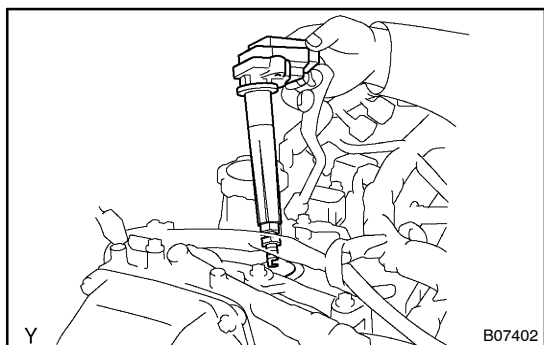


IGNITION SYSTEM ON-VEHICLE INSPECTION

IG0EA-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 WITH IGNITER AND SPARK TEST**

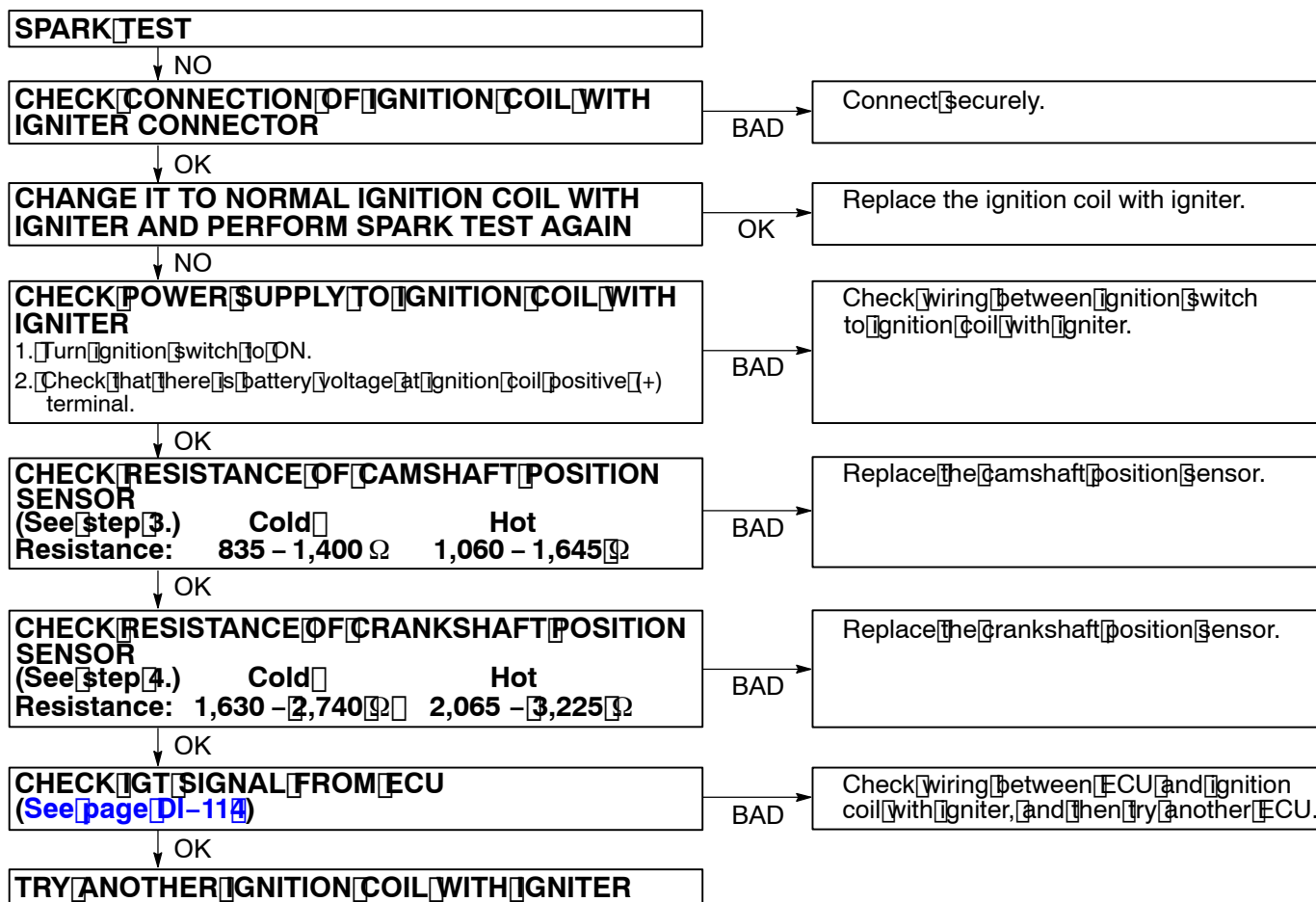
Check that the spark occurs.

- (1) Remove the ignition coils with igniters.
(See [page IG-6](#))
- (2) Using a 16 mm plug wrench, 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 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)

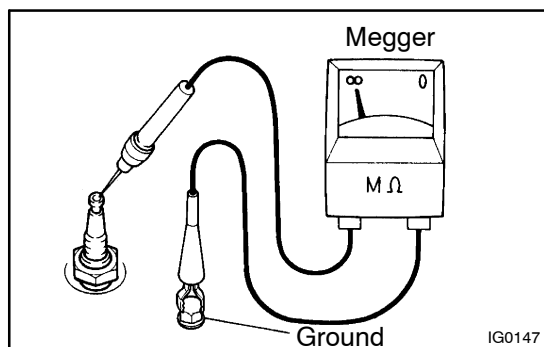
(8) Reinstall the ignition coils with igniters.

(See page IG-6)

2. 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 144,000 km (90,000 miles).
- (a) Remove the ignition coils with igniters.
- (See page IG-6)



(b) Check the electrode.

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

Correct insulation resistance:

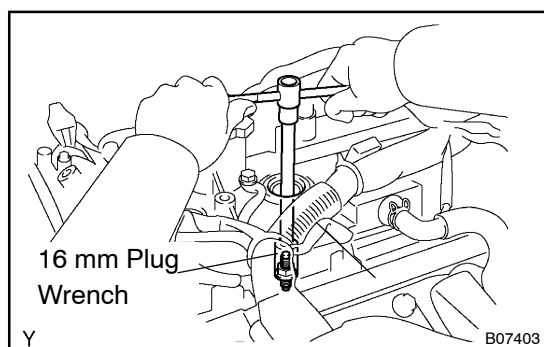
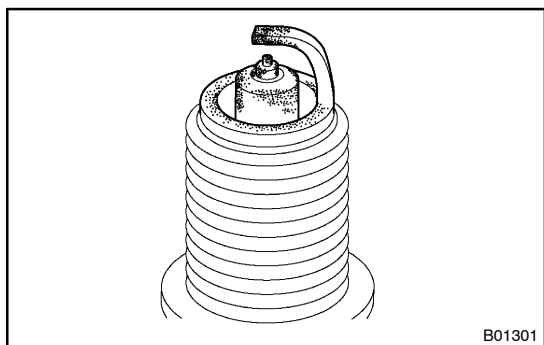
10 MΩ or more

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

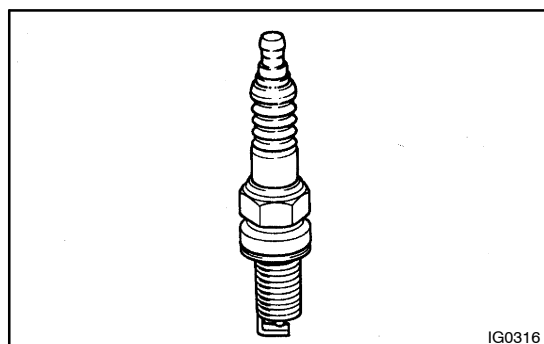
HINT:

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 ... Okay.
 - 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.

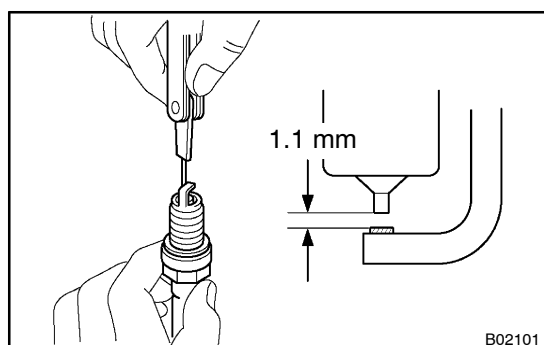


(d) Check the spark plug for thread damage and insulator damage.

If abnormal, replace the spark plug.

Recommended spark plug:

DENSO	SK20R11
NGK	IFR6A11



(e) Check the spark plug electrode gap.

Maximum electrode gap for used spark plug:

1.2 mm (0.047 in.)

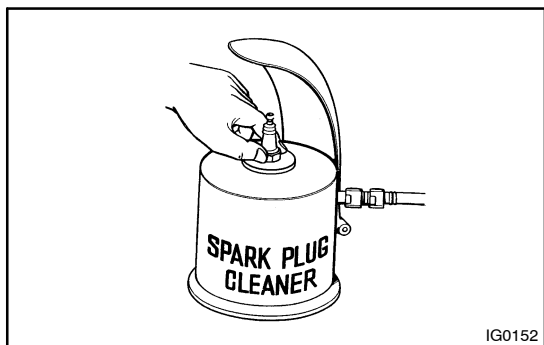
If the gap is greater than maximum, replace the spark plug.

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.



IG0152

(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 igniters.

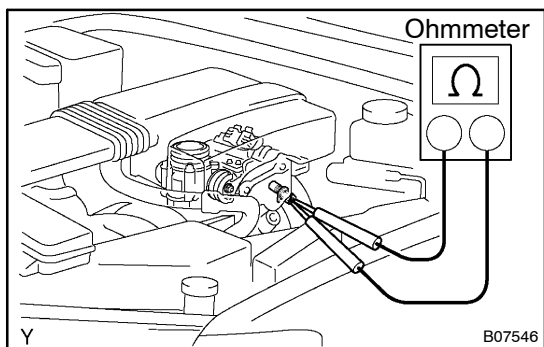
(See page IG-6)

3. INSPECT CAMSHAFT POSITION SENSOR

(a) Remove the air cleaner inlet.

(b) Remove the air cleaner assembly.

(c) Disconnect the camshaft position sensor connector.



B07546

(d) 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.

(e) Connect the camshaft position sensor connector.

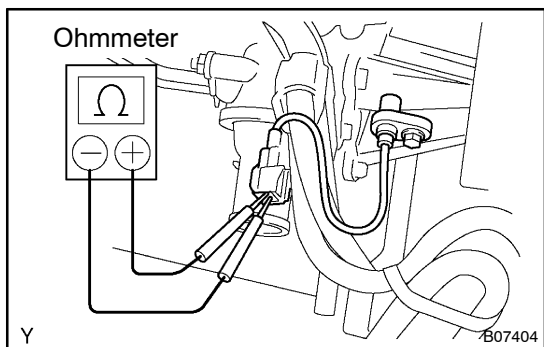
(f) Install the air cleaner assembly.

(g) Install the air cleaner inlet.

4. INSPECT CRANKSHAFT POSITION SENSOR

(a) Remove the air cleaner inlet.

(b) Disconnect the crankshaft position sensor connector.



B07404

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

Resistance:

Cold	1,630 - 2,740 Ω
Hot	2,065 - 3,225 Ω

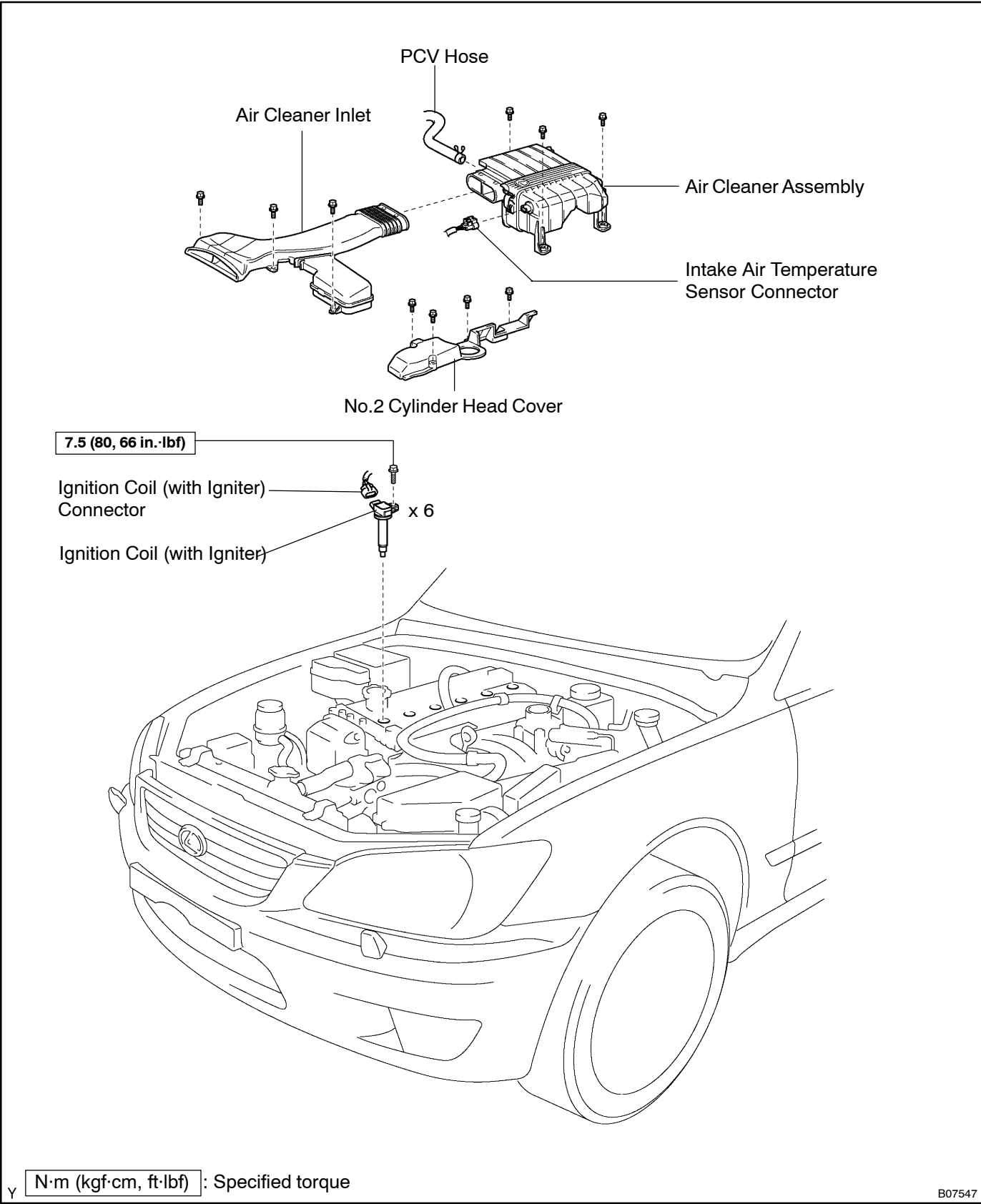
If the resistance is not as specified, replace the crankshaft position sensor.

(d) Connect the crankshaft position sensor connector.

(e) Install the air cleaner inlet.

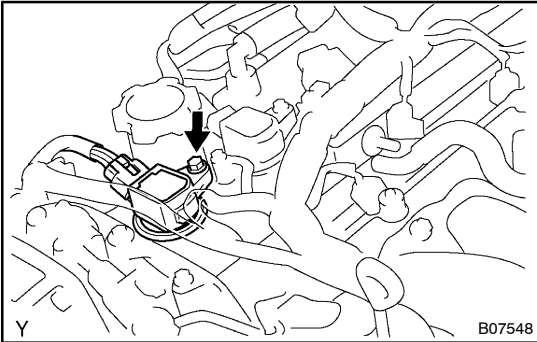
IGNITION COIL
COMPONENTS

IG05T-03



REPLACEMENT

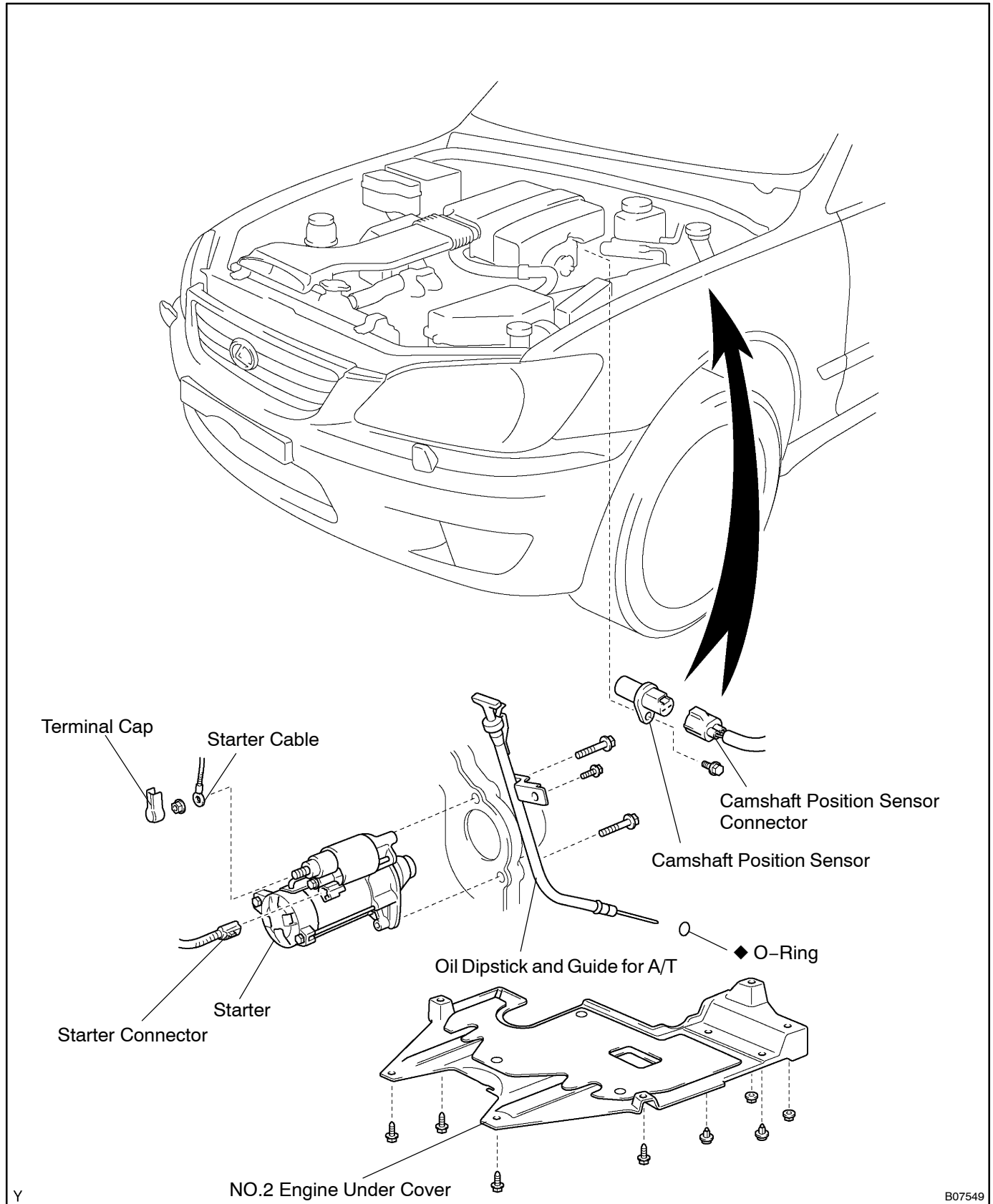
1. REMOVE AIR CLEANER INLET
2. REMOVE AIR CLEANER ASSEMBLY
3. REMOVE NO.2 CYLINDER HEAD COVER



4. REMOVE IGNITION COILS FROM SPARK PLUGS
 - (a) Disconnect the ignition coil connectors.
 - (b) Remove the bolt, and pull out the ignition coil. Remove the 6 ignition coils.
5. REINSTALL NEW IGNITION COILS
 - (a) Connect a new ignition coil to the spark plug, and attach the ignition coil to the cylinder head cover, and install the bolt. Install the 6 ignition coils.
Torque: 7.5 N·m (80 kgf·cm, 66 in.·lbf)
 - (b) Connect the 6 ignition coil connectors.
6. REINSTALL NO.2 CYLINDER HEAD COVER
7. REINSTALL AIR CLEANER ASSEMBLY
8. REINSTALL AIR CLEANER INLET

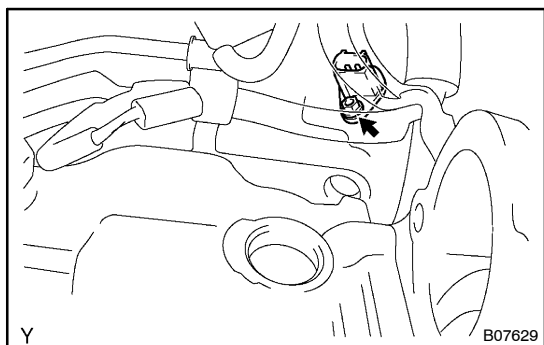
CAMSHAFT POSITION SENSOR COMPONENTS

IG05V-03



REPLACEMENT

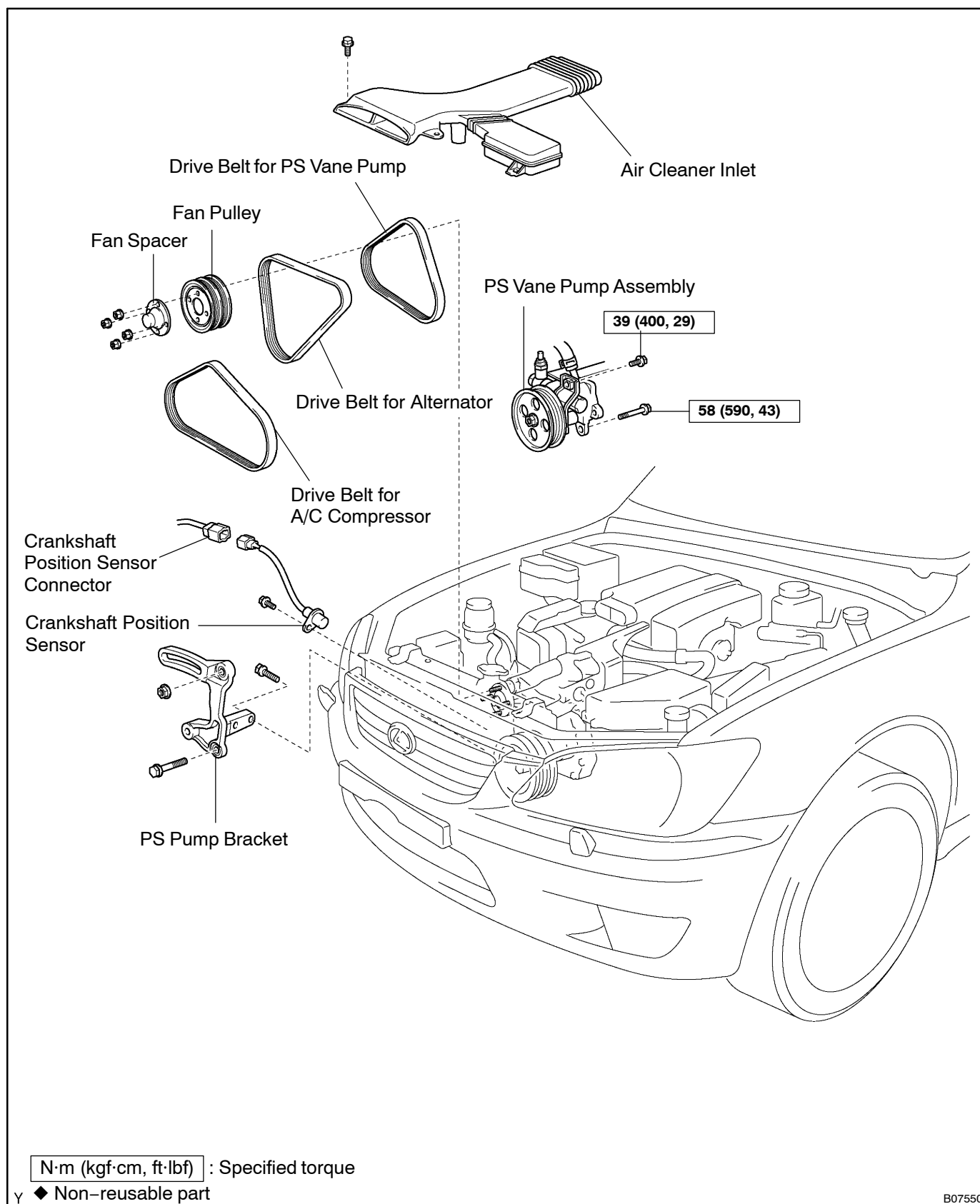
1. REMOVE NO.2 ENGINE UNDER COVER
2. REMOVE OIL DIPSTICK AND GUIDE FOR A/T
3. REMOVE STARTER (See page ST-3)



4. REMOVE CAMSHAFT POSITION SENSOR
 - (a) Disconnect the camshaft position sensor connector.
 - (b) Remove the bolt and camshaft position sensor.
5. REINSTALL CAMSHAFT POSITION SENSOR
 - (a) Install the camshaft position sensor with the bolt.
Torque: 9.0 N·m (90 kgf·cm, 80 in.·lbf)
 - (b) Connect the camshaft position sensor connector.
6. REINSTALL STARTER (See page ST-17)
7. REINSTALL OIL DIPSTICK AND GUIDE FOR A/T
8. REINSTALL NO.2 ENGINE UNDER COVER

CRANKSHAFT POSITION SENSOR COMPONENTS

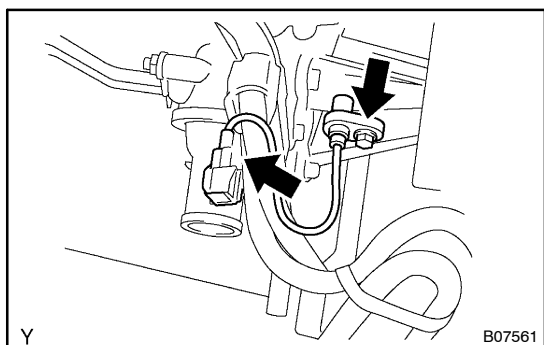
IG060-03



REPLACEMENT

1. REMOVE AIR CLEANER INLET
2. REMOVE DRIVE BELT FOR A/C COMPRESSOR (See page EM-20)
3. REMOVE DRIVE BELT FOR ALTERNATOR (See page CH-6)
4. REMOVE DRIVE BELT FOR PS VANE PUMP (See page EM-71)
5. REMOVE FAN SPACER AND PULLEY
6. REMOVE PS VANE PUMP WITHOUT DISCONNECTING HOSE (See page EM-71)
7. REMOVE PS PUMP BRACKET

Remove the 2 bolts, nut and the PS pump bracket.



8. REMOVE CRANKSHAFT POSITION SENSOR
 - (a) Disconnect the crankshaft position sensor connector.
 - (b) Remove the bolt and crankshaft position sensor.

9. REINSTALL CRANKSHAFT POSITION SENSOR

- (a) Install the crankshaft position sensor with the bolt.
Torque: 9.0 N·m (90 kgf·cm, 80 in·lbf)
- (b) Connect the crankshaft position sensor connector.

10. REINSTALL PS PUMP BRACKET

Install the PS pump bracket with the 2 bolts and nut.

11. REINSTALL PS VANE PUMP (See page EM-76)
12. REINSTALL FAN SPACER AND PULLEY
13. REINSTALL DRIVE BELT FOR PS VANE PUMP (See page EM-76)
14. REINSTALL DRIVE BELT FOR ALTERNATOR (See page CH-15)
15. REMOVE DRIVE BELT FOR A/C COMPRESSOR (See page EM-26)
16. REMOVE AIR CLEANER INLET