

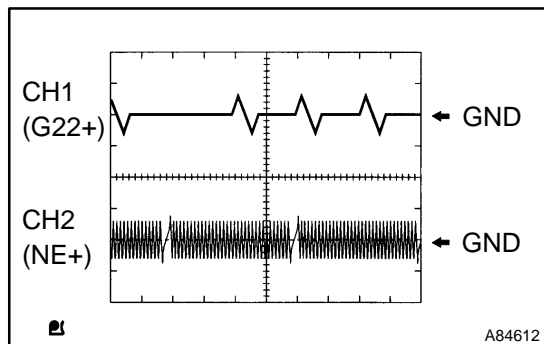
<b>DTC</b>	<b>P0335</b>	<b>CRANKSHAFT POSITION SENSOR "A" CIRCUIT</b>
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<b>DTC</b>	<b>P0339</b>	<b>CRANKSHAFT POSITION SENSOR "A" CIRCUIT INTERMITTENT</b>
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**CIRCUIT DESCRIPTION**

The crankshaft position sensor (NE signal) consists of a magnet, iron core and pickup coil. The NE signal plate (crankshaft position sensor plate) has 34 teeth and is installed on the crankshaft. The NE signal sensor generates 34 signals for each engine revolution. This sensor monitors a plate (timing rotor) located on the crankshaft timing pulley and is used by the ECM to detect crankshaft angle and engine speed (RPM/NE). As the crankshaft timing pulley rotates through an engine revolution, this sensor communicates the rotation of the NE signal plate as a pulse signal to the ECM. Based on the signal, the ECM controls fuel injection time and ignition timing.

DTC No.	DTC Detection Condition	Trouble Area
P0335	No crankshaft position sensor signal to ECM during cranking (2 trip detection logic)	<ul style="list-style-type: none"> <li>• Open or short in crankshaft position sensor circuit</li> <li>• Crankshaft position sensor</li> <li>• Signal plate (crankshaft)</li> <li>• ECM</li> </ul>
	No crankshaft position sensor signal to ECM with engine speed 600 rpm or more (2 trip detection logic)	
P0339	In condition (a), (b) and (c), when no crankshaft position sensor (NE+) signal is input for 0.05 seconds or more.	
	(a) Engine revolution 1,000 rpm or more	
	(b) STA signal is OFF	
	(c) 3 seconds or more has lapsed after STA signal is switched from ON to OFF.	



Reference: Inspection using the oscilloscope.

HINT:

The correct waveform is as shown on the left.

Item	Contents
Terminal	CH1: G22+ - NE- CH2: NE+ - NE-
Equipment Set	5V/Division, 20ms/Division
Condition	During cranking or idling

## MONITOR DESCRIPTION

If there is no signal from the crankshaft sensor despite the engine revolving, the ECM interprets this as a malfunction of the sensor.

## MONITOR STRATEGY

Related DTCs	P0335	Crankshaft position sensor range check or rationality
Required sensors/components	Main sensors	Crankshaft position sensor
	Related sensors	Engine speed sensor
Frequency of operation	Continuous	
Duration	Case 1: 4.7 seconds, Case 2: 0.5 second	
MIL operation	2 driving cycles	
Sequence of operation	None	

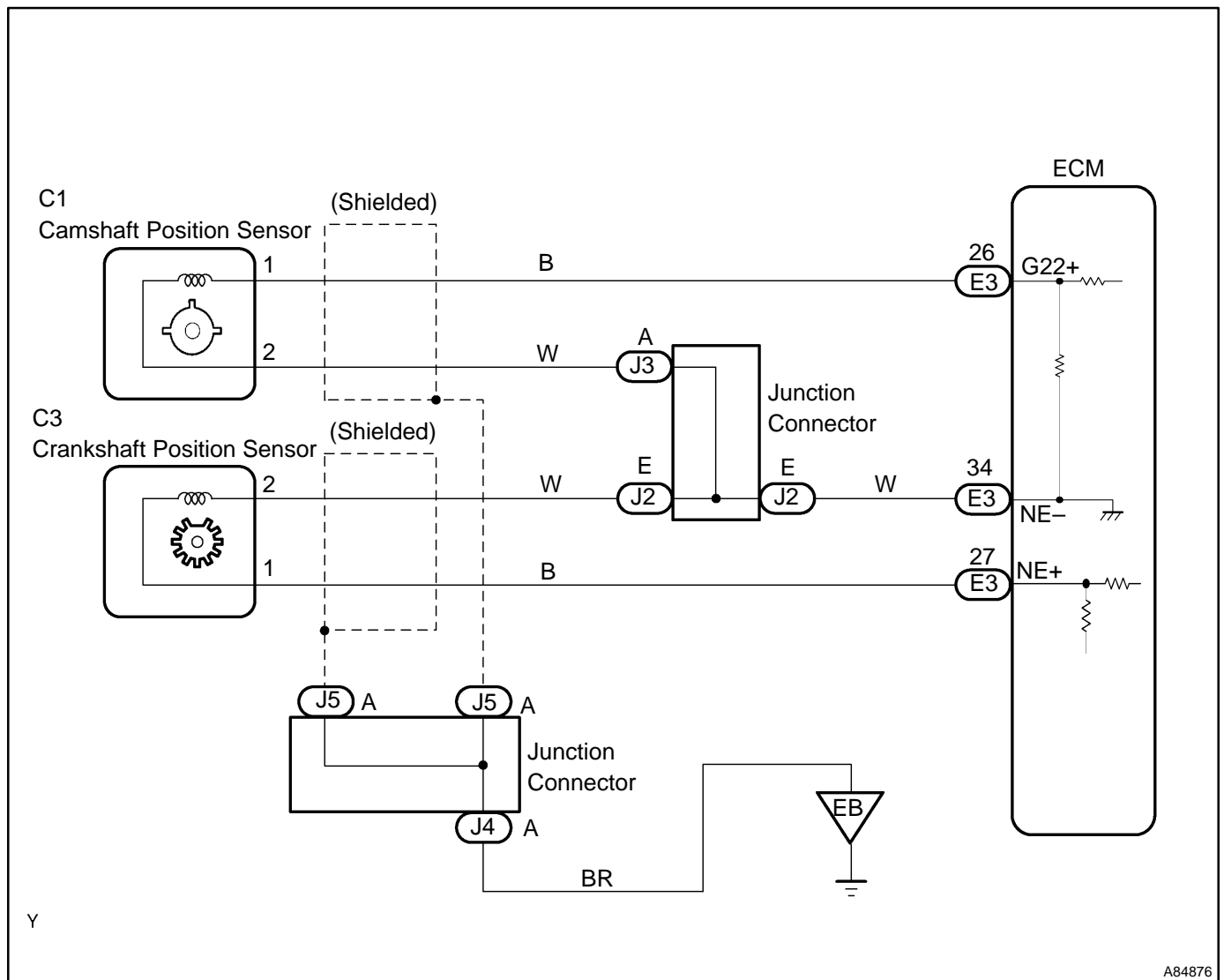
## TYPICAL ENABLING CONDITIONS

Item	Specification	
	Minimum	Maximum
The monitor will run whenever the following DTCs are not present	See "List of Disable a Monitor" (On page 05-25)	
<b>Case 1:</b>		
Starter	ON	
Minimum battery voltage while starter ON	–	11 V
<b>Case 2:</b>		
Engine speed	600 rpm	–
Starter	OFF	
Time after starter ON to OFF	3 seconds	–

## TYPICAL MALFUNCTION THRESHOLDS

Detection Criteria	Threshold
<b>Case 1:</b>	
Engine speed signal	No signal for 4.7 seconds
<b>Case 2:</b>	
Engine speed signal	No signal for 0.5 second

## WIRING DIAGRAM

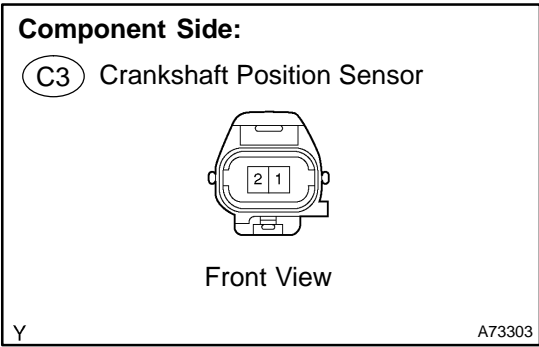


## INSPECTION PROCEDURE

### HINT:

- Perform the troubleshooting of DTC P0335 first. If no trouble is found, troubleshoot the engine mechanical systems.
- Read freeze frame data using the hand-held tester or the OBD II scan tool. 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.
- READ VALUE OF HAND-HELD TESTER OR OBD II SCAN TOOL
  - (a) Connect the hand-held tester or the OBD II scan tool to the DLC3.
  - (b) Start the engine and push the hand-held tester or the OBD II scan tool main switch ON.
  - (c) Select the item "DIAGNOSIS / ENHANCED OBD II / DATA LIST / ALL / ENGINE SPD".
- The engine speed can be confirmed in DATA LIST using the hand-held tester or OBD II scan tool. If there is no NE signals from the crankshaft position sensor despite the engine revolving, the engine speed will be indicated as zero. If voltage output of the crankshaft position sensor is insufficient, the engine speed will be indicated as lower PRM (than the actual RPM).

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



- (a) Disconnect the C43crankshaft position sensor connector.
- (b) Measure the resistance between the terminals of the crankshaft position sensor connector.

**Standard:**

Tester Connection	Specified Condition
1 - 2	985 to 1,600 Ω at cold
	1,265 to 1,890 Ω at hot

**NOTICE:**

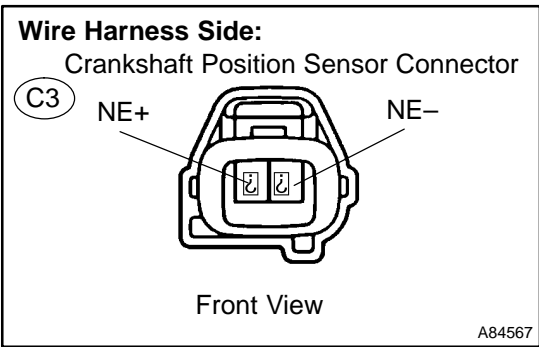
"Cold" and "Hot" shown above mean the temperature of the coils themselves. "Cold" is from -10°C (14°F) to 50 °C (122 °F) and "Hot" is from 50 °C (122 °F) to 100 °C (212 °F).

- (c) Reconnect the crankshaft position sensor connector.

**NG** → **REPLACE CRANKSHAFT POSITION SENSOR (See page 18-2)**

**OK**

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



- (a) Disconnect the C3 crankshaft position sensor connector.
- (b) Disconnect the E3 ECM connector.
- (c) Check the resistance between the wire harness side connectors.

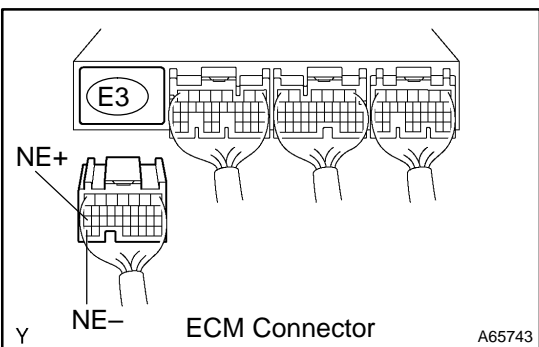
**Standard (Check for open):**

Tester connection	Specified Condition
NE+ (C3-1) - NE+ (E3-27)	Below 1 Ω
NE- (C3-2) - NE- (E3-34)	

**Standard (Check for short):**

Tester connection	Specified Condition
NE+ (C3-1) or NE+ (E3-27) - Body ground	10 kΩ or higher
NE- (C3-2) or NE- (E3-34) - Body ground	

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



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

**OK**

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

(a) Check the crankshaft position sensor installation .

**NG****TIGHTEN SENSOR****OK****4 CHECK CRANKSHAFT POSITION SENSOR PLATE(TEETH OF SENSOR PLATE(CRANKSHAFT))**

(a) Check the teeth of the sensor plate.

**NG****REPLACE CRANKSHAFT POSITION SENSOR PLATE (CRANKSHAFT)****OK****REPLACE ECM (See page 10-11)**