

IGNITION SYSTEM ON-VEHICLE INSPECTION

IG0J3-02

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 IGNITERS AND SPARK TEST

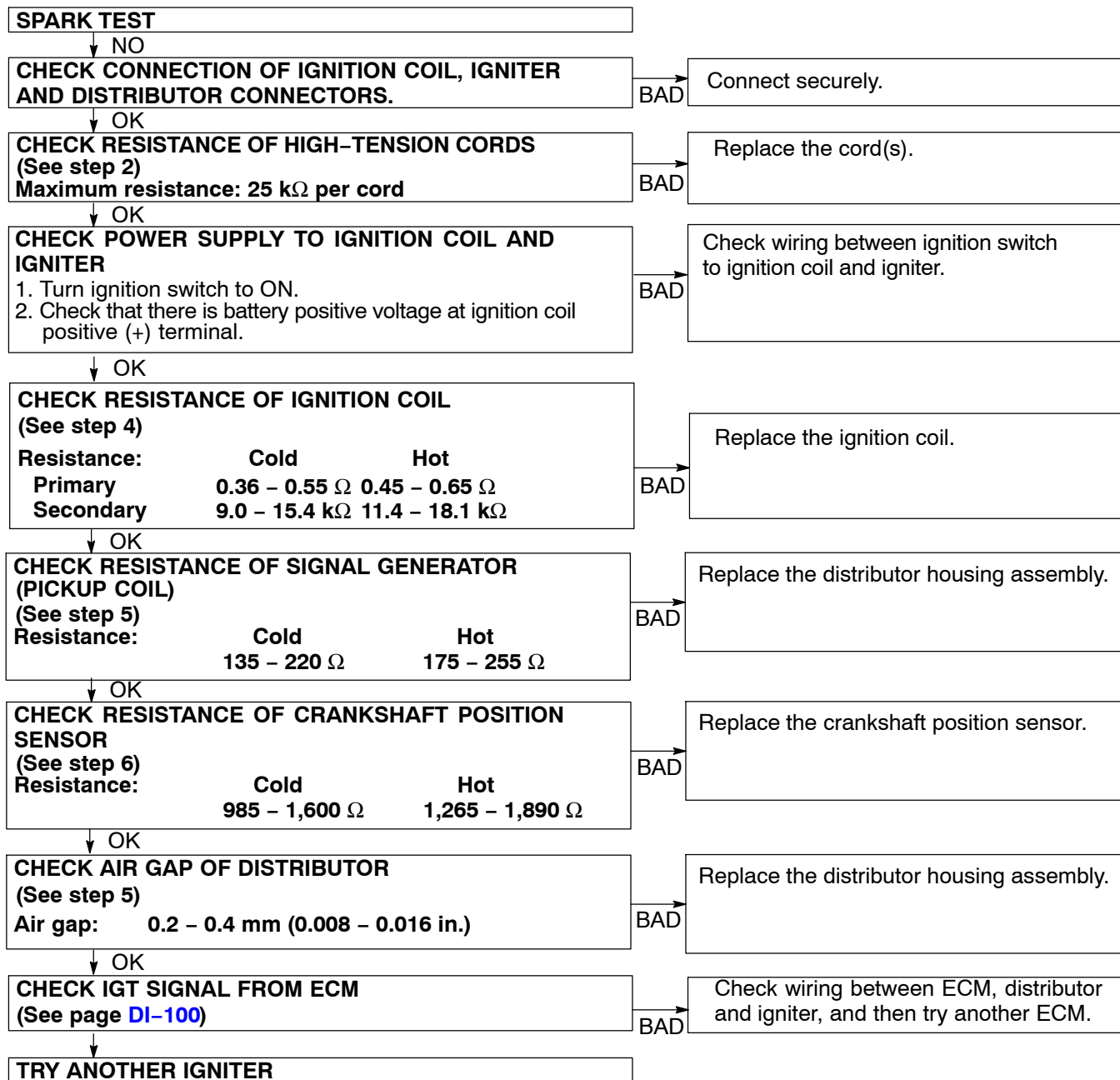
Check that the spark occurs.

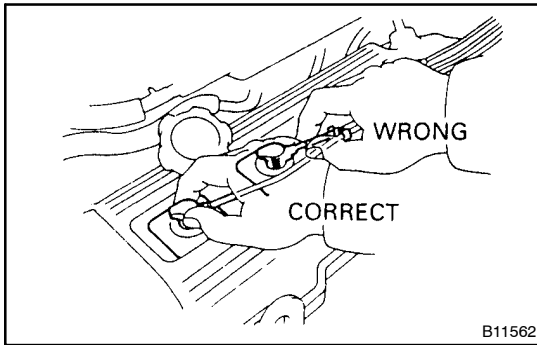
- (1) Disconnect the high-tension cord (from the ignition coil) from the distributor cap.
- (2) Hold the end approx. 12.5 mm (0.50 in.) from the body ground.
- (3) See if spark occurs while engine is being cranked.

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, perform the test as follows:





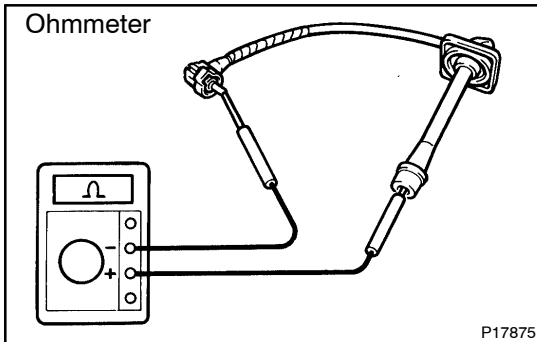
2. INSPECT HIGH-TENSION CORDS

- (a) Disconnect the high-tension cords from spark plug.
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) Disconnect the high-tension cords from ignition coil.
(c) Disconnect the high-tension cords from distributor cap.



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

Maximum resistance: 25 kΩ per cord

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

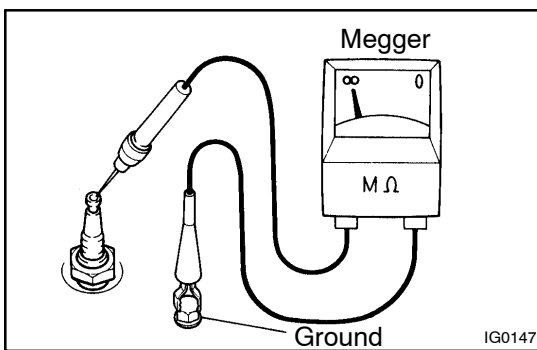
- (e) Reconnect the high-tension cords to distributor cap.
(f) Reconnect the high-tension cord to ignition coil.
(g) Reconnect the high-tension cords to spark plugs.

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.



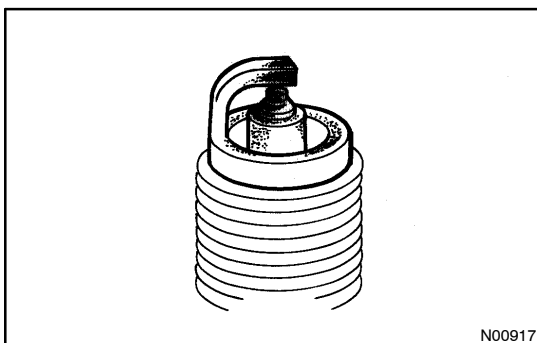
- (b) Using a megger (insulation resistance meter), measure the insulation resistance.

**Standard correct insulation resistance:
10 MΩ or more**

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

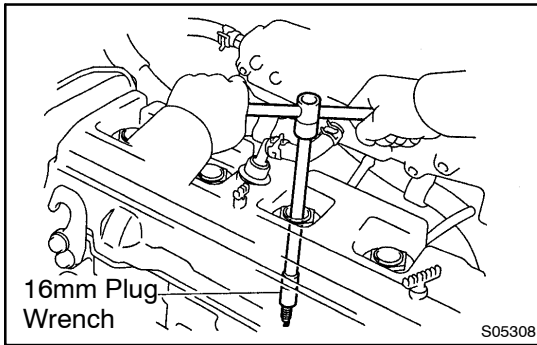
HINT:

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... OK
If the electrode is wet... Proceed to step (d)
- Reinstall the spark plug. (See step (g))

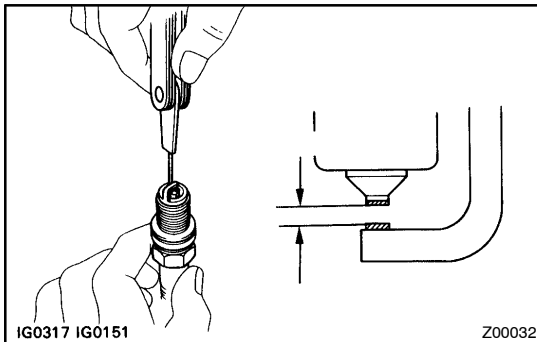


- (c) Using a 16 mm plug wrench, remove the 4 spark plugs.
- (d) Visually check the spark plug for thread damage and insulator damage.

If abnormal, replace the spark plug.

Recommended spark plug:

DENSO	PK20R11
NGK	BKR6EP-11



- (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.

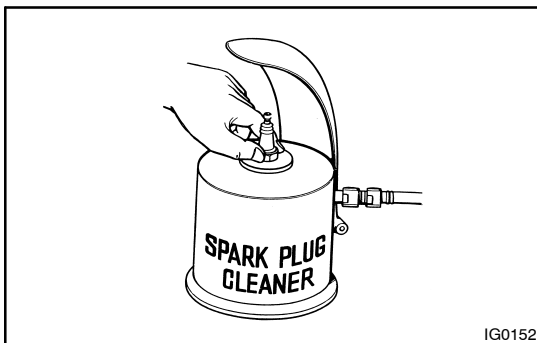
If the electrode has traces of wet carbon, allow it to dry and then clean with a spark plug cleaner.

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.



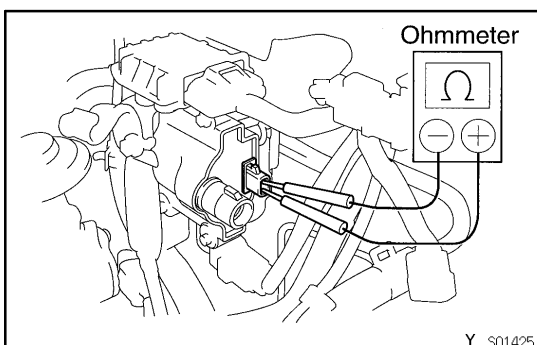
- (g) Using a 16 mm plug wrench, install the 4 spark plugs.

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

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

4. INSPECT IGNITION COILS

- (a) Disconnect the ignition coil connector.
- (b) Disconnect the high-tension cord from ignition coil.

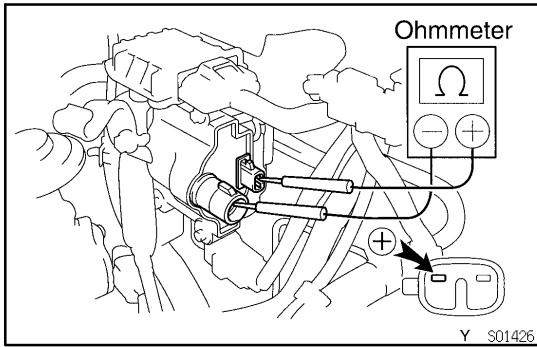


- (c) Inspect the primary coil resistance.
- Using an ohmmeter, measure the resistance between the positive (+) and negative (–) terminals.

Primary coil resistance:

Cold	0.36 – 0.55 Ω
Hot	0.45 – 0.65 Ω

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



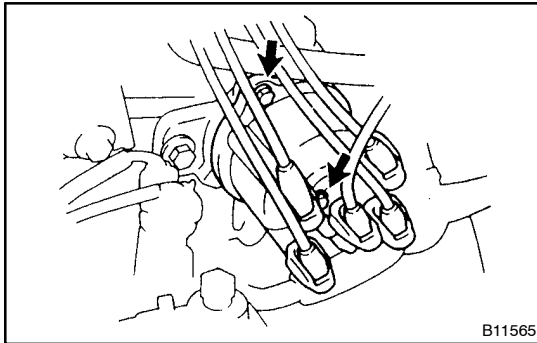
- (d) Inspect the secondary coil resistance.
Using an ohmmeter, measure the resistance between the positive (+) and high-tension terminals.

Secondary coil resistance:

Cold	9.0 – 15.4 k Ω
Hot	11.4 – 18.1 k Ω

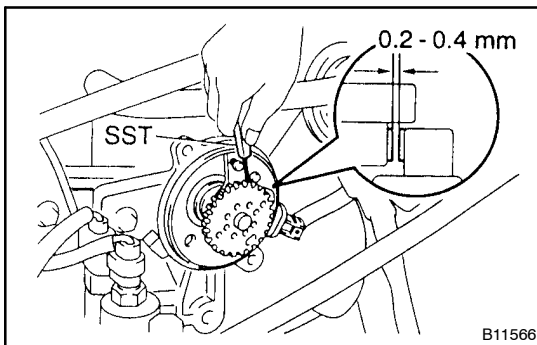
If the resistance is not as specified, replace the ignition coil.

- (e) Reconnect the high-tension cord to ignition coil.
(f) Reconnect the ignition coil connector.



5. INSPECT DISTRIBUTOR

- (a) Remove the distributor cap.
Remove the 2 bolts, and disconnect the distributor cap from the distributor housing.
(b) Remove the rotor.



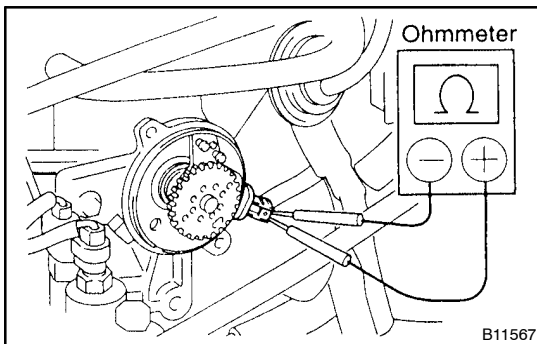
- (c) Inspect the air gap.
Using SST, measure the air gap between the signal rotor and pick up coil projection.

SST 09240-00020

Air gap: 0.2 – 0.45 mm (0.008 – 0.018 in.)

If the air gap is not as specified, replace the distributor housing assembly.

- (d) Disconnect the distributor connector.



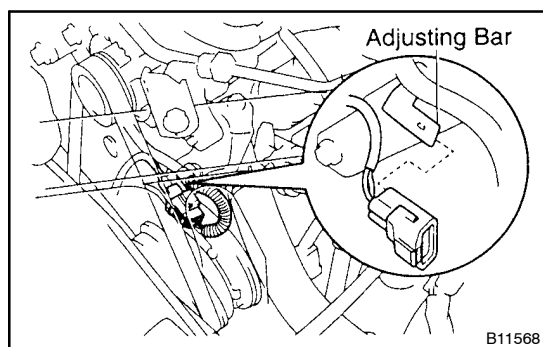
- (e) Inspect the signal generator (Pickup coil) resistance.
Using an ohmmeter, measure the resistance between terminals.

Pickup coil resistance:

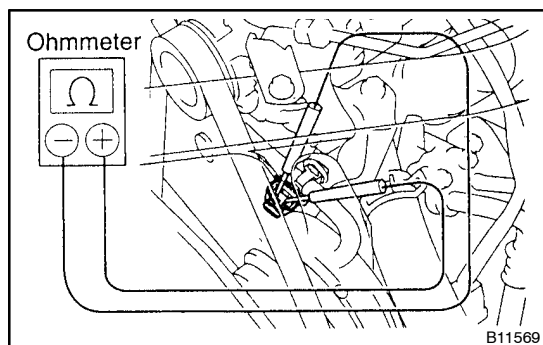
Cold	135 – 220 Ω
Hot	175 – 255 Ω

If the resistance is not as specified, replace the distributor housing assembly.

- (f) Reconnect the distributor connector.
(g) Reinstall the rotor.
(h) Reinstall the distributor cap.
Install a new packing and distributor cap with the 2 bolts.

**6. INSPECT CRANKSHAFT POSITION SENSOR**

- (a) Disconnect the crankshaft position sensor connector from generator drive belt adjusting bar.



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

Resistance:

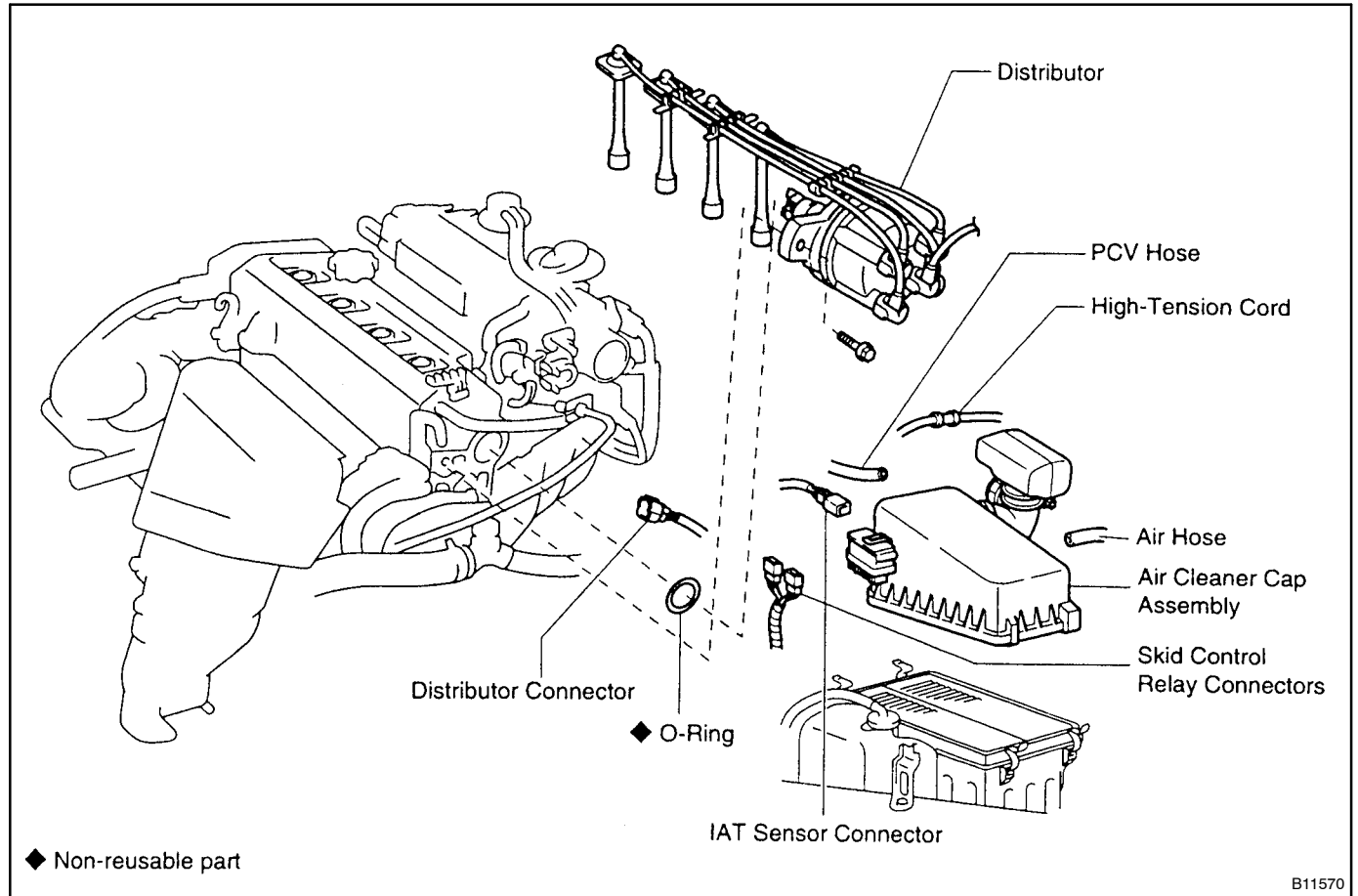
Cold	985 – 1,600 Ω
Hot	1,265 – 1,890 Ω

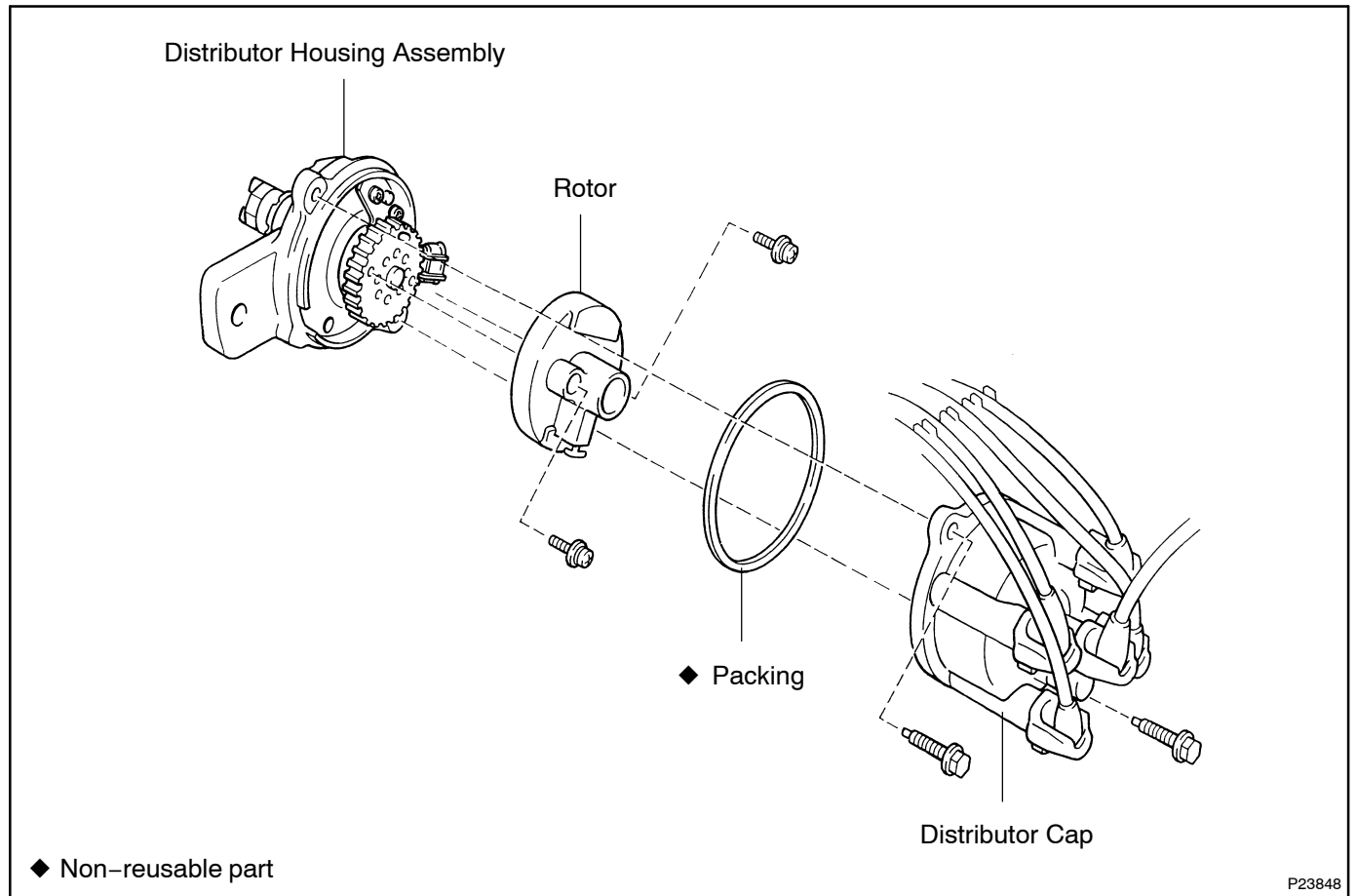
If the resistance is not as specified, replace the crankshaft position sensor.

- (c) Reconnect the crankshaft position sensor connector.

DISTRIBUTOR COMPONENTS

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REMOVAL

1. REMOVE AIR CLEANER CAP ASSEMBLY (See page [ST-4](#))
2. DISCONNECT DISTRIBUTOR CONNECTOR
3. DISCONNECT HIGH-TENSION CORD FROM IGNITION COIL
4. DISCONNECT HIGH-TENSION CORDS FROM SPARK PLUGS

NOTICE:

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

5. REMOVE DISTRIBUTOR
 - (a) Remove the hold-down bolt, and pull out the distributor.
 - (b) Remove the O-ring from the distributor housing.

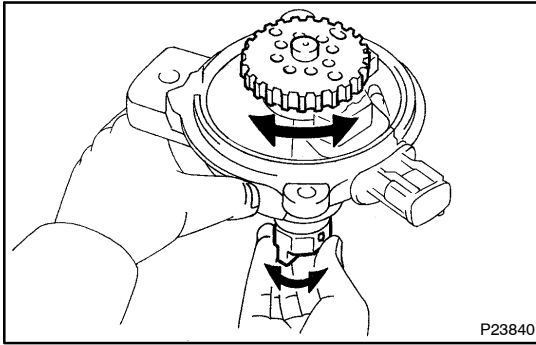
DISASSEMBLY

1. REMOVE DISTRIBUTOR CAP

Remove the 2 bolts, distributor cap and packing.

2. REMOVE ROTOR

Remove the 2 screws and rotor.

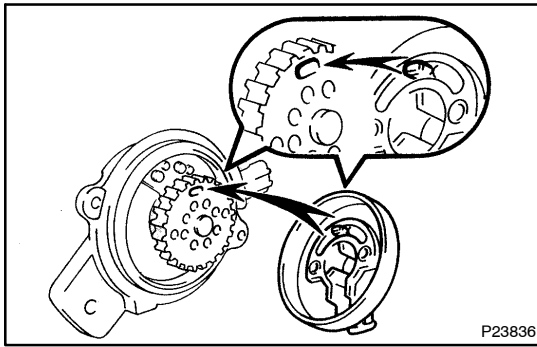


INSPECTION

INSPECT SHAFT

Turn the shaft and check that is not rough or worn

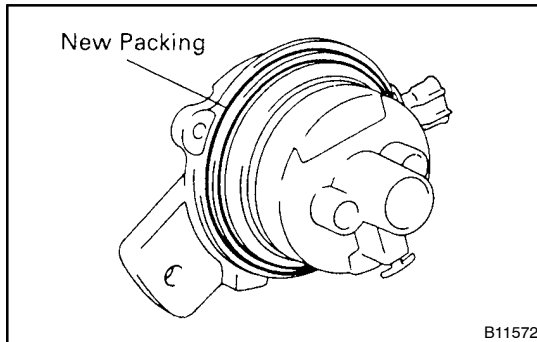
If it feels rough or worn, replace the distributor housing assembly.



REASSEMBLY

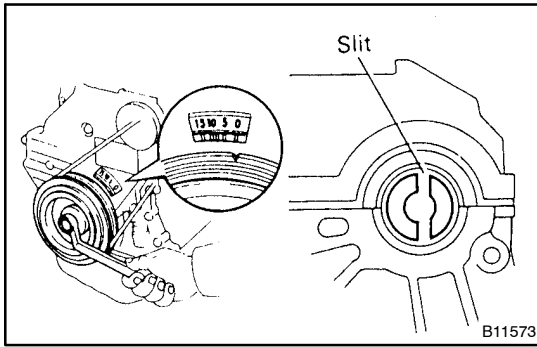
1. INSTALL ROTOR

- (a) Align the hollow of the signal rotor with the protrusion of the rotor.
- (b) Install the rotor with the 2 screws.



2. INSTALL DISTRIBUTOR CAP

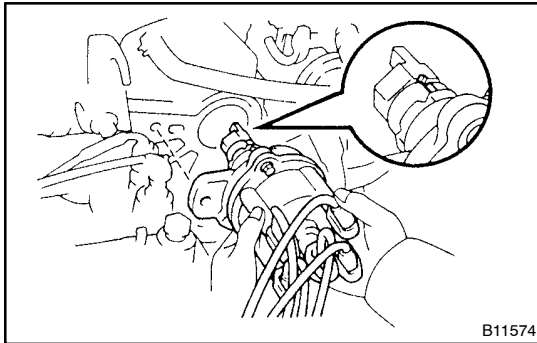
- (a) Install a new packing to the distributor housing.
- (b) Install the distributor cap with the 2 bolts.



INSTALLATION

1. SET NO. 1 CYLINDER TO DTC/COMPRESSION

Turn the crankshaft clockwise, and position the slit of the intake camshaft as shown in the illustration.



2. INSTALL DISTRIBUTOR

- Install a new O-ring to the housing.
- Apply a light coat of engine oil on the O-ring.
- Align the cutout of the coupling with the line of the housing.
- Insert the distributor, aligning the center of the flange with that of bolt hole on the cylinder head.
- Tighten the hold-down bolt.

Torque: 19 N·m (195 kgf·cm, 14 ft·lbf)

3. CONNECT HIGH-TENSION CORDS TO SPARK PLUGS

Firing order:

1 - 3 - 4 - 2

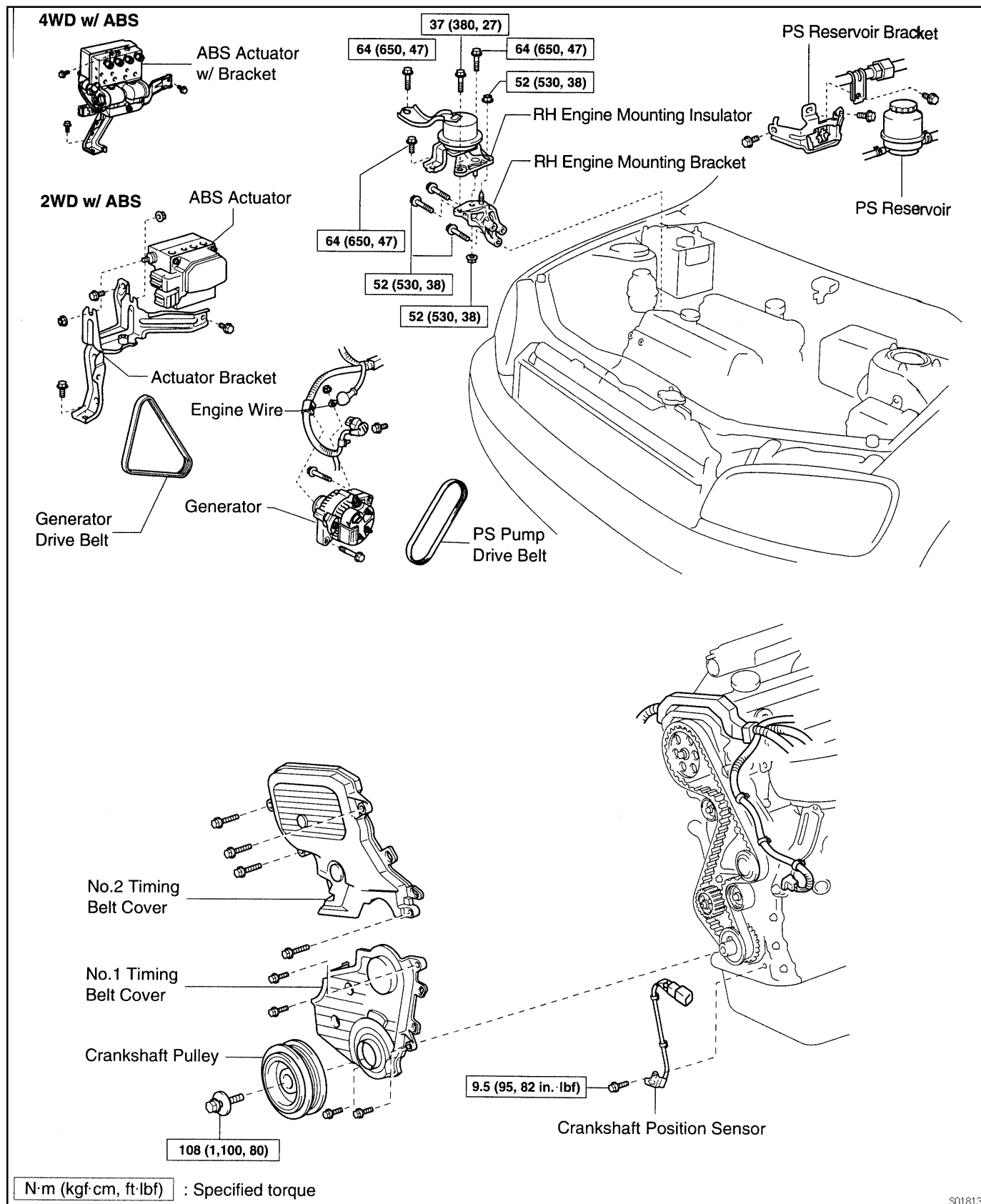
4. CONNECT HIGH-TENSION CORD TO IGNITION COIL

5. CONNECT DISTRIBUTOR CONNECTOR

6. INSTALL AIR CLEANER CAP ASSEMBLY

CRANKSHAFT POSITION SENSOR COMPONENTS

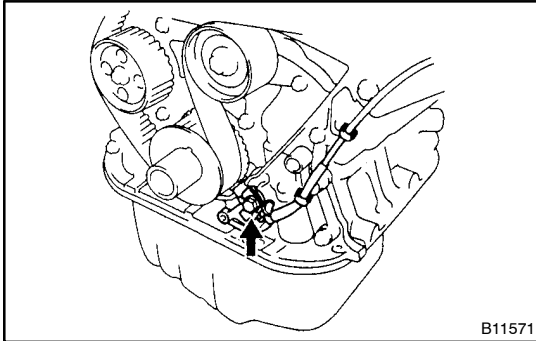
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REMOVAL

1. DISCONNECT CRANKSHAFT POSITION SENSOR CONNECTOR FROM GENERATOR DRIVE BELT ADJUSTING BAR
2. REMOVE NO.1 TIMING BELT COVER
(See page [EM-15](#))



3. REMOVE CRANKSHAFT POSITION SENSOR

Remove the bolt and disconnect the crankshaft position sensor.

INSTALLATION

1. INSTALL CRANKSHAFT POSITION SENSOR

Install the crankshaft position sensor with the bolt.

Torque: 9.5 N·m (97 kgf·cm, 84 in.·lbf)

2. INSTALL NO.1 TIMING BELT COVER (See page [EM-20](#))

3. CONNECT CRANKSHAFT POSITION SENSOR CONNECTOR TO GENERATOR DRIVE BELT ADJUSTING BAR