| DTC | P0335/12 | CRANKSHAFT POSITION SENSOR ”A” CIRCUIT MALFUNCTION |
|---|---|---|

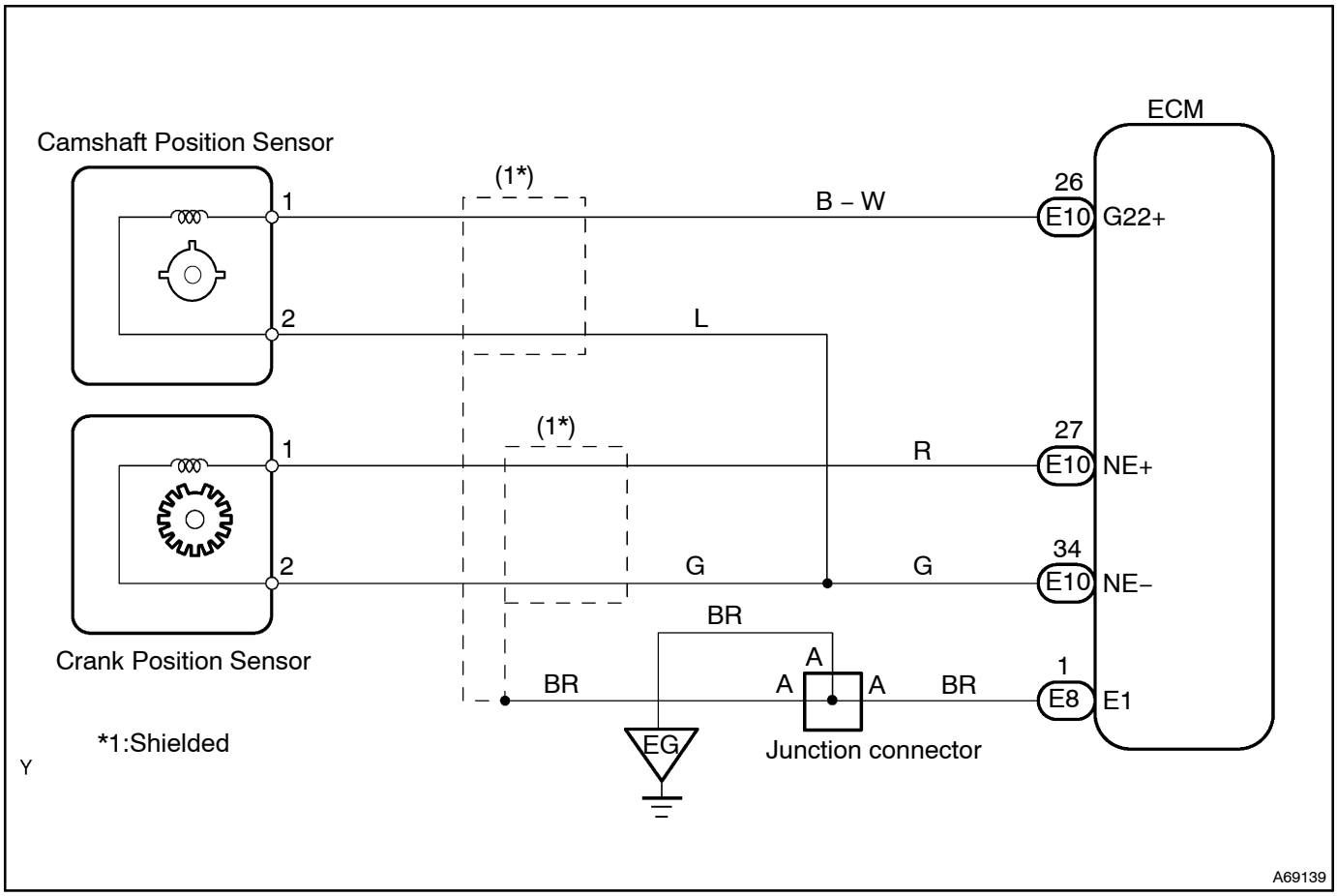
| DTC | P0335/13 | CRANKSHAFT POSITION SENSOR ”A” CIRCUIT MALFUNCTION |
|---|---|---|

## CIRCUIT DESCRIPTION

Crankshaft position sensor (NE signal) consists of a magnet, iron core and pick up coil.
The NE signal plate (crank angle sensor plate) has 34 teeth and is mounted on the crankshaft. The NE signal sensor generates 34 signals at every engine revolution. The enginre ECM detects the crankshaft angle and the engine speed based on the NE signals, and the cylinder detection and the VVT palse based on the combination of the G2 and NE signals.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| P0335/12<br>P0335/13 | • No crankshaft position sensor signal to ECM during cranking (2 trip detection logic)<br>• No crankshaft position sensor signal to ECM with engine speed 600 rpm or more (2 trip detection logic) | • Open or short in crankshaft position sensor circuit<br>• Crank position sensor<br>• Crankshaft position sensor plate No. 1<br>• ECM |

## WIRING DIAGRAM

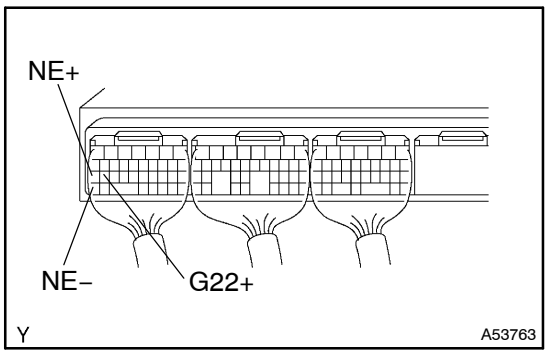


# INSPECTION PROCEDURE

HINT:

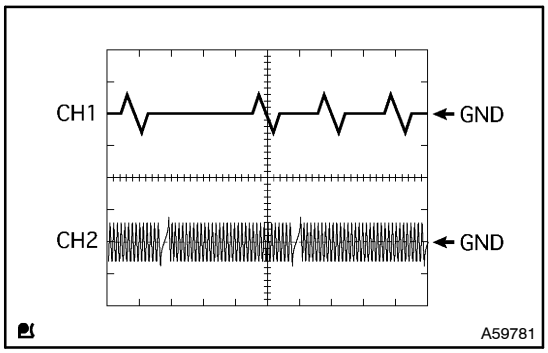
- Perform troubleshooting of DTC P0335/12, 13 first. If no trouble is found, troubleshoot the following mechanical system.
- Read freeze frame data using the hand–held tester, as freeze frame data records the engine conditions when the malfunction is detected. When troubleshooting, it is useful for determining 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.

| 1 | INSPECT CRANK POSITION SENSOR |
|---|---|




(a) Check the crank position sensor for resistance.
(See page 18–2)
**Resistance:**
**985 – 1,600 Ω (Cold)**
**1,265 – 1,890 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)



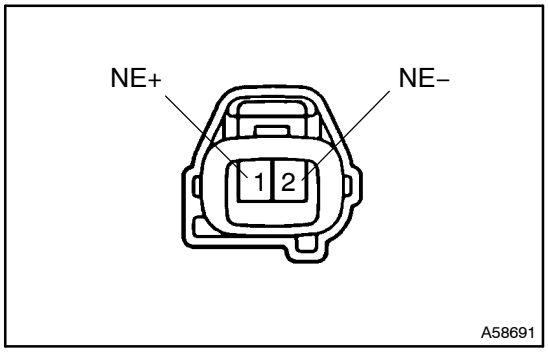

(b) Reference:
Inspection using the oscilloscope.
(1) During cranking or idling, check the waveform between terminals G22+ and NE–, and NE+ and NE– of the ECM connector.

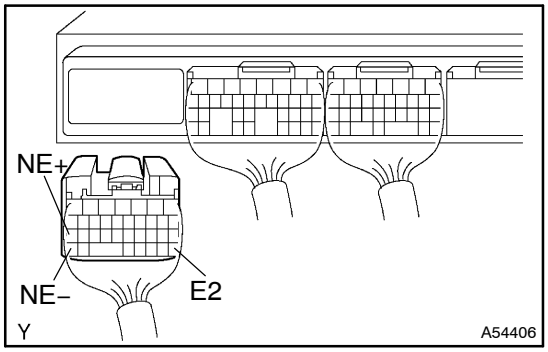
HINT:
The correct waveforms are as shown in the left.

**NG** → **REPLACE CRANK POSITION SENSOR**

**OK**

| 2 | CHECK WIRE HARNESS OR CONNECTOR(ECM–CRANK POSITION SENSOR) |
|---|---|




(a) Disconnect the crank position sensor connector.
(b) Disconnect the ECM E10 connector.
(c) Check continuity between the terminals NE+ of the crank position sensor connector and NE+ of the ECM connector.
**Resistance: 1 Ω or less**
(d) Check for short between the terminals NE– and E2 of the engine ECM connector.
**Resistance: 1 MΩ or more**
(e) Check continuity between the terminals NE– of the crank position sensor connector and NE– of the ECM connector.
**Resistance: 1 Ω or less**
(f) Check for short between the terminals NE– and E2 of the ECM connector.
**Resistance: 1 MΩ or more**

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

**OK**

| 3 | CHECK SENSOR ATTACHMENT PART |
|---|---|

(a) Check the crank position sensor installation.

**NG** → **REPAIR OR REPLACE SENSOR ATTACHMENT PART**

**OK**

| 4 | INSPECT CRANKSHAFT POSITION SENSOR PLATE NO.1(TEETH OF SIGNAL PLATE) |
|---|---|

(a) Remove the crankshaft position sensor plate No. 1.
(b) Check the teeth of the signal plate.

**NG** → **REPAIR OR REPLACE CRANKSHAFT POSITION SENSOR PLATE NO.1**

**OK**

**CHECK AND REPLACE ECM**