

IGNITION SYSTEM (2AZ-FE)

ON-VEHICLE INSPECTION

18015-02

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 IGNITION COIL (WITH IGNITER) AND SPARK TEST

- (a) Confirm DTC.

NOTICE:

If DTC is indicated, carry out troubleshooting in accordance with the procedure on the following DTC.

HINT:

See page [05-16](#)

- (b) Check that the spark occurs.

- (1) Remove the cylinder head cover No.2.
- (2) Remove the ignition coils (with igniter).
- (3) Using a 16 mm (0.63 in) plug wrench, remove the all spark plugs.
- (4) Install the spark plugs to each ignition coils (with igniter), and connect the ignition coil connectors.
- (5) Disconnect the all injector connectors.
- (6) Ground the spark plugs.
- (7) Check if spark occurs while engine is being cranked.

NOTICE:

- **Be sure to ground the spark plug, when checking.**
- **Replace the ignition coil when it is given an impact.**
- **Do not crank the engine for more than 2 seconds.**

If the spark does not occur, do the test as follow.

- (c) Using a 16 mm (0.63 in.) plug wrench, install the spark plugs.

Torque: 19 N·m (194 kgf·cm, 14 ft·lbf)

- (d) Install the ignition coil with igniter.

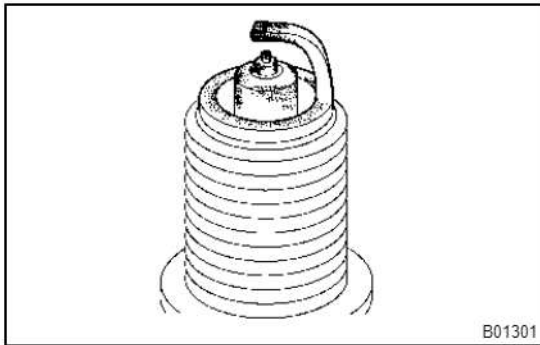
Torque: 9.0 N·m (92 kgf·cm, 80 in·lbf)

INSPECTION

1. SPARK PLUG

NOTICE:

Try not to clean the irridium and platinum tip. However, when the cleaning is necessary, use of spark plug cleaner is recommended. Duration should be less than 20 seconds.



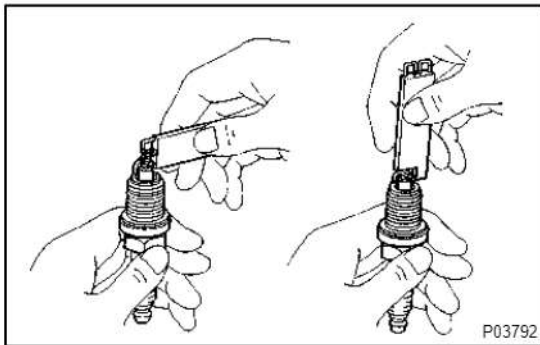
- (a) Check the spark plug for thread damage and insulator damage.

If abnormal, replace the spark plug.

Recommended spark plug:

DENSO MADE SK20R11

NGK MADE IFR6A11



- (b) Check the electrode gap.

Electrode gap: 1.0 – 1.1 mm (0.039 – 0.043 in.)

Maximum electrode gap: 1.3 mm (0.051 in.)

NOTICE:

- This engine is fitted with irridium-tipped spark plugs. Never attempt to adjust the electrode gap.
- Do not scratch the irridium and platinum tip between electrode gap.

2. CAMSHAFT POSITION SENSOR

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

RESISTANCE:

at cold 835 – 1,400 Ω

at hot 1,060 – 1,645 Ω

NOTICE:

"Cold" and "Hot" on the table 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).

3. CRANK POSITION SENSOR

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

RESISTANCE:

at cold 985 – 1,600 Ω

at hot 1,265 – 1,890 Ω

NOTICE:

"Cold" and "Hot" on the table 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).

IGNITION SYSTEM (1MZ-FE)

ON-VEHICLE INSPECTION

18013-02

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 IGNITION COIL AND SPARK TEST

(a) Confirm DTC.

NOTICE:

If DTC is indicated, carry out troubleshooting in accordance with the procedure on the following DTC.

HINT:

See page [05-190](#)

(b) Check that the spark occurs.

- (1) Remove the intake air surge tank (See page [14-142](#))
- (2) Remove the ignition coils.
- (3) Using a 16 mm (0.63 in) plug wrench, remove the all spark plugs.
- (4) Install the spark plugs to each ignition coils and connect the ignition coil connectors.
- (5) Disconnect the all injector connectors.
- (6) Ground the spark plugs.
- (7) Check if spark occurs while engine is being cranked.

NOTICE:

- Be sure to ground the spark plug, when checking.
- Replace the ignition coil when it is given an impact.
- Do not crank the engine for more than 2 seconds.

If the spark does not occur, do the test as follow.

(c) Using a 16 mm (0.63 in.) plug wrench, install the spark plugs.

Torque: 18 N·m (184 kgf·cm, 13 ft·lbf)

(d) Install the ignition coils.

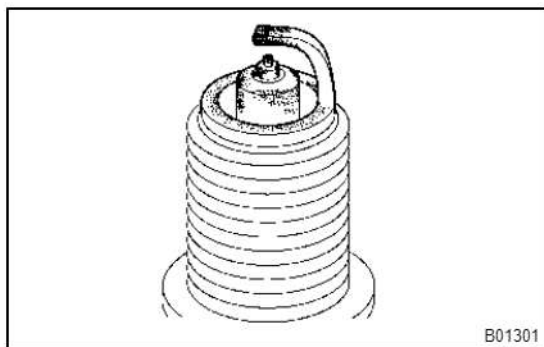
Torque: 8.0 N·m (82 kgf·cm, 71 in·lbf)

INSPECTION

1. SPARK PLUG

NOTICE:

Try not to clean the irridium and platinum tip. However, when the cleaning is necessary, use of spark plug cleaner is recommended. Duration should be less than 20 seconds.



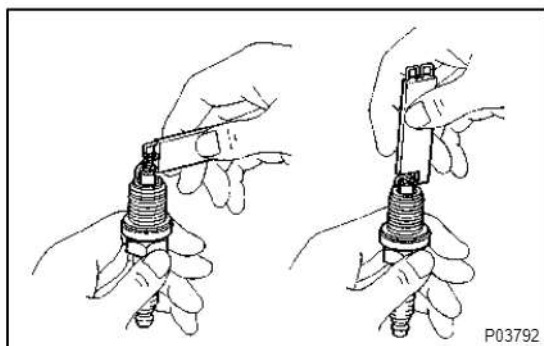
- (a) Check the spark plug for thread damage and insulator damage.

If abnormal, replace the spark plug.

Recommended spark plug:

DENSO MADE SK20R11

NGK MADE IFR6A11



- (b) Check the electrode gap.

Electrode gap: 1.0 – 1.1mm (0.039 – 0.043 in.)

Maximum electrode gap: 1.2 mm (0.047 in.)

NOTICE:

- This engine is fitted with irridium-tipped spark plugs. Never attempt to adjust the electrode gap.
- Do not scratch the irridium and platinum tip between electrode gap.

2. CAMSHAFT POSITION SENSOR

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

RESISTANCE:

at cold 835 – 1,400 Ω

at hot 1,060 – 1,645 Ω

NOTICE:

"Cold" and "Hot" on the table 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).

3. CRANK POSITION SENSOR

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

RESISTANCE:

at cold 1,630 – 2,740 Ω

at hot 2,065 – 3,225 Ω

NOTICE:

"Cold" and "Hot" on the table 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).