ON–VEHICLE INSPECTION (3S–GTE)

SPARK TEST

CHECK THAT SPARK OCCURS

(a) Disconnect the high–tension cord from the distributor.
(See page IG–11)

(b) Hold the end about 12.5 mm (0.50 in.) from the body of car.

(c) Check if spark occurs while engine is being cranked.
HINT: To minimize the amount of fuel injected into the cylinders during this test, crank the engine for no more than 1 – 2 seconds at a time.
If the spark does not occur, perform the test as follows:

SPARK TEST

NO

CHECK CONNECTION OF IGNITION COIL, IGNITER AND DISTRIBUTOR CONNECTORS

BAD → Connect securely.

OK

CHECK RESISTANCE OF HIGH–TENSION CORD (See page IG–11)
Maximum resistance: 25 kΩ per cord

BAD → Replace the cord (s).

OK

CHECK POWER SUPPLY TO IGNITION COIL AND IGNITER
1. Turn ignition switch ON.
2. Check that there is battery positive voltage at ignition coil positive (+) terminal.

BAD → Check wiring between ignition switch to ignition coil and igniter.

OK

CHECK RESISTANCE OF IGNITION COIL (See page IG–13)
Resistance (Cold):
Primary 0.3–0–60
Secondary 9 – 15 kΩ

BAD → Replace the ignition coil.

OK

CHECK RESISTANCE OF SIGNAL GENERATOR (PICKUP COIL) (See page IG–14)
Resistance (Cold):
G1 and G (–) 125 – 190Ω
G2 and G (–) 125 – 190Ω
NE and G (–) 155 – 240Ω

BAD → Replace the distributor housing assembly.

OK

CHECK AIR GAP OF DISTRIBUTOR (See page IG–14)
Air gap: 0.2 – 0.4 mm (0.008 – 0.016 in.)

BAD → Replace the distributor housing assembly.

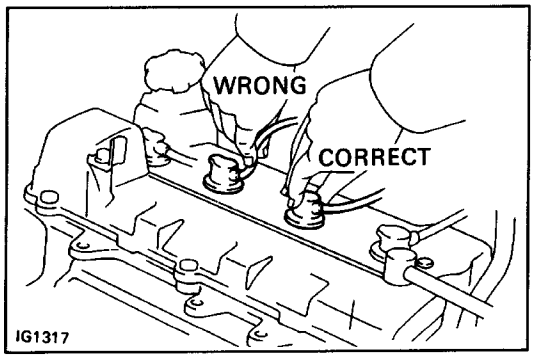
OK

CHECK IGT SIGNAL FROM ECM (See page FI–85)

BAD → Check wiring between ECM, distributor and igniter, and then try another ECM.

OK

TRY ANOTHER IGNITER



INSPECTION OF HIGH–TENSION CORDS

1. REMOVE CHARGE AIR COOLER

(See steps 13 to 15 on pages TC–9 and 10)

2. DISCONNECT HIGH–TENSION CORDS FROM SPARK PLUGS

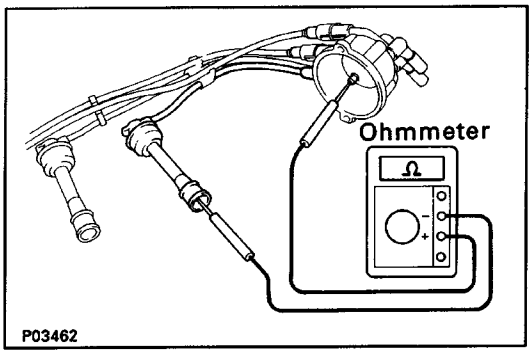
Disconnect the high–tension cords at the rubber boot.

DO NOT pull on the cords.

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

3. DISCONNECT HIGH–TENSION CORD FROM IGNITION COIL

4. REMOVE DISTRIBUTOR CAP WITHOUT DISCONNECTING HIGH–TENSION CORDS



5. INSPECT HIGH–TENSION CORD RESISTANCE

Using an ohmmeter, measure the resistance without dis–connecting the distributor cap.

Maximum resistance: 25 kΩ per cord

If the resistance is greater than maximum, check the ter–minals. If necessary, replace the high–tension cord and/or distributor cap.

6. REINSTALL DISTRIBUTOR CAP

7. RECONNECT HIGH–TENSION CORD TO IGNITION COIL

8. RECONNECT HIGH–TENSION CORDS TO SPARK PLUGS

9. REINSTALL CHARGE AIR COOLER

(See steps 11 to 15 on page TC–17)

INSPECTION OF SPARK PLUGS

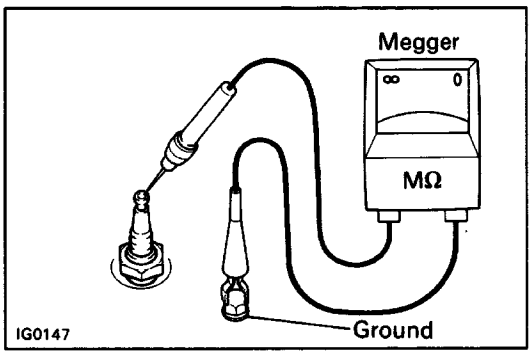
NOTICE:

- **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).**

1. REMOVE CHARGE AIR COOLER

(See steps 13 to 15 on pages TC–9 and 10)

2. DISCONNECT HIGH–TENSION CORDS FROM SPARK PLUGS



3. INSPECT ELECTRODE

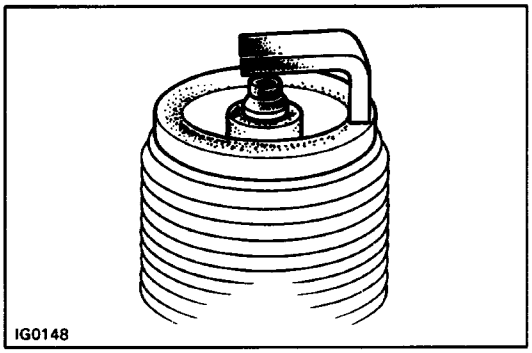
Using a megger (insulation resistance meter), measure the insulation resistance.

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 five times.

(b) Remove the spark plug. (See step 4)

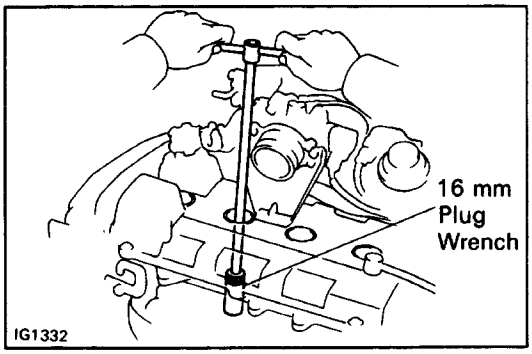
(c) Visually check the spark plug.

If the electrode is dry ... Okay

If the electrode is wet ... Proceed to step 5

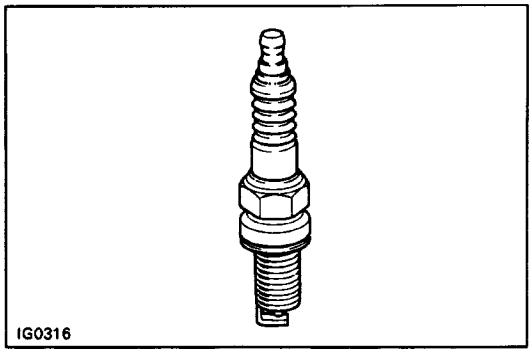
(d) Reinstall the spark plug.

(See step 8 on page IG–13)



4. REMOVE SPARK PLUGS

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



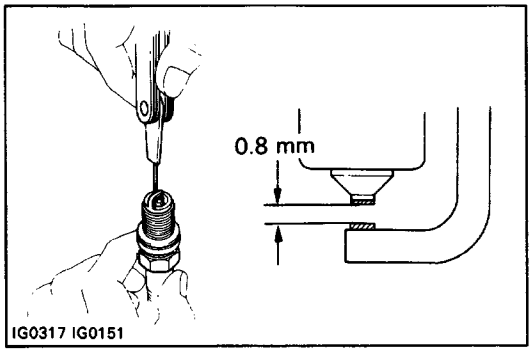
5. VISUALLY INSPECT SPARK PLUGS

Check the spark plug for thread damage and insulator damage.

If abnormal, replace the spark plug.

Recommended spark plug: ND PK20R8

NGK BKR6EP8



6. INSPECT ELECTRODE CAP

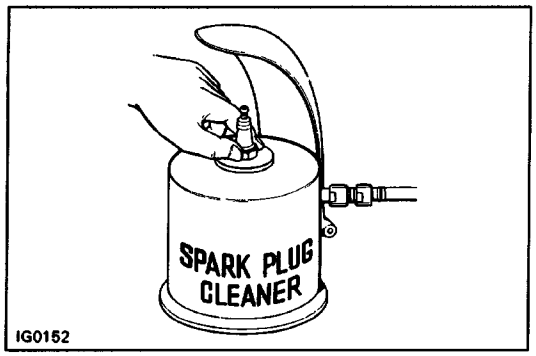
Maximum electrode gap: 1.0 mm (0.39 in.)

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

Correct electrode gap of new spark plug:

0.8 mm (0.31 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.

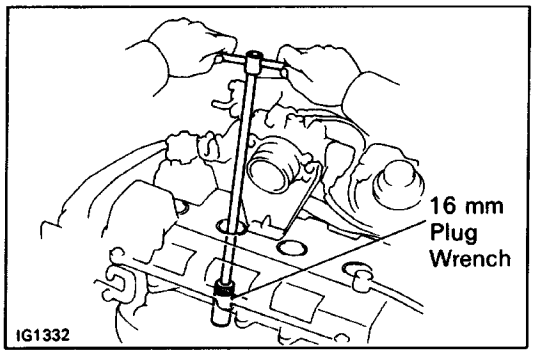


7. CLEAN SPARK PLUGS

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^2, 85 psi)
Duration: 20 seconds or less

HINT: If there are traces of oil, remove it with gasoline before using the spark plug cleaner.



8. INSTALL SPARK PLUGS

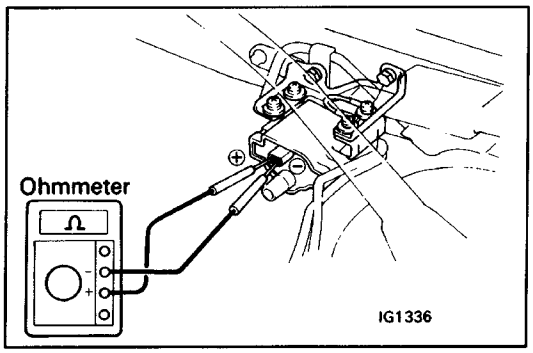
Using a 16 mm plug wrench, install the spark plug.

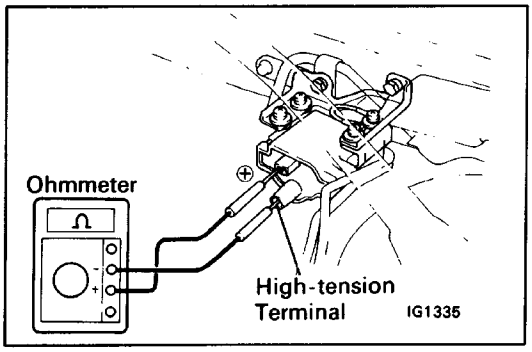
Torque: 18 N–m (180 kgf–cm,13 ft–lbf)

9. RECONNECT HIGH–TENSION CORDS TO SPARK PLUGS

10. REINSTALL CHARGE AIR COOLER

(See steps 11 to 13 on page TC–17)





INSPECTION OF IGNITION COIL

1. DISCONNECT IGNITION COIL CONNECTOR

2. DISCONNECT HIGH–TENSION CORD

3. INSPECT PRIMARY COIL RESISTANCE

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

Primary coil resistance (Cold):
0.3 ~ 0.6 Ω 92 at –10 ~ +40˚C (14 ~ 104˚F)

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

4. INSPECT SECONDARY COIL RESISTANCE

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

Secondary coil resistance (Cold):
9 ~ 15 kΩ at –10 ~ +40˚C (14 ~ 104˚F)

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

5. RECONNECT HIGH–TENSION CORD

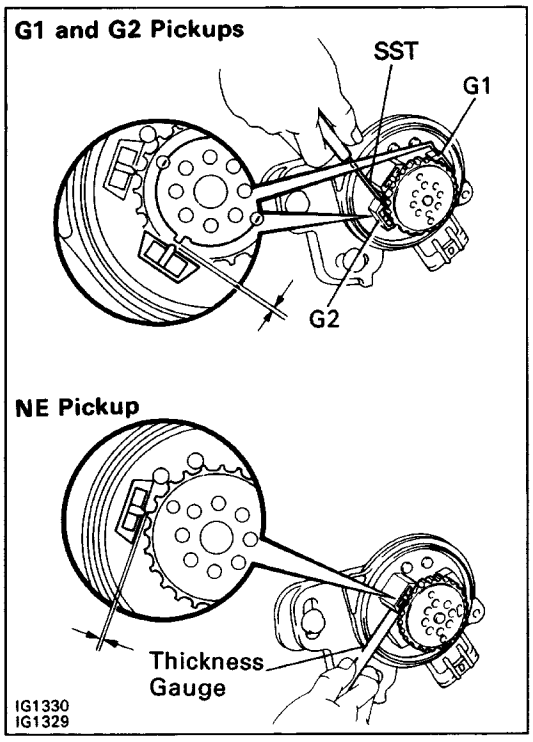
6. RECONNECT IGNITION COIL CONNECTOR

INSPECTION OF DISTRIBUTOR

1. DISCONNECT DISTRIBUTOR CONNECTOR

2. REMOVE DISTRIBUTOR CAP

3. REMOVE ROTOR



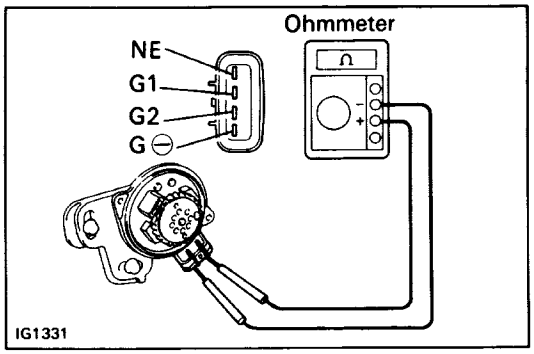
4. INSPECT AIR GAP

Using SST (G1 and G2 pickups) and a thickness gauge (NE pickup), measure the air gap between the signal rotor and pickup coil projection.

SST 09240–00020 for G1 and G2 pickups

Air gap: 0.2 – 0.4 mm (0.008 – 0.016 in.)

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



5. INSPECT SIGNAL GENERATOR (PICKUP COIL) RESISTANCE

Using an ohmmeter, measure the resistance between terminals.

Pickup coil resistance (Cold):

G1 and G (–)

125 ~ 190Ω at –10 ~ +40°C (14 ~ 104°F)

G2 and G (–)

125 ~ 190Ω at –10 ~ +40°C (14 ~ 1040F)

NE and G (–)

155 ~ 240Ω at –10 ~ +40°C (14 ~ 104°F)

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

6. REINSTALL ROTOR

7. REINSTALL DISTRIBUTOR CAP

8. RECONNECT DISTRIBUTOR CONNECTOR

INSPECTION OF IGNITER

(See procedure Spark Test on page IG–10)