

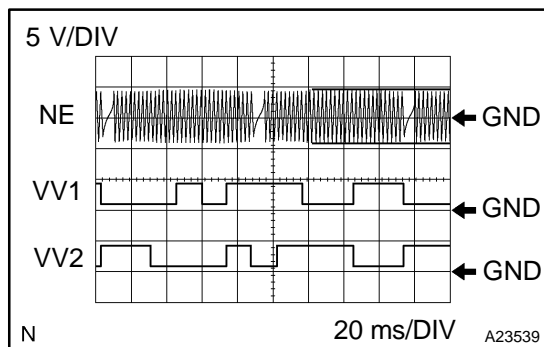
<b>DTC</b>	<b>P0335</b>	<b>Crankshaft Position Sensor "A" Circuit</b>
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<b>DTC</b>	<b>P0339</b>	<b>Crankshaft Position Sensor "A" Circuit Intermittent</b>
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## CIRCUIT DESCRIPTION

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

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



### Reference: Inspection using the oscilloscope.

The correct waveform is as shown in the illustration.

Tester Connection	Specified Condition
VV1+ (E5-19) – VV1– (E5-29)	Correct waveform is as shown
VV2+ (E5-18) – VV2– (E5-28)	
NE+ (E5-21) – NE– (E5-20)	

## MONITOR DESCRIPTION

If there are no signals from the crankshaft sensor even though the engine is 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/components	Crankshaft position sensor
	Related sensors/components	Engine speed sensor
Frequency of operation	Continuous	
Duration	Case 1: 0.016 sec. Case 2: 3 times	
MIL operation	Immediate	
Sequence of operation	None	

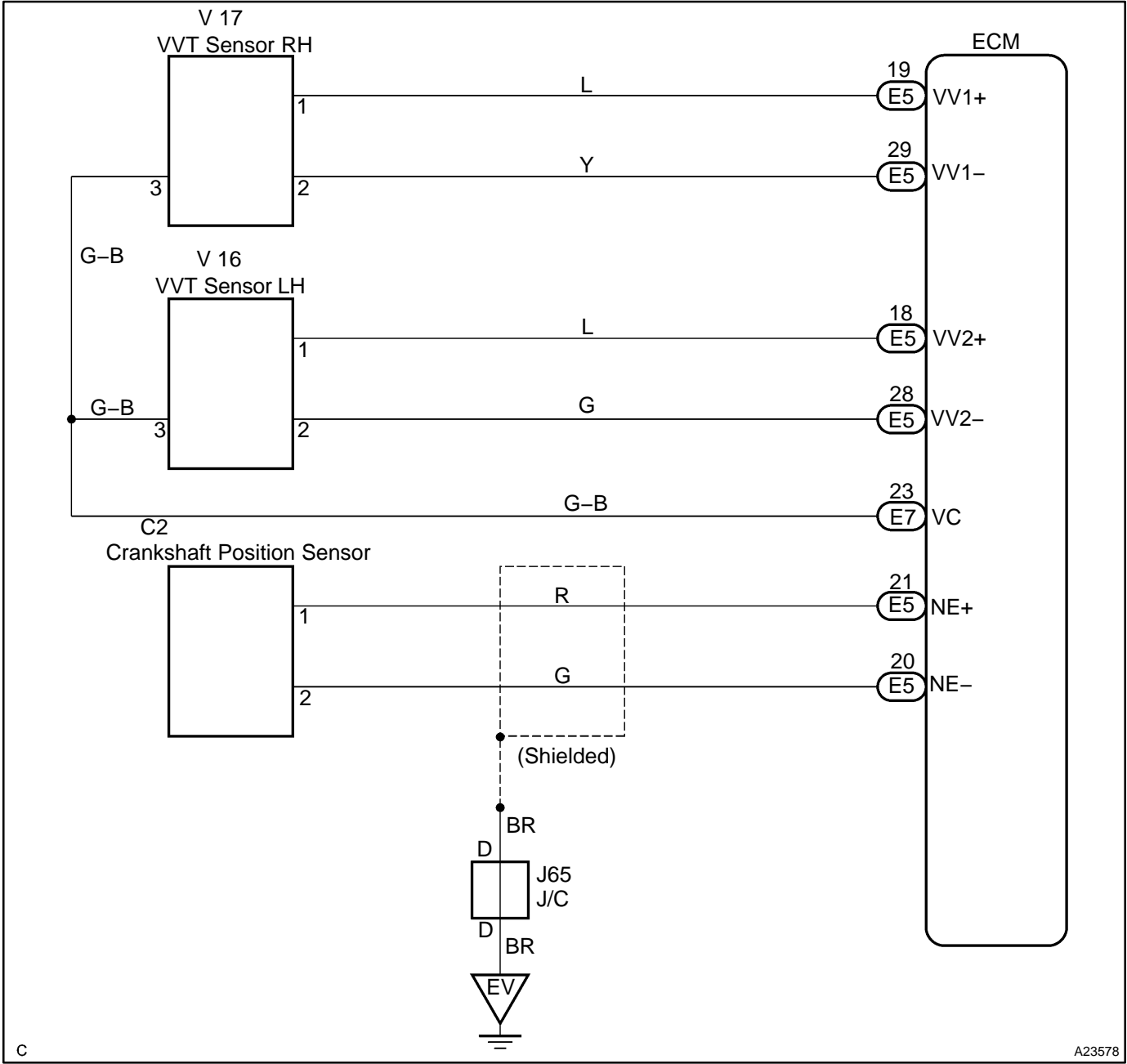
## TYPICAL ENABLING CONDITIONS

Item	Specification	
	Minimum	Maximum
The monitor will run whenever this DTC is not present	See page <a href="#">DI-18</a>	
Case 1:		
Engine speed	600 rpm	–
Starter	OFF	
Time after starter ON to OFF	3 sec.	–
Case 2:		
Time after starter ON to OFF	0.3 sec.	–
Number of camshaft position sensor signal pulse	6	–
Ignition switch	ON	
Battery voltage	7 V	–
Camshaft position sensor circuit fail	Not detected	

## TYPICAL MALFUNCTION THRESHOLDS

Detection Criteria	Threshold
<b>Case 1:</b>	
Engine speed signal	No signal
<b>Case 2:</b>	
Number of crankshaft position sensor signal pulse	132 or less, or 174 or more

WIRING DIAGRAM



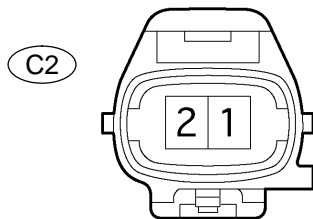
## INSPECTION PROCEDURE

### HINT:

- Read freeze frame data using the hand-held tester. Freeze frame 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 lean or rich, etc. at the time of the malfunction.
- READ VALUE ON HAND-HELD TESTER
  - (a) Connect the hand-held tester to the DLC3.
  - (b) Start the engine and push the hand-held tester tool main switch ON.
  - (c) When using hand-held tester, enter the following menu: "DIAGNOSIS / ENHANCED OBD II / DATA LIST / ALL / ENGINE SPD".
- The engine speed can be confirmed in DATA LIST using the hand-held tester. If there are 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 RPM (than the actual RPM).

### 1 Check resistance of crankshaft position sensor.

Component Side



Crankshaft Position Sensor

A21026

### PREPARATION:

Disconnect the C2 crankshaft position sensor connector.

### CHECK:

Measure the resistance between terminals 1 and 2.

### OK:

#### Standard:

Tester Connection	Specified Condition
1 – 2	985 to 1,600 $\Omega$ at cold
1 – 2	1,265 to 1,890 $\Omega$ at hot

### NOTICE:

"Cold" and "Hot" shown above mean the temperature of the coils themselves. "Cold" is from  $-10^{\circ}\text{C}$  ( $14^{\circ}\text{F}$ ) to  $50^{\circ}\text{C}$  ( $122^{\circ}\text{F}$ ) and "Hot" is from  $50^{\circ}\text{C}$  ( $122^{\circ}\text{F}$ ) to  $100^{\circ}\text{C}$  ( $212^{\circ}\text{F}$ ).

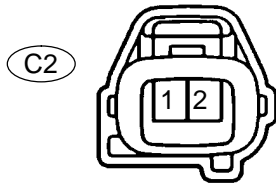
NG

Replace crankshaft position sensor.

OK

## 2 Check for open and short in harness and connector between ECM and crankshaft position sensor.

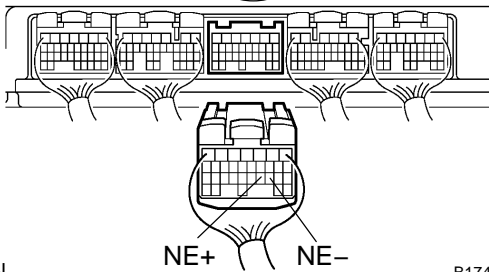
Wire Harness Side



Crankshaft Position Sensor

A21027

E5 ECM Connector



B17414

### PREPARATION:

- Disconnect the C2 crankshaft position sensor connector.
- Disconnect the E5 ECM connector.

### CHECK:

Measure the resistance between the wire harness side connectors.

### OK:

#### Standard:

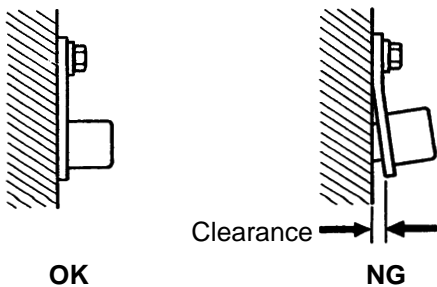
Tester Connection	Specified Condition
Crankshaft position sensor (C2-1) – NE+ (E5-21)	Below 1 $\Omega$
Crankshaft position sensor (C2-2) – NE- (E5-20)	Below 1 $\Omega$
Crankshaft position sensor (C2-1) or NE+ (E5-21) – Body ground	10 k $\Omega$ or higher
Crankshaft position sensor (C2-2) or NE- (E5-20) – Body ground	10 k $\Omega$ or higher

NG

Repair or replace harness or connector.

OK

## 3 Check sensor installation (crankshaft position sensor).



BR3795

### CHECK:

Check the crankshaft position sensor installation.

### OK:

The crankshaft position sensor is installed properly.

NG

Tighten sensor installation bolt.

OK

4	Inspect teeth of sensor plate.
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**PREPARATION:**

Remove the crankshaft angle sensor plate (See page [EM-111](#)).

**CHECK:**

Check the teeth of sensor plate.

**NG****Replace sensor plate.****OK****Replace ECM (See page [SF-66](#)).**