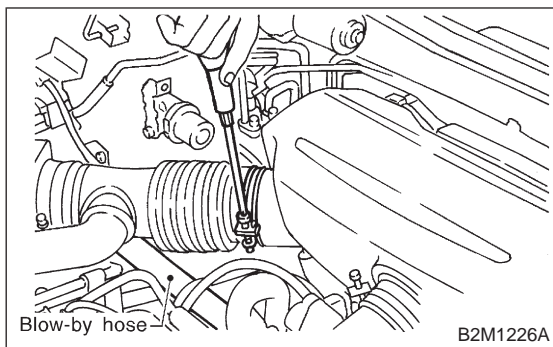


EMISSION CONTROL SYSTEM AND VACUUM FITTING

2-1

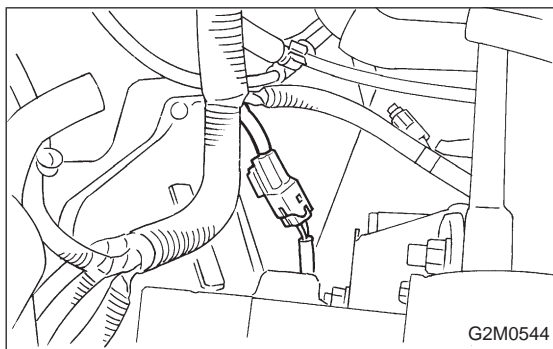
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W SERVICE PROCEDURE	2
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2. Rear Catalytic Converter	5
3. Canister	8
4. Purge Control Solenoid Valve	9
5. EGR Valve [AT Vehicles]	9
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1. Front Catalytic Converter

A: REMOVAL

1) Remove air intake duct. <Ref. to 2-7 [W1A0].>

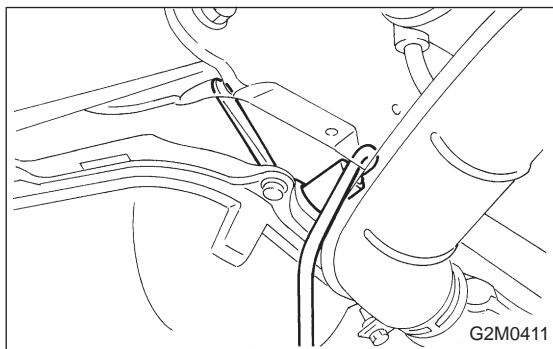


2) Disconnect front oxygen sensor connector.

3) Lift-up the vehicle.

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

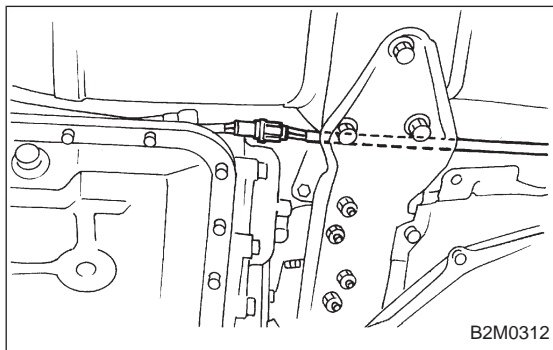
SUBARU CRC (Part No. 004301003)



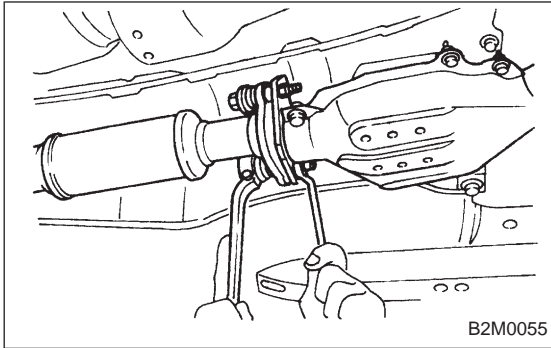
5) Remove front oxygen sensor.

CAUTION:

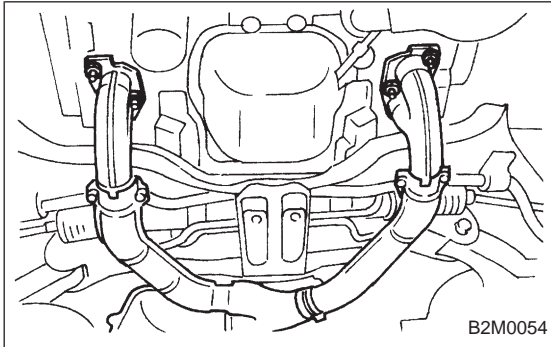
When removing oxygen sensor, do not force oxygen sensor especially when exhaust pipe is cold, otherwise it will damage exhaust pipe.



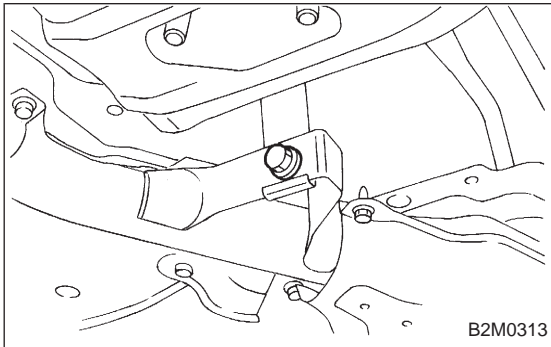
6) Disconnect rear oxygen sensor connector.



7) Separate center exhaust pipe from rear exhaust pipe.



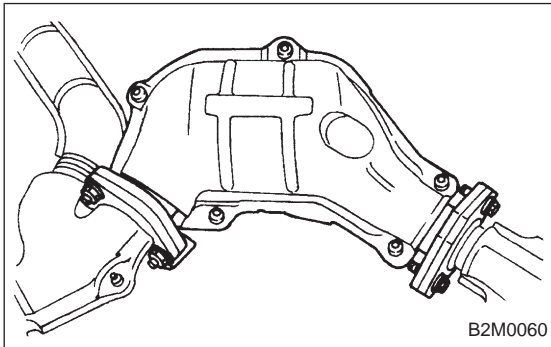
8) Remove bolts which hold front exhaust pipe onto cylinder heads.



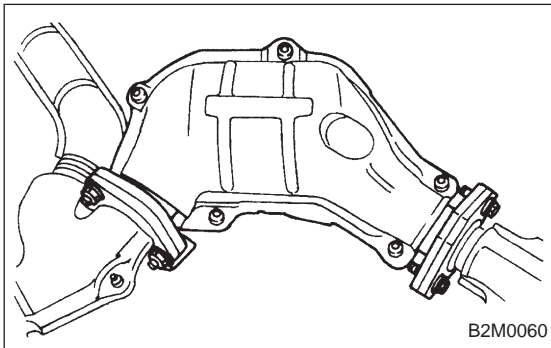
9) Remove front exhaust pipe and center exhaust pipe from hanger bracket.

CAUTION:

Be careful not to pull down front exhaust pipe and center exhaust pipe.



10) Separate front catalytic converter from front exhaust pipe and center exhaust pipe.



B: INSTALLATION

CAUTION:

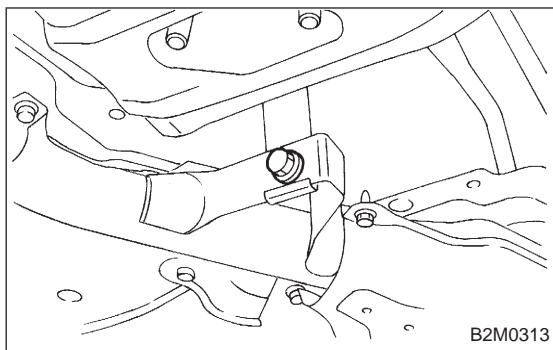
Replace gaskets with new ones.

1) Install front catalytic converter to front exhaust pipe and center exhaust pipe.

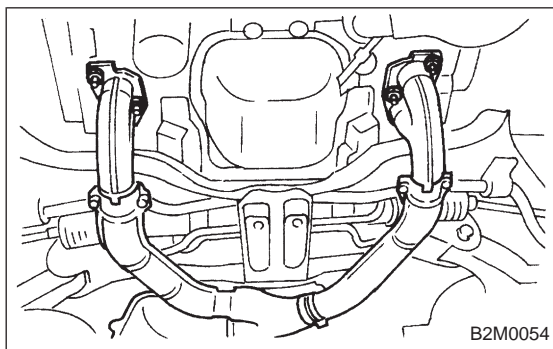
Tightening torque:

$30 \pm 5 \text{ N} \cdot \text{m}$ ($3.1 \pm 0.5 \text{ kg} \cdot \text{m}$, $22.4 \pm 3.6 \text{ ft} \cdot \text{lb}$)

1. Front Catalytic Converter



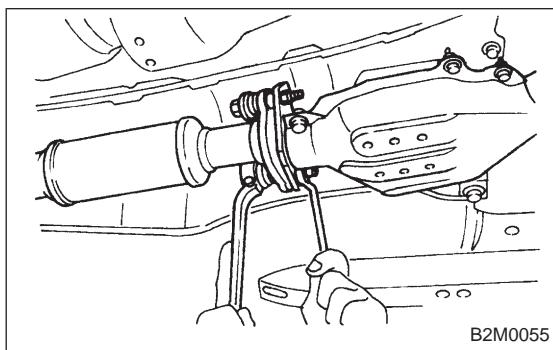
2) Install front exhaust pipe and center exhaust pipe. And temporarily tighten bolt which installs center exhaust pipe to hanger bracket.



3) Tighten bolts which hold front exhaust pipe onto cylinder heads.

Tightening torque:

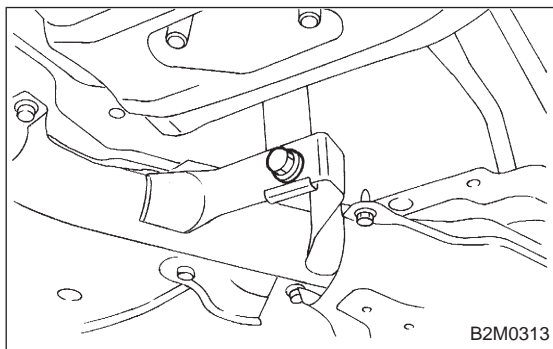
$30 \pm 5 \text{ N-m}$ ($3.1 \pm 0.5 \text{ kg-m}$, $22.4 \pm 3.6 \text{ ft-lb}$)



4) Install center exhaust pipe to rear exhaust pipe.

Tightening torque:

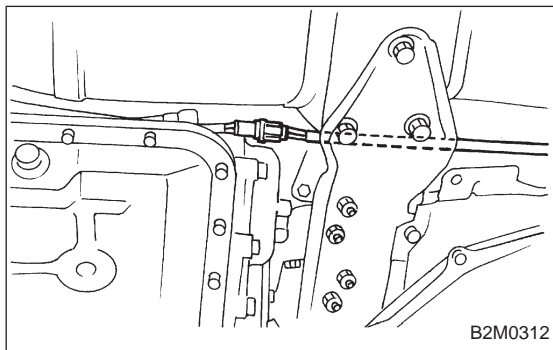
$18 \pm 5 \text{ N-m}$ ($1.8 \pm 0.5 \text{ kg-m}$, $13.0 \pm 3.6 \text{ ft-lb}$)



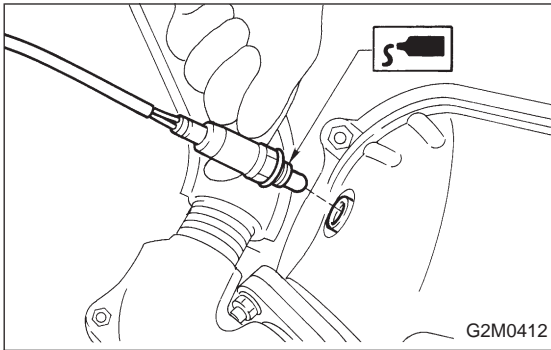
5) Tighten bolt which holds center exhaust pipe to hanger bracket.

Tightening torque:

$35 \pm 5 \text{ N-m}$ ($3.6 \pm 0.5 \text{ kg-m}$, $26.0 \pm 3.6 \text{ ft-lb}$)



6) Connect rear oxygen sensor connector.



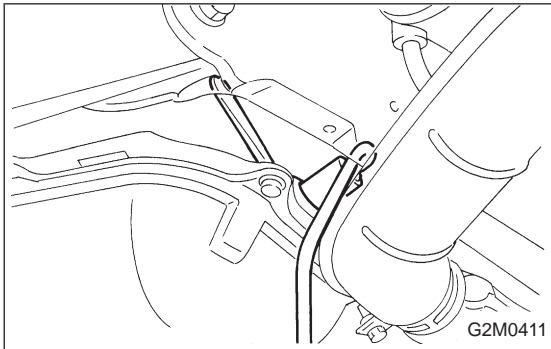
7) Before installing front oxygen sensor, apply anti-seize compound only to threaded portion of front oxygen sensor to make the next removal easier.

Anti-seize compound:

SS-30 by JET LUBE

CAUTION:

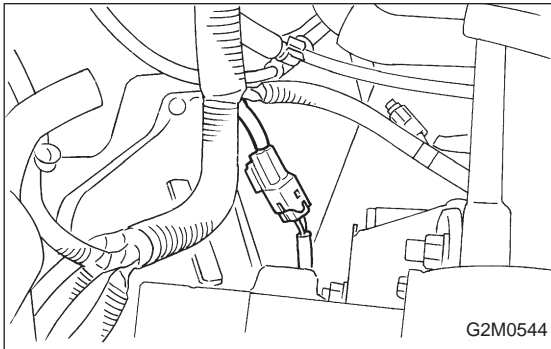
Never apply anti-seize compound to protector of front oxygen sensor.



8) Install front oxygen sensor.

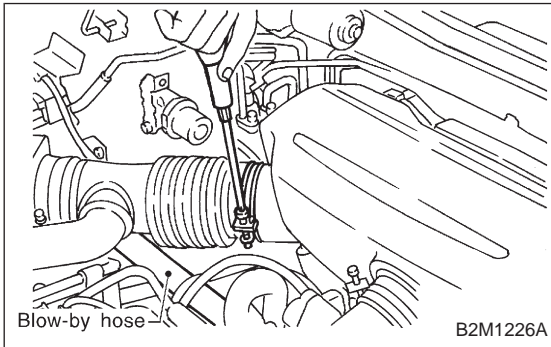
Tightening torque:

$21 \pm 3 \text{ N}\cdot\text{m}$ ($2.1 \pm 0.3 \text{ kg}\cdot\text{m}$, $15.2 \pm 2.2 \text{ ft}\cdot\text{lb}$)

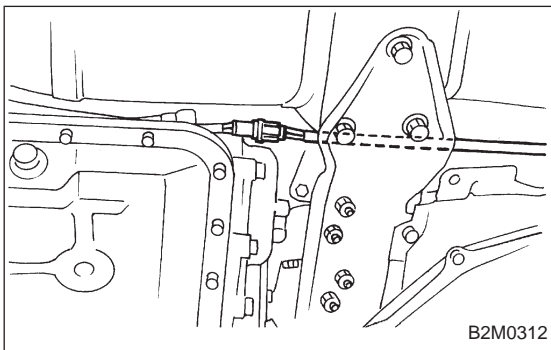


9) Lower the vehicle.

10) Connect front oxygen sensor connector.



11) Install air intake duct.



2. Rear Catalytic Converter

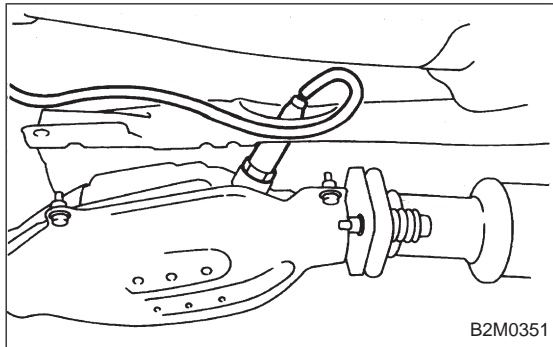
A: REMOVAL

1) Lift-up the vehicle.

2) Disconnect rear oxygen sensor connector.

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

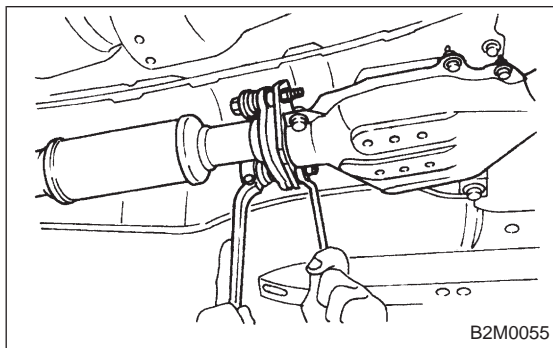
SUBARU CRC (Part No. 004301003)



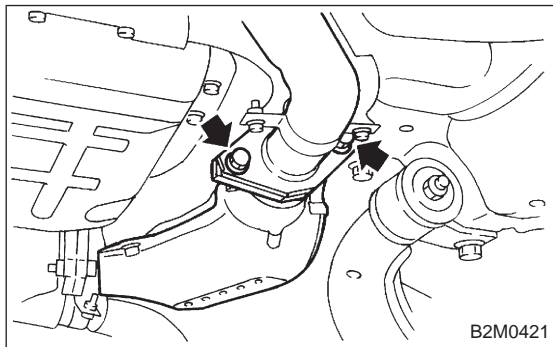
4) Remove rear oxygen sensor.

CAUTION:

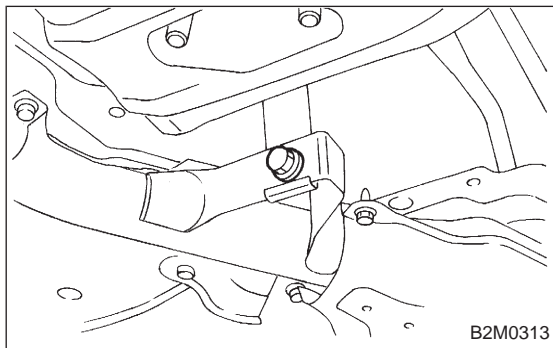
When removing rear oxygen sensor, do not force rear oxygen sensor especially when exhaust pipe is cold, otherwise it will damage exhaust pipe.



5) Separate center exhaust pipe and rear catalytic converter assembly from rear exhaust pipe.



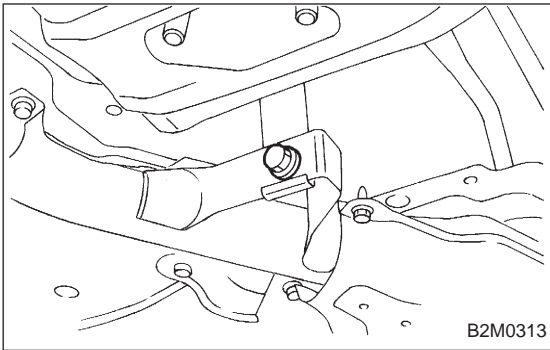
6) Separate center exhaust pipe and rear catalytic converter assembly from front catalytic converter.



7) Remove center exhaust pipe and rear catalytic converter assembly from hanger bracket.

CAUTION:

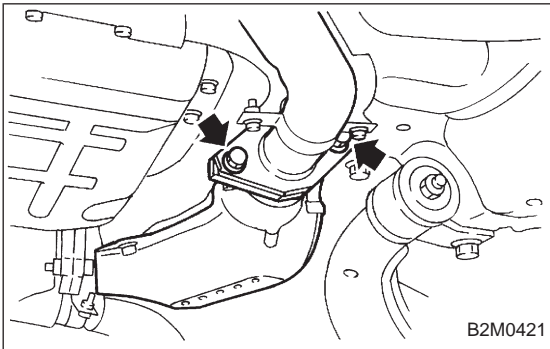
- Be careful not to pull down center exhaust pipe.
- After removing center exhaust pipe, do not apply excessive pulling force on front catalytic converter and front exhaust pipe.

**B: INSTALLATION****CAUTION:**

Replace gaskets with new ones.

1) Install center exhaust pipe and rear catalytic converter assembly.

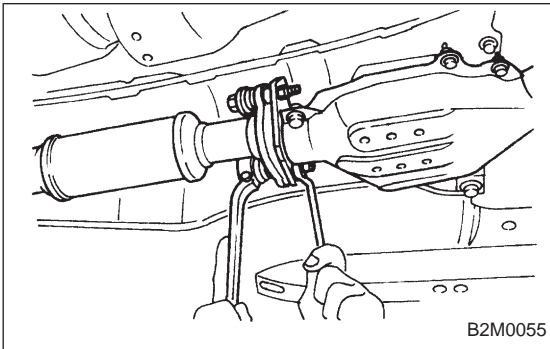
Temporarily tighten bolt which installs center exhaust pipe to hanger bracket.



2) Install center exhaust pipe to front catalytic converter.

Tightening torque:

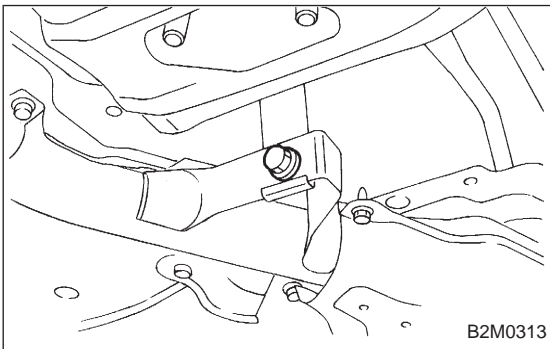
35 ± 5 N·m (3.6 ± 0.5 kg·m, 26.0 ± 3.6 ft·lb)



3) Install center exhaust pipe to rear exhaust pipe.

Tightening torque:

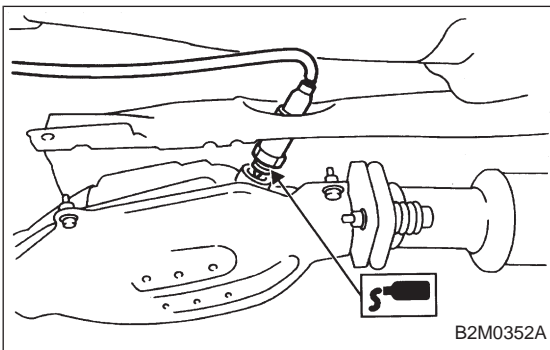
18 ± 5 N·m (1.8 ± 0.5 kg·m, 13.0 ± 3.6 ft·lb)



4) Tighten bolt which holds center exhaust pipe to hanger bracket.

Tightening torque:

35 ± 5 N·m (3.6 ± 0.5 kg·m, 26.0 ± 3.6 ft·lb)



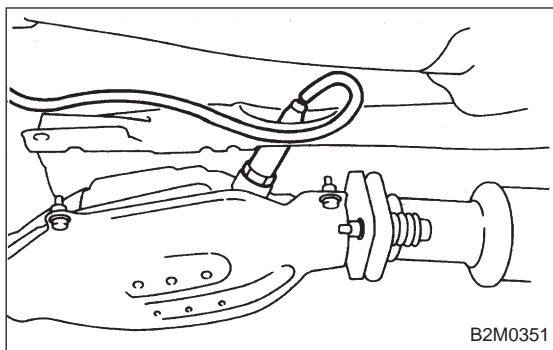
5) Before installing rear oxygen sensor, apply anti-seize compound only to threaded portion of rear oxygen sensor to make the next removal easier.

Anti-seize compound:

SS-30 by JET LUBE

CAUTION:

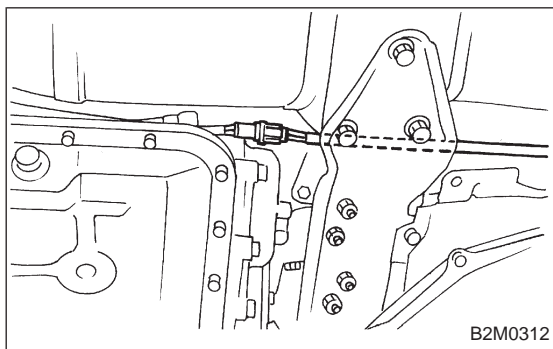
Never apply anti-seize compound to protector of rear oxygen sensor.



6) Install rear oxygen sensor.

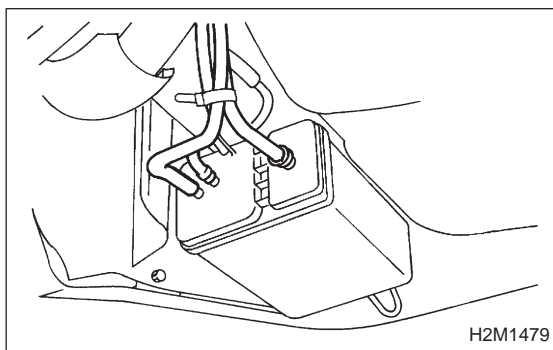
Tightening torque:

$21 \pm 3 \text{ N}\cdot\text{m}$ ($2.1 \pm 0.3 \text{ kg}\cdot\text{m}$, $15.2 \pm 2.2 \text{ ft}\cdot\text{lb}$)



7) Connect rear oxygen sensor connector.

8) Lower the vehicle.

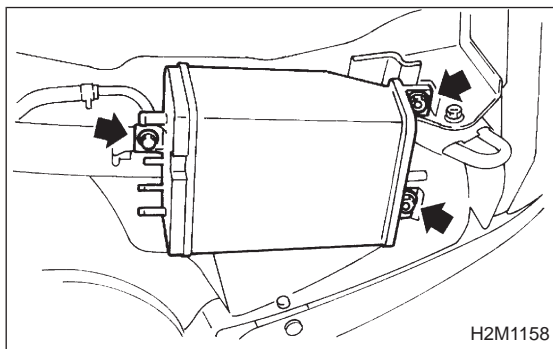


3. Canister

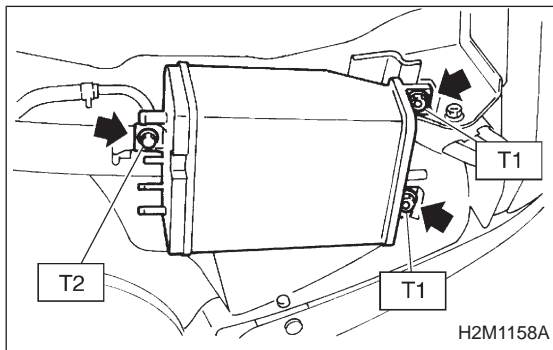
A: REMOVAL AND INSTALLATION

1) Lift-up the vehicle.

2) Disconnect evaporation hoses from canister.



3) Remove canister from body.

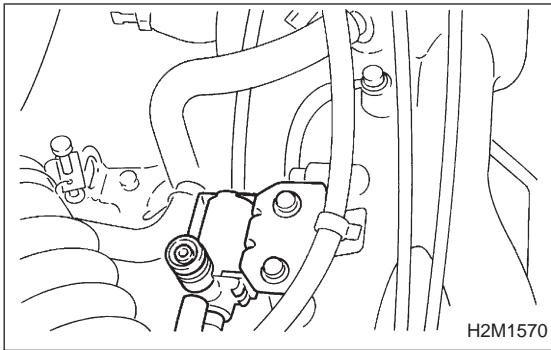


4) Installation is in the reverse order of removal.

Tightening torque:

$T1: 22.5 \pm 7 \text{ N}\cdot\text{m}$ ($2.3 \pm 0.7 \text{ kg}\cdot\text{m}$, $16.6 \pm 5.1 \text{ ft}\cdot\text{lb}$)

$T2: 24.5 \pm 7 \text{ N}\cdot\text{m}$ ($2.5 \pm 0.7 \text{ kg}\cdot\text{m}$, $18.1 \pm 5.1 \text{ ft}\cdot\text{lb}$)

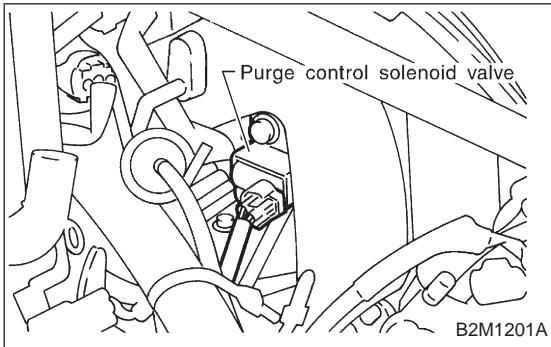


4. Purge Control Solenoid Valve

A: REMOVAL AND INSTALLATION

1. 1800 cc MODEL

- 1) Disconnect connector from FICD solenoid valve.
- 2) Remove bolts which install FICD solenoid valve to intake manifold.



- 3) Disconnect connector from purge control solenoid valve.
- 4) Disconnect vacuum hoses from purge control solenoid valve.
- 5) Remove bolt which installs purge control solenoid valve to intake manifold.
- 6) Take out purge control solenoid valve.
- 7) Installation is in the reverse order of removal.

Tightening torque:

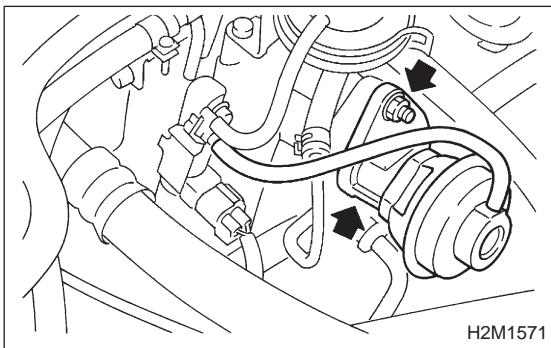
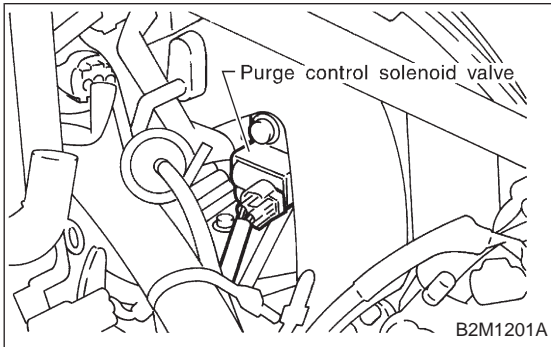
$16 \pm 1.5 \text{ N} \cdot \text{m}$ ($1.6 \pm 0.15 \text{ kg} \cdot \text{m}$, $11.6 \pm 1.1 \text{ ft} \cdot \text{lb}$)

2. 2200 cc MODEL

- 1) Disconnect connector from purge control solenoid valve.
- 2) Disconnect vacuum hoses from purge control solenoid valve.
- 3) Remove bolt which installs purge control solenoid valve to intake manifold.
- 4) Take out purge control solenoid valve.
- 5) Installation is in the reverse order of removal.

Tightening torque:

$16 \pm 1.5 \text{ N} \cdot \text{m}$ ($1.6 \pm 0.15 \text{ kg} \cdot \text{m}$, $11.6 \pm 1.1 \text{ ft} \cdot \text{lb}$)



5. EGR Valve [AT Vehicles]

A: REMOVAL AND INSTALLATION

- 1) Disconnect vacuum hose from EGR valve.
- 2) Remove bolts which install EGR valve onto intake manifold.

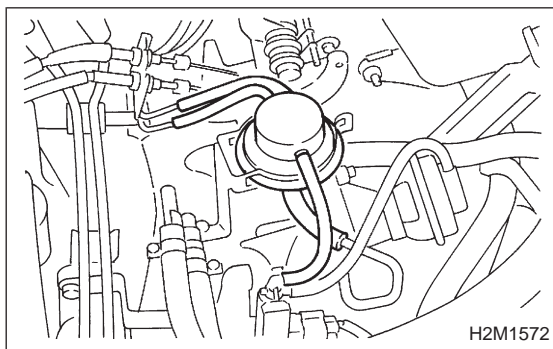
3) Installation is in the reverse order of removal.

CAUTION:

Replace gasket with a new one.

Tightening torque:

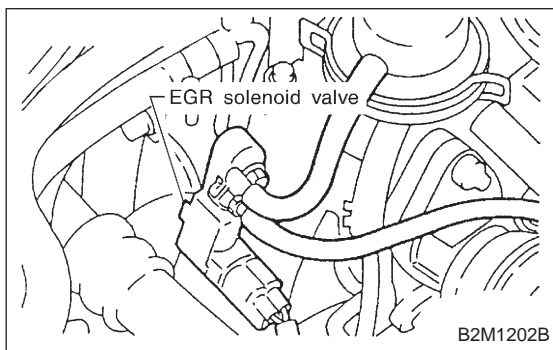
19 ± 1 N·m (1.9 ± 0.1 kg-m, 13.7 ± 0.7 ft-lb)



6. Back-Pressure Transducer (BPT) [AT Vehicles]

A: REMOVAL AND INSTALLATION

- 1) Disconnect vacuum hoses from BPT.
- 2) Remove BPT from bracket.
- 3) Installation is in the reverse order of removal.



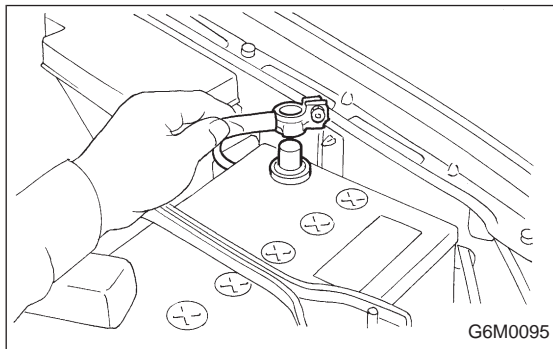
7. EGR Solenoid Valve [AT Vehicles]

A: REMOVAL AND INSTALLATION

- 1) Disconnect connector from EGR solenoid valve.
- 2) Disconnect vacuum hoses from EGR solenoid valve.
- 3) Remove bolt which installs EGR solenoid valve.
- 4) Take out EGR solenoid valve.
- 5) Installation is in the reverse order of removal.

Tightening torque:

16 ± 1.5 N·m (1.6 ± 0.15 kg-m, 11.6 ± 1.1 ft-lb)

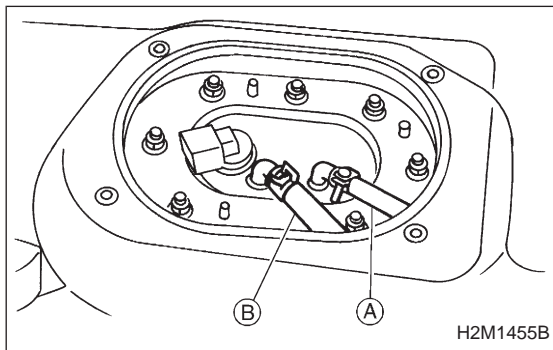


8. Fuel Temperature Sensor

A: REMOVAL

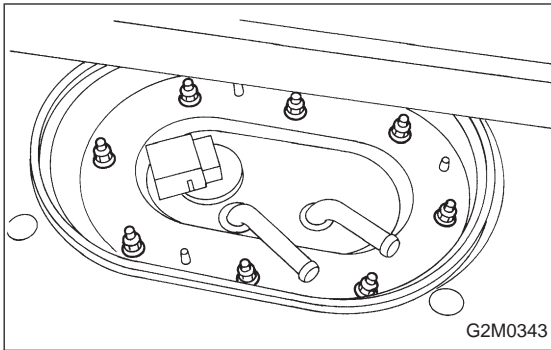
1. 1800 cc MODEL

- 1) Disconnect battery ground cable.

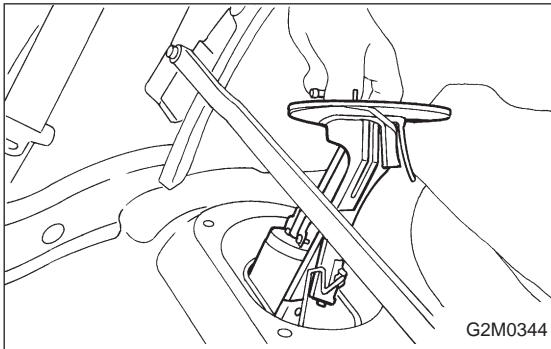


2) Release fuel pressure. <Ref. to 2-8 [W1B0].>

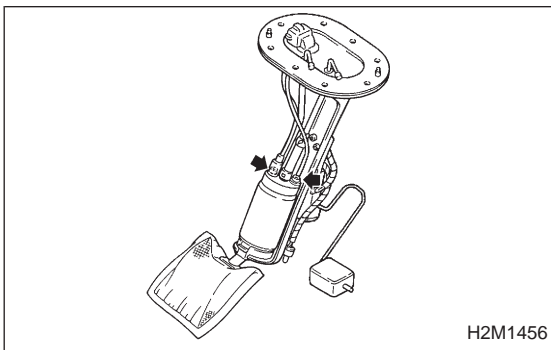
- 3) Disconnect fuel delivery hose ① and return hose ②.



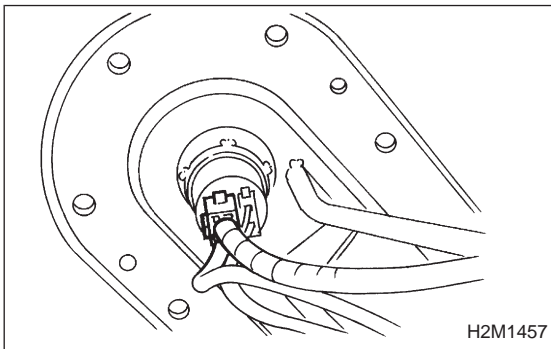
4) Remove nuts which install fuel pump assembly onto fuel tank.



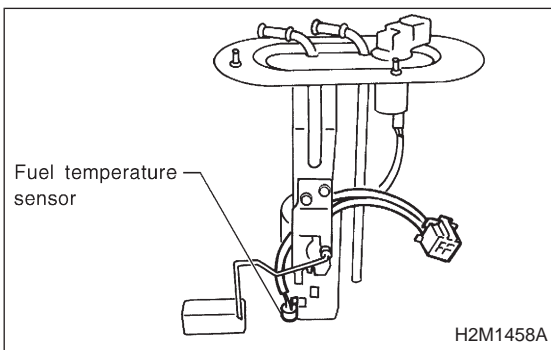
5) Take off fuel pump from fuel tank.



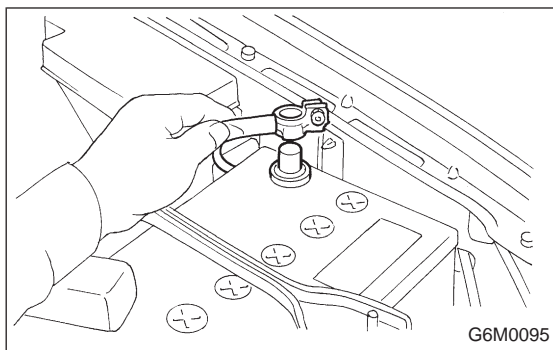
6) Remove two screws fixing terminals on fuel pump assembly.



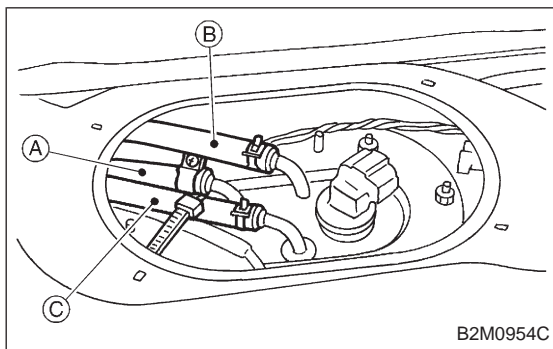
7) Disconnect connector from fuel pump.



8) Remove fuel temperature sensor from fuel pump assembly.

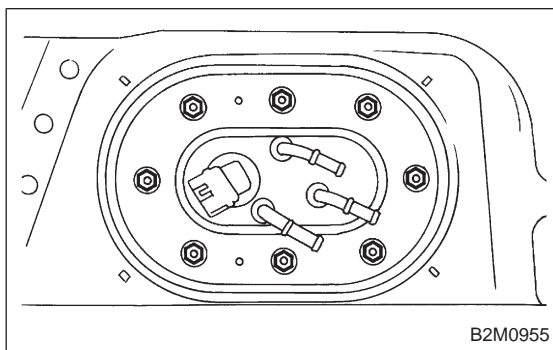
**2. 2200 cc MODEL**

1) Disconnect battery ground cable.

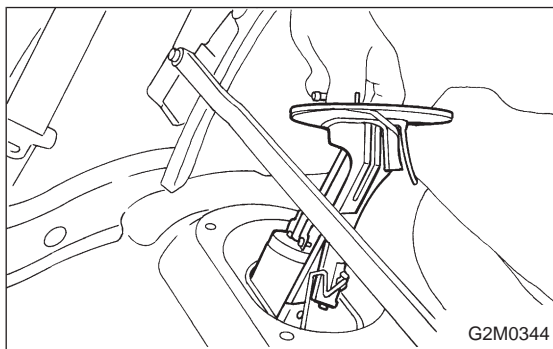


2) Release fuel pressure. <Ref. to 2-8 [W1B0].>

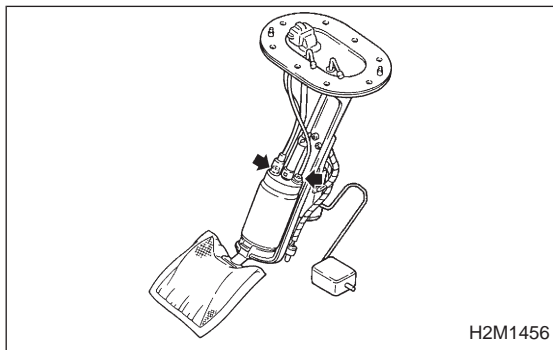
3) Disconnect fuel delivery hose (A), return hose (B) and jet pump hose (C).



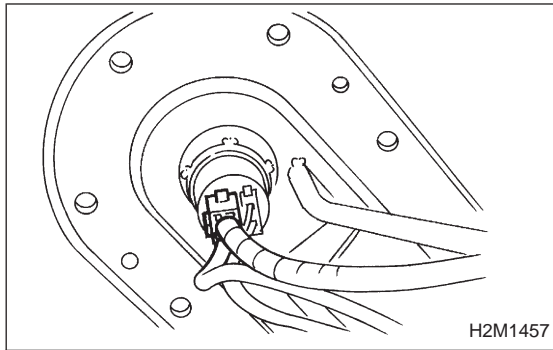
4) Remove nuts which install fuel pump assembly onto fuel tank.



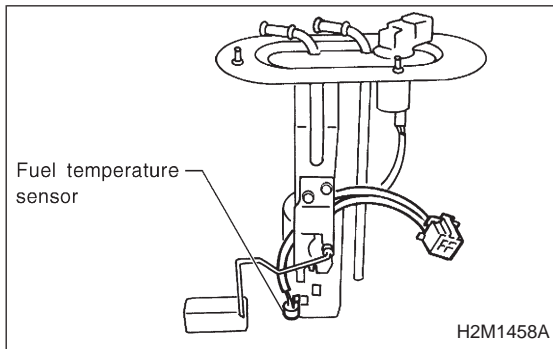
5) Take off fuel pump from fuel tank.



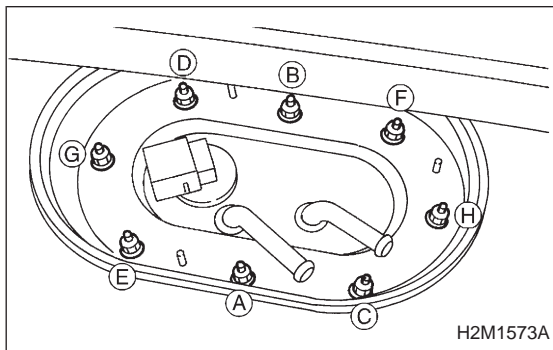
6) Remove two screws fixing terminals on fuel pump assembly.



7) Disconnect connector from fuel pump.



8) Remove fuel temperature sensor from fuel pump assembly.



B: INSTALLATION

1. 1800 cc MODEL

CAUTION:

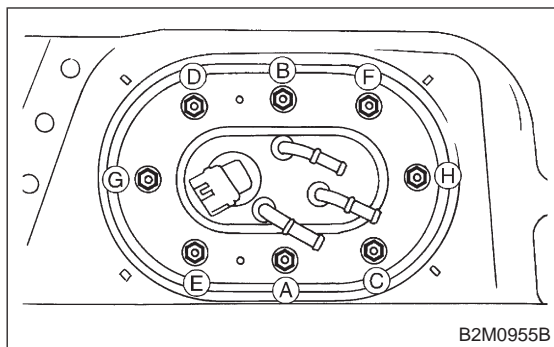
Leave fuel filler cap open when tightening nuts, to prevent fuel from flowing out through fuel delivery and return pipes. Close fuel filler cap after tightening nuts.

Installation is in the reverse order of removal. Do the following:

- Always use new gaskets.
- Ensure sealing portion is free from fuel or foreign particles before installation.
- Tighten nuts in alphabetical sequence shown in Figure to specified torque.

Tightening torque:

$4.4 \pm 1.5 \text{ N}\cdot\text{m}$ ($0.45 \pm 0.15 \text{ kg}\cdot\text{m}$, $3.3 \pm 1.1 \text{ ft}\cdot\text{lb}$)



2. 2200 cc MODEL

CAUTION:

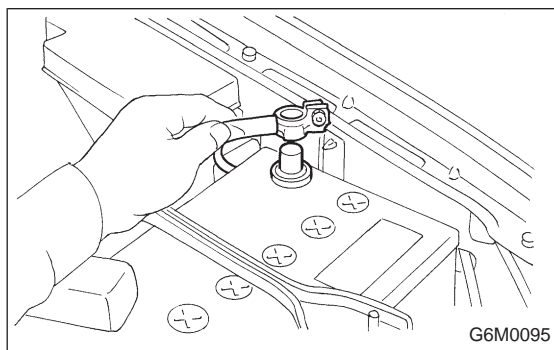
Leave fuel filler cap open when tightening nuts, to prevent fuel from flowing out through fuel delivery and return pipes. Close fuel filler cap after tightening nuts.

Installation is in the reverse order of removal. Do the following:

- Always use new gaskets.
- Ensure sealing portion is free from fuel or foreign particles before installation.
- Tighten nuts in alphabetical sequence shown in Figure to specified torque.

Tightening torque:

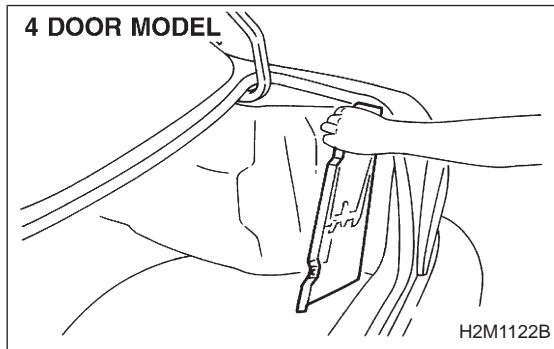
$4.4 \pm 1.5 \text{ N} \cdot \text{m}$ ($0.45 \pm 0.15 \text{ kg} \cdot \text{m}$, $3.3 \pm 1.1 \text{ ft} \cdot \text{lb}$)



9. Fuel Tank Pressure Sensor

A: REMOVAL AND INSTALLATION

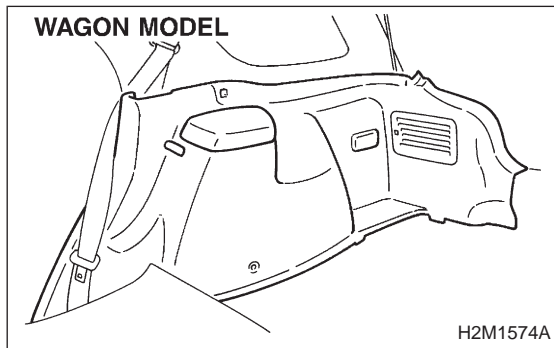
1) Disconnect battery ground cable.



2) Remove trims.

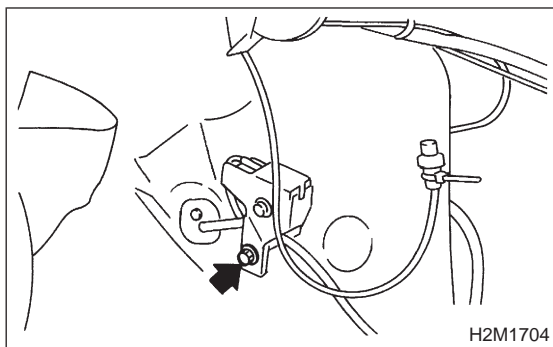
- 4 door model:

Remove right trunk side trim.



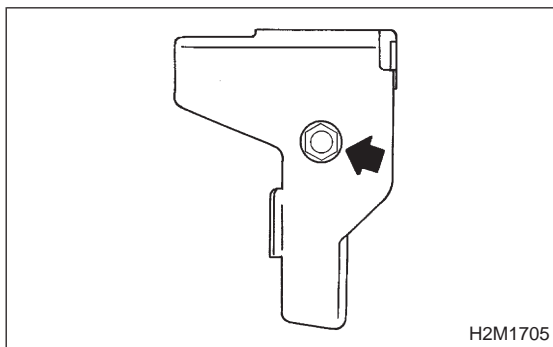
- Wagon model:

Remove right rear quarter lower trim. <Ref. to 5-3 [W5A4].>



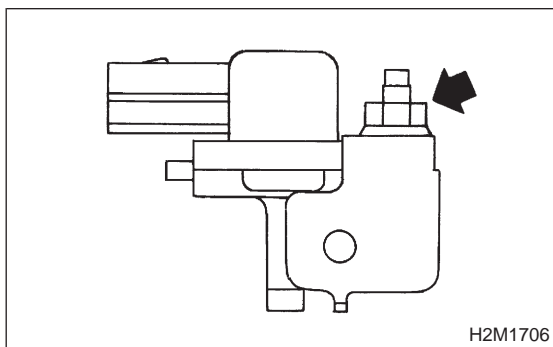
3) Remove bolts which install fuel tank pressure sensor bracket on body.

4) Disconnect hose from connection pipe.

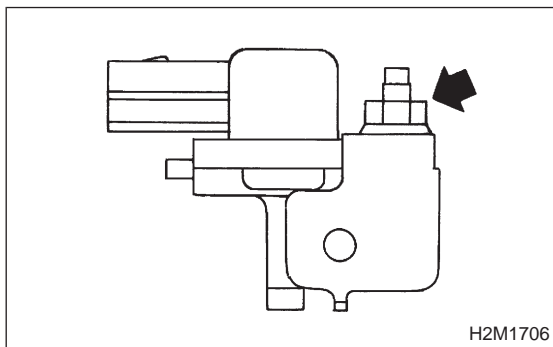


5) Disconnect connector from fuel tank pressure sensor.

6) Remove fuel tank pressure sensor assembly from bracket.



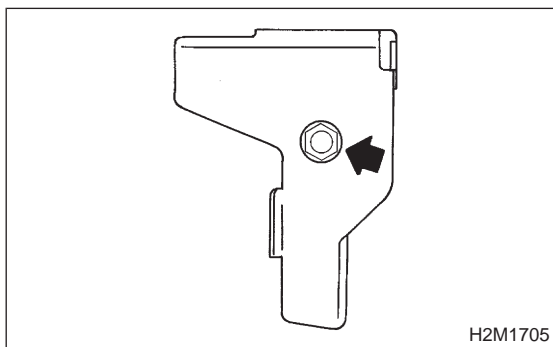
7) Remove fuel tank pressure sensor from bracket.



8) Installation is in the reverse order of removal.

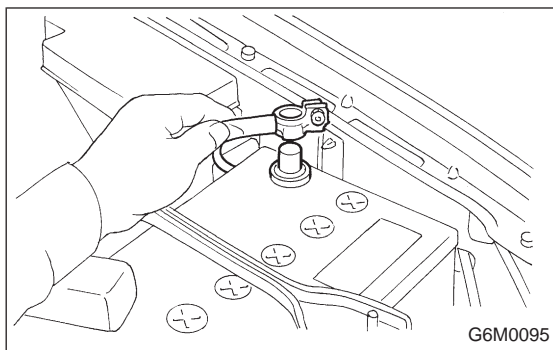
Tightening torque:

$7.35 \pm 1.96 \text{ N} \cdot \text{m}$ ($0.75 \pm 0.20 \text{ kg} \cdot \text{m}$, $5.4 \pm 1.4 \text{ ft} \cdot \text{lb}$)



Tightening torque:

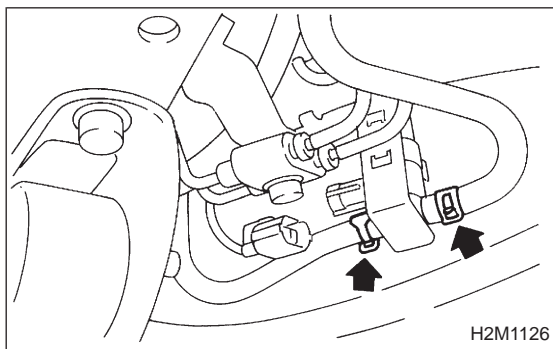
$7.35 \pm 1.96 \text{ N} \cdot \text{m}$ ($0.75 \pm 0.20 \text{ kg} \cdot \text{m}$, $5.4 \pm 1.4 \text{ ft} \cdot \text{lb}$)



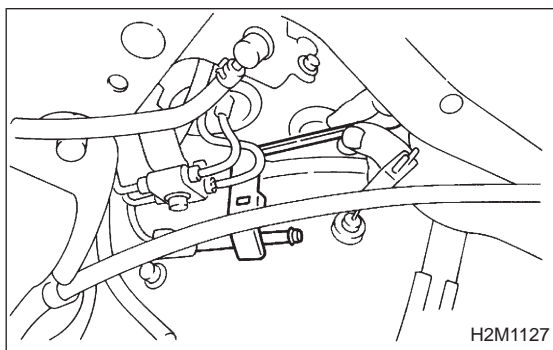
10. Pressure Control Solenoid Valve

A: REMOVAL AND INSTALLATION

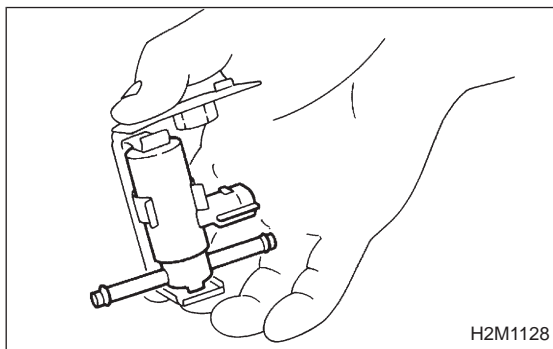
- 1) Disconnect battery ground cable.
- 2) Lift-up the vehicle.



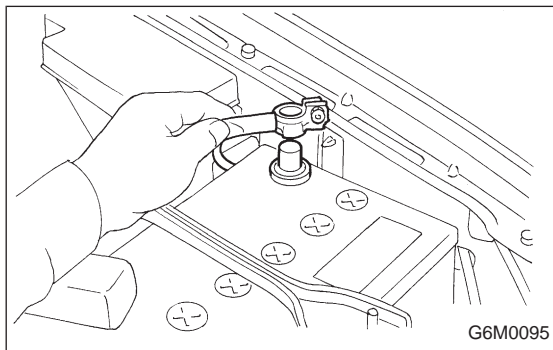
- 3) Disconnect evaporation hoses from pressure control valve.
- 4) Disconnect connector from pressure control valve.



- 5) Remove pressure control valve with bracket.



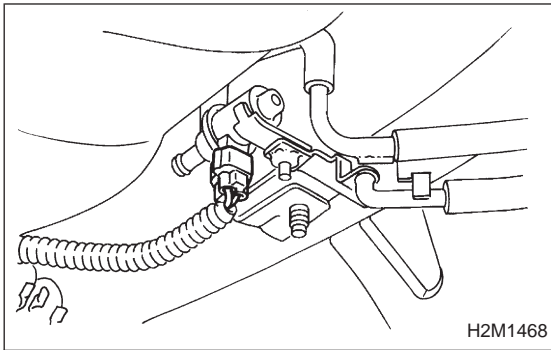
- 6) Remove pressure control valve from bracket.
- 7) Installation is in the reverse order of removal.



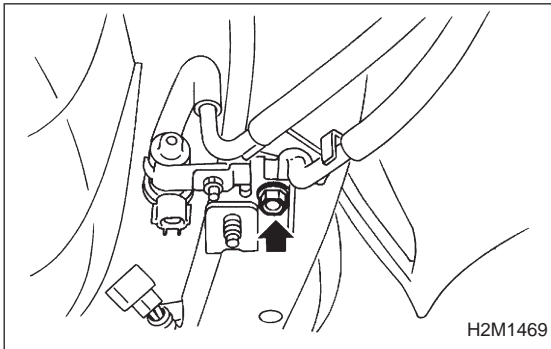
11. Vent Control Solenoid Valve

A: REMOVAL

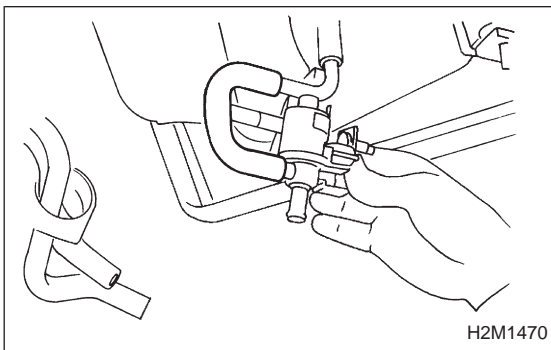
- 1) Disconnect battery ground cable.



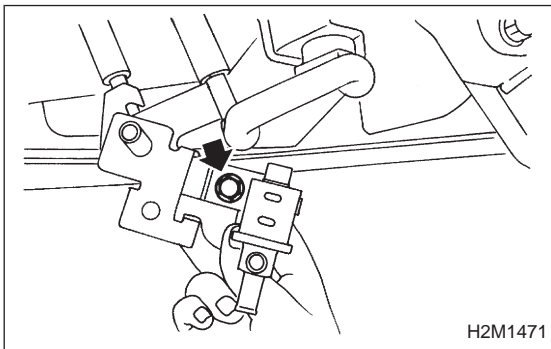
- 2) Lift-up the vehicle.
- 3) Remove canister. <Ref. to 2-1 [W3A0].>
- 4) Disconnect connector from vent control solenoid valve.



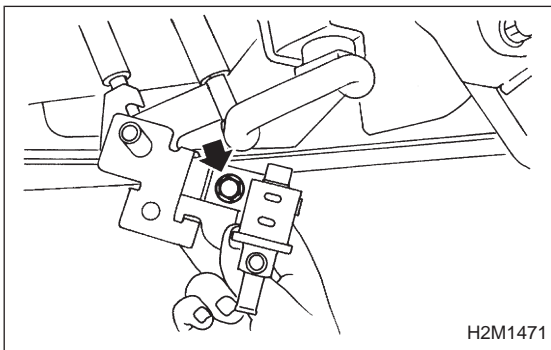
- 5) Remove one bolt fixing bracket on the body.



- 6) Remove one vacuum hose from vent control solenoid valve.

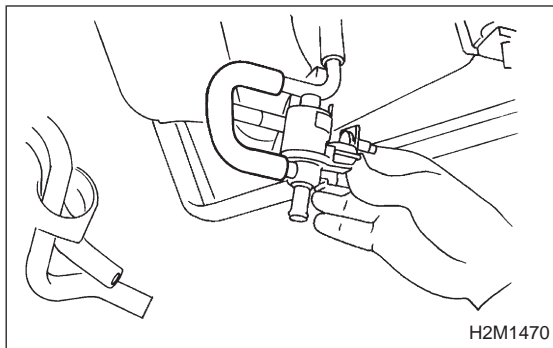


- 7) Remove one bolt fixing vent control solenoid valve on bracket.
- 8) Remove vent control solenoid valve.

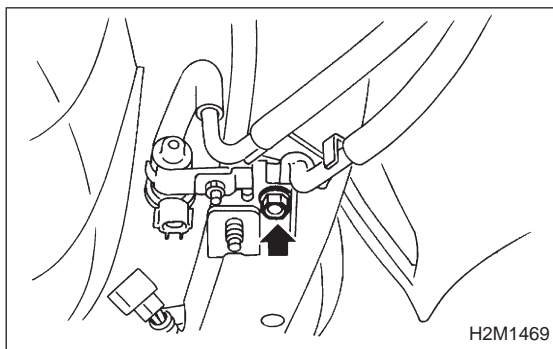


B: INSTALLATION

- 1) Install the bolt fixing vent control solenoid valve on bracket.



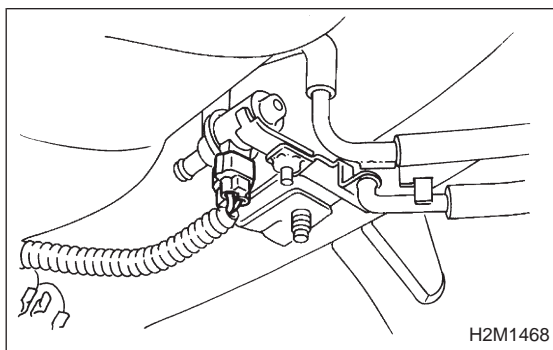
2) Install the vacuum hose to vent control solenoid valve.



3) Install the bolt fixing bracket on the body.

Tightening torque:

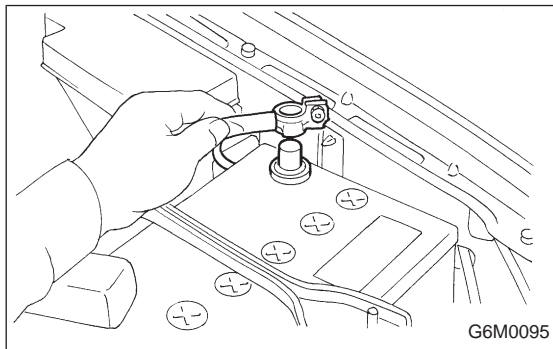
25 ± 7 N·m (2.5 ± 0.7 kg·m, 18.1 ± 5.1 ft·lb)



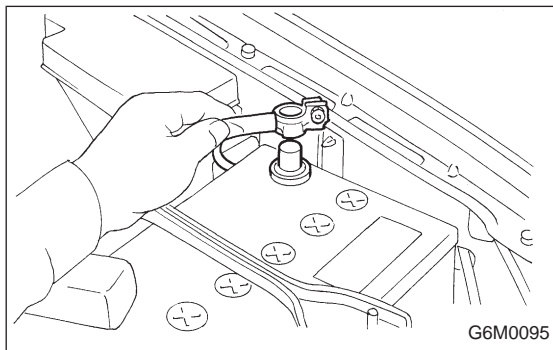
4) Connect connector to vent control solenoid valve.

5) Install canister. <Ref. to 2-1 [W3A0].>

6) Lower the vehicle.



7) Connect battery ground cable.

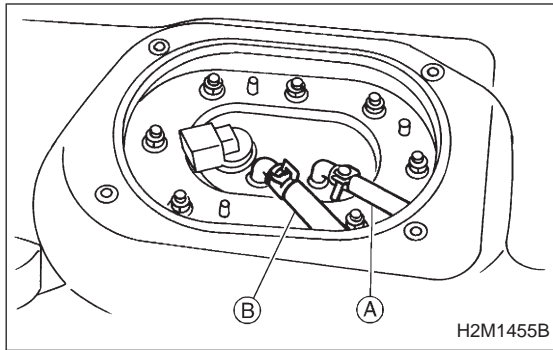


12. Fuel Level Sensor

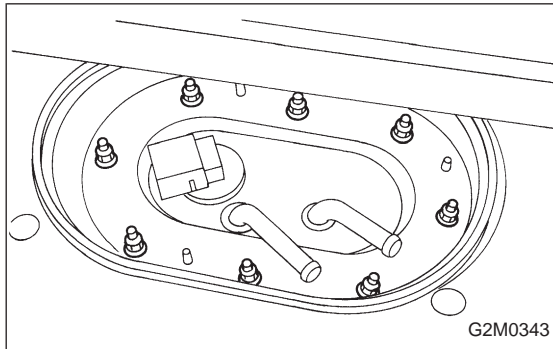
A: REMOVAL

1. 1800 cc MODEL

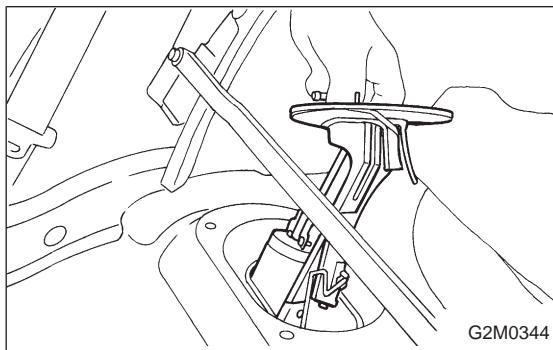
1) Disconnect battery ground cable.



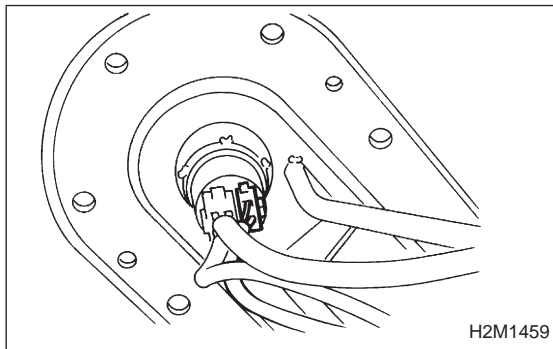
- 2) Release fuel pressure. <Ref. to 2-8 [W1B0].>
- 3) Disconnect fuel delivery hose (A) and return hose (B).



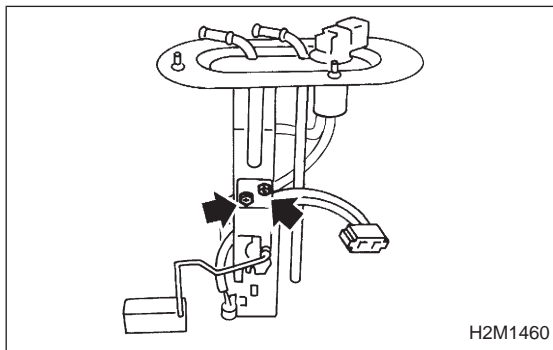
- 4) Remove nuts which install fuel pump assembly onto fuel tank.



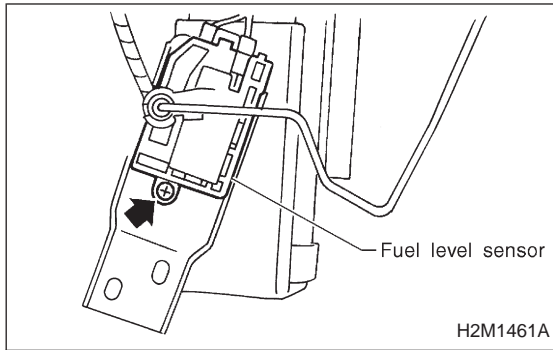
- 5) Take off fuel pump from fuel tank.



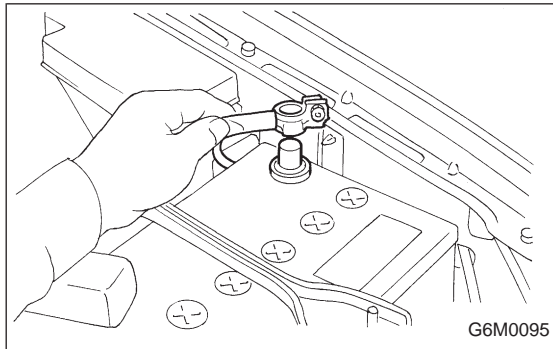
- 6) Disconnect connector from fuel pump.



- 7) Remove two screws fixing bracket on fuel pump assembly.

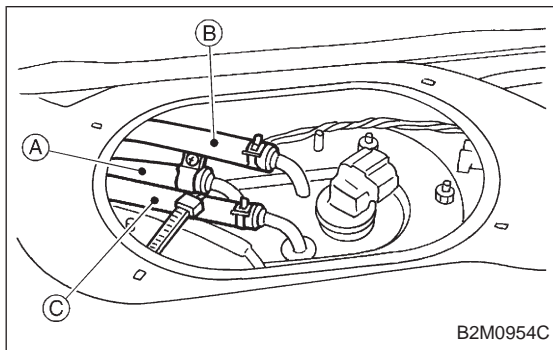


- 8) Remove one screw fixing fuel level sensor on bracket.
- 9) Remove fuel level sensor from fuel pump assembly.

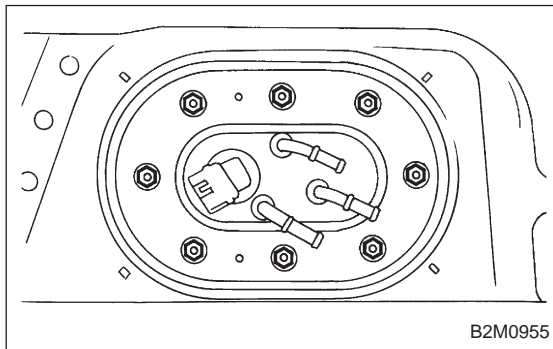


2. 2200 cc MODEL

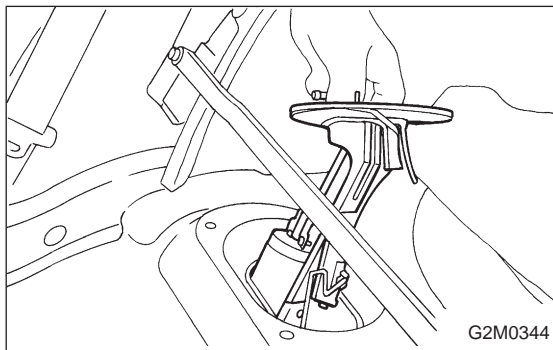
- 1) Disconnect battery ground cable.



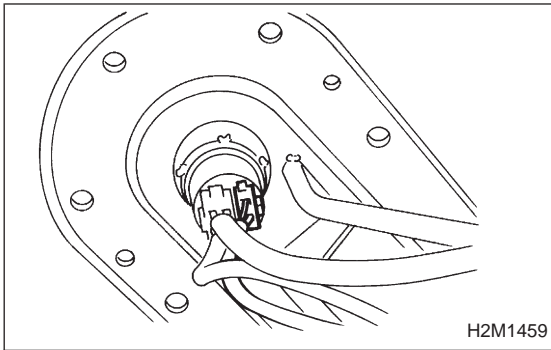
- 2) Release fuel pressure. <Ref. to 2-8 [W1B0].>
- 3) Disconnect fuel delivery hose (A) and return hose (B).



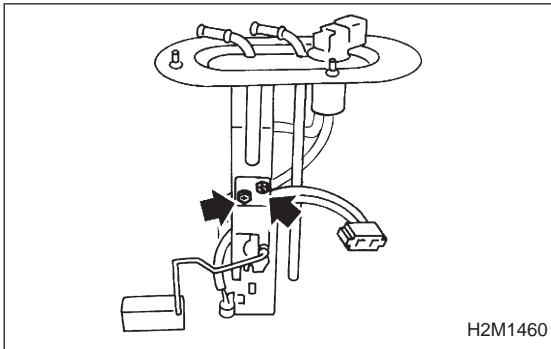
- 4) Remove nuts which install fuel pump assembly onto fuel tank.



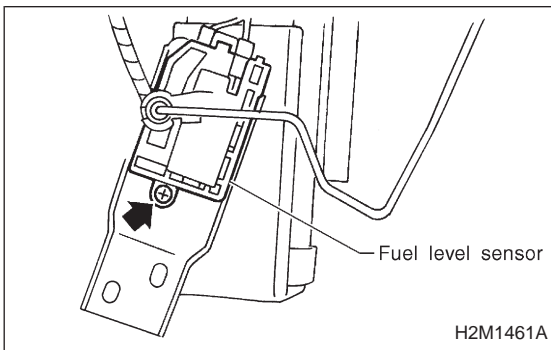
- 5) Take off fuel pump from fuel tank.



6) Disconnect connector from fuel pump.

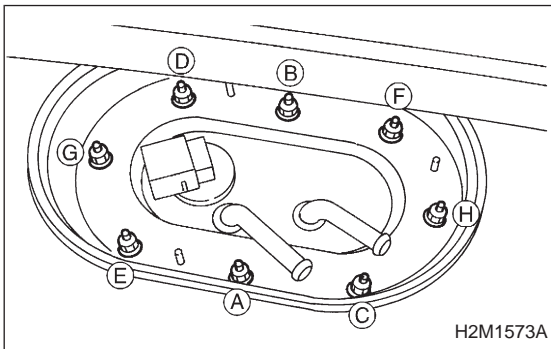


7) Remove two screws fixing bracket on fuel pump assembly.



8) Remove one screw fixing fuel level sensor on bracket.

9) Remove fuel level sensor from fuel pump assembly.



B: INSTALLATION

1. 1800 cc MODEL

CAUTION:

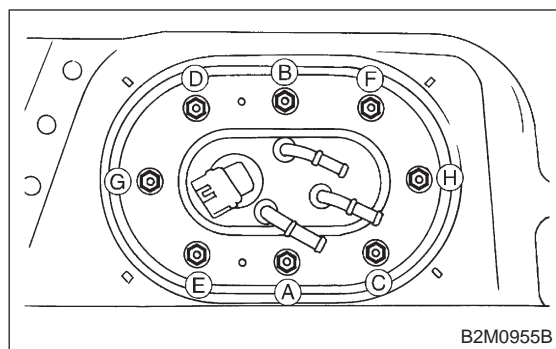
Leave fuel filler cap open when tightening nuts, to prevent fuel from flowing out through fuel delivery and return pipes. Close fuel filler cap after tightening nuts.

Installation is in the reverse order of removal. Do the following:

- Always use new gaskets.
- Ensure sealing portion is free from fuel or foreign particles before installation.
- Tighten nuts in alphabetical sequence shown in Figure to specified torque.

Tightening torque:

$4.4 \pm 1.5 \text{ N} \cdot \text{m}$ ($0.45 \pm 0.15 \text{ kg} \cdot \text{m}$, $3.3 \pm 1.1 \text{ ft} \cdot \text{lb}$)



2. 2200 cc MODEL

CAUTION:

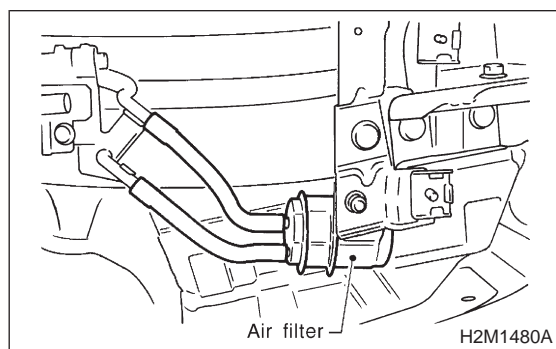
Leave fuel filler cap open when tightening nuts, to prevent fuel from flowing out through fuel delivery and return pipes. Close fuel filler cap after tightening nuts.

Installation is in the reverse order of removal. Do the following:

- Always use new gaskets.
- Ensure sealing portion is free from fuel or foreign particles before installation.
- Tighten nuts in alphabetical sequence shown in Figure to specified torque.

Tightening torque:

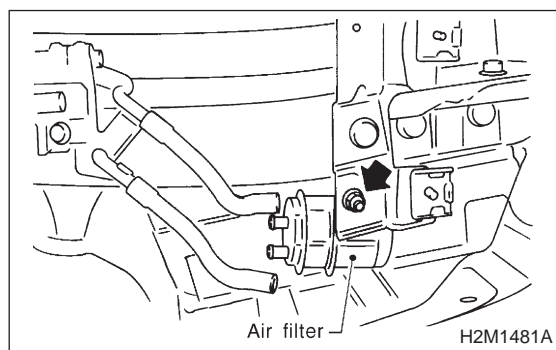
$4.4 \pm 1.5 \text{ N} \cdot \text{m}$ ($0.45 \pm 0.15 \text{ kg} \cdot \text{m}$, $3.3 \pm 1.1 \text{ ft} \cdot \text{lb}$)



13. Air Filter

A: REMOVAL AND INSTALLATION

- 1) Remove canister. <Ref. to 2-1 [W3A0].>
- 2) Remove two hoses from air filter.



- 3) Remove flange nut from bracket.
- 4) Installation is in the reverse order of removal.