

IGNITION SYSTEM

ON-VEHICLE INSPECTION

IG0BX-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 IGNITION COIL (WITH IGNITER) AND SPARK TEST

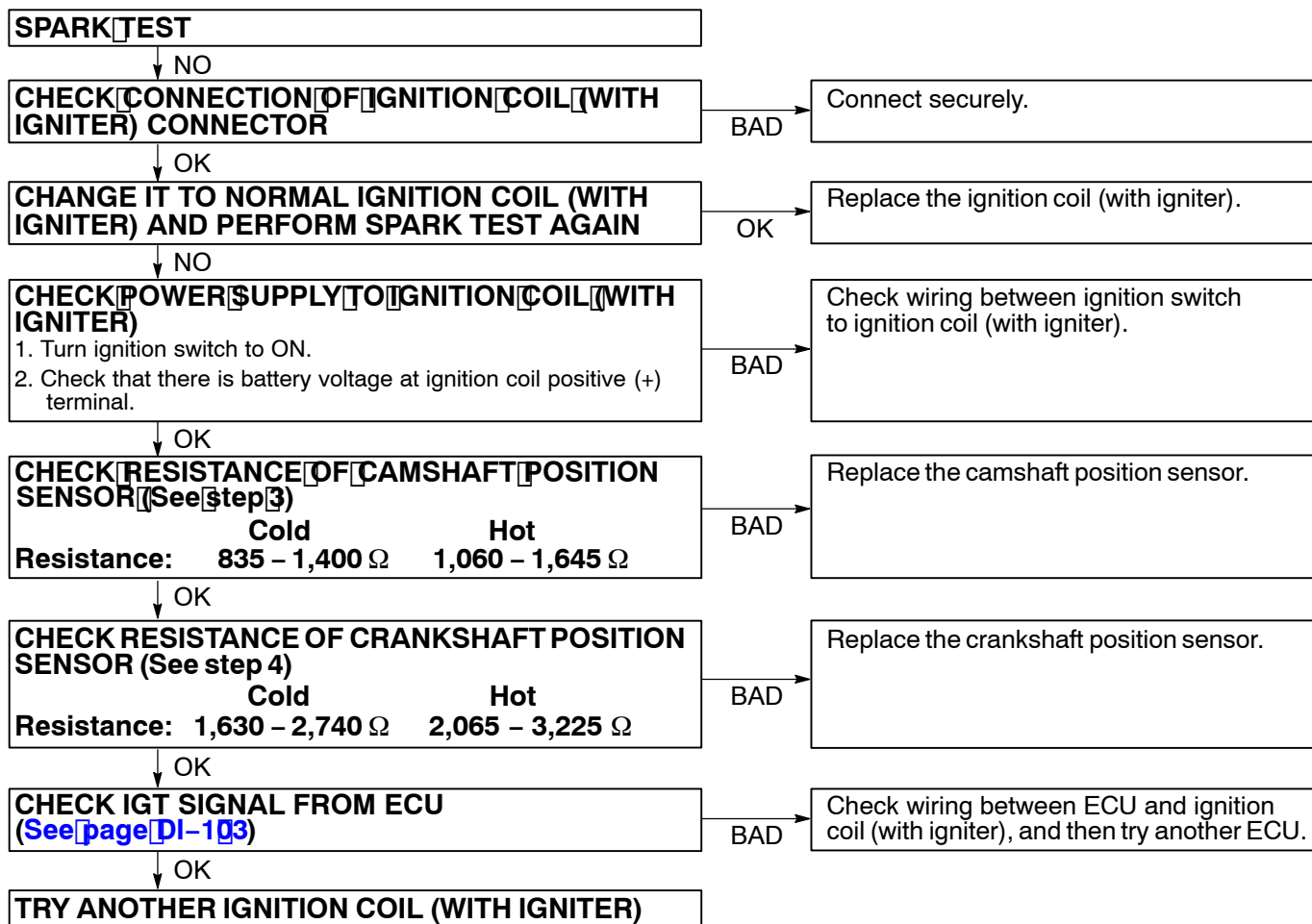
Check that the spark occurs.

- (1) Remove the ignition coils (with igniter).
(See page IG-7)
- (2) 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 8 injector connectors.
- (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)

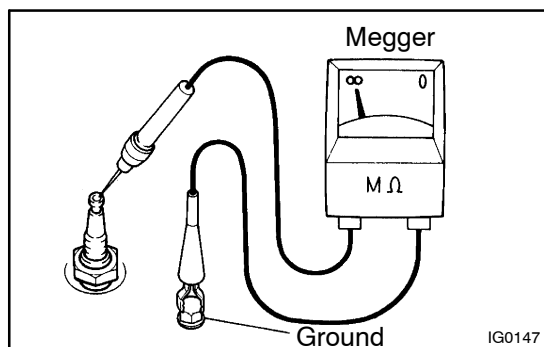
(8) Reinstall the ignition coils (with igniter).

(See page IG-7)

2. Europe and Australia: 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 coils (with igniter).
(See page IG-7)



(b) Check the electrode.

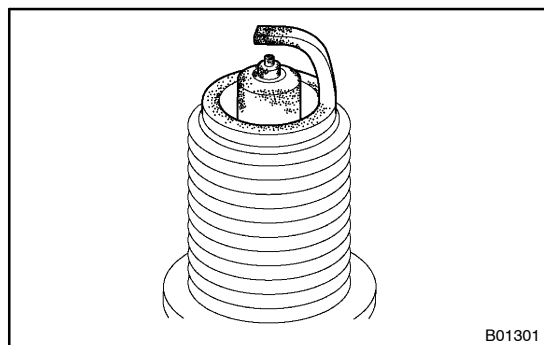
- Using a megger (insulation resistance meter), measure the insulation resistance.

Correct insulation resistance: 10 MΩ or more

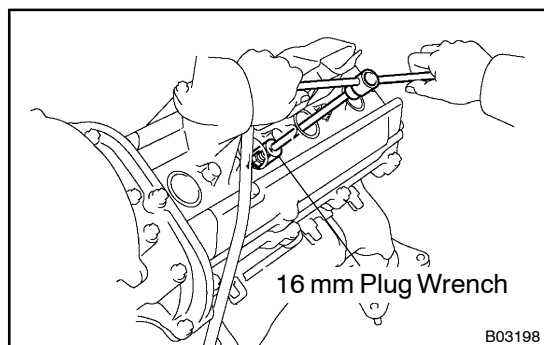
If the resistance is less than specified, proceed to step (c).

HINT:

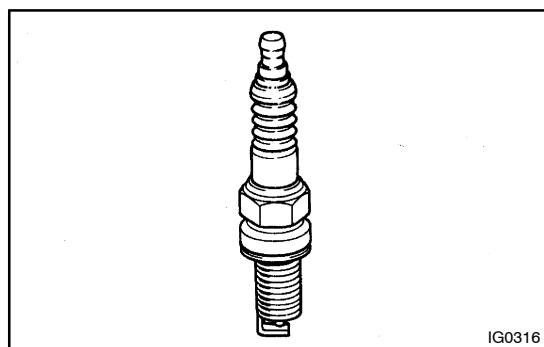
If a megger is not available, the following simple method of inspection provides fairly accurate results.



- 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 spark plugs.

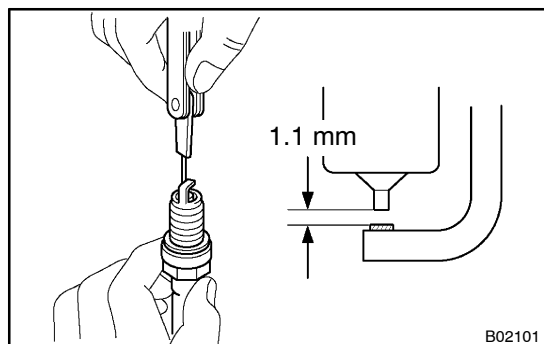


(d) Check the spark plug for thread damage and insulator damage.

If abnormal, replace the spark plug.

Recommended spark plug:

DENSO made	SK20R11
NGK made	IFR6A11



(e) Check the spark plug electrode gap.

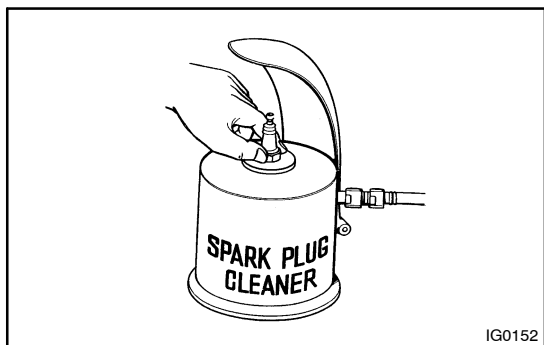
Maximum electrode gap for used spark plug:
1.2 mm (0.047 in.)

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

Correct electrode gap for new spark plug:
1.1 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.



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- (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 coils (with igniter).

(See page IG-7)

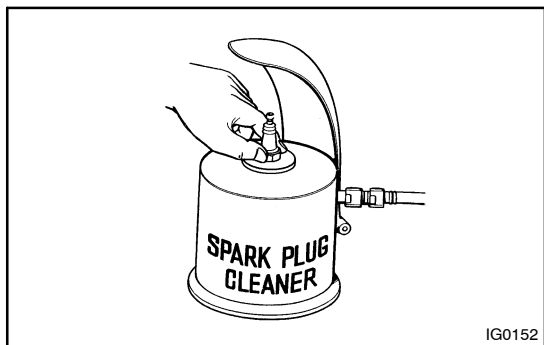
3. Others:

INSPECT SPARK PLUGS

- (a) Remove the ignition coils (with igniter).

(See page IG-7)

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



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- (c) Clean the spark plugs.

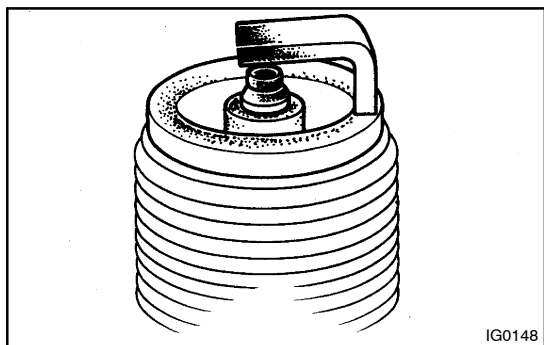
If the electrode has traces of wet carbon, allow it to dry and then clean with a spark plug cleaner.

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.



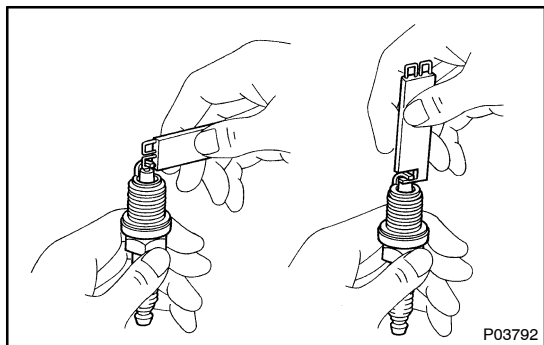
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- (d) Check the spark plug for thread damage and insulator damage.

If abnormal, replace the spark plug.

Recommended spark plug:

DENSO made	K20R-U
NGK made	BKR6EYA



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- (e) Adjust electrode gap.

Carefully bend the outer electrode to obtain the correct electrode gap.

Electrode gap: 0.8 mm (0.031 in.)

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

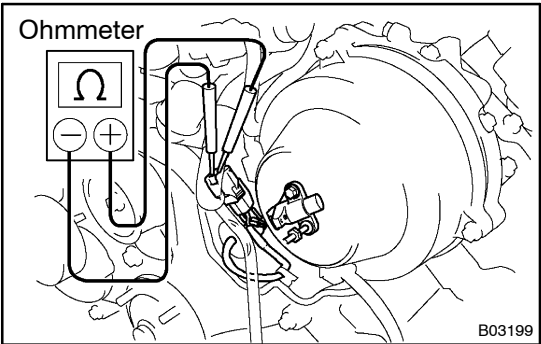
Torque: 17.5 N·m (180 kgf·cm, 13 ft·lbf)

- (g) Reinstall the ignition coil with igniters.

(See page IG-7)

4. INSPECT CAMSHAFT POSITION SENSOR

- (a) Remove the V-bank cover.
- (b) Disconnect the camshaft position sensor connector.



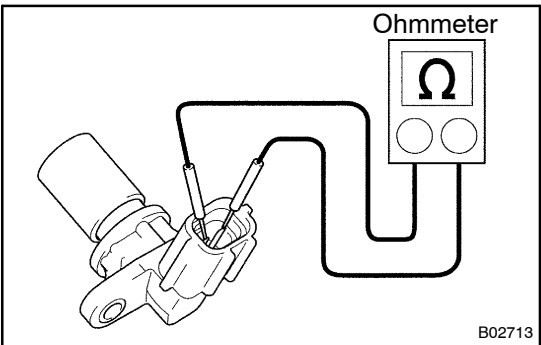
- (c) Using an ohmmeter, measure the resistance between terminals.

Resistance:

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

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

- (d) Reconnect the camshaft position sensor connector.
- (e) Reinstall the V-bank cover.



5. INSPECT CRANKSHAFT POSITION SENSOR

- (a) Remove the crankshaft position sensor.
(See page IG-13)
- (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 crankshaft position sensor.

- (c) Reinstall the crankshaft position sensor.