

DTC	13	ENGINE SPEED SENSOR CIRCUIT MALFUNCTION (NE CIRCUIT)
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CIRCUIT DESCRIPTION

Crankshaft position sensor (NE signal) consists of a magnet, iron core and pickup coil. The NE signal plate has 34 teeth and is installed the crankshaft timing pulley. The NE signal sensor generates 34 signals of every engine revolution. The ECM detects the standard crankshaft angle based on the G signal, and the actual crankshaft angle and the engine speed by the NE signal.

DTC No.	DTC Detection Condition	Trouble Area
13	No crankshaft position sensor signal to ECM for 0.5 sec. or more at 650 rpm or more	<ul style="list-style-type: none"> • Open or short in crankshaft position sensor circuit • Crankshaft position sensor • Crankshaft timing pulley • ECM
	No crankshaft position sensor signal to ECM for 2.0 sec. or more during cranking	

WIRING DIAGRAM

Refer to DTC12 on [page 05-173](#).

INSPECTION PROCEDURE

HINT:

Read freeze frame data using hand-held tester, as freeze frame data records the engine conditions when a malfunction is detected. When troubleshooting, it is useful for determining whether the vehicle was running or stopped, the engine was warmed up or not, etc. at the time of the malfunction.

1	INSPECT CRANK POSITION SENSOR
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(a) Check the crankshaft position sensor for resistance. ([See page 10-9](#))

Resistance:

1630 – 2740 Ω (COLD)

2065 – 3225 Ω (HOT)

HINT:

"Cold" and "Hot" above express the temperature of the part itself. "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).

(b) Reference

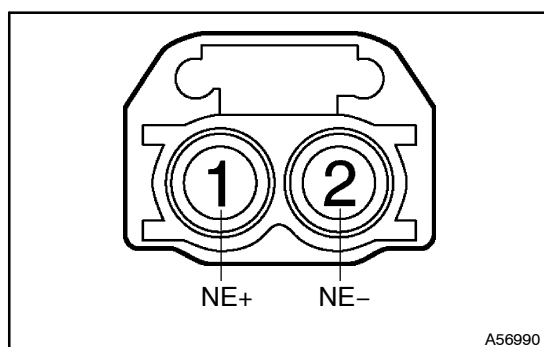
(1) Refer to DTC12 on [page 05-173](#)

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REPLACE CRANK POSITION SENSOR

OK

2 CHECK HARNESS AND CONNECTOR (ECM-CRANKSHAFT POSITION SENSOR)



- (a) Disconnect the crankshaft position sensor connector.
- (b) Disconnect the ECM E11 connector.
- (c) Check for open between the terminals NE+ of the crankshaft position sensor harness side connector and NE+ of the ECM E11 connector.

Resistance: 1 Ω or less

- (d) Check for short between the terminals NE+ and NE- of the ECM E11 connector.

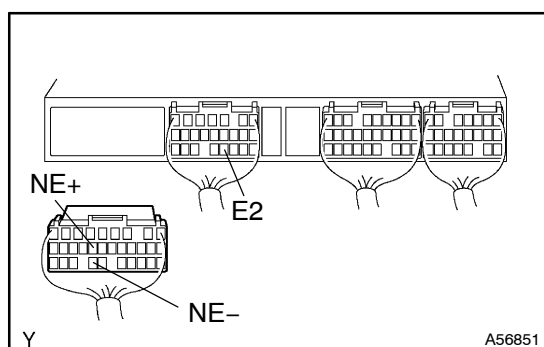
Resistance: 1 M Ω or more

- (e) Check for open between the terminals NE- of the crankshaft position sensor harness side connector and NE- of the ECM E11 connector.

Resistance: 1 Ω or less

- (f) Check for short between the terminals NE+, NE- of the ECM E11 connector and E2 of the ECM E10 connector.

Resistance: 1 M Ω or more



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REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

3 INSPECT SENSOR INSTALLATION

- (a) Check the crankshaft position sensor installation.

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TIGHTEN SENSOR

OK

4 INSPECT CRANKSHAFT TIMING PULLEY (SIGNAL PLATE TEETH)

- (a) Remove the timing belt No. 1 cover. (See page 14-11)
- (b) Check the teeth of the signal plate.

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REPLACE CRANKSHAFT TIMING PULLEY

OK

CHECK AND REPLACE ECM