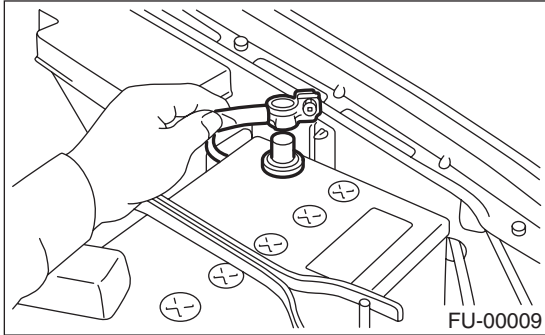
# Crankshaft Position Sensor

FUEL INJECTION (FUEL SYSTEMS)

## 5. Crankshaft Position Sensor

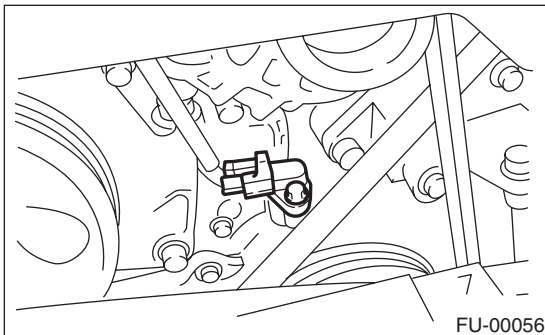
### A: REMOVAL

1) Disconnect the ground cable from the battery.

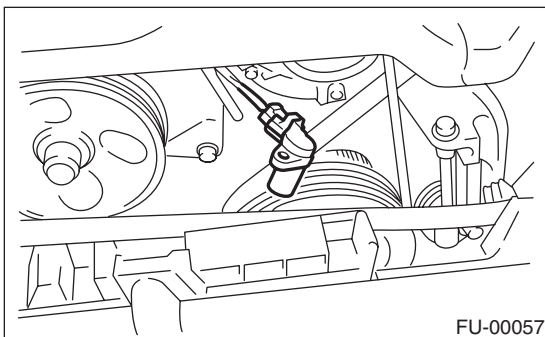


2) Remove the generator. <Ref. to SC(H4SO)-14, REMOVAL, Generator.>

3) Remove the bolt which installs crankshaft position sensor to cylinder block.



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

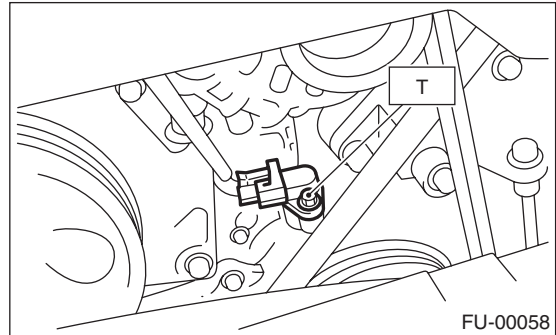


### B: INSTALLATION

Install in the reverse order of removal.

**Tightening torque:**

**T: 6.4 N·m (0.65 kgf-m, 4.7 ft-lb)**



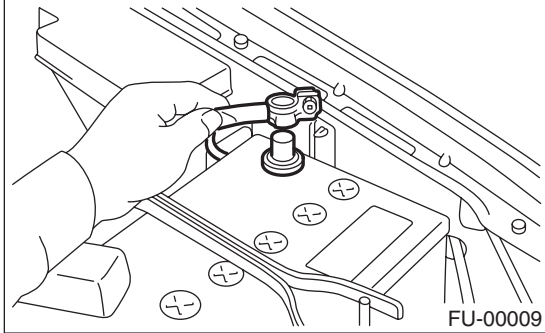
# Camshaft Position Sensor

FUEL INJECTION (FUEL SYSTEMS)

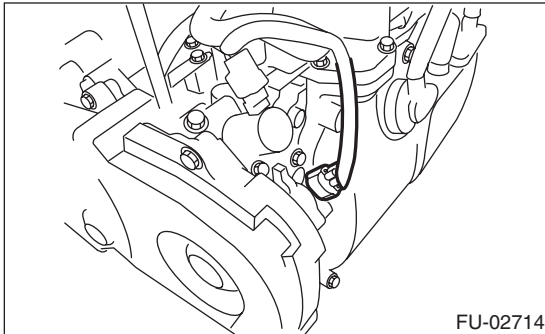
## 6. Camshaft Position Sensor

### A: REMOVAL

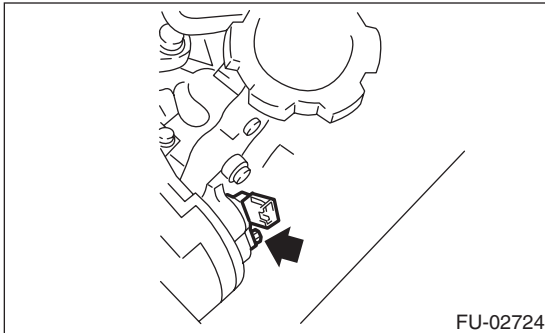
1) Disconnect the ground cable from the battery.



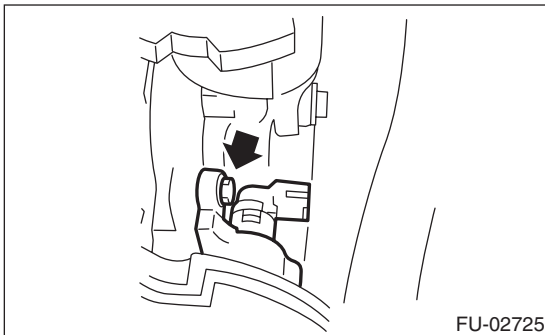
2) Disconnect the connector from the camshaft position sensor.



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

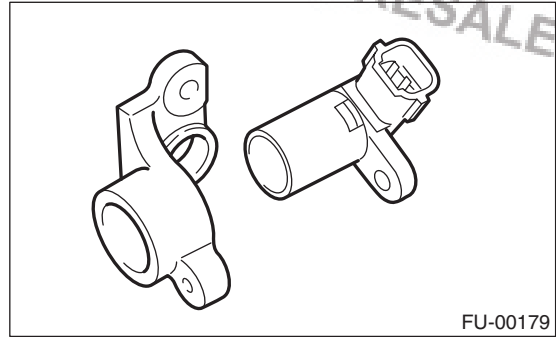


4) Remove the bolt which installs camshaft position sensor support to camshaft cap LH.



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

6) Remove the camshaft position sensor from the camshaft position sensor support.



### 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**

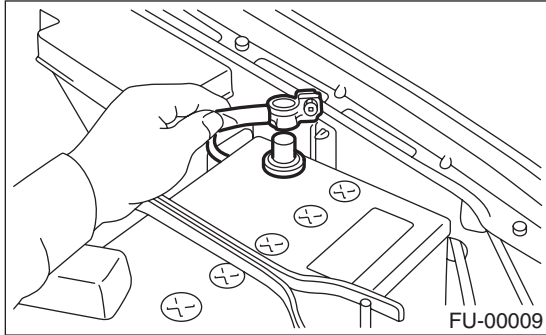
**6.4 N·m (0.65 kgf-m, 4.7 ft-lb)**



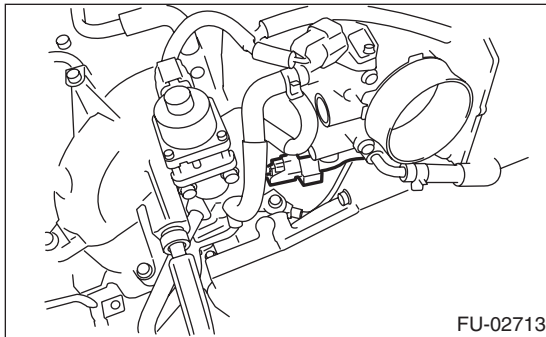
### 7. Knock Sensor

#### A: REMOVAL

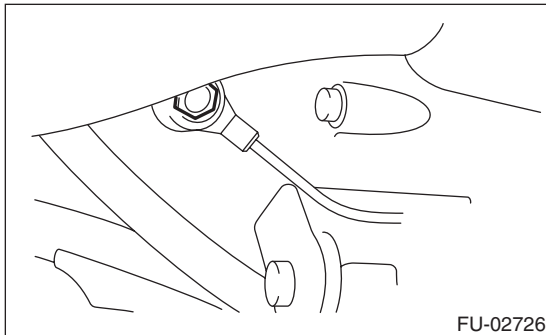
- 1) Disconnect the ground cable from the battery.



- 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

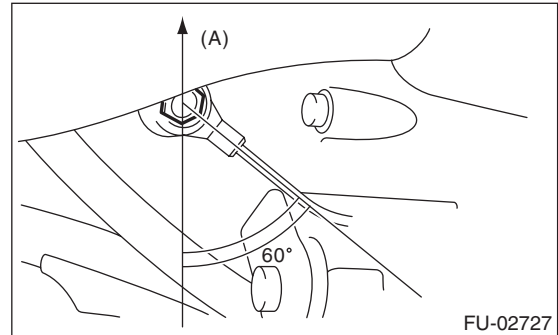
- 1) Install the knock sensor to cylinder block.

#### NOTE:

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

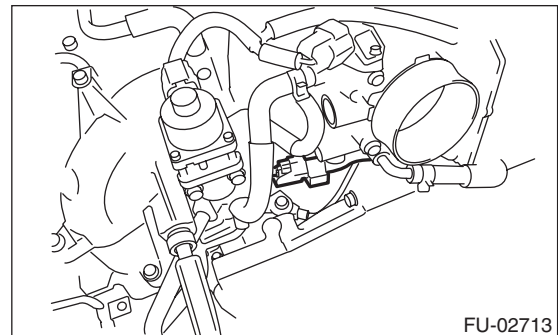
#### Tightening torque:

**24 N·m (2.4 kgf-m, 17.4 ft-lb)**

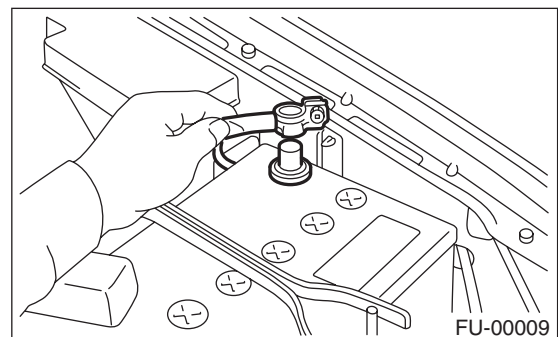


(A) Front side

- 2) Connect the knock sensor connector.



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

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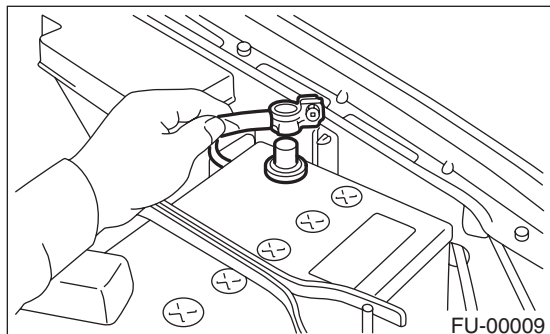
# Manifold Absolute Pressure Sensor

FUEL INJECTION (FUEL SYSTEMS)

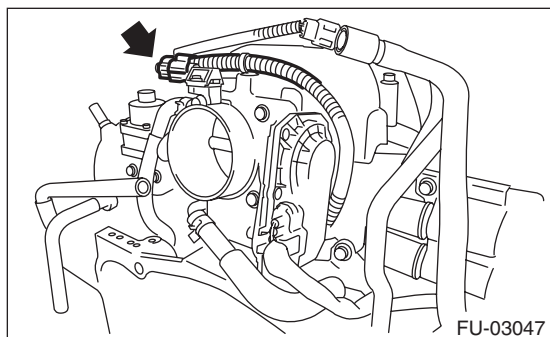
## 9. Manifold Absolute Pressure Sensor

### A: REMOVAL

- 1) Disconnect the ground cable from the 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)**

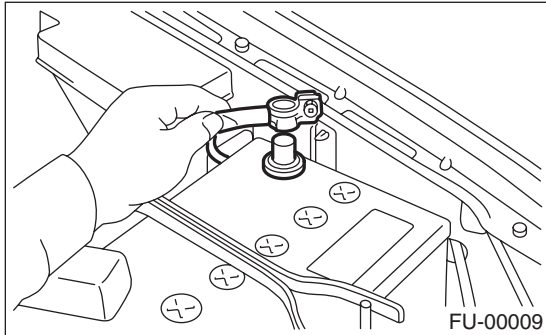
# Mass Air Flow and Intake Air Temperature Sensor

FUEL INJECTION (FUEL SYSTEMS)

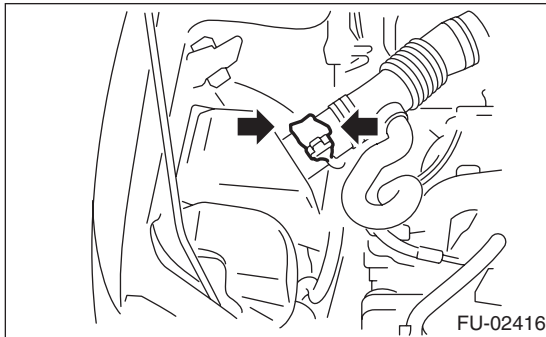
## 10. Mass Air Flow and Intake Air Temperature Sensor

### A: REMOVAL

- 1) Disconnect the ground cable from the battery.



- 2) Disconnect the connector from the 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.

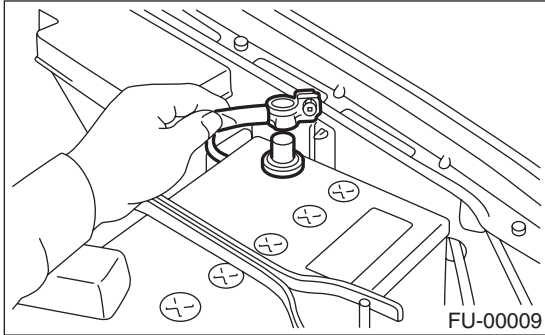
**Tightening torque:**

**1.0 N·m (0.10 kgf·m, 0.74 ft·lb)**

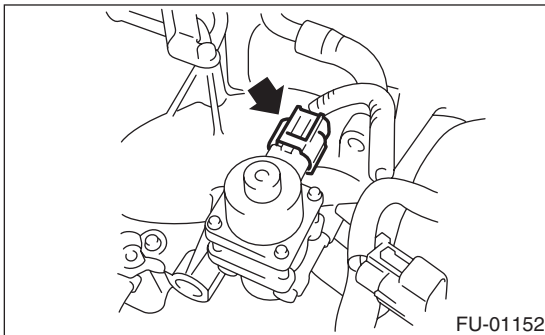
## 11. EGR Valve

### A: REMOVAL

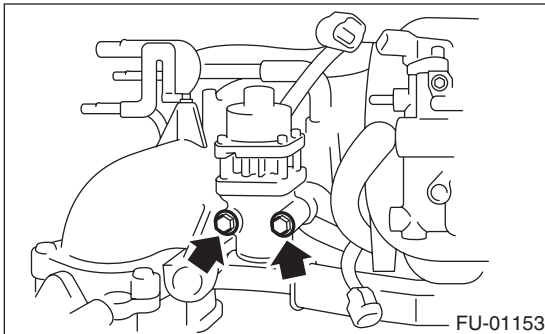
- 1) Disconnect the ground cable from the battery.



- 2) Disconnect the connector from the 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:**

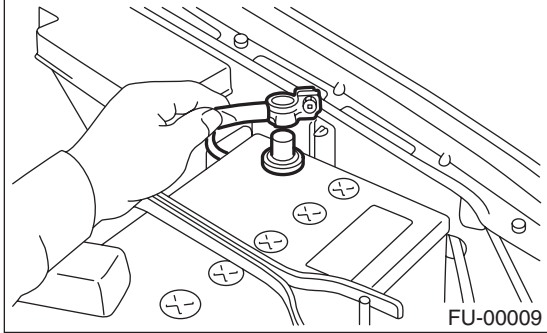
**19 N·m (1.9 kgf·m, 13.7 ft·lb)**

### 12. Fuel Injector

#### A: REMOVAL

##### 1. RH SIDE

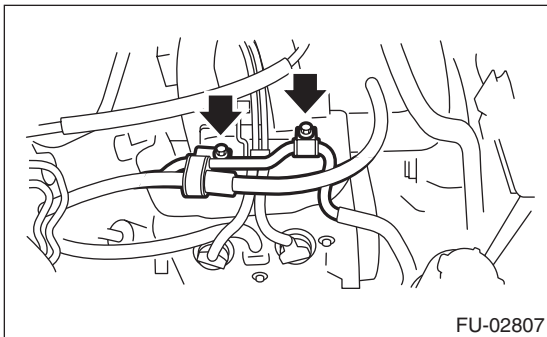
- 1) Release the fuel pressure. <Ref. to FU(H4SO)-43, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>
- 2) Disconnect the ground cable from the battery.



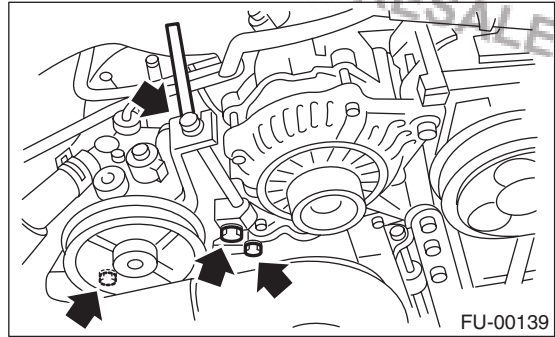
- 3) Open the fuel filler flap lid, and remove the fuel filler cap.
- 4) Remove the air intake duct and air cleaner case. <Ref. to IN(H4SO)-7, REMOVAL, Air Intake Duct.> <Ref. to IN(H4SO)-5, REMOVAL, Air Cleaner Case.>
- 5) Remove the power steering pump and power steering reservoir tank.
  - (1) Remove the front V-belt. <Ref. to ME(H4SO)-39, REMOVAL, V-belt.>
  - (2) Remove the bolts which hold the power steering pipes onto the intake manifold protector RH.

#### NOTE:

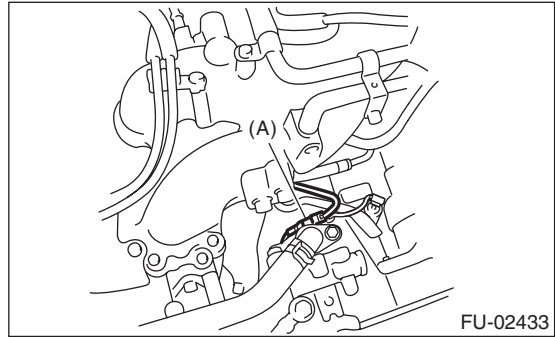
Do not disconnect the power steering hose.



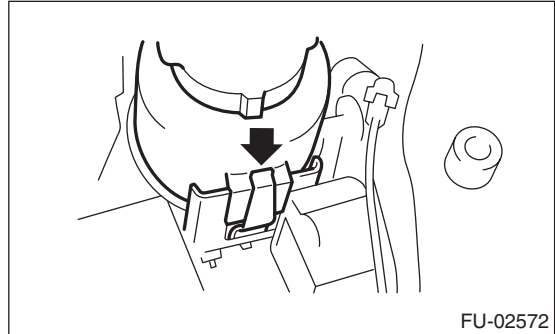
- (3) Remove the bolts which install the power steering pump to the bracket.



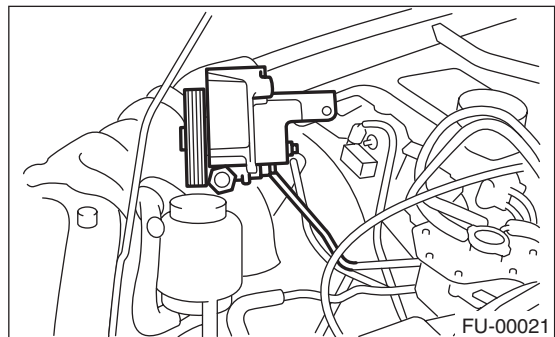
- (4) Disconnect the power steering pump switch connector (A).



- (5) Remove the power steering reservoir tank from the bracket by pulling it upward.

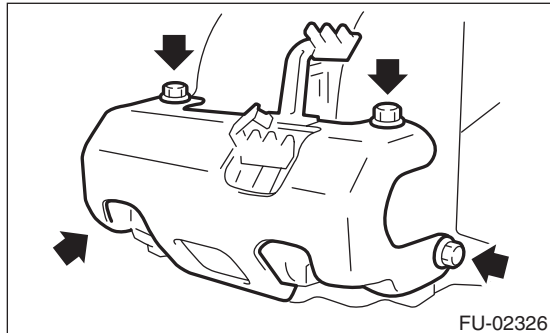


- (6) Place the power steering pump and tank on the right side wheel apron.

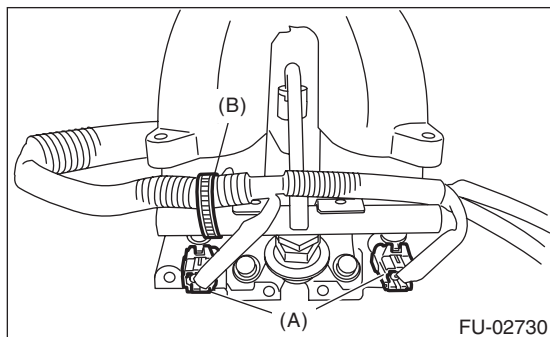


- 6) Remove the spark plug cords from spark plugs (#1 and #3 cylinders).

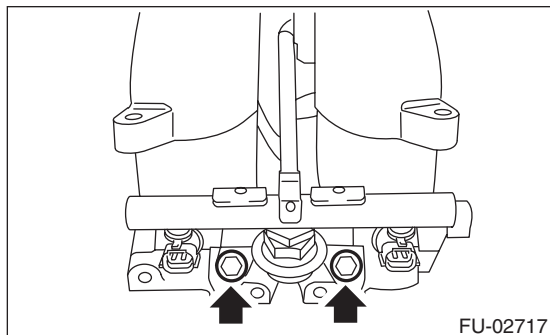
7) Remove the fuel pipe protector RH.



8) Disconnect the connectors (A) from fuel injector.  
9) Remove the harness band (B) which holds the engine harness to fuel injector pipe.



10) Remove the bolt which holds fuel injector pipe onto intake manifold.



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

### 2. LH SIDE

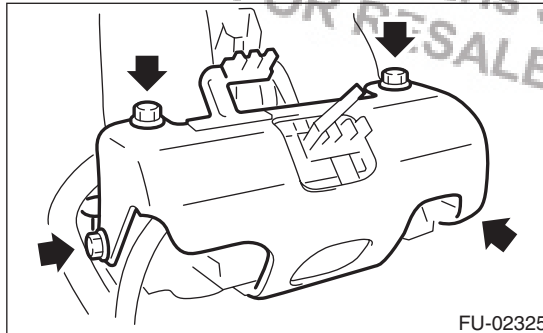
1) Release the fuel pressure. <Ref. to FU(H4SO)-43, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>

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

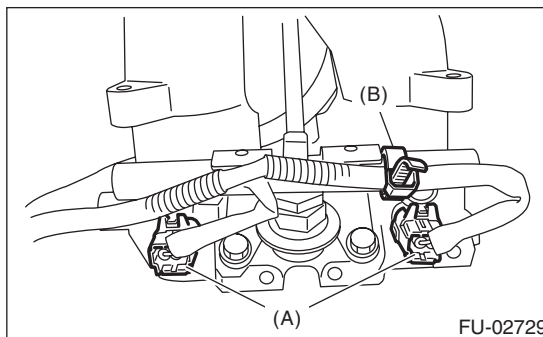
3) Open the fuel filler flap lid, and remove the fuel filler cap.

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

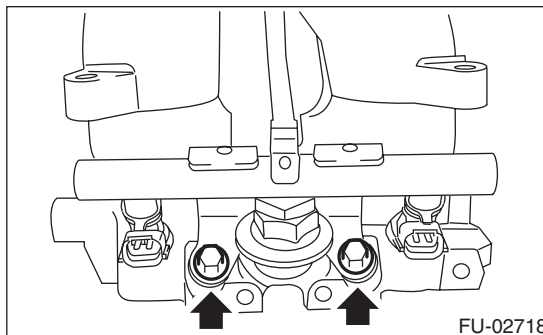
5) Remove the fuel pipe protector LH.



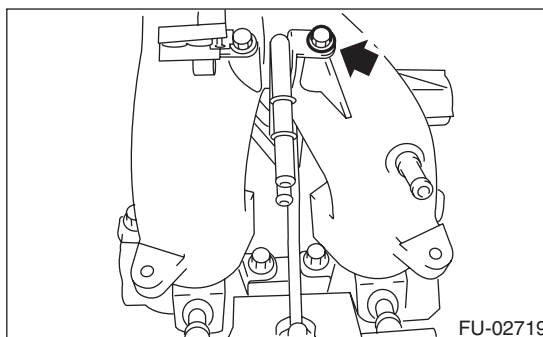
6) Disconnect the connectors (A) from fuel injector.  
7) Remove the harness band (B) which holds the engine harness to fuel injector pipe.



8) Remove the bolt which holds fuel injector pipe onto intake manifold.



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



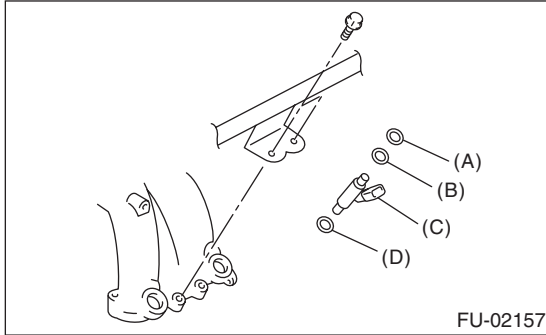
### B: INSTALLATION

#### 1. RH SIDE

Install in the reverse order of removal.

NOTE:

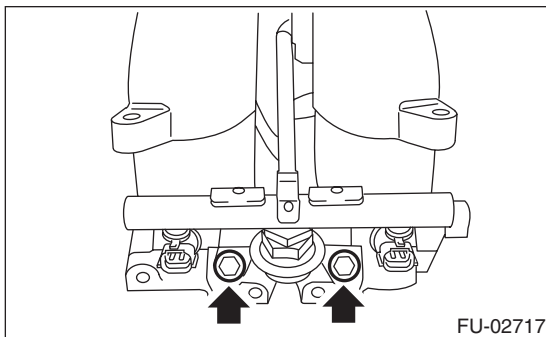
Use new O-rings.



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

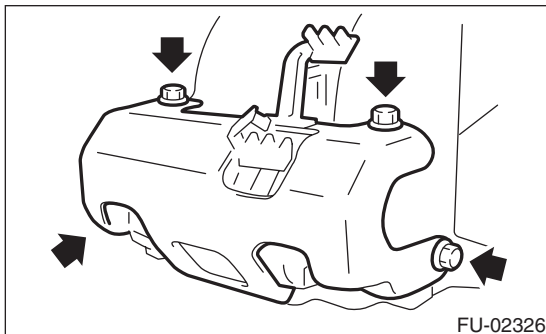
**Tightening torque:**

**19 N·m (1.9 kgf-m, 13.7 ft-lb)**



**Tightening torque:**

**19 N·m (1.9 kgf-m, 13.7 ft-lb)**

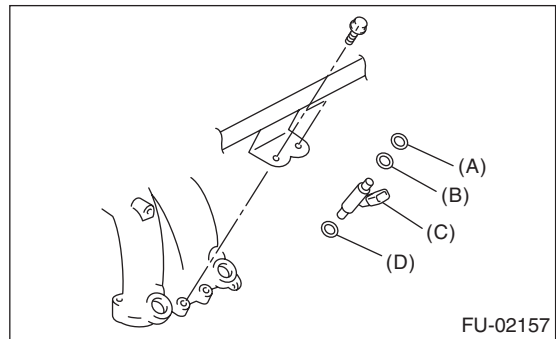


#### 2. LH SIDE

Install in the reverse order of removal.

NOTE:

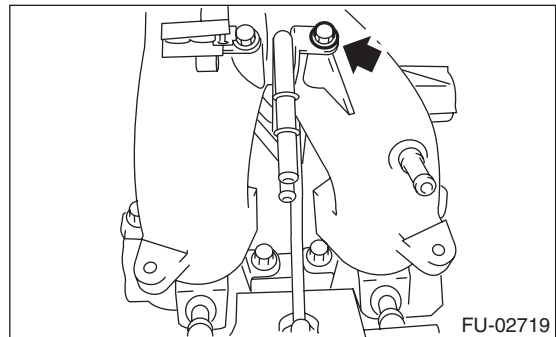
Use new O-rings.



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

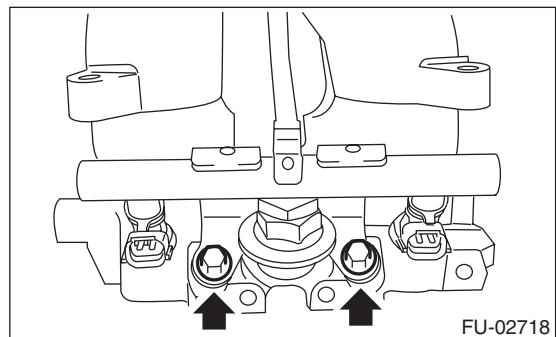
**Tightening torque:**

**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)**



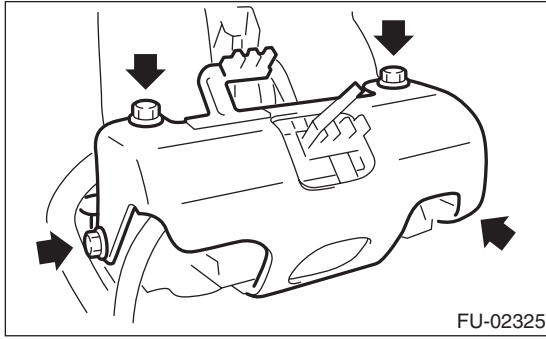


# Fuel Injector

FUEL INJECTION (FUEL SYSTEMS)

**Tightening torque:**

**19 N·m (1.9 kgf-m, 13.7 ft-lb)**



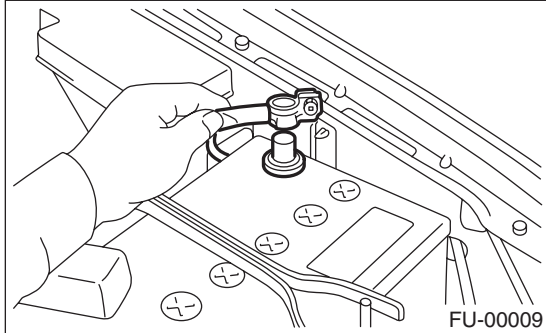
# Variable Valve Lift Diagnosis Oil Pressure Switch

FUEL INJECTION (FUEL SYSTEMS)

## 13. Variable Valve Lift Diagnosis Oil Pressure Switch

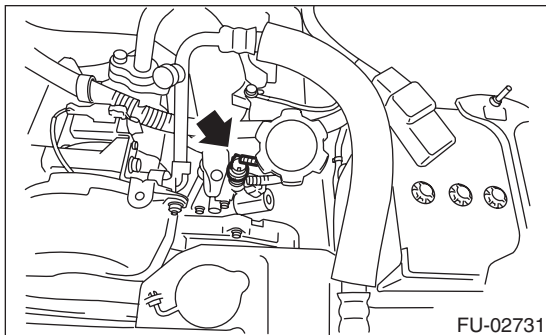
### A: REMOVAL

- 1) Disconnect the ground cable from the battery.

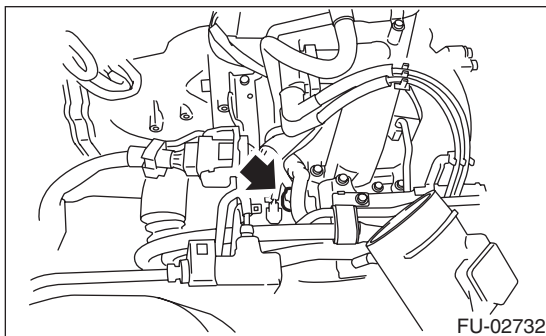


- 2) Remove the air intake chamber. <Ref. to IN(H4SO)-6, REMOVAL, Air Intake Chamber.>
- 3) Remove the engine harness connector from the bracket.
- 4) Disconnect the connector from the variable valve lift diagnosis oil pressure switch.
- 5) Remove the variable valve lift diagnosis oil pressure switch.

- LH side



- RH side



### B: INSTALLATION

Install in the reverse order of removal.

NOTE:

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

**Liquid gasket:**

**THREE BOND 1324 (Part No. 004403042) or equivalent**

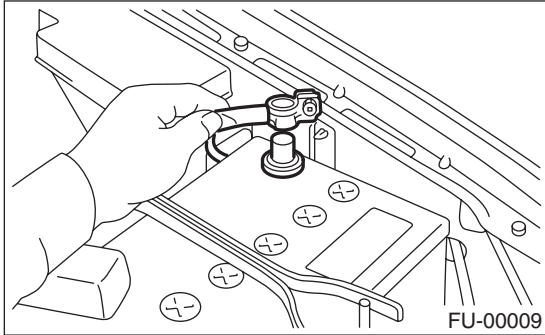
**Tightening torque:**

**17 N·m (1.7 kgf-m, 12.5 ft-lb)**

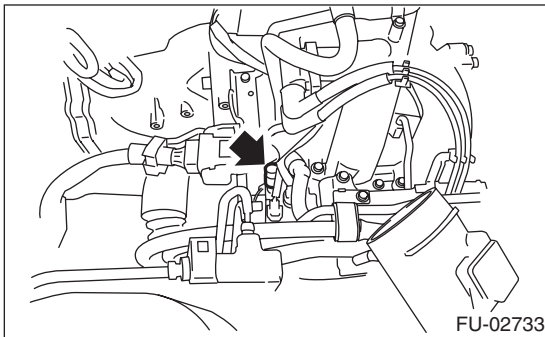
## 14. Oil Temperature Sensor

### A: REMOVAL

- 1) Disconnect the ground cable from the battery.



- 2) Remove the air intake chamber. <Ref. to IN(H4SO)-6, REMOVAL, Air Intake Chamber.>
- 3) Remove the engine harness connector from the bracket.
- 4) Disconnect the connector from the 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)**

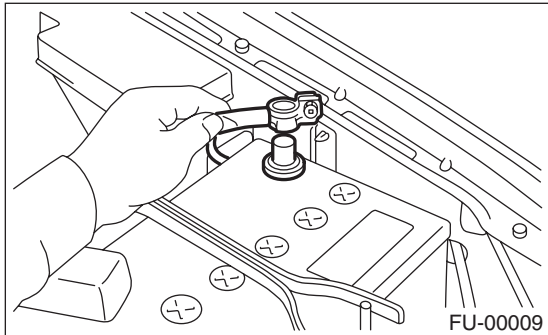
# Front Oxygen (A/F) Sensor

FUEL INJECTION (FUEL SYSTEMS)

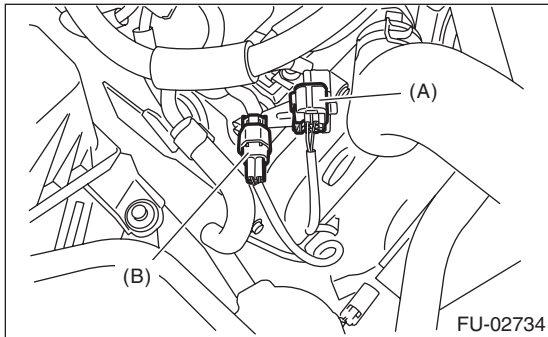
## 15. Front Oxygen (A/F) Sensor

### A: REMOVAL

- 1) Set the vehicle on a lift.
- 2) Disconnect the ground cable from the battery.



- 3) Remove the clip fastening the harness and disconnect the front oxygen (A/F) sensor connector.

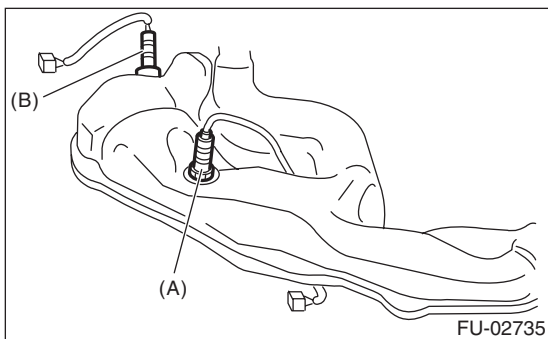


- (A) Front oxygen (A/F) sensor connector
- (B) Rear oxygen sensor connector

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

### CAUTION:

**When removing the front oxygen (A/F) sensor, wait until exhaust pipe cools, because it can damage the exhaust pipe.**



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

### B: INSTALLATION

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

### CAUTION:

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

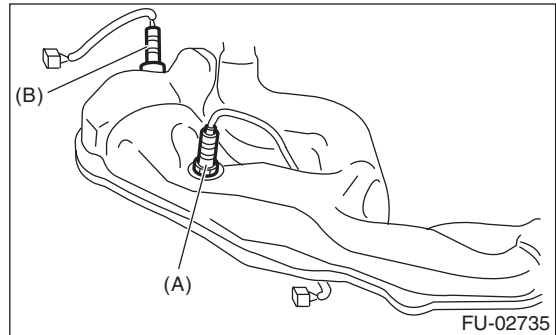
### Anti-seize compound

**NEVER-SEEZ NSN, JET LUBE SS-30 or equivalent**

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

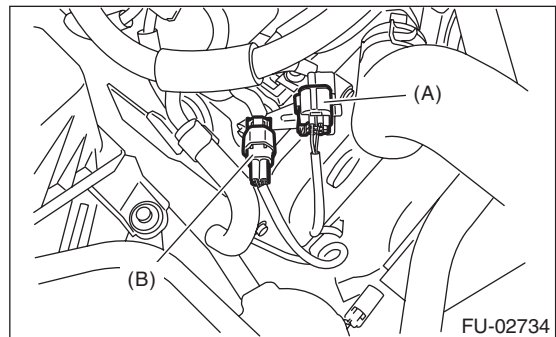
### Tightening torque:

**21 N·m (2.1 kgf·m, 15.2 ft·lb)**



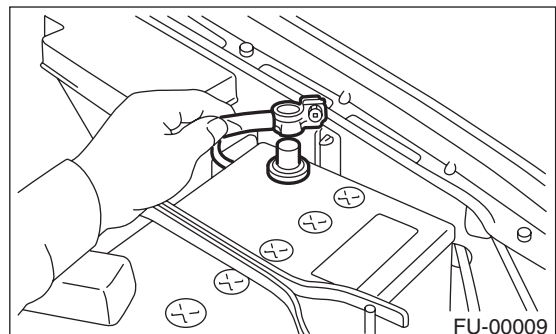
- (A) Front oxygen (A/F) sensor
- (B) Rear oxygen sensor

- 3) Install the under cover.
- 4) Lower the vehicle.
- 5) Connect the front oxygen (A/F) sensor connector and fasten the harness with clips.



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

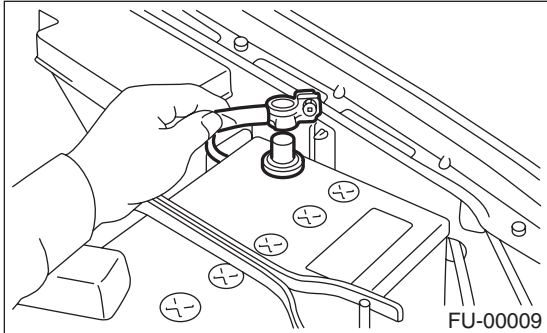
- 6) Connect the ground cable to the battery.



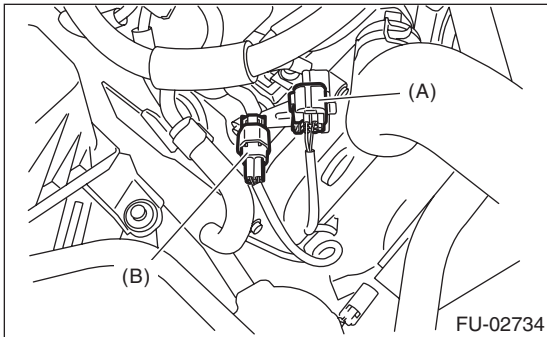
## 16. Rear Oxygen Sensor

### A: REMOVAL

- 1) Set the vehicle on a lift.
- 2) Disconnect the ground cable from the battery.



- 3) Remove the clip fastening the harness and disconnect the rear oxygen (A/F) sensor connector.

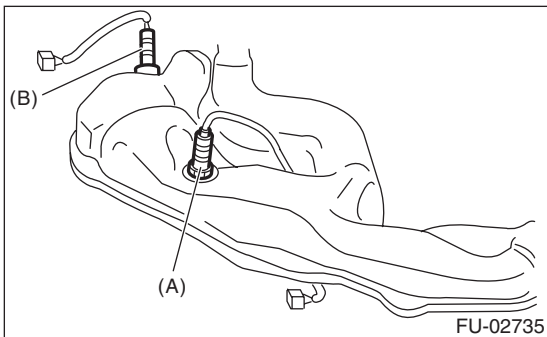


- (A) Front oxygen (A/F) sensor connector
- (B) Rear oxygen sensor connector

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

### CAUTION:

When removing the rear oxygen (A/F) sensor, wait until exhaust pipe cools, because it can damage the exhaust pipe.



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

### B: INSTALLATION

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

### CAUTION:

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

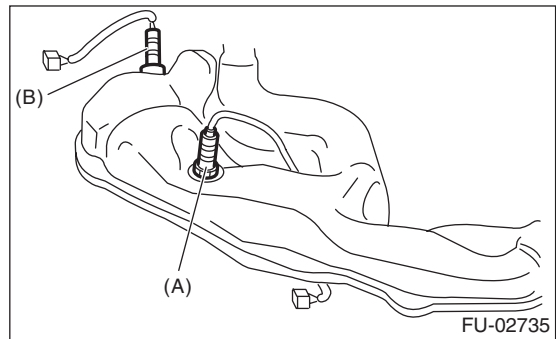
### Anti-seize compound

**NEVER-SEEZ NSN, JET LUBE SS-30 or equivalent**

- 2) Install the rear oxygen sensor.

### Tightening torque:

**21 N·m (2.1 kgf-m, 15.2 ft-lb)**

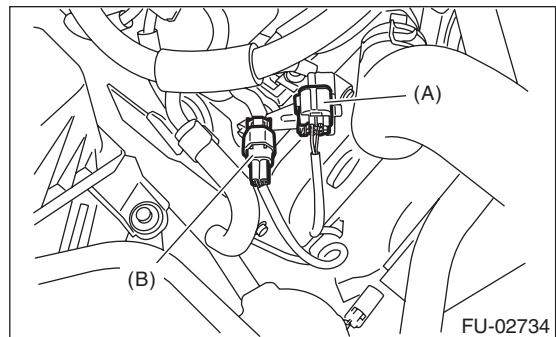


- (A) Front oxygen (A/F) sensor
- (B) Rear oxygen sensor

- 3) Install the under cover.
- 4) Lower the vehicle.
- 5) Connect the connector to rear oxygen sensor and mount the harness to the securing bracket.

### NOTE:

Install the harness clip to the securing bracket.



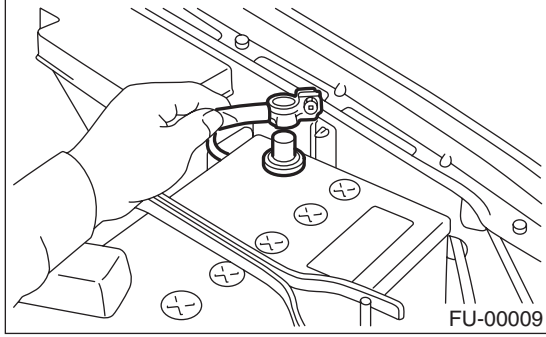
- (A) Front oxygen (A/F) sensor connector
- (B) Rear oxygen sensor connector

## Rear Oxygen Sensor

### FUEL INJECTION (FUEL SYSTEMS)

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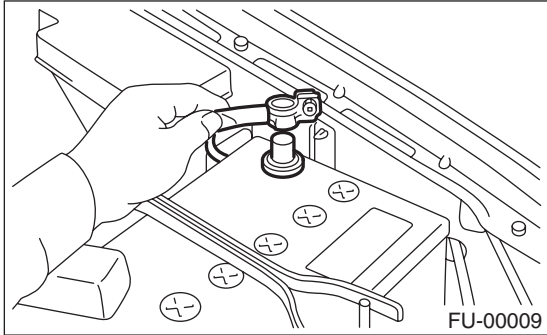
6) Connect the ground cable to the battery.



## 17.Engine Control Module (ECM)

### A: REMOVAL

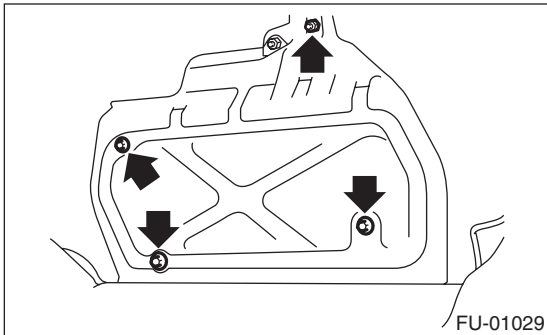
- 1) Disconnect the ground cable from the battery.



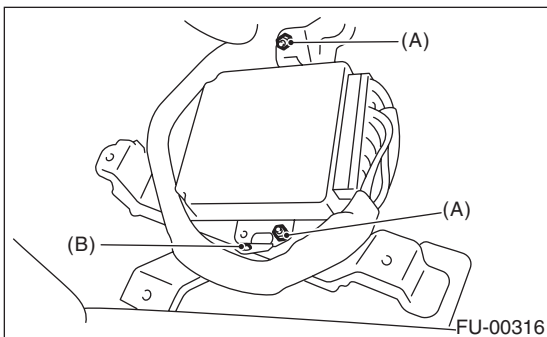
- 2) Remove the lower inner trim of passenger's side.

<Ref. to EI-51, REMOVAL, Lower Inner Trim.>

- 3) Detach the floor mat of passenger's seat.
- 4) Remove the protect cover.



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



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

### B: INSTALLATION

Install in the reverse order of removal.

#### NOTE:

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

#### Tightening torque:

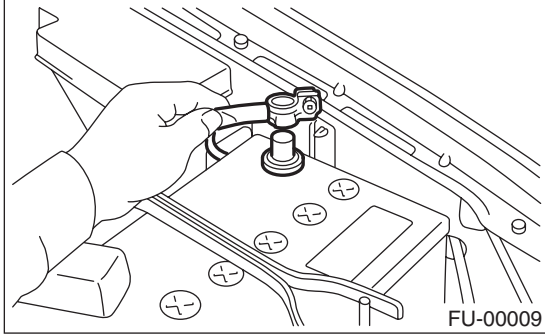
**7.5 N·m (0.76 kgf-m, 5.5 ft-lb)**

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NOT FOR RESALE

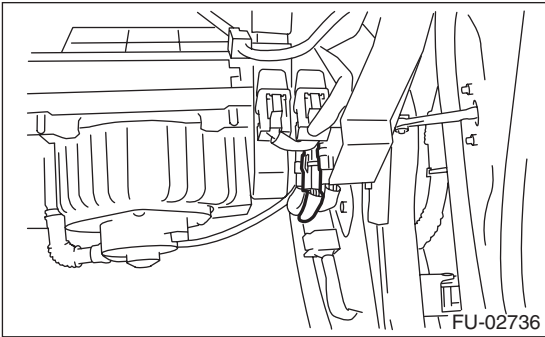
## 18. Main Relay

### A: REMOVAL

- 1) Disconnect the ground cable from the battery.



- 2) Remove the glove box. <Ref. to EI-43, REMOVAL, Glove Box.>
- 3) Remove the passenger's side front side sill cover.
- 4) Disconnect the connectors from main relay.



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

### B: INSTALLATION

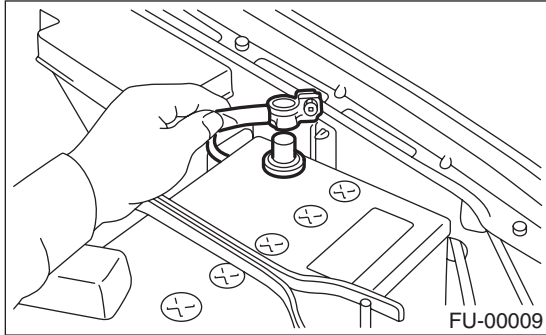
Install in the reverse order of removal.



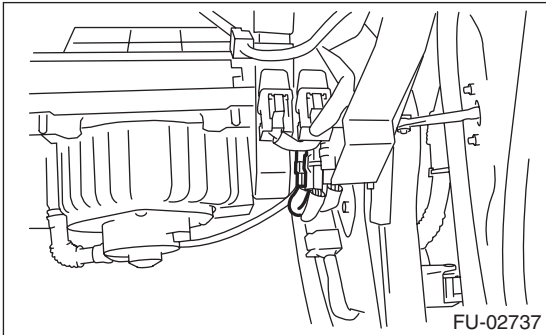
## 19. Fuel Pump Relay

### A: REMOVAL

- 1) Disconnect the ground cable from the battery.



- 2) Remove the glove box. <Ref. to EI-43, REMOVAL, Glove Box.>
- 3) Remove the passenger's side front side sill cover.
- 4) Disconnect the connector from fuel pump relay.



- 5) Remove the fuel pump relay from the mounting bracket.

### B: INSTALLATION

Install in the reverse order of removal.

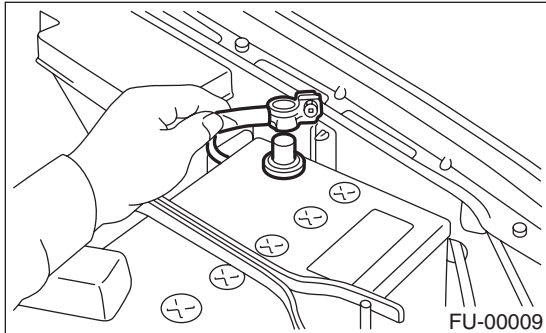
# Electronic Throttle Control Relay

FUEL INJECTION (FUEL SYSTEMS)

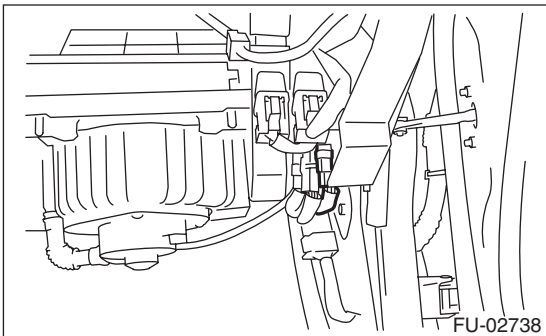
## 20. Electronic Throttle Control Relay

### A: REMOVAL

- 1) Disconnect the ground cable from the battery.



- 2) Remove the glove box. <Ref. to EI-43, REMOVAL, Glove Box.>
- 3) Remove the passenger's side front side sill cover.
- 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

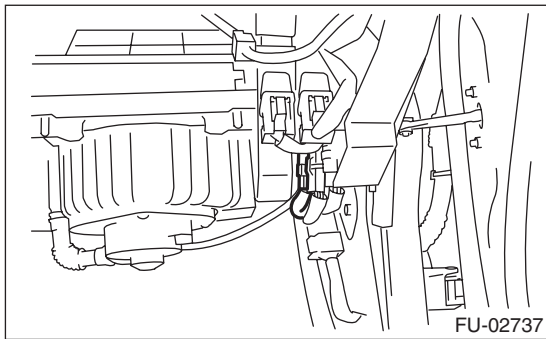
##### WARNING:

Place "NO OPEN FLAMES" signs near the working area.

##### CAUTION:

Be careful not to spill fuel.

- 1) Remove the glove box. <Ref. to EI-43, REMOVAL, Glove Box.>
- 2) Remove the passenger's side front side sill cover.
- 3) Disconnect the connector from fuel pump relay.



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

#### 2. DRAINING FUEL

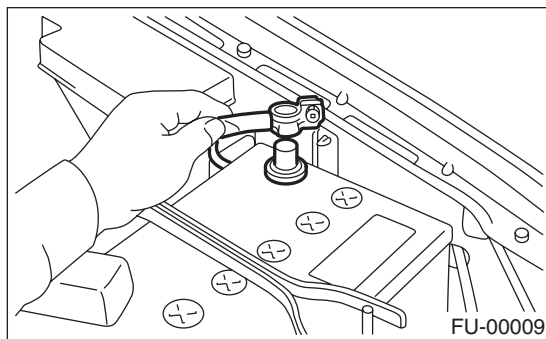
##### WARNING:

Place "NO OPEN FLAMES" signs near the working area.

##### CAUTION:

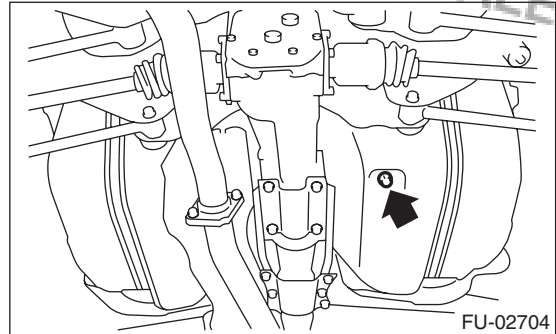
Be careful not to spill fuel.

- 1) Set the vehicle on a lift.
- 2) Disconnect the ground cable from the battery.



- 3) Open the fuel filler flap lid, and remove the fuel filler cap.
- 4) Lift up the vehicle.

- 5) Set a container under the vehicle and remove the drain plug from fuel tank to drain fuel from fuel tank.



- 6) Tighten the fuel drain plugs.

##### NOTE:

Use a new gasket.

##### **Tightening torque:**

**26 N·m (2.65 kgf-m, 19.2 ft-lb)**

### 22. Fuel Tank

#### A: REMOVAL

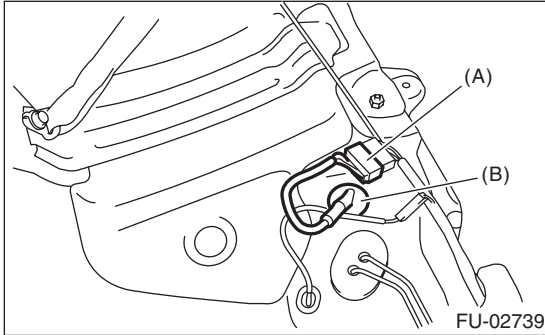
**WARNING:**

Place “NO OPEN FLAMES” signs near the working area.

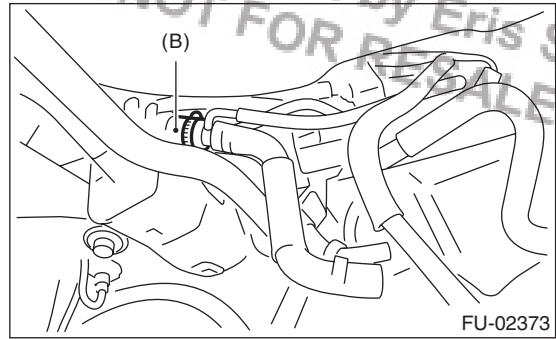
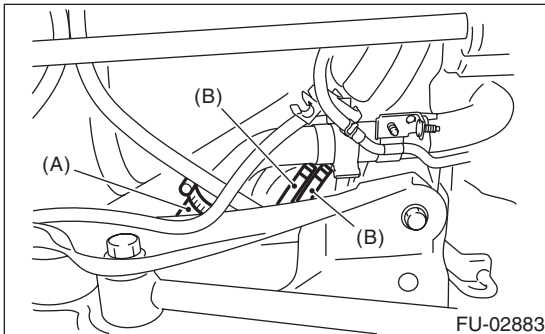
**CAUTION:**

**Be careful not to spill fuel.**

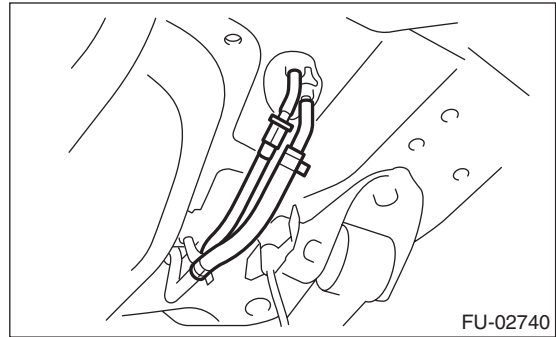
- 1) Set the vehicle on a lift.
- 2) Release the fuel pressure. <Ref. to FU(H4SO)-43, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>
- 3) Drain fuel from fuel tank. <Ref. to FU(H4SO)-43, DRAINING FUEL, PROCEDURE, Fuel.>
- 4) Remove the rear seat.
- 5) Disconnect the connector (A) of fuel tank cord to the rear harness.
- 6) Push the grommet (B) which holds the fuel tank cord on the 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 the pressure control solenoid valve.
- 10) Loosen the clamp, and disconnect the fuel filler hose (A) and evaporation hose (B) from fuel filler pipe.



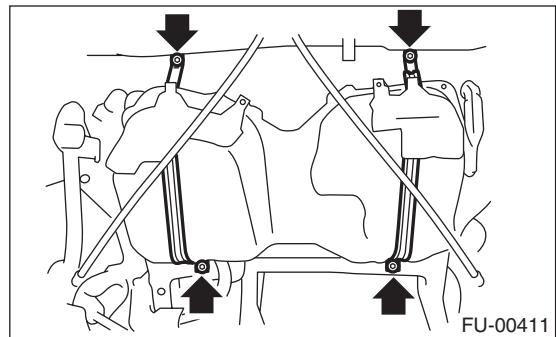
- 11) Move the clip, and disconnect the quick connector. <Ref. to FU(H4SO)-58, REMOVAL, Fuel Delivery and Evaporation Lines.>
- 12) Disconnect the fuel hoses.



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

**WARNING:**

- A helper is required to perform this work.
- Fuel may remain in the side which does not have drain plug of fuel tank. This will cause the left and right sides to be unbalanced. Be careful not to drop the fuel tank when removing.

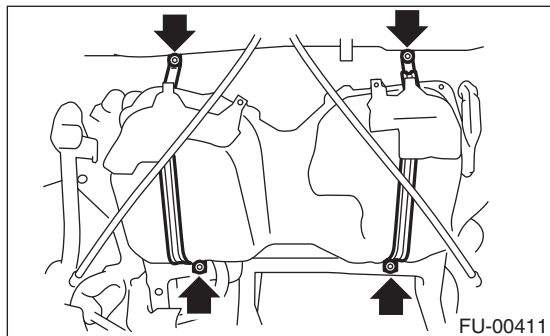


### B: INSTALLATION

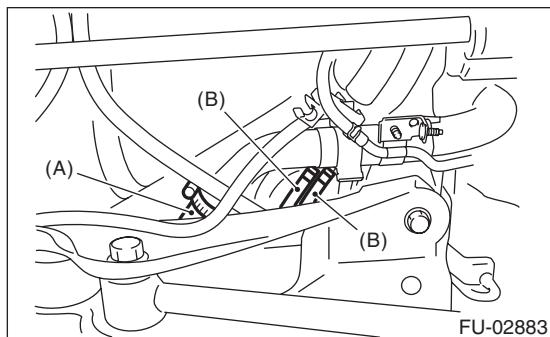
- 1) Support the fuel tank with transmission jack and push the fuel tank harness together with grommet into access hole.
- 2) Set the fuel tank and temporarily tighten the bolts of fuel tank bands.

#### WARNING:

**A helper is required to perform this work.**

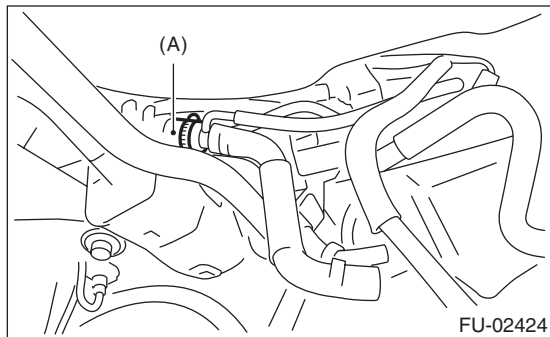


- 3) Insert the fuel filler hose (A) up to 35 — 40 mm (1.38 — 1.57 in) of the fuel filler pipe bottom end, then tighten the clamp.
- 4) Insert the evaporation hose (B) to the evaporation pipe bottom end, then secure the clamp and clip.

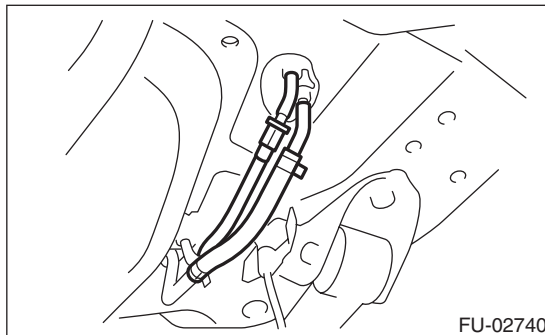


#### CAUTION:

**Do not allow clip to touch the hose (A) and rear suspension crossmember.**



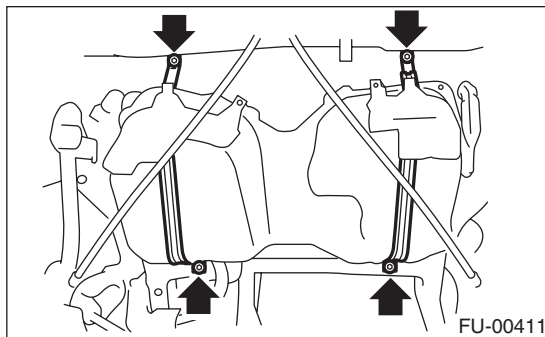
- 5) Connect the fuel hoses, and secure with clips and quick connectors. <Ref. to FU(H4SO)-59, INSTALLATION, Fuel Delivery and Evaporation Lines.>



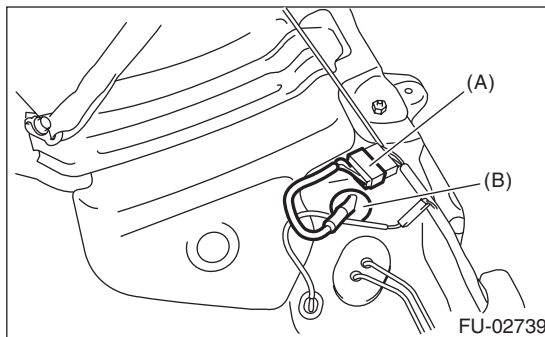
- 6) Connect the connector to the pressure control solenoid valve.
- 7) Attach the canister. <Ref. to EC(H4SO)-6, INSTALLATION, Canister.>
- 8) Tighten the band mounting bolts.

#### Tightening torque:

**33 N·m (3.4 kgf·m, 25 ft·lb)**



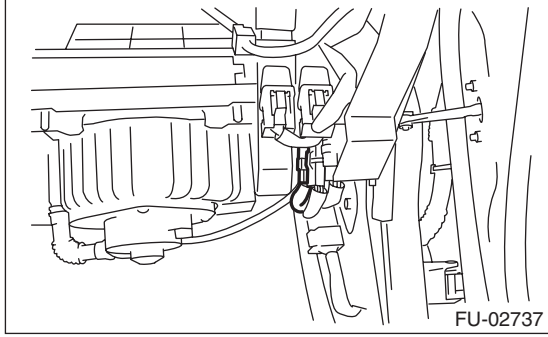
- 9) Install the rear crossmember. <Ref. to RS-17, INSTALLATION, Rear Crossmember.>
- 10) Connect the connector (A) to the fuel tank cord and plug the service hole with grommet (B).



- 11) Set the rear seat and floor mats.

## FUEL INJECTION (FUEL SYSTEMS)

- 12) Connect the connector to fuel pump relay.



- 13) Install the passenger's side side sill cover.
- 14) Install the glove box. <Ref. to EI-43, INSTALLATION, Glove Box.>

### **C: INSPECTION**

- 1) Check that the fuel tank does not have holes, cracks or is not damaged in any way.
- 2) Make sure that the fuel pipe and fuel hose are not cracked and that the connections are tight.

## 23. Fuel Filler Pipe

### A: REMOVAL

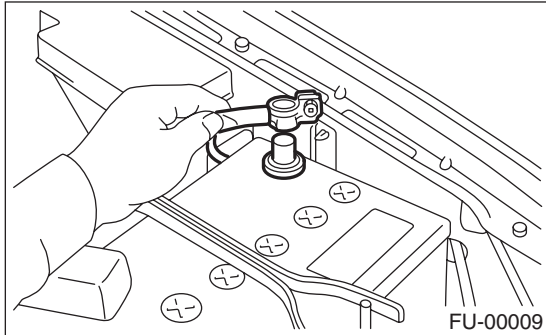
**WARNING:**

Place "NO OPEN FLAMES" signs near the working area.

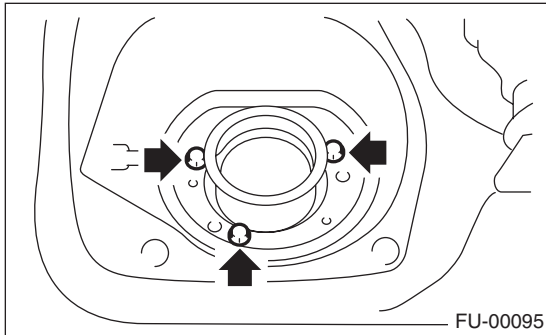
**CAUTION:**

Be careful not to spill fuel.

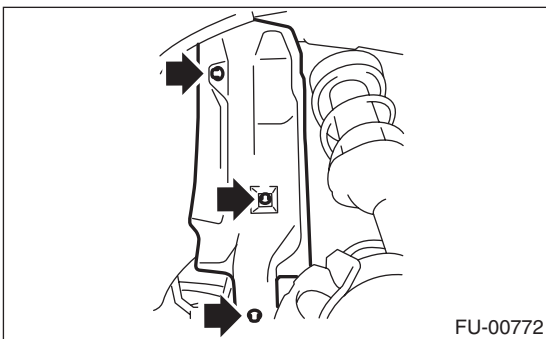
- 1) Set the vehicle on a lift.
- 2) Disconnect the ground cable from the battery.



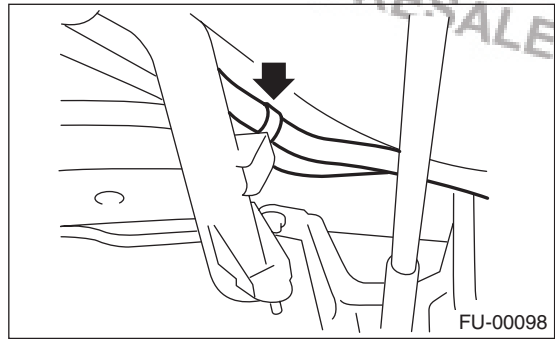
- 3) Open the fuel filler flap lid, and remove the filler cap.
- 4) Remove the screws which secure gasket.



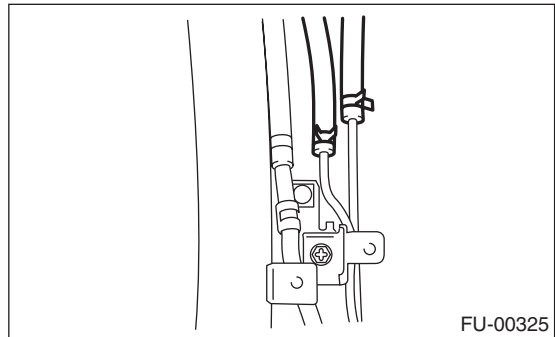
- 5) Remove the rear wheel RH.
- 6) Lift up the vehicle.
- 7) Drain fuel from fuel tank. <Ref. to FU(H4SO)-43, DRAINING FUEL, PROCEDURE, Fuel.>
- 8) Remove the fuel filler pipe protector.



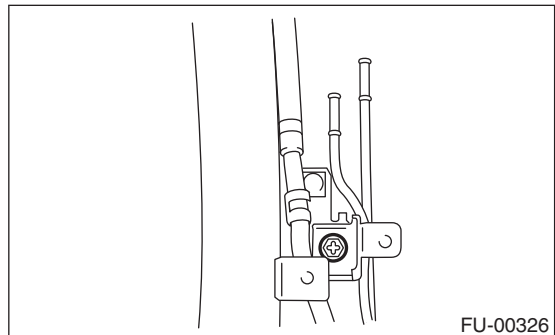
- 9) Disconnect the evaporation hose from the clip of fuel filler pipe.



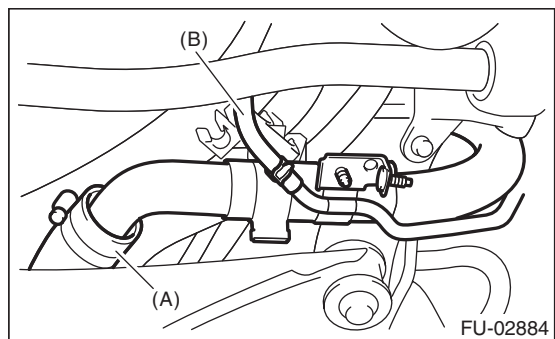
- 10) Disconnect the evaporation hose from the fuel pipe.



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



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

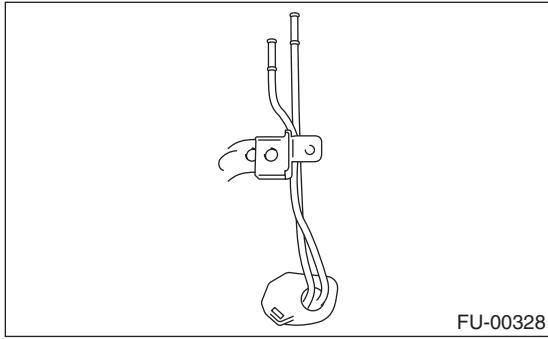


- 14) Remove the fuel filler pipe to the underside of the vehicle.

# Fuel Filler Pipe

## FUEL INJECTION (FUEL SYSTEMS)

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

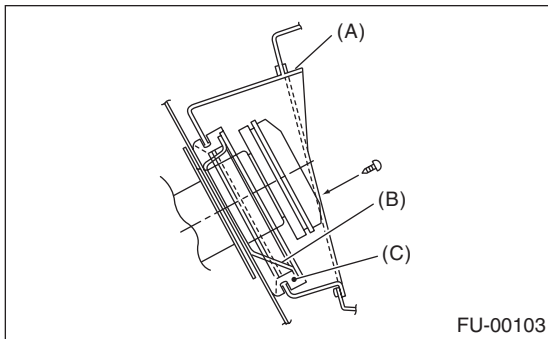


### B: INSTALLATION

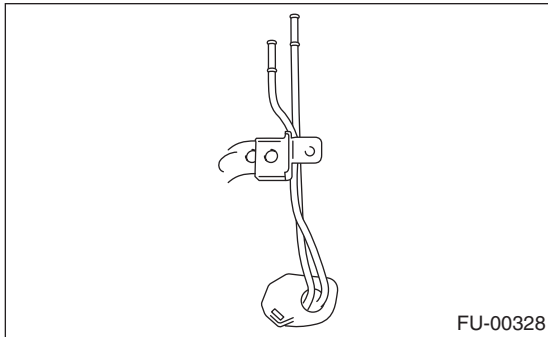
- 1) Open the fuel filler flap lid.
- 2) Set the fuel saucer (A) with rubber seal (C), and insert the fuel filler pipe into hole from the inner side of apron.
- 3) Align the holes in fuel filler pipe neck and set the cup (B), and tighten the screws.

#### NOTE:

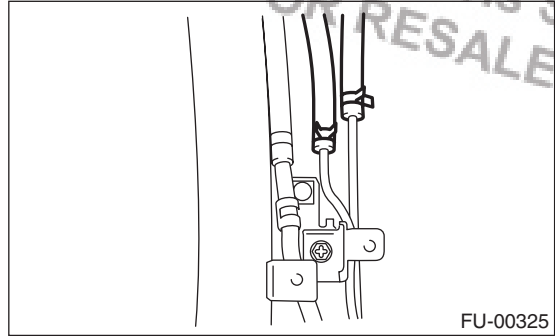
If the edges of rubber seal are folded toward the inside, straighten it with a screwdriver.



4) Connect the evaporation pipe.



5) Connect the evaporation hose to the fuel pipe.

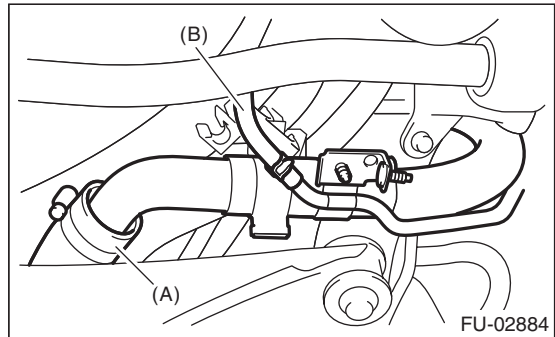


6) Connect the fuel filler hose (A) to the pipe with an overlap of 35 — 40 mm (1.38 — 1.57 in).

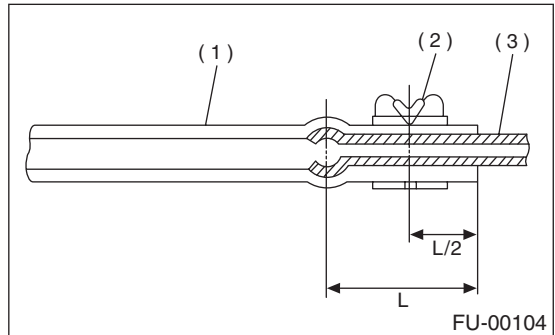
7) Connect the evaporation hose (B) to the pipe with an overlap of 25 — 30 mm (0.98 — 1.18 in).

#### CAUTION:

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



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



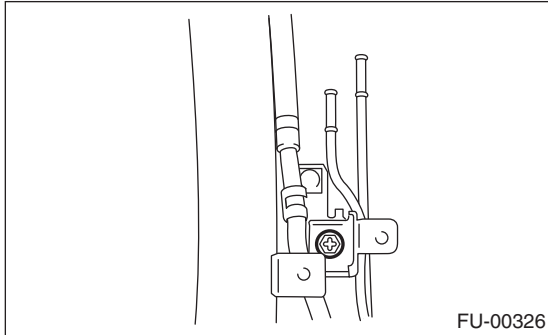
- (1) Hose
- (2) Clip
- (3) Pipe



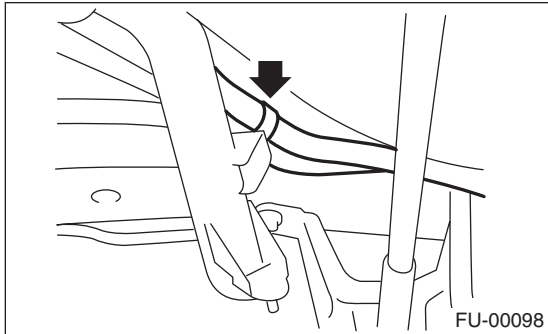
8) Tighten the bolts which hold fuel filler pipe bracket on the body.

**Tightening torque:**

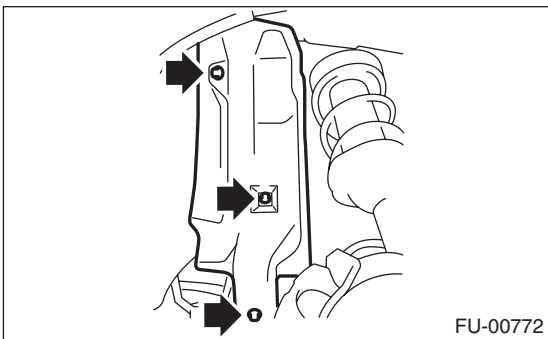
**7.5 N·m (0.76 kgf·m, 5.5 ft·lb)**



9) Fasten the evaporation hoses to the clip of fuel filler pipe.



10) Install the fuel filler pipe protector.



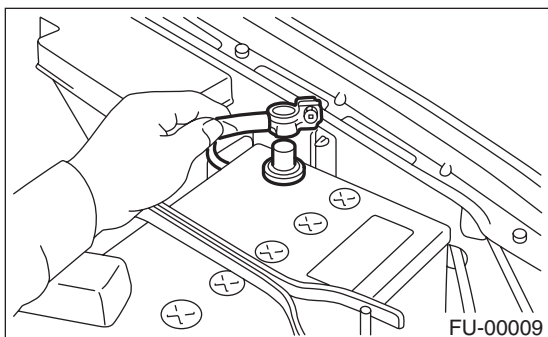
11) Lower the vehicle.

12) Install the rear wheel RH.

**Tightening torque:**

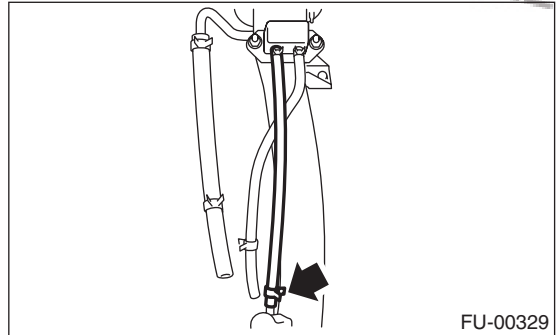
**100 N·m (10.2 kgf·m, 73.8 ft·lb)**

13) Connect the ground cable to the battery.

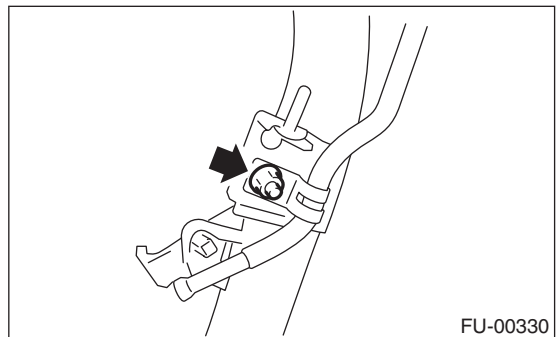


### C: DISASSEMBLY

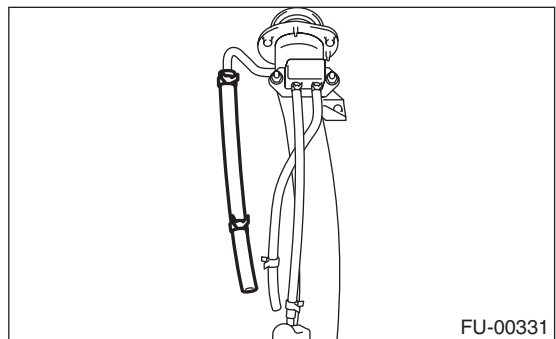
1) Move the clamp and disconnect the evaporation hose from the joint pipe.



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



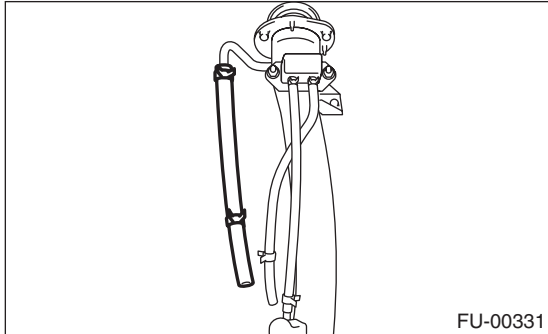
3) Disconnect the evaporation hose from the fuel filler pipe.



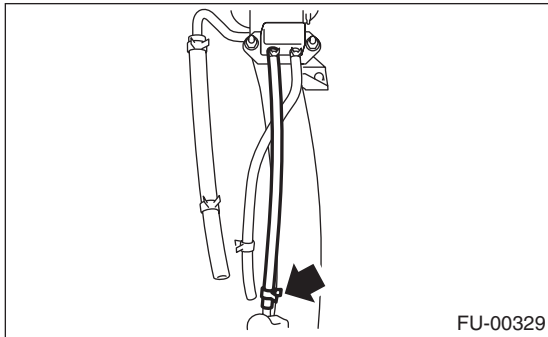
4) Remove the shut valve from the fuel filler pipe.  
<Ref. to EC(H4SO)-15, REMOVAL, Shut Valve.>

### D: ASSEMBLY

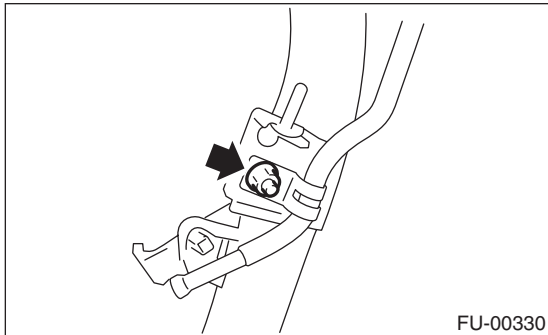
- 1) Install the shut valve to the fuel valve pipe. <Ref. to EC(H4SO)-15, INSTALLATION, Shut Valve.>
- 2) Connect the evaporation hose to the fuel filler pipe.



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



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



### 24. Fuel Pump

#### A: REMOVAL

##### WARNING:

Place "NO OPEN FLAMES" signs near the working area.

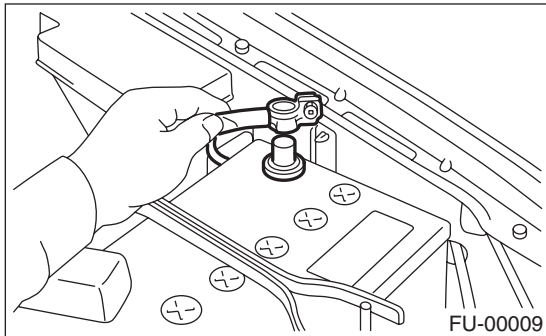
##### CAUTION:

Be careful not to spill fuel.

##### NOTE:

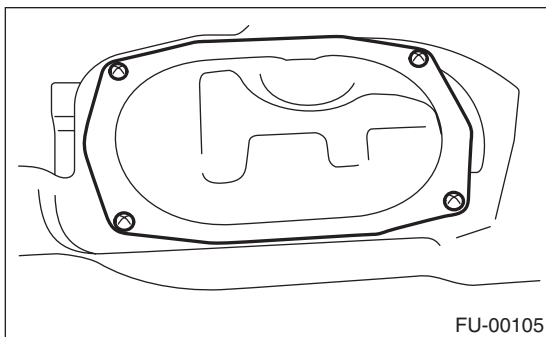
Fuel pump assembly consists of fuel pump, fuel filter and fuel level sensor.

- 1) Set the vehicle on a lift.
- 2) Release the fuel pressure. <Ref. to FU(H4SO)-43, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>
- 3) Disconnect the ground cable from the battery.



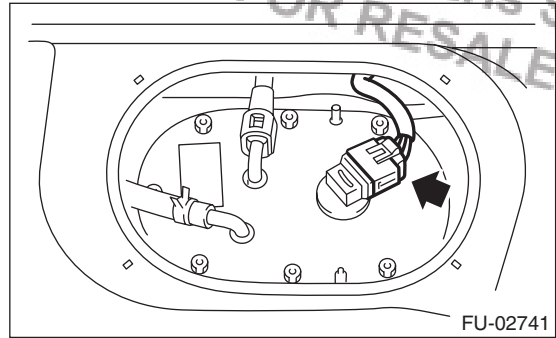
FU-00009

- 4) Open the fuel filler flap lid, and remove the fuel filler cap.
- 5) Lift up the vehicle.
- 6) Drain fuel from fuel tank. <Ref. to FU(H4SO)-43, DRAINING FUEL, PROCEDURE, Fuel.>
- 7) Remove the trunk room mat. (Sedan model)
- 8) Remove the luggage floor mat. (Wagon model) <Ref. to EI-61, REMOVAL, Luggage Floor Mat.>
- 9) Remove the service hole cover.



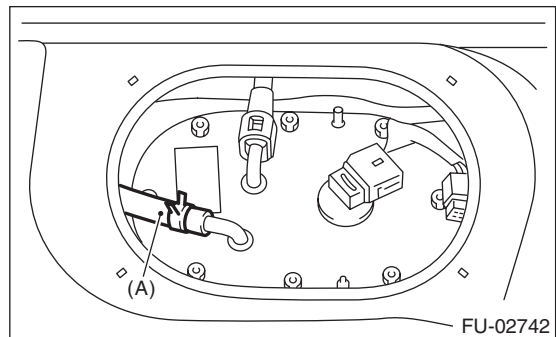
FU-00105

- 10) Disconnect the connector from fuel pump.



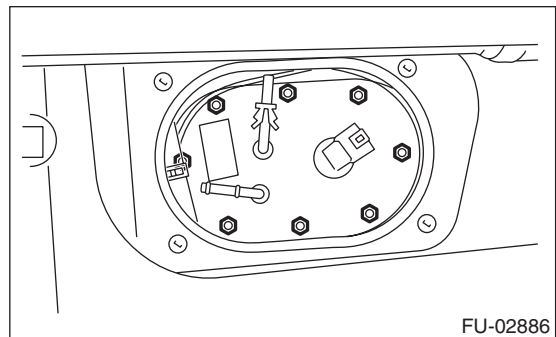
FU-02741

- 11) Disconnect the quick connector and then disconnect the fuel delivery hose. <Ref. to FU(H4SO)-58, REMOVAL, Fuel Delivery and Evaporation Lines.>
- 12) Move the clips, and disconnect the jet pump hose (A).



FU-02742

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



FU-02886

- 14) Remove the fuel pump assembly from the fuel tank.

##### NOTE:

When removing, be careful not to let the float portion of the fuel level sensor interfere with fuel tank.

### B: INSTALLATION

Install in the reverse order of removal while being careful of the following.

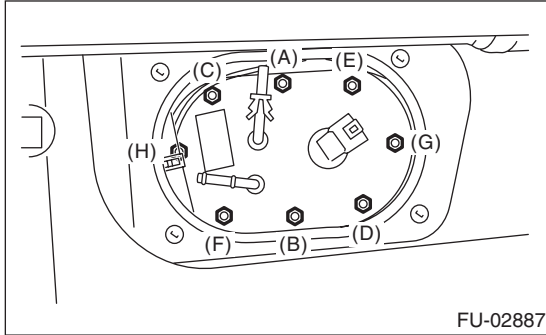
- Make sure the sealing portion is free from fuel or foreign matter before installation.
- Tighten the nuts in alphabetical order as shown in the figure to the specified torque.

NOTE:

Use a new gasket and retainer.

**Tightening torque:**

**4.4 N·m (0.45 kgf·m, 3.3 ft·lb)**

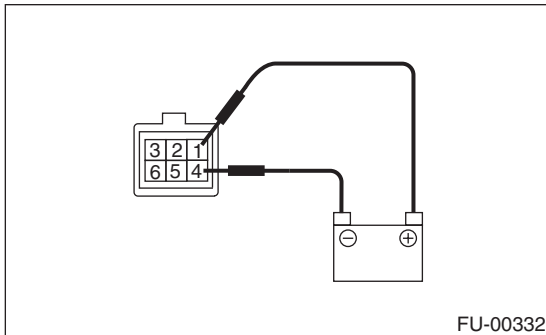


### C: INSPECTION

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

**CAUTION:**

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



## 25. Fuel Level Sensor

### A: REMOVAL

**WARNING:**

Place "NO OPEN FLAMES" signs near the working area.

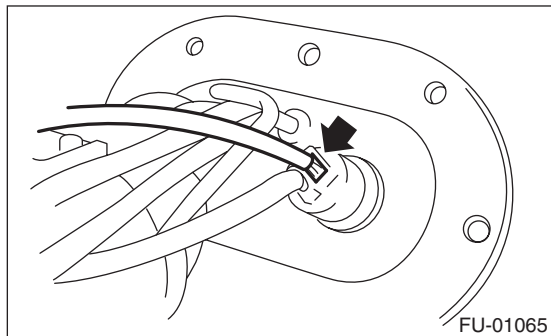
**CAUTION:**

Be careful not to spill fuel.

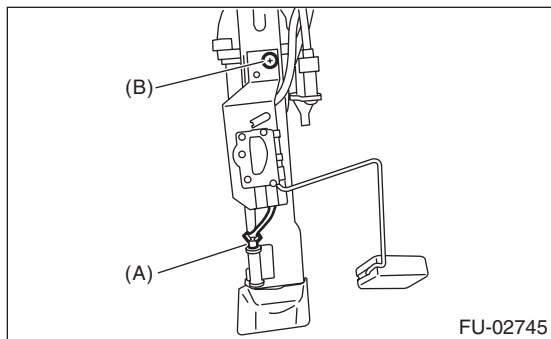
**NOTE:**

The fuel level sensor is built in fuel pump assembly.

- 1) Remove the fuel pump assembly.  
<Ref. to FU(H4SO)-51, REMOVAL, Fuel Pump.>
- 2) Disconnect the connector from fuel pump bracket.



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



### 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)**

## 26. Fuel Sub Level Sensor

### A: REMOVAL

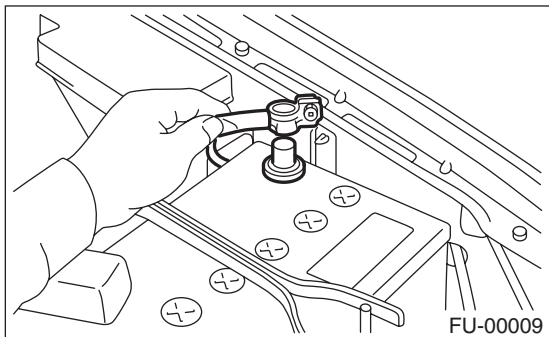
**WARNING:**

Place "NO OPEN FLAMES" signs near the working area.

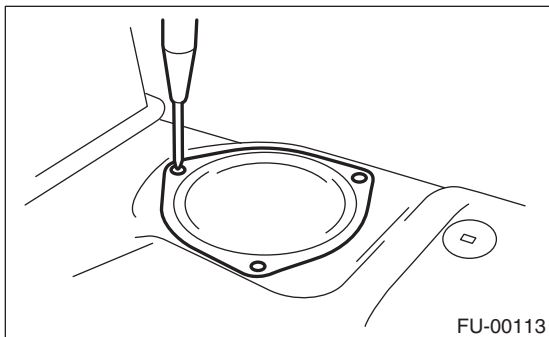
**CAUTION:**

Be careful not to spill fuel.

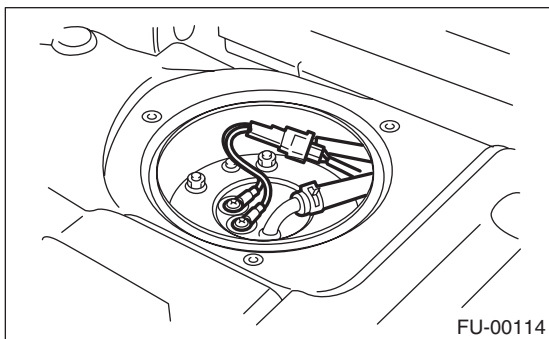
- 1) Set the vehicle on a lift.
- 2) Disconnect the ground cable from the battery.



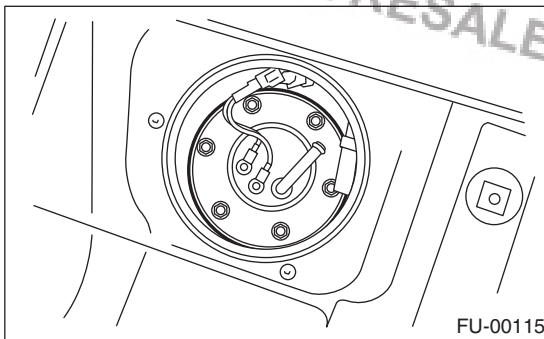
- 3) Lift up the vehicle.
- 4) Drain fuel from fuel tank. <Ref. to FU(H4SO)-43, DRAINING FUEL, PROCEDURE, Fuel.>
- 5) Remove the trunk room mat. (Sedan model)
- 6) Remove the luggage floor mat. (Wagon model) <Ref. to EI-61, REMOVAL, Luggage Floor Mat.>
- 7) Remove the service hole cover.



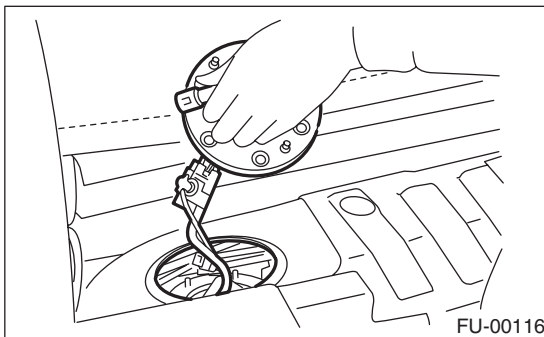
- 8) Disconnect the connector from the fuel sub level sensor.
- 9) Disconnect the fuel jet pump hose.



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



- 11) Remove the fuel sub level sensor.



### B: INSTALLATION

Install in the reverse order of removal while being careful of the following.

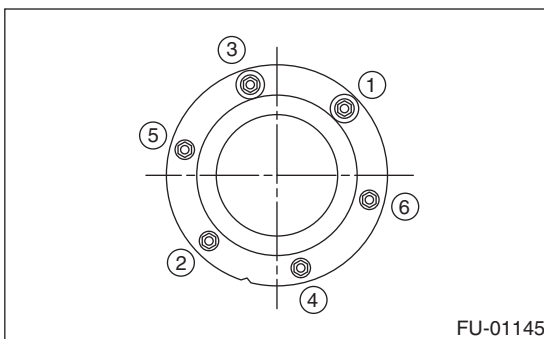
- Make sure the sealing portion is free from fuel or foreign matter before installation.
- Tighten the nuts and bolts to the specified torque in the order as shown in the figure.

**NOTE:**

Use a new gasket.

**Tightening torque:**

**4.4 N·m (0.45 kgf·m, 3.3 ft·lb)**



## 27. Fuel Filter

### A: REMOVAL

**WARNING:**

Place "NO OPEN FLAMES" signs near the working area.

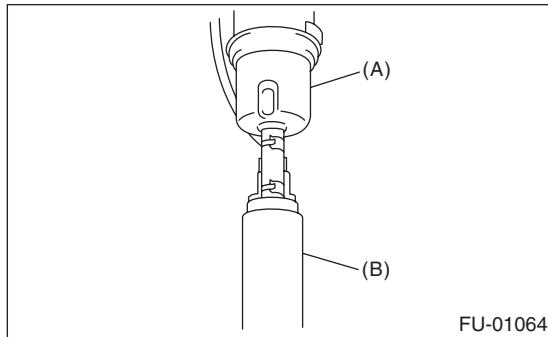
**CAUTION:**

Be careful not to spill fuel.

**NOTE:**

The fuel filter is built in the fuel pump assembly.

- 1) Remove the fuel pump assembly. <Ref. to FU(H4SO)-51, REMOVAL, Fuel Pump.>
- 2) Separate the fuel pump and fuel filter.



- (A) Fuel filter  
(B) Fuel pump

### B: INSTALLATION

**CAUTION:**

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

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 the replacement interval has been reached, replace it.

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NOT FOR RESALE

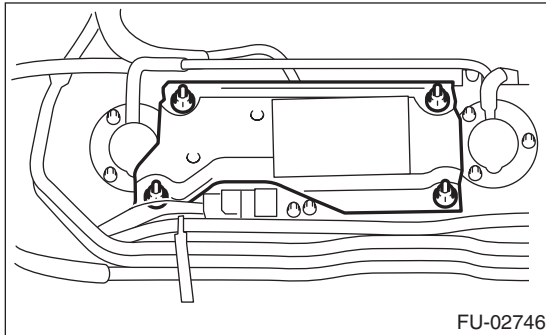
## 28. Fuel Cut Valve

### A: REMOVAL

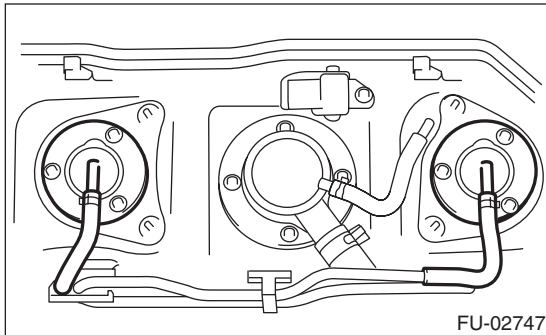
**CAUTION:**

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

- 1) Remove the fuel tank.  
<Ref. to FU(H4SO)-44, REMOVAL, Fuel Tank.>
- 2) Remove the protect cover.



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



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

### B: INSTALLATION

Install in the reverse order of removal while being careful of the following.

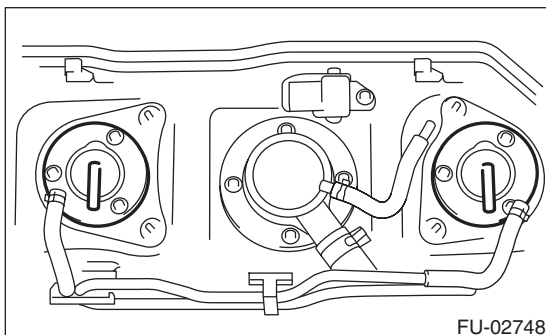
- Check that the sealing portion is free from fuel or foreign matter before installation.

**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

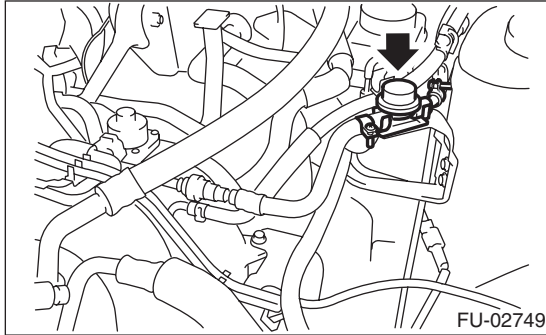
#### CAUTION:

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

1) Release the fuel pressure.

<Ref. to FU(H4SO)-43, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>

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



### B: INSTALLATION

#### CAUTION:

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

Install in the reverse order of removal.

#### Tightening torque:

**1.25 N·m (0.13 kgf·m, 0.94 ft·lb)**

# Fuel Delivery and Evaporation Lines

FUEL INJECTION (FUEL SYSTEMS)

## 30. Fuel Delivery and Evaporation Lines

### A: REMOVAL

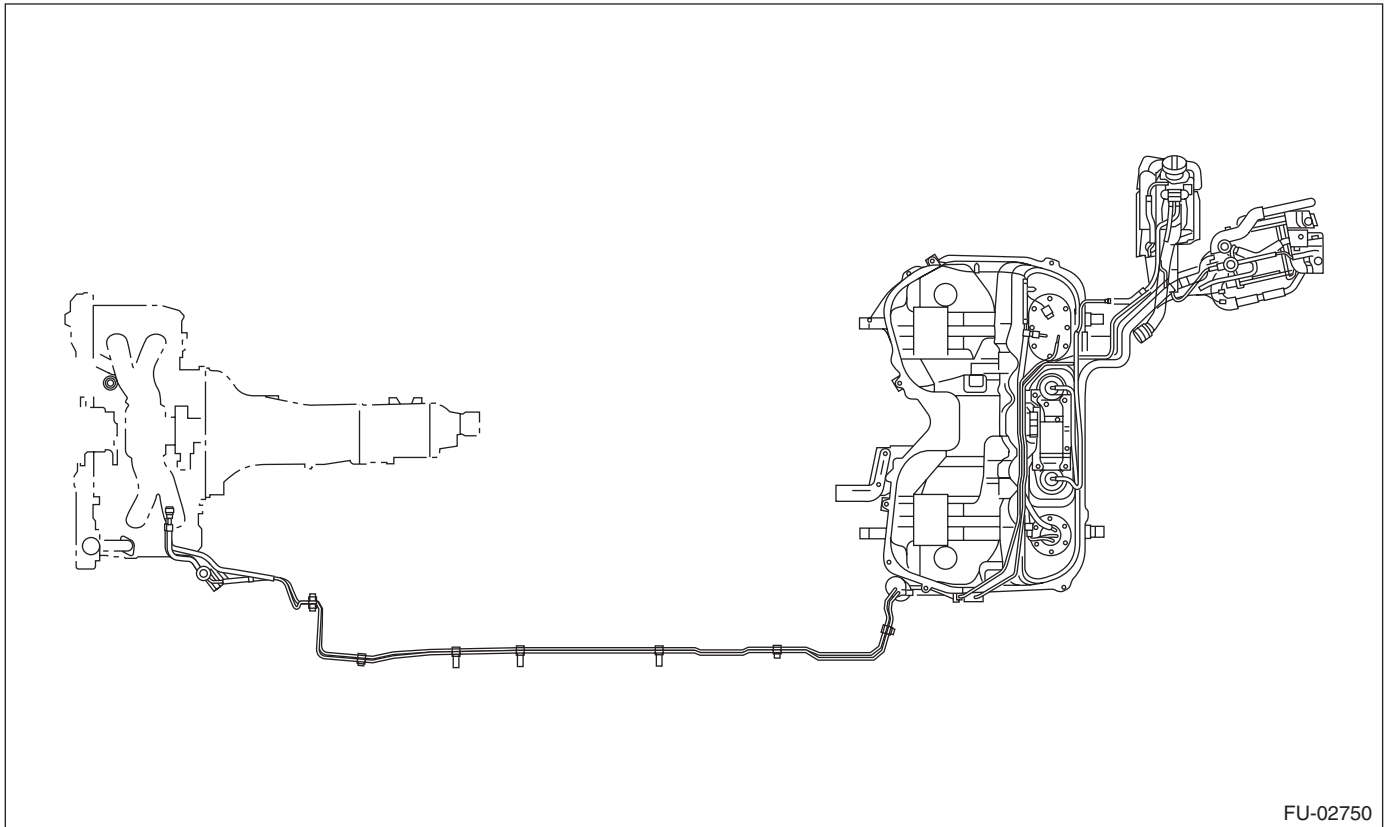
**WARNING:**

Place “NO OPEN FLAMES” signs near the working area.

**CAUTION:**

**Be careful not to spill fuel.**

- 1) Set the vehicle on a lift.
- 2) Release the fuel pressure. <Ref. to FU(H4SO)-43, 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 then disconnect the evaporation pipes and hoses.



FU-02750

# Fuel Delivery and Evaporation Lines

FUEL INJECTION (FUEL SYSTEMS)

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

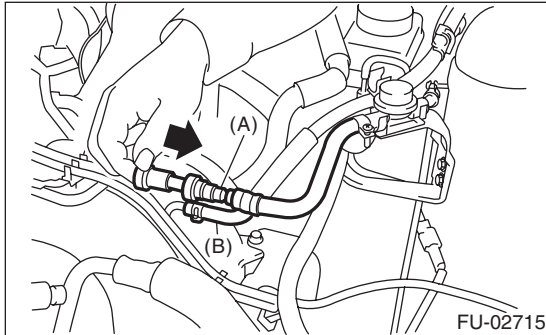
(1) Disconnect the quick connector on the fuel delivery line by pushing the ST in the direction of the arrow.

ST 42099AE000 CONNECTOR REMOVER

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

### CAUTION:

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



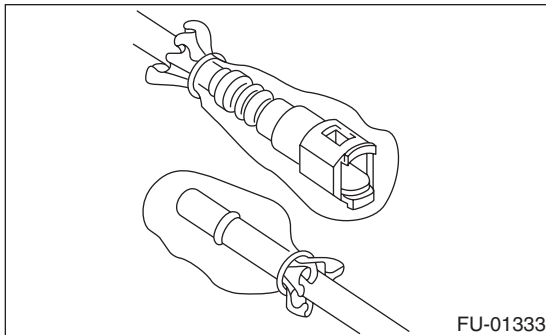
- (A) Fuel delivery hose  
(B) Evaporation hose

7) Lift up the vehicle.

8) Disconnect the quick connector on the fuel line.

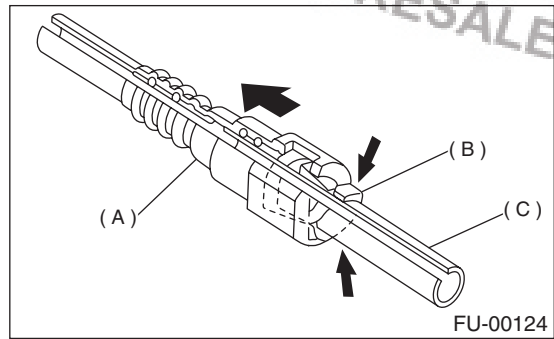
(1) Clean the pipe and connector, if they are covered with dust.

(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 the retainer (B) down.

(4) Pull out the connector (A) from the retainer (B).



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

### B: INSTALLATION

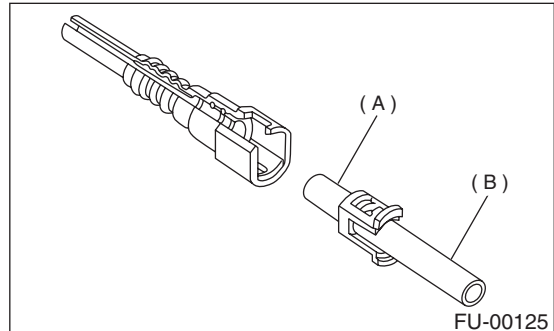
1) Connect the quick connector on fuel line.

### CAUTION:

Make sure there is no damage or dust on the connections. If necessary, clean seal surface of pipe.

### NOTE:

Use a new retainer except in the engine compartment.

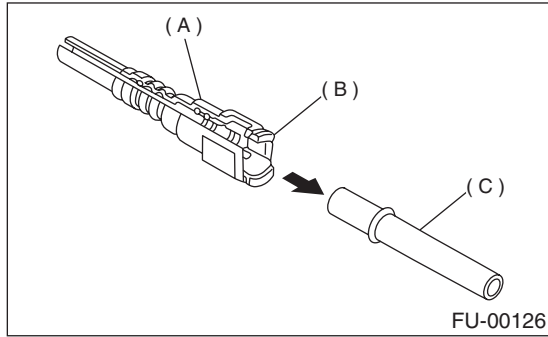


- (A) Seal surface  
(B) Pipe

# Fuel Delivery and Evaporation Lines

## FUEL INJECTION (FUEL SYSTEMS)

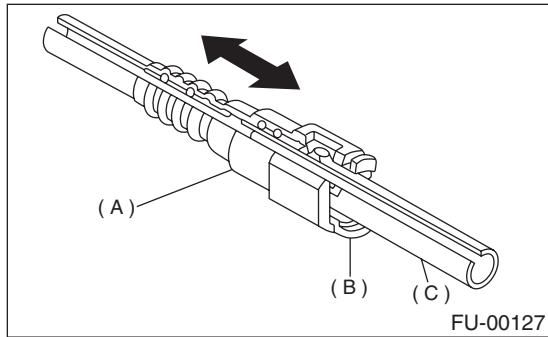
- (1) Set the new retainer (B) to connector (A).
- (2) Push the pipe into the connector completely.



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

### CAUTION:

- Pull the connector to ensure it is connected securely.
- Make sure the two retainer pawls are engaged in their mating positions in the connector.
- Be sure to inspect the hoses and their connections for fuel leakage.



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

2) Connect the fuel delivery hose to the pipe with an overlap of 20 to 25 mm (0.79 to 0.98 in).

Type A: When the amount to be inserted is specified.

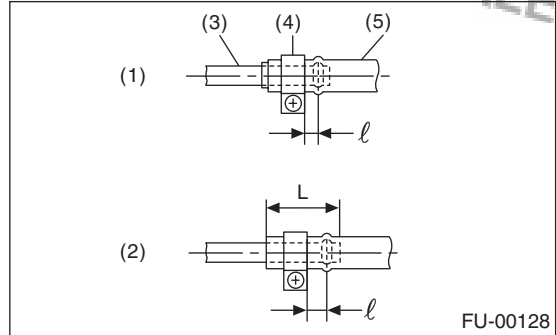
Type B: When the amount to be inserted is not specified.

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

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

### CAUTION:

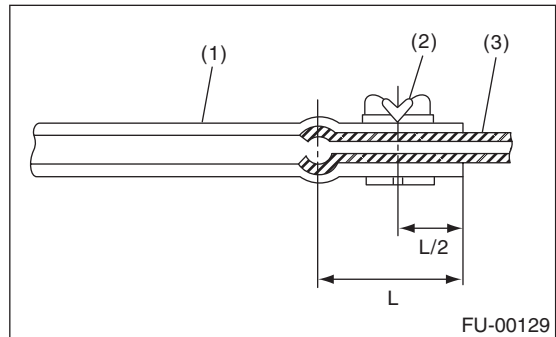
Be sure to inspect the hoses and their connections for fuel leakage.



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

3) Connect the evaporation hose to the pipe with an overlap of 15 — 20 mm (0.59 — 0.79 in).

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



- (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 the fuel pipe and fuel hose connections are tightened firmly.

# Fuel System Trouble in General

FUEL INJECTION (FUEL SYSTEMS)

## 31. Fuel System Trouble in General

### A: INSPECTION

Trouble and possible cause		Corrective action
<b>1. Insufficient fuel supply to injector</b>		
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)	Decline of fuel pump function	Replace the fuel pump.
3)	Clogged fuel filter	Replace the fuel filter.
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 the air breather tube or pipe.
7)	Damaged diaphragm of pressure regulator	Replace.
<b>2. Leakage or blow out of fuel</b>		
1)	Loose joints of the fuel pipe	Retighten.
2)	Cracked fuel pipe, hose and fuel tank	Replace.
3)	Defective welding part on the fuel tank	Replace.
4)	Defective drain gasket of the fuel tank	Replace.
5)	Clogged or bent air breather tube or air vent tube	Clean, correct or replace the air breather tube or air vent tube.
<b>3. Gasoline smell inside of compartment</b>		
1)	Loose joints at air breather tube, air vent tube and fuel filler pipe	Retighten.
2)	Problem in tightness of the fuel saucer gasket air	Correct or replace the gasket.
3)	Inoperative fuel pump modulator or circuit	Replace.
<b>4. Defective fuel meter indicator</b>		
1)	Defective operation of fuel level sensor	Replace.
2)	Defective operation of fuel meter	Replace.
<b>5. Noise</b>		
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. Fully fill the fuel tank to prevent the problem.
- In snow-covered areas, mountainous areas, skiing areas, etc. where ambient temperatures drop below 0°C (32°F) throughout the winter season, use a water removing agent in the fuel system to prevent freezing fuel system and accumulating water.
- When water is accumulated in fuel filter, fill the water removing agent in the fuel tank.
- Before using water removing agent, follow the cautions noted on the bottle.

# Fuel System Trouble in General

FUEL INJECTION (FUEL SYSTEMS)

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