

FUEL INJECTION (FUEL SYSTEMS)

FU(SOHC)

	Page
1. General Description.....	2
2. Throttle Body.....	14
3. Intake Manifold.....	15
4. Engine Coolant Temperature Sensor.....	28
5. Crankshaft Position Sensor.....	29
6. Camshaft Position Sensor.....	30
7. Knock Sensor.....	31
8. Throttle Position Sensor.....	33
9. Intake Air Temperature and Pressure Sensor.....	36
10. Atmospheric Pressure Sensor.....	37
11. Idle Air Control Solenoid Valve.....	38
12. Air Assist Injector Solenoid Valve.....	39
13. Fuel Injector.....	40
14. Front Oxygen (A/F) Sensor.....	45
15. Rear Oxygen Sensor.....	47
16. Engine Control Module.....	49
17. Main Relay.....	50
18. Fuel Pump Relay.....	51
19. Fuel.....	52
20. Fuel Tank.....	55
21. Fuel Filler Pipe.....	58
22. Fuel Pump.....	62
23. Fuel Level Sensor.....	64
24. Fuel Sub Level Sensor.....	65
25. Fuel Filter.....	66
26. Fuel Cut Valve.....	67
27. Fuel Damper Valve.....	68
28. Fuel Delivery, Return and Evaporation Lines.....	69
29. Fuel System Trouble in General.....	72

GENERAL DESCRIPTION

Fuel Injection (Fuel Systems)

1. General Description S155001

A: SPECIFICATIONS S155001E49

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	373 — 677 kPa (3.8 — 6.9 kg/cm ² , 54 — 98 psi)
	Discharge flow	More than 65 ℓ (17.2 US gal, 14.3 Imp gal)/h [12 V at 300 kPa (3.06 kg/cm ² , 43.5 psi)]
Fuel filter		Cartridge type

GENERAL DESCRIPTION

Fuel Injection (Fuel Systems)

MEMO:

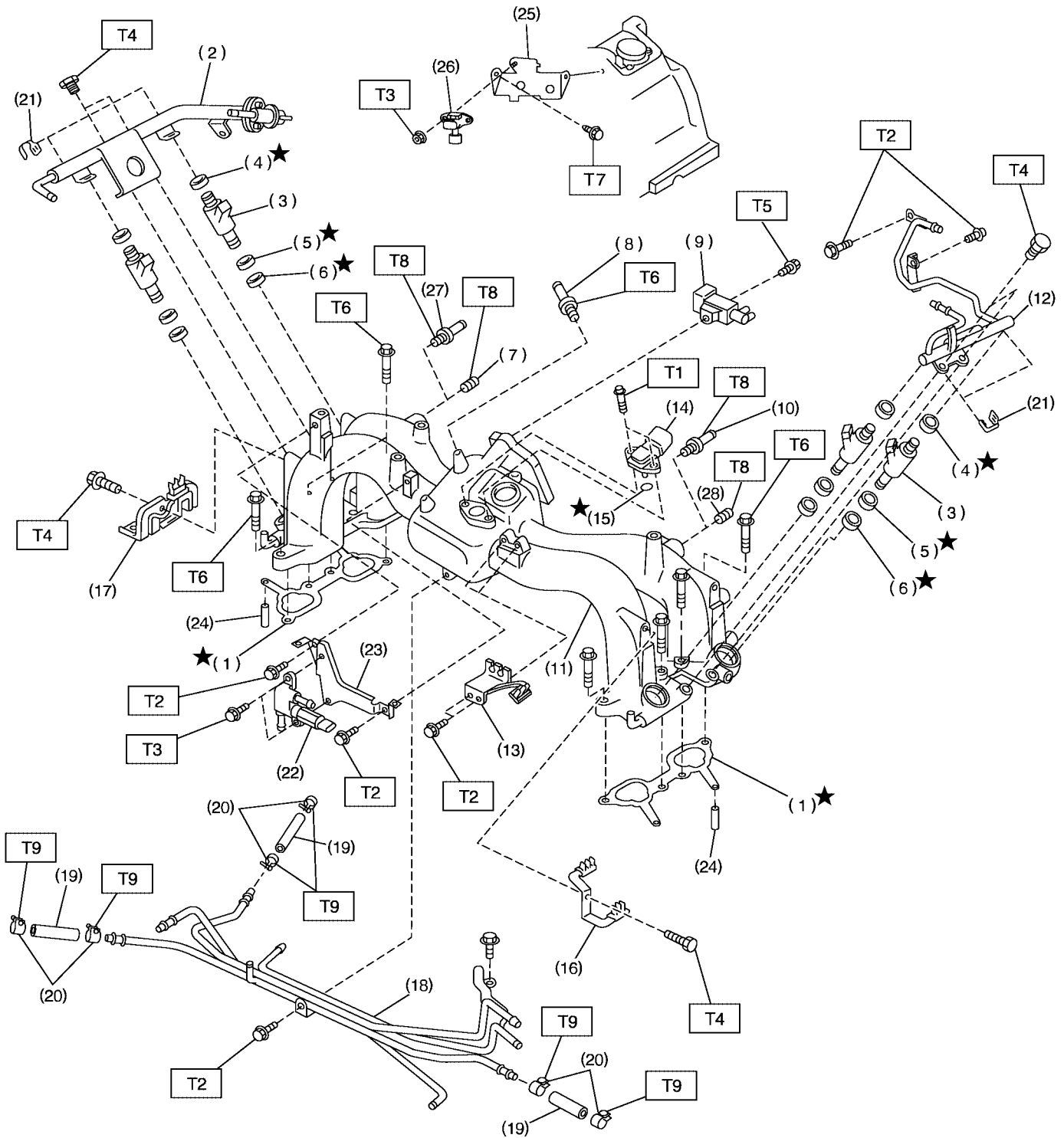
FU(SOHC)-3

GENERAL DESCRIPTION

Fuel Injection (Fuel Systems)

B: COMPONENT S155001A05

1. INTAKE MANIFOLD S155001A0501



S2M2151A

FU(SOHC)-4

GENERAL DESCRIPTION

Fuel Injection (Fuel Systems)

- (1) Intake manifold gasket
- (2) Fuel injector pipe RH
- (3) Fuel injector
- (4) O-ring
- (5) O-ring
- (6) O-ring
- (7) Plug (LHD model)
- (8) PCV valve
- (9) Purge control solenoid valve
- (10) Nipple (LHD model)
- (11) Intake manifold
- (12) Fuel injector pipe LH
- (13) Accelerator cable bracket
- (14) Intake air temperature and pressure sensor

- (15) O-ring
- (16) Plug cord holder LH
- (17) Plug cord holder RH
- (18) Fuel pipe ASSY
- (19) Fuel hose
- (20) Clip
- (21) Clip
- (22) Air assist injector solenoid valve
- (23) Air assist injector solenoid valve bracket
- (24) Guide pin
- (25) Atmospheric pressure sensor bracket
- (26) Atmospheric pressure sensor
- (27) Nipple (RHD model)

- (28) Plug (RHD model)

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

T1: 3.4 (0.35, 2.5)

T2: 4.9 (0.50, 3.6)

T3: 6.4 (0.65, 4.7)

T4: 19 (1.9, 13.7)

T5: 16 (1.6, 12)

T6: 25 (2.6, 18.8)

T7: 7.35 (0.75, 5.421)

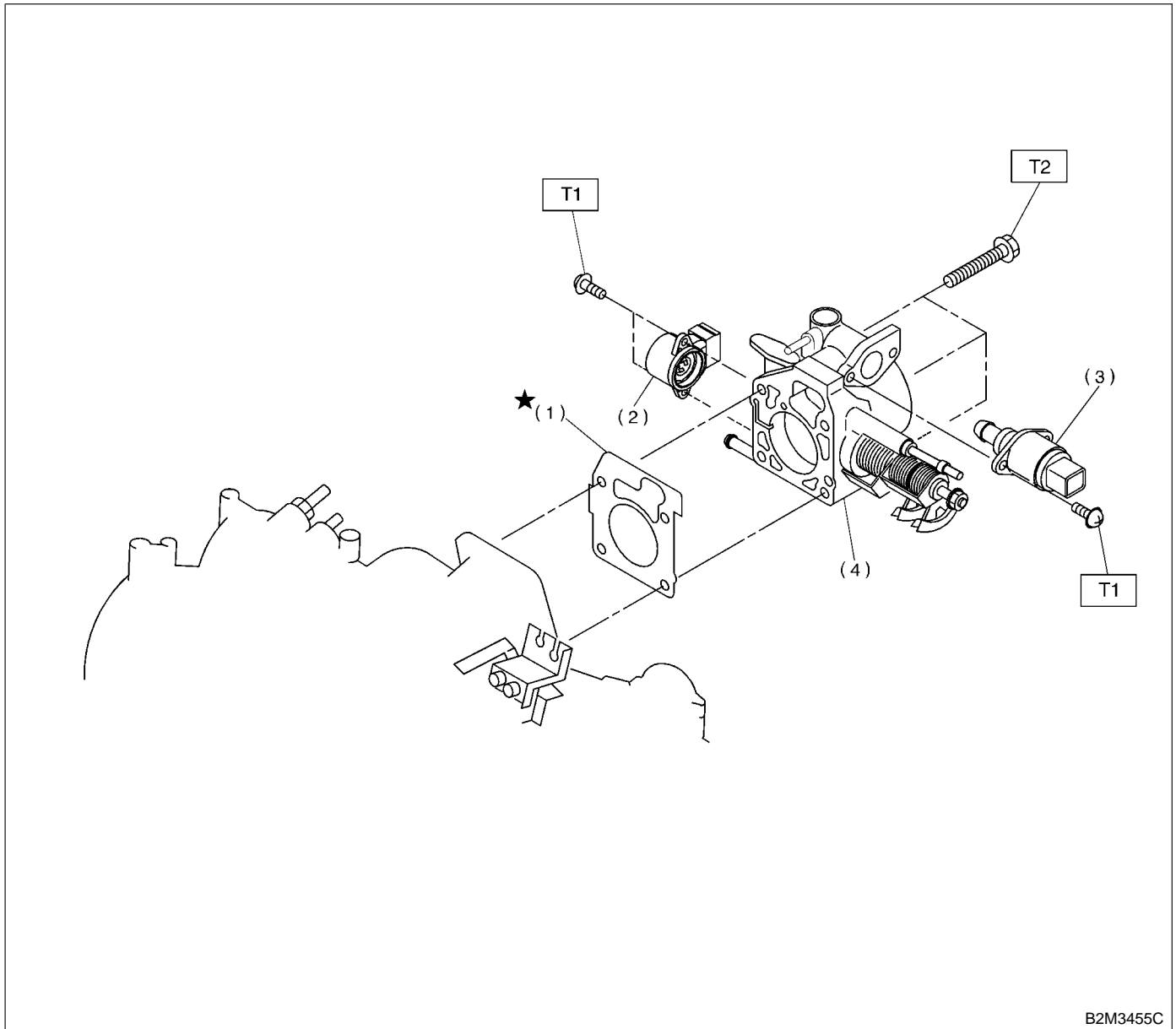
T8: 17 (1.7, 12)

T9: 1.5 (0.15, 1.1)

GENERAL DESCRIPTION

Fuel Injection (Fuel Systems)

2. AIR INTAKE SYSTEM S155001A0502



B2M3455C

- (1) Gasket
- (2) Throttle position sensor
- (3) Idle air control solenoid valve

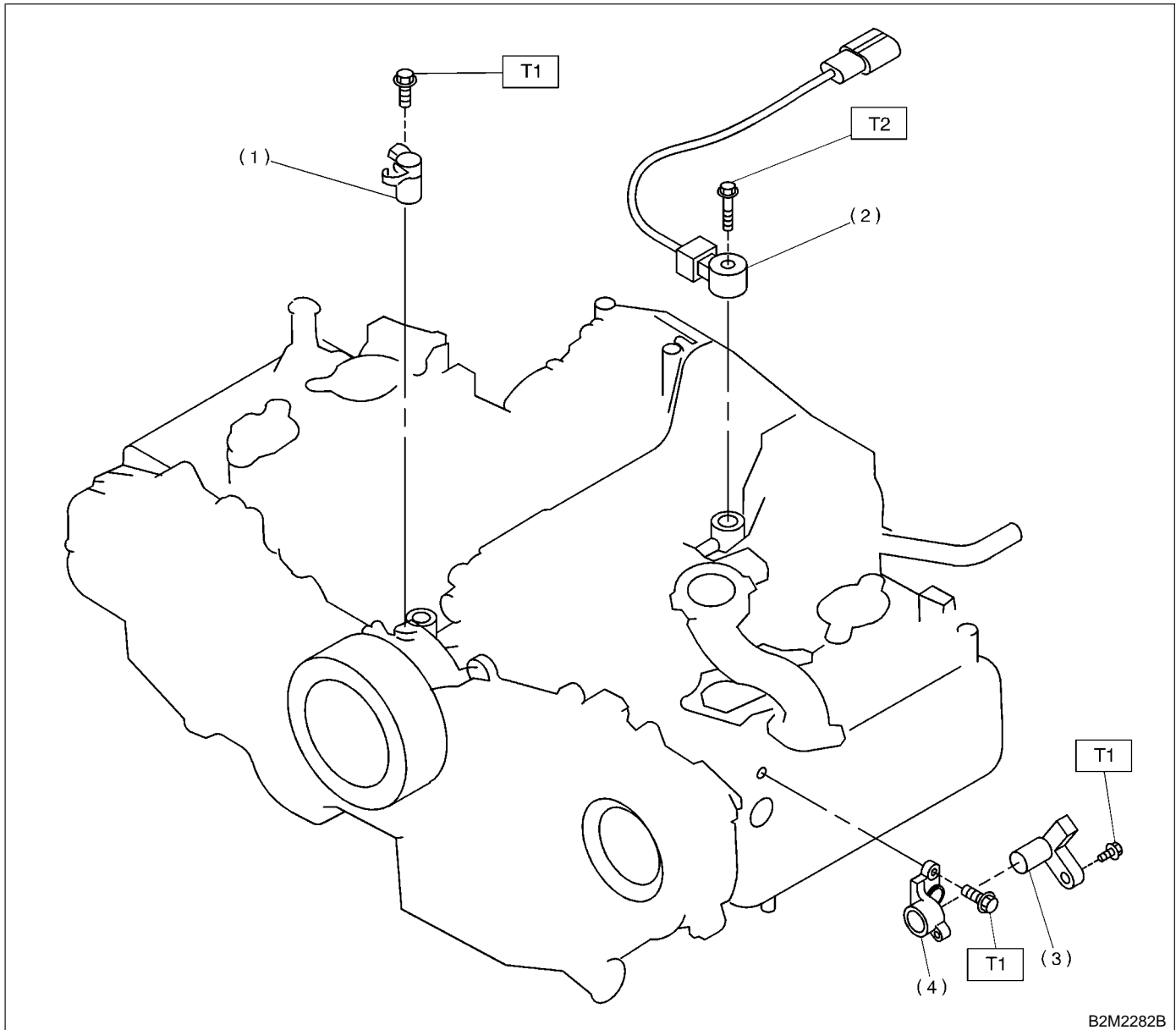
- (4) Throttle body

Tightening torque: N·m (kgf·m, ft·lb)

T1: 1.6 (0.16, 1.2)

T2: 22 (2.2, 16)

3. CRANKSHAFT POSITION, CAMSHAFT POSITION AND KNOCK SENSORS S155001A0503



B2M2282B

- (1) Crankshaft position sensor
- (2) Knock sensor
- (3) Camshaft position sensor
- (4) Camshaft position sensor support

Tightening torque: N·m (kgf-m, ft-lb)

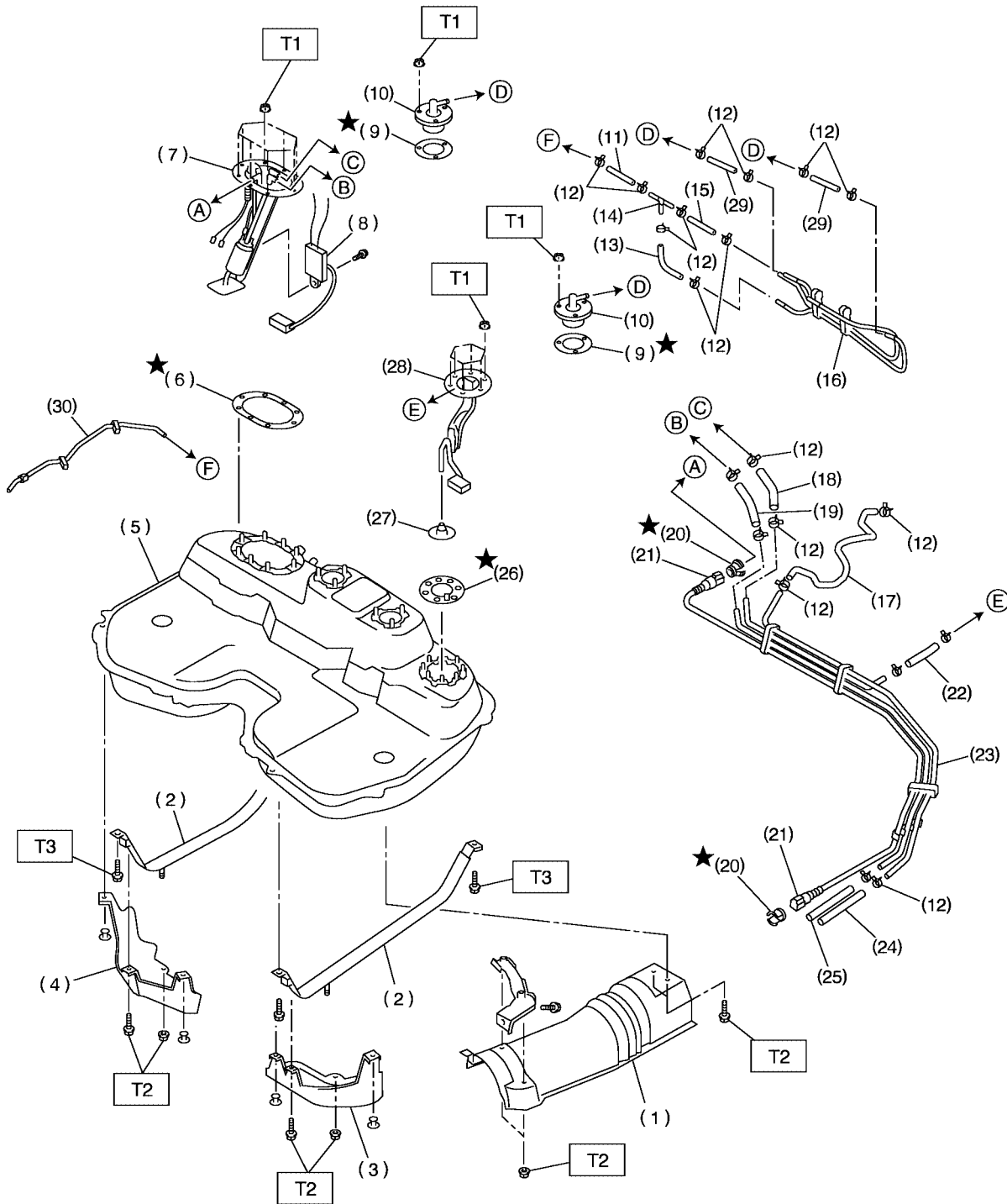
T1: 6.4 (0.65, 4.7)

T2: 24 (2.4, 17.4)

GENERAL DESCRIPTION

Fuel Injection (Fuel Systems)

4. FUEL TANK S155001A0504



S2M2152A

GENERAL DESCRIPTION

Fuel Injection (Fuel Systems)

- (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 level sensor
- (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 hose D
- (18) Evaporation hose E
- (19) Fuel return hose A
- (20) Retainer
- (21) Quick connector
- (22) Evaporation hose F
- (23) Fuel pipe ASSY
- (24) Evaporation hose G

- (25) Fuel return hose B
- (26) Fuel sub level sensor gasket
- (27) Jet pump filter
- (28) Fuel sub level sensor
- (29) Evaporation hose H
- (30) Evaporation hose I

Tightening torque: N·m (kgf·m, ft·lb)

T1: 4.4 (0.45, 3.3)

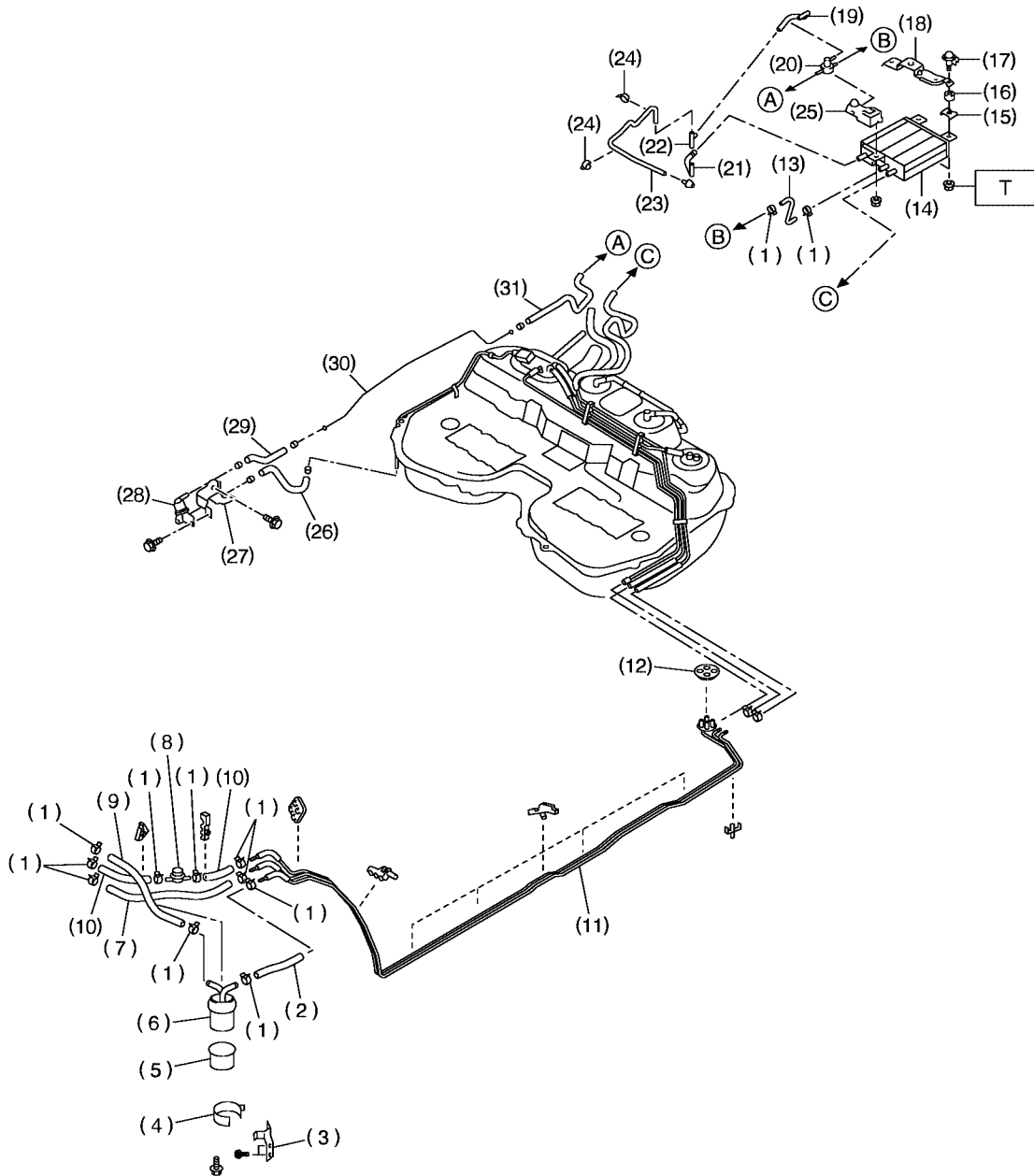
T2: 7.4 (0.75, 5.4)

T3: 33 (3.4, 25)

GENERAL DESCRIPTION

Fuel Injection (Fuel Systems)

5. FUEL LINE S155001A0505



S2M2153A

FU(SOHC)-10

GENERAL DESCRIPTION

Fuel Injection (Fuel Systems)

-
- | | | |
|--------------------------|---------------------------------|------------------------------|
| (1) Clip | (13) Canister hose A | (25) Front canister bracket |
| (2) Fuel delivery hose A | (14) Canister | (26) Evaporation hose B |
| (3) Fuel filter bracket | (15) Canister bracket plate | (27) Roll over valve bracket |
| (4) Fuel filter holder | (16) Cushion | (28) Roll over valve |
| (5) Fuel filter cup | (17) Canister bracket spacer | (29) Evaporation hose C |
| (6) Fuel filter | (18) Rear canister bracket | (30) Evaporation pipe |
| (7) Evaporation hose A | (19) Two-way valve return hose | (31) Canister hose B |
| (8) Fuel damper | (20) Two-way valve | |
| (9) Fuel delivery hose B | (21) Two-way valve drain hose A | |
| (10) Fuel return hose | (22) Connector | |
| (11) Fuel pipe ASSY | (23) Two-way valve drain hose B | |
| (12) Grommet | (24) Clamp | |

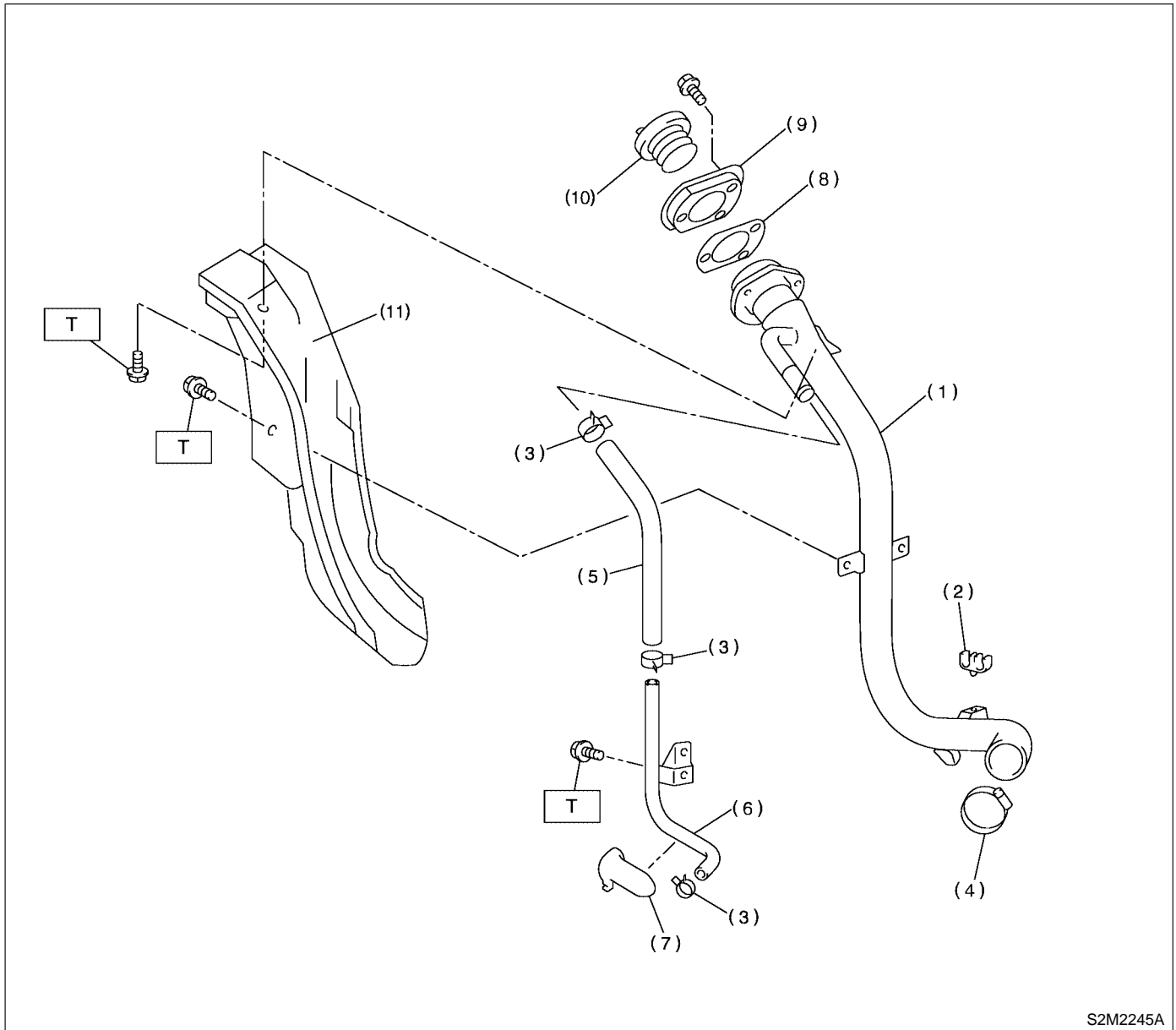
Tightening torque: N·m (kgf·m, ft·lb)

T: 23 (2.34, 17.0)

GENERAL DESCRIPTION

Fuel Injection (Fuel Systems)

6. FUEL FILLER PIPE S155001A0506



- (1) Fuel filler 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

- (11) Fuel filler pipe protector

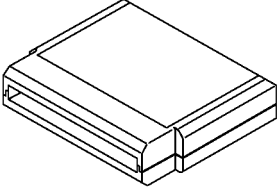

Tightening torque: N·m (kgf·m, ft·lb)
T: 7.5 (0.76, 5.53)

C: CAUTION S155001A03

- 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 S155001A17

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p style="text-align: center;">B2M3876</p>	<p style="text-align: center;">24082AA150 (Newly adopted tool)</p>	CARTRIDGE	Troubleshooting for electrical system.
 <p style="text-align: center;">B2M3877</p>	<p style="text-align: center;">22771AA030</p>	SELECT MONITOR KIT	<p>Troubleshooting for electrical systems.</p> <ul style="list-style-type: none"> ● English: 22771AA030 (Without printer) ● German: 22771AA070 (Without printer) ● French: 22771AA080 (Without printer) ● Spanish: 22771AA090 (Without printer)

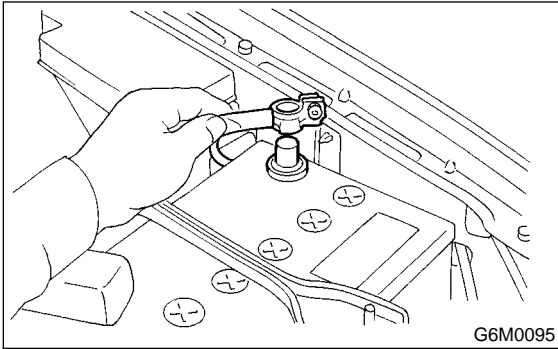
THROTTLE BODY

Fuel Injection (Fuel Systems)

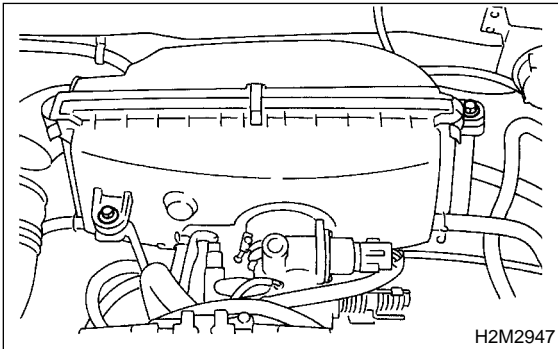
2. Throttle Body S155010

A: REMOVAL S155010A18

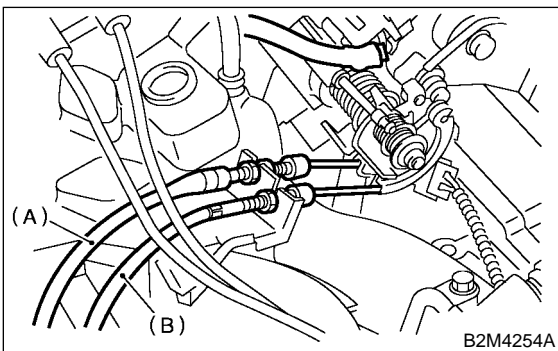
- 1) Disconnect battery ground cable.



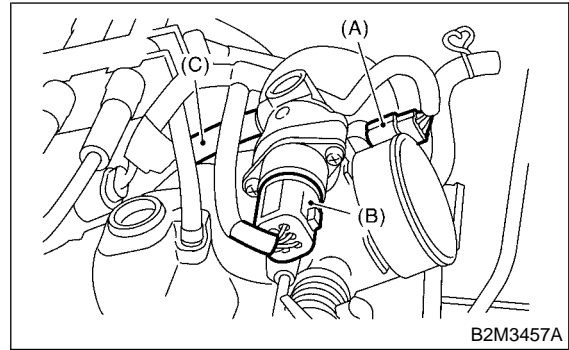
- 2) Remove air cleaner case.



- 3) Disconnect accelerator cable (A).
- 4) Disconnect cruise control cable (B). (With cruise control model)

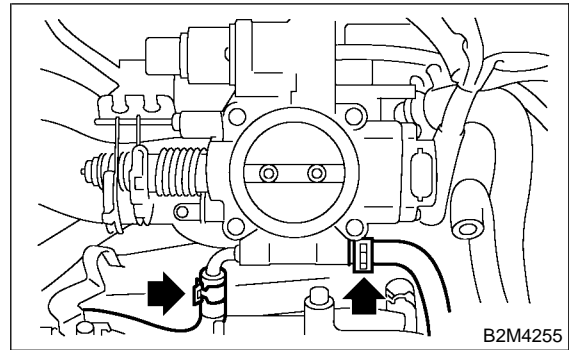


- 5) Disconnect connectors from idle air control solenoid valve, throttle position sensor.
- 6) Disconnect air by-pass hose from throttle body.



- (A) Throttle position sensor
(B) Idle air control solenoid valve
(C) Air by-pass hose

- 7) Disconnect engine coolant hoses from throttle body.



- 8) Remove bolts which install throttle body to intake manifold.

B: INSTALLATION S155010A11

Install in the reverse order of removal.

NOTE:

Always use a new gasket.

Tightening torque:

Throttle body;

22 N-m (2.2 kgf-m, 15.9 ft-lb)

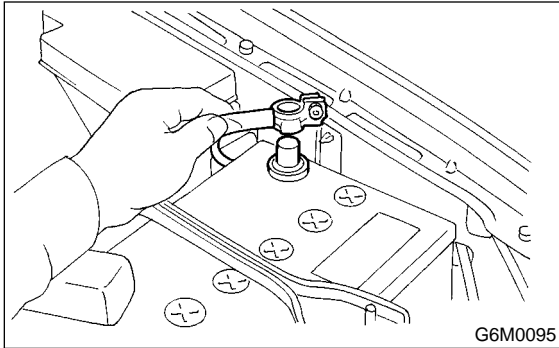
Air cleaner case;

6.4 N-m (0.65 kgf-m, 4.7 ft-lb)

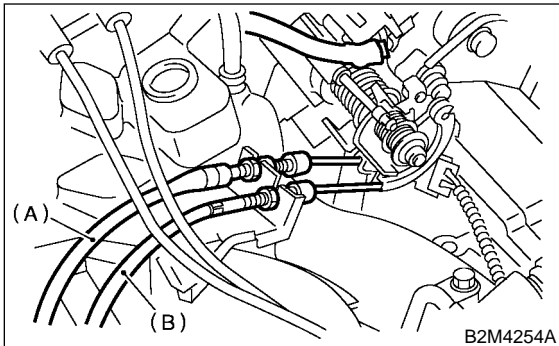
3. Intake Manifold S155034

A: REMOVAL S155034A18

- 1) Release fuel pressure. <Ref. to FU(SOHC)-52, RELEASING OF FUEL PRESSURE, OPERATION, Fuel.>
- 2) Open fuel flap lid, and remove fuel filler cap.
- 3) Disconnect battery ground cable.



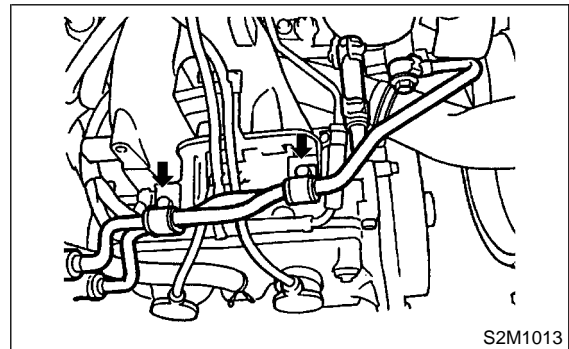
- 4) Remove air intake duct and air cleaner assembly. <Ref. to IN(SOHC)-8, REMOVAL, Air Intake Duct.> and <Ref. to IN(SOHC)-7, REMOVAL, Air Cleaner Case.>
- 5) Disconnect accelerator cable (A).
- 6) Disconnect cruise control cable (B). (With cruise control model)



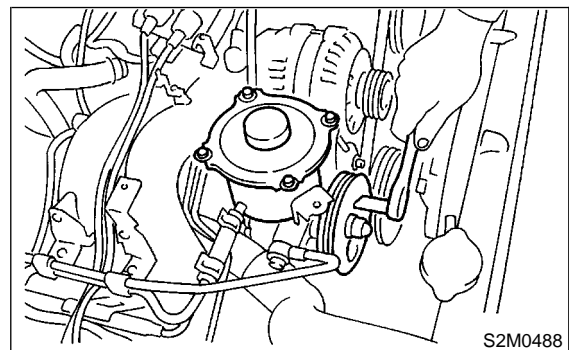
- 7) Remove power steering pump and tank from brackets.

- (1) Remove resonator chamber. <Ref. to IN(SOHC)-9, REMOVAL, Resonator Chamber.>
- (2) Remove front side V-belt. <Ref. to ME(SOHC)-42, REMOVAL, V-belt.>
- (3) Remove bolts which hold power steering pipes brackets onto intake manifold.

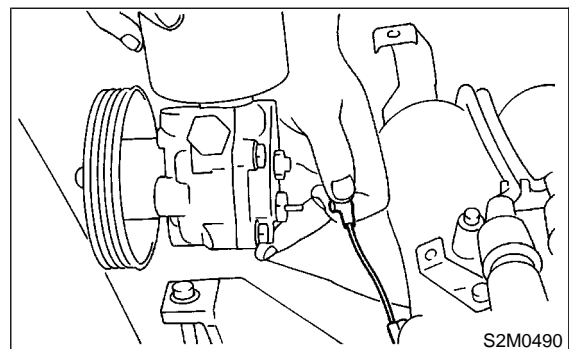
NOTE:
Do not disconnect power steering hose.



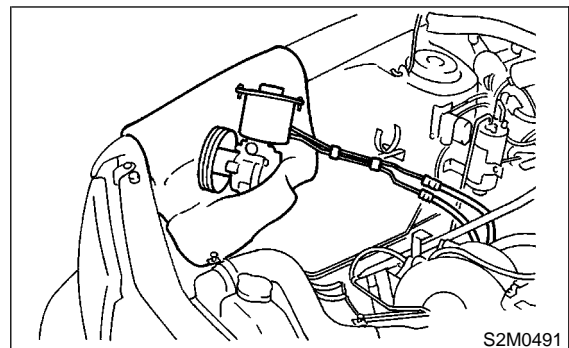
- (4) Remove bolts which install power steering pump bracket.



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



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

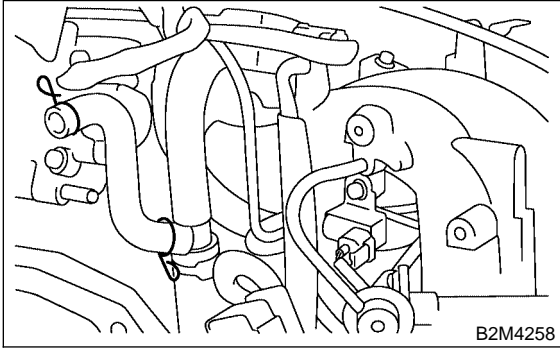


- 8) Disconnect spark plug cords from spark plugs.

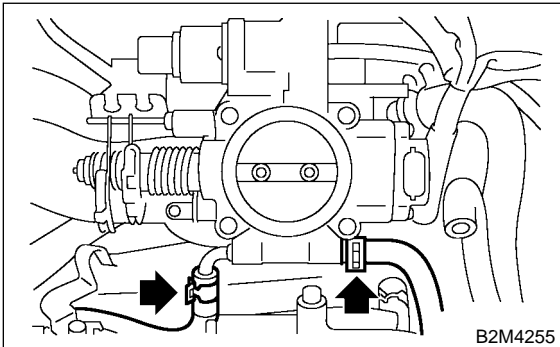
INTAKE MANIFOLD

Fuel Injection (Fuel Systems)

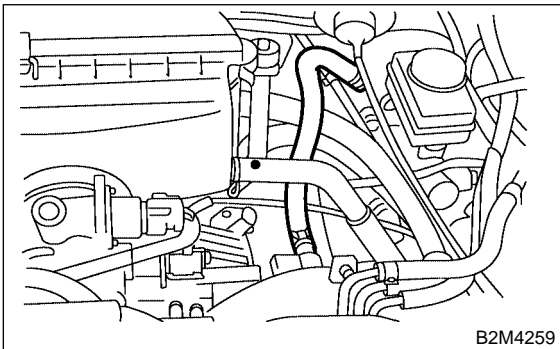
- 9) Disconnect PCV hose from intake manifold.



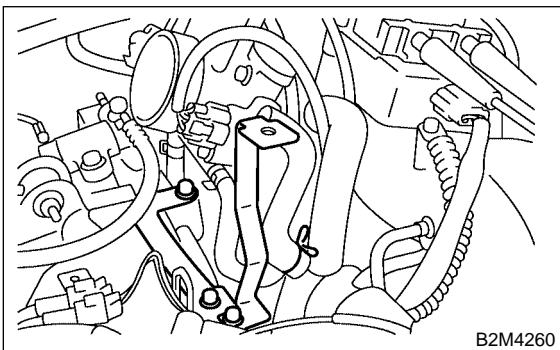
- 10) Disconnect engine coolant hose from throttle body.



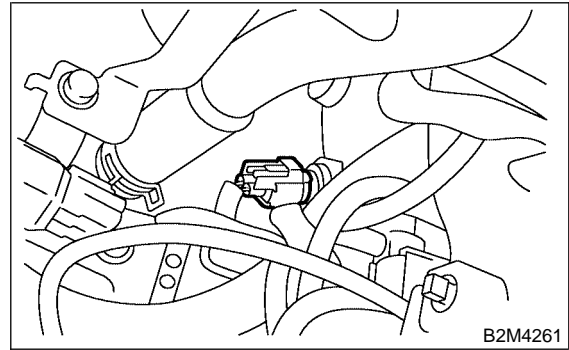
- 11) Disconnect brake booster hose.



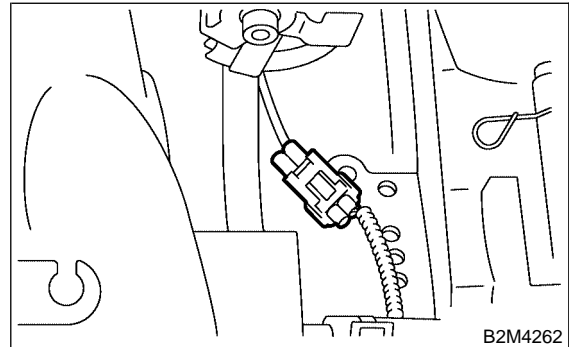
- 12) Remove air cleaner case stay RH and engine harness bracket, and disconnect engine harness connectors from bulkhead harness connectors.



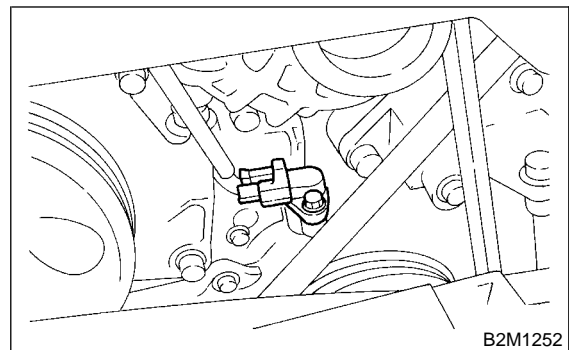
- 13) Disconnect connectors from engine coolant temperature sensor.



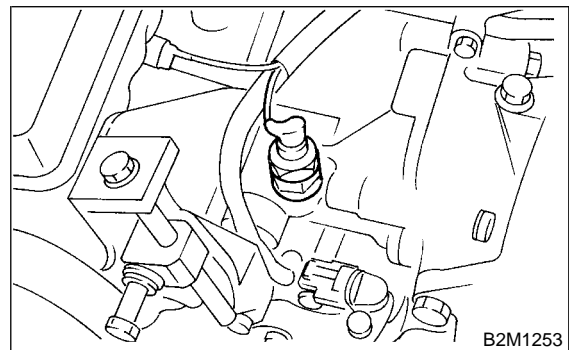
- 14) Disconnect knock sensor connector.



- 15) Disconnect connector from crankshaft position sensor.



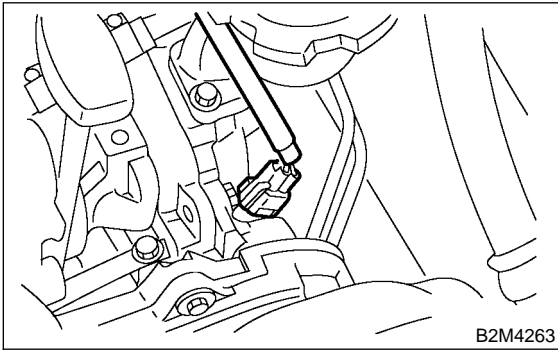
- 16) Disconnect connector from oil pressure switch.



INTAKE MANIFOLD

Fuel Injection (Fuel Systems)

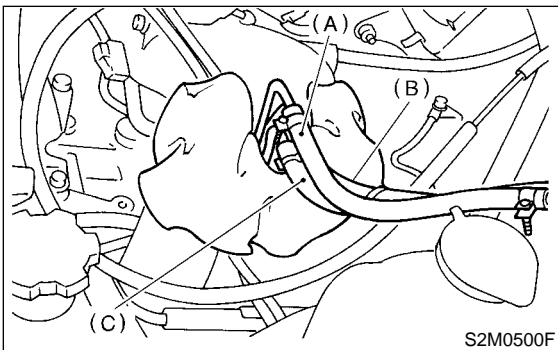
17) Disconnect connector from camshaft position sensor.



18) Disconnect fuel hoses from fuel pipes.

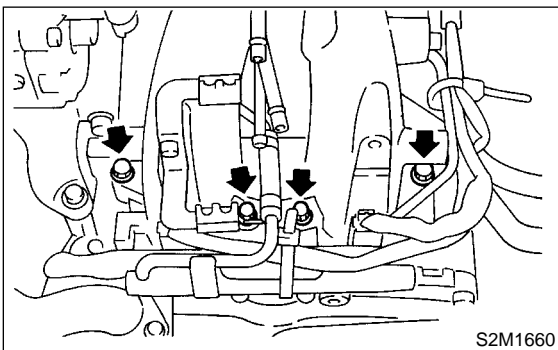
WARNING:

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

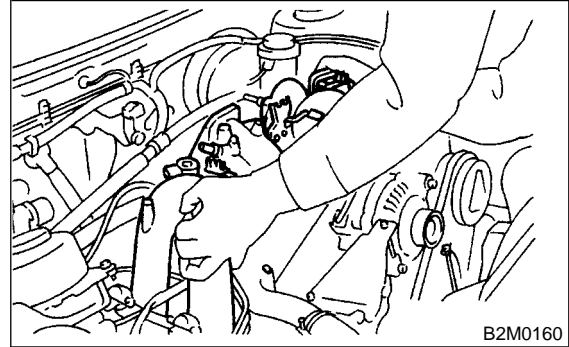


- (A) Fuel delivery hose
(B) Return hose
(C) Evaporation hose

19) Remove bolts which hold intake manifold onto cylinder heads.



20) Remove intake manifold.



B: INSTALLATION S155034A11

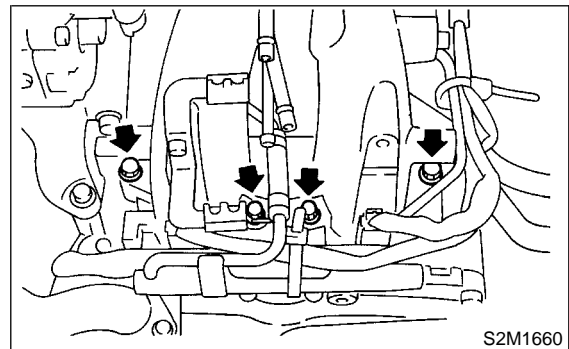
1) Install intake manifold onto cylinder heads.

NOTE:

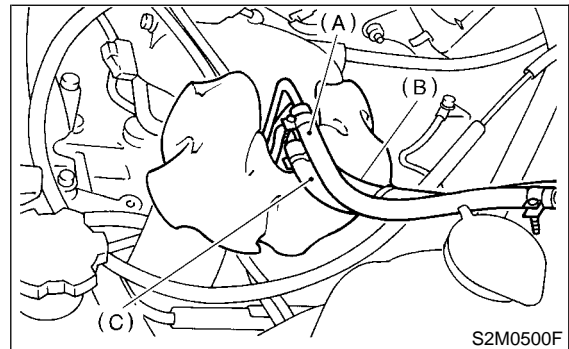
Always use new gaskets.

Tightening torque:

25 N·m (2.5 kgf·m, 18.1 ft·lb)



2) Connect fuel hoses.

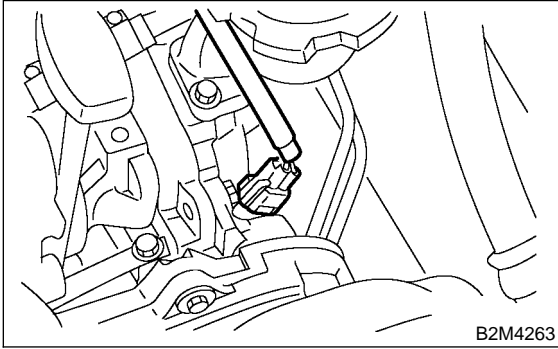


- (A) Fuel delivery hose
(B) Return hose
(C) Evaporation hose

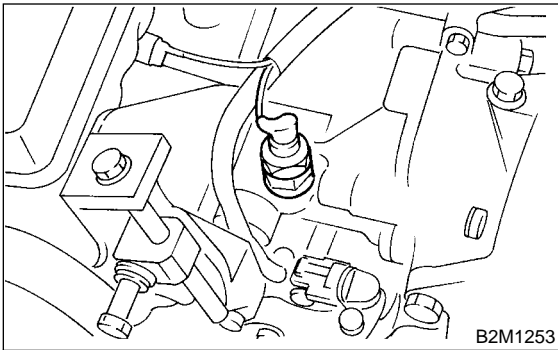
INTAKE MANIFOLD

Fuel Injection (Fuel Systems)

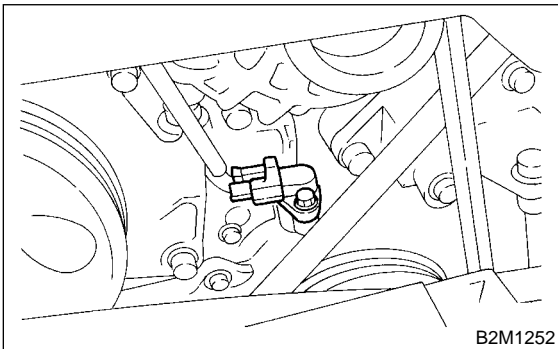
- 3) Connect connector to camshaft position sensor.



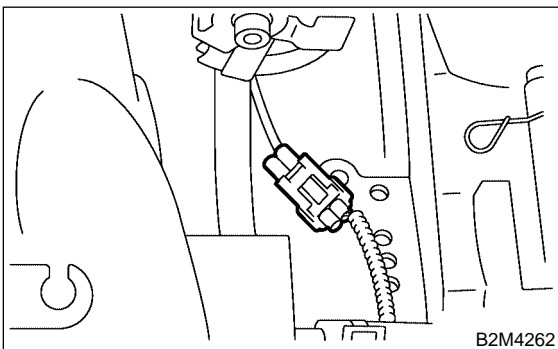
- 4) Connect connector to oil pressure switch.



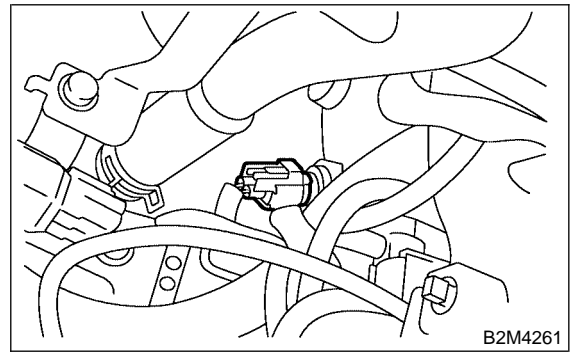
- 5) Connect connector to crankshaft position sensor.



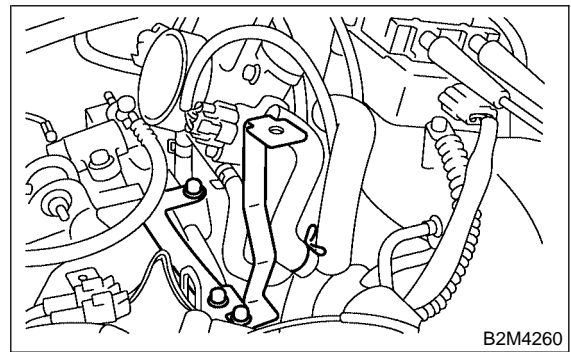
- 6) Connect knock sensor connector.



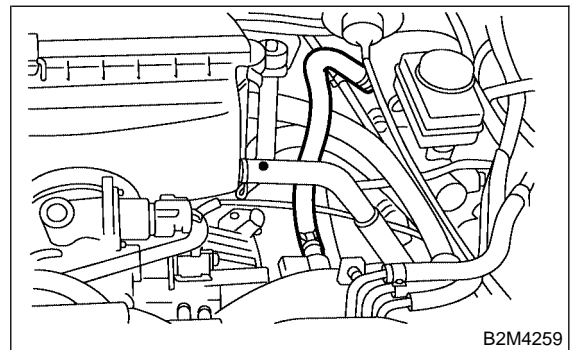
- 7) Connect connectors to engine coolant temperature sensor.



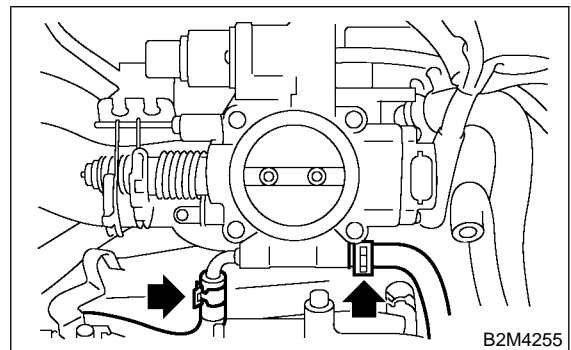
- 8) Install air cleaner case stay RH and engine harness bracket, and connect engine harness connectors to bulkhead connectors.



- 9) Connect brake booster hose.



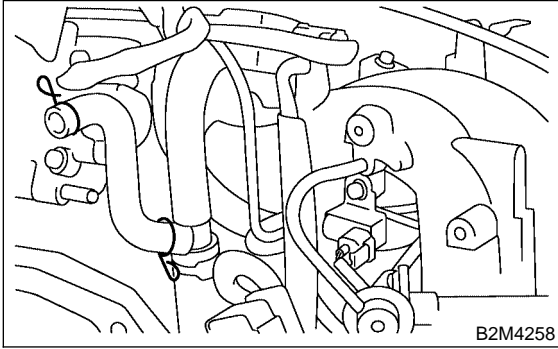
- 10) Connect engine coolant hose to throttle body.



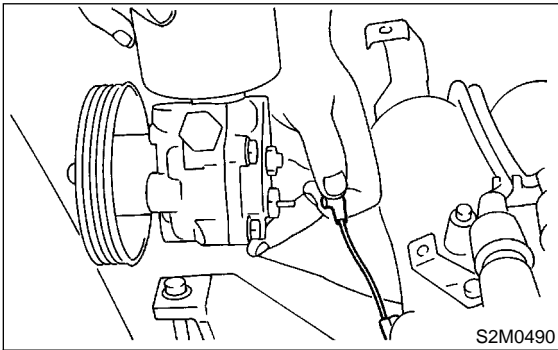
INTAKE MANIFOLD

Fuel Injection (Fuel Systems)

- 11) Connect PCV hose to intake manifold.

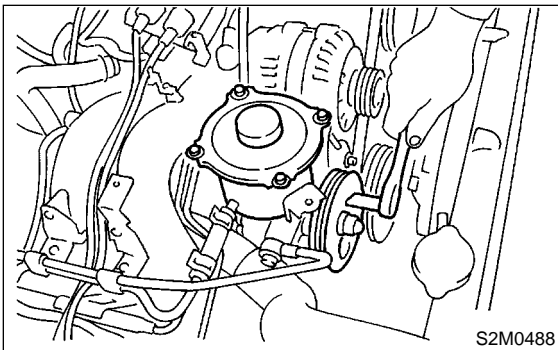


- 12) Connect spark plug cords to spark plugs.
13) Install power steering pump on brackets.
(1) Connect terminal to power steering pump switch.

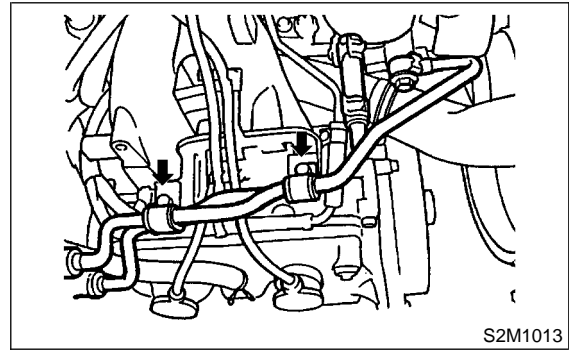


- (2) Tighten bolts which install power steering pump on bracket.

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

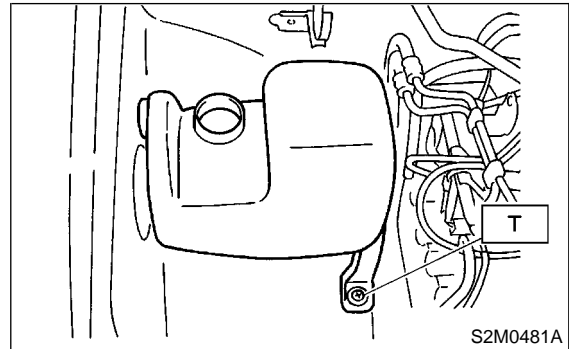


- (3) Install power steering pipe brackets onto right side intake manifold.

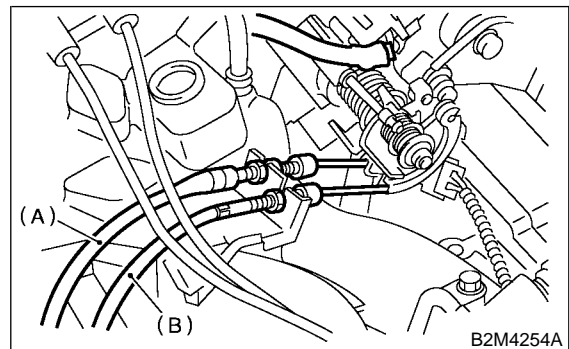


- (4) Install front side V-belt. <Ref. to ME(SOHC)-42, INSTALLATION, V-belt.>
(5) Install resonator chamber.

Tightening torque:
33 N·m (3.4 kgf-m, 24.6 ft-lb)



- 14) Connect accelerator cable (A).
15) Connect cruise control cable (B). (With cruise control models)

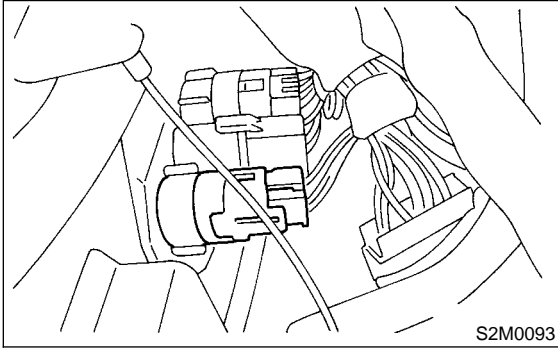


- 16) Install air intake duct and air cleaner assembly. <Ref. to IN(SOHC)-8, REMOVAL, Air Intake Duct.> and <Ref. to IN(SOHC)-7, INSTALLATION, Air Cleaner Case.>

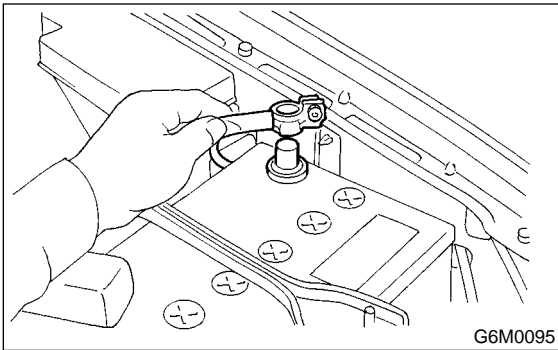
INTAKE MANIFOLD

Fuel Injection (Fuel Systems)

17) Connect connector to fuel pump relay.

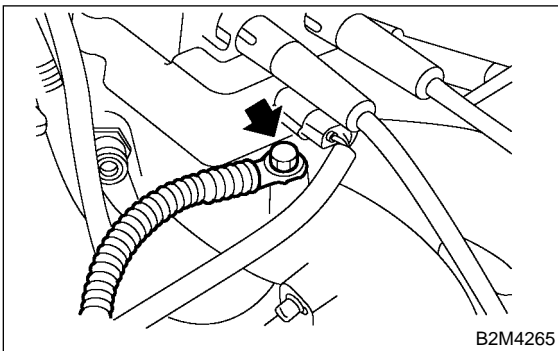


18) Connect battery ground cable.

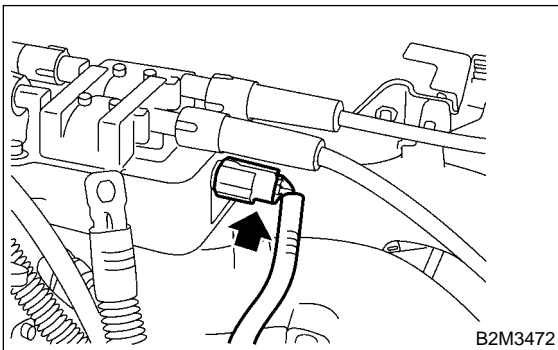


C: DISASSEMBLY S155034A06

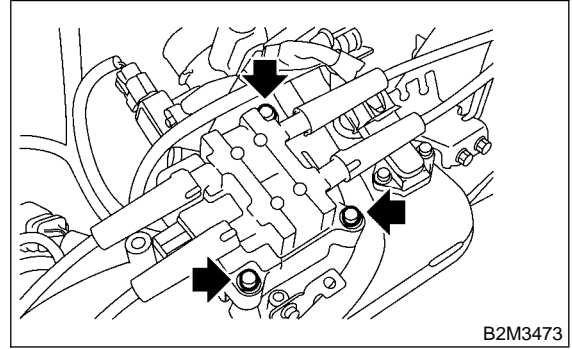
1) Disconnect engine ground terminal from intake manifold.



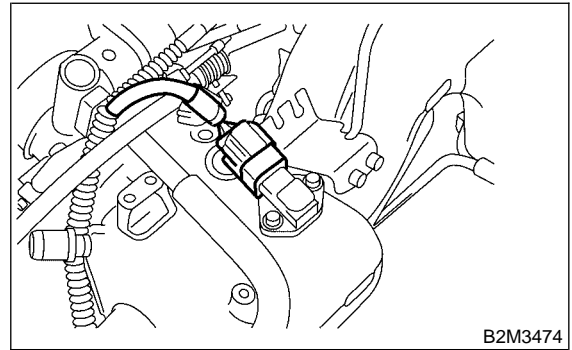
2) Disconnect connector from ignition coil and ignitor assembly.



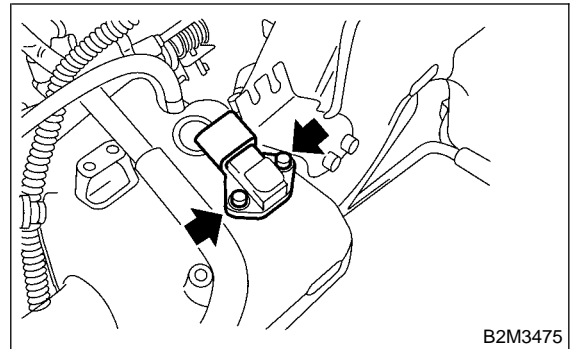
3) Remove ignition coil and ignitor assembly.



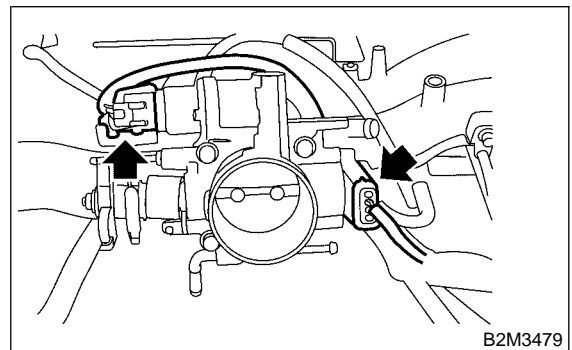
4) Disconnect connector from intake air temperature and pressure sensor.



5) Remove intake air temperature and pressure sensor from intake manifold.



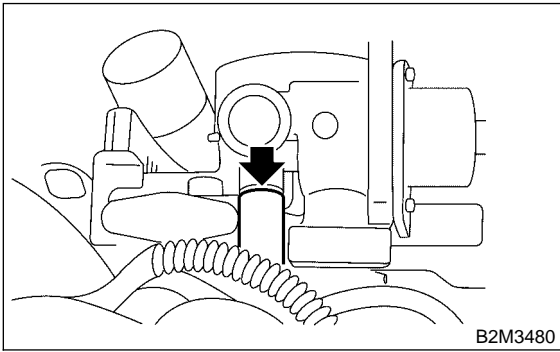
6) Disconnect connectors from throttle position sensor and idle air control solenoid valve.



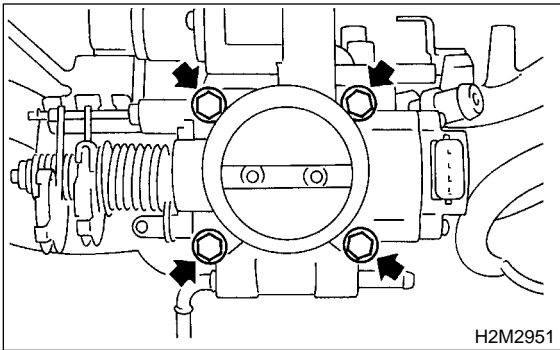
INTAKE MANIFOLD

Fuel Injection (Fuel Systems)

7) Disconnect air by-pass hose from throttle body.

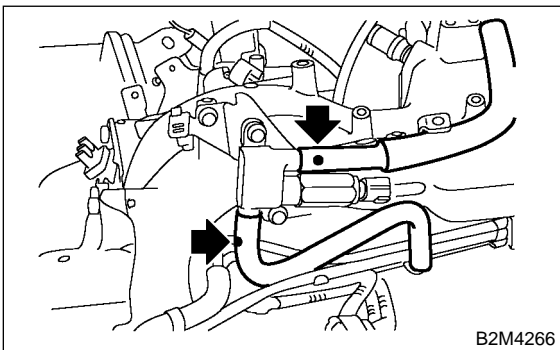


8) Remove throttle body.

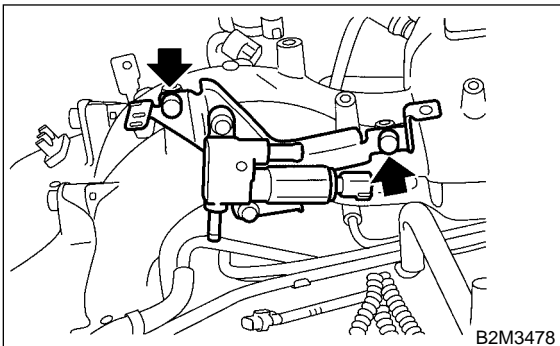


9) Disconnect connector from air assist injector solenoid valve.

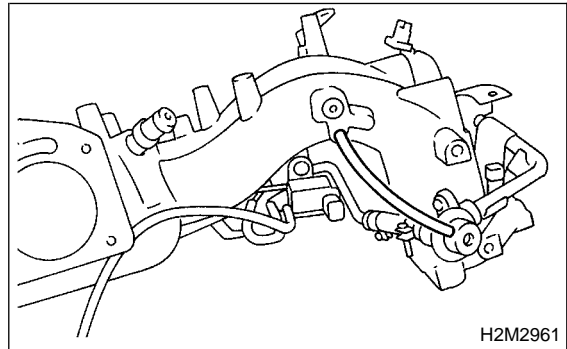
10) Disconnect air by-pass hoses from air assist solenoid valve.



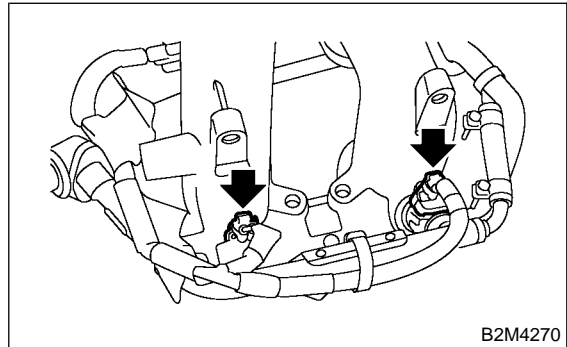
11) Remove air assist injector solenoid valve from intake manifold.



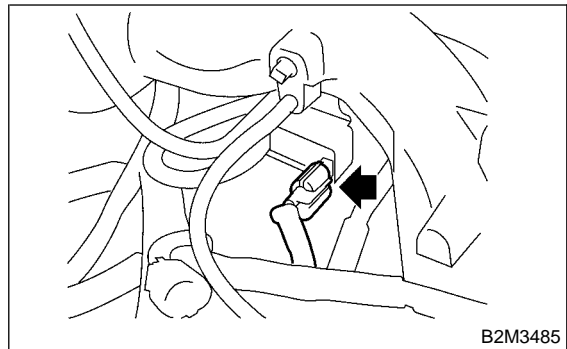
12) Disconnect pressure regulator vacuum hose from intake manifold.



13) Disconnect connectors from fuel injectors.

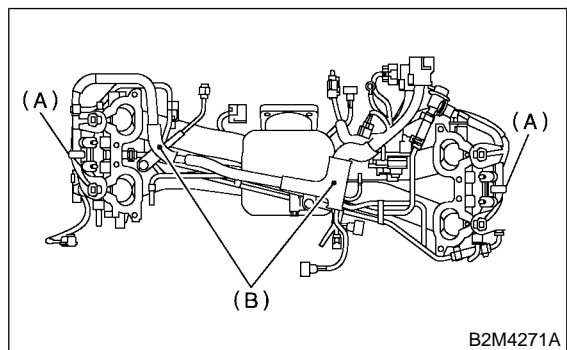


14) Disconnect connector from purge control solenoid valve.



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

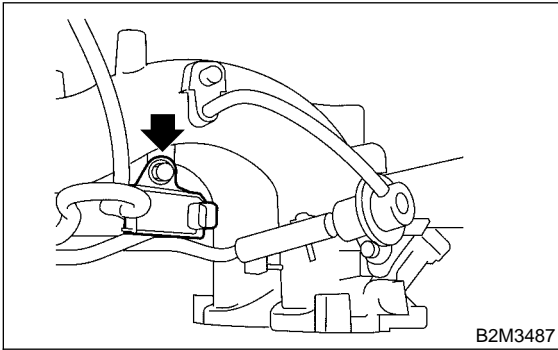
16) Remove harness bands (A) and harness bracket (B) which hold engine harness onto intake manifold.



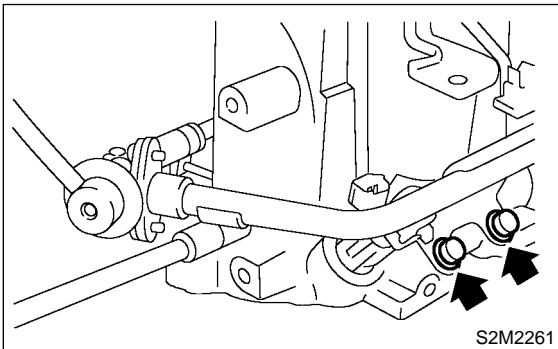
INTAKE MANIFOLD

Fuel Injection (Fuel Systems)

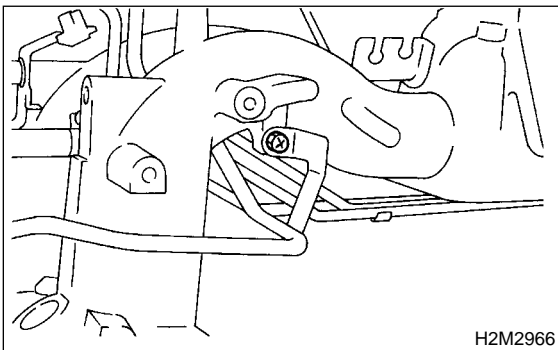
- 17) Remove engine harness from intake manifold.
- 18) Remove purge control solenoid valve.



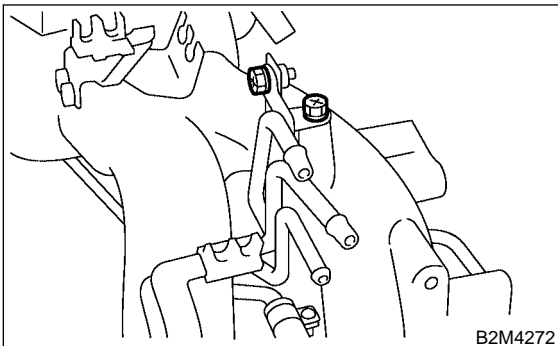
- 19) Remove bolt which installs injector pipe on intake manifold as shown in figure.



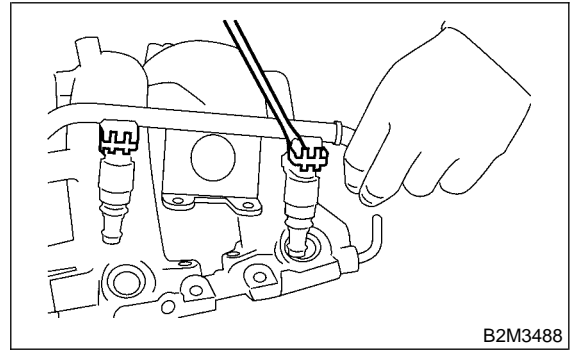
- 20) Remove bolt which installs injector pipe on intake manifold.



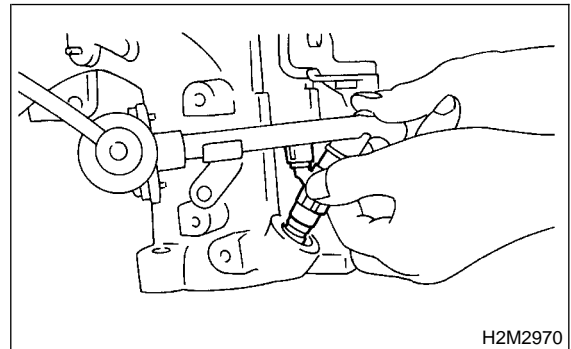
- 21) Remove two bolts which hold fuel pipes on the left side of intake manifold.



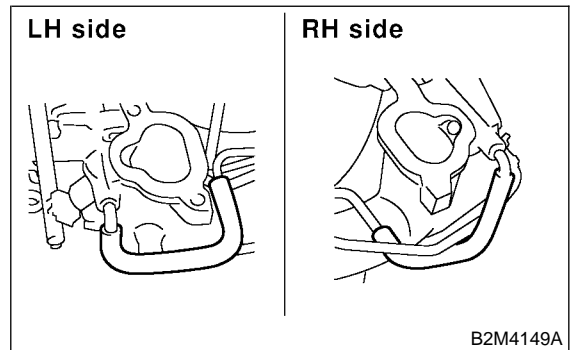
- 22) Remove fuel injectors.
 - (1) Remove fuel injector securing clip.



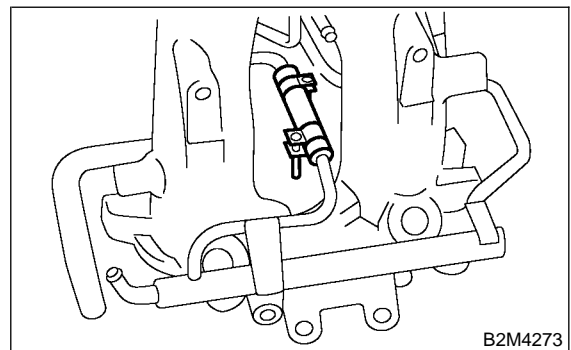
- (2) Remove fuel injector while lifting up fuel injector pipe.



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



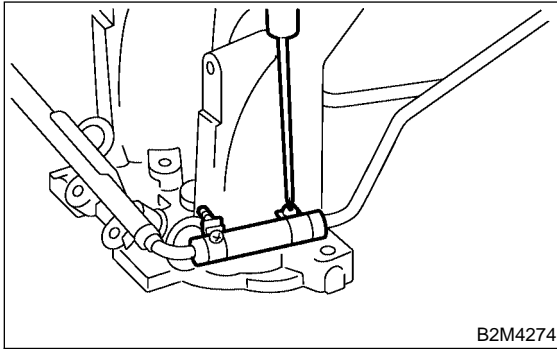
- 24) Loosen clamp which holds front left side fuel hose to injector pipe and remove the pipe from fuel hose.



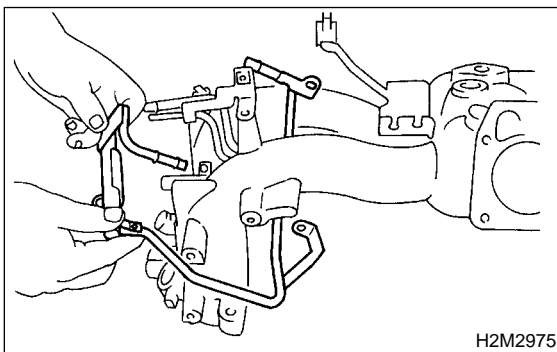
INTAKE MANIFOLD

Fuel Injection (Fuel Systems)

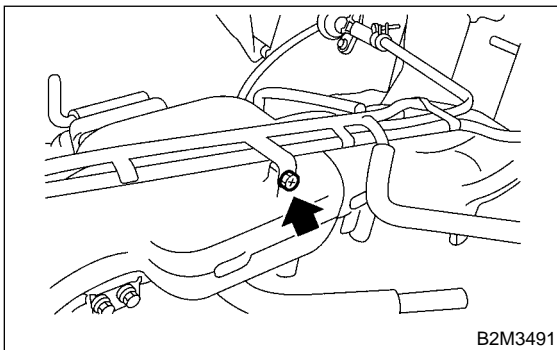
25) Loosen clamp which holds front right side fuel hose to injector pipe and remove the pipe from fuel hose.



26) Remove fuel injector pipe.



27) Remove bolt which installs fuel pipes on intake manifold.



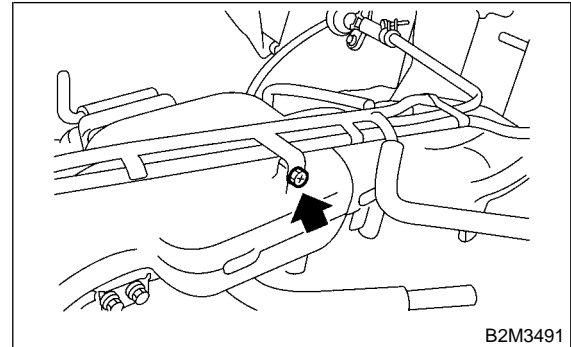
28) Remove fuel pipe assembly and pressure regulator, from intake manifold.

D: ASSEMBLY S155034A02

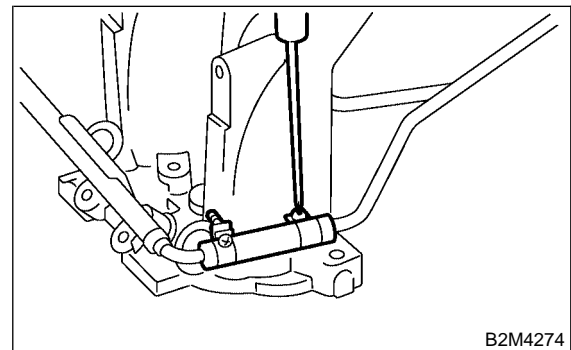
1) Install fuel pipe assembly and pressure regulator, etc. to intake manifold.

2) Tighten bolt which installs fuel pipes on intake manifold.

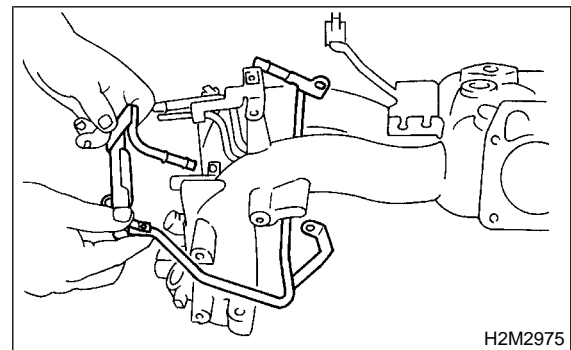
Tightening torque:
4.9 N·m (0.5 kgf-m, 3.6 ft-lb)



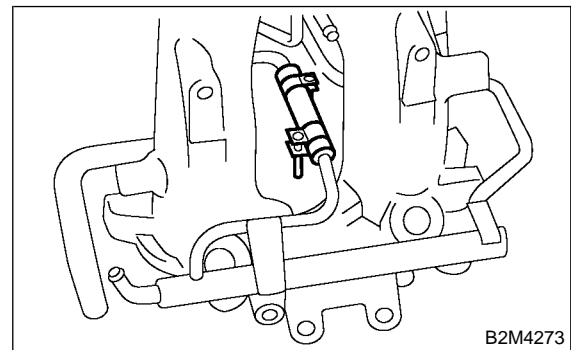
3) Connect right side fuel hose to injector pipe, and tighten clamp screw.



4) Install fuel injector pipe.



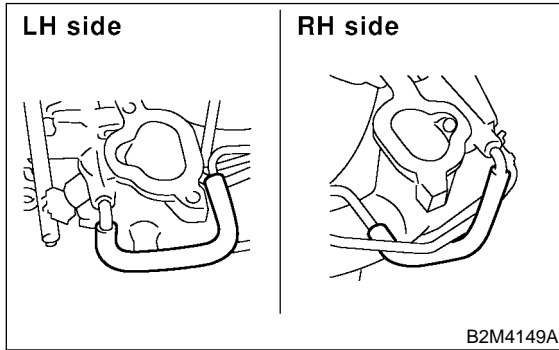
5) Connect left side fuel hose to injector pipe, and tighten clamp screw.



INTAKE MANIFOLD

Fuel Injection (Fuel Systems)

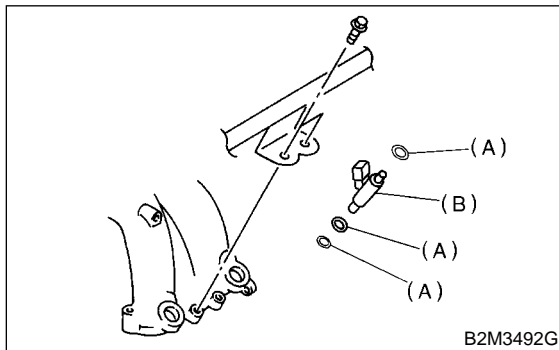
6) Connect air assist hoses.



7) Install fuel injectors.

NOTE:

Always use new O-rings.

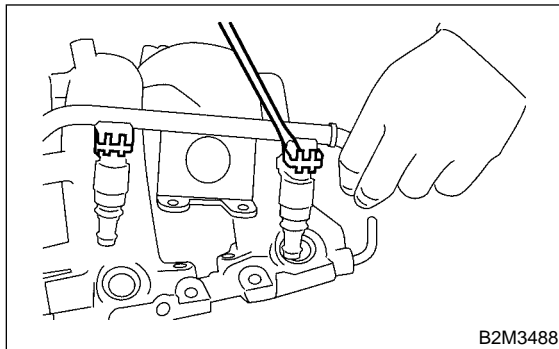


(A) O-ring

(B) Fuel injector

NOTE:

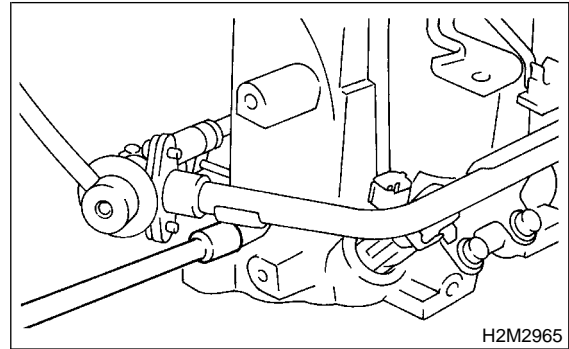
Do not forget to install the fuel injector securing clip.



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

Tightening torque:

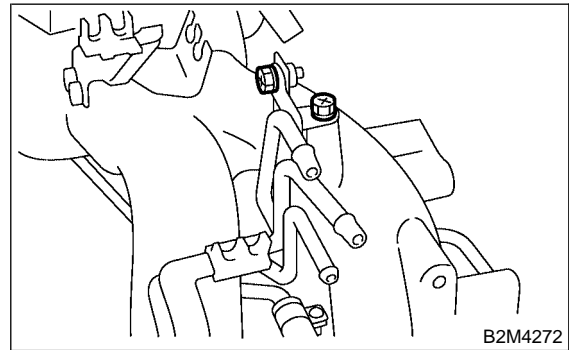
4.9 N·m (0.50 kgf-m, 3.6 ft-lb)



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

Tightening torque:

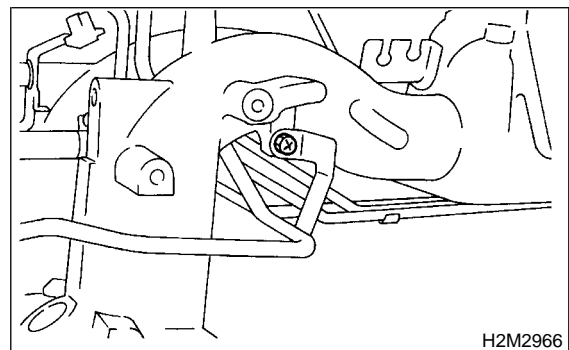
4.9 N·m (0.50 kgf-m, 3.6 ft-lb)



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

Tightening torque:

4.9 N·m (0.50 kgf-m, 3.6 ft-lb)



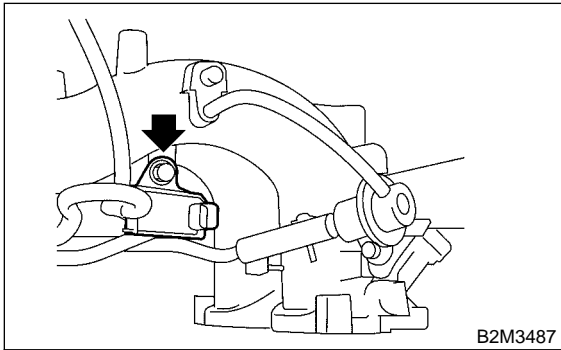
INTAKE MANIFOLD

Fuel Injection (Fuel Systems)

11) Install purge control solenoid valve.

Tightening torque:

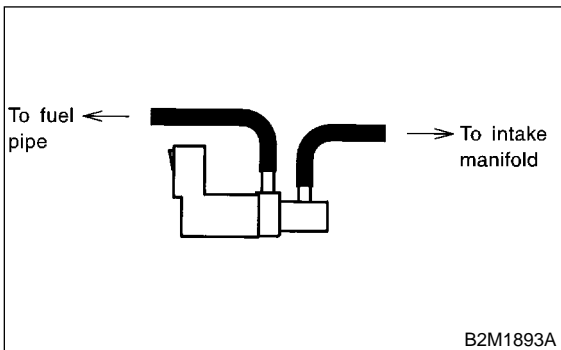
16 N·m (1.6 kgf·m, 12 ft·lb)



12) Connect hoses to purge control solenoid valve.

CAUTION:

Carefully connect the evaporation hoses.



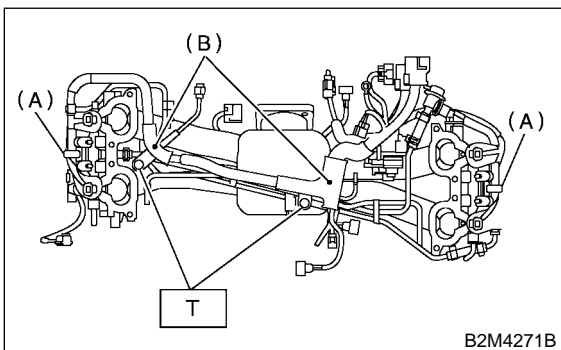
13) Install engine harness onto intake manifold.

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

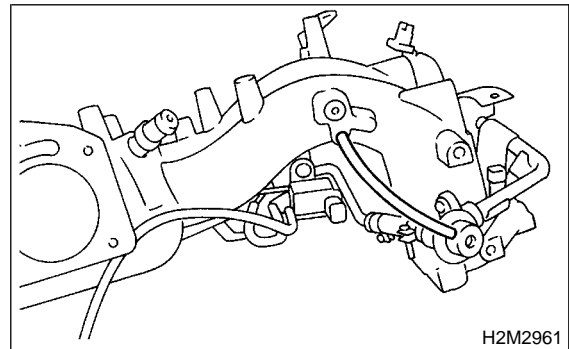
15) Hold engine harness by harness band (A) and harness bracket (B).

Tightening torque:

16 N·m (1.6 kgf·m, 12 ft·lb)



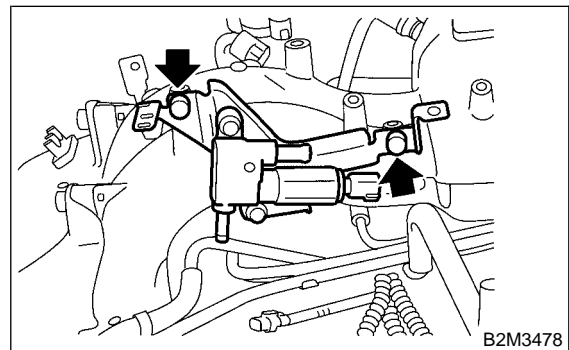
16) Connect pressure regulator vacuum hose to intake manifold.



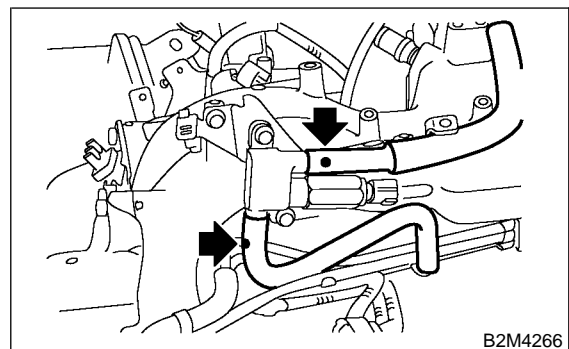
17) Install air assist injector solenoid valve to bracket.

Tightening torque:

4.9 N·m (0.50 kgf·m, 3.6 ft·lb)



18) Connect air by-pass hoses to air assist solenoid valve.



19) Connect connector to air assist solenoid valve.

INTAKE MANIFOLD

Fuel Injection (Fuel Systems)

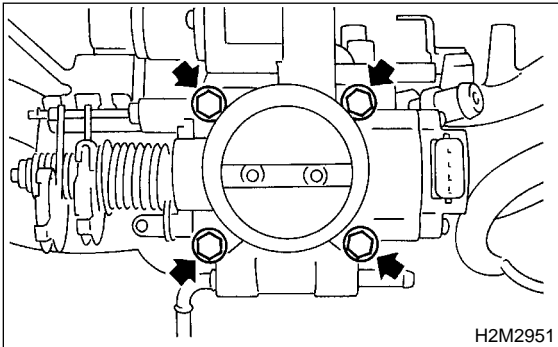
20) Install throttle body to intake manifold.

NOTE:

Replace gasket with a new one.

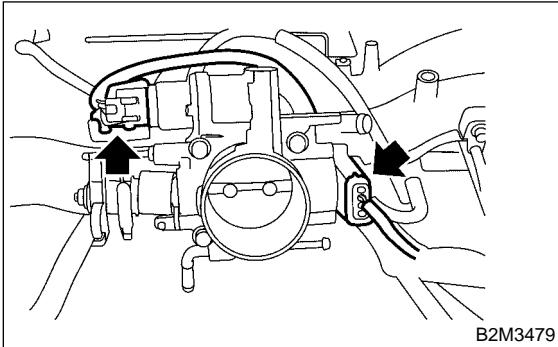
Tightening torque:

22 N·m (2.2 kgf-m, 15.9 ft-lb)



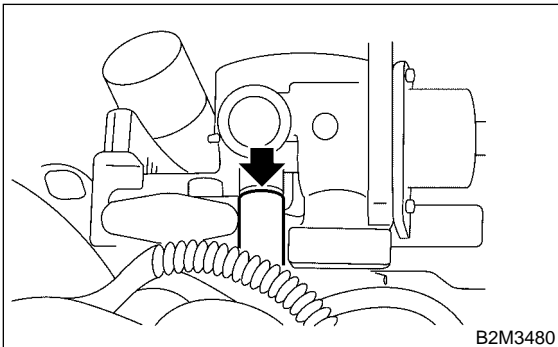
H2M2951

21) Connect connector to throttle position sensor and idle air control solenoid valve.



B2M3479

22) Connect air by-pass hose to throttle body.

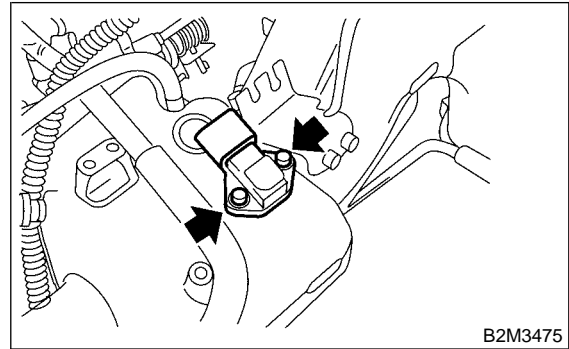


B2M3480

23) Install intake air temperature and pressure sensor.

Tightening torque:

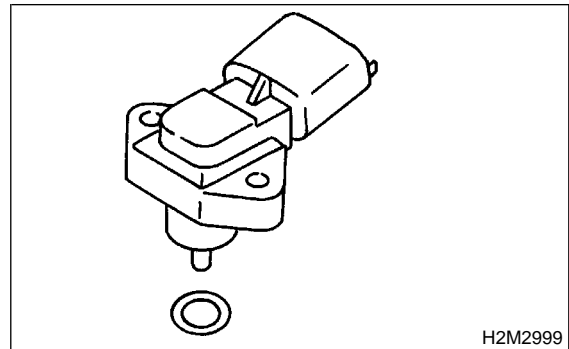
3.4 N·m (0.35 kgf-m, 2.5 ft-lb)



B2M3475

NOTE:

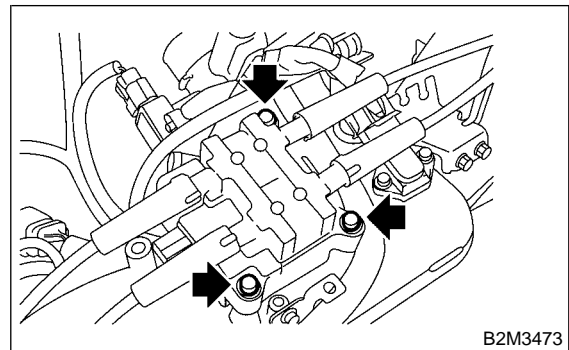
Replace O-ring with a new one.



H2M2999

24) Connect connector to intake air temperature and pressure sensor.

25) Install ignition coil and ignitor assembly.

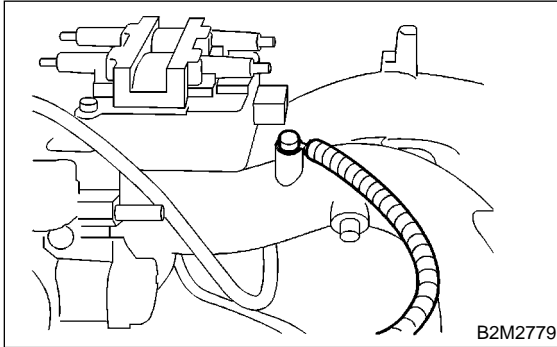


B2M3473

- 26) Connect connector to ignition coil and ignitor assembly.
- 27) Install engine ground terminal to intake manifold.

Tightening torque:

19 N·m (1.9 kgf-m, 13.7 ft-lb)



E: INSPECTION

S155034A10

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

ENGINE COOLANT TEMPERATURE SENSOR

Fuel Injection (Fuel Systems)

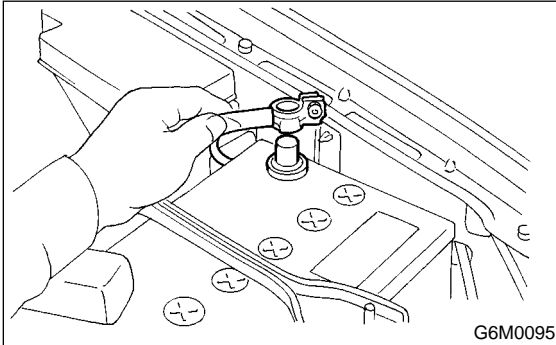
4. Engine Coolant Temperature Sensor

S155047

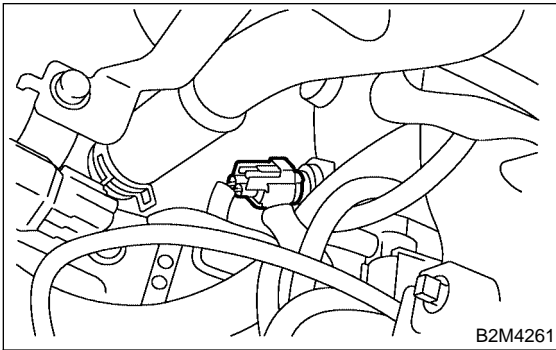
A: REMOVAL

S155047A18

- 1) Disconnect battery ground cable.



- 2) Remove air intake duct and air cleaner assembly. <Ref. to IN(SOHC)-8, REMOVAL, Air Intake Duct.> and <Ref. to IN(SOHC)-7, REMOVAL, Air Cleaner Case.>
- 3) Disconnect connector from engine coolant temperature sensor.



- 4) Remove engine coolant temperature sensor.

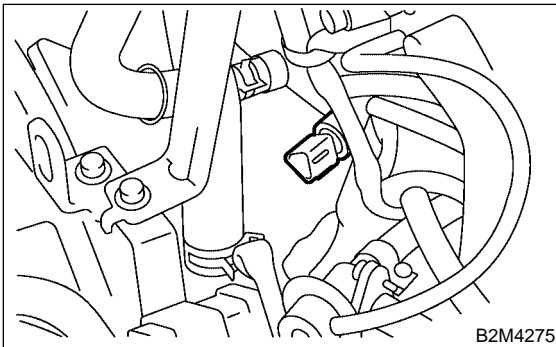
B: INSTALLATION

S155047A11

Install in the reverse order of removal.

Tightening torque:

18 N·m (1.8 kgf-m, 13 ft-lb)

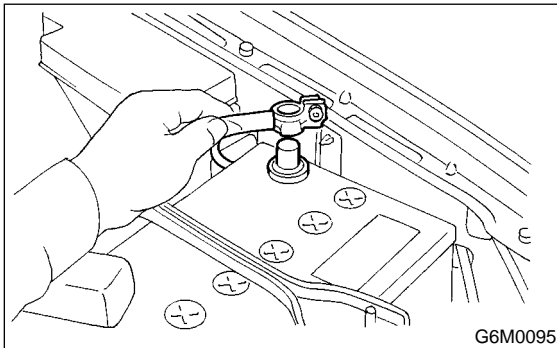


5. Crankshaft Position Sensor

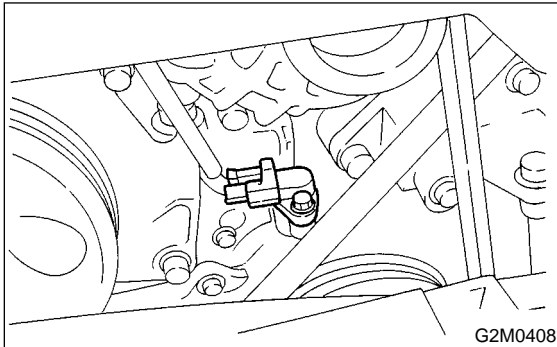
S155043

A: REMOVAL S155043A18

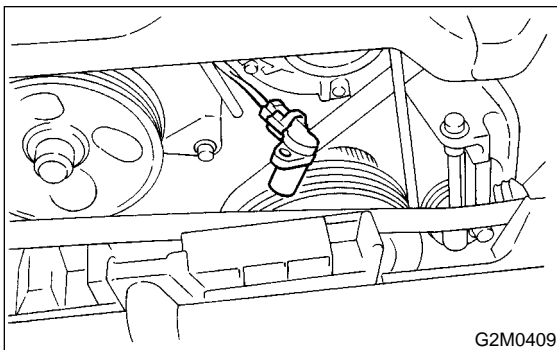
- 1) Disconnect battery ground cable.



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



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

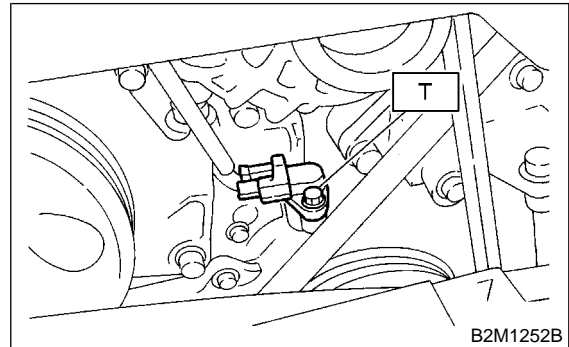


B: INSTALLATION S155043A11

Install in the reverse order of removal.

Tightening torque:

T: 6.4 N·m (0.65 kgf-m, 4.7 ft-lb)



CAMSHAFT POSITION SENSOR

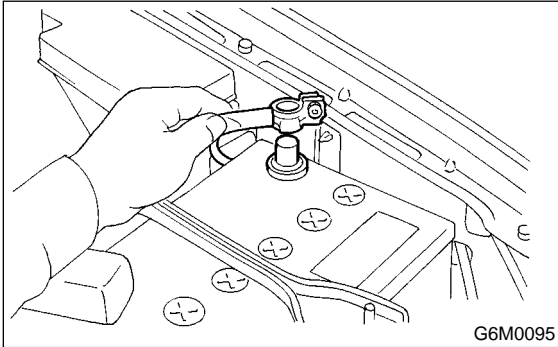
Fuel Injection (Fuel Systems)

6. Camshaft Position Sensor

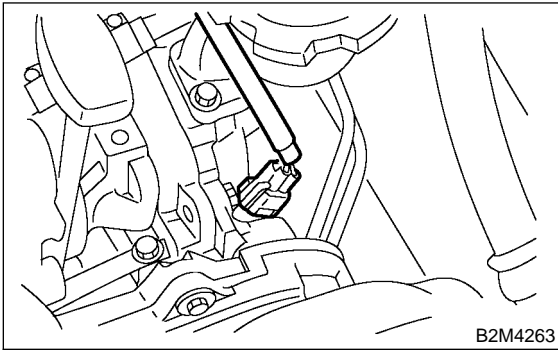
S155041

A: REMOVAL S155041A18

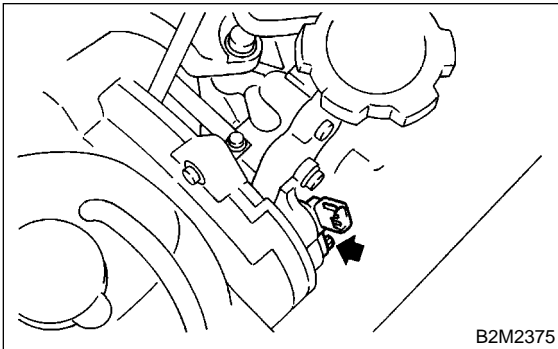
- 1) Disconnect battery ground cable.



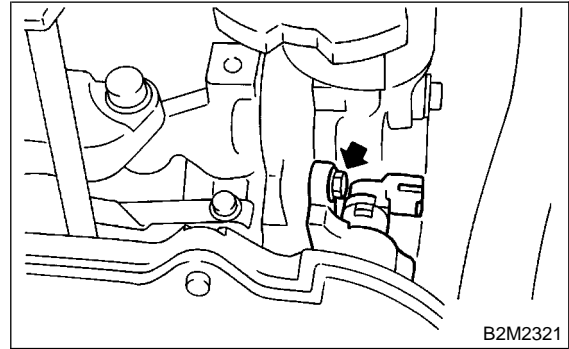
- 2) Disconnect connector from camshaft position sensor.



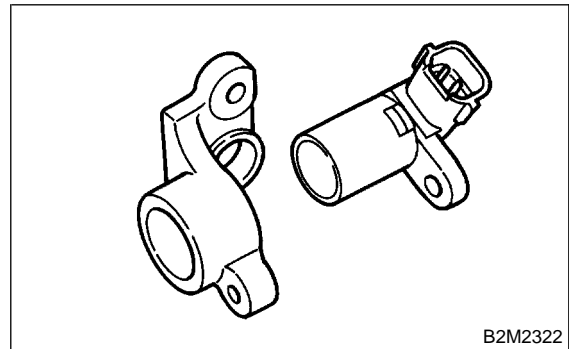
- 3) Remove bolt which installs camshaft position sensor to camshaft position sensor support.



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



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



B: INSTALLATION S155041A11

Install in the reverse order of removal.

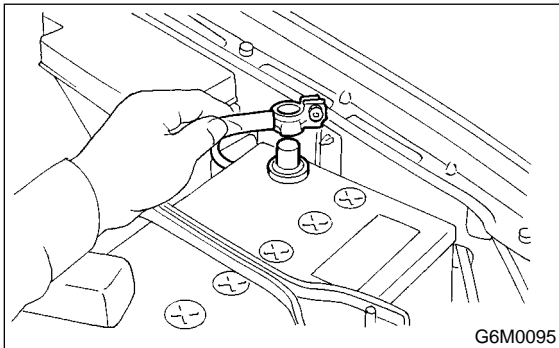
Tightening torque:

- **Camshaft position sensor support;**
6.4 N·m (0.65 kgf-m, 4.7 ft-lb)
- **Camshaft position sensor;**
6.4 N·m (0.65 kgf-m, 4.7 ft-lb)

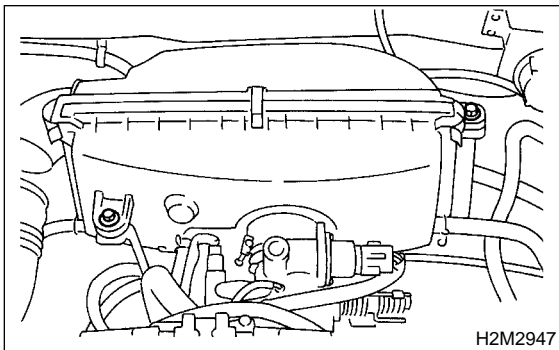
7. Knock Sensor S155042

A: REMOVAL S155042A18

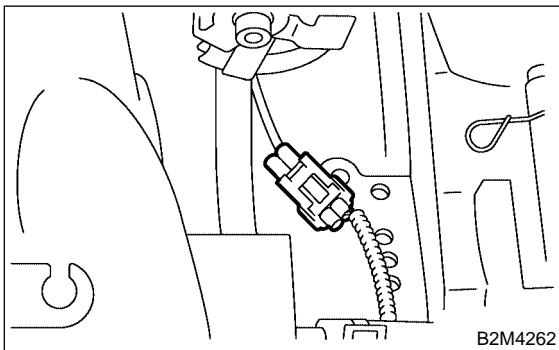
- 1) Disconnect battery ground cable from battery ground terminal.



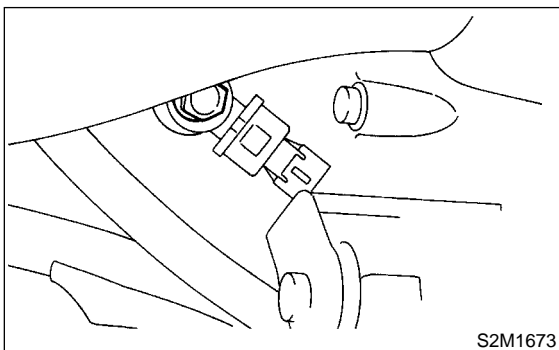
- 2) Remove air cleaner case.



- 3) Disconnect knock sensor connector.



- 4) Remove knock sensor from cylinder block.



B: INSTALLATION S155042A11

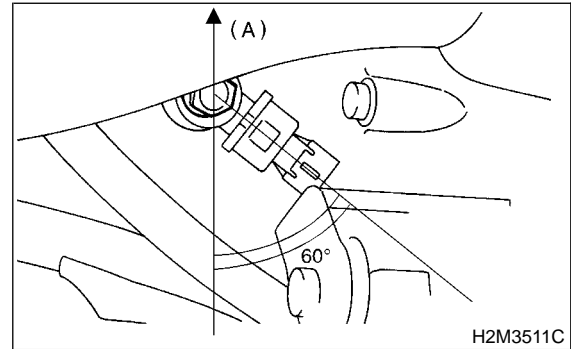
- 1) Install knock sensor to cylinder block.

Tightening torque:

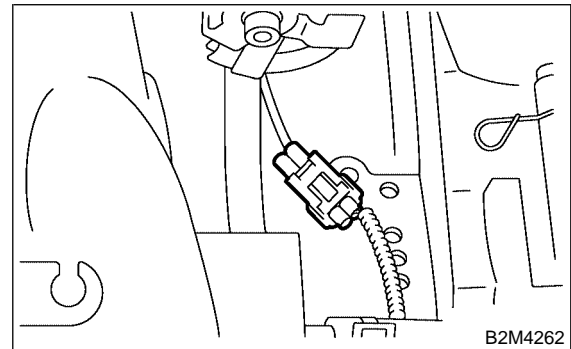
24 N·m (2.4 kgf-m, 17.4 ft-lb)

NOTE:

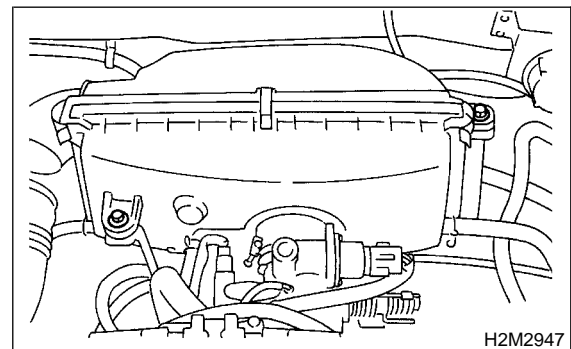
The extraction area of the knock sensor cord must be positioned at a 60° angle relative to the engine rear.



- 2) Connect knock sensor connector.



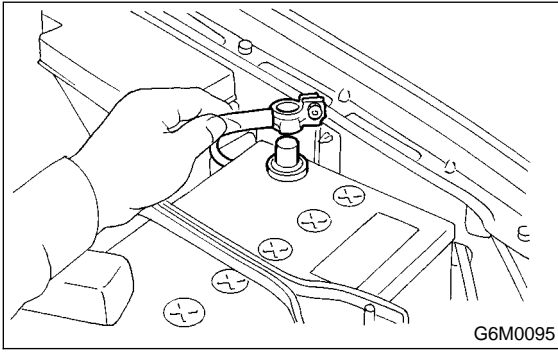
- 3) Install air cleaner case.



KNOCK SENSOR

Fuel Injection (Fuel Systems)

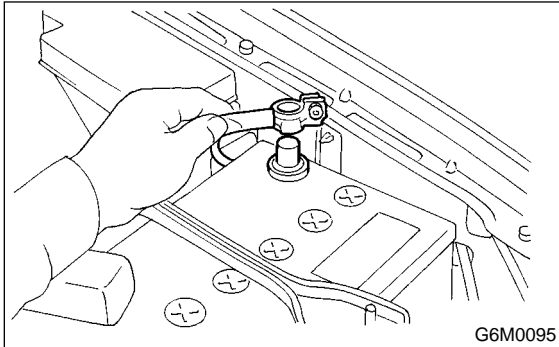
4) Connect battery ground cable.



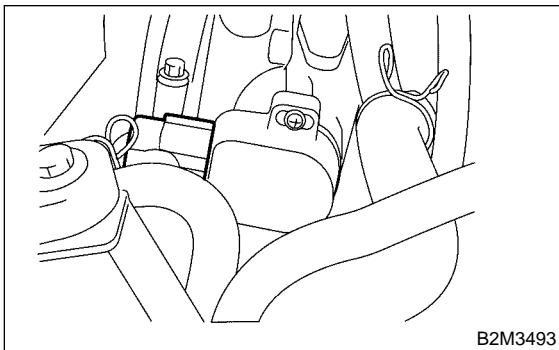
8. Throttle Position Sensor S155039

A: REMOVAL S155039A18

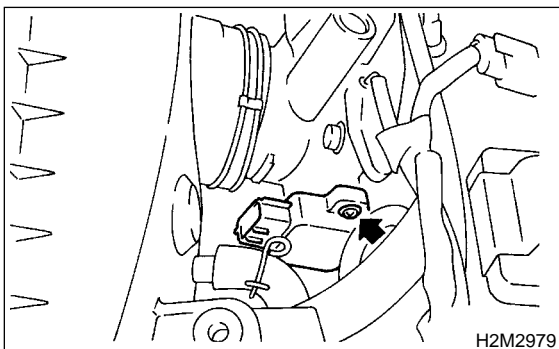
- 1) Disconnect battery ground cable.



- 2) Disconnect connector from throttle position sensor.



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



B: INSTALLATION S155039A11

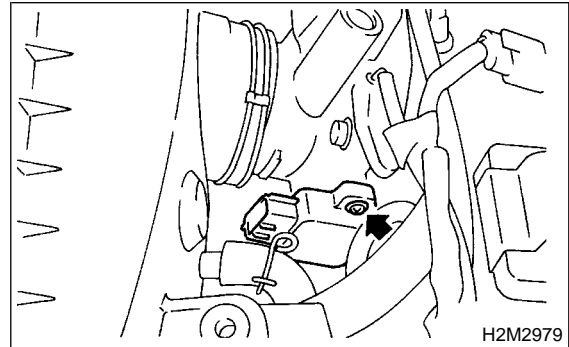
Install in the reverse order of removal.

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.

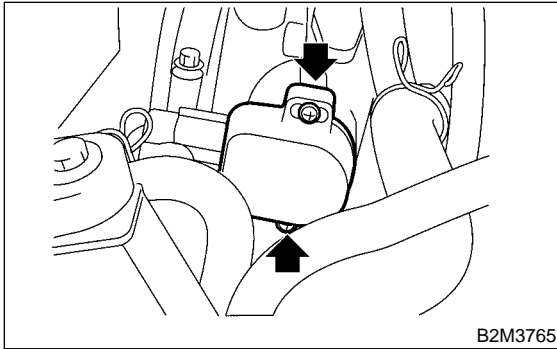


THROTTLE POSITION SENSOR

Fuel Injection (Fuel Systems)

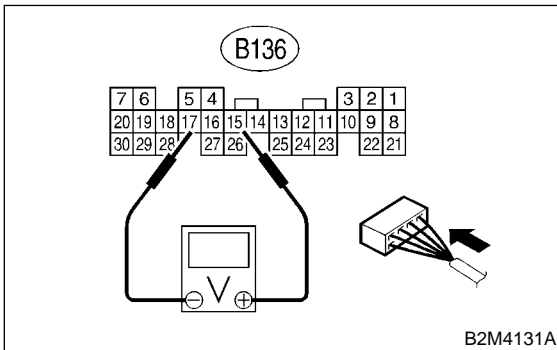
C: ADJUSTMENT S155039A01

- 1) Turn ignition switch to OFF.
- 2) Loosen throttle position sensor holding screws.



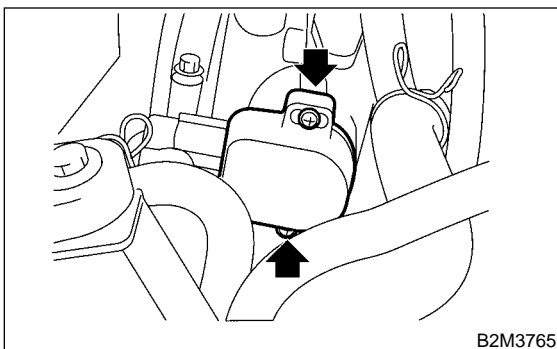
- 3) When using voltage meter;
 - (1) Take out ECM.
 - (2) Turn ignition switch to ON.
 - (3) Adjust throttle position sensor to the proper position to allow the voltage signal to ECM to be in specification.

Connector & terminal / Specified voltage
(B136) No. 15 — (B136) No. 17 / 0.45 —
0.55 V
[Fully closed.]



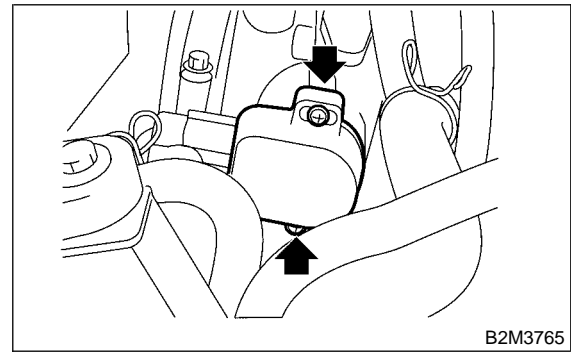
- (4) Tighten throttle position sensor holding screws.

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



- 4) When using Subaru Select Monitor;
 - (1) Turn ignition switch to OFF.

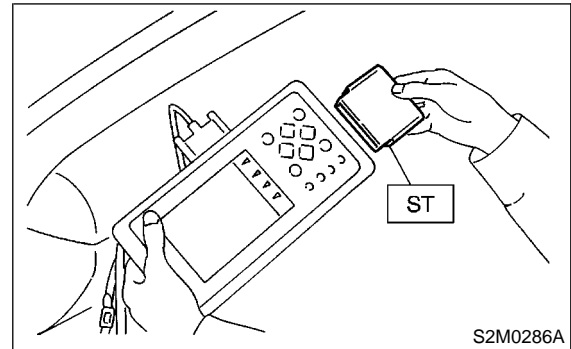
- (2) Loosen throttle position sensor holding screws.



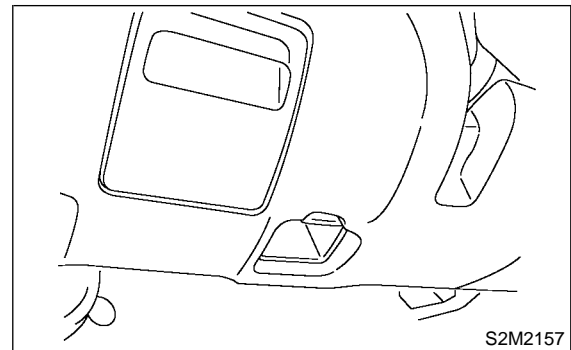
NOTE:

For detailed operation procedures, refer to the Subaru Select Monitor Operation Manual.

- (3) Insert the cartridge to Subaru Select Monitor.



- (4) Connect Subaru Select Monitor to the data link connector.



- 5) Turn ignition switch to ON, and Subaru Select Monitor switch to ON.
- 6) Select {2. Each System Check} in Main Menu.
- 7) Select {Engine Control System} in Selection Menu.
- 8) Select {1. Current Data Display & Save} in Engine Control System Diagnosis.
- 9) Select {1.12 Data Display} in Data Display Menu.
- 10) Adjust throttle position sensor to the proper position to match with the following specifications.

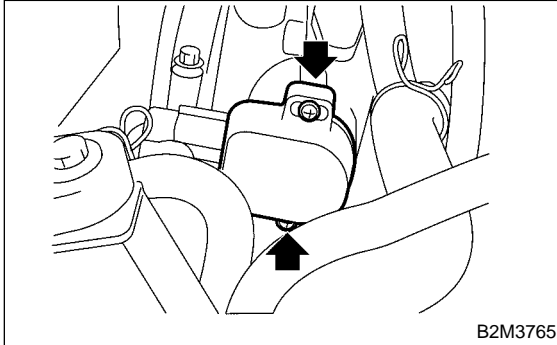
THROTTLE POSITION SENSOR

Fuel Injection (Fuel Systems)

Condition: Throttle fully closed
Throttle opening angle 0.00%
Throttle sensor voltage 0.50 V

11) Tighten throttle position sensor holding screws.

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



INTAKE AIR TEMPERATURE AND PRESSURE SENSOR

Fuel Injection (Fuel Systems)

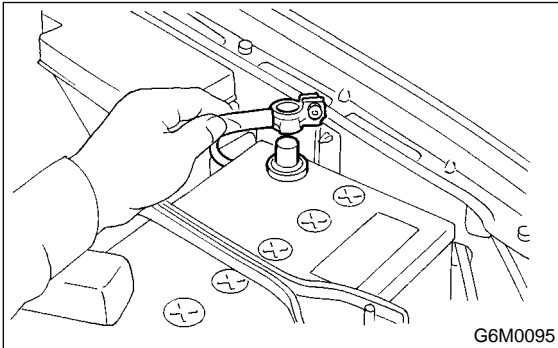
9. Intake Air Temperature and Pressure Sensor

S155044

A: REMOVAL

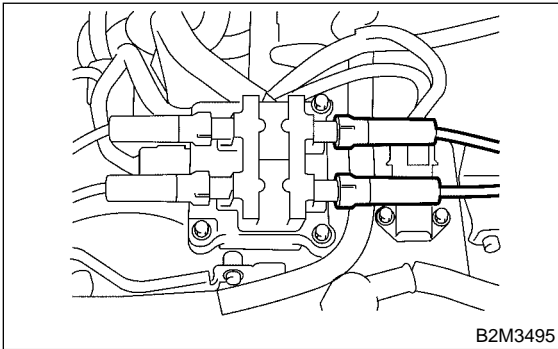
S155044A18

- 1) Disconnect battery ground cable.



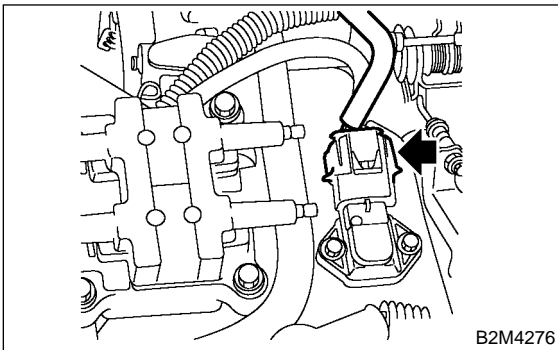
G6M0095

- 2) Disconnect spark plug cord from ignition coil and ignitor assembly.



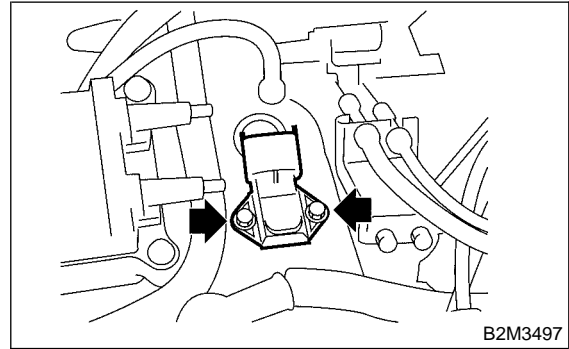
B2M3495

- 3) Disconnect connector from intake air temperature and pressure sensor.



B2M4276

- 4) Remove intake air temperature and pressure sensor.



B2M3497

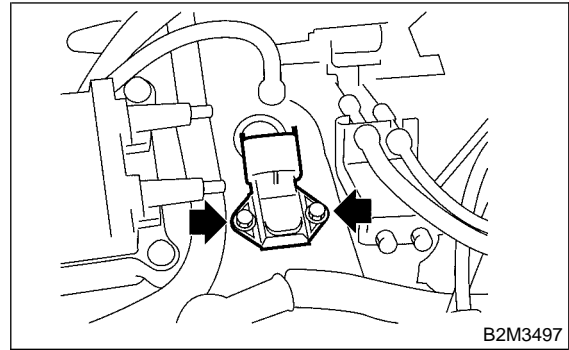
B: INSTALLATION

S155044A11

Install in the reverse order of removal.

Tightening torque:

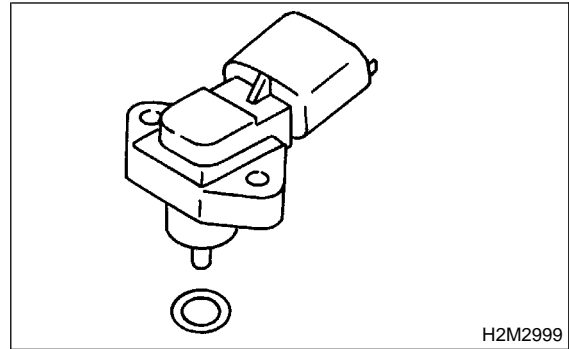
3.4 N·m (0.35 kgf·m, 2.5 ft·lb)



B2M3497

NOTE:

Replace O-ring with a new one.



H2M2999

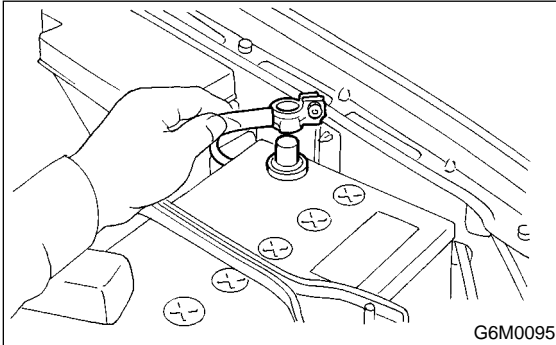
10. Atmospheric Pressure Sensor

S155045

A: REMOVAL

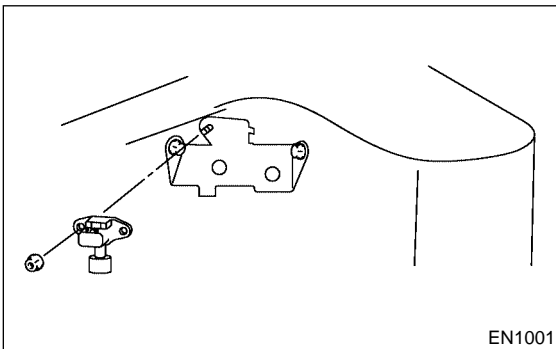
S155045A18

- 1) Disconnect battery ground cable.



- 2) Disconnect connector from atmospheric pressure sensor.

- 3) Remove atmospheric pressure sensor from bracket.



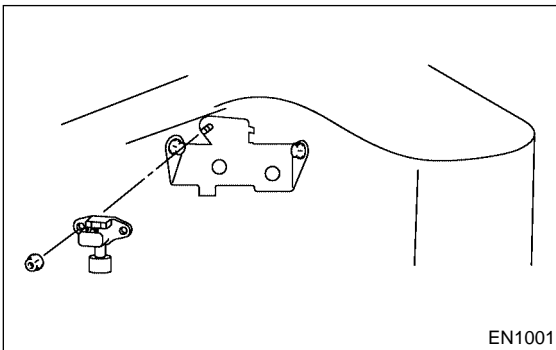
B: INSTALLATION

S155045A11

Install in the reverse order of removal.

Tightening torque:

6.4 N·m (0.65 kgf·m, 4.7 ft·lb)



IDLE AIR CONTROL SOLENOID VALVE

Fuel Injection (Fuel Systems)

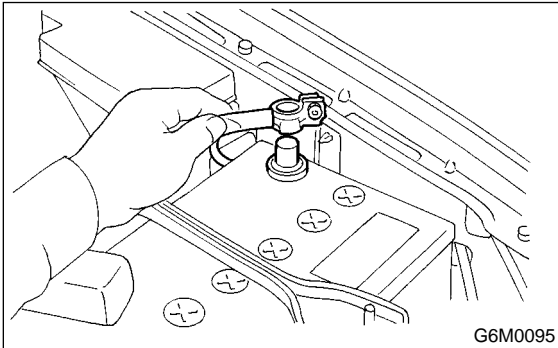
11. Idle Air Control Solenoid Valve

S155056

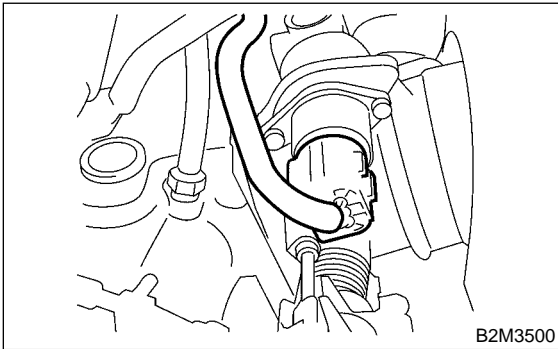
A: REMOVAL

S155056A18

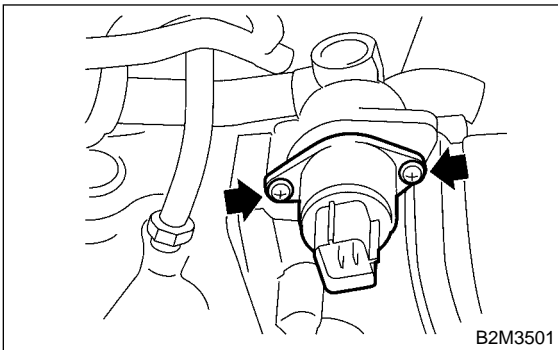
- 1) Disconnect battery ground cable.



- 2) Disconnect connector from idle air control solenoid valve.



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



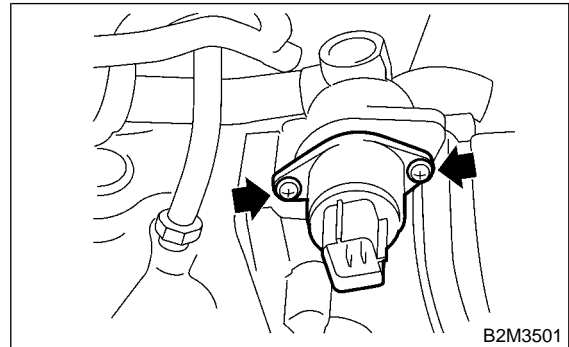
B: INSTALLATION

S155056A11

Install in the reverse order of removal.

Tightening torque:

1.6 N·m (0.16 kgf-m, 1.2 ft-lb)



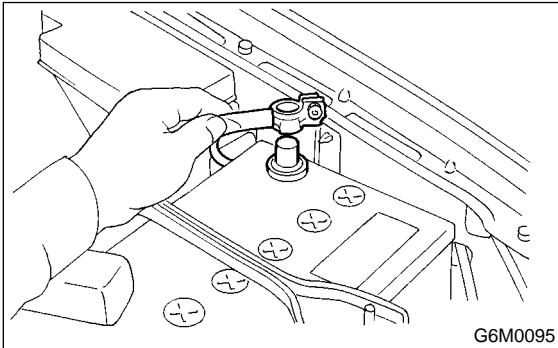
12. Air Assist Injector Solenoid Valve

S155570

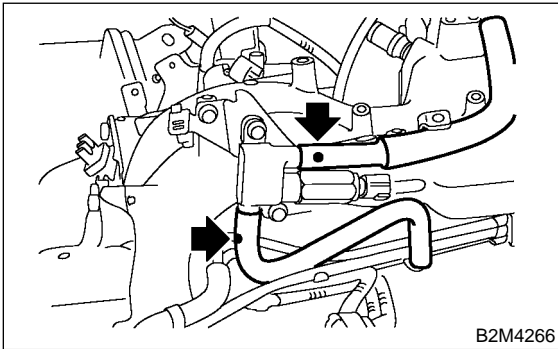
A: REMOVAL

S155570A18

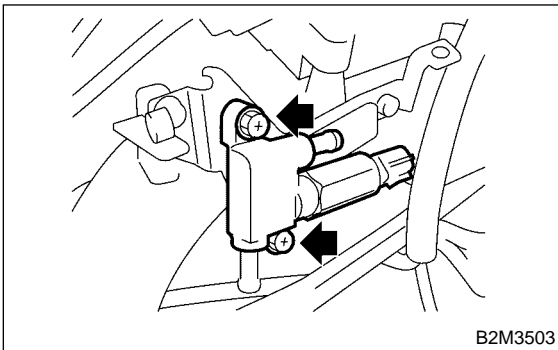
- 1) Disconnect battery ground cable.



- 2) Disconnect connector from air assist injector solenoid valve and disconnect air by-pass hoses.



- 3) Remove air assist injector solenoid valve from intake manifold.



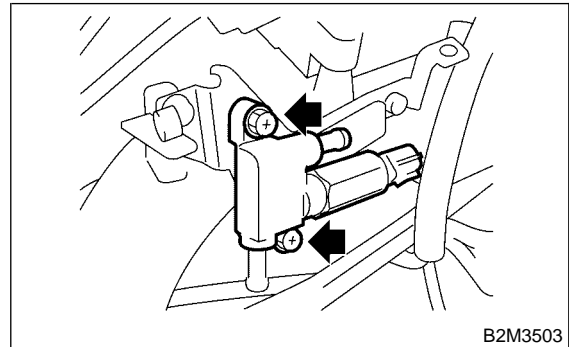
B: INSTALLATION

S155570A11

Install in the reverse order of removal.

Tightening torque:

6.4 N·m (0.65 kgf-m, 4.7 ft-lb)



FUEL INJECTOR

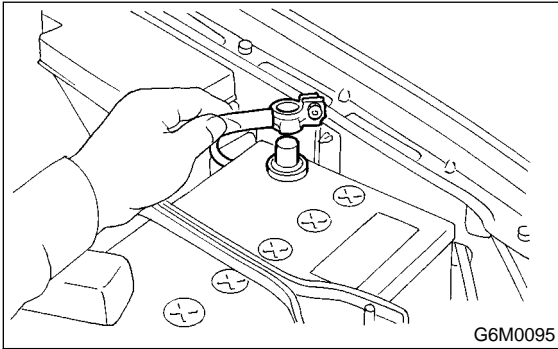
Fuel Injection (Fuel Systems)

13. Fuel Injector S155051

A: REMOVAL S155051A18

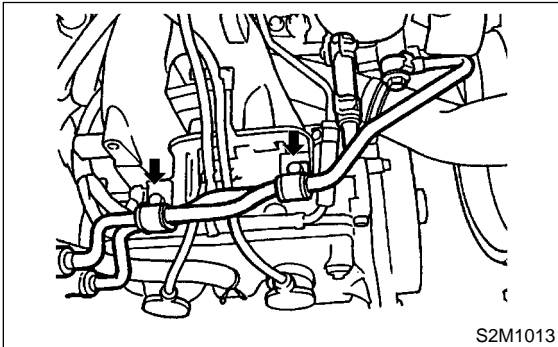
1. RH SIDE S155051A1801

- 1) Release fuel pressure.
<Ref. to FU(SOHC)-52, RELEASING OF FUEL PRESSURE, OPERATION, Fuel.>
- 2) Open fuel flap lid, and remove fuel filler cap.
- 3) Disconnect battery ground cable.

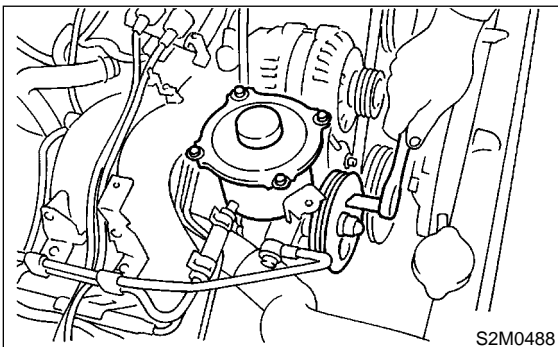


- 4) Remove resonator chamber. <Ref. to IN(SOHC)-9, REMOVAL, Resonator Chamber.>
- 5) Remove power steering pump and tank from brackets.

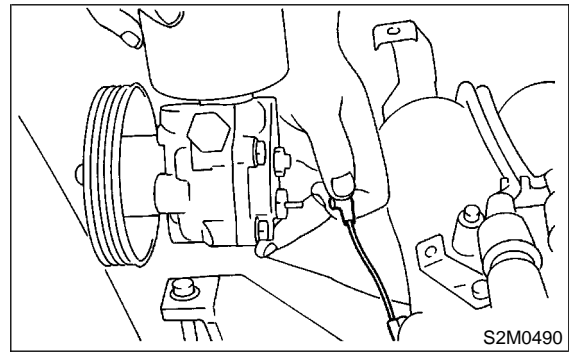
- (1) Remove front side V-belt. <Ref. to ME(SOHC)-42, REMOVAL, V-belt.>
- (2) Remove bolts which hold power steering pipe bracket onto intake manifold.



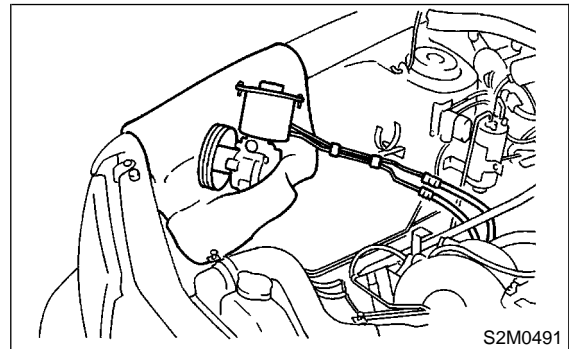
- (3) Remove bolts which install power steering pump to bracket.



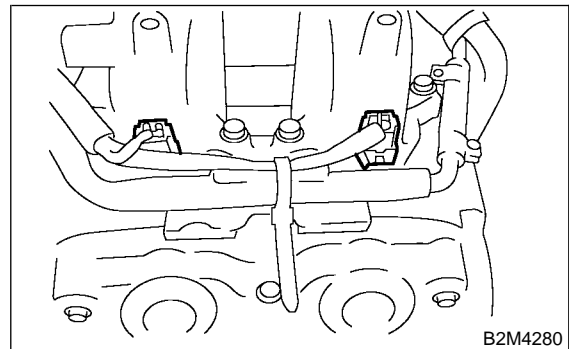
- (4) Disconnect connector from power steering pump switch.



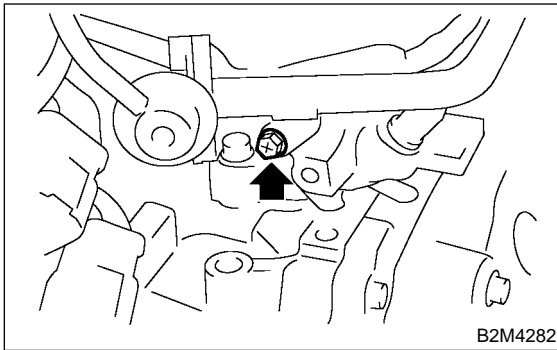
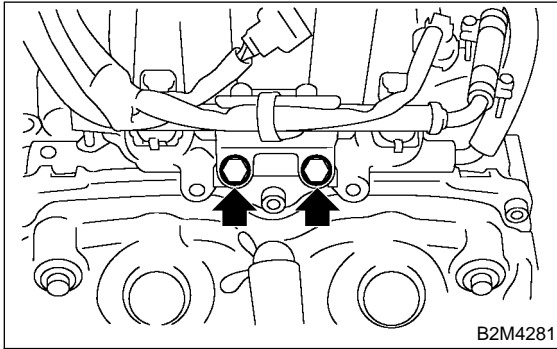
- (5) Place power steering pump and tank on the right side wheel apron.



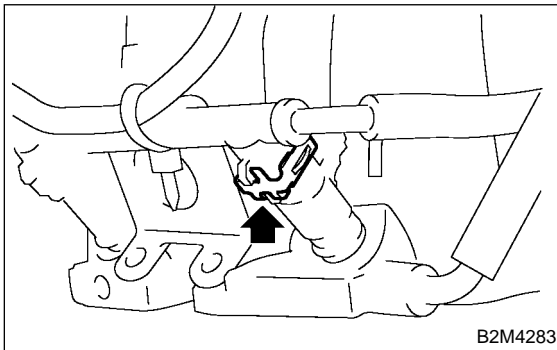
- 6) Remove spark plug cords from spark plugs (#1 and #3 cylinders).
- 7) Disconnect connector from fuel injector.



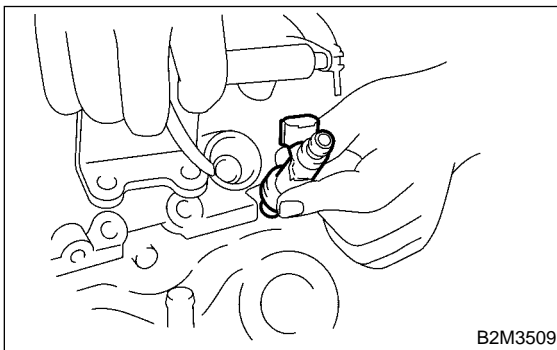
8) Remove bolt which holds injector pipe to intake manifold.



9) Remove fuel injector from intake manifold.
(1) Remove fuel injector securing clip.

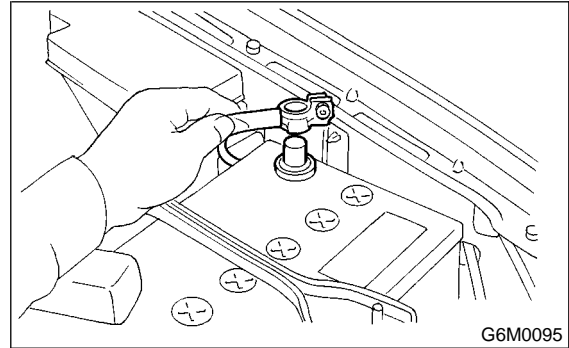


(2) Remove fuel injector while lifting up fuel injector pipe.

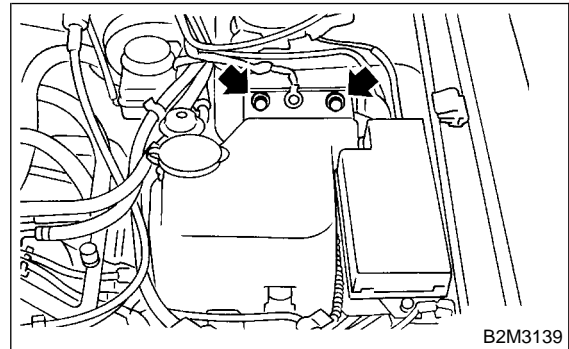


2. LH SIDE S155051A1802

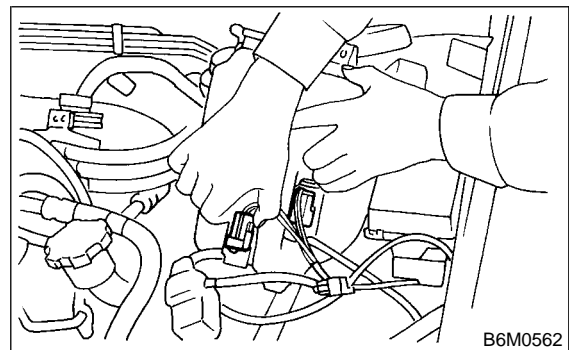
- 1) Release fuel pressure. <Ref. to FU(SOHC)-52, RELEASING OF FUEL PRESSURE, OPERATION, Fuel.>
- 2) Open fuel flap lid, and remove fuel filler cap.
- 3) Disconnect battery ground cable.



4) Remove two bolts which install washer tank on body.



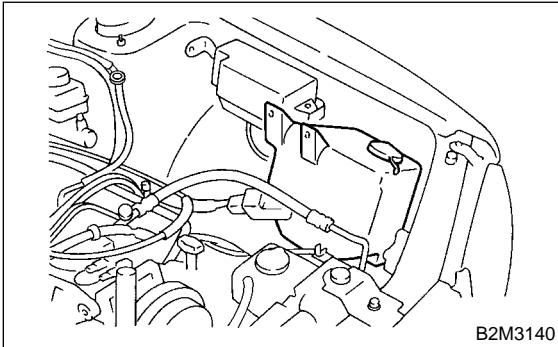
- 5) Disconnect connector from front window washer motor.
- 6) Disconnect connector from rear gate glass washer motor.



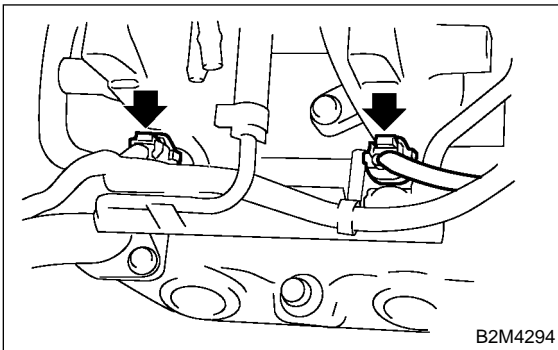
FUEL INJECTOR

Fuel Injection (Fuel Systems)

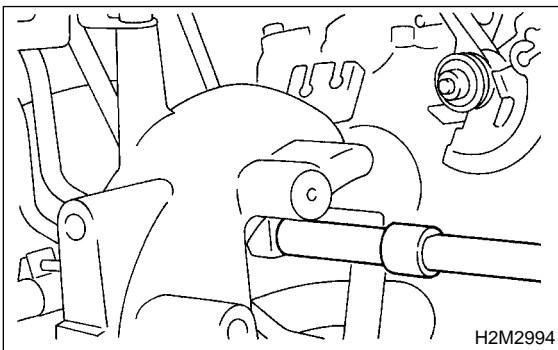
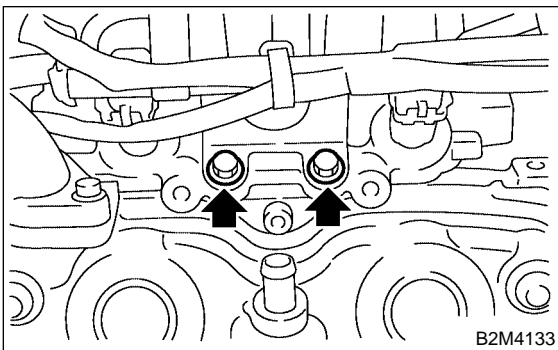
- 7) Disconnect rear window glass washer hose from washer motor, then plug connection with a suitable cap.
- 8) Move washer tank, and secure it away from working area.



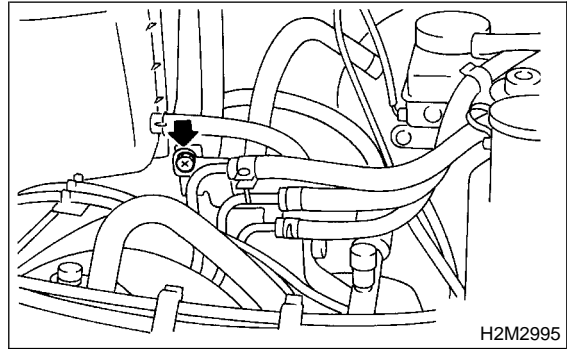
- 9) Remove spark plug cords from spark plugs (#2 and #4 cylinders).
- 10) Disconnect connector from fuel injector.



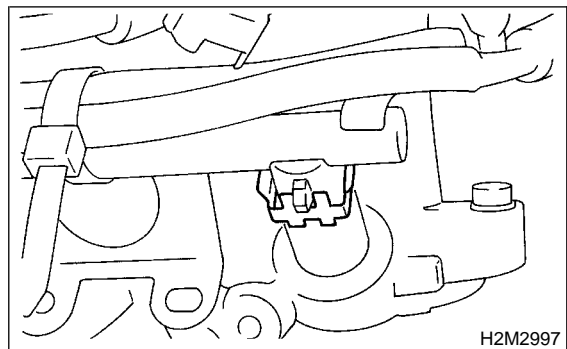
- 11) Remove bolt which holds injector pipe to intake manifold.



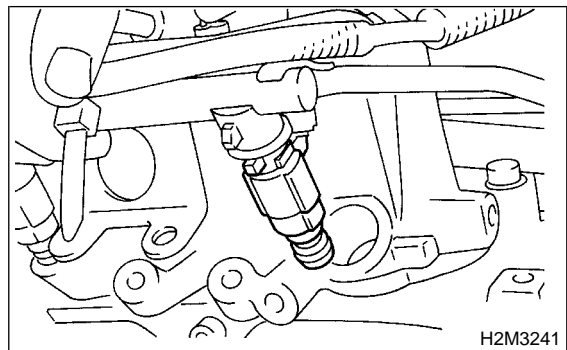
- 12) Remove bolt which holds fuel pipe on the left side intake manifold.



- 13) Remove fuel injector from intake manifold.
 - (1) Remove fuel injector securing clip.



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



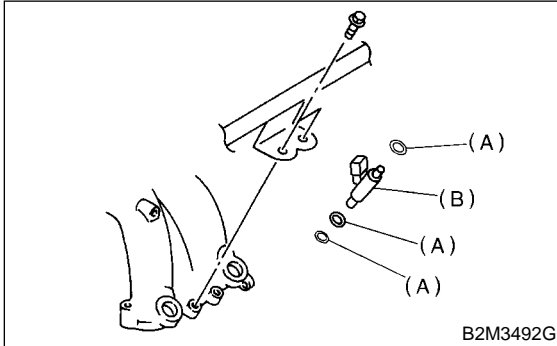
B: INSTALLATION S155051A11

1. RH SIDE S155051A1101

Install in the reverse order of removal.

NOTE:

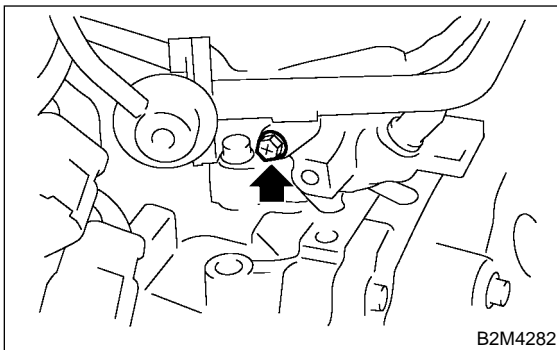
Replace O-rings with new ones.



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

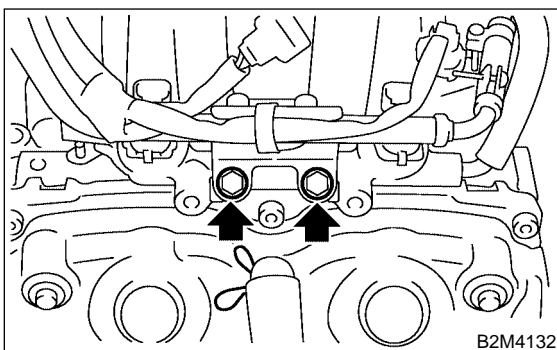
Tightening torque:

4.9 N·m (0.50 kgf·m, 3.6 ft·lb)



Tightening torque:

19 N·m (1.9 kgf·m, 13.7 ft·lb)

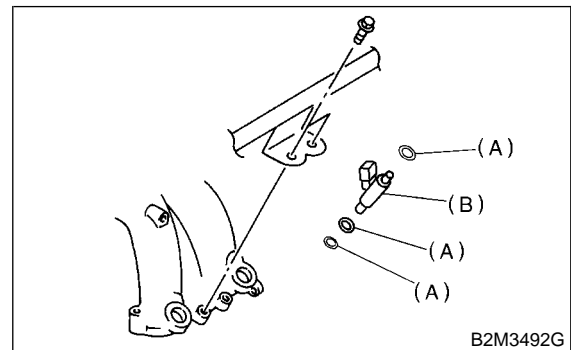


2. LH SIDE S155051A1102

Install in the reverse order of removal.

NOTE:

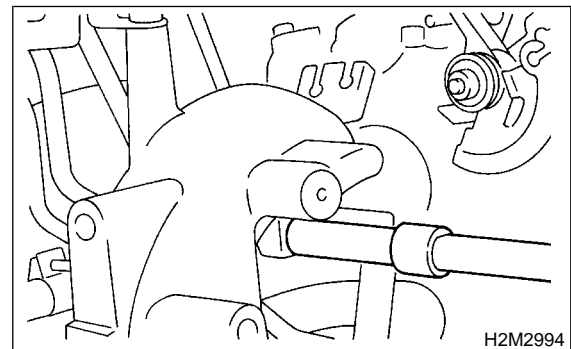
Replace O-rings with new ones.



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

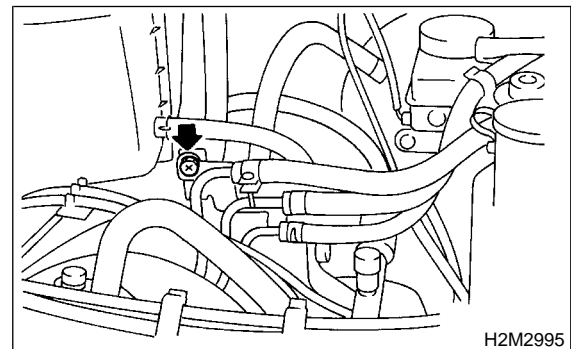
Tightening torque:

4.9 N·m (0.50 kgf·m, 3.6 ft·lb)



Tightening torque:

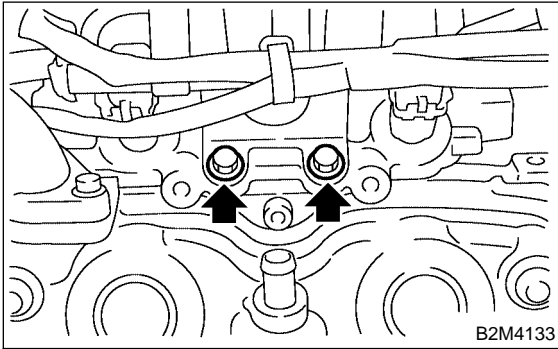
4.9 N·m (0.50 kgf·m, 3.6 ft·lb)



FUEL INJECTOR

Fuel Injection (Fuel Systems)

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

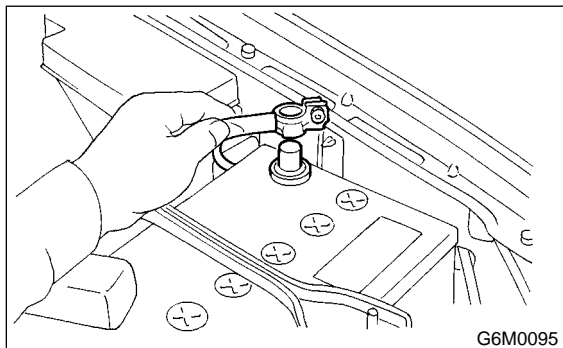


14. Front Oxygen (A/F) Sensor

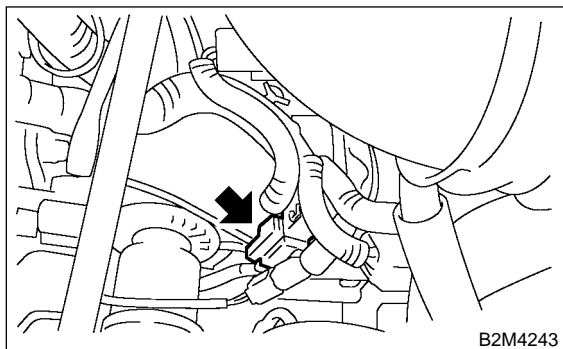
S155642

A: REMOVAL S155642A18

- 1) Disconnect battery ground cable.



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



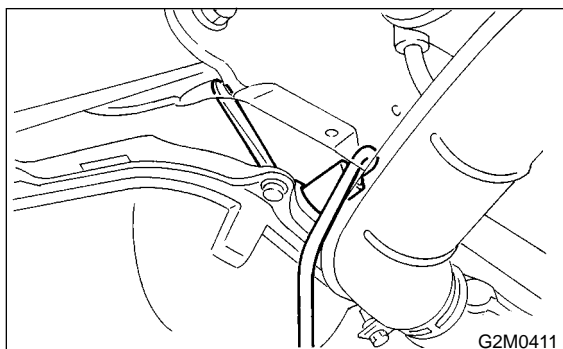
- 3) Lift-up the vehicle.
- 4) Apply SUBARU CRC or its equivalent to threaded portion of front oxygen (A/F) sensor, and leave it for one minute or more.

SUBARU CRC (Part No. 004301003)

- 5) 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.



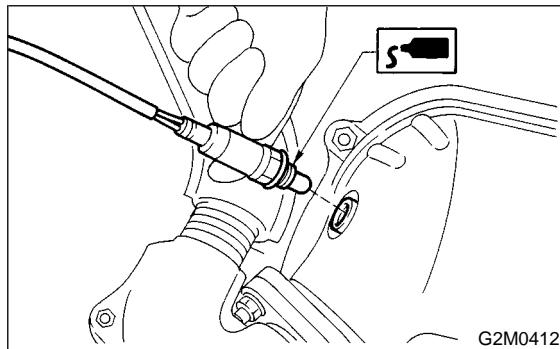
B: INSTALLATION S155642A11

- 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:

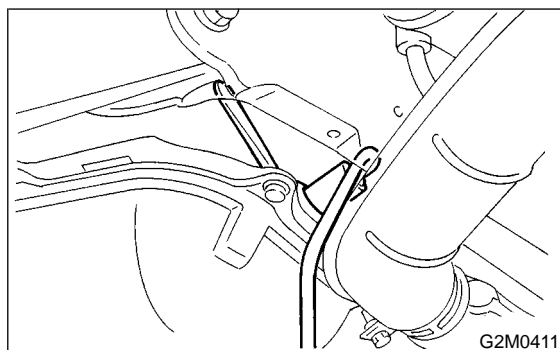
Never apply anti-seize compound to protector of front oxygen (A/F) sensor.



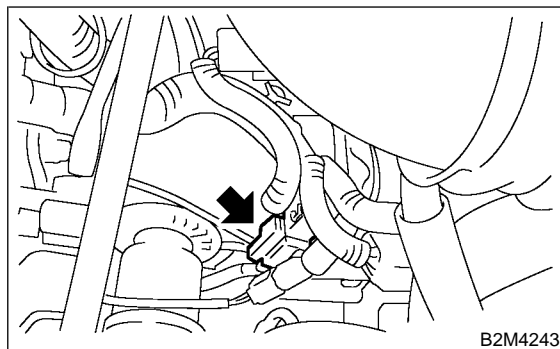
- 2) Install front oxygen (A/F) sensor.

Tightening torque:

21 N·m (2.1 kgf-m, 15.2 ft-lb)



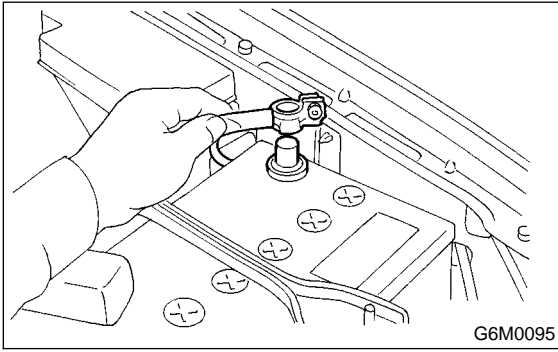
- 3) Lower the vehicle.
- 4) Connect connector of front oxygen (A/F) sensor.



FRONT OXYGEN (A/F) SENSOR

Fuel Injection (Fuel Systems)

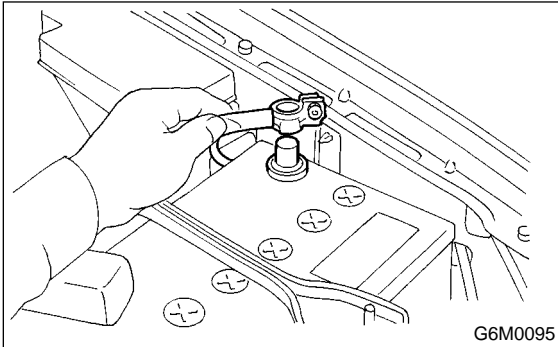
5) Connect battery ground cable.



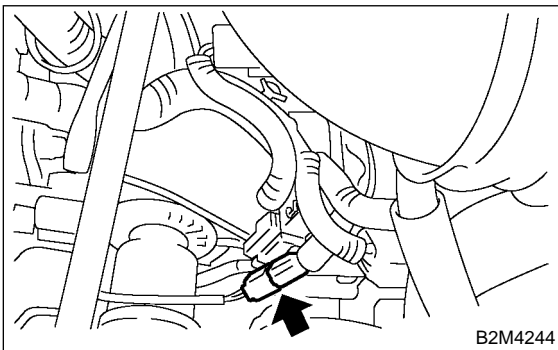
15. Rear Oxygen Sensor S155657

A: REMOVAL S155657A18

- 1) Disconnect battery ground cable.



- 2) Disconnect connector from rear oxygen sensor.



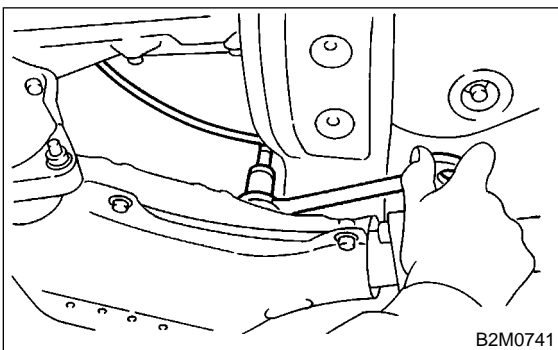
- 3) Lift-up the vehicle.
- 4) Apply SUBARU CRC or its equivalent to threaded portion of rear oxygen sensor, and leave it for one minute or more.

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 S155657A11

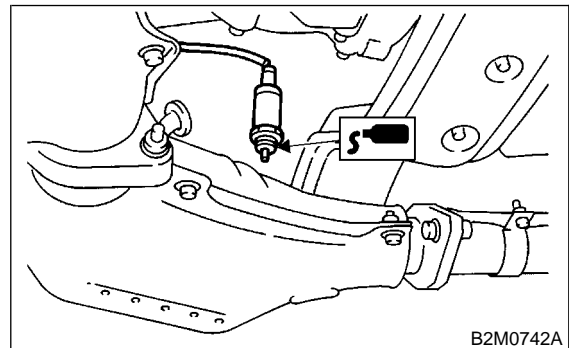
- 1) Before installing rear oxygen sensor, apply anti-seize compound only to threaded portion of rear oxygen sensor to make the next removal easier.

CAUTION:

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

Anti-seize compound:

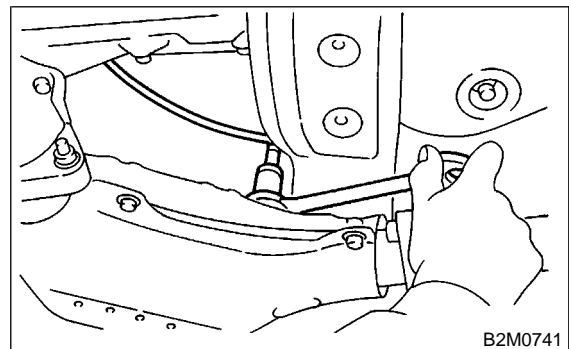
SS-30 by JET LUBE



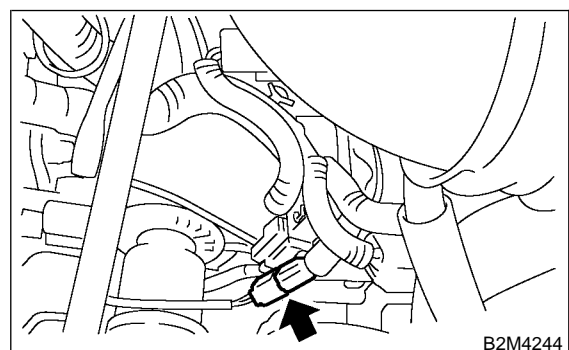
- 2) Install rear oxygen sensor.

Tightening torque:

21 N·m (2.1 kgf·m, 15.2 ft·lb)



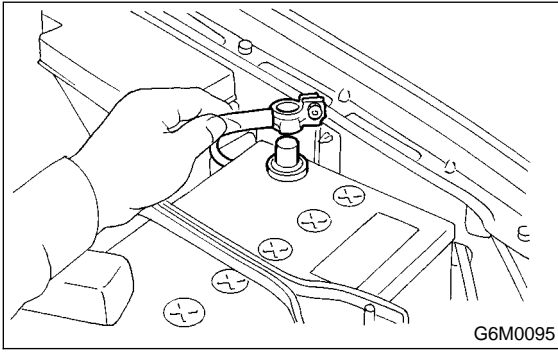
- 3) Lower the vehicle.
- 4) Connect connector to rear oxygen sensor.



REAR OXYGEN SENSOR

Fuel Injection (Fuel Systems)

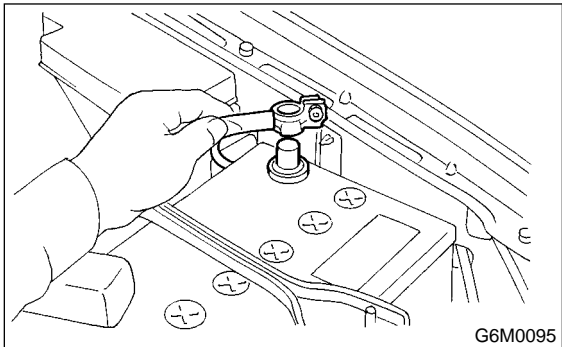
5) Connect battery ground cable.



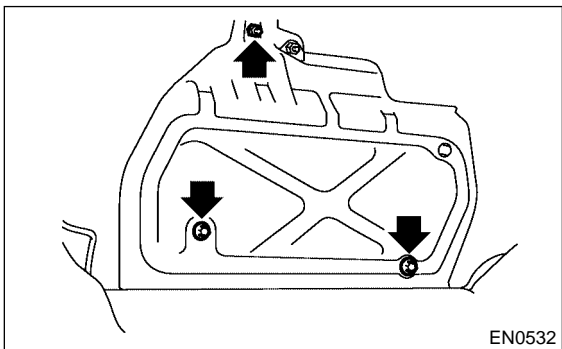
16. Engine Control Module S155049

A: REMOVAL S155049A18

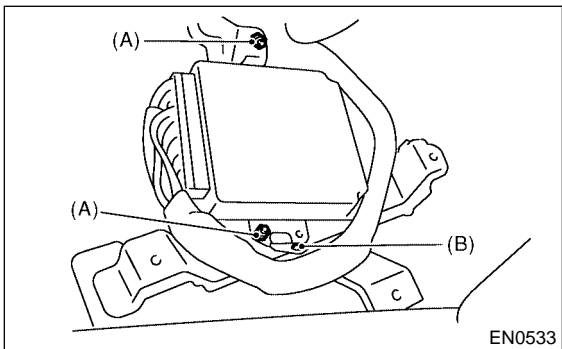
- 1) Disconnect battery ground cable.



- 2) Remove lower inner trim of passenger side.
<Ref. to EI-38, 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 S155049A11

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.

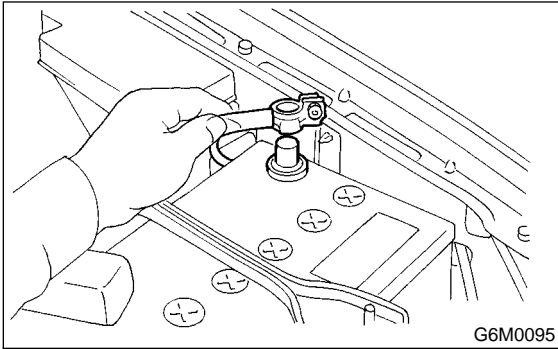
MAIN RELAY

Fuel Injection (Fuel Systems)

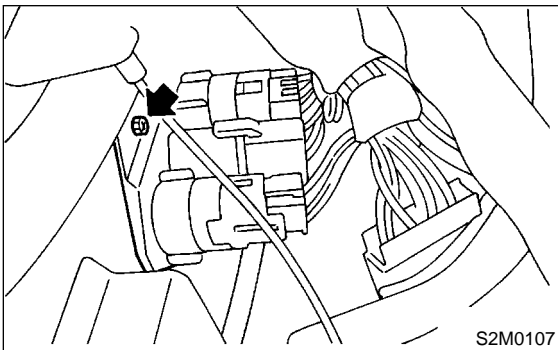
17. Main Relay S155050

A: REMOVAL S155050A18

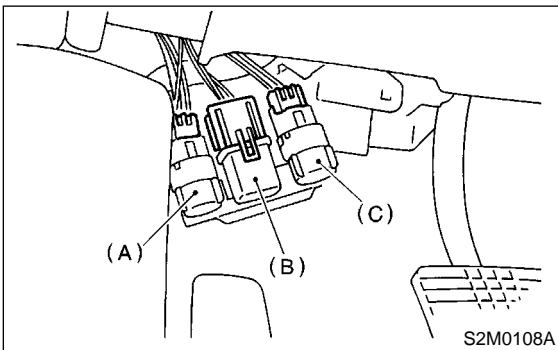
1) Disconnect battery ground cable.



2) Remove bolt which holds bracket of main relay and fuel pump relay.

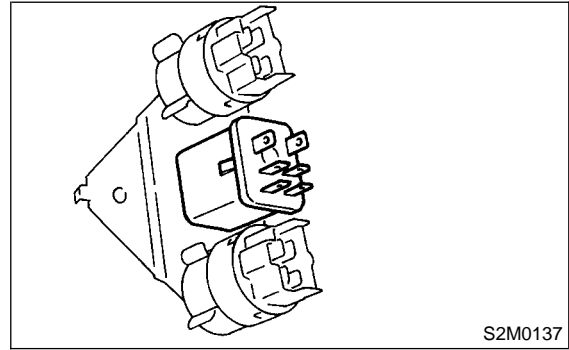


3) Disconnect connectors from relays.



- (A) Blower fan motor relay
- (B) Main relay
- (C) Fuel pump relay

4) Remove main relay from mounting bracket.



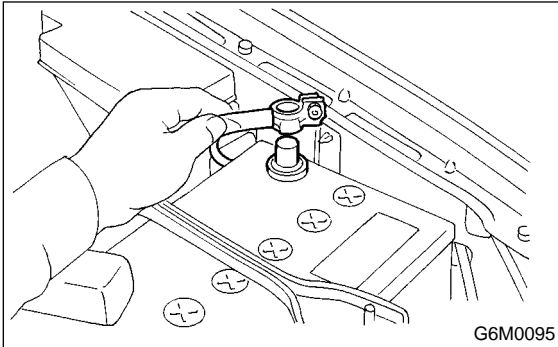
B: INSTALLATION S155050A11

Install in the reverse order of removal.

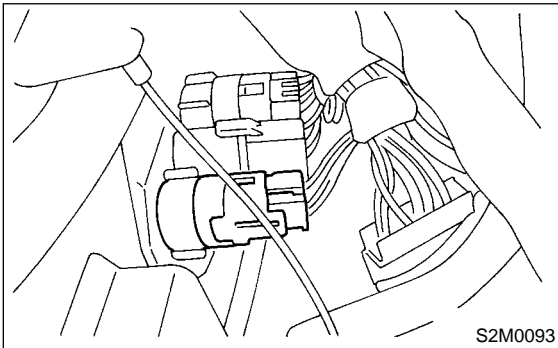
18. Fuel Pump Relay S155048

A: REMOVAL S155048A18

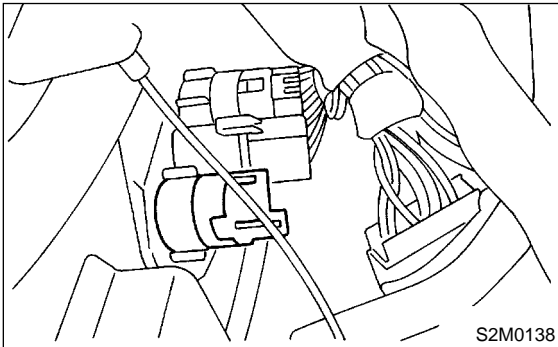
- 1) Disconnect battery ground cable.



- 2) Disconnect connector from fuel pump relay.



- 3) Remove fuel pump relay from mounting bracket.



B: INSTALLATION S155048A11

Install in the reverse order of removal.

19. Fuel S155052

A: OPERATION S155052A16

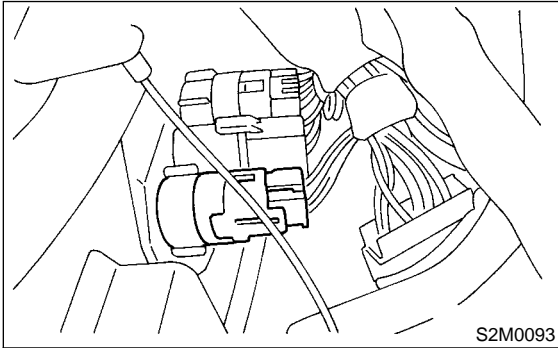
1. RELEASING OF FUEL PRESSURE

S155052A1601

WARNING:

- Place “No fire” signs near the working area.
- Disconnect ground terminal from battery.

- 1) Disconnect connector from fuel pump relay.



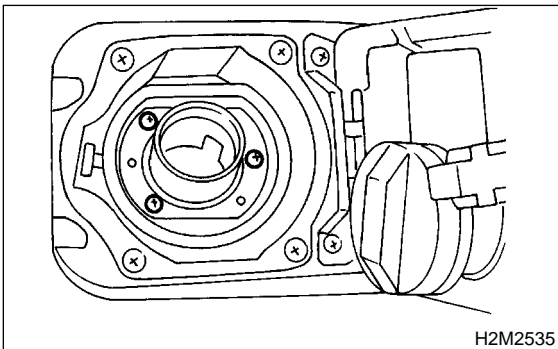
- 2) Start the engine, and run it until it stalls.
- 3) After the engine stalls, crank it for five more seconds.
- 4) Turn ignition switch OFF.

2. DRAINING OF FUEL S155052A1603

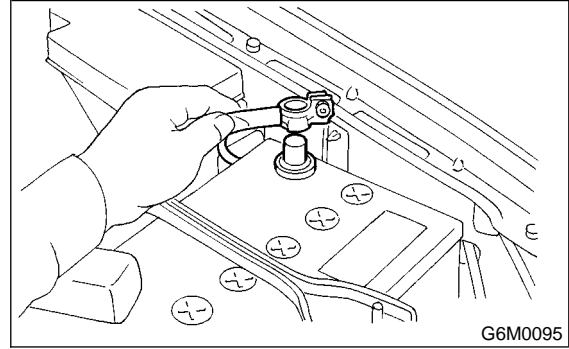
WARNING:

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

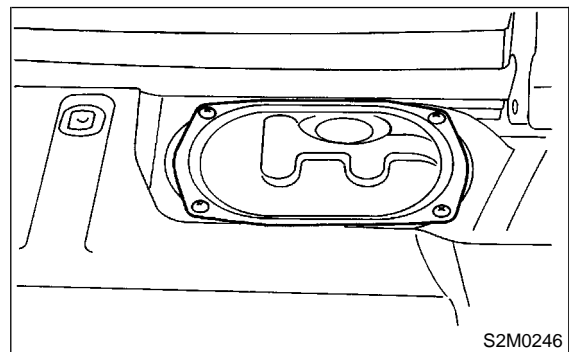
- 1) Release fuel pressure. <Ref. to FU(SOHC)-52, RELEASING OF FUEL PRESSURE, OPERATION, Fuel.>
- 2) Open fuel flap lid, and remove fuel filler cap.



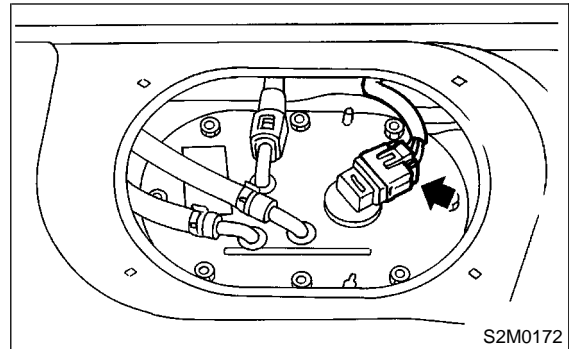
- 3) Disconnect battery ground cable.



- 4) Remove the floor box located just behind the rear seats.
- 5) Remove access hole lid.

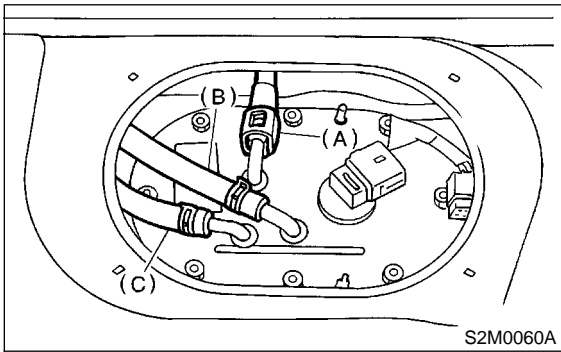


- 6) Disconnect connector from fuel pump.

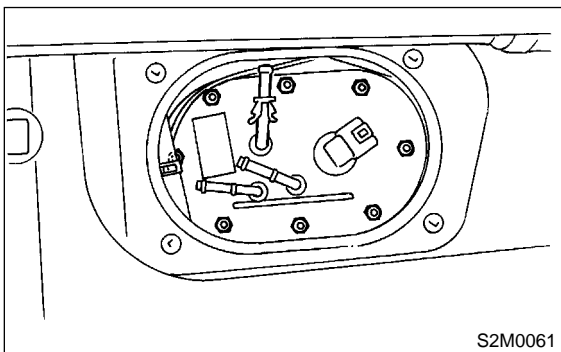


- 7) Disconnect quick connector, and then disconnect fuel delivery hose (A). <Ref. to FU(SOHC)-69, REMOVAL, Fuel Delivery, Return and Evaporation Lines.>

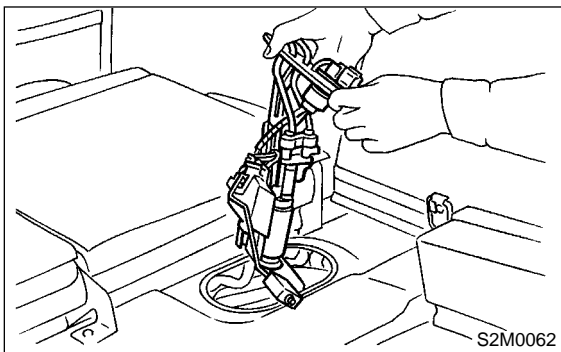
8) Move clips, and then disconnect fuel return hose (B) and jet pump hose (C).



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

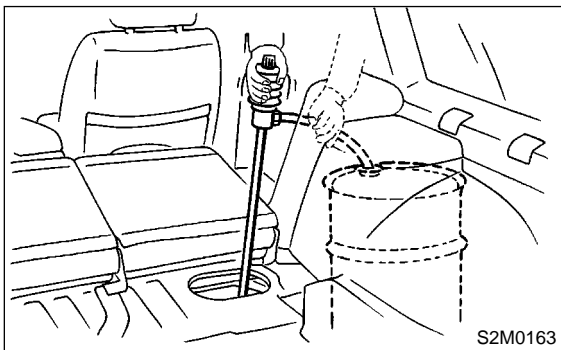


10) Take off fuel pump from fuel tank.

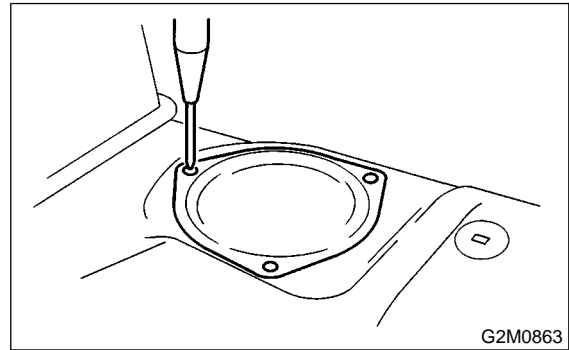


11) Drain fuel from fuel tank by using a hand pump.

WARNING:
Do not use a motor pump when draining fuel.

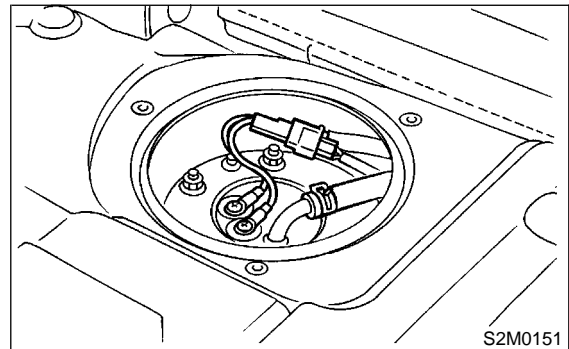


12) Remove service hole cover.

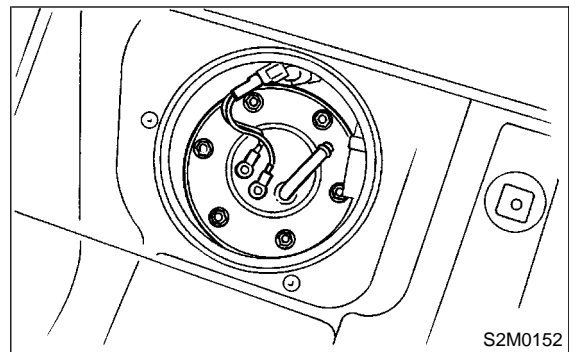


13) Disconnect connector from fuel sub meter.

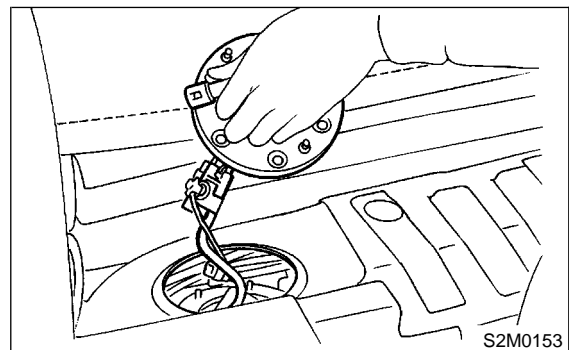
14) Disconnect fuel jet pump hose.



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



16) Remove fuel sub meter unit.



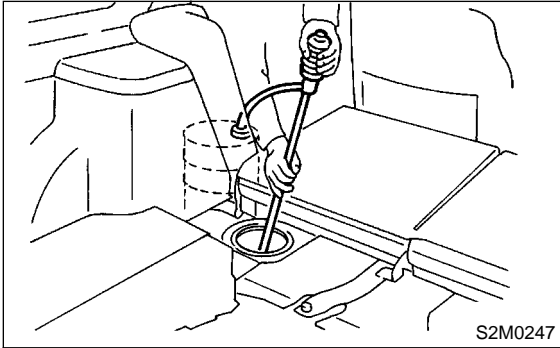
FUEL

Fuel Injection (Fuel Systems)

17) Drain fuel from there.

WARNING:

Do not use a motor pump when draining fuel.



20. Fuel Tank S155053

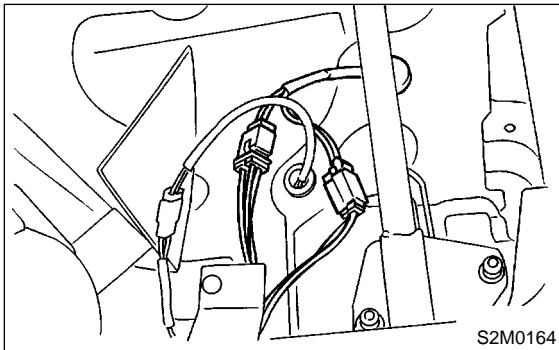
A: REMOVAL S155053A18

WARNING:

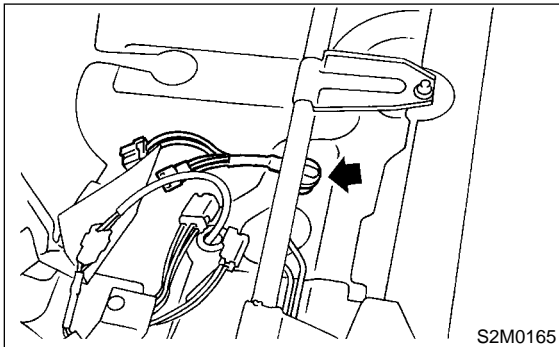
- Place “NO FIRE” signs near the working area.

- Be careful not to spill fuel on the floor.

- 1) Set vehicle on the lift.
- 2) Release fuel pressure. <Ref. to FU(SOHC)-52, RELEASING OF FUEL PRESSURE, OPERATION, Fuel.>
- 3) Drain fuel from fuel tank. <Ref. to FU(SOHC)-52, DRAINING FUEL, OPERATION, Fuel.>
- 4) Remove rear seat.
- 5) Disconnect connector of fuel tank cord to rear harness.

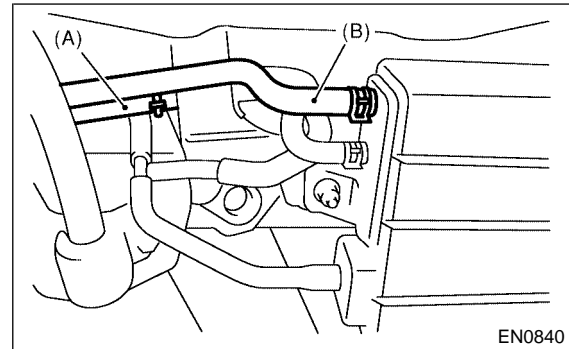


- 6) Push grommet which holds fuel tank cord on floor panel into under the body.

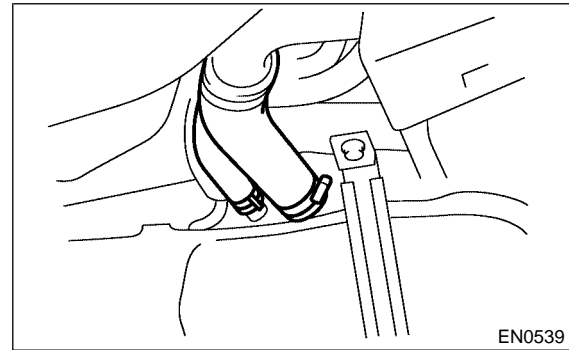


- 7) Remove rear crossmember. <Ref. to RS-20, REMOVAL, Rear Crossmember.>

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

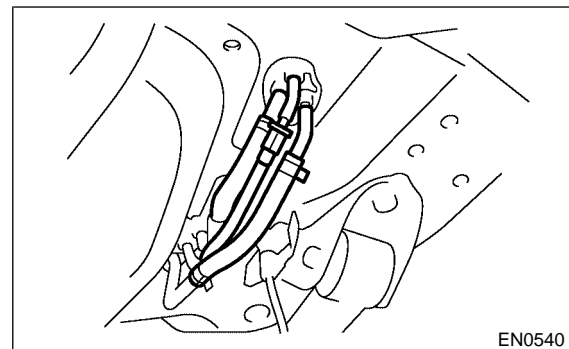


- 9) Loosen clamp and disconnect fuel filler hose and air vent hose from fuel filler pipe.



- 10) Move clips, and disconnect quick connector. <Ref. to FU(SOHC)-69, REMOVAL, Fuel Delivery, Return and Evaporation Lines.>

- 11) Disconnect fuel hoses.



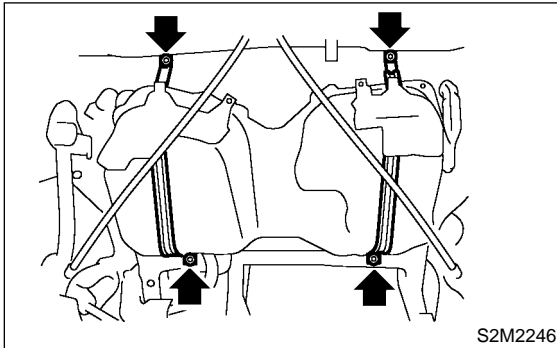
FUEL TANK

Fuel Injection (Fuel Systems)

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

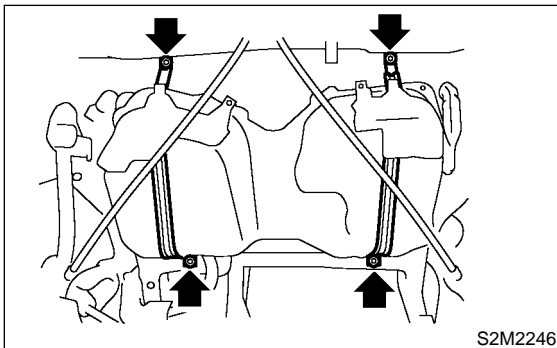
S155053A11

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

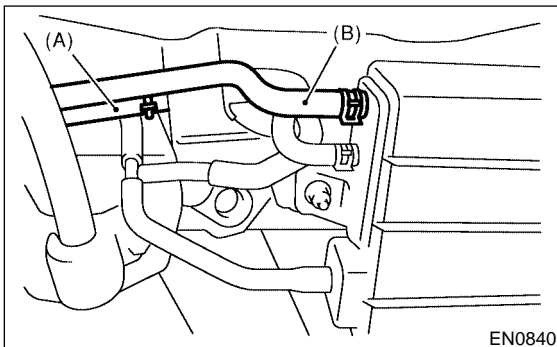
2) Set fuel tank and temporarily tighten bolts of fuel tank bands.

WARNING:

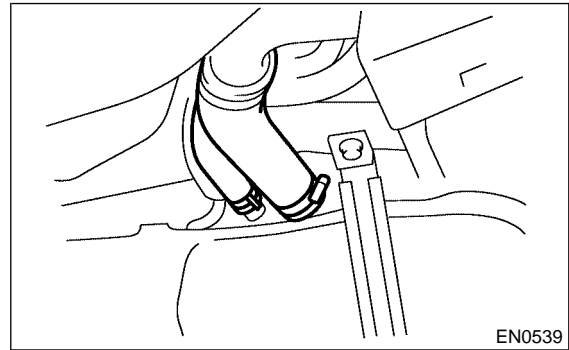
A helper is required to perform this work.



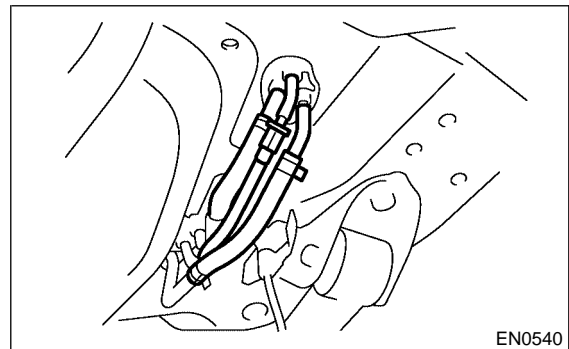
3) Connect two-way valve hose (A) to two-way valve and connect canister hose (B) to canister.



4) Connect fuel filler hose and air vent hose.



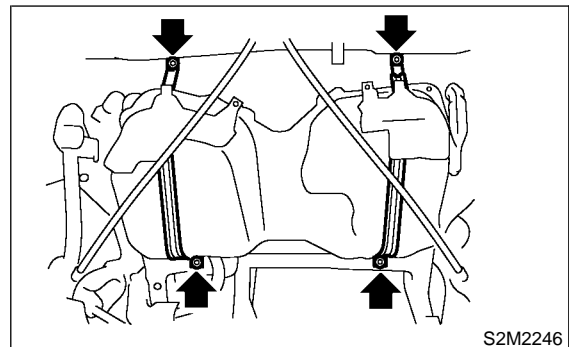
5) Connect fuel hoses, and hold then with clips and quick connector. <Ref. to FU(SOHC)-69, REMOVAL, Fuel Delivery, Return and Evaporation Lines.>



6) Tighten band mounting bolts.

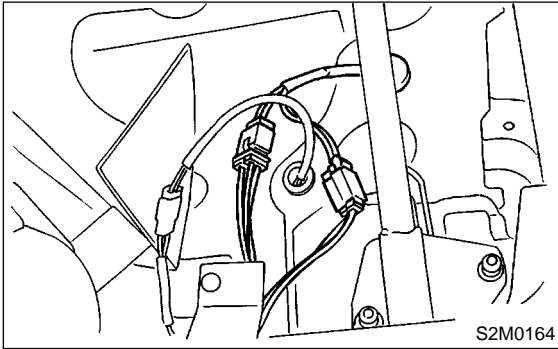
Tightening torque:

33 N·m (3.4 kgf·m, 25 ft·lb)

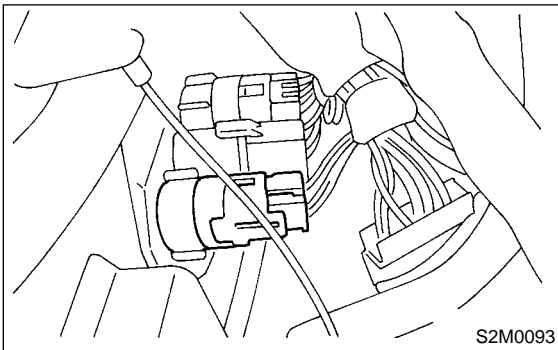


7) Install rear crossmember. <Ref. to RS-20, INSTALLATION, Rear Crossmember.>

- 8) Connect connectors to fuel tank cord and plug service hole with grommet.



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



C: INSPECTION S155053A10

- 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.

FUEL FILLER PIPE

Fuel Injection (Fuel Systems)

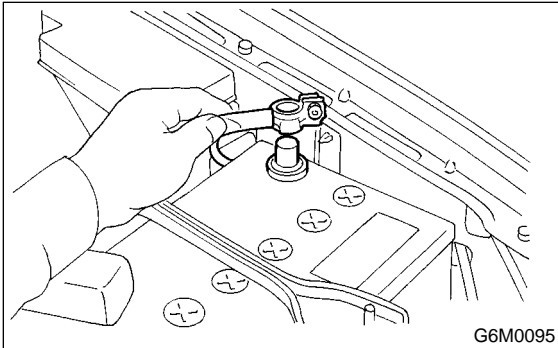
21. Fuel Filler Pipe S155022

A: REMOVAL S155022A18

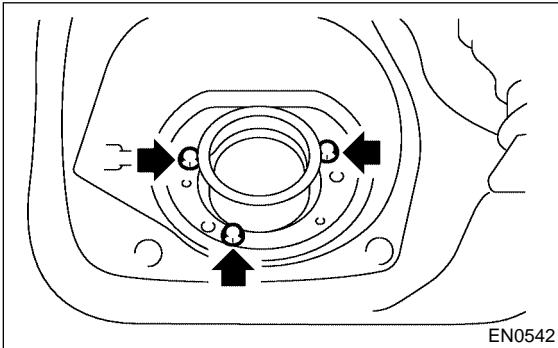
WARNING:

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

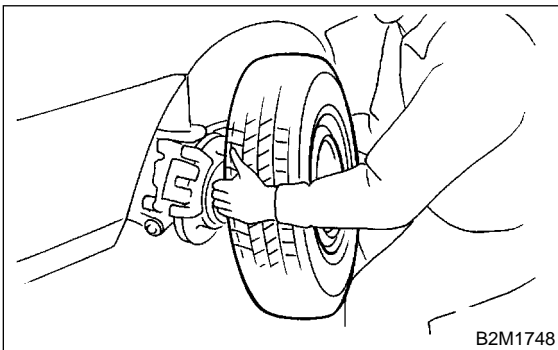
- 1) Release fuel pressure. <Ref. to FU(SOHC)-52, RELEASING OF FUEL PRESSURE, OPERATION, Fuel.>
- 2) Open fuel filler flap lid and remove filler cap.
- 3) Disconnect battery ground cable.



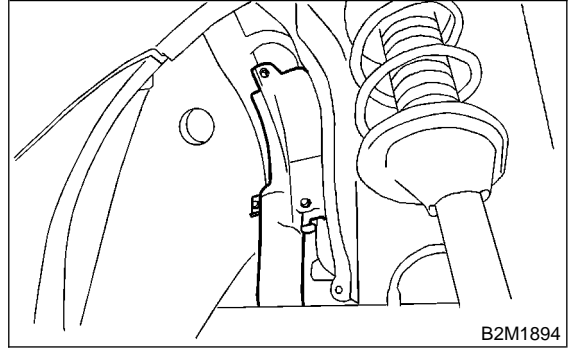
- 4) Remove screws holding packing in place.



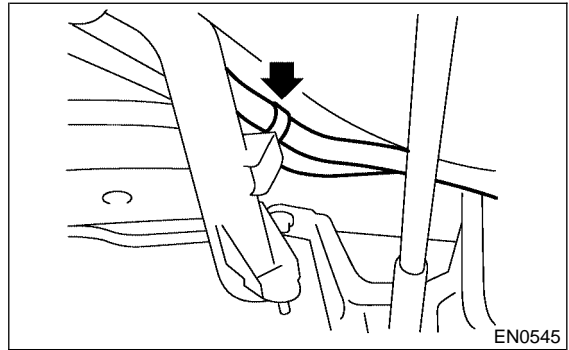
- 5) Lift-up the vehicle.
- 6) Remove rear right side wheel nuts.
- 7) Remove rear right side wheel.



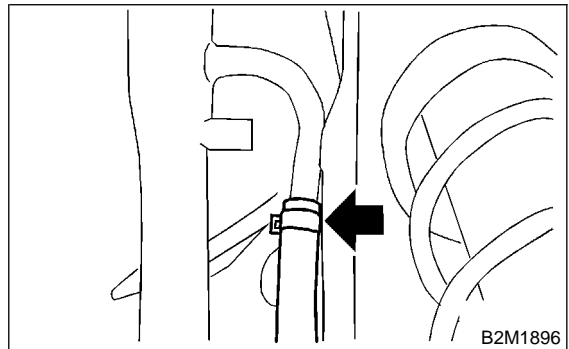
- 8) Remove fuel filler pipe protector.



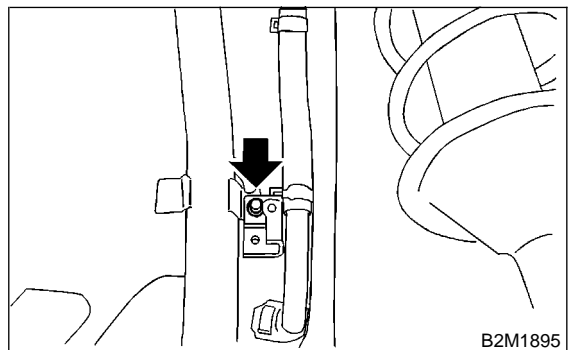
- 9) Separate evaporation hoses from clip of fuel filler pipe.



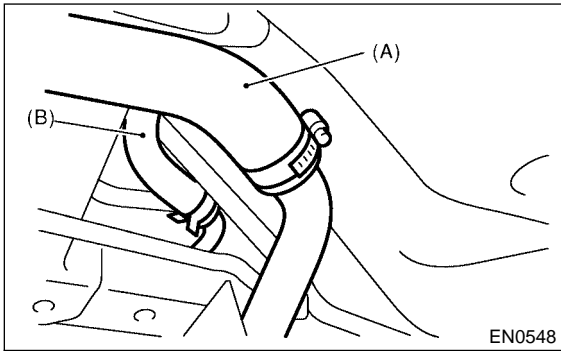
- 10) Disconnect air vent hose from fuel filler pipe.



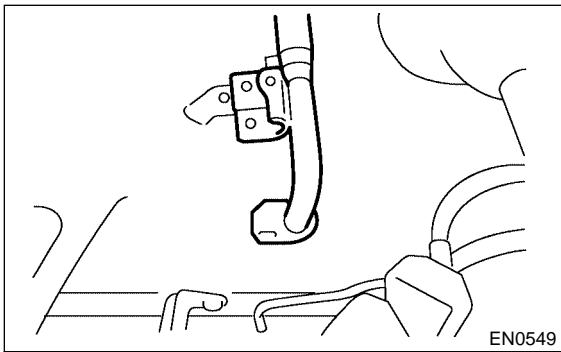
- 11) Remove bolts which hold fuel filler pipe bracket on body.



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



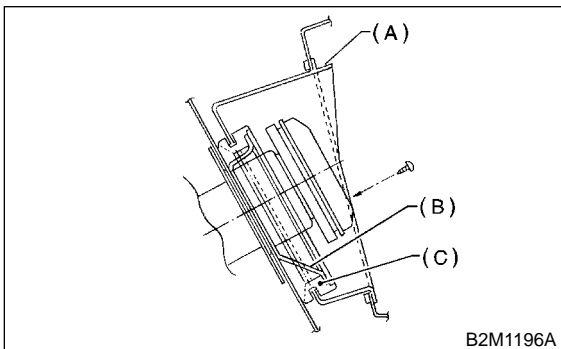
- 14) Remove fuel filler pipe to under side of the vehicle.
- 15) Remove air vent pipe together with clip from body.



B: INSTALLATION

S155022A11

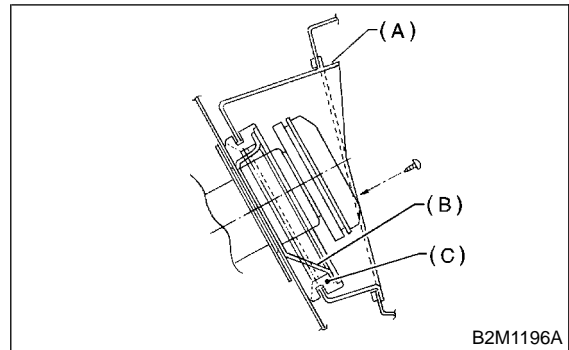
- 1) Hold fuel filler flap open.
- 2) Set fuel saucer (A) with rubber packing (C) and insert fuel filler pipe into hole from the inner side of apron.



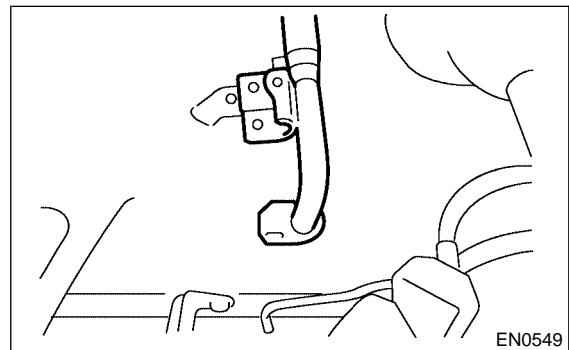
- 3) Align holes in fuel filler pipe neck and set cup (B), and tighten screws.

NOTE:

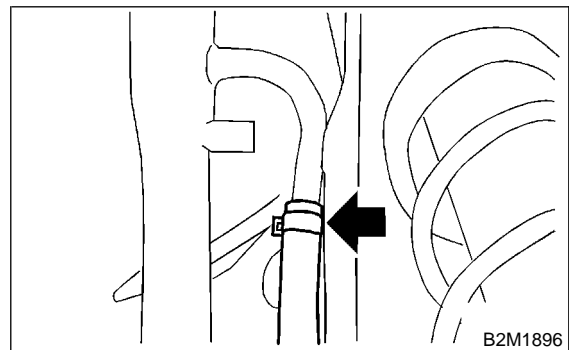
If edges of rubber packing are folded toward the inside, straighten it with a screwdriver.



- 4) Install air vent pipe.



- 5) Connect air vent hose to fuel filler pipe.



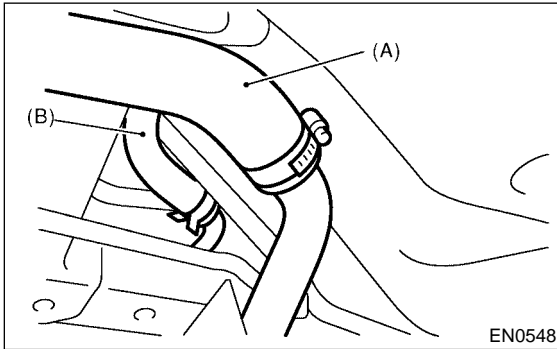
FUEL FILLER PIPE

Fuel Injection (Fuel Systems)

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.

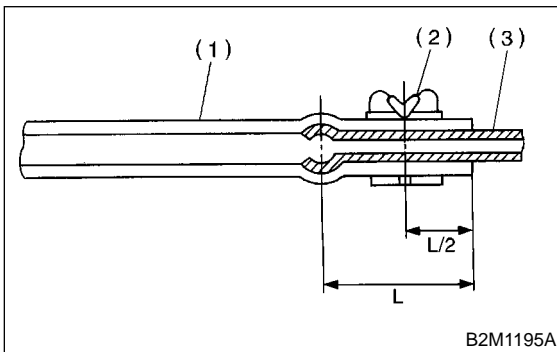
CAUTION:

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.

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

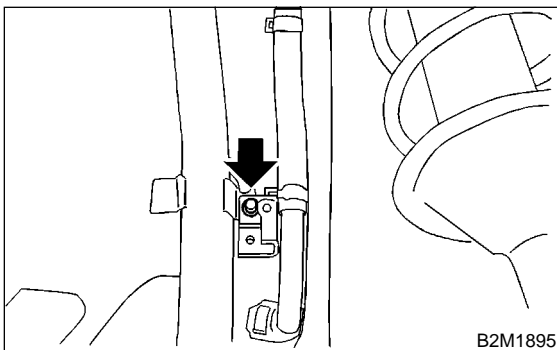


- (1) Hose
- (2) Clip
- (3) Pipe

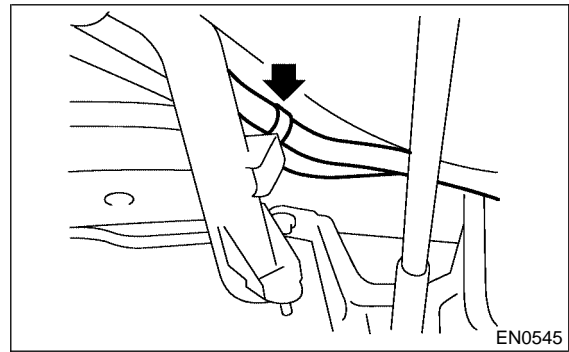
8) Tighten bolt which holds fuel filler pipe bracket on body.

Tightening torque:

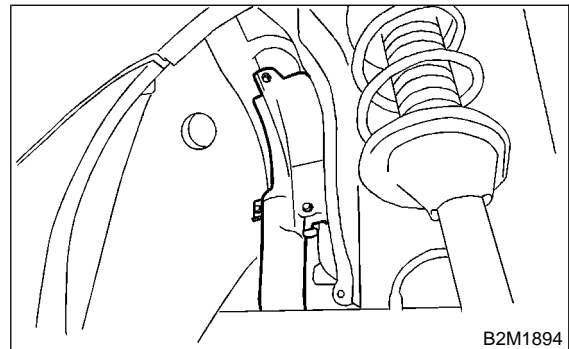
$7.5 \text{ N}\cdot\text{m} (0.75 \text{ kgf}\cdot\text{m}, 5.4 \text{ ft}\cdot\text{lb})$



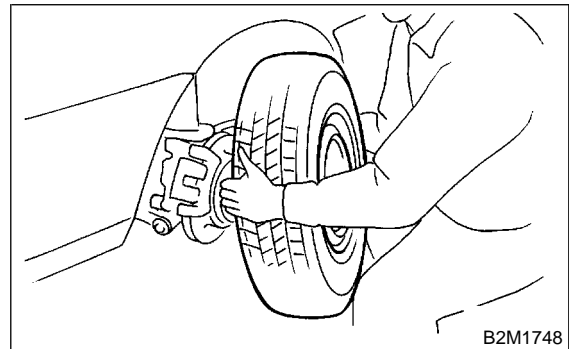
9) Tighten bolts which hold evaporation hoses onto clip of fuel filler pipe.



10) Install fuel filler pipe protector.



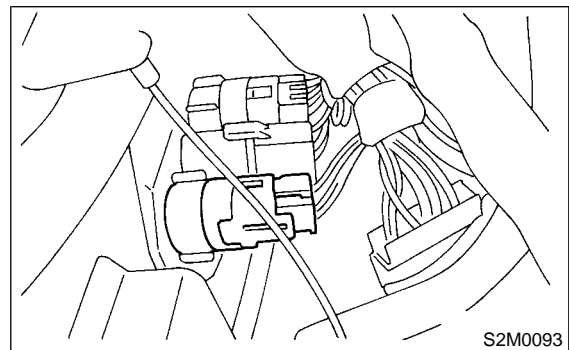
11) Install rear right wheel.



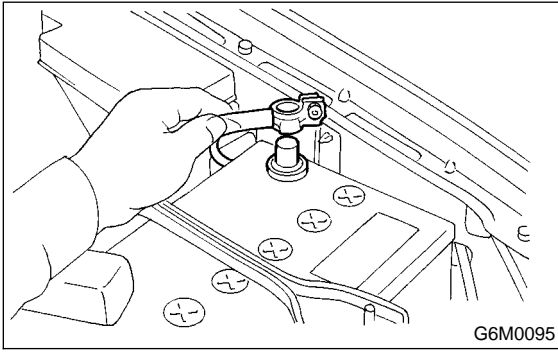
12) Lower the vehicle.

13) Tighten wheel nuts.

14) Connect connector to fuel pump relay.



15) Connect battery ground terminal.



FUEL PUMP

Fuel Injection (Fuel Systems)

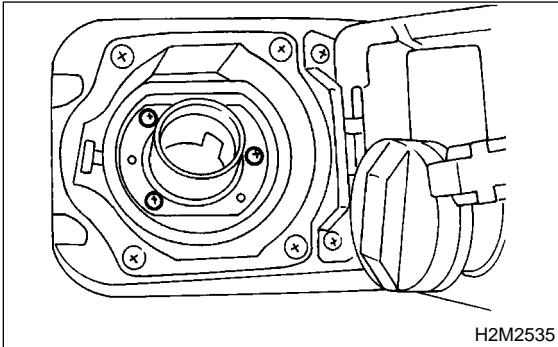
22. Fuel Pump S155025

A: REMOVAL S155025A18

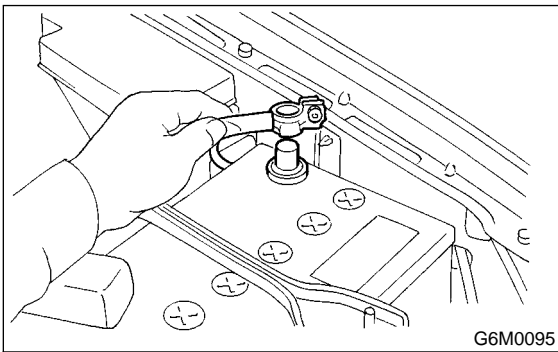
WARNING:

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

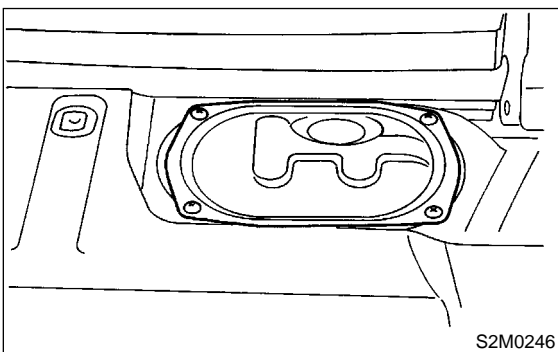
- 1) Release fuel pressure. <Ref. to FU(SOHC)-52, RELEASING OF FUEL PRESSURE, OPERATION, Fuel.>
- 2) Open fuel filler flap lid, and remove fuel filler cap.



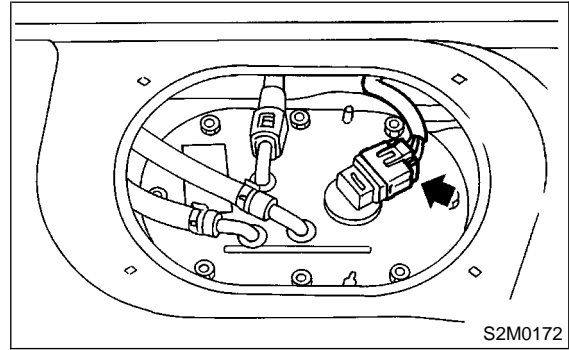
- 3) Disconnect battery ground cable.



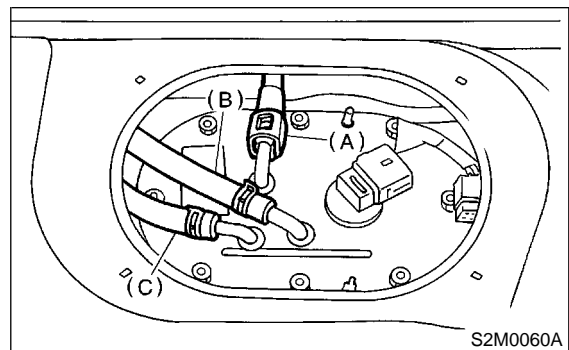
- 4) Remove the floor box located just behind the rear seats.
- 5) Remove access hole lid.



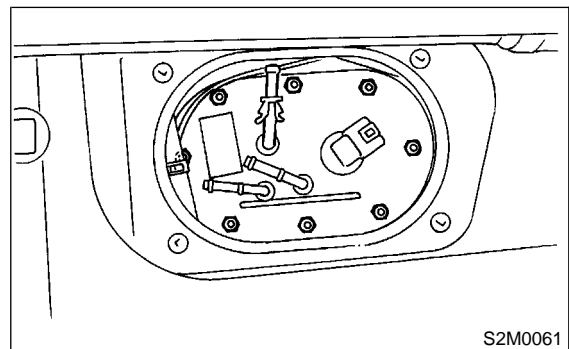
- 6) Disconnect connector from fuel pump.



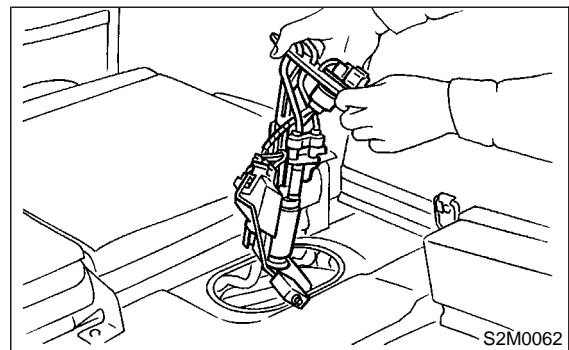
- 7) Move clips, and then disconnect fuel delivery hose (A), return hose (B) and jet pump hose (C).
- 8) Disconnect quick connector, and then disconnect fuel delivery hose (A). <Ref. to FU(SOHC)-69, REMOVAL, Fuel Delivery, Return and Evaporation Lines.>



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



- 10) Take off fuel pump from fuel tank.



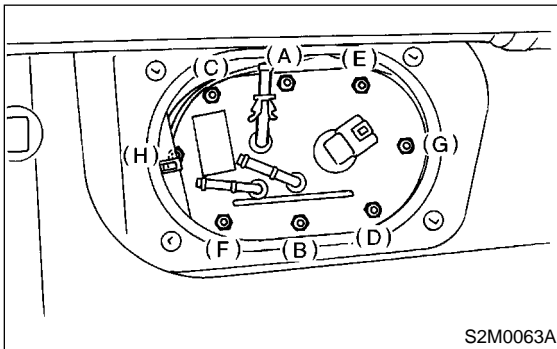
B: INSTALLATION S155025A11

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 the figure to specified torque.

Tightening torque:

4.4 N·m (0.45 kgf·m, 3.3 ft·lb)

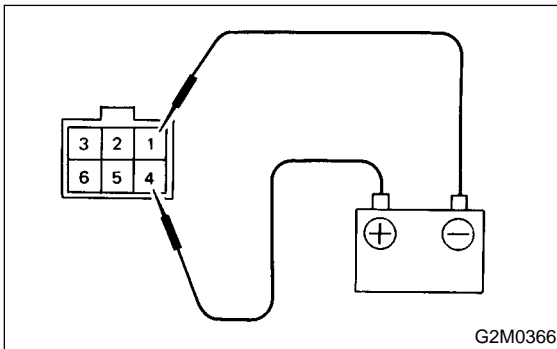


C: INSPECTION S155025A10

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.



FUEL LEVEL SENSOR

Fuel Injection (Fuel Systems)

23. Fuel Level Sensor S155026

A: REMOVAL S155026A18

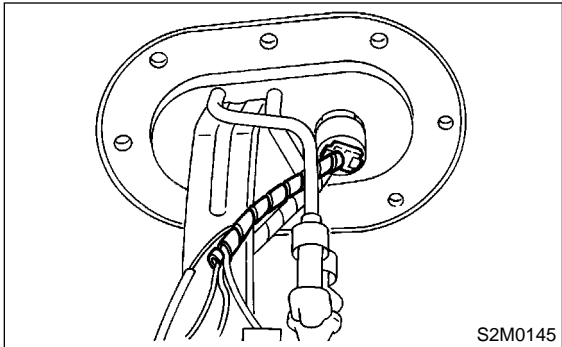
WARNING:

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

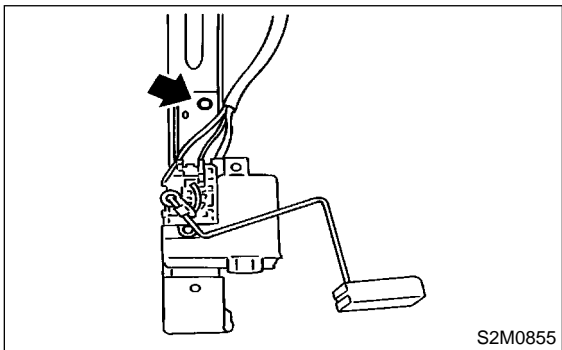
NOTE:

Fuel level sensor is built in fuel pump assembly.

- 1) Remove fuel pump assembly. <Ref. to FU(SOHC)-62, REMOVAL , Fuel Pump.>
- 2) Disconnect connector from fuel pump bracket.



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



B: INSTALLATION S155026A11

Install in the reverse order of removal.

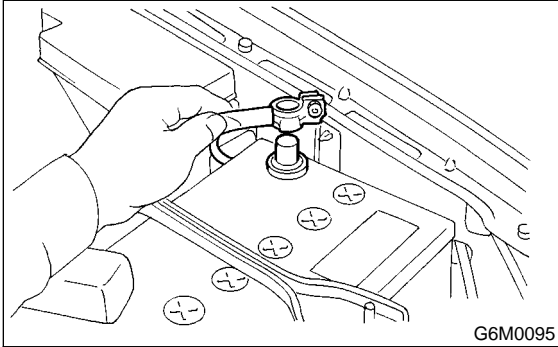
24. Fuel Sub Level Sensor S155023

A: REMOVAL S155023A18

WARNING:

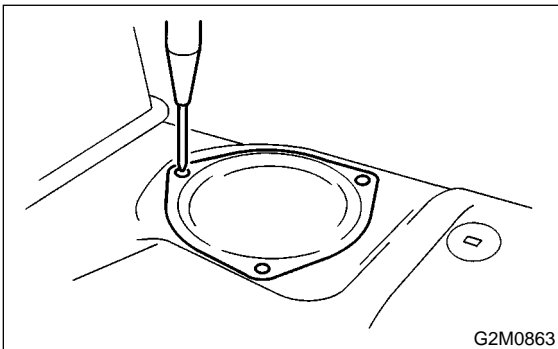
- Place "NO FIRE" signs near the working area.
- Be careful not to spill fuel on the floor.

1) Disconnect battery ground cable.



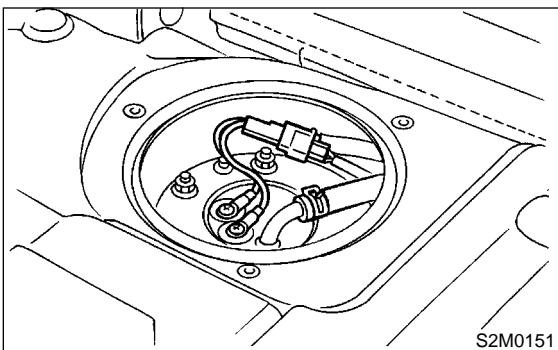
2) Remove the floor box located just behind the rear seats.

3) Remove service hole cover.

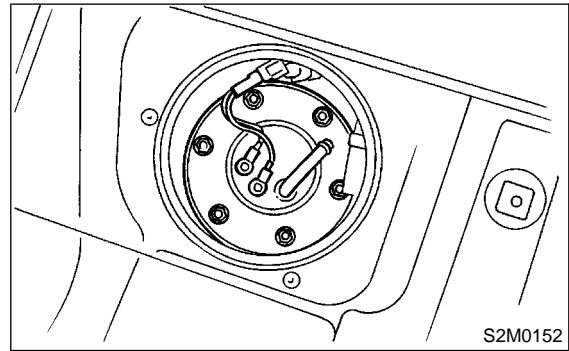


4) Disconnect connector from fuel sub meter.

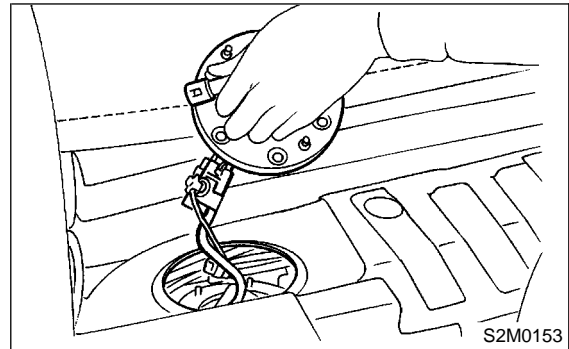
5) Disconnect fuel jet pump hose.



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



7) Remove fuel sub meter unit.

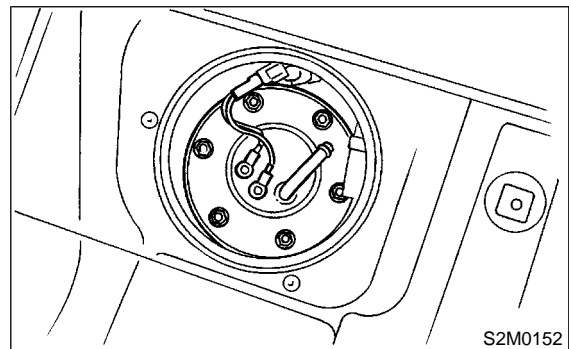


B: INSTALLATION S155023A11

Install in the reverse order of removal.

Tightening torque:

4.4 N·m (0.45 kgf-m, 3.3 ft-lb)



25. Fuel Filter S155027

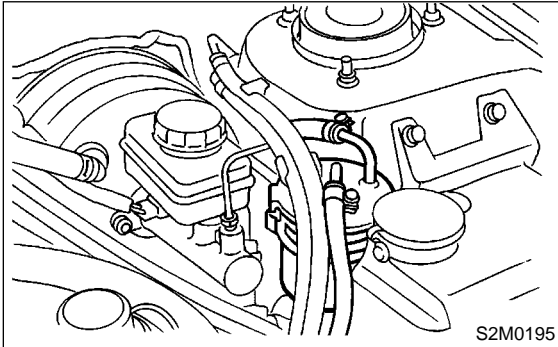
A: REMOVAL S155027A18

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(SOHC)-52, RELEASING OF FUEL PRESSURE, OPERATION, Fuel.>
- 2) Disconnect fuel delivery hoses from fuel filter.



- 3) Remove filter from holder.

B: INSTALLATION S155027A11

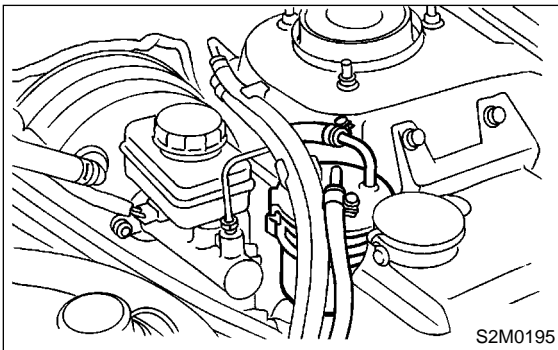
CAUTION:

- 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:

12.5 N·m (1.27 kgf-m, 9.22 ft-lb)



C: INSPECTION S155027A10

- 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.

26. Fuel Cut Valve S155021

A: REMOVAL S155021A18

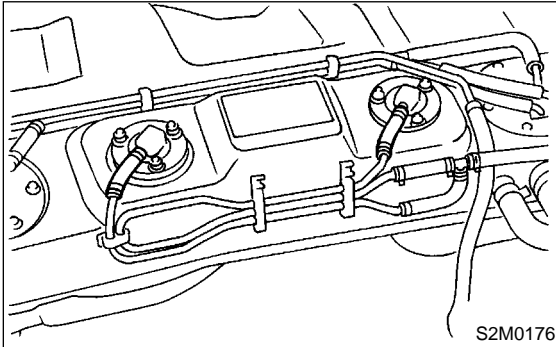
WARNING:

- Place “NO FIRE” signs near the working area.

- Be careful not to spill fuel on the floor.

1) Remove fuel tank. <Ref. to FU(SOHC)-55, REMOVAL, Fuel Tank.>

2) Move clip and disconnect evaporation hose from fuel cut valve.



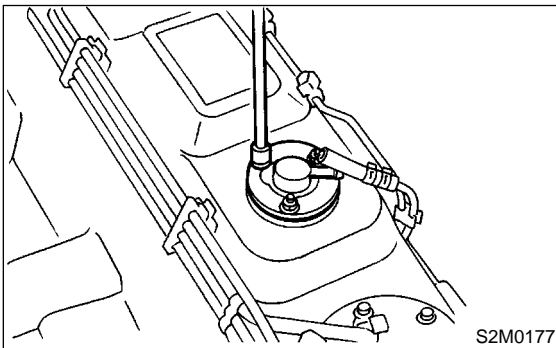
3) Remove bolts which install fuel cut valve.

B: INSTALLATION S155021A11

Install in the reverse order of removal.

Tightening torque:

4.4 N·m (0.45 kgf-m, 3.3 ft-lb)



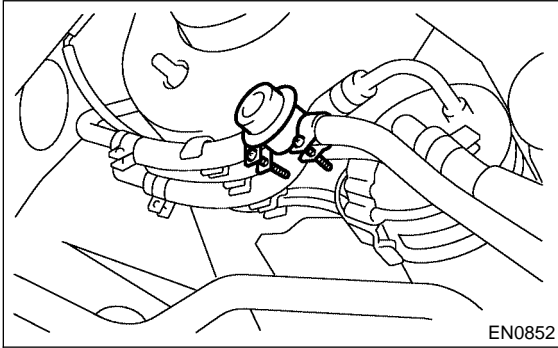
FUEL DAMPER VALVE

Fuel Injection (Fuel Systems)

27. Fuel Damper Valve S155708

A: REMOVAL S155708A18

- 1) Release fuel pressure. <Ref. to FU(SOHC)-52, RELEASING OF FUEL PRESSURE, OPERATION, Fuel.>
- 2) Remove fuel damper valve from fuel return line.



B: INSTALLATION S155708A11

Install in the reverse order of removal.

28. Fuel Delivery, Return and Evaporation Lines

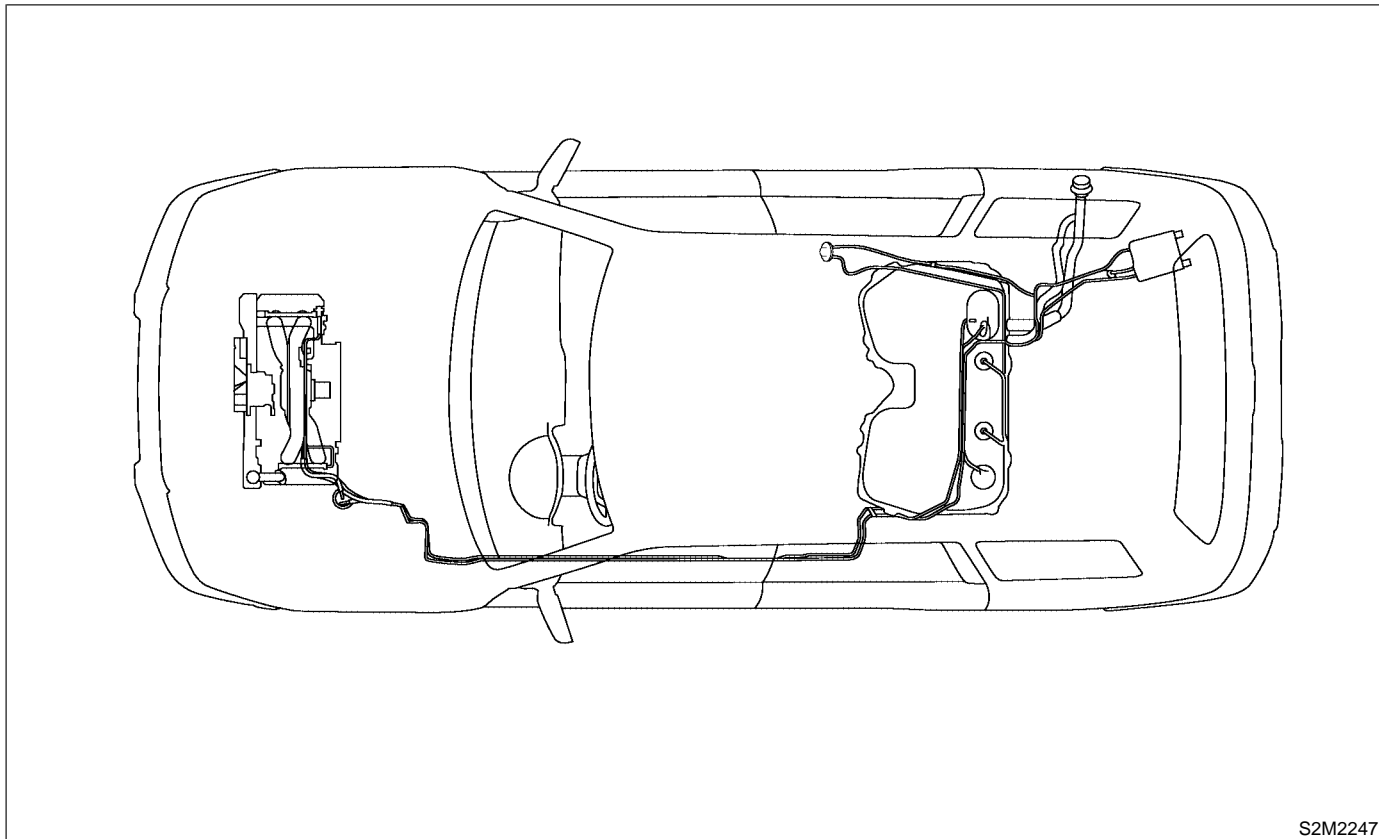
S155019

A: REMOVAL

S155019A18

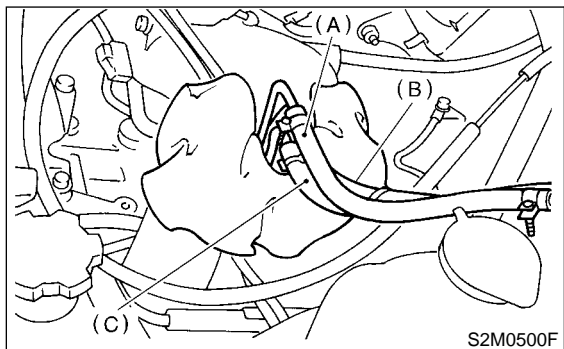
- 1) Set vehicle on the lift.
- 2) Release fuel pressure. <Ref. to FU(SOHC)-52, RELEASING OF FUEL PRESSURE, OPERATION, Fuel.>

- 3) Open fuel filler flap lid and remove fuel filler cap.
- 4) Remove floor mat. <Ref. to EI-43, REMOVAL, Floor Mat.>
- 5) Remove fuel delivery pipes and hoses, fuel return pipes and hoses, evaporation pipes and hoses.



S2M2247

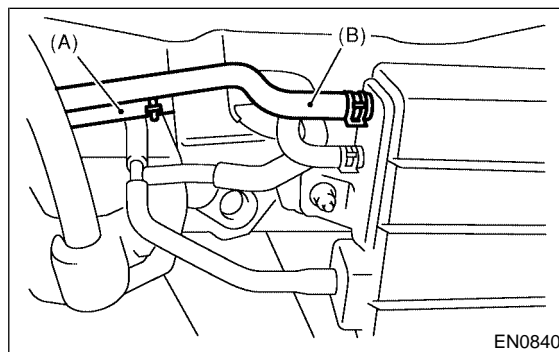
- 6) In engine compartment, detach fuel delivery hoses, return hoses and evaporation hose.



S2M0500F

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

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



EN0840

- 7) Lift-up the vehicle.

FUEL DELIVERY, RETURN AND EVAPORATION LINES

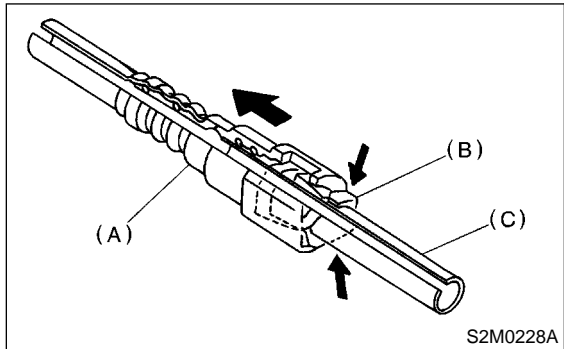
Fuel Injection (Fuel Systems)

9) Separate quick connector on fuel delivery and return line.

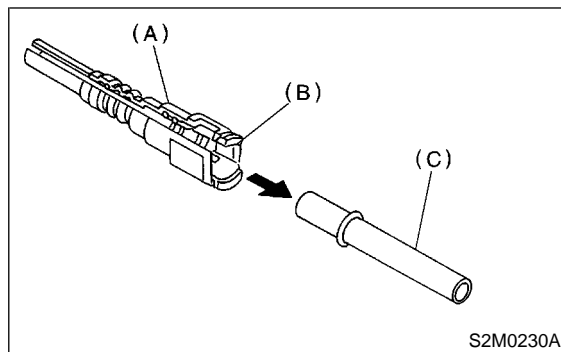
- (1) Clean pipe and connector, if they are covered with dust.
- (2) Hold connector (A) and push retainer (B) down.
- (3) Pull out connector (A) from retainer (B).

CAUTION:

Replace retainers with new ones.



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



- (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.

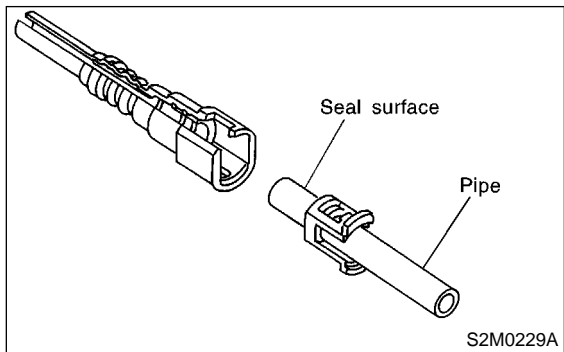
B: INSTALLATION

S155019A11

1) Connect quick connector on fuel delivery line.

CAUTION:

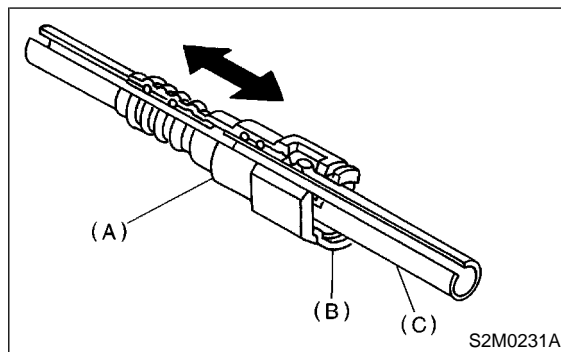
- Always use a new retainer.
- Make sure that the connected portion is not damaged or has dust. If necessary, clean seal surface of pipe.



- (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

FUEL DELIVERY, RETURN AND EVAPORATION LINES

Fuel Injection (Fuel Systems)

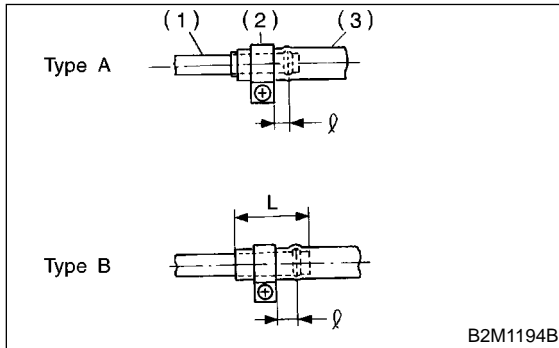
2) Connect fuel delivery hose to pipe with an overlap of 20 to 25 mm (0.79 to 0.98 in).

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)



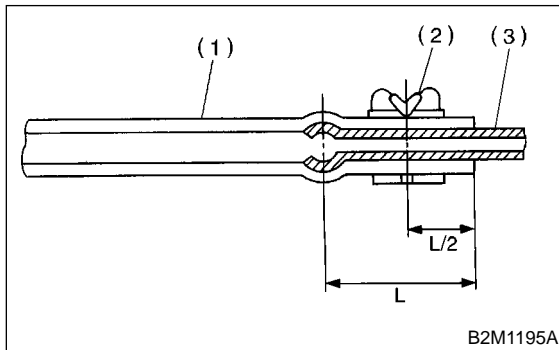
- (1) Fitting
- (2) Clamp
- (3) Hose

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

$L = 17.5 \pm 2.5$ 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 S155019A10

1) Make sure that there are no cracks on the fuel pipes and fuel hoses.

2) Make sure that the fuel pipe and fuel hose connections are tight.

FUEL SYSTEM TROUBLE IN GENERAL

Fuel Injection (Fuel Systems)

29. Fuel System Trouble in General S155571

A: INSPECTION S155571A10

Trouble and possible cause		Corrective action
1. Insufficient fuel supply to the injector		
1)	Fuel pump will not operate.	
	<input type="radio"/> Defective terminal contact.	Inspect connections, especially ground, and tighten securely.
	<input type="radio"/> 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 level sensor.	Replace.
2)	Defective operation of fuel meter.	Replace.
5. Noise		
1)	Large operation noise or vibration of fuel pump.	Replace.

NOTE:

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

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.

- (1) 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.

- (2) 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.