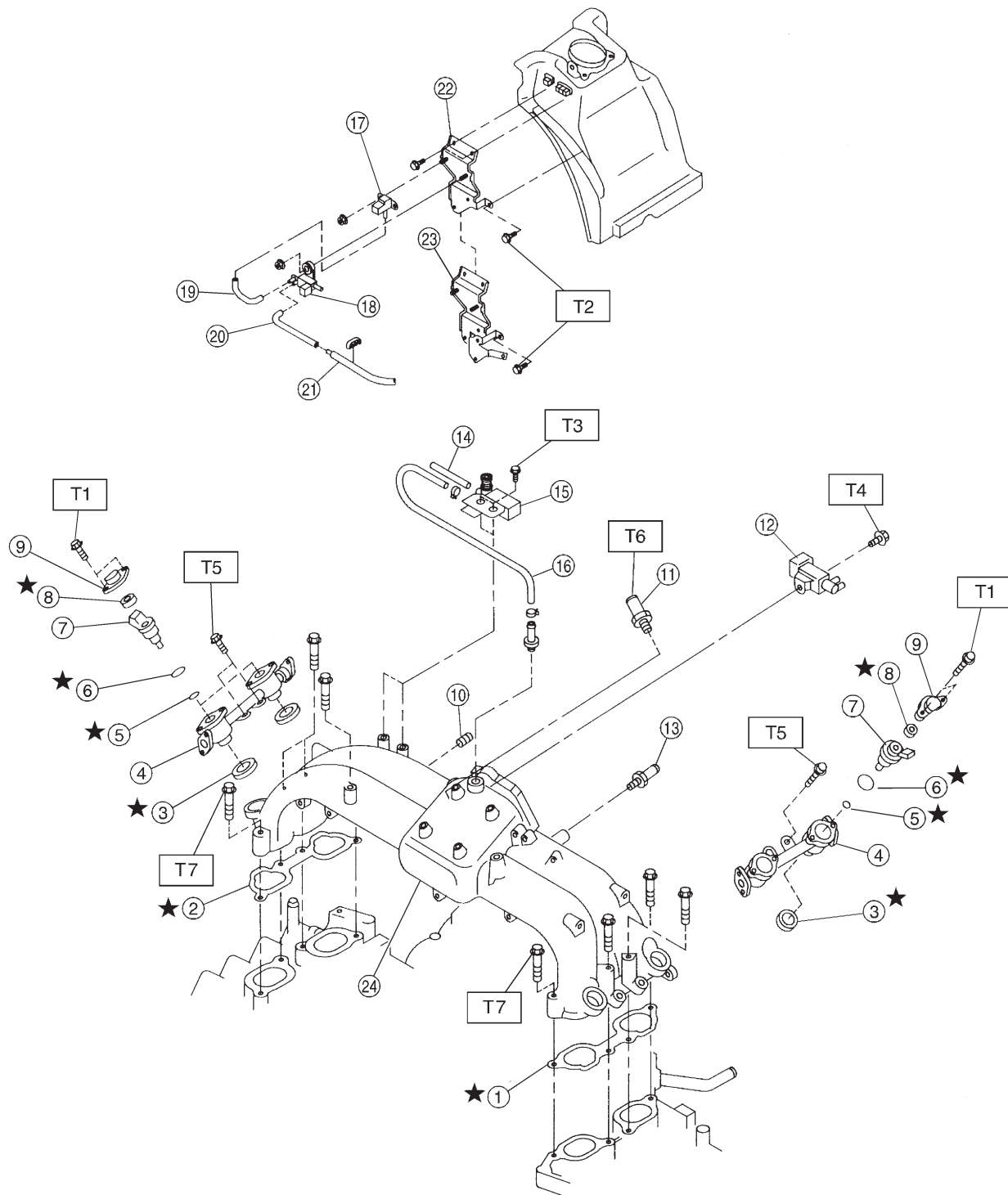


FUEL INJECTION SYSTEM **2-7**

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1. Intake Manifold

A: 1800 cc MODEL



H2M1576A

- ① Intake manifold gasket LH
- ② Intake manifold gasket RH
- ③ Fuel injector pipe insulator
- ④ Fuel injector pipe
- ⑤ O-ring A
- ⑥ O-ring B
- ⑦ Fuel injector
- ⑧ Insulator
- ⑨ Fuel injector cap
- ⑩ Plug
- ⑪ PCV valve
- ⑫ Purge control solenoid valve
- ⑬ Nipple
- ⑭ FICD solenoid valve hose A (With A/C model)
- ⑮ FICD solenoid valve (With A/C model)
- ⑯ FICD solenoid valve hose B (With A/C model)
- ⑰ Pressure sensor

- ⑱ Pressure sources switching solenoid valve
- ⑲ Vacuum hose A
- ⑳ Vacuum hose B
- ㉑ Vacuum hose C
- ㉒ Bracket (Except Canada spec. vehicles)
- ㉓ Bracket (For Canada spec. vehicles)
- ㉔ Intake manifold

Tightening torque: N·m (kg-m, ft-lb)

T1: 3.4±0.5 (0.35±0.05, 2.5±0.4)

T2: 4.9±0.5 (0.5±0.05, 3.6±0.4)

T3: 7.4±2.0 (0.75±0.2, 5.4±1.4)

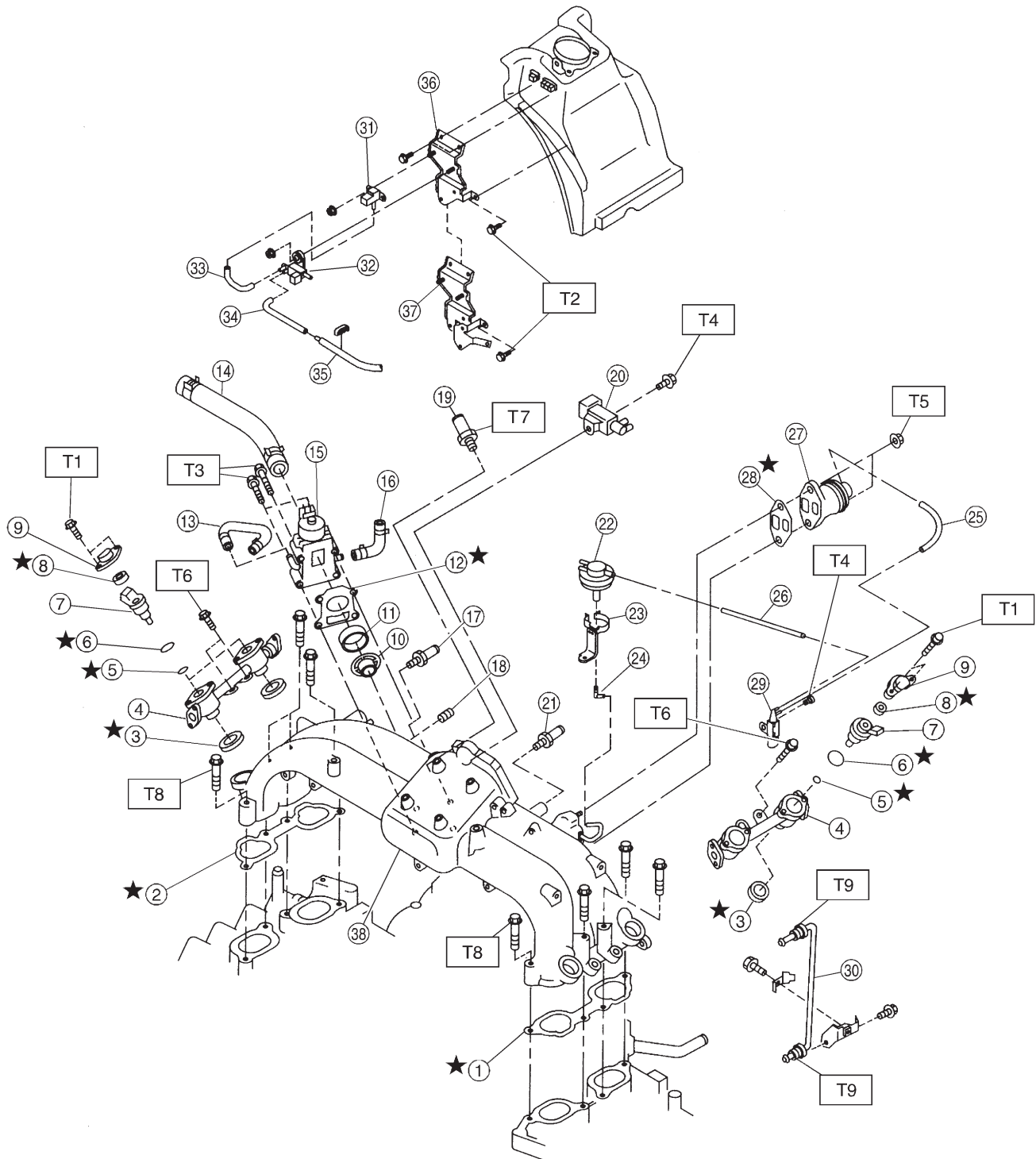
T4: 16±1.5 (1.6±0.15, 11.6±1.1)

T5: 19±2 (1.9±0.2, 13.7±1.4)

T6: 23±3 (2.3±0.3, 16.6±2.2)

T7: 25±2 (2.5±0.2, 18.1±1.4)

B: 2200 cc MODEL



H2M1575A

- ① Intake manifold gasket LH
- ② Intake manifold gasket RH
- ③ Fuel injector pipe insulator
- ④ Fuel injector pipe
- ⑤ O-ring A
- ⑥ O-ring B
- ⑦ Fuel injector
- ⑧ Insulator
- ⑨ Fuel injector cap
- ⑩ Plate
- ⑪ Sealing
- ⑫ Gasket
- ⑬ Engine coolant hose B
- ⑭ Air by-pass hose
- ⑮ Idle air control solenoid valve
- ⑯ Engine coolant hose A
- ⑰ Nipple (AT vehicles)
- ⑱ Plug
- ⑲ PCV valve
- ⑳ Purge control solenoid valve
- ㉑ Nipple
- ㉒ BPT (AT vehicles)
- ㉓ BPT holder bracket (AT vehicles)
- ㉔ Back pressure hose (AT vehicles)
- ㉕ EGR vacuum hose A (AT vehicles)

- ㉖ EGR vacuum hose B (AT vehicles)
- ㉗ EGR valve (AT vehicles)
- ㉘ Gasket (AT vehicles)
- ㉙ EGR solenoid valve (AT vehicles)
- ㉚ EGR pipe (AT vehicles)
- ㉛ Pressure sensor
- ㉜ Pressure sources switching solenoid valve
- ㉝ Vacuum hose A
- ㉞ Vacuum hose B
- ㉟ Vacuum hose C
- ㊱ Bracket (Except Canada spec. vehicles)
- ㊲ Bracket (For Canada spec. vehicles)
- ㊳ Intake manifold

Tightening torque: N·m (kg-m, ft-lb)

T1: 3.4±0.5 (0.35±0.05, 2.5±0.4)

T2: 4.9±0.5 (0.5±0.05, 3.6±0.4)

T3: 6.4±0.5 (0.65±0.05, 4.7±0.4)

T4: 16±1.5 (1.6±0.15, 11.6±1.1)

T5: 19±1.5 (1.9±0.15, 13.7±1.1)

T6: 19±2 (1.9±0.2, 13.7±1.4)

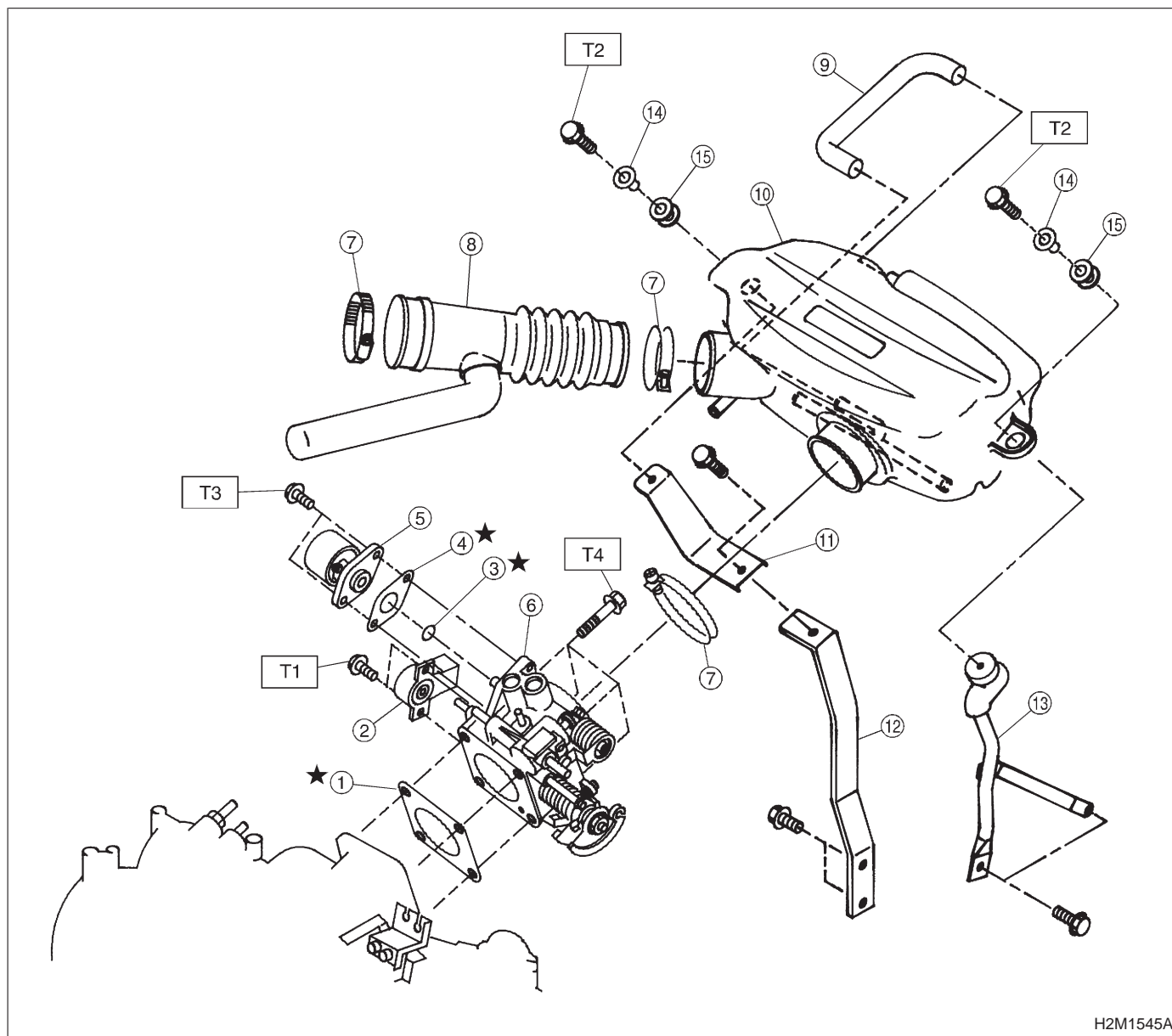
T7: 23±3 (2.3±0.3, 16.6±2.2)

T8: 25±2 (2.5±0.2, 18.1±1.4)

T9: 34±2 (3.5±0.2, 25.3±1.4)

2. Air Intake System

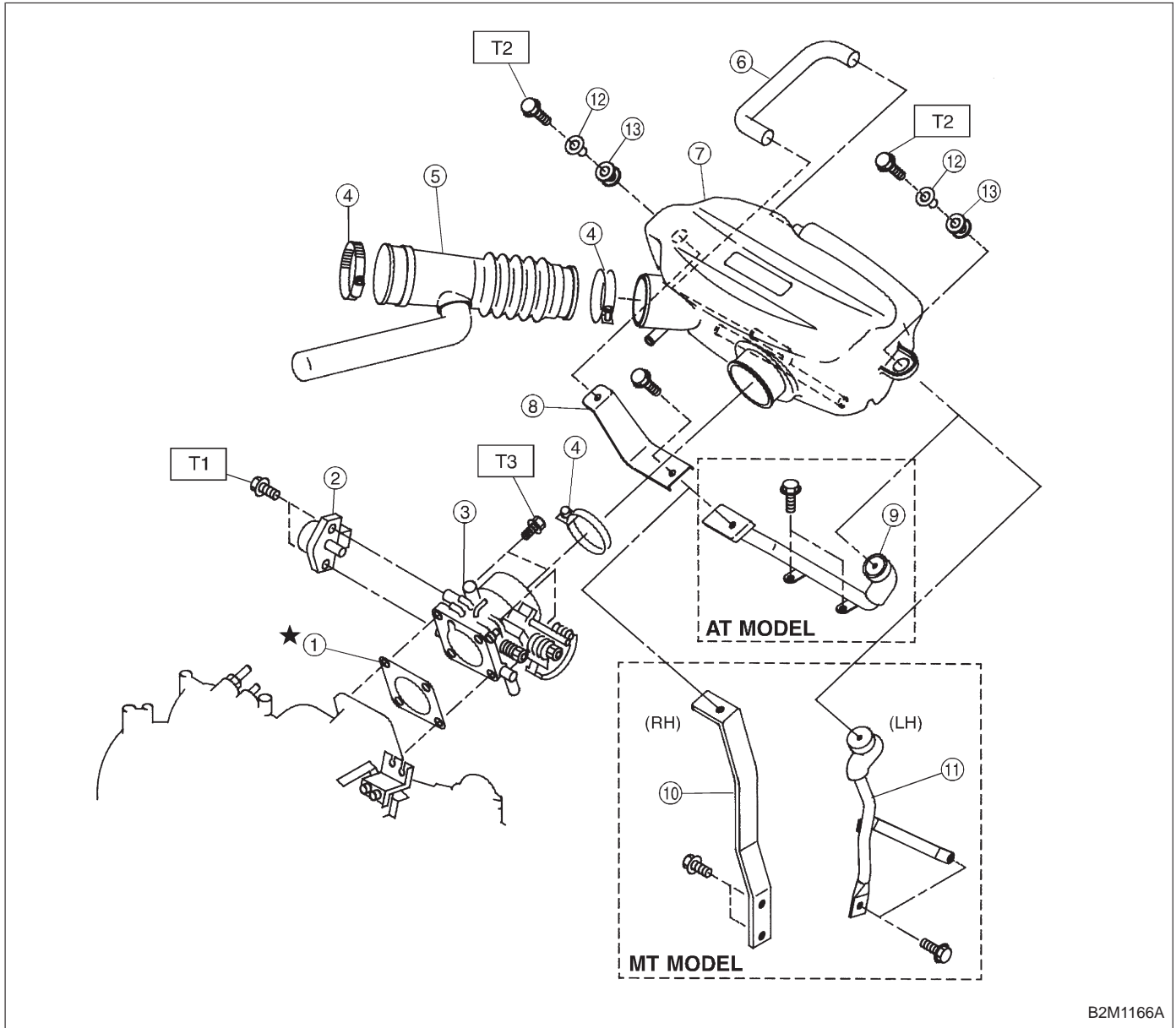
A: 1800 cc MODEL



- | | |
|-----------------------------------|------------------------|
| ① Gasket | ⑨ By-pass hose |
| ② Throttle position sensor | ⑩ Air intake chamber |
| ③ O-ring | ⑪ Stay A |
| ④ Gasket | ⑫ Stay C (MT vehicles) |
| ⑤ Idle air control solenoid valve | ⑬ Stay D (MT vehicles) |
| ⑥ Throttle body | ⑭ Spacer |
| ⑦ Clamp | ⑮ Bush |
| ⑧ Air intake duct | |

Tightening torque: N·m (kg-m, ft-lb)
T1: 2.2±0.2 (0.22±0.02, 1.6±0.1)
T2: 4.9±0.5 (0.5±0.05, 3.6±0.4)
T3: 6.0±0.8 (0.61±0.08, 4.4±0.6)
T4: 22±2 (2.2±0.2, 15.9±1.4)

B: 2200 cc MODEL

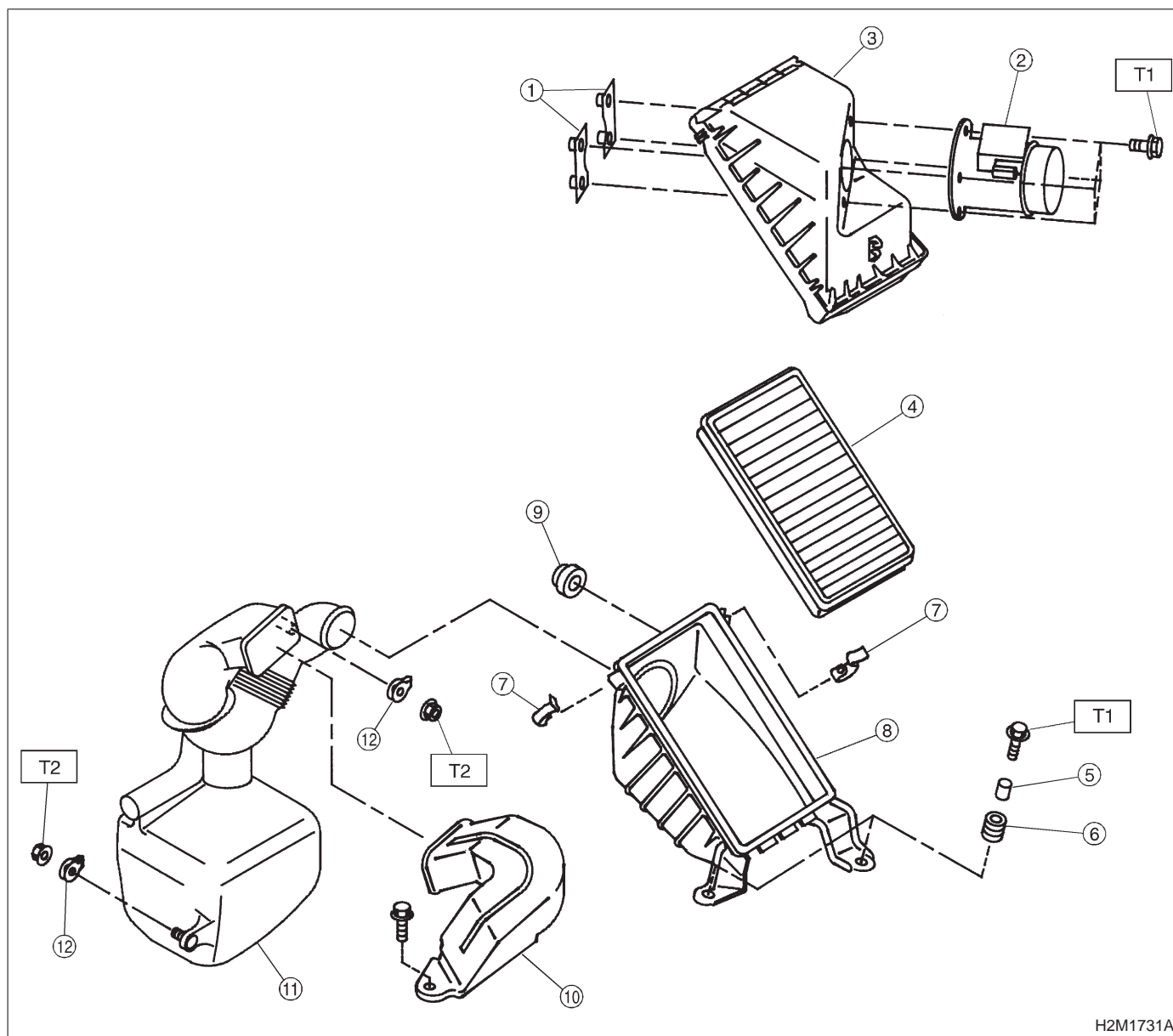


B2M1166A

- | | |
|----------------------------|---------------------|
| ① Gasket | ⑧ Stay A |
| ② Throttle position sensor | ⑨ Stay B (AT model) |
| ③ Throttle body | ⑩ Stay C (MT model) |
| ④ Clamp | ⑪ Stay D (MT model) |
| ⑤ Air intake duct | ⑫ Spacer |
| ⑥ By-pass hose | ⑬ Bush |
| ⑦ Air intake chamber | |

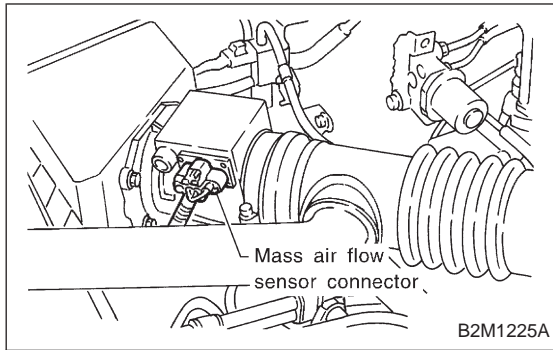
Tightening torque: N·m (kg-m, ft-lb)
T1: 2.2±0.2 (0.22±0.02, 1.6±0.1)
T2: 4.9±0.5 (0.5±0.05, 3.6±0.4)
T3: 22±2 (2.2±0.2, 15.9±1.4)

3. Air Cleaner



- | | |
|--------------------------------|--------------------------|
| ① Mass air flow sensor bracket | ⑦ Clip |
| ② Mass air flow sensor ASSY | ⑧ Air cleaner case |
| ③ Air cleaner upper cover | ⑨ Cushion rubber |
| ④ Air cleaner element | ⑩ Air intake duct |
| ⑤ Spacer | ⑪ Resonator chamber ASSY |
| ⑥ Bush | ⑫ Clip |

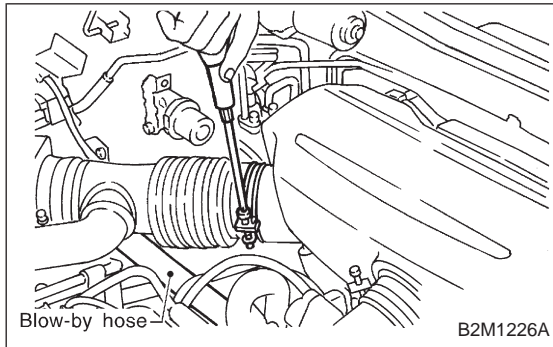
Tightening torque: N·m (kg·m, ft·lb)
T1: 7.4±2.0 (0.75±0.2, 5.4±1.4)
T2: 33±10 (3.4±1.0, 25±7)



1. Air Cleaner and Air Intake Duct

A: REMOVAL AND INSTALLATION

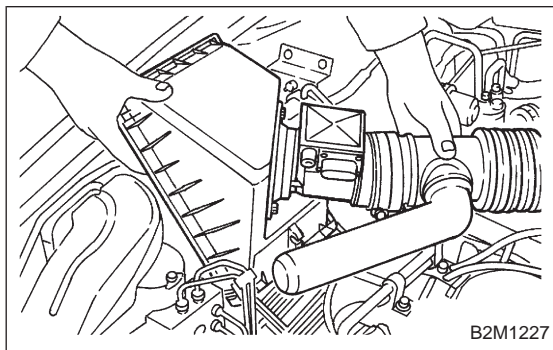
1) Disconnect connector from mass air flow sensor.



2) Loosen clamp which connects air intake duct to air intake chamber.

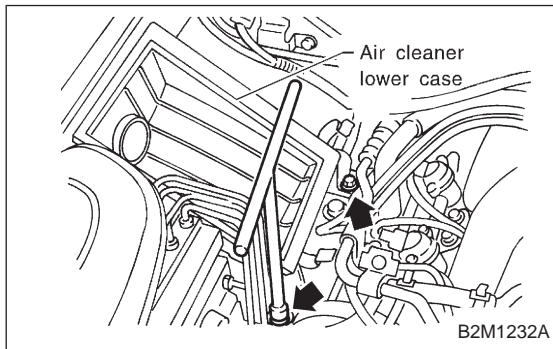
3) Remove two clips of air cleaner upper cover.

4) Disconnect blow-by hose from air intake duct.

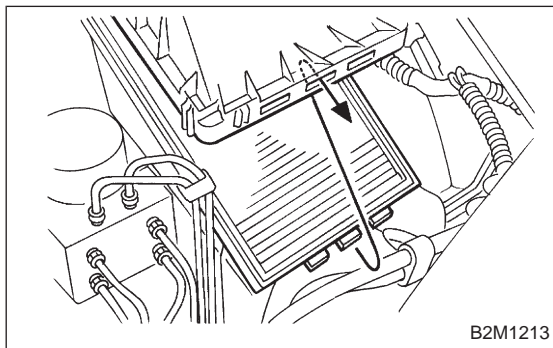


5) Remove air intake duct and air cleaner upper cover as a unit.

6) Remove air cleaner element.



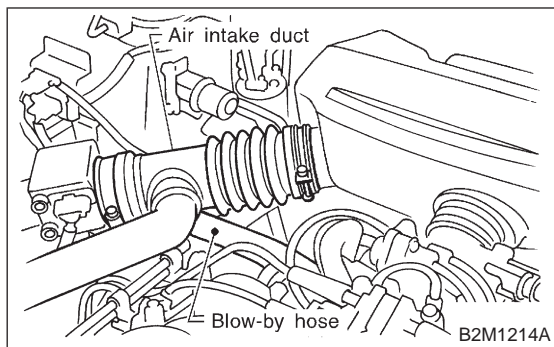
7) Remove air cleaner lower case.



8) Installation is in the reverse order of removal.

CAUTION:

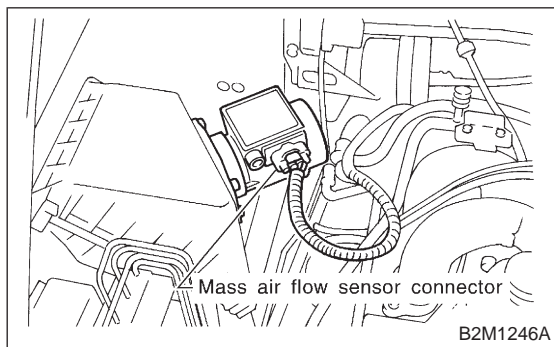
Before installing air cleaner upper cover, align holes with protruding portions of air cleaner lower case, then secure upper cover to lower case.



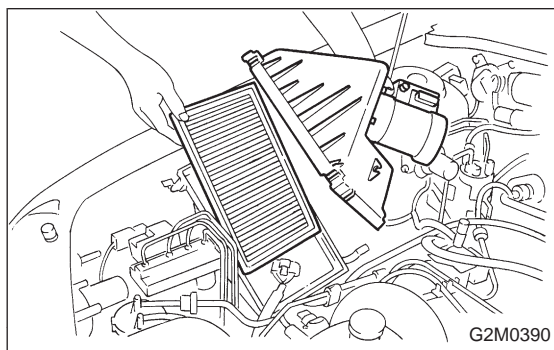
2. Mass Air Flow Sensor

A: REMOVAL AND INSTALLATION

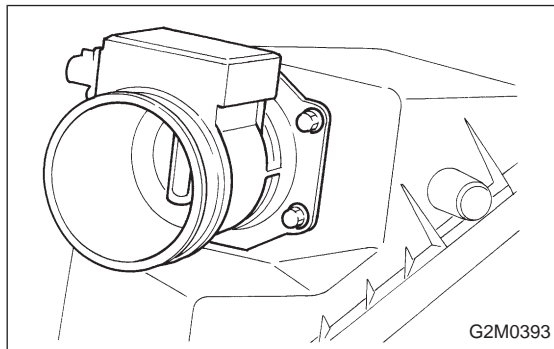
- 1) Loosen clamps which connect air intake duct to air intake chamber and mass air flow sensor.
- 2) Disconnect blow-by hose from air intake duct.
- 3) Remove air intake duct.



- 4) Disconnect connector from mass air flow sensor.



- 5) Remove two clips, then remove air cleaner upper cover.



- 6) Remove mass air flow sensor from air cleaner upper cover.

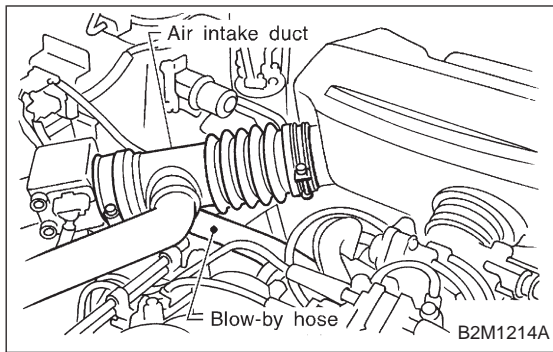
- 7) Installation is in the reverse order of removal.

Tightening torque:

$7.4 \pm 2.0 \text{ N}\cdot\text{m}$ ($0.75 \pm 0.2 \text{ kg}\cdot\text{m}$, $5.4 \pm 1.4 \text{ ft}\cdot\text{lb}$)

CAUTION:

Before installing air cleaner upper cover, align holes with protruding portions of air cleaner lower case, then secure upper cover to lower case.

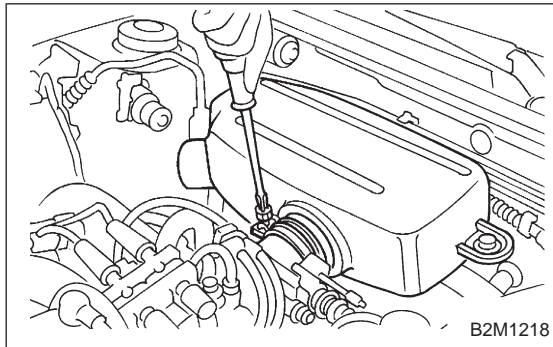


3. Throttle Body

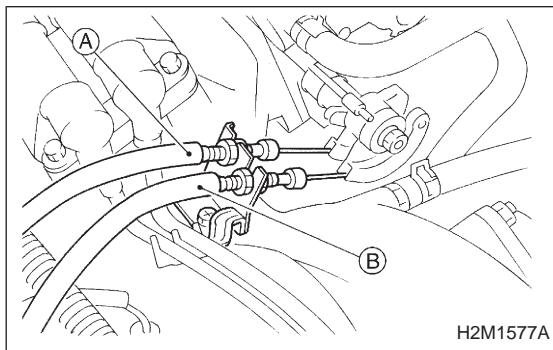
A: REMOVAL AND INSTALLATION

1. 1800 cc MODEL

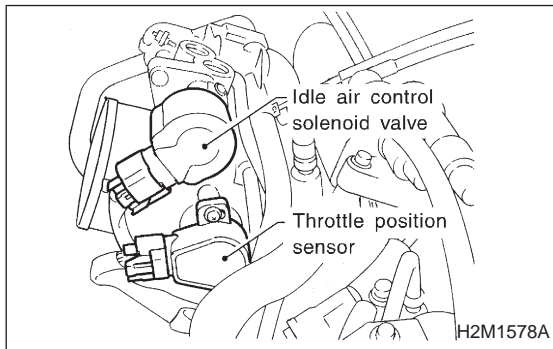
- 1) Loosen clamps which connect air intake duct to air intake chamber and mass air flow sensor.
- 2) Disconnect blow-by hose from air intake duct.
- 3) Remove air intake duct.



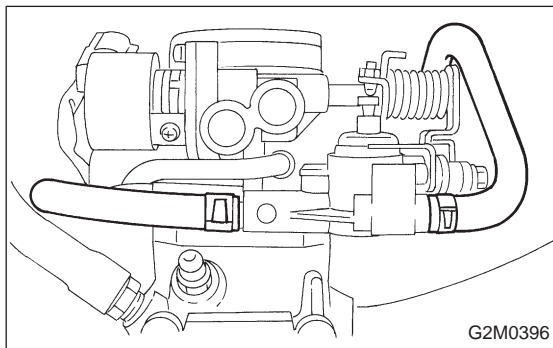
- 4) Loosen clamp which connects air intake chamber to throttle body.
- 5) Disconnect air hoses, and remove air intake chamber.



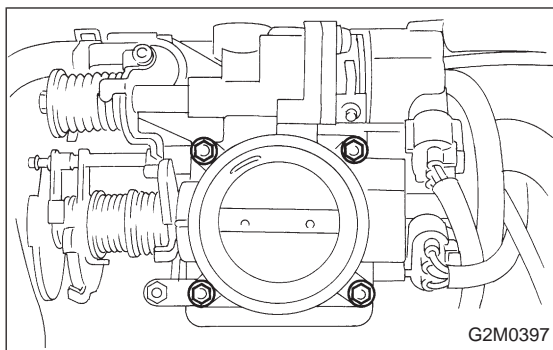
- 6) Disconnect accelerator cable (A).
- 7) Disconnect cruise control cable (B). (With cruise control model)



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



- 9) Disconnect water hoses from throttle body.



10) Remove bolts which install throttle body to intake manifold.

11) Installation is in the reverse order of removal.

CAUTION:

- Always use a new gasket.
- Before installing air cleaner upper cover, align holes with protruding portions of air cleaner lower case, then secure upper cover to lower case.

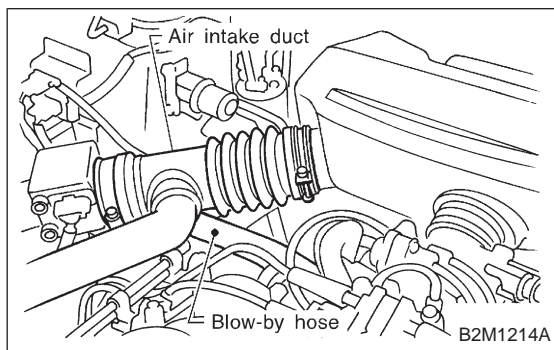
Tightening torque:

Throttle body:

$22 \pm 2 \text{ N} \cdot \text{m}$ ($2.2 \pm 0.2 \text{ kg} \cdot \text{m}$, $15.9 \pm 1.4 \text{ ft} \cdot \text{lb}$)

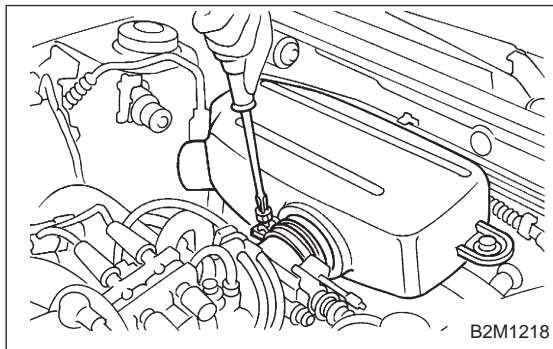
Air intake chamber:

$4.9 \pm 0.5 \text{ N} \cdot \text{m}$ ($0.5 \pm 0.05 \text{ kg} \cdot \text{m}$, $3.6 \pm 0.4 \text{ ft} \cdot \text{lb}$)



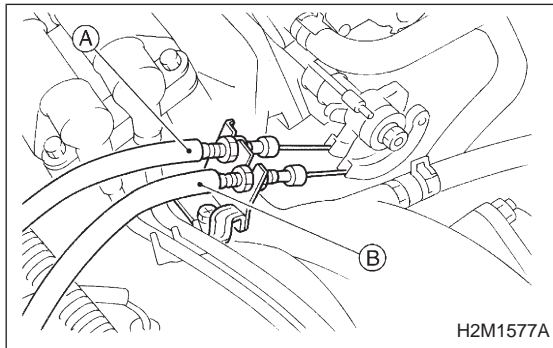
2. 2200 cc MODEL

- 1) Loosen clamps which connect air intake duct to air intake chamber and mass air flow sensor.
- 2) Disconnect blow-by hose from air intake duct.
- 3) Remove air intake duct.



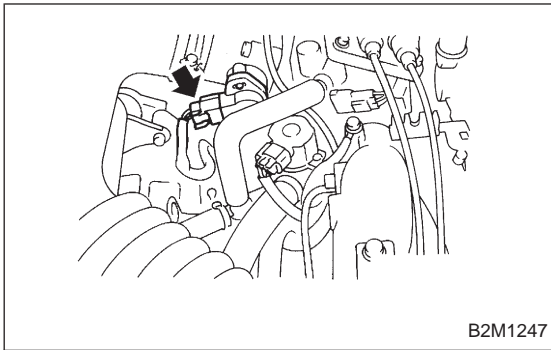
4) Loosen clamp which connects air intake chamber to throttle body.

5) Disconnect air hoses, and remove air intake chamber.

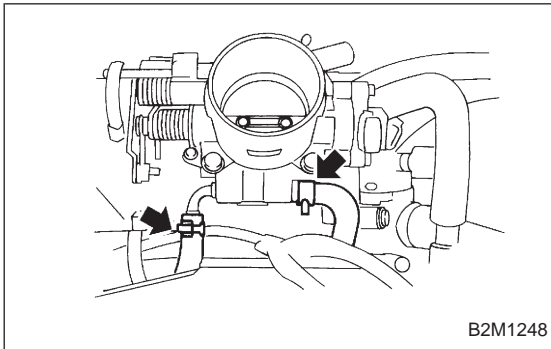


6) Disconnect accelerator cable (A).

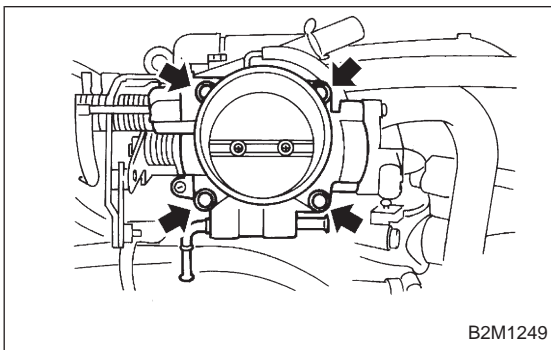
7) Disconnect cruise control cable (B). (With cruise control model)



8) Disconnect connector from throttle position sensor.



9) Disconnect engine coolant hoses from throttle body.



10) Remove bolts which install throttle body to intake manifold.

11) Installation is in the reverse order of removal.

CAUTION:

- Always use a new gasket.
- Before installing air cleaner upper cover, align holes with protruding portions of air cleaner lower case, then secure upper cover to lower case.

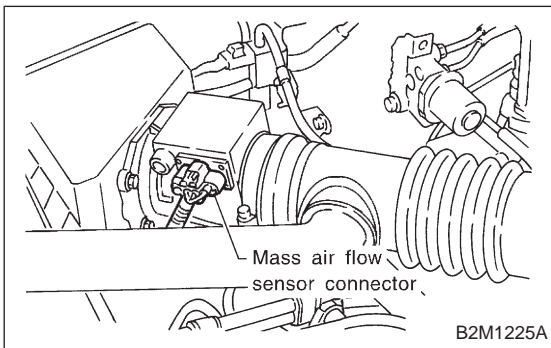
Tightening torque:

Throttle body:

22 ± 2 N·m (2.2 ± 0.2 kg·m, 15.9 ± 1.4 ft·lb)

Air intake chamber:

4.9 ± 0.5 N·m (0.5 ± 0.05 kg·m, 3.6 ± 0.4 ft·lb)



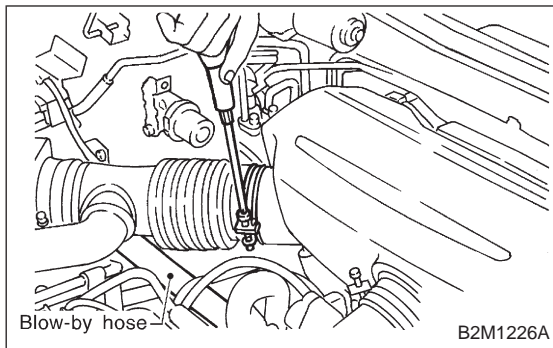
4. Intake Manifold

A: REMOVAL

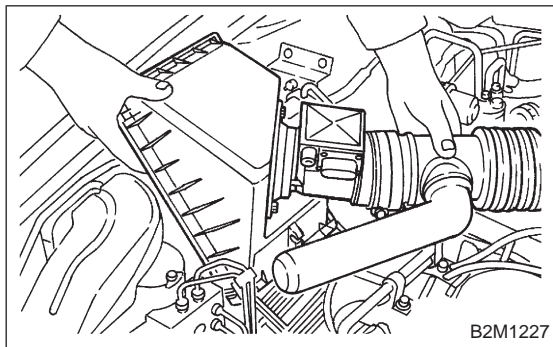
1. 1800 cc MODEL

- 1) Release fuel pressure. <Ref. to 2-8 [W1B0].>
- 2) Disconnect connector from mass air flow sensor.

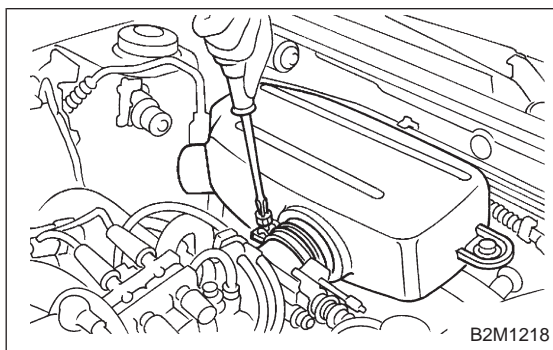
4. Intake Manifold



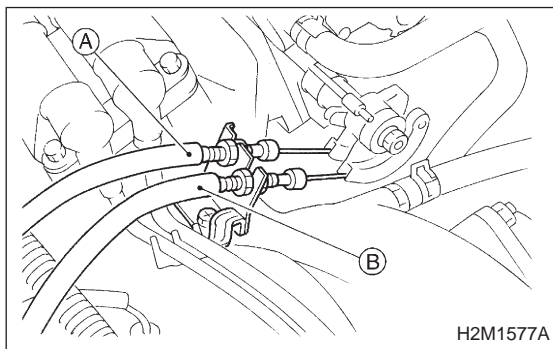
- 3) Loosen clamp which connects air intake duct to air intake chamber.
- 4) Remove two clips of air cleaner upper cover.
- 5) Disconnect blow-by hose from air intake duct.



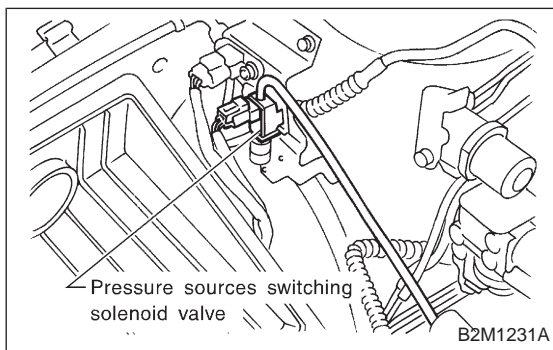
- 6) Remove air intake duct and air cleaner upper cover as a unit.
- 7) Remove air cleaner element.



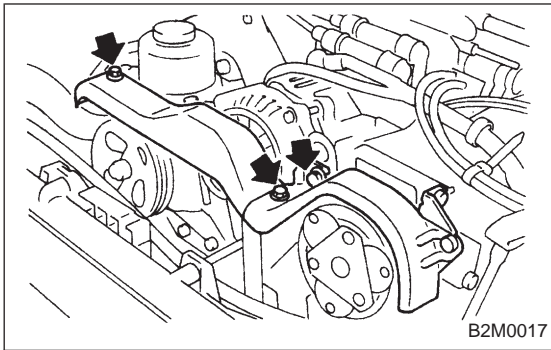
- 8) Loosen clamp which connects air intake chamber to throttle body.
- 9) Disconnect air hoses, and remove air intake chamber.



- 10) Disconnect accelerator cable (A).
- 11) Disconnect cruise control cable (B). (With cruise control model)

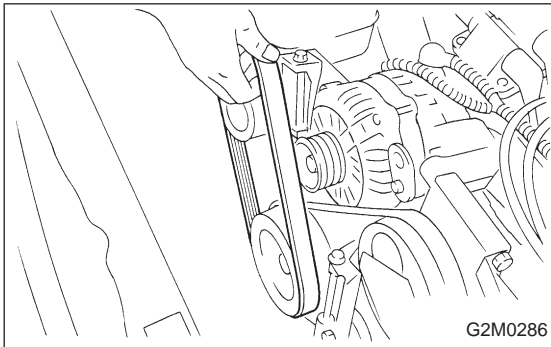


- 12) Disconnect vacuum hoses from pressure sources switching solenoid valve.

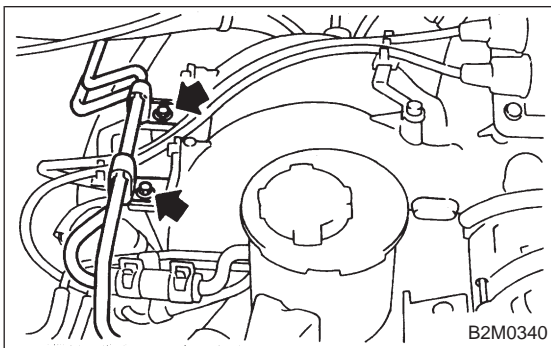


13) Remove power steering pump from bracket.

(1) Remove V-belt cover.



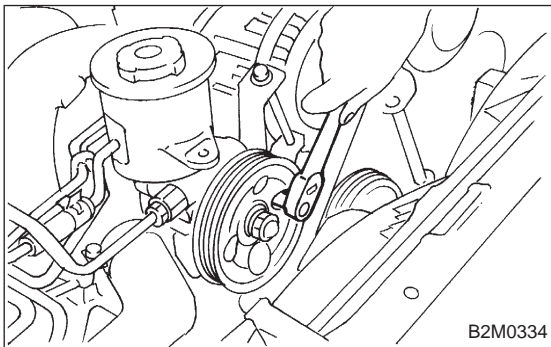
(2) Loosen lock bolt and slider bolt, and remove power steering pump drive V-belt.



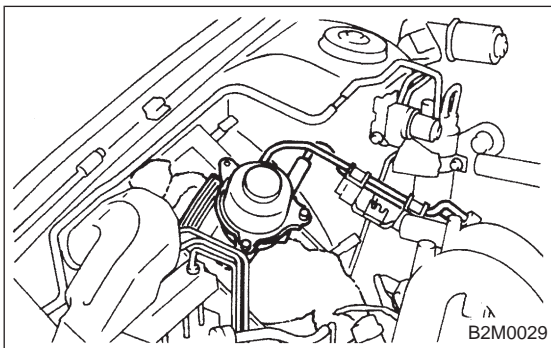
(3) Remove bolts which secure power steering pipe brackets to intake manifold.

NOTE:

Do not disconnect power steering hose.

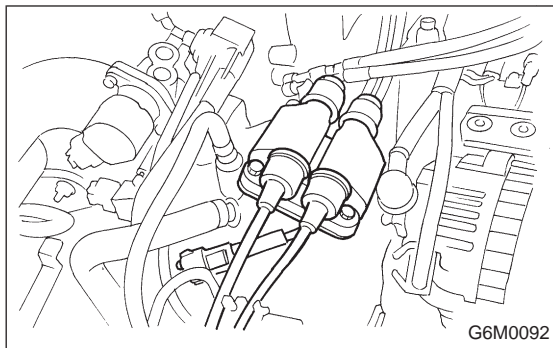


(4) Remove bolts which install power steering pump to bracket.

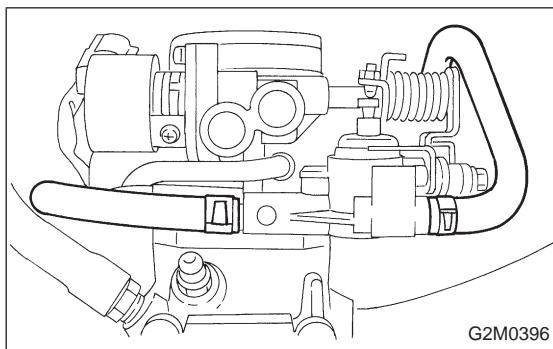


(5) Place power steering pump on the right side wheel apron.

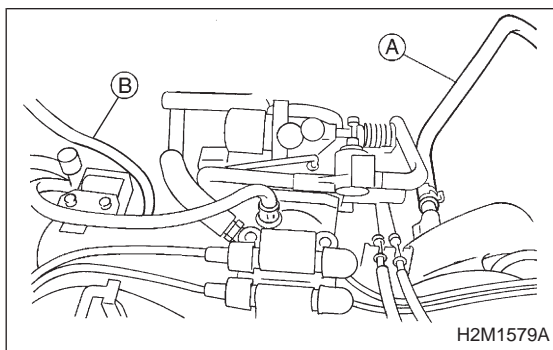
4. Intake Manifold



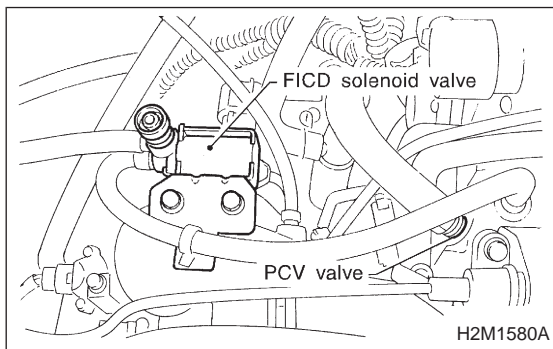
- 14) Disconnect spark plug cords from ignition coil.
- 15) Disconnect connector from ignition coil.



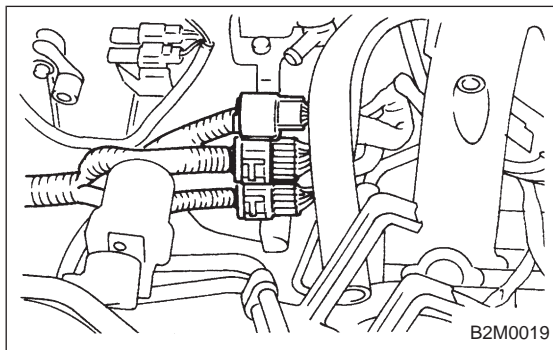
- 16) Disconnect water hose from throttle body.



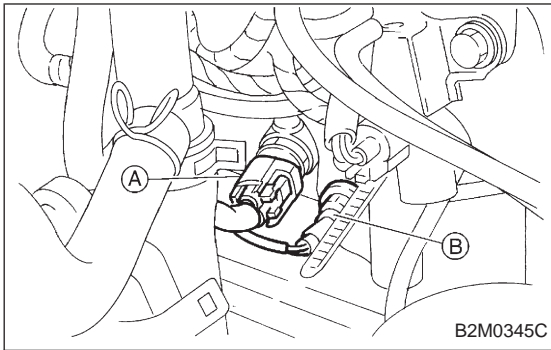
- 17) Disconnect brake booster hose (A).
- 18) Disconnect cruise control vacuum hose (B). (With cruise control)



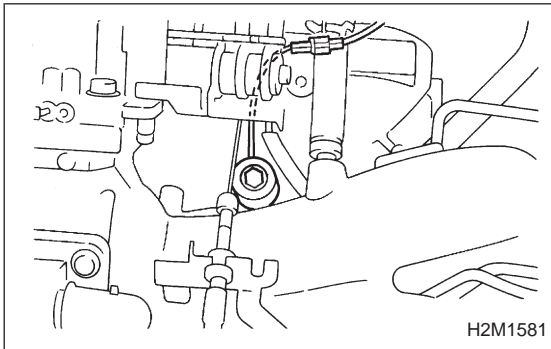
- 19) Disconnect air by-pass hose from FICD solenoid valve. (With A/C)
- 20) Disconnect emission hose from PCV valve.



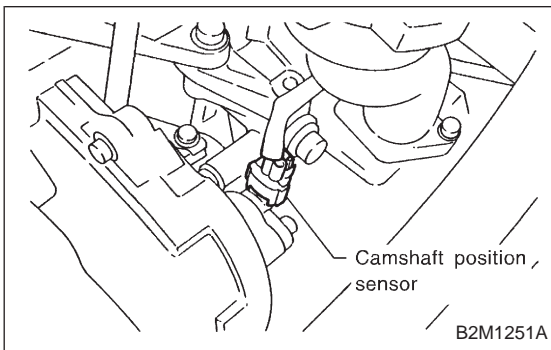
- 21) Disconnect engine harness connectors from bulkhead harness connectors, and remove engine harness connectors from bracket.



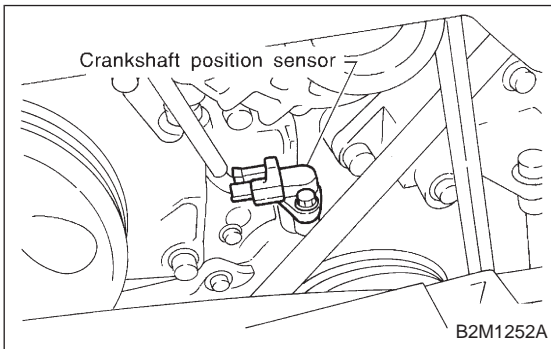
22) Disconnect connectors from engine coolant temperature sensor (A) and thermometer (B).



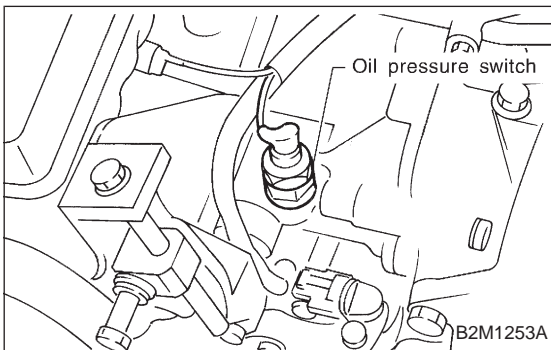
23) Disconnect knock sensor connector.



24) Disconnect connector from camshaft position sensor.

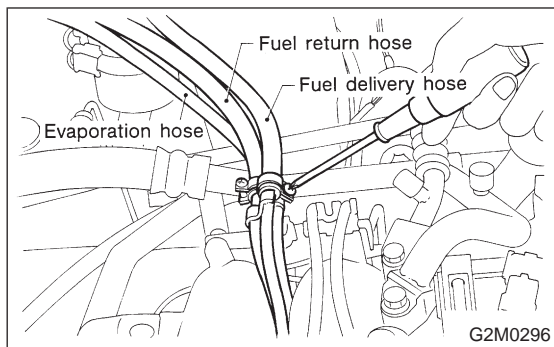


25) Disconnect connector from crankshaft position sensor.



26) Disconnect connector from oil pressure switch.

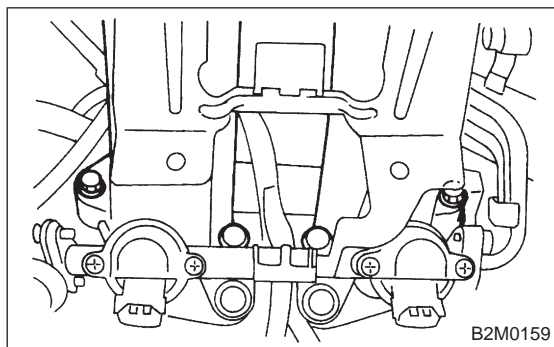
4. Intake Manifold



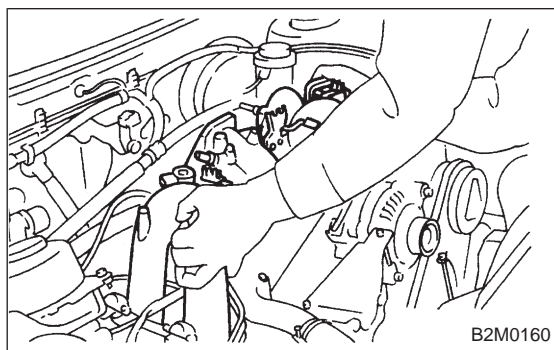
27) Disconnect fuel hoses from fuel pipes.

WARNING:

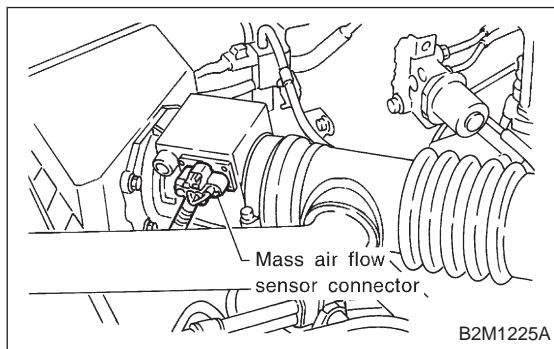
Catch fuel from hoses in a container.



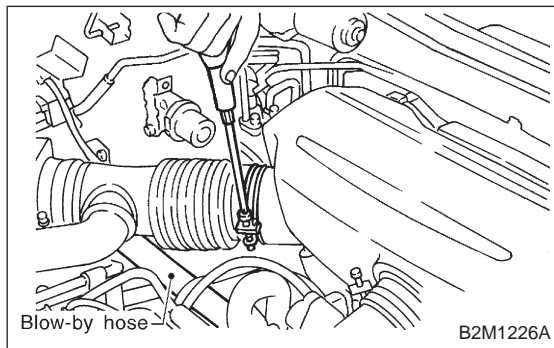
28) Remove bolts which hold intake manifold onto cylinder heads.



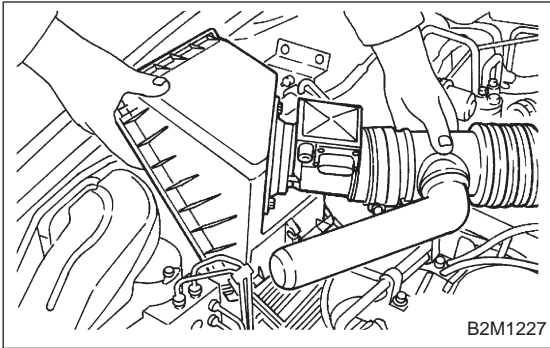
29) Remove intake manifold.

**2. 2200 cc MODEL**

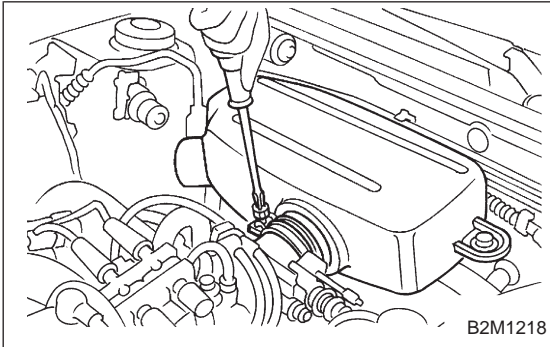
- 1) Release fuel pressure. <Ref. to 2-8 [W1B0].>
- 2) Disconnect connector from mass air flow sensor.



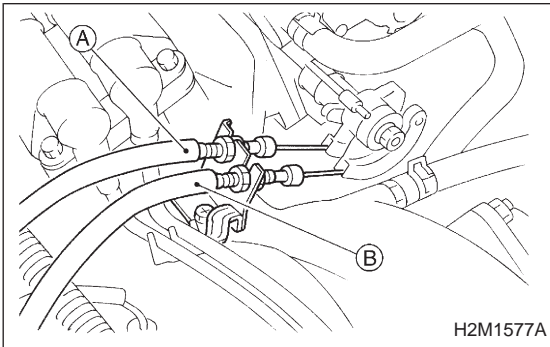
- 3) Loosen clamp which connects air intake duct to air intake chamber.
- 4) Remove two clips of air cleaner upper cover.
- 5) Disconnect blow-by hose from air intake duct.



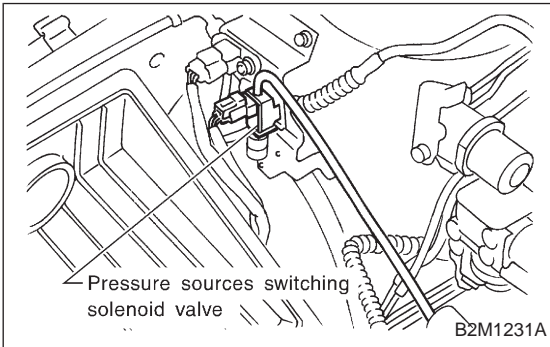
- 6) Remove air intake duct and air cleaner upper cover as a unit.
- 7) Remove air cleaner element.



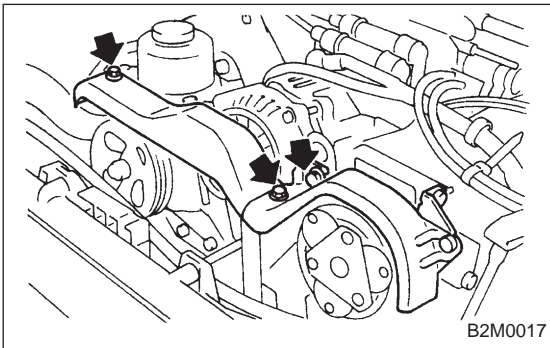
- 8) Loosen clamp which connects air intake chamber to throttle body.
- 9) Disconnect air hoses, and remove air intake chamber.



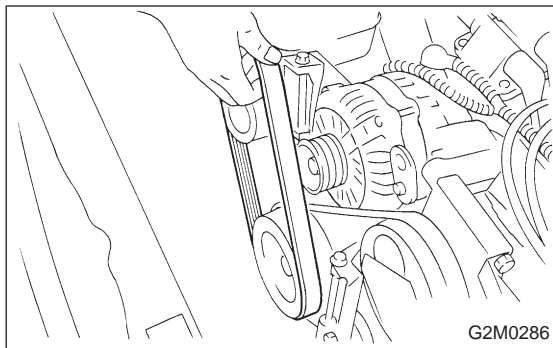
- 10) Disconnect accelerator cable (A).
- 11) Disconnect cruise control cable (B). (With cruise control model)



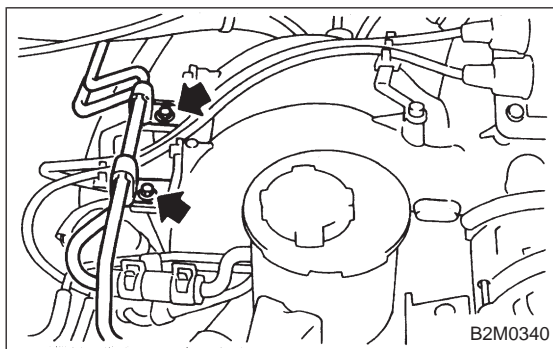
- 12) Disconnect vacuum hoses from pressure sources switching solenoid valve.



- 13) Remove power steering pump from bracket.
 - (1) Remove V-belt cover.



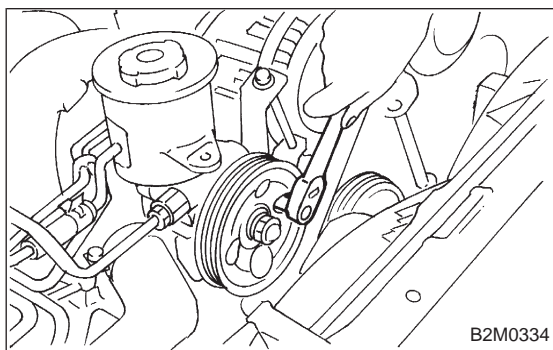
(2) Loosen lock bolt and slider bolt, and remove power steering pump drive V-belt.



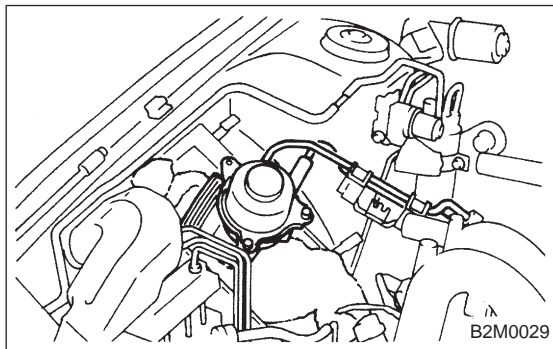
(3) Remove bolts which secure power steering pipe brackets to intake manifold.

NOTE:

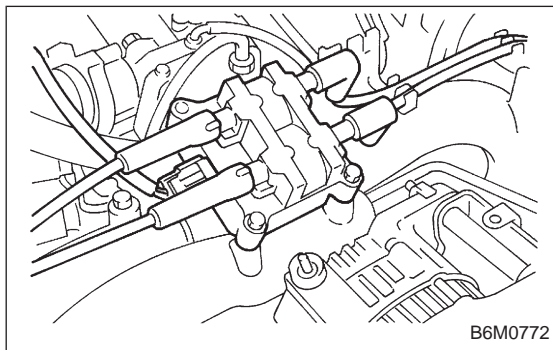
Do not disconnect power steering hose.



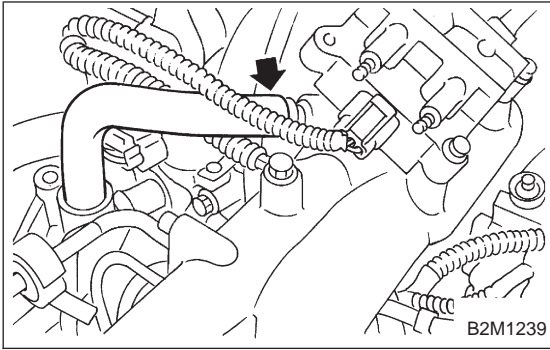
(4) Remove bolts which install power steering pump to bracket.



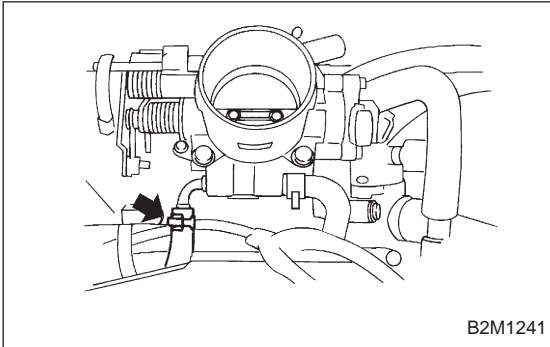
(5) Place power steering pump on the right side wheel apron.



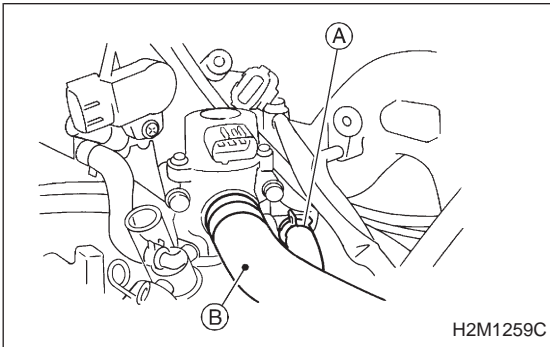
14) Disconnect spark plug cords from ignition coil.



15) Disconnect PCV hose from intake manifold.

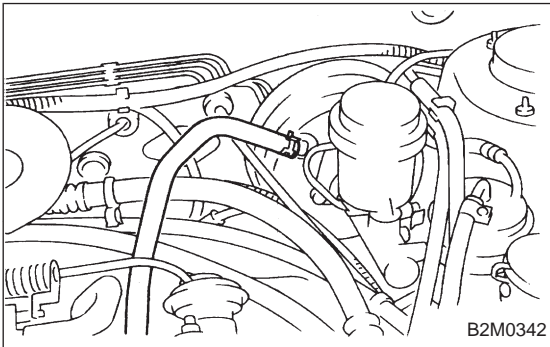


16) Disconnect engine coolant hose from throttle body.

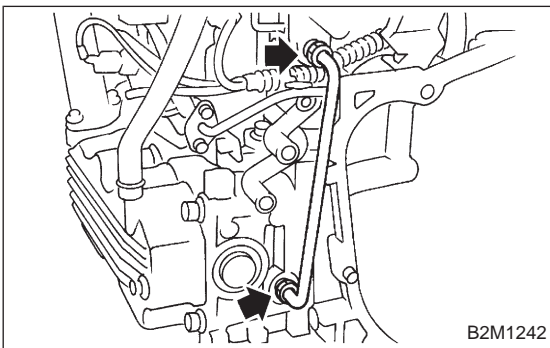


17) Disconnect engine coolant hose (A) from idle air control solenoid valve.

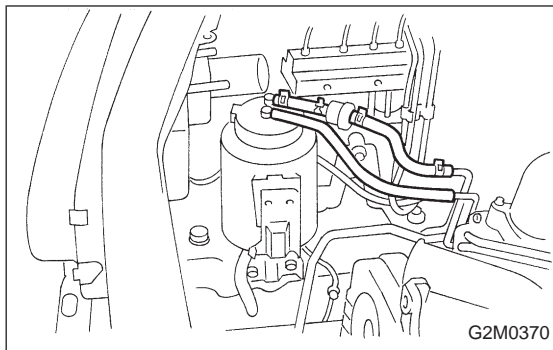
18) Disconnect air by-pass hose (B) from idle air control solenoid valve.



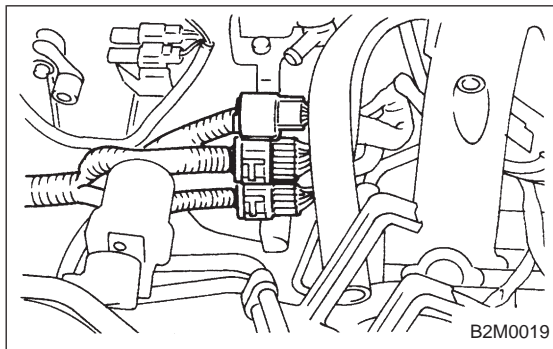
19) Disconnect brake booster hose.



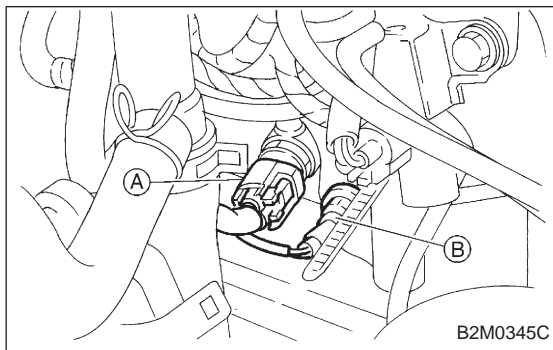
20) Remove EGR pipe. (AT vehicles)



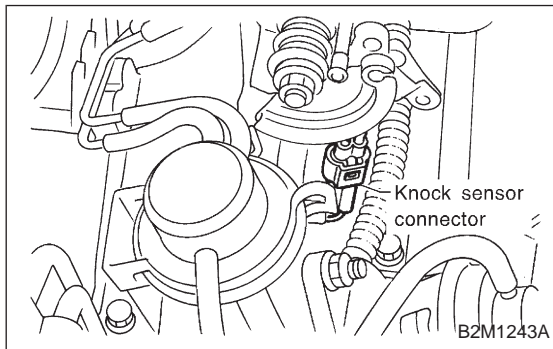
21) Disconnect canister hoses from pipes.



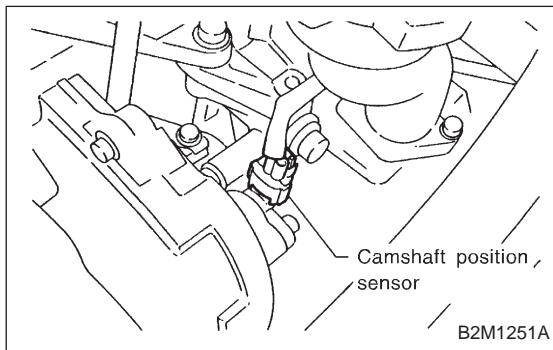
22) Disconnect engine harness connectors from bulkhead harness connectors, and remove engine harness connectors from bracket.



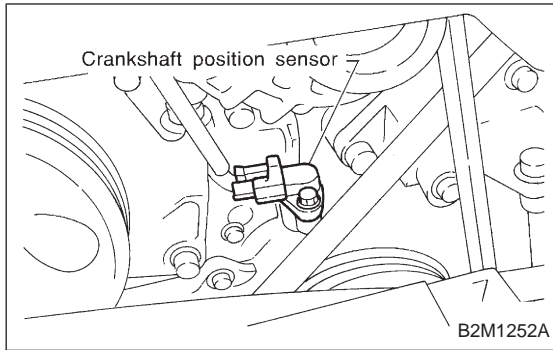
23) Disconnect connectors from engine coolant temperature sensor (A) and thermometer (B).



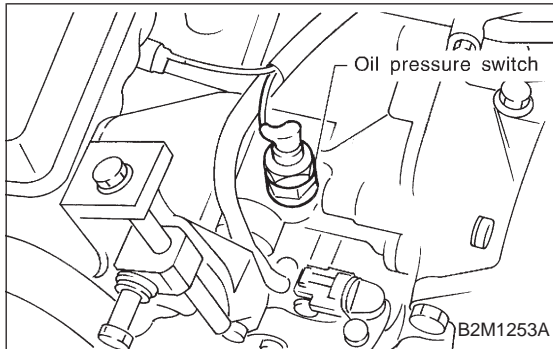
24) Disconnect knock sensor connector.



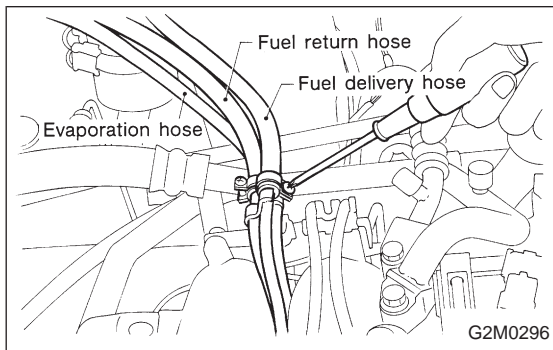
25) Disconnect connector from camshaft position sensor.



26) Disconnect connector from crankshaft position sensor.

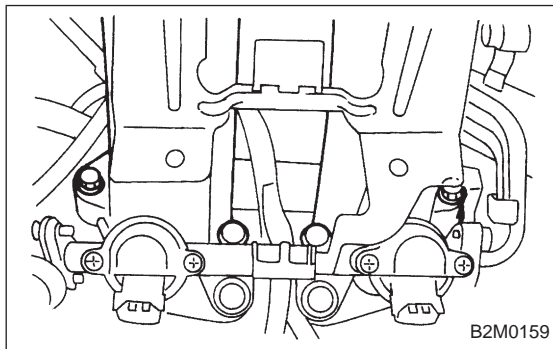


27) Disconnect connector from oil pressure switch.

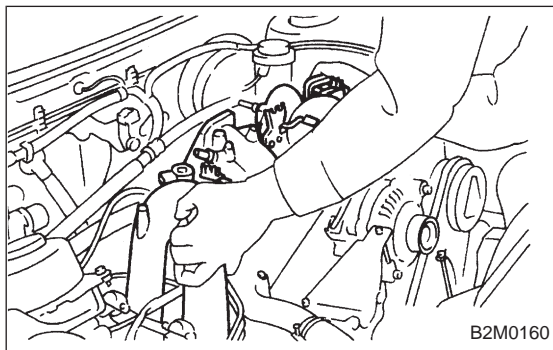


28) Disconnect fuel hoses from fuel pipes.

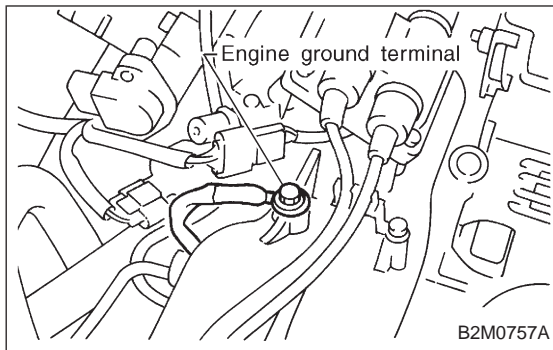
WARNING:
Catch fuel from hoses in a container.



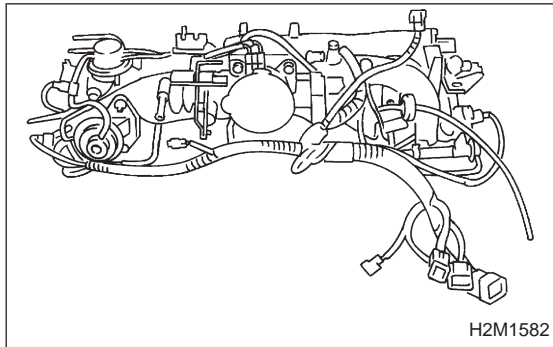
29) Remove bolts which hold intake manifold onto cylinder heads.



30) Remove intake manifold.

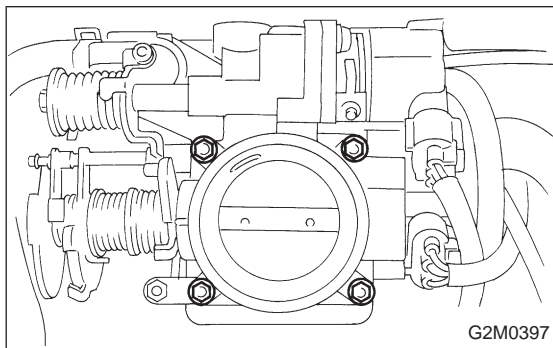
**B: DISASSEMBLY****1. 1800 cc MODEL**

1) Disconnect engine ground terminal from intake manifold.

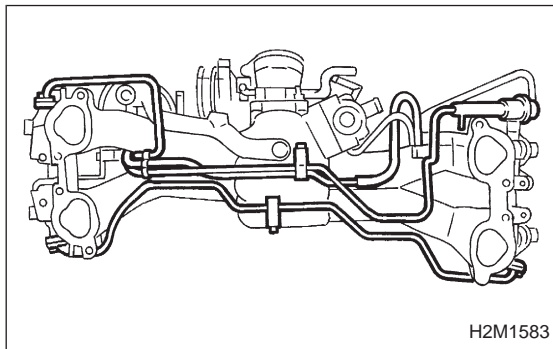


2) Disconnect connectors from throttle position sensor, ignition coil, fuel injectors, idle air control solenoid valve, purge control solenoid valve and FICD solenoid valve.

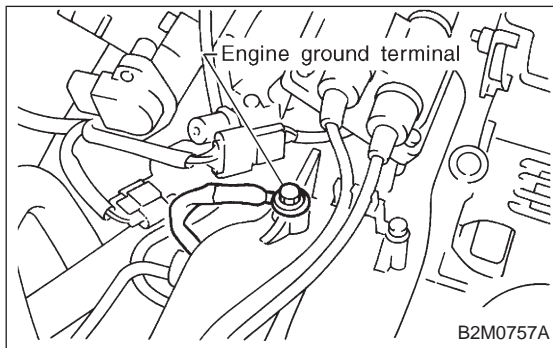
3) Remove engine harness from intake manifold.



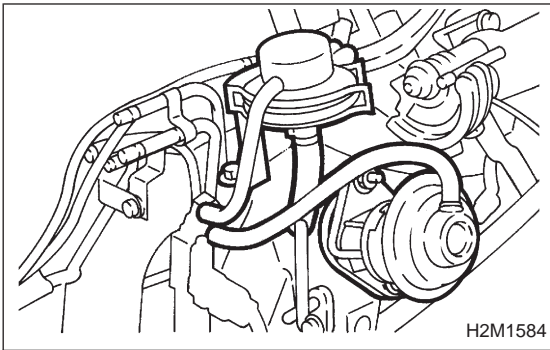
4) Remove throttle body from intake manifold.



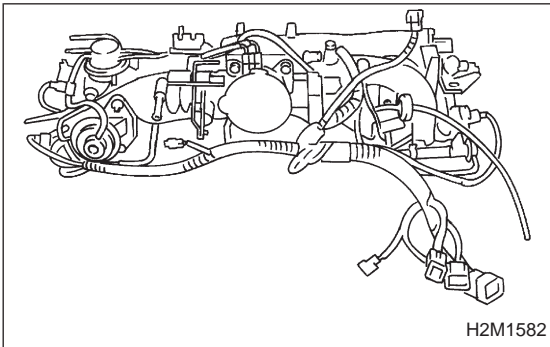
5) Remove fuel pipes, etc. from intake manifold.

**2. 2200 cc MODEL**

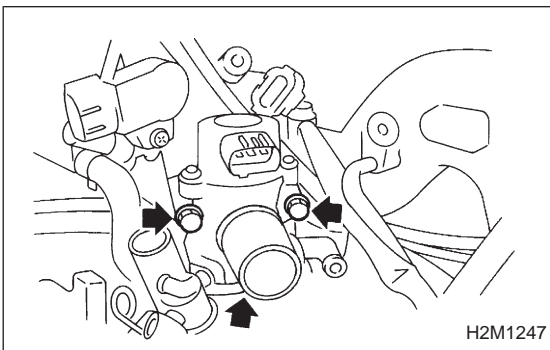
1) Disconnect engine ground terminal from intake manifold.



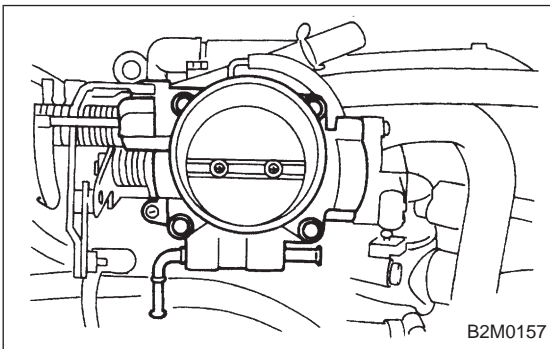
- 2) Disconnect EGR vacuum hose from EGR valve. (AT vehicles)
- 3) Disconnect back pressure hose from pipe. (AT vehicles)
- 4) Disconnect BPT hoses from EGR solenoid valve and intake manifold. (AT vehicles)
- 5) Remove BPT with BTP holder bracket. (AT vehicles)
- 6) Remove EGR valve. (AT vehicles)



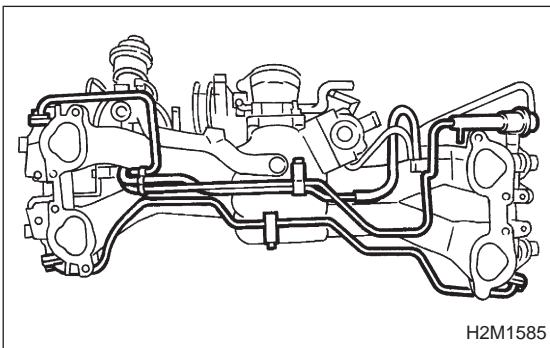
- 7) Disconnect connectors from throttle position sensor, ignition coil, fuel injectors, idle air control solenoid valve, purge control solenoid valve and EGR solenoid valve. (AT vehicles)
- 8) Remove engine harness from intake manifold.



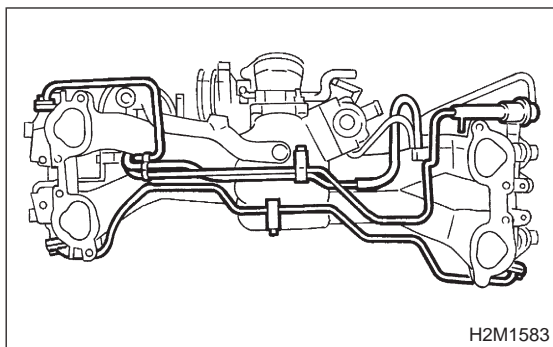
- 9) Remove idle air control solenoid valve from intake manifold.



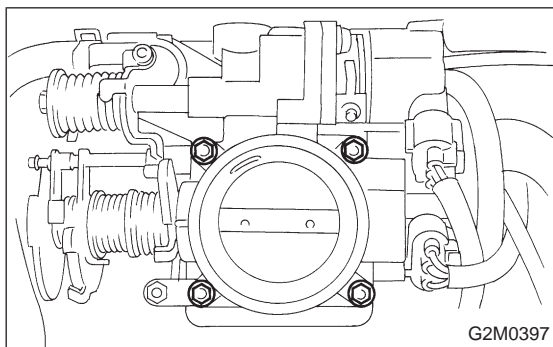
- 10) Remove throttle body from intake manifold.



- 11) Remove fuel pipes, etc. from intake manifold.
- 12) Remove EGR solenoid valve (AT vehicles) and purge control solenoid valve.

**C: ASSEMBLY****1. 1800 cc MODEL**

- 1) Install EGR solenoid valve (AT vehicles) and purge control solenoid valve.
- 2) Assemble fuel pipes, etc. to intake manifold.



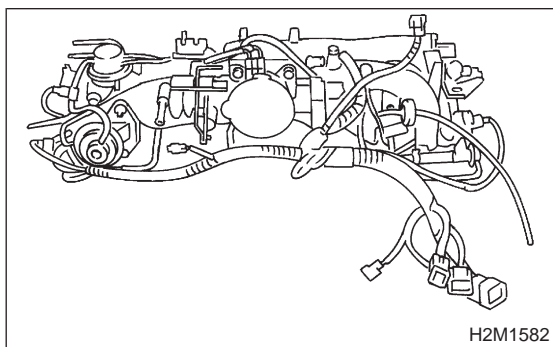
- 3) Assemble throttle body to intake manifold.

CAUTION:

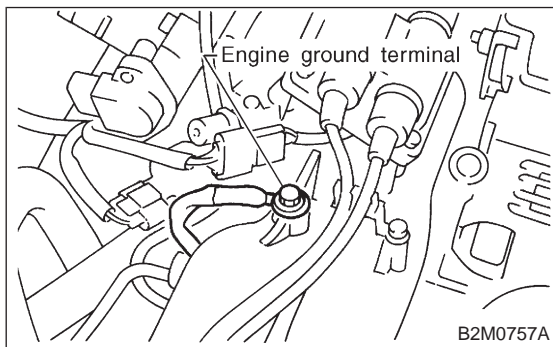
Replace gasket with a new one.

Tightening torque:

22 ± 2 N·m (2.2 ± 0.2 kg-m, 15.9 ± 1.4 ft-lb)



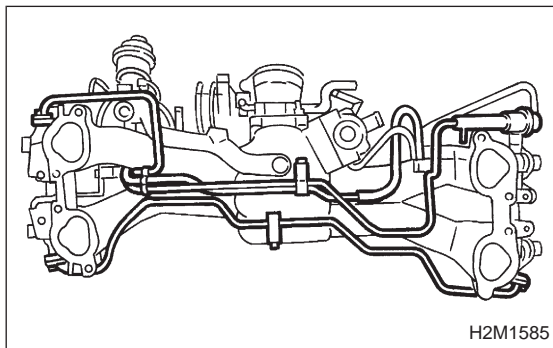
- 4) Install engine harness onto intake manifold.
- 5) Connect connectors to throttle position sensor, ignition coil, fuel injectors, idle air control solenoid valve, purge control solenoid valve and solenoid valve.



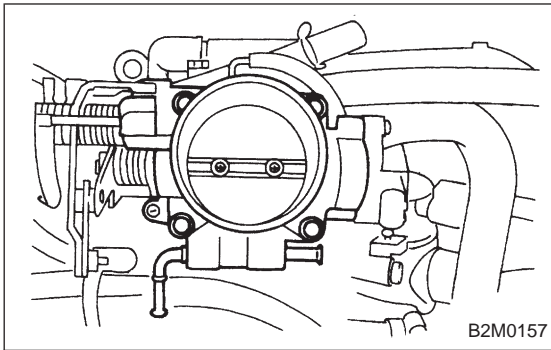
- 6) Connect engine ground terminal to intake manifold.

Tightening torque:

19 ± 1.5 N·m (1.9 ± 0.15 kg-m, 13.7 ± 1.1 ft-lb)

**2. 2200 cc MODEL**

- 1) Install EGR solenoid valve (AT vehicles) and purge control solenoid valve.
- 2) Assemble fuel pipes, etc. to intake manifold.



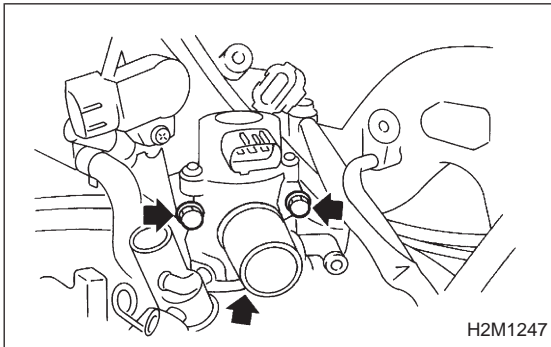
3) Assemble throttle body to intake manifold.

CAUTION:

Replace gasket with a new one.

Tightening torque:

$22 \pm 2 \text{ N}\cdot\text{m}$ ($2.2 \pm 0.2 \text{ kg}\cdot\text{m}$, $15.9 \pm 1.4 \text{ ft}\cdot\text{lb}$)



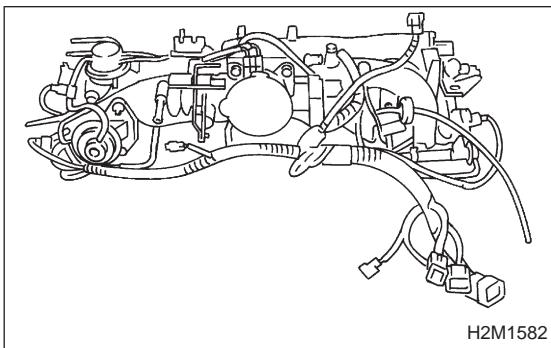
4) Install idle air control solenoid valve to intake manifold.

CAUTION:

Replace gasket with a new one.

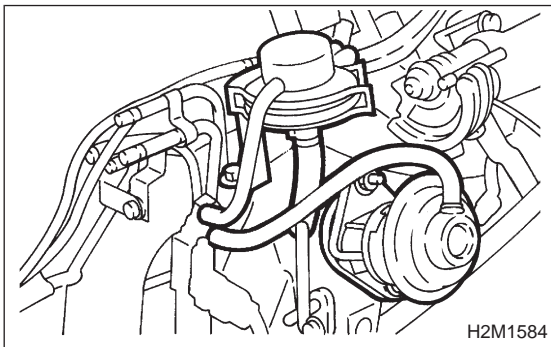
Tightening torque:

$6.4 \pm 0.5 \text{ N}\cdot\text{m}$ ($0.65 \pm 0.05 \text{ kg}\cdot\text{m}$, $4.7 \pm 0.4 \text{ ft}\cdot\text{lb}$)



5) Install engine harness onto intake manifold.

6) Connect connectors to throttle position sensor, ignition coil, fuel injectors, idle air control solenoid valve, purge control solenoid valve and EGR solenoid valve. (AT vehicles)



7) Install EGR valve. (AT vehicles)

CAUTION:

Replace gasket with a new one.

Tightening torque:

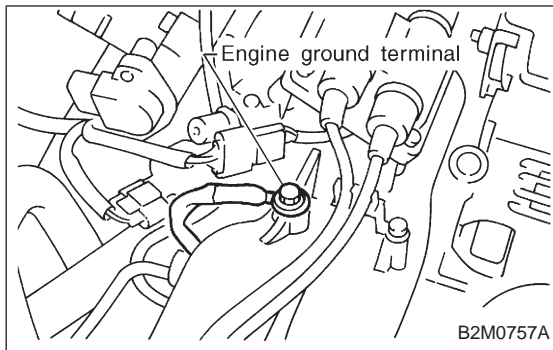
$19 \pm 1.5 \text{ N}\cdot\text{m}$ ($1.9 \pm 0.15 \text{ kg}\cdot\text{m}$, $13.7 \pm 1.1 \text{ ft}\cdot\text{lb}$)

8) Install BPT with BPT holder bracket. (AT vehicles)

9) Connect BPT hoses from EGR solenoid valve and intake manifold. (AT vehicles)

10) Connect back pressure hose from pipe. (AT vehicles)

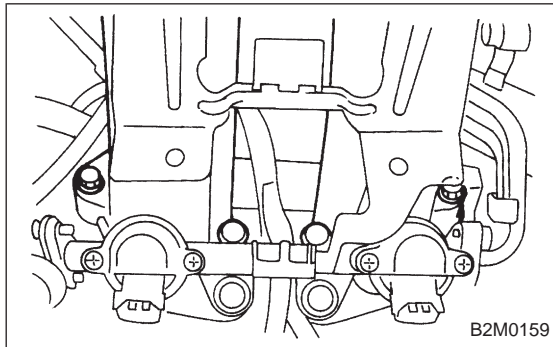
11) Connect EGR vacuum hose from EGR valve. (AT vehicles)



12) Connect engine ground terminal to intake manifold.

Tightening torque:

$19 \pm 1.5 \text{ N} \cdot \text{m}$ ($1.9 \pm 0.15 \text{ kg} \cdot \text{m}$, $13.7 \pm 1.1 \text{ ft} \cdot \text{lb}$)



D: INSTALLATION

1. 1800 cc MODEL

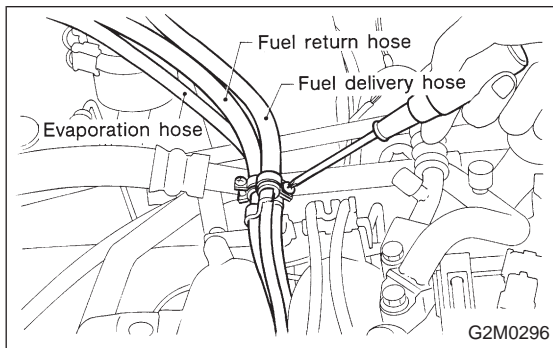
1) Install intake manifold onto cylinder heads.

CAUTION:

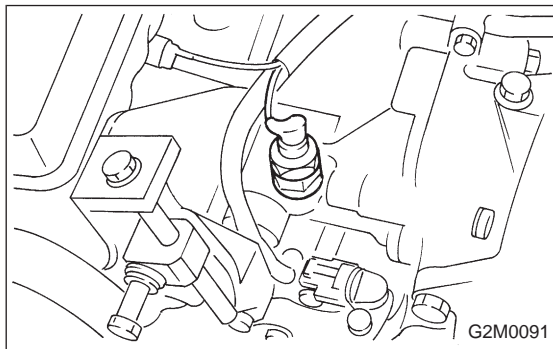
Always use new gaskets.

Tightening torque:

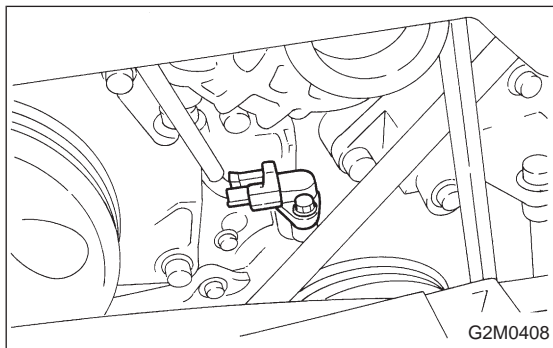
$25 \pm 2 \text{ N} \cdot \text{m}$ ($2.5 \pm 0.2 \text{ kg} \cdot \text{m}$, $18.1 \pm 1.4 \text{ ft} \cdot \text{lb}$)



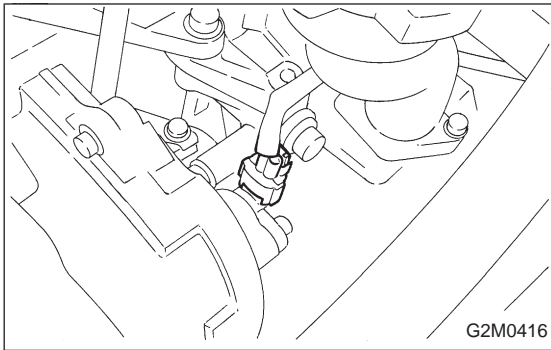
2) Connect fuel hoses.



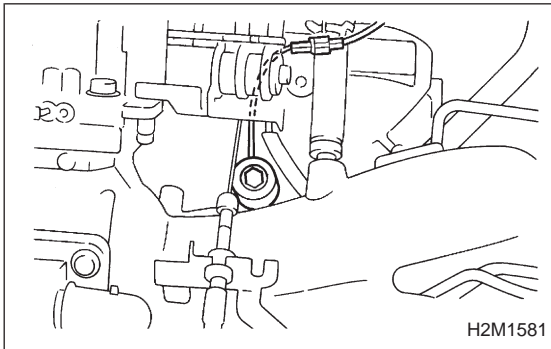
3) Connect connector to oil pressure switch.



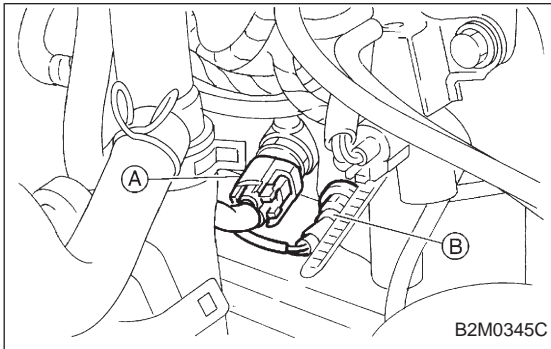
4) Connect connector to crankshaft position sensor.



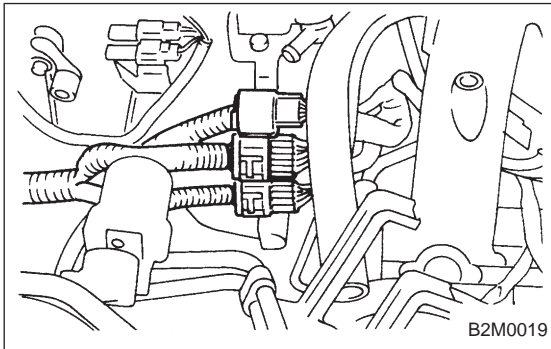
5) Connect connector to camshaft position sensor.



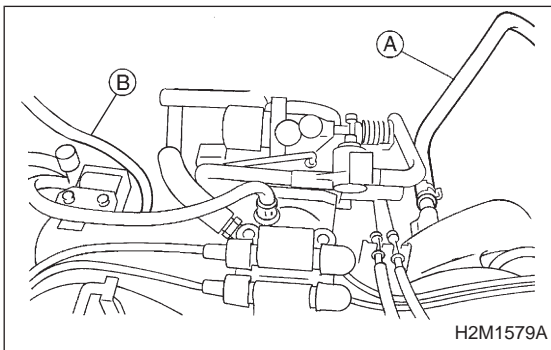
6) Connect connector to knock sensor.



7) Connect connectors to engine coolant temperature sensor (A) and thermometer (B).

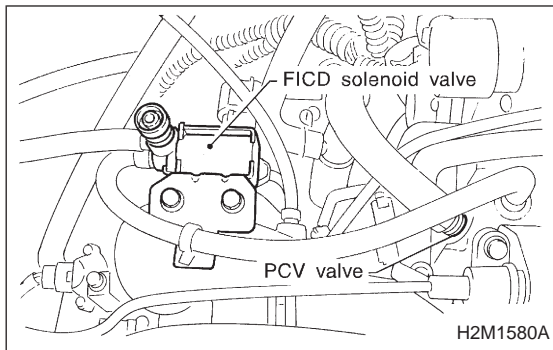


8) Connect engine harness connector to bulkhead harness connectors.

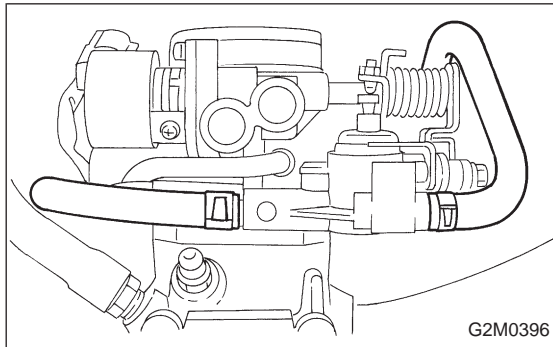


9) Connect cruise control vacuum hose (B). (With cruise control)
10) Connect brake booster vacuum hose (A).

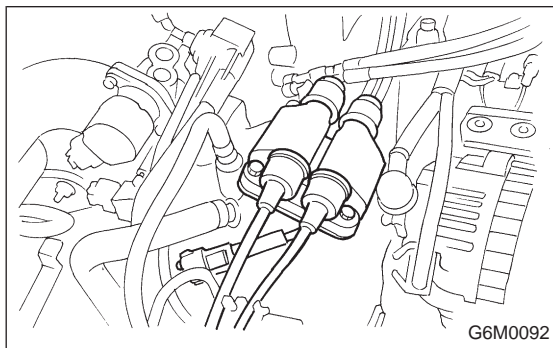
4. Intake Manifold



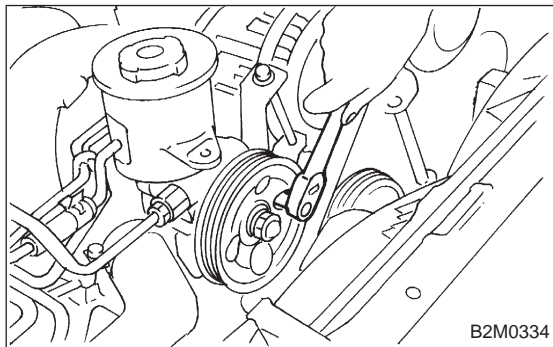
- 11) Connect air by-pass hose to FICD solenoid valve.
(With A/C)
- 12) Connect emission hose to PCV valve.



- 13) Connect engine coolant hoses to throttle body.



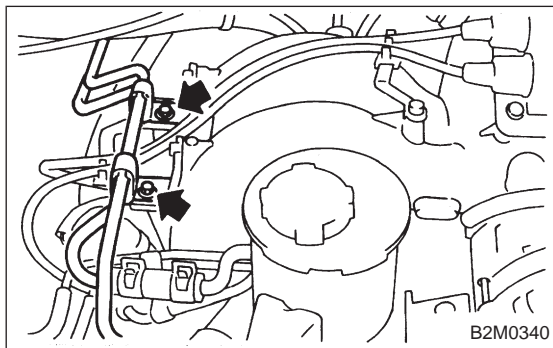
- 14) Connect spark plug cords to ignition coil.
- 15) Connect connector to ignition coil.



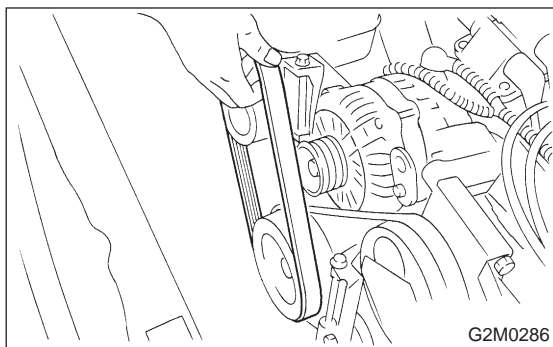
- 16) Install power steering pump on bracket.
 - (1) Install power steering pump on bracket, and tighten bolts.

Tightening torque:

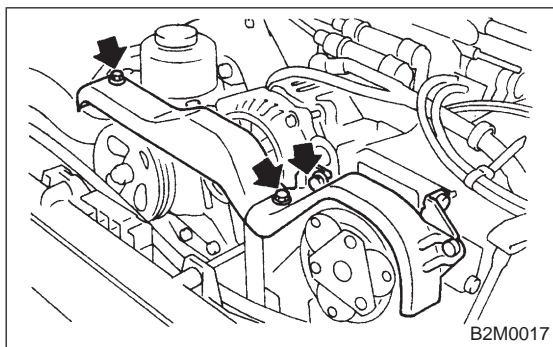
$20.1 \pm 2.5 \text{ N} \cdot \text{m}$ ($2.05 \pm 0.25 \text{ kg} \cdot \text{m}$, $14.8 \pm 1.8 \text{ ft} \cdot \text{lb}$)



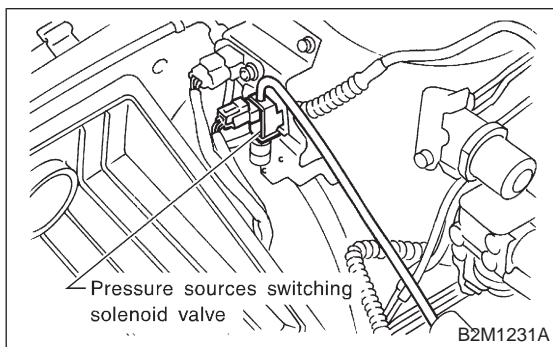
- (2) Install power steering pipe brackets on right side intake manifold.



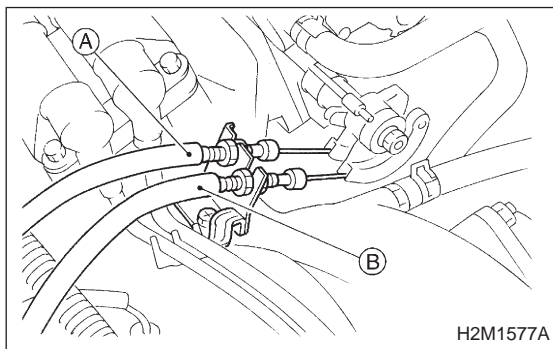
- (3) Install power steering pump drive V-belt.
- (4) Adjust V-belt. <Ref. to 1-5 [01A0].>



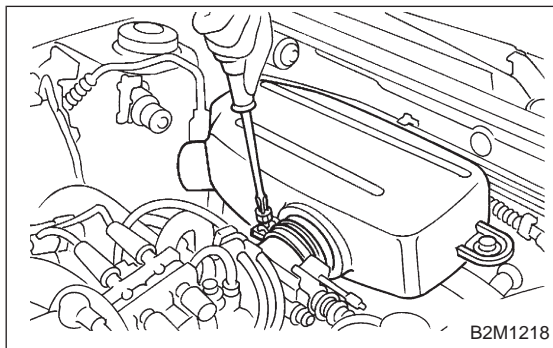
- (5) Install V-belt cover.



- 17) Connect vacuum hoses to pressure sources switching solenoid valve.



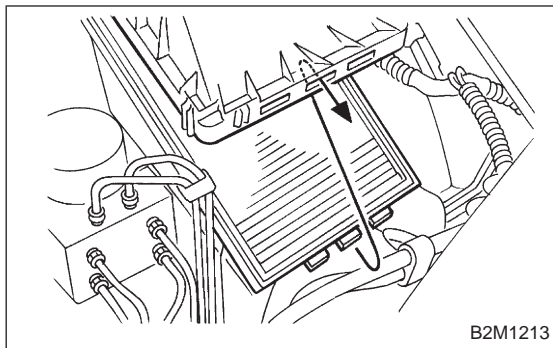
- 18) Connect accelerator cable (A).
- 19) Connect cruise control cable (B). (With cruise control model)



- 20) Install air intake chamber and connect air hoses.

Tightening torque:

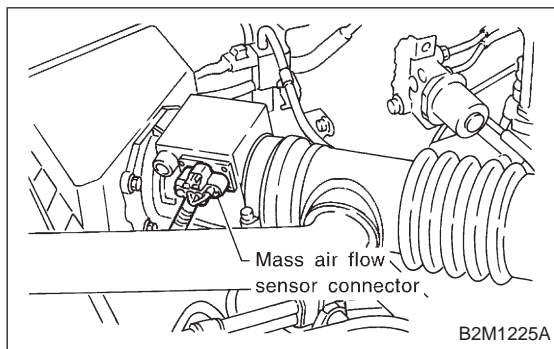
4.9±0.5 N·m (0.5±0.05 kg-m, 3.6±0.4 ft-lb)



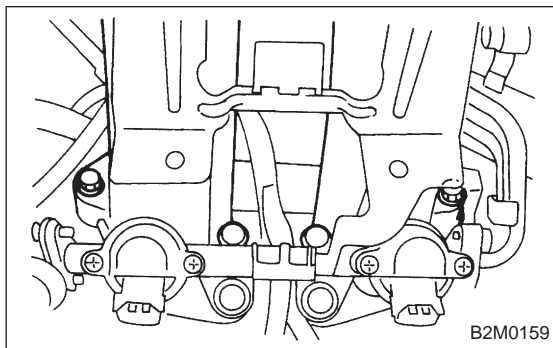
- 21) Install air cleaner element.
- 22) Install air cleaner upper cover and air intake duct as a unit.

CAUTION:

Before installing air cleaner upper cover, align holes with protruding portions of air cleaner lower case, then secure upper cover to lower case.



- 23) Connect connector to mass air flow sensor.

**2. 2200 cc MODEL**

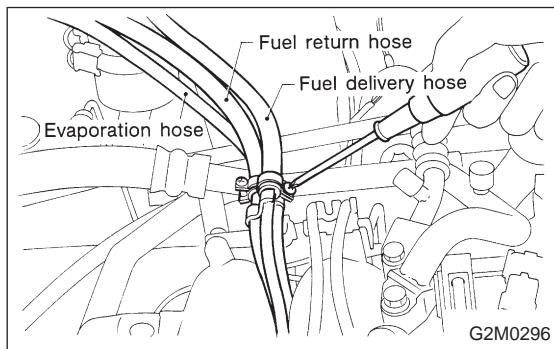
- 1) Install intake manifold onto cylinder heads.

CAUTION:

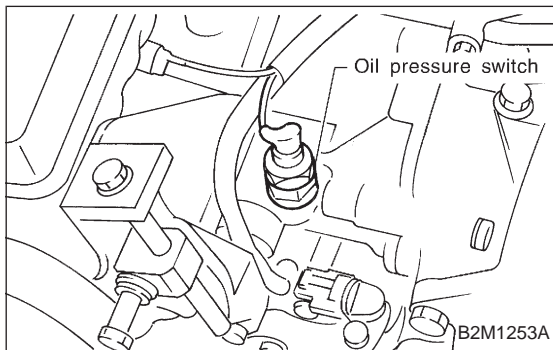
Always use new gaskets.

Tightening torque:

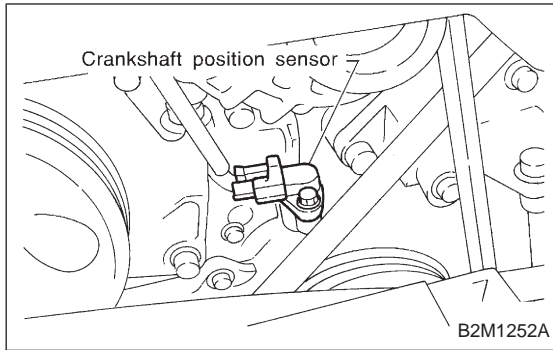
25 ± 2 N·m (2.5 ± 0.2 kg-m, 18.1 ± 1.4 ft-lb)



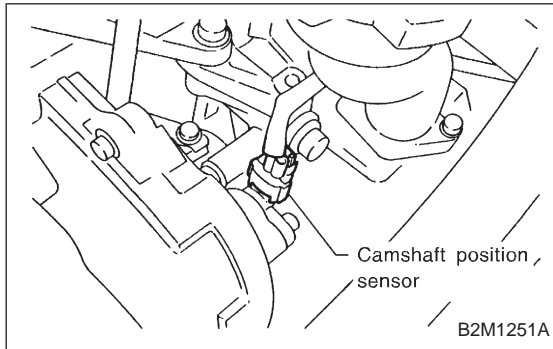
- 2) Connect fuel hoses.



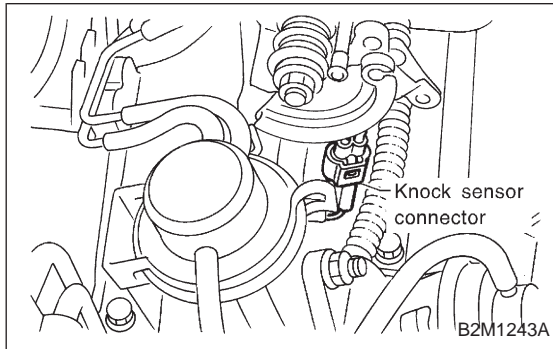
- 3) Connect connector to oil pressure switch.



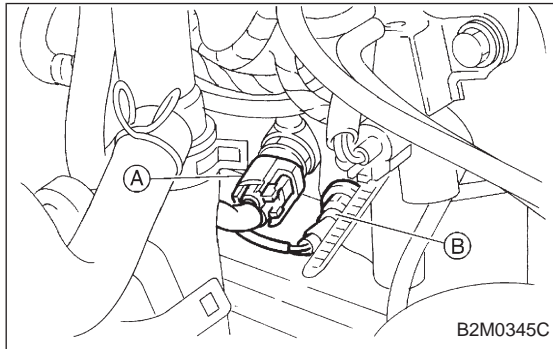
4) Connect connector to crankshaft position sensor.



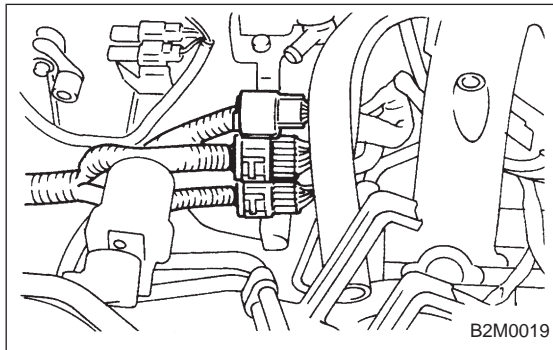
5) Connect connector to camshaft position sensor.



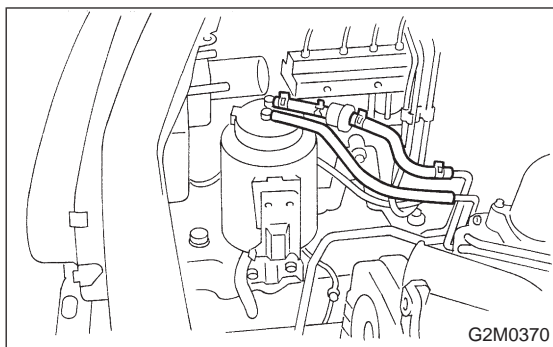
6) Connect knock sensor connector.



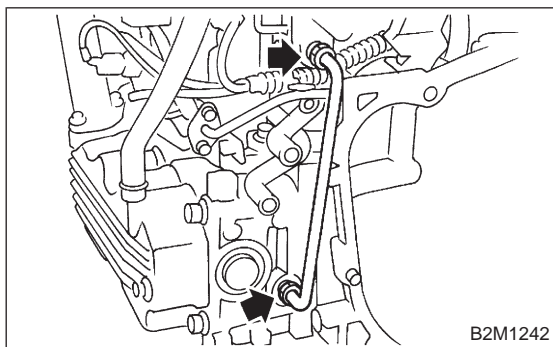
7) Connect connectors to engine coolant temperature sensor ① and thermometer ②.



8) Install engine harness connectors to bracket, and connect engine harness connectors to bulkhead connectors.



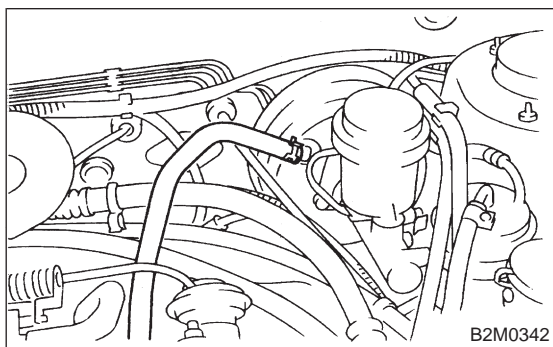
9) Connect canister hoses.



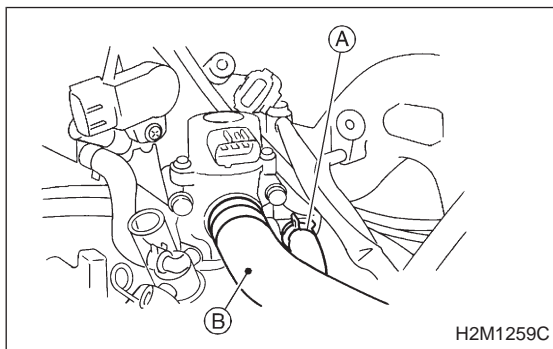
10) Install EGR pipe. (AT vehicles)

Tightening torque:

34 ± 2 N·m (3.5 ± 0.2 kg·m, 25.3 ± 1.4 ft·lb)

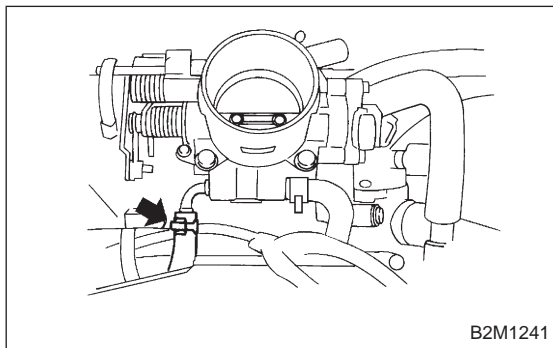


11) Connect brake booster hose.

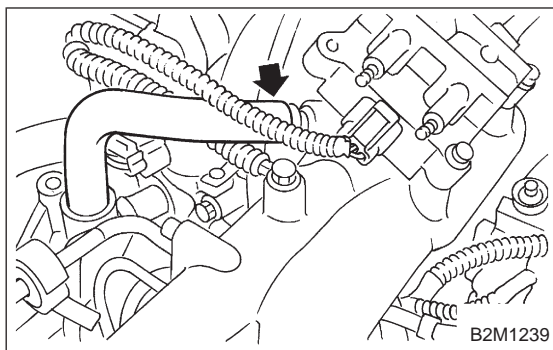


12) Connect engine coolant hose (A) to idle air control solenoid valve.

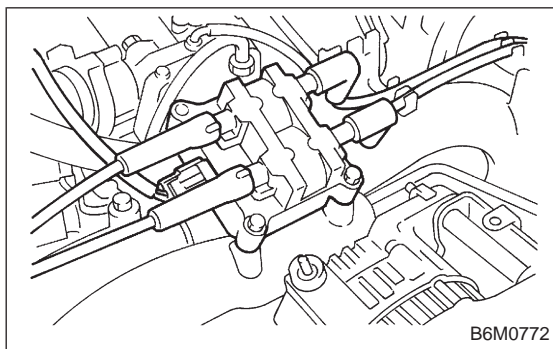
13) Connect air by-pass hose (B) to idle air control solenoid valve.



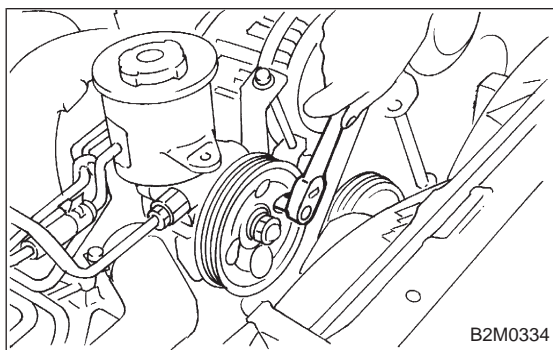
14) Connect engine coolant hose to throttle body.



15) Connect PCV hose to intake manifold.



16) Connect spark plug cords to ignition coil.

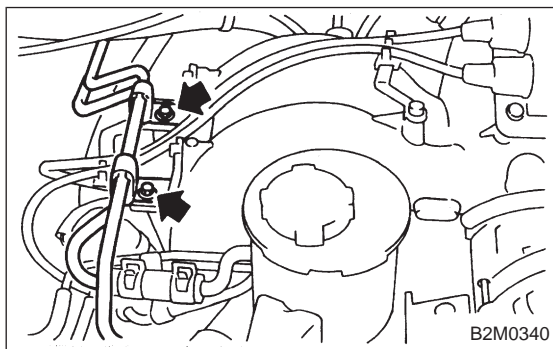


17) Install power steering pump on bracket.

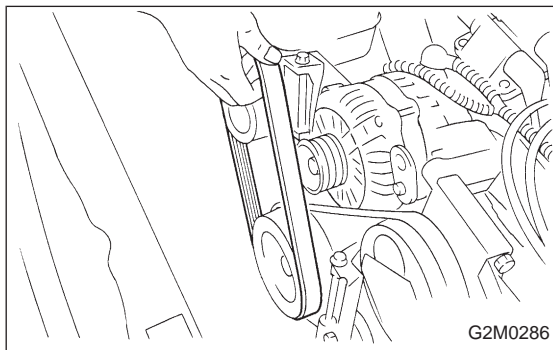
(1) Install power steering pump on bracket, and tighten bolts.

Tightening torque:

$20.1 \pm 2.5 \text{ N} \cdot \text{m}$ ($2.05 \pm 0.25 \text{ kg} \cdot \text{m}$, $14.8 \pm 1.8 \text{ ft} \cdot \text{lb}$)

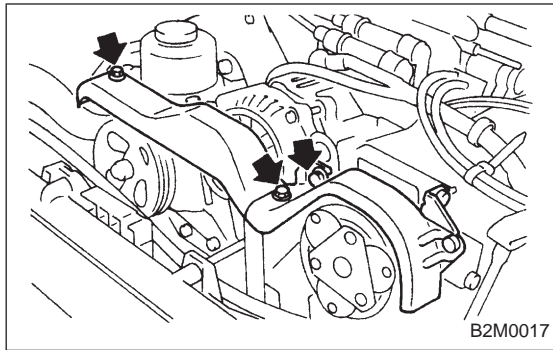


(2) Install power steering pipe brackets on right side intake manifold.

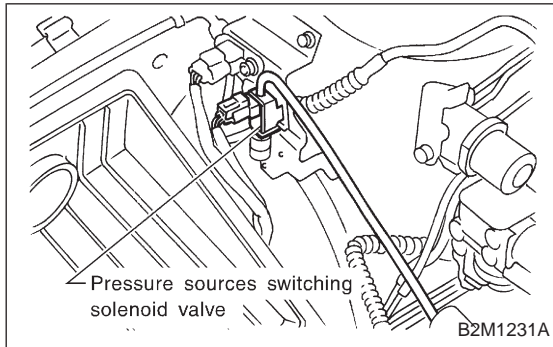


(3) Install power steering pump drive V-belt.

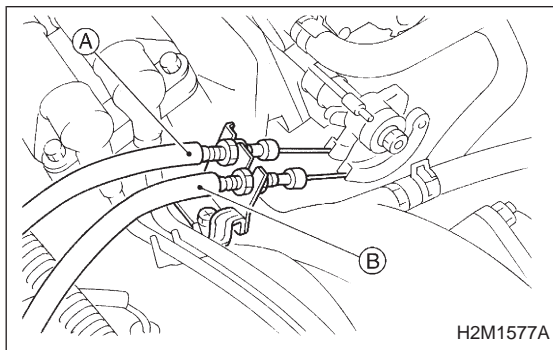
(4) Adjust V-belt. <Ref. to 1-5 [01A0].>



(5) Install V-belt cover.

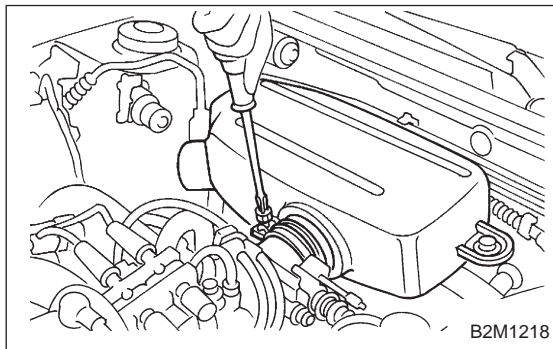


18) Connect vacuum hoses to pressure sources switching solenoid valve.



19) Connect accelerator cable (A).

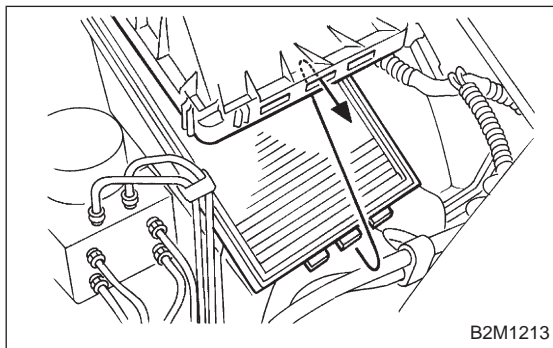
20) Connect cruise control cable (B). (With cruise control model)



21) Install air intake chamber and connect air hoses.

Tightening torque:

$4.9 \pm 0.5 \text{ N} \cdot \text{m}$ ($0.5 \pm 0.05 \text{ kg} \cdot \text{m}$, $3.6 \pm 0.4 \text{ ft} \cdot \text{lb}$)

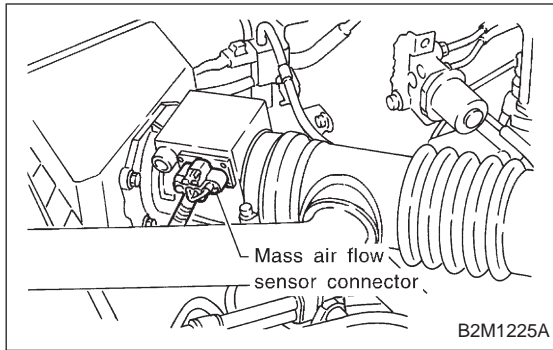


22) Install air cleaner element.

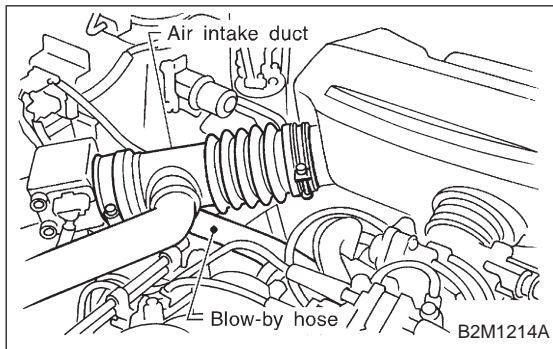
23) Install air cleaner upper cover and air intake duct as a unit.

CAUTION:

Before installing air cleaner upper cover, align holes with protruding portions of air cleaner lower case, then secure upper cover to lower case.



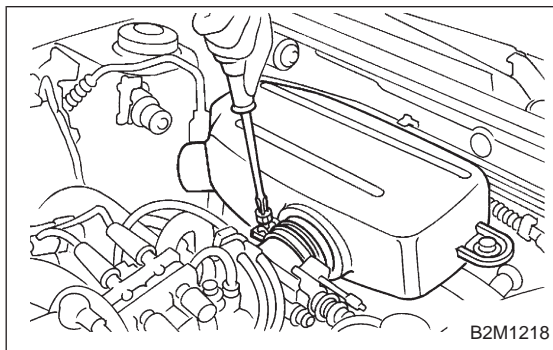
24) Connect connector to mass air flow sensor.



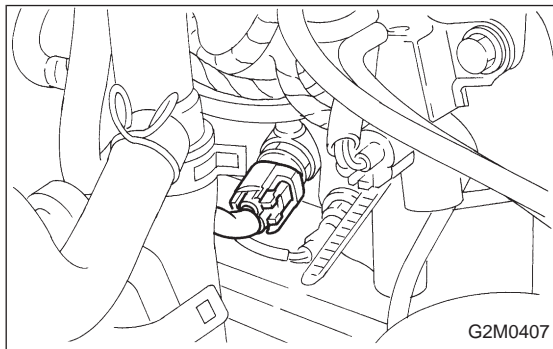
5. Engine Coolant Temperature Sensor

A: REMOVAL AND INSTALLATION

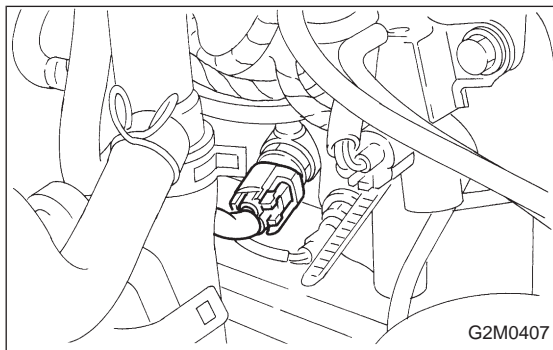
- 1) Loosen clamps which connect air intake duct to air intake chamber and mass air flow sensor.
- 2) Disconnect blow-by hose from air intake duct.
- 3) Remove air intake duct.



- 4) Loosen clamp which connects air intake chamber to throttle body.
- 5) Disconnect air hoses, and remove air intake chamber.



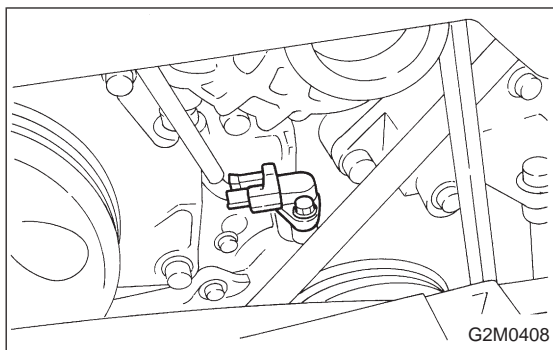
- 6) Disconnect connector from engine coolant temperature sensor.
- 7) Remove engine coolant temperature sensor.



- 8) Installation is in the reverse order of removal.

Tightening torque:

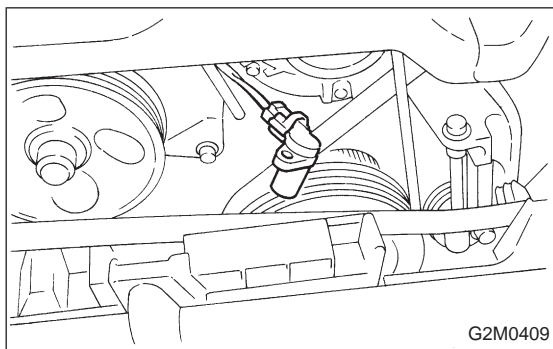
25±3 N·m (2.5±0.3 kg-m, 18.1±2.2 ft-lb)



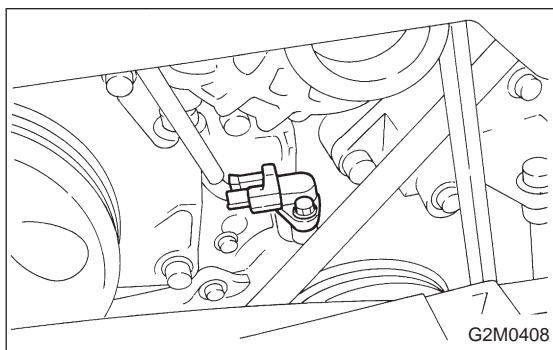
6. Crankshaft Position Sensor

A: REMOVAL AND INSTALLATION

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



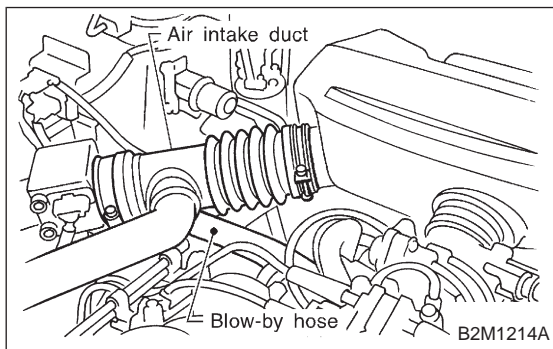
2) Remove crankshaft position sensor, and disconnect connector from it.



3) Installation is in the reverse order of removal.

Tightening torque:

$6.4 \pm 0.5 \text{ N} \cdot \text{m}$ ($0.65 \pm 0.05 \text{ kg} \cdot \text{m}$, $4.7 \pm 0.4 \text{ ft} \cdot \text{lb}$)



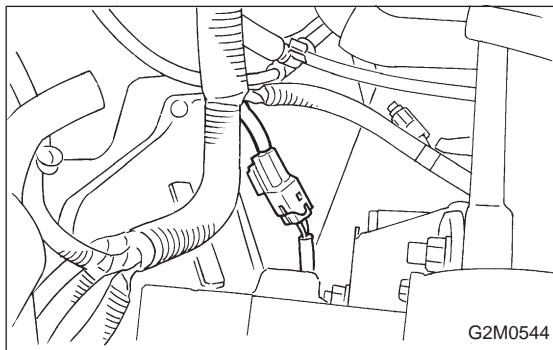
7. Front Oxygen Sensor

A: REMOVAL

1) Loosen clamps which connect air intake duct to air intake chamber and mass air flow sensor.

2) Disconnect blow-by hose from air intake duct.

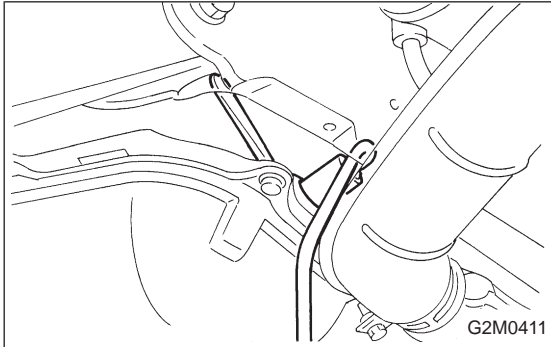
3) Remove air intake duct.



4) Disconnect connector from front oxygen sensor.

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

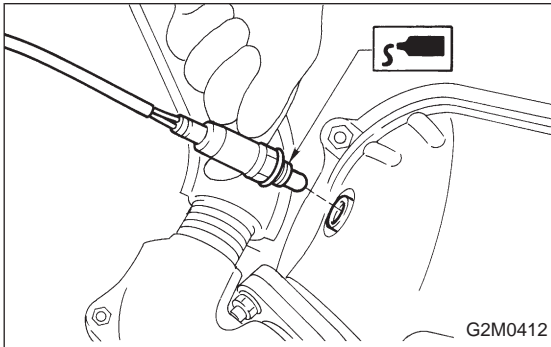
SUBARU CRC (Part No. 004301003)



- 7) 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.



B: INSTALLATION

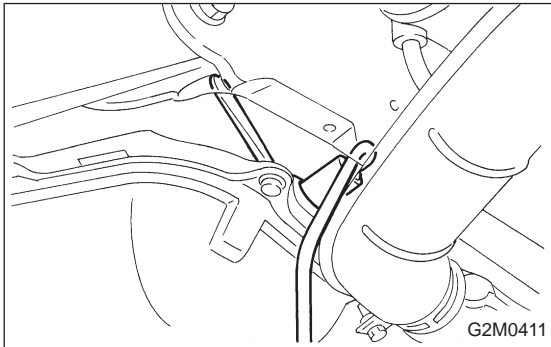
- 1) Before installing front oxygen sensor, apply anti-seize compound only to threaded portion of front oxygen sensor to make the next removal easier.

Anti-seize compound:

SS-30 by JET LUBE

CAUTION:

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

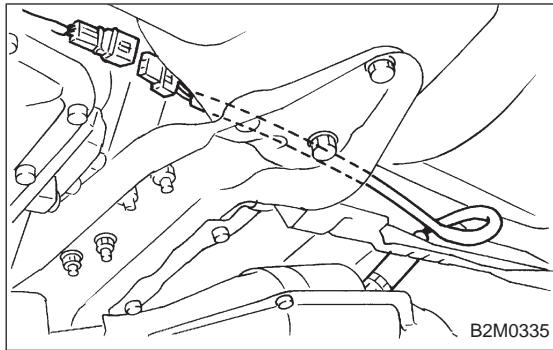


- 2) Install front oxygen sensor.

Tightening torque:

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

- 3) Lower the vehicle.
- 4) Connect connector of front oxygen sensor.
- 5) Install air intake duct.



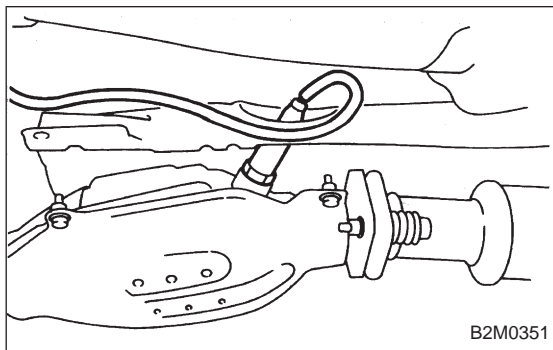
8. Rear Oxygen Sensor

A: REMOVAL

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

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

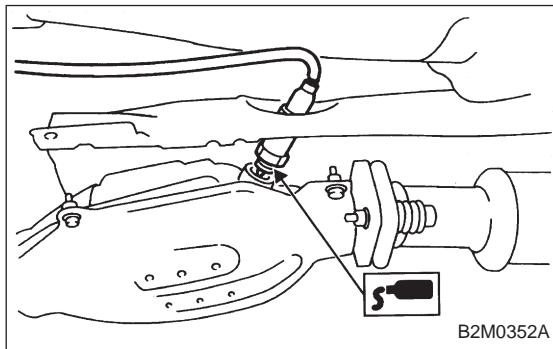
SUBARU CRC (Part No. 004301003)



- 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.



B: INSTALLATION

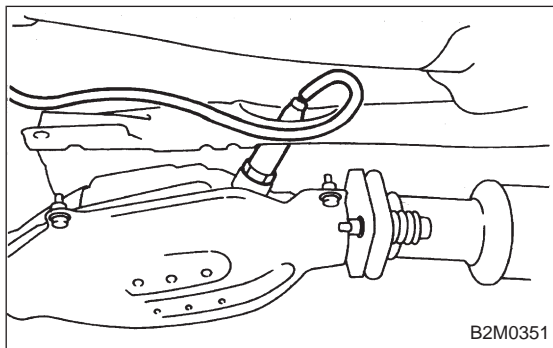
- 1) Before installing rear oxygen sensor, apply anti-seize compound only to threaded portion of rear oxygen sensor to make the next removal easier.

Anti-seize compound:

SS-30 by JET LUBE

CAUTION:

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



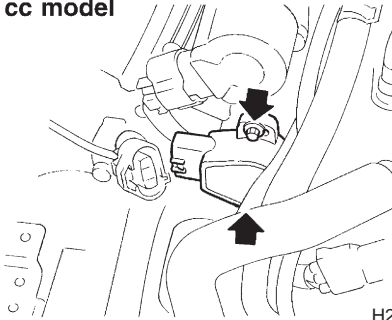
- 2) Install rear oxygen sensor.

Tightening torque:

21±3 N·m (2.1±0.3 kg-m, 15.2±2.2 ft-lb)

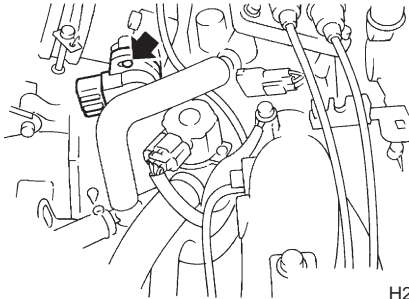
- 3) Connect connector of rear oxygen sensor.
- 4) Lower the vehicle.

1800 cc model



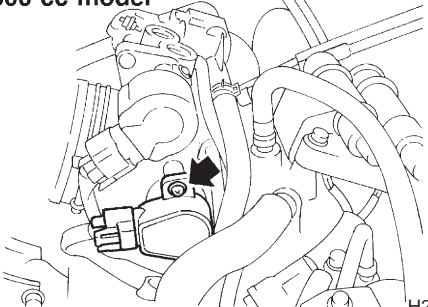
H2M1586A

2200 cc model



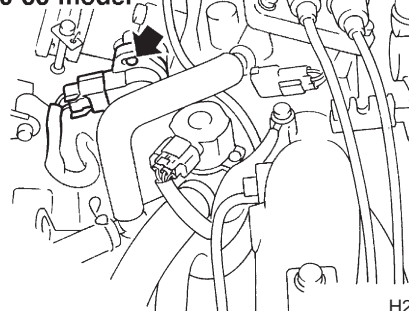
H2M1587A

1800 cc model

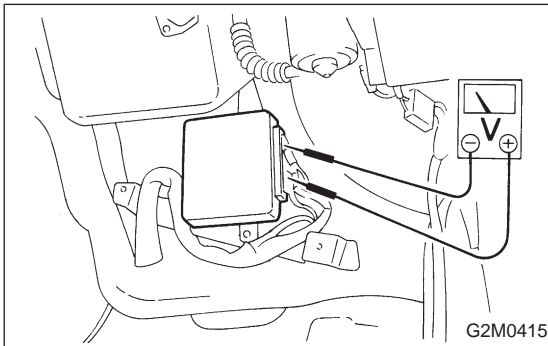


H2M1588A

2200 cc model



H2M1589A



G2M0415

9. Throttle Position Sensor

A: REMOVAL AND INSTALLATION

- 1) Disconnect connector from throttle position sensor.
- 2) Remove throttle position sensor holding screws, and remove it.
- 3) Installation is in the reverse order of removal.

Tightening torque:

$2.2 \pm 0.2 \text{ N} \cdot \text{m}$ ($0.22 \pm 0.02 \text{ kg} \cdot \text{m}$, $1.6 \pm 0.1 \text{ ft} \cdot \text{lb}$)

CAUTION:

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

B: ADJUSTMENT

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

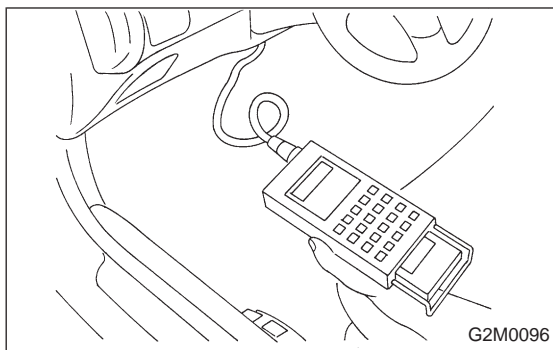
- 3) When using voltage meter;
 - (1) Take out ECM.
 - (2) Turn ignition switch to ON.
 - (3) Adjust throttle position sensor to specified voltage between ECM connector terminal.

Connector & terminal / Specified voltage

(B84) No. 6 — No. 20 / 0.45 — 0.55 V

[Fully closed.]

- (4) Tighten throttle position sensor holding screws.

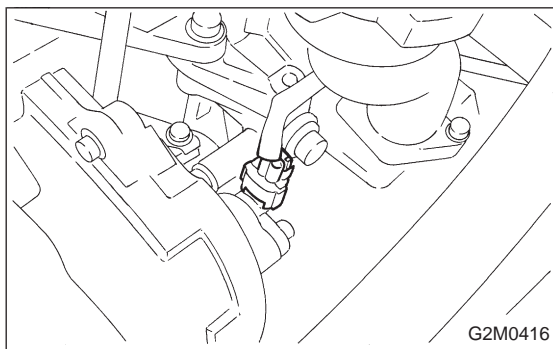


- 4) When using the Select Monitor;
 - (1) Attach Select Monitor.
 - (2) Turn ignition switch to ON.
 - (3) Select mode "F07".
 - (4) Adjust throttle position sensor to specified data.

Condition / Specified data

Throttle fully closed. / 0.50 V

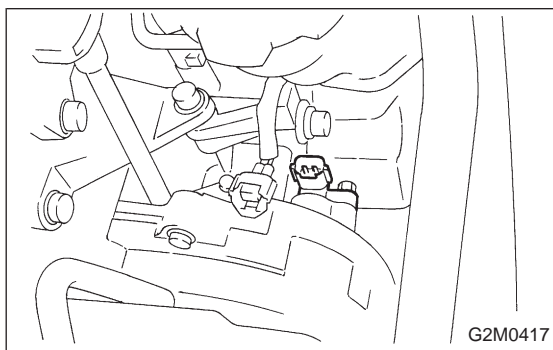
- (5) Tighten throttle position sensor holding screws.



10. Camshaft Position Sensor

A: REMOVAL AND INSTALLATION

- 1) Disconnect connector from camshaft position sensor.

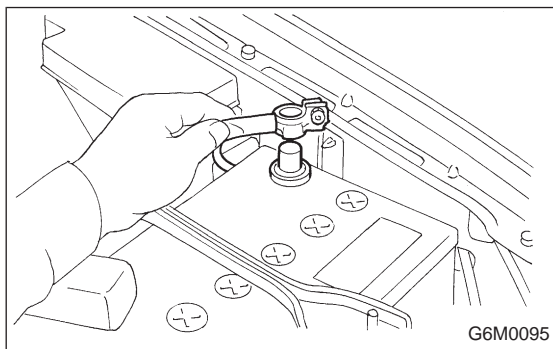


- 2) Remove camshaft position sensor from camshaft support LH.

- 3) Installation is in the reverse order of removal.

Tightening torque:

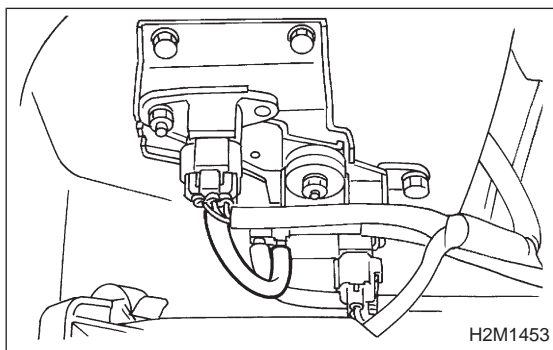
6.4±0.5 N·m (0.65±0.05 kg-m, 4.7±0.4 ft-lb)



11. Pressure Sensor

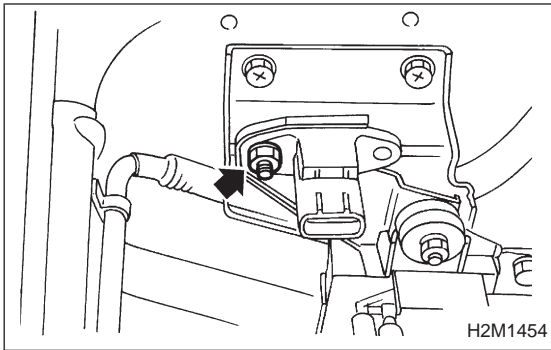
A: REMOVAL AND INSTALLATION

- 1) Disconnect battery ground cable.



- 2) Disconnect connector from pressure sensor.

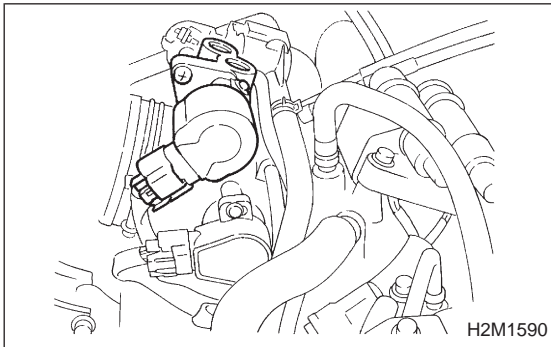
- 3) Disconnect hose from pressure sensor.



- 4) Remove pressure sensor from bracket.
- 5) Installation is in the reverse order of removal.

Tightening torque:

$6.4 \pm 0.5 \text{ N} \cdot \text{m}$ ($0.65 \pm 0.05 \text{ kg} \cdot \text{m}$, $4.7 \pm 0.4 \text{ ft} \cdot \text{lb}$)

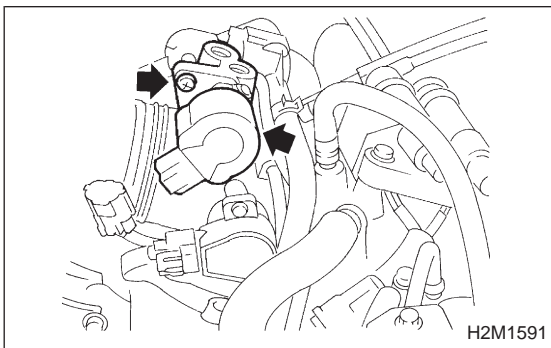


12. Idle Air Control Solenoid Valve

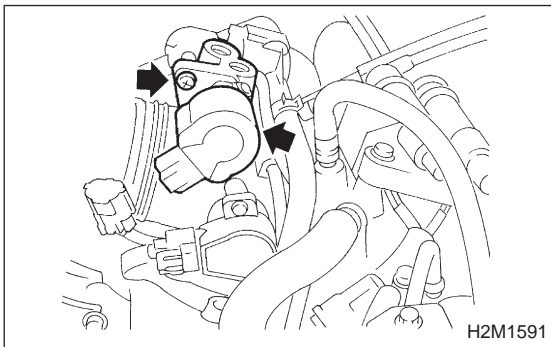
A: REMOVAL AND INSTALLATION

1. 1800 cc MODEL

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



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



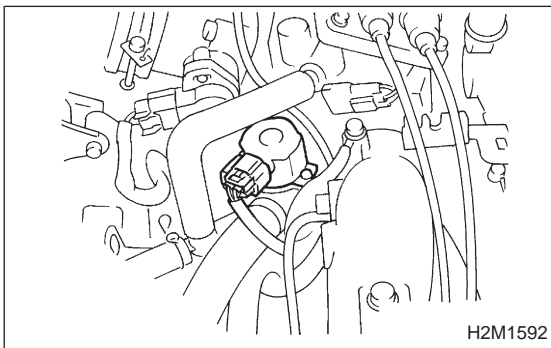
- 3) Installation is in the reverse order of removal.

CAUTION:

Replace gasket with a new one.

Tightening torque:

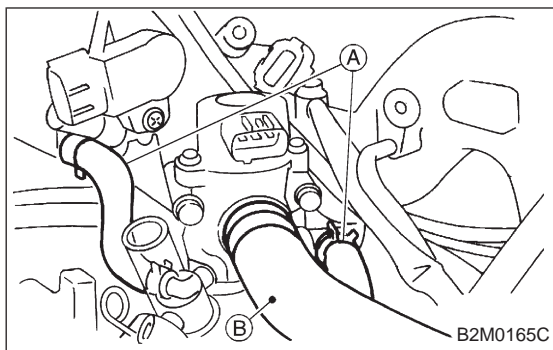
$6.0 \pm 0.8 \text{ N} \cdot \text{m}$ ($0.61 \pm 0.08 \text{ kg} \cdot \text{m}$, $4.4 \pm 0.6 \text{ ft} \cdot \text{lb}$)



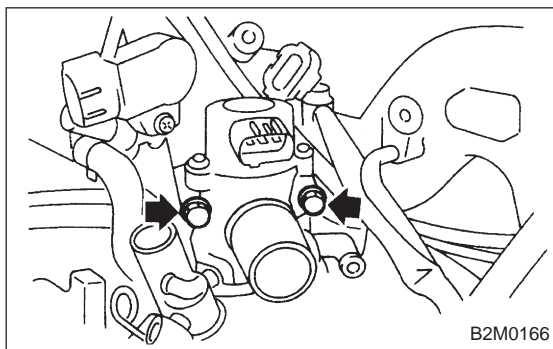
2. 2200 cc MODEL

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

12. Idle Air Control Solenoid Valve



- 2) Disconnect engine coolant hoses (A) from idle air control solenoid valve.
- 3) Disconnect air by-pass hose (B) from idle air control solenoid valve.



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

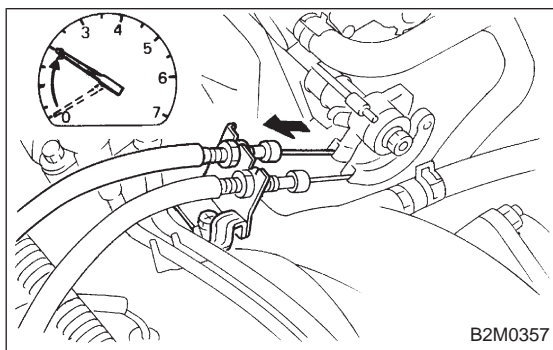
- 5) Installation is in the reverse order of removal.

CAUTION:

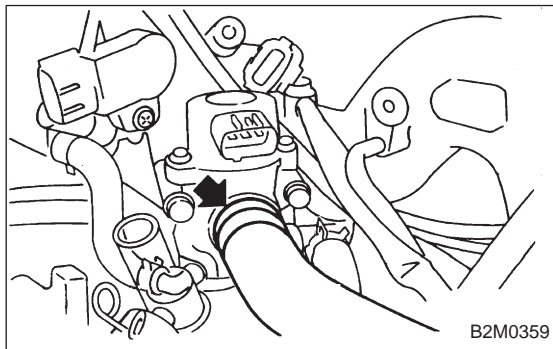
Replace gasket with a new one.

Tightening torque:

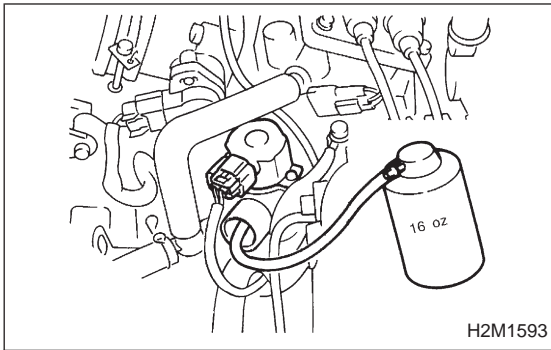
$6.4 \pm 0.5 \text{ N} \cdot \text{m}$ ($0.65 \pm 0.05 \text{ kg} \cdot \text{m}$, $4.7 \pm 0.4 \text{ ft} \cdot \text{lb}$)

**B: CLEANING (2200 cc MODEL)**

- 1) Start and warm-up the engine until radiator fan operates.
- 2) Hold throttle valve so that engine speed is at 2,000 rpm.



- 3) Disconnect by-pass hose from idle air control solenoid valve.



4) Slowly pour one can (16 oz) of cleaner into by-pass air hole.

Cleaner:

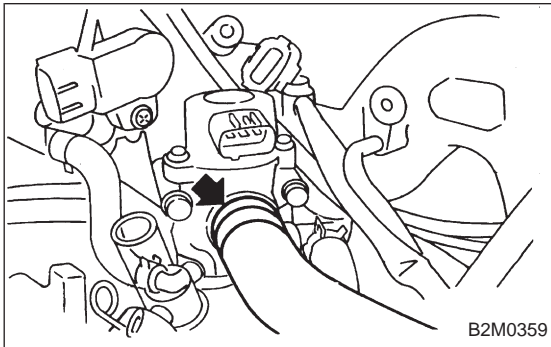
- **Part No. 1050002 GM Top Engine Cleaner**
- **Part No. X66-A AC Delco Carburetor Tune-up Conditioner**

5) Leave the engine running for five minutes.

NOTE:

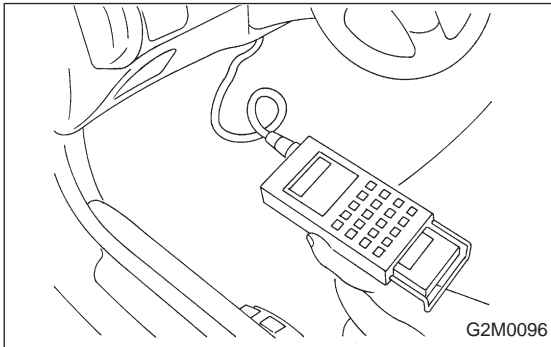
White smoke comes out of the muffler until the cleaner is used up.

6) Stop the engine.



7) Release the throttle valve.

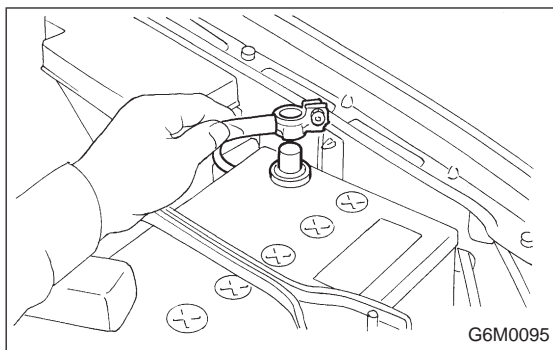
8) Connect by-pass hose to idle air control solenoid valve.



9) Check duty ratio of idle air control solenoid valve with Subaru Select Monitor.

- (1) Connect Subaru Select Monitor to the data link connector.
- (2) Start the engine and turn Subaru Select Monitor switch to ON.
- (3) Select mode "F12".
- (4) Make sure duty ratio on radiator fan and electric load is OFF.

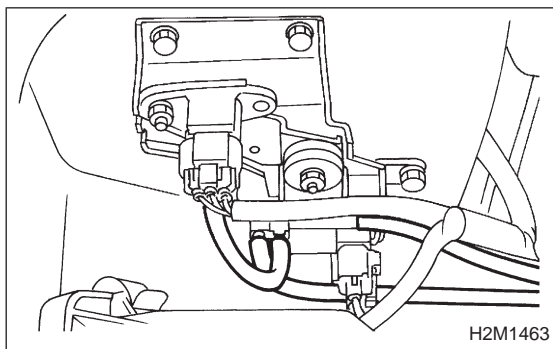
Specified data: 25 — 40%



13. Pressure Sources Switching Solenoid Valve

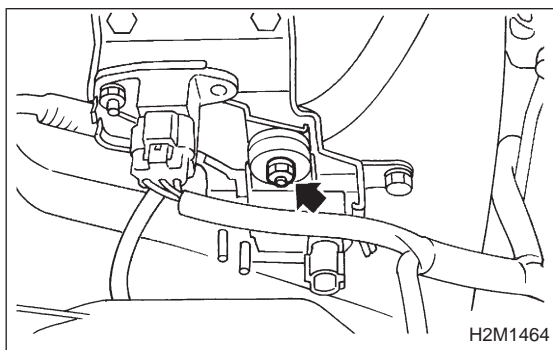
A: REMOVAL AND INSTALLATION

1) Disconnect battery ground cable.



2) Disconnect connector from pressure sources switching solenoid valve.

3) Disconnect hoses from pressure sources switching solenoid valve.

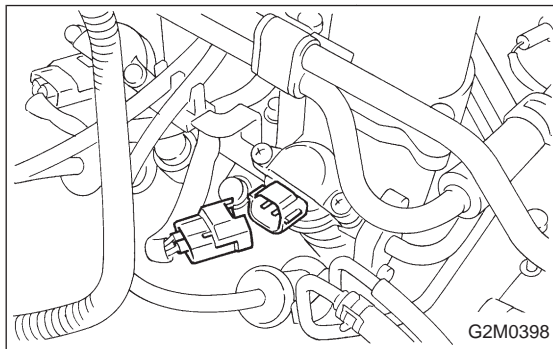


4) Remove pressure sources switching solenoid valve from bracket.

5) Installation is in the reverse order of removal.

Tightening torque:

$6.4 \pm 0.5 \text{ N} \cdot \text{m}$ ($0.65 \pm 0.05 \text{ kg} \cdot \text{m}$, $4.7 \pm 0.4 \text{ ft} \cdot \text{lb}$)



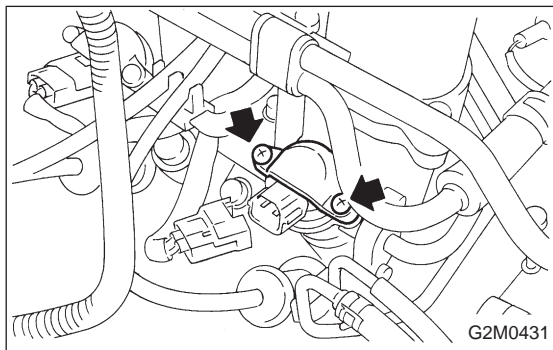
14. Fuel Injector

A: REMOVAL AND INSTALLATION

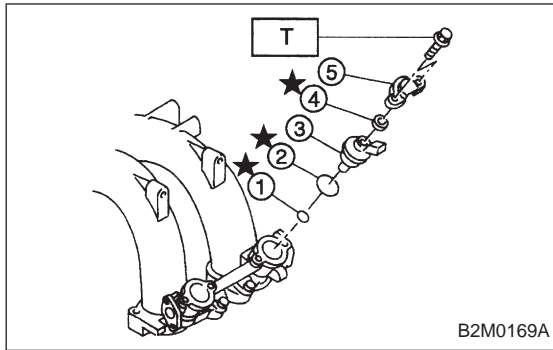
1) Release fuel pressure.

<Ref. to 2-8 [W1B0].>

2) Disconnect connector from fuel injector.



3) Remove fuel injector from fuel pipe assembly.



4) Installation is in the reverse order of removal.

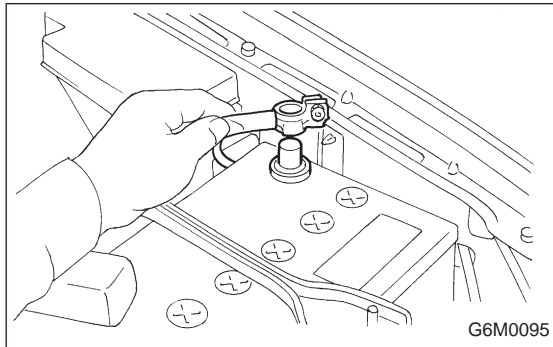
CAUTION:

Replace O-rings and insulator.

Tightening torque:

$T: 3.4 \pm 0.5 \text{ N} \cdot \text{m} (0.35 \pm 0.05 \text{ kg} \cdot \text{m}, 2.5 \pm 0.4 \text{ ft} \cdot \text{lb})$

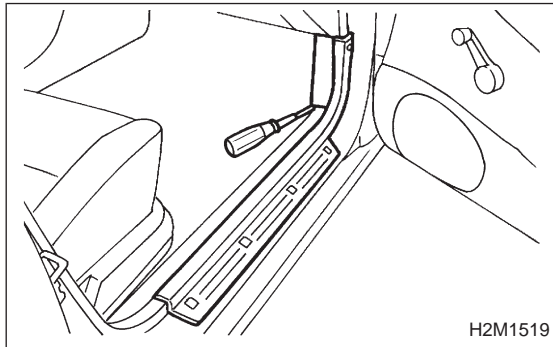
- ① O-ring B
- ② O-ring A
- ③ Fuel injector
- ④ Insulator
- ⑤ Fuel injector cup
- ★: Replacement part



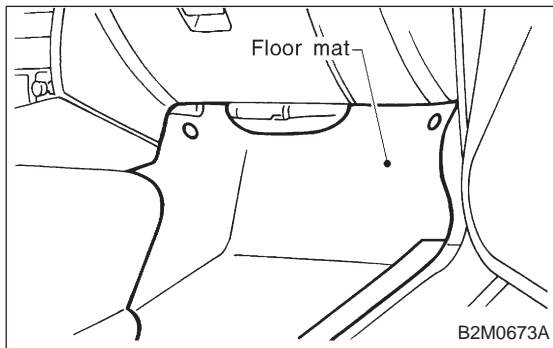
15. Engine Control Module

A: REMOVAL AND INSTALLATION

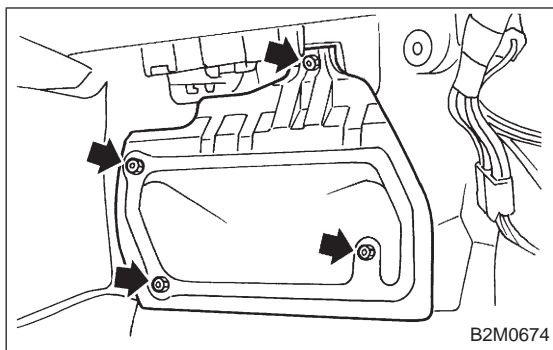
1) Disconnect battery ground cable.



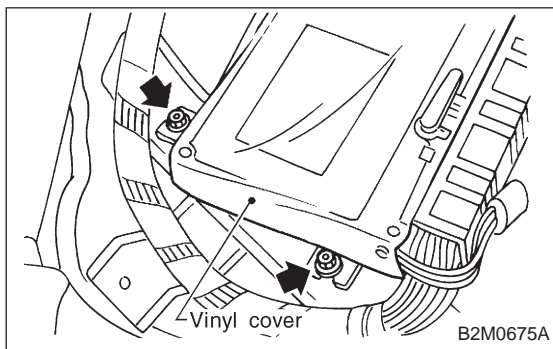
2) Remove front pillar lower trim.



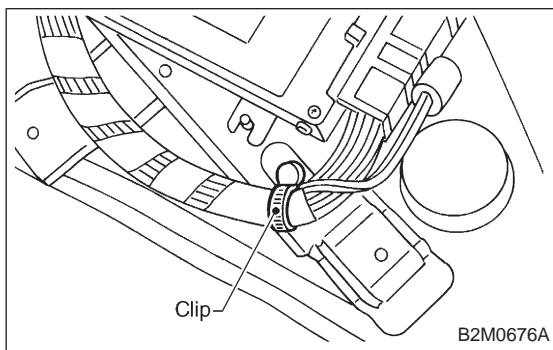
3) Detach floor mat of front passenger seat.



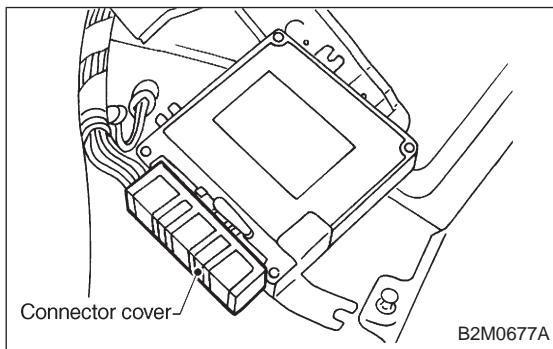
4) Remove protect cover.



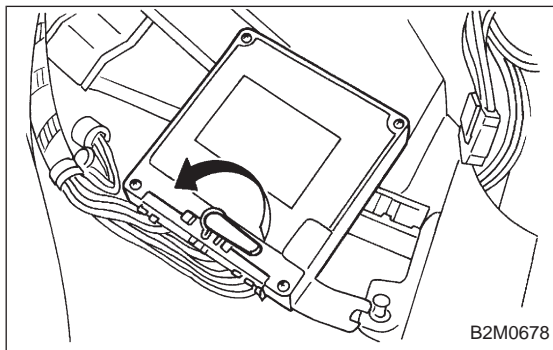
5) Remove vinyl cover and nuts which attach ECM to bracket.



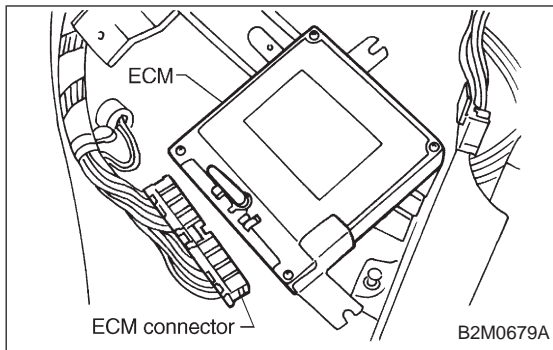
6) Detach clip from bracket.



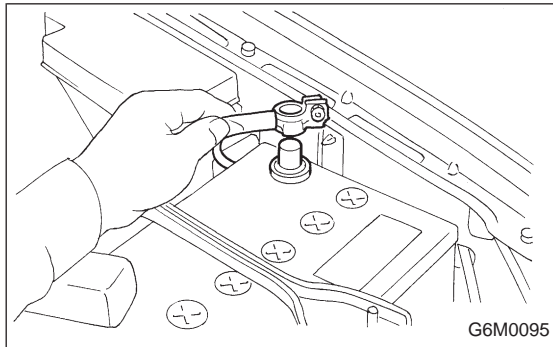
7) Remove connector cover.



8) Disconnect ECM connector.



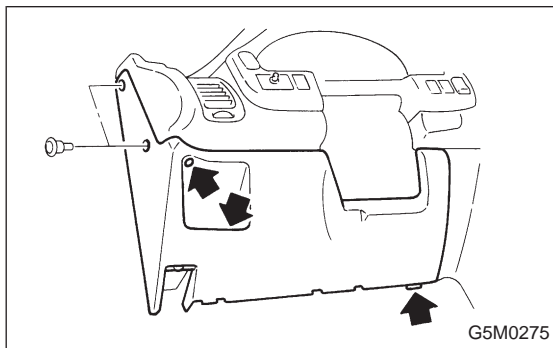
- 9) Take out ECM.
- 10) Installation is in the reverse order of removal.



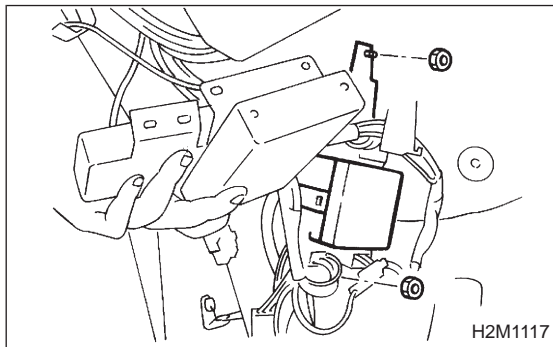
16. Main Relay

A: REMOVAL AND INSTALLATION

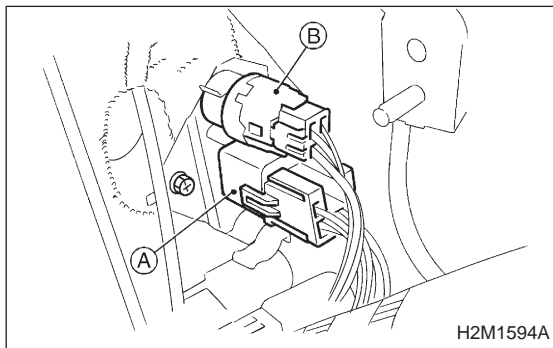
- 1) Disconnect battery ground cable.



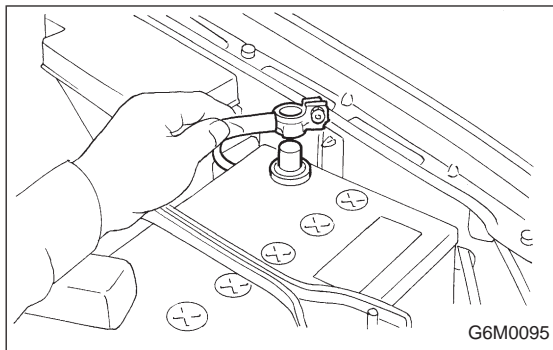
- 2) Remove lower cover and then disconnect connectors.
- 3) Remove the front pillar lower trim.



- 4) Remove fuse and relay box from bracket.
- 5) Disconnect connector from horn relay.
- 6) Remove all relays with bracket from body.
- 7) Remove fuse box mounting nuts.
- 8) Lower fuse box.
- 9) Remove fuse box mounting bracket.



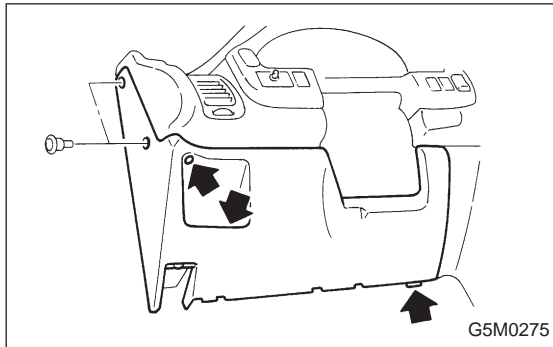
- 10) Remove bolt which retains bracket of main relay ① and fuel pump relay ②.
- 11) Disconnect connector from main relay.
- 12) Installation is in the reverse order of removal.



17. Fuel Pump Relay

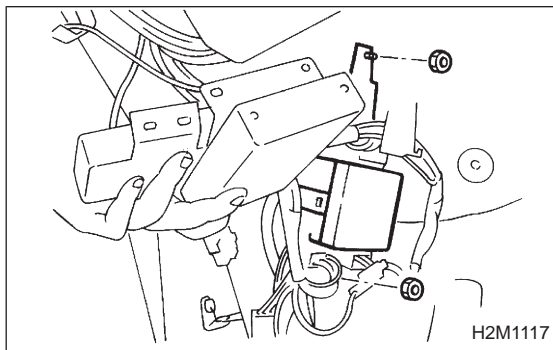
A: REMOVAL AND INSTALLATION

1) Disconnect battery ground cable.



2) Remove lower cover and then disconnect connectors.

3) Remove the front pillar lower trim.



4) Remove fuse and relay box from bracket.

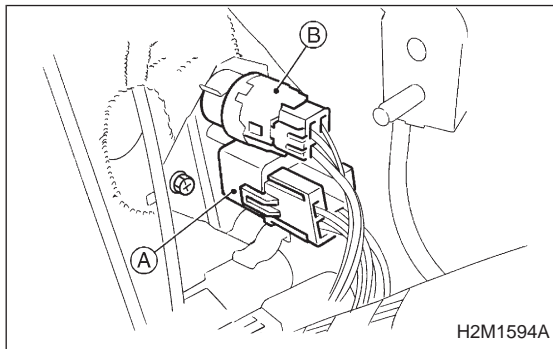
5) Disconnect connector from horn relay.

6) Remove all relays with bracket from body.

7) Remove fuse box mounting nuts.

8) Lower fuse box.

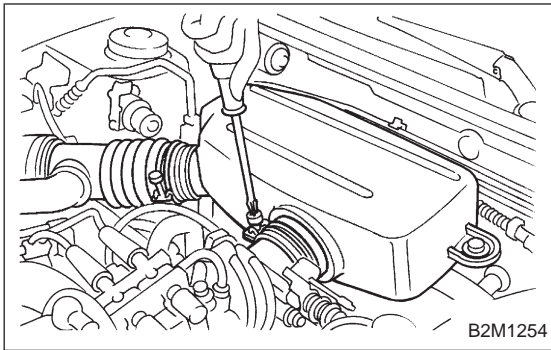
9) Remove fuse box mounting bracket.



10) Remove fuel pump relay from main relay and fuel pump relay mounting bracket.

11) Disconnect connector from fuel pump relay.

12) Installation is in the reverse order of removal.



18. Air Intake Chamber

A: REMOVAL AND INSTALLATION

- 1) Loosen clamps which connect air intake chamber to throttle body and air intake duct.
- 2) Disconnect air hoses from air intake chamber.
- 3) Remove bolts which secure air intake chamber to stays.
- 4) Remove air intake chamber.
- 5) Installation is in the reverse order of removal.

Tightening torque:

4.9±0.5 N·m (0.5±0.05 kg-m, 3.6±0.4 ft-lb)