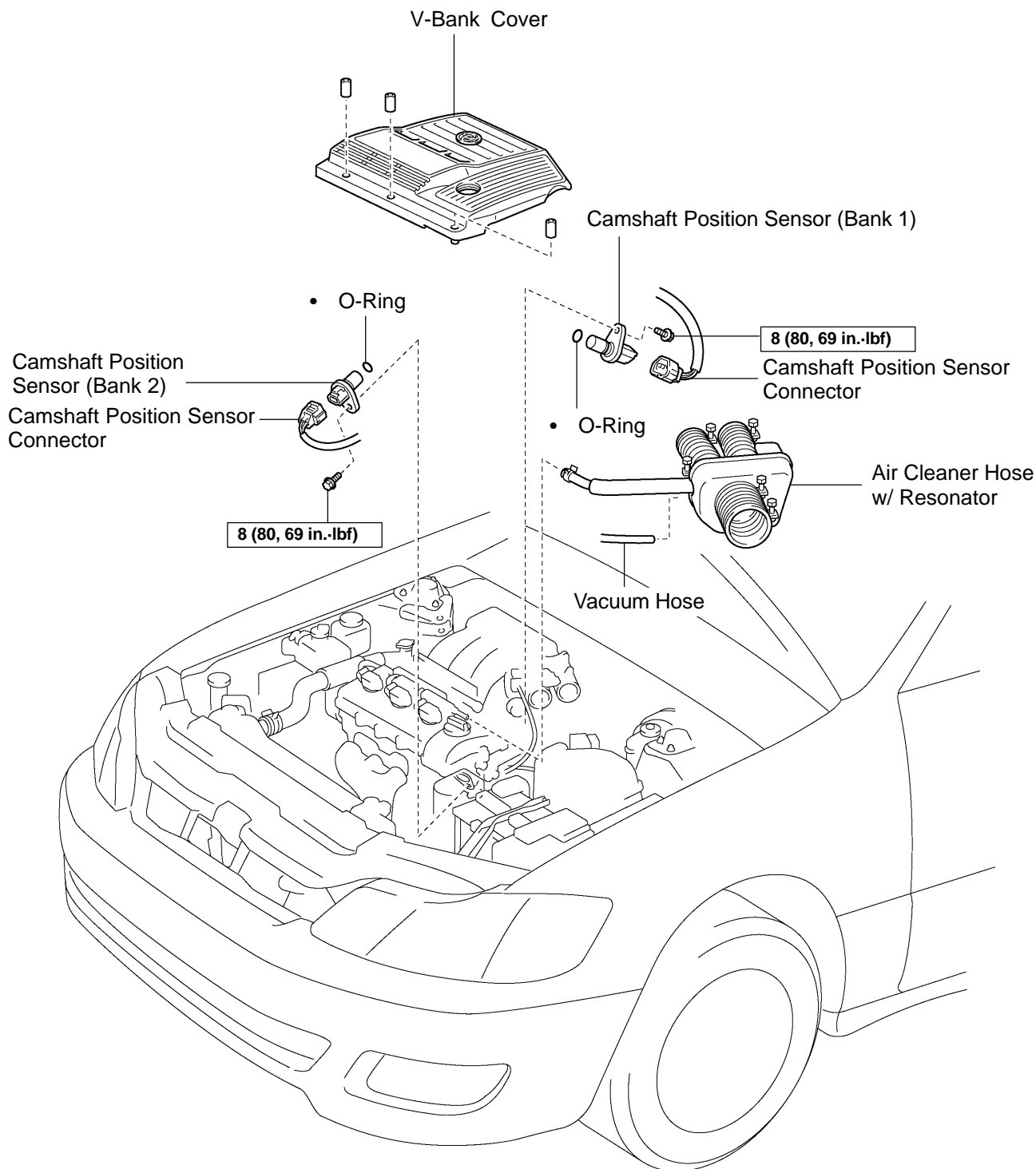


# CAMSHAFT POSITION SENSOR COMPONENTS

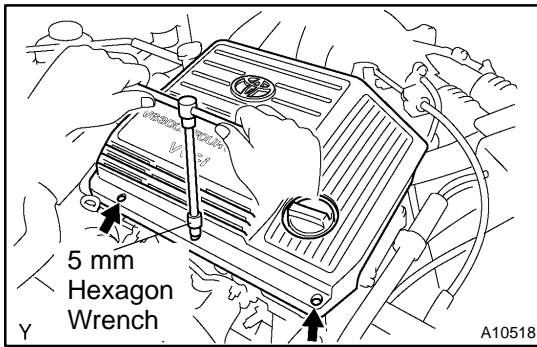
IG09Q-03



N·m (kgf·cm, ft·lbf) : Specified torque

γ • Non-reusable part

B07461



## REPLACEMENT

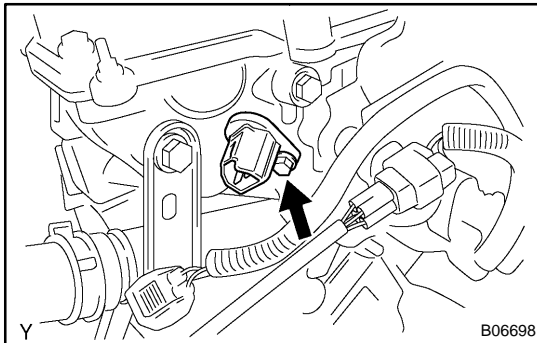
### 1. REMOVE V-BANK COVER

- (a) Using a 5 mm hexagon wrench, remove the 3 cap nuts.
- (b) Loosen the V-bank cover fastener counterclockwise.
- (c) Remove the V-bank cover.

### 2. REMOVE AIR CLEANER HOSE WITH RESONATOR

### 3. REMOVE CAMSHAFT POSITION SENSORS

- (a) Disconnect the 2 camshaft position sensor connectors.



- (b) Remove the bolt and camshaft position sensor. Remove the 2 camshaft position sensors.

- (c) Remove the O-rings from the camshaft position sensors.

### 4. REINSTALL NEW CAMSHAFT POSITION SENSORS

- (a) Install new O-rings to new camshaft position sensors.
- (b) Install the camshaft position sensor with the bolt. Install the 2 camshaft position sensors.

**Torque: 8 N·m (80 kgf·cm, 69 in.-lbf)**

- (c) Connect the 2 camshaft position sensor connectors.

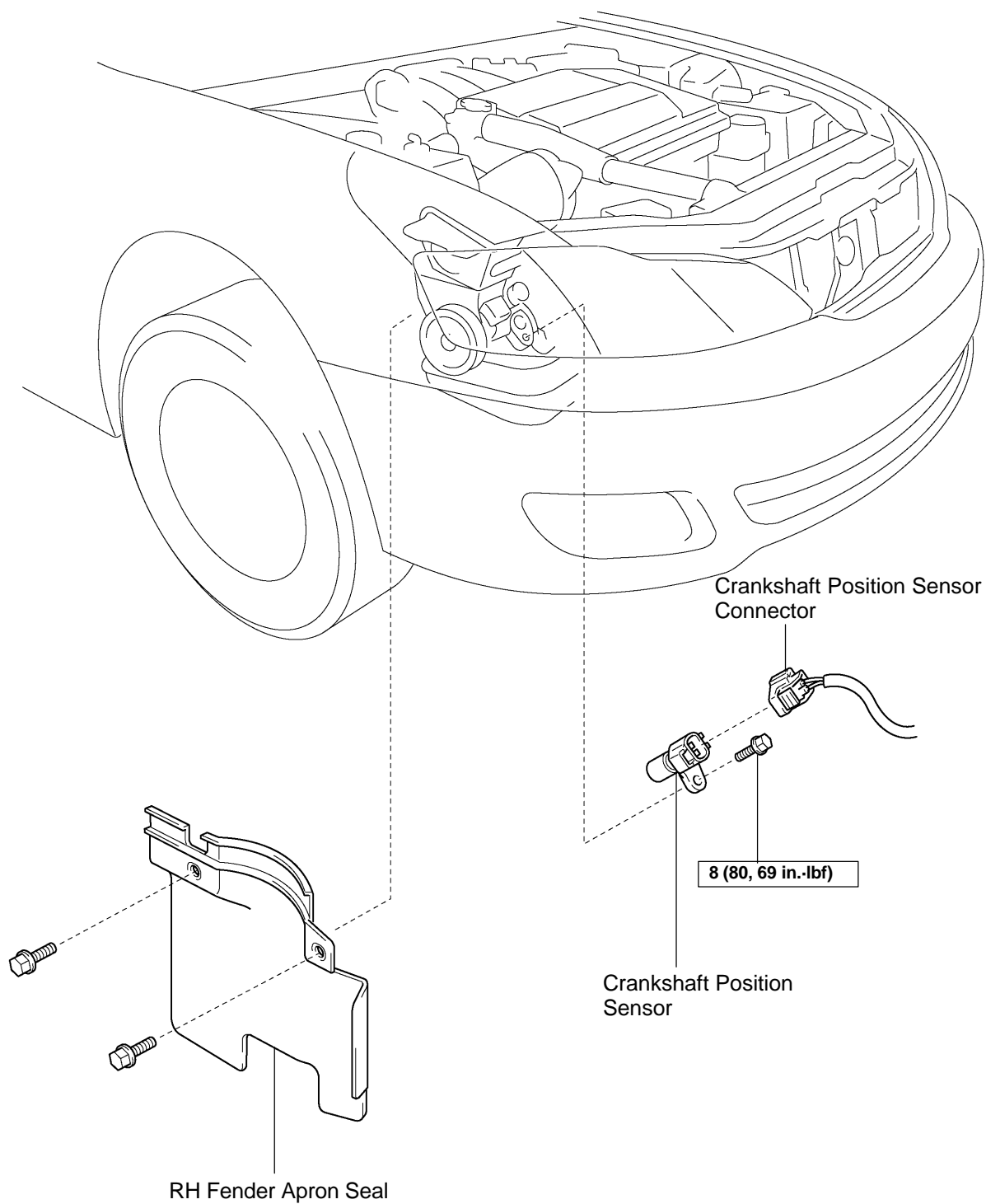
### 5. REINSTALL AIR CLEANER HOSE WITH RESONATOR

### 6. REINSTALL V-BANK COVER

- (a) Using 5 mm hexagon wrench, install the V-bank cover with the 3 cap nuts.
- (b) Press down the V-bank cover fastener.

# CRANKSHAFT POSITION SENSOR COMPONENTS

IG067-03

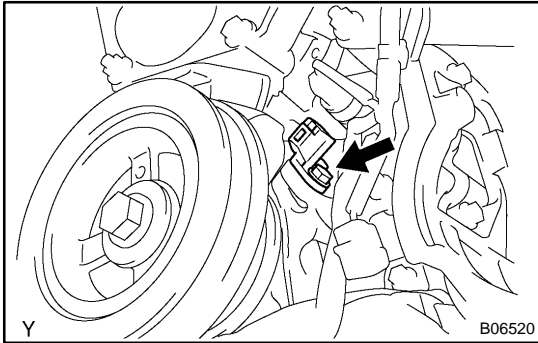


Y N·m (kgf·cm, ft·lbf) : Specified torque

B07462

## REPLACEMENT

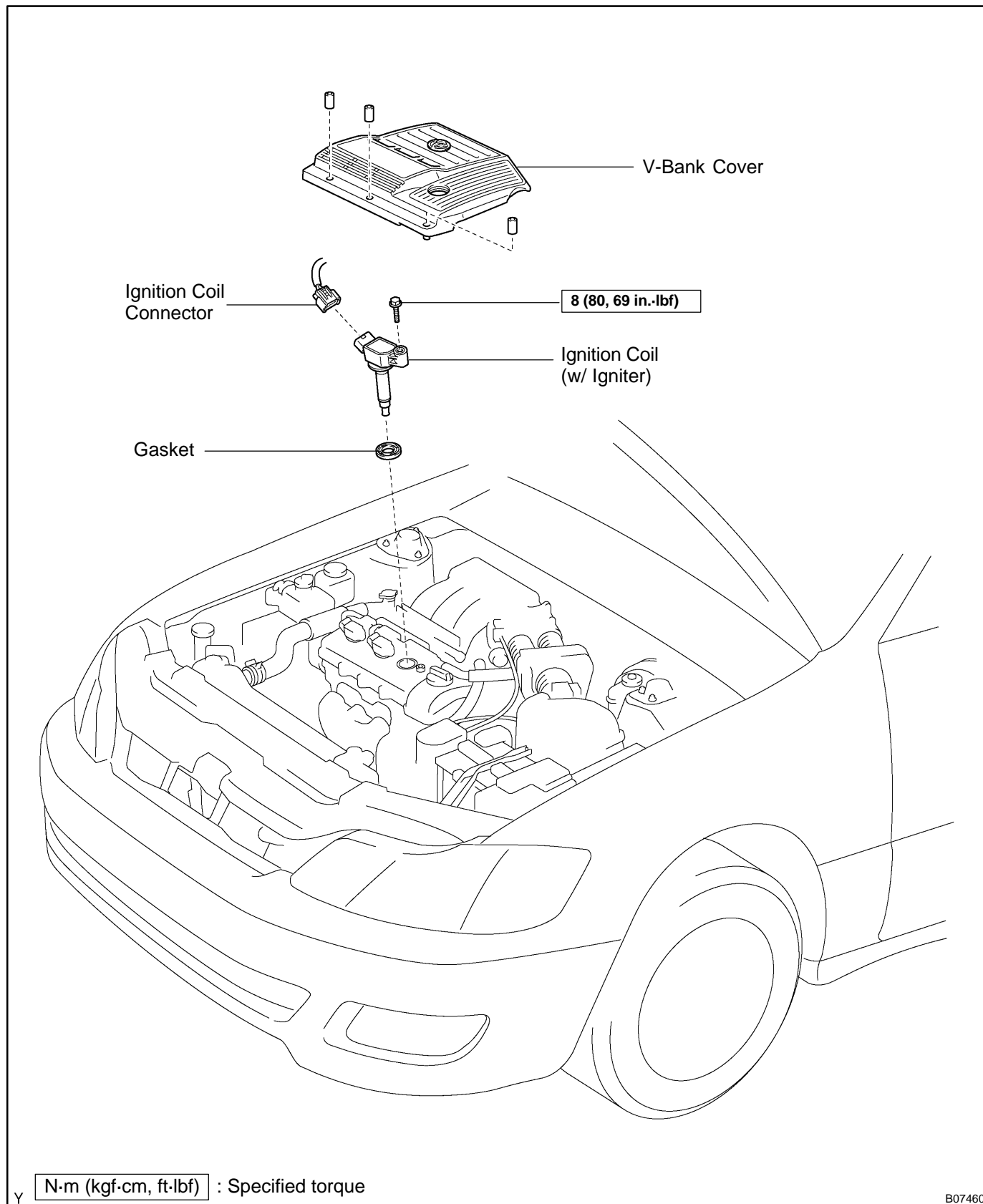
1. **REMOVE RH FENDER APRON SEAL**
2. **REMOVE CRANKSHAFT POSITION SENSOR**
  - (a) Disconnect the crankshaft position sensor connector.



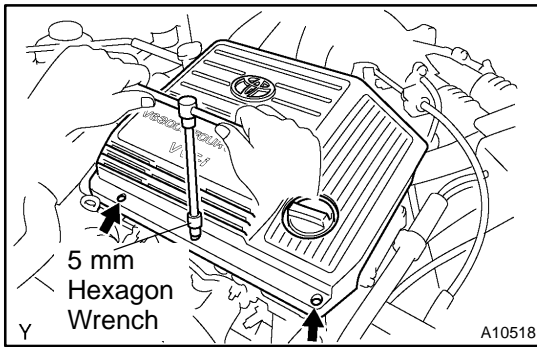
- (b) Remove the bolt and crankshaft position sensor.
3. **REINSTALL NEW CRANKSHAFT POSITION SENSOR**
  - (a) Install a new crankshaft position sensor with the bolt.  
**Torque: 8 N·m (80 kgf·cm, 69 in.-lbf)**
  - (b) Connect the crankshaft position sensor connector.
4. **REINSTALL RH FENDER APRON SEAL**

# IGNITION COIL COMPONENTS

IG09O-03



B07460



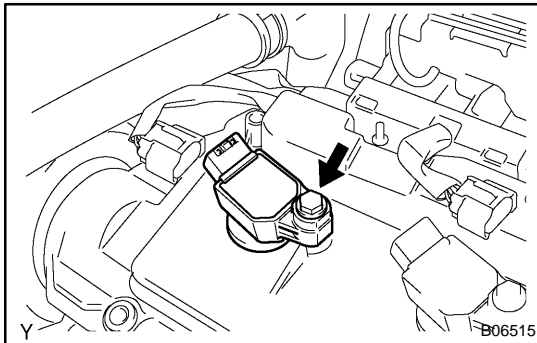
## REPLACEMENT

### 1. REMOVE V-BANK COVER

- (a) Using a 5 mm hexagon wrench, remove the 3 cap nuts.
- (b) Loosen the V-bank cover fastener counterclockwise.
- (c) Remove the V-bank cover.

### 2. REMOVE IGNITION COILS

- (a) Disconnect the 6 ignition coil connectors.



- (b) Remove the bolt, and pull out the ignition coil. Remove the 6 ignition coils.

### 3. REINSTALL NEW IGNITION COILS

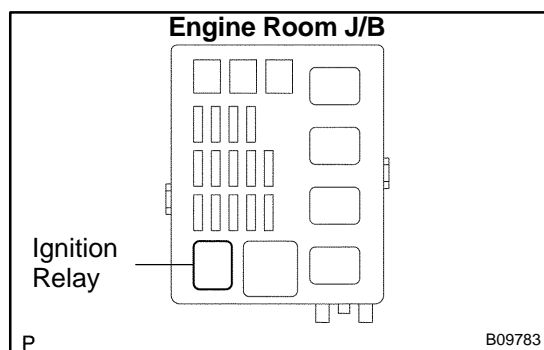
- (a) Connect a new ignition coil to the spark plug, and attach the ignition coil to the cylinder head cover, and install the bolt. Install the 6 ignition coils.

**Torque: 8 N·m (80 kgf·cm, 69 in.-lbf)**

- (b) Connect the 6 ignition coil connectors.

### 4. REINSTALL V-BANK COVER

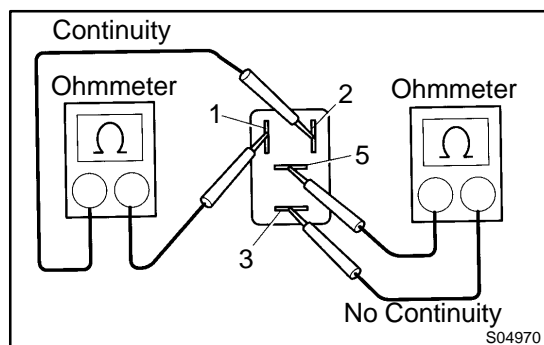
- (a) Using 5 mm hexagon wrench, install the V-bank cover with the 3 cap nuts.
- (b) Press down the V-bank cover fastener.



## IGNITION RELAY (No.2) INSPECTION

SF0DX-04

### 1. REMOVE IGNITION RELAY (Marking: IG2)



### 2. INSPECT IGNITION RELAY

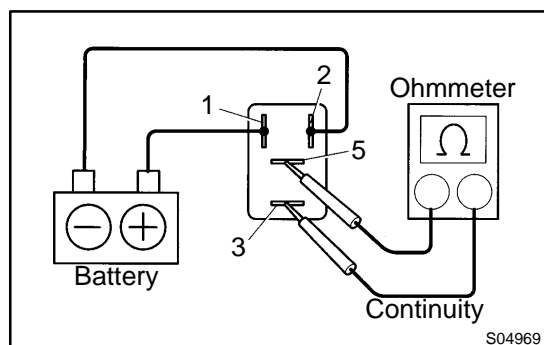
#### (a) Inspect the relay continuity.

- (1) Using an ohmmeter, check that there is continuity between terminals 1 and 2.

If there is no continuity, replace the relay.

- (2) Check that there is no continuity between terminals 3 and 5.

If there is continuity, replace the relay.



#### (b) Inspect the relay operation.

- (1) Apply battery positive voltage across terminals 1 and 2.
- (2) Using an ohmmeter, check that there is continuity between terminals 3 and 5.

If there is no continuity, replace the relay.

### 3. REINSTALL IGNITION RELAY

# IGNITION SYSTEM ON-VEHICLE INSPECTION

IG0DL-02

## NOTICE:

"Cold" and "Hot" in these sentences express the temperature of the coils themselves. "Cold" is from -10°C (14°F) to 50°C (122°F) and "Hot" is from 50°C (122°F) to 100°C (212°F).

## 1. INSPECT SPARK TEST

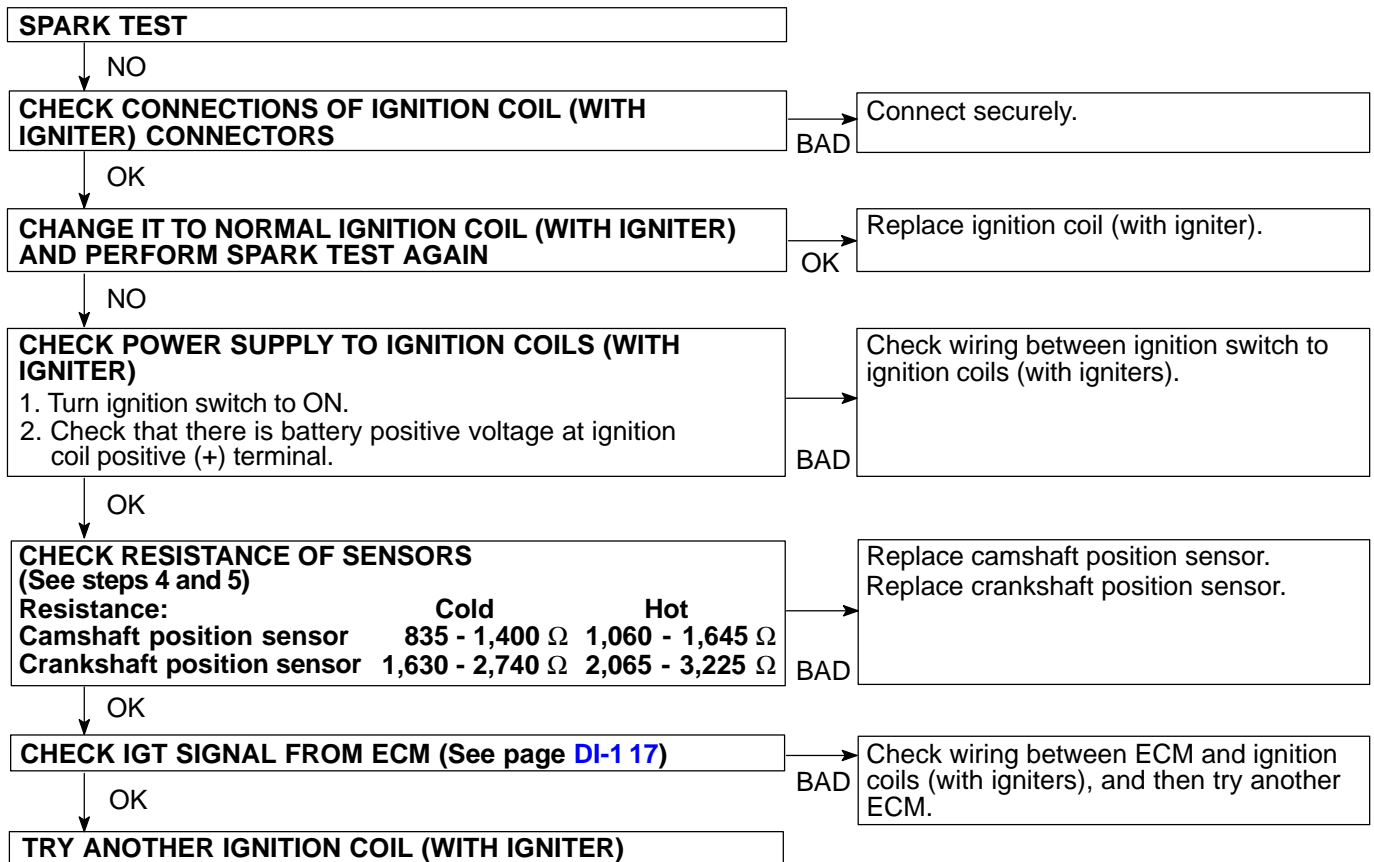
Check that the spark occurs.

- (1) Remove the ignition coils (with igniters) (See page [IG-5](#)).
- (2) Remove the spark plugs.
- (3) Install the spark plug to the ignition coil, and connect the ignition coil connector.
- (4) Ground the spark plug.
- (5) See if spark occurs while engine is being cranked.

## NOTICE:

To prevent gasoline from being injected from injectors during this test, crank the engine for no more than 5 - 10 seconds at time.

If the spark does not occur, do the test as follows:



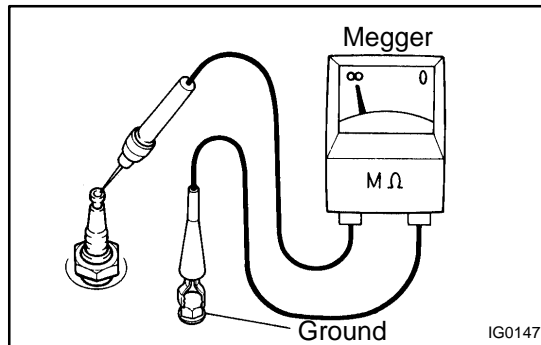


## 2. INSPECT SPARK PLUGS

### NOTICE:

- **Never use a wire brush for cleaning.**
- **Never attempt to adjust the electrode gap on a used spark plug.**
- **Spark plugs should be replaced every 193,000 km (120,000 miles).**

(a) Remove the 6 ignition coils (with igniters) (See page [IG-5](#) ).



(b) Inspect the electrode.

- Using a megger (insulation resistance meter), measure the insulation resistance.

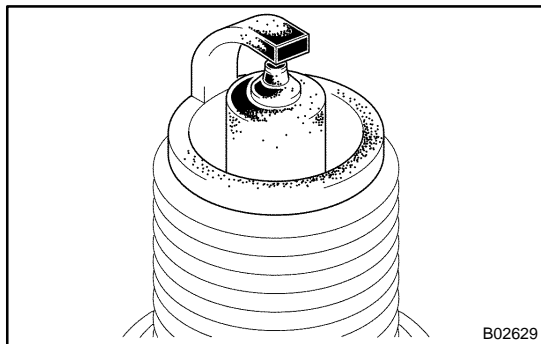
### Standard correct insulation resistance:

**10 M $\Omega$  or more**

If the resistance is less than specified, proceed to step (d).

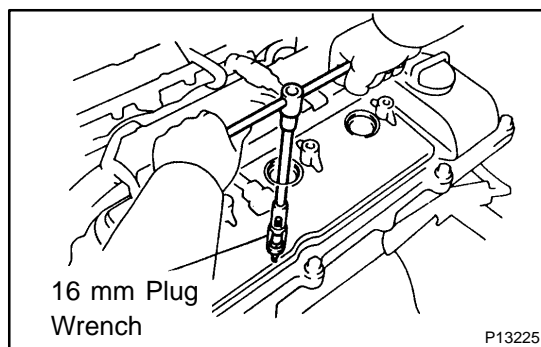
### HINT:

If a megger is not available, these simple method of inspection provides fairly accurate results.



- Simple Method:

- Quickly race the engine to 4,000 rpm 5 times.
- Remove the spark plug (See step (c)).
- Visually check the spark plug.  
If the electrode is dry ... OK  
If the electrode is wet ... Proceed to step (d)
- Reinstall the spark plug (See step (g)).

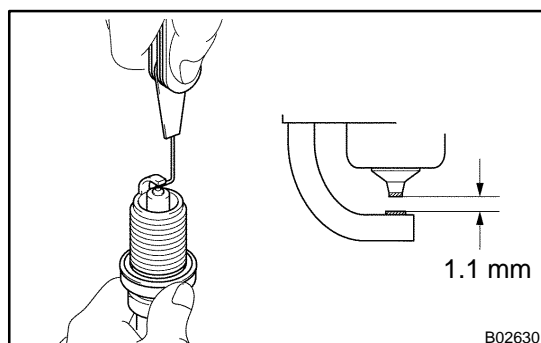


- (c) Using a 16 mm plug wrench, remove the 6 spark plugs.  
(d) Visually check the spark plug for thread damage and insulator damage.

If abnormal, replace the spark plug.

### Recommended spark plug:

DENSO made	SK20R11
NGK made	IFR6A11



(e) Inspect the electrode gaps.

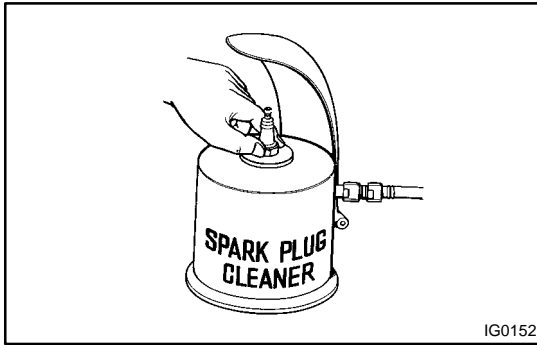
**Maximum electrode gap for used spark plug:**  
**1.3 mm (0.051 in.)**

If the gap is greater than maximum, replace the spark plug.

**Correct electrode gap for new spark plug:**  
**1.1 mm (0.043 in.)**

### NOTICE:

If adjusting the gap of a new spark plug, bend only the base of the ground electrode. Do not touch the tip. Never attempt to adjust the gap on the used plug.



(f) Clean the spark plugs.

If the electrode has traces of wet carbon, allow it to dry and then clean with a spark plug cleaner.

**Air pressure: Below 588 kPa (6 kgf/cm<sup>2</sup>, 85 psi)**

**Duration: 20 seconds or less**

HINT:

If there are traces of oil, remove it with gasoline before using the spark plug cleaner.

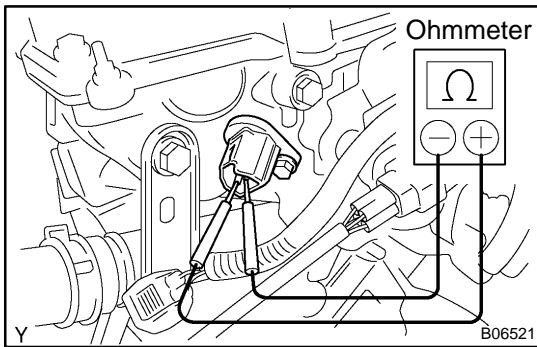
(g) Using a 16 mm plug wrench, install the 6 spark plugs.

**Torque: 18 N·m (180 kgf-cm, 13 ft-lbf)**

(h) Reinstall the 6 ignition coil (See page IG-5).

### 3. INSPECT IGNITION COILS (WITH IGNITERS)

(See step 1.)



### 4. INSPECT CAMSHAFT POSITION SENSORS

(a) Remove the V-bank cover.

(b) Remove the air cleaner hose w/ resonator.

(c) Disconnect the sensor connectors.

(d) Using an ohmmeter, measure the resistance between terminals.

**Resistance:**

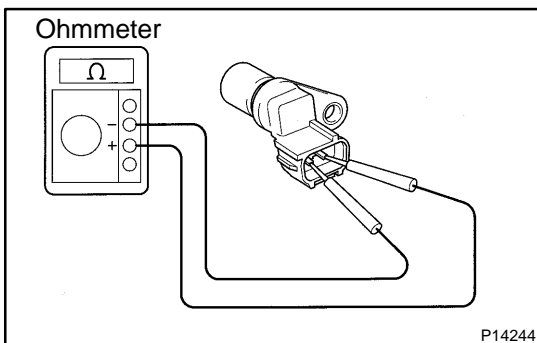
Cold	835 - 1,400 Ω
Hot	1,060 - 1,645 Ω

If the resistance is not as specified, replace the sensor.

(e) Reconnect the sensor connectors.

(f) Reinstall the air cleaner hose w/ resonator.

(g) Reinstall the V-bank cover.



### 5. INSPECT CRANKSHAFT POSITION SENSOR

(a) Remove the sensor (See page IG-9).

(b) Using an ohmmeter, measure the resistance between the terminals.

**Resistance:**

Cold	1,630 - 2,740 Ω
Hot	2,065 - 3,225 Ω

If the resistance is not as specified, replace the sensor.

(c) Reinstall the sensor (See page IG-9).