

## IGNITION SYSTEM ON-VEHICLE INSPECTION

IG01G-01

**NOTICE:**

"Cold" and "Hot" in these sentences express the temperature of the sensors themselves. "Cold" is from  $-10^{\circ}\text{C}$  ( $14^{\circ}\text{F}$ ) to  $50^{\circ}\text{C}$  ( $122^{\circ}\text{F}$ ) and "Hot" is from  $50^{\circ}\text{C}$  ( $122^{\circ}\text{F}$ ) to  $100^{\circ}\text{C}$  ( $212^{\circ}\text{F}$ ).

**1. INSPECT IGNITER AND SPARK TEST**

Check that the spark occurs.

- (1) Remove the No.3 timing belt covers (See page [EM-18](#)).
- (2) Disconnect the high-tension cords (from the ignition coils) from the distributor caps.

**NOTICE:**

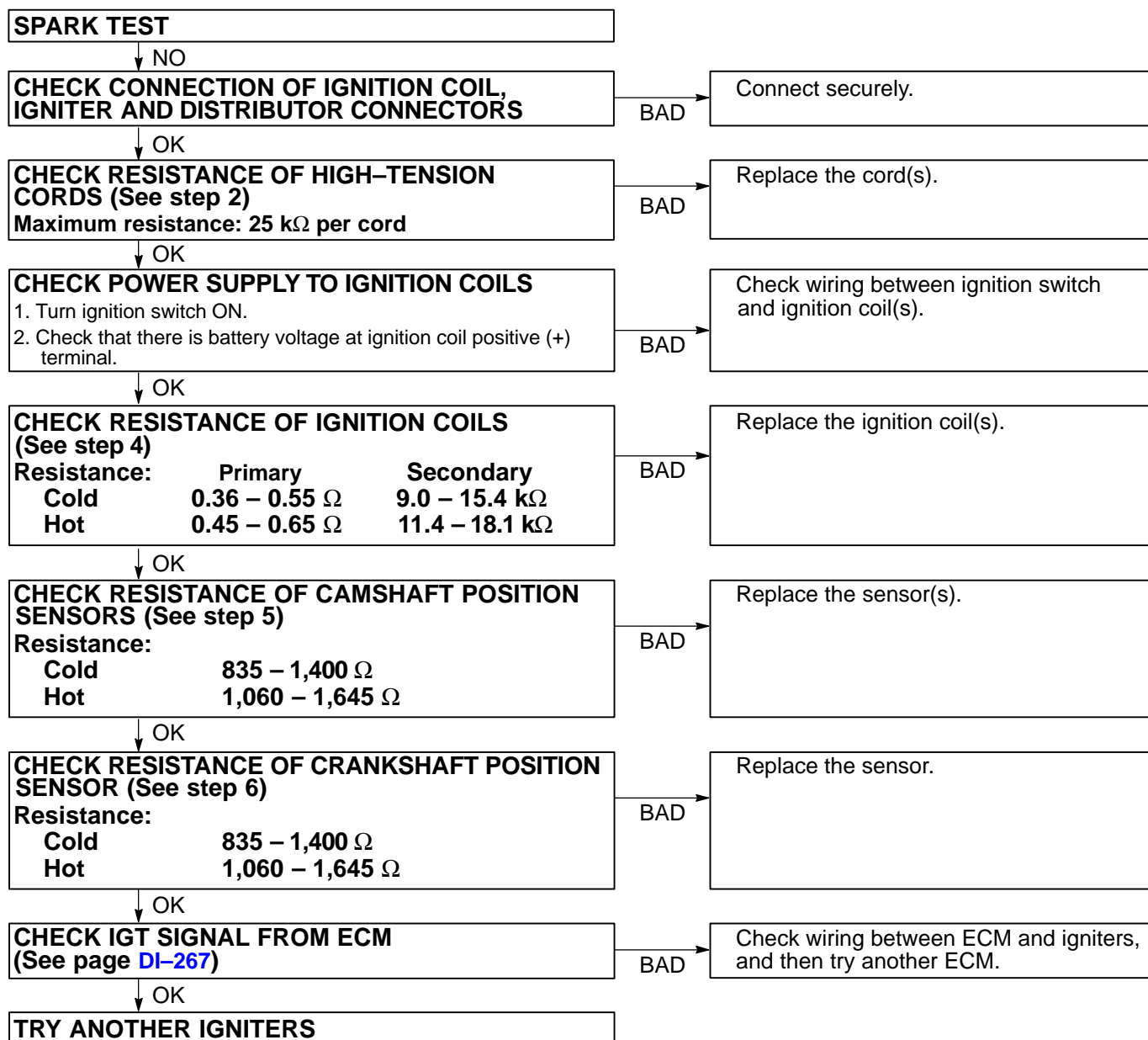
**Pulling on or bending the cords may damage the conductor inside.**

- (3) Hold the end about 12.5 mm (0.50 in.) from the body ground.
- (4) Check if spark occurs while engine is being cranked.

**NOTICE:**

**To prevent excess fuel being injected from the injectors during this test, do not crank the engine for more than 5 – 10 seconds at a time.**

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

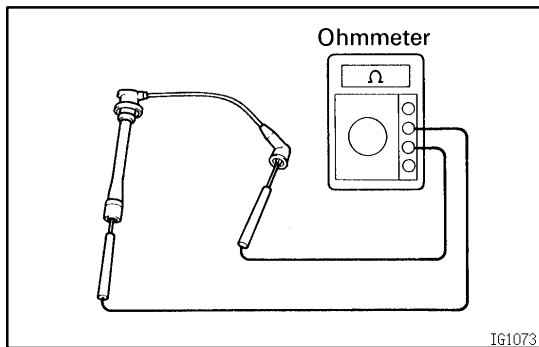


- (5) Reconnect the high-tension cords to the distributor caps.

**NOTICE:**

Install the high-tension cord by pressing on the correct place as shown in the illustration. If not done this way, the high-tension cord will interfere with the camshaft timing pulley.

- (6) Reinstall the No.3 timing belt covers (See page [EM-26](#)).



## 2. INSPECT HIGH-TENSION CORDS

- Remove the high-tension cords (See page [IG-13](#)).
- Inspect the high-tension cord resistance.  
Using an ohmmeter, measure the resistance.

**Maximum resistance:**

**25 k $\Omega$  per cord**

If the resistance is greater than maximum, replace the high-tension cord.

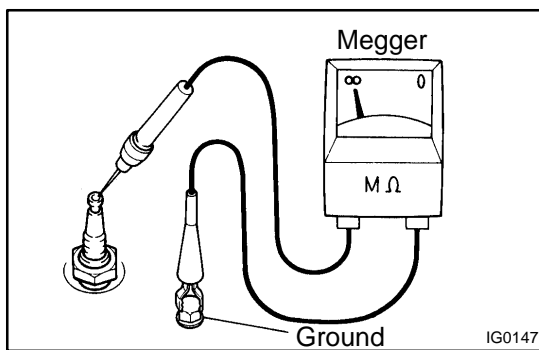
- Reinstall the high-tension cords (See page [IG-14](#)).

## 3. 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).**

- Remove the No.3 timing belt covers (See page [EM-18](#)).
- Disconnect the high-tension cords from the spark plugs.



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

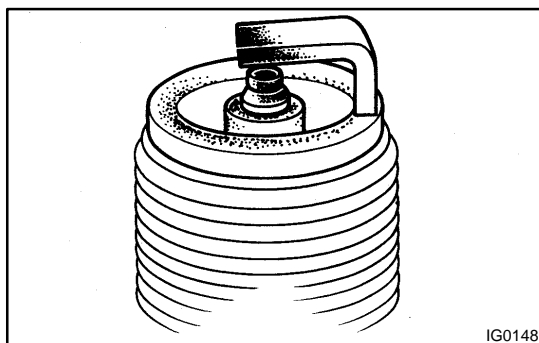
**Correct insulation resistance:**

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

If the resistance is less than specified, proceed to step ?.

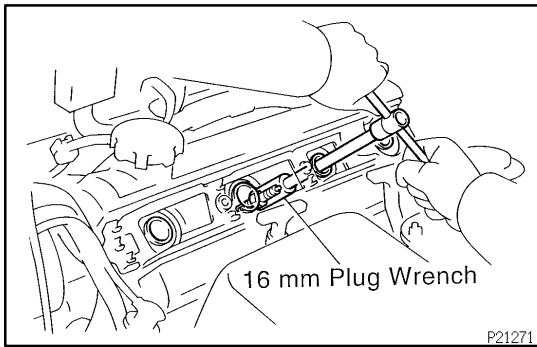
### HINT:

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

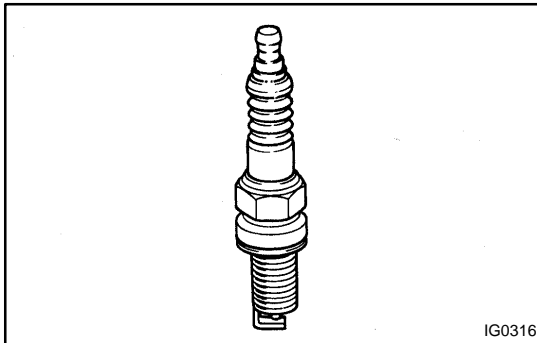


### Simple Method:

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



- (d) Remove the spark plugs  
Using a 16 mm plug wrench, remove the spark plugs.



- (e) Visually inspect the spark plugs.  
Check the spark plug for thread damage and insulator damage.

If abnormal, replace the spark plug.

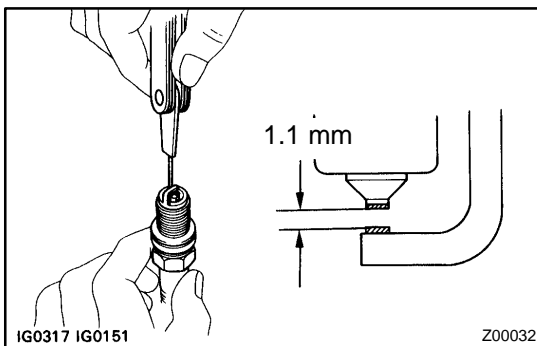
**Recommended spark plug:**

**ND**

**PK20R11**

**NGK**

**BKR6EP-11**



- (f) Inspect the electrode gap.

**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 a used plug.

- (g) Clean the spark plugs.

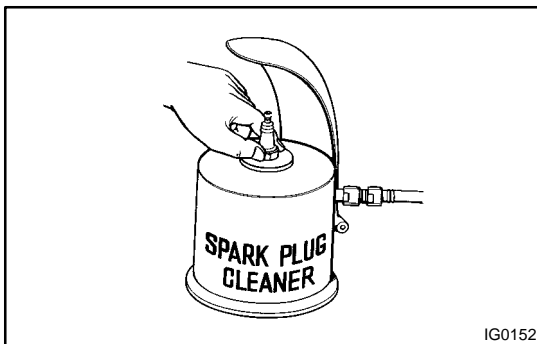
If the electrode has traces of wet carbon, allow it to dry and then clean with a spark plug cleaner.

**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.

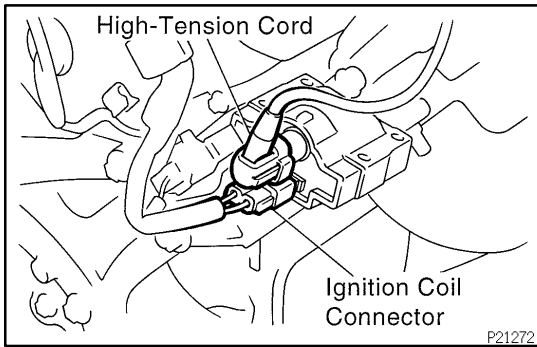
- (h) Reinstall the spark plugs.

Using a 16 mm plug wrench, install the spark plug.

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

- (i) Reconnect the high-tension cords to the spark plugs.

- (j) Reinstall the No.3 timing belt covers (See page [EM-26](#)).



#### 4. INSPECT IGNITION COILS

- (a) No.1 ignition coils:  
Disconnect the ignition coil connector and high-tension cord from the ignition coil.
- (b) No.2 Ignition coil:  
Remove the ignition coil (See page IG-9).
- (c) Inspect the primary coil resistance.  
Using an ohmmeter, measure the resistance between the positive (+) and negative (-) terminals.

##### Primary coil resistance:

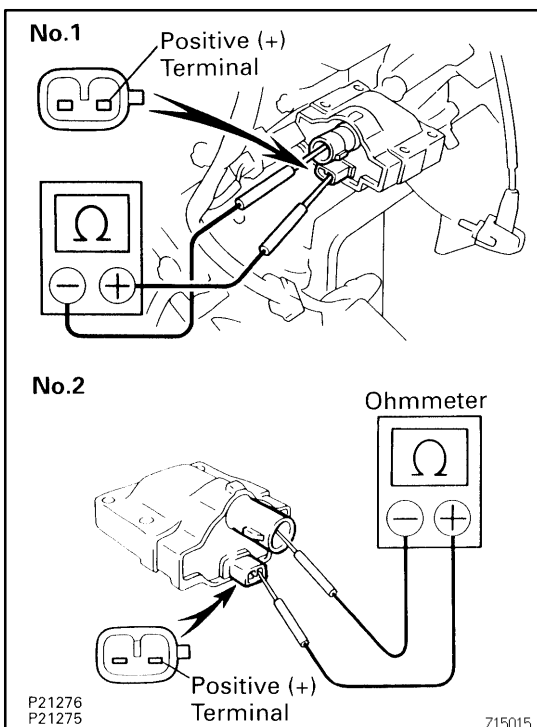
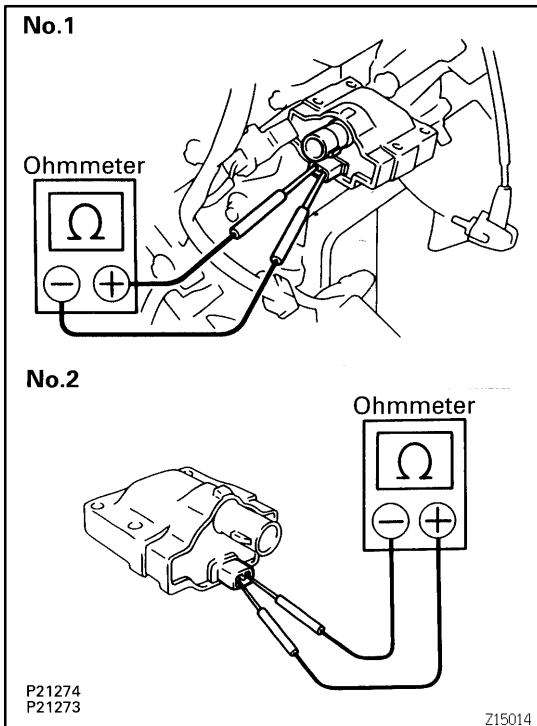
##### Cold

**0.36 – 0.55  $\Omega$**

##### Hot

**0.45 – 0.65  $\Omega$**

If the resistance is not as specified, replace the ignition coil.



- (d) Inspect the secondary coil resistance.  
Using an ohmmeter, measure the resistance between the positive (+) and high-tension terminals.

##### Secondary coil resistance:

##### Cold

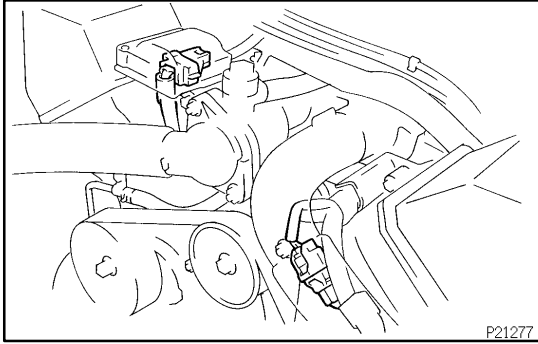
**9.0 – 15.4 k $\Omega$**

##### Hot

**11.4 – 18.1 k $\Omega$**

If the resistance is not as specified, replace the ignition coil.

- (e) No.2 ignition coil:  
Reinstall the ignition coil (See page IG-10).
- (f) No.1 Ignition Coil:  
Reconnect the ignition coil connector and high-tension cord to the ignition coil.



## 5. INSPECT CAMSHAFT POSITION SENSORS

- (a) Remove the V-bank cover.
- (b) Remove the battery clamp cover.
- (c) Disconnect the camshaft position sensor connectors.
- (d) Inspect the camshaft position sensor resistance.  
Using an ohmmeter, measure the resistance between terminals.

**Resistance:**

**Cold**

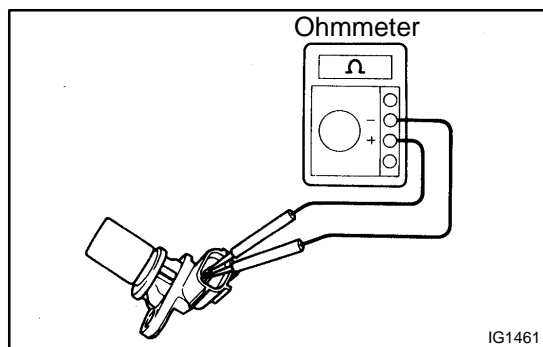
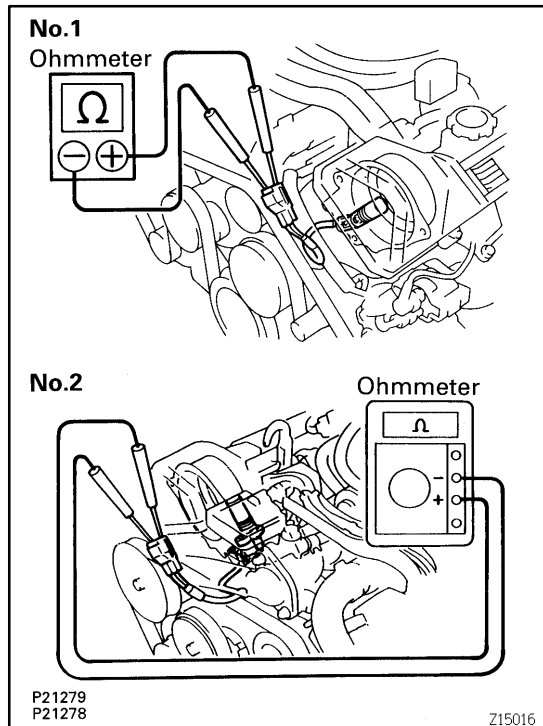
**835 – 1,400  $\Omega$**

**Hot**

**1,060 – 1,645  $\Omega$**

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

- (e) Reconnect the camshaft position sensor connectors.
- (f) reinstall the battery clamp cover.
- (g) Reinstall the V-bank cover.



## 6. INSPECT CRANKSHAFT POSITION SENSOR

- (a) Remove the crankshaft position sensor (See page [IG-24](#)).
- (b) Inspect the crankshaft position sensor resistance.  
Using an ohmmeter, measure the resistance between terminals.

**Resistance:**

**Cold**

**835 – 1,400  $\Omega$**

**Hot**

**1,060 – 1,645  $\Omega$**

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

- (c) Reinstall the crankshaft position sensor (See page [IG-25](#)).

## 7. INSPECT IGNITERS (See step 1)