

IGNITION SYSTEM ON-VEHICLE INSPECTION

IG040-01

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 IGNITERS AND SPARK TEST

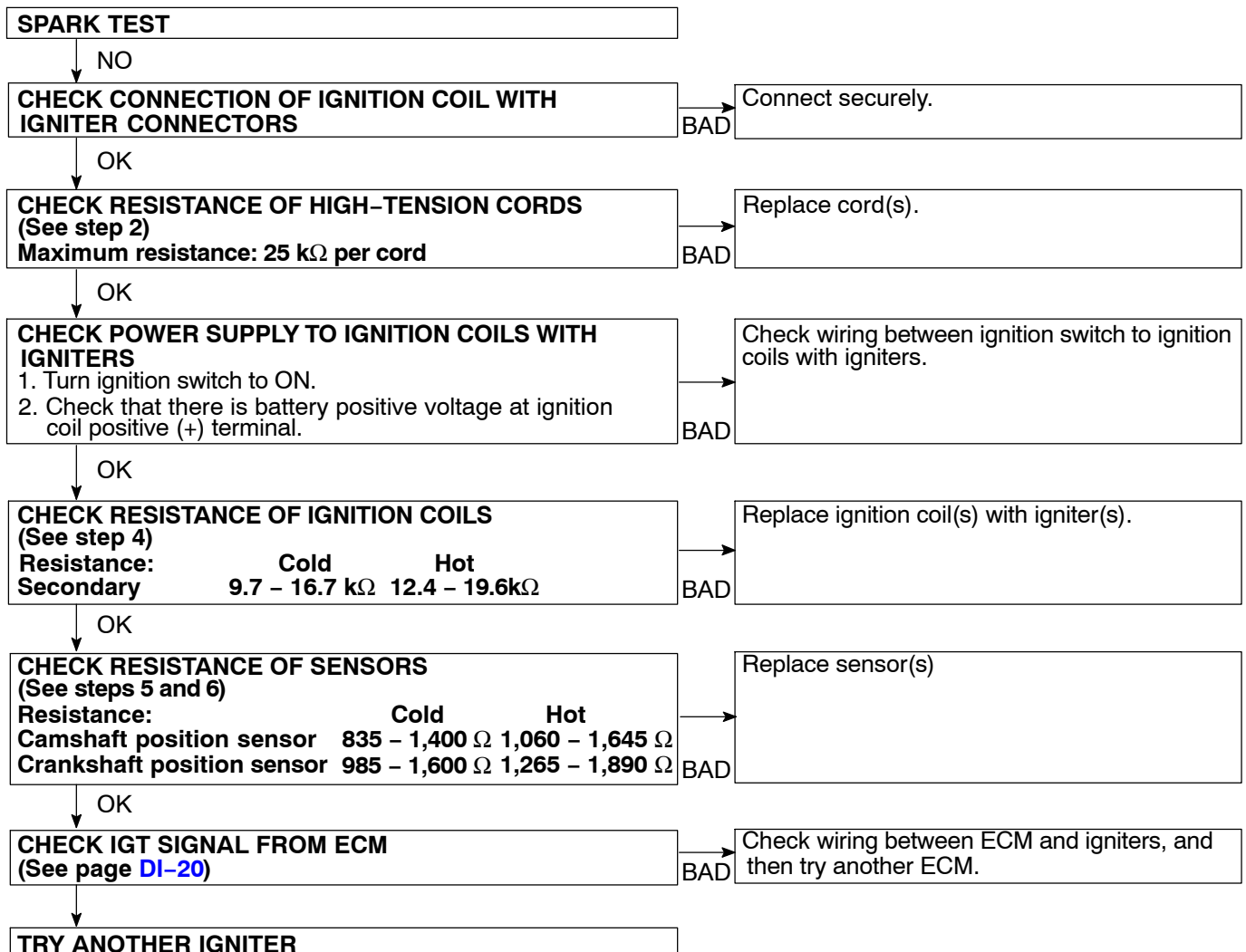
Check that the spark occurs.

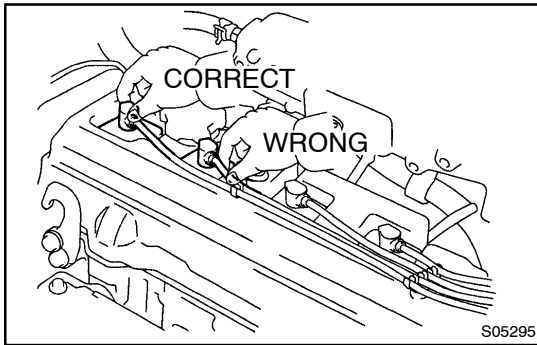
- (1) Disconnect the high-tension cord from the spark plug.
- (2) Remove the spark plug.
- (3) Install the spark plug to the high-tension cord.
- (4) Ground the spark plug.
- (5) See if spark occurs while engine is being cranked.

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:



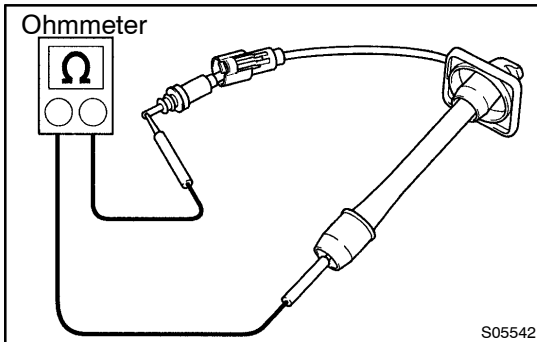


2. INSPECT HIGH-TENSION CORDS

- (a) Remove the high-tension cords.
Disconnect the high-tension cords at the rubber boot. Do not pull on the high-tension cords.

NOTICE:

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



- (b) Using an ohmmeter, measure the high-tension cord resistance.

Maximum resistance: 25 k Ω per cord

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

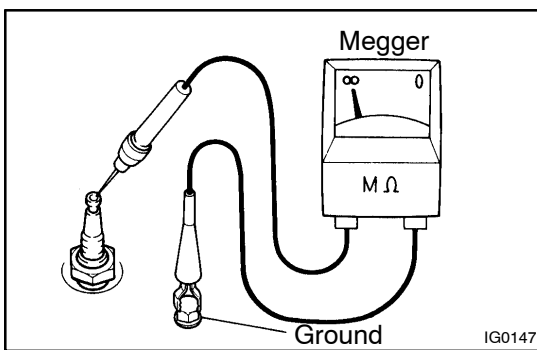
- (c) Reinstall the high-tension cords.

3. 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 100,000 km (60,000 miles).**

- (a) Disconnect the high-tension cords from the spark plugs.



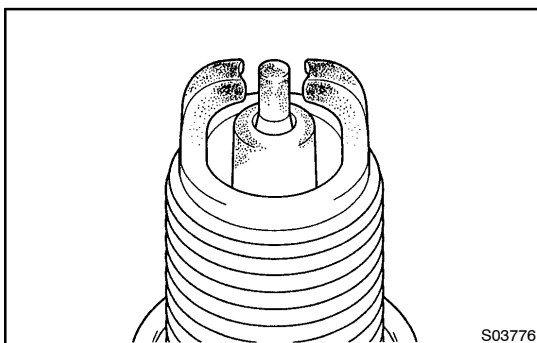
- (b) Inspect the electrode.
Using a megger (insulation resistance meter), measure the insulation resistance.

**Standard correct insulation resistance:
10 M Ω or more**

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

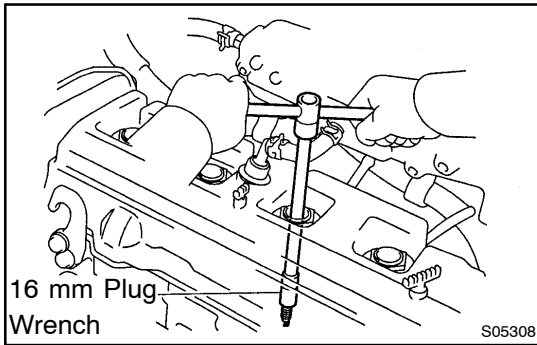
HINT:

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

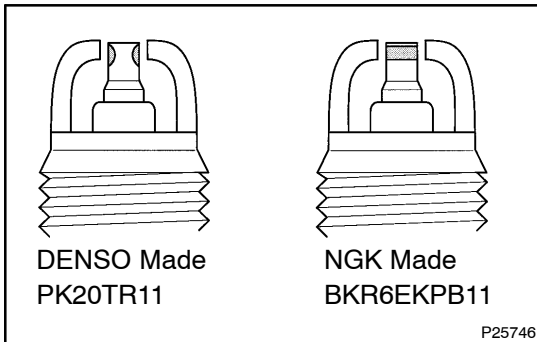


Simple Method:

- 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 ... 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 4 spark plugs.

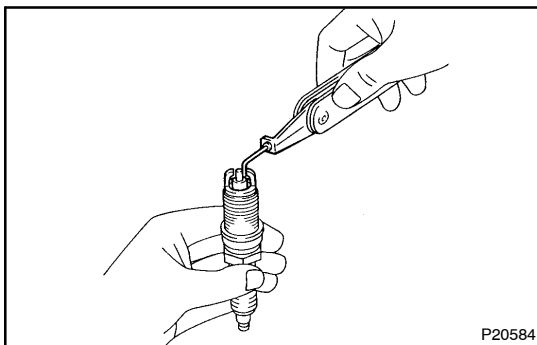


- (d) Visually check the spark plug for thread damage and insulator damage.

If abnormal, replace the spark plug.

Recommended spark plug:

DENSO made	PK20TR11
NGK made	BKR6EKP11



- (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/cm², 85 psi)

Duration: 20 seconds or less

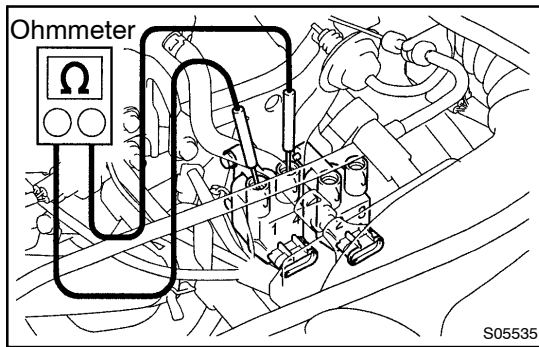
HINT:

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 4 spark plugs.

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

- (h) Reconnect the high-tension cords from the spark plugs.



4. INSPECT IGNITION COILS WITH IGNITERS

- (a) Disconnect the high-tension cords from the ignition coils.
- (b) Inspect the secondary coil resistance.

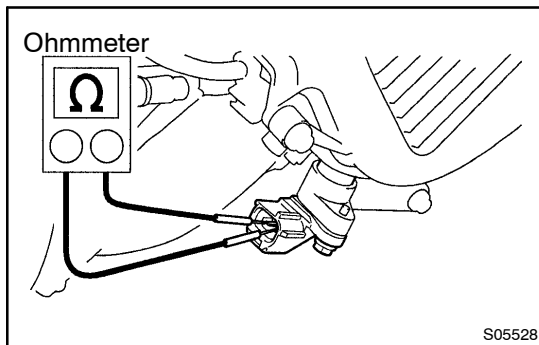
Using an ohmmeter, measure the resistance between the high-tension terminals.

Secondary coil resistance:

Cold	9.7 – 16.7 kΩ
Hot	12.4 – 19.6 kΩ

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

- (c) Reconnect the high-tension cords to the ignition coils.
- (d) Inspect the igniters. (See procedure spark test)



5. INSPECT CAMSHAFT POSITION SENSOR

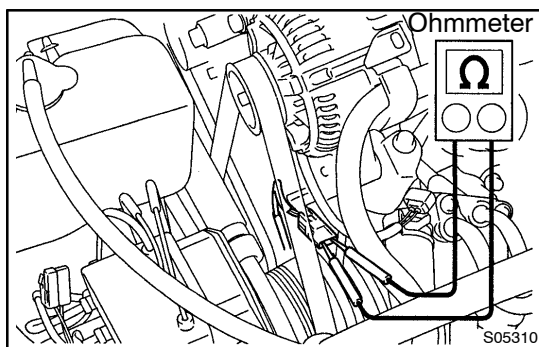
- (a) Disconnect the camshaft position sensor connector.
- (b) Using an ohmmeter, measure the resistance between terminals.

Resistance:

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

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

- (c) Reconnect the camshaft position sensor connector.



6. INSPECT CRANKSHAFT POSITION SENSOR

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

Resistance:

Cold	985 – 1,600 Ω
Hot	1,265 – 1,890 Ω

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

- (c) Reconnect the crankshaft position sensor connector.