

<b>DTC</b>	<b>P0340</b>	<b>CAMSHAFT POSITION SENSOR "A" CIRCUIT (BANK 1 OR SINGLE SENSOR)</b>
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<b>DTC</b>	<b>P0341</b>	<b>CAMSHAFT POSITION SENSOR "A" CIRCUIT RANGE/PERFORMANCE (BANK 1 OR SINGLE SENSOR)</b>
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## CIRCUIT DESCRIPTION

The camshaft position sensor (G2 signal) consists of a magnet, iron core and pickup coil. The G2 signal plate has 1 tooth on its outer circumference and is installed on the camshaft timing pulley LH. When the camshafts rotate, the protrusion on the signal plate and the air gap on the pickup coil change, causing fluctuations in the magnetic field and generating an electromotive force in the pickup coil. The NE signal plate (crankshaft position sensor plate No. 1) has 34 teeth and is installed on the crankshaft. The NE signal sensor generates 34 signals at every engine revolution. The ECM detects the crankshaft angle and the engine speed based on the NE signals, and the cylinder detection based on the combination of the G2 and NE signals.

DTC No.	DTC Detection Condition	Trouble Area
P0340	<ul style="list-style-type: none"> <li>No camshaft position sensor signal to ECM during cranking (2 trip detection logic)</li> <li>No camshaft position sensor signal to ECM with engine speed 600 rpm or more (1 trip detection logic)</li> </ul>	<ul style="list-style-type: none"> <li>Open or short in camshaft position sensor circuit</li> <li>Camshaft position sensor</li> <li>Camshaft timing pulley LH</li> <li>Jumping teeth of timing belt</li> </ul>
P0341	While crankshaft rotates twice, camshaft position sensor signal will be input to ECM 12 times or more (1 trip detection logic)	<ul style="list-style-type: none"> <li>ECM</li> </ul>

### HINT:

- DTC P0340 indicate a malfunction related to the camshaft position sensor (+) circuit (Wire harness (ECM - camshaft position sensor) and camshaft position sensor).
- DTC P0341 indicate a malfunction related to the camshaft position sensor (-) circuit (Wire harness (ECM - camshaft position sensor) and camshaft position sensor).

## WIRING DIAGRAM

Refer to DTC P0335 on page [05-1 16](#).

## INSPECTION PROCEDURE

### HINT:

Read freeze frame data using the hand-held tester or the OBD II scan tool, 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.

**1 INSPECT CAMSHAFT POSITION SENSOR(RESISTANCE)**

(a) Measure the resistance between terminals.

**Resistance:**

**835 - 1,400 Ω at cold**

**1,060 - 1,645 Ω at hot**

**NOTICE:**

"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).

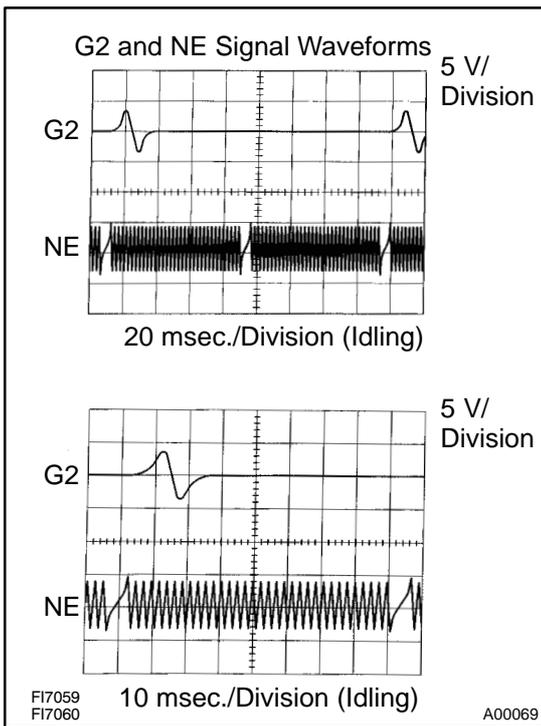
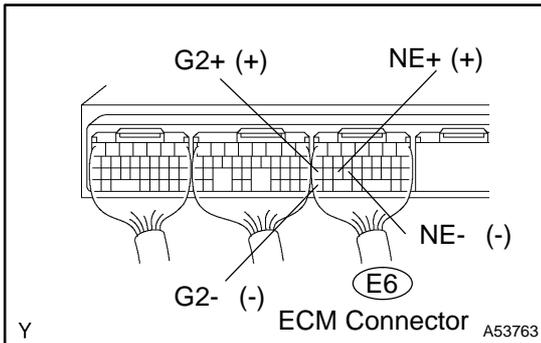
(b) Reference:

Inspection using the oscilloscope.

(1) During cranking or idling, check the waveform between terminals of the E6 ECM connector.

**Standard:**

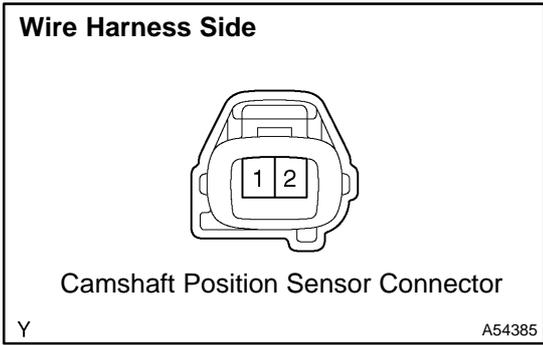
Symbols (Terminal No.)	Specified condition
NE+ (E6-25) ↔ NE- (E6-24)	Correct waveform is as shown
G2+ (E6-27) ↔ G2- (E6-32)	



**NG** **REPLACE CAMSHAFT POSITION SENSOR (See page 18-6)**

**OK**

**2 CHECK HARNESS AND CONNECTOR(CAMSHAFT POSITION SENSOR - ECM)**



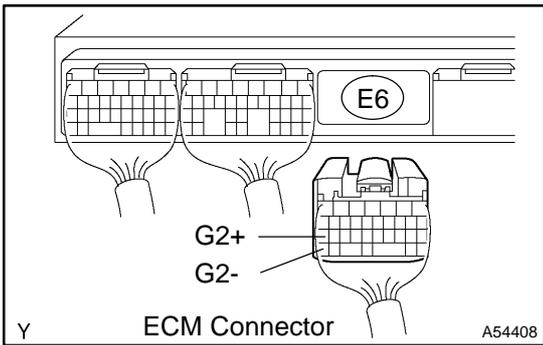
- (a) Disconnect the camshaft position sensor connector.
- (b) Disconnect the E6 ECM connector.
- (c) Check the continuity between the wire harness side connectors.

**Standard (Check for open):**

Symbols (Terminal No.)	Specified condition
Camshaft position sensor (1) ↔ G2+ (E6-27)	Continuity
Camshaft position sensor (2) ↔ G2- (E6-32)	

**Standard (Check for short):**

Symbols (Terminal No.)	Specified condition
Camshaft position sensor (1) or G2+ (E6-27) ↔ Body ground	No continuity
Camshaft position sensor (2) or G2- (E6-32) ↔ Body ground	



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

**OK**

**3 CHECK SENSOR INSTALLATION(CAMSHAFT POSITION SENSOR)**

**NG** → **TIGHTEN SENSOR**

**OK**

**4 CHECK CAMSHAFT TIMING PULLEY SUB-ASSY LH(TOOTH OF PLATE)**

- (a) Remove the camshaft timing pulley sub-assy LH (See page 14-141 ).
- (b) Check the tooth of the signal plate.

**NG** → **REPLACE CAMSHAFT TIMING PULLEY SUB-ASSY LH**

**OK**

**CHECK AND REPLACE ECM (See page 01-35 )**