ENGINE 2 SECTION

This service manual has been prepared to provide SUBARU service personnel with the necessary information and data for the correct maintenance and repair of SUBARU vehicles.
This manual includes the procedures for maintenance, disassembling, reassembling, inspection and adjustment of components and diagnostics for guidance of experienced mechanics.
Please peruse and utilize this manual fully to ensure complete repair work for satisfying our customers by keeping their vehicle in optimum condition. When replacement of parts during repair work is needed, be sure to use SUBARU genuine parts.

All information, illustration and specifications contained in this manual are based on the latest product information available at the time of publication approval.

FUEL INJECTION (FUEL SYSTEMS)

FU(DOHC TURBO)

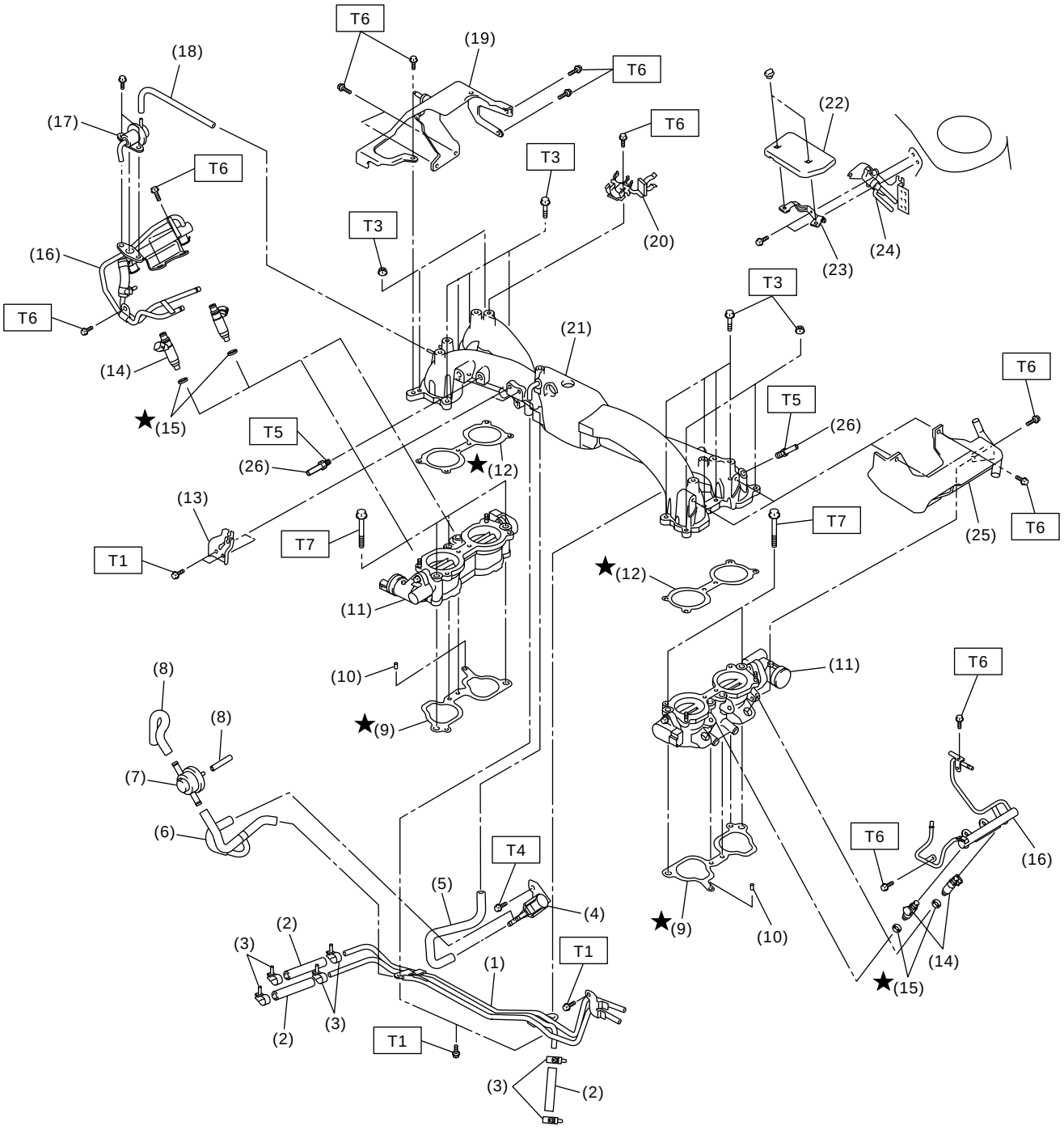
1. General Description

A: SPECIFICATIONS

Model		
Fuel tank	Capacity	60 ℓ (15.9 US gal, 13.2 Imp gal)
	Location	Under rear seat
Fuel pump	Type	Impeller
	Shutoff discharge pressure	450 — 677 kPa (4.59 — 6.9 kg/cm^2, 65.27 — 98.2 psi)
	Discharge flow	More than 130 ℓ (34.3 US gal, 28.6 Imp gal)/h [12 V at 300 kPa (3.06 kg/cm^2, 43.5 psi)]
Fuel filter		Cartridge type

B: COMPONENT

1. INTAKE MANIFOLD

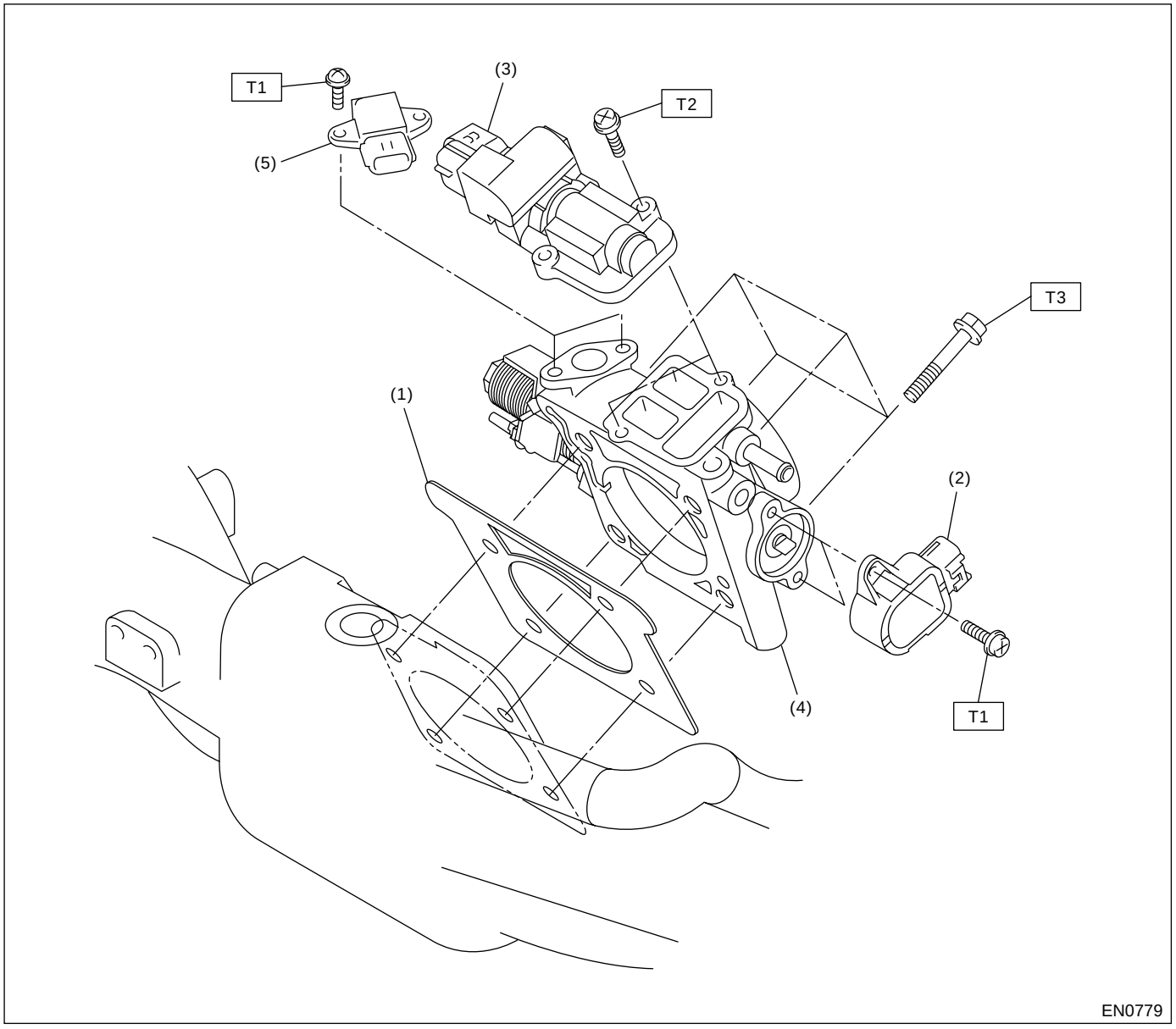


EN0778

(1) Fuel pipe ASSY
(2) Fuel hose
(3) Clip
(4) Purge control solenoid valve
(5) Vacuum hose
(6) Vacuum control hose
(7) Purge valve
(8) Purge hose
(9) Tumble generator valve gasket
(10) Guide pin
(11) Tumble generator valve ASSY
(12) Intake manifold gasket
(13) Accelerator cable bracket
(14) Fuel injector
(15) Insulator
(16) Fuel injector pipe
(17) Pressure regulator
(18) Pressure regulator hose
(19) Fuel pipe protector RH
(20) Blow-by hose stay
(21) Intake manifold
(22) Solenoid valve cover
(23) Solenoid valve cover stay
(24) Wastegate control solenoid valve ASSY
(25) Fuel pipe protector LH
(26) Nipple

Tightening torque: N·m (kgf-m, ft-lb)	
T1:	***5 (0.50, 3.7)***
T2:	***7.4 (0.75, 5.5)***
T3:	***8.25 (0.84, 6.1)***
T4:	***16 (1.63, 11.8)***
T5:	***17 (1.73, 12.5)***
T6:	***19 (1.94, 14.0)***
T7:	***25 (2.55, 18.4)***

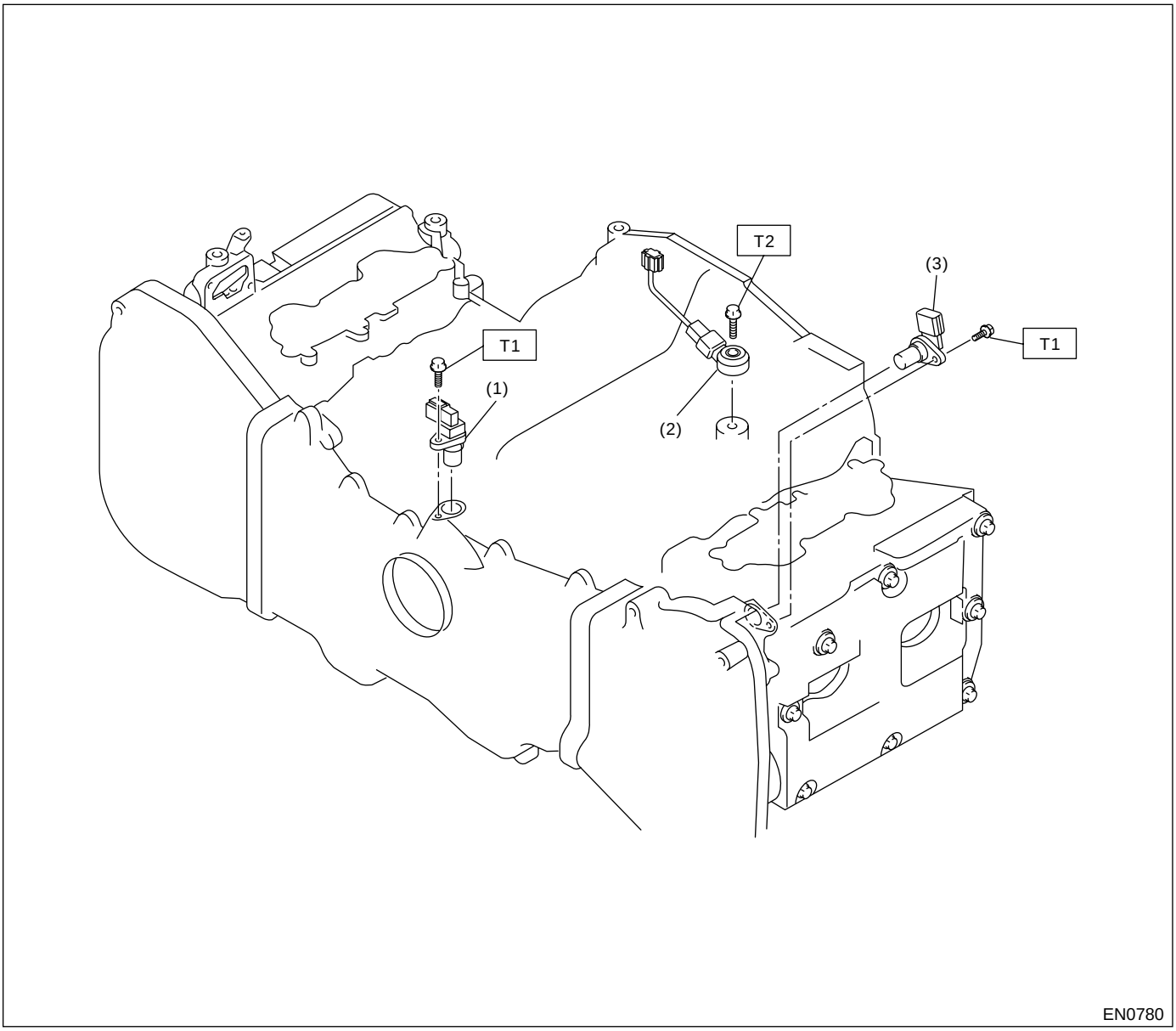
2. AIR INTAKE SYSTEM



(1) Gasket
(2) Throttle position sensor
(3) Idle air control solenoid valve
(4) Throttle body
(5) Pressure sensor

Tightening torque: N·m (kgf-m, ft-lb)
T1: 1.6 (0.16, 1.2)
T2: 2.8 (0.29, 2.1)
T3: 22 (2.2, 16)

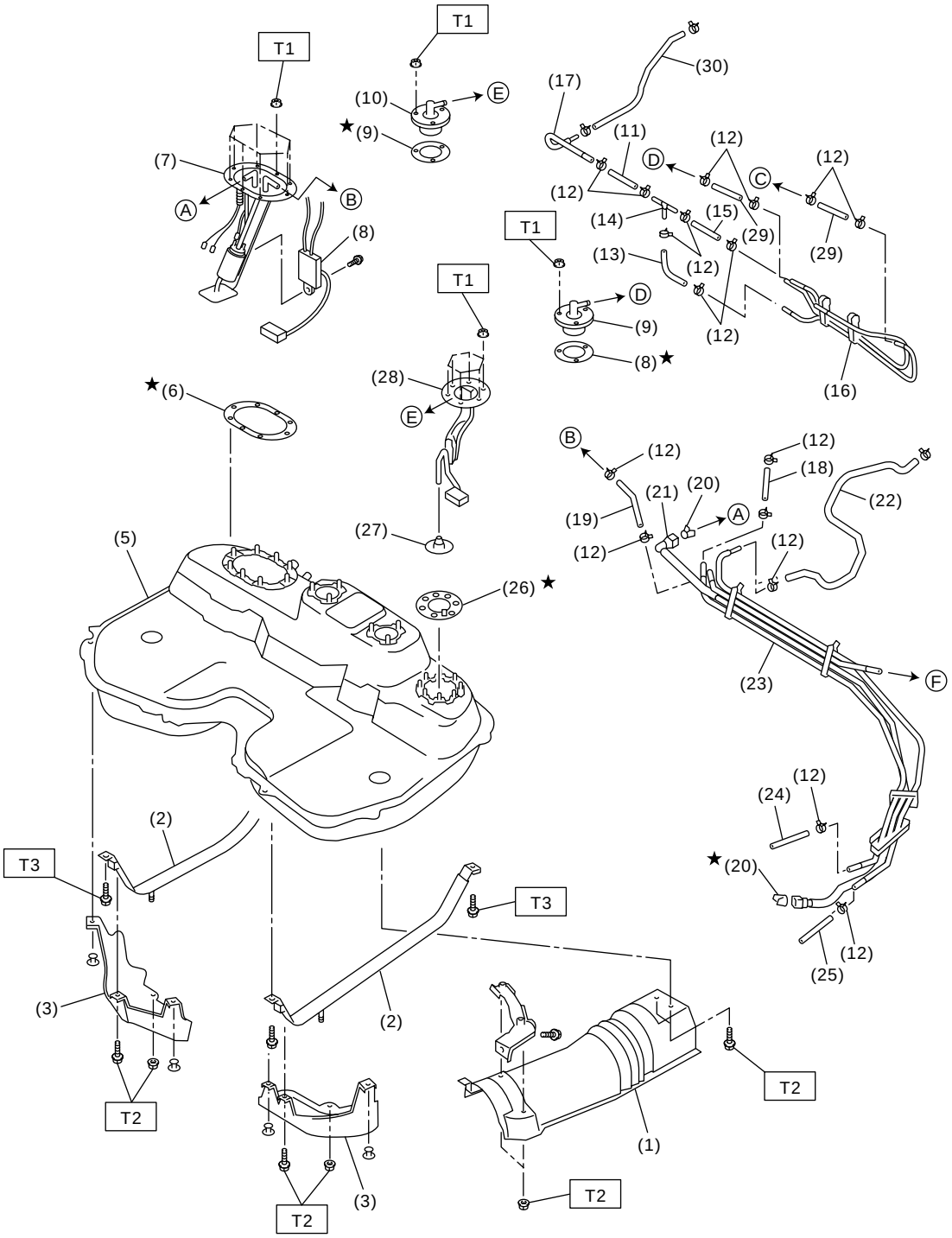
3. CRANKSHAFT POSITION, CAMSHAFT POSITION AND KNOCK SENSORS



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

Tightening torque: N·m (kgf-m, ft-lb)
T1: 6.4 (0.65, 4.7)
T2: 24 (2.4, 17.4)

4. FUEL TANK

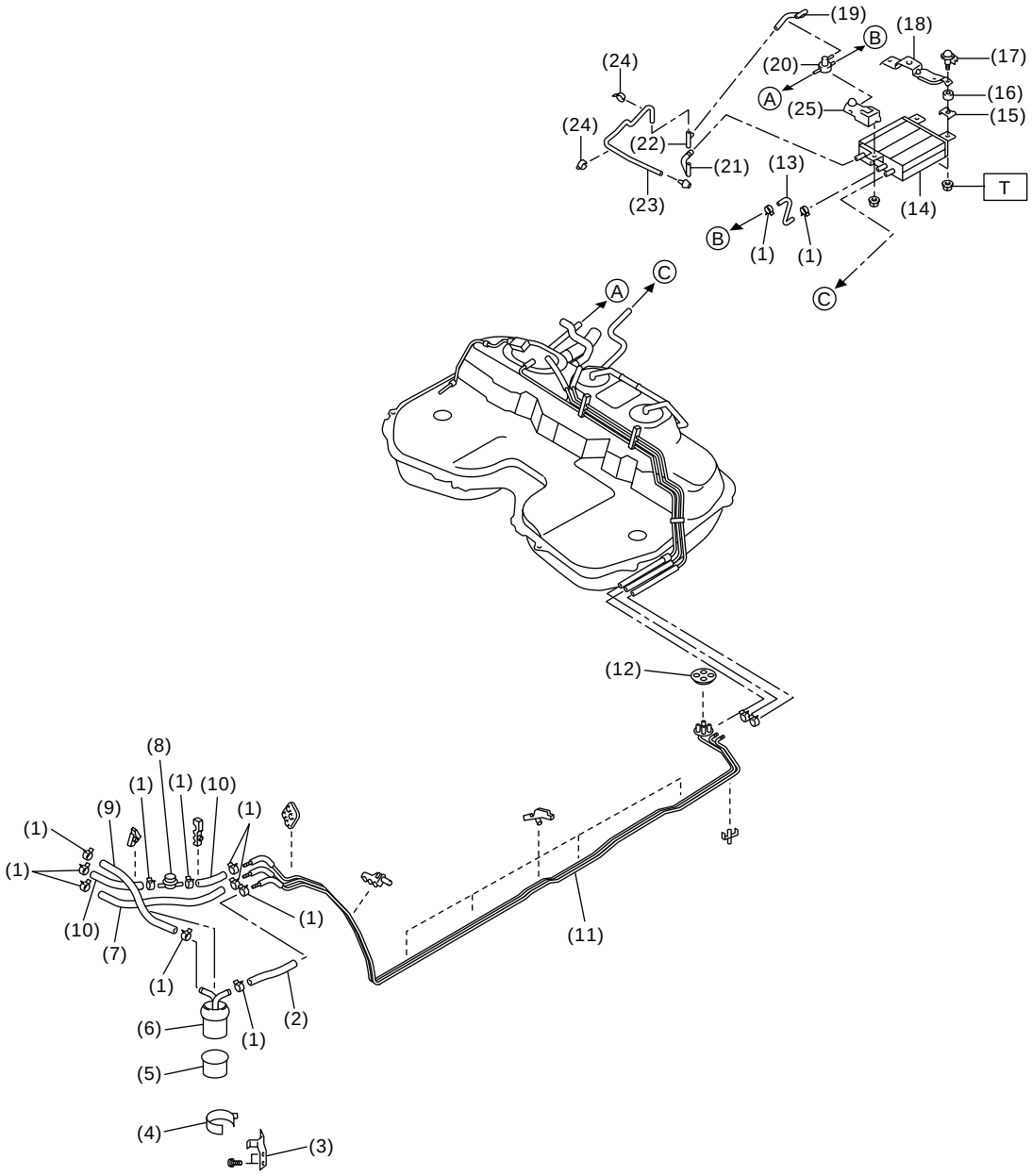


EN0998

(1) Heat sealed cover
(2) Fuel tank band
(3) Protector LH
(4) Protector RH
(5) Fuel tank
(6) Fuel pump gasket
(7) Fuel pump ASSY
(8) Fuel meter unit
(9) Fuel cut valve gasket
(10) Fuel cut valve
(11) Evaporation hose A
(12) Clip
(13) Evaporation hose B
(14) Joint pipe
(15) Evaporation hose C
(16) Evaporation pipe ASSY
(17) Evaporation pipe
(18) Evaporation hose D
(19) Fuel return hose A
(20) Retainer
(21) Quick connector
(22) Evaporation hose E
(23) Fuel pipe ASSY
(24) Evaporation hose F
(25) Fuel return hose B
(26) Fuel sub meter gasket
(27) Jet pump filter
(28) Fuel sub meter unit
(29) Evaporation hose G
(30) Evaporation hose H

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)

5. FUEL LINE

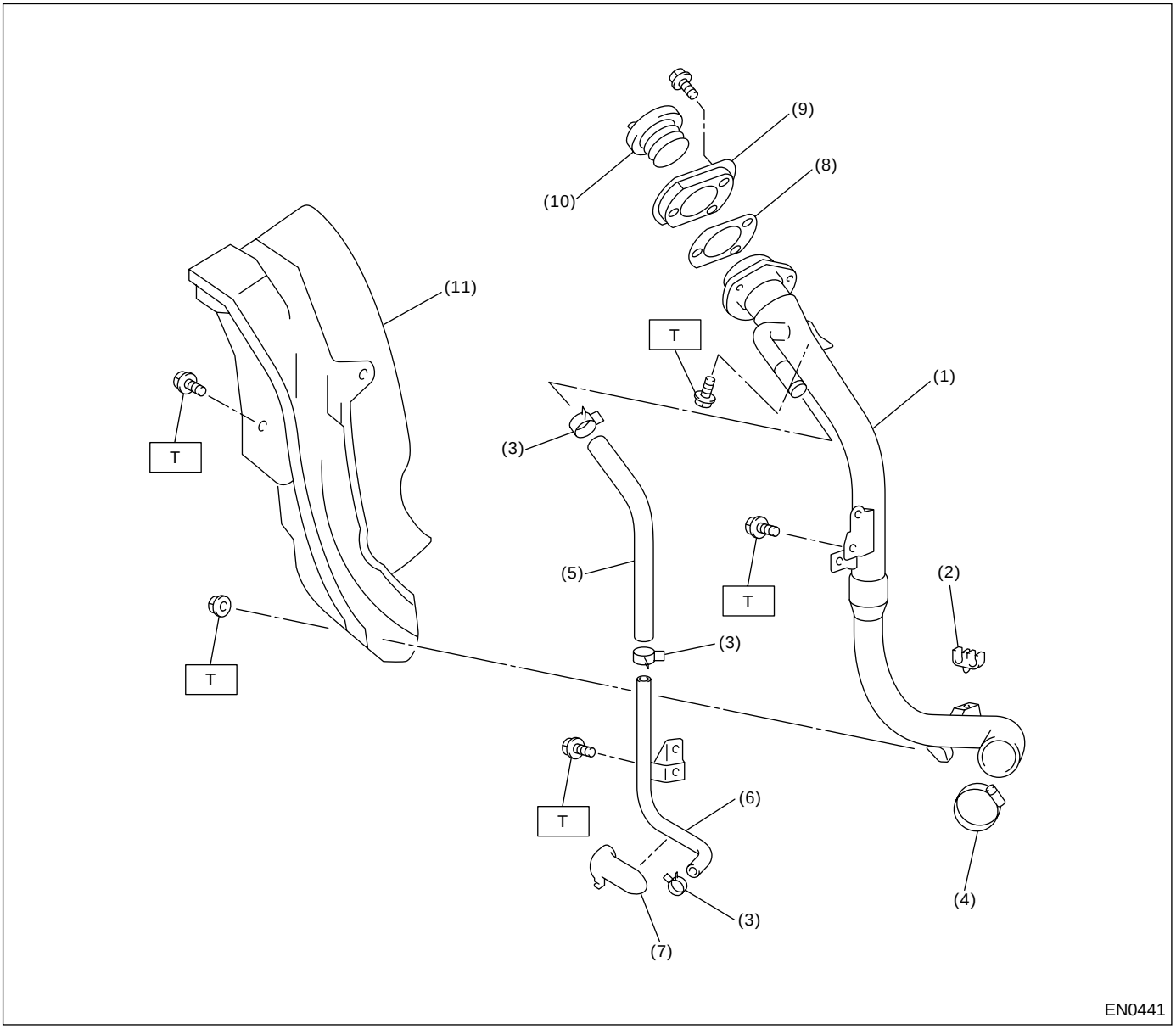


EN0440

(1) Clip
(2) Fuel delivery hose A
(3) Fuel filter bracket
(4) Fuel filter holder
(5) Fuel filter cup
(6) Fuel filter
(7) Evaporation hose
(8) Fuel damper
(9) Fuel delivery hose B
(10) Fuel return hose
(11) Fuel pipe ASSY
(12) Grommet
(13) Canister hose A
(14) Canister
(15) Canister bracket plate
(16) Cushion
(17) Canister bracket spacer
(18) Rear canister bracket
(19) Two-way valve return hose
(20) Two-way valve
(21) Two-way valve drain hose A
(22) Connector
(23) Two-way valve drain hose B
(24) Clamp
(25) Front canister bracket

Tightening torque: N·m (kgf-m, ft-lb)
T: 23 (2.34, 17.0)

6. FUEL FILLER PIPE



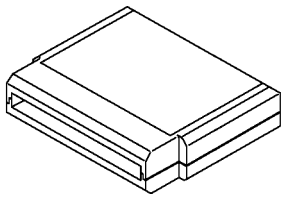
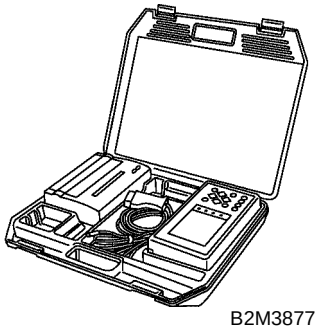
(1) Fuel filter pipe ASSY
(2) Evaporation hose holder
(3) Clamp
(4) Clamp
(5) Air vent hose
(6) Air vent pipe
(7) Air vent pipe holder
(8) Filler pipe packing
(9) Filler ring
(10) Filler cap

Tightening torque: N·m (kgf-m, ft-lb)
T: 7.5 (0.76, 5.5)

C: CAUTION

• Wear working 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 or dirt.
• Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly, and replacement.
• Be careful not to burn your hands, 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 safety stands at the specified points.
• Before disconnecting electrical connectors of sensors or units, be sure to disconnect negative terminal from battery.
• Place “NO FIRE” signs near the working area.
• Be careful not to spill fuel on the floor.

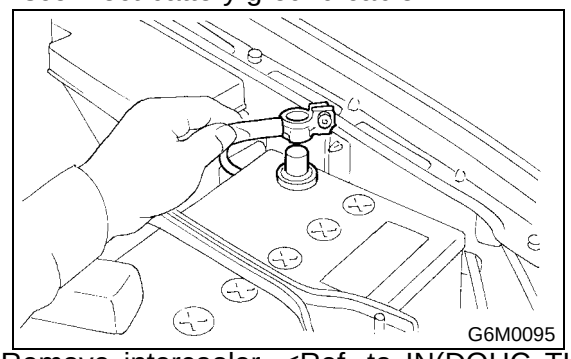
D: PREPARATION TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 B2M3876	24082AA150 (Newly adopted tool)	CARTRIDGE	Troubleshooting for electrical system.
 B2M3877	22771AA030	SELECT MONITOR KIT	Troubleshooting for electrical systems. • English: 22771AA030 (Without printer) • German: 22771AA070 (Without printer) • French: 22771AA080 (Without printer) • Spanish: 22771AA090 (Without printer)

2. Throttle Body

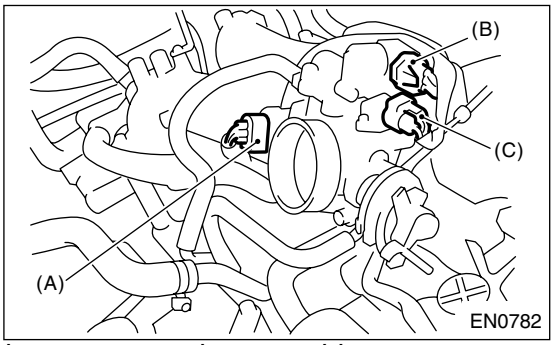
A: REMOVAL

1) Disconnect battery ground cable.

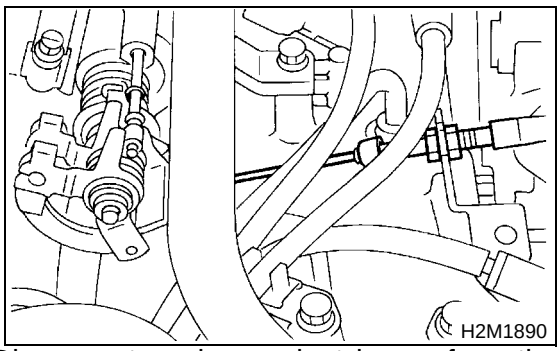


2) Remove intercooler. <Ref. to IN(DOHC TURBO)-10, REMOVAL, Intercooler.>

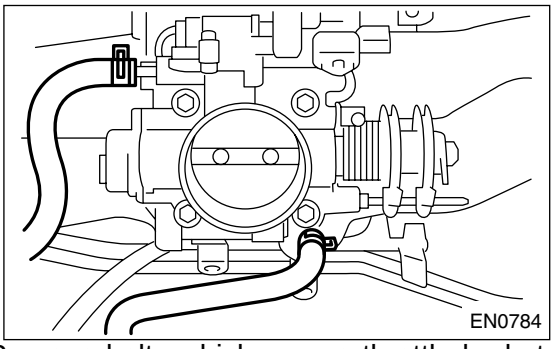
3) Disconnect connector from throttle position sensor (A) and idle air cotrol solenoid valve (B) and pressure sensor (C).



4) Disconnect accelerator cable.



5) Disconnect engine coolant hoses from throttle body.



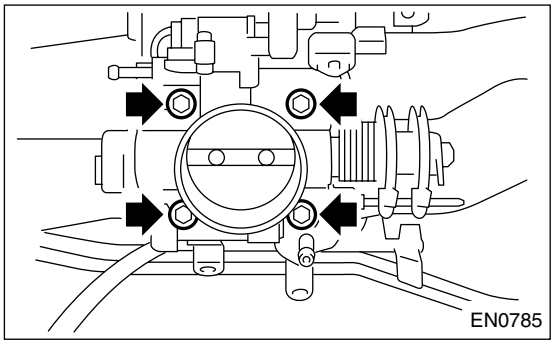
6) Remove bolts which secure throttle body to intake manifold.

B: INSTALLATION

Install in the reverse order of removal.

CAUTION:
Replace gasket with a new one.

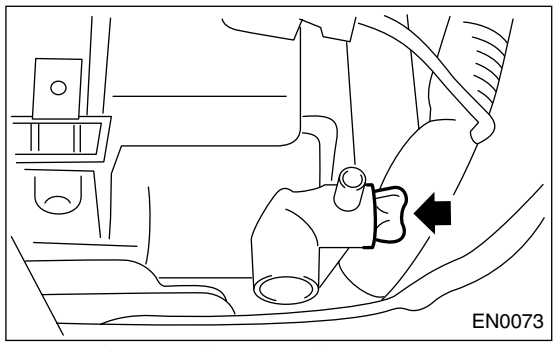
Tightening torque:
22 N·m (2.2 kgf-m, 15.9 ft-lb)



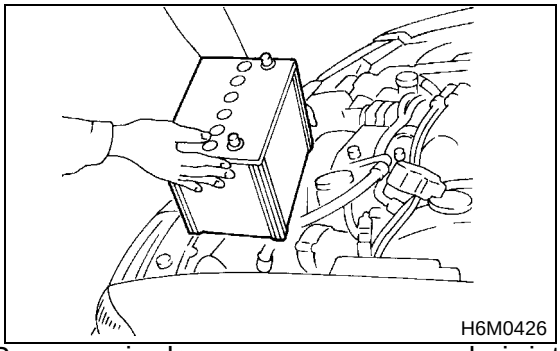
3. Intake Manifold

A: REMOVAL

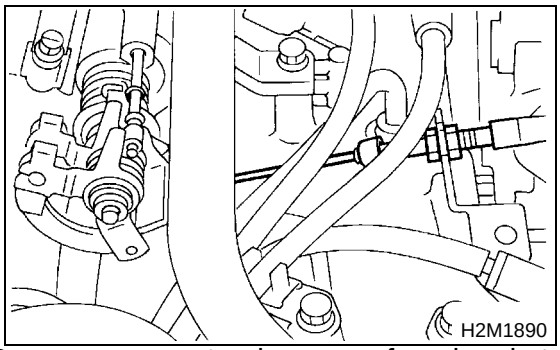
1) Release fuel pressure. <Ref. to FU(DOHC TURBO)-49, RELEASING OF FUEL PRESSURE, OPERATION, Fuel.>
2) Remove under cover.
3) Drain coolant about 3.0 ℓ (3.2 US qt, 2.6 Imp qt).



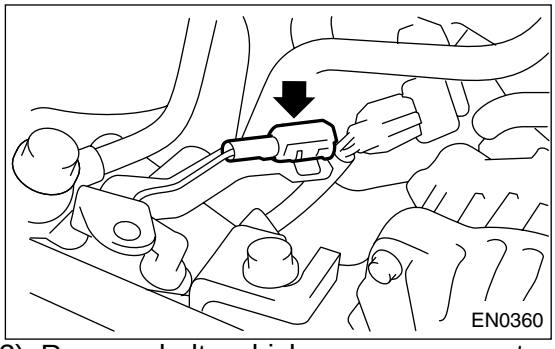
4) Remove battery from engine compartment.



5) Remove air cleaner upper cover and air intake boot. <Ref. to IN(DOHC TURBO)-7, REMOVAL, Air Cleaner.>
6) Remove air cleaner element.
7) Remove intercooler. <Ref. to IN(DOHC TURBO)-10, REMOVAL, Intercooler.>
8) Disconnect accelerator cable.

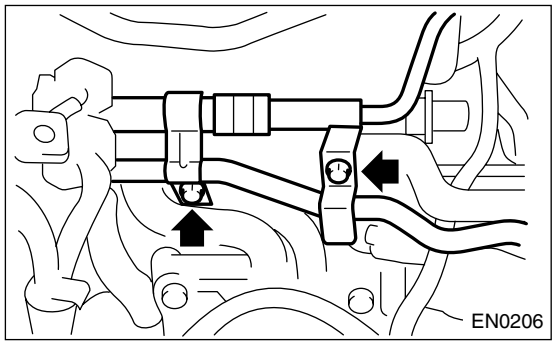


9) Remove power steering pump from bracket.
(1) Remove front side V-belt. <Ref. to ME(DOHC TURBO)-43, REMOVAL, V-belt.>
(2) Disconnect the power steering switch connector.

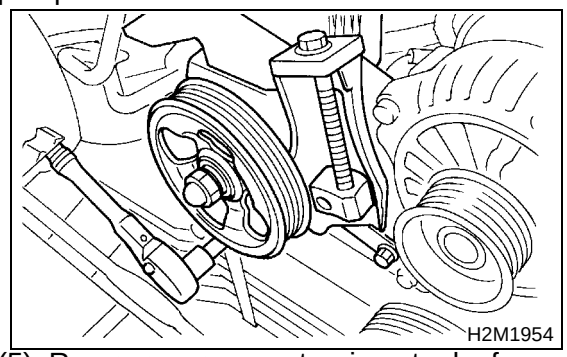


(3) Remove bolts which secure power steering pipe brackets to intake manifold.

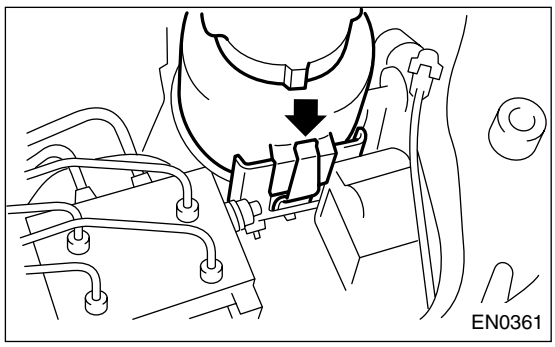
NOTE:
Do not disconnect power steering hose.



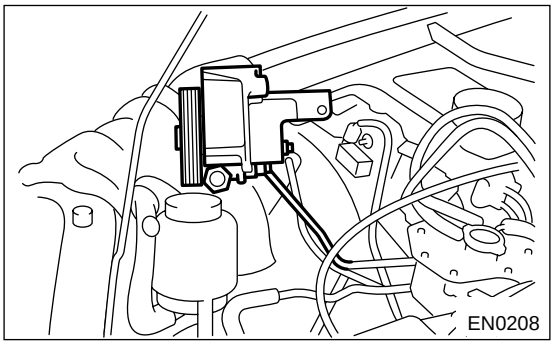
(4) Remove bolts which secure power steering pump to bracket.



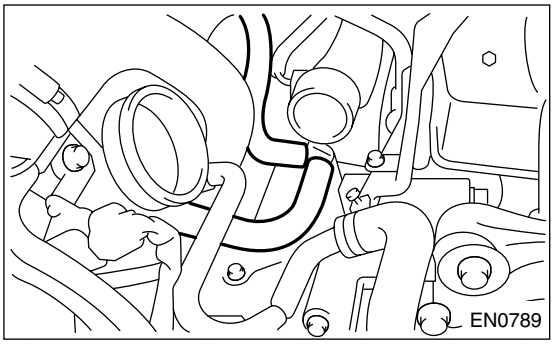
(5) Remove power steering tank from the bracket by pulling it upward.



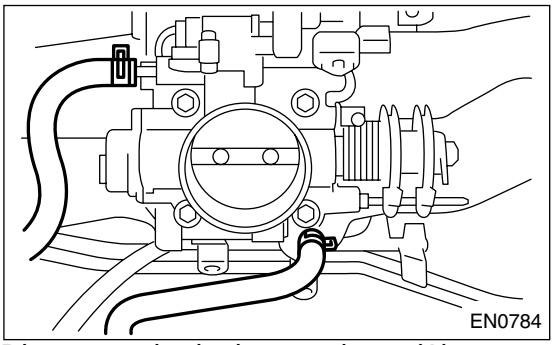
(6) Place power steering pump on the right side wheel apron.



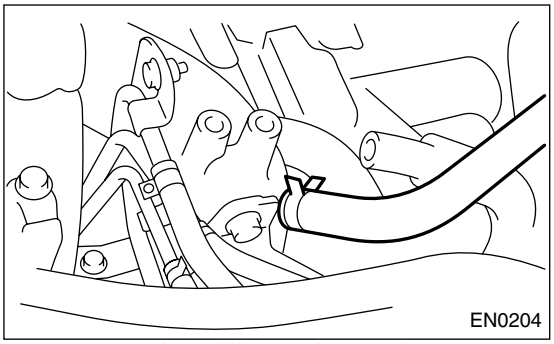
10) Disconnect emission hose from PCV valve.



11) Disconnect engine coolant hoses from throttle body.

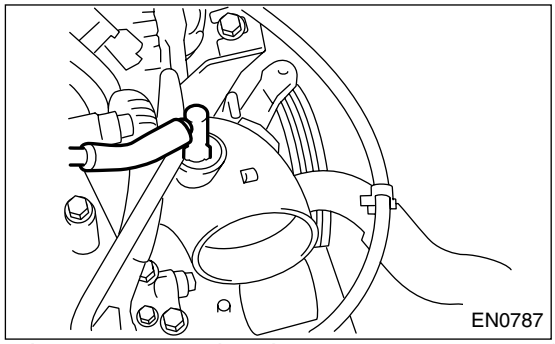


12) Disconnect brake booster hose (A).

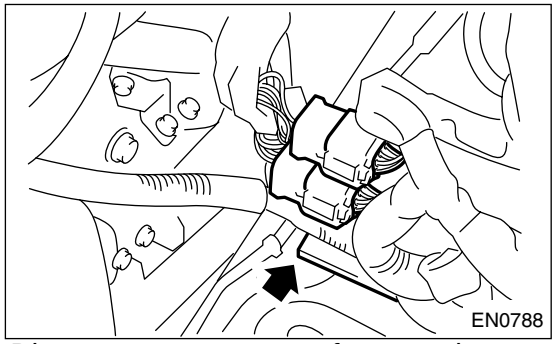


13) Remove coolant filler tank. <Ref. to CO-51, REMOVAL, Coolant Filler Tank.>

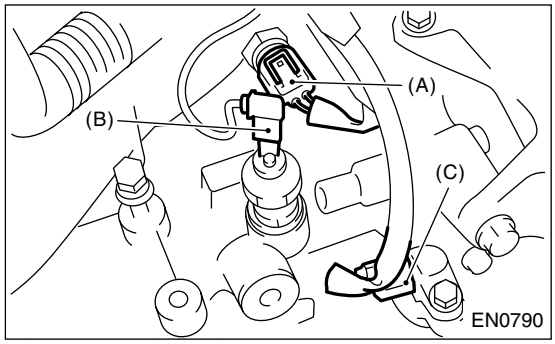
14) Disconnect Pressure hose from intake duct.



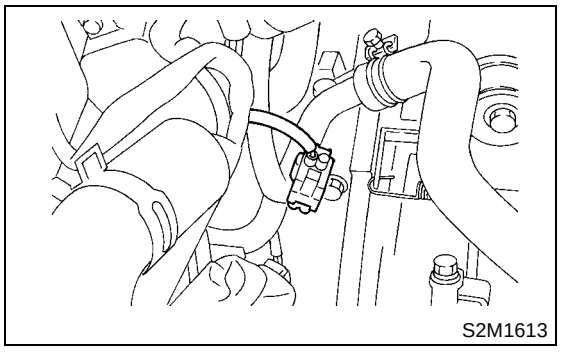
15) Disconnect engine harness connectors from bulkhead harness connectors, and remove engine harness connectors from bracket.



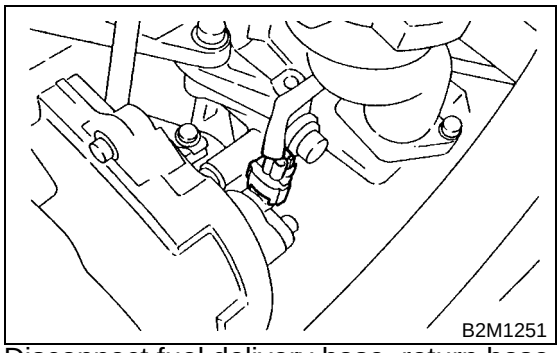
16) Disconnect connectors from engine coolant temperature sensor (A), oil pressure switch (B) and crankshaft position sensor (C).



17) Disconnect knock sensor connector.

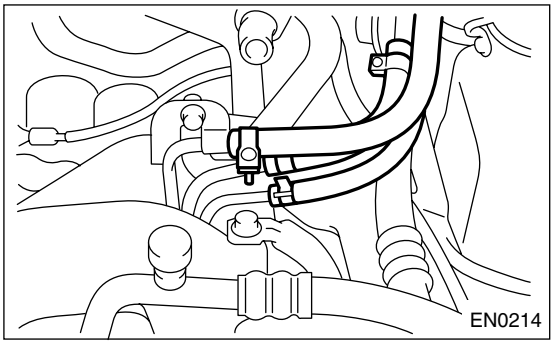


18) Disconnect connector from camshaft position sensor.

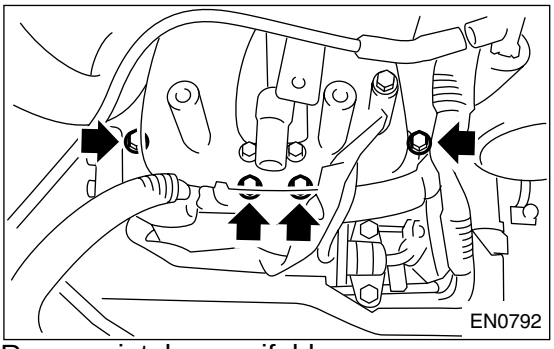


19) Disconnect fuel delivery hose, return hose and evaporation hose.

WARNING:
Catch fuel from hoses in a container.



20) Remove bolts which secure intake manifold to cylinder heads.



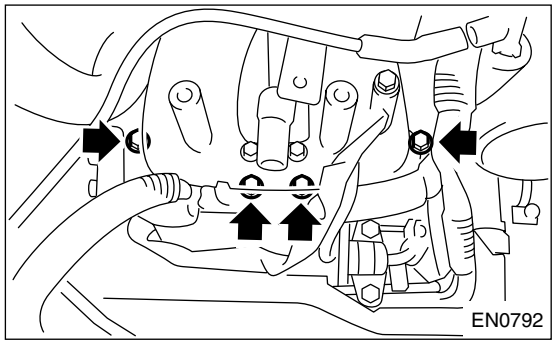
21) Remove intake manifold.

B: INSTALLATION

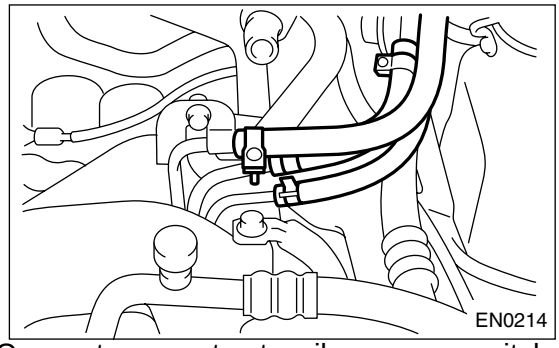
1) Install intake manifold onto cylinder heads.

CAUTION:
Always use new gaskets.

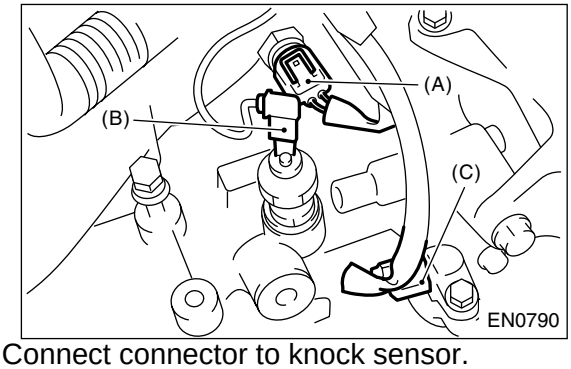
Tightening torque:
25 N·m (2.5 kgf-m, 18.1 ft-lb)



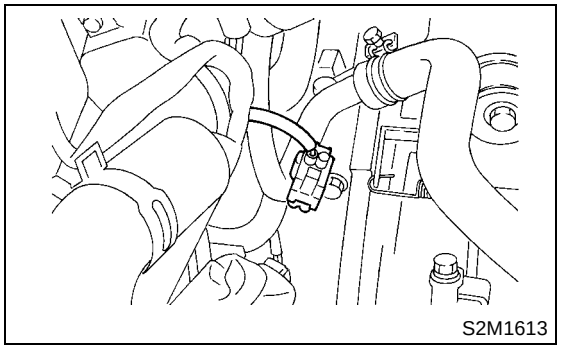
2) Connect fuel delivery hose, return hose, and evaporation hose.



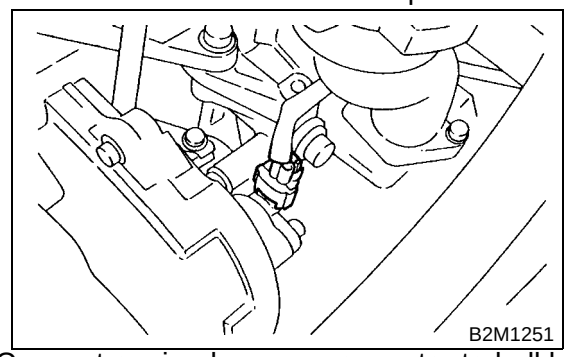
3) Connect connector to oil pressure switch (B), crankshaft position sensor (C) and engine coolant temperature sensor (A).



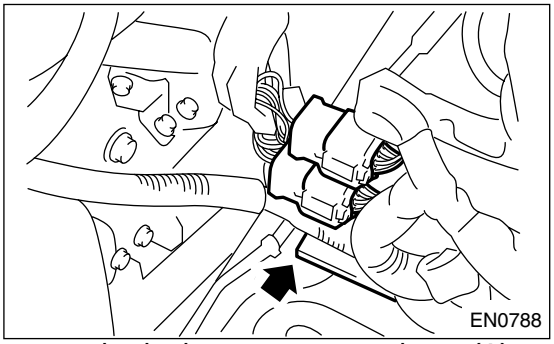
4) Connect connector to knock sensor.



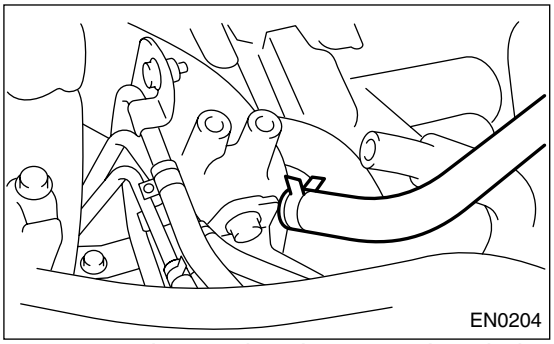
5) Connect connector to camshaft position sensor.



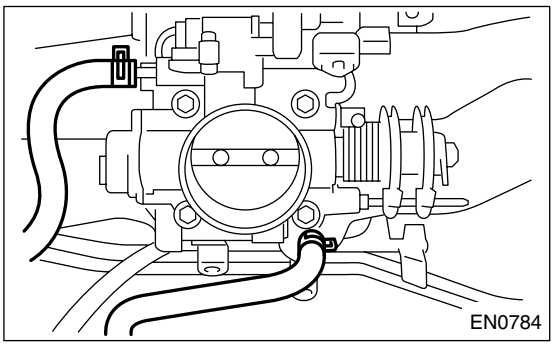
6) Connect engine harness connector to bulkhead harness connectors, and install engine harness connector to bracket.



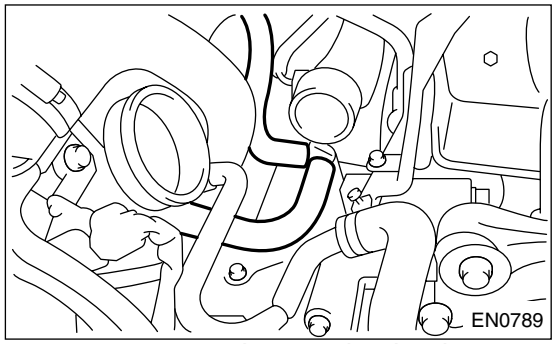
7) Connect brake booster vacuum hose (A).



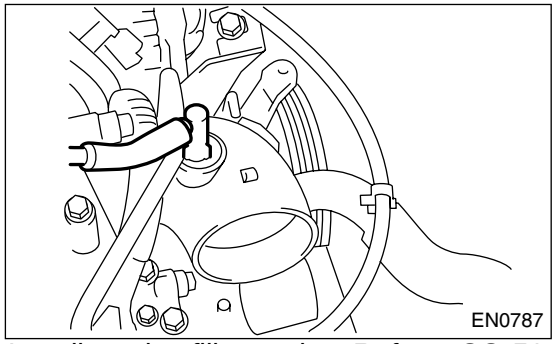
8) Connect engine coolant hoses to throttle body.



9) Connect emission hose to PCV valve.



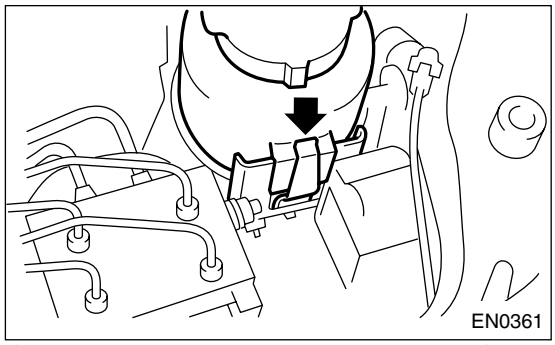
10) Connect pressure hose to intake duct.



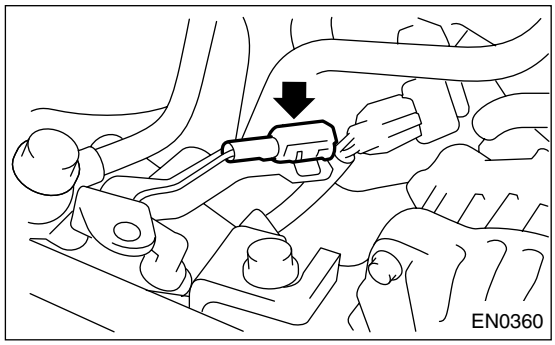
11) Install coolar filler tank. <Ref. to CO-51, INSTALLATION, Coolant Filler Tank.>

12) Install power steering pump on bracket.

(1) Install power steering tank on bracket.

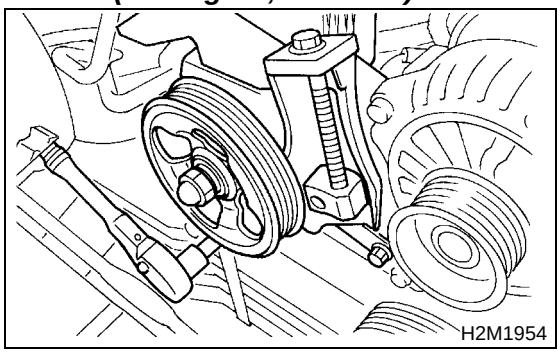


(2) Connect connector to power steering pump switch.

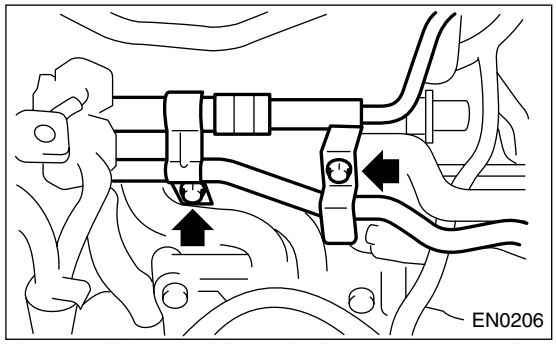


(3) Install power steering pump on bracket, and tighten bolts.

Tightening torque:
20.1 N·m (2.05 kgf-m, 14.8 ft-lb)

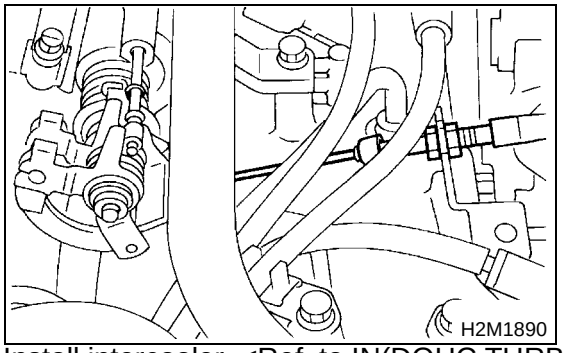


(4) Install power steering pipe brackets on right side intake manifold.

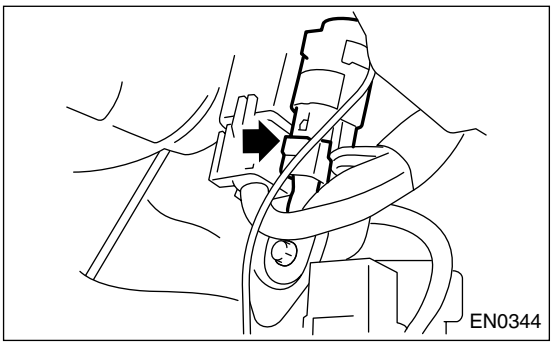


(5) Install front side V-belt. <Ref. to ME(DOHC TURBO)-43, REMOVAL, V-belt.>

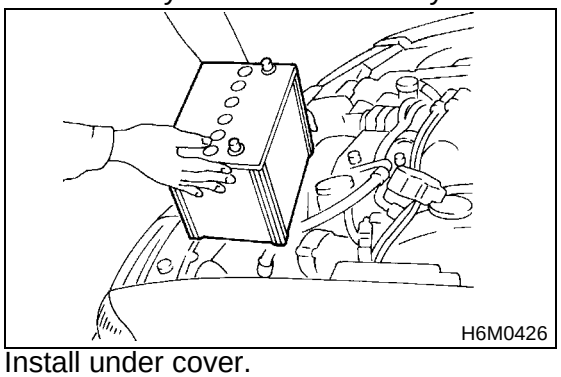
13) Connect accelerator cable.



14) Install intercooler. <Ref. to IN(DOHC TURBO)-11, INSTALLATION, Intercooler.>
15) Install air cleaner element.
16) Install air cleaner upper cover and air intake duct as a unit. <Ref. to IN(DOHC TURBO)-7, INSTALLATION, Air Cleaner.>
17) Connect connector to fuel pump relay.



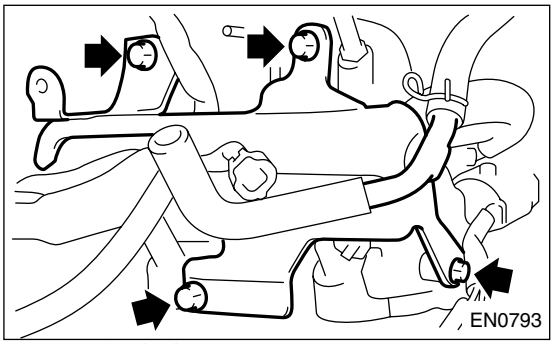
18) Install battery and connect battery cables.



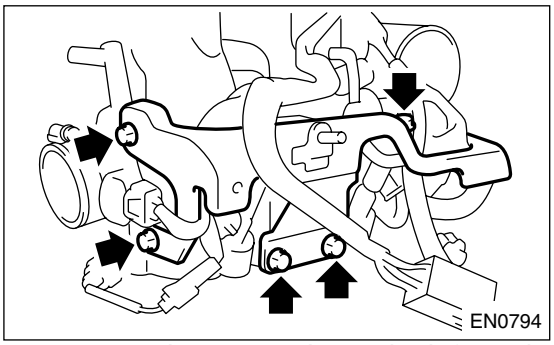
19) Install under cover.
20) Fill coolant. <Ref. to CO-25, FILLING OF ENGINE COOLANT, Engine Coolant.>

C: DISASSEMBLY

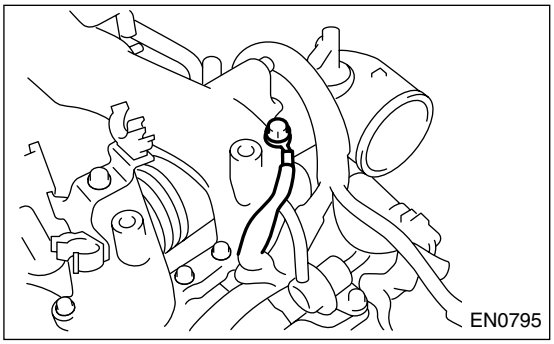
1) Remove fuel pipe protector LH.

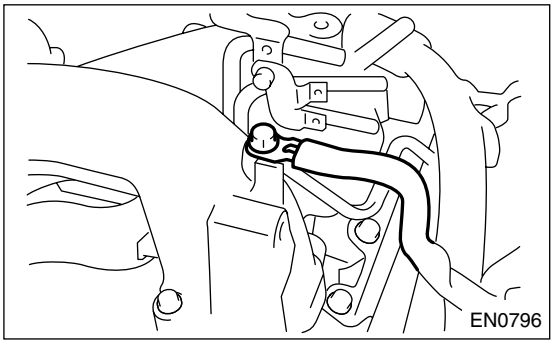


2) Remove fuel pipe protector RH.

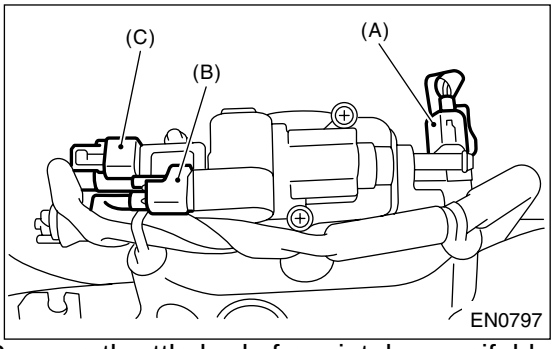


3) Remove engine ground terminal from intake manifold.

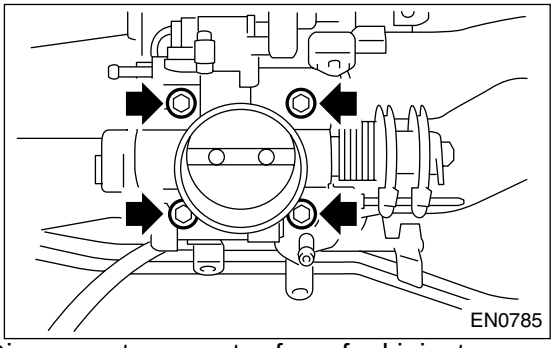




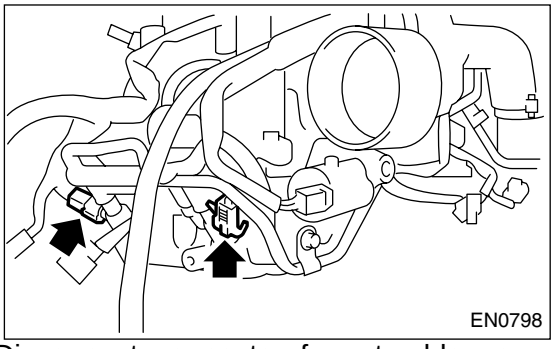
4) Disconnect connector from throttle position sensor (A), idle air control solenoid valve (B) and pressure sensor (C).



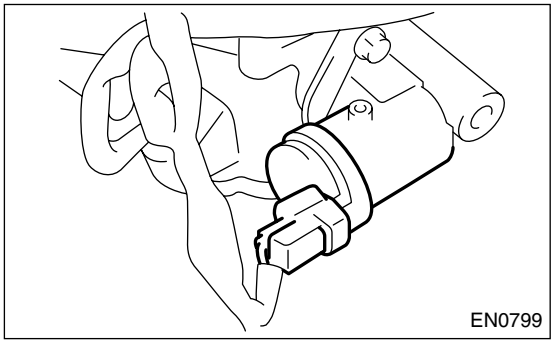
5) Remove throttle body from intake manifold.



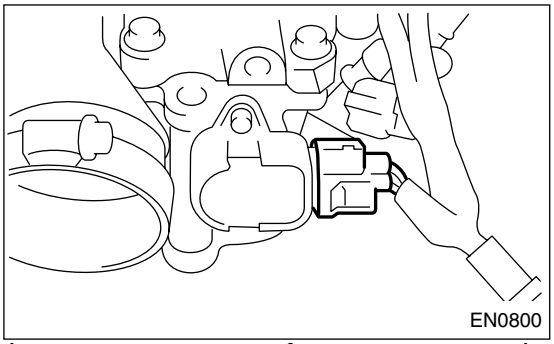
6) Disconnect connector from fuel injector.



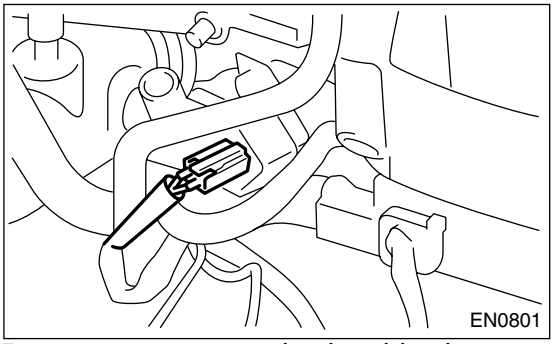
7) Disconnect connector from tumble generator valve actuator.



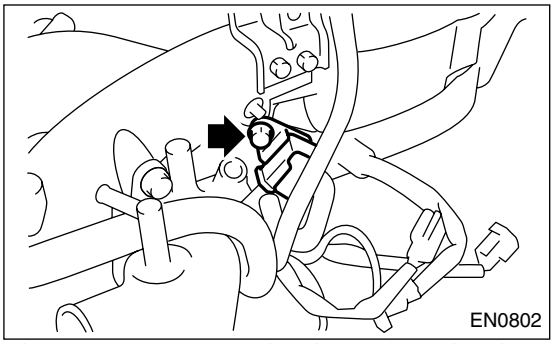
8) Disconnect connector from tumble generator valve sensor.



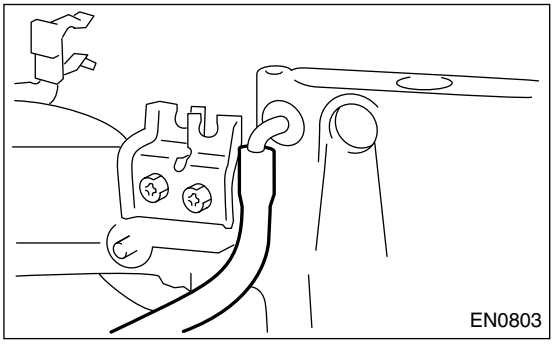
9) Disconnect connector from purge control solenoid valve.



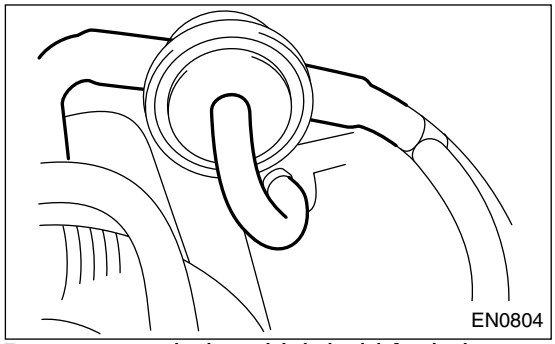
10) Remove purge control solenoid valve.



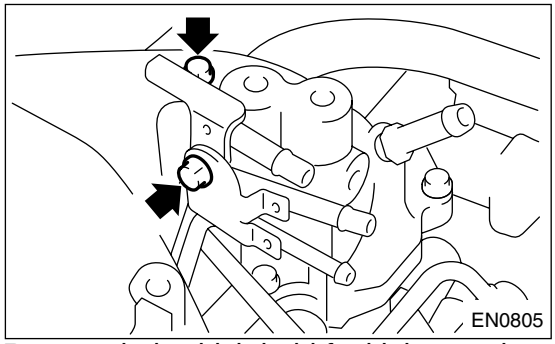
11) Disconnect evaporation hose from intake manifold.



12) Disconnect evaporation hoses from purge valve.

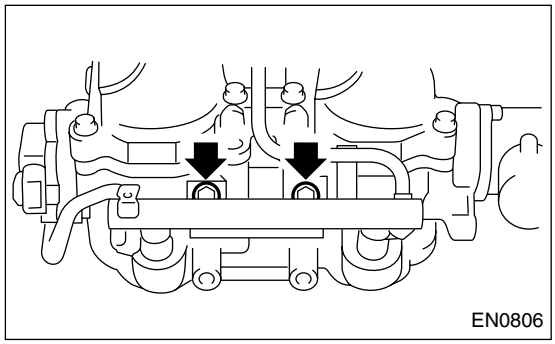


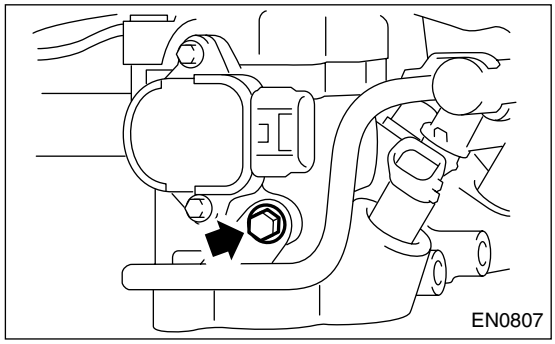
13) Remove two bolts which hold fuel pipes on the left side of intake manifold.



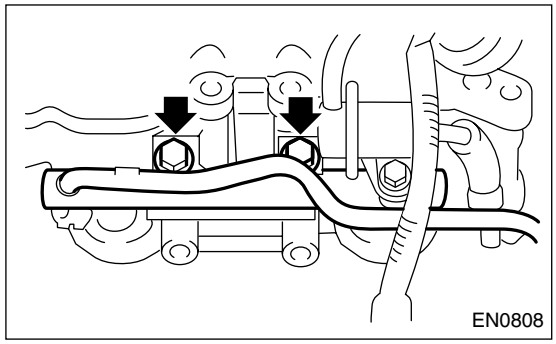
14) Remove bolt which hold fuel injector pipe onto intake manifold.

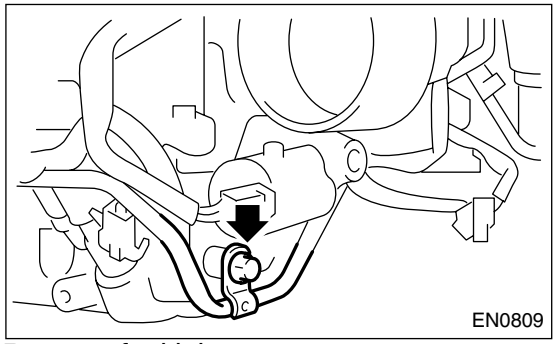
- LH SIDE



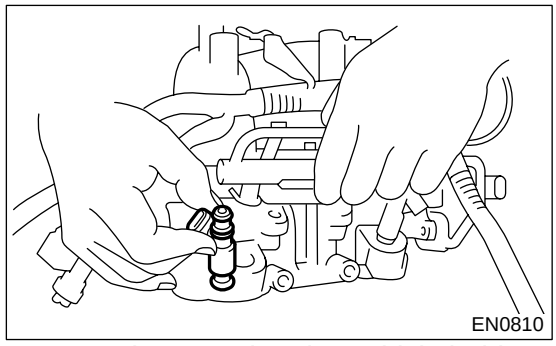


• RH SIDE

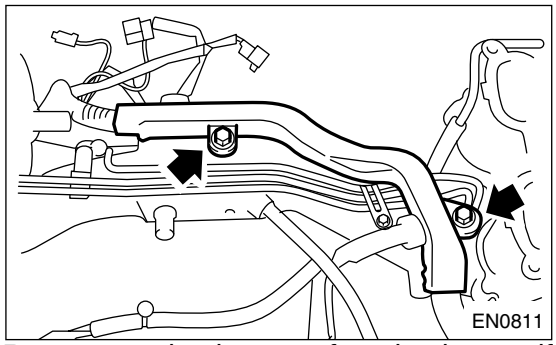




15) Remove fuel injector.

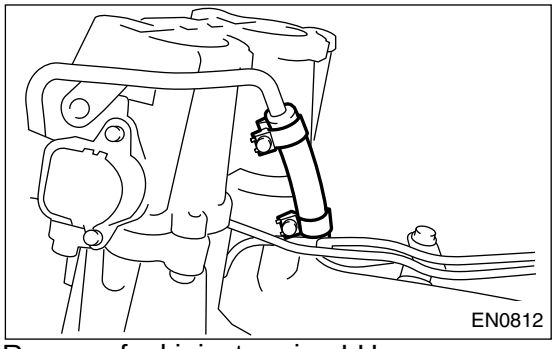


16) Remove harness bracket which hold engine harness onto intake manifold.



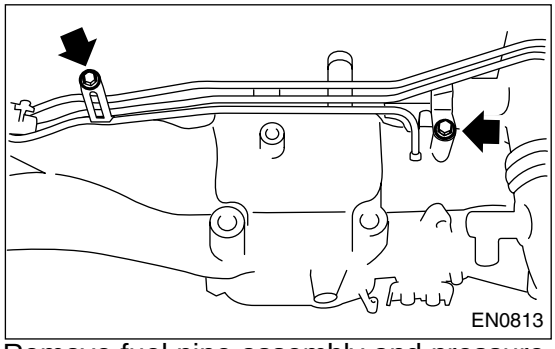
17) Remove engine harness from intake manifold.

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



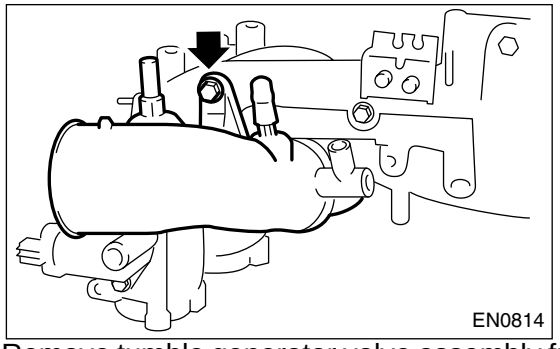
19) Remove fuel injector pipe LH.

20) Remove bolts which installs fuel pipe on intake manifold.

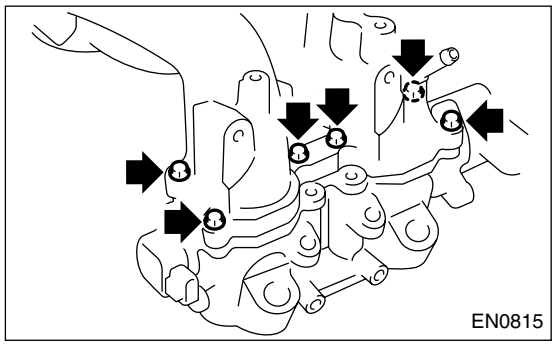


21) Remove fuel pipe assembly and pressure regulator, from intake manifold.

22) Remove intake duct from intake manifold.



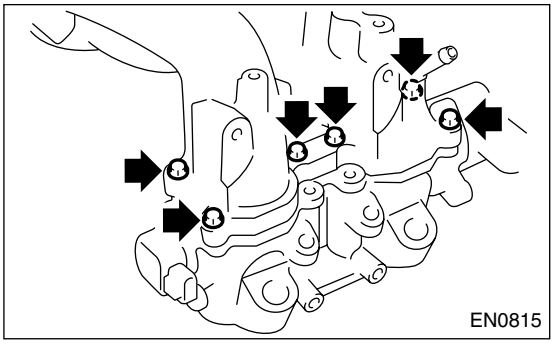
23) Remove tumble generator valve assembly from intake manifold.



D: ASSEMBLY

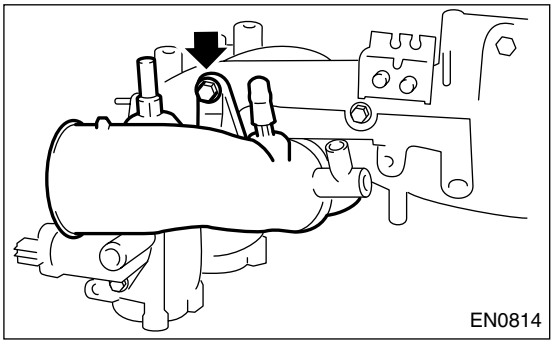
1) Install tumble generator valve assembly to intake manifold.

Tightening torque:
8.25 N·m (0.84 kgf-m, 6.08 ft-lb)



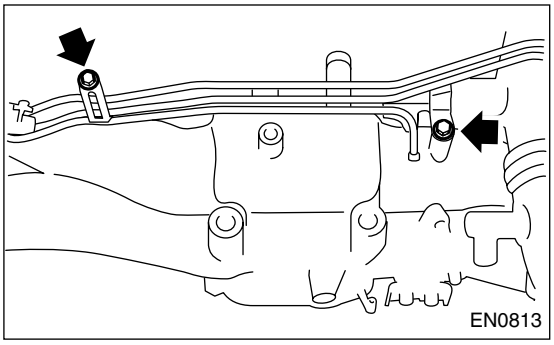
2) Install air intake duct to intake manifold.

Tightening torque:
19 N·m (1.94 kgf-m, 14.0 ft-lb)



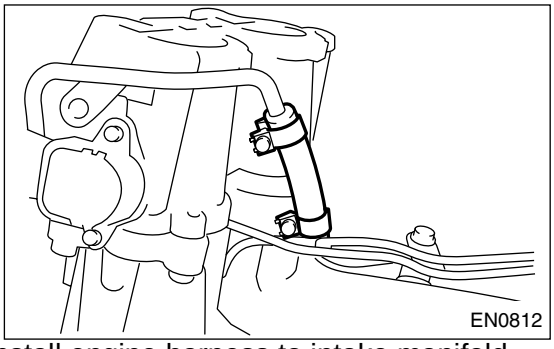
3) Install fuel pipe assembly and pressure regulator, to intake manifold.

Tightening torque:
5 N·m (0.51 kgf-m, 3.69 ft-lb)



4) Install fuel injector pipe LH.

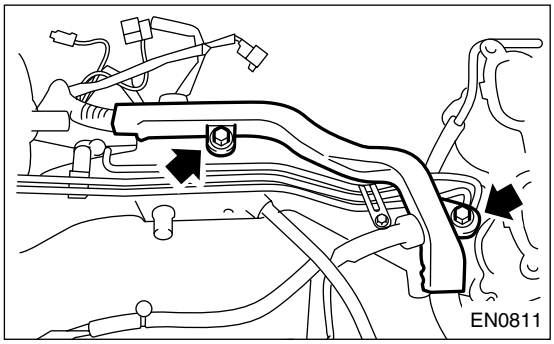
5) Connect left side fuel hose to injector pipe, and tighten clamp screw.



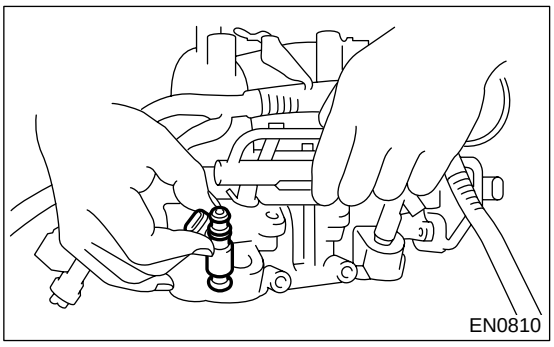
6) Install engine harness to intake manifold.

7) Install harness bracket which hold engine harness onto intake manifold.

Tightening torque:
19 N·m (1.94 kgf-m, 14.0 ft-lb)



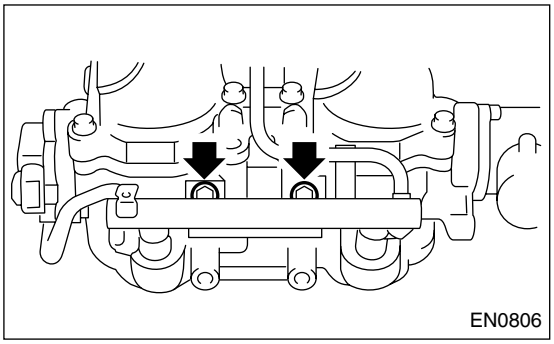
8) Install fuel injector.

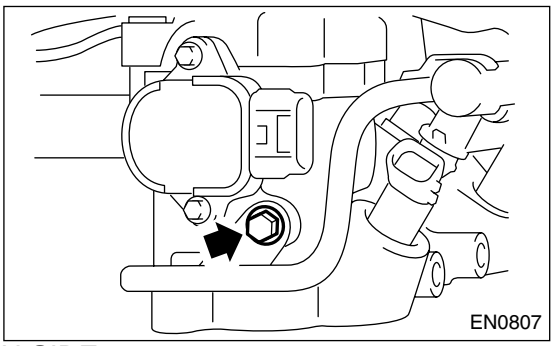


9) Tighten bolt which install fuel injector pipe onto intake manifold.

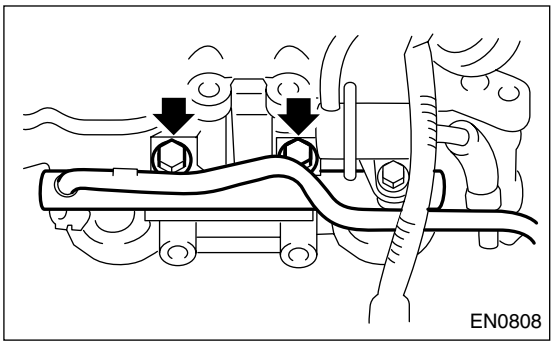
Tightening torque:
19 N·m (1.94 kgf-m, 14.0 ft-lb)

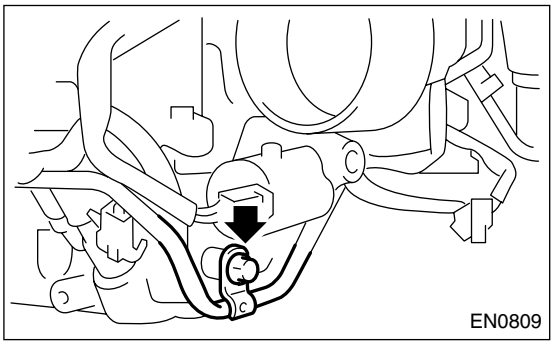
- LH SIDE





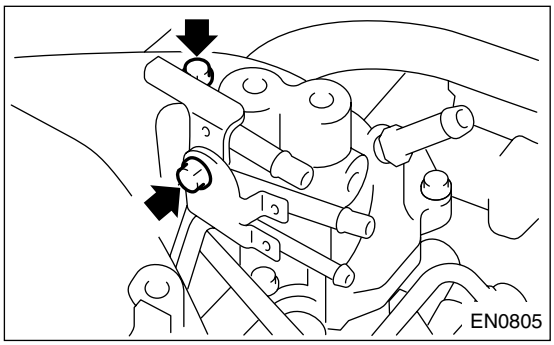
- RH SIDE





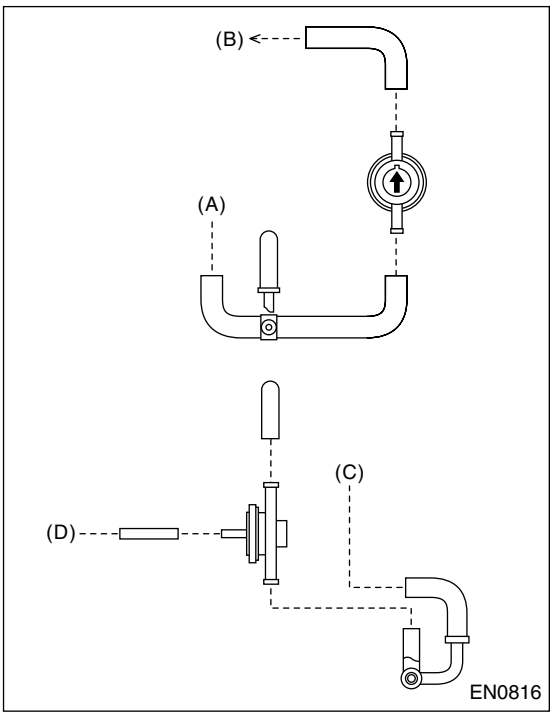
10) Tighten two bolts which install fuel pipes on the left side of intake manifold.

Tightening torque:
5 N·m (0.51 kgf-m, 3.69 ft-lb)



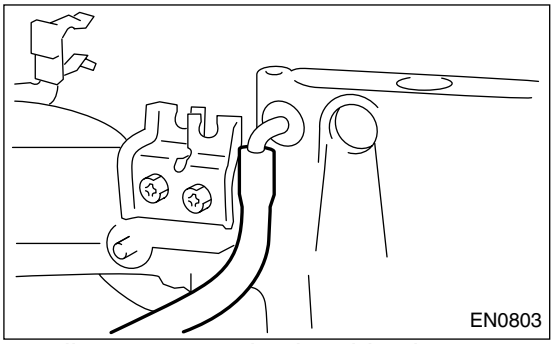
11) Connect evaporation hoses to purge valve.

CAUTION:
Carefully connect the evaporation hoses.



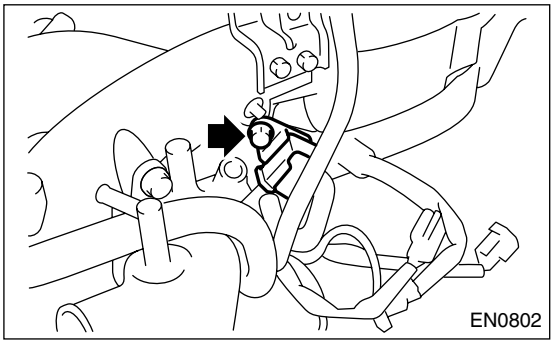
(A) To fuel pipe ASSY
(B) To intake duct
(C) To purge control solenoid valve
(D) To intake manifold

12) Connect evaporation hose to intake manifold.



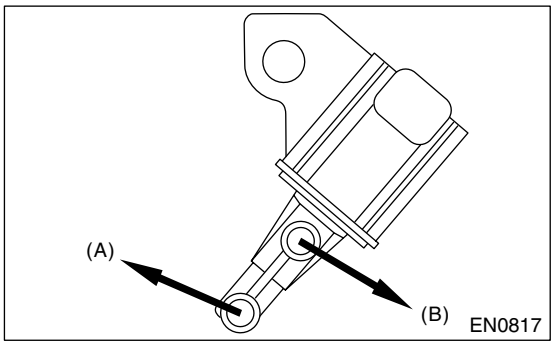
13) Install purge control solenoid valve.

Tightening torque:
16 N·m (0.16 kgf-m, 1.2 ft-lb)



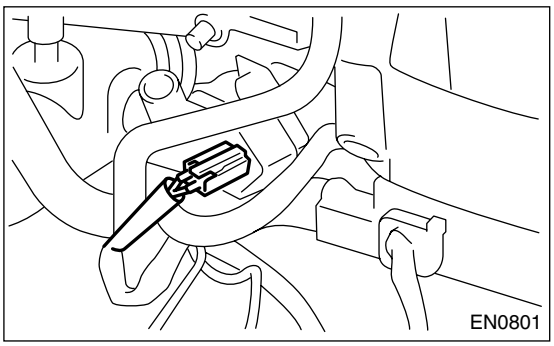
14) Connect hoses to purge control solenoid valve.

CAUTION:
Carefully connect the evaporation hoses.

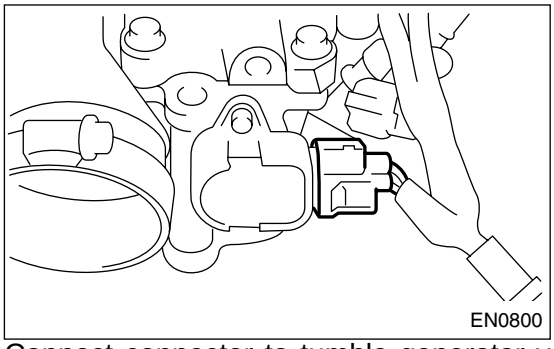


(A) To intake manifold
(B) To purge valve

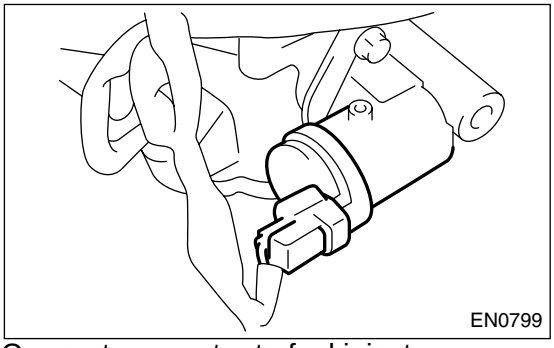
15) Connect connector to purge control solenoid valve.



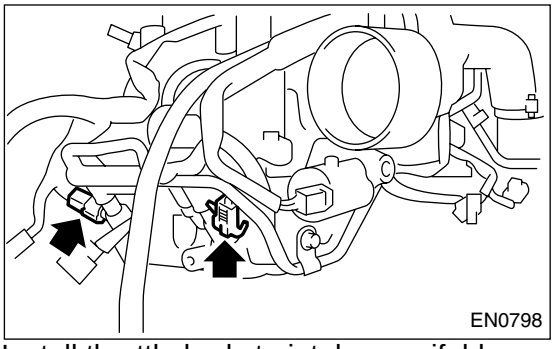
16) Connect connector to tumble generator valve sensor.



17) Connect connector to tumble generator valve actuator.



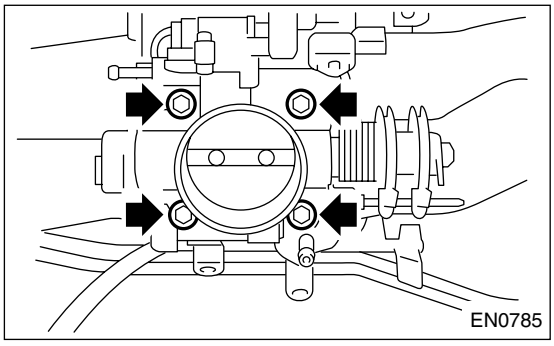
18) Connect connector to fuel injector.



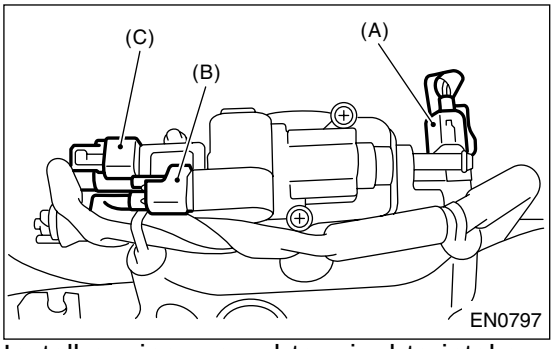
19) Install throttle body to intake manifold.

CAUTION:
Replace gasket with a new one.

Tightening torque:
21.6 N·m (2.21 kgf-m, 15.9 ft-lb)

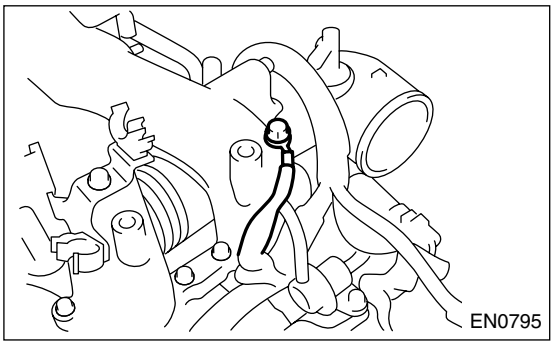


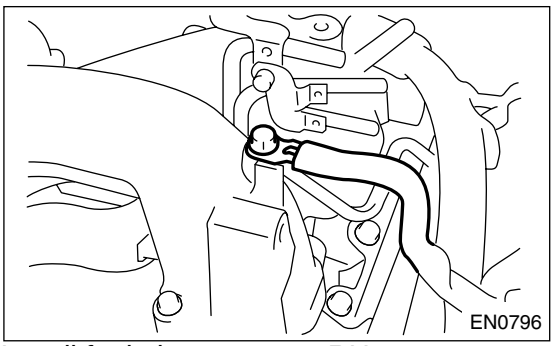
20) Connect connector to throttle position sensor (A), idle air control solenoid valve (B) and pressure sensor (C).



21) Install engine ground terminal to intake manifold.

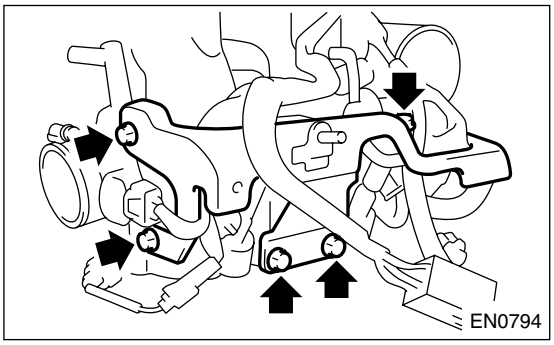
Tightening torque:
19 N·m (1.94 kgf-m, 14.0 ft-lb)





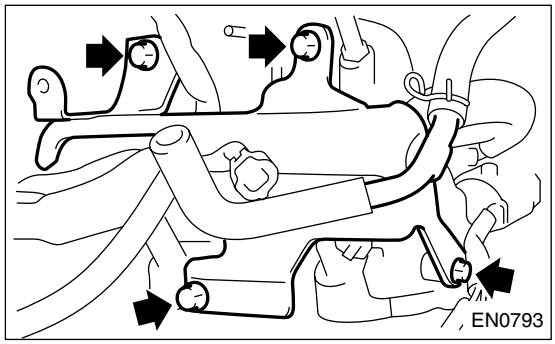
22) Install fuel pipe protector RH.

Tightening torque:
19 N·m (1.94 kgf-m, 14.0 ft-lb)



23) Install fuel pipe protector LH.

Tightening torque:
19 N·m (1.94 kgf-m, 19.0 ft-lb)



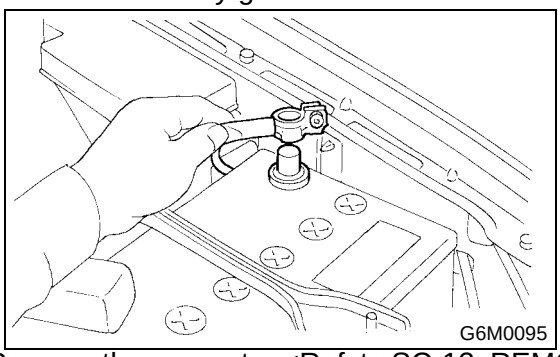
E: INSPECTION

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

4. Engine Coolant Temperature Sensor

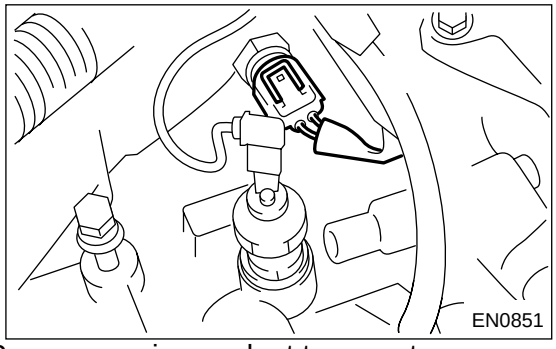
A: REMOVAL

1) Disconnect battery ground cable.



2) Remove the generator <Ref. to SC-12, REMOVAL, Generator.>

3) Disconnect connector from engine coolant temperature sensor.



4) Remove engine coolant temperature sensor.

B: INSTALLATION

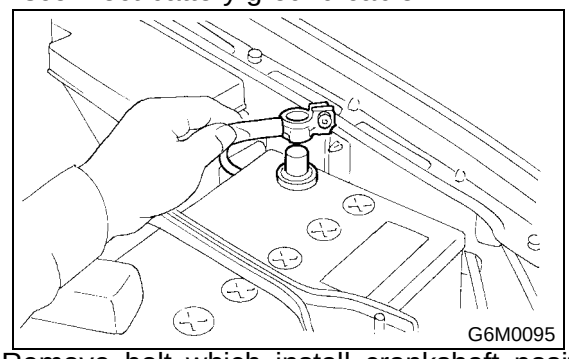
Install in the reverse order of removal.

Tightening torque:
16 N·m (0.16 kgf-m, 1.2 ft-lb)

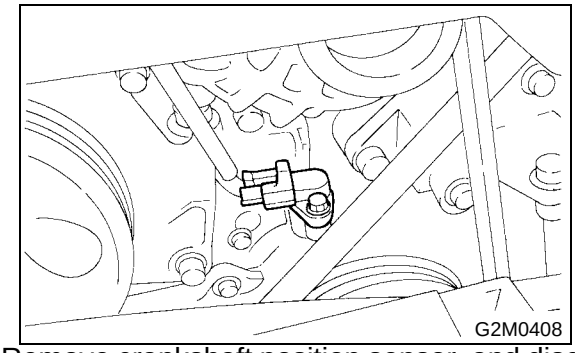
5. Crankshaft Position Sensor

A: REMOVAL

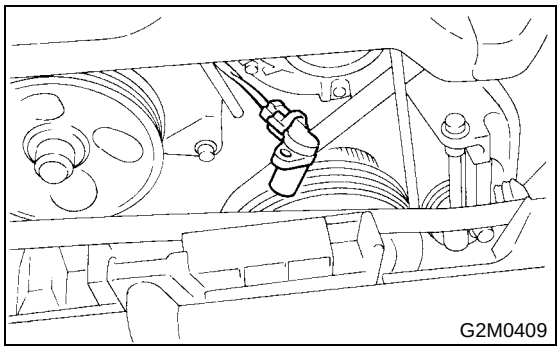
1) Disconnect battery ground cable.



2) Remove bolt which install crankshaft position sensor to cylinder block.



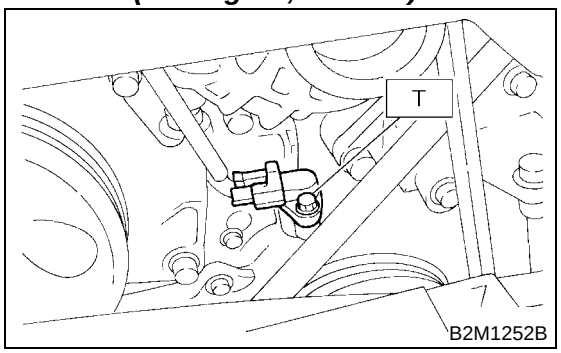
3) Remove crankshaft position sensor, and disconnect connector from it.



B: INSTALLATION

Install in the reverse order of removal.

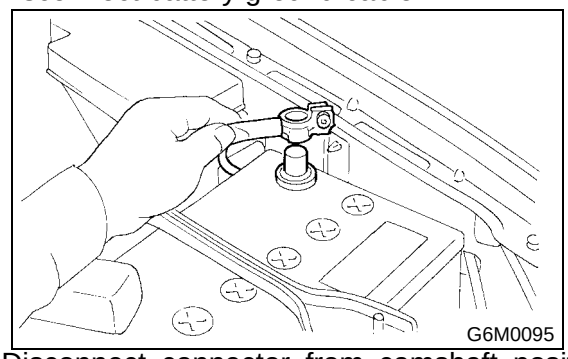
Tightening torque:
T: 6.4 N·m (0.65 kgf-m, 4.7 ft-lb)



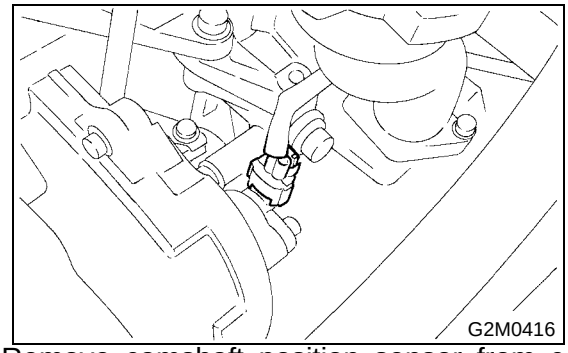
6. Camshaft Position Sensor

A: REMOVAL

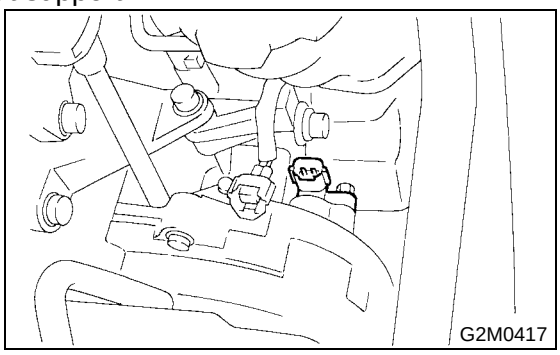
1) Disconnect battery ground cable.



2) Disconnect connector from camshaft position sensor.



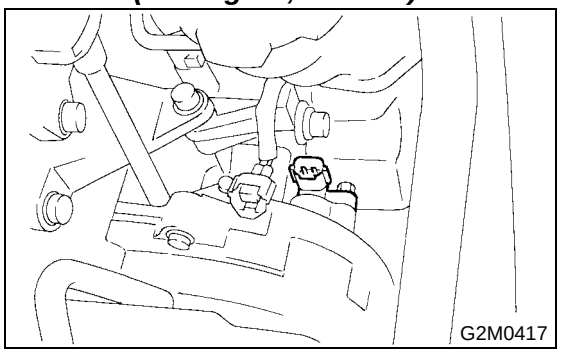
3) Remove camshaft position sensor from camshaft support LH.



B: INSTALLATION

Install in the reverse order of removal.

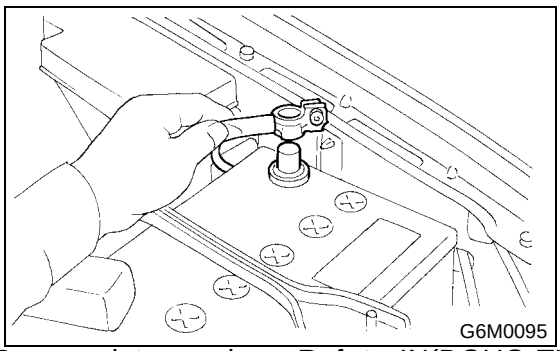
Tightening torque:
T: 6.4 N·m (0.65 kgf-m, 4.7 ft-lb)



7. Knock Sensor

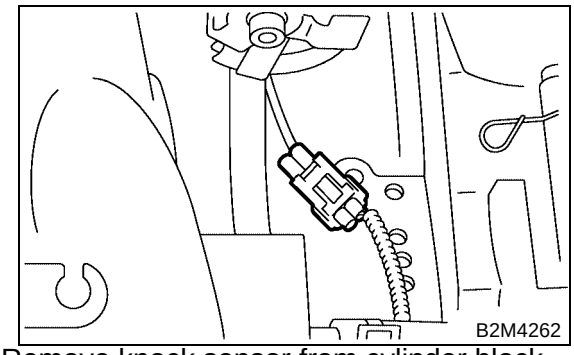
A: REMOVAL

1) Disconnect battery ground cable from battery ground terminal.

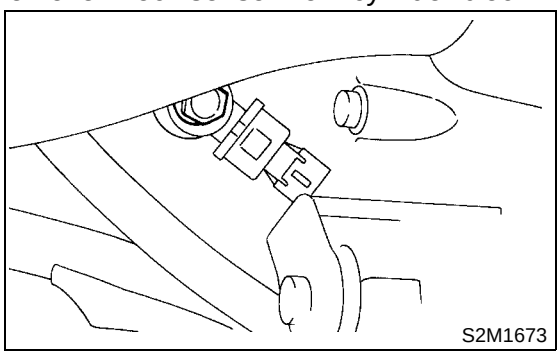


2) Remove inter cooler. <Ref. to IN(DOHC TURBO)-10, REMOVAL, Intercooler.>

3) Disconnect knock sensor connector.



4) Remove knock sensor from cylinder block.

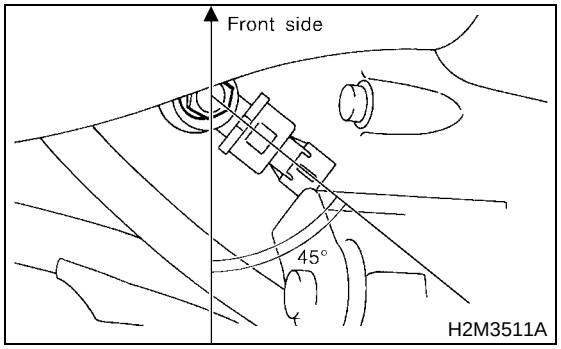


B: INSTALLATION

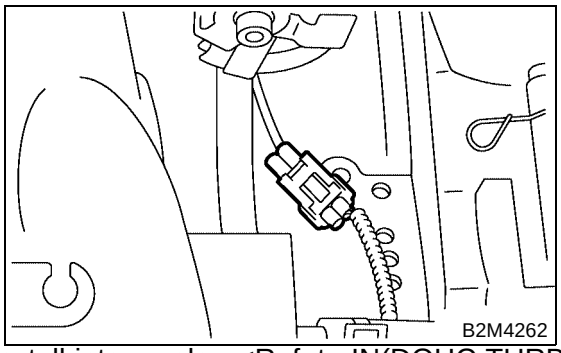
1) Install knock sensor to cylinder block.

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

NOTE:
The extraction area of the knock sensor cord must be positioned at a 45° angle relative to the engine rear.

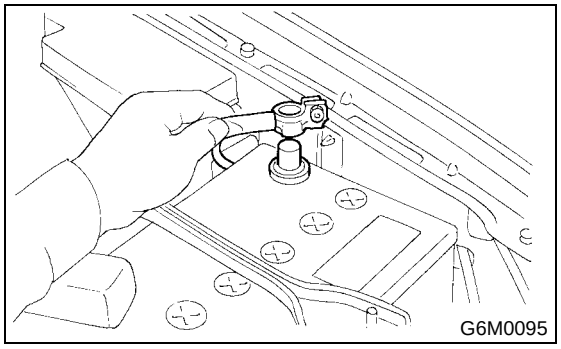


2) Connect knock sensor connector.



3) Install inter cooler. <Ref. to IN(DOHC TURBO)-11, INSTALLATION, Intercooler.>

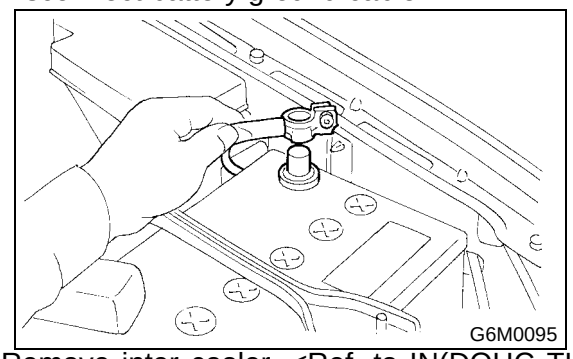
4) Connect battery ground cable.



8. Throttle Position Sensor

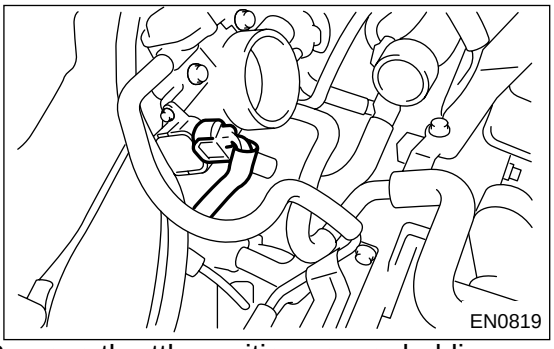
A: REMOVAL

1) Disconnect battery ground cable.

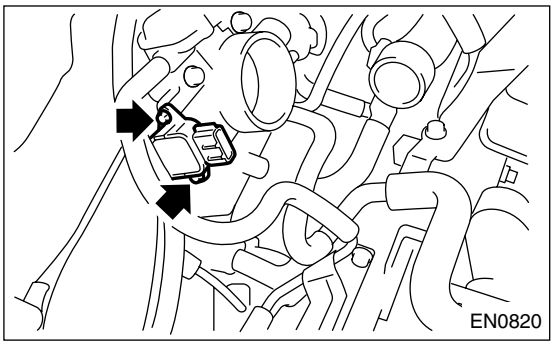


2) Remove inter cooler. <Ref. to IN(DOHC TURBO)-10, REMOVAL, Intercooler.>

3) Disconnect connector from throttle position sensor.



4) Remove throttle position sensor holding screws, and remove it.

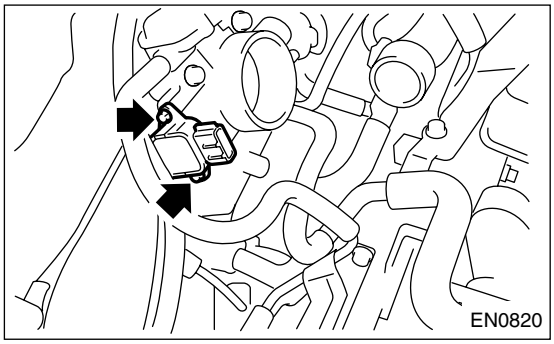


B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:
1.6 N·m (0.16 kgf-m, 1.2 ft-lb)

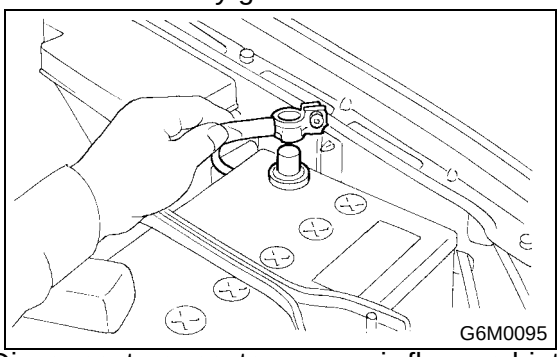
CAUTION:
When installing throttle position sensor, adjust to the specified data.



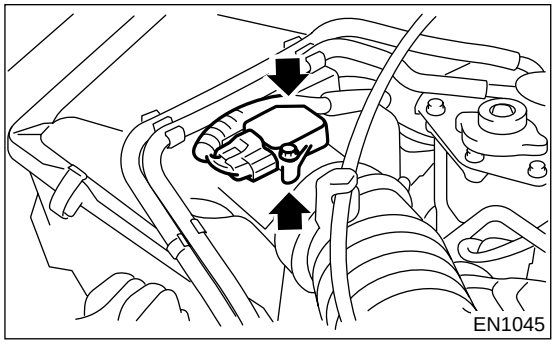
9. Mass Air Flow and Intake Air Temperature Sensor

A: REMOVAL

1) Disconnect battery ground cable.



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



B: INSTALLATION

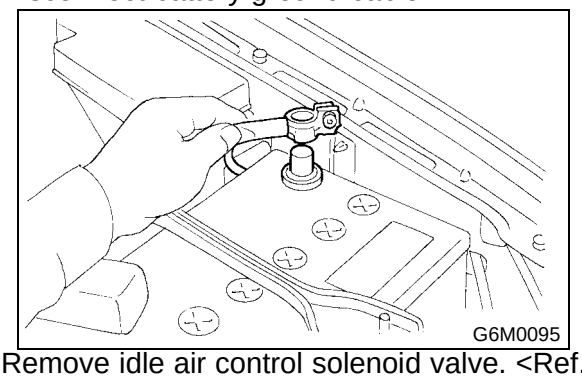
Install in the reverse order of removal.

Tightening torque:
7.5 N·m (0.76 kgf-m, 5.5 ft-lb)

10.Pressure Sensor

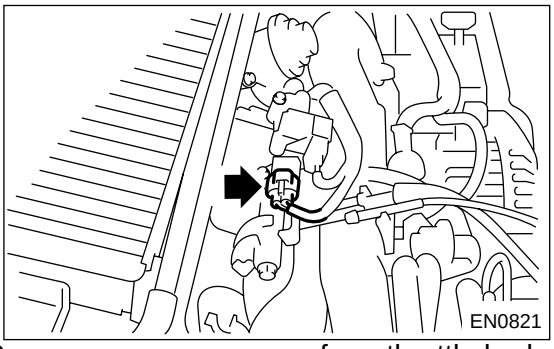
A: REMOVAL

1) Disconnect battery ground cable.



2) Remove idle air control solenoid valve. <Ref. to FU(SOHC)-37, REMOVAL, Idle Air Control Solenoid Valve.>

3) Disconnect connectors from pressure sensor.



4) Remove pressure sensor from throttle body.

B: INSTALLATION

Install in the reverse order of removal.

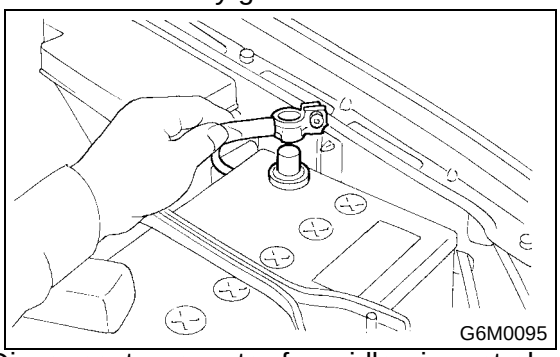
NOTE:
Replace gaskets for pressure sensor and idle air control solenoid valve with new ones.

Tightening torque:
2.8 N·m (0.29 kgf-m, 2.1 ft-lb)

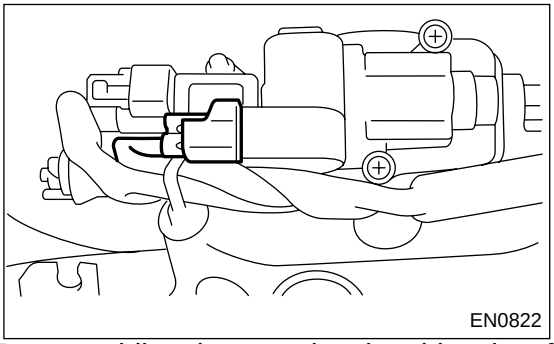
11.Idle Air Control Solenoid Valve

A: REMOVAL

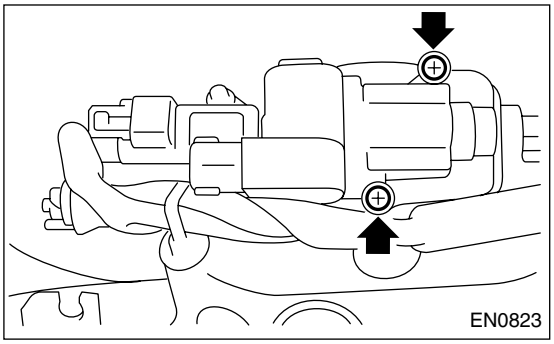
1) Disconnect battery ground cable.



2) Disconnect connector from idle air control solenoid valve.



3) Remove idle air control solenoid valve from throttle body.

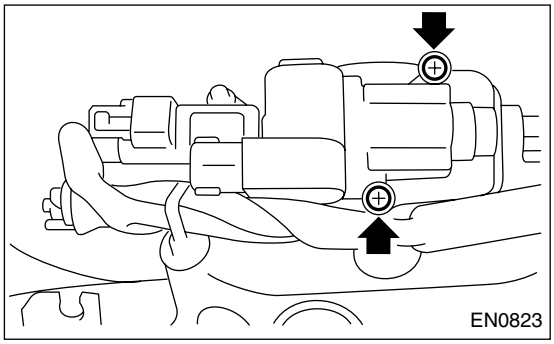


B: INSTALLATION

Install in the reverse order of removal.

CAUTION:
Always use new gasket.

Tightening torque:
2.8 N·m (0.29 kgf-m, 2.1 ft-lb)

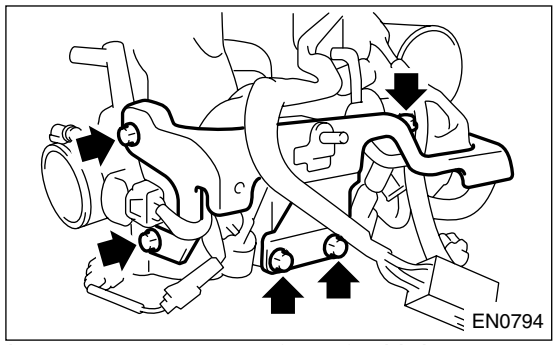


12.Fuel Injector

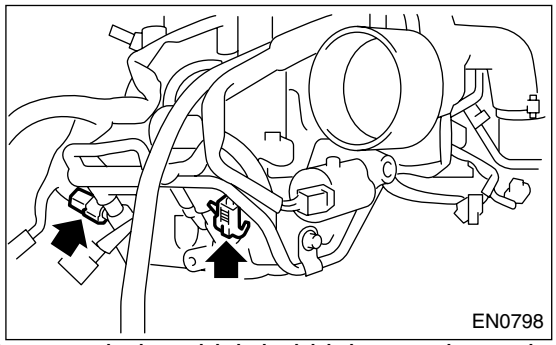
A: REMOVAL

1. RH SIDE

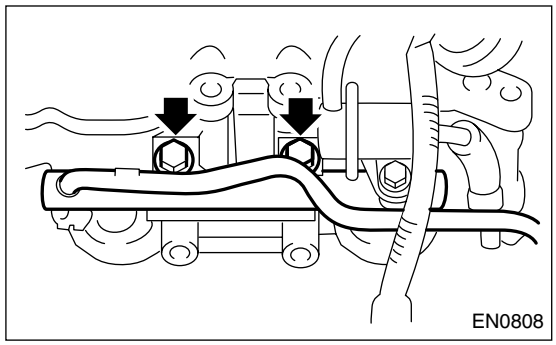
1) Remode intake manifold. <Ref. to FU(DOHC TURBO)-15, REMOVAL, Intake Manifold.>
2) Remove fuel pipe protector RH.

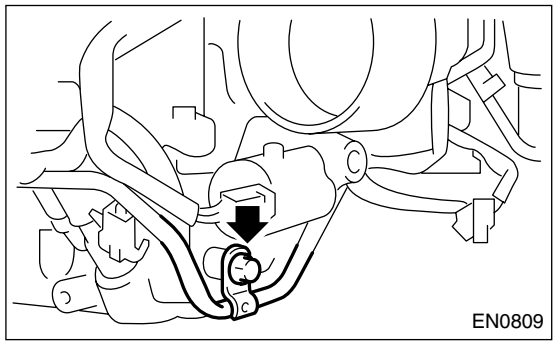


3) Disconnect connector from fuel injector.

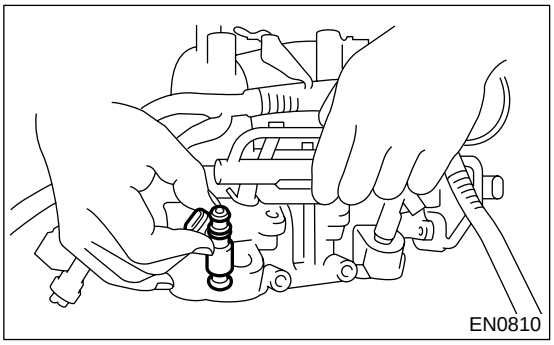


4) Remove bolts which hold injector pipe to intake manifold.



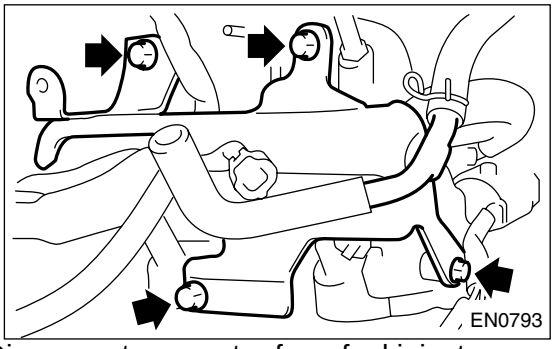


5) Remove fuel injector while lifting up fuel injector pipe.

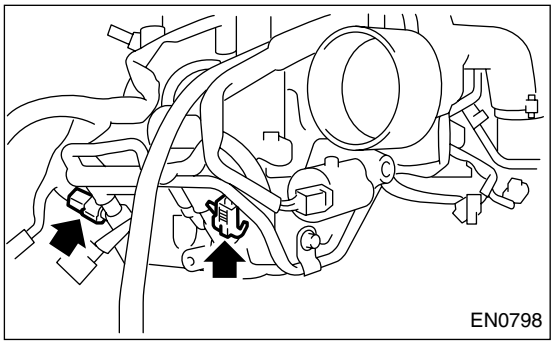


2. LH SIDE

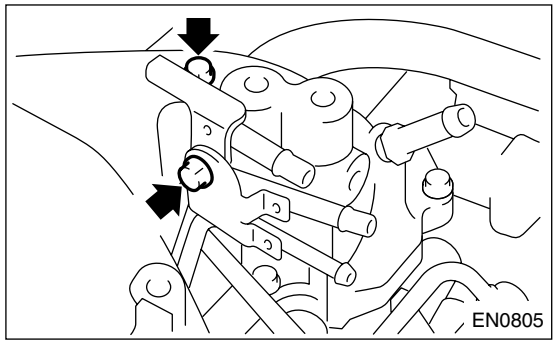
1) Remove intake manifold. <Ref. to FU(DOHC TURBO)-15, REMOVAL, Intake Manifold.>
2) Remove fuel pipe protector LH.

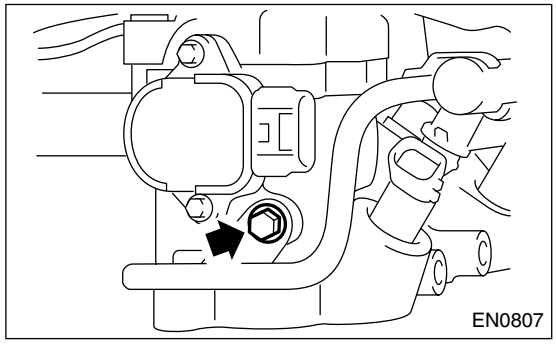


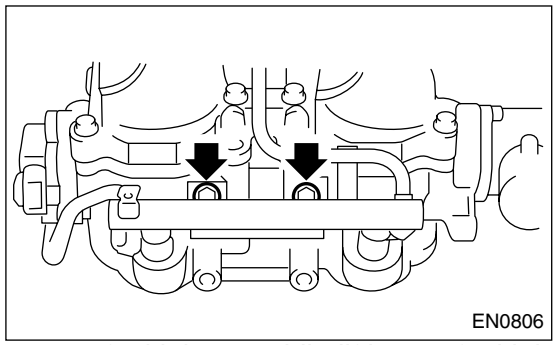
3) Disconnect connector from fuel injector.



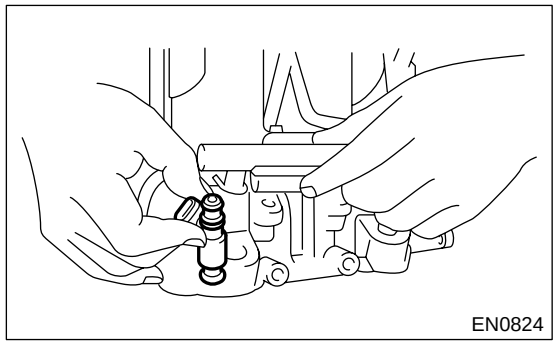
4) Remove bolts which hold injector pipe to intake manifold.







5) Remove fuel injector while lifting up fuel injector pipe.

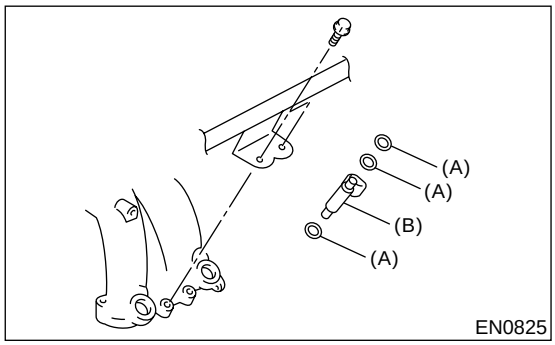


B: INSTALLATION

1. RH SIDE

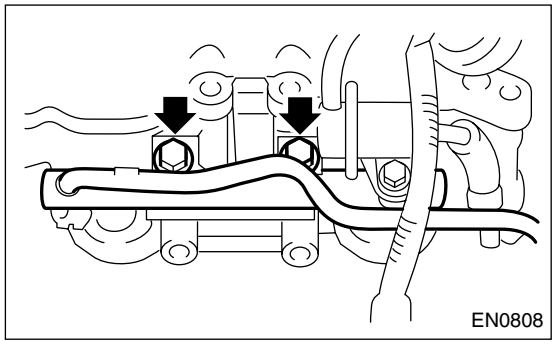
Install in the reverse order of removal.

NOTE:
Replace O-ring and insulators with new ones.

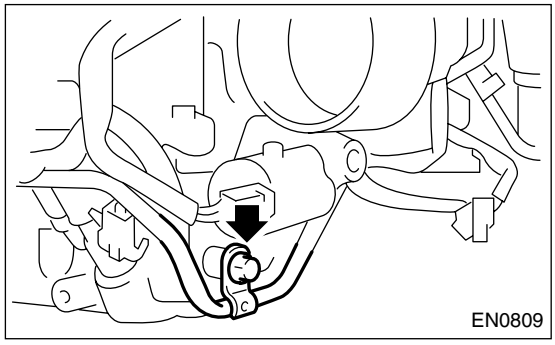


(A) O-ring
(B) Fuel injector
(C) Insulator

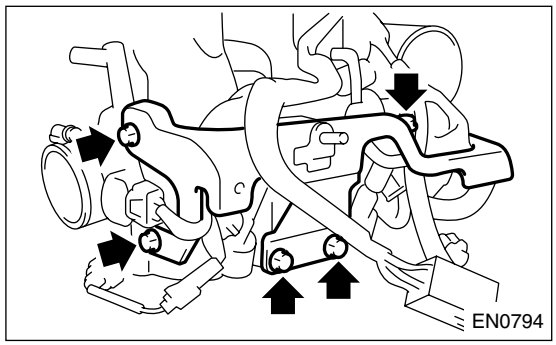
Tightening torque:
19 N·m (1.94 kgf-m, 14.0 ft-lb)



Tightening torque:
19 N·m (1.94 kgf-m, 14.0 ft-lb)



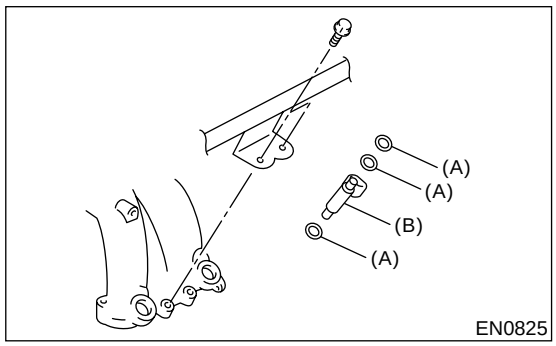
Tightening torque:
19 N·m (1.94 kgf-m, 14.0 ft-lb)



2. LH SIDE

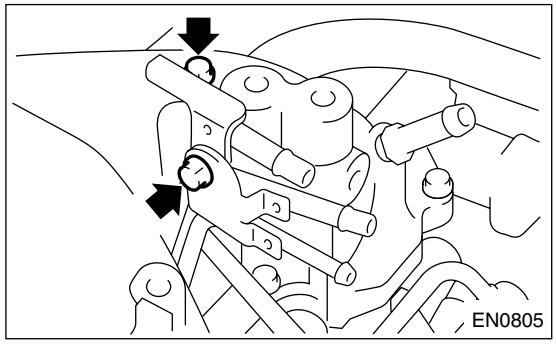
Install in the reverse order of removal.

NOTE:
Replace O-ring and insulators with new ones.

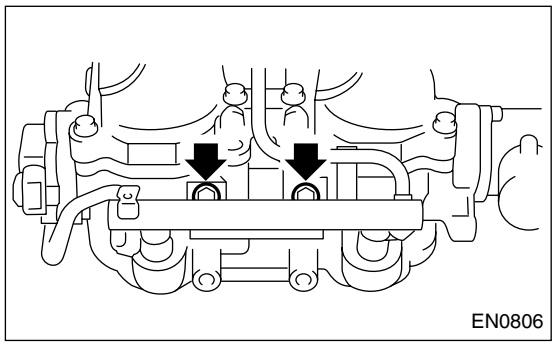


(A) O-ring
(B) Fuel injector
(C) Insulator

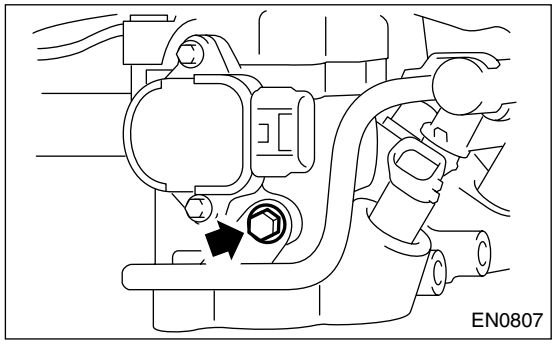
Tightening torque:
5 N·m (0.51 kgf-m, 3.69 ft-lb)



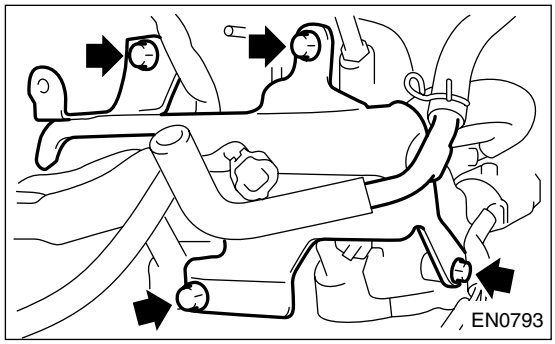
Tightening torque:
19 N·m (1.94 kgf-m, 14.0 ft-lb)



Tightening torque:
19 N·m (1.94 kgf-m, 14.0 ft-lb)



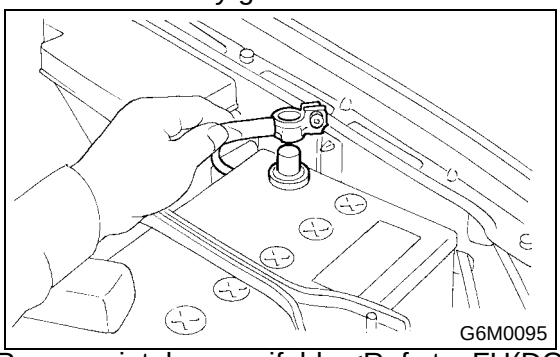
Tightening torque:
19 N·m (1.94 kgf-m, 14.0 ft-lb)



13. Tumble Generator Valve Assembly

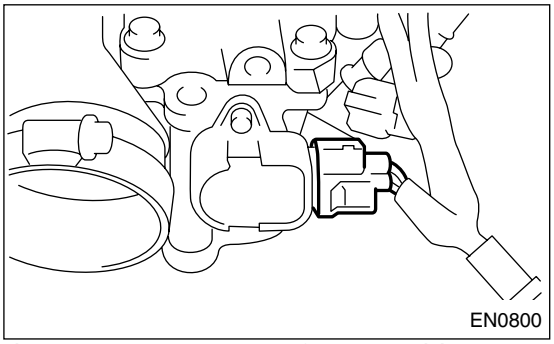
A: REMOVAL

1) Disconnect battery ground cable.

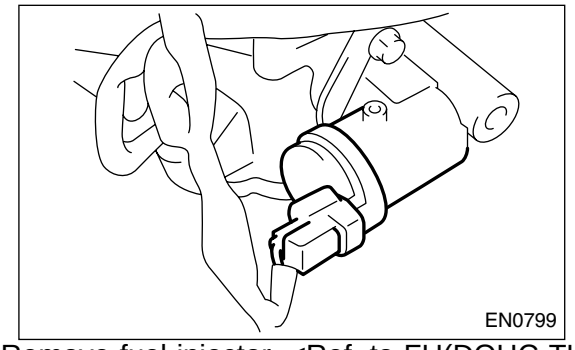


2) Remove intake manifold. <Ref. to FU(DOHC TURBO)-15, REMOVAL, Intake Manifold.>

3) Disconnect connector from tumble generator valve sensor.

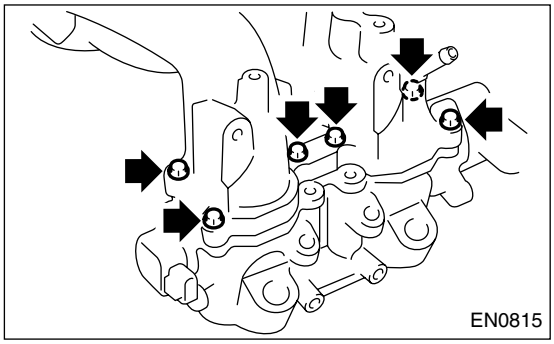


4) Disconnect connector from tumble generator valve actuator.



5) Remove fuel injector. <Ref. to FU(DOHC TURBO)-35, REMOVAL, Fuel Injector.>

6) Remove tumble generator valve body from intake manifold.

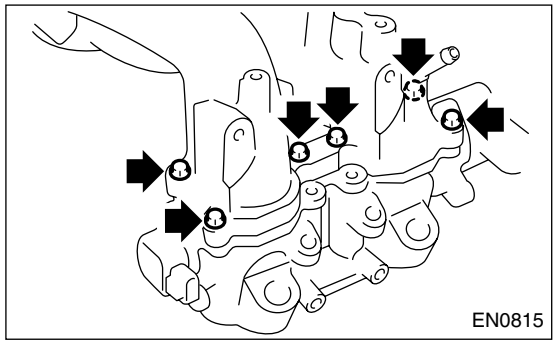


B: INSTALLATION

Install in the reverse order of removal.

NOTE:
Always use new gaskets.

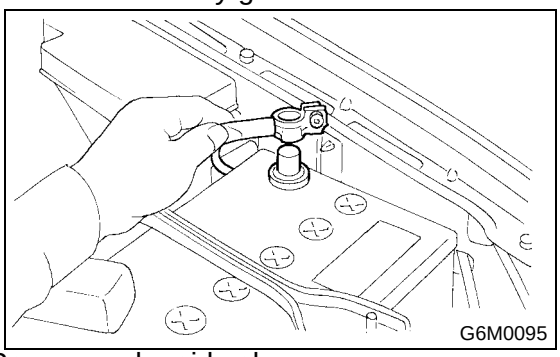
Tightening torque:
8.25 N·m (0.84 kgf-m, 6.1 ft-lb)



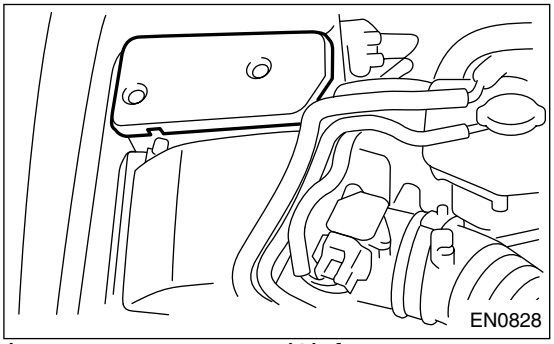
14.Wastegate Control Solenoid Valve

A: REMOVAL

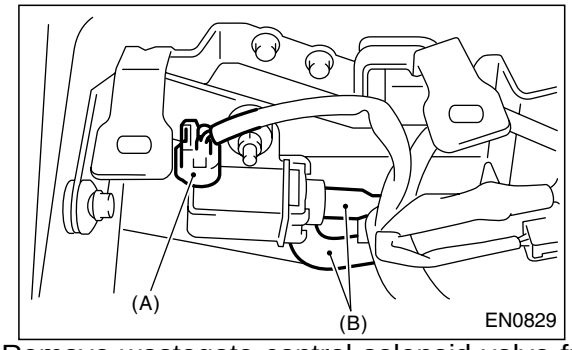
1) Disconnect battery ground cable.



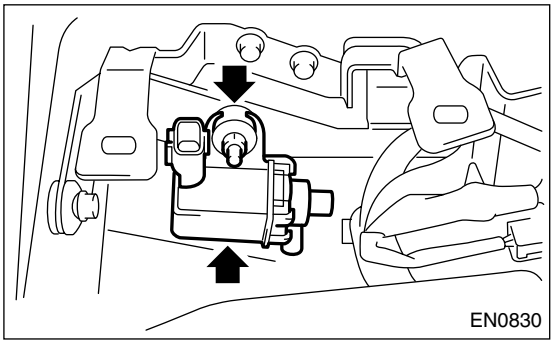
2) Remove solenoid valve cover.



3) Disconnect connector (A) from wastegate control solenoid valve.
4) Disconnect pressure hoses (B) from wastegate control solenoid valve.



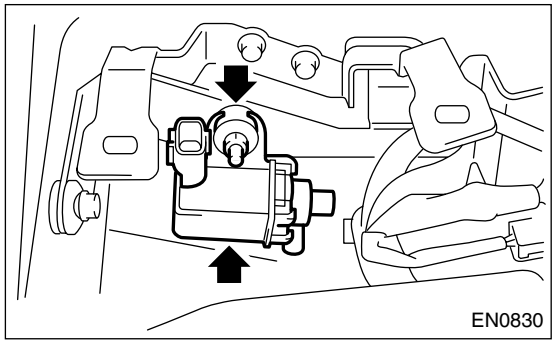
5) Remove wastegate control solenoid valve from bracket



B: INSTALLATION

Install in the reverse order of removal.

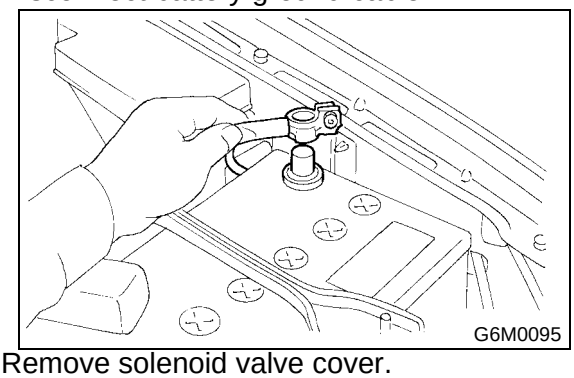
Tightening torque:
6.4 N·m (0.65 kgf-m, 4.7 ft-lb)



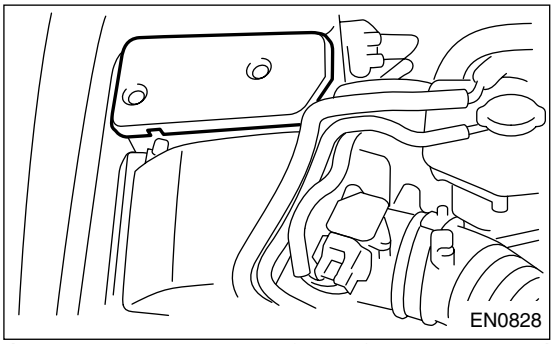
15.Front Oxygen (A/F) Sensor

A: REMOVAL

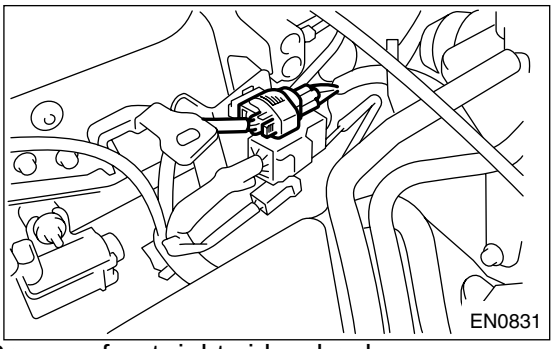
1) Disconnect battery ground cable.



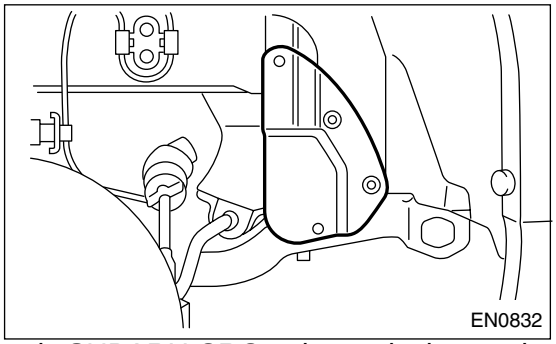
2) Remove solenoid valve cover.



3) Disconnect connector from front oxygen (A/F) sensor.



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

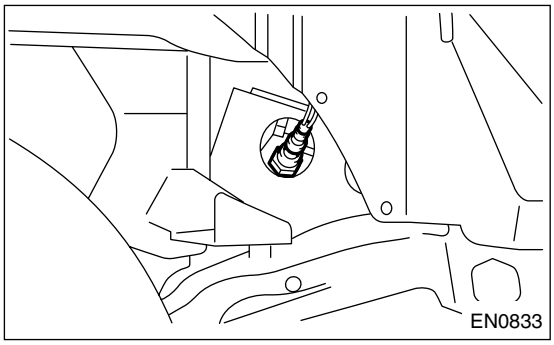


7) Apply SUBARU CRC or its equivalent to threaded portion of front oxygen (A/F) sensor, and leave it for one minute or more.

SUBARU CRC (Part No. 004301003)

8) Remove 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

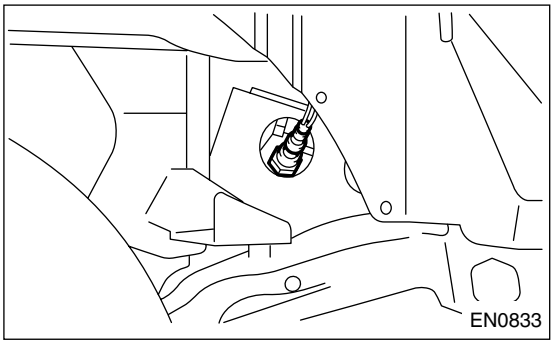
1) Before installing front oxygen (A/F) sensor, apply anti-seize compound only to threaded portion of front oxygen (A/F) sensor to make the next removal easier.

Anti-seize compound:
SS-30 by JET LUBE

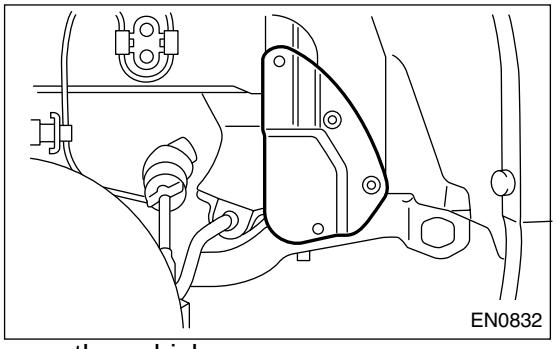
CAUTION:
Never apply anti-seize compound to protector of front oxygen (A/F) sensor.

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

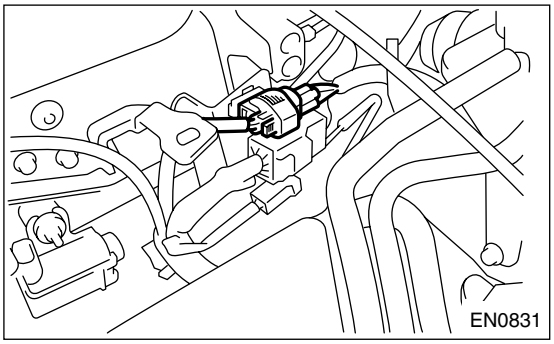
Tightening torque:
21N·m (2.1 kgf-m, 15.2 ft-lb)



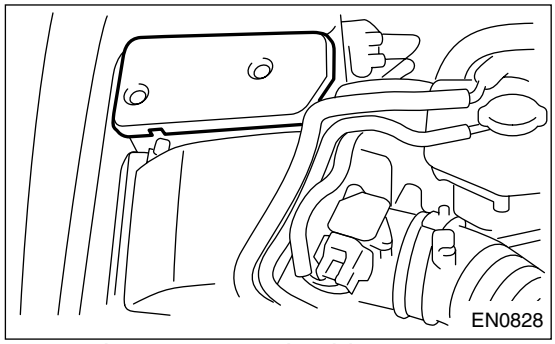
3) Install service hole cover.



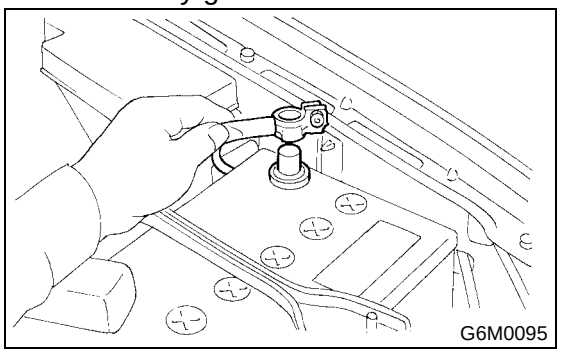
4) Lower the vehicle.
5) Install front right side wheel.
6) Connect connector of front oxygen (A/F) sensor.



7) Install solenoid valve cover.



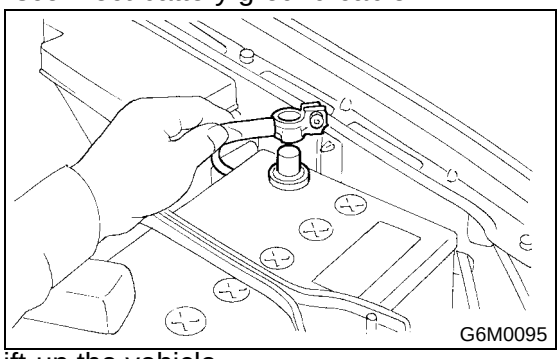
8) Connect battery ground cable.



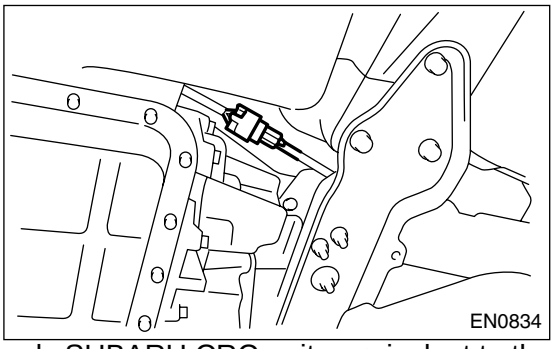
16.Rear Oxygen Sensor

A: REMOVAL

1) Disconnect battery ground cable.



2) Lift-up the vehicle.
3) Disconnect connector from rear oxygen sensor.

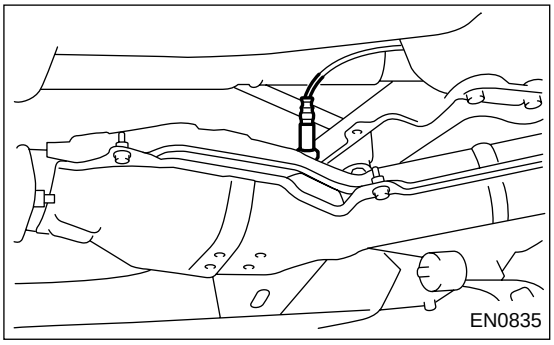


4) Apply SUBARU CRC or its equivalent to threaded portion of rear oxygen sensor, and leave it for one minute or more.

SUBARU CRC (Part No. 004301003)

5) Remove rear oxygen sensor.

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



B: INSTALLATION

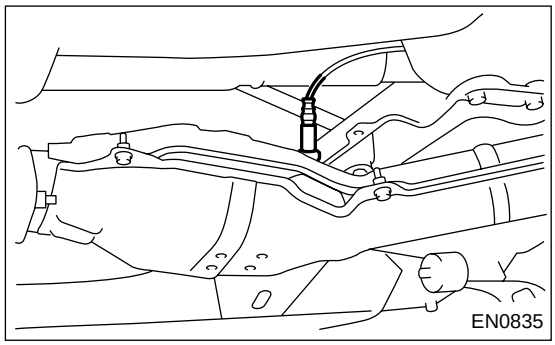
1) Before installing rear oxygen sensor, apply anti-seize compound only to threaded portion of rear oxygen sensor to make the next removal easier.

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

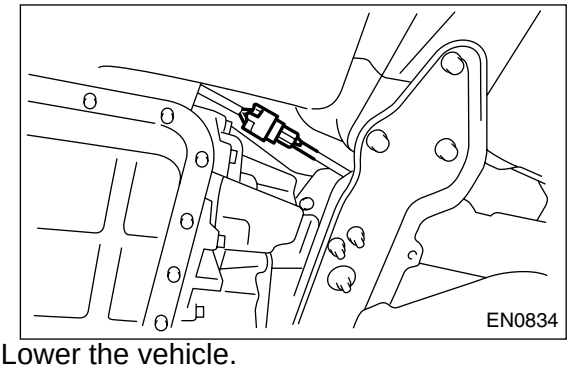
Anti-seize compound:
SS-30 by JET LUBE

2) Install rear oxygen sensor.

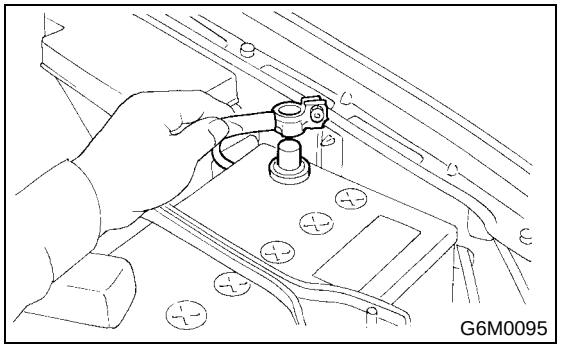
Tightening torque:
21 N·m (2.1 kgf-m, 15.2 ft-lb)



3) Connect connector to rear oxygen sensor.



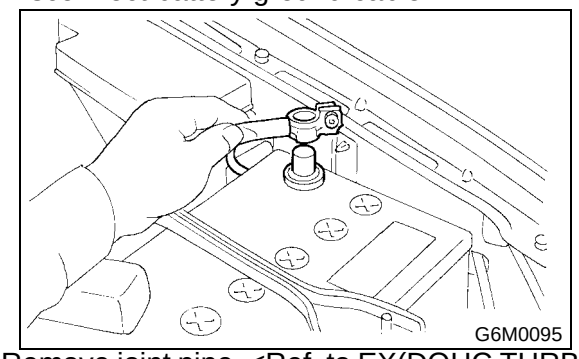
4) Lower the vehicle.
5) Connect battery ground cable.



17.Exhaust Temperature Sensor

A: REMOVAL

1) Disconnect battery ground cable.



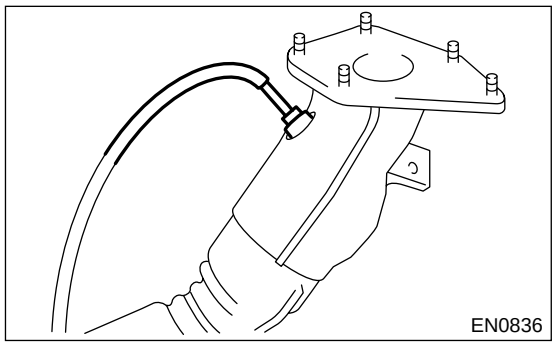
2) Remove joint pipe. <Ref. to EX(DOHC TURBO)-12, REMOVAL, Joint Pipe.>

3) Apply SUBARU CRC or its equivalent to threaded portion of exhaust temperature sensor, and leave it for one minute or more.

SUBARU CRC (Part No. 004301003)

4) Remove exhaust temperature.

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



B: INSTALLATION

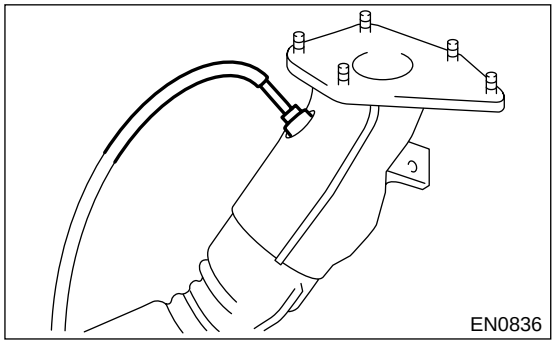
1) Before installing exhaust temperature sensor, apply anti-seize compound only to threaded portion of rear oxygen sensor to make the next removal easier.

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

Anti-seize compound:
SS-30 by JET LUBE

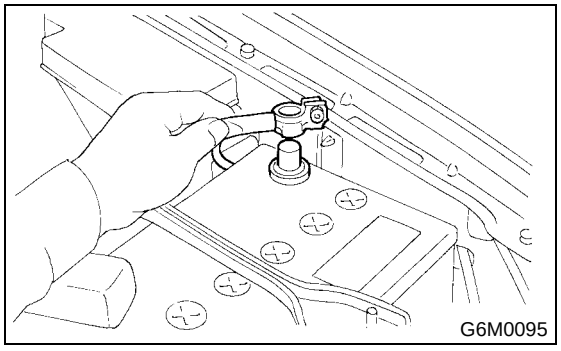
2) Install rear oxygen sensor.

Tightening torque:
21 N·m (2.1 kgf-m, 15.2 ft-lb)



3) Install joint pipe <Ref. to EX(DOHC TURBO)-12, INSTALLATION, Joint Pipe.>.

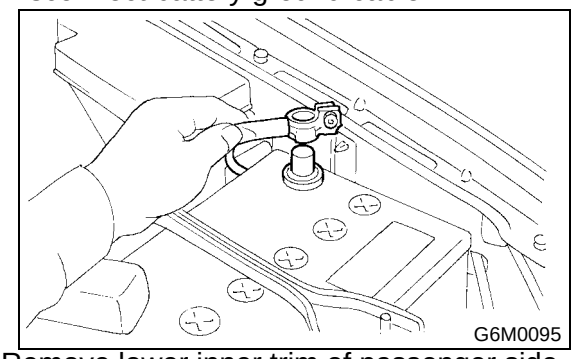
4) Connect battery ground cable.



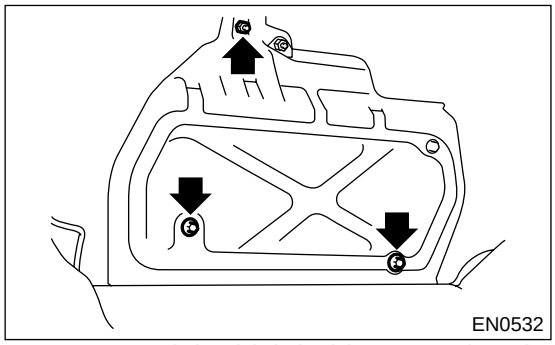
18.Engine Control Module

A: REMOVAL

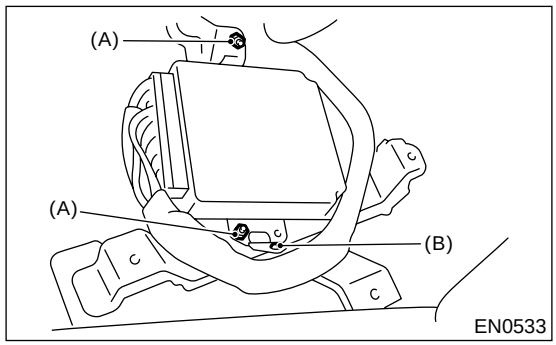
1) Disconnect battery ground cable.



2) Remove lower inner trim of passenger side.
<Ref. to EI-29, REMOVAL, Lower Inner Trim.>
3) Detach floor mat of front passenger seat.
4) Remove protect cover.



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



7) Disconnect ECM connectors and take out ECM.

B: INSTALLATION

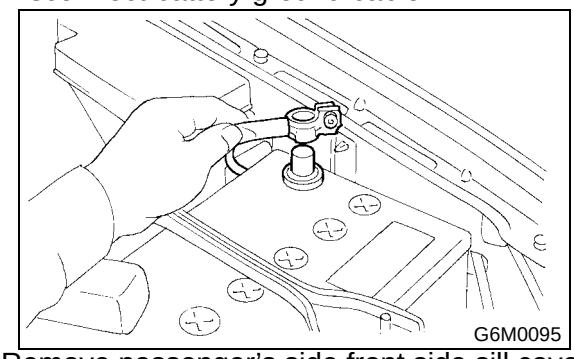
Install in the reverse order of removal.

CAUTION:
When replacing ECM, be careful not to use the wrong spec. ECM to avoid any damage to the fuel injection system.

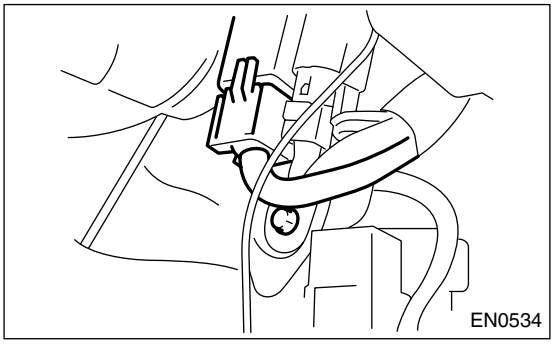
19.Main Relay

A: REMOVAL

1) Disconnect battery ground cable.



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



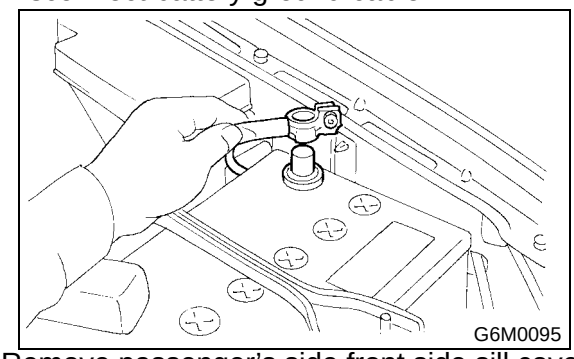
B: INSTALLATION

Install in the reverse order of removal.

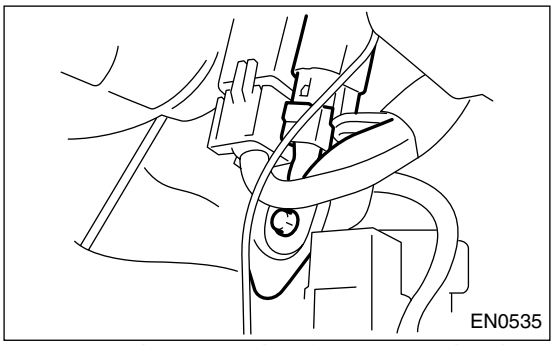
20.Fuel Pump Relay

A: REMOVAL

1) Disconnect battery ground cable.



2) Remove passenger's side front side sill cover.
3) Remove bolt which holds fuel pump relay bracket on body.
4) Disconnect connector from fuel pump relay.



5) Remove fuel pump relay from mounting bracket.

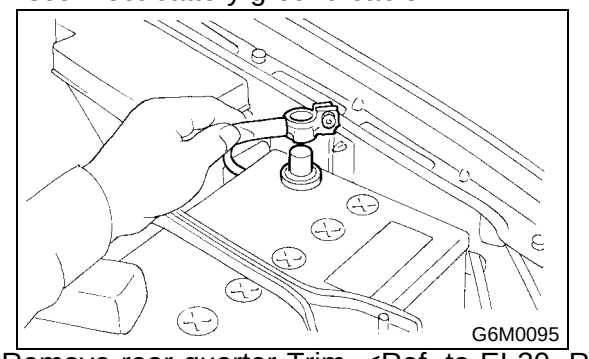
B: INSTALLATION

Install in the reverse order of removal.

21.Fuel Pump Controller

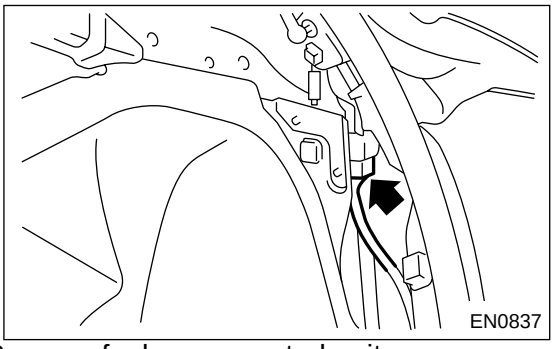
A: REMOVAL

1) Disconnect battery ground cable.

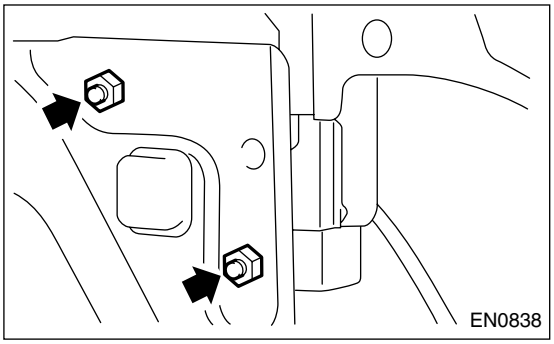


2) Remove rear quarter Trim. <Ref. to EI-30, REMOVAL, Rear Quarter Trim.>

3) Disconnect connector from fuel pump control unit.



4) Remove fuel pump control unit.



B: INSTALLATION

Install in the reverse order of removal.

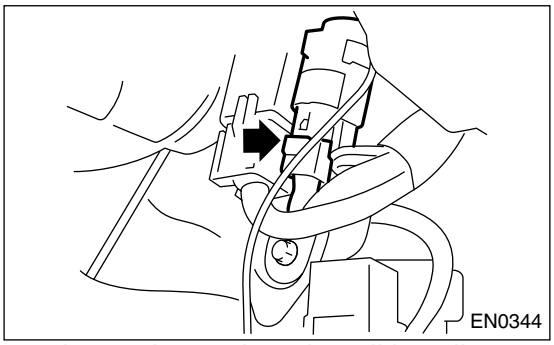
22.Fuel

A: OPERATION

1. RELEASING OF FUEL PRESSURE

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

1) Disconnect connector from fuel pump relay.

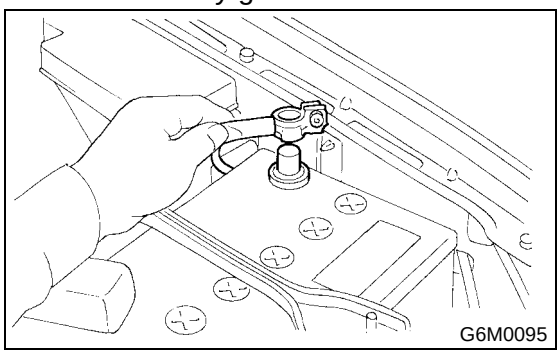


2) Start the engine and run it until it stalls.
3) After the engine stalls, crank it for five more seconds.
4) Turn ignition switch to OFF.

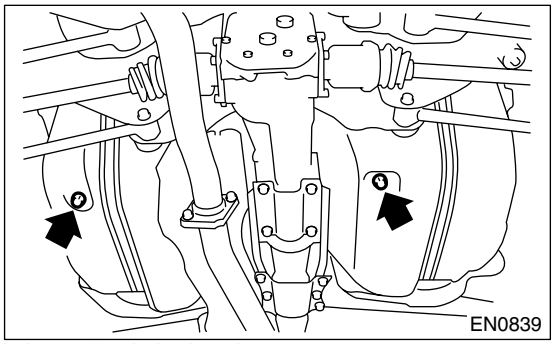
2. DRAINING FUEL

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

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

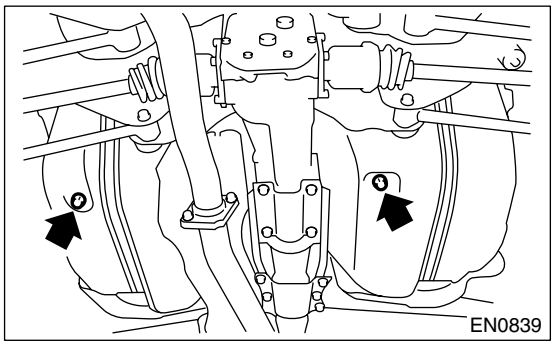


3) Lift-up the vehicle.
4) Drain fuel from fuel tank.
Set a container under the vehicle and remove drain plug from fuel tank.



5) Tighten fuel drain plug.

Tightening torque:
26 N·m (2.65 kgf-m, 19.2 ft-lb)

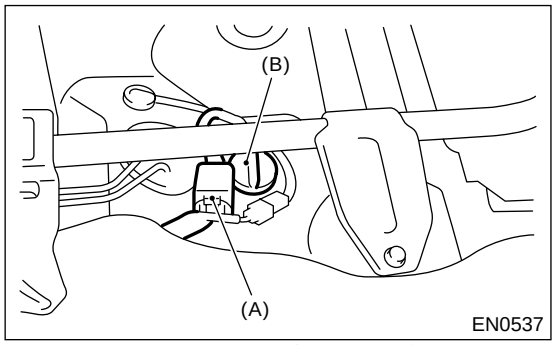


23.Fuel Tank

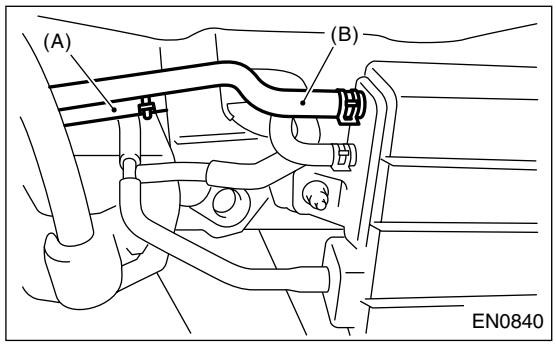
A: REMOVAL

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

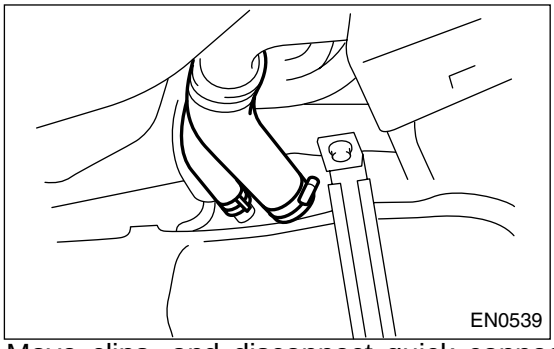
1) Set vehicle on the lift.
2) Release fuel pressure. <Ref. to FU(DOHC TURBO)-49, RELEASING OF FUEL PRESSURE, OPERATION, Fuel.>
3) Drain fuel from fuel tank. <Ref. to FU(DOHC TURBO)-49, DRAINING FUEL, OPERATION, Fuel.>
4) Remove rear seat.
5) Disconnect connector (A) of fuel tank cord to rear harness.
6) Push grommet (B) which holds fuel tank cond on floor panel into under the body.



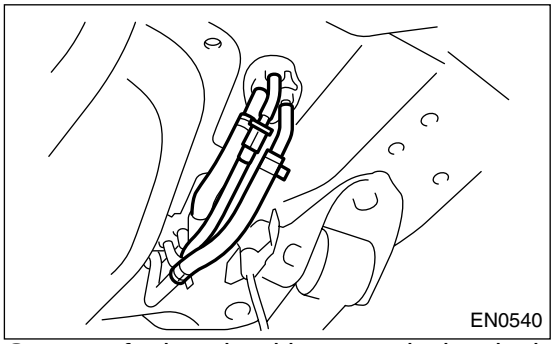
7) Remove rear crossmember. <Ref. to RS-22, REMOVAL, Rear Crossmember.>
8) Disconnect two-way valve hose (A) from two-way valve and disconnect canister hose (B) from canister.



9) Loosen clamp and disconnect fuel filler hose (A) and air vent hose (B) from fuel filler pipe.

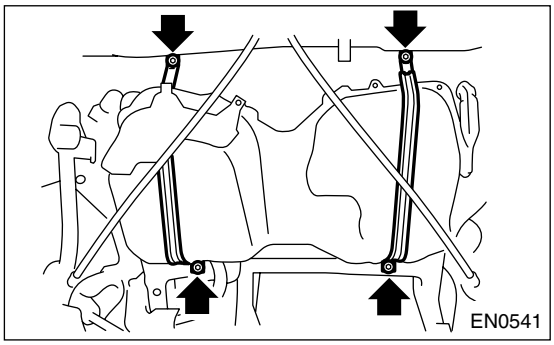


10) Move clips, and disconnect quick connector. <Ref. to FU(DOHC TURBO)-64, REMOVAL, Fuel Delivery, Return and Evaporation Lines.>
11) Disconnect fuel hoses.



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

WARNING:
A helper is required to perform this work.

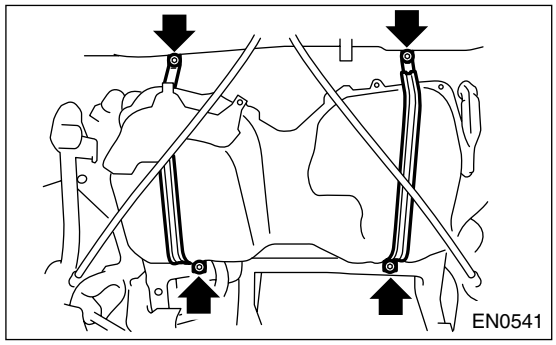


B: INSTALLATION

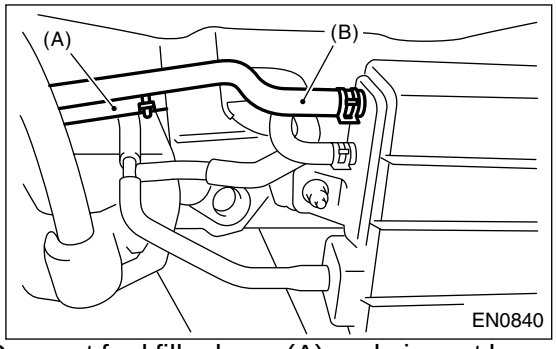
1) Support fuel tank with transmission jack and push fuel tank harness into access hole with grommet.

2) Set fuel tank and temporarily tighten bolts of fuel tank bands.

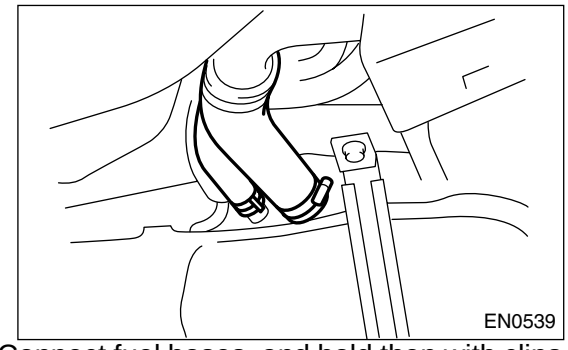
WARNING:
A helper is required to perform this work.



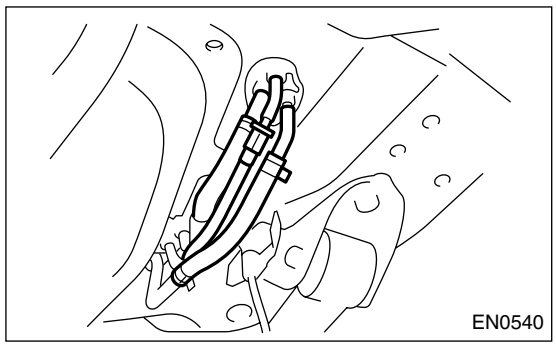
3) Connect two-way valve hose (A) to two-way valve and connect canister hose (B) to canister.



4) Connect fuel filler hose (A) and air vent hose (B).

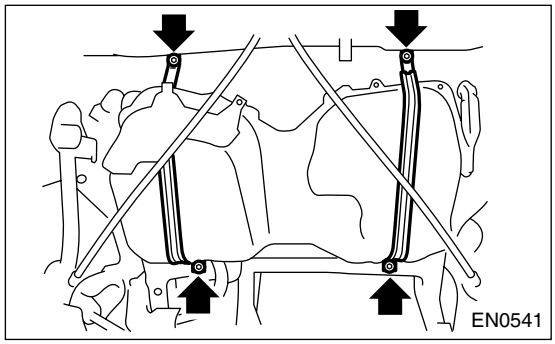


5) Connect fuel hoses, and hold then with clips and quick connector. <Ref. to FU(DOHC TURBO)-65, INSTALLATION, Fuel Delivery, Return and Evaporation Lines.>

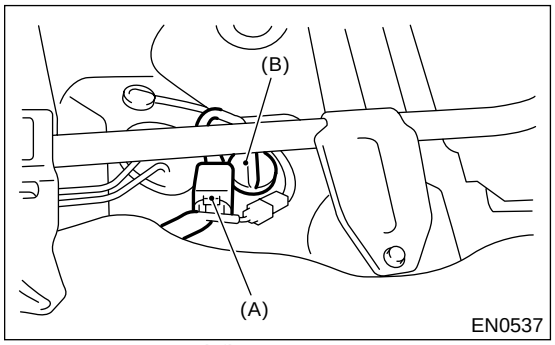


6) Tighten band mounting bolts.

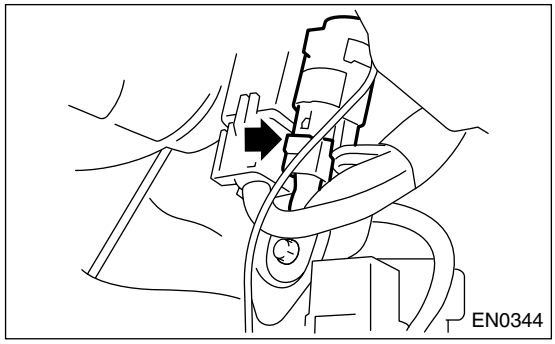
Tightening torque:
33 N·m (3.4 kgf-m, 25 ft-lb)



7) Install rear crossmember. <Ref. to RS-23, INSTALLATION, Rear Crossmember.>
8) Connect connector (A) to fuel tank cord and plug service hole with gromment (B).



9) Set rear seat and floor mat.
10) Connect connector to fuel pump relay.



C: INSPECTION

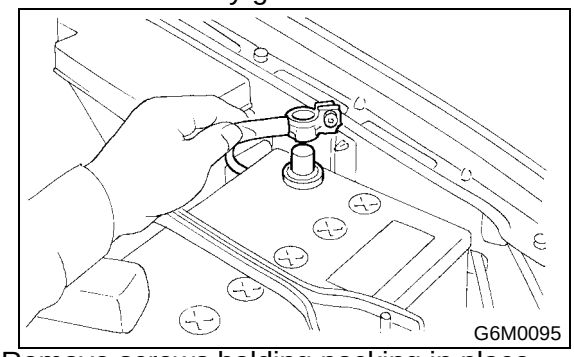
1) Make sure there are no cracks, holes, or other damage on the fuel tank.
2) Make sure that the fuel hoses and fuel pipes are not cracked and that connections are tight.

24.Fuel Filler Pipe

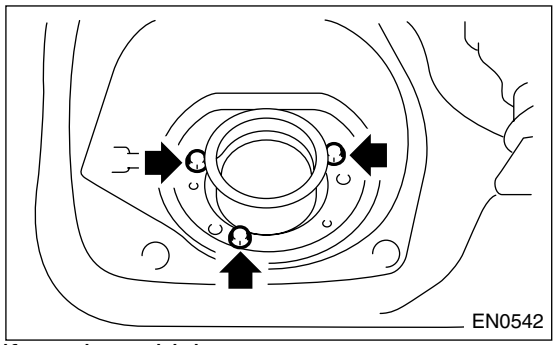
A: REMOVAL

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

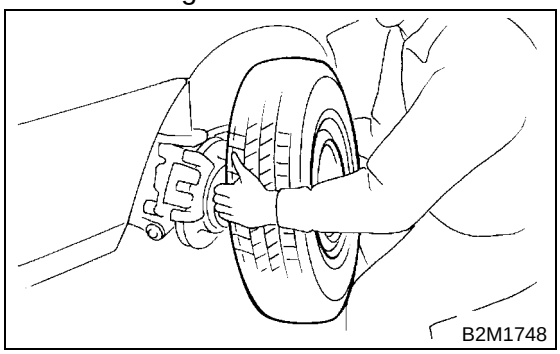
1) Release fuel pressure. <Ref. to FU(DOHC TURBO)-49, RELEASING OF FUEL PRESSURE, OPERATION, Fuel.>
2) Open fuel filler flap lid and remove filler cap.
3) Disconnect battery ground cable.


G6M0095

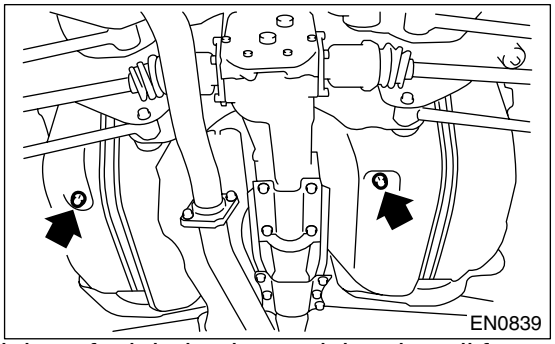
4) Remove screws holding packing in place.


EN0542

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

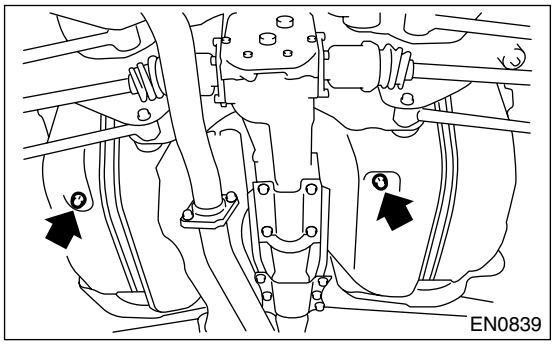

B2M1748

8) Drain fuel from fuel tank. Set a container under the vehicle and remove drain plug from fuel tank.

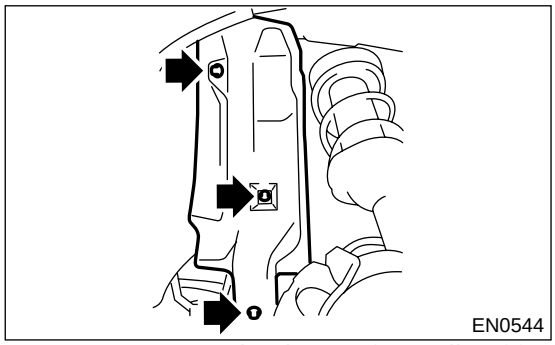

EN0839

9) Tighten fuel drain plug and then install front right side tank cover.

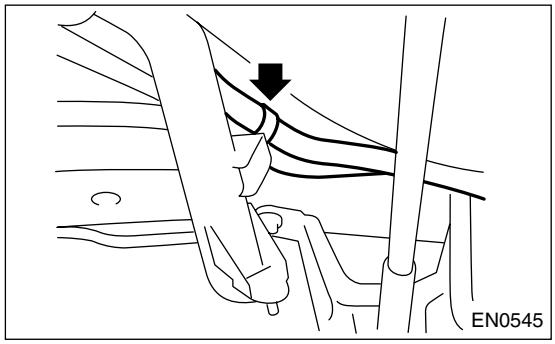
Tightening torque:
26±7 N·m (2.65±0.7 kgf-m, 19.2±5.1 ft-lb)


EN0839

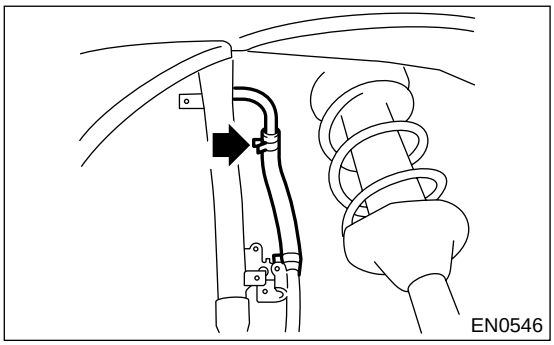
10) Remove fuel filler pipe protector.


EN0544

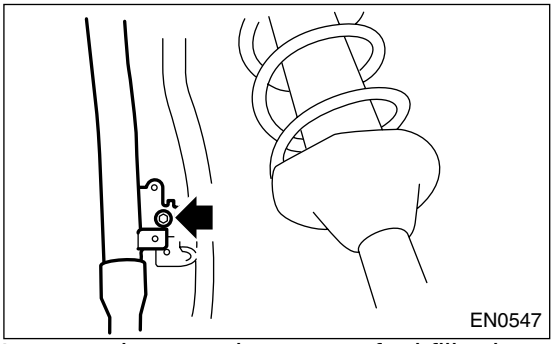
11) Separate evaporation hoses from clip of fuel filler pipe.


EN0545

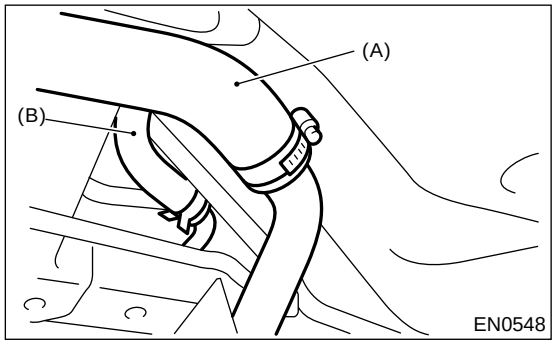
12) Deisconnect air vent hose from fuel filler pipe.



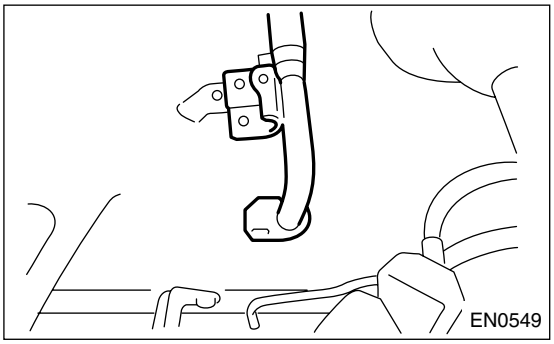
13) Remove bolts which hold fuel filler pipe bracket on body.



14) Loosen clamp and separate fuel filler hose (A) from fuel filler pipe.
15) Move clip and separate air vent hose (B).

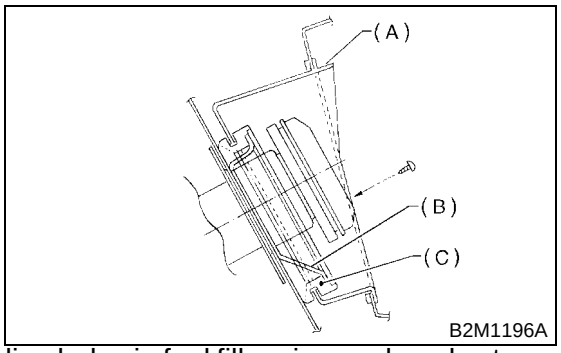


16) Remove fuel filler pipe to under side of the vehicle.
17) Remove air vent pipe together with clip from body.



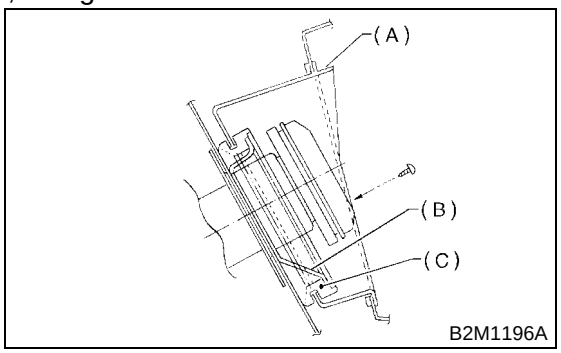
B: INSTALLATION

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

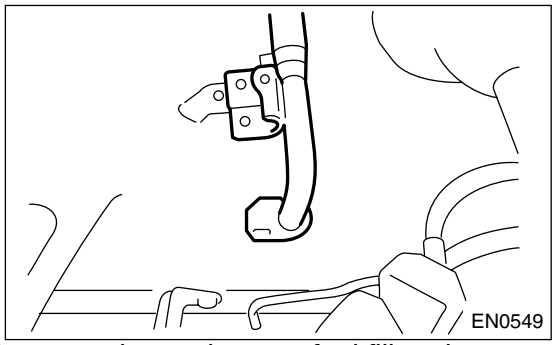


3) Align holes in fuel filler pipe neck and set cup (B), and tighten screws.

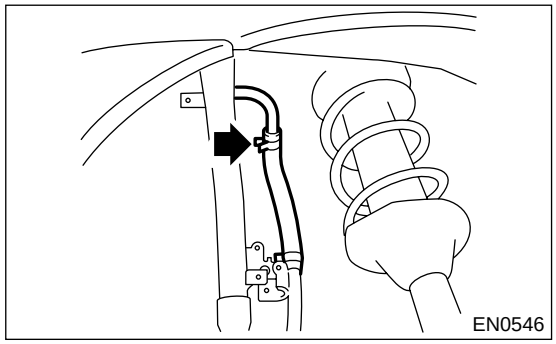
NOTE:
If edges of rubber packing are folded toward the inside, straighten it with a screwdriver.



4) Install air vent pipe.

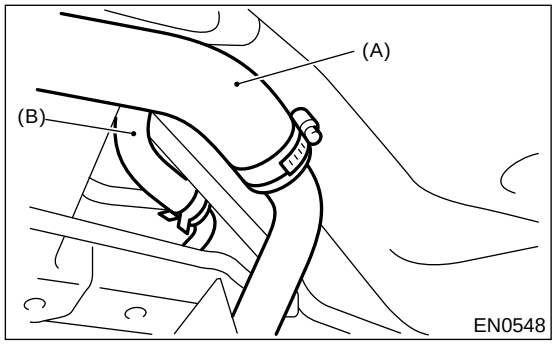


5) Connect air vent hose to fuel filler pipe.



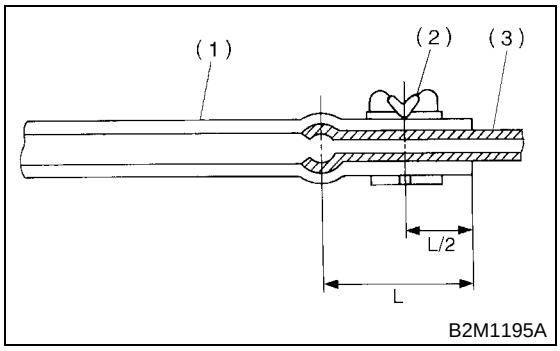
6) Insert fuel filler hose (A) approximately 35 to 40 mm (1.38 to 1.57 in) over the lower end of fuel filler pipe and tighten clamp.

CAUTION:
Do not allow clips to touch air vent hose (B) and rear suspension crossmember.



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

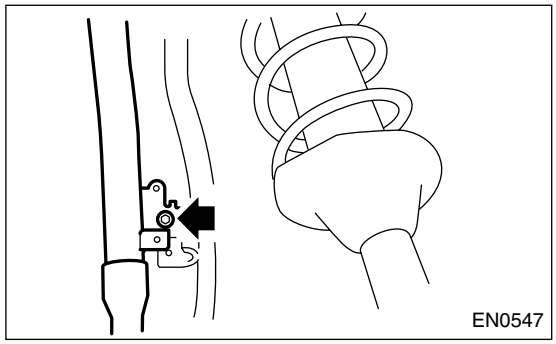
L = 27.5±2.5 mm (1.083±0.098 in)



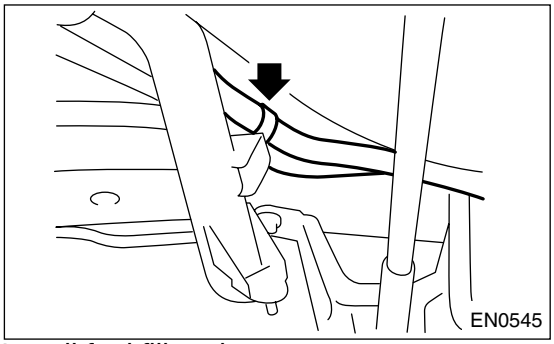
(1) Hose
(2) Clip
(3) Pipe

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

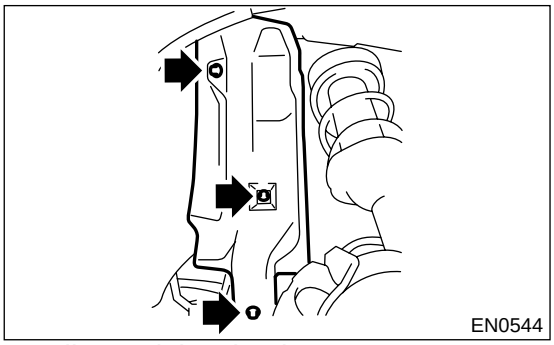
Tightening torque:
7.4 N·m (0.75 kgf-m, 5.4 ft-lb)



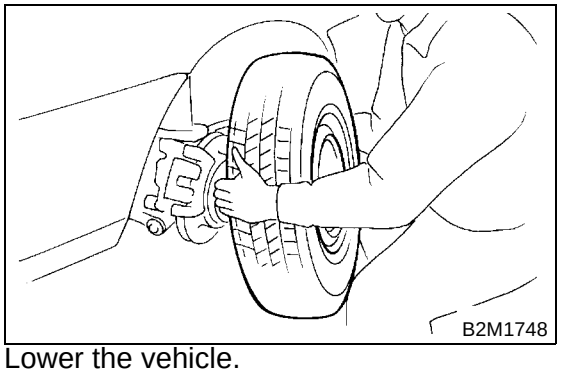
9) Tighten bolts which hold evaporation hoses onto clip of fuel filler pipe.



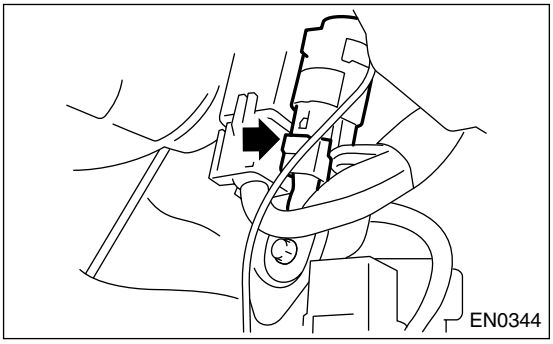
10) Install fuel filler pipe protector.



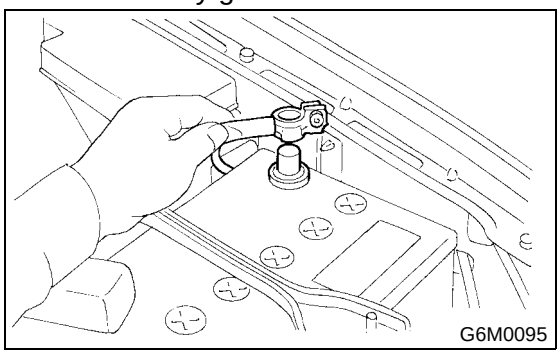
11) Install rear right wheel.



12) Lower the vehicle.
13) Tighten wheel nuts.
14) Connect connector to fuel pump relay.



15) Connect battery ground terminal.



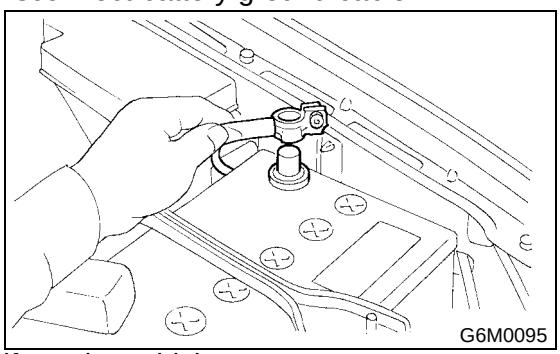
25.Fuel Pump

A: REMOVAL

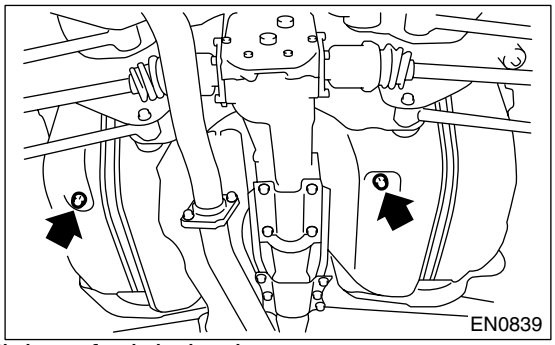
WARNING:
- **Place "NO FIRE" signs near the working area.**
- **Be careful not to spill fuel on the floor.**

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

1) Release fuel pressure. <Ref. to FU(DOHC TURBO)-49, RELEASING OF FUEL PRESSURE, OPERATION, Fuel.>
2) Open fuel filler flap lid and remove fuel filler cap.
3) Disconnect battery ground cable.

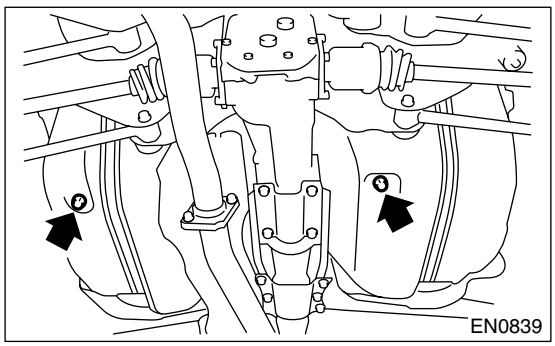

G6M0095

4) Lift-up the vehicle.
5) Drain fuel from fuel tank. Set a container under the vehicle and remove drain plug from fuel tank.

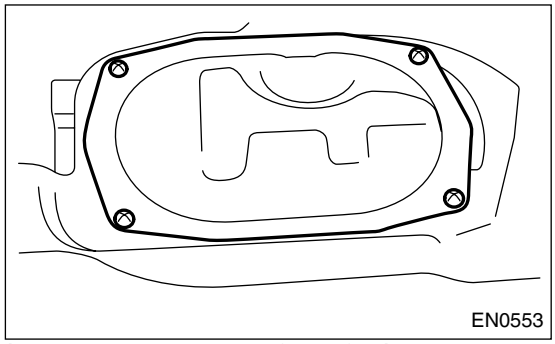

EN0839

6) Tighten fuel drain plug.

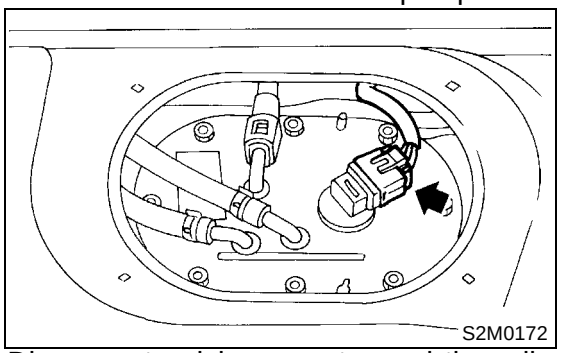
Tightening torque:
26 N·m (2.65 kgf-m, 19.2 ft-lb)


EN0839

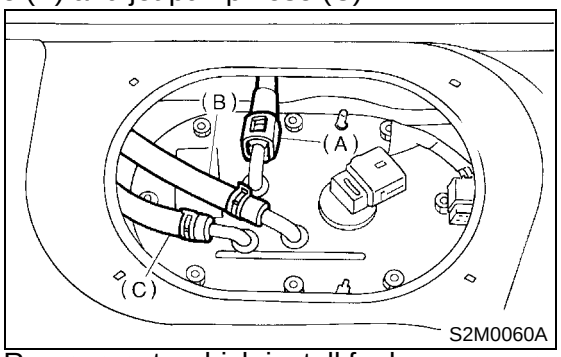
7) Raise rear seat and turn floor mat up.
8) Remove access hole lid.


EN0553

9) Disconnect connector from fuel pump.

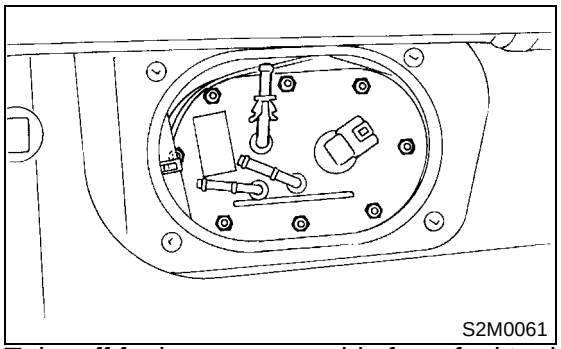

S2M0172

10) Disconnect quick connector and then disconnect fuel delivery hose (A). <Ref. to FU(DOHC TURBO)-64, Fuel Delivery, Return and Evaporation Lines.>
11) Move clips, and then disconnect fuel return hose (B) and jet pump hose (C).



S2M0060A

12) Remove nuts which install fuel pump assembly onto fuel tank.

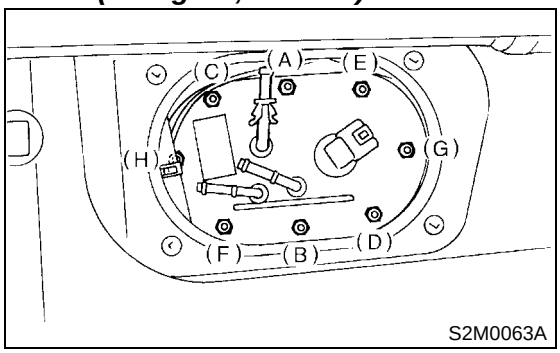

S2M0061

13) Take off fuel pump assembly from fuel tank.

B: INSTALLATION

Install in the reverse order of removal. Do the following:
(1) Always use new gaskets.
(2) Ensure sealing portion is free from fuel or foreign particles before installation.
(3) Tighten nuts in alphabetical sequence shown in figure to specified torque.

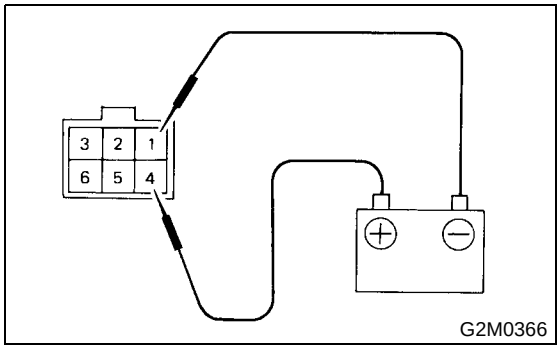
Tightening torque:
5.9 N·m (0.6 kgf-m, 4.3 ft-lb)



C: INSPECTION

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

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



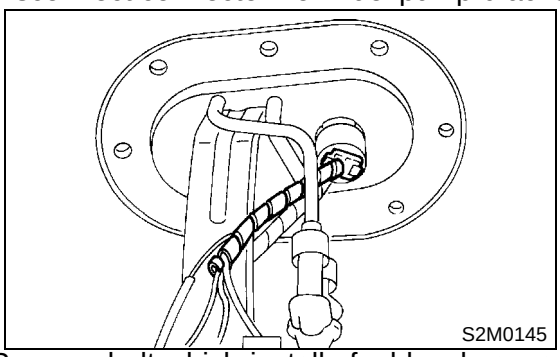
26.Fuel Level Sensor

A: REMOVAL

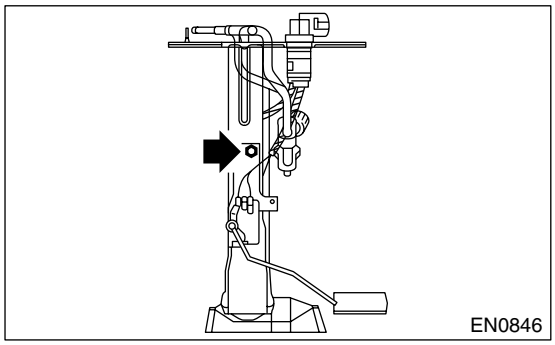
WARNING:
- **Place “NO FIRE” signs near the working area.**
- **Be careful not to spill fuel on the floor.**

NOTE:
Fuel level sensor is built in fuel pump assembly.

1) Remove fuel pump assembly. <Ref. to FU(DOHC TURBO)-56, REMOVAL, Fuel Pump.>
2) Disconnect connector from fuel pump bracket.



3) Remove bolt which installs fuel level sensor on mounting bracket.



B: INSTALLATION

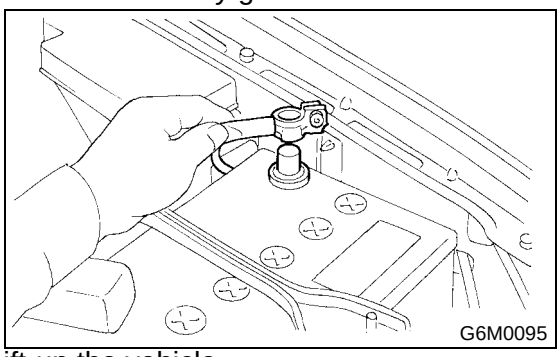
Install in the reverse order of removal.

27.Fuel Sub Level Sensor

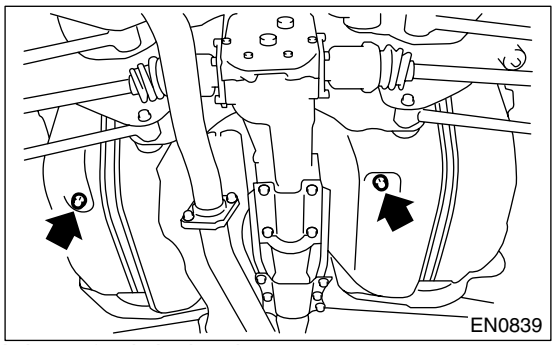
A: REMOVAL

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

1) Disconnect battery ground cable.

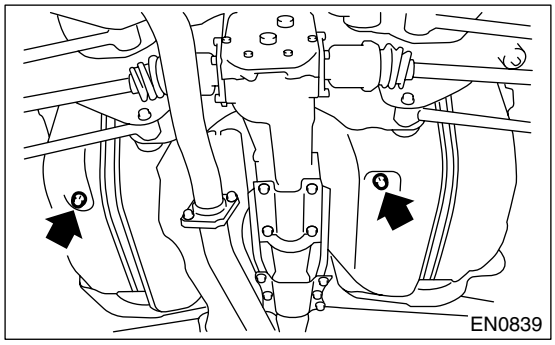


2) Lift-up the vehicle.
3) Drain fuel from fuel tank. Set a container under the vehicle and remove drain plug from fuel tank.

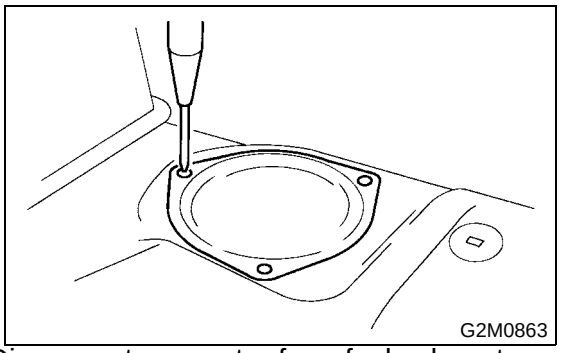


4) Tighten fuel drain plug.

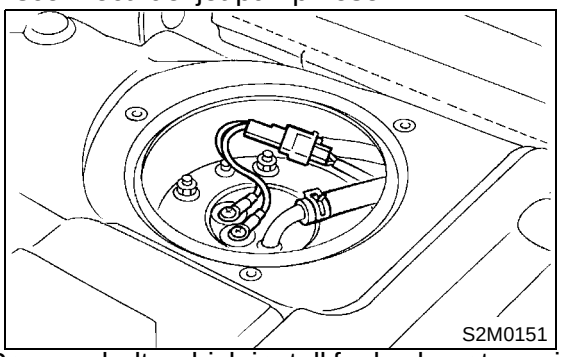
Tightening torque:
26 N·m (2.65 kgf-m, 19.2 ft-lb)



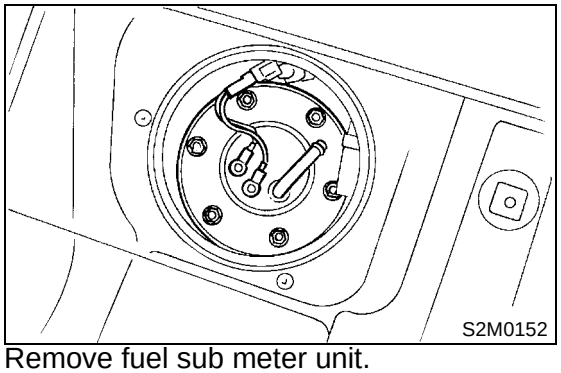
5) Remove rear seat.
6) Remove service hole cover.



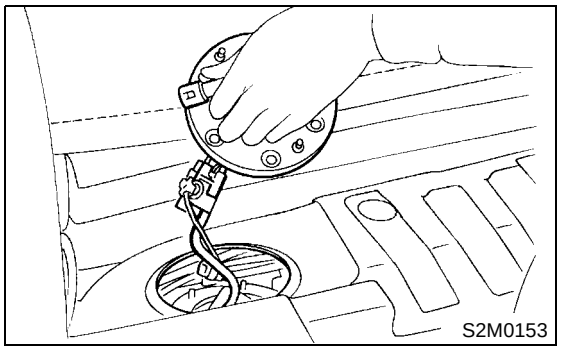
7) Disconnect connector from fuel sub meter.
8) Disconnect fuel jet pump hose.



9) Remove bolts which install fuel sub meter unit on fuel tank.



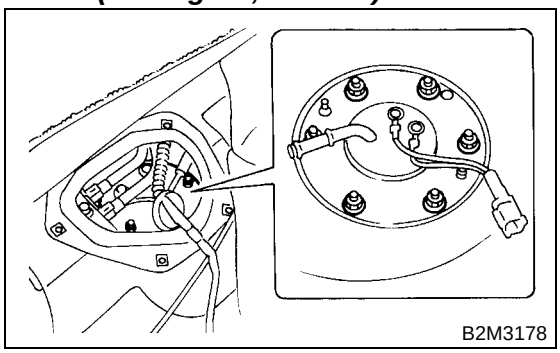
10) Remove fuel sub meter unit.



B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:
4.4 N·m (0.45 kgf-m, 3.3 ft-lb)

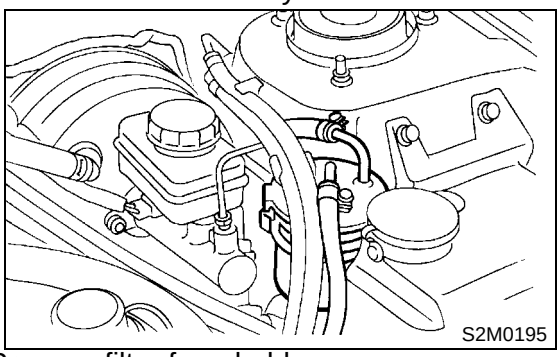


28.Fuel Filter

A: REMOVAL

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

1) Release fuel pressure. <Ref. to FU(DOHC TURBO)-49, RELEASING OF FUEL PRESSURE, OPERATION, Fuel.>
2) Disconnect fuel delivery hoses from fuel filter.



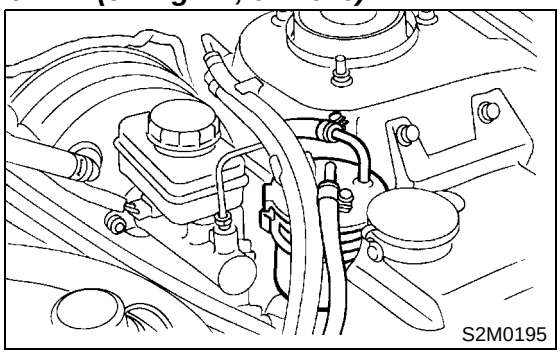
3) Remove filter from holder.

B: INSTALLATION

CAUTION:
- **If fuel hoses are damaged at the connecting portion, replace it with a new one.**
- **If clamps are badly damaged, replace with new ones.**

1) Install in the reverse order of removal.
2) Tighten hose clamp screws.

Tightening torque:
1.0 N·m (0.1 kgf-m, 0.7 ft-lb)



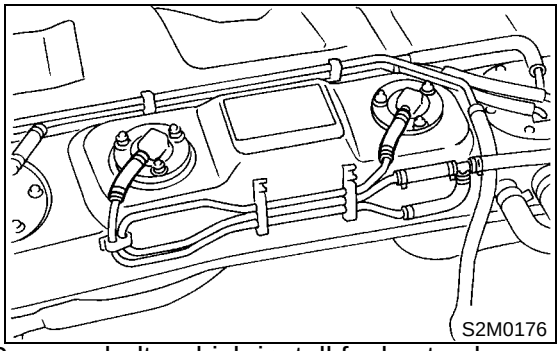
C: INSPECTION

1) Check the inside of fuel filter for dirt and water sediment.
2) If it is clogged, or if replacement interval has been reached, replace it.
3) If water is found in it, shake and expel the water from inlet port.

29.Fuel Cut Valve

A: REMOVAL

1) Remove fuel tank. <Ref. to FU(DOHC TURBO)-50, REMOVAL, Fuel Tank.>
2) Move clip and disconnect evaporation hose from fuel cut valve.

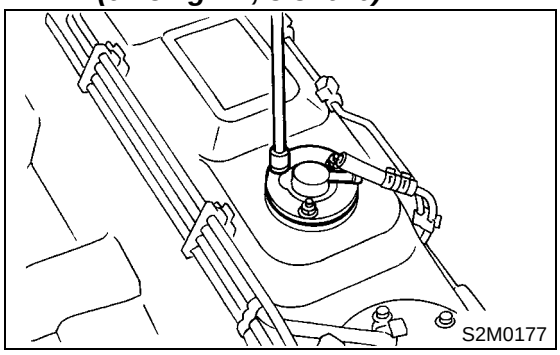


3) Remove bolts which install fuel cut valve.

B: INSTALLATION

Install in the reverse order of removal.

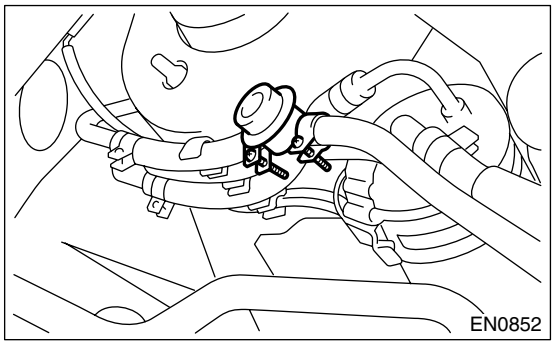
Tightening torque:
4.4 N·m (0.45 kgf-m, 3.3 ft-lb)



30.Fuel Damper Valve

A: REMOVAL

1) Release fuel pressure. <Ref. to FU(DOHC TURBO)-49, RELEASING OF FUEL PRESSURE, OPERATION, Fuel.>
2) Remove fuel damper valve from fuel return line.



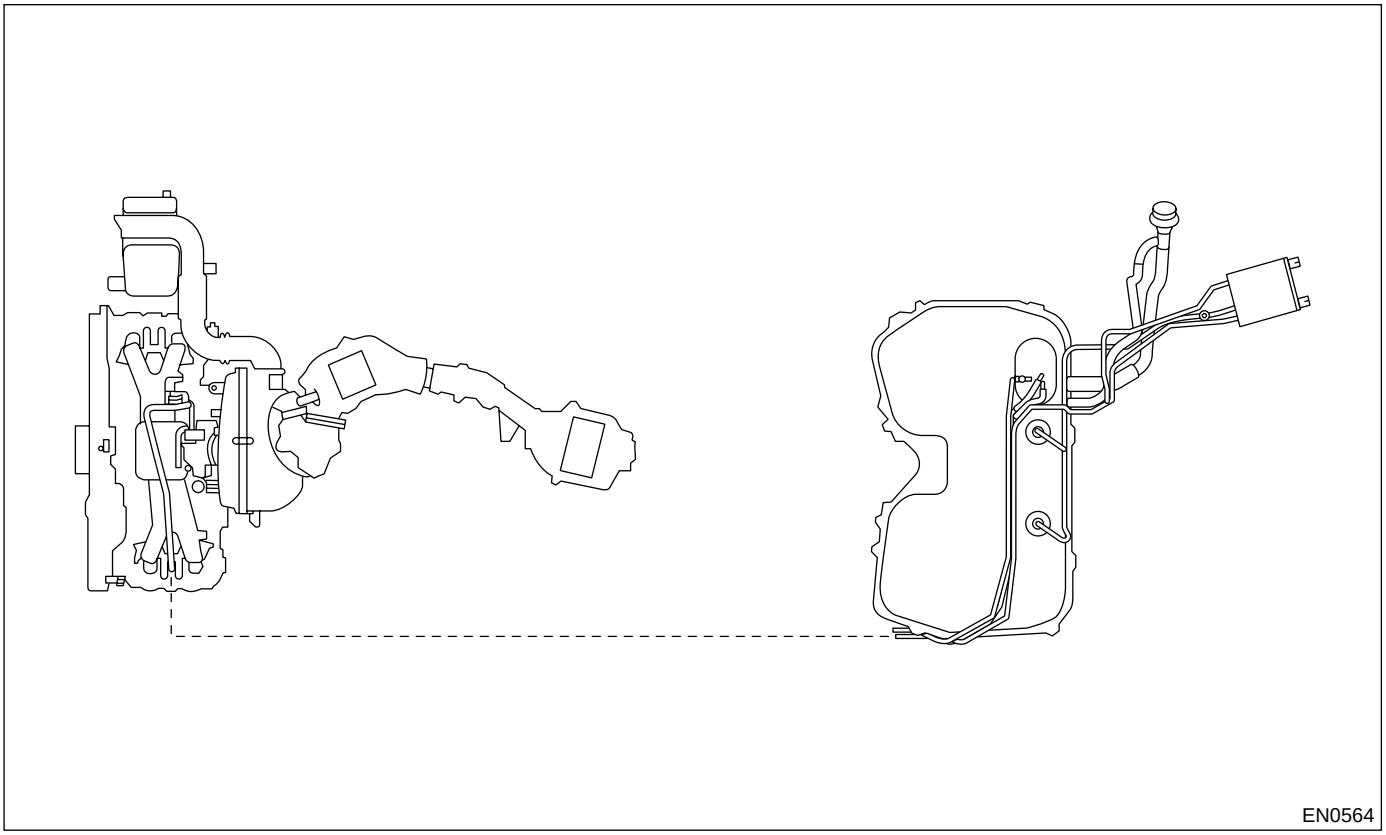
B: INSTALLATION

Install in the reverse order of removal.

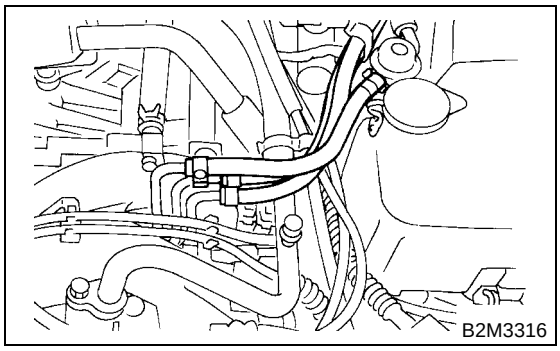
31. Fuel Delivery, Return and Evaporation Lines

A: REMOVAL

1) Set vehicle on the lift.
2) Release fuel pressure. <Ref. to FU(DOHC TURBO)-49, RELEASING OF FUEL PRESSURE, OPERATION, Fuel.>
3) Open fuel filler flap lid and remove fuel filler cap.
4) Remove floor mat. <Ref. to EI-37, REMOVAL, Floor Mat.>
5) Remove fuel delivery pipes and hoses, fuel return pipes and hoses, evaporation pipes and hoses.


EN0564

6) In engine compartment, detach fuel delivery hoses, return hoses and evaporation hose.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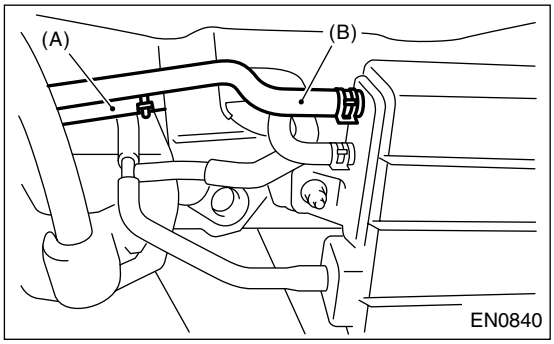
(A) Fuel delivery hose
(B) Return hose
(C) Evaporation hose

7) Lift-up the vehicle.

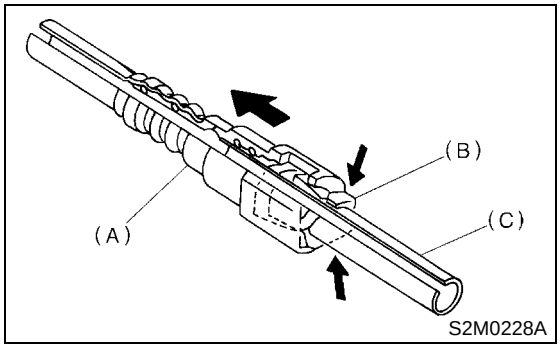
8) Disconnect two-way valve hose (A) from two-way valve and disconnect canister hose (B) from canister.



EN0840

9) Separate quick connector on fuel delivery and return line.
(1) Clean pipe and connector, if they are covered with dust.
(2) Hold connector (A) and push retainer (B) down.
(3) Pull out connector (A) from retainer (B).

CAUTION:
Replace retainer with new ones.

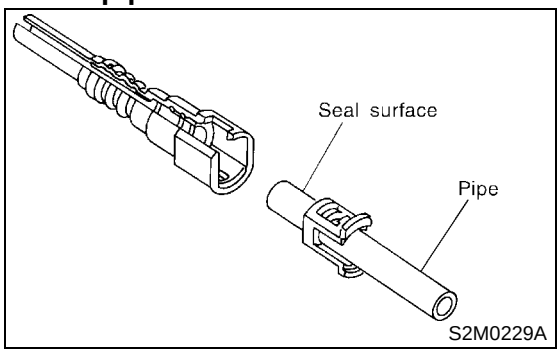


(A) Connector
(B) Retainer
(C) Pipe

B: INSTALLATION

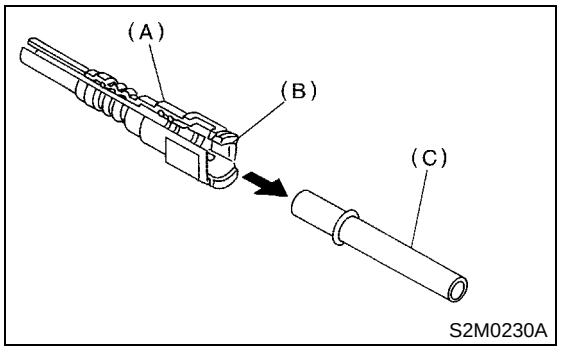
1) Connect quick connector on fuel delivery and return line.

CAUTION:
• Always use a new retainer.
• Make sure that the connected portion is not damaged or has dust. If necessary, clean seal surface of pipe.



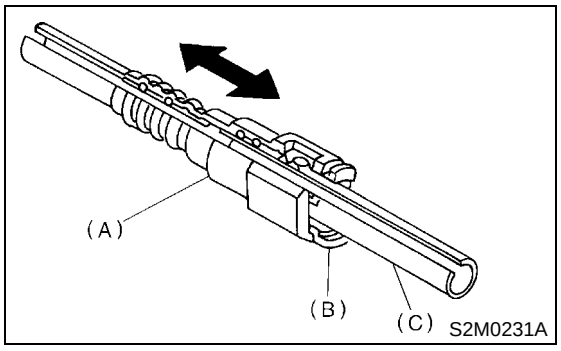
(1) Set new retainer (B) to connector (A).
(2) Push pipe into connector completely.

NOTE:
At this time, two clicking sounds are heard.



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

CAUTION:
• Pull the connector to ensure it is connected securely.
• Ensure the two retainer pawls are engaged in their mating positions in the connector.
• Be sure to inspect hoses and their connections for any leakage of fuel.

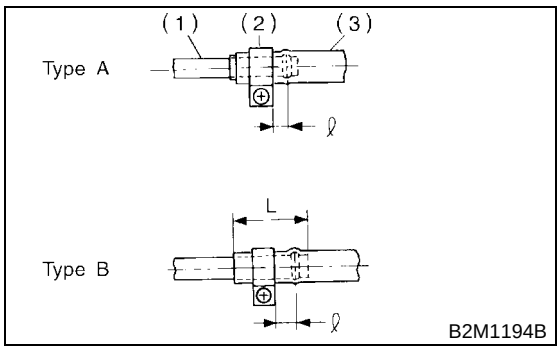


(A) Connector
(B) Retainer
(C) Pipe

2) Connect fuel delivery hose to pipe with an overlap of 20 to 25 mm (0.79 to 0.98 in).
Type A: When fitting length is specified.
Type B: When fitting length is not specified.

ℓ : 2.5±1.5 mm (0.098±0.059 in)

L: 22.5±2.5 mm (0.886±0.098 in)

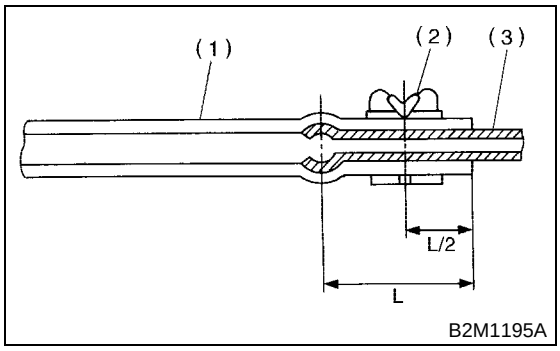


(1) Fitting
(2) Clamp
(3) Hose

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

L = 17.5±2.5 mm (0.689±0.098 in)

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



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

C: INSPECTION

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

32. Fuel System Trouble in General

A: INSPECTION

Trouble and possible cause			Corrective action
1. Insufficient fuel supply to the injector			
1)	Fuel pump will not operate.		
	❍	Defective terminal contact.	Inspect connections, especially ground, and tighten securely.
	❍	Trouble in electromagnetic or electronic circuit parts.	Replace fuel pump.
2)		Lowering of fuel pump function.	Replace 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 fuel pipe or hose.
5)		Air is mixed in the fuel system.	Inspect or retighten each connection part.
6)		Clogged or bent 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 fuel			
1)		Loosened joints of the fuel pipe.	Retightening.
2)		Cracked fuel pipe, hose and fuel tank.	Replace.
3)		Defective welding part on the fuel tank.	Replace.
4)		Defective drain packing of the fuel tank.	Replace.
5)		Clogged 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.	Retightening.
2)		Defective packing air tightness on the fuel saucer.	Correct or replace packing.
3)		Cracked fuel separator.	Replace separator.
4)		Inoperative fuel pump modulator or circuit.	Replace.
4. Defective fuel meter indicator			
1)		Defective operation of fuel meter unit.	Replace.
2)		Defective operation of fuel meter.	Replace.
5. Noise			
1)		Large operation noise or vibration of fuel pump.	Replace.

NOTE:

• When the vehicle is left unattended for an extended period of time, water may accumulate in the fuel tank.

To prevent water condensation.

(1) Top off the fuel tank or drain the fuel completely.

(2) Drain water condensation from the fuel filter.

• Refilling the fuel tank.

Refill the fuel tank while there is still some fuel left in the tank.

• Protecting the fuel system against freezing and water condensation.

(3) Cold areas

In snow-covered areas, mountainous areas, skiing areas, etc. where ambient temperatures drop below 0°C (32°F) throughout the winter season, use an anti-freeze solution in the cooling system. Refueling will also complement the effect of anti-freeze solution each time the fuel level drops to about one-half. After the winter season, drain water which may have accumulated in the fuel filter and fuel tank in the manner same as that described under Affected areas below.

(4) Affected areas

When water condensation is notched in the fuel filter, drain water from both the fuel filter and fuel tank or use a water removing agent (or anti-freeze solution) in the fuel tank.

• Observe the instructions, notes, etc., indicated on the label affixed to the anti-freeze solution (water removing agent) container before use.