

FUEL INJECTION (FUEL SYSTEMS)

FU(H4DOTC)

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General Description

FUEL INJECTION (FUEL SYSTEMS)

1. General Description

A: SPECIFICATION

Fuel tank	Capacity	64 ℓ (16.9 US gal, 14.1 Imp gal)
	Location	Under rear seat
Fuel pump	Type	Impeller
	Shutoff discharge pressure	550 — 850 kPa (5.61 — 8.67 kg/cm ² , 79.8 — 123.3 psi)
	Discharge	155 ℓ (40.9 US gal, 34.1 Imp gal)/h or more. [12 V at 300 kPa (3.06 kg/cm ² , 43.5 psi)]
Fuel filter		In-tank type

General Description

FUEL INJECTION (FUEL SYSTEMS)

(1) Fuel pipe ASSY	(13) Fuel injector pipe LH	(24) Tumble generator valve actuator
(2) Fuel hose	(14) Fuel injector pipe RH	(25) Purge valve
(3) Clip	(15) Solenoid valve bracket	(26) Purge hose
(4) Purge control solenoid valve	(16) Manifold absolute pressure sensor	
(5) Vacuum hose	(17) Filter	
(6) Vacuum control hose	(18) Intake manifold	
(7) Intake manifold gasket	(19) Wastegate control solenoid valve ASSY	
(8) Guide pin	(20) Vacuum hose	
(9) Intake manifold (lower)	(21) Ground stay	
(10) Fuel injector	(22) Coolant filler tank stay	
(11) Seal ring	(23) O-ring	

Tightening torque: N·m (kgf-m, ft-lb)

T1: 1.5 (0.15, 1.1)

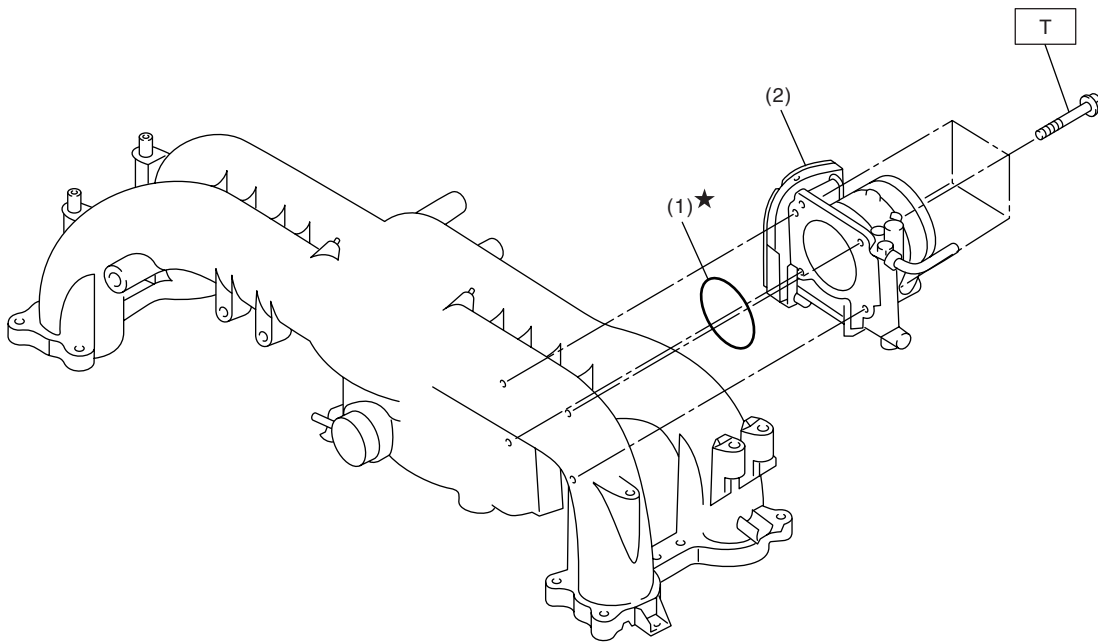
T2: 6.5 (0.66, 4.8)

T3: 8.3 (0.85, 6.1)

T4: 19 (1.94, 14)

T5: 25 (2.5, 18)

2. AIR INTAKE SYSTEM



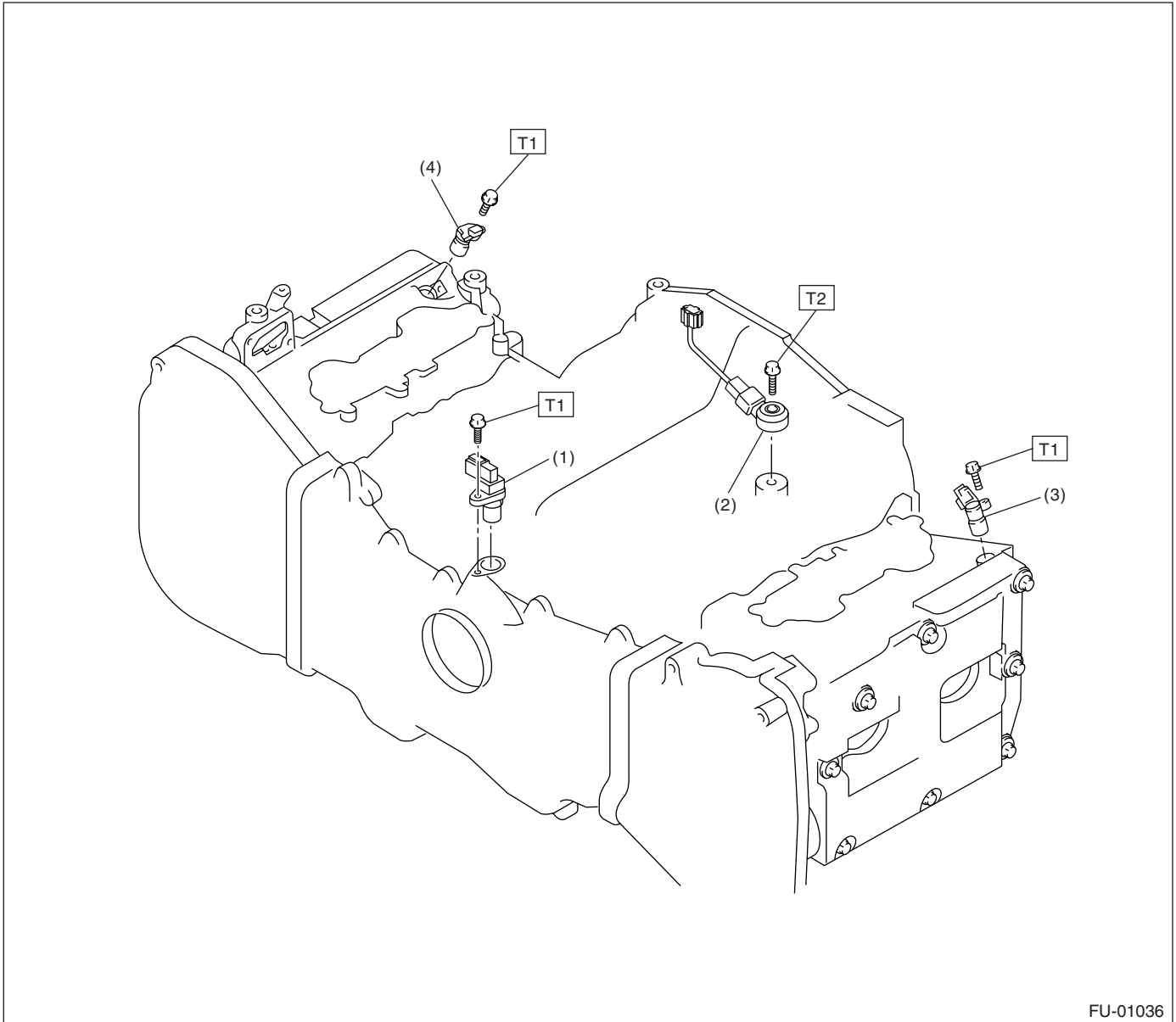
FU-02562

- (1) O-ring
- (2) Throttle body

Tightening torque: N·m (kgf-m, ft-lb)

T: 8 (0.8, 5.9)

3. CRANKSHAFT POSITION, CAMSHAFT POSITION AND KNOCK SENSORS



FU-01036

- (1) Crankshaft position sensor
- (2) Knock sensor
- (3) Camshaft position sensor LH

- (4) Camshaft position sensor RH

Tightening torque: N·m (kgf-m, ft-lb)

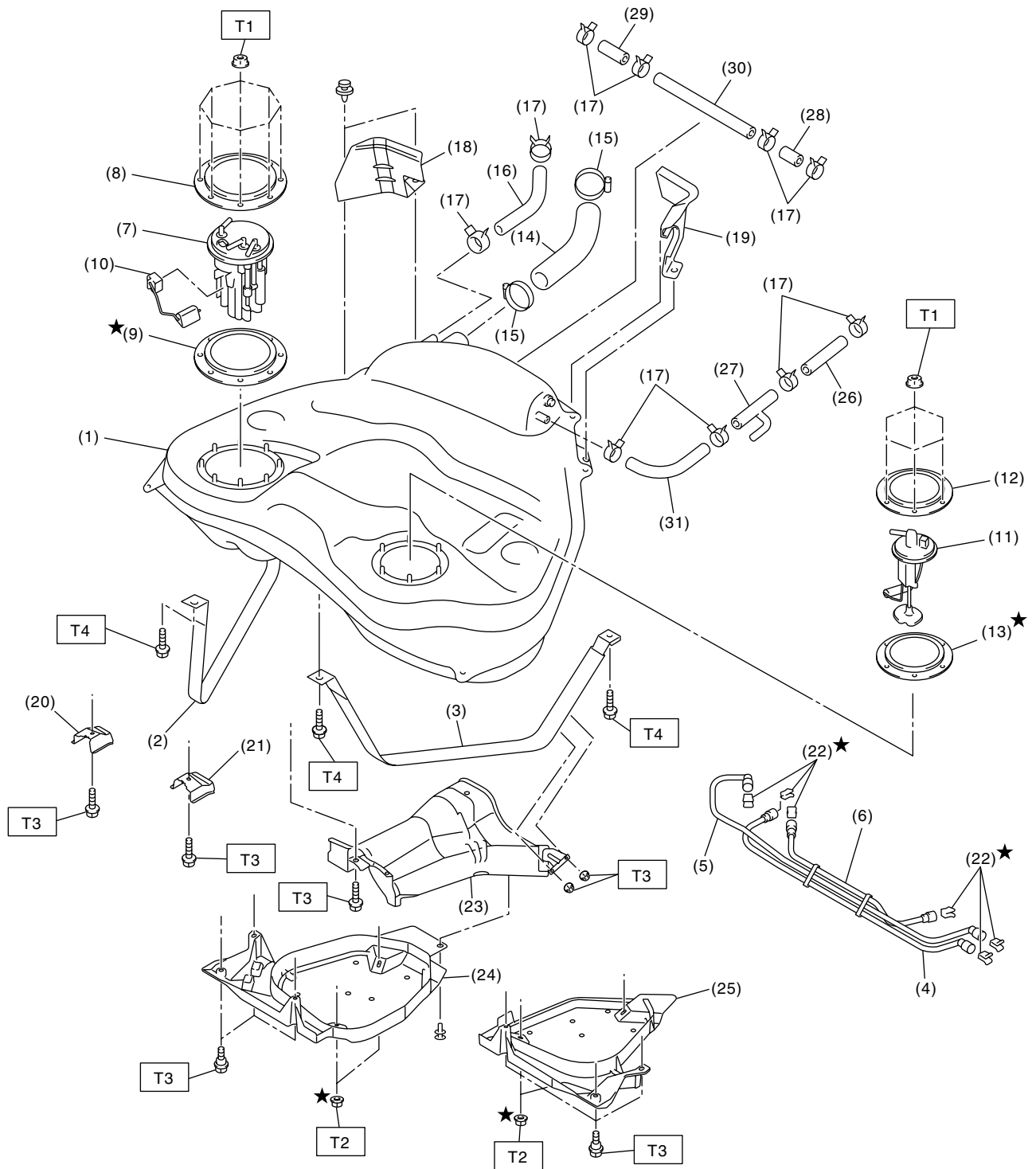
T1: 6.4 (0.65, 4.7)

T2: 24 (2.4, 17.4)

General Description

FUEL INJECTION (FUEL SYSTEMS)

4. FUEL TANK



FU-02544

General Description

FUEL INJECTION (FUEL SYSTEMS)

(1) Fuel tank	(14) Fuel filler hose	(27) Connector
(2) Fuel tank band RH	(15) Clamp	(28) Evaporation hose C
(3) Fuel tank band LH	(16) Evaporation hose A	(29) Evaporation hose D
(4) Delivery tube	(17) Clip	(30) Evaporation pipe
(5) Return tube	(18) Fuel tank protector RH (Rear)	(31) Evaporation hose E
(6) Jet pump tube	(19) Fuel tank protector LH (Rear)	
(7) Fuel pump ASSY	(20) Stopper RH	
(8) Fuel pump upper plate	(21) Stopper LH	
(9) Fuel pump gasket	(22) Retainer	
(10) Fuel level sensor	(23) Heat shield cover	
(11) Fuel sub level sensor	(24) Fuel tank protector RH (Front)	
(12) Fuel sub level sensor upper plate	(25) Fuel tank protector LH (Front)	
(13) Fuel sub level sensor gasket	(26) Evaporation hose B	

Tightening torque: N·m (kgf-m, ft-lb)

T1: 4.4 (0.45, 3.2)

T2: 9 (0.9, 6.6)

T3: 17.5 (1.78, 12.9)

T4: 33 (3.4, 25)

FUEL INJECTION (FUEL SYSTEMS)

Diagram illustrating the assembly of a vehicle component, likely a rear suspension or drivetrain, showing various parts and their assembly sequence.

Key components and labels include:

- Parts:** (1), (2), (3), (4), (5), (6), (7), (8), (9), (10), (11), (12), (13), (14), (15), (16), (17), (18), (19), (20), (21), (22), (23), (24), (25), (26), (27), (28), (29), (30), (31), (32), (33), (34), (35).
- Assembly Points/Labels:** A, B, T1, T2, T3, T4, T5.
- Notes:**
 - ① Tighten to T1.
 - ② Tighten to T2.
 - ③ Tighten to T3.
 - ④ Tighten to T4.
 - ⑤ Tighten to T5.

EVL 0349

FU(H4DOTC)-8

General Description

FUEL INJECTION (FUEL SYSTEMS)

(1) Clamp	(15) Grommet	(29) Fuel filler cap
(2) Fuel delivery hose A	(16) Fuel pipe ASSY	(30) Fuel tank pressure sensor
(3) Evaporation hose	(17) Canister	(31) Evaporation pipe protector
(4) Fuel return hose A	(18) Drain valve	(32) Connector A
(5) Fuel return hose B	(19) Drain filter	(33) Canister hose A
(6) Fuel bypass valve	(20) Canister protector	(34) Connector B
(7) Fuel bypass valve bracket	(21) Pressure control solenoid valve	(35) Canister hose B
(8) Fuel delivery hose B	(22) Evaporation pipe (A)	
(9) Fuel tank sensor control valve	(23) Evaporation pipe (B)	
(10) Fuel pipe ASSY	(24) Clip	
(11) Fuel delivery hose C	(25) Fuel filler pipe	
(12) Fuel return hose C	(26) Shut valve	
(13) Evaporation hose B	(27) Packing	
(14) Clamp	(28) Ring	

Tightening torque: N·m (kgf-m, ft-lb)

T1: 4.4 (0.45, 3.2)

T2: 7.5 (0.76, 5.5)

T3: 8 (0.8, 5.9)

T4: 17.6 (1.8, 13)

T5: 1.25 (0.13, 0.94)

General Description

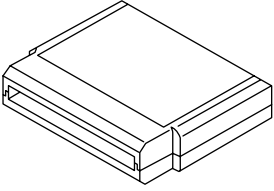
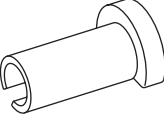
FUEL INJECTION (FUEL SYSTEMS)

C: CAUTION

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

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

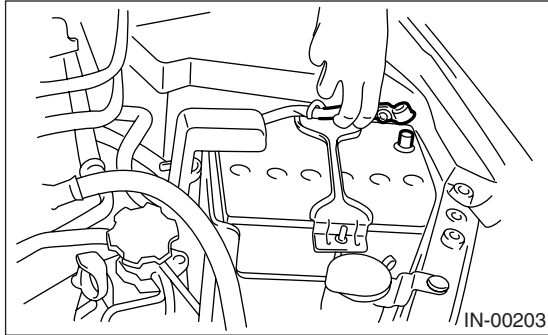
D: PREPARATION TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST24082AA260	24082AA260	CARTRIDGE	Troubleshooting for electrical system.
 ST22771AA030	22771AA030	SUBARU SELECT MONITOR KIT	Troubleshooting for electrical system.
 ST42099AE000	42099AE000	CONNECTOR REMOVER	Used for disconnecting quick connector.

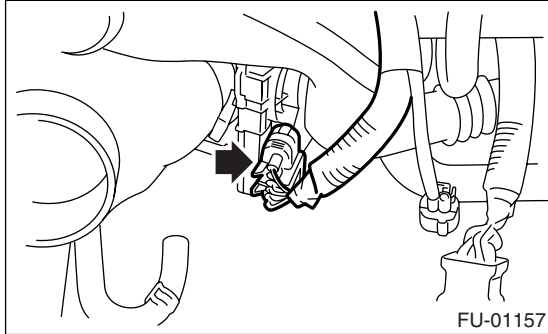
2. Throttle Body

A: REMOVAL

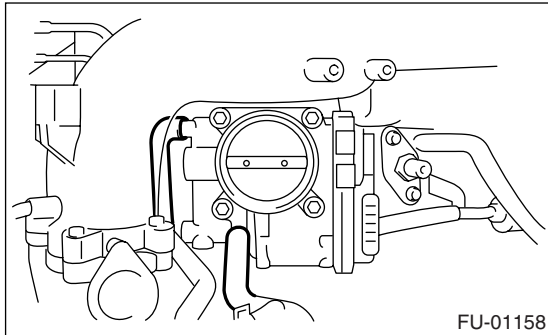
- 1) Remove the collector cover.
- 2) Disconnect the ground cable from battery.



- 3) Remove the intercooler. <Ref. to IN(H4DOTC)-12, REMOVAL, Intercooler.>
- 4) Disconnect the connectors from throttle position sensor.



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



- 6) Remove the bolts which secure throttle body to intake manifold.

B: INSTALLATION

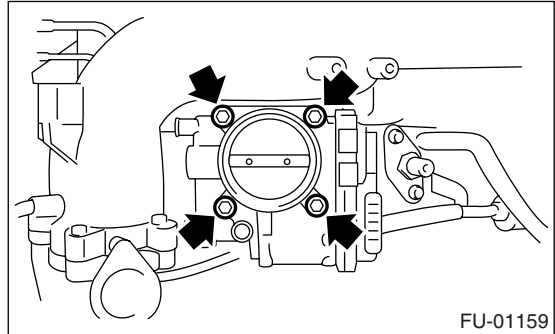
Install in the reverse order of removal.

NOTE:

Always use new O-rings.

Tightening torque:

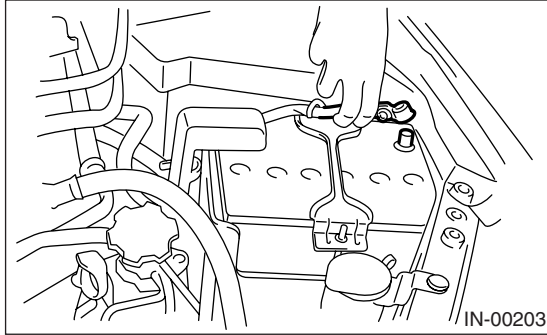
8 N·m (0.8 kgf-m, 5.9 ft-lb)



3. Intake Manifold

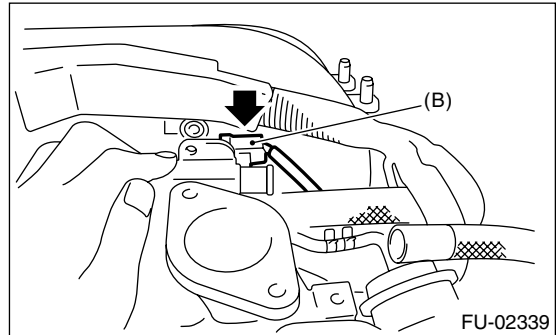
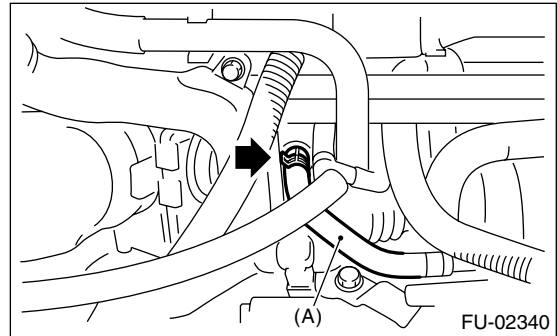
A: REMOVAL

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

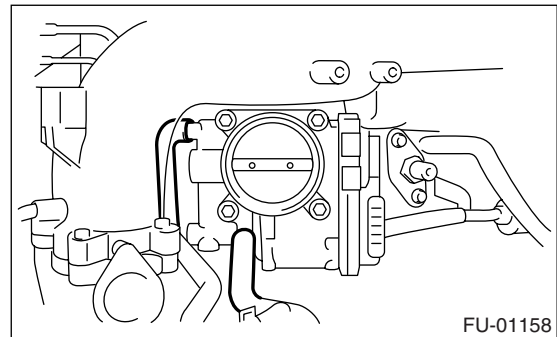


- 5) Lift-up the vehicle.
- 6) Remove the under cover.
- 7) Drain the coolant about 3.0 ℓ (3.2 US qt, 2.6 Imp qt).
- 8) Remove the intake duct from air cleaner case.
- 9) Remove the intercooler. <Ref. to IN(H4DOTC)-12, REMOVAL, Intercooler.>
- 10) Remove the generator. <Ref. to SC(H4SO)-20, REMOVAL,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

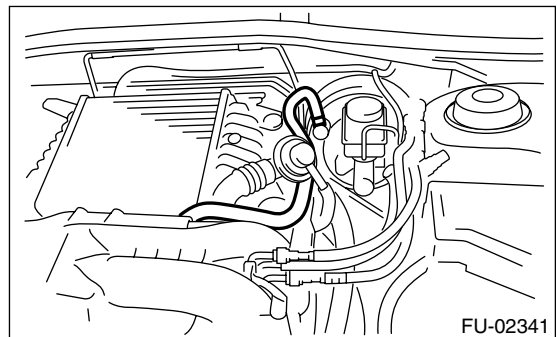
- 12) Disconnect the emission hose (A) and connector (B) from PCV hose assembly.



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



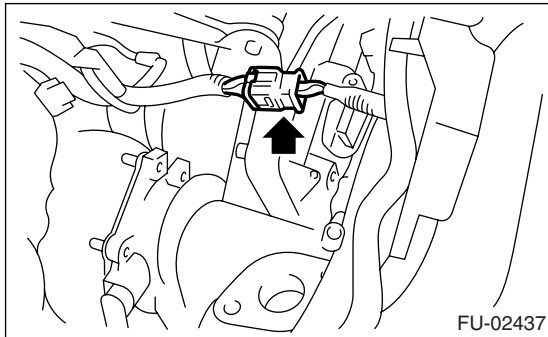
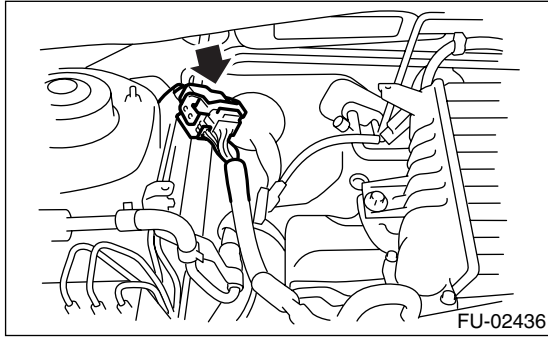
- 14) Disconnect the brake booster hose.



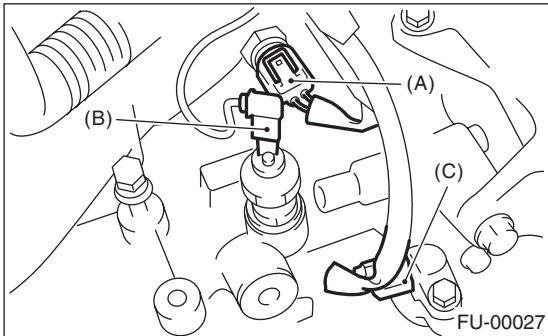
Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

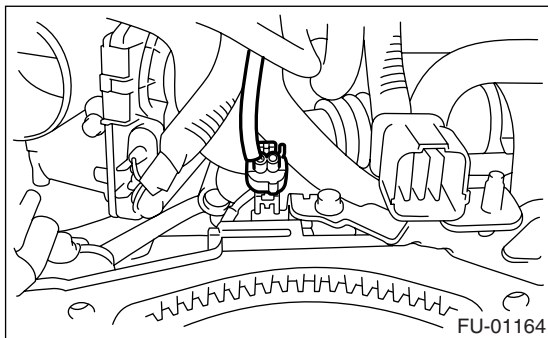
15) Disconnect the engine harness connectors from bulkhead harness connectors.



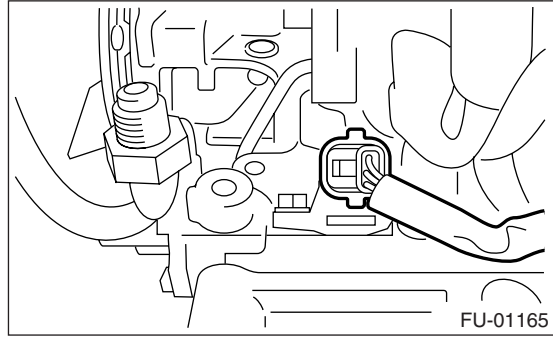
16) Disconnect the connectors from the engine coolant temperature sensor (A), oil pressure switch (B) and crankshaft position sensor (C).



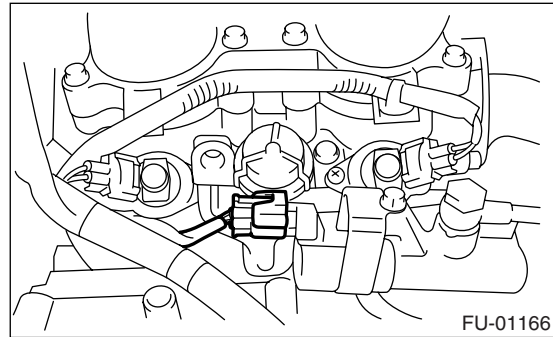
17) Disconnect the knock sensor connector.



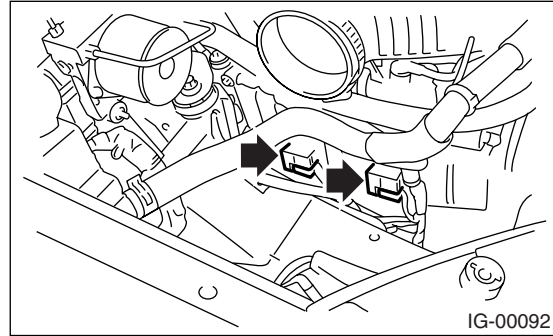
18) Disconnect the connector from camshaft position sensor.



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



20) Disconnect the connector from ignition coil.



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

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

ST 42099AE000 CONNECTOR REMOVER

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

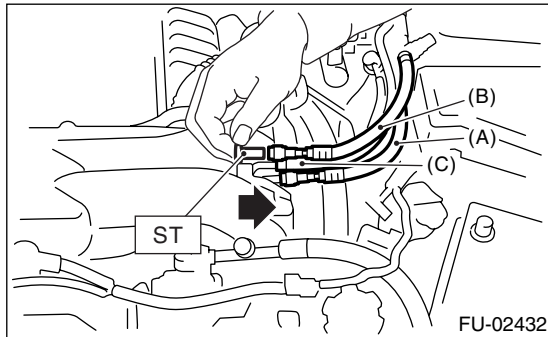
CAUTION:

- Be careful not to spill fuel.

Intake Manifold

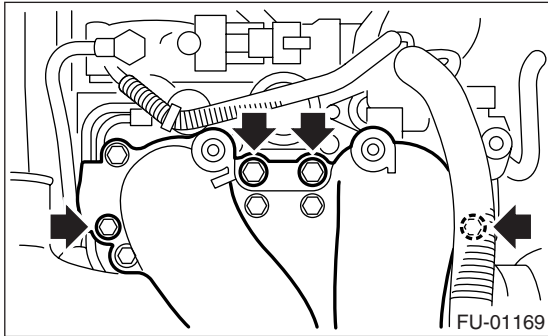
FUEL INJECTION (FUEL SYSTEMS)

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



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

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



- 23) Remove the intake manifold.

B: INSTALLATION

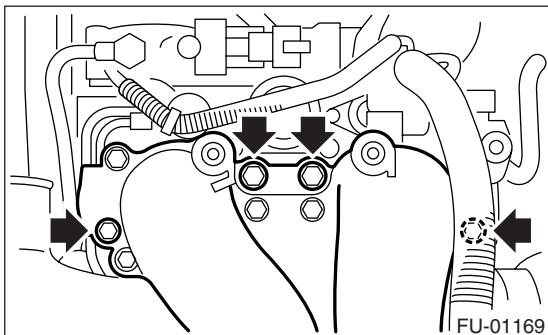
- 1) Install the intake manifold onto cylinder heads.

NOTE:

Use a new gasket.

Tightening torque:

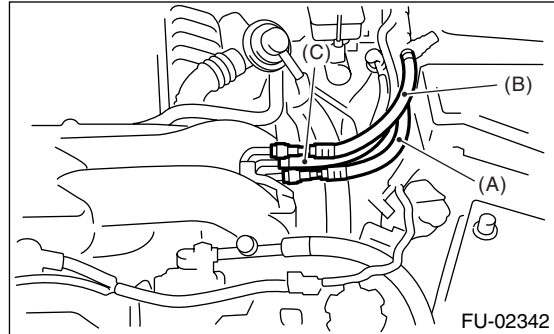
25 N·m (2.5 kgf-m, 18 ft-lb)



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

NOTE:

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



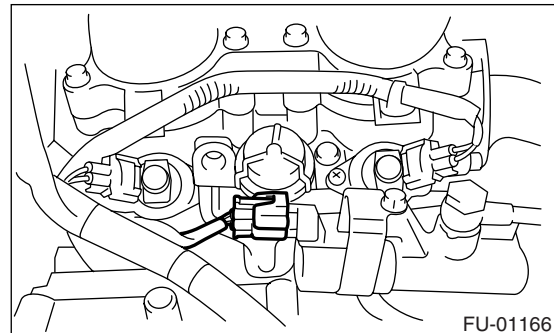
- (A) Fuel delivery hose
- (B) Fuel return hose
- (C) Evaporation hose

- 3) Tighten the hose clamp screws.

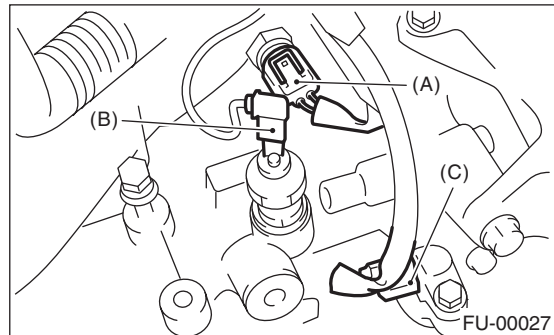
Tightening torque:

1.25 N·m (0.13 kgf-m, 0.94 ft-lb)

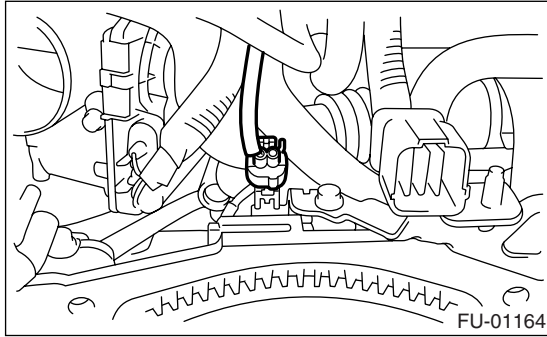
- 4) Connect the connector to oil flow control solenoid valve.



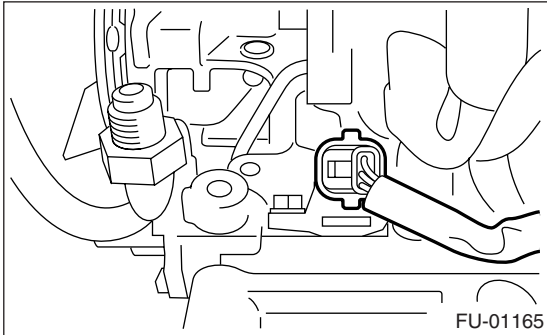
- 5) Connect the connector to the engine coolant temperature sensor (A), oil pressure switch (B) and crankshaft position sensor (C).



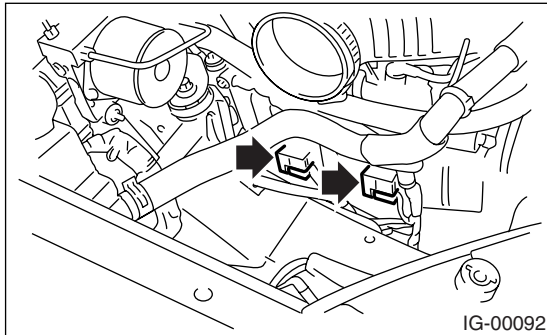
6) Connect the connector to knock sensor.



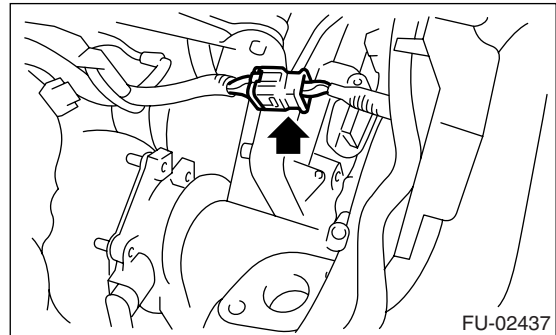
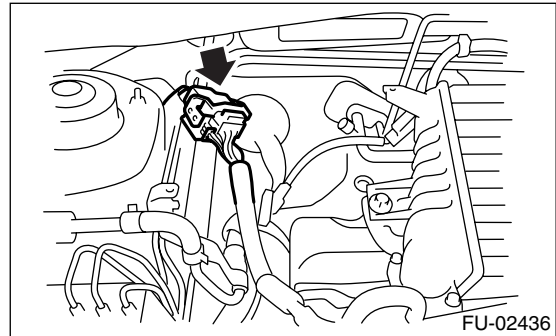
7) Connect the connector to camshaft position sensor.



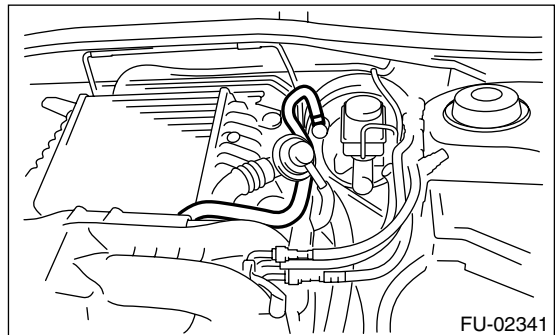
8) Connect the connector to ignition coil.



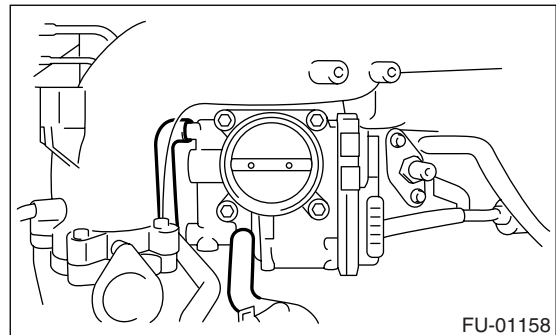
9) Connect the engine harness connector to bulk-head harness connector.



10) Connect the brake booster hose.



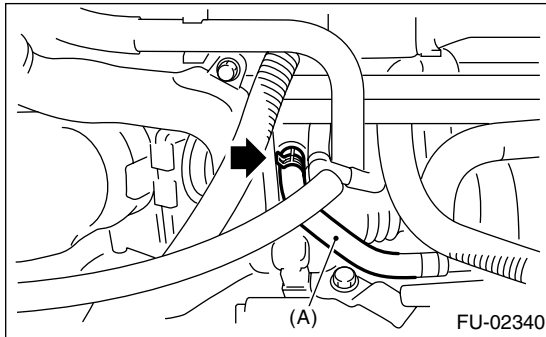
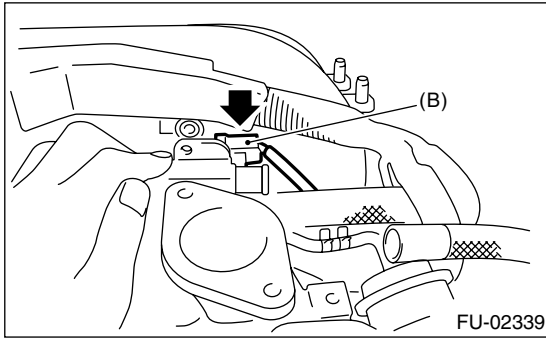
11) Connect the engine coolant hose to throttle body.



Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

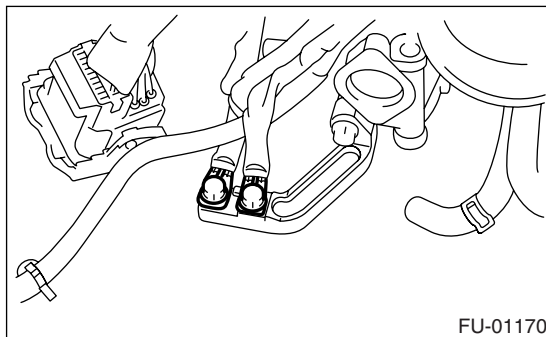
- 12) Connect the emission hose (A) and connector (B) to PCV hose assembly.



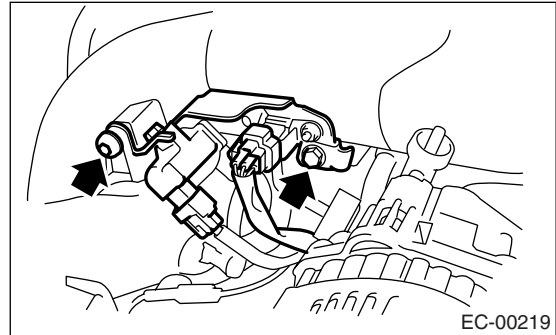
- 13) Install the coolant filler tank.
<Ref. to CO(H4DOTC)-31, INSTALLATION, Coolant Filler Tank.>
14) Install the intercooler. <Ref. to IN(H4DOTC)-12, INSTALLATION, Intercooler.>
15) Install the intake duct to air cleaner case.
16) Install the fuse of fuel pump to main fuse box.
17) Connect the battery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

C: DISASSEMBLY

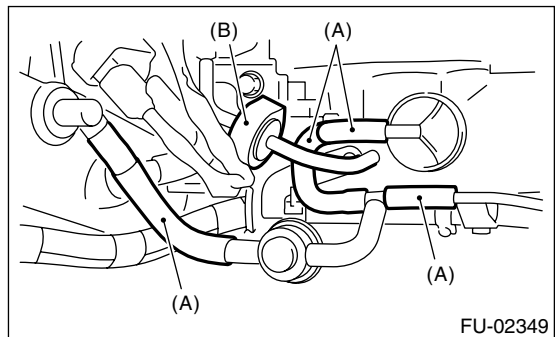
- 1) Disconnect the engine ground terminal from ground stay.



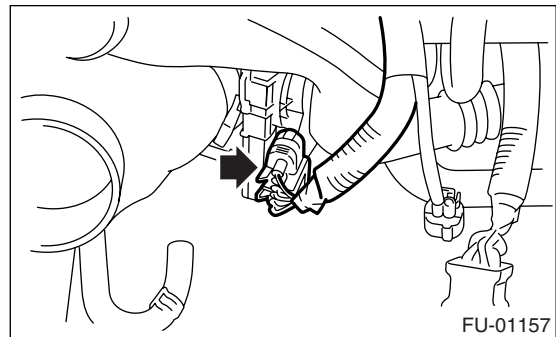
- 2) Remove the solenoid valve bracket assembly from intake manifold, and disconnect the connector from the wastegate control solenoid valve, manifold absolute pressure sensor and purge control solenoid valve.



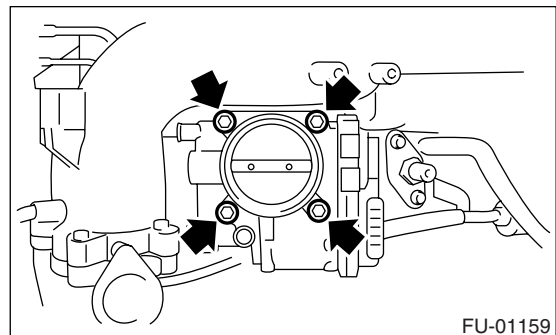
- 3) Disconnect the evaporation hoses (A) and filter assembly (B).



- 4) Disconnect the connector from throttle position sensor.



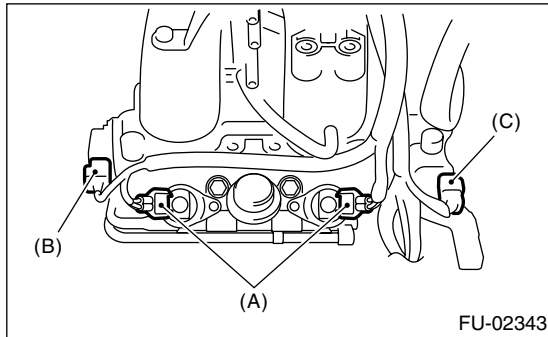
- 5) Remove the throttle body from intake manifold.



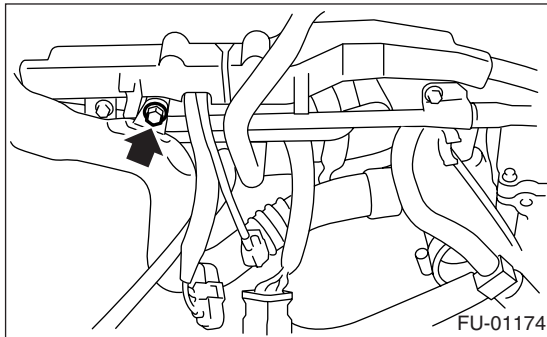
Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

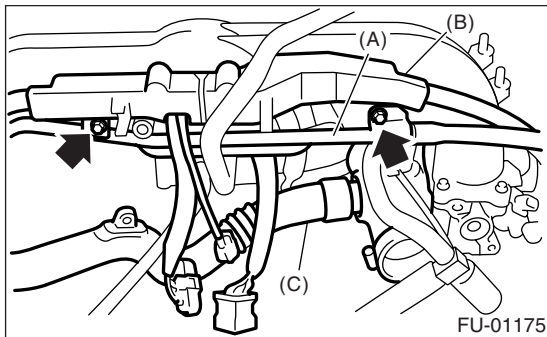
6) Disconnect the connectors from fuel injector (A), tumble generator valve position sensor (B) and tumble generator valve actuator (C).



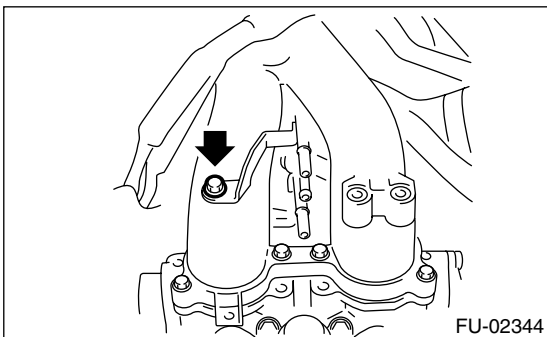
7) Remove the bolt which secures the air bypass pipe to intake manifold.



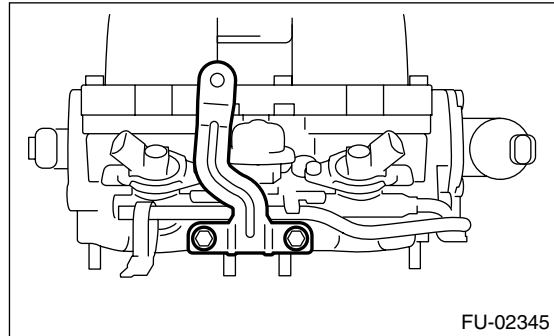
8) Disconnect the PCV pipe (A), harness assembly (B) and intake duct (C) from intake manifold.



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

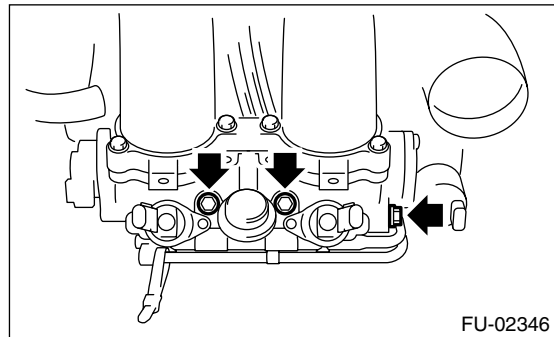


10) Remove the coolant filler tank stay from intake manifold.

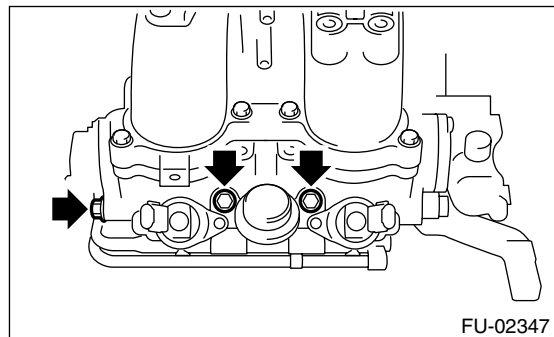


11) Remove the bolts which hold fuel injector pipe onto intake manifold.

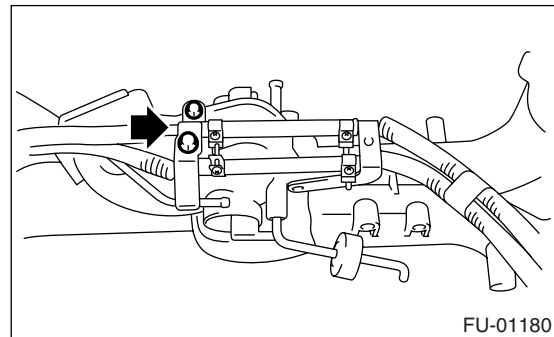
• RH side



• LH side



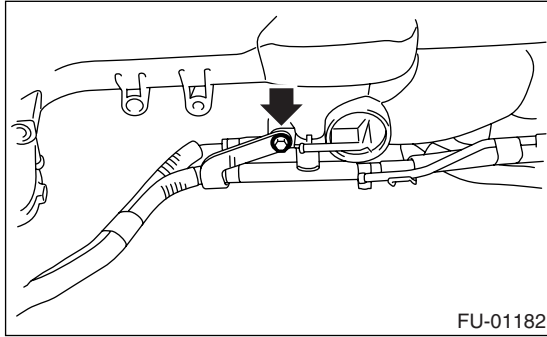
12) Remove the bolt which holds the fuel pipe to intake manifold.



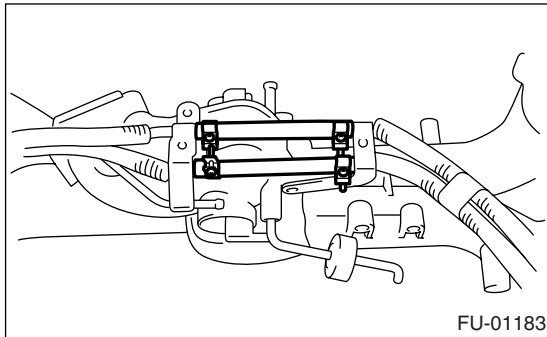
Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

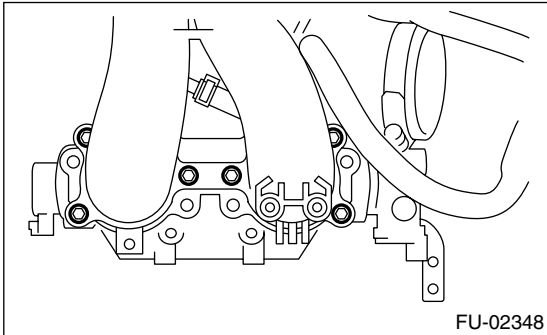
- 13) Remove the bolts which hold the fuel injector pipe RH onto the lower side of intake manifold.



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



- 15) Remove the fuel injector pipe.
16) Remove the intake manifold (upper) from intake manifold (lower).

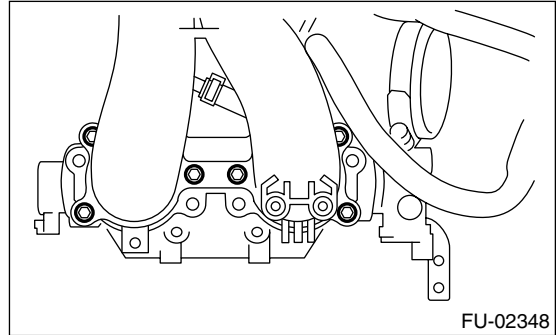


D: ASSEMBLY

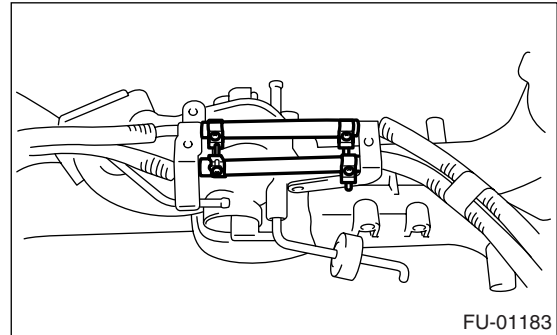
- 1) Install the intake manifold (lower) to intake manifold (upper).

NOTE:
Use new O-rings.

Tightening torque:
8.3 N·m (0.85 kgf-m, 6.1 ft-lb)

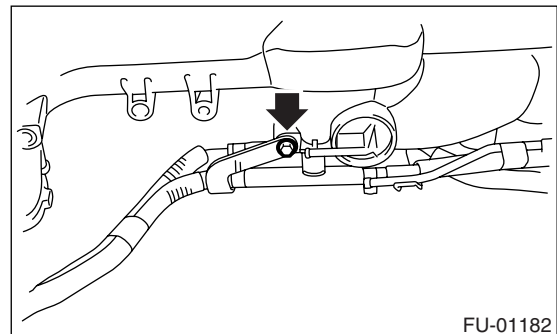


- 2) Install the fuel injector pipe.
3) Connect the both fuel injector pipes with a fuel hose and secure them with clamps.



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

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



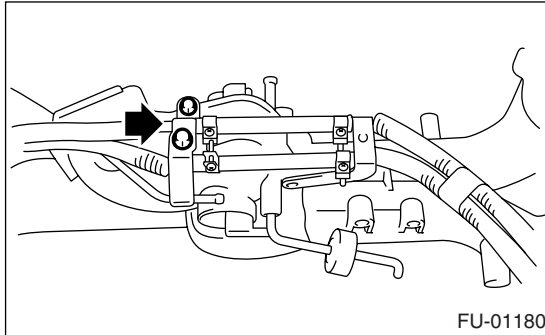
- 5) Tighten the bolt which secures fuel pipe onto intake manifold.

Intake Manifold

FUEL INJECTION (FUEL SYSTEMS)

Tightening torque:

6.5 N·m (0.66 kgf-m, 4.8 ft-lb)

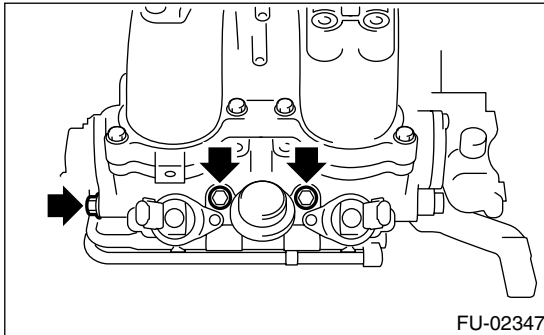


6) Tighten the bolts which secure fuel injector pipe onto intake manifold.

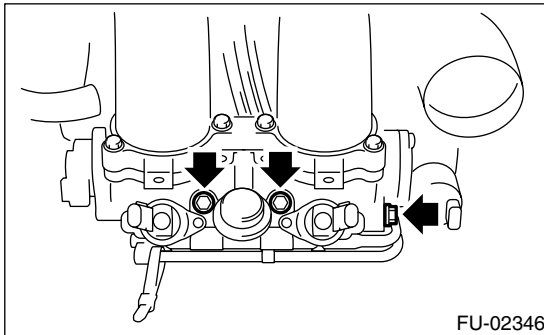
Tightening torque:

19 N·m (1.9 kgf-m, 14 ft-lb)

- LH side



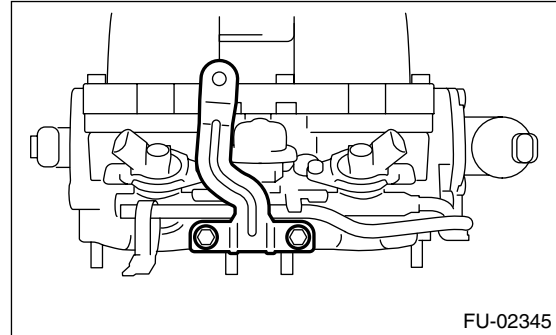
- RH side



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

Tightening torque:

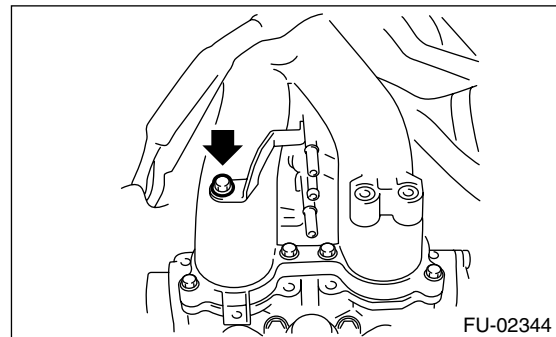
19 N·m (1.9 kgf-m, 14 ft-lb)



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

Tightening torque:

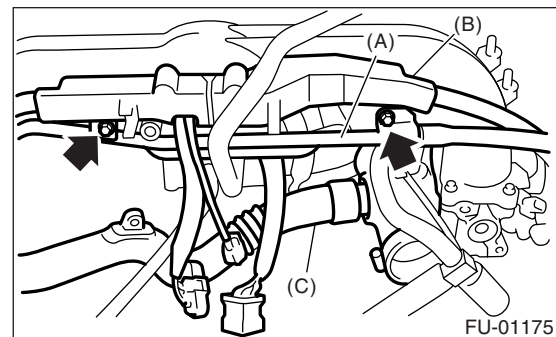
6.5 N·m (0.66 kgf-m, 4.8 ft-lb)



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

Tightening torque:

6.5 N·m (0.66 kgf-m, 4.8 ft-lb)



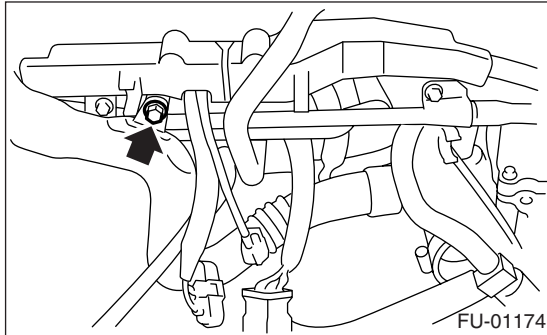
10) Tighten the bolt which secures air bypass pipe onto intake manifold.

Intake Manifold

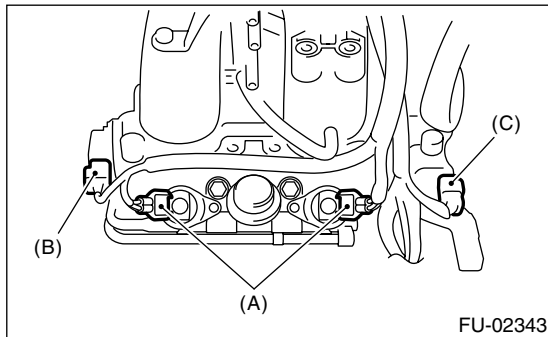
FUEL INJECTION (FUEL SYSTEMS)

Tightening torque:

6.5 N·m (0.66 kgf-m, 4.8 ft-lb)



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



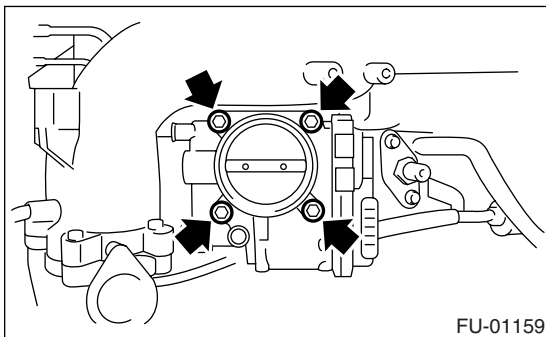
12) Install the throttle body to intake manifold.

NOTE:

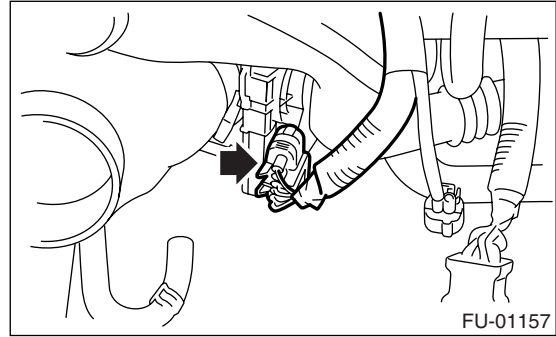
Use new O-rings.

Tightening torque:

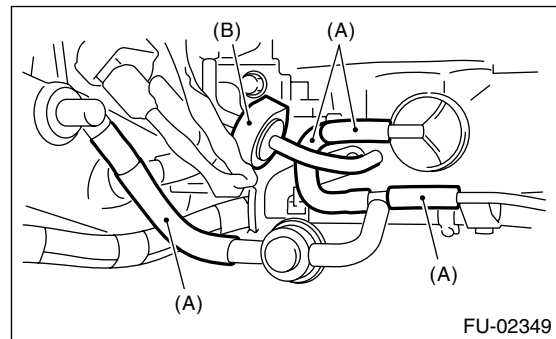
8 N·m (0.8 kgf-m, 5.9 ft-lb)



13) Connect the connector to throttle position sensor.

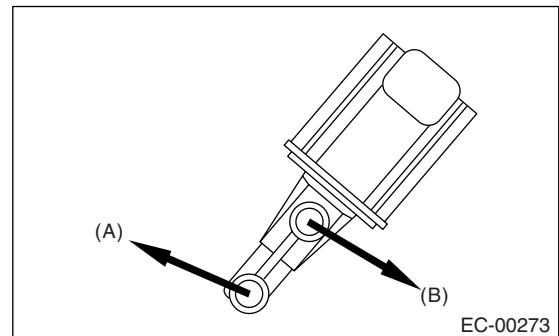


14) Connect the evaporation hoses (A) and filter assembly (B).



NOTE:

Connect the evaporation hose as shown in the figure.



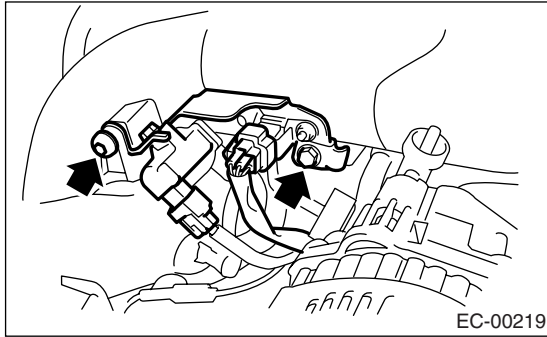
(A) To intake manifold

(B) To evaporation pipe

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

Tightening torque:

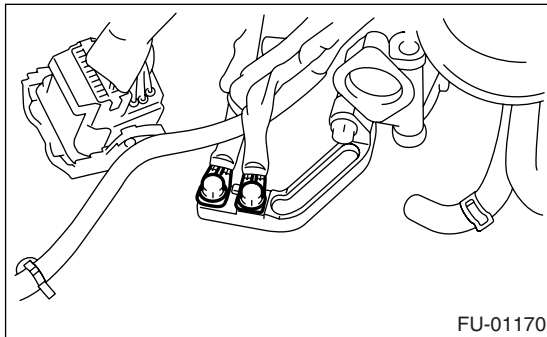
19 N·m (1.9 kgf-m, 14 ft-lb)



16) Install the engine ground terminal to ground stay.

Tightening torque:

19 N·m (1.9 kgf-m, 14 ft-lb)

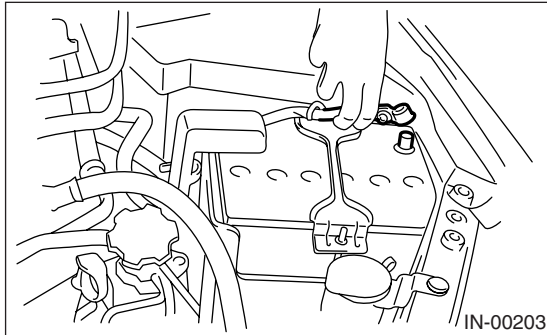
**E: INSPECTION**

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

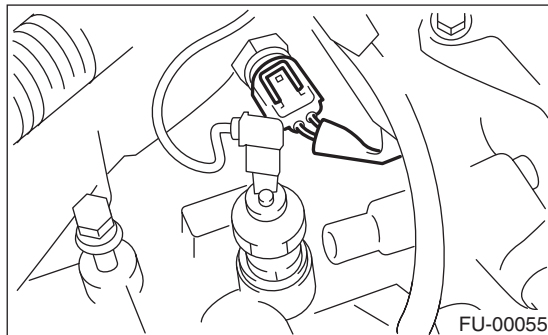
4. Engine Coolant Temperature Sensor

A: REMOVAL

- 1) Remove the collector cover.
- 2) Disconnect the ground cable from battery.



- 3) Remove the generator. <Ref. to SC(H4SO)-20, REMOVAL, Generator.>
- 4) Drain coolant. <Ref. to CO(H4DOTC)-13, DRAINING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>
- 5) Disconnect the connectors from engine coolant temperature sensor.



- 6) Remove the engine coolant temperature sensor.

B: INSTALLATION

Install in the reverse order of removal.

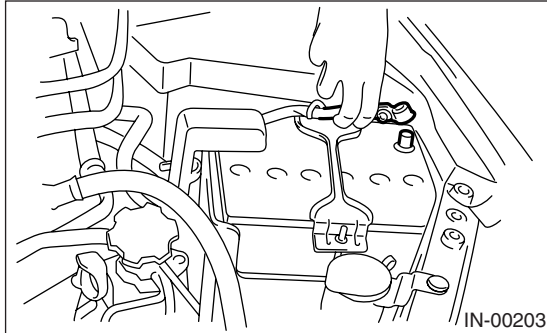
Tightening torque:

18 N·m (1.8 kgf-m, 13.3 ft-lb)

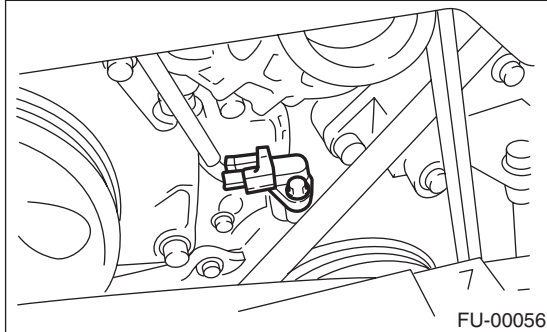
5. Crankshaft Position Sensor

A: REMOVAL

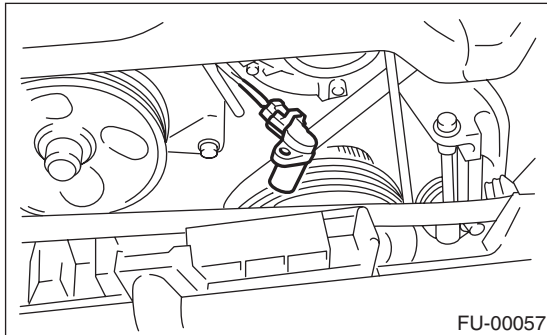
- 1) Remove the collector cover.
- 2) Disconnect the ground cable from battery.



- 3) Remove the generator. <Ref. to SC(H4SO)-20, REMOVAL, Generator.>
- 4) Remove the bolt which installs crankshaft position sensor to cylinder block.



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

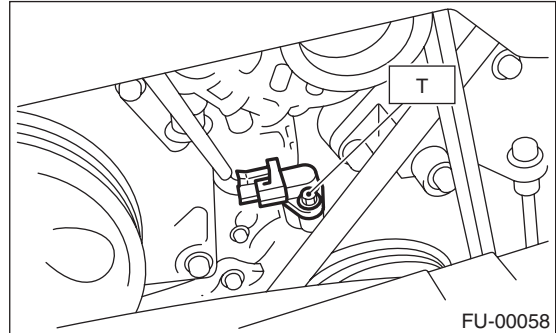


B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:

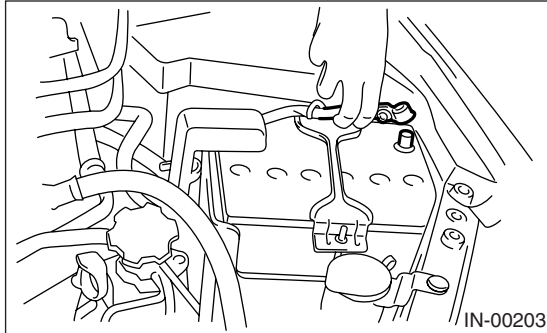
T: 6.4 N·m (0.65 kgf-m, 4.7 ft-lb)



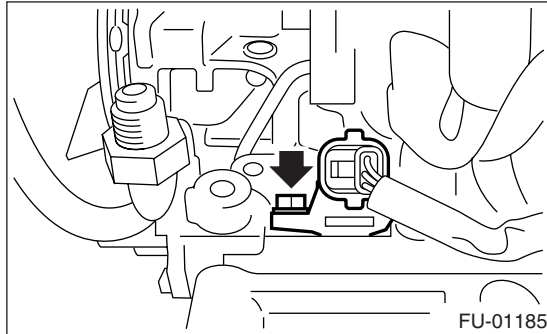
6. Camshaft Position Sensor

A: REMOVAL

- 1) Remove the collector cover.
- 2) Disconnect the ground cable from battery.



- 3) Disconnect the connector from camshaft position sensor RH.
- 4) Remove the camshaft position sensor RH from the rear side of cylinder head.



- 5) Remove the camshaft position sensor LH in the same procedure as RH.

B: INSTALLATION

Install in the reverse order of removal.

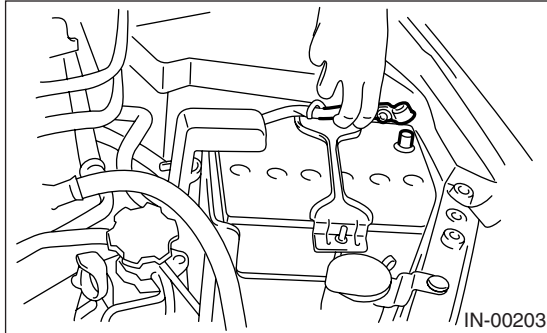
Tightening torque:

6.4 N·m (0.65 kgf-m, 4.7 ft-lb)

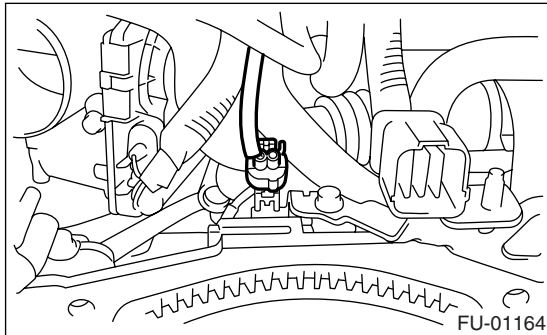
7. Knock Sensor

A: REMOVAL

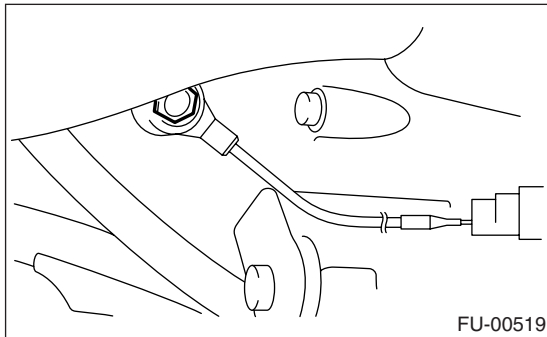
- 1) Remove the collector cover.
- 2) Disconnect the ground cable from battery.



- 3) Remove the intercooler. <Ref. to IN(H4DOTC)-12, REMOVAL, Intercooler.>
- 4) Disconnect the knock sensor connector.



- 5) Remove the knock sensor from cylinder block.



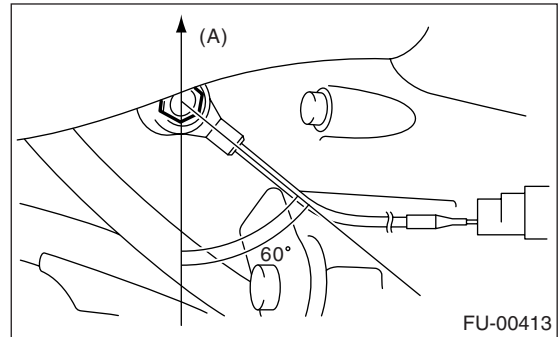
B: INSTALLATION

- 1) Install the knock sensor to cylinder block.

NOTE:

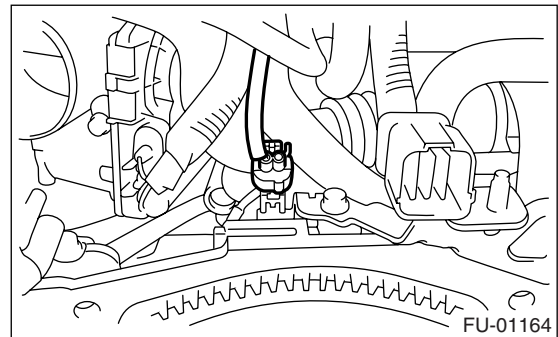
Extraction area of knock sensor cord must be positioned at a 60° angle relative to the engine rear.

Tightening torque:
24 N·m (2.4 kgf-m, 17.4 ft-lb)

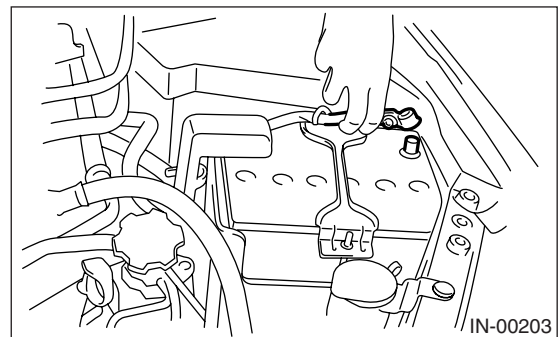


(A) Front side

- 2) Connect the knock sensor connector.



- 3) Install the intercooler.
 <Ref. to IN(H4DOTC)-12, INSTALLATION, Intercooler.>
- 4) Connect the battery ground cable to battery.



- 5) Install the collector cover.

8. Throttle Position Sensor

A: SPECIFICATION

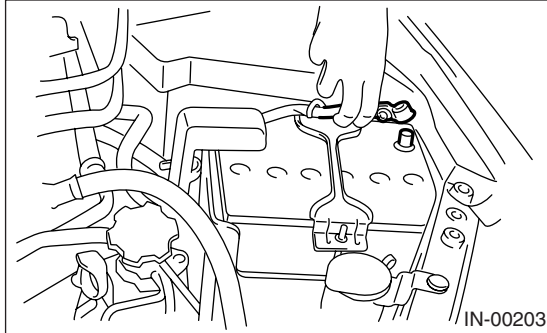
Throttle body is a non-disassembled part, so do not remove the throttle position sensor from throttle body.

Refer to “Throttle Body” for removal and installation. <Ref. to FU(H4DOTC)-11, REMOVAL, Throttle Body.> <Ref. to FU(H4DOTC)-11, INSTALLATION, Throttle Body.>

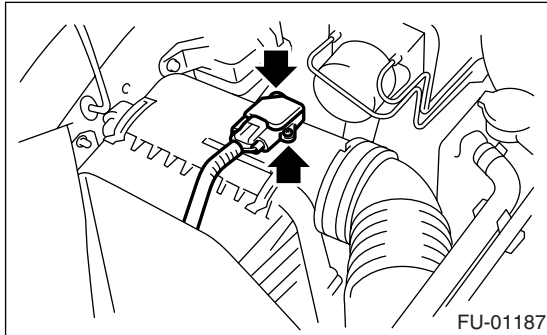
9. Mass Air Flow and Intake Air Temperature Sensor

A: REMOVAL

- 1) Disconnect the ground cable from battery.



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



B: INSTALLATION

Install in the reverse order of removal.

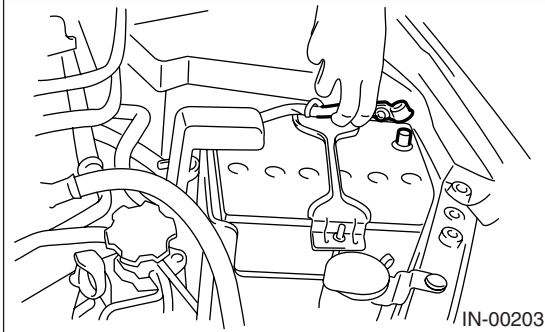
Tightening torque:

1 N·m (0.1 kgf-m, 0.7 ft-lb)

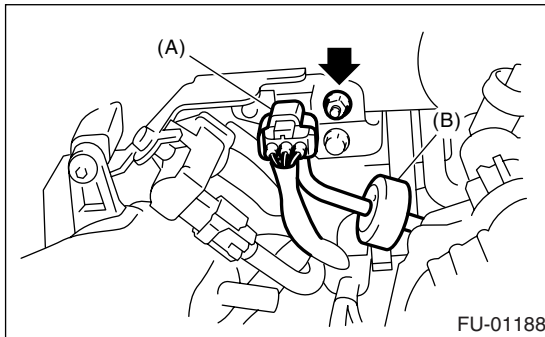
10. Manifold Absolute Pressure Sensor

A: REMOVAL

- 1) Remove the collector cover.
- 2) Disconnect the ground cable from battery.



- 3) Disconnect the connector from manifold absolute pressure sensor (A), and remove the filter assembly (B) from intake manifold.
- 4) Remove the manifold absolute pressure sensor from solenoid valve bracket.



B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:

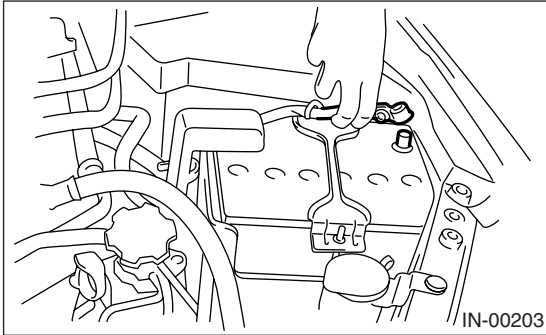
6.5 N·m (0.66 kgf-m, 4.8 ft-lb)

11. Fuel Injector

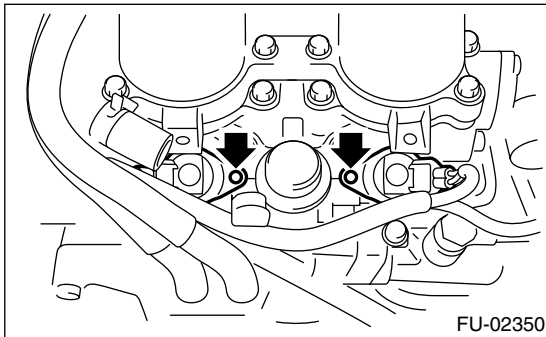
A: REMOVAL

1. RH SIDE

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



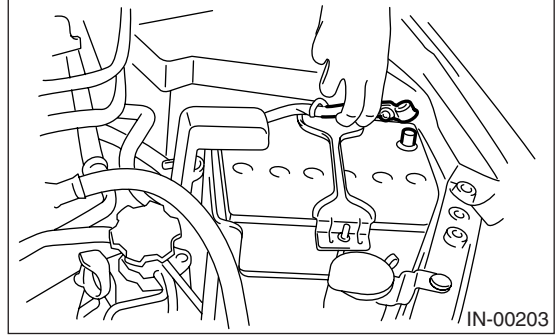
- 5) Remove the coolant filler tank. <Ref. to CO(H4DOTC)-31, REMOVAL, Coolant Filler Tank.>
- 6) Disconnect the connector from fuel injector.
- 7) Remove the screw and remove the fuel injector.



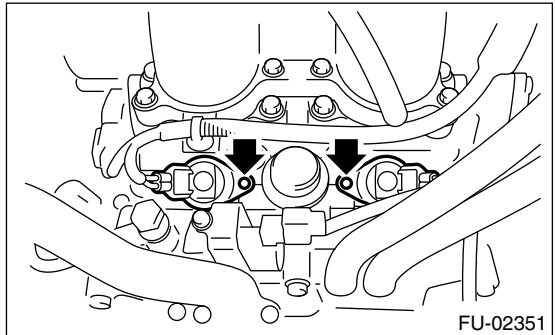
2. LH SIDE

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

- 4) Disconnect the ground cable from battery.



- 5) Disconnect the connector from fuel injector.
- 6) Remove the screw and remove the fuel injector.



B: INSTALLATION

1. RH SIDE

Install in the reverse order of removal.

NOTE:

Use new O-rings.

Tightening torque:

3.5 N·m (0.36 kgf-m, 2.6 ft-lb)

2. LH SIDE

Install in the reverse order of removal.

NOTE:

Use new O-rings.

Tightening torque:

3.5 N·m (0.36 kgf-m, 2.6 ft-lb)

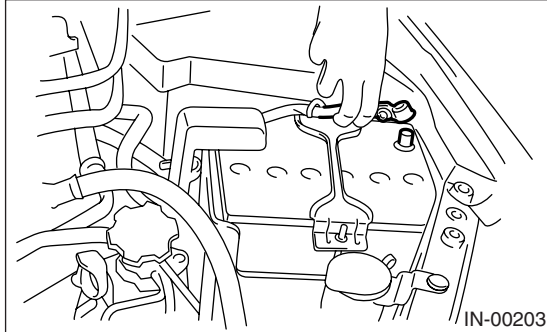
Tumble Generator Valve Assembly

FUEL INJECTION (FUEL SYSTEMS)

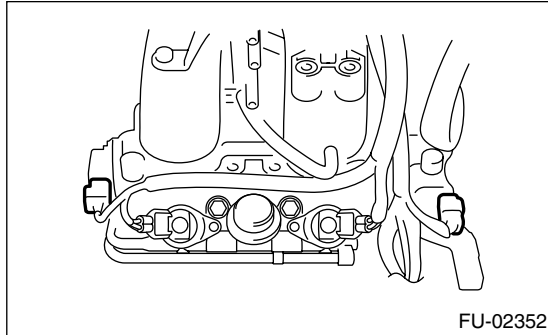
12. Tumble Generator Valve Assembly

A: REMOVAL

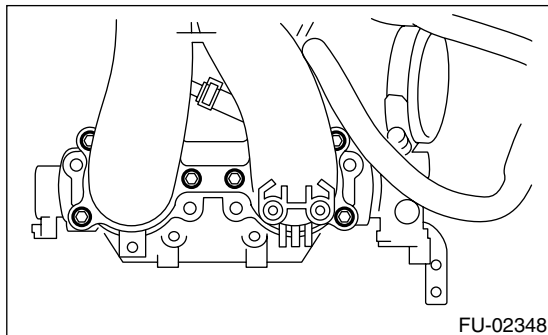
- 1) Release the fuel pressure. <Ref. to FU(H4DOTC)-44, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>
- 2) Open the fuel filler lid and remove the fuel filler cap.
- 3) Disconnect the ground cable from battery.



- 4) Remove the intake manifold. <Ref. to FU(H4DOTC)-12, REMOVAL, Intake Manifold.>
- 5) Disconnect the connectors from the tumble generator (A) and tumble generator valve actuator (B).



- 6) Remove the fuel injector. <Ref. to FU(H4DOTC)-29, REMOVAL, Fuel Injector.>
- 7) Remove the tumble generator valve body from the intake manifold.



B: INSTALLATION

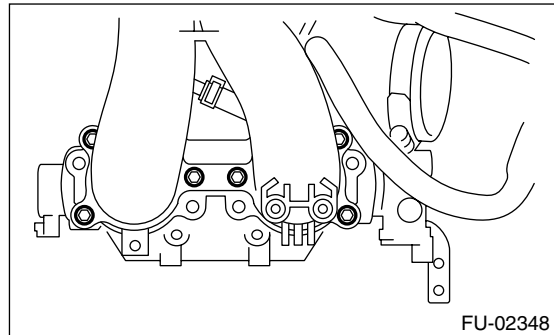
Install in the reverse order of removal.

NOTE:

Always use new gaskets.

Tightening torque:

8.3 N·m (0.85 kgf-m, 6.1 ft-lb)

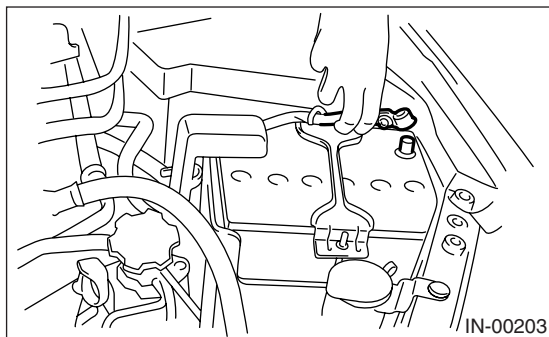


13. Tumble Generator Valve Actuator

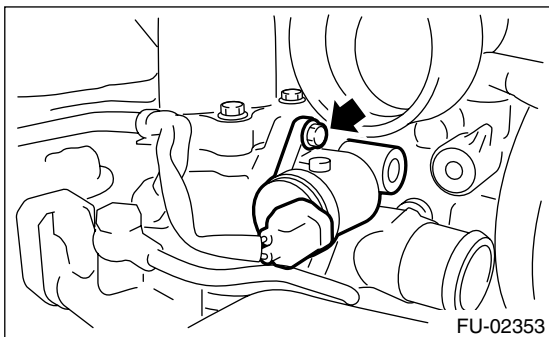
A: REMOVAL

1. RH SIDE

- 1) Disconnect the ground cable from battery.

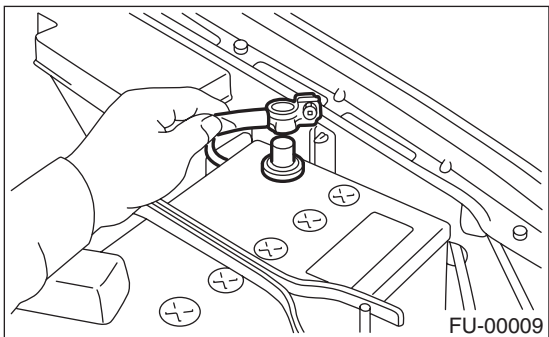


- 2) Disconnect the connector from tumble generator valve actuator RH.
- 3) Remove the tumble generator valve actuator RH.



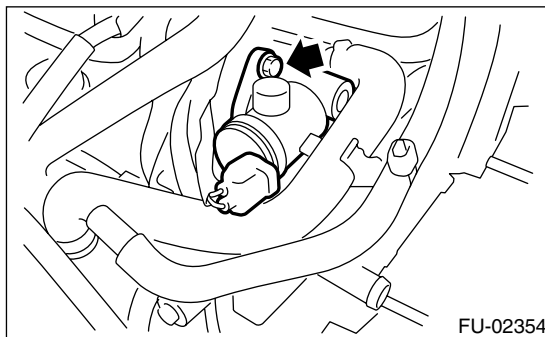
2. LH SIDE

- 1) Disconnect the ground cable from battery.



- 2) Remove the intercooler. <Ref. to IN(H4DOTC)-12, REMOVAL, Intercooler.>
- 3) Disconnect the connector from tumble generator valve actuator LH.

- 4) Remove the tumble generator valve actuator LH.



B: INSTALLATION

1. RH SIDE

Install in the reverse order of removal.

2. LH SIDE

Install in the reverse order of removal.

14. Tumble Generator Valve Position Sensor

A: SPECIFICATION

Do not remove the tumble generator valve position sensor from tumble generator valve assembly, since it cannot be adjusted during installation.

Refer to “Tumble Generator Valve Assembly” for removal and installation procedures. <Ref. to FU(H4DOTC)-30, REMOVAL, Tumble Generator Valve Assembly.> <Ref. to FU(H4DOTC)-30, INSTALLATION, Tumble Generator Valve Assembly.>

15.Oil Flow Control Solenoid Valve

A: REMOVAL

Oil flow control solenoid valve forms a unit with camshaft cap.

Refer to “Camshaft” for removal. <Ref. to ME(H4DOTC)-52, REMOVAL, Camshaft.>

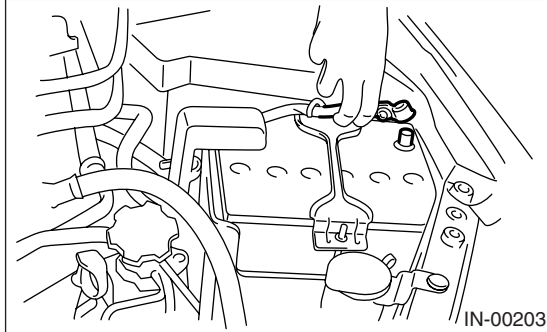
B: INSTALLATION

Install in the reverse order of removal.

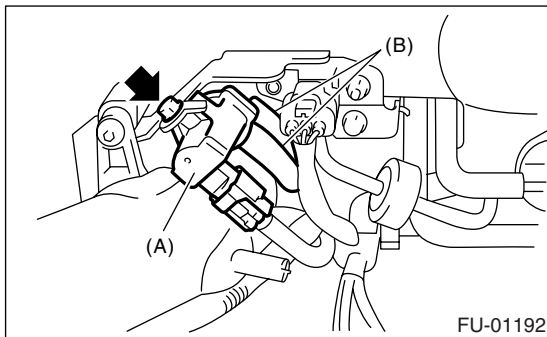
16. Wastegate Control Solenoid Valve

A: REMOVAL

- 1) Remove the collector cover.
- 2) Disconnect the ground cable from battery.



- 3) Disconnect the connector from wastegate control solenoid valve (A).
- 4) Disconnect the pressure hose (B) from wastegate control solenoid valve.
- 5) Remove the wastegate control solenoid valve from bracket.



B: INSTALLATION

Install in the reverse order of removal.

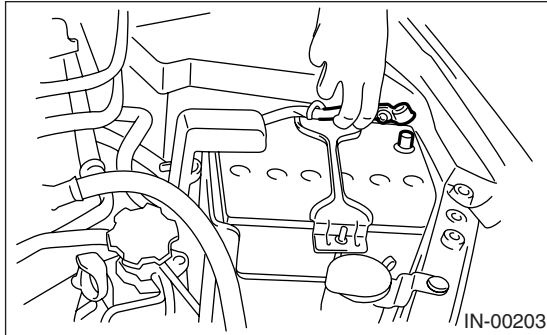
Tightening torque:

6.5 N·m (0.66 kgf-m, 4.8 ft-lb)

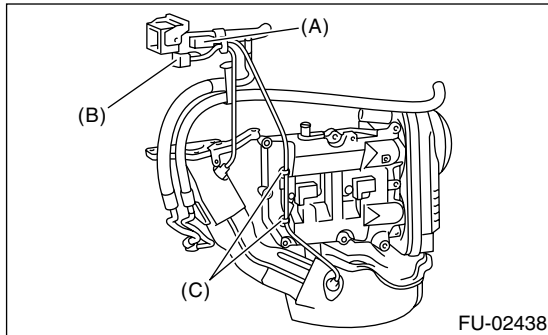
17.Front Oxygen (A/F) Sensor

A: REMOVAL

- 1) Disconnect the ground cable from battery.

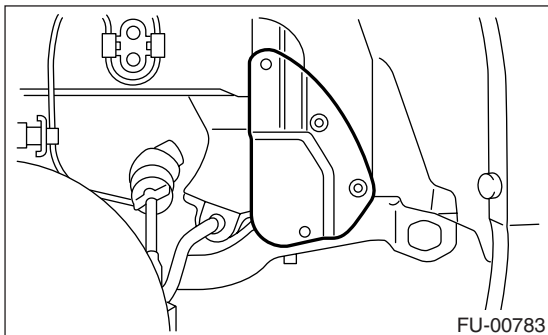


- 2) Disconnect the connector from the front oxygen (A/F) sensor.
- 3) Disconnect the engine harness fixed by clip from the bracket.



- (A) Front oxygen (A/F) sensor connector
- (B) Exhaust temperature sensor connector
- (C) Clip

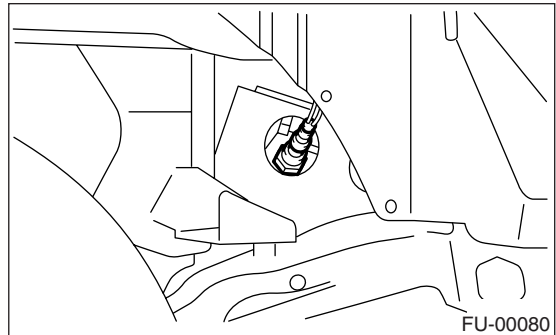
- 4) Remove the front right side wheel.
- 5) Lift-up the vehicle.
- 6) Remove the service hole cover.



- 7) Apply spray type lubricant to the threaded portion of front oxygen (A/F) sensor, and leave it for one minute or more.
- 8) Remove the front oxygen (A/F) sensor.

CAUTION:

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



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.

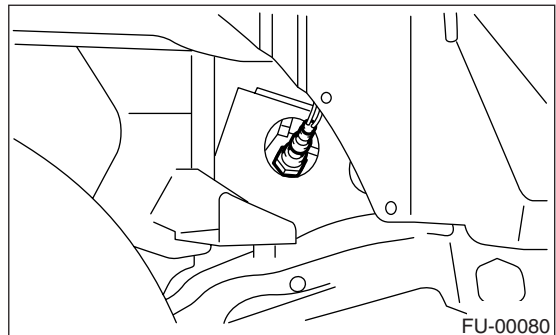
Anti-seize compound:
SS-30 JET LUBE

CAUTION:

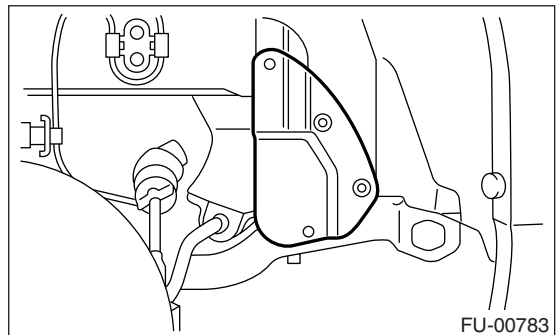
Never apply anti-seize compound to protector of front oxygen (A/F) sensor.

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

Tightening torque:
30 N·m (3.1 kgf-m, 22.1 ft-lb)



- 3) Install the service hole cover.

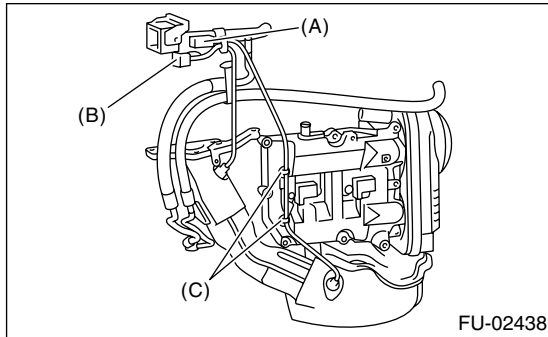


- 4) Lower the vehicle.
- 5) Install the front right side wheel.

Front Oxygen (A/F) Sensor

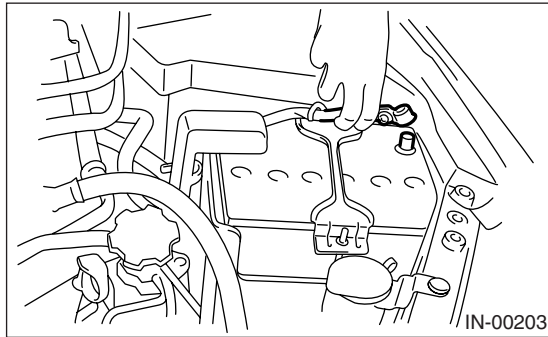
FUEL INJECTION (FUEL SYSTEMS)

- 6) Connect the engine harness to the bracket using clips.
- 7) Connect the connector of front oxygen (A/F) sensor.



- (A) Front oxygen (A/F) sensor connector
- (B) Exhaust temperature sensor connector
- (C) Clip

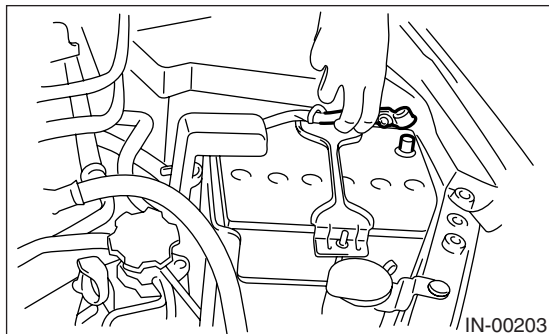
- 8) Connect the battery ground cable to battery.



18.Rear Oxygen Sensor

A: REMOVAL

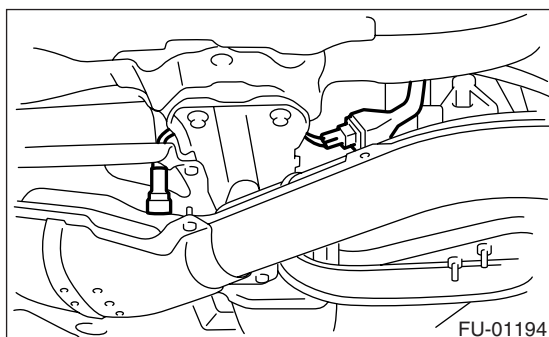
- 1) Disconnect the ground cable from battery.



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

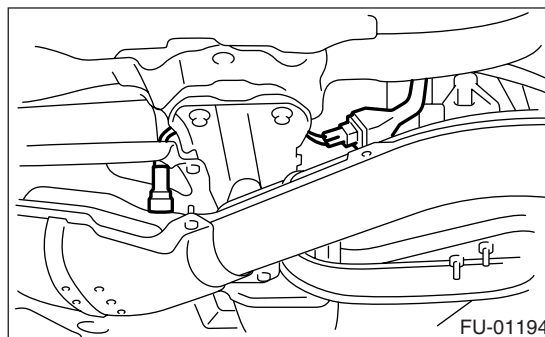
CAUTION:

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

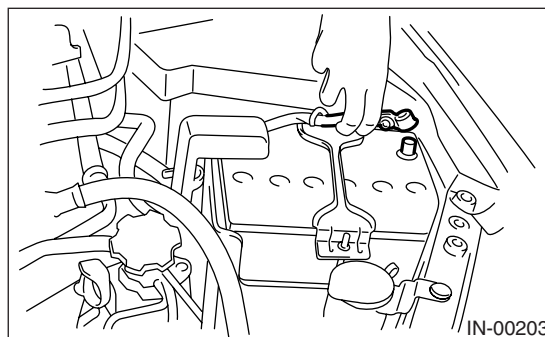


Tightening torque:

21 N·m (2.1 kgf-m, 15.2 ft-lb)



- 3) Connect the connector to rear oxygen sensor.
- 4) Lower the vehicle.
- 5) Connect the battery ground cable to battery.



B: INSTALLATION

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

Anti-seize compound:

SS-30 JET LUBE

CAUTION:

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

- 2) Install the rear oxygen sensor.

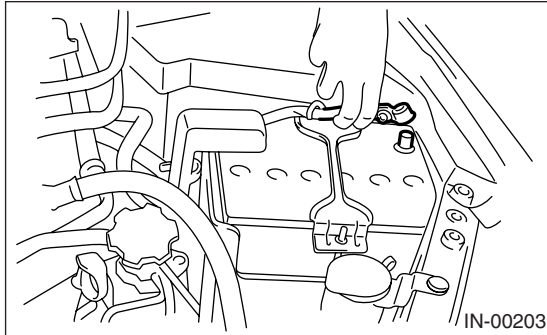
Exhaust Temperature Sensor

FUEL INJECTION (FUEL SYSTEMS)

19. Exhaust Temperature Sensor

A: REMOVAL

1) Disconnect the ground cable from battery.



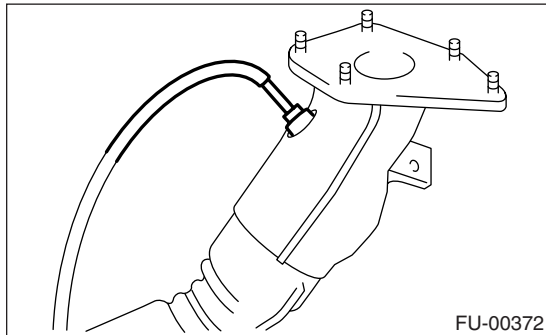
2) Remove the joint pipe. <Ref. to EX(H4DOTC)-11, REMOVAL, Joint Pipe.>

3) Apply spray type lubricant or its equivalent to the threaded portion of exhaust temperature sensor, and leave it for one minute or more.

4) Remove the exhaust temperature sensor.

CAUTION:

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



B: INSTALLATION

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

CAUTION:

Never apply anti-seize compound to protector of exhaust temperature sensor.

Anti-seize compound:

SS-30 JET LUBE

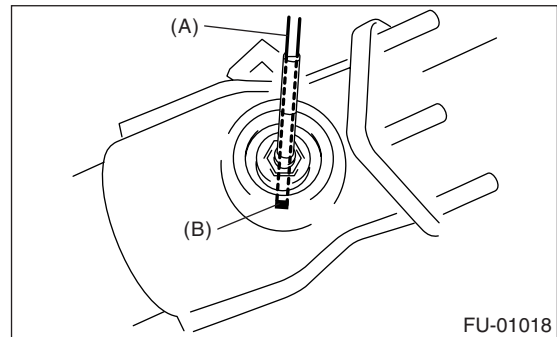
2) Install the exhaust temperature sensor.

NOTE:

Align the harness (A) of exhaust temperature sensor to the marking (B) of joint pipe, and tighten the screws.

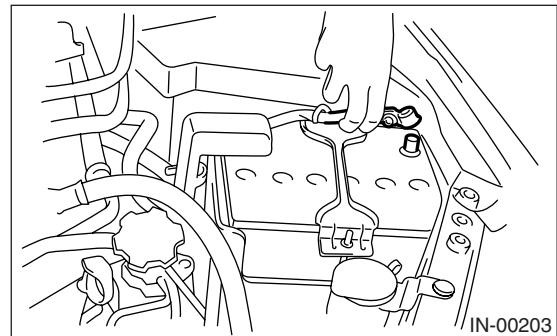
Tightening torque:

21 N·m (2.1 kgf-m, 15.2 ft-lb)



3) Install the joint pipe. <Ref. to EX(H4DOTC)-11, INSTALLATION, Joint Pipe.>

4) Connect the battery ground cable to battery.

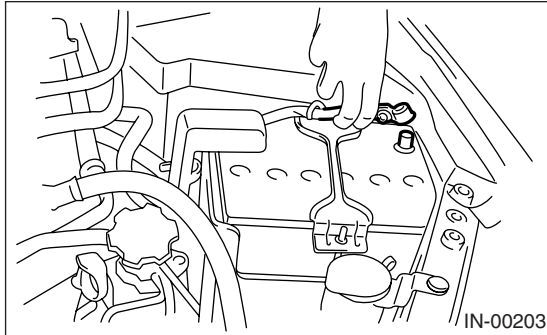


20.Engine Control Module (ECM)

Tightening torque:
5 N·m (0.5 kgf-m, 3.6 ft-lb)

A: REMOVAL

1) Disconnect the ground cable from battery.

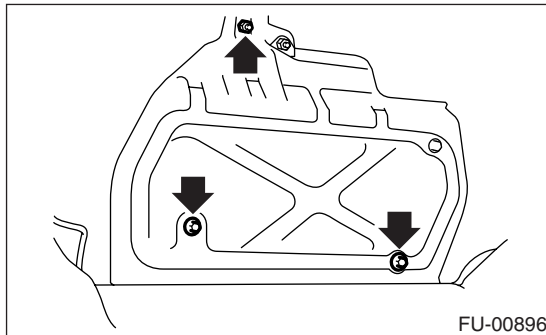


2) Remove the lower inner trim of passenger side.

<Ref. to EI-60, REMOVAL, Lower Inner Trim.>

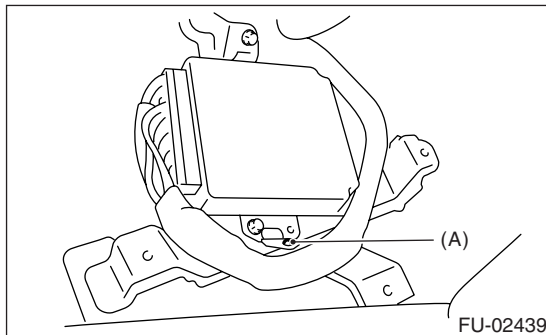
3) Detach the floor mat of front passenger's seat.

4) Remove the protect cover.



5) Remove the nut and bolt which hold the ECM to bracket.

6) Remove the clip (A) from bracket.



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

B: INSTALLATION

Install in the reverse order of removal.

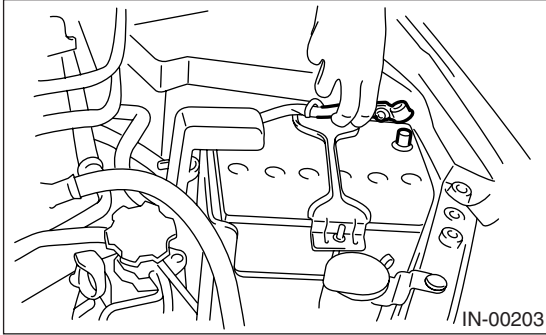
CAUTION:

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

21.Main Relay

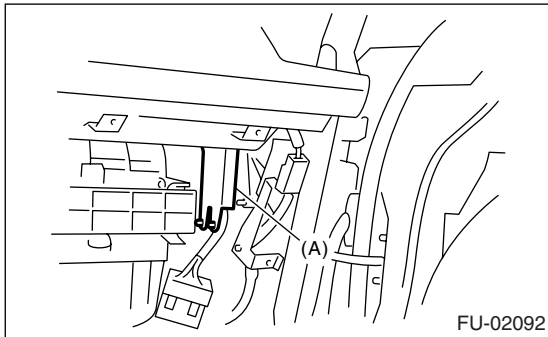
A: REMOVAL

1) Disconnect the ground cable from battery.

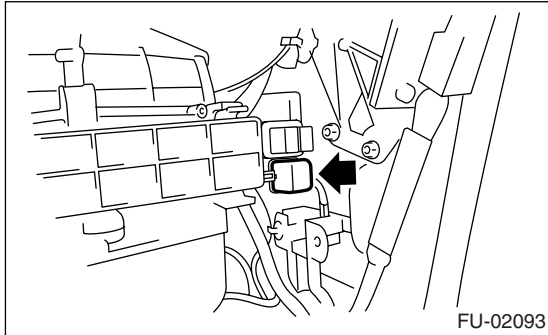


2) Remove the glove box. <Ref. to EI-51, REMOVAL, Glove Box.>

3) Remove the harness cover (A).



4) Disconnect the connector from main relay.



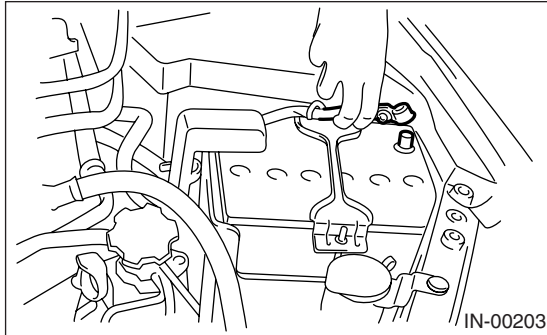
B: INSTALLATION

Install in the reverse order of removal.

22.Fuel Pump Relay

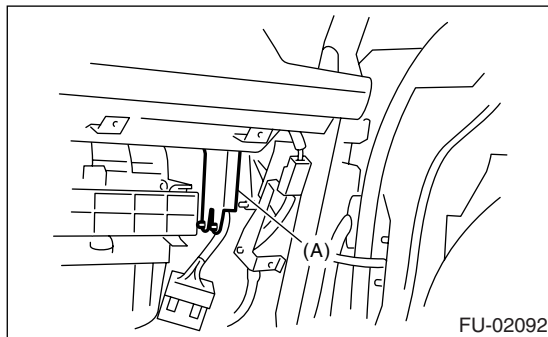
A: REMOVAL

1) Disconnect the ground cable from battery.

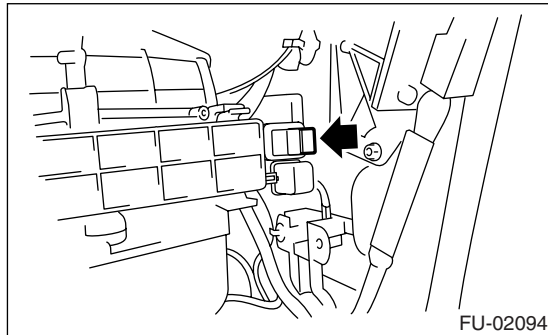


2) Remove the glove box. <Ref. to EI-51, REMOVAL, Glove Box.>

3) Remove the harness cover (A).



4) Disconnect the connector from fuel pump relay.



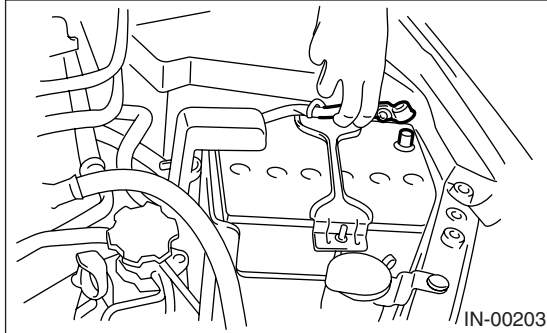
B: INSTALLATION

Install in the reverse order of removal.

23. Electronic Throttle Control Relay

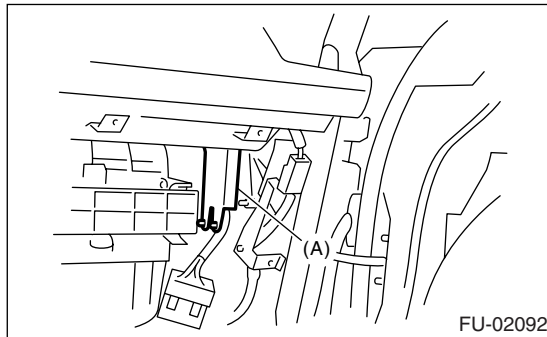
A: REMOVAL

- 1) Disconnect the ground cable from battery.

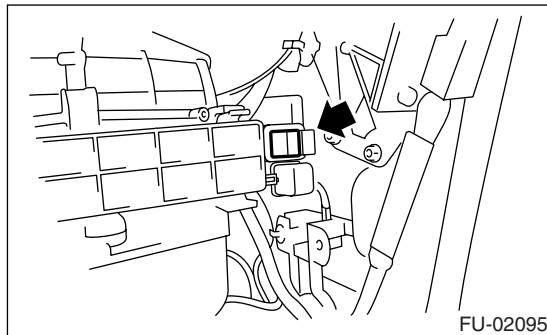


- 2) Remove the glove box. <Ref. to EI-51, REMOVAL, Glove Box.>

- 3) Remove the harness cover (A).



- 4) Disconnect the connector from electronic throttle control relay.



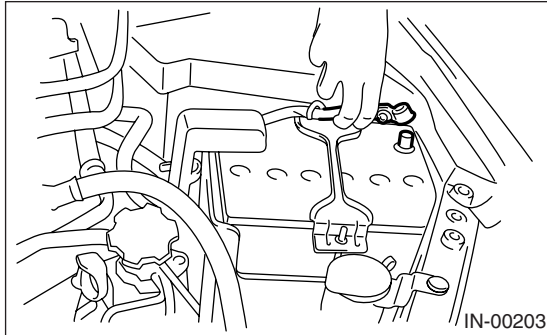
B: INSTALLATION

Install in the reverse order of removal.

24. Fuel Pump Control Unit

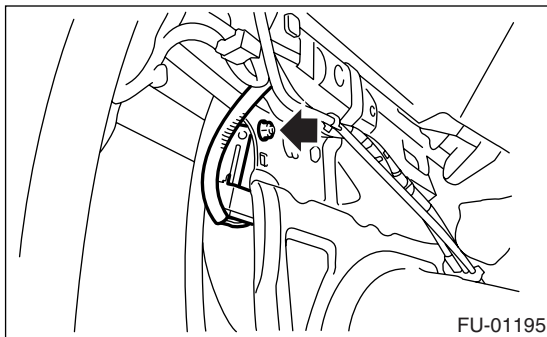
A: REMOVAL

1) Disconnect the ground cable from battery.



2) Remove the rear quarter trim. <Ref. to EI-62, REMOVAL, Rear Quarter Trim.>

3) Remove the fuel pump control unit.



4) Disconnect the connector from fuel pump control unit.

B: INSTALLATION

Install in the reverse order of removal.

25. Fuel

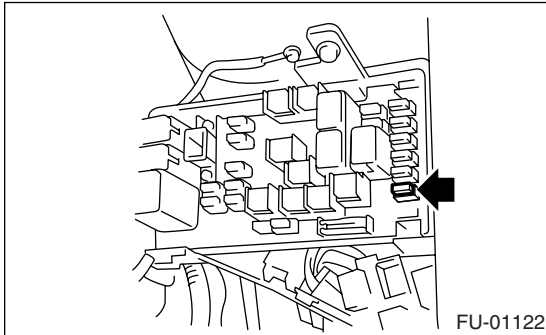
A: PROCEDURE

1. RELEASING OF FUEL PRESSURE

WARNING:

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

1) Remove the fuse of fuel pump from main fuse box.



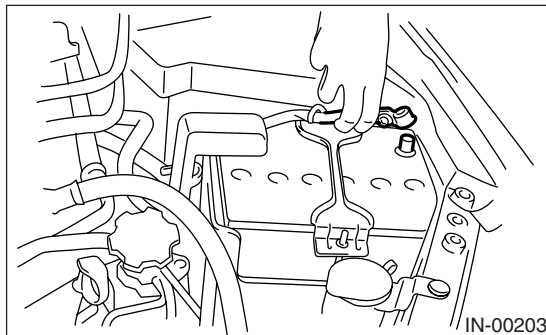
- 2) Start the engine and run it until it stalls.
 3) After the engine stalls, crank it for five more seconds.
 4) Turn the ignition switch to OFF.

2. DRAINING FUEL

WARNING:

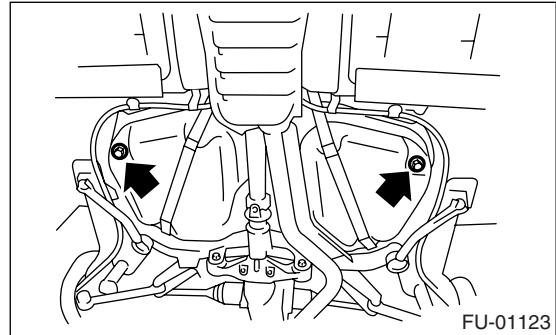
- Place “NO FIRE” signs near the working area.
- Be careful not to spill fuel on the floor.

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



- 3) Open the fuel filler flap lid and remove the fuel filler cap.
 4) Lift-up the vehicle.
 5) Remove the fuel tank protector.

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



7) Tighten the fuel drain plug.

NOTE:

Use a new gasket.

Tightening torque:

26 N·m (2.65 kgf-m, 19.2 ft-lb)

8) Install the fuel tank protector.

NOTE:

Use a new gasket.

Tightening torque:

Nut

9 N·m (0.9 kgf-m, 6.6 ft-lb)

Bolt

17.5 N·m (1.78 kgf-m, 12.9 ft-lb)

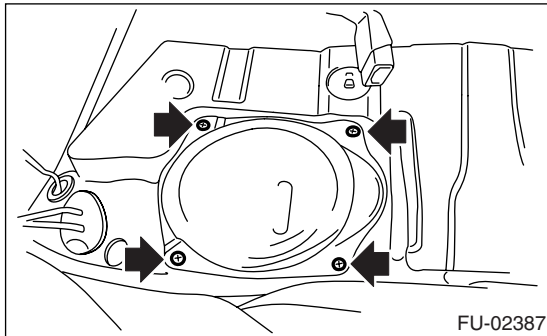
26.Fuel Tank

A: REMOVAL

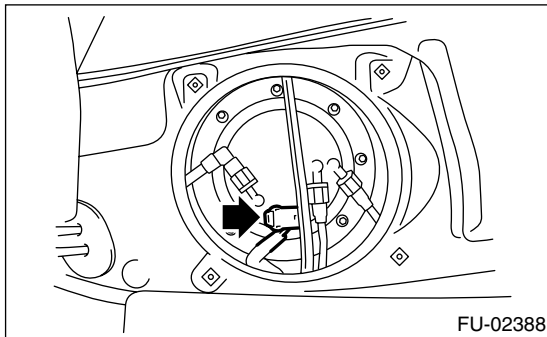
WARNING:

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

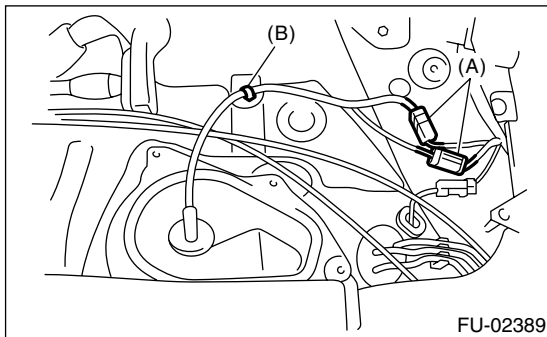
- 1) Set the vehicle on a lift.
- 2) Release the fuel pressure.
<Ref. to FU(H4DOTC)-44, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>
- 3) Drain fuel from the fuel tank.
<Ref. to FU(H4DOTC)-44, DRAINING FUEL, PROCEDURE, Fuel.>
- 4) Remove the rear seat.
- 5) Remove the service hole cover from fuel pump.



- 6) Disconnect the connector from fuel pump.



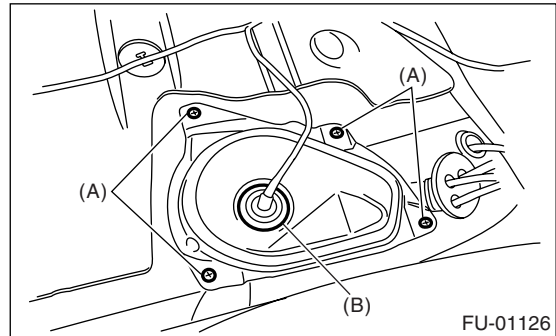
- 7) Remove the connector (A) and clips (B).



- 8) Remove the service hole cover from fuel sub level sensor.

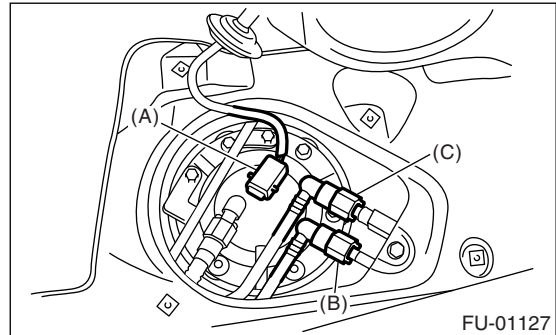
- (1) Remove the bolts (A).

- (2) Push the grommet (B) down under the body and remove service hole cover.



- 9) Disconnect the connector (A) from fuel sub level sensor.

- 10) Disconnect the quick connector from the fuel delivery (B) and return hose (C). <Ref. to FU(H4DOTC)-60, REMOVAL, Fuel Delivery, Return and Evaporation Lines.>



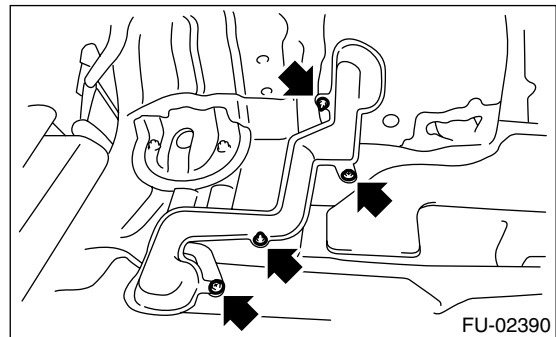
- 11) Remove trunk room trim. (Sedan model)

<Ref. to EI-70, REMOVAL, Trunk Room Trim.>

- 12) Remove rear quarter trim. (Wagon model)

<Ref. to EI-62, WAGON MODEL, REMOVAL, Rear Quarter Trim.>

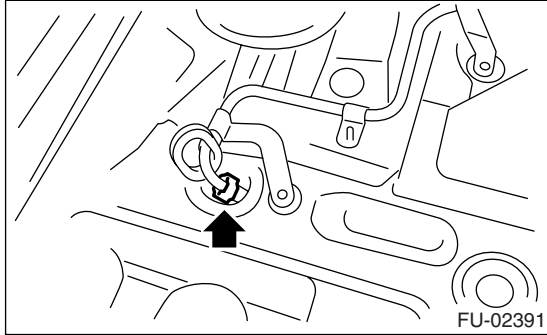
- 13) Remove pipe protector.



Fuel Tank

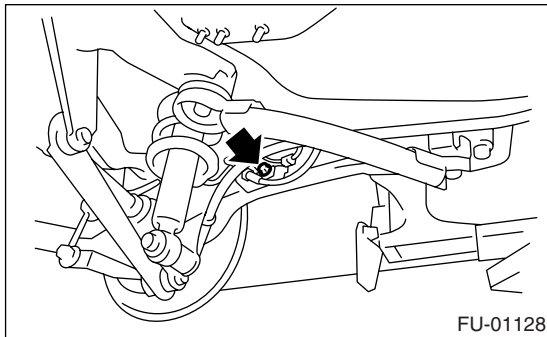
FUEL INJECTION (FUEL SYSTEMS)

14) Remove the grommet, and then disconnect the quick connector of evaporation pipes. <Ref. to FU(H4DOTC)-60, REMOVAL, Fuel Delivery, Return and Evaporation Lines.>

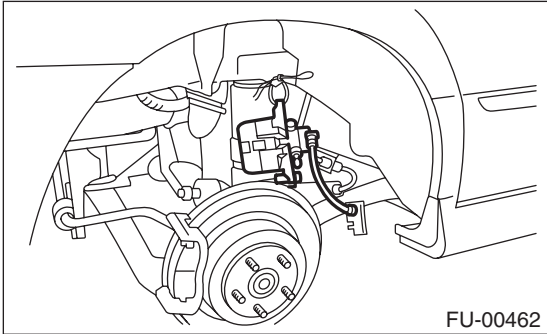


15) Remove the rear wheels.

16) Remove the bolts which secure the rear brake hose installation bracket.



17) Remove the rear brake caliper and tie it to the vehicle body side.



18) Remove the parking brake cable from parking brake assembly. <Ref. to PB-6, REMOVAL, Parking Brake Assembly (Rear Disc Brake).>

19) Lift-up the vehicle.

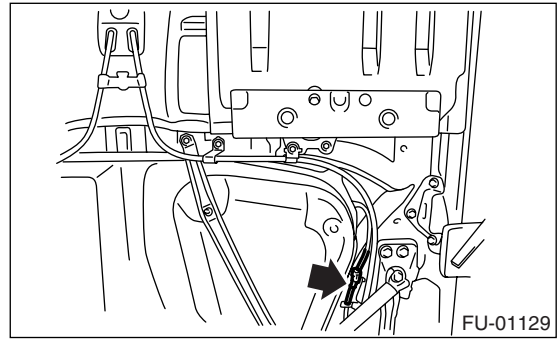
20) Remove the rear exhaust pipe.

<Ref. to EX(H4DOTC)-12, REMOVAL, Rear Exhaust Pipe.>

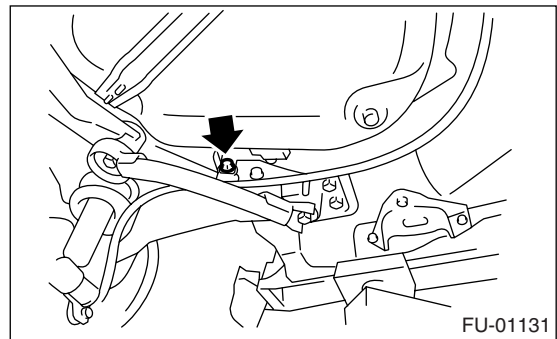
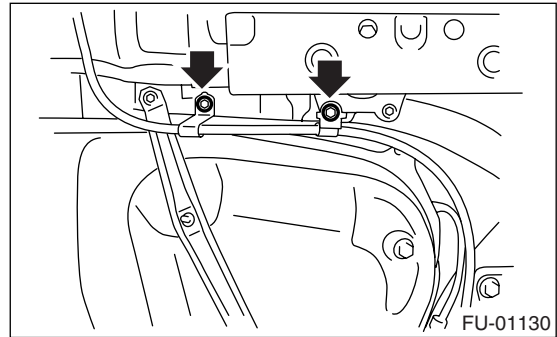
21) Remove the propeller shaft. <Ref. to DS-10, REMOVAL, Propeller Shaft.>

22) Remove the heat shield cover.

23) Disconnect the connector from rear ABS wheel speed sensor.



24) Remove the bolts which install the parking brake cable clamp.



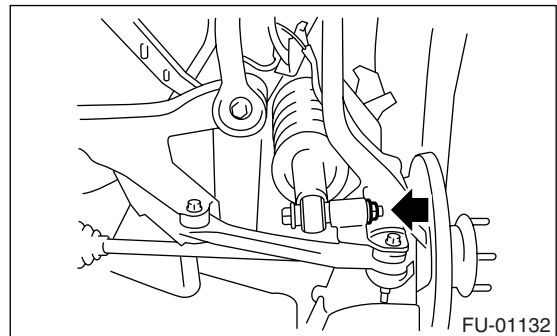
25) Remove the rear suspension assembly.

CAUTION:

A helper is required to perform this work.

(1) Support the rear differential with transmission jack.

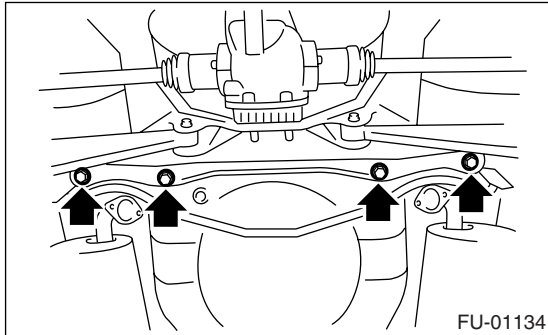
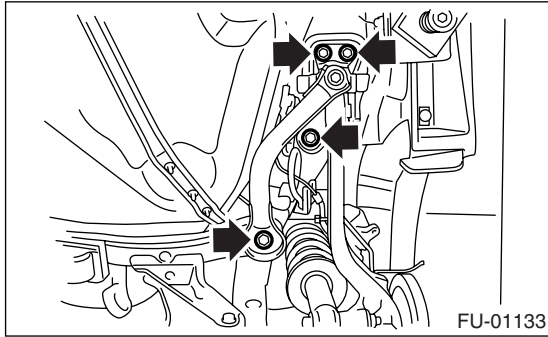
(2) Remove the bolt which installs the rear shock absorber to rear suspension arm.



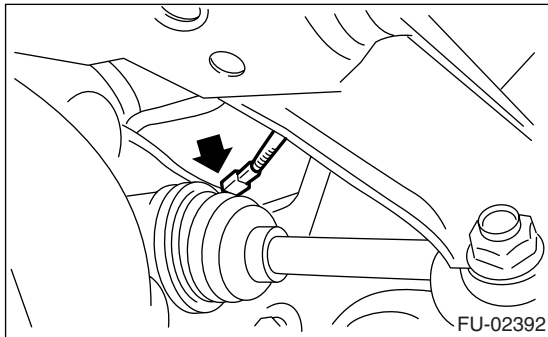
Fuel Tank

FUEL INJECTION (FUEL SYSTEMS)

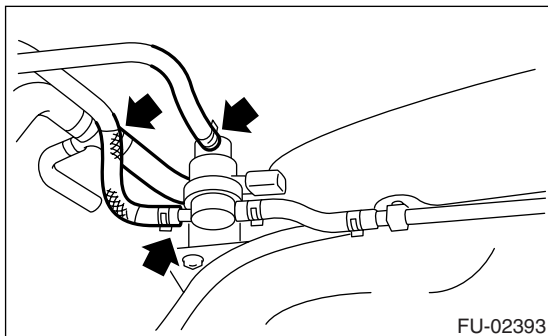
- (3) Remove the bolts which secure the rear suspension assembly to body.



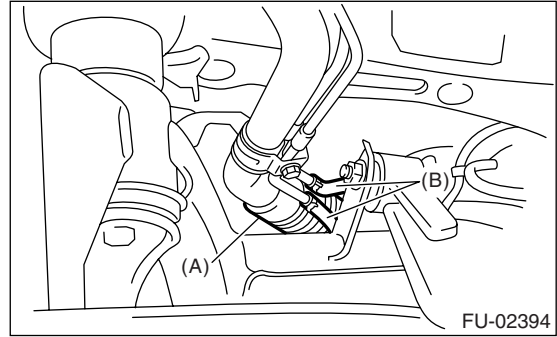
- (4) Remove the rear suspension assembly.
26) Disconnect the connector.



- 27) Disconnect the evaporation hoses.



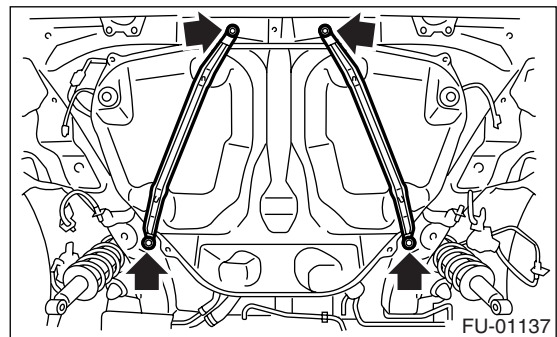
- 28) Disconnect the fuel filler hoses (A) and evaporation hoses (B).



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

WARNING:

A helper is required to perform this work.

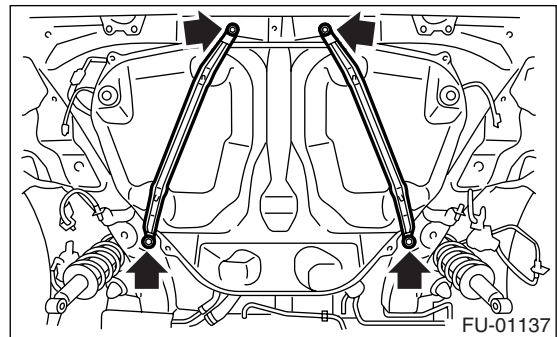


B: INSTALLATION

- 1) Support the fuel tank with transmission jack, set the fuel tank, and then temporarily tighten the bolts of fuel tank band.

WARNING:

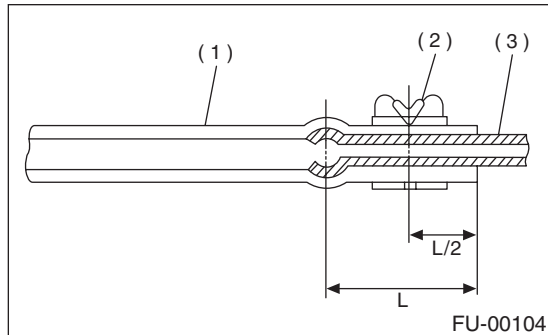
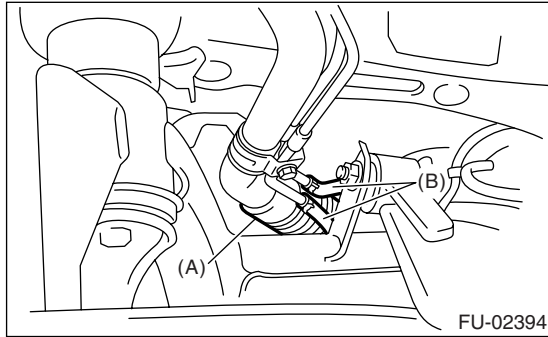
A helper is required to perform this work.



Fuel Tank

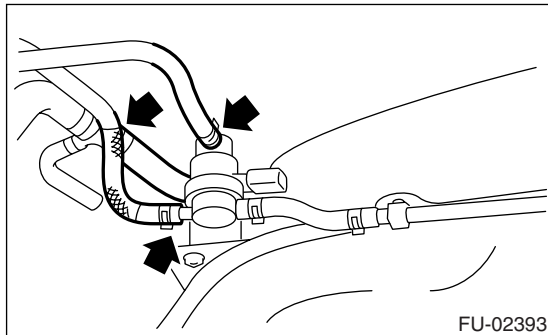
FUEL INJECTION (FUEL SYSTEMS)

2) Correctly insert the fuel filler hose (A) and evaporation hose (B) to specified position, and then tighten the clamp.



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

3) Connect the evaporation hose.

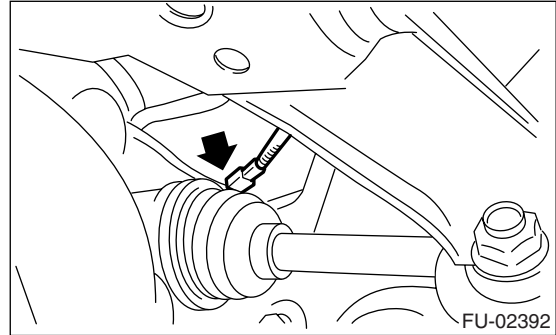


4) Tighten the bolts of fuel tank band.

Tightening torque:

33 N·m (3.4 kgf-m, 25 ft-lb)

5) Connect the connector.



6) Install the rear suspension assembly.

CAUTION:

A helper is required to perform this work.

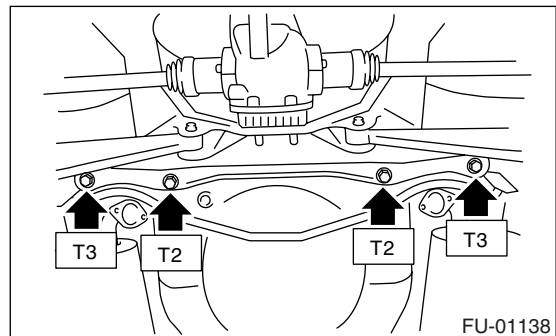
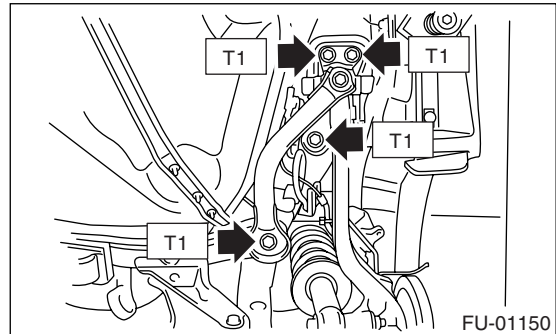
- (1) Support the rear differential with transmission jack.
- (2) Support the rear suspension assembly, and then tighten the bolts which secure the rear suspension assembly to body.

Tightening torque:

T1: 125 N·m (12.7 kgf-m, 92.2 ft-lb)

T2: 65 N·m (6.2 kgf-m, 48 ft-lb)

T3: 175 N·m (17.8 kgf-m, 129 ft-lb)



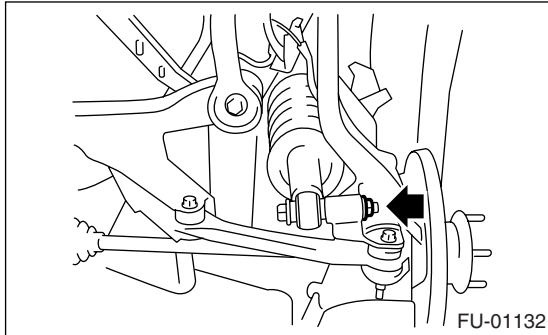
(3) Tighten the bolts which install the rear shock absorber to rear suspension arm. <Ref. to RS-11, INSTALLATION, Rear Arm.>

Fuel Tank

FUEL INJECTION (FUEL SYSTEMS)

Tightening torque:

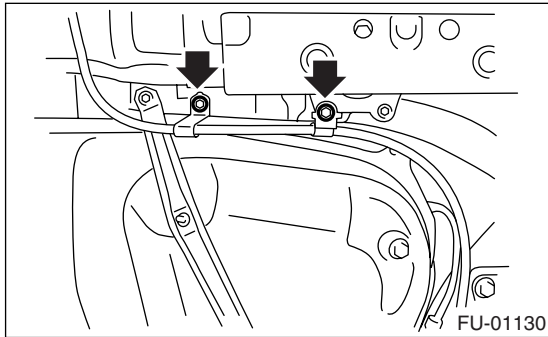
62 N·m (6.3 kgf-m, 46 ft-lb)



7) Tighten the bolts which install the parking brake cable clamp.

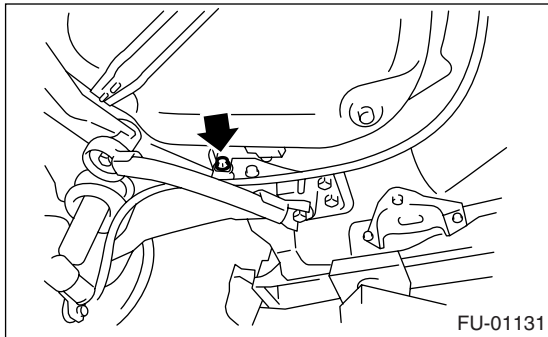
Tightening torque:

18 N·m (1.8 kgf-m, 13.3 ft-lb)

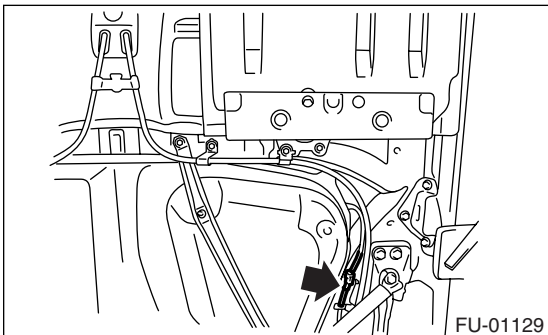


Tightening torque:

32 N·m (3.3 kgf-m, 23.9 ft-lb)



8) Connect the connector to rear ABS wheel speed sensor.



9) Install the heat shield cover.

10) Install the propeller shaft. <Ref. to DS-11, INSTALLATION, Propeller Shaft.>

11) Install the rear exhaust pipe. <Ref. to EX(H4DOTC)-12, INSTALLATION, Rear Exhaust Pipe.>

12) Lower the vehicle.

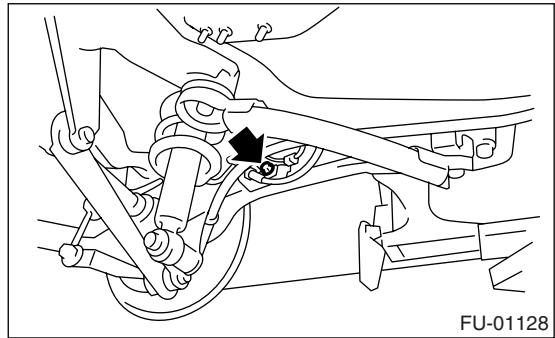
13) Connect the parking brake cable to parking brake assembly. <Ref. to PB-7, INSTALLATION, Parking Brake Assembly (Rear Disc Brake).>

14) Install the rear brake caliper.

15) Tighten the bolt which secures rear brake hose installation bracket.

Tightening torque:

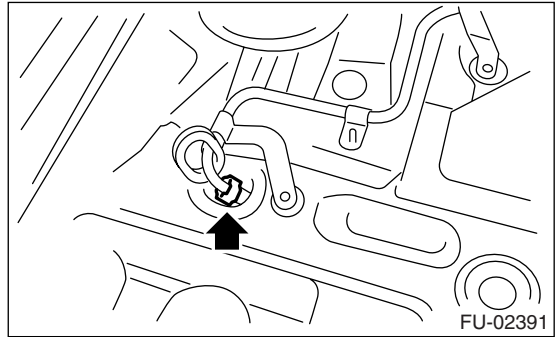
33 N·m (3.4 kgf-m, 25 ft-lb)



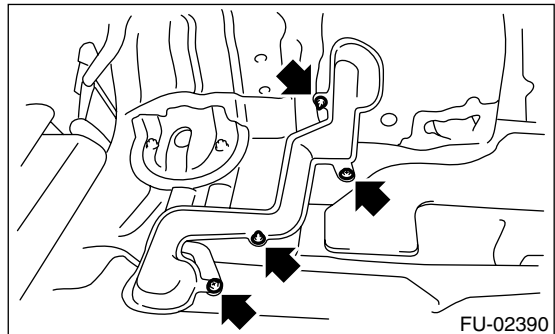
16) Install the rear wheels.

17) Lower the vehicle.

18) Connect the quick connector of evaporation pipe. <Ref. to FU(H4DOTC)-61, INSTALLATION, Fuel Delivery, Return and Evaporation Lines.>



19) Install pipe protector.



20) Install trunk room trim. (Sedan model) <Ref. to EI-46, INSTALLATION, Rear Quarter Protector.>

Fuel Tank

FUEL INJECTION (FUEL SYSTEMS)

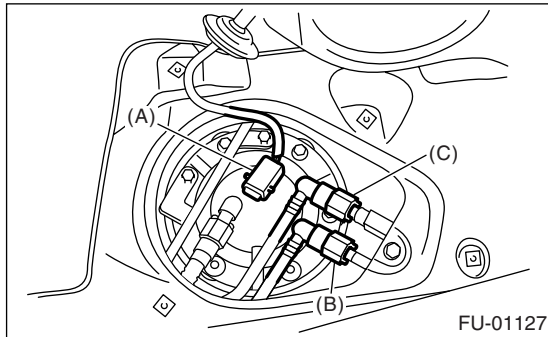
21) Install rear quarter trim. (Wagon model) <Ref. to EI-63, WAGON MODEL, INSTALLATION, Rear Quarter Trim.>

22) Connect the connector (A) to fuel sub level sensor.

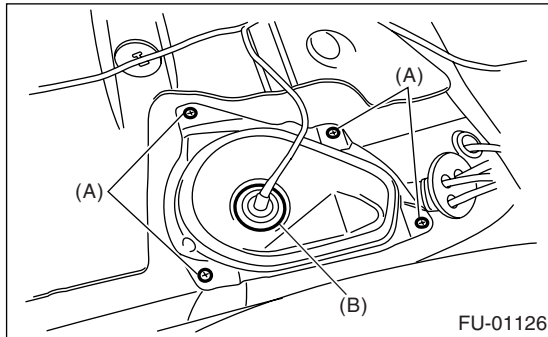
23) Connect the quick connector to the fuel delivery (B) and return hose (C). <Ref. to FU(H4DOTC)-61, INSTALLATION, Fuel Delivery, Return and Evaporation Lines.>

NOTE:

Be careful not to misconnect the delivery side and return side.



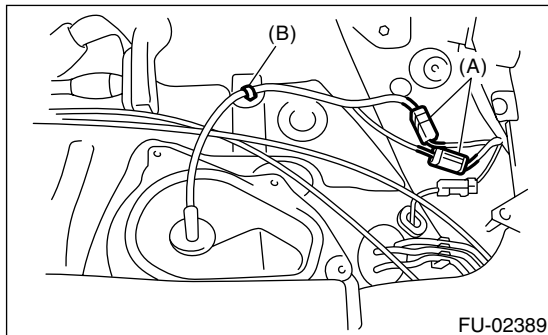
24) Install the service hole cover of fuel sub level sensor.



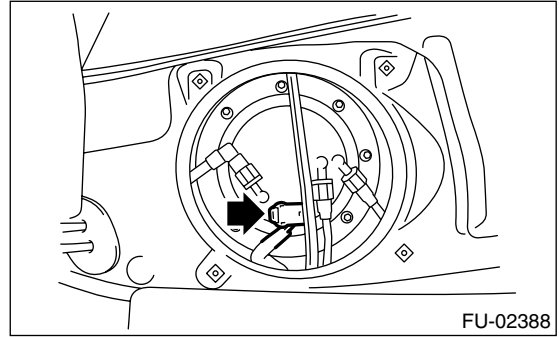
(A) Bolt

(B) Grommet

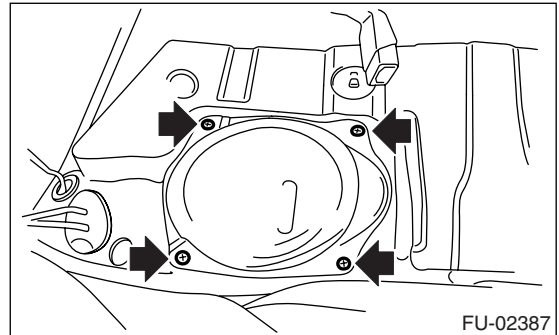
25) Connect the connector (A), and then install the clips (B).



26) Connect the connector to fuel pump.



27) Install the service hole cover of fuel pump.



28) Install the rear seat.

29) Install the fuse of fuel pump to main fuse box.

C: INSPECTION

1) Check that the fuel tank is not holed, cracked or otherwise damaged.

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

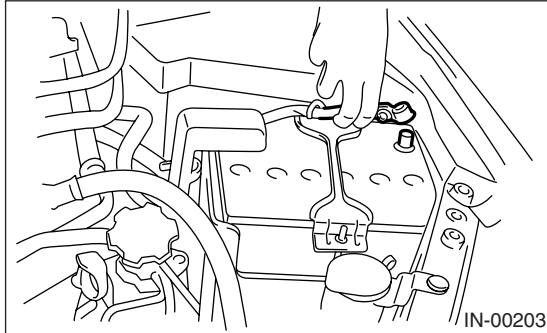
27. Fuel Filler Pipe

A: REMOVAL

WARNING:

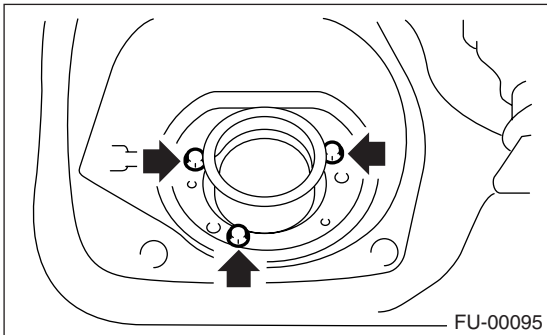
- Place “NO FIRE” signs near the working area.
- Be careful not to spill fuel on the floor.

1) Disconnect the ground cable from battery.



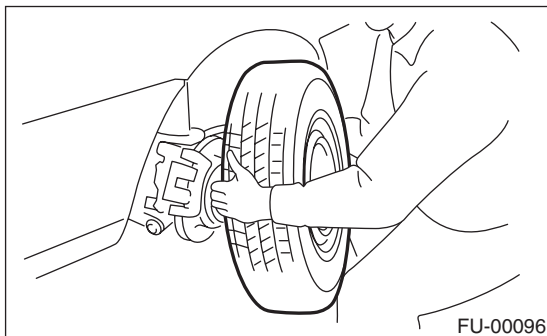
2) Open the fuel filler flap lid, and remove the filler cap.

3) Remove the screws which secure the packing.



4) Lift-up the vehicle.

5) Remove the rear wheel RH.

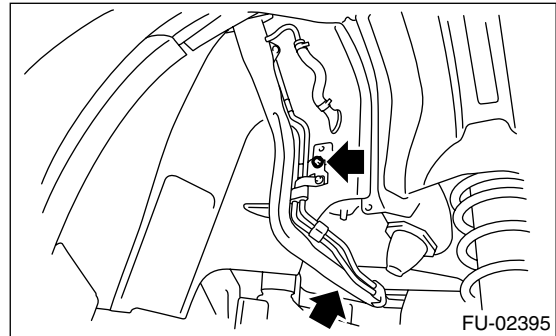


6) Drain fuel from fuel tank. <Ref. to FU(H4DOTC)-44, DRAINING FUEL, PROCEDURE, Fuel.>

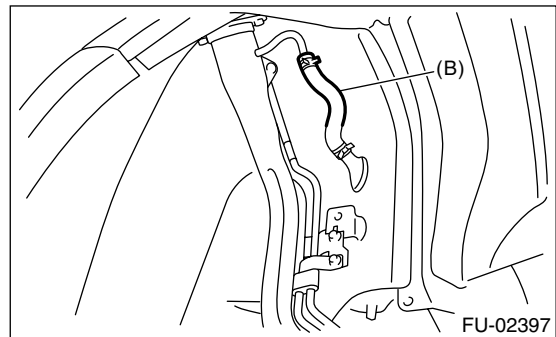
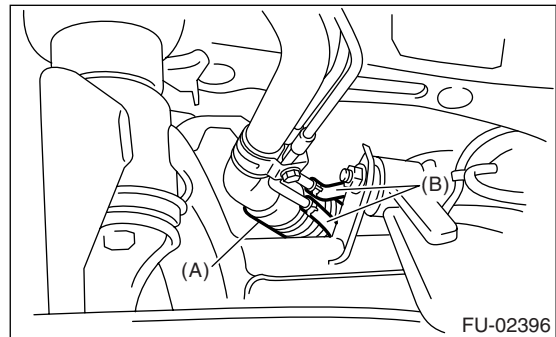
7) Remove the mud guard. <Ref. to EI-29, REMOVAL, Mud Guard.>

8) Remove the rear sub frame. <Ref. to RS-23, REMOVAL, Rear Sub Frame.>

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



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



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

B: INSTALLATION

1) Open the fuel filler flap lid.

2) Set the fuel saucer (A) with rubber packing (C) and insert the fuel filler pipe into hole from the inner side of apron.

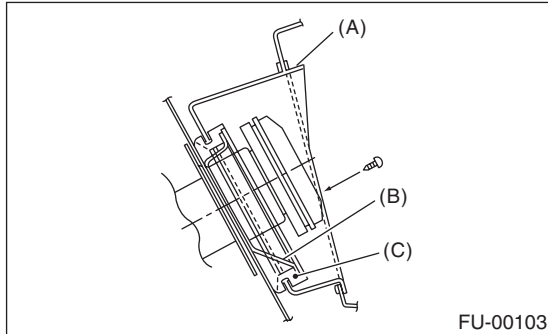
3) Align the holes in fuel filler pipe neck and set the cup (B), and tighten the screws.

Fuel Filler Pipe

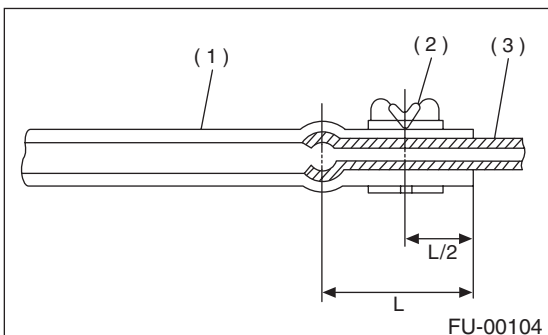
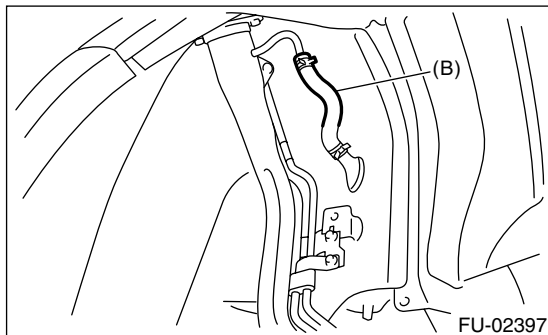
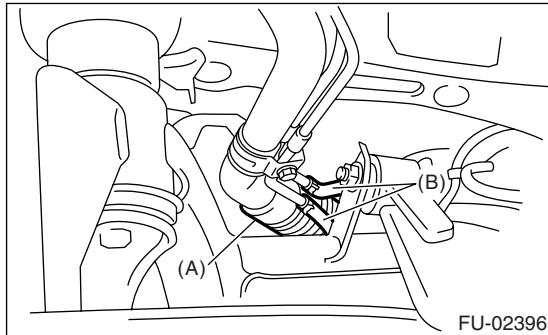
FUEL INJECTION (FUEL SYSTEMS)

NOTE:

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



4) Correctly insert the fuel filler hose (A) and evaporation hose (B) to specified position, and then tighten the clamp.

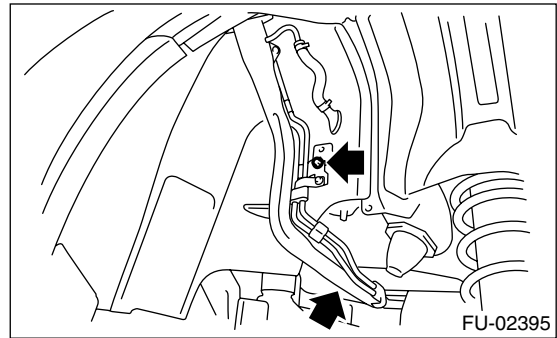


- (1) Hose
- (2) Clip or clamp
- (3) Pipe

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

Tightening torque:

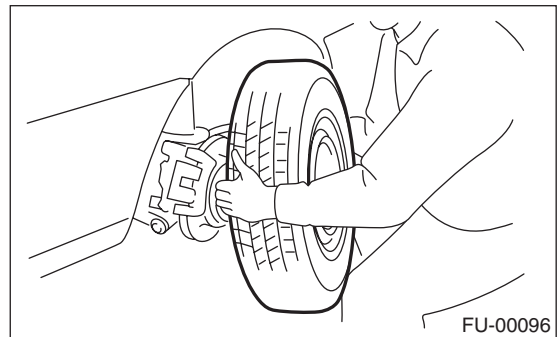
7.5 N·m (0.76 kgf-m, 5.5 ft-lb)



6) Install the rear sub frame. <Ref. to RS-23, INSTALLATION, Rear Sub Frame.>

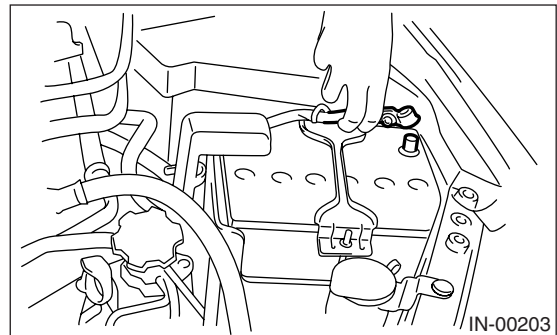
7) Install the mud guard. <Ref. to EI-29, INSTALLATION, Mud Guard.>

8) Install the rear wheel RH.



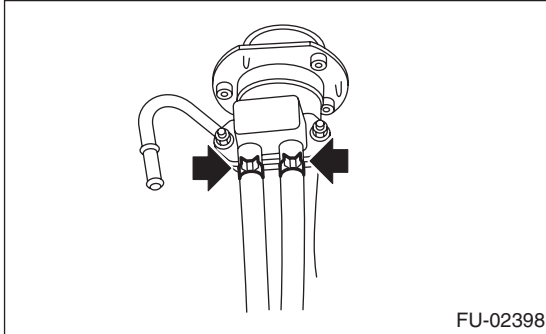
9) Lower the vehicle.

10) Connect the battery ground cable to battery.

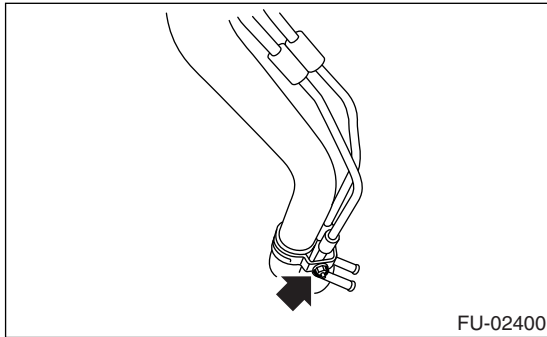
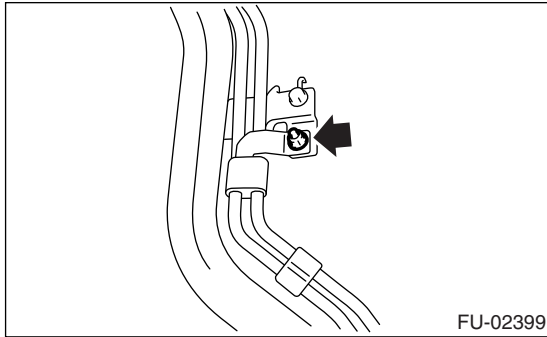


C: DISASSEMBLY

1) Move the clamp, and disconnect the evaporation hose from shut valve.



2) Remove the nut which holds the evaporation pipe assembly to fuel filler pipe.

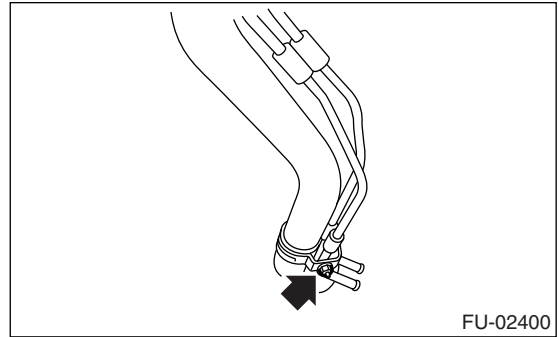
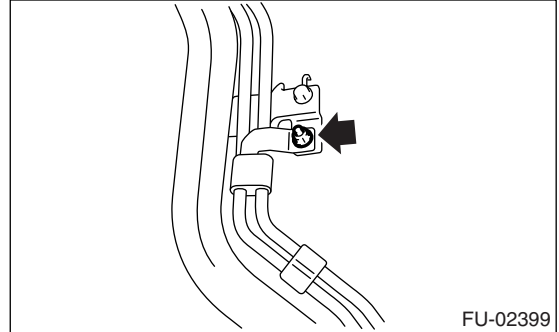


3) Remove the shut valve from fuel filler pipe. <Ref. to EC(H4DOTC)-15, REMOVAL, Shut Valve.>

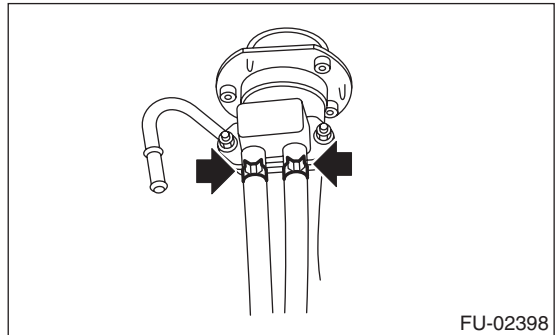
D: ASSEMBLY

1) Install the shut valve to fuel filler pipe. <Ref. to EC(H4DOTC)-15, INSTALLATION, Shut Valve.>

2) Tighten the nut which holds the evaporation pipe assembly on the fuel filler pipe.



3) Connect the evaporation hose to shut valve.



28. Fuel Pump

A: REMOVAL

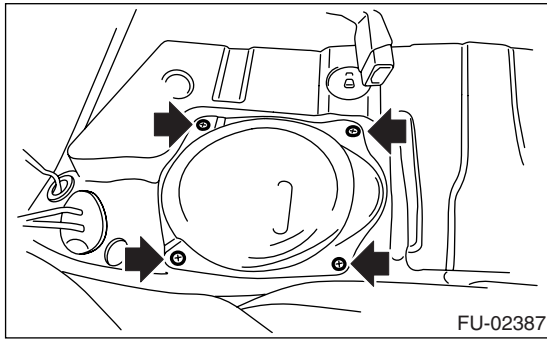
WARNING:

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

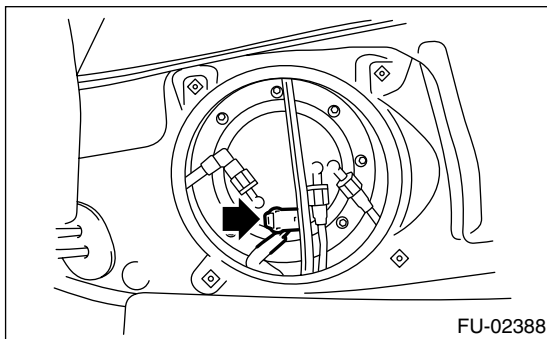
NOTE:

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

- 1) Release the fuel pressure.
<Ref. to FU(H4DOTC)-44, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>
- 2) Drain the fuel. <Ref. to FU(H4DOTC)-44, DRAINING FUEL, PROCEDURE, Fuel.>
- 3) Remove the rear seat.
- 4) Remove the service hole cover.

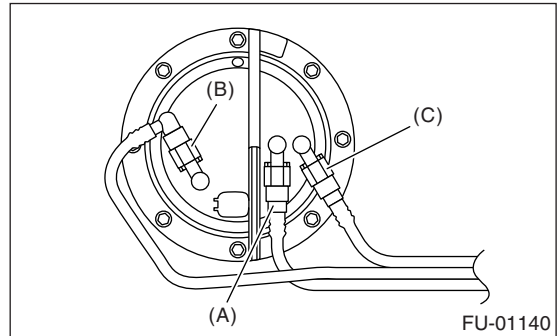


- 5) Disconnect the connector from fuel pump.



- 6) Disconnect the quick connector and then disconnect the fuel delivery hose, return hose and jet pump hose. <Ref. to FU(H4DOTC)-60, REMOVAL, Fuel Delivery, Return and Evaporation Lines.>

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



- (A) Delivery hose
(B) Return hose
(C) Jet pump hose

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

B: INSTALLATION

Install in the reverse order of removal.

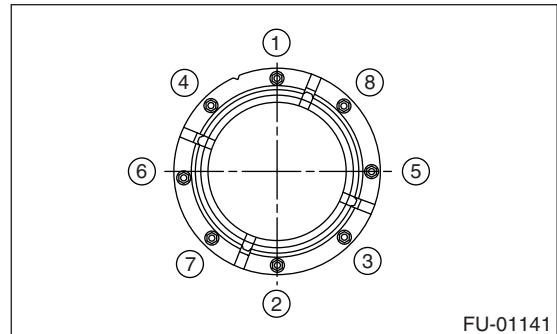
NOTE:

Use a new gasket.

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

Tightening torque:

4.4 N·m (0.45 kgf-m, 3.2 ft-lb)



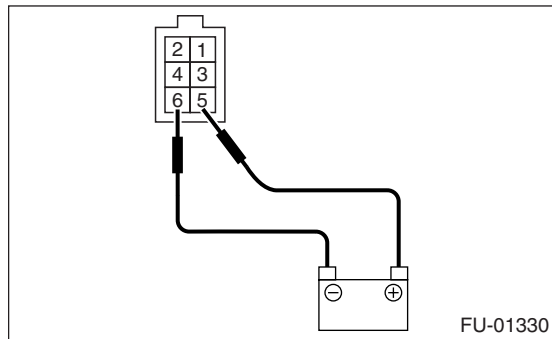
C: INSPECTION

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

WARNING:

- Wipe off the fuel completely.
- Keep battery as far apart from fuel pump as possible.
- Be sure to turn the battery supply to ON and OFF on the battery side.

- Do not run fuel pump for a long time under non-load condition.



29. Fuel Level Sensor

A: REMOVAL

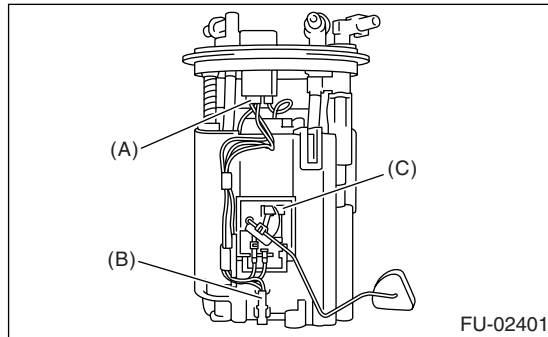
WARNING:

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

NOTE:

Fuel level sensor is built in fuel pump assembly.

- 1) Remove the fuel pump assembly. <Ref. to FU(H4DOTC)-54, REMOVAL, Fuel Pump.>
- 2) Disconnect the connector from fuel pump bracket.
- 3) Remove the fuel temperature sensor.
- 4) Remove the fuel level sensor.



- (A) Connector
(B) Fuel temperature sensor
(C) Fuel level sensor

B: INSTALLATION

Install in the reverse order of removal.

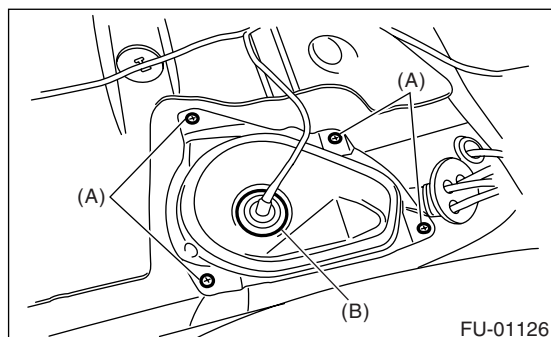
30.Fuel Sub Level Sensor

A: REMOVAL

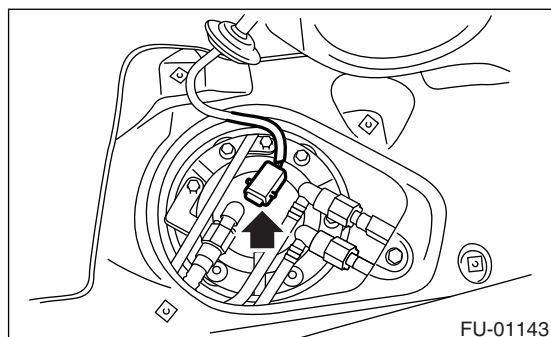
WARNING:

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

- 1) Drain fuel. <Ref. to FU(H4DOTC)-44, DRAINING FUEL, PROCEDURE, Fuel.>
- 2) Remove the rear seat.
- 3) Remove the service hole cover.
 - (1) Remove the bolts (A).
 - (2) Push the grommet (B) down under the body and remove the service hole cover.

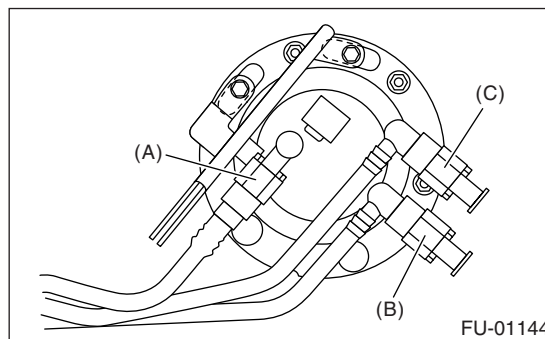


- 4) Disconnect the connector from fuel sub level sensor.



- 5) Disconnect the quick connector and then disconnect the fuel delivery hose, return hose and jet pump hose. <Ref. to FU(H4DOTC)-60, REMOVAL, Fuel Delivery, Return and Evaporation Lines.>

- 6) Remove the nuts and bolts which install the fuel sub level sensor on fuel tank.



- (A) Jet pump hose
- (B) Delivery hose
- (C) Return hose

- 7) Remove the fuel sub level sensor.

B: INSTALLATION

Install in the reverse order of removal.

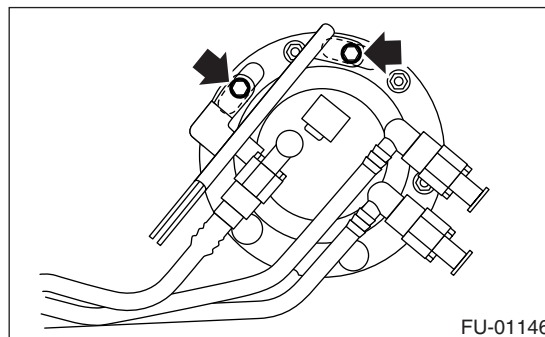
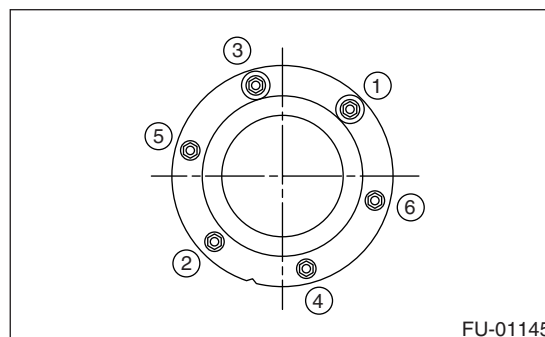
NOTE:

Use a new gasket.

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

Tightening torque:

4.4 N·m (0.45 kgf-m, 3.2 ft-lb)



31.Fuel Filter

A: SPECIFICATION

Fuel filter forms a unit with fuel pump.

Refer to Fuel Pump for removal and installation procedures.

<Ref. to FU(H4DOTC)-54, REMOVAL, Fuel Pump.>

<Ref. to FU(H4DOTC)-54, INSTALLATION, Fuel Pump.>

32. Fuel Bypass Valve

A: REMOVAL

1) Release the fuel pressure.

<Ref. to FU(H4DOTC)-44, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>

2) In the engine compartment, disconnect the fuel delivery hoses, return hoses, and evaporation hose.

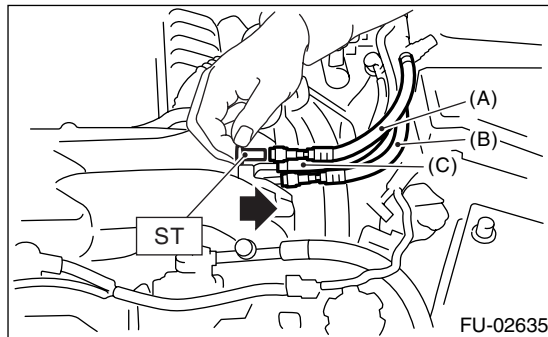
(1) Disconnect the quick connector of fuel delivery line and return line by pushing the ST in the direction of the arrow.

ST 42099AE000 CONNECTOR REMOVER

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

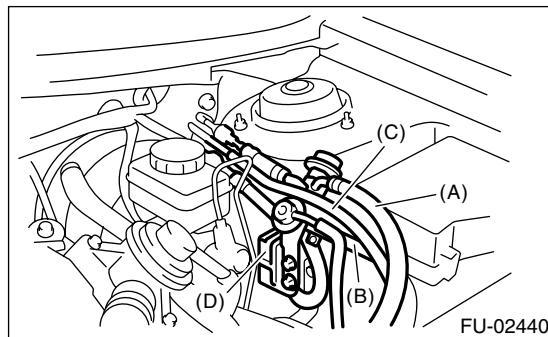
WARNING:

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



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

3) Remove the fuel bypass valve from vehicle.



- (A) Fuel delivery line
- (B) Fuel return line
- (C) Evaporation line
- (D) Fuel bypass valve

4) Remove the fuel delivery hose and fuel return hose from fuel bypass valve.

B: INSTALLATION

Install in the reverse order of removal.

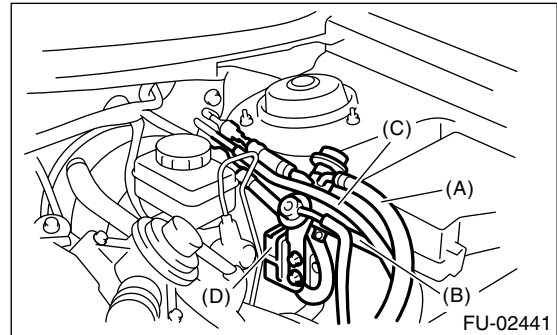
Tightening torque:

Fuel bypass valve bracket

7.5 N·m (0.76 kgf-m, 5.5 ft-lb)

Clamp

1.25 N·m (0.13 kgf-m, 5.5 ft-lb)



- (A) Fuel delivery line
- (B) Fuel return line
- (C) Evaporation line
- (D) Fuel bypass valve

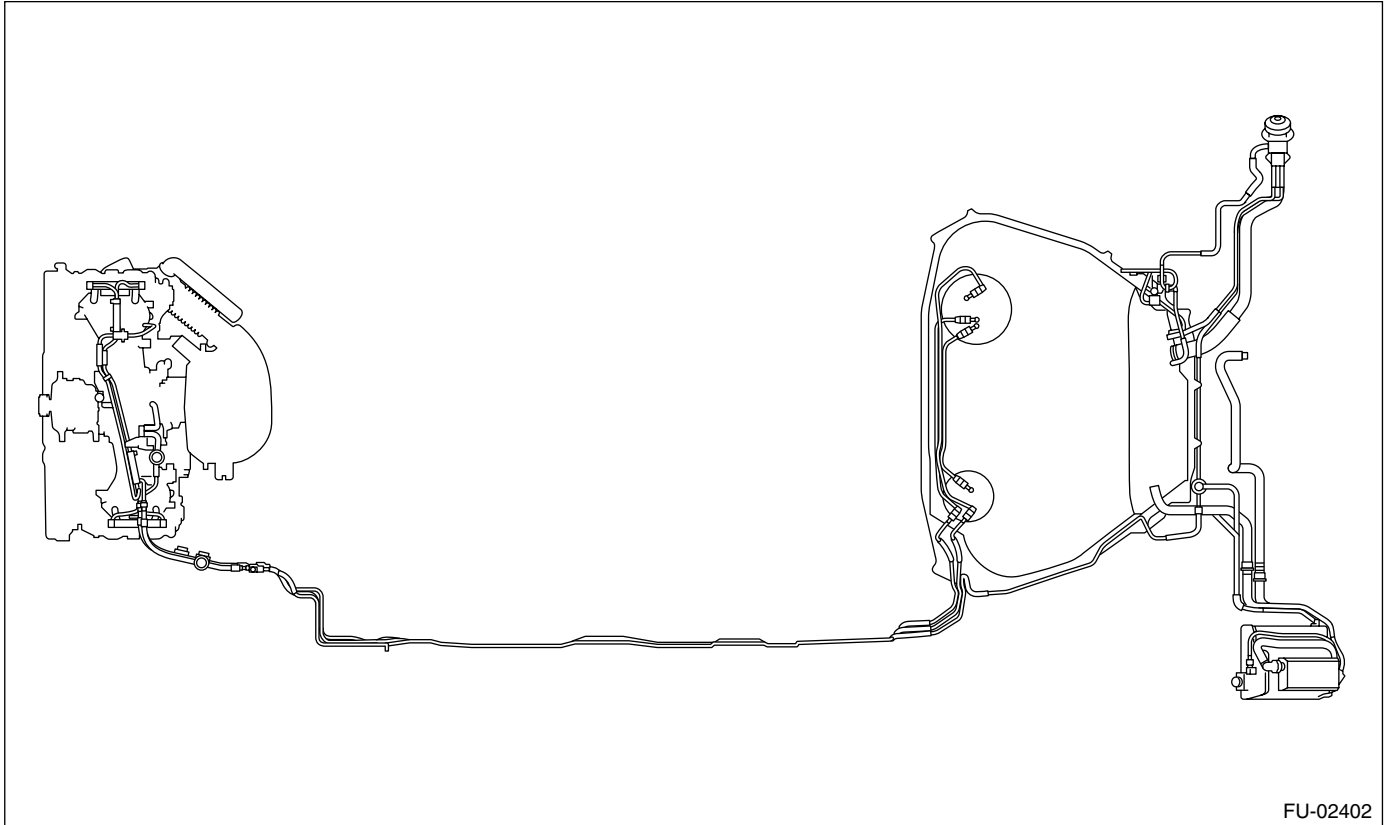
Fuel Delivery, Return and Evaporation Lines

FUEL INJECTION (FUEL SYSTEMS)

33. Fuel Delivery, Return and Evaporation Lines

A: REMOVAL

- 1) Set the vehicle on a lift.
- 2) Release the fuel pressure. <Ref. to FU(H4DOTC)-44, 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-72, REMOVAL, Floor Mat.>
- 5) Disconnect the fuel delivery pipes and hoses, and then disconnect the fuel return pipes and hoses, evaporation pipes and hoses.



FU-02402

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

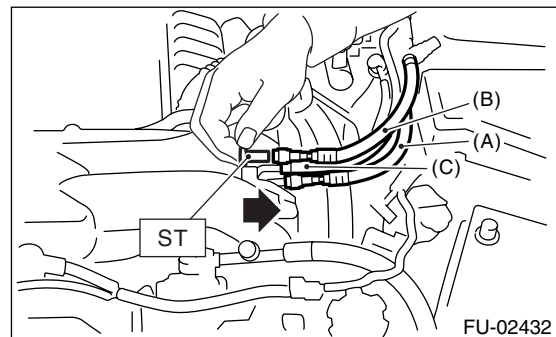
- (1) Disconnect the quick connector of fuel delivery line and return line by pushing the ST in the direction of arrow.

ST 42099AE000 CONNECTOR REMOVER

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

WARNING:

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



FU-02432

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

- 7) Lift-up the vehicle.

FU(H4DOTC)-60

Fuel Delivery, Return and Evaporation Lines

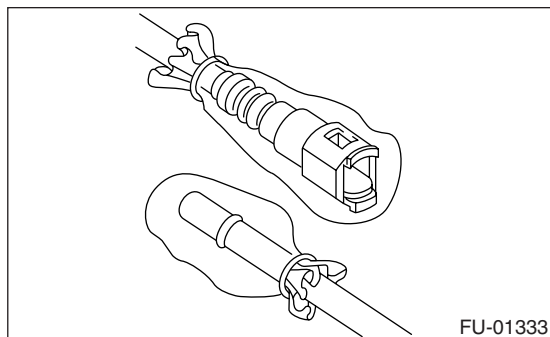
FUEL INJECTION (FUEL SYSTEMS)

8) Remove the fuel tank. <Ref. to FU(H4DOTC)-45, REMOVAL, Fuel Tank.>

9) Separate the quick connector on fuel line.

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

(2) To prevent from damaging or entering foreign matter, wrap the pipes and connectors with plastic bag, etc.

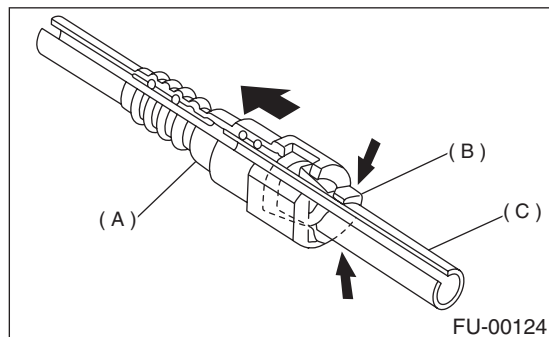


(3) Hold the connector (A) and push retainer (B) down.

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

CAUTION:

Always use a new retainer except in use of engine compartment.



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

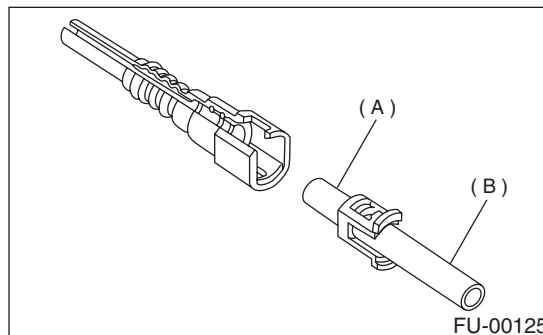
B: INSTALLATION

1) Connect the quick connector on fuel line.

CAUTION:

• Always use a new retainer except in use of engine compartment.

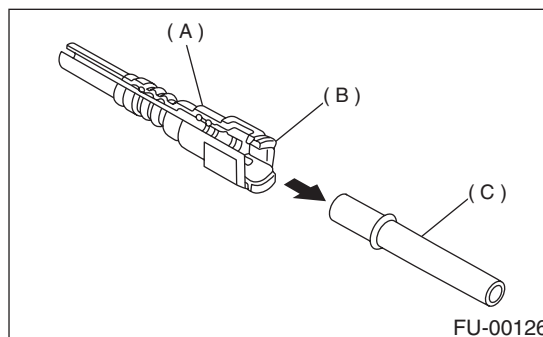
• Make sure that the connected portion is not damaged or dust-covered. If necessary, clean the seal surface of pipe.



- (A) Seal surface
- (B) Pipe

(1) Set the new retainer (B) to connector (A).

(2) Push the pipe into the connector completely.



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

CAUTION:

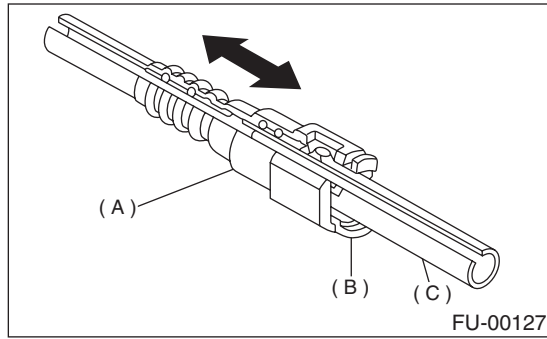
• Pull the connector to ensure it is connected securely.

• Ensure the two retainer pawls are engaged in their mating positions in the connector.

Fuel Delivery, Return and Evaporation Lines

FUEL INJECTION (FUEL SYSTEMS)

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



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

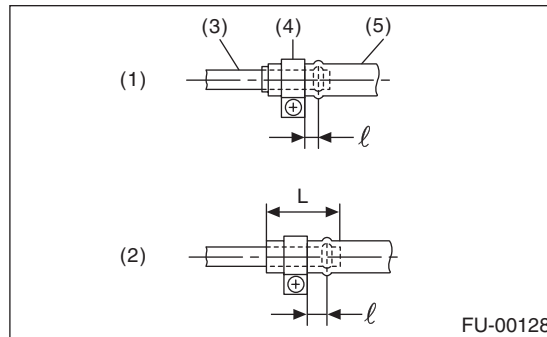
2) Connect the fuel delivery hose to the pipe with an overlap of 20 to 25 mm (0.79 to 0.98 in).

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

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

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

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



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

3) Connect the return hose and evaporation hose to the pipe by approx. 15 mm (0.59 in) from hose end.

Fuel return hose:

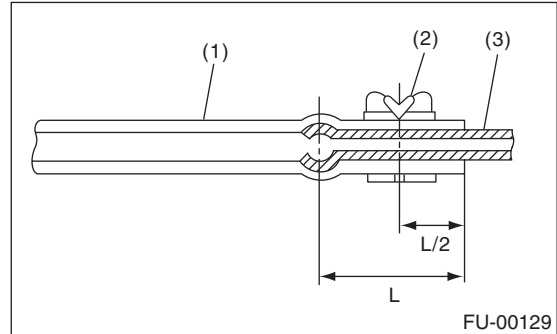
$L = 22.5 \pm 2.5 \text{ mm } (0.886 \pm 0.098 \text{ in})$

Fuel evaporation hose:

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

CAUTION:

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



- (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.

34. Fuel System Trouble in General

A: INSPECTION

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

NOTE:

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

Fuel System Trouble in General

FUEL INJECTION (FUEL SYSTEMS)
