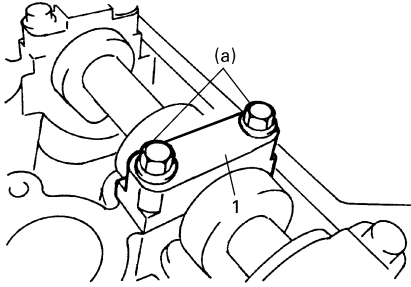


## 1D-7 Engine Mechanical:

- 9) Install camshaft housing (1) and tighten bolts to specified torque.

### Tightening torque

Camshaft housing bolt (a): 11 N·m (1.1 kgf-m, 8.0 lb-ft)



I2RH0B140149-01

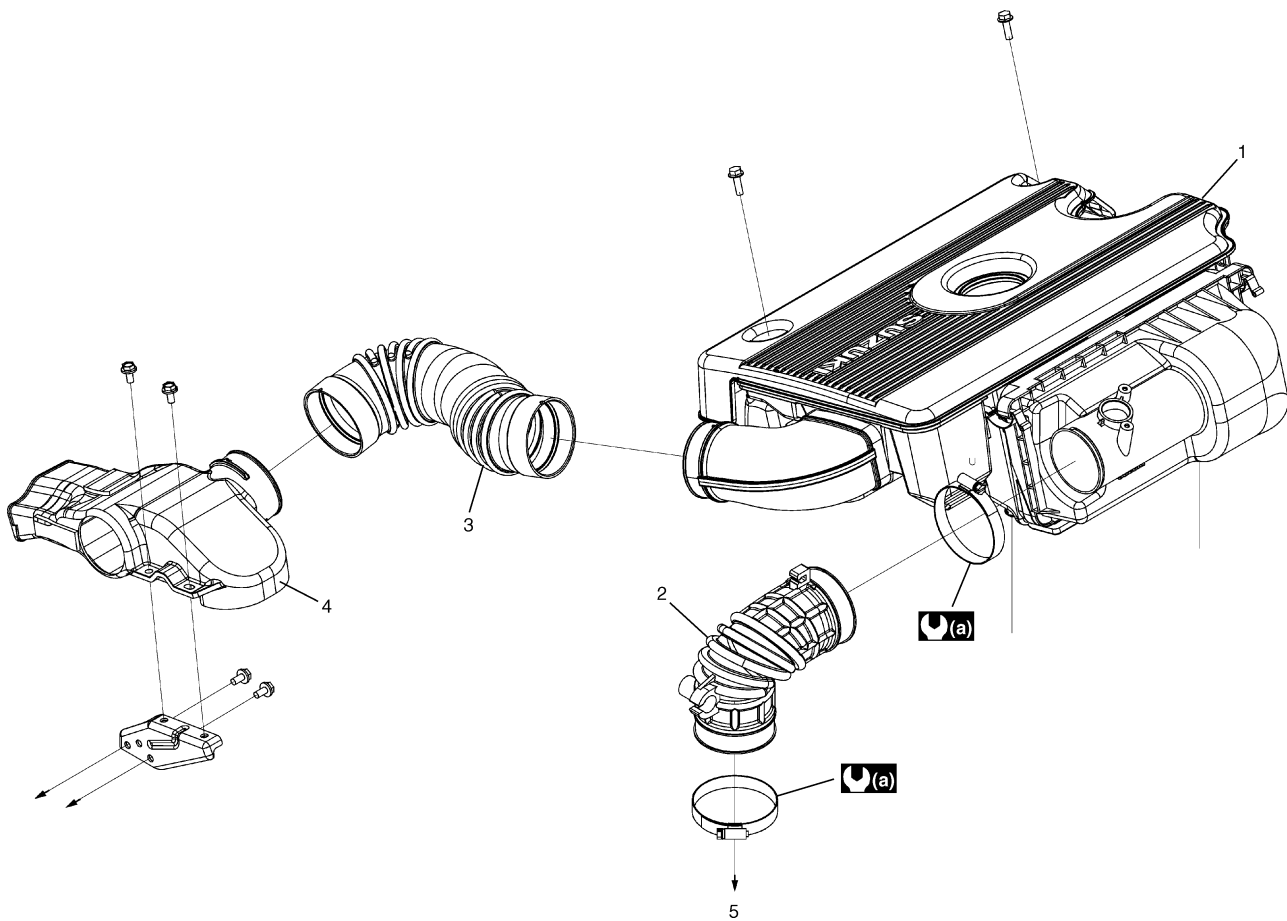
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- 10) Turn crankshaft pulley more than 4 rotations.  
11) Check valve clearance again.  
12) After checking and adjusting all valves, install cylinder head cover referring to "Cylinder Head Cover Removal and Installation".

## Repair Instructions

### Air Cleaner Components

S6RW0C1406001



I7RW01140014-02

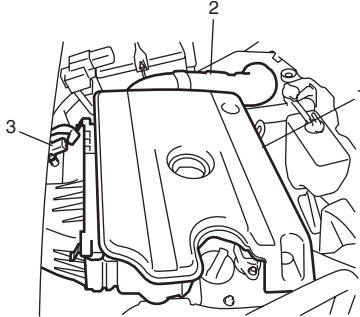
1. Air cleaner assembly	3. Air cleaner inlet hose	5. To electric throttle body
2. Air cleaner outlet hose	4. Air cleaner suction pipe	(a) : 3 N·m (0.3 kgf-m, 2.5 lb-ft)

## Air Cleaner Assembly Removal and Installation

S6RW0C1406002

### Removal

- 1) Remove air cleaner inlet hose (2) and outlet hose.
- 2) Disconnect MAF sensor connector (3).
- 3) Remove air cleaner case (1).



I7RW01140017-01

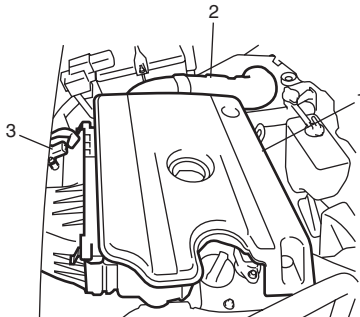
### Installation

- 1) Install air cleaner case (1).
- 2) Connect MAF sensor connector (3), and tighten hose clamp to specified torque.

#### Tightening torque

**Air cleaner outlet hose clamp: 3 N·m (0.3 kgf-m, 2.5 lb-ft)**

- 3) Install air cleaner inlet hose (2) and outlet hose.



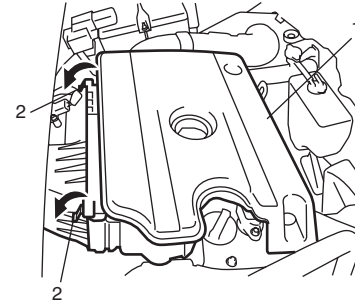
I7RW01140017-01

## Air Cleaner Filter Removal and Installation

S6RW0C1406003

### Removal

- 1) Open air cleaner case (1) by unhooking its clamps (2).
- 2) Remove air cleaner filter.



I7RW01140020-01

### Installation

Reverse removal procedure for installation.

## Air Cleaner Filter Inspection and Cleaning

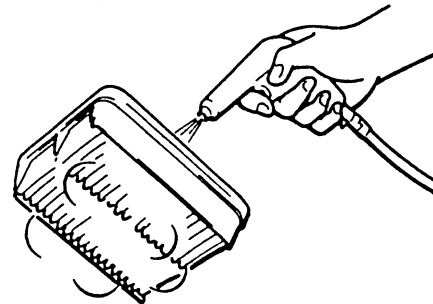
S6RW0C1406004

### Inspection

Check that filter is not excessively dirty, damaged or oily, clean filter with compressed air from air outlet side of filter.

### Cleaning

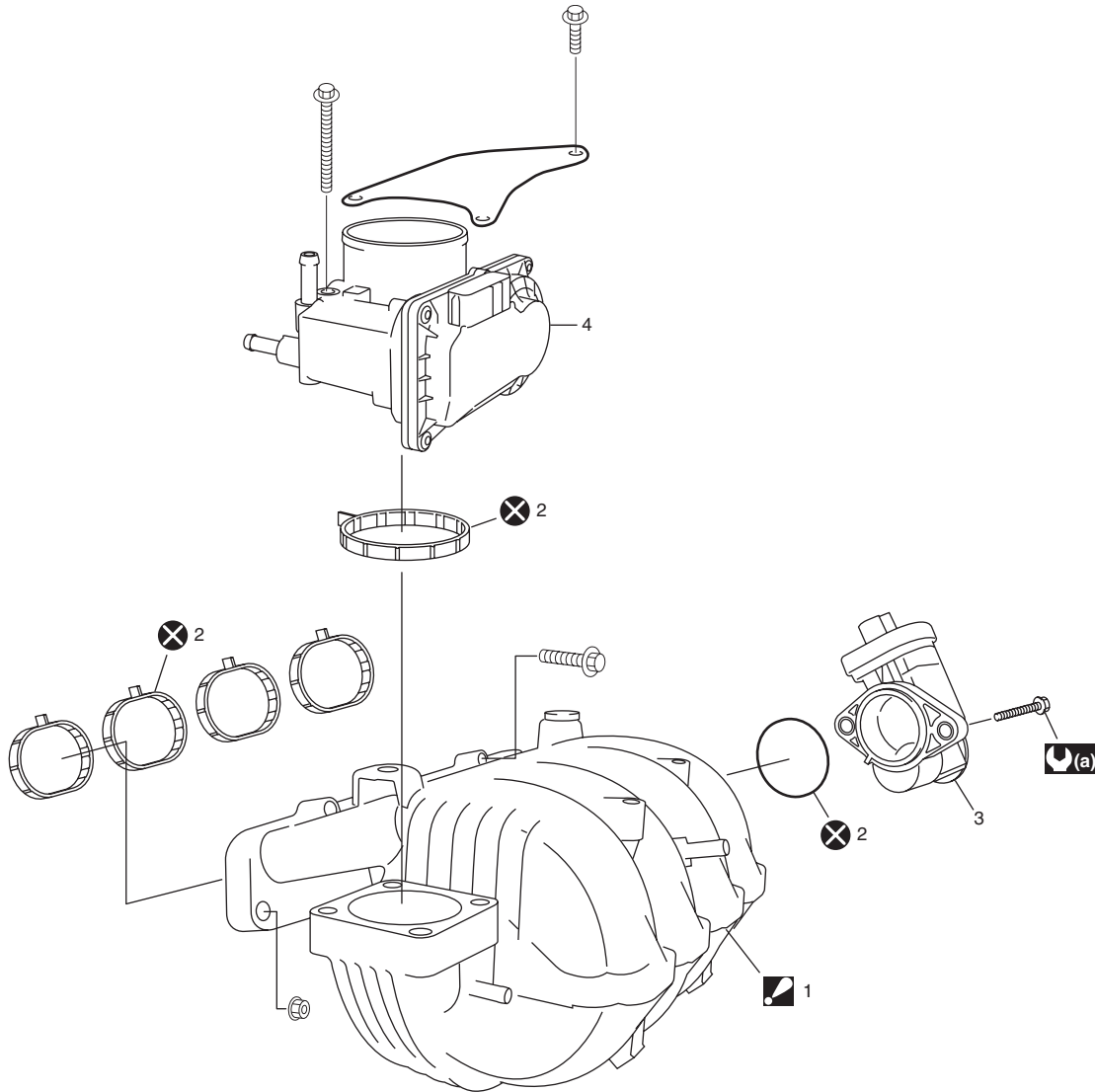
Blow off dust by compressed air from air outlet side of filter.






I2RH01140007-01

Electric Throttle Body and Intake Manifold Components

S6RW0C1406005



I7RW01140021-03

<p> 1. Intake manifold                  : Never disassemble intake manifold. Disassembly will spoil its original performance. If faulty condition is found, replace it with new one.</p>	<p>4. Electric throttle body assembly</p>
<p>2. O-ring</p>	<p> : 6 N·m (0.6 kgf·m, 4.5 lb-ft)</p>
<p>3. IMT valve actuator</p>	<p> : Do not reuse.</p>

## Electric Throttle Body On-Vehicle Inspection

S6RW0C1406006

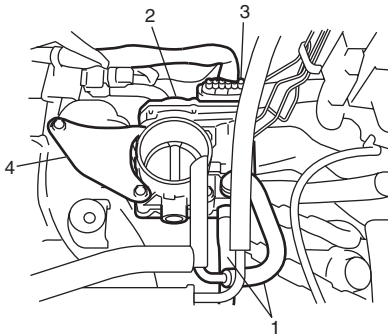
Check electric throttle body assembly referring to “Throttle Valve Operation Check” and “Electric Throttle Body Assembly Operation Check” under “Electric Throttle Body Assembly On-Vehicle Inspection in Section 1C”.

## Electric Throttle Body Assembly Removal and Installation

S6RW0C1406007

### Removal

- 1) Disconnect negative (–) cable at battery.
- 2) Drain coolant.
- 3) Remove air cleaner assembly referring to “Air Cleaner Assembly Removal and Installation”.
- 4) Disconnect engine coolant hoses (1) from electric throttle body assembly (2).
- 5) Disconnect connector (3) from electric throttle body assembly.
- 6) Remove stiffener (4).

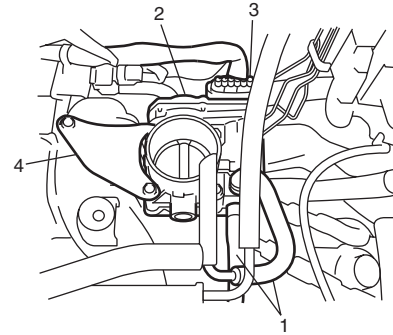


I7RW01140022-03

- 7) Remove electric throttle body assembly from intake manifold.

### Installation

- 1) Clean mating surfaces, and install new throttle body gasket to intake manifold.
- 2) Install electric throttle body assembly (2) with stiffener (4) to intake manifold.
- 3) Connect connector (3) to electric throttle body assembly securely.
- 4) Connect engine coolant hoses (1) to electric throttle body assembly (2).



I7RW01140022-03

- 5) Install air cleaner assembly referring to “Air Cleaner Assembly Removal and Installation”.
- 6) Refill coolant referring to “Cooling System Flush and Refill in Section 1F”.
- 7) Connect negative (–) cable at battery.
- 8) Perform calibration of electric throttle body assembly referring to “Electric Throttle Body System Calibration in Section 1C” if replaced.

## Electric Throttle Body Cleaning

S6RW0C1406008

Clean electric throttle body assembly referring to “Throttle Valve Operation Check” under “Electric Throttle Body Assembly On-Vehicle Inspection in Section 1C”.

## Intake Manifold Removal and Installation

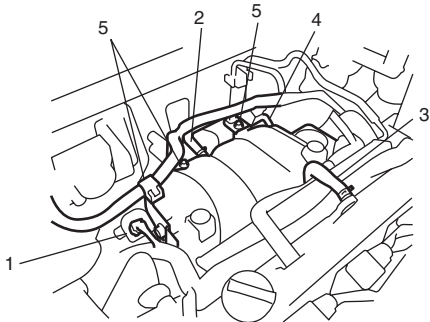
S6RW0C1406009

### ⚠ CAUTION

**Never disassemble intake manifold. Disassembly will spoil its original performance. If faulty condition is found, replace it with new one.**

### Removal

- 1) Disconnect negative (-) cable at battery.
- 2) Drain cooling.
- 3) Remove electric throttle body assembly referring to "Electric Throttle Body Assembly Removal and Installation".
- 4) Disconnect the following electric lead wires:
  - IMT connector (1)
- 5) Disconnect the following hoses:
  - Brake booster hose (2) from intake manifold
  - PCV hose (3) from PCV valve
  - Vacuum hose (4) from EVAP canister purge valve
  - Breather hose from intake manifold
- 6) Remove harness brackets (5) from intake manifold.



I7RW01140023-01

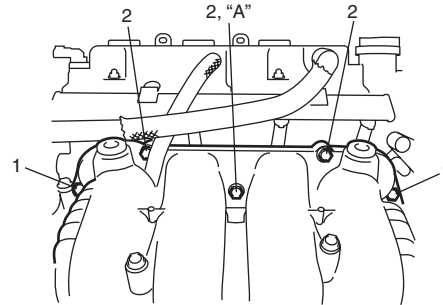
- 7) Remove intake manifold and O-ring from cylinder head.

### Installation

Reverse removal procedure for installation noting the followings.

- Use new intake manifold O-ring.
- Install intake manifold bolts (2) and nuts (1) as shown in figure.  
Apply thread lock cement to intake manifold bolt.

**"A": Thread lock cement 99000-32110 (Thread Lock Cement Super 1322)**



I7RW01140024-05

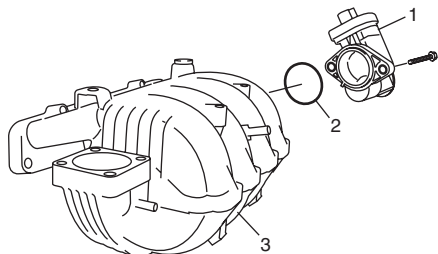
- Check to ensure that all removed parts are back in place.  
Reinstall any necessary parts which have not been reinstalled.
- Refill cooling system referring to "Cooling System Flush and Refill in Section 1F".
- Upon completion of installation, turn ignition switch ON but engine OFF and check for fuel leaks.
- Finally, start engine and check for engine coolant leaks.

## IMT Valve Actuator Removal and Installation

S6RW0C1406010

### Removal

- 1) Disconnect negative (-) cable at battery.
- 2) Disconnect IMT valve actuator connector.
- 3) Remove IMT valve actuator (1) and O-ring (2) from intake manifold (3).



I7RW01140025-01

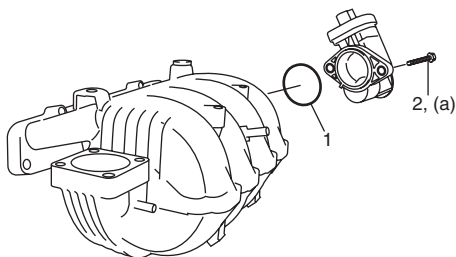
### Installation

Reverse removal procedure noting the followings.

- Use new O-ring (1).
- Tighten IMT valve actuator bolt (2) to specified torque.

#### Tightening torque

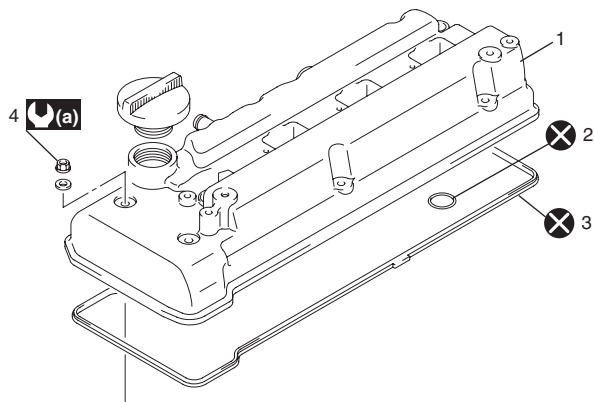
**IMT valve actuator bolt (a): 6 N·m (0.6 kgf-m, 4.5 lb-ft)**



I7RW01140026-01

## Cylinder Head Cover Components

S6RW0C1406011



I7RW01140027-01

1. Cylinder head cover

2. O-ring

3. Cylinder head cover gasket

4. Cylinder head cover nut

(a) : Tighten 11 N·m (1.1 kgf-m, 8.0 lb-ft) by specified procedure.

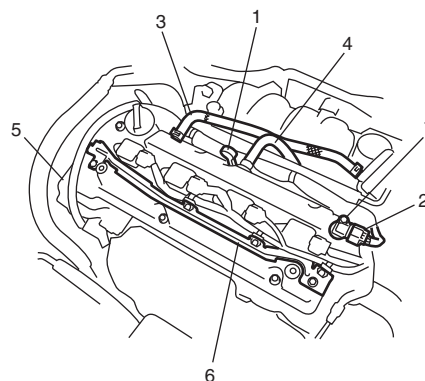
: Do not reuse.

## Cylinder Head Cover Removal and Installation

S6RW0C1406012

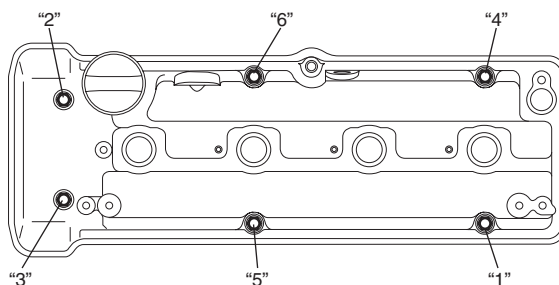
### Removal

- 1) Disconnect negative (-) cable at battery.
- 2) Remove ignition coils referring to "Ignition Coil Assembly (Including ignitor) Removal and Installation in Section 1H".
- 3) Remove oil level gauge (1).
- 4) Disconnect CMP sensor connector (2) and then remove CMP sensor (7) from cylinder head cover.
- 5) Disconnect breather hose (3) and PCV hose (4) from cylinder head cover (5).
- 6) Remove harness bracket (6) from cylinder head cover (5).



I7RW01140028-01

- 7) Remove PCV valve from cylinder head cover.
- 8) Remove cylinder head cover nuts in such order as indicated in the figure.



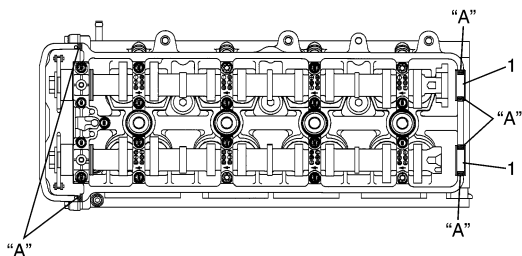
I5JB0A142013-01

- 9) Remove cylinder head cover from cylinder head.
- 10) Remove cylinder head side seals from cylinder head.

**Installation**

- 1) Install PCV valve to cylinder head cover referring to "PCV Valve Removal and Installation in Section 1B".
- 2) Remove oil, old sealant and dust from sealing surfaces on cylinder head and cover.
- 3) Install new cylinder head side seals (1) to cylinder head.
- 4) Apply sealant "A" to cylinder head sealing surface area as shown in figure.

**"A": Water tight sealant 99000-31250 (SUZUKI Bond No.1207F)**



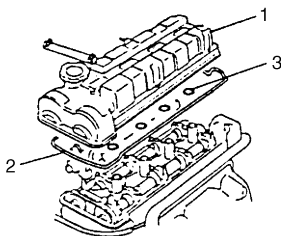
I5JB0A142067-01

- 5) Apply engine oil to new O-rings.
- 6) Install new O-rings (3) and new cylinder head cover gasket (2) to cylinder head cover (1).

**NOTE**

**Be sure to check each of these parts for deterioration or any damage before installation and replace if found defective.**

- 7) Install cylinder head cover to cylinder head.

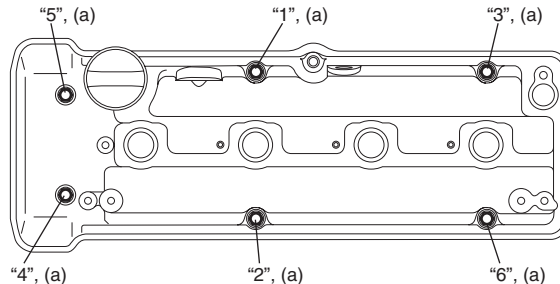


I5JB0A142068-02

- 8) Tighten cylinder head cover nuts in such order as indicated in the figure a little at a time till they are tightened to specified torque.
  - Use new seal washers.

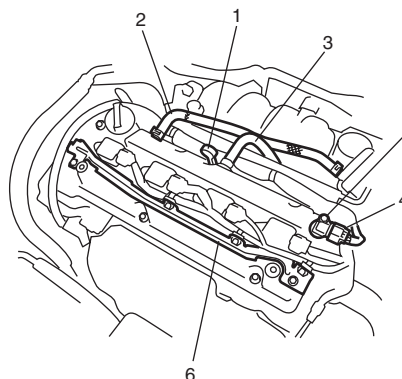
**Tightening torque**

**Cylinder head cover nut (a): Tighten 11 N·m (1.1 kgf-m, 8.0 lb-ft) by the specified procedure**



I5JB0A142014-01

- 9) Install oil level gauge (1).
- 10) Install CMP sensor (5) to cylinder head cover referring to "Camshaft Position (CMP) Sensor Removal and Installation in Section 1C".
- 11) Connect CMP sensor connector (4).
- 12) Connect breather hose (2) and PCV hose (3) to cylinder head cover.
- 13) Install harness bracket (6) to cylinder head cover.



I7RW01140029-03

- 14) Install ignition coils referring to "Ignition Coil Assembly (Including ignitor) Removal and Installation in Section 1H".
- 15) Install air cleaner case referring to "Air Cleaner Assembly Removal and Installation".
- 16) Connect negative (-) cable at battery.