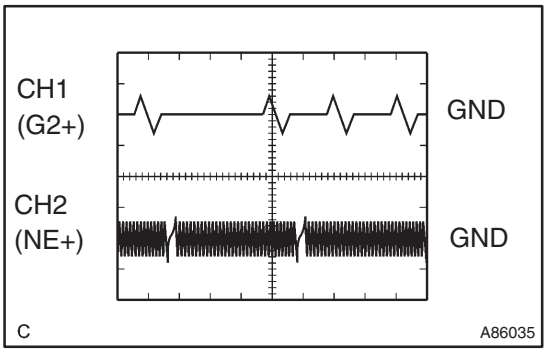
DTC	P0335/13	CRANKSHAFT POSITION SENSOR ”A” CIRCUIT

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

CIRCUIT DESCRIPTION

The crankshaft position sensor system consists of a crankshaft position sensor plate and a pickup coil. The sensor plate has 34 teeth and is installed on the crankshaft. The pickup coil is made of an iron core and magnet. The sensor plate rotates and as each tooth passes through the pickup coil, a pulse signal is created. The pickup coil generates 34 signals per engine revolution. Based on these signals, the ECM calculates the crankshaft position and engine speed. Using these calculations, the fuel injection time and ignition timing are controlled.

DTC No.	DTC Detection Condition	Trouble Area
P0335	• No crankshaft position sensor signal to ECM while cranking (1 trip detection logic) • No crankshaft position sensor signal to ECM at engine speed of 600 rpm or more (1 trip detection logic)	• Open or short in crankshaft position sensor circuit • Crankshaft position sensor • Sensor plate (crankshaft) • ECM
P0339	In conditions (a), (b) and (c), no crankshaft position sensor (NE) signal is input for 0.05 seconds or more. (a) Engine speed 1,000 rpm or more (b) Starter signal is OFF (c) 3 seconds or more have elapsed after starter signal was switched from ON to OFF	• Open or short in crankshaft position sensor circuit • Crankshaft position sensor • Sensor plate (crankshaft) • ECM

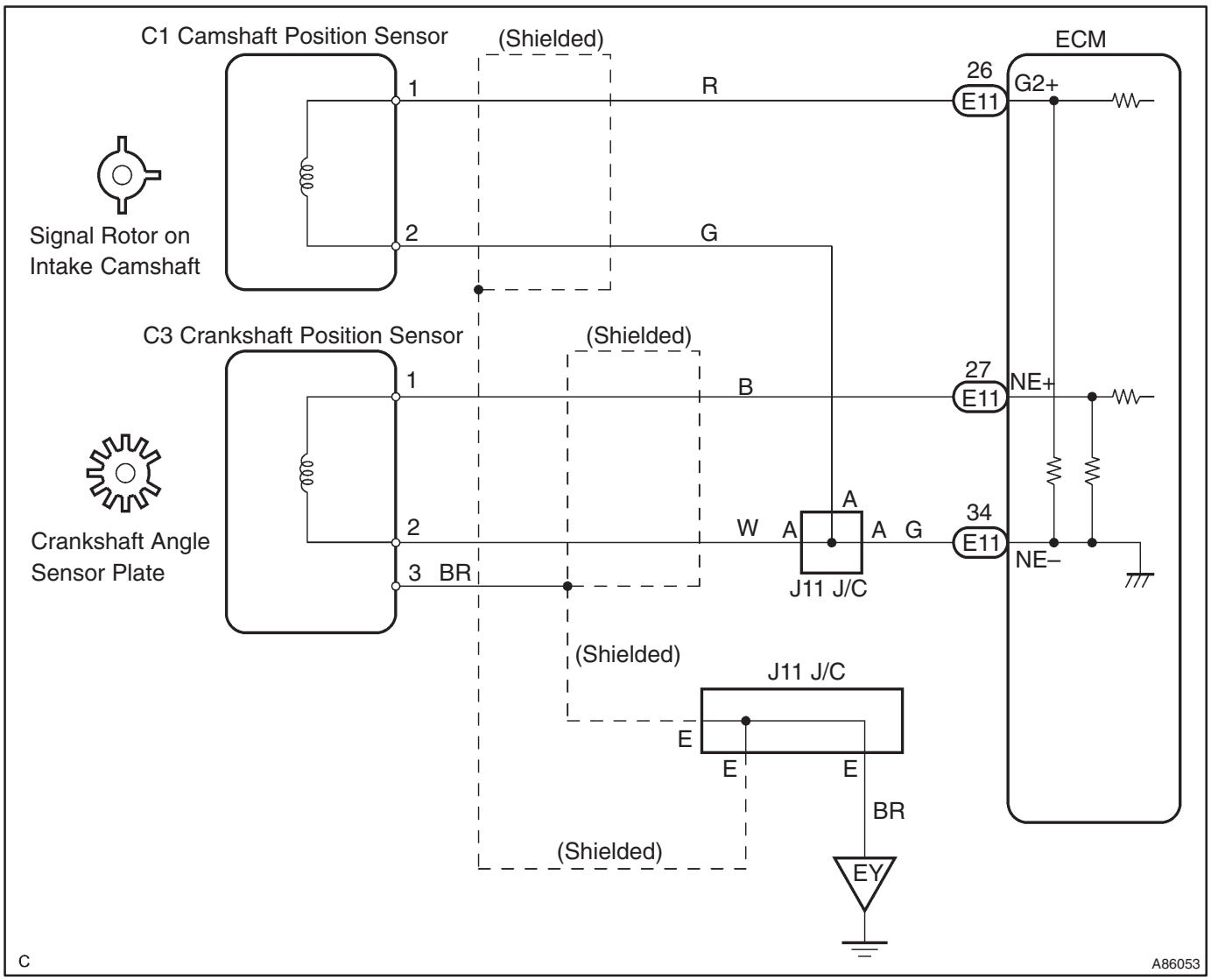


Reference: Inspection using the oscilloscope.
HINT:

- The correct waveform is as shown on the left.
- G2 stands for the camshaft position sensor signal, and NE+ stands for the crankshaft position sensor signal.

Item	Contents
Terminal	CH1: G2+ – NE– CH2: NE+ – NE–
EquipmentSetting	5V/Division,20ms/Division
Condition	While cranking or idling

WIRING DIAGRAM



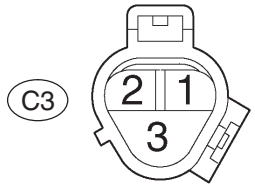
INSPECTION PROCEDURE

HINT:

- If no problem is found in the diagnostic troubleshooting procedure of DTC P0335, troubleshoot the engine mechanical systems.
- Check the value on the intelligent tester II.
  (a) Connect the intelligent tester II to the DLC3.
  (b) Start the engine and turn the intelligent tester II ON.
  (c) Select the following menu items: Powertrain / Engine and ECT / Data List / Engine SPD.
- The engine speed can be confirmed in the Data List using the intelligent tester II. If there are no NE signals from the crankshaft position sensor despite the engine revolving, the engine speed will be indicated as zero. If the voltage output of the crankshaft position sensor is insufficient, the engine speed will be indicated as lower than the actual engine rpm.
- Read freeze frame data using the intelligent tester II. Freeze frame data record the engine condition when malfunctions are detected. When troubleshooting, freeze frame data can help determine if the vehicle was moving or stationary, 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 INSPECT CRANKSHAFT POSITION SENSOR(RESISTANCE)

Component Side:



Crankshaft Position Sensor

A72395

(a) Disconnect the C3 crankshaft position sensor connector.
(b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester Connection	Specified Condition
1 – 2	1,630 to 2,740 Ω at cold
1 – 2	2,065 to 3,225 Ω at hot

HINT:
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).

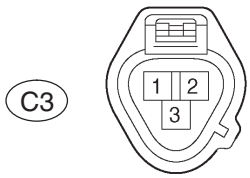
(c) Reconnect the crankshaft position sensor connector.

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

OK

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

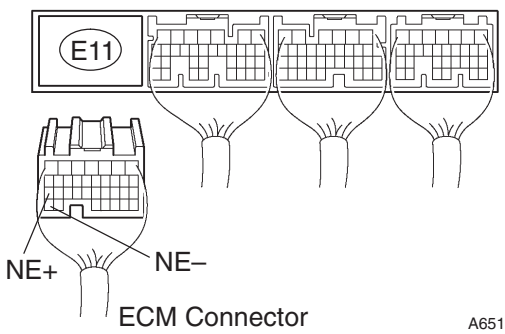
Wire Harness Side:
Crankshaft Position Sensor Connector



Front View

Y

A73541



ECM Connector

A65159

(a) Disconnect the C3 crankshaft position sensor connector.
(b) Disconnect the E11 ECM connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard (Check for open):

Tester Connection	Specified Condition
Crankshaft position sensor (C3–1) – NE+ (E11–27)	Below 1 Ω
Crankshaft position sensor (C3–2) – NE– (E11–34)	Below 1 Ω

Standard (Check for short):

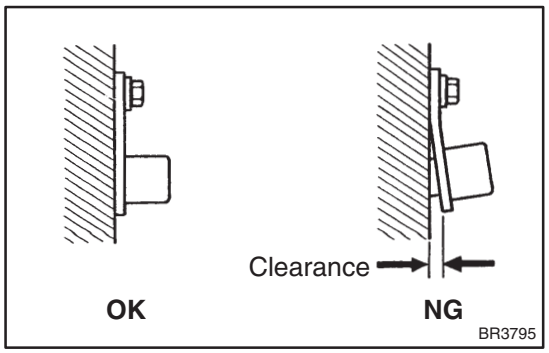
Tester Connection	Specified Condition
Crankshaft position sensor (C3–1) or NE+ (E11–27) – Body ground	10 kΩ or higher
Crankshaft position sensor (C3–2) or NE– (E11–34) – Body ground	10 kΩ or higher

(d) Reconnect the crankshaft position sensor connector.
(e) Reconnect the ECM connector.

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

OK

3	CHECK SENSOR INSTALLATION(CRANKSHAFT POSITION SENSOR)



(a) Check the crankshaft position sensor installation.
OK: The crankshaft position sensor is installed properly.

NG → **SECURELY REINSTALL SENSOR**

OK

4	CHECK CRANKSHAFT POSITION SENSOR PLATE(TEETH OF SENSOR PLATE(CRANKSHAFT))

(a) Check the teeth of the sensor plate.
OK: The plate does not have any cracks or deformation.

NG → **REPLACE CRANKSHAFT POSITION SENSOR PLATE (CRANKSHAFT)**

OK

REPLACE ECM (See page 10–12)