# IGNITION

# IGNITION SYSTEM

## ON–VEHICLE INSPECTION

ISSUE-01

### Spark Test

**CHECK THAT SPARK OCCURS**

(a) Disconnect the high–tension cord (from the ignition coil) from the distributor cap.

(b) Hold the end approx. 12.5 mm (0.50 in.) from the body ground.

(c) 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:

**ARK TEST**

↓ NO

**ECK CONNECTION OF IGNITION COIL, ITER AND DISTRIBUTOR CONNECTOR** → BAD → Connect securely.

↓ OK

**ECK RESISTANCE OF HIGH-TENSION CORD** e page IG–2) **kimum resistance: 25 kΩ per cord** → BAD → Replace the cord(s).

↓ OK

**ECK POWER SUPPLY TO IGNITION COIL AND IGNITER**
Turn ignition switch to ON.
Check that there is battery positive voltage at ignition coil positive (+) terminal. → BAD → Check wiring between ignition switch to ignition coil and igniter.

↓ OK

**ECK RESISTANCE OF IGNITION COIL** page IG-5)

| istance: | Cold | Hot |
|---|---|---|
| Primary | 0.36 - 0.55 Ω | 0.45 - 0.65 Ω |
| Secondary | 9.0 - 15.4 kΩ | 11.4 - 18.1 kΩ |

→ BAD → Replace the ignition coil.

↓ OK

**ECK RESISTANCE OF SIGNAL GENERATOR KUP COIL) (See page IG–5)**

| istance: | Cold | Hot |
|---|---|---|
| G1 and G⊖ | 125 - 200 Ω | 160 - 235 Ω |
| G1 and G⊖ | 125 - 200 Ω | 160 - 235 Ω |
| NE and G⊖ | 155 - 250 Ω | 190 - 290 Ω |

→ BAD → Replace the distributor housing assembly.

↓ OK

**CK AIR GAP OF DISTRIBUTOR** page IG–5)
**ap: 0.2 - 0.5 mm (0.008 - 0.020 in.)** → BAD → Replace the distributor housing assembly.

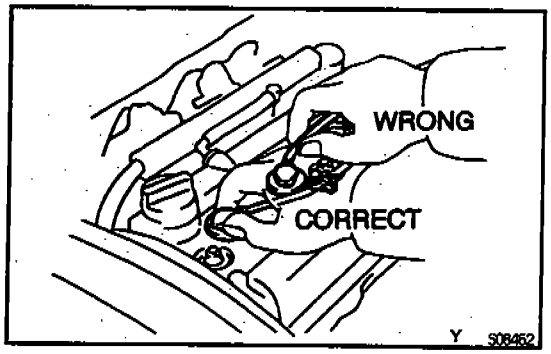
↓ OK

**CK IGT SIGNAL FROM ECU** page FI–26) → BAD → Check wiring between ECU, distributor and igniter, and then try another ECU.

↓ OK

**ANOTHER IGNITER**

V09080




### High–Tension Cords

**1. DISCONNECT HIGH–TENSION CORDS FROM SPARK PLUGS**

(a) Remove the 6 screws and No.2 cylinder head cover.

(b) 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.**

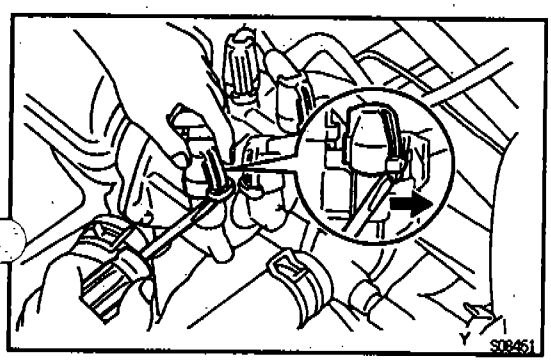
**2. DISCONNECT HIGH–TENSION CORD FROM IGNITION COIL**

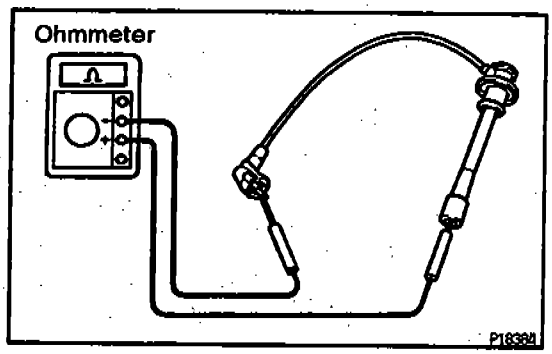
**3. DISCONNECT HIGH–TENSION CORDS FROM DISTRIBUTOR CAP**

(a) Using a screwdriver, lift up the lock claw and disconn the holder from the distributor cap.

(b) Disconnect the high–tension cord at the grommet. DO NOT pull on the cords.

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



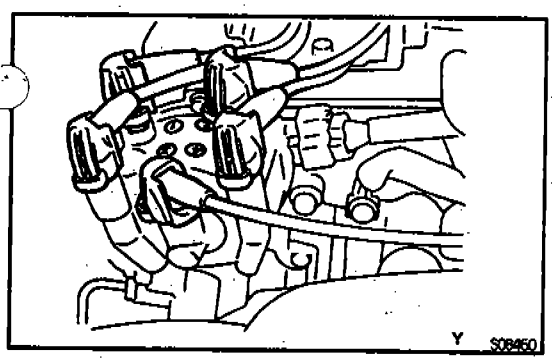

**4. INSPECT HIGH–TENSION CORD RESISTANCE**

Using an ohmmeter, measure the resistance.

**Maximum resistance:**

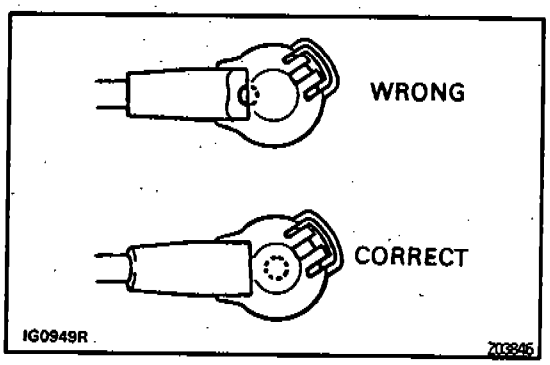
**25 kΩ per cord**

If the resistance is greater than maximum, check the minals. If necessary, replace the high–tension cord.

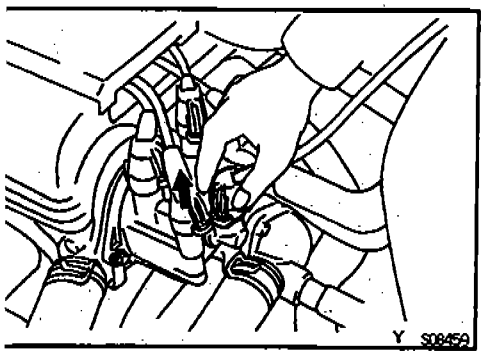



**5. RECONNECT HIGH–TENSION CORDS TO DISTRIBUTOR CAP**

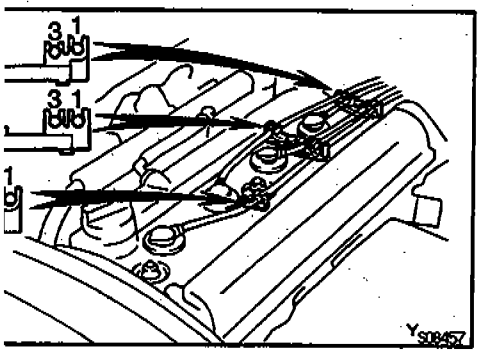
(a) Connect the holder and grommet portion to the distri cap as shown in the illustration.




**NOTICE: Check that the holder is correctly installed to the grommet and distributor cap as shown in the illustration.**




(b) Check that the lock claw of the holder is engaged by lightly pulling the holder.




**6. RECONNECT HIGH–TENSION CORDS TO SPARK PLUGS**

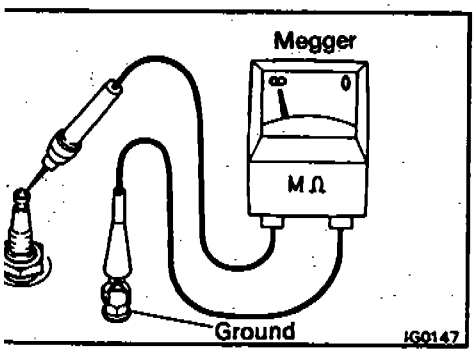
(a) Secure the high–tension cords with the clamps as shown in the illustration.

(b) Reinstall the No.2 cylinder head cover with 6 screws.

## 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).**




**1. INSPECT ELECTRODE**

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 4.

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

**Simple Method:**

(a) Quickly race the engine to 4,000 rpm 5 times.

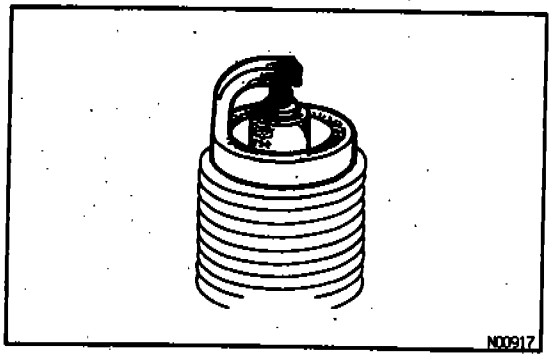
(b) Remove the spark plug. (See step 2)

(c) Visually check the spark plug.
If the electrode is dry ... OK
If the electrode is wet ... Proceed to step 3

(d) Reinstall the spark plug. (See step 6)

**2. REMOVE SPARK PLUGS**

Using a spark plug wrench, remove the 4 spark plugs.




3. **VISUALLY INSPECT SPARK PLUGS**

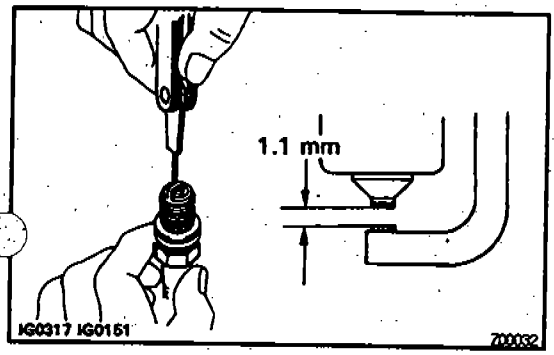
Check the spark plug for thread damage and insulato damage.

If abnormal, replace the spark plug.

**Recommended spark plug:**

**DENSO: PK20R11**

**NGK: BKR6EP–11**




4. **INSPECT ELECTRODE GAP**

**Maximum electrode gap for used spark plug:**

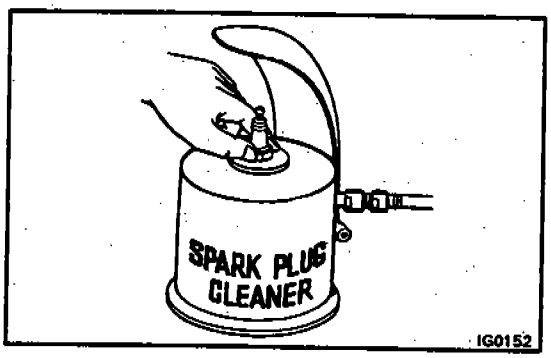
**1.3 mm (0.051 in.)**

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

**Correct electrode gap for new spark plug:**

**1.1 mm (0.043 in.)**

**NOTICE: If adjusting the gap of a new spark plug, b only the base of the ground electrode. Do not touch the Never attempt to adjust the gap on the used plug.**




5. **CLEAN SPARK PLUGS**

If the electrode has traces of wet carbon, allow it to 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 gasolin fore using the spark plug cleaner.

6. **REINSTALL SPARK PLUGS**

Using a spark plug wrench, install the 4 spark plugs

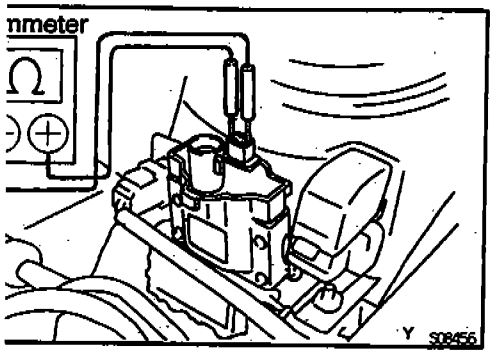
**Torque: 18 N·m (180 kgf·cm, 13 ft·lbf)**

7. **RECONNECT HIGH–TENSION CORDS TO SPAR PLUGS**

## Ignition Coil

**NOTICE: "Cold" and "Hot" in the following sentences press the temperature of the coils themselves. "Cold from –10°C (14°F) to 50°C (122°F) and "Hot" is from 50°C (122°F) to 100°C (212°F).**

1. **DISCONNECT IGNITION COIL CONNECTOR**
2. **DISCONNECT HIGH–TENSION CORD FROM IGNITION COIL**




3. **INSPECT 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.

4. **INSPECT SECONDARY COIL RESISTANCE**

Using an ohmmeter, measure the resistance between the positive (+) and high–tension terminals.

**Secondary coil resistance:**

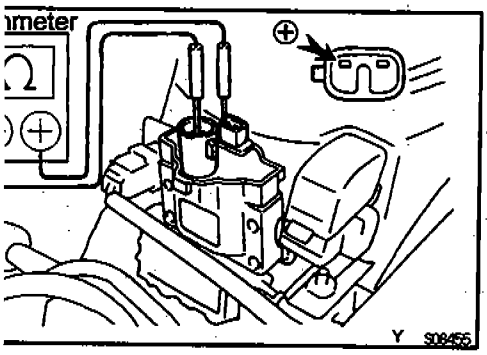
**Cold: 9.0 – 15.4 kΩ**

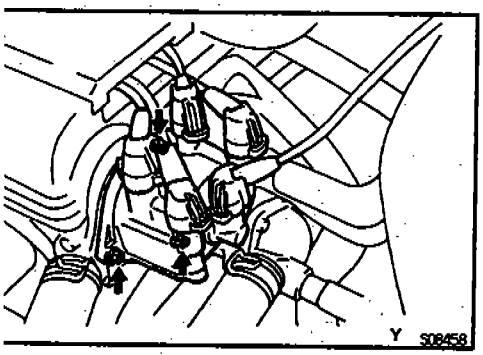
**Hot: 11.4 – 18.1 kΩ**

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

5. **RECONNECT HIGH–TENSION CORD TO IGNITION COIL**

6. **RECONNECT IGNITION COIL CONNECTOR**



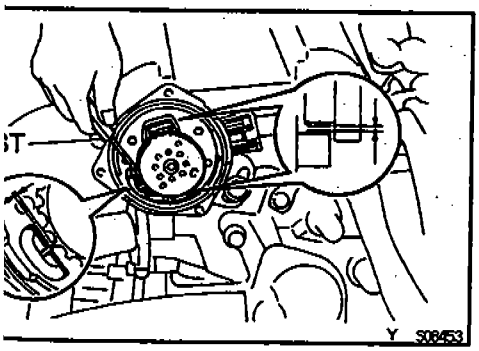




**Distributor**

**NOTICE: "Cold" and "Hot" in the following 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. **REMOVE DISTRIBUTOR CAP**

Remove the 2 bolts, and disconnect the distributor cap from the distributor housing.




2. **REMOVE ROTOR**

3. **INSPECT AIR GAP**

Using SST, measure the air gap between the signal rotor and pickup coil projection.

SST 09240–00020

**Air gap:**

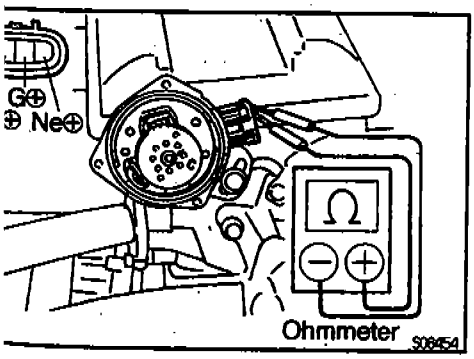
**0.2 – 0.5 mm (0.008 – 0.020 in.)**

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

4. **DISCONNECT DISTRIBUTOR CONNECTOR**

5. **INSPECT SIGNAL GENERATOR (PICKUP COIL) RESISTANCE**

Using an ohmmeter, measure the resistance between terminals.




| Terminal | Cold | Hot |
|---|---|---|
| G1 and G⊖ | 125 – 200 Ω | 160 – 235 Ω |
| G2 and G⊖ | 125 – 200 Ω | 160 – 235 Ω |
| NE and G⊖ | 155 – 250 Ω | 190 – 290 Ω |

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

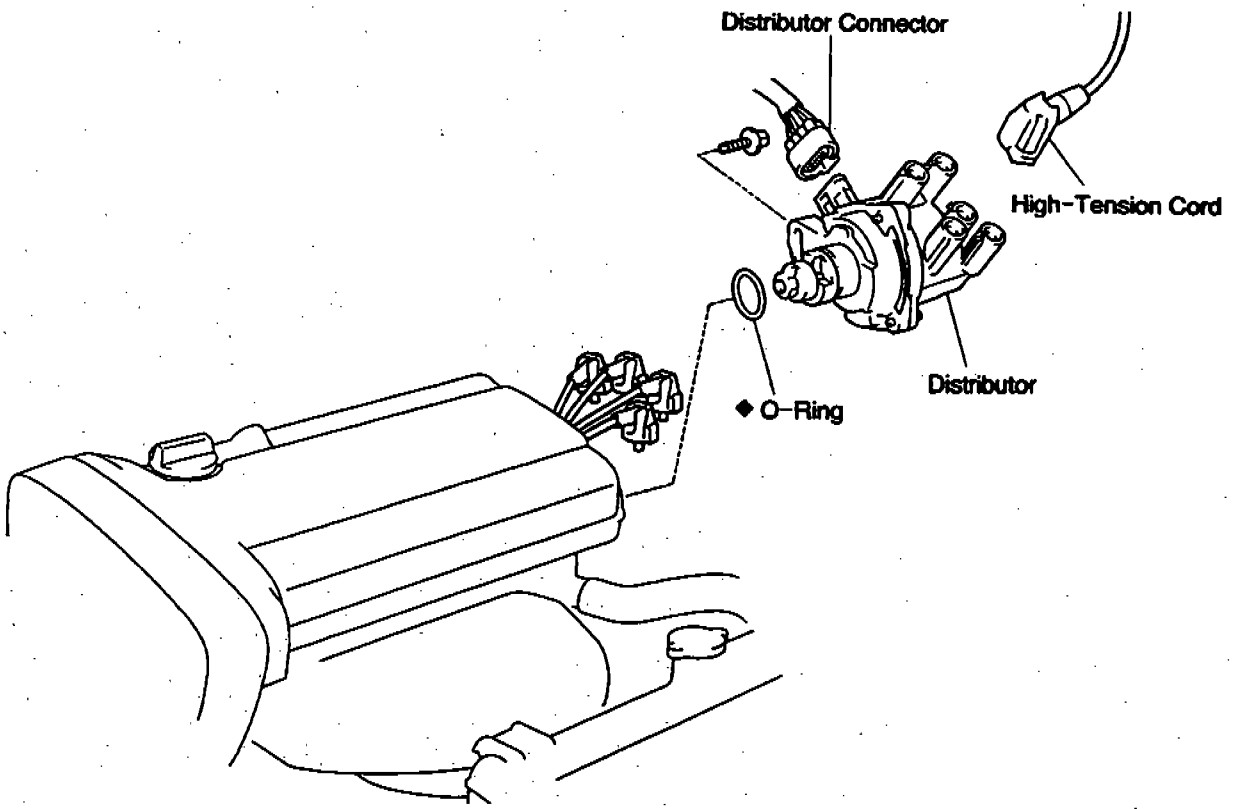
6. **RECONNECT DISTRIBUTOR CONNECTOR**
7. **REINSTALL ROTOR**
8. **REINSTALL DISTRIBUTOR CAP**

Install a new packing and distributor cap with the 2 bolts.

**Igniter**

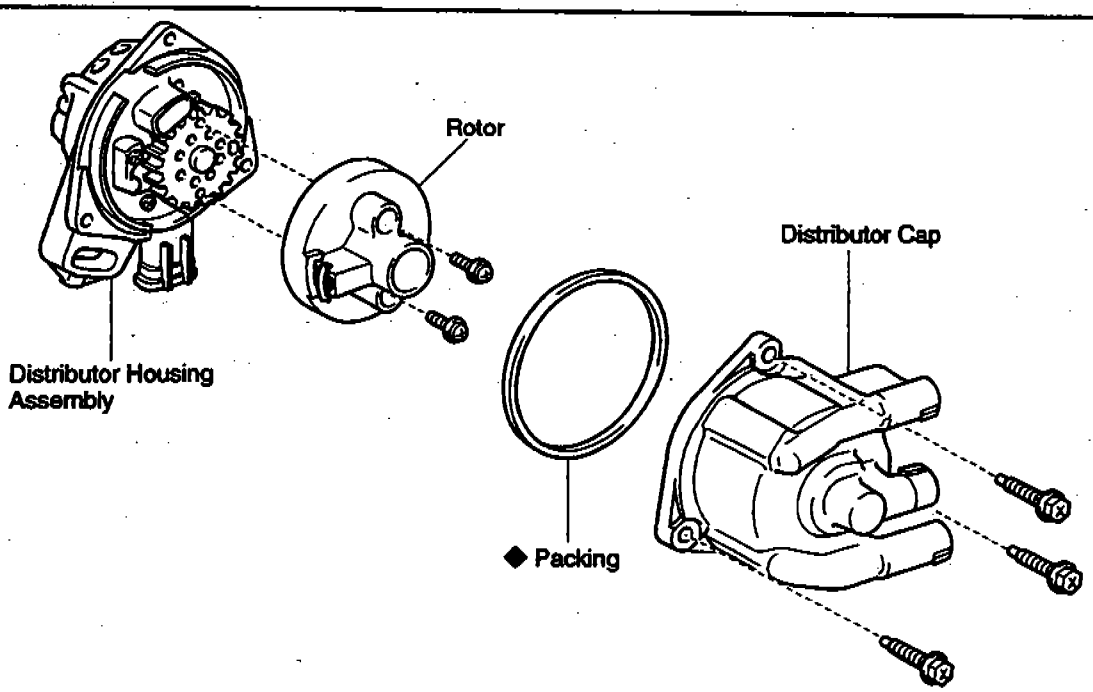
**(See spark test)**

# DISTRIBUTOR
## COMPONENTS




Non-reusable part

T S08558

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# REMOVAL

1. **DISCONNECT DISTRIBUTOR CONNECTOR**
2. **DISCONNECT HIGH–TENSION CORD FROM DISTRIBUTOR CAP**
3. **REMOVE DISTRIBUTOR**

(a) Remove the hold–down bolt, and pull out the distri

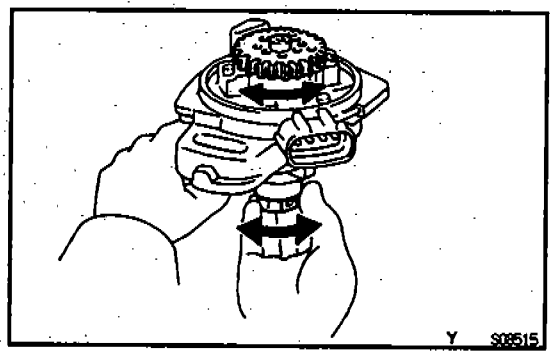
(b) Remove the O–ring from the distributor housing.

# DISASSEMBLY

1. **REMOVE DISTRIBUTOR CAP**

   Remove the 3 bolts, distributor cap and packing.
2. **REMOVE ROTOR**

   Remove the 2 screws and rotor.



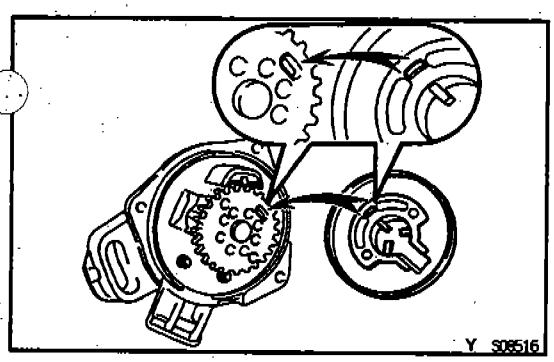

# INSPECTION

**INSPECT SHAFT**

Turn the shaft and check that it is not rough or

If it feels rough or worn, replace the distributor ho

sembly.



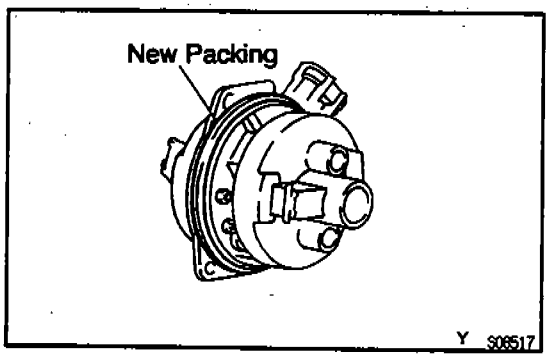

# REASSEMBLY

1. **INSTALL ROTOR**

(a) Align the hollow of the signal rotor with the pro

the rotor.

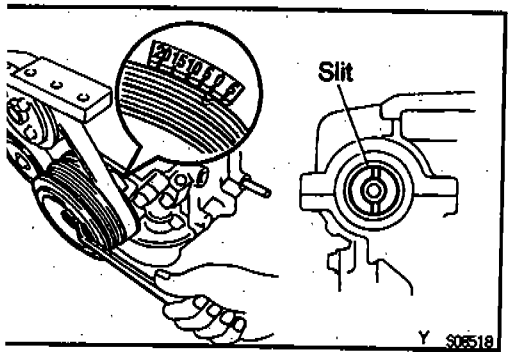
(b) Install the rotor with the 2 screws.




2. **INSTALL DISTRIBUTOR CAP**

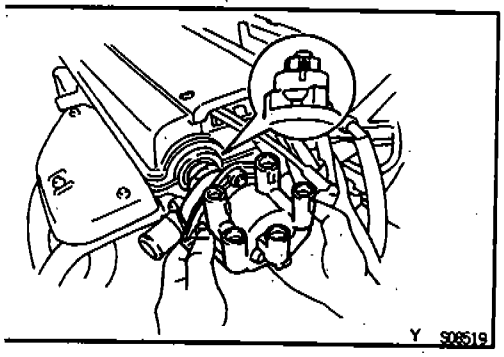
(a) Install a new packing to the distributor housing.

(b) Install the distributor cap with the 3 bolts.




# INSTALLATION

1. **SET NO. 1 CYLINDER TO TDC/COMPRESSION**
   Turn the crankshaft clockwise, and position the slit of the intake camshaft as shown in the illustration.




2. **INSTALL DISTRIBUTOR**
(a) Install a new O–ring to the housing.
(b) Apply a light coat of engine oil on the O–ring.
(c) Align the cutout of the coupling with the line of the housing.
(d) Insert the distributor, aligning the center of the flange with that of bolt hole on the cylinder head.
(e) Tighten the hold–down bolt.
**Torque: 23 N·m (230 kgf·cm, 17 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**