DTC	P0335/12	CRANKSHAFT POSITION SENSOR ”A” CIRCUIT

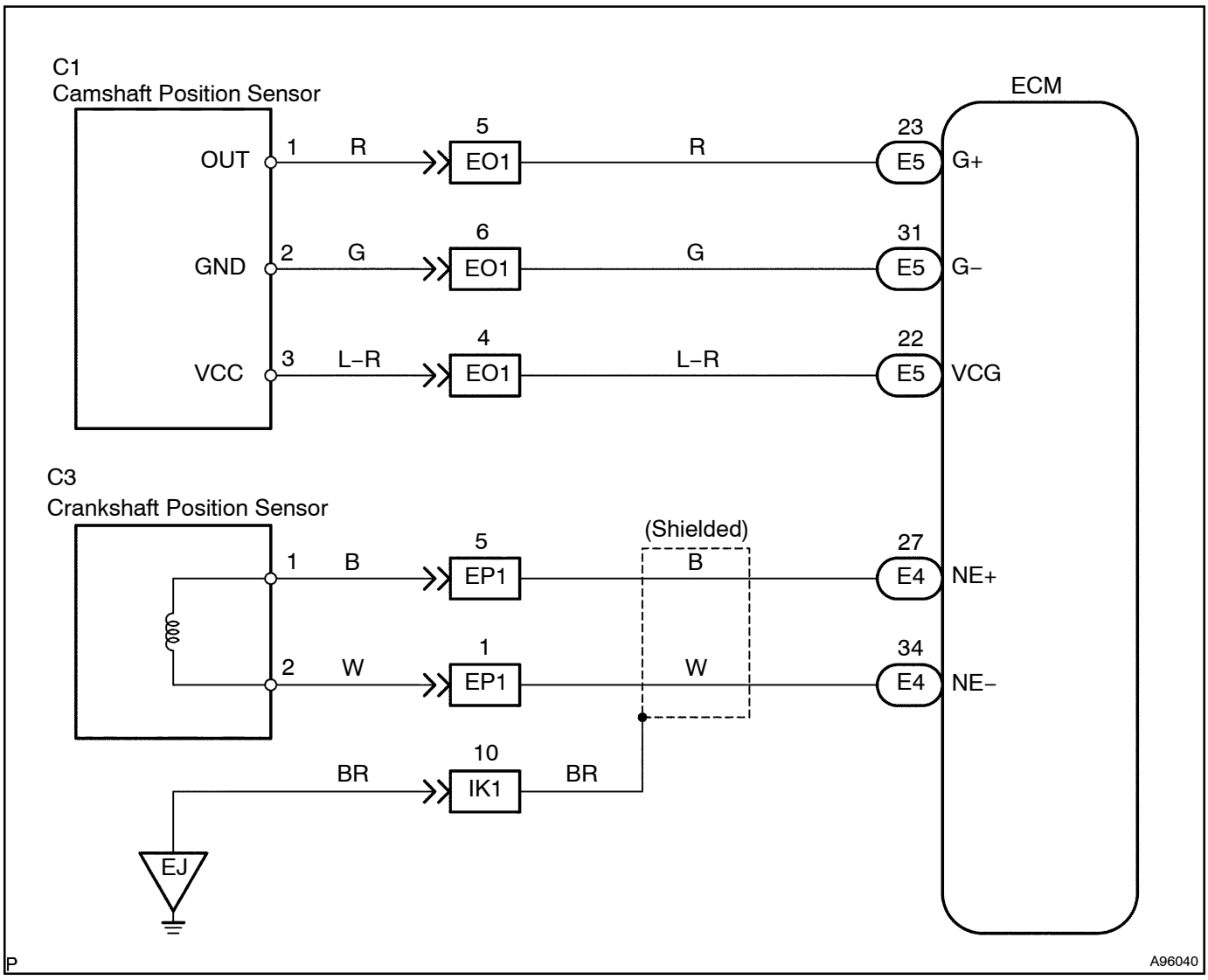
DTC	P0339/13	CRANKSHAFT POSITION SENSOR ”A” CIRCUIT INTERMITTENT

CIRCUIT DESCRIPTION

The crankshaft position sensor (NE signal) consists of a magnet, iron core and pickup coil.
The crankshaft angle sensor plate has 32 teeth and is installed on the injection pump drive gear. The NE signal sensor generates 32 signals of every engine revolution. The ECM detects the standard crankshaft angle based on the G signal from the camshaft position sensor, and the actual crankshaft angle and the engine speed by the NE signal.

DTC No.	DTC Detection Condition	Trouble Area
P0335/12	No crankshaft position sensor signal to ECM while cranking for 4.7 seconds or more	• Open or short in crankshaft position sensor circuit • Crankshaft position sensor • Crankshaft angle sensor plate • ECM
P0339/13	In conditions (a), (b) and (c), no crankshaft position sensor (NE) signal is input for 0.05 seconds or more. (a) Engine revolution 1,000 rpm or more (b) NE signal is OFF (c) 3 seconds or more has lapsed after STA signal is switched from ON to OFF	Same as DTC No. P0115/22

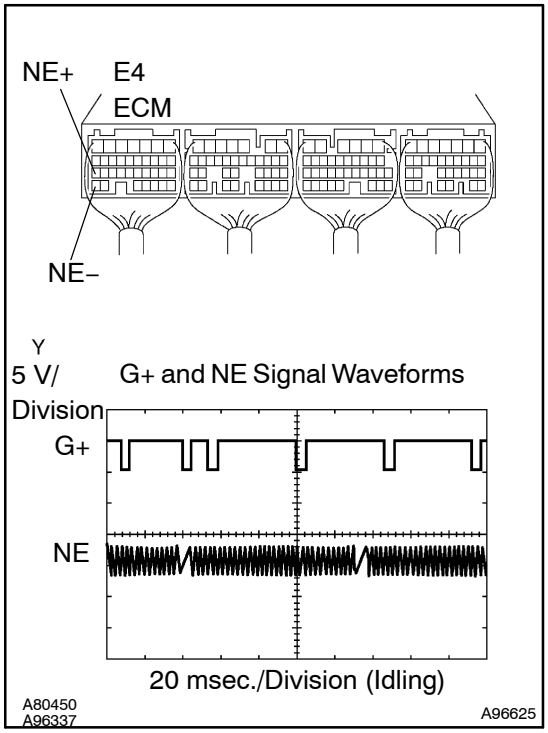
WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:
Read freeze frame data using the hand–held tester. Freeze frame data records the engine conditions when a malfunction is detected. When troubleshooting, freeze frame data can help determine if the vehicle was running or stopped, if the engine was warmed up or not, if the air–fuel ratio was lean or rich, and other data from the time the malfunction occurred.

1 CHECK CRANKSHAFT POSITION SENSOR



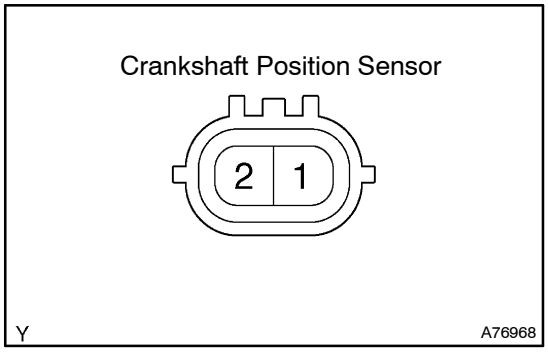
(a) Inspect using an oscilloscope.
(1) While the engine is idling, check the waveform of the ECM connector.
Standard:

Tester Connection	Specified Condition
E4–27 (NE+) – E4–34 (NE–)	Correct waveform is as shown

OK → **CHECK FOR INTERMITTENT PROBLEMS (See page 05–10)**

NG

2 INSPECT CRANKSHAFT POSITION SENSOR (RESISTANCE)



(a) Measure the resistance between terminals 1 and 2.
Standard:

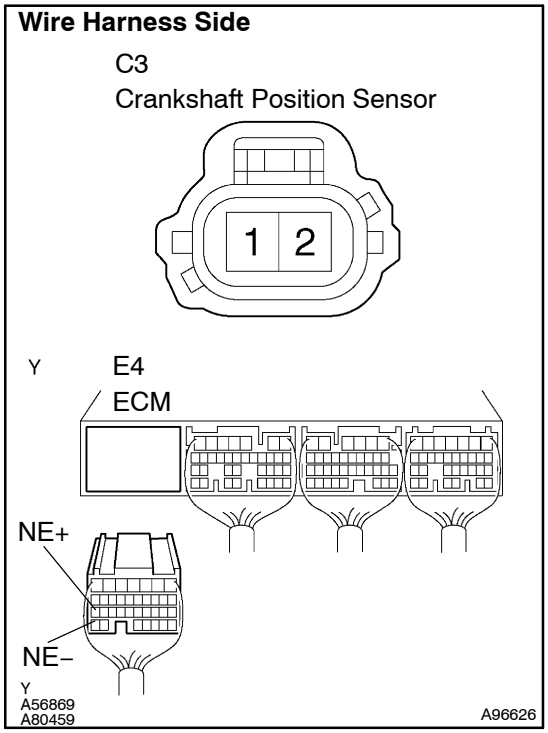
Condition	Specified Condition
Cold	1,630 to 2,740 Ω
Hot	2,065 to 3,225 Ω

NOTICE:
In the above section, the terms "Cold" and "Hot" refer to the temperature of the coils. "Cold" means approximately –10 to 50°C (14 to 122°F). "Hot" means approximately 50 to 100°C (122 to 212°F).

NG → **REPLACE CRANKSHAFT POSITION SENSOR**

OK

3 CHECK WIRE HARNESS (CRANKSHAFT POSITION SENSOR – ECM)



(a) Disconnect the C3 sensor connector.
(b) Disconnect the E4 ECM connector.
(c) Measure the resistance of the wire harness side connectors.

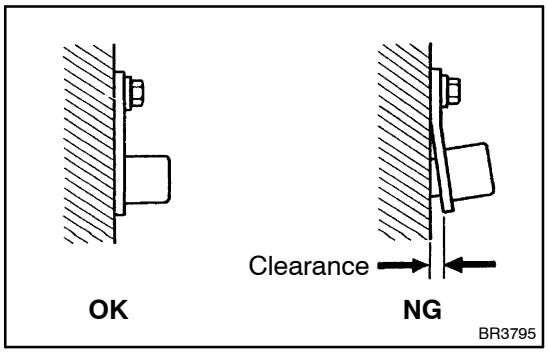
Standard:

Tester Connection	Specified Condition
C3–1 (Crankshaft position sensor) – E4–27 (NE+) C3–2 (Crankshaft position sensor) – E4–34 (NE–)	Below 1 Ω
C3–1 (Crankshaft position sensor) or E4–27 (NE+) – Body ground C3–2 (Crankshaft position sensor) or E4–34 (NE–) – Body ground	10 kΩ or higher

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

OK

4 CHECK SENSOR INSTALLATION (CRANKSHAFT POSITION SENSOR)



OK:
The crankshaft position sensor is installed properly.

NG → **TIGHTEN SENSOR**

OK

5 CHECK CRANKSHAFT ANGLE SENSOR PLATE

(a) Check the teeth of the crankshaft angle sensor plate.

NG → **REPLACE CRANKSHAFT POSITION SENSOR PLATE**

OK

REPLACE ECM (See page 10–10)