
IGNITION

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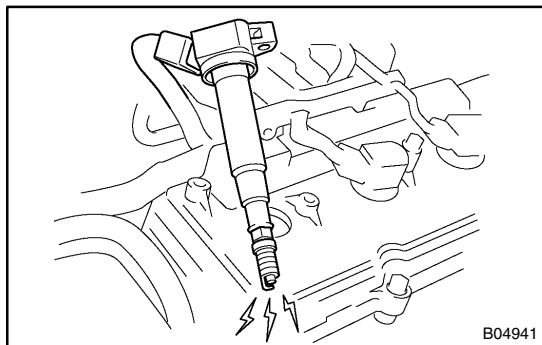


IGNITION SYSTEM ON-VEHICLE INSPECTION

IG09P-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).



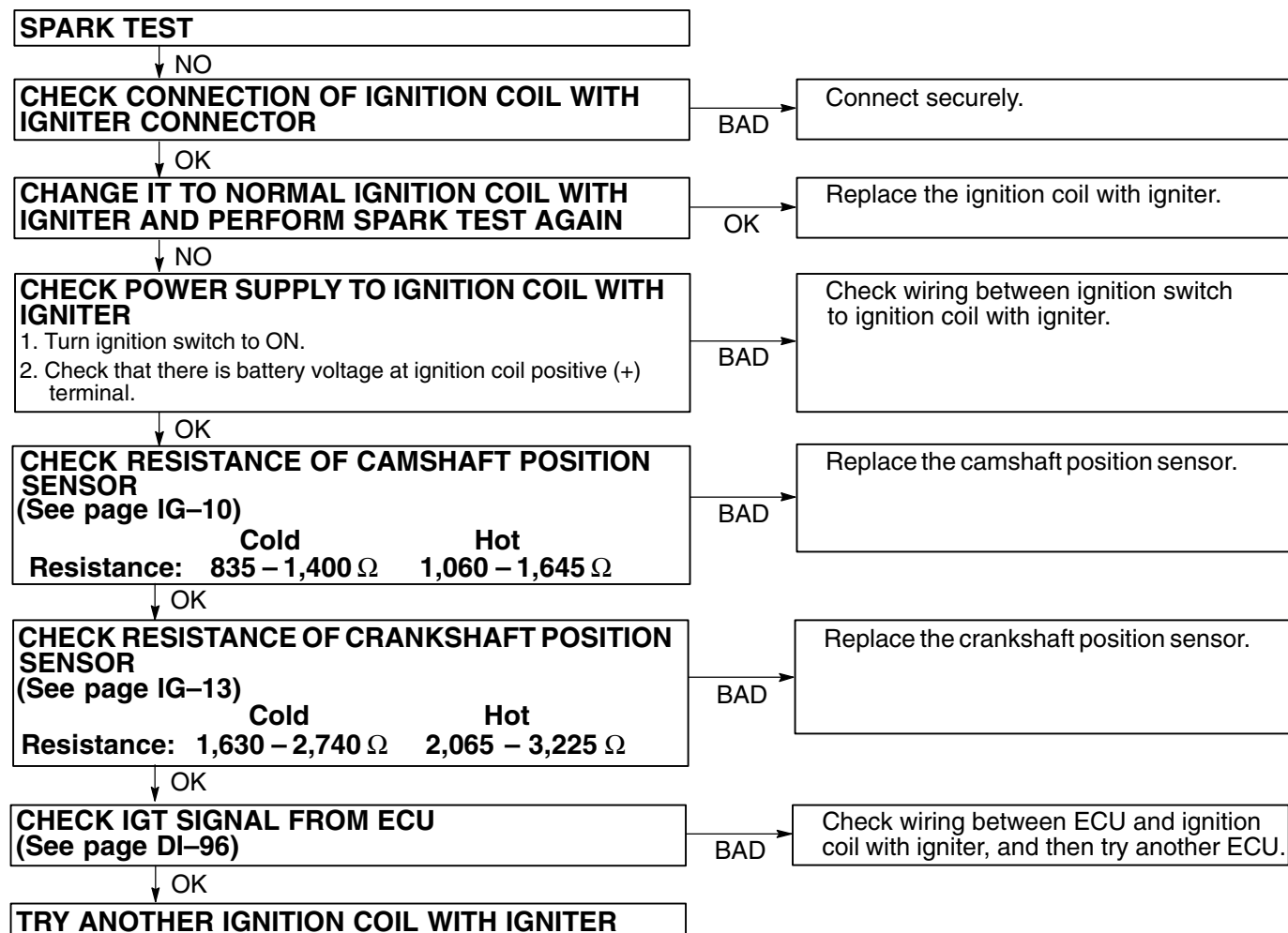
1. INSPECT IGNITION COIL WITH IGNITER AND SPARK TEST

Check that the spark occurs.

- (1) Remove the ignition coil with igniters (See page IG-6).
- (2) Using a 16 mm plug wrench, remove the spark plugs.
- (3) Install the spark plugs to each ignition coil with igniter, and connect the ignition coil with igniter connector.
- (4) Disconnect the injector connector.
- (5) Ground the spark plug.
- (6) Check 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:



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

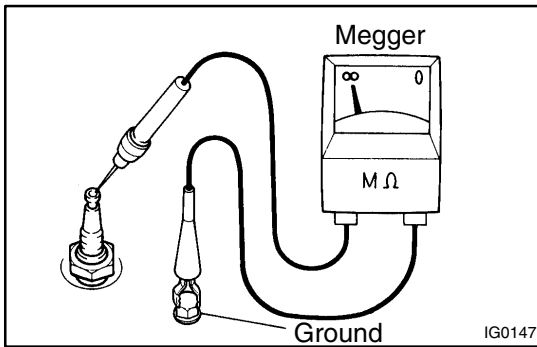
Torque: 17.5 N·m (180 kgf·cm, 13 ft·lbf)

(8) Reinstall the ignition coil with igniters (See page IG-7).

2. INSPECT SPARK PLUGS

NOTICE:

- Never use a wire brush for cleaning.
 - Never attempt to adjust the electrode gap on used spark plug.
 - Spark plug should be replaced every 100,000 km (60,000 miles).
- (a) Remove the ignition coil with igniters (See page IG-6).



(b) Check the electrode.

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

Correct insulation resistance:

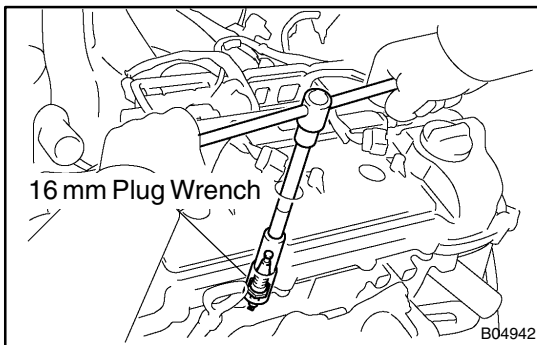
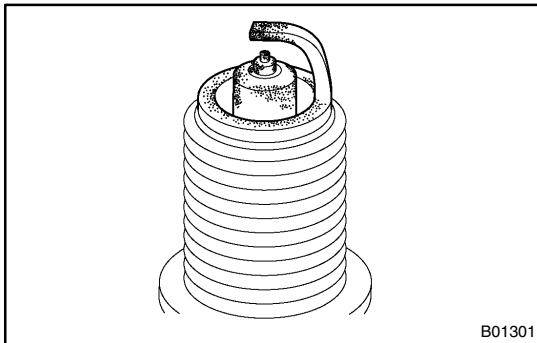
10 MΩ or more

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

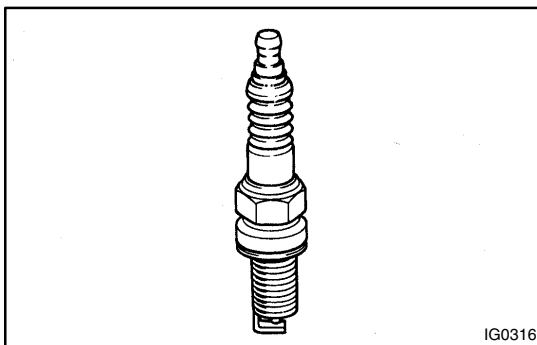
HINT:

If a megger is not available, the following 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 ... Okay.
 - 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 spark plugs.

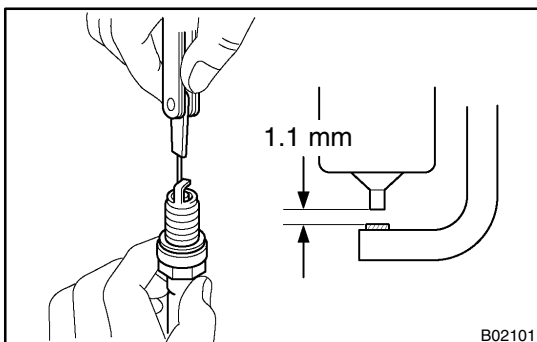


(d) Check the spark plug for thread damage and insulator damage.

If abnormal, replace the spark plug.

Recommended spark plug:

DENSO	SK20R11
NGK	IFR6A11



(e) Check the spark plug electrode gap.

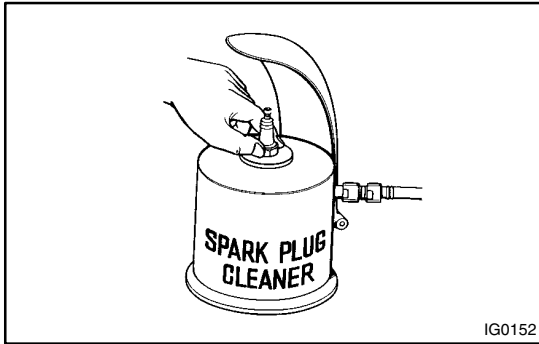
Maximum electrode gap for used spark plug:
1.2 mm (0.047 in.)

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

Correct electrode gap for new spark plug:
1.0 – 1.1mm (0.039 – 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 a 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/cm², 85 psi)

Duration:

20 seconds or less

HINT:

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

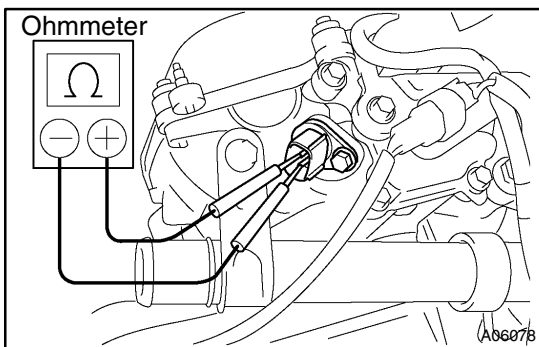
- (g) Using a 16 mm plug wrench, install the spark plugs.

Torque: 17.5 N·m (180 kgf·cm, 13 ft·lbf)

- (h) Reinstall the ignition coil with igniters (See page IG-7).

3. INSPECT CAMSHAFT POSITION SENSOR

- (a) Remove the V-bank cover.
 (b) Remove the battery clamp cover.
 (c) Remove the air cleaner inlet.
 (d) Disconnect the camshaft position sensor connector.



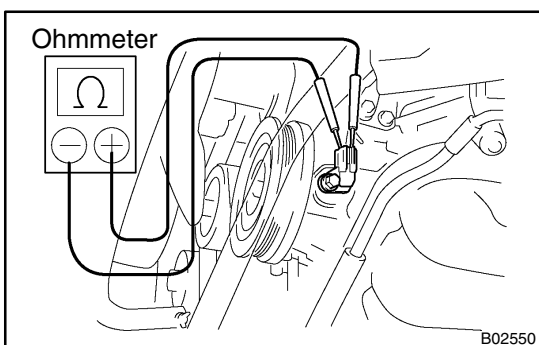
- (e) Using an ohmmeter, measure the resistance between terminals.

Resistance:

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

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

- (f) Reconnect the camshaft position sensor connector.
 (g) Reinstall the air cleaner inlet.
 (h) Reinstall the battery clamp cover.
 (i) Reinstall the V-bank cover.



4. INSPECT CRANKSHAFT POSITION SENSOR

Using an ohmmeter, measure the resistance between terminals.

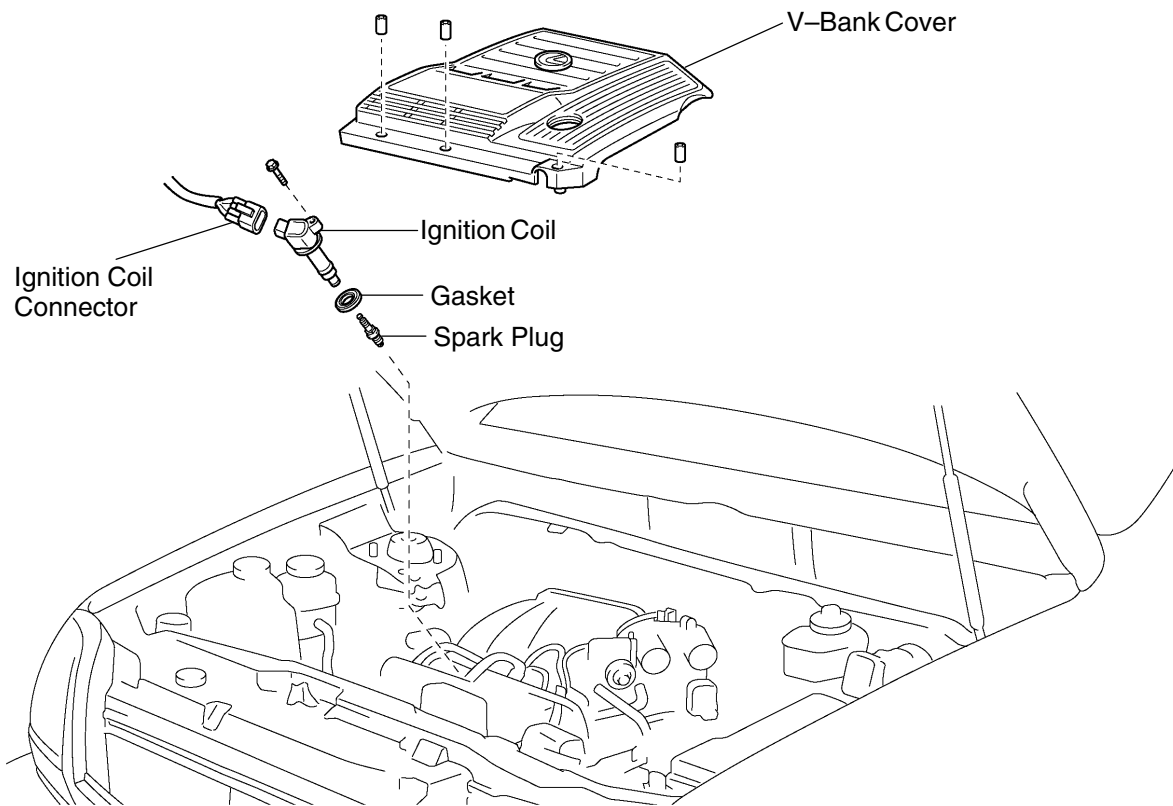
Resistance:

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

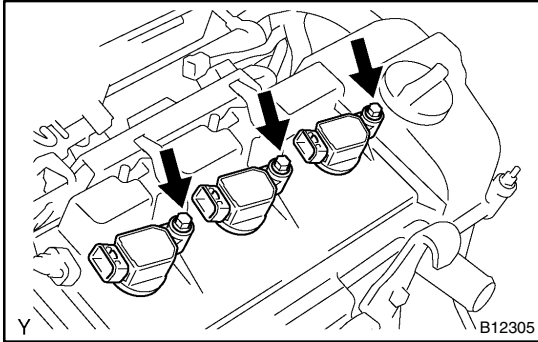
If the resistance is not as specified, replace the crankshaft position sensor.

IGNITION COIL COMPONENTS

IG09O-01



A06079



REMOVAL

1. **DISCONNECT CONNECTORS FROM IGNITION COILS** (See page IG-1)
2. **REMOVE IGNITION COILS**
 - (a) Disconnect the 3 connectors from the ignition coil.
 - (b) Remove the 3 bolts and 3 ignition coils from the LH cylinder head.

Torque: 8 N·m (80 kgf·cm, 69 in.-lbf)

HINT:

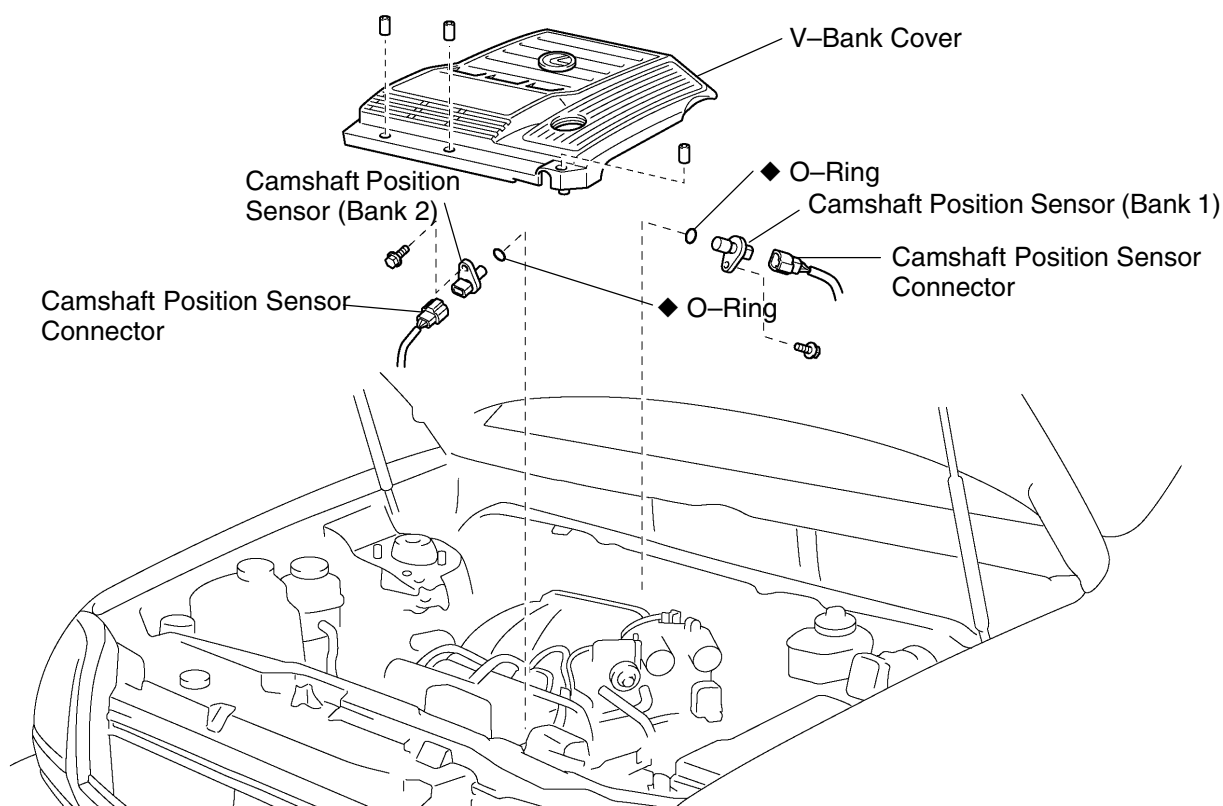
Arrange the ignition coils in correct order.

INSTALLATION

Installation is in the reverse order of removal (See page IG-6).

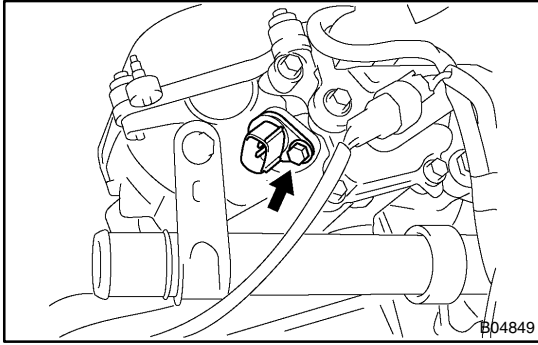
CAMSHAFT POSITION SENSOR COMPONENTS

IG09Q-01



◆ Non-reusable part

A06080



REMOVAL

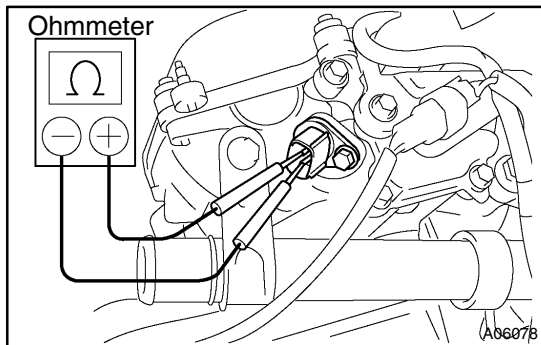
1. **REMOVE V-BANK COVER**
 2. **REMOVE INTAKE AIR CONNECTOR**
 3. **REMOVE CAMSHAFT POSITION SENSOR**
 - (a) Disconnect the camshaft position sensor connector.
 - (b) Remove the bolt and camshaft position sensor.
- Torque: 8 N·m (80 kgf·cm, 69 in·lbf)**

INSPECTION

NOTICE:

"Cold" and "Hot" in these sentences express the temperature of the sensors 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. REMOVE V-BANK COVER
2. REMOVE INTAKE AIR CONNECTOR



3. INSPECT VVT SENSOR RESISTANCE

- (a) Disconnect the VVT sensor connector.
- (b) Using a ohmmeter, measure the resistance between terminals.

Resistance:

835 – 1,400 Ω at cold

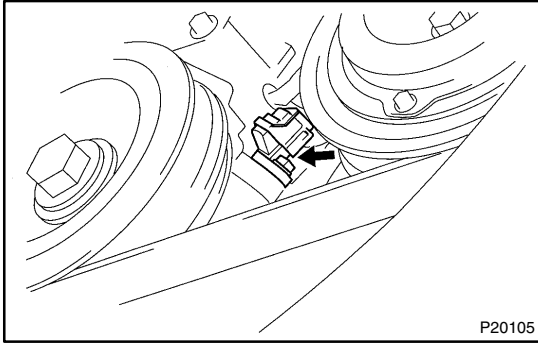
1,060 – 1,645 Ω at hot

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

- (c) Reconnect the VVT sensor connector.
- (d) Connect the VVT sensor connector.
4. REINSTALL INTAKE AIR CONNECTOR
5. REINSTALL V-BANK COVER

INSTALLATION

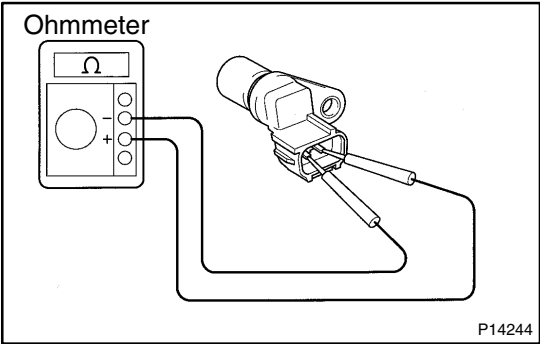
Installation is in the reverse order of removal (See page IG-9).



CRANKSHAFT POSITION SENSOR REMOVAL

IG028-02

1. **REMOVE RH FENDER APRON SEAL**
2. **REMOVE CRANKSHAFT POSITION SENSOR**
 - (a) Remove the bolt and disconnect the crankshaft position sensor.
Torque: 8 N·m (80 kgf·cm, 69 in.·lbf)
 - (b) Disconnect the crankshaft position sensor connector.



INSPECTION

NOTICE:

”Cold” and ”Hot” in these sentences express the temperature of the sensor itself. ”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).

INSPECT CRANKSHAFT POSITION SENSOR RESISTANCE

Using an ohmmeter, measure the resistance between terminals.

Resistance:

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

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

INSTALLATION

Installation is in the reverse order of removal (See page IG-12).