DTC	P0335/12	CRANKSHAFT POSITION SENSOR ”A” CIRCUIT

DTC	P0335/13	CRANKSHAFT POSITION SENSOR ”A” CIRCUIT

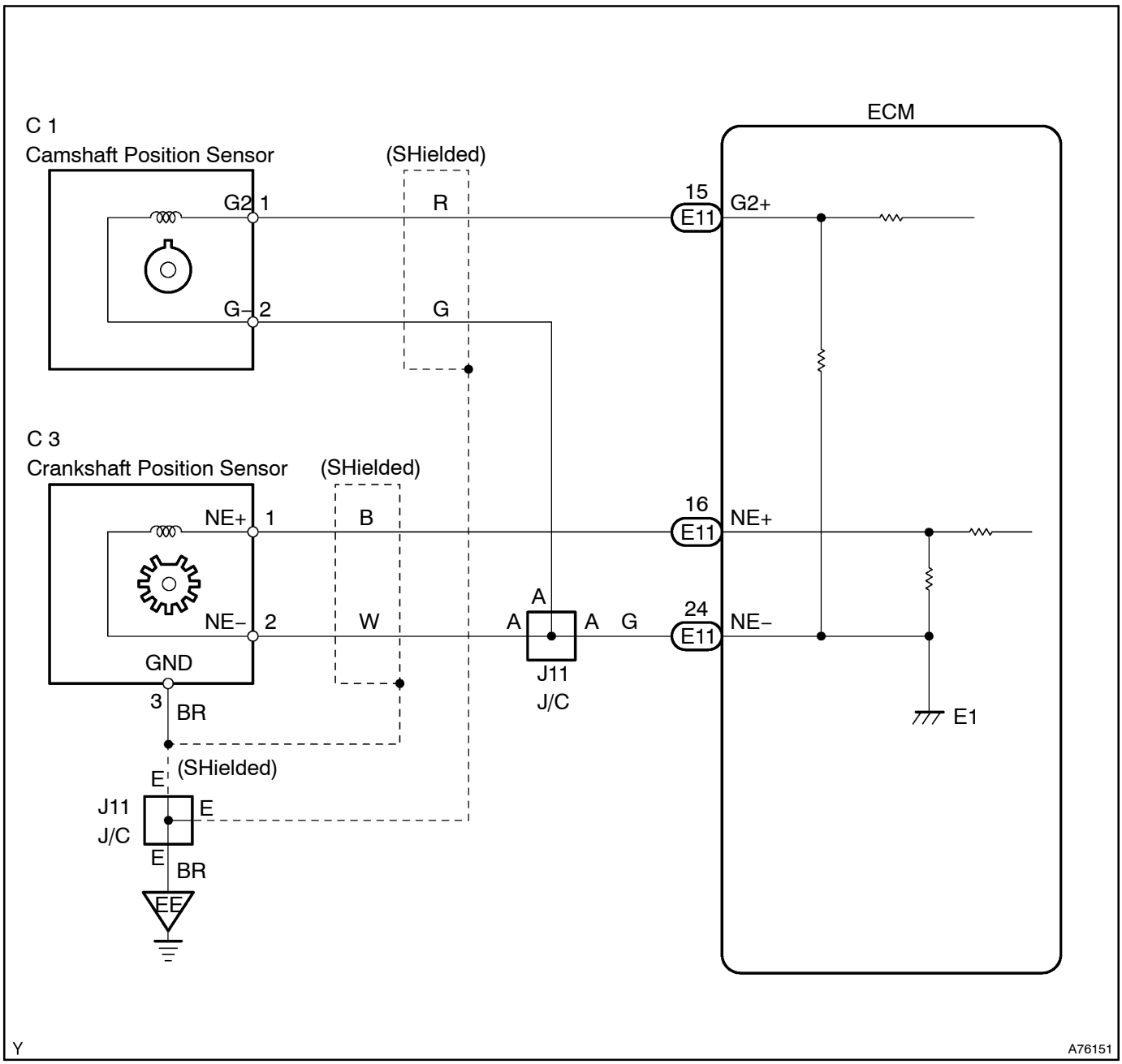
DTC	P0339/13	CRANKSHAFT POSITION SENSOR ”A” CIRCUIT INTERMITTENT

CIRCUIT DESCRIPTION

Crankshaft position sensor (NE signal) consists of a magnet, iron core and and pick up coil.
The NE signal plate has 34 teeth and is installed in the crankshaft timing sprocket. The NE signal sensor generates 34 signals at every engine revolution. The ECM detects the crankshaft angle and engine speed based on the NE signals, and the cylinder detection based on the combination of G and NE signals.

DTC No.	DTC Detecting Condition	Trouble Area
P0335/12	No crankshaft position sensor signal to ECM during cranking	• Open or short in crankshaft position sensor circuit • Crankshaft position sensor • Crankshaft timing sprocket No. 2 • ECM
P0335/13	No crankshaft position sensor signal to ECM with engine speed 600 rpm or more	
P0339/13	In condition (a), (b) and (c), when no crankshaft position sensor (NE) signal is input for 0.05 sec. or more: (a) Engine revolution 1,000 rpm or more (b) STA signal is OFF (c) 3 sec. or more has been lapsed after STA signal is switched from ON to OFF	

WIRING DIAGRAM

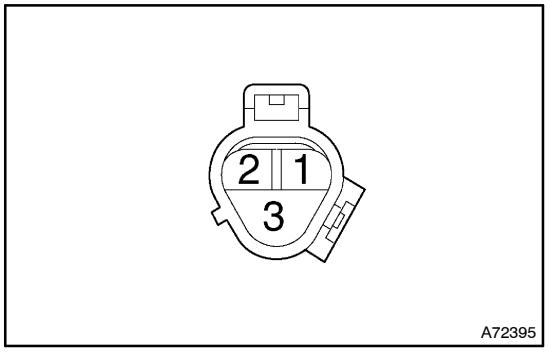


INSPECTION PROCEDURE

HINT:

- Read freed 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, the air–fuel ratio was lean or rich, etc. at the time of the malfunction.
- Perform troubleshooting of DTCs P0335/12, P0335/13 and P0339/13 first. If no trouble is found, troubleshoot the following mechanical system.

1	INSPECT CRANKSHAFT POSITION SENSOR (RESISTANCE) (REFERENCE: ECM NE AND G SIGNAL)



(a) Resistance inspection.

(1) Measure the resistance between the terminals.

Standard:

Symbols (Terminal No.)	Condition	Resistance
1 ⇔ 2	Cold	1,630 – 2,740 Ω
	Hot	2,065 – 3,225,Ω

HINT:

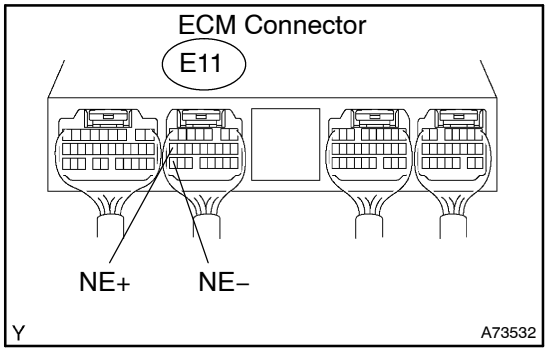
"Cold" and "Hot" on the table express the temperature of the coils themselves. "Cold" is from –10°C (14°F) to 50°C (122°F) and "Hot"is from 50°C (122°F) to 100°C (212°F)

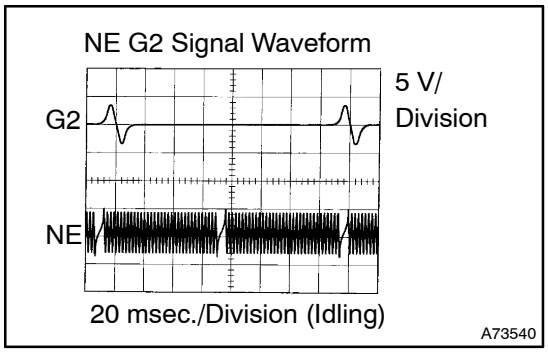
(b) Reference (using an osilloscope).

(1) During cranking or idling, check the waveform between the terminals of the E11 ECM connector.

Standard:

Symbols (Terminal No.)	Specified condition
NE+ (E11–16) ⇔ NE– (E11–24)	Correct waveform is as shown

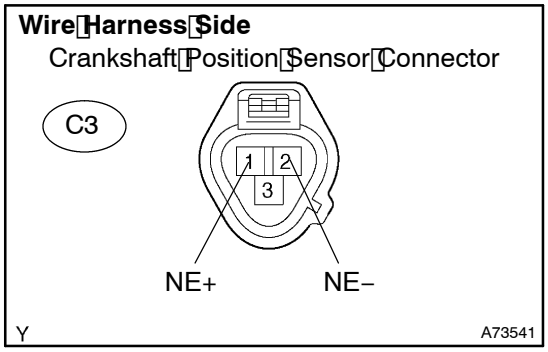


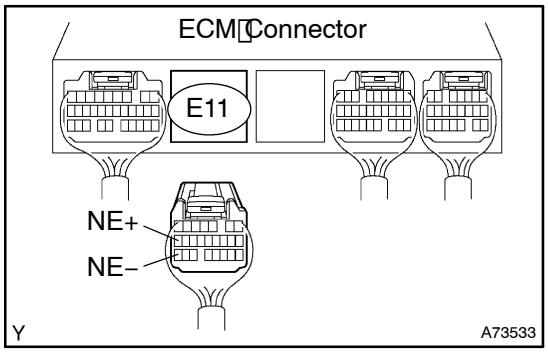


OK

NG → **REPLACE CRANKSHAFT POSITION SENSOR (See page 18–6)**

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





(a) Disconnect the C3 crankshaft position sensor connector.
(b) Disconnect the E11 ECM connector.
(c) Check the continuity between the wire harness side connectors.

Standard (Check for open):

Symbols (Terminal No.)	Specified condition
NE+ (C3–1) ⇔ NE+ (E11–16)	Continuity
NE– (C3–2) ⇔ NE– (E11–24)	

Standard (Check for short):

Symbols (Terminal No.)	Specified condition
NE+ (C3–1) or NE+ (E11–16) ⇔ Other terminals and body ground	No continuity
NE– (C3–2) or NE– (E11–24) ⇔ Other terminals and body ground	

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

3	CHECK SENSOR INSTALLATION (CRANKSHAFT POSITION SENSOR)

(a) Check the crankshaft position sensor installation.
Torque: 8.5 N·m (85 kgf·cm, 74 in.·lbf)

NG → **TIGHTEN SENSOR**

OK

4	INSPECT CRANKSHAFT TIMING SPROCKET NO.2 (TEETH OF PLATE)

(a) Check the teeth of the crankshaft timing sprocket.

NG → **REPAIR OR REPLACE CRANKSHAFT TIMING SPROCKET NO.2**

OK

CHECK AND REPLACE ECM (See page 01–36)