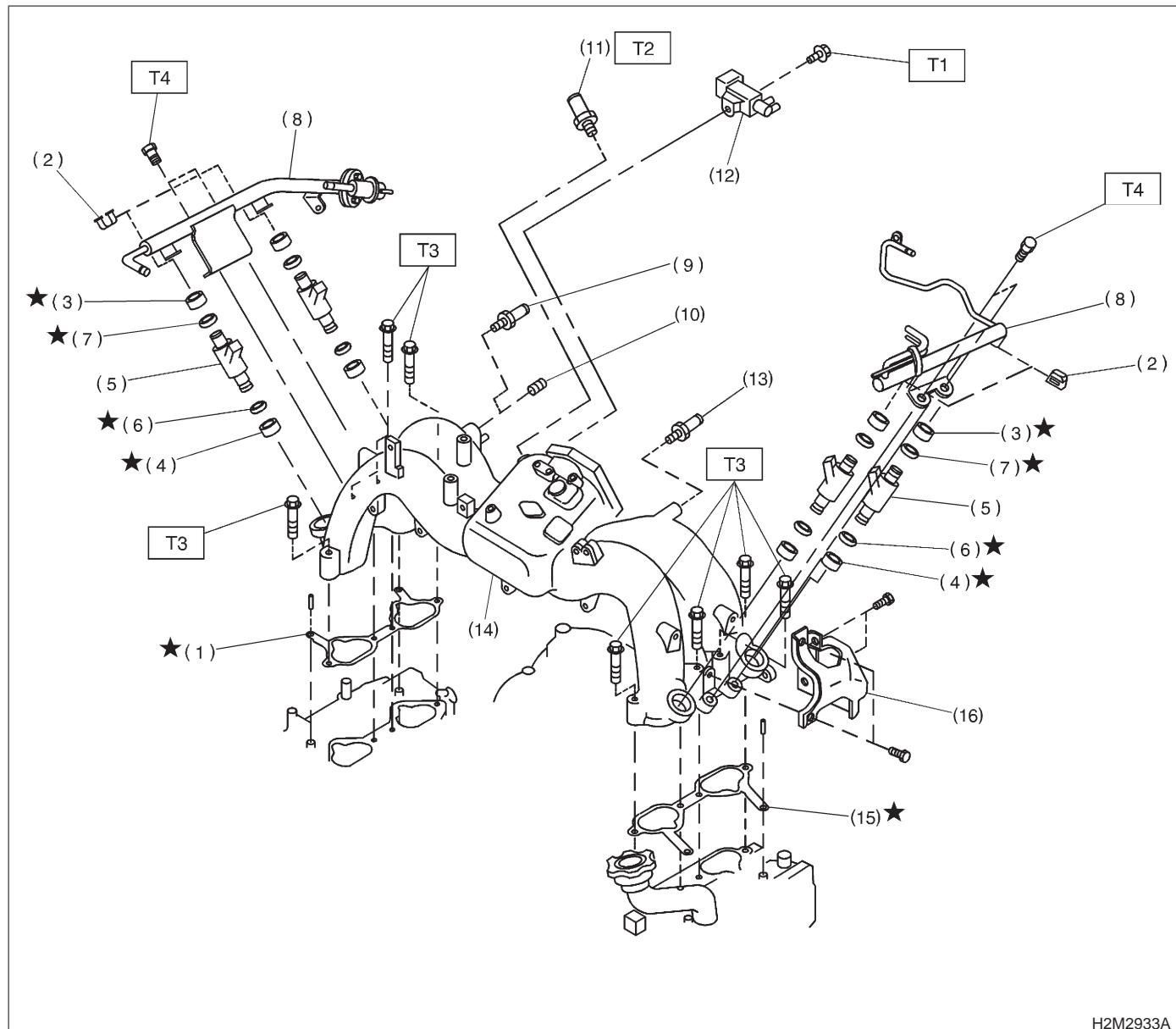


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## 1. Intake Manifold

## A: 2200 cc CALIFORNIA SPEC. VEHICLES



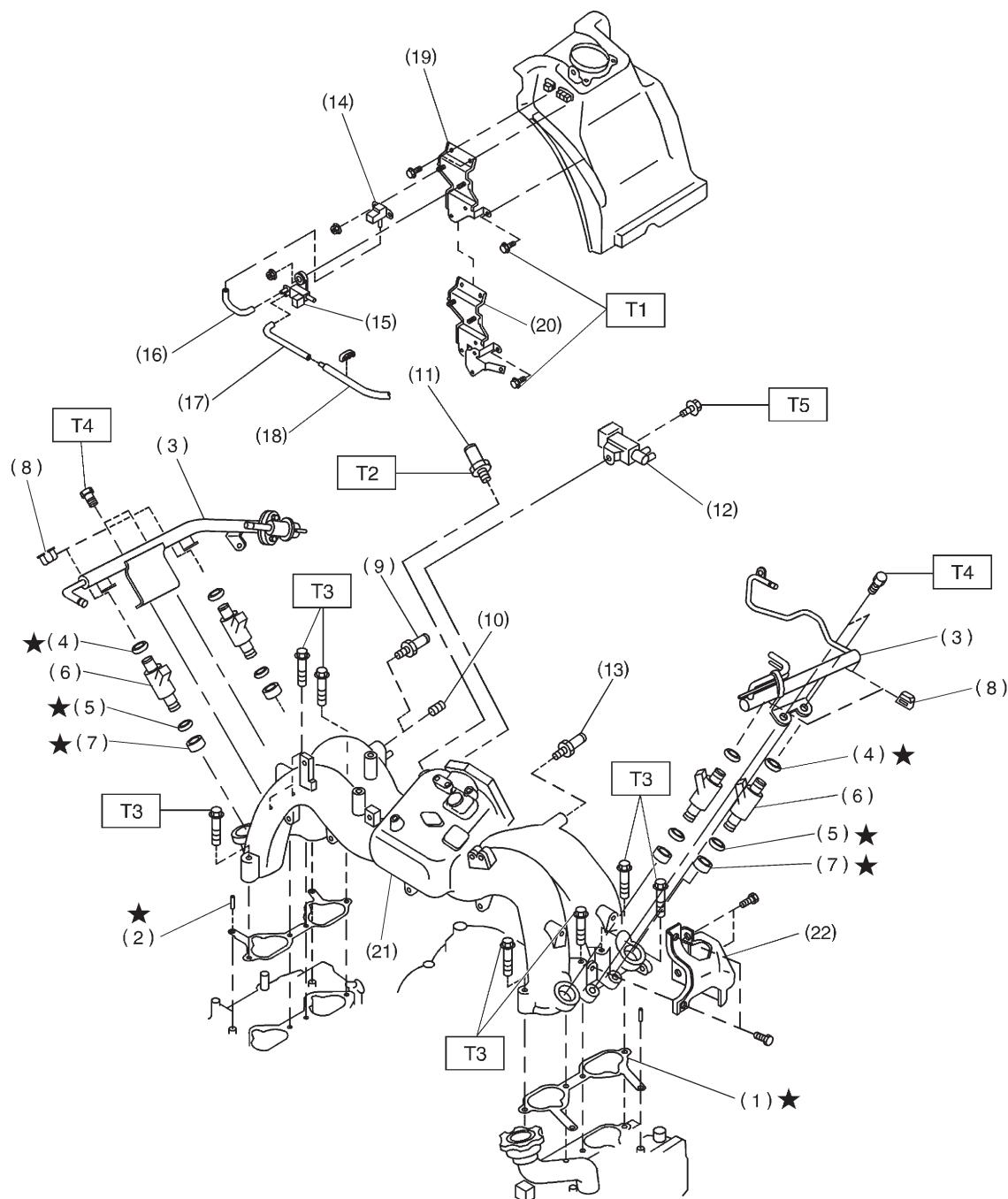
H2M2933A

(1) Intake manifold gasket RH	(9) Nipple (AT vehicles)
(2) Fuel injector cap	(10) Plug
(3) Insulator A	(11) PCV valve
(4) Insulator B	(12) Purge control solenoid valve
(5) Fuel injector	(13) Nipple
(6) O-ring B	(14) Intake manifold
(7) O-ring A	(15) Intake manifold gasket LH
(8) Fuel pipe	(16) Fuel pipe protector

**Tightening torque: N·m (kg·m, ft·lb)****T1:  $16 \pm 1.5$  (1.6  $\pm 0.15$ , 11.6  $\pm 1.1$ )****T2:  $23 \pm 3$  (2.3  $\pm 0.3$ , 16.6  $\pm 2.2$ )****T3:  $25 \pm 2$  (2.5  $\pm 0.2$ , 18.1  $\pm 1.4$ )****T4:  $3.4 \pm 0.5$  (0.35  $\pm 0.05$ , 2.5  $\pm 0.4$ )**

**MEMO:**

## B: EXCEPT 2200 cc CALIFORNIA SPEC. VEHICLES



S2M1011A

(1) Intake manifold gasket LH	(12) Purge control solenoid valve
(2) Intake manifold gasket RH	(13) Nipple
(3) Fuel injector pipe	(14) Pressure sensor
(4) O-ring A	(15) Pressure sources switching sole-
(5) O-ring B	noid valve
(6) Fuel injector	(16) Vacuum hose A
(7) Insulator	(17) Vacuum hose B
(8) Fuel injector cap	(18) Vacuum hose C
(9) Nipple (AT vehicles)	(19) Bracket (Except Canada spec.
(10) Plug	vehicles)
(11) PCV valve	

(20) Bracket (For Canada spec.
vehicles)
(21) Intake manifold
(22) Fuel pipe protector LH

---

***Tightening torque: N·m (kg·m, ft·lb)***

***T1: 4.9±0.5 (0.5±0.05, 3.6±0.4)***

***T2: 23±3 (2.3±0.3, 16.6±2.2)***

***T3: 25±2 (2.5±0.2, 18.1±1.4)***

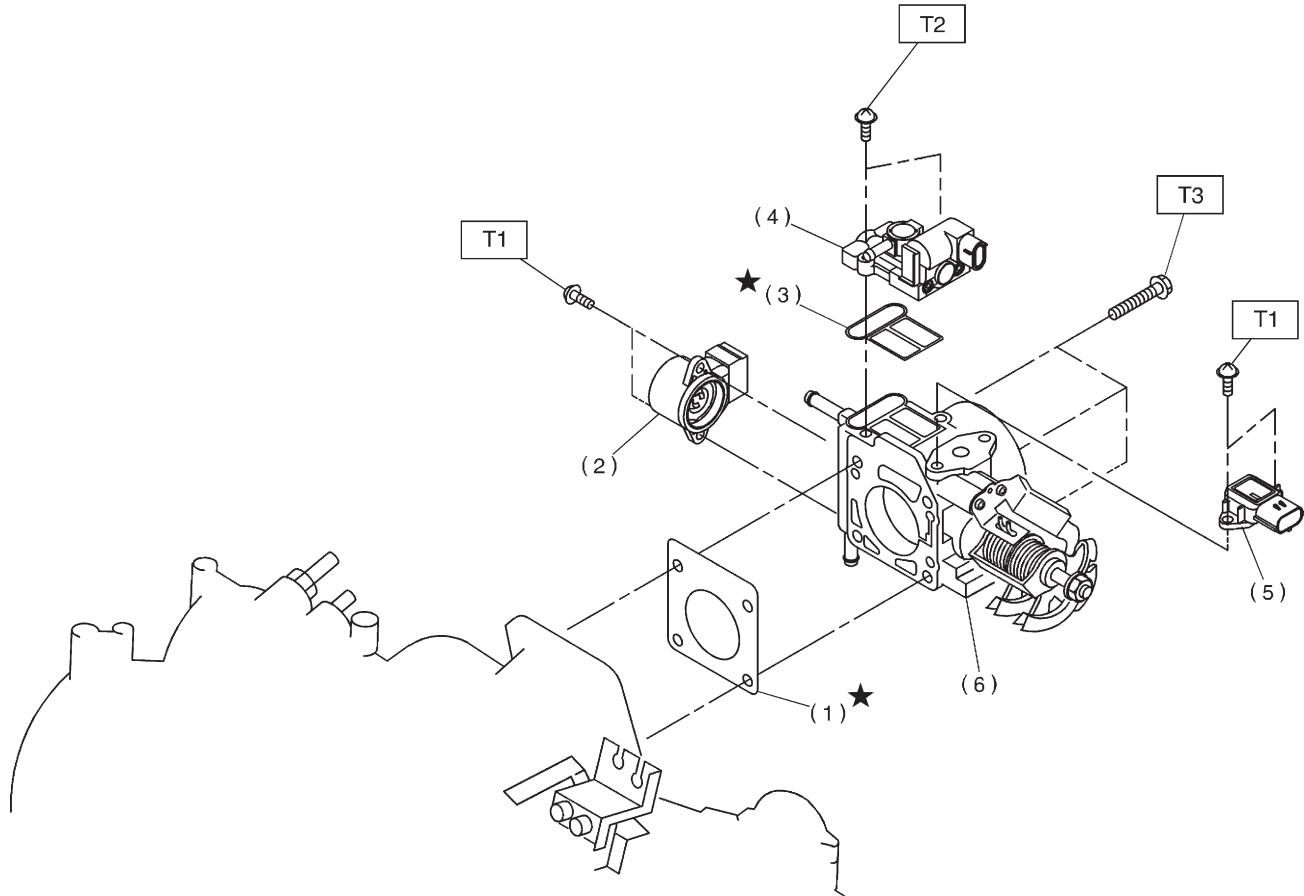
***T4: 3.4±0.5 (0.35±0.05, 2.5±0.4)***

***T5: 15.7±1.5 (1.6±0.15, 11.6±1.1)***

---

## 2. Air Intake System

## A: 2200 cc CALIFORNIA SPEC. VEHICLES

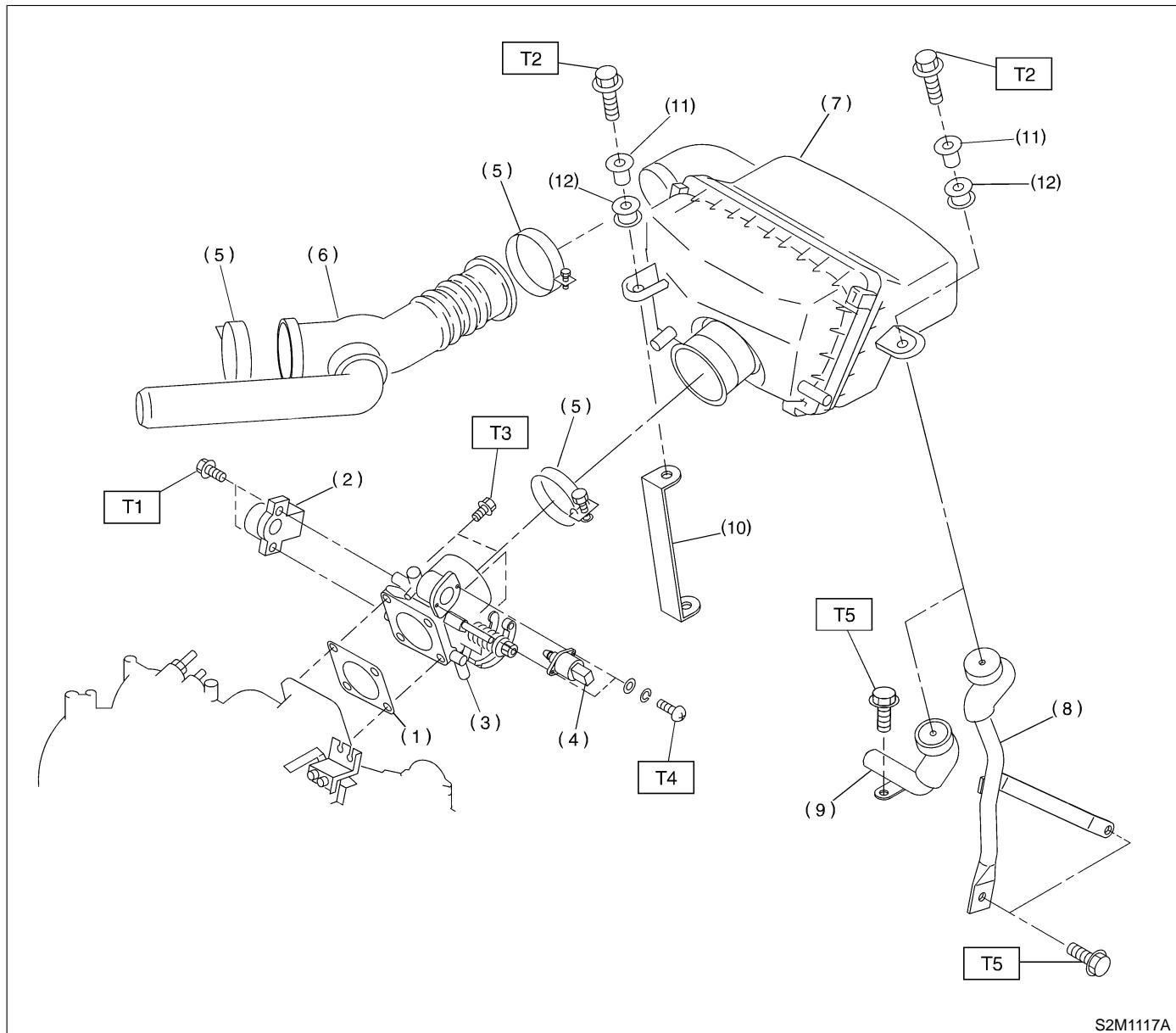


B2M2278A

(1) Gasket	(5) Intake manifold pressure sensor
(2) Throttle position sensor	(6) Throttle body
(3) Gasket	
(4) Idle air control solenoid valve	

**Tightening torque: N·m (kg·m, ft·lb)****T1:  $2.0 \pm 0.4$  ( $0.20 \pm 0.04$ ,  $1.4 \pm 0.3$ )****T2:  $3.3 \pm 0.4$  ( $0.34 \pm 0.045$ ,  $2.5 \pm 0.3$ )****T3:  $22 \pm 2$  ( $2.2 \pm 0.2$ ,  $15.9 \pm 1.4$ )**

## B: EXCEPT 2200 cc CALIFORNIA SPEC. VEHICLES



(1) Gasket	(8) Stay LH (MT vehicles)
(2) Throttle position sensor	(9) Stay LH (AT vehicles)
(3) Throttle body	(10) Stay RH
(4) Idle air control solenoid valve	(11) Spacer
(5) Clamp	(12) Bush
(6) Air intake duct	
(7) Air intake chamber	

**Tightening torque: N·m (kg·m, ft·lb)**

**T1:  $2.0 \pm 0.4$  ( $0.20 \pm 0.04$ ,  $1.4 \pm 0.3$ )**

**T2:  $6.4 \pm 0.5$  ( $0.65 \pm 0.05$ ,  $4.7 \pm 0.4$ )**

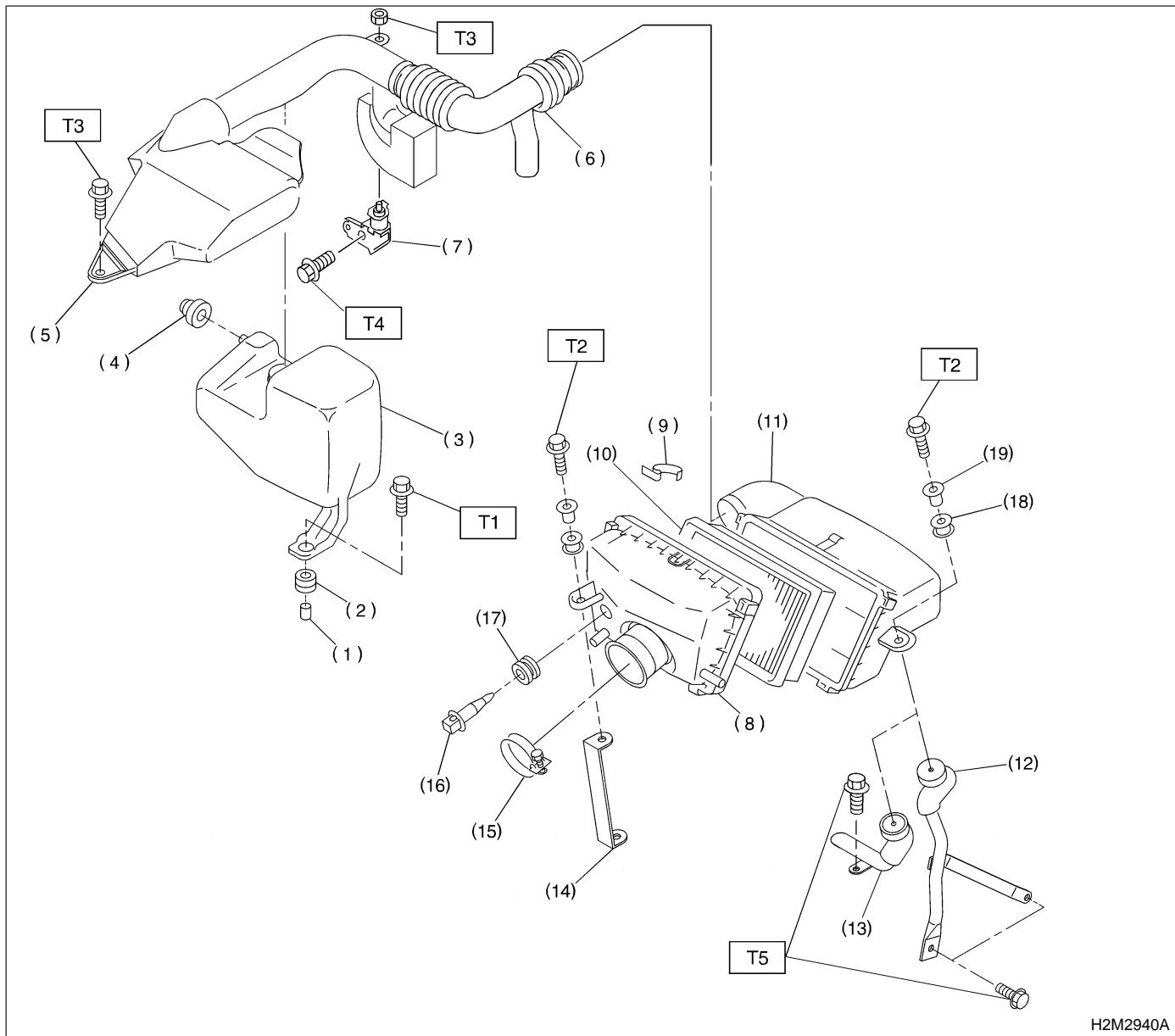
**T3:  $22 \pm 2$  ( $2.2 \pm 0.2$ ,  $15.9 \pm 1.4$ )**

**T4:  $6.0 \pm 0.8$  ( $0.61 \pm 0.08$ ,  $4.4 \pm 0.6$ )**

**T5:  $16 \pm 5$  ( $1.6 \pm 0.5$ ,  $11.6 \pm 3.6$ )**

## 3. Air Cleaner

## A: 2200 cc CALIFORNIA SPEC. VEHICLES



H2M2940A

- (1) Spacer
- (2) Bush
- (3) Air chamber
- (4) Cushion rubber
- (5) Air intake duct A
- (6) Air intake duct B
- (7) Holder
- (8) Air cleaner case A
- (9) Clip
- (10) Air cleaner element

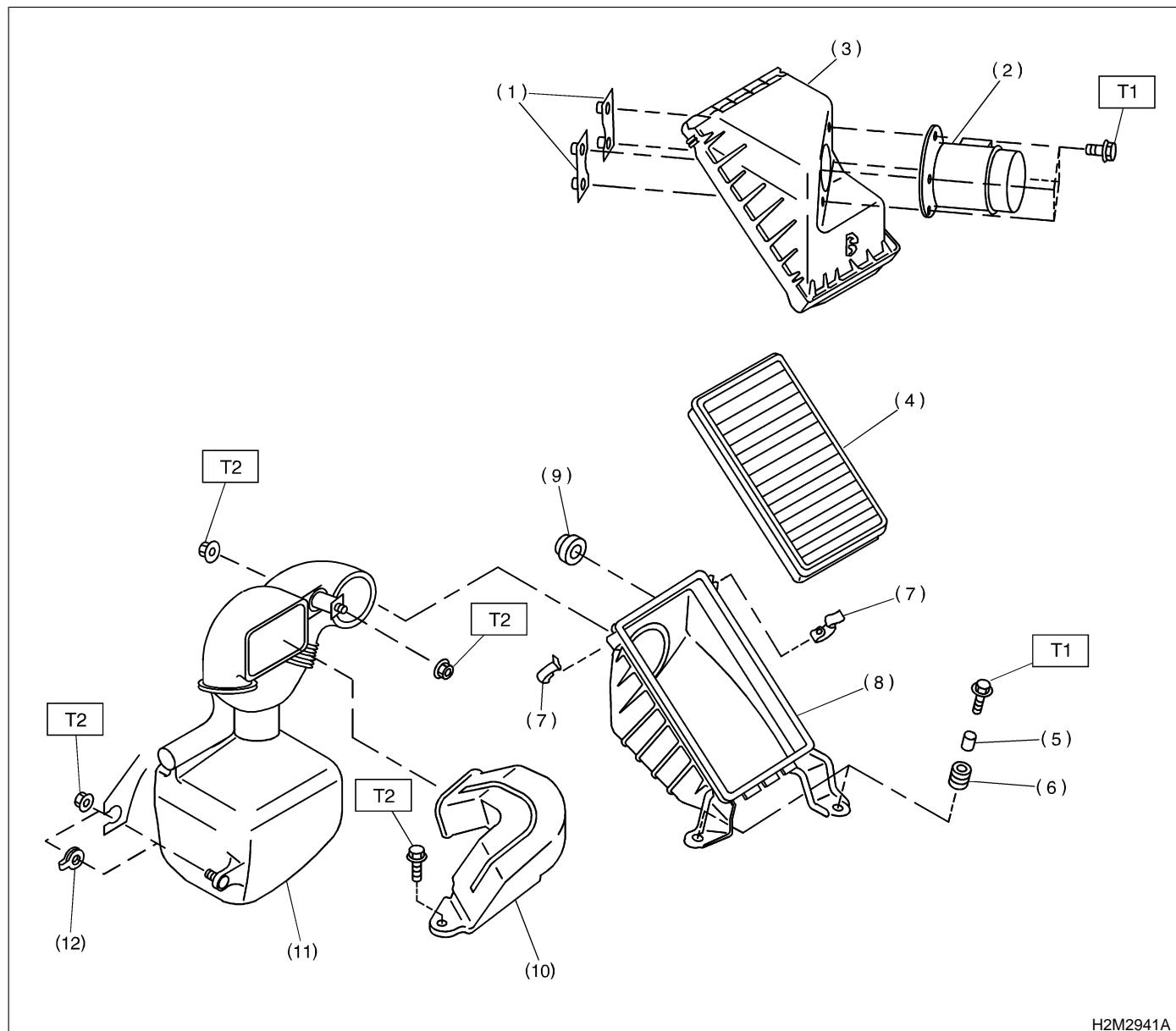
- (11) Air cleaner case B
- (12) Air cleaner case stay LH (MT vehicles)
- (13) Air cleaner case stay LH (AT vehicles)
- (14) Air cleaner case stay RH
- (15) Clamp
- (16) Intake air temperature sensor
- (17) Rubber holder
- (18) Bush

- (19) Spacer

**Tightening torque: N·m (kg·m, ft·lb)**

- T1:  $7.4 \pm 2.0$  ( $0.75 \pm 0.2$ ,  $5.4 \pm 1.4$ )
- T2:  $6.4 \pm 0.5$  ( $0.65 \pm 0.05$ ,  $4.7 \pm 0.4$ )
- T3:  $7.4 \pm 2.0$  ( $0.75 \pm 0.2$ ,  $5.4 \pm 1.4$ )
- T4:  $14 \pm 4$  ( $1.4 \pm 0.4$ ,  $10.1 \pm 2.9$ )
- T5:  $16 \pm 5$  ( $1.6 \pm 0.5$ ,  $11.6 \pm 3.6$ )

## B: EXCEPT 2200 cc CALIFORNIA SPEC. VEHICLES

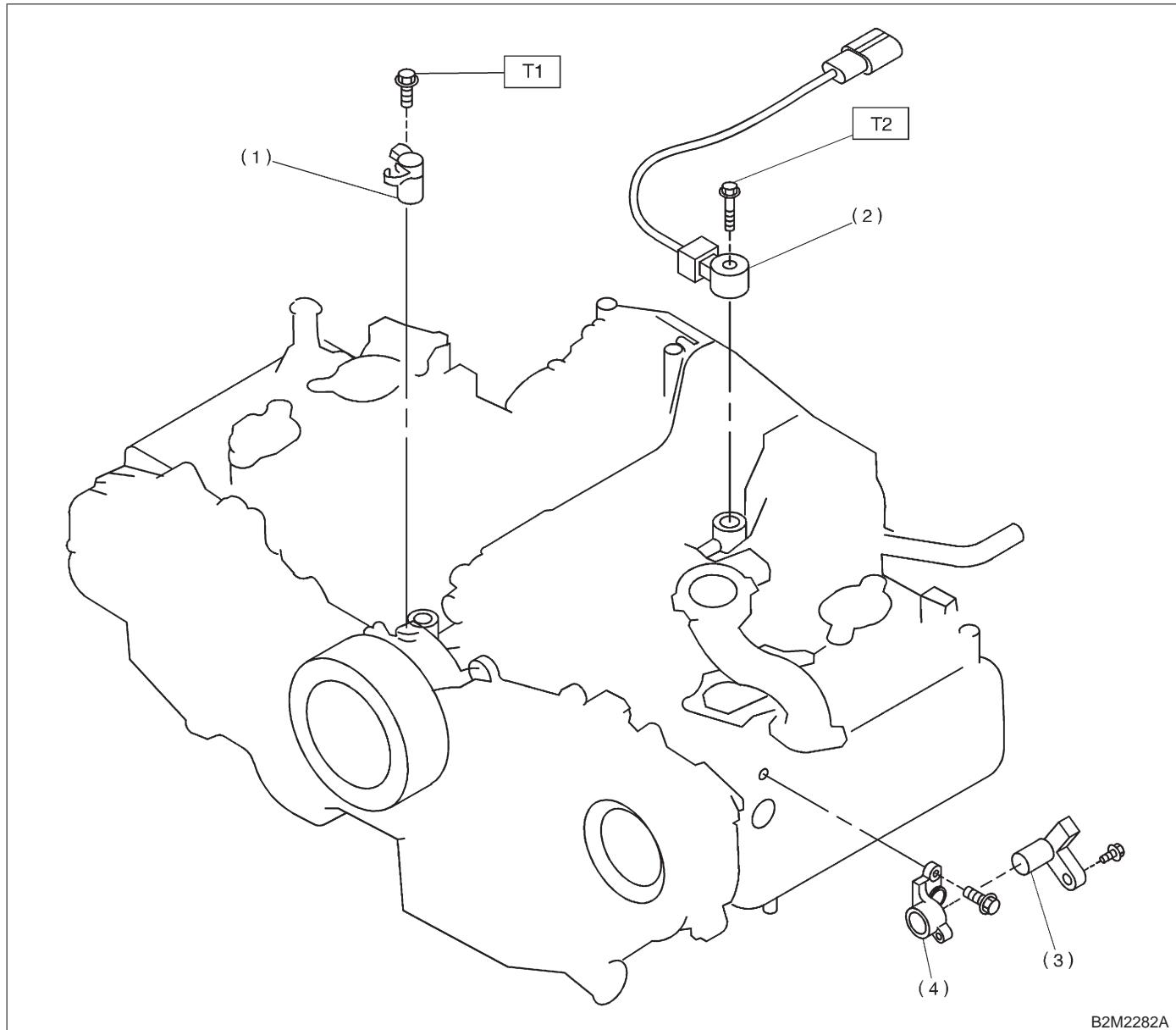


H2M2941A

(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:  $7.4 \pm 2.0$  (0.75  $\pm$  0.2, 5.4  $\pm$  1.4)****T2:  $33 \pm 10$  (3.4  $\pm$  1.0, 25  $\pm$  7)**

## 4. Crankshaft Position, Camshaft Position and Knock Sensors



B2M2282A

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

***Tightening torque: N·m (kg·m, ft-lb)***

***T1:  $6.4 \pm 0.5$  ( $0.65 \pm 0.05$ ,  $4.7 \pm 0.4$ )***

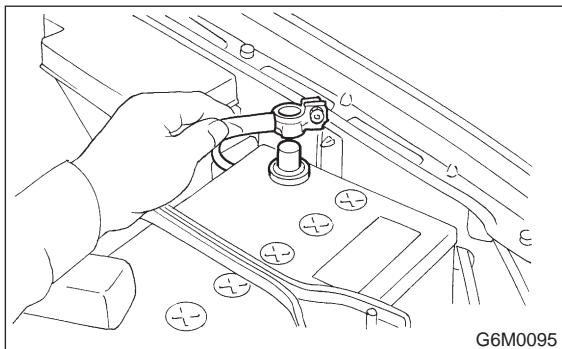
***T2:  $23.5 \pm 2.9$  ( $2.4 \pm 0.3$ ,  $17.4 \pm 2.2$ )***

## 1. Air Cleaner and Air Intake Duct

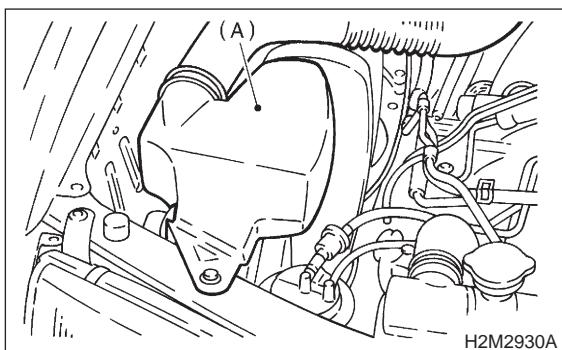
### A: REMOVAL AND INSTALLATION

#### 1. 2200 cc CALIFORNIA SPEC. VEHICLES

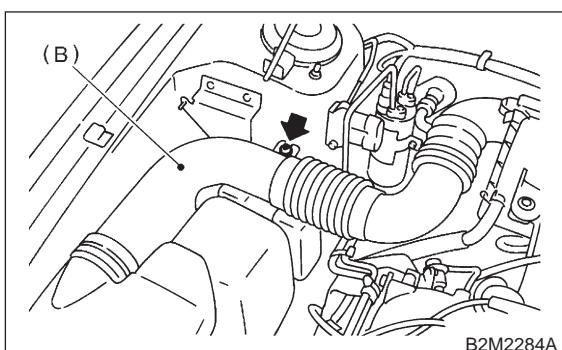
- 1) Disconnect battery ground cable.



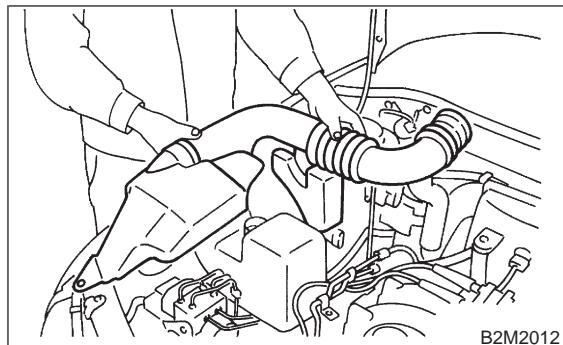
- 2) Remove bolt which installs air intake duct (A) on the front side of body.



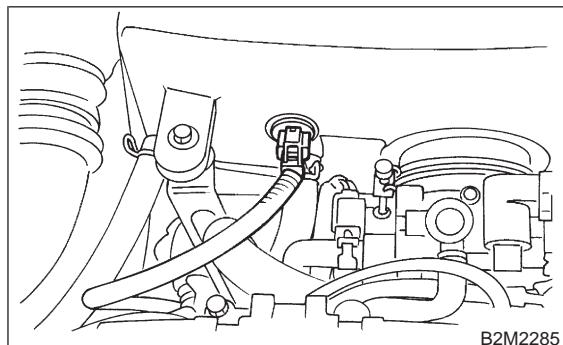
- 3) Remove bolt which installs air intake duct (B) on body.



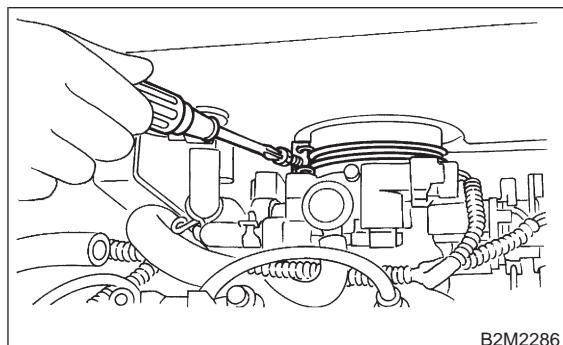
- 4) Remove air intake duct (A) and (B) as a unit.



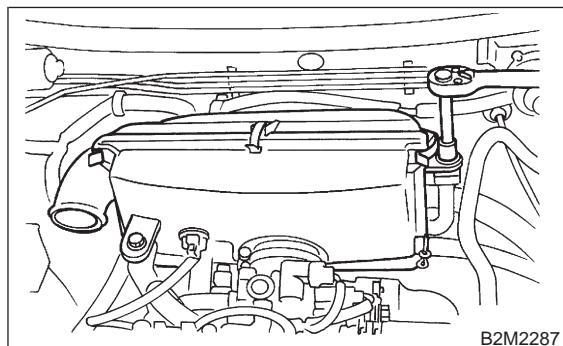
- 5) Disconnect connector from intake air temperature sensor.



- 6) Loosen clamp which connects air cleaner case to throttle body.



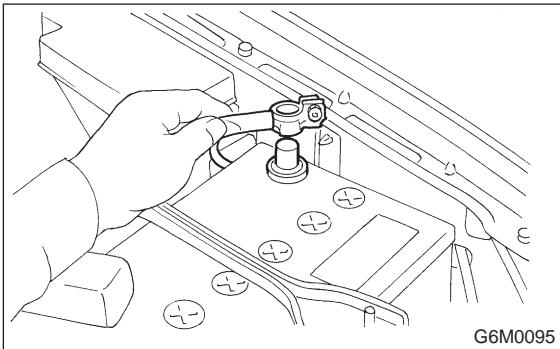
- 7) Disconnect hoses from air cleaner case.
- 8) Remove bolts which install air cleaner case to stays.
- 9) Remove air cleaner assembly.



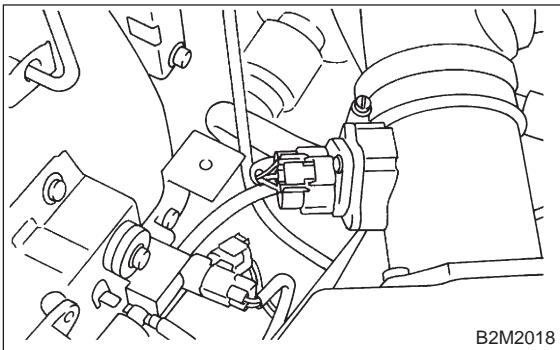
- 10) Installation is in the reverse order of removal.

## 2. EXCEPT 2200 cc CALIFORNIA SPEC. VEHICLES

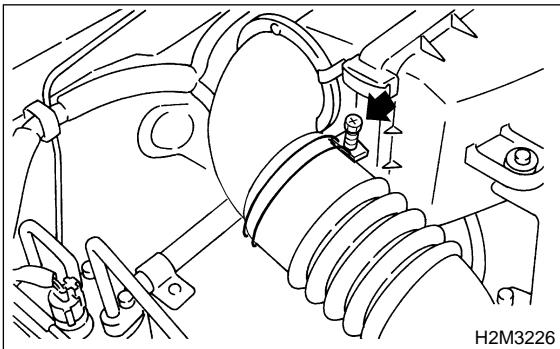
1) Disconnect battery ground cable.



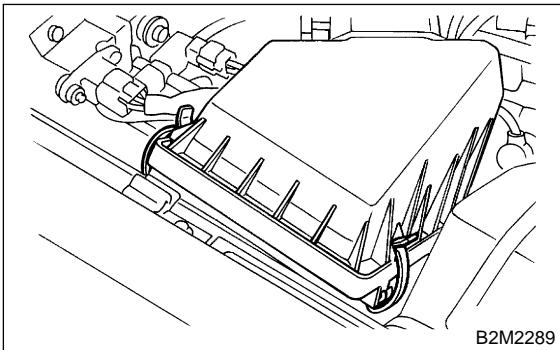
2) Disconnect connector from mass air flow sensor.



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



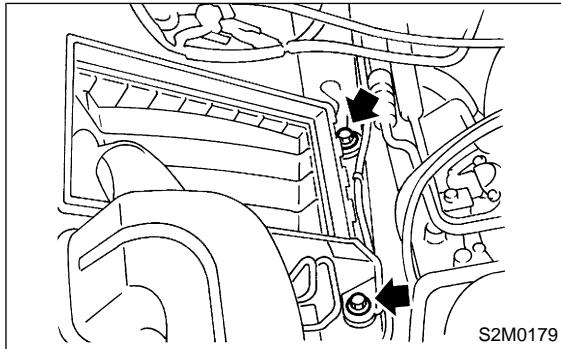
4) Remove two clips of air cleaner upper cover.



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



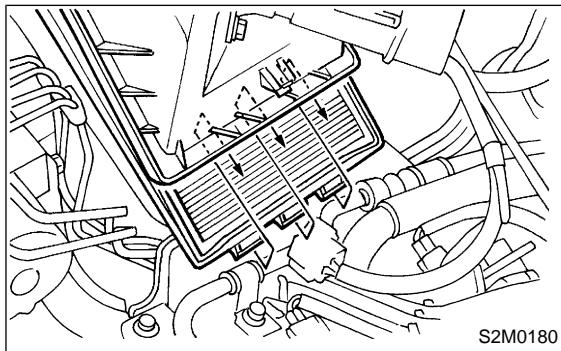
6) Remove air cleaner element.  
7) Remove air cleaner lower case.



8) Installation is in the reverse order of removal.

**CAUTION:**

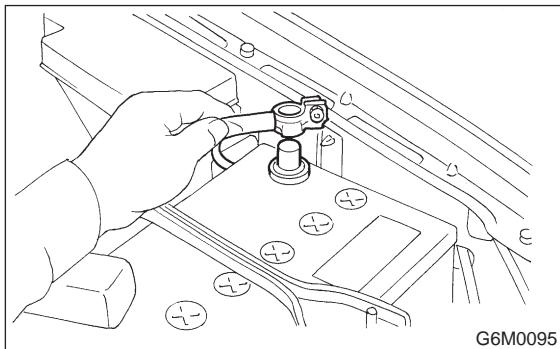
Before installing air cleaner upper cover, align holes with protruding portions of air cleaner lower case, then secure upper cover to lower case.



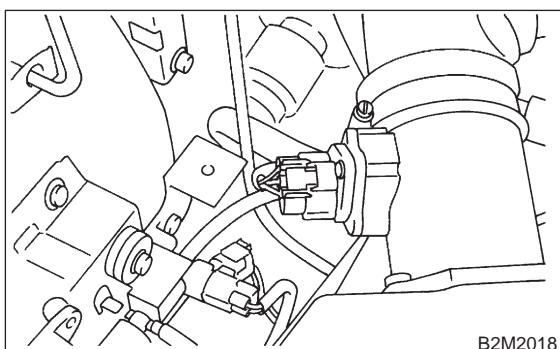
## 2. Mass Air Flow Sensor (Except 2200 cc California Spec. Vehicles)

### A: REMOVAL AND INSTALLATION

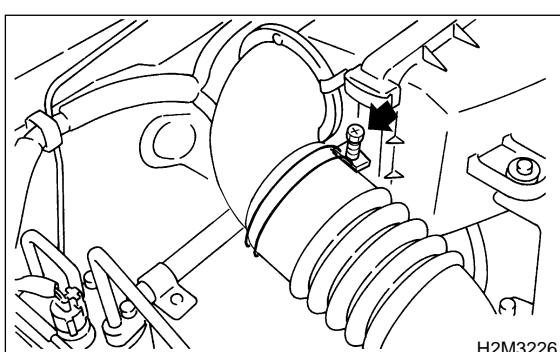
- 1) Disconnect battery ground cable.



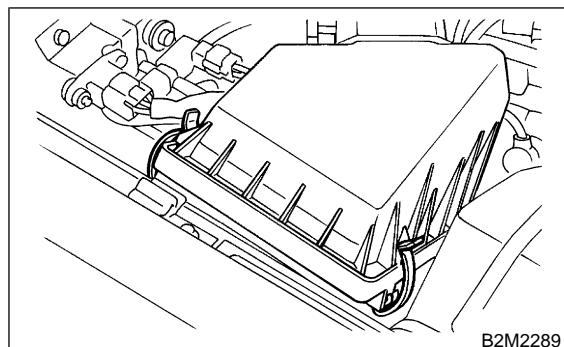
- 2) Disconnect connector from mass air flow sensor.



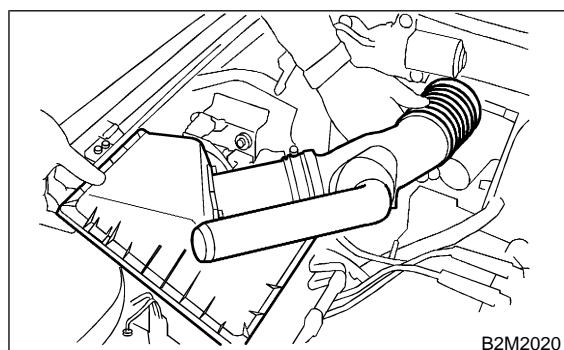
- 3) Loosen clamp which connects air intake duct to air intake chamber.



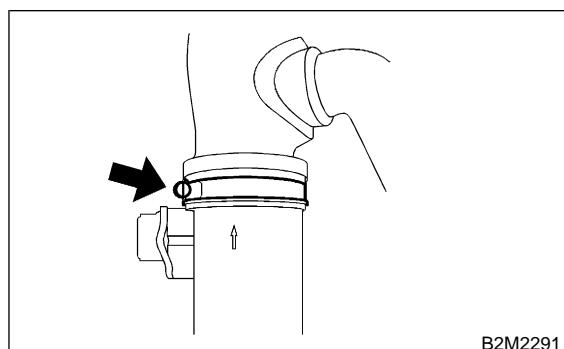
- 4) Remove two clips of air cleaner upper cover.



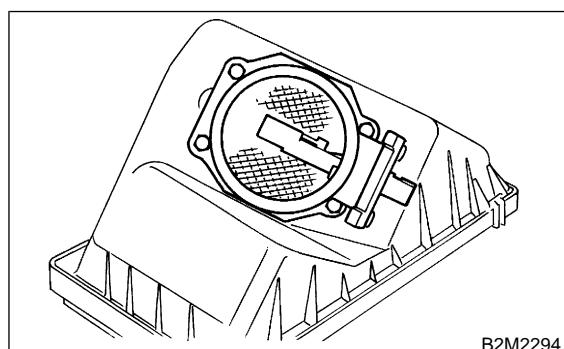
- 5) Remove air intake duct and air cleaner upper cover as a unit.



- 6) Loosen clamp which connects air intake duct to mass air flow sensor.



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



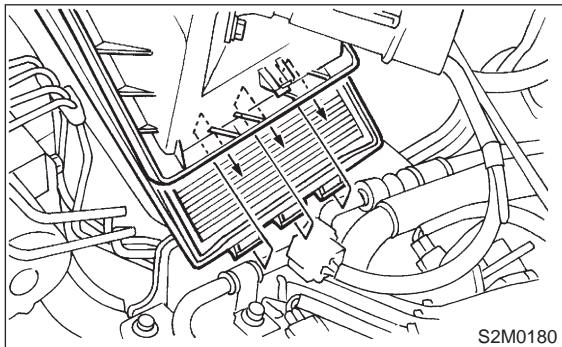
8) Installation is in the reverse order of removal.

**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.

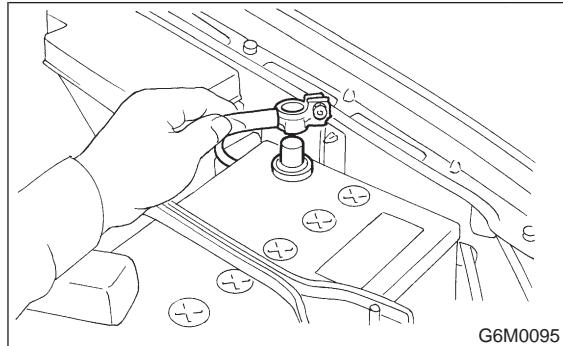


### 3. Throttle Body

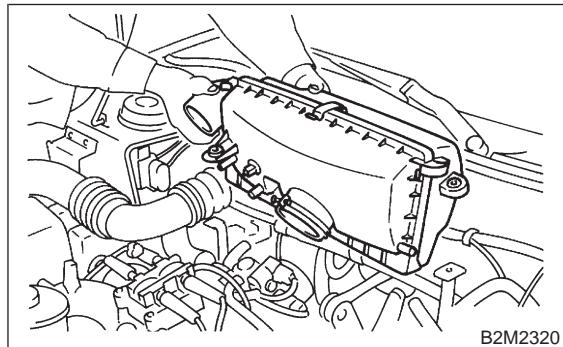
#### A: REMOVAL AND INSTALLATION

##### 1. 2200 cc CALIFORNIA SPEC. VEHICLES

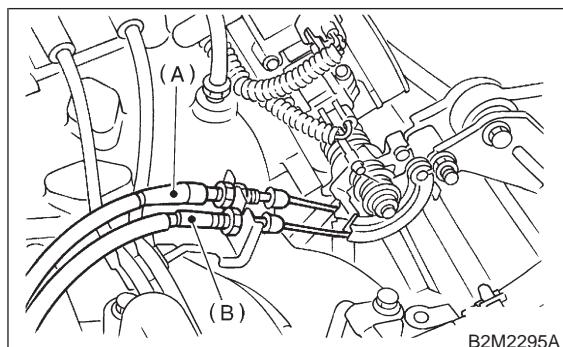
1) Disconnect battery ground cable.



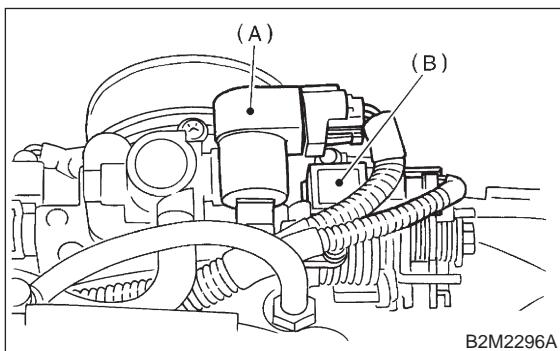
2) Remove air cleaner assembly. <Ref. to 2-7 [W1A0].>



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

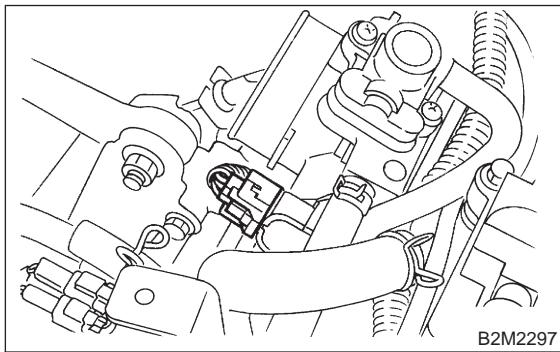


5) Disconnect connectors from idle air control solenoid valve (A) and intake manifold pressure sensor (B).

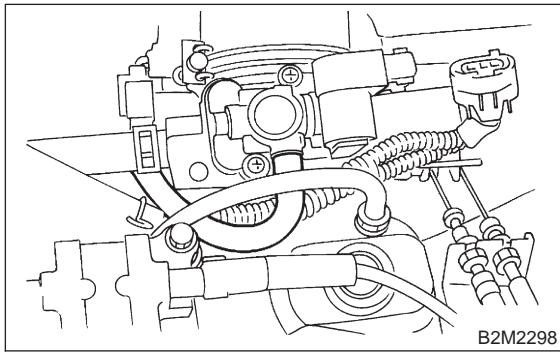


(A) Idle air control solenoid valve  
(B) Intake manifold pressure sensor

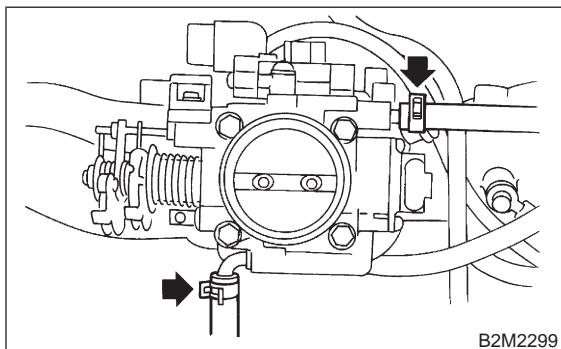
6) Disconnect connector from throttle position sensor.



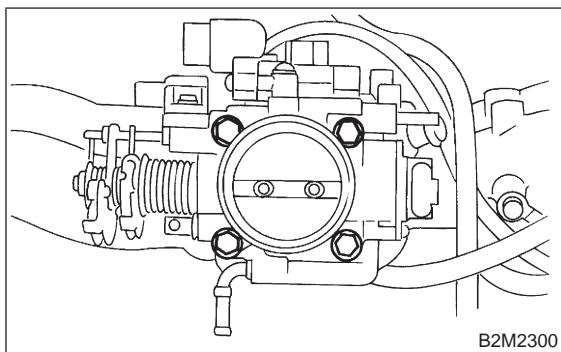
7) Disconnect air by-pass hose from idle air control solenoid valve.



8) Disconnect engine coolant hoses from throttle body.



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



10) Installation is in the reverse order of removal.

**CAUTION:**

Always use a new gasket.

**Tightening torque:**

**Throttle body:**

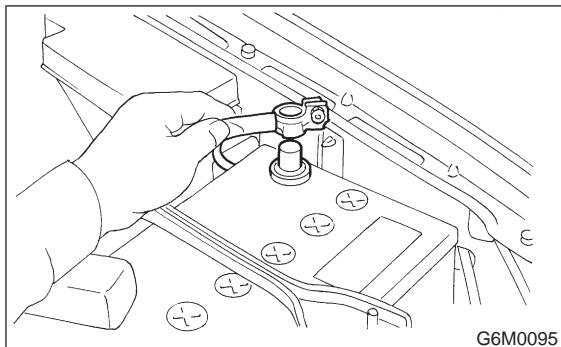
$22\pm2$  N·m (2.2±0.2 kg·m, 15.9±1.4 ft-lb)

**Air cleaner case:**

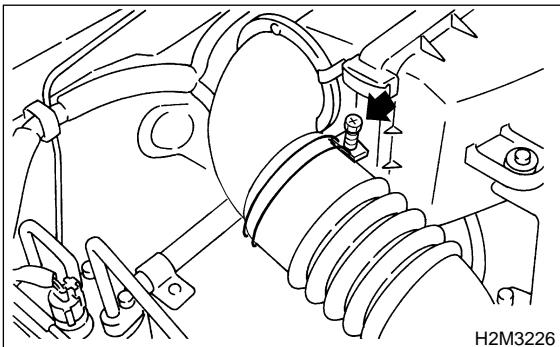
$4.9\pm0.5$  N·m (0.5±0.05 kg·m, 3.6±0.4 ft-lb)

**2. EXCEPT 2200 cc CALIFORNIA SPEC. VEHICLES**

1) Disconnect battery ground cable.

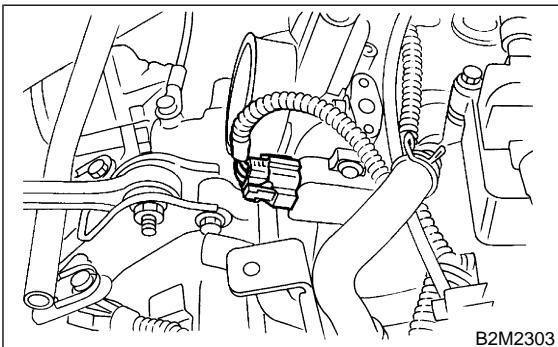


2) Loosen clamps which connect air intake duct to air intake chamber and mass air flow sensor.



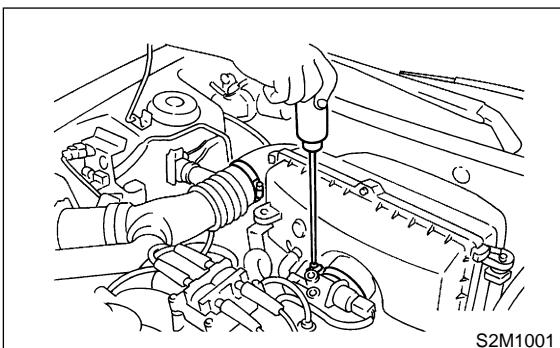
H2M3226

7) Disconnect connector from throttle position sensor.



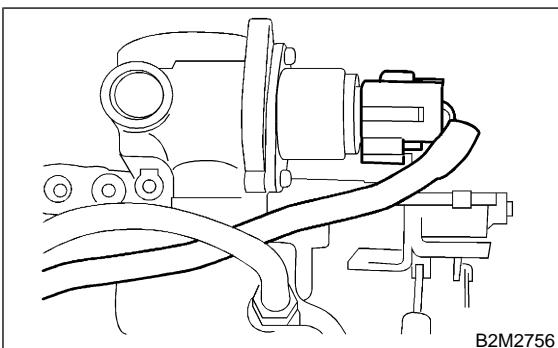
B2M2303

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



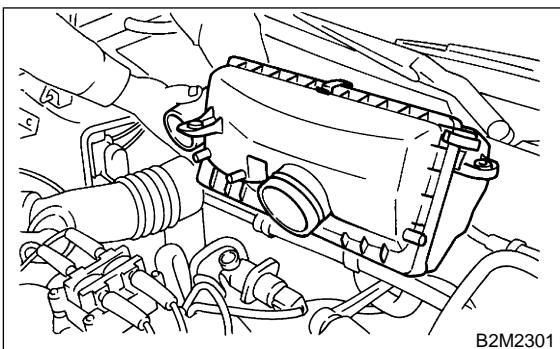
S2M1001

8) Disconnect connector from idle air control solenoid valve.



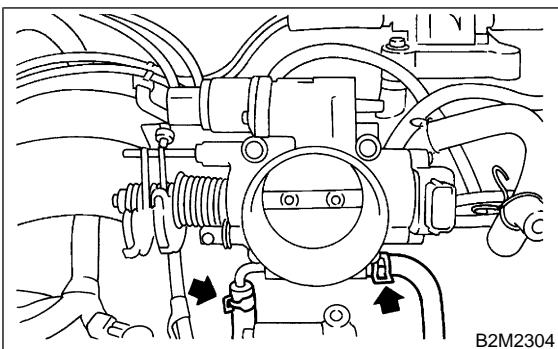
B2M2756

4) Disconnect blow-by hose and air hoses, and remove air intake chamber.



B2M2301

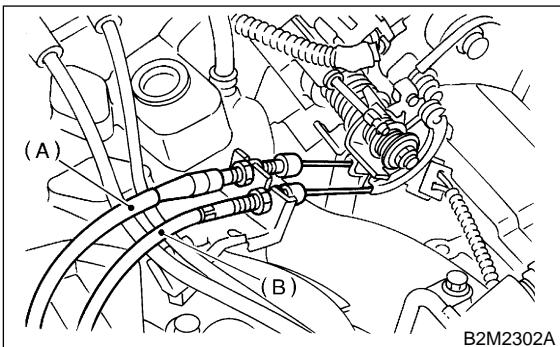
9) Disconnect engine coolant hoses from throttle body.



B2M2304

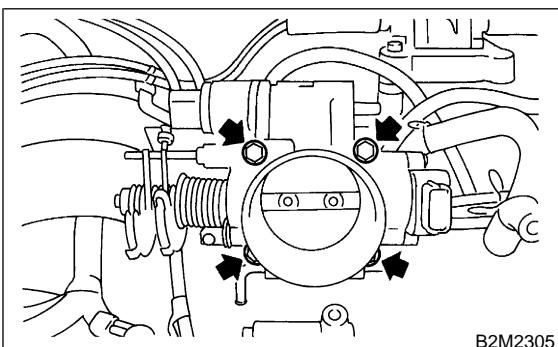
5) Disconnect accelerator cable (A).

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



B2M2302A

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



B2M2305

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:**

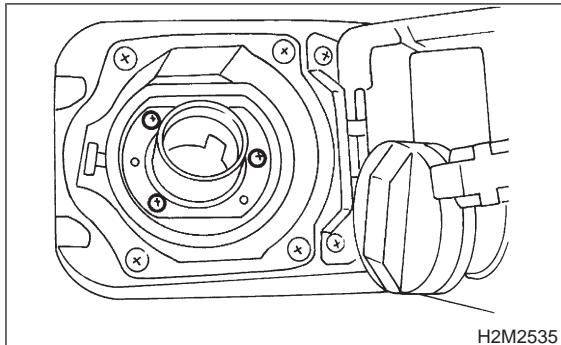
$22\pm2\text{ N}\cdot\text{m}$  ( $2.2\pm0.2\text{ kg}\cdot\text{m}$ ,  $15.9\pm1.4\text{ ft}\cdot\text{lb}$ )

**Air intake chamber:**

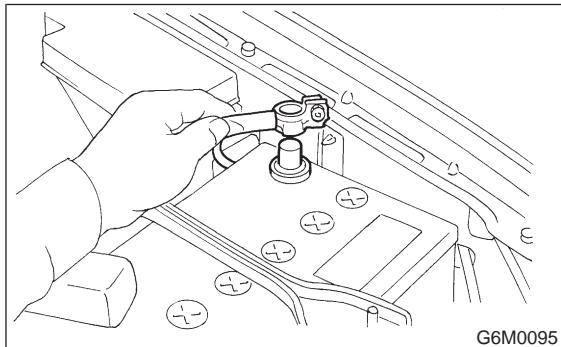
$4.9\pm0.5\text{ N}\cdot\text{m}$  ( $0.5\pm0.05\text{ kg}\cdot\text{m}$ ,  $3.6\pm0.4\text{ ft}\cdot\text{lb}$ )

**4. Intake Manifold****A: REMOVAL****1. 2200 cc CALIFORNIA SPEC. VEHICLES**

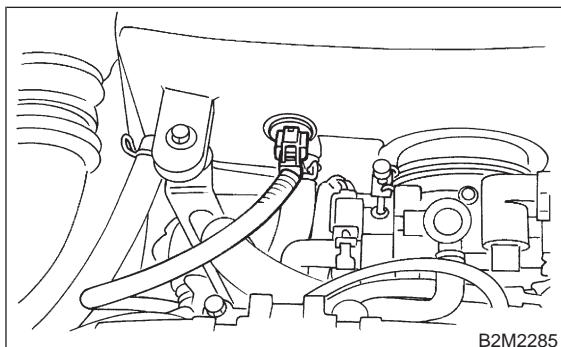
- 1) Release fuel pressure. *<Ref. to 2-8 [W1B0].>*
- 2) Open fuel flap lid, and remove fuel filler cap.



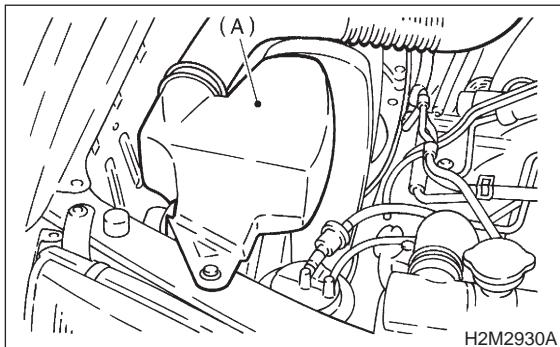
- 3) Disconnect battery ground cable.



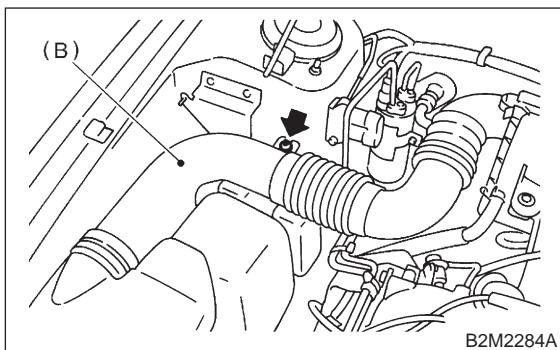
- 4) Disconnect connector from intake air temperature sensor.



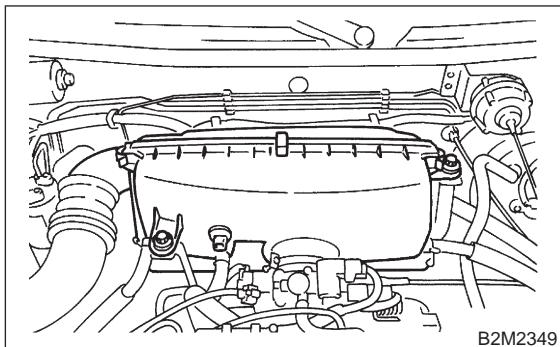
5) Remove bolt which installs air intake duct (A) on the front of body.



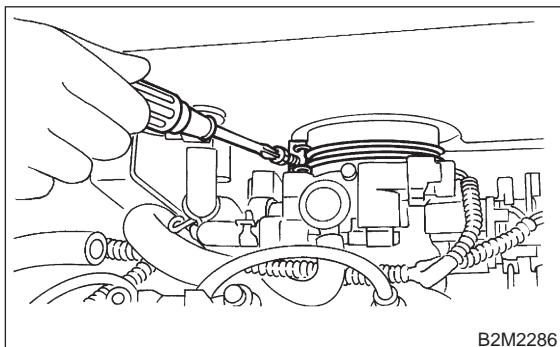
6) Remove bolt which installs air intake duct (B) on body.



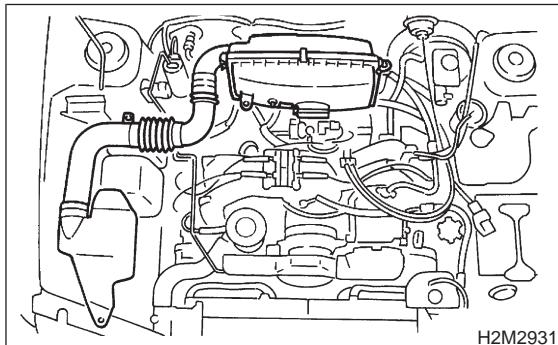
7) Remove bolts which install air cleaner case on stays.



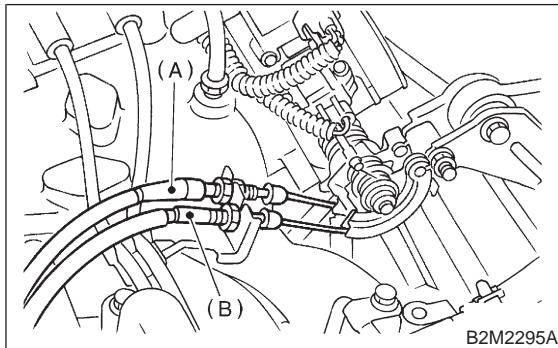
8) Loosen clamp which connects air intake chamber to throttle body.



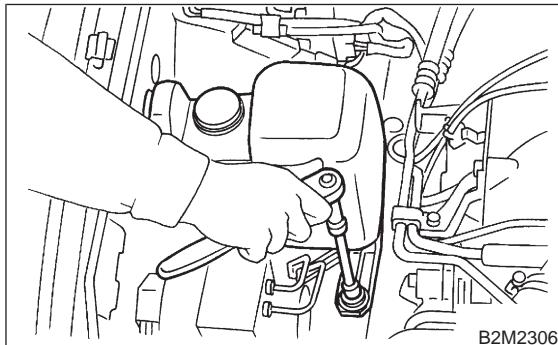
9) Disconnect blow-by hose from air cleaner case.  
10) Remove air intake duct (A), (B) and air cleaner assembly as a unit.



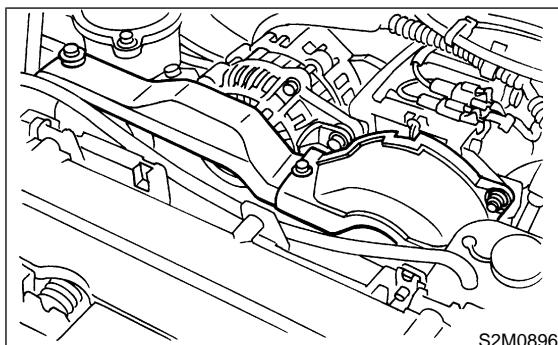
11) Disconnect accelerator cable (A).  
12) Disconnect cruise control cable (B). (With cruise control model)



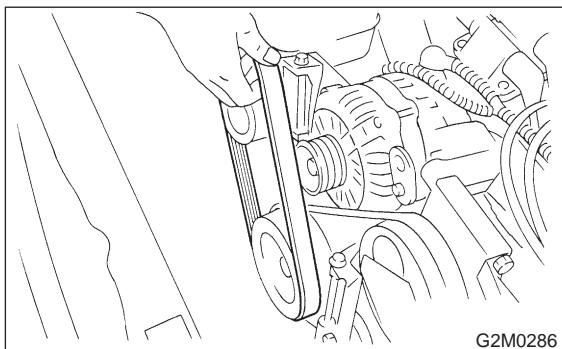
13) Remove power steering pump from bracket.  
(1) Remove resonator chamber.



(2) Remove V-belt covers.



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

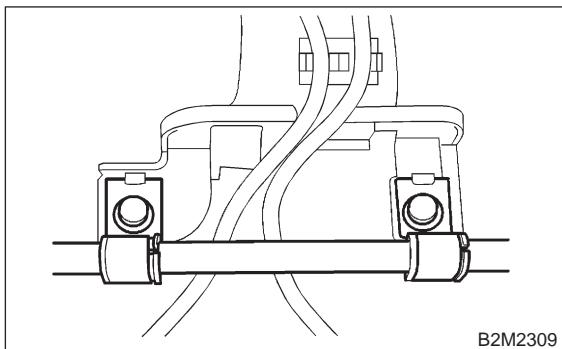


G2M0286

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

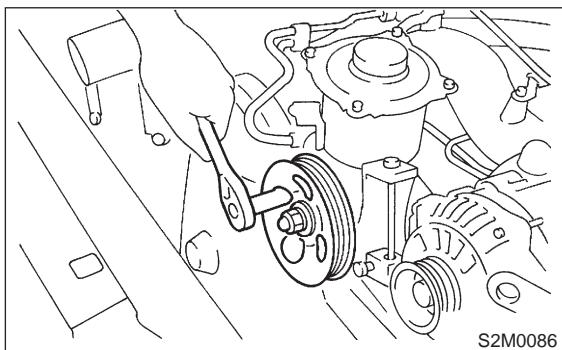
NOTE:

Do not disconnect power steering hose.



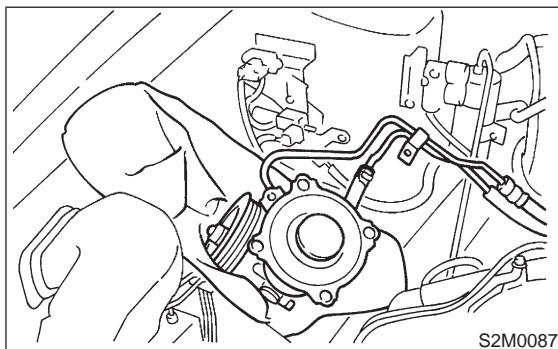
B2M2309

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



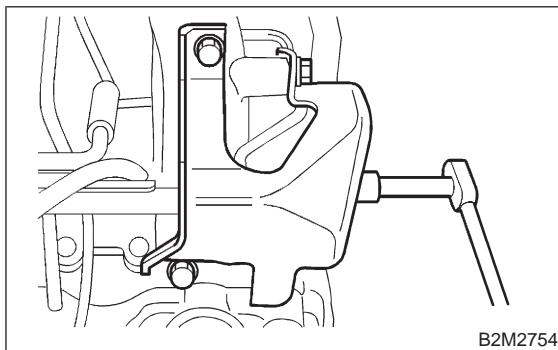
S2M0086

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



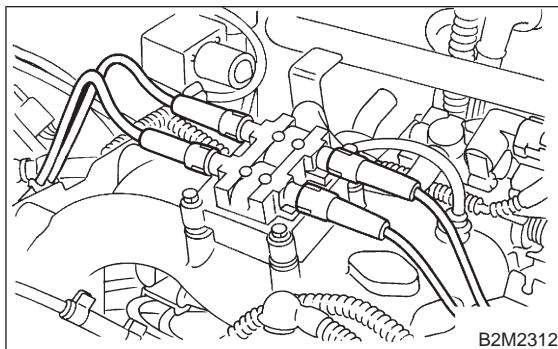
S2M0087

14) Remove fuel pipe protector.



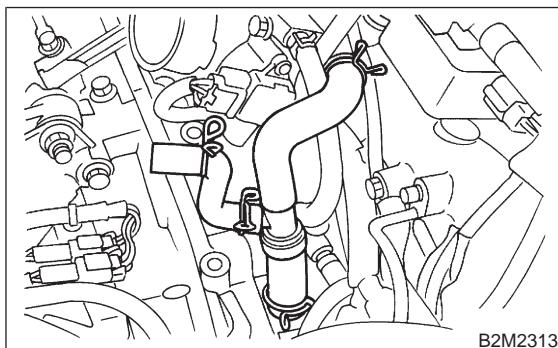
B2M2754

15) Disconnect spark plug cords from ignition coil and ignitor assembly.



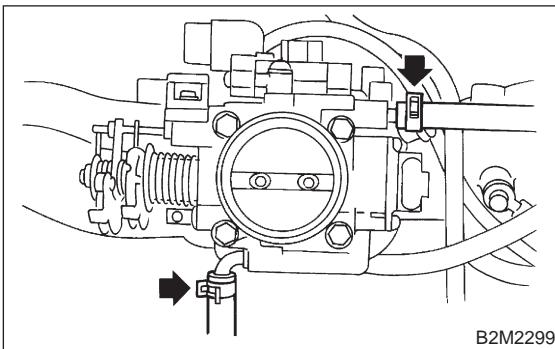
B2M2312

16) Disconnect PCV hose assembly from intake manifold.



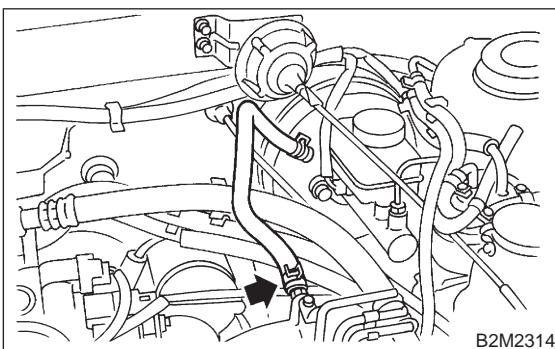
B2M2313

17) Disconnect engine coolant hoses from throttle body.



B2M2299

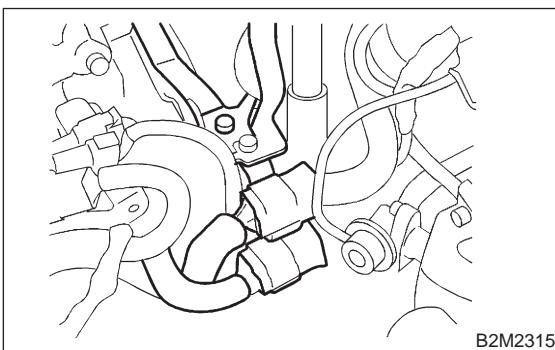
18) Disconnect brake booster hose.



B2M2314

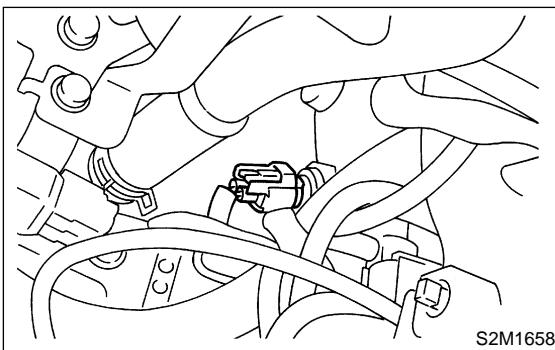
19) Remove air cleaner case stay RH and engine harness bracket, and disconnect engine harness connectors from bulkhead harness connectors.

20) Pull out engine harness connector from bracket.



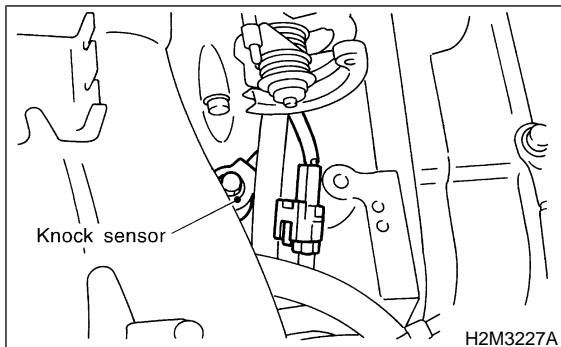
B2M2315

21) Disconnect connectors from engine coolant temperature sensor.



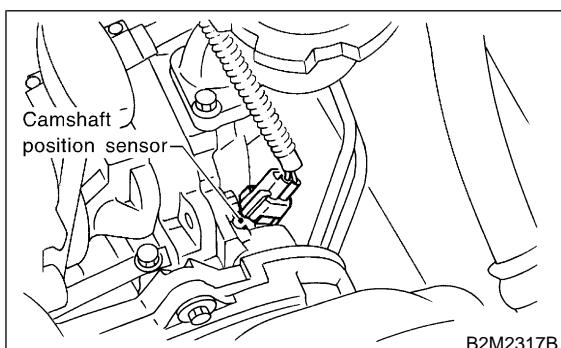
S2M1658

22) Disconnect knock sensor connector.



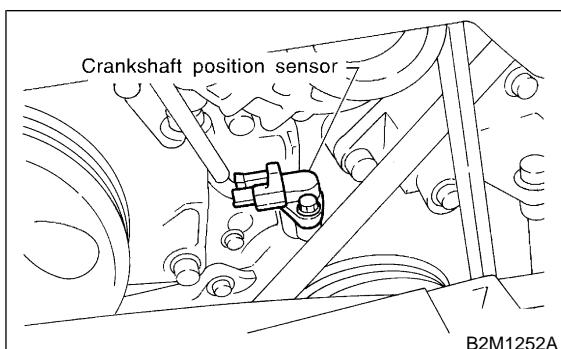
H2M3227A

23) Disconnect connector from camshaft position sensor.



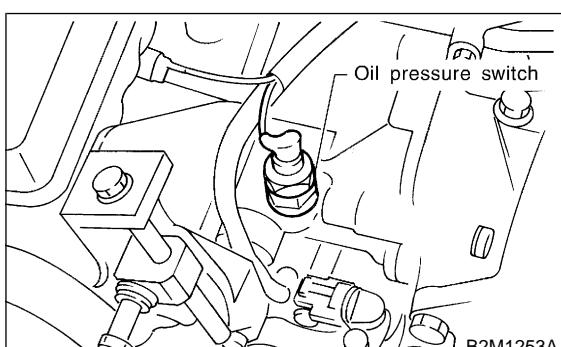
B2M2317B

24) Disconnect connector from crankshaft position sensor.



B2M1252A

25) Disconnect connector from oil pressure switch.

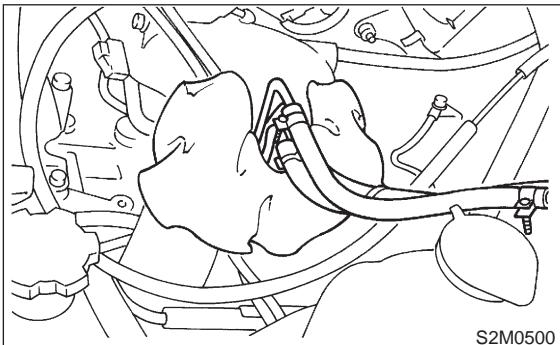


B2M1253A

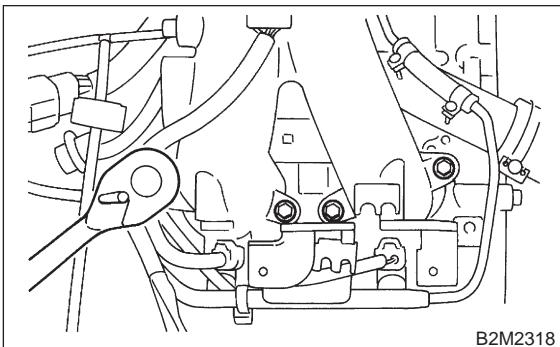
26) Disconnect fuel hoses from fuel pipes.

**WARNING:**

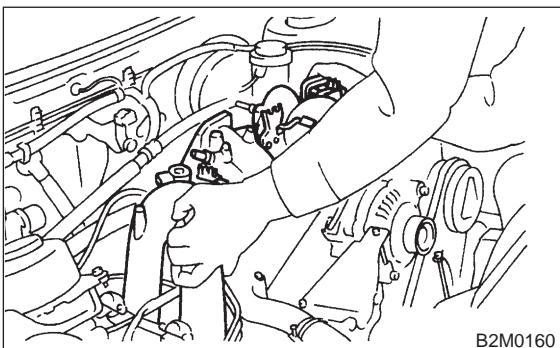
Catch fuel from hoses in a container.



27) Remove eight bolts which hold intake manifold onto cylinder heads.

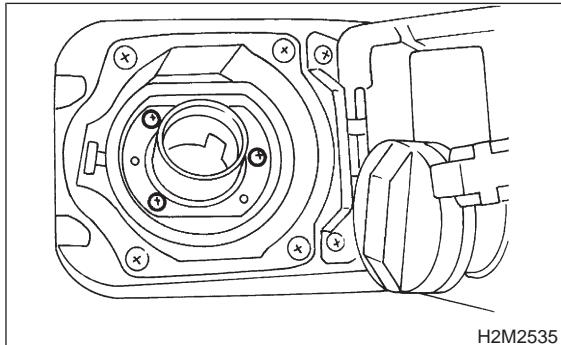


28) Remove intake manifold.

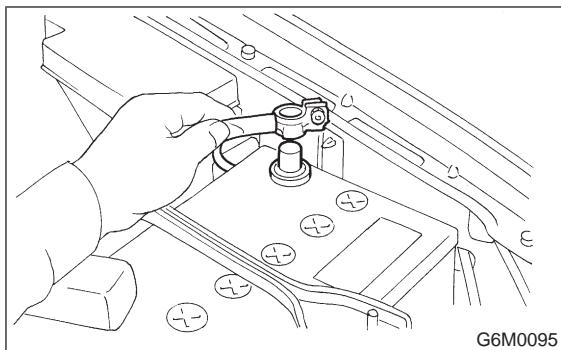


**2. EXCEPT 2200 cc CALIFORNIA SPEC. VEHICLES**

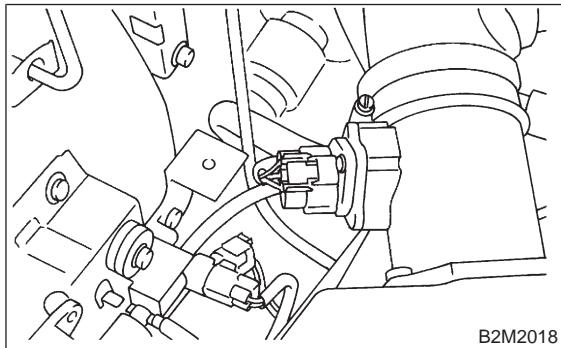
- 1) Release fuel pressure. <Ref. to 2-8 [W1B0].>
- 2) Open fuel flap lid, and remove fuel filler cap.



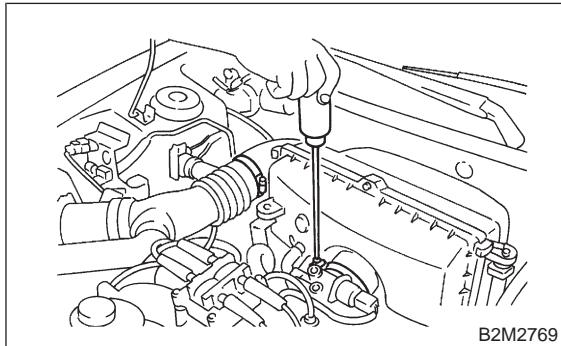
3) Disconnect battery ground cable.



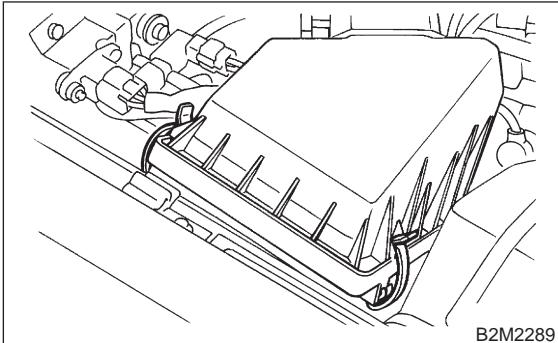
4) Disconnect connector from mass air flow sensor.



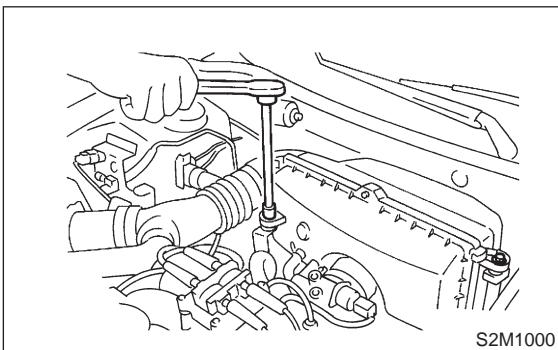
5) Loosen clamp which connects air intake chamber to throttle body.



6) Remove two clips of air cleaner upper cover.



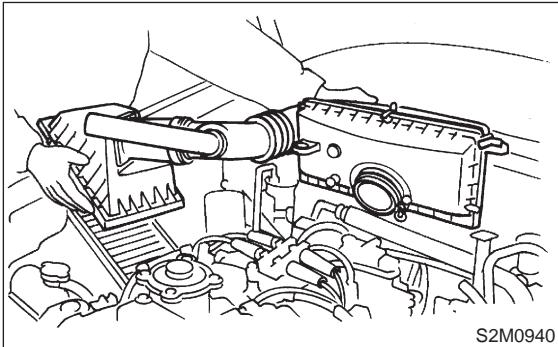
7) Remove bolts which install air intake chamber on stays.



8) Disconnect blow-by hose from air intake chamber.

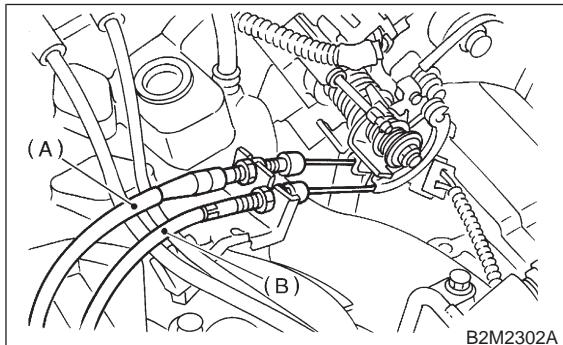
9) Remove air intake duct, air cleaner upper cover and air intake chamber as a unit.

10) Remove air cleaner element.



11) Disconnect accelerator cable (A).

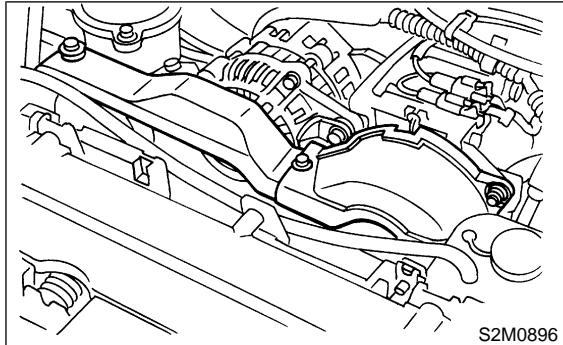
12) Disconnect cruise control cable (B). (With cruise control model)



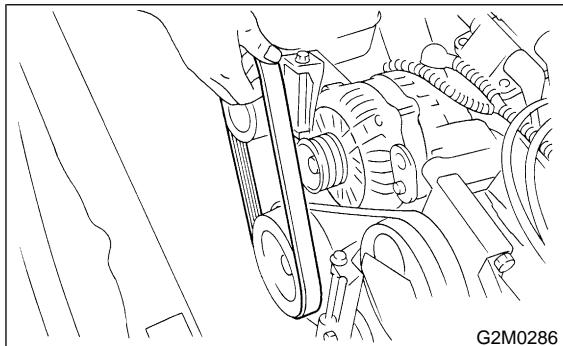
13) Disconnect vacuum hoses from pressure sources switching solenoid valve.

14) Remove power steering pump from bracket.

(1) Remove V-belt cover.



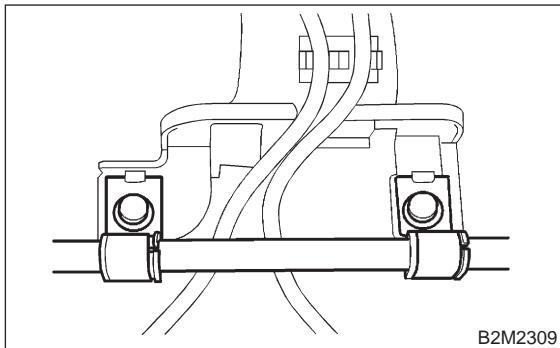
(2) Loosen lock bolt and slider bolt, and remove power steering pump drive V-belt.



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

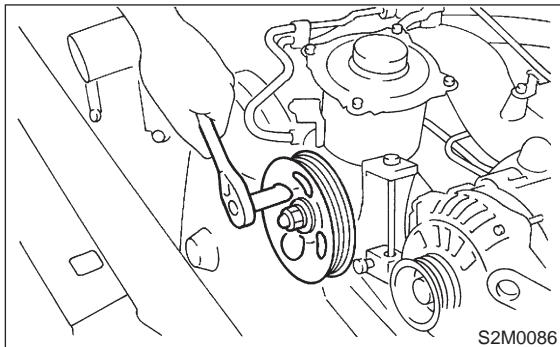
NOTE:

Do not disconnect power steering hose.



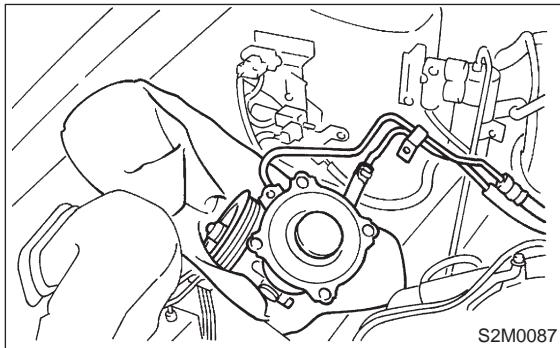
B2M2309

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



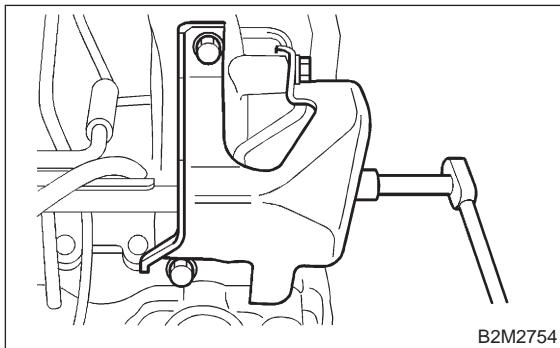
S2M0086

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



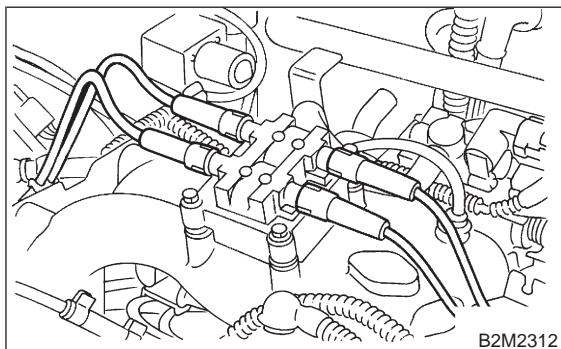
S2M0087

15) Remove fuel pipe protector.



B2M2754

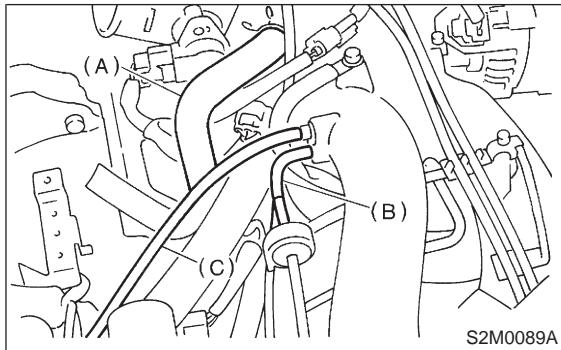
16) Disconnect spark plug cords from ignition coil and ignitor assembly.



B2M2312

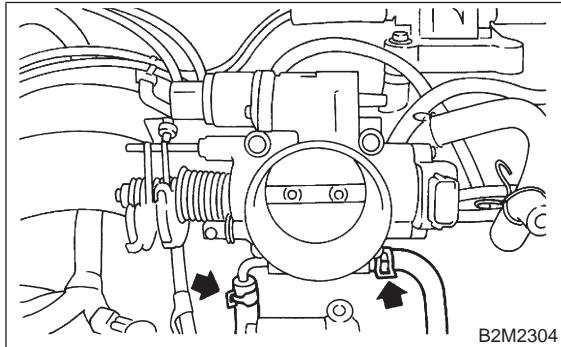
17) Disconnect PCV hose (A) and pressure regulator vacuum hose (B) from intake manifold.

18) Disconnect vacuum hose (C) to cruise control diaphragm. (With cruise control models)



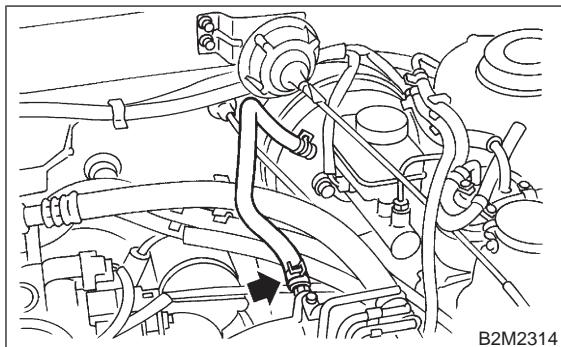
S2M0089A

19) Disconnect engine coolant hose from throttle body.



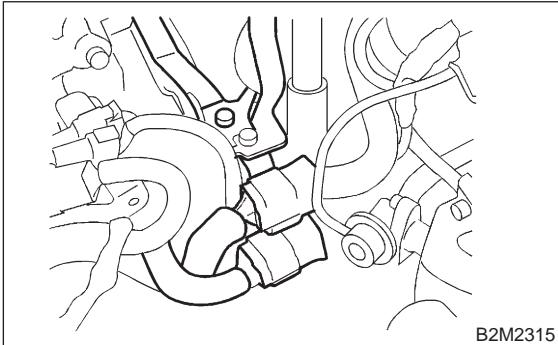
B2M2304

20) Disconnect brake booster hose.

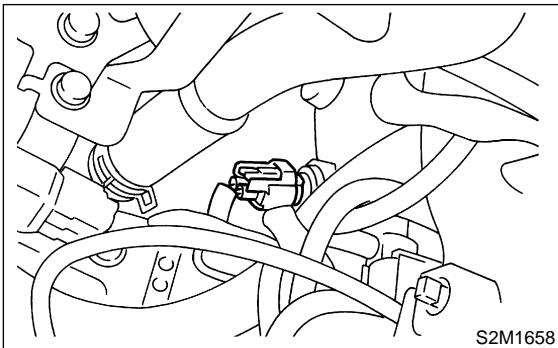


B2M2314

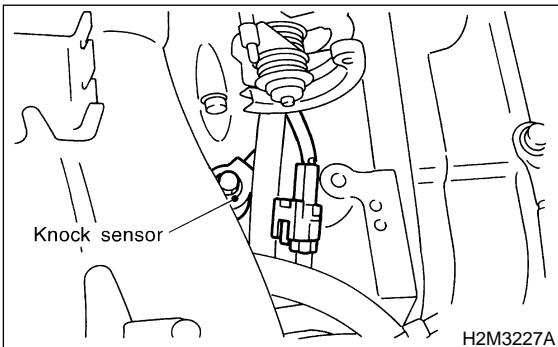
21) Remove air intake chamber stay RH, engine harness bracket from transmission housing, and disconnect engine harness connectors from bulkhead harness connectors.



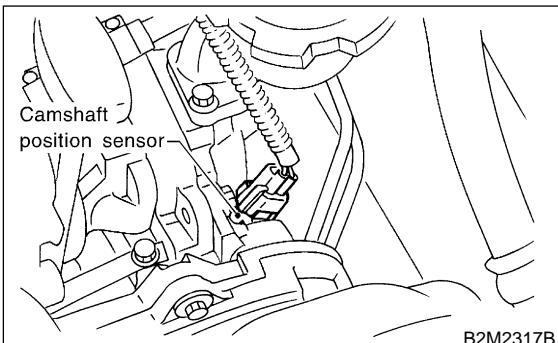
22) Disconnect connectors from engine coolant temperature sensor.



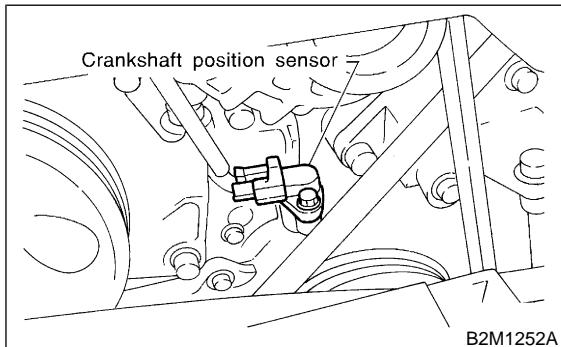
23) Disconnect knock sensor connector.



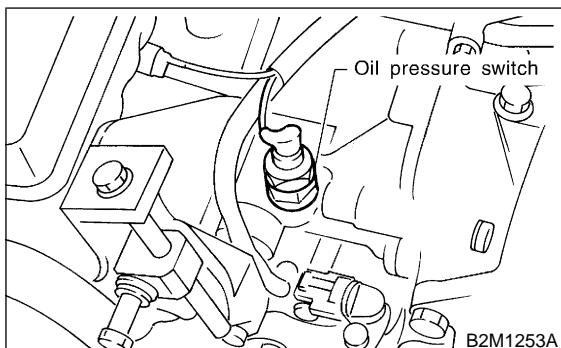
24) Disconnect connector from camshaft position sensor.



25) Disconnect connector from crankshaft position sensor.



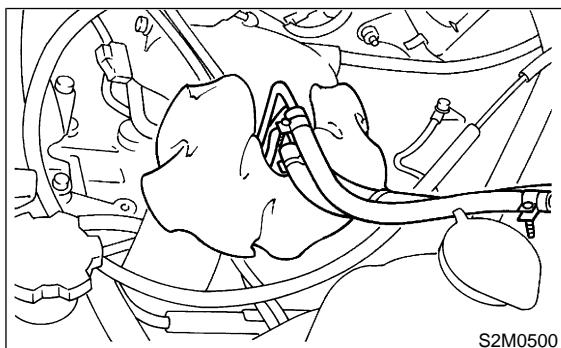
26) Disconnect connector from oil pressure switch.



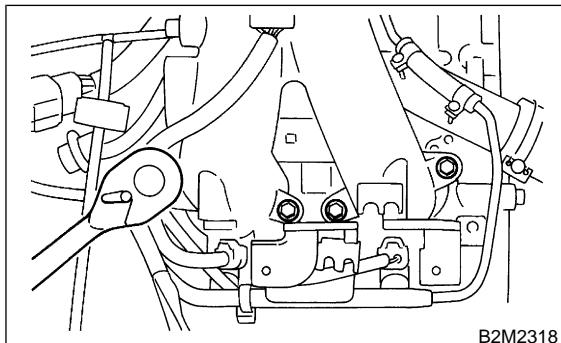
27) Disconnect fuel hoses from fuel pipes.

**WARNING:**

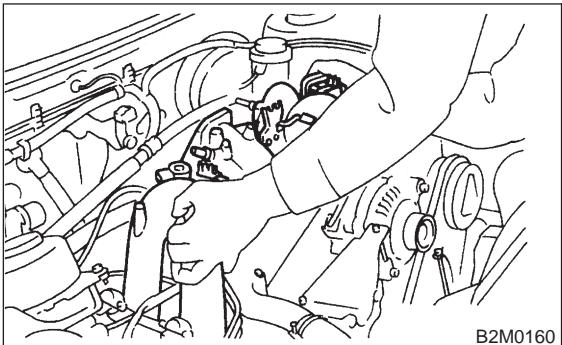
**Catch fuel from hoses in a container.**



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



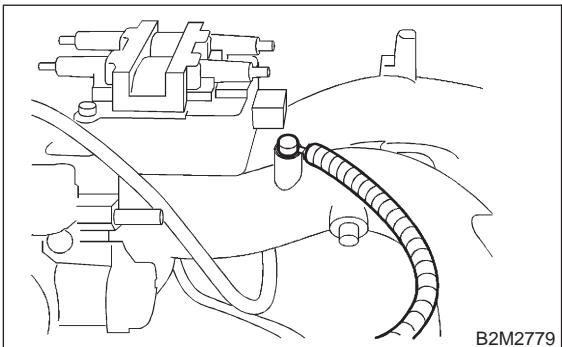
29) Remove intake manifold.



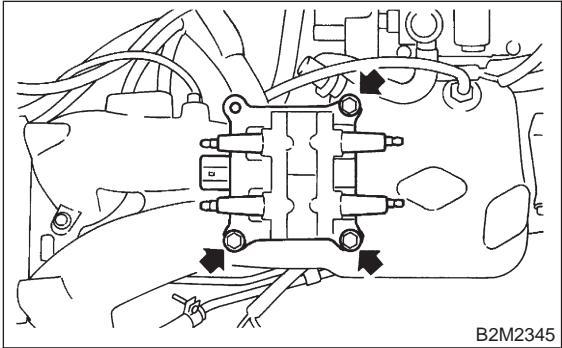
## B: DISASSEMBLY

### 1. 2200 cc CALIFORNIA SPEC. VEHICLES

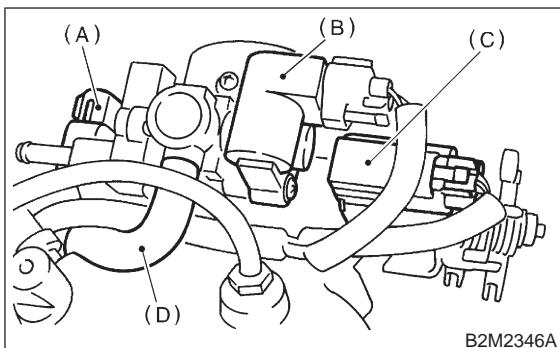
1) Disconnect engine ground terminal from intake manifold.



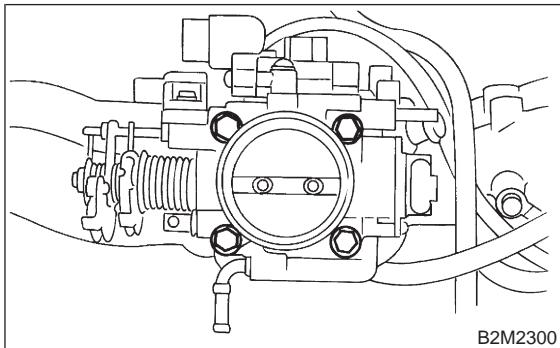
2) Disconnect connector from ignition coil and ignitor assembly.  
 3) Remove ignition coil and ignitor assembly.



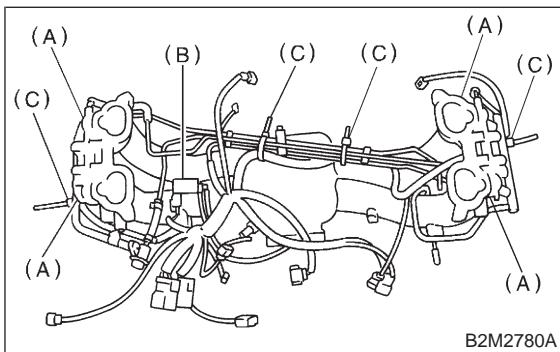
4) Disconnect connectors from throttle position sensor (A), idle air control solenoid valve (B) and intake manifold pressure sensor (C).  
 5) Disconnect air by-pass hose (D) from idle air control solenoid valve.



6) Remove throttle body.

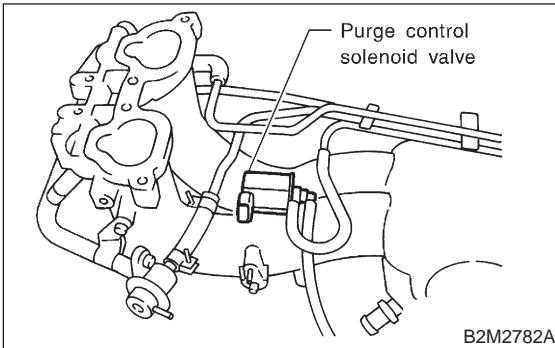


7) Disconnect connectors from fuel injectors, and purge control solenoid valve.  
 8) Remove harness bands which hold engine harness onto intake manifold.  
 9) Remove engine harness from intake manifold.

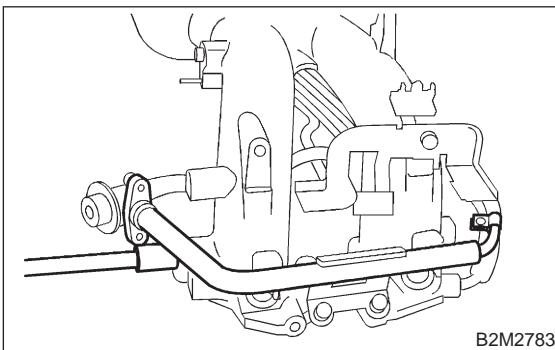


(A) Fuel injector  
 (B) Purge control solenoid valve  
 (C) Harness band

10) Remove purge control solenoid valve.



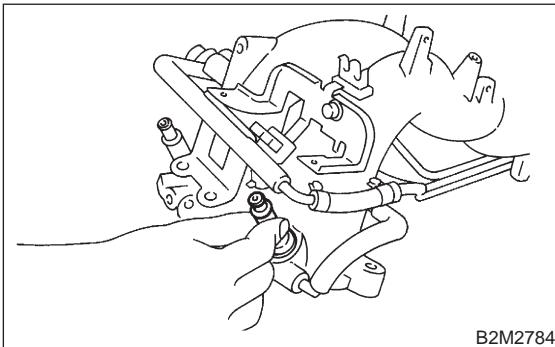
11) Remove bolts which install injector pipe on intake manifold.



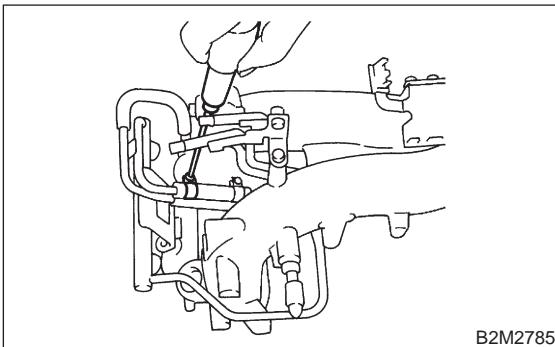
12) Remove fuel injectors.

**CAUTION:**

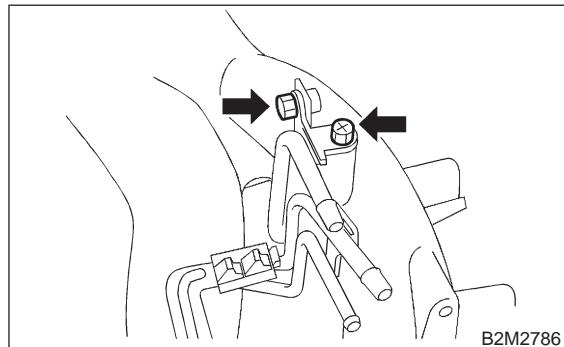
Replace o-rings and insulators with new ones.



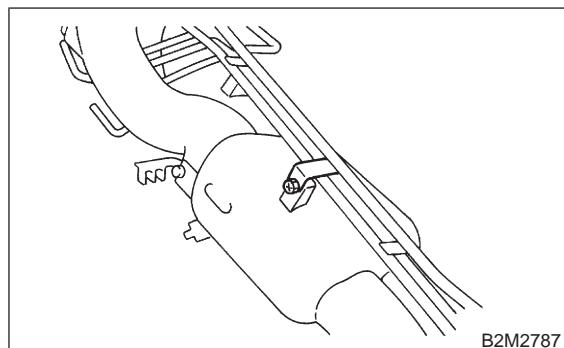
13) Loosen clamp which holds front left side fuel hose to injector pipe.



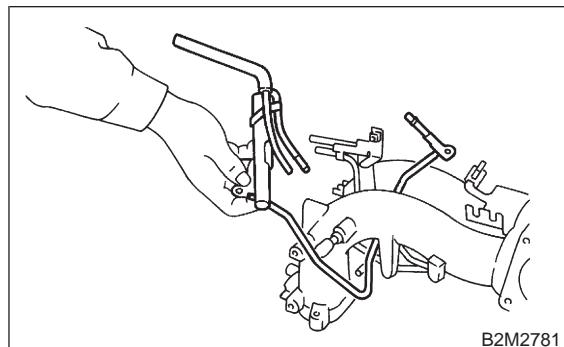
14) Remove bolts which hold fuel pipes on the left side of intake manifold.



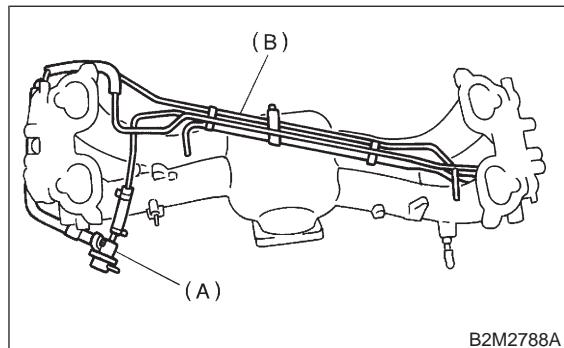
15) Remove two bolts which install fuel pipes on intake manifold.



16) Remove fuel injector pipe.



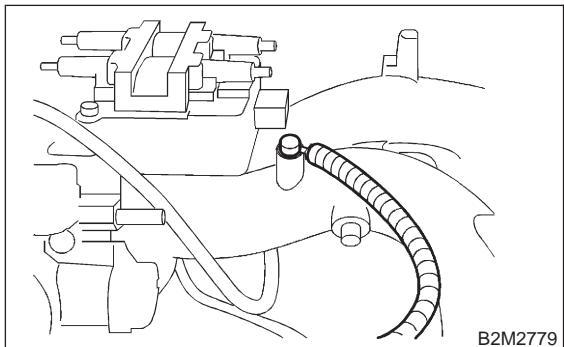
17) Remove fuel pipes, etc. from intake manifold.



(A) Pressure regulator  
(B) Fuel pipe ASSY

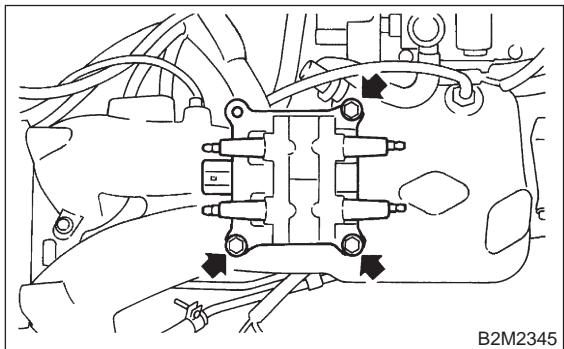
## 2. EXCEPT 2200 cc CALIFORNIA SPEC. VEHICLES

1) Remove engine ground terminal from intake manifold.

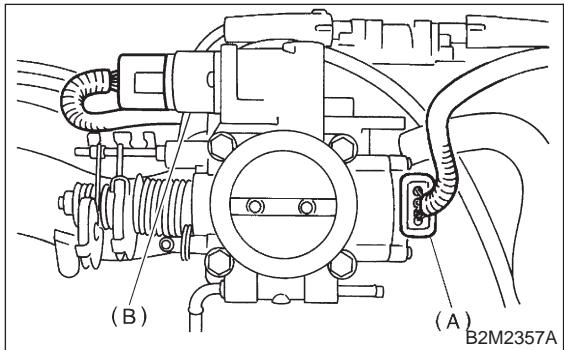


2) Disconnect connector from ignition coil and ignitor assembly.

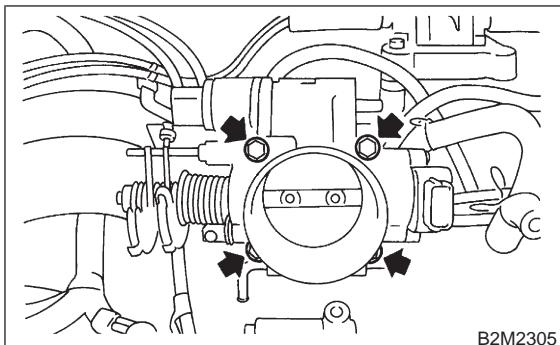
3) Remove ignition coil and ignitor assembly.



4) Disconnect connectors from throttle position sensor (A) and idle air control solenoid valve (B).



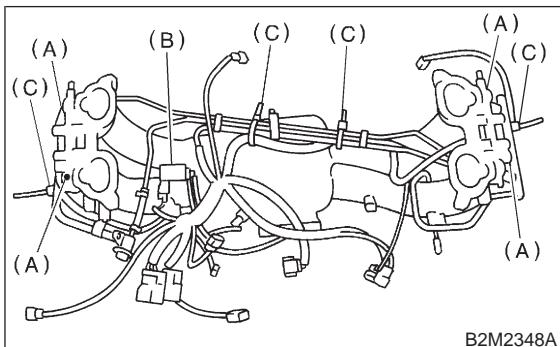
5) Remove throttle body.



6) Disconnect connectors from fuel injectors, and purge control solenoid valve.

7) Remove harness bands which hold engine harness onto intake manifold.

8) Remove engine harness from intake manifold.

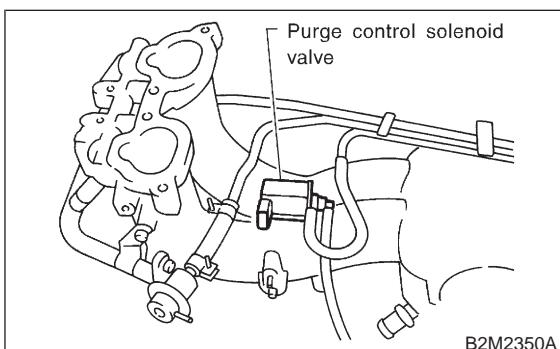


(A) Fuel injector

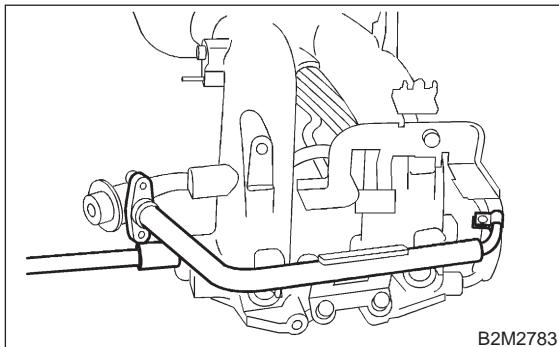
(B) Purge control solenoid valve

(C) Harness band

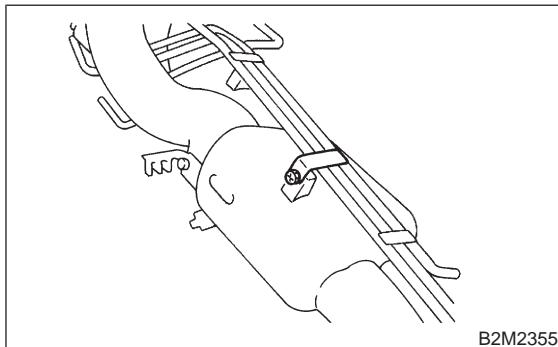
9) Remove purge control solenoid valve.



10) Remove bolts which install injector pipe on intake manifold.



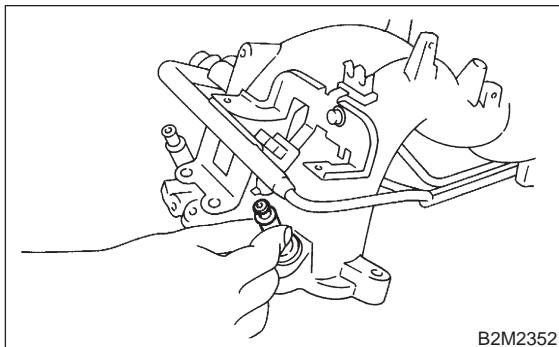
14) Remove two bolts which install fuel pipes on intake manifold.



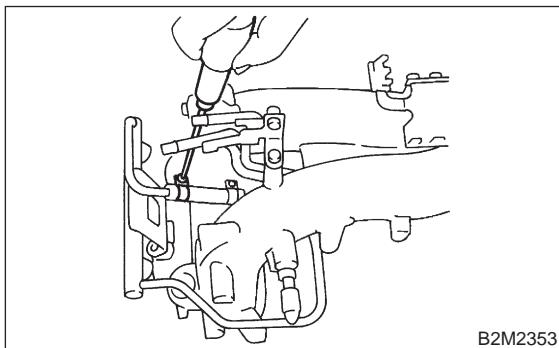
11) Remove fuel injectors.

**CAUTION:**

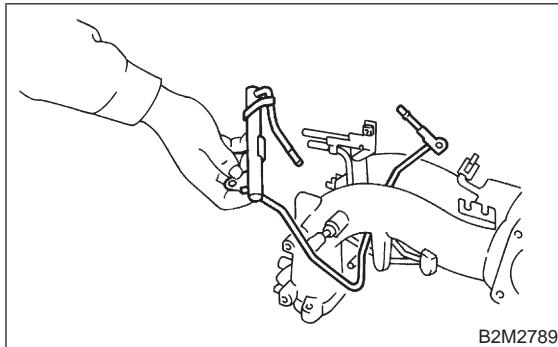
Replace o-rings and insulators with new ones.



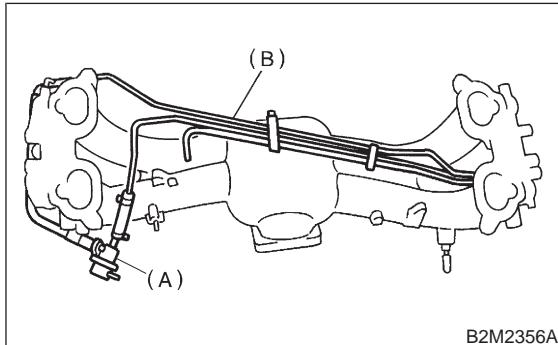
12) Loosen clamp which holds front left side fuel hose to injector pipe.



15) Remove fuel injector pipe.



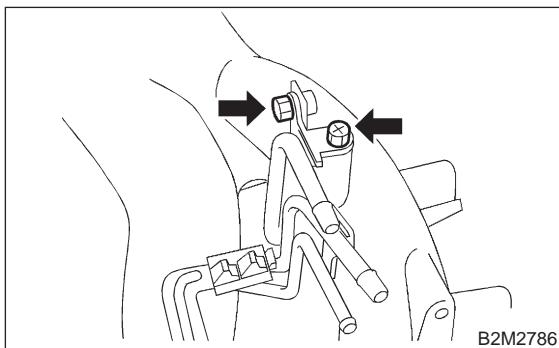
16) Remove fuel pipes, etc. from intake manifold.



(A) Pressure regulator

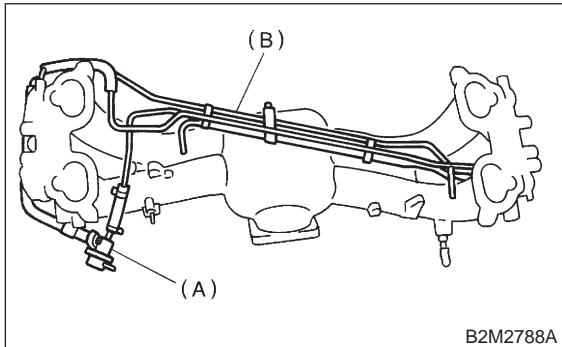
(B) Fuel pipe ASSY

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



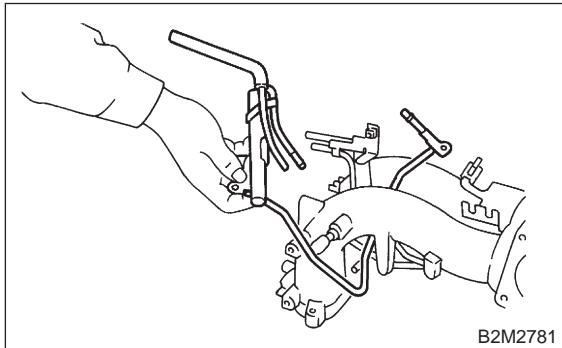
**C: ASSEMBLY****1. 2200 cc CALIFORNIA SPEC. VEHICLES**

1) Assemble fuel pipes, etc. to intake manifold.

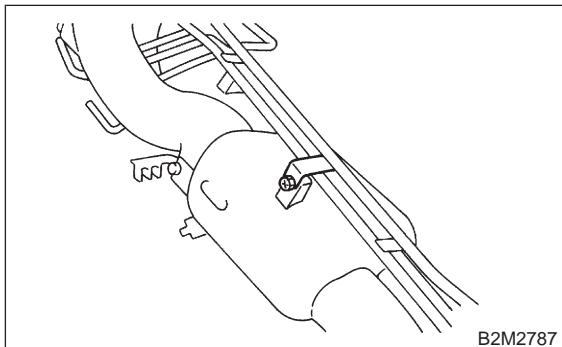


(A) Pressure regulator  
(B) Fuel pipe ASSY

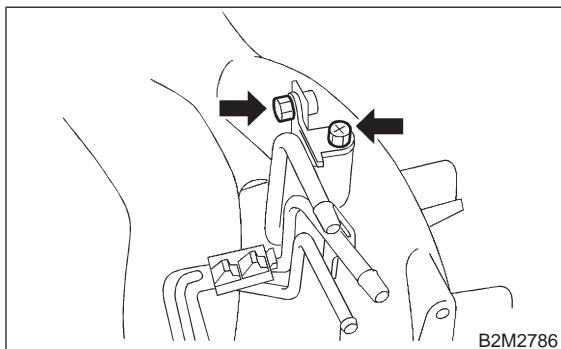
2) Install fuel injector pipe.



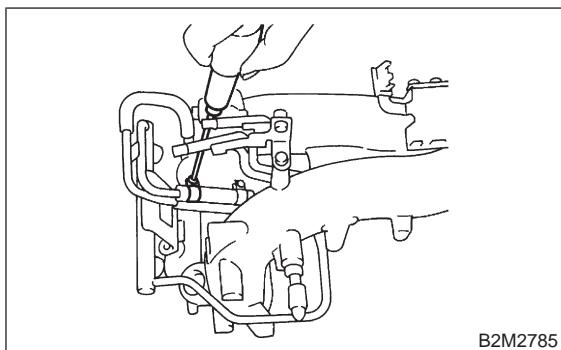
3) Tighten two bolts which install fuel pipes on intake manifold.



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



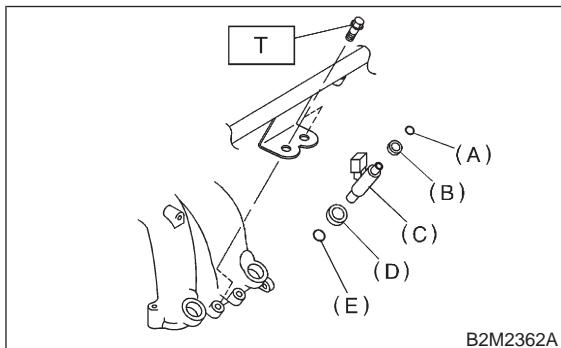
5) Connect left side fuel hose to injector pipe, and tighten clamp screw.



6) Install fuel injectors.

**CAUTION:**

**Always use new o-rings and insulators.**

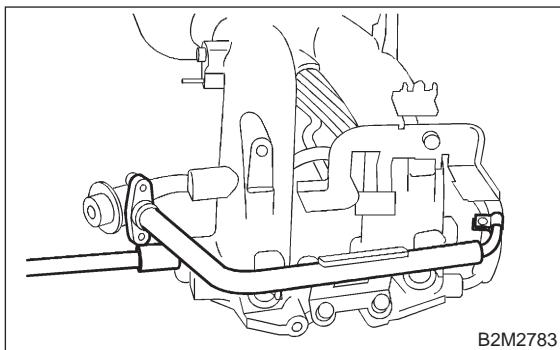


(A) O-ring A  
(B) Insulator A  
(C) Fuel injector  
(D) Insulator B  
(E) O-ring B

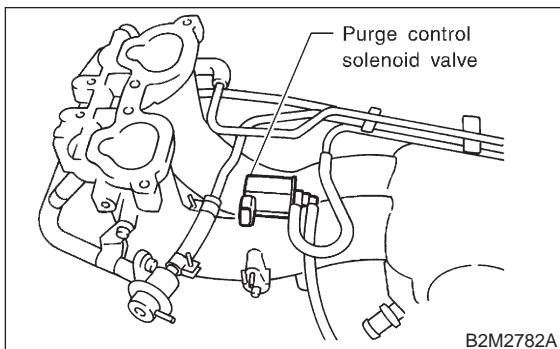
7) Tighten bolts which install injector pipe on intake manifold.

**Tightening torque:**

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



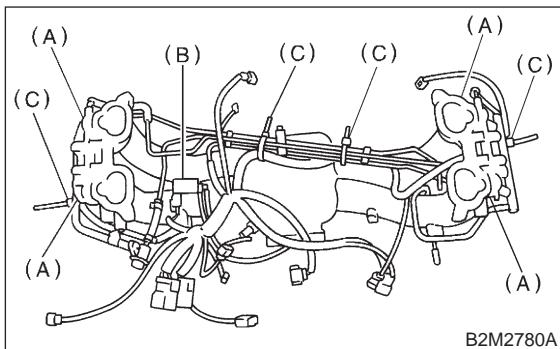
8) Install purge control solenoid valve.



9) Install engine harness onto intake manifold.

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

11) Hold engine harness by harness bands.



(A) Fuel injector

(B) Purge control solenoid valve

(C) Harness band

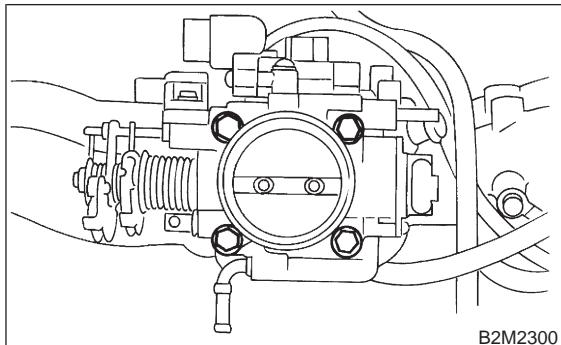
12) Assemble throttle body to intake manifold.

**CAUTION:**

Replace gasket with a new one.

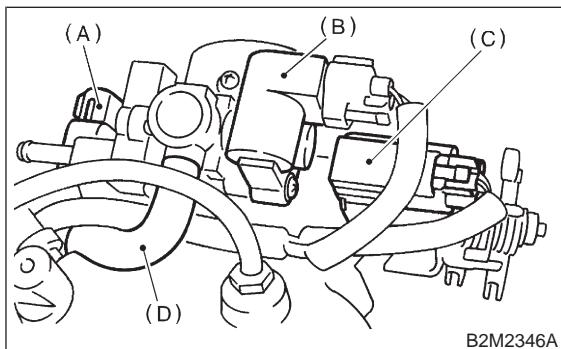
**Tightening torque:**

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



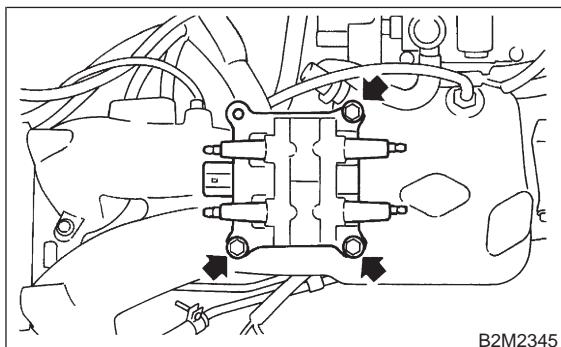
13) Connect connectors to throttle position sensor (A), idle air control solenoid valve (B) and intake manifold pressure sensor (C).

14) Connect air by-pass hose (D) to idle air control solenoid valve.



15) Install ignition coil and ignitor assembly.

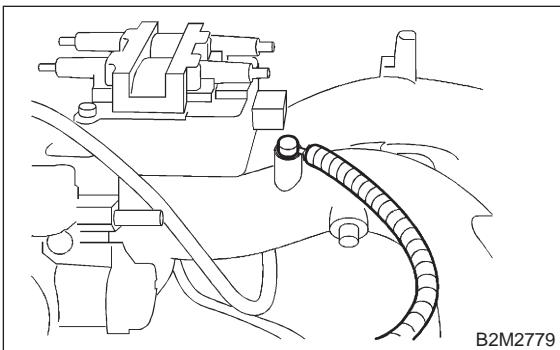
16) Connect connector to ignition coil and ignitor assembly.



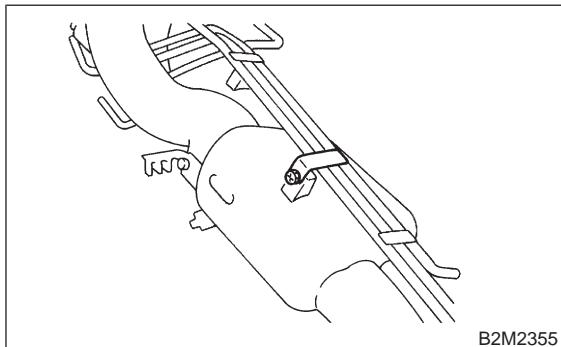
17) Install engine ground terminal to intake manifold.

**Tightening torque:**

$18.6 \pm 1.5 \text{ N}\cdot\text{m}$  ( $1.9 \pm 0.15 \text{ kg}\cdot\text{m}$ ,  $13.7 \pm 1.1 \text{ ft-lb}$ )

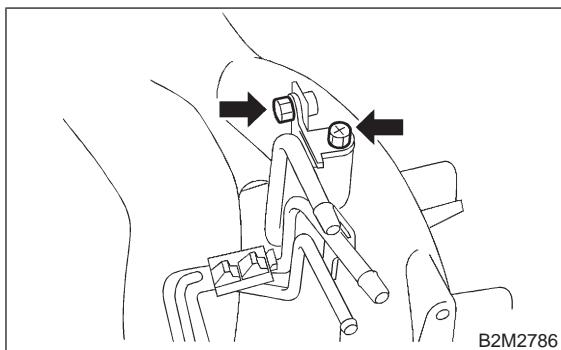


3) Tighten two bolts which install fuel pipes on intake manifold.



B2M2355

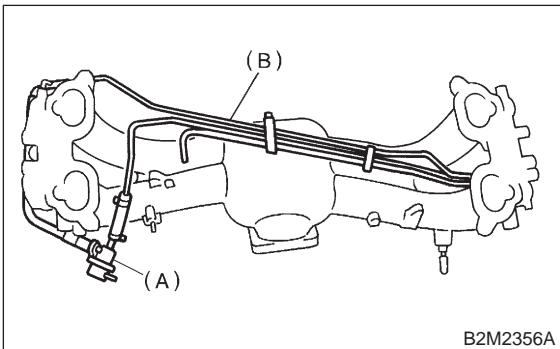
4) Tighten two bolts which install fuel pipes on the left side of intake manifold.



B2M2786

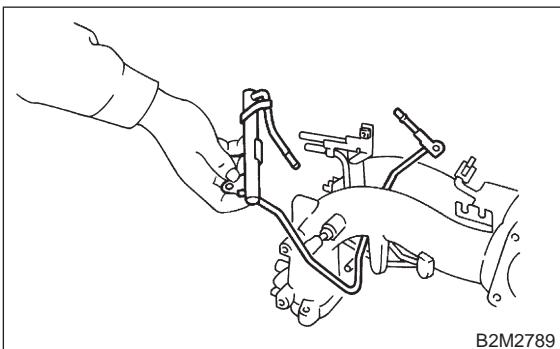
**2. EXCEPT 2200 cc CALIFORNIA SPEC. VEHICLES**

1) Assemble fuel pipes, etc. to intake manifold.

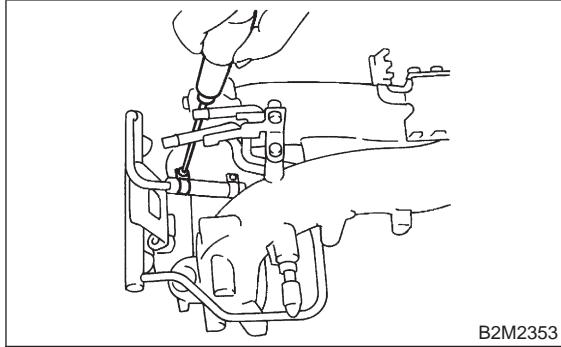


(A) Pressure regulator  
(B) Fuel pipe ASSY

2) Install fuel injector pipe.



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

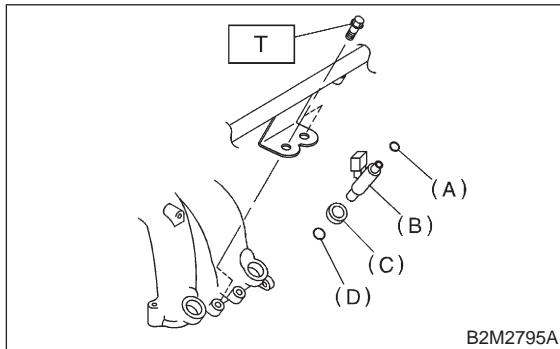


B2M2353

6) Install fuel injectors.

**CAUTION:**

Always use new o-rings and insulators.

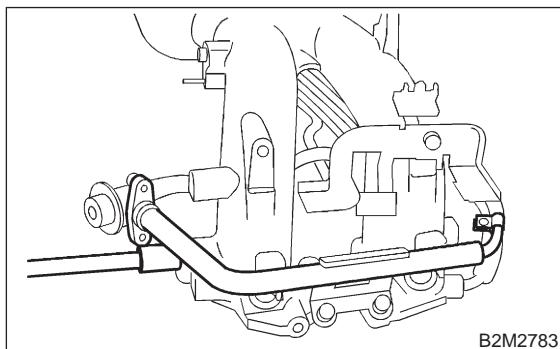


- (A) O-ring A
- (B) Fuel injector
- (C) Insulator
- (D) O-ring B

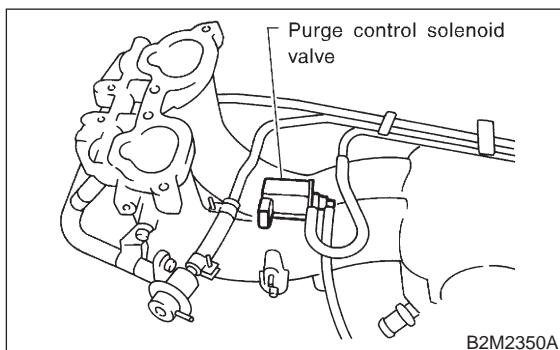
7) Tighten bolts which install injector pipe on intake manifold.

**Tightening torque:**

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



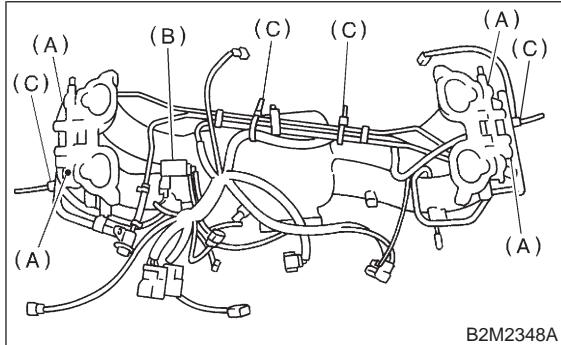
8) Install purge control solenoid valve.



9) Install engine harness onto intake manifold.

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

11) Hold engine harness by harness bands.



- (A) Fuel injector
- (B) Purge control solenoid valve
- (C) Harness band

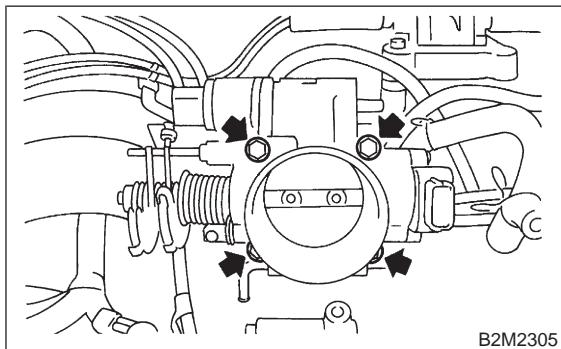
12) Assemble throttle body to intake manifold.

**CAUTION:**

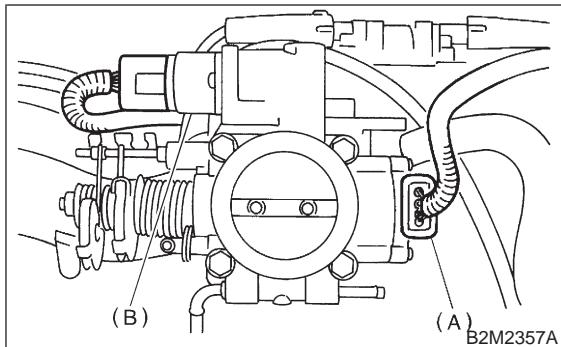
Replace gasket with a new one.

**Tightening torque:**

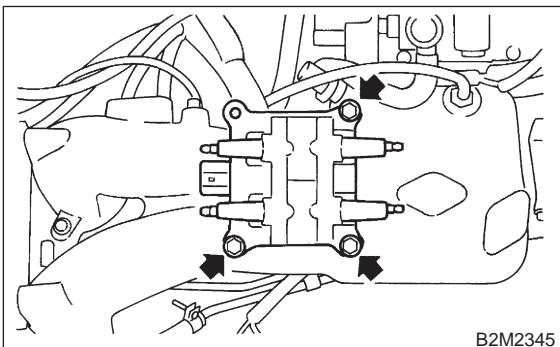
$22 \pm 2 \text{ N}\cdot\text{m}$  ( $2.2 \pm 0.2 \text{ kg}\cdot\text{m}$ ,  $15.9 \pm 1.4 \text{ ft-lb}$ )



13) Connect connectors to throttle position sensor (A) and idle air control solenoid valve (B).



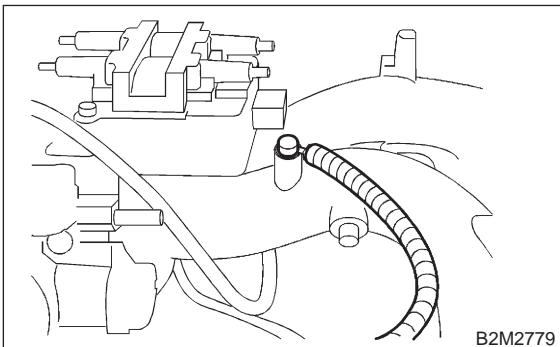
14) Install ignition coil and ignitor assembly.  
15) Connect connector to ignition coil and ignitor assembly.



16) Install engine ground terminal to intake manifold.

**Tightening torque:**

$18.6 \pm 1.5 \text{ N}\cdot\text{m}$  ( $1.9 \pm 0.15 \text{ kg}\cdot\text{m}$ ,  $13.7 \pm 1.1 \text{ ft-lb}$ )



## D: INSTALLATION

### 1. 2200 cc CALIFORNIA SPEC. VEHICLES

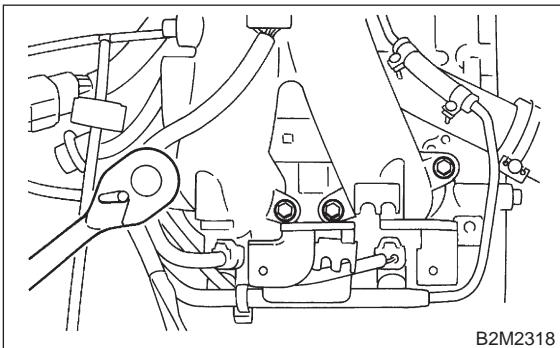
1) Install intake manifold onto cylinder heads.

**CAUTION:**

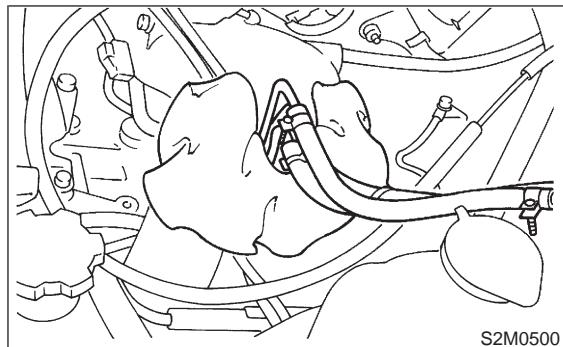
Always use new gaskets.

**Tightening torque:**

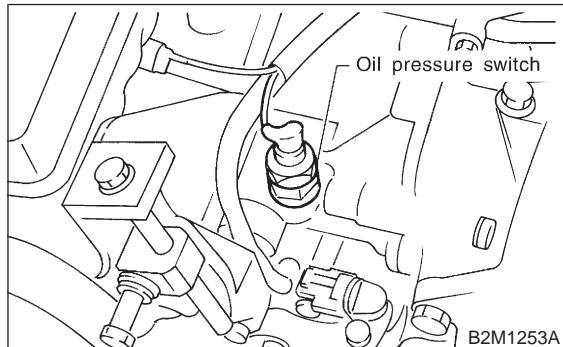
$25 \pm 2 \text{ N}\cdot\text{m}$  ( $2.5 \pm 0.2 \text{ kg}\cdot\text{m}$ ,  $18.1 \pm 1.4 \text{ ft-lb}$ )



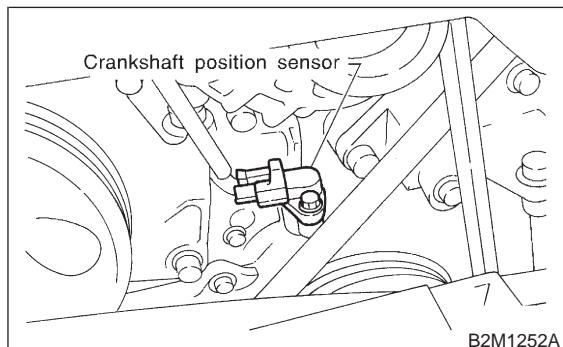
2) Connect fuel hoses.



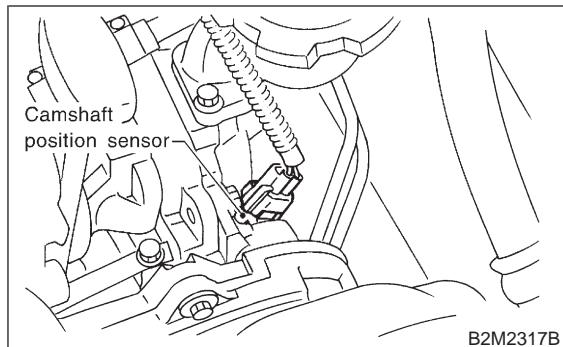
3) Connect connector to oil pressure switch.



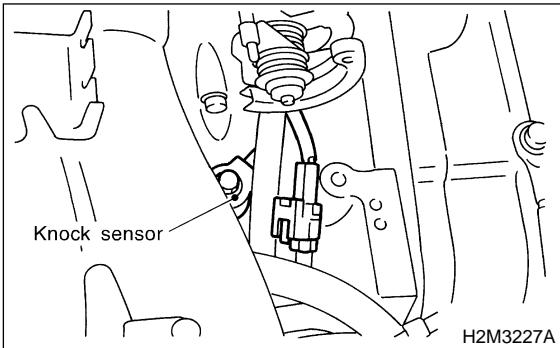
4) Connect connector to crankshaft position sensor.



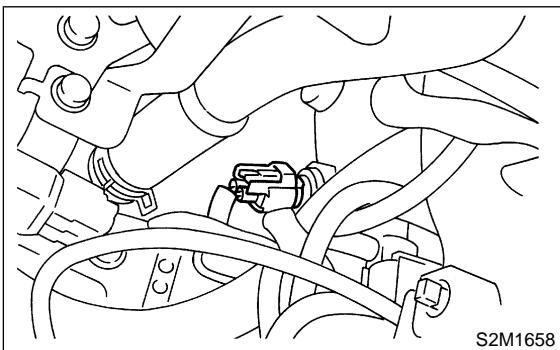
5) Connect connector to camshaft position sensor.



6) Connect knock sensor connector.

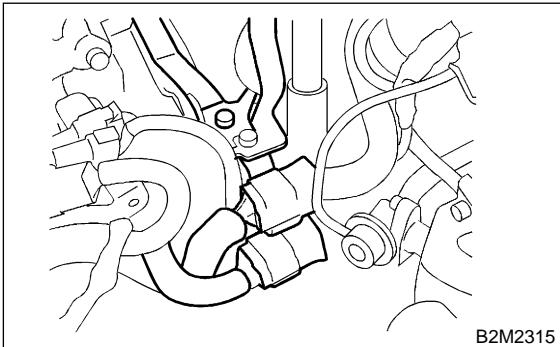


7) Connect connectors to engine coolant temperature sensor.

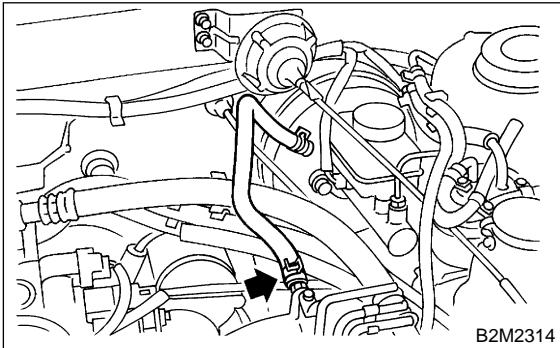


8) Hold engine harness connector onto bracket.

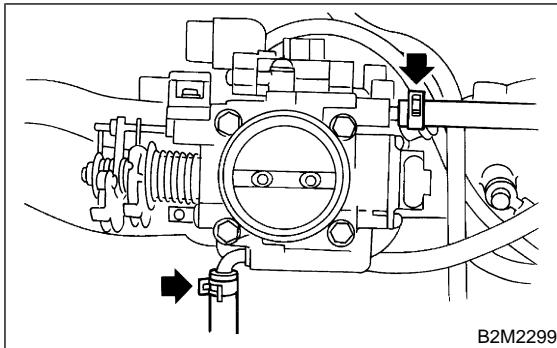
9) Install air cleaner case stay RH and engine harness bracket, and connect engine harness connectors to bulkhead connectors.



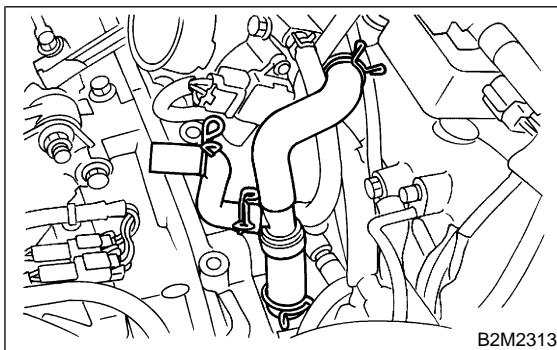
10) Connect brake booster hose.



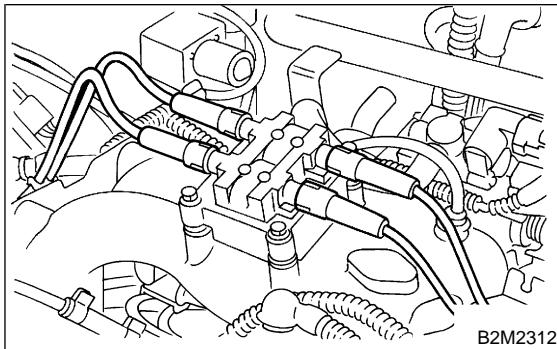
11) Connect engine coolant hose to throttle body.



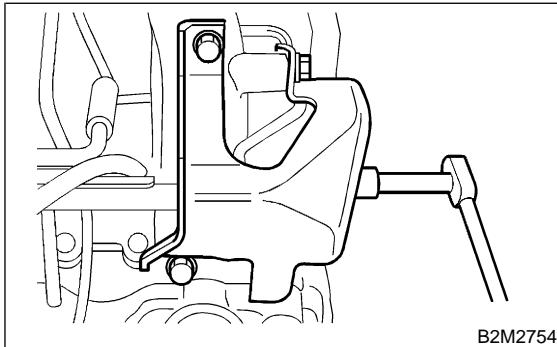
12) Connect PCV hose and pressure regulator vacuum hose to intake manifold.



13) Connect spark plug cords to ignition coil and ignitor assembly.



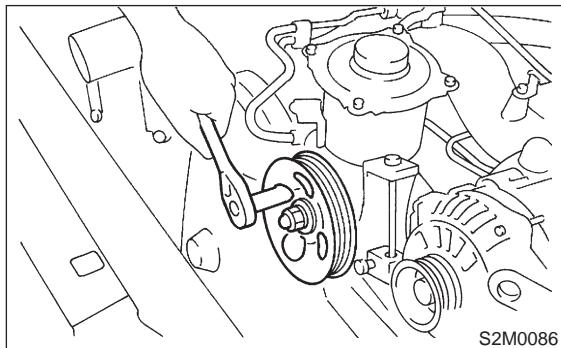
14) Install fuel protector.



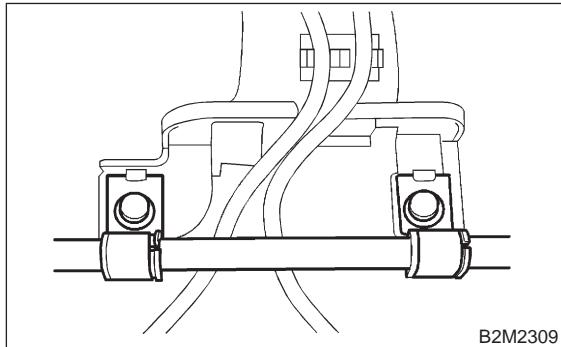
15) Install power steering pump on bracket.  
 (1) Tighten bolts which install power steering pump on bracket.

**Tightening torque:**

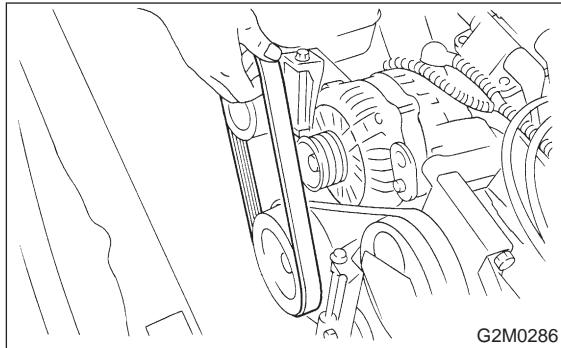
**$20.1 \pm 2.5 \text{ N}\cdot\text{m}$  ( $2.05 \pm 0.25 \text{ kg}\cdot\text{m}$ ,  $14.8 \pm 1.8 \text{ ft}\cdot\text{lb}$ )**



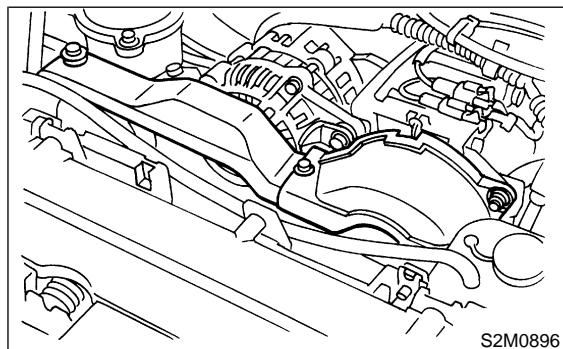
(2) Install power steering pipe brackets on the right side of intake manifold.



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



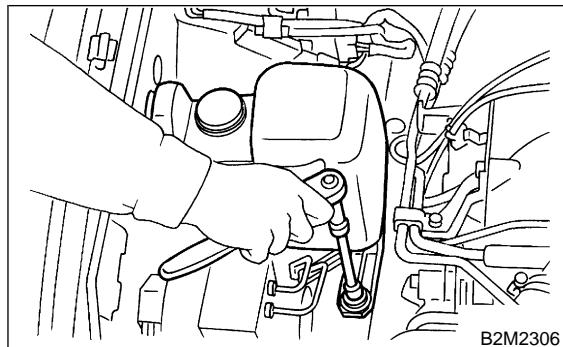
(4) Adjust V-belt. <Ref. to 1-5 [G200].>  
 (5) Install V-belt covers.



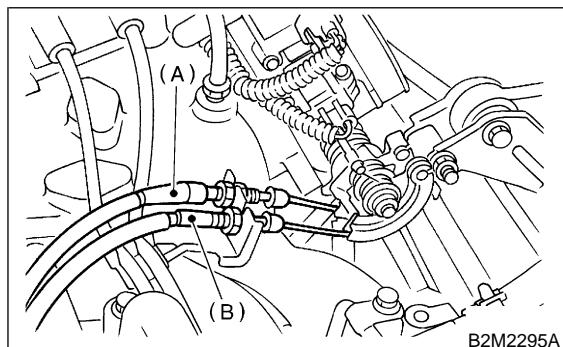
(6) Install resonator chamber.

**Tightening torque:**

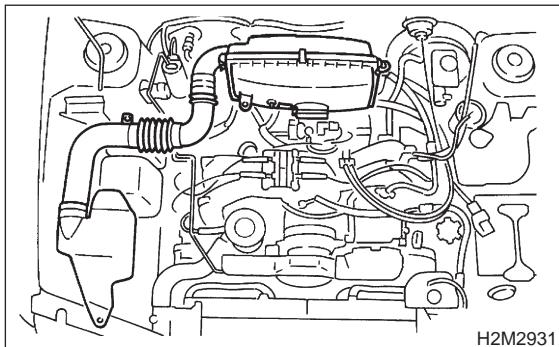
**$7.4 \pm 2.0 \text{ N}\cdot\text{m}$  ( $0.75 \pm 0.2 \text{ kg}\cdot\text{m}$ ,  $5.4 \pm 1.4 \text{ ft}\cdot\text{lb}$ )**



16) Connect accelerator cable (A).  
 17) Connect cruise control cable (B). (With cruise control models)



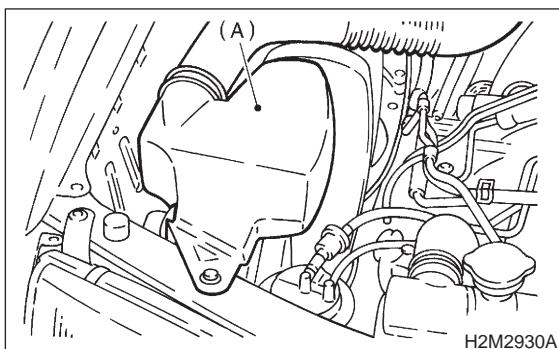
18) Install air cleaner case and air intake duct as a unit.



19) Tighten bolt which installs air intake duct (A) on the front side of body.

**Tightening torque:**

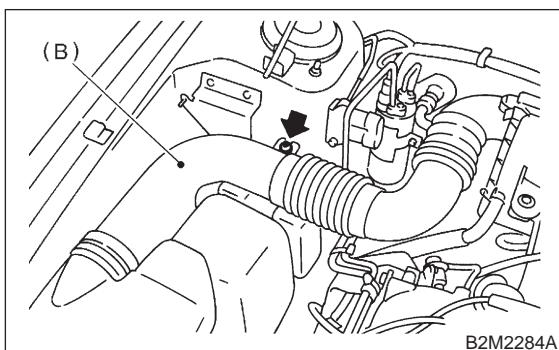
$7.4 \pm 2.0 \text{ N}\cdot\text{m} (0.75 \pm 0.2 \text{ kg}\cdot\text{m}, 5.4 \pm 1.4 \text{ ft-lb})$



20) Tighten bolt which installs air intake duct (B) on body.

**Tightening torque:**

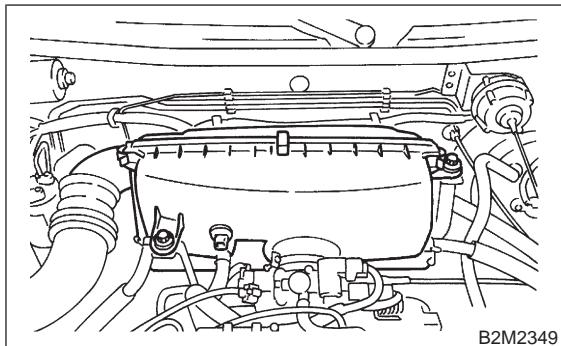
$7.4 \pm 2.0 \text{ N}\cdot\text{m} (0.75 \pm 0.2 \text{ kg}\cdot\text{m}, 5.4 \pm 1.4 \text{ ft-lb})$



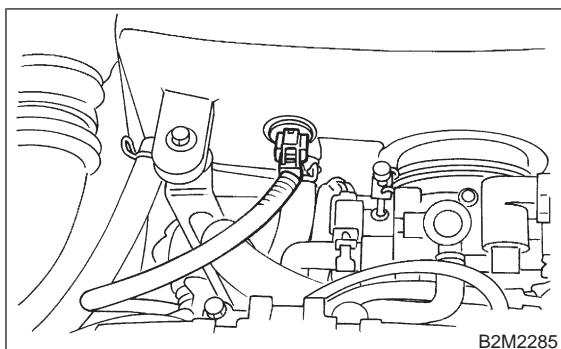
21) Tighten bolts which install air cleaner case to stays.

**Tightening torque:**

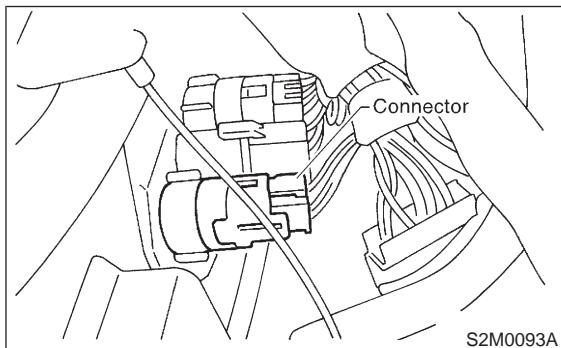
$4.9 \pm 0.5 \text{ N}\cdot\text{m} (0.5 \pm 0.05 \text{ kg}\cdot\text{m}, 3.6 \pm 0.4 \text{ ft-lb})$



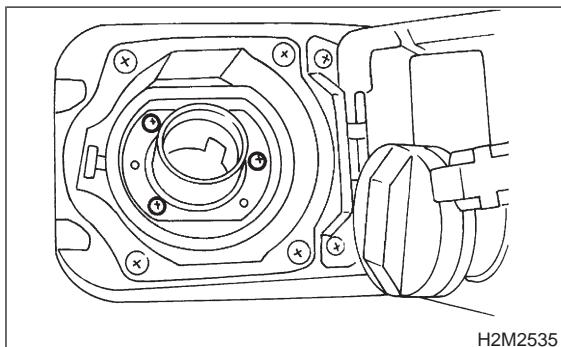
22) Connect connector to intake air temperature sensor.



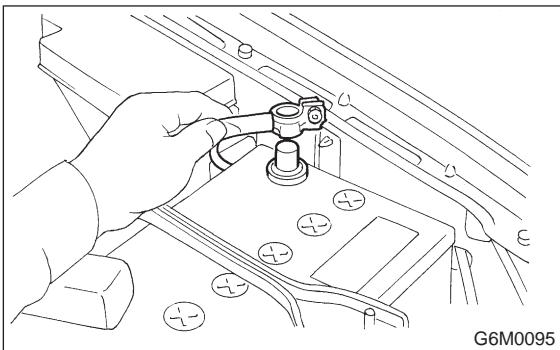
23) Connect connector to fuel pump relay.



24) Install fuel filler cap.



25) Connect battery ground cable.



## 2. EXCEPT 2200 cc CALIFORNIA SPEC. VEHICLES

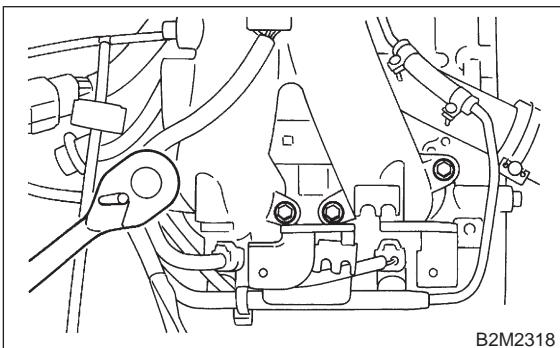
1) Install intake manifold onto cylinder heads.

**CAUTION:**

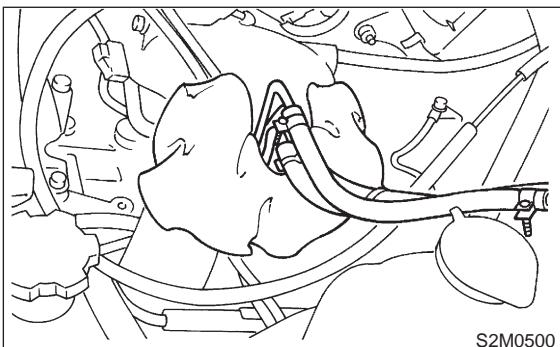
Always use new gaskets.

**Tightening torque:**

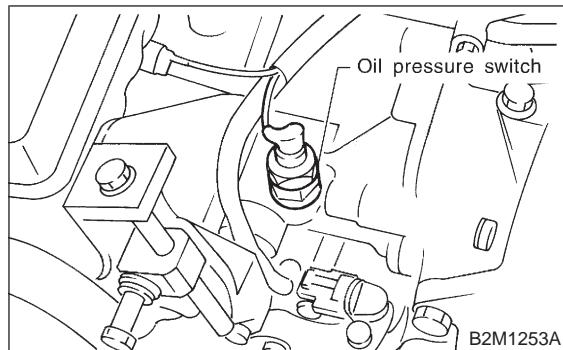
$25 \pm 2 \text{ N}\cdot\text{m}$  ( $2.5 \pm 0.2 \text{ kg}\cdot\text{m}$ ,  $18.1 \pm 1.4 \text{ ft}\cdot\text{lb}$ )



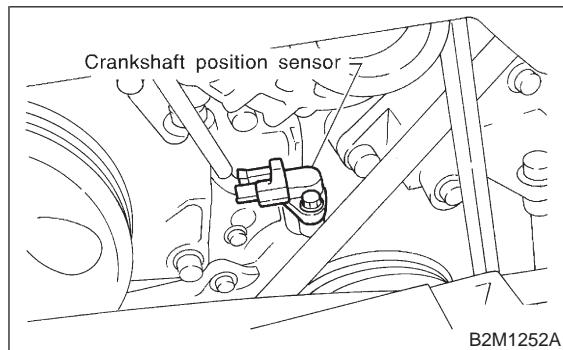
2) Connect fuel hoses.



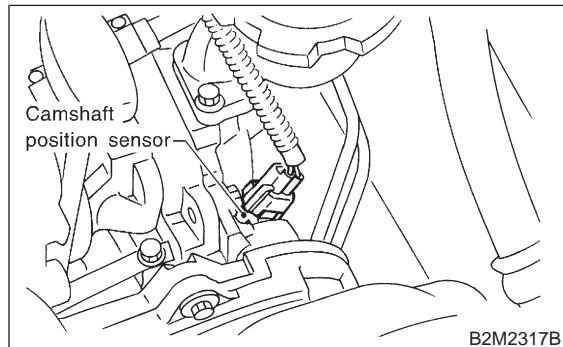
3) Connect connector to oil pressure switch.



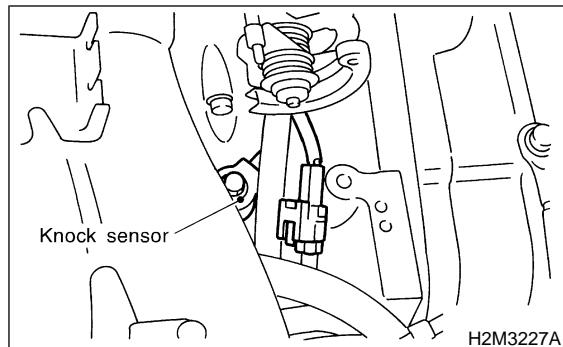
4) Connect connector to crankshaft position sensor.



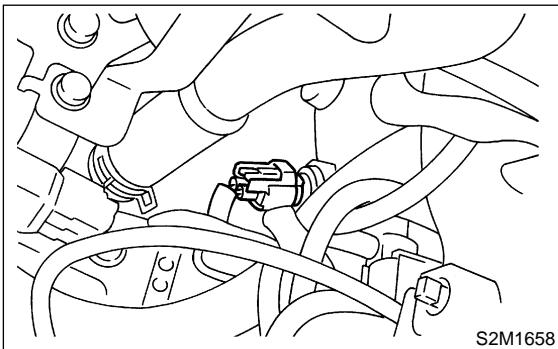
5) Connect connector to camshaft position sensor.



6) Connect knock sensor connector.

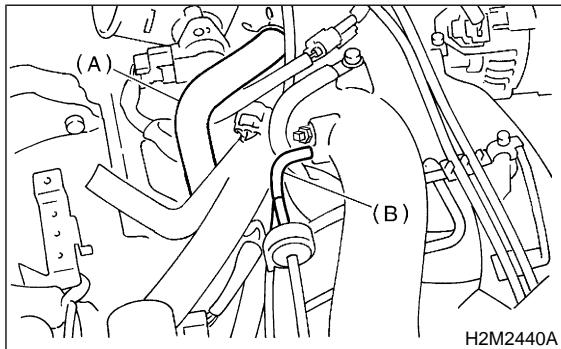


7) Connect connectors to engine coolant temperature sensor.



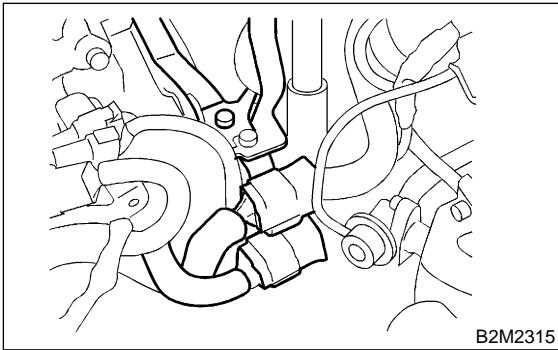
S2M1658

11) Connect PCV hose (A) and vacuum hose (B) to intake manifold.



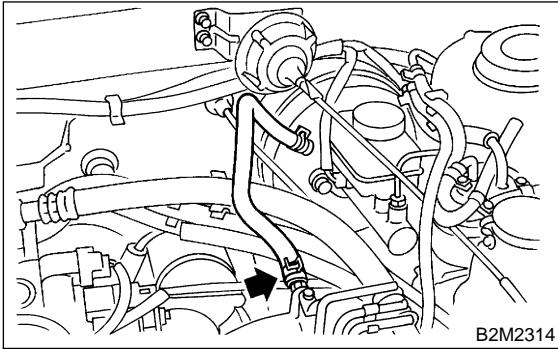
H2M2440A

8) Install air intake chamber stay RH and engine harness bracket, and connect engine harness connectors to bulkhead connectors.



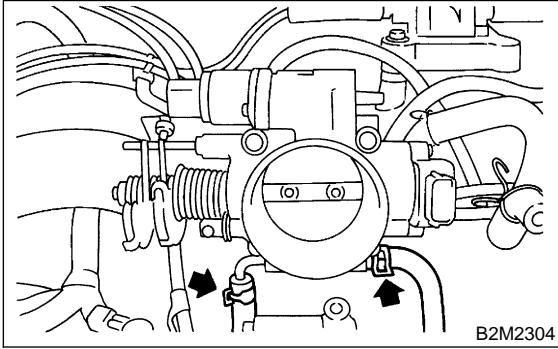
B2M2315

9) Connect brake booster hose.



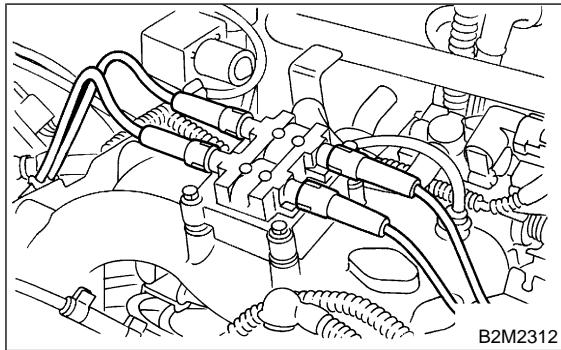
B2M2314

10) Connect engine coolant hose to throttle body.



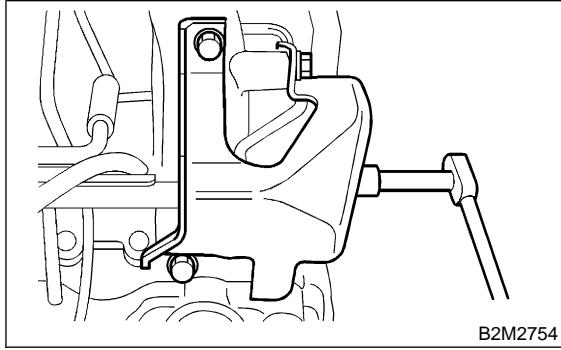
B2M2304

12) Connect spark plug cords to ignition coil and ignitor assembly.



B2M2312

13) Install fuel pipe protector.

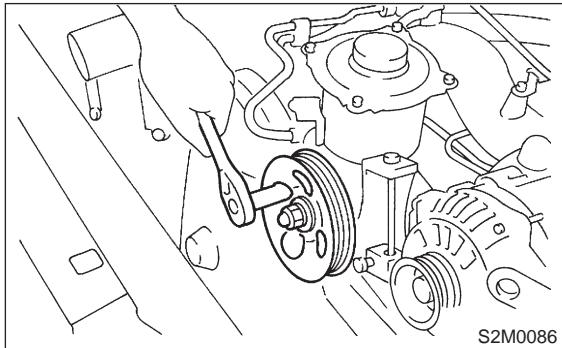


B2M2754

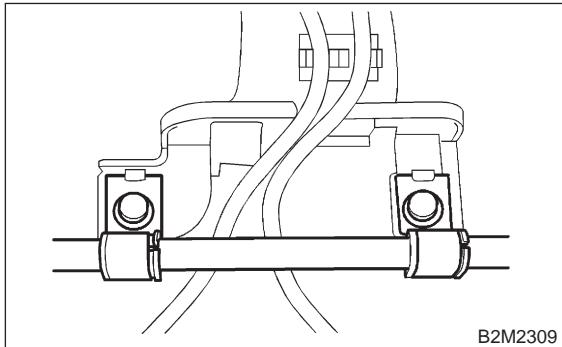
14) Install power steering pump on bracket.  
(1) Install power steering pump on bracket, and tighten bolts.

**Tightening torque:**

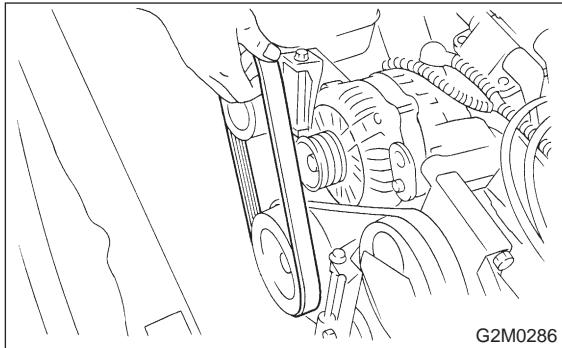
**$20.1\pm2.5\text{ N}\cdot\text{m}$  (2.05±0.25 kg-m, 14.8±1.8 ft-lb)**



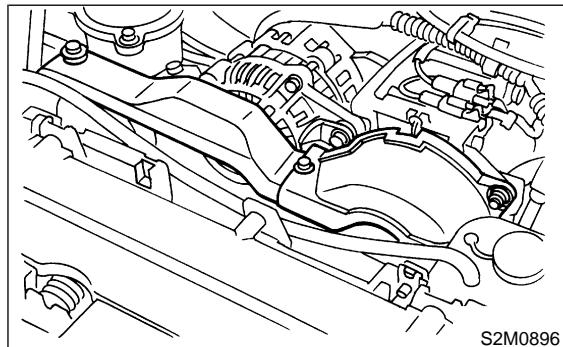
(2) Install power steering pipe brackets on the right side of intake manifold.



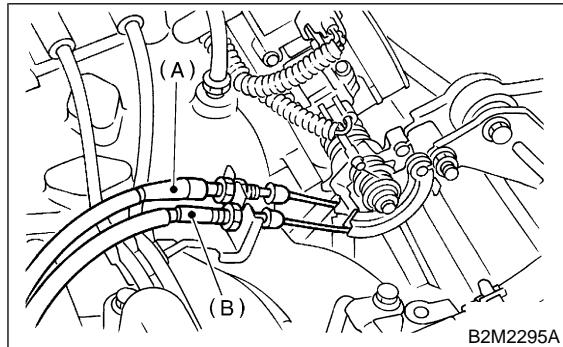
(3) Install power steering pump drive V-belt.



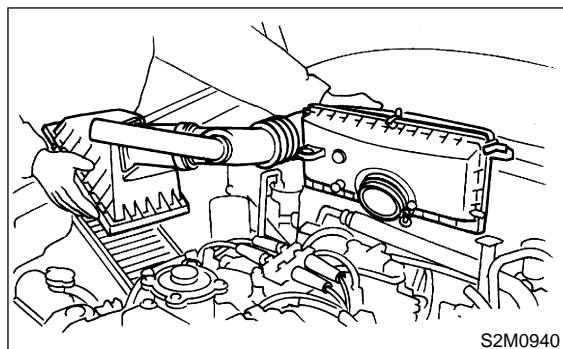
(4) Adjust V-belt. <Ref. to 1-5 [G200].>  
(5) Install V-belt covers.



15) Connect accelerator cable.

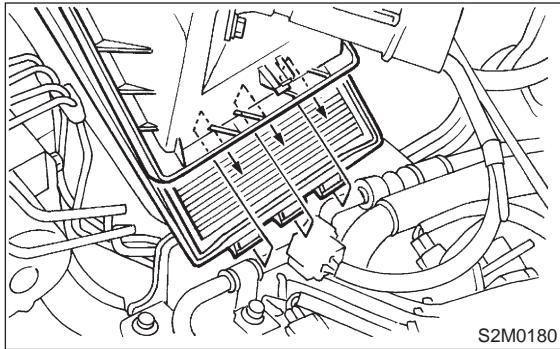


16) Install air cleaner element.  
17) Install air cleaner upper cover, air intake duct and air intake chamber as a unit.



**CAUTION:**

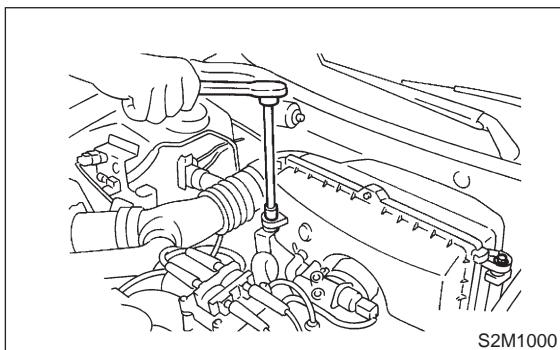
Before installing air cleaner upper cover, align holes with protruding portions of air cleaner lower case, then secure upper cover to lower case.



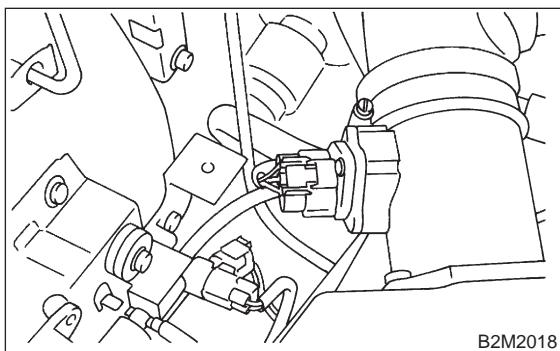
18) Tighten bolts which install air intake chamber to stays.

**Tightening torque:**

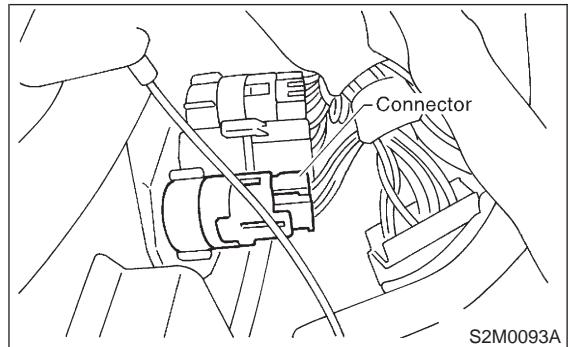
$4.9 \pm 0.5 \text{ N}\cdot\text{m} (0.5 \pm 0.05 \text{ kg}\cdot\text{m}, 3.6 \pm 0.4 \text{ ft-lb})$



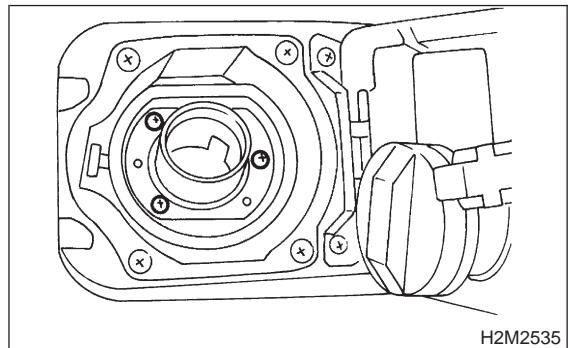
19) Connect connector to mass air flow sensor.



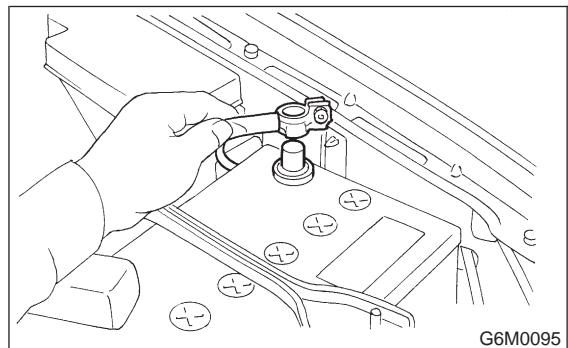
20) Connect connector to fuel pump relay.



21) Install fuel filler cap.



22) Connect battery ground cable.

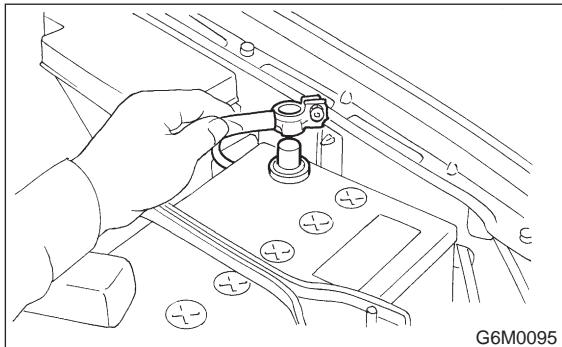


## 5. Engine Coolant Temperature Sensor

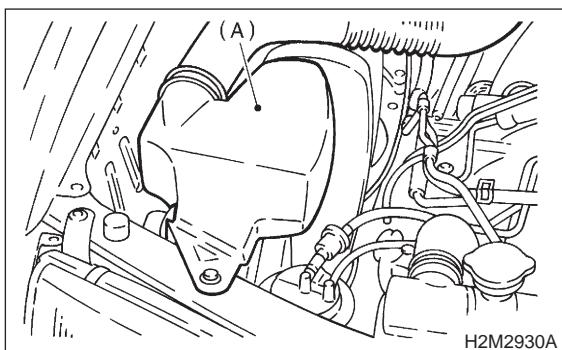
### A: REMOVAL AND INSTALLATION

#### 1. 2200 cc CALIFORNIA SPEC. VEHICLES

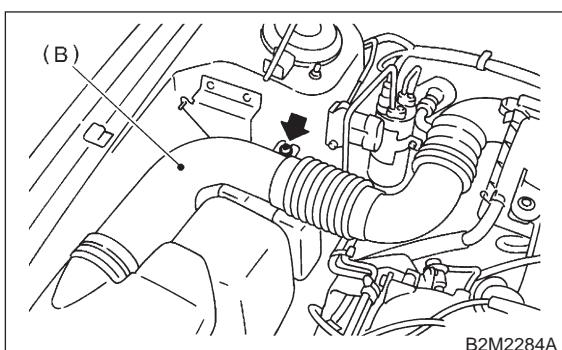
- 1) Disconnect battery ground cable.



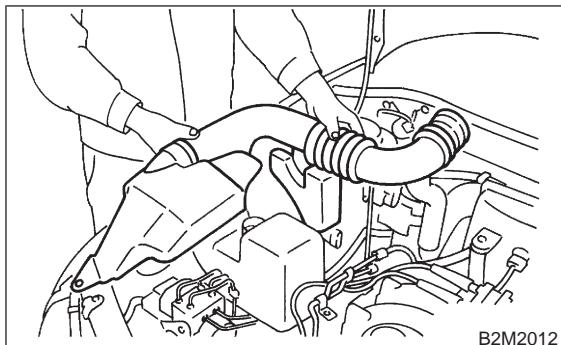
- 2) Remove bolt which installs air intake duct (A) on the front side of body.



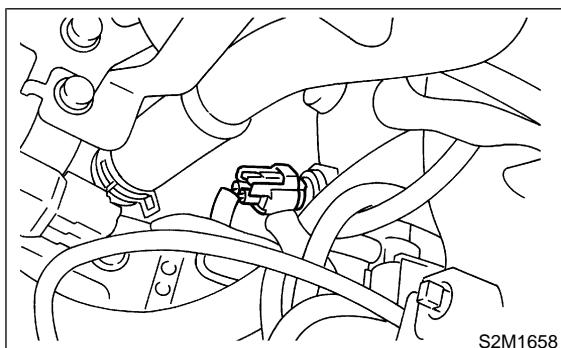
- 3) Remove bolt which installs air intake duct (B) on body.



- 4) Remove air intake duct (A) and (B) as a unit.



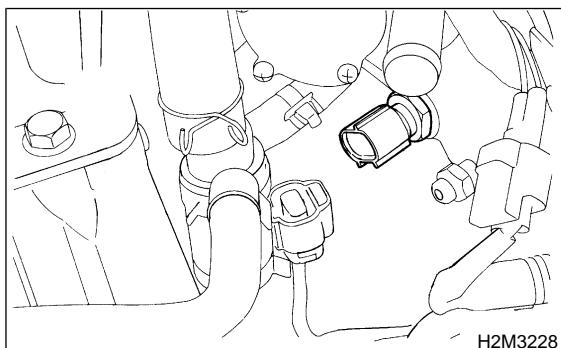
- 5) Disconnect connector from engine coolant temperature sensor.



- 6) Remove engine coolant temperature sensor.
- 7) Installation is in the reverse order of removal.

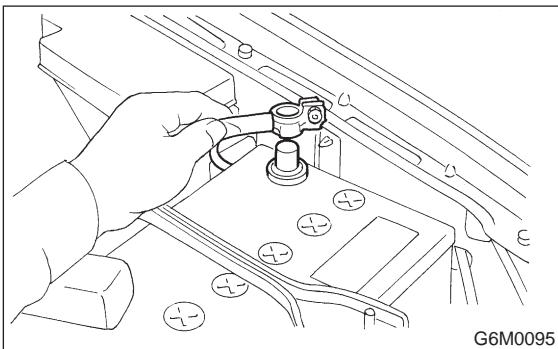
#### **Tightening torque:**

**$25\pm3\text{ N}\cdot\text{m}$  ( $2.5\pm0.3\text{ kg}\cdot\text{m}$ ,  $18.1\pm2.2\text{ ft}\cdot\text{lb}$ )**



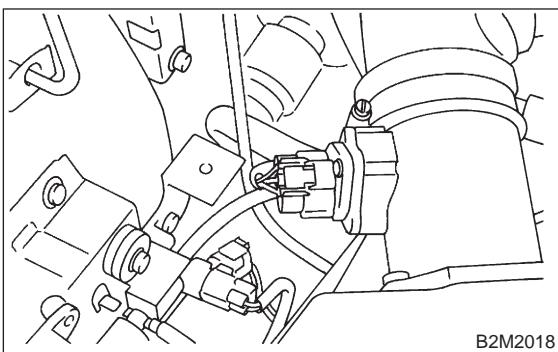
## 2. EXCEPT 2200 cc CALIFORNIA SPEC. VEHICLES

- 1) Disconnect battery ground cable.



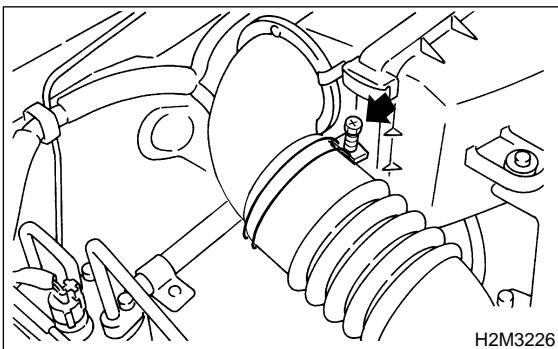
G6M0095

- 2) Disconnect connector from mass air flow sensor.



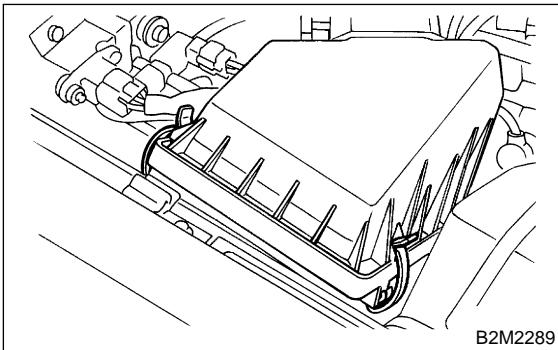
B2M2018

- 3) Loosen clamp which connects air intake duct to air intake chamber.



H2M3226

- 4) Remove two clips of air cleaner upper cover.

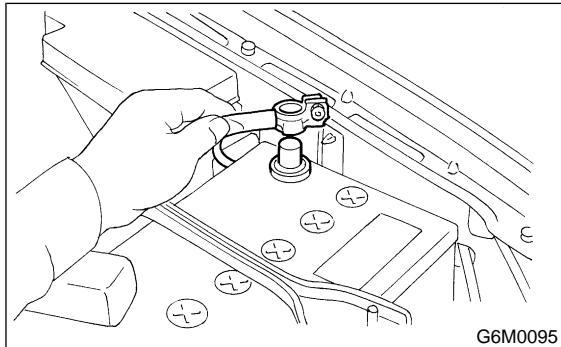


B2M2289

## 6. Crankshaft Position Sensor

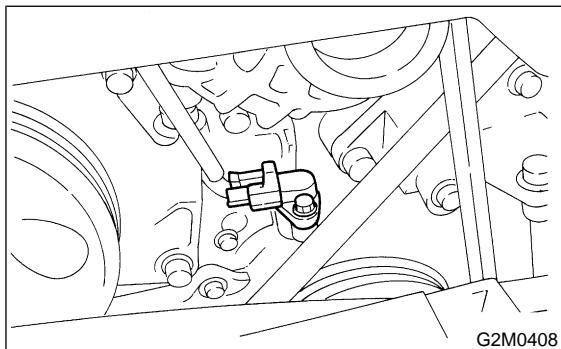
### A: REMOVAL AND INSTALLATION

- 1) Disconnect battery ground cable.



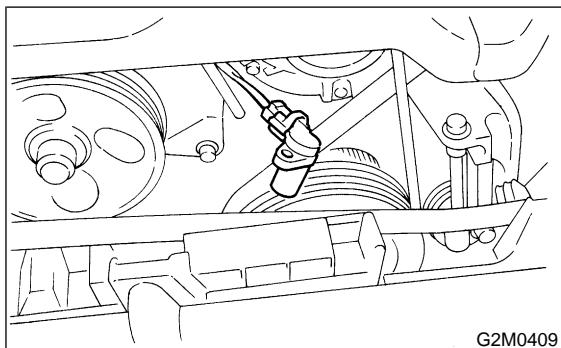
G6M0095

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



G2M0408

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

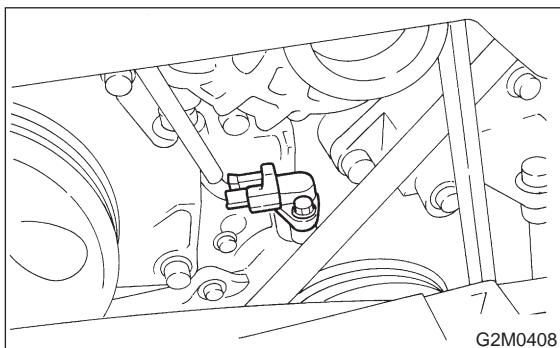


G2M0409

4) Installation is in the reverse order of removal.

**Tightening torque:**

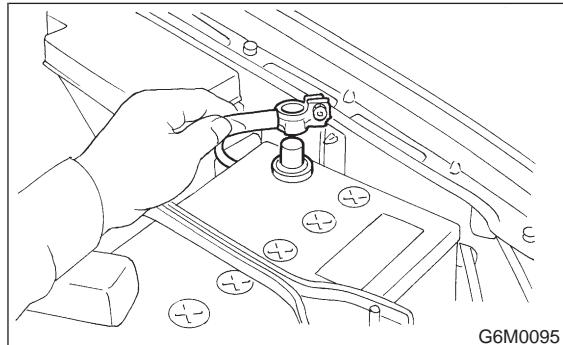
$6.4 \pm 0.5 \text{ N}\cdot\text{m}$  ( $0.65 \pm 0.05 \text{ kg}\cdot\text{m}$ ,  $4.7 \pm 0.4 \text{ ft-lb}$ )



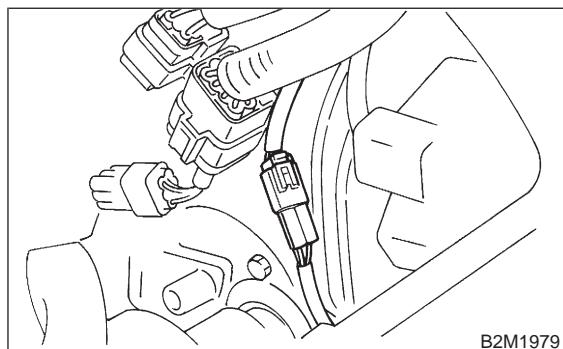
## 7. Front Oxygen (A/F) Sensor

### A: REMOVAL

1) Disconnect battery ground cable.



2) Disconnect connector from front oxygen sensor.



3) Lift-up the vehicle.

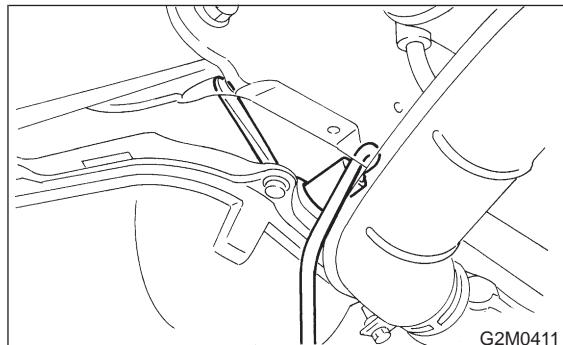
4) Apply SUBARU CRC or its equivalent to threaded portion of front oxygen (A/F) sensor, and leave it for one minute or more.

**SUBARU CRC (Part No. 004301003)**

5) Remove front oxygen (A/F) sensor.

**CAUTION:**

When removing, do not force front oxygen (A/F) sensor in an unnatural way especially when exhaust pipe is cold, otherwise it will damage exhaust pipe.



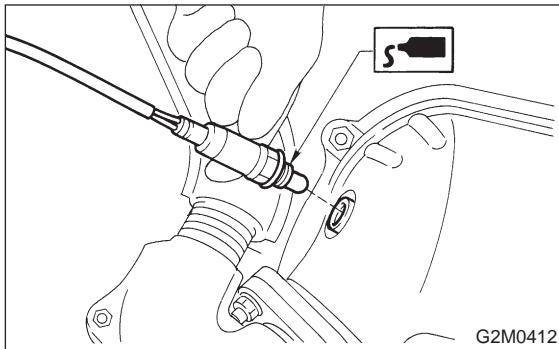
**B: INSTALLATION**

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

**Anti-seize compound:**  
**SS-30 by JET LUBE**

**CAUTION:**

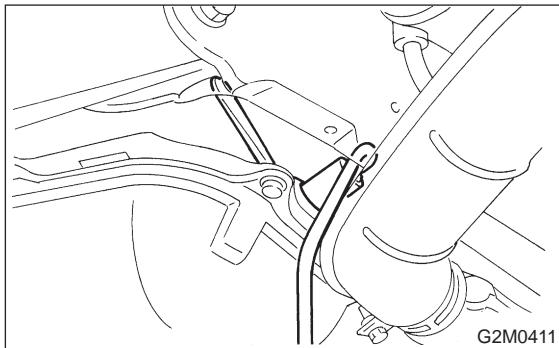
**Never apply anti-seize compound to protector of front oxygen (A/F) sensor.**



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

**Tightening torque:**

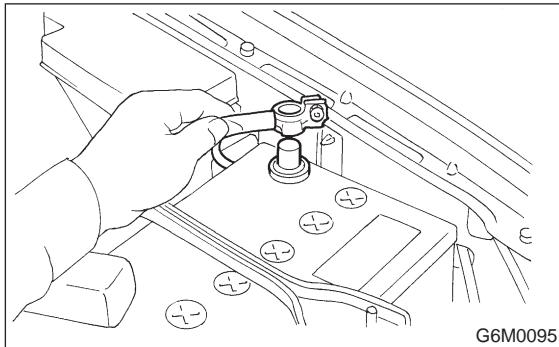
**$21\pm3\text{ N}\cdot\text{m}$  ( $2.1\pm0.3\text{ kg}\cdot\text{m}$ ,  $15.2\pm2.2\text{ ft}\cdot\text{lb}$ )**



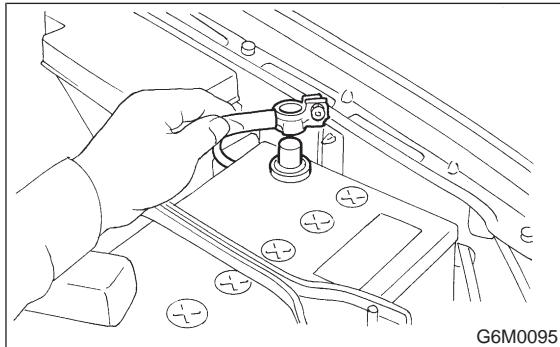
3) Lower the vehicle.

4) Connect connector to front oxygen (A/F) sensor.

5) Connect battery ground cable.

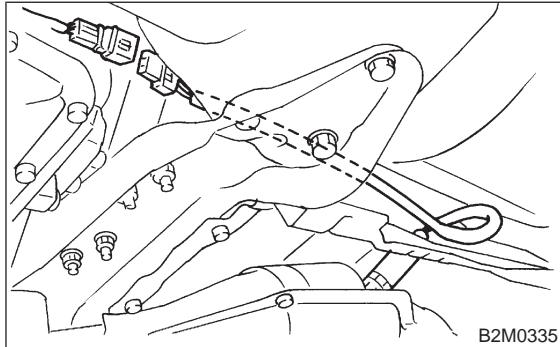
**8. Rear Oxygen Sensor****A: REMOVAL**

1) Disconnect battery ground cable.



2) Lift-up the vehicle.

3) Disconnect connector from rear oxygen sensor.



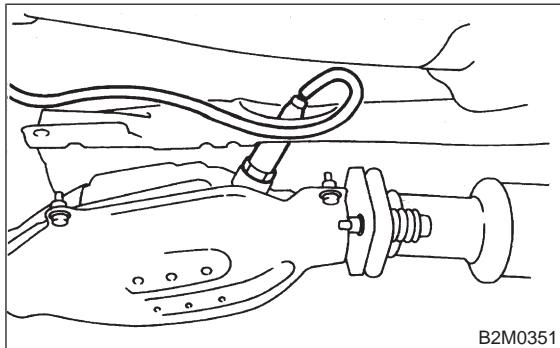
4) Apply SUBARU CRC or its equivalent to threaded portion of rear oxygen sensor, and leave it for one minute or more.

**SUBARU CRC (Part No. 004301003)**

5) Remove rear oxygen sensor.

**CAUTION:**

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

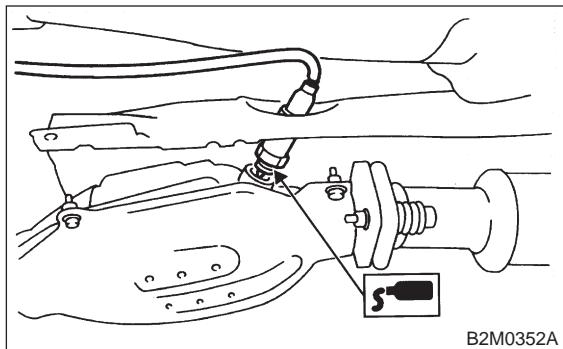


**B: INSTALLATION**

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

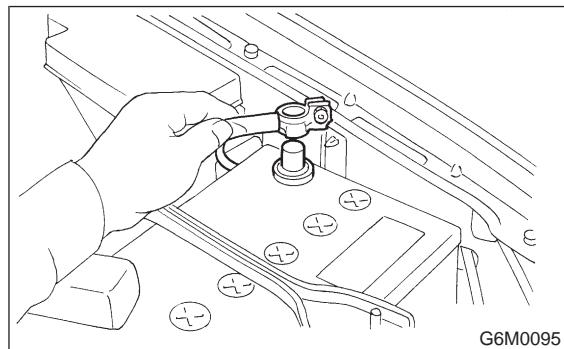
**Anti-seize compound:****SS-30 by JET LUBE****CAUTION:**

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



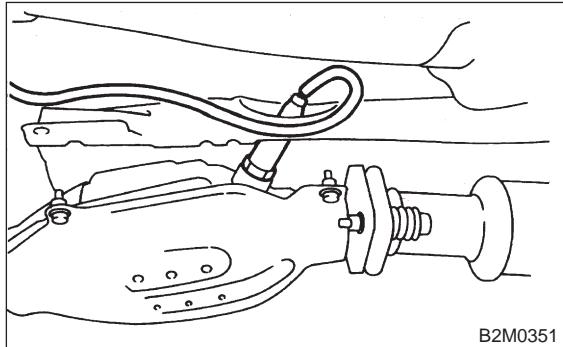
B2M0352A

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



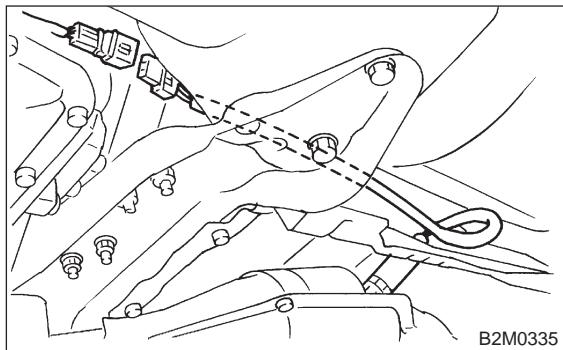
G6M0095

- 2) Install rear oxygen sensor.

**Tightening torque:** **$21\pm3\text{ N}\cdot\text{m}$  ( $2.1\pm0.3\text{ kg}\cdot\text{m}$ ,  $15.2\pm2.2\text{ ft-lb}$ )**

B2M0351

- 3) Connect connector to rear oxygen sensor.



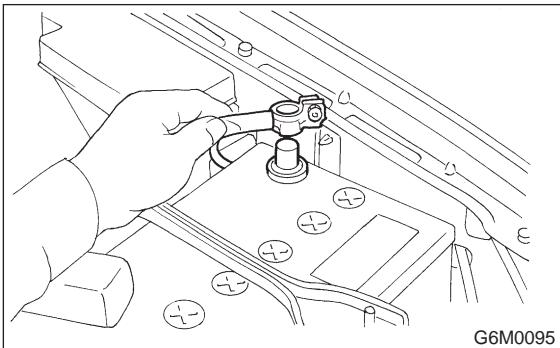
B2M0335

## 9. Throttle Position Sensor

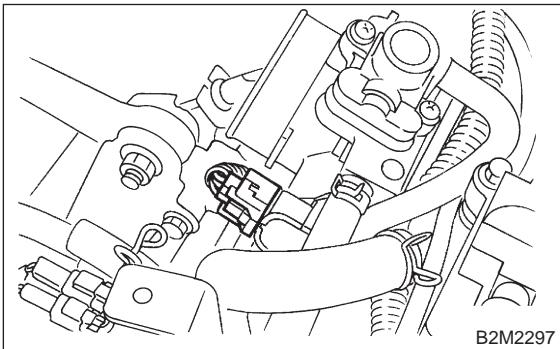
### A: REMOVAL AND INSTALLATION

#### 1. 2200 cc CALIFORNIA SPEC. VEHICLES

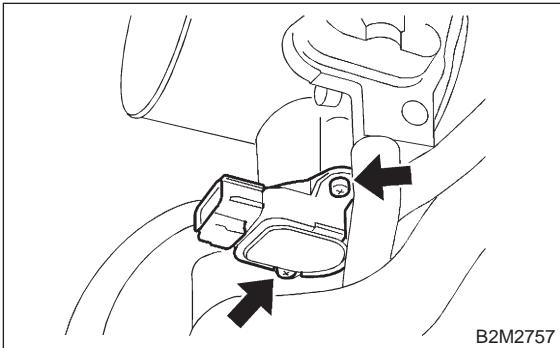
- 1) Disconnect battery ground cable.



- 2) Disconnect connector from throttle position sensor.



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



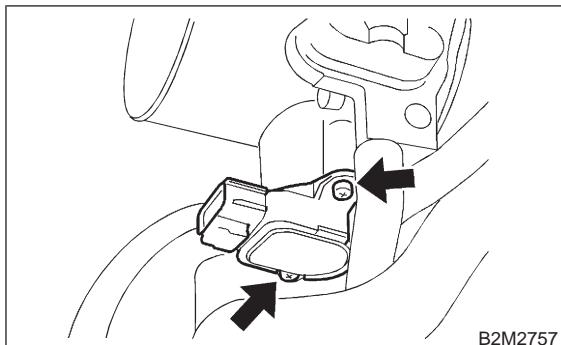
- 4) Installation is in the reverse order of removal.

**Tightening torque:**

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

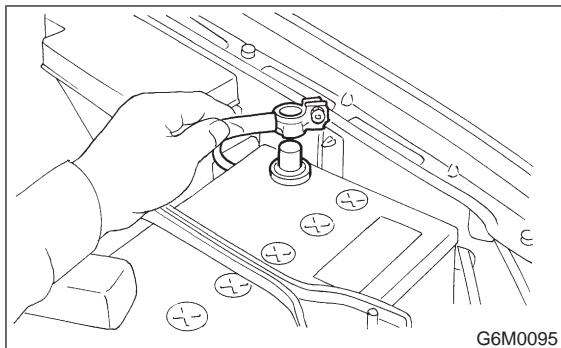
**CAUTION:**

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

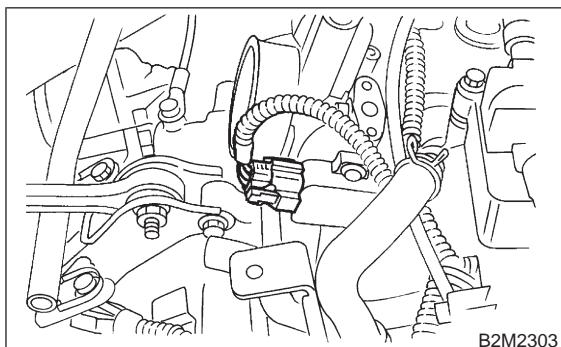


#### 2. EXCEPT 2200 cc CALIFORNIA SPEC. VEHICLES

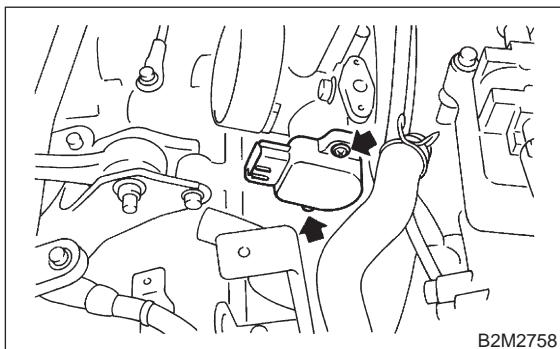
- 1) Disconnect battery ground cable.



- 2) Disconnect connector from throttle position sensor.



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



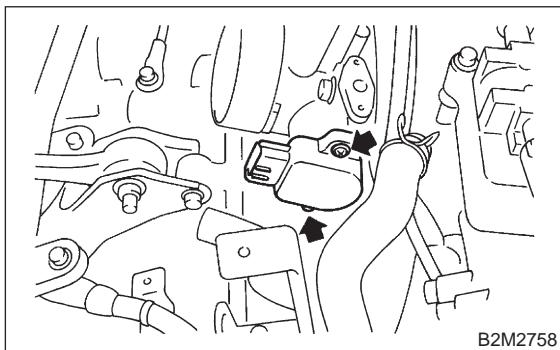
4) Installation is in the reverse order of removal.

**Tightening torque:**

$2.0 \pm 0.4 \text{ N}\cdot\text{m}$  ( $0.20 \pm 0.04 \text{ kg}\cdot\text{m}$ ,  $1.4 \pm 0.3 \text{ ft-lb}$ )

**CAUTION:**

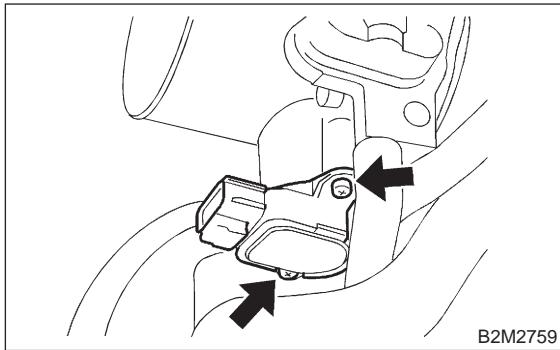
When installing throttle position sensor, adjust the position to match with the specified data.



## B: ADJUSTMENT

### 1. 2200 cc CALIFORNIA SPEC. VEHICLES

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



3) When using voltage meter;

(1) Take out ECM.

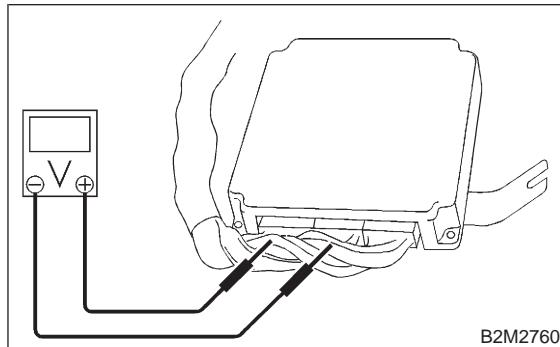
(2) Turn ignition switch to ON.

(3) Adjust throttle position sensor to the proper position to allow the voltage signal to ECM to be in specification.

**Connector & terminal / Specified voltage**

(B136) No. 15 — (B136) No. 17 /  $0.45 \pm 0.55 \text{ V}$

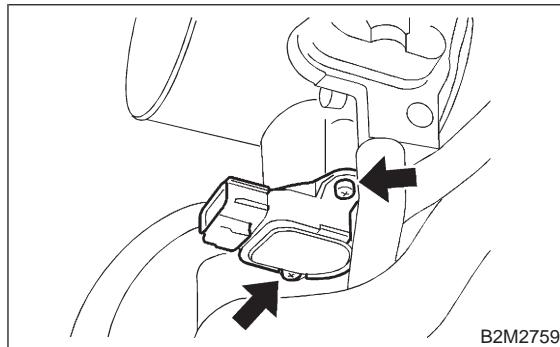
[Fully closed.]



(4) Tighten throttle position sensor holding screws.

**Tightening torque:**

$2.0 \pm 0.4 \text{ N}\cdot\text{m}$  ( $0.20 \pm 0.04 \text{ kg}\cdot\text{m}$ ,  $1.4 \pm 0.3 \text{ ft-lb}$ )

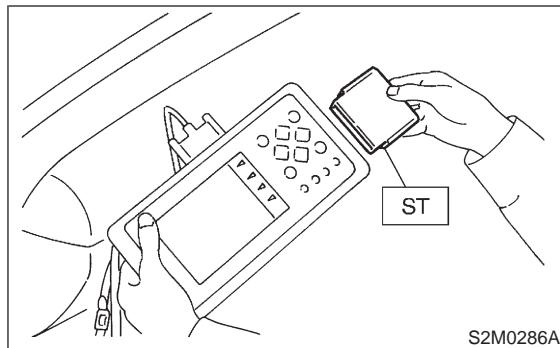


4) When using Subaru Select Monitor;

**NOTE:**

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

- 1) Insert the cartridge to Subaru Select Monitor. <Ref. to 1-6 [G1100].>

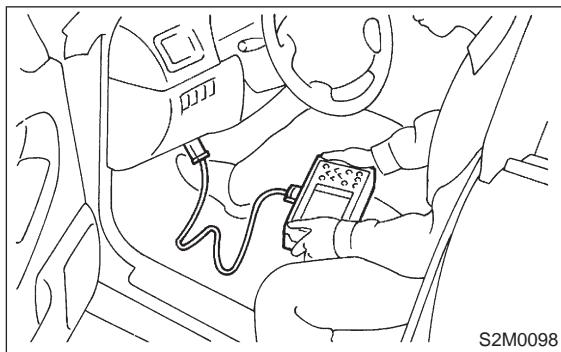


- (2) Connect Subaru Select Monitor to the data link connector.
- (3) Turn ignition switch to ON, and Subaru Select Monitor switch to ON.
- (4) Select {2. Each System Check} in Main Menu.
- (5) Select {Engine Control System} in Selection Menu.
- (6) Select {1. Current Data Display & Save} in Engine Control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

**Condition: Throttle fully closed**

**Throttle opening angle 0.00%**

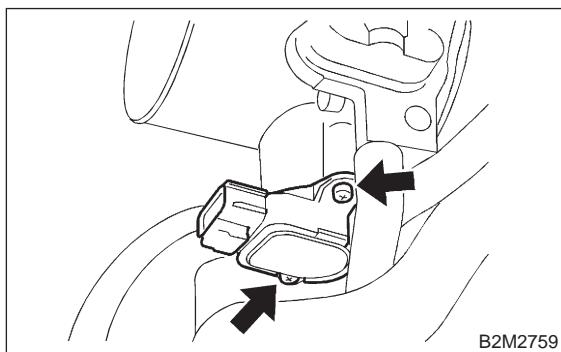
**Throttle sensor voltage 0.50 V**



- (9) Tighten throttle position sensor holding screws.

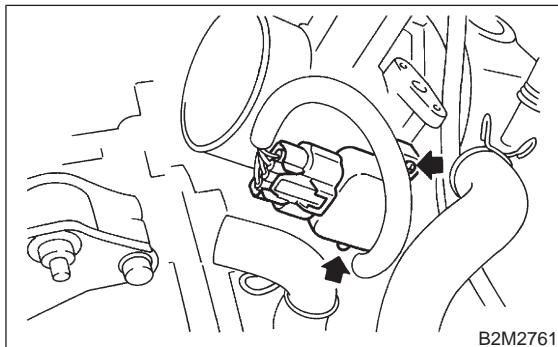
**Tightening torque:**

**$2.0 \pm 0.4 \text{ N}\cdot\text{m}$  ( $0.20 \pm 0.04 \text{ kg}\cdot\text{m}$ ,  $1.4 \pm 0.3 \text{ ft-lb}$ )**



## 2. EXCEPT 2200 cc CALIFORNIA SPEC. VEHICLES

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



B2M2761

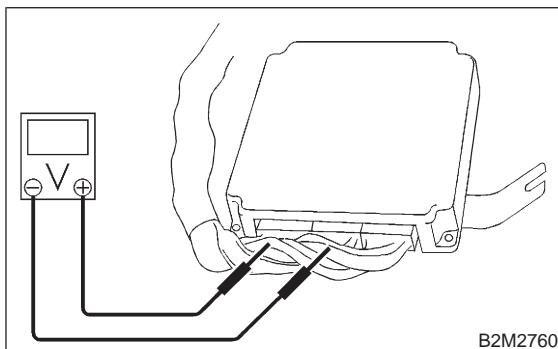
- 3) When using voltage meter;
  - (1) Take out ECM.
  - (2) Turn ignition switch to ON.
  - (3) Adjust throttle position sensor to the proper position to allow the voltage signal to ECM to be in specification.

**Connector & terminal / Specified voltage**

**(B136) No. 15 — (B136) No. 17 / 0.45 —**

**0.55 V**

**[Fully closed.]**

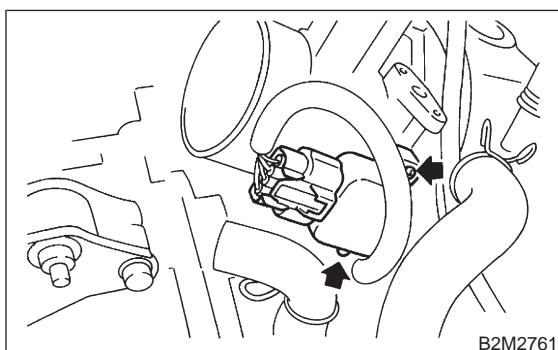


B2M2760

- (4) Tighten throttle position sensor holding screws.

**Tightening torque:**

**$2.0 \pm 0.4 \text{ N}\cdot\text{m}$  ( $0.20 \pm 0.04 \text{ kg}\cdot\text{m}$ ,  $1.4 \pm 0.3 \text{ ft-lb}$ )**



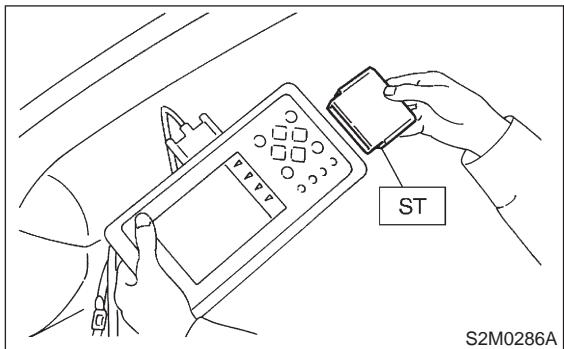
B2M2761

4) When using Subaru Select Monitor;

NOTE:

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

(1) Insert the cartridge to Subaru Select Monitor. <Ref. to 1-6 [G1100].>



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

**Condition: Throttle fully closed**

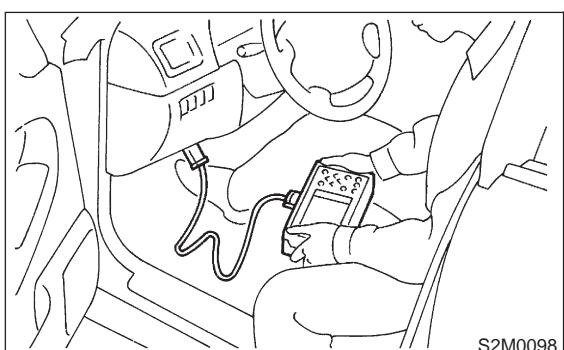
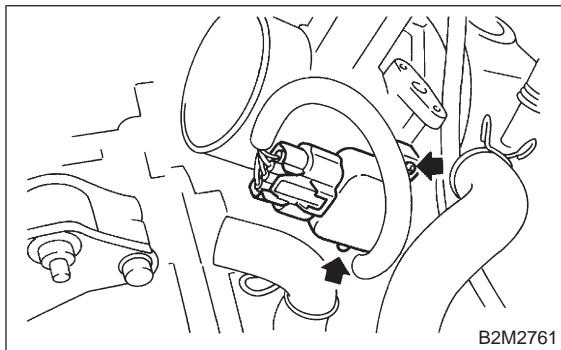
**Throttle opening angle 0.00%**

**Throttle sensor voltage 0.50 V**

(9) Tighten throttle position sensor holding screws.

**Tightening torque:**

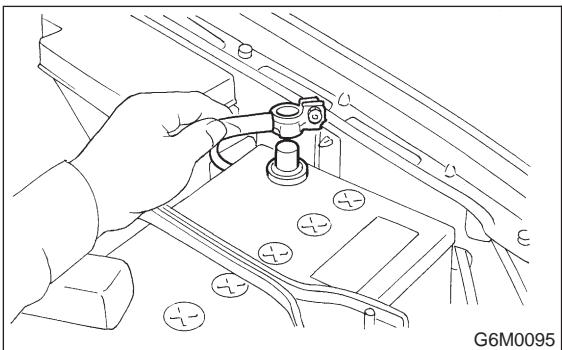
**$2.0 \pm 0.4 \text{ N}\cdot\text{m}$  ( $0.20 \pm 0.04 \text{ kg}\cdot\text{m}$ ,  $1.4 \pm 0.3 \text{ ft}\cdot\text{lb}$ )**



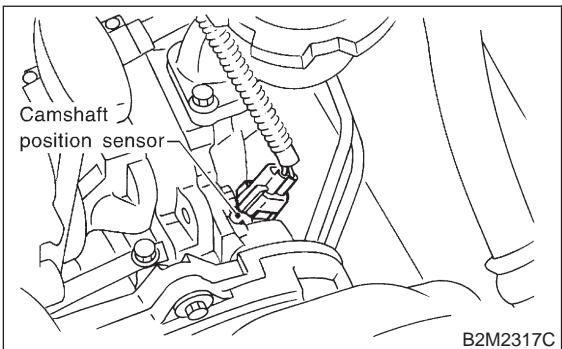
## 10. Camshaft Position Sensor

### A: REMOVAL AND INSTALLATION

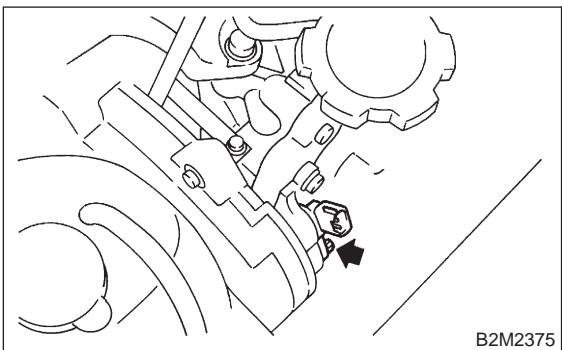
- 1) Disconnect battery ground cable.



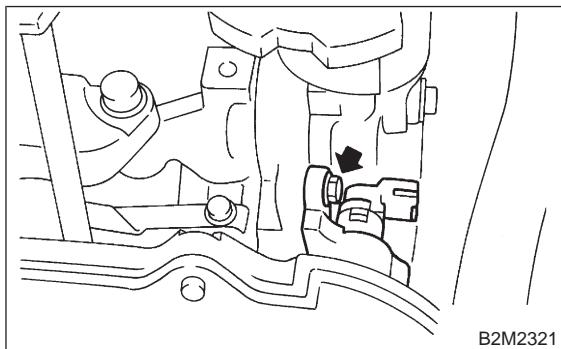
- 2) Disconnect connector from camshaft position sensor.



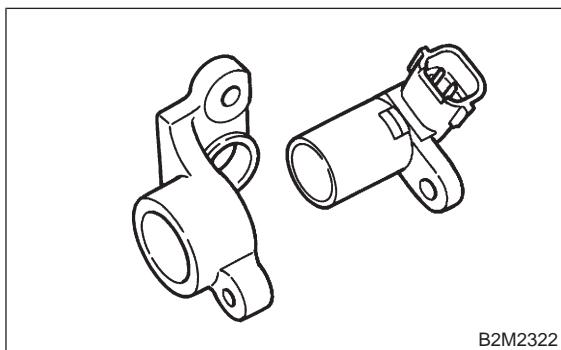
- 3) Remove bolt which installs camshaft position sensor to camshaft position sensor support.



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



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



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

**Tightening torque:**

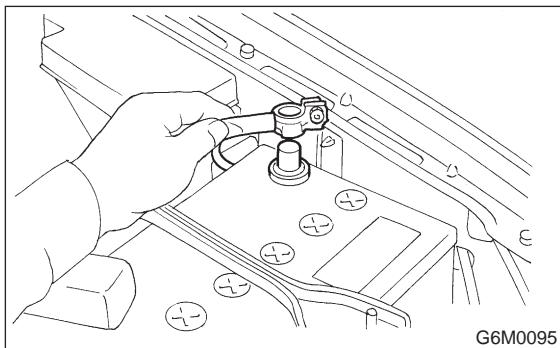
**Camshaft position sensor support;**  
 $6.4 \pm 0.5 \text{ N}\cdot\text{m} (0.65 \pm 0.05 \text{ kg}\cdot\text{m}, 4.7 \pm 0.4 \text{ ft-lb})$

**Camshaft position sensor;**  
 $6.4 \pm 0.5 \text{ N}\cdot\text{m} (0.65 \pm 0.05 \text{ kg}\cdot\text{m}, 4.7 \pm 0.4 \text{ ft-lb})$

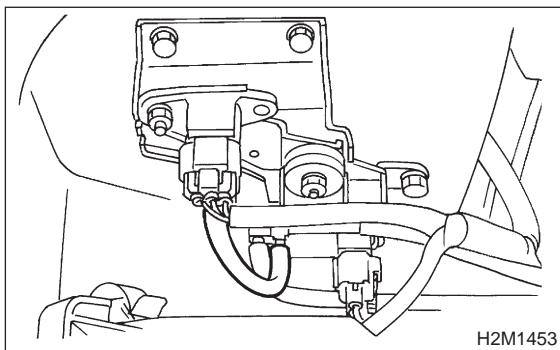
## 11. Pressure Sensor

### A: REMOVAL AND INSTALLATION

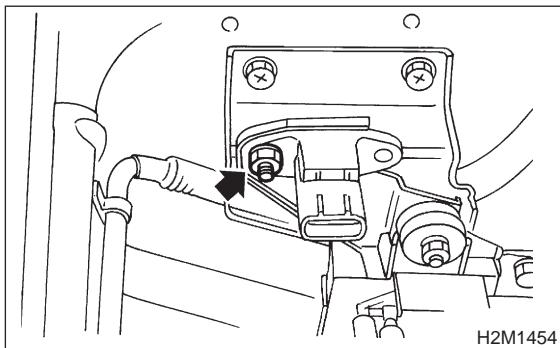
- 1) Disconnect battery ground cable.



- 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:**

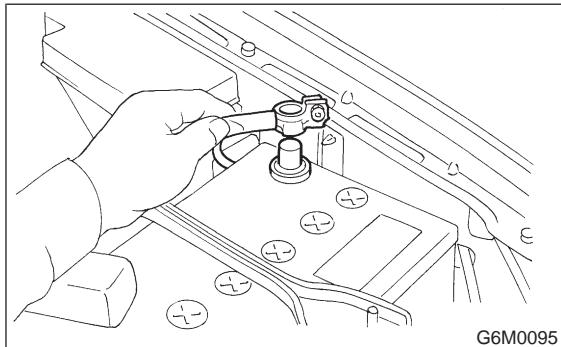
$6.4 \pm 0.5 \text{ N}\cdot\text{m} (0.65 \pm 0.05 \text{ kg}\cdot\text{m}, 4.7 \pm 0.4 \text{ ft-lb})$

## 12. Idle Air Control Solenoid Valve

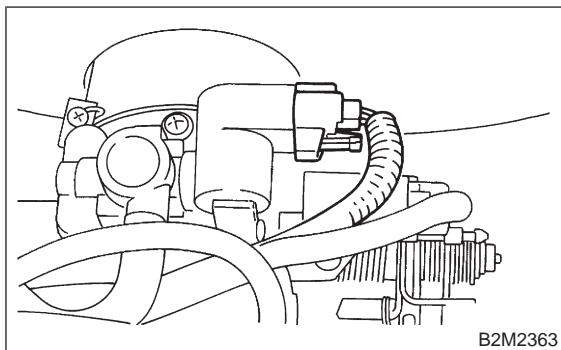
### A: REMOVAL AND INSTALLATION

#### 1. 2200 cc CALIFORNIA SPEC. VEHICLES

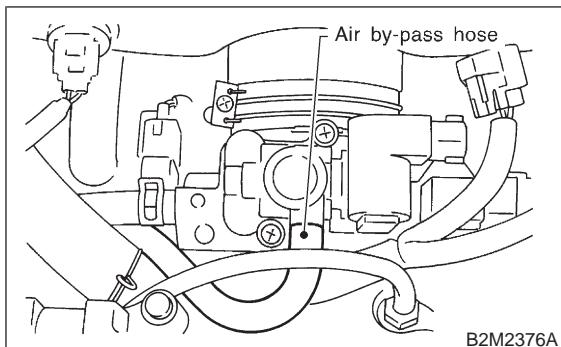
- 1) Disconnect battery ground cable.



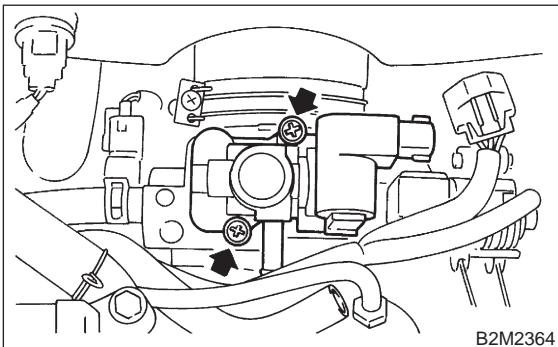
- 2) Disconnect connector from idle air control solenoid valve.



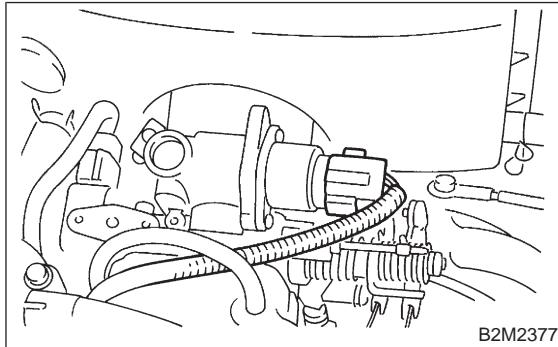
- 3) Disconnect air by-pass hose from idle air control solenoid valve.



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



2) Disconnect connector from idle air control solenoid valve.



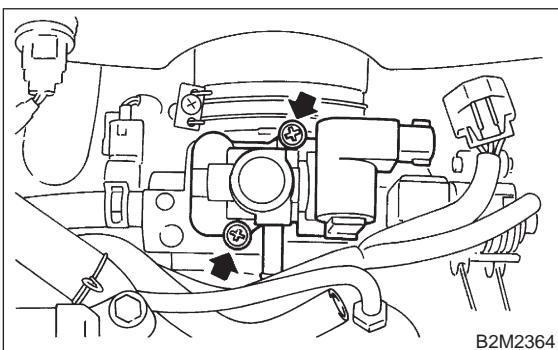
5) Installation is in the reverse order of removal.

**CAUTION:**

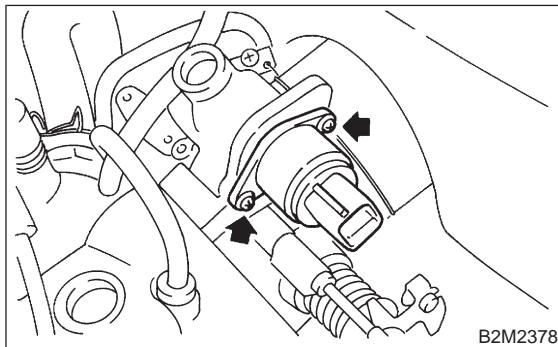
Replace gasket with a new one.

**Tightening torque:**

$3.3 \pm 0.4 \text{ N}\cdot\text{m}$  ( $0.34 \pm 0.045 \text{ kg}\cdot\text{m}$ ,  $2.5 \pm 0.3 \text{ ft-lb}$ )



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



4) Installation is in the reverse order of removal.

**CAUTION:**

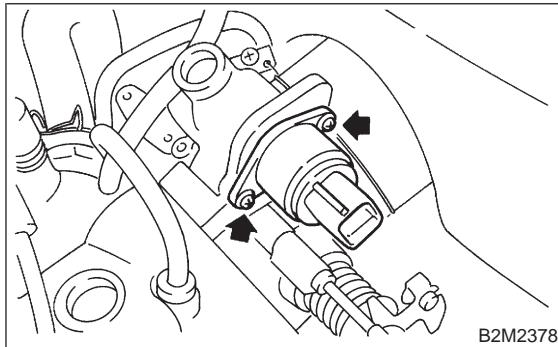
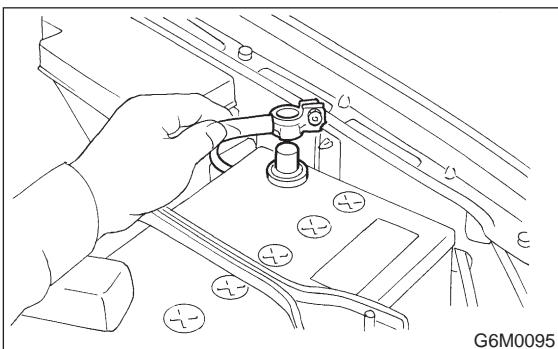
Replace gasket with a new one.

**Tightening torque:**

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

## 2. EXCEPT 2200 cc CALIFORNIA SPEC. VEHICLES

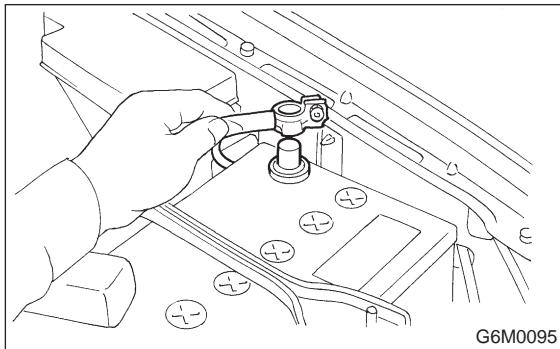
1) Disconnect battery ground cable.



## 13. Pressure Sources Switching Solenoid Valve

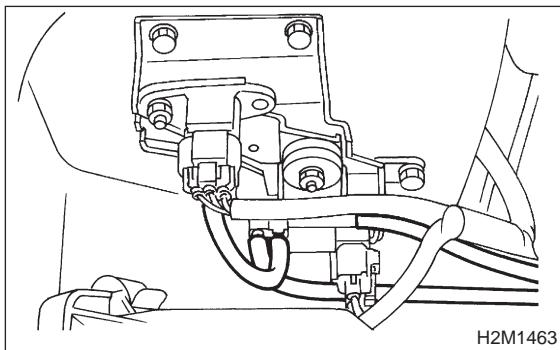
### A: REMOVAL AND INSTALLATION

- 1) Disconnect battery ground cable.

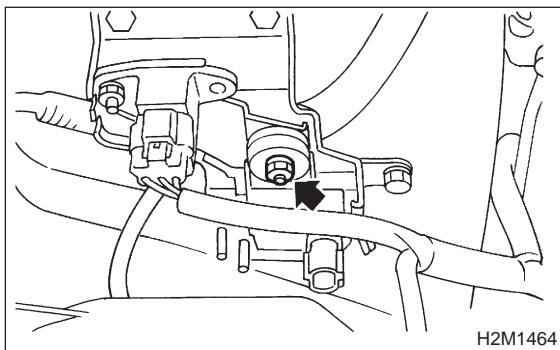


- 2) Disconnect connector from pressure sources switching solenoid valve.

- 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

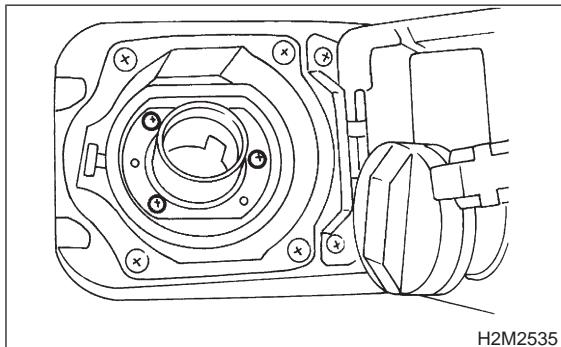
### A: REMOVAL AND INSTALLATION

#### 1. RH SIDE

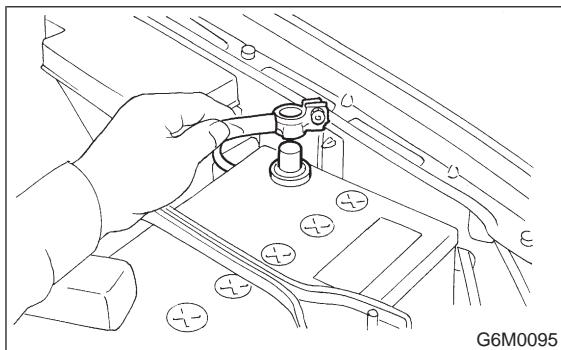
- 1) Release fuel pressure.

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

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

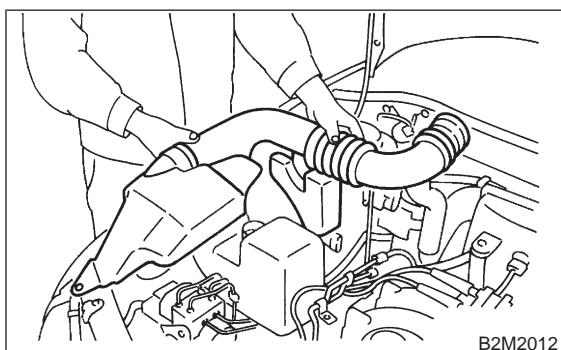


- 3) Disconnect battery ground cable.

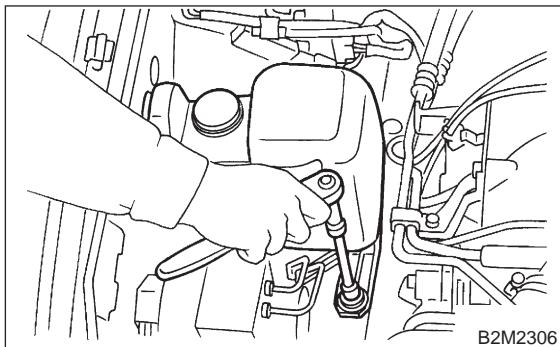


- 4) Remove component parts of air intake system on California spec. vehicles.

- (1) Remove air intake duct (A) and (B) as a unit.



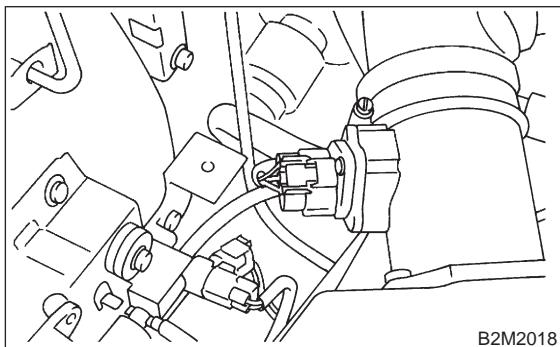
(2) Remove resonator chamber.



B2M2306

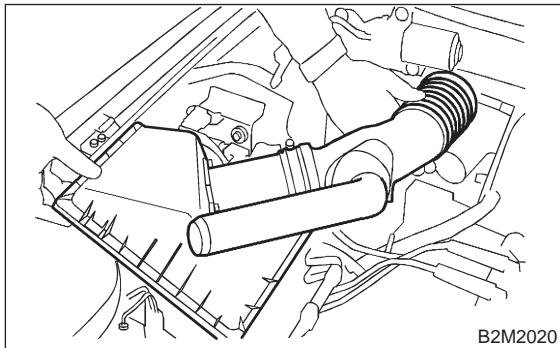
5) Remove component parts of air intake system.  
(Except California spec. vehicles)

(1) Disconnect connector from mass air flow sensor.



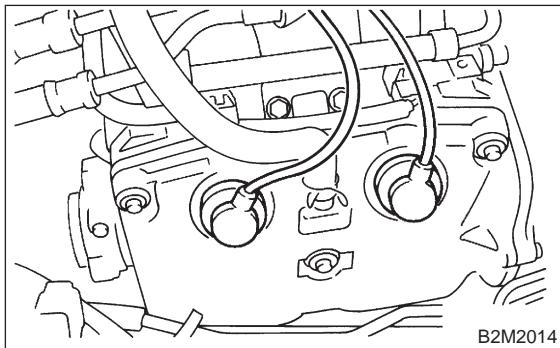
B2M2018

(2) Remove air intake duct and air cleaner upper cover as a unit, and remove air cleaner element. <Ref. to 2-7 [W1A0].>



B2M2020

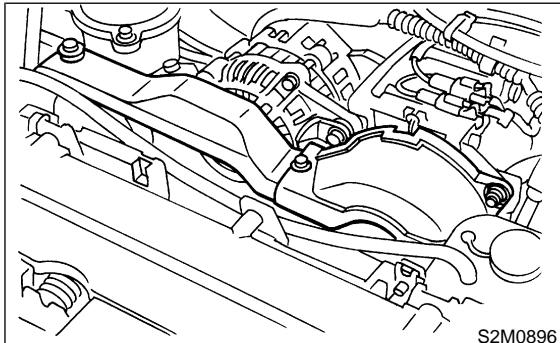
6) Remove spark plug cords from spark plugs (#1 and #3 cylinders).



B2M2014

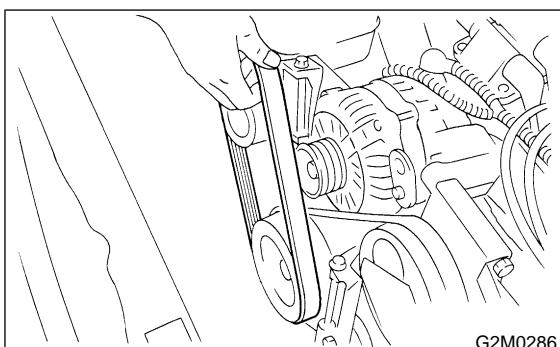
7) Remove power steering pump from bracket.

(1) Remove V-belt covers.



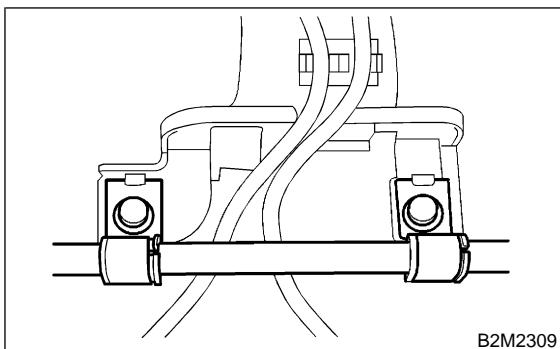
S2M0896

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



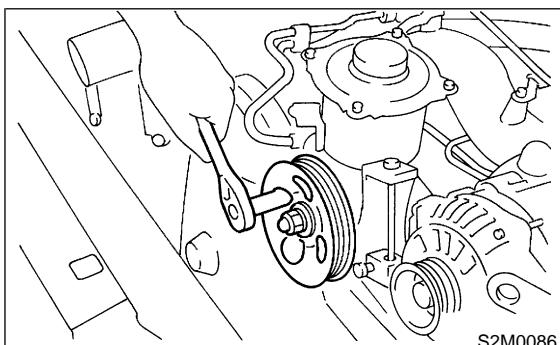
G2M0286

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



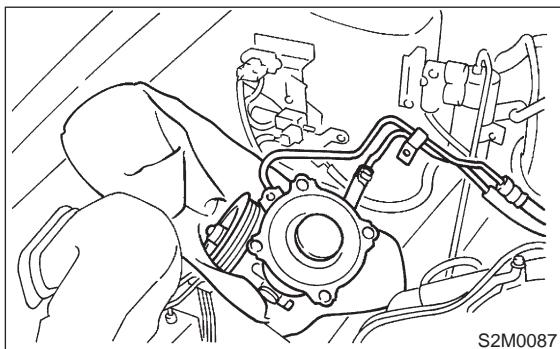
B2M2309

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

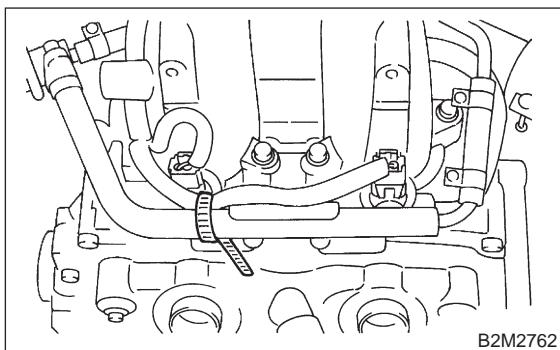


S2M0086

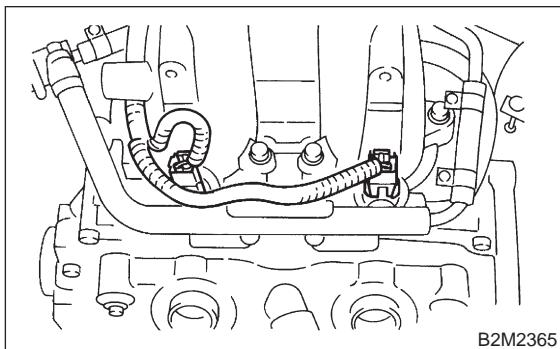
(5) Place power steering pump on the right side wheel apron.



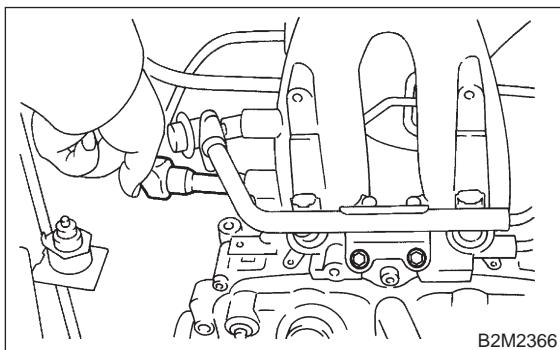
8) Remove band which holds engine harness to fuel injector pipe.



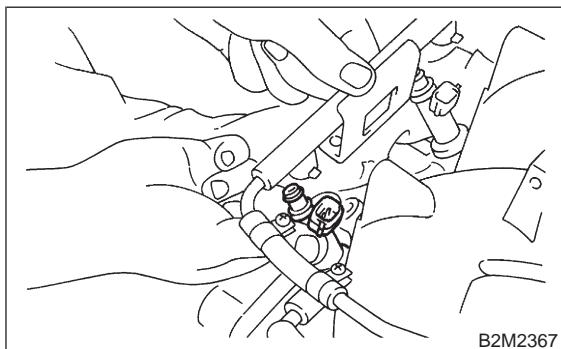
9) Disconnect connector from fuel injector.



10) Remove bolts which install injector pipe to intake manifold.



11) Pull up injector pipe, and remove fuel injector from intake manifold.



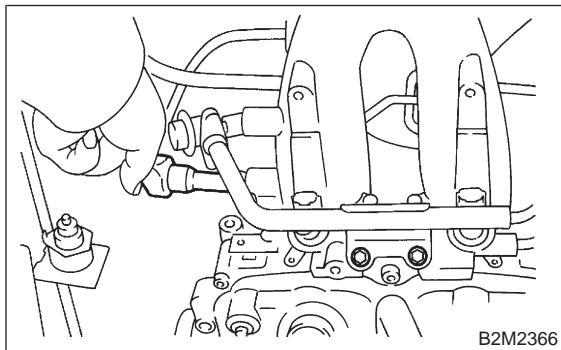
12) Installation is in the reverse order of removal.

**CAUTION:**

Replace O-rings with new ones.

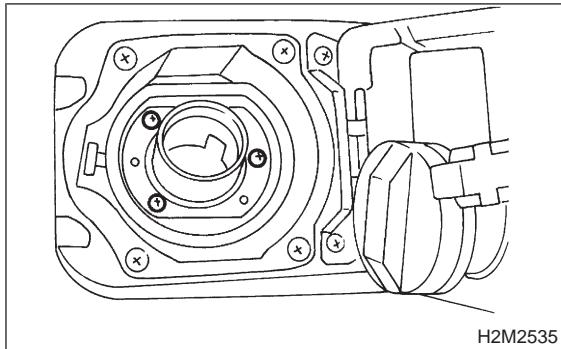
**Tightening torque:**

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

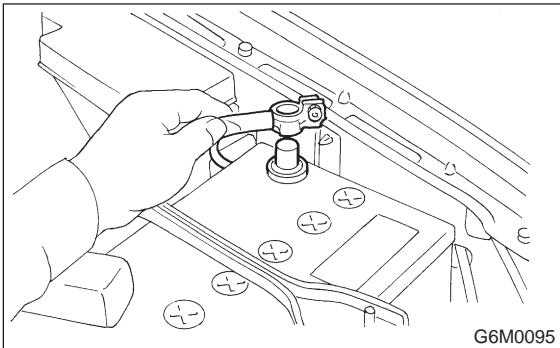


## 2. LH SIDE

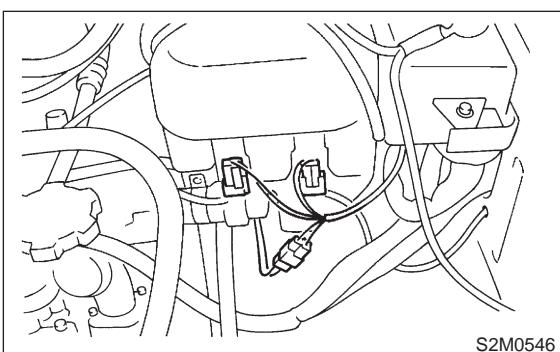
1) Release fuel pressure. <Ref. to 2-8 [W1B0].>  
2) Open fuel flap lid, and remove fuel filler cap.



3) Disconnect battery ground cable.

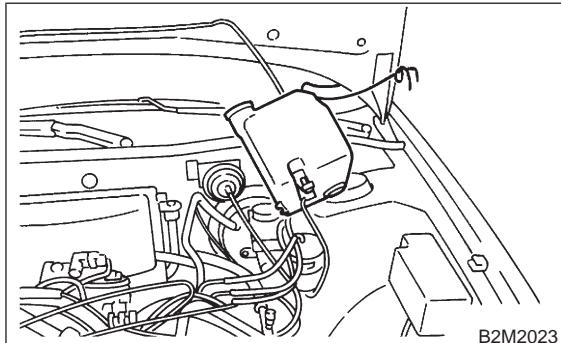


4) Disconnect connector from front window washer motor.

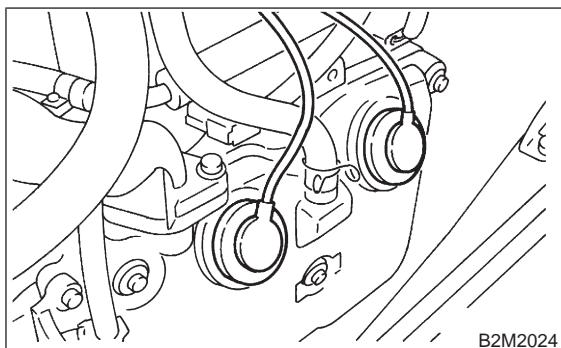


5) Disconnect connector from rear gate glass washer motor. (Wagon only)

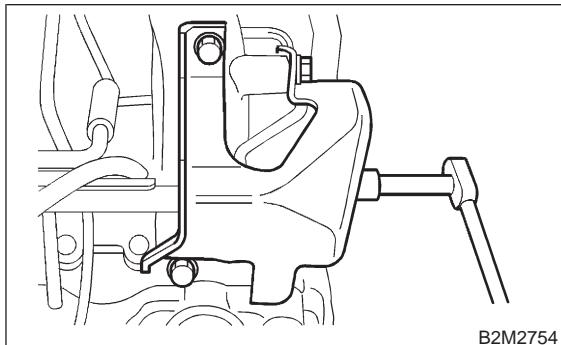
8) Move washer tank, and secure it away from working area.



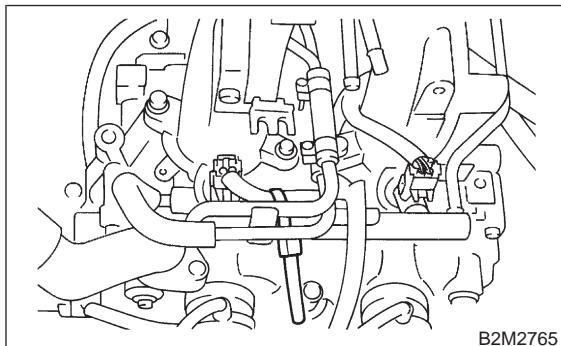
9) Remove spark plug cords from spark plugs (#1 and #3 cylinders).



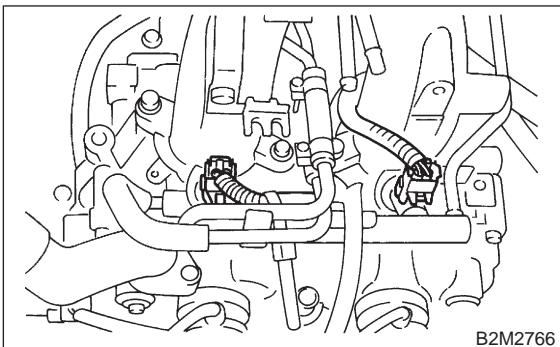
10) Remove fuel pipe protector.



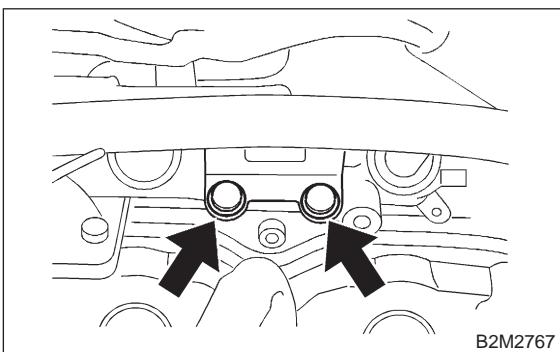
11) Remove band which holds engine harness to fuel injector pipe.



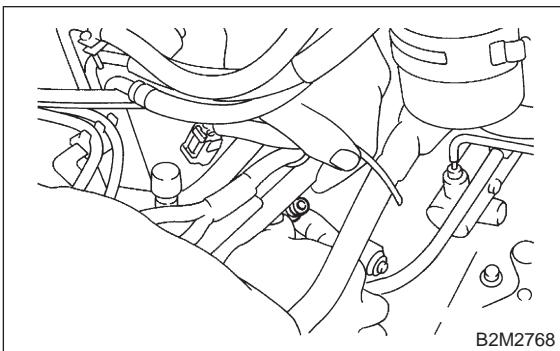
12) Disconnect connector from fuel injector.



13) Remove bolts which install injector pipe to intake manifold.



14) Pull up injector pipe, and remove fuel injector from intake manifold.

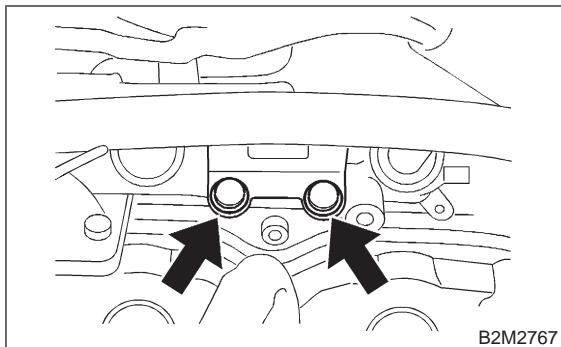


15) Installation is in the reverse order of removal.

**CAUTION:**  
Replace O-rings with new ones.

Tightening torque:

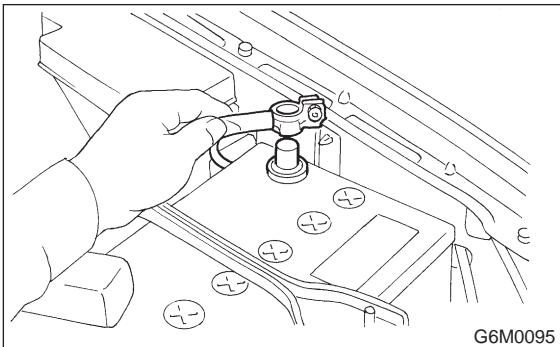
$3.4 \pm 0.5 \text{ N}\cdot\text{m} (0.35 \pm 0.05 \text{ kg}\cdot\text{m}, 2.5 \pm 0.4 \text{ ft}\cdot\text{lb})$



## 15. Engine Control Module (ECM)

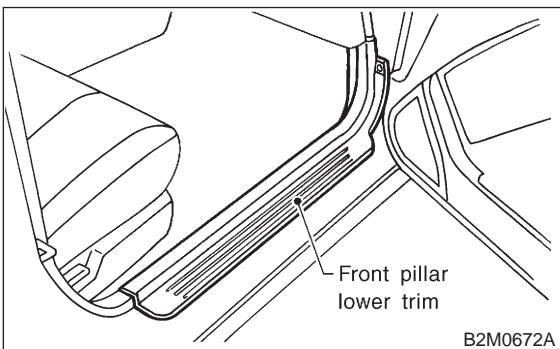
### A: REMOVAL AND INSTALLATION

1) Disconnect battery ground cable.

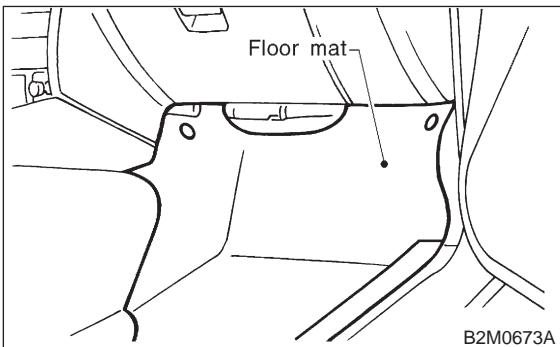


2) Remove side sill front cover.

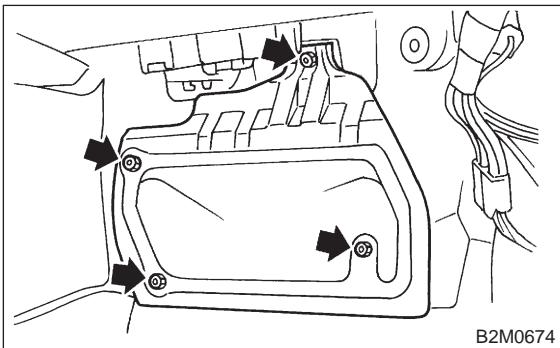
<Ref. to 5-3 [W5A0].>



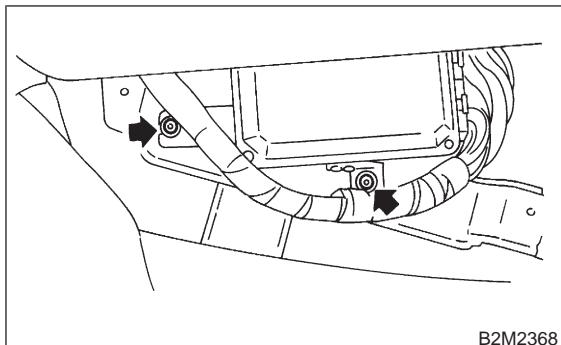
3) Detach floor mat of front passenger seat.



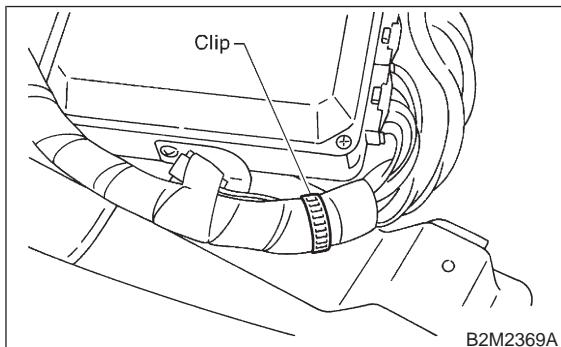
4) Remove protect cover.



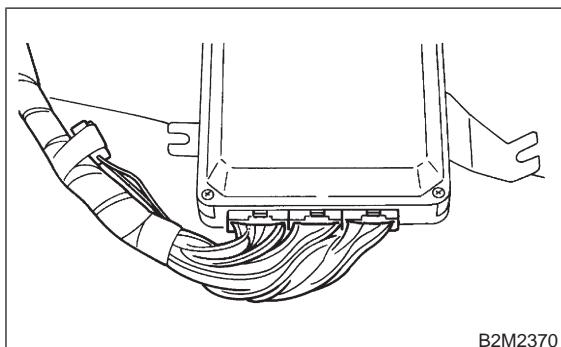
5) Remove nuts which hold ECM to bracket.



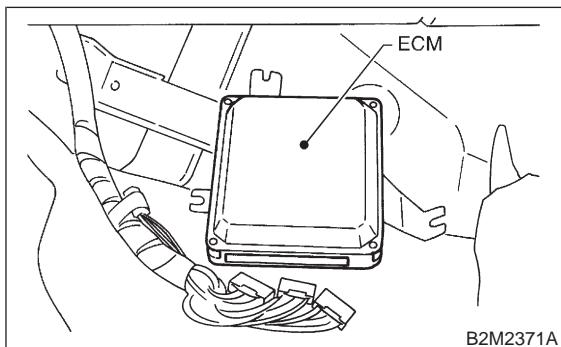
6) Remove clip from bracket.



7) Disconnect ECM connectors.



8) Take out ECM.



9) Installation is in the reverse order of removal.

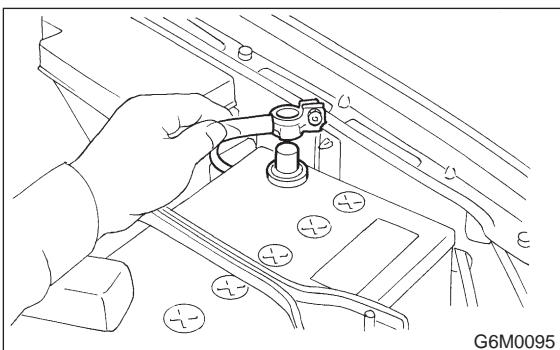
**CAUTION:**

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

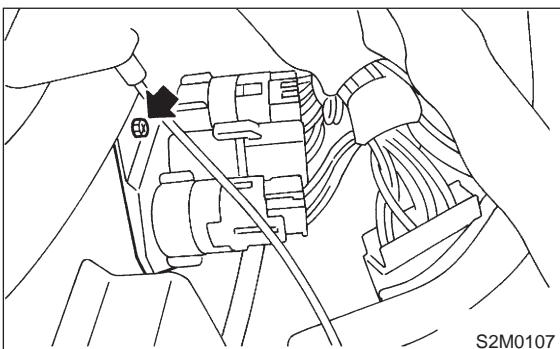
## 16. Main Relay

### A: REMOVAL AND INSTALLATION

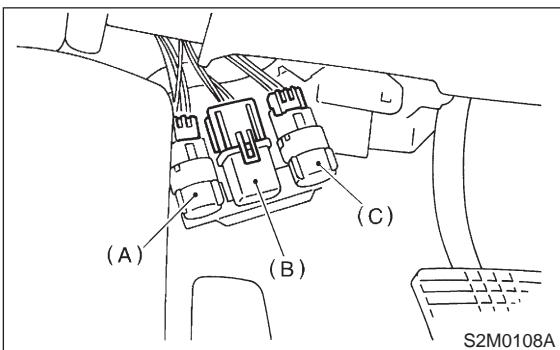
- 1) Disconnect battery ground cable.



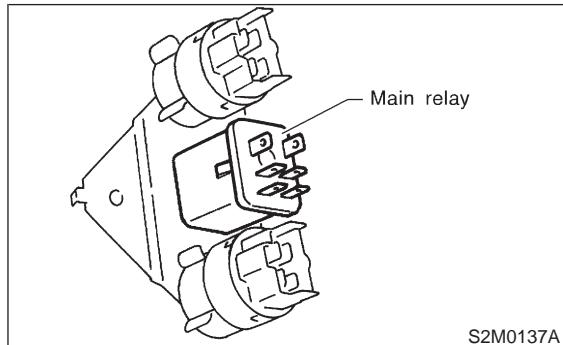
- 2) Remove bolt which holds bracket of main relay and fuel pump relay.



- 3) Disconnect connectors from relays.



- 4) Remove main relay from mounting bracket.

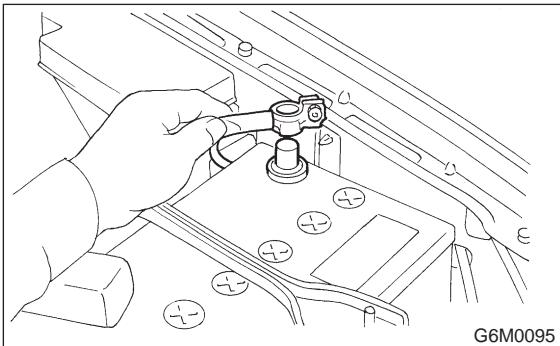


- 5) Installation is in the reverse order of removal.

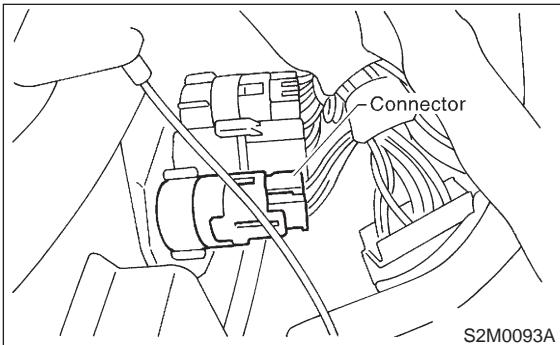
## 17. Fuel Pump Relay

### A: REMOVAL AND INSTALLATION

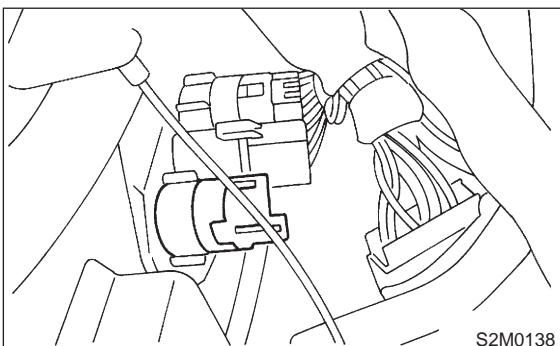
- 1) Disconnect battery ground cable.



- 2) Disconnect connector from fuel pump relay.



- 3) Remove fuel pump relay from mounting bracket.

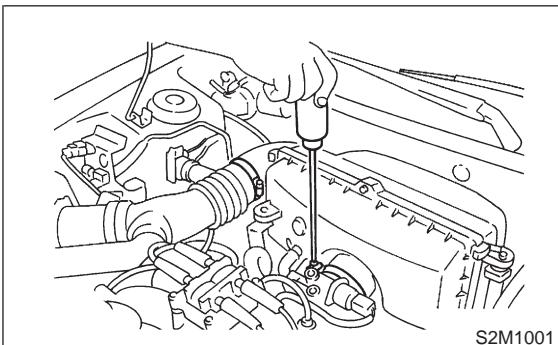


- 4) Installation is in the reverse order of removal.

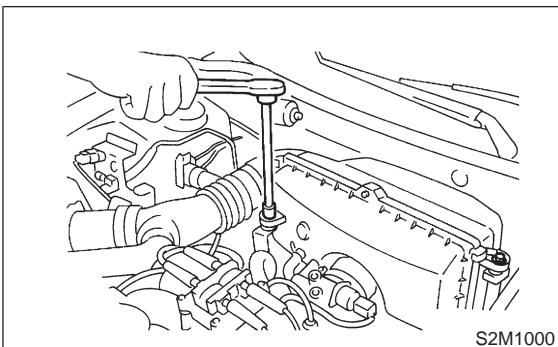
## 18. Air Intake Chamber (Except 2200 cc California Spec. Vehicles)

### 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.

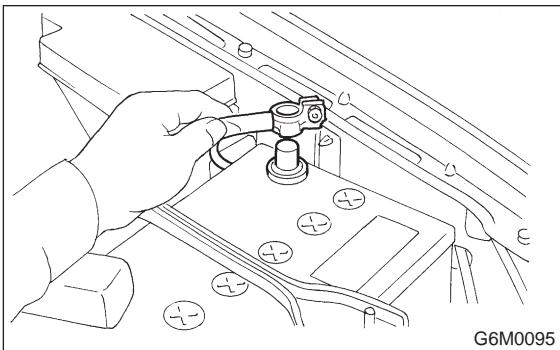
**Tightening torque:**

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

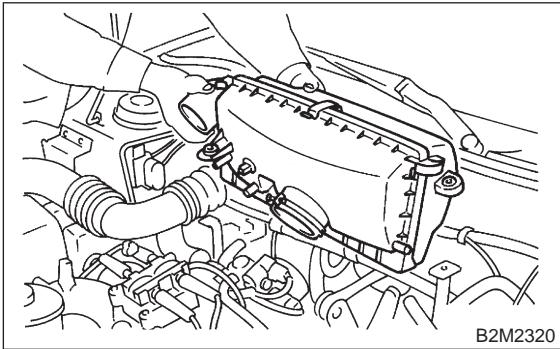
## 19. Knock Sensor

### A: REMOVAL

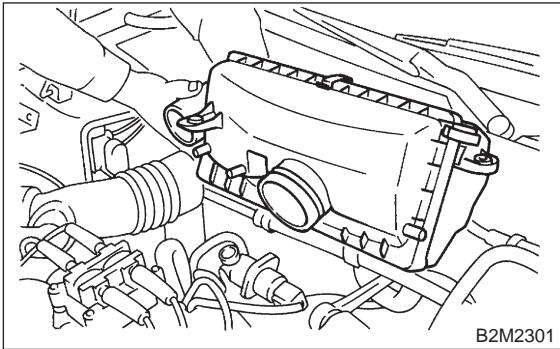
1) Disconnect battery ground cable from battery ground terminal.



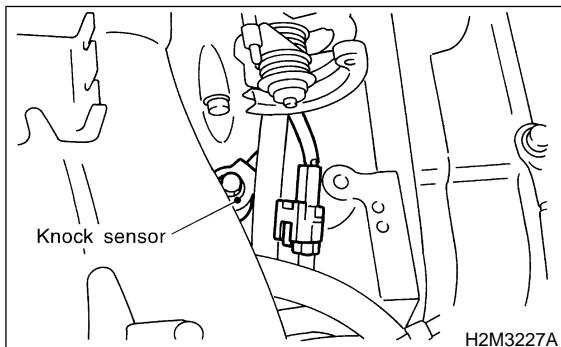
2) Remove air cleaner assembly.  
(2200 cc California spec. vehicles only)  
<Ref. to 2-7 [W1A0].>



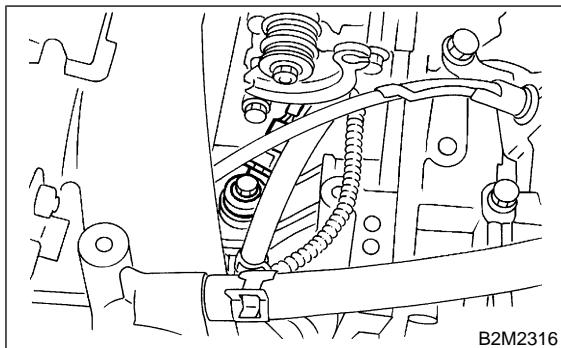
3) Remove air intake chamber.  
(Except 2200 cc California spec. vehicles)  
<Ref. to 2-7 [W18A0].>



4) Remove band which holds knock sensor harness, and disconnect connector from knock sensor.



5) Remove knock sensor from cylinder block.



### B: INSTALLATION

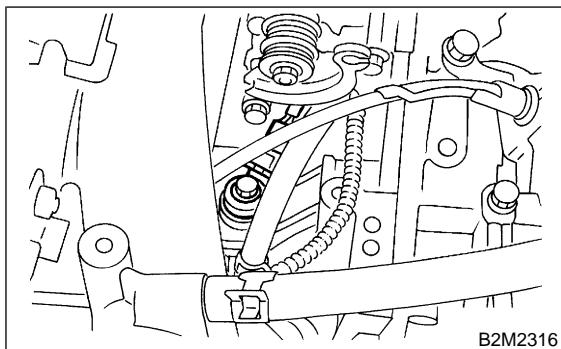
1) Install knock sensor to cylinder block.

**Tightening torque:**

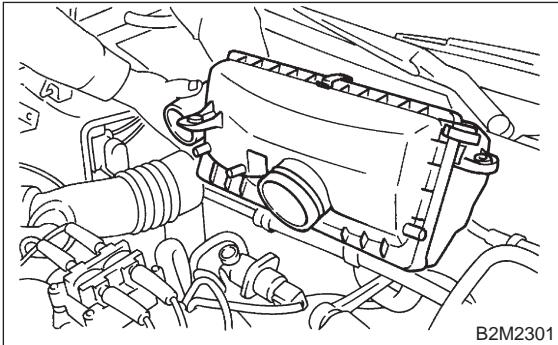
**$23.5 \pm 2.9 \text{ N}\cdot\text{m}$  ( $2.4 \pm 0.3 \text{ kg}\cdot\text{m}$ ,  $17.4 \pm 2.2 \text{ ft}\cdot\text{lb}$ )**

**NOTE:**

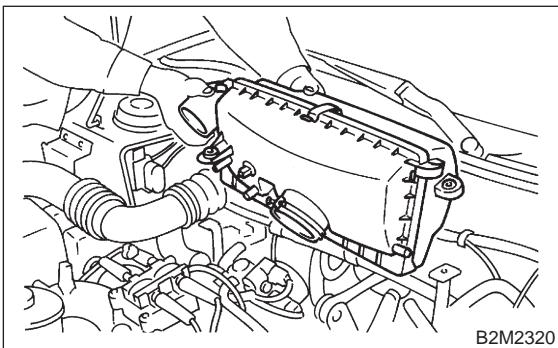
The knock sensor cord which is extracted from the sensor must be positioned at a  $45^\circ$  angle against the rear side of the engine.



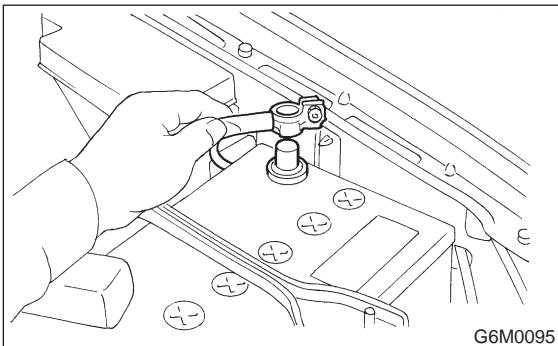
2) Connect knock sensor connector and hold knock sensor harness with band.  
 3) Install air intake chamber. (Except California spec. vehicles) <Ref. to 2-7 [W18A0].>



4) Install air cleaner assembly. (California spec. vehicles only) <Ref. to 2-7 [W1A0].>



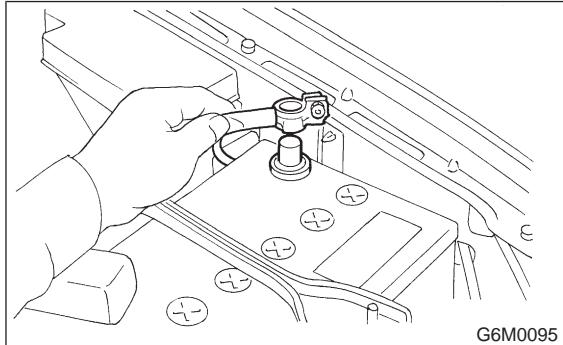
5) Connect battery ground cable to battery ground terminal.



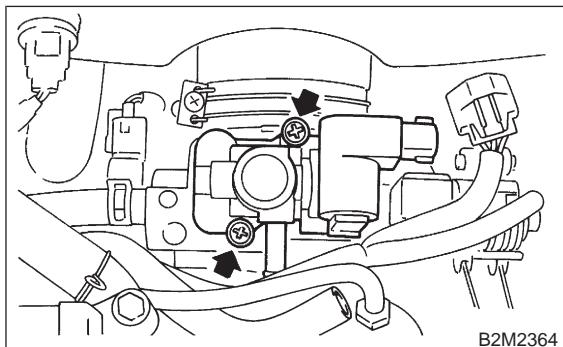
## 20. Intake Manifold Pressure Sensor (2200 cc California Spec. Vehicles only)

### A: REMOVAL AND INSTALLATION

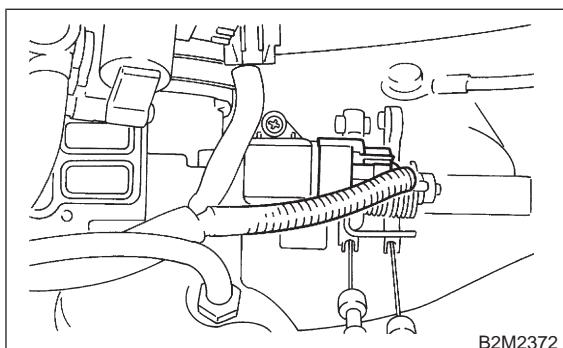
1) Disconnect battery ground cable.



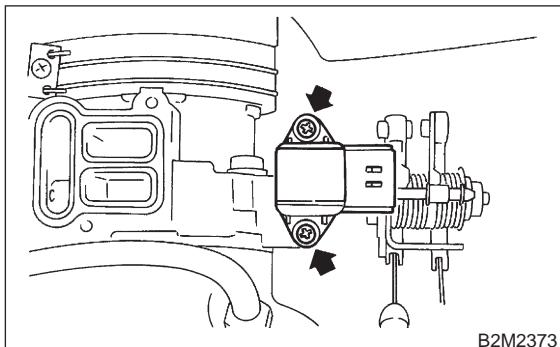
2) Remove idle air control solenoid valve. <Ref. to 2-7 [W12A1].>



3) Disconnect connector from intake manifold pressure sensor.



4) Remove intake manifold pressure sensor from throttle body.



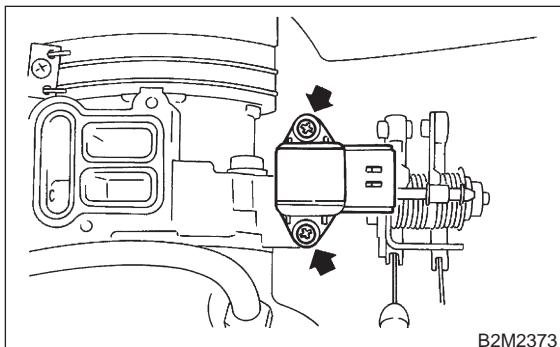
5) Installation is in the reverse order of removal.

**CAUTION:**

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

**Tightening torque:**

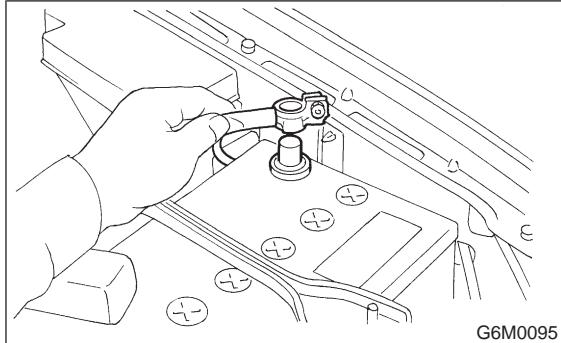
$2.0 \pm 0.4 \text{ N}\cdot\text{m}$  ( $0.20 \pm 0.04 \text{ kg}\cdot\text{m}$ ,  $1.4 \pm 0.3 \text{ ft-lb}$ )



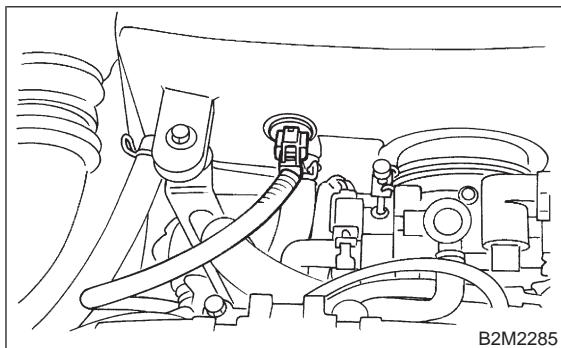
## 21. Intake Air Temperature Sensor (2200 cc California Spec. Vehicles only)

### A: REMOVAL AND INSTALLATION

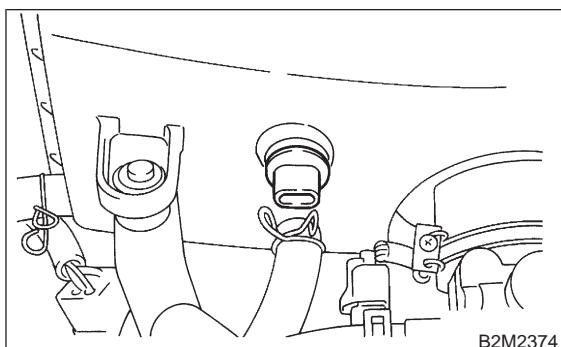
1) Disconnect battery ground cable.



2) Disconnect connector from intake air temperature sensor.



3) Remove intake air temperature sensor from air cleaner case.



4) Installation is in the reverse order of removal.

**MEMO:**