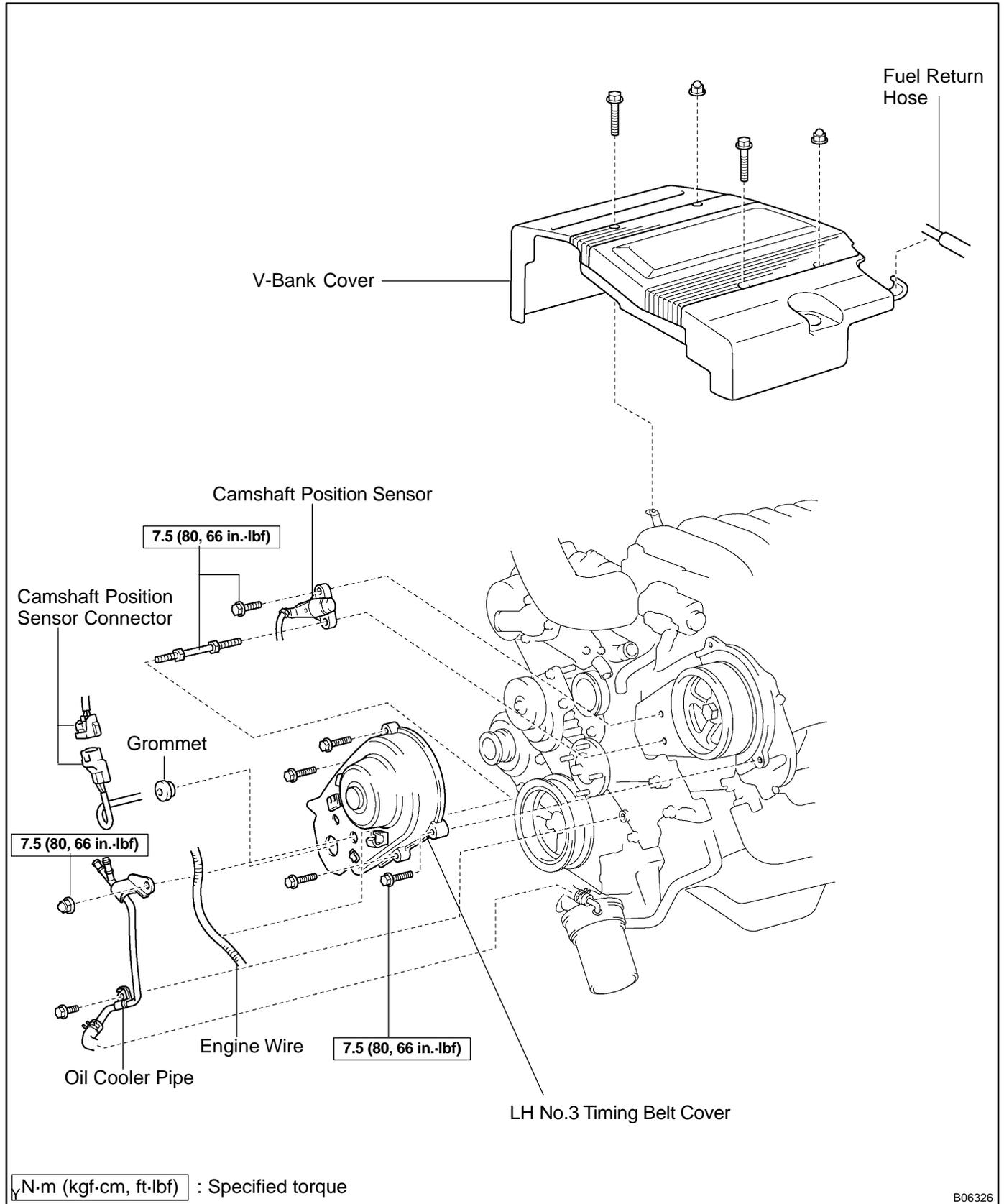
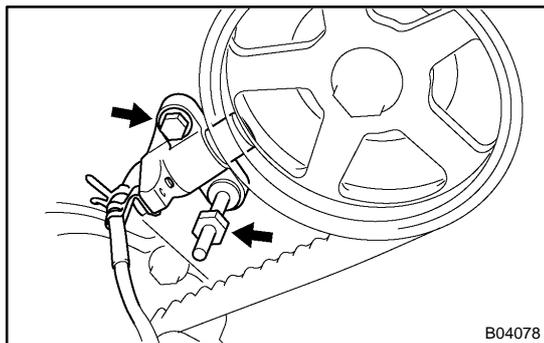


CAMSHAFT POSITION SENSOR COMPONENTS

IG08T-03





INSTALLATION

1. INSTALL CAMSHAFT POSITION SENSOR

Install the camshaft position sensor with the bolt and stud bolt

Torque: 7.5 N·m (80 kgf·cm, 66 in.-lbf)

2. INSTALL LH NO.3 TIMING BELT COVER

(See page [EM-22](#))

3. CONNECT RADIATOR HOSE

4. INSTALL V-BANK COVER

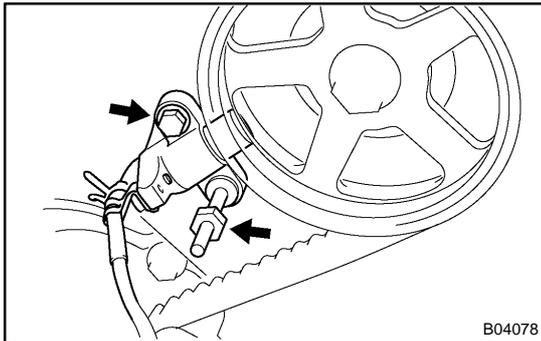
5. FILL ENGINE COOLANT (See page [CO-2](#))

6. CHECK ENGINE COOLANT FOR LEAKS

7. CHECK IGNITION TIMING (See page [EM-9](#))

REMOVAL

1. REMOVE V-BANK COVER
2. DRAIN ENGINE COOLANT
3. DISCONNECT UPPER RADIATOR HOSE
4. REMOVE LH NO.3 TIMING BELT COVER
(See page [EM-15](#))

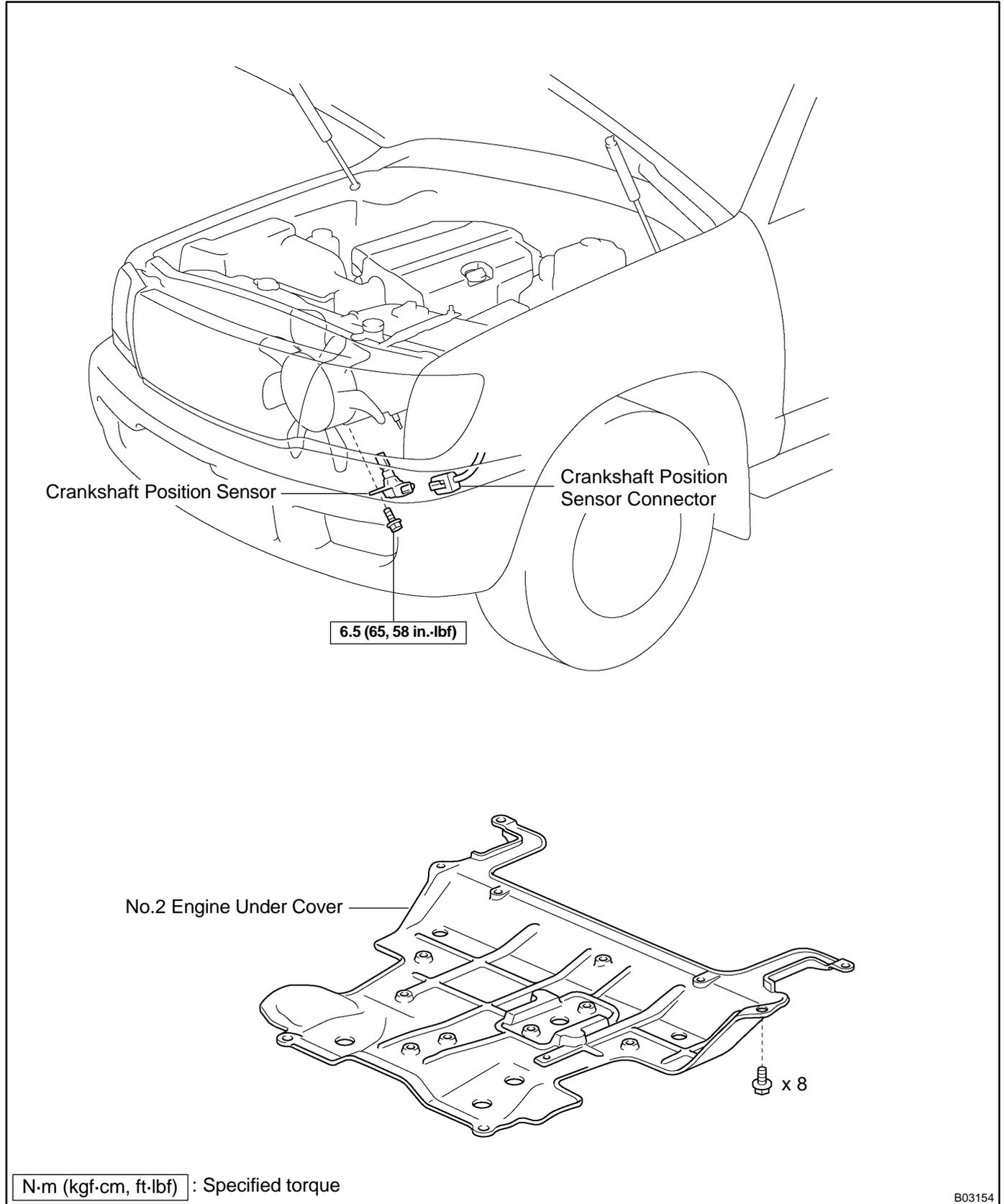


5. REMOVE CAMSHAFT POSITION SENSOR

Remove the bolt, stud bolt and camshaft position sensor.

CRANKSHAFT POSITION SENSOR COMPONENTS

IG08W-01



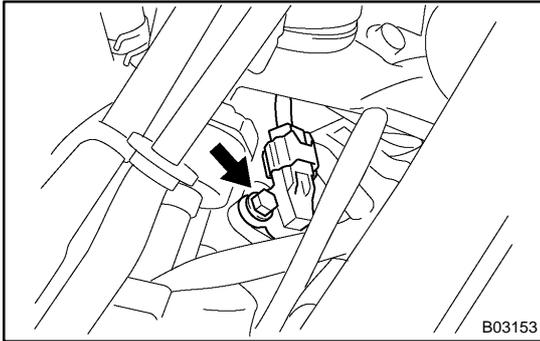
B03154

INSTALLATION

Installation is in the reverse order of removal. (See page [IG-12](#))

REMOVAL

1. REMOVE NO.2 ENGINE UNDER COVER



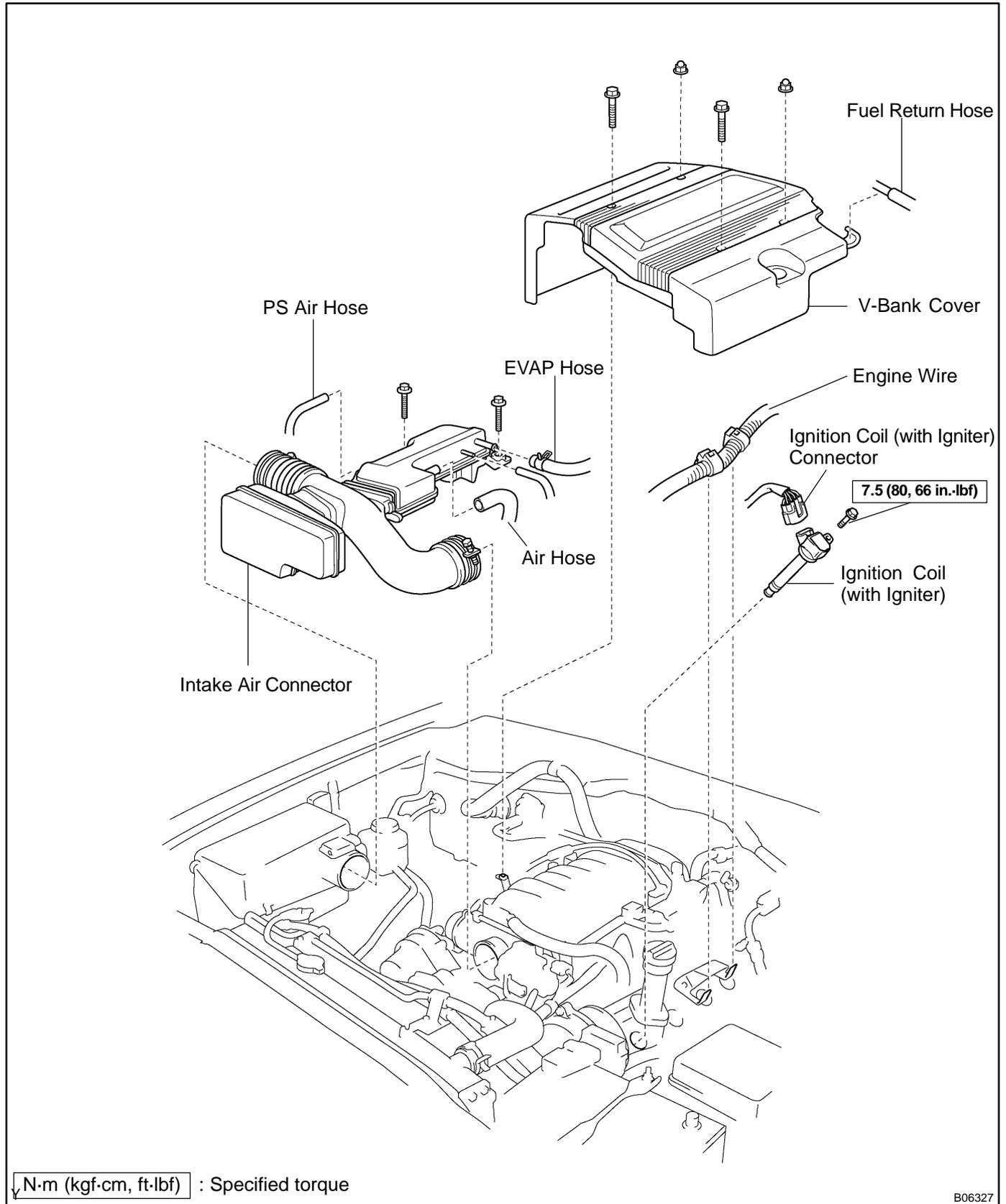
2. REMOVE CRANKSHAFT POSITION SENSOR

- (a) Disconnect the crankshaft position sensor connector.
- (b) Remove the bolt and crankshaft position sensor.

Torque: 6.5 N·m (65 kgf·cm, 58 in.-lbf)

IGNITION COIL COMPONENTS

IG08Q-02



B06327

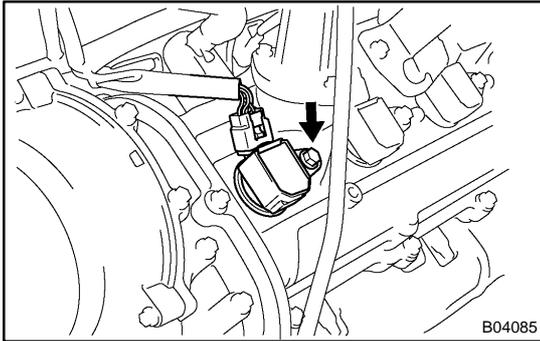
INSTALLATION

Installation is in the reverse order of removal. (See page [IG-6](#))

REMOVAL

1. REMOVE V-BANK COVER
2. REMOVE INTAKE AIR CONNECTOR
3. DISCONNECT ENGINE WIRE FROM LH CYLINDER HEAD COVER

Disconnect the 2 wire clamps and engine wire.



4. DISCONNECT IGNITION COIL (WITH IGNITER) CONNECTORS
5. REMOVE IGNITION COILS (WITH IGNITER) FROM SPARK PLUGS

Remove the bolt, and pull out the ignition coil (with igniter). Remove the 8 ignition coils (with igniter).

Torque: 7.5 N·m (80 kgf·cm, 66 in.-lbf)

IGNITION SYSTEM

ON-VEHICLE INSPECTION

IG08P-03

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

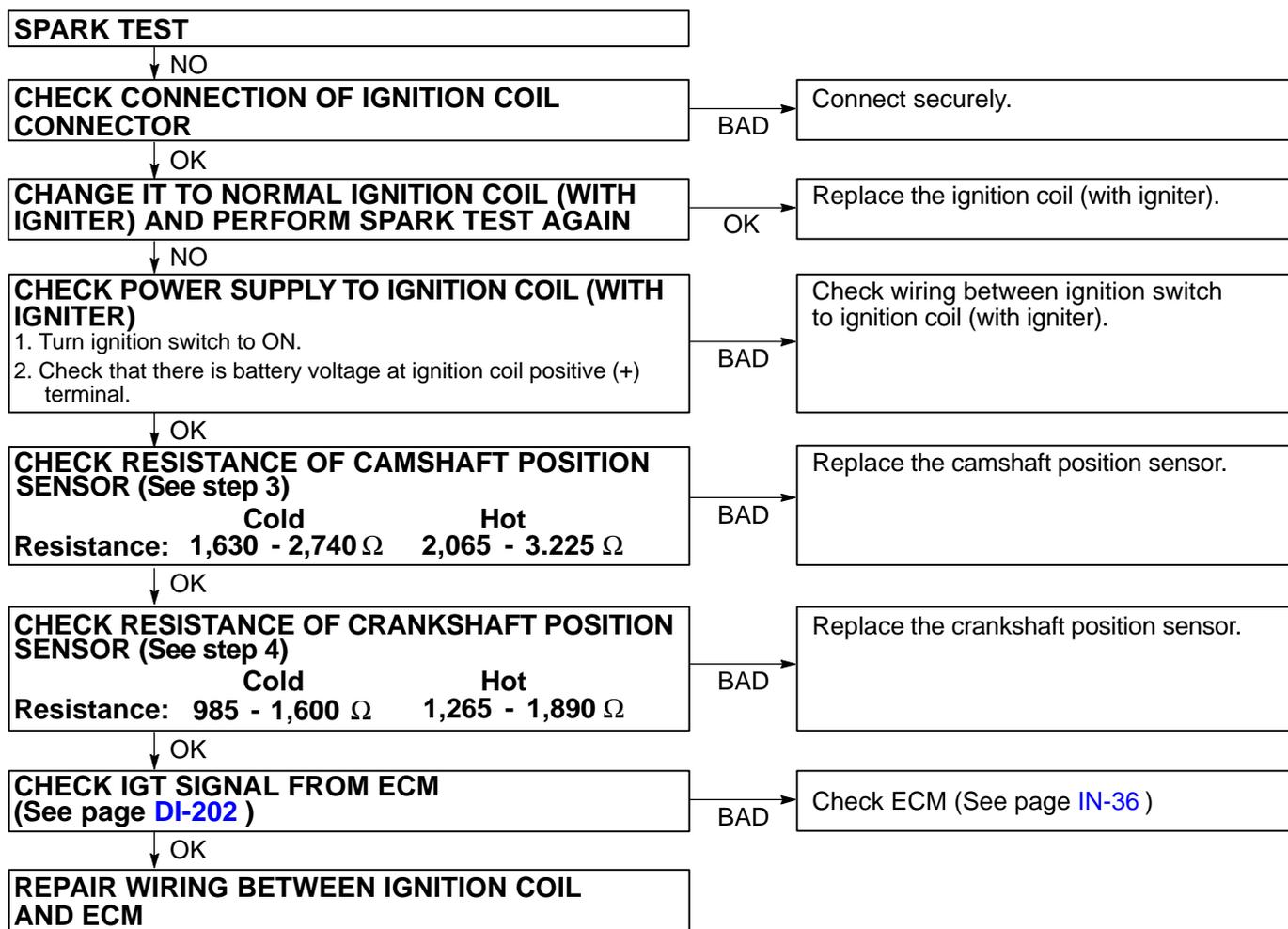
Check that the spark occurs.

- (1) Remove the ignition coils (with igniter) (See page [IG-6](#)).
- (2) 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 8 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)

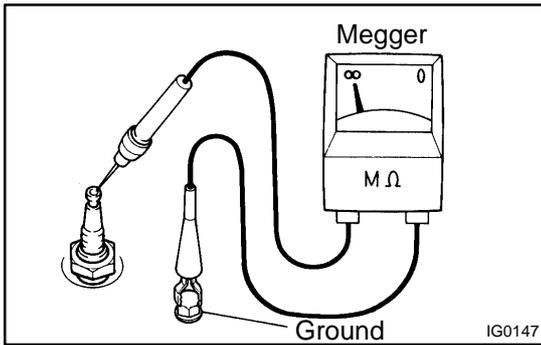
(8) Reinstall the ignition coils (with igniter) (See page IG-6).

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 100,000 km (60,000 miles).

(a) Remove the ignition coils (with igniter) (See page IG-6).

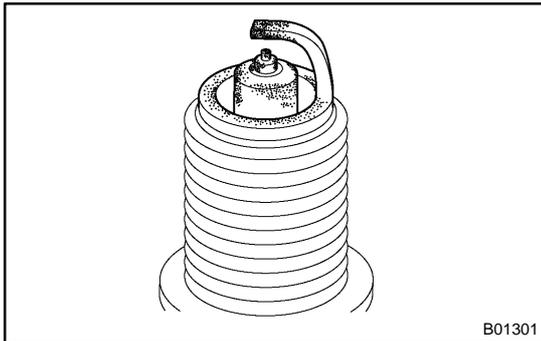


- (b) Check the electrode.
- Using a megger (insulation resistance meter), measure the insulation resistance.

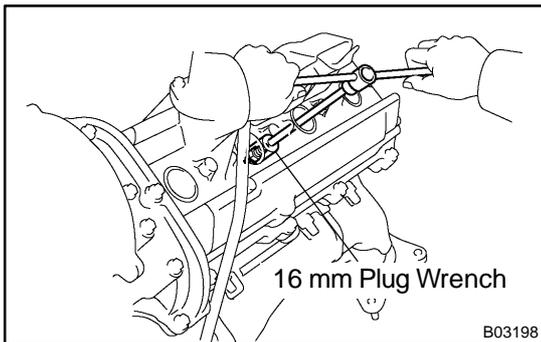
Correct insulation resistance: 10 MΩ or more

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

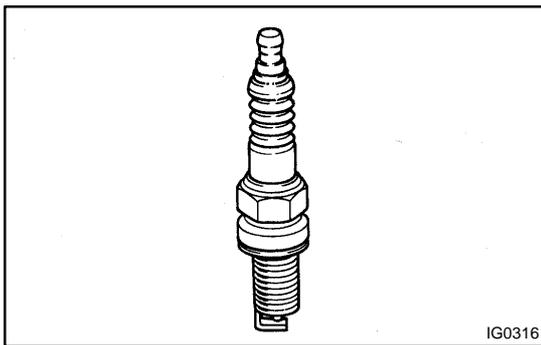
If a megger is not available, the following simple method of inspection provides fairly accurate results.



- 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 ... 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 spark plugs.

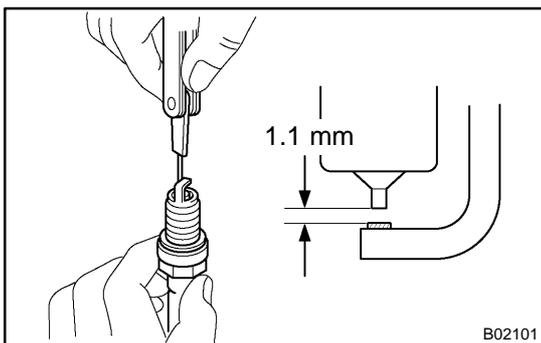


- (d) Check the spark plug for thread damage and insulator damage.

If abnormal, replace the spark plug.

Recommended spark plug:

DENSO made	SK20R11
NGK made	IFR6A11



- (e) Check the spark plug electrode gap.
**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 a 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

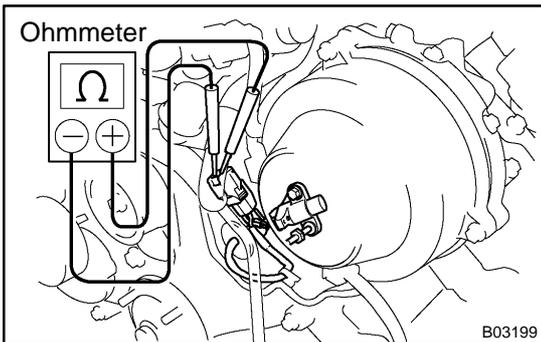
HINT:

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 spark plugs.
Torque: 17.5 N·m (180 kgf·cm, 13 ft·lbf)
- (h) Reinstall the ignition coils (with igniter) (See page [IG-6](#)).

3. INSPECT CAMSHAFT POSITION SENSOR

- (a) Remove the V-bank cover.
- (b) Disconnect the camshaft position sensor connector.



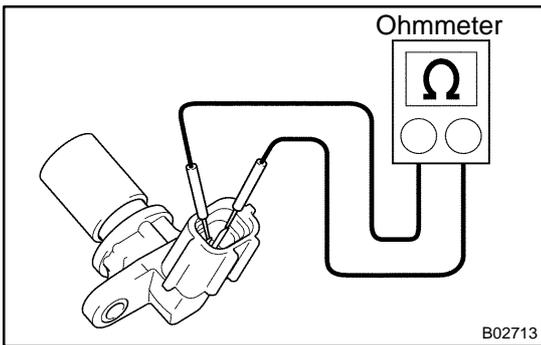
- (c) Using an ohmmeter, measure the resistance between terminals.

Resistance:

Cold	835 - 1,400 Ω
Hot	1,060 - 1,645 Ω

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

- (d) Reconnect the camshaft position sensor connector.
- (e) Reinstall the V-bank cover.



4. INSPECT CRANKSHAFT POSITION SENSOR

- (a) Remove the crankshaft position sensor (See page [IG-12](#)).
- (b) Using an ohmmeter, measure the resistance between the 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.

- (c) Reinstall the crankshaft position sensor.