

DTC	P0335	CRANKSHAFT POSITION SENSOR "A" CIRCUIT
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DTC	P0339	CRANKSHAFT POSITION SENSOR "A" CIRCUIT INTERMITTENT
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CIRCUIT DESCRIPTION

The crankshaft position (CKP) 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 generated. The pickup 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 Detection Condition	Trouble Area
P0335	No crankshaft position sensor signal to ECM during cranking (2 trip detection logic)	<ul style="list-style-type: none"> • Open or short in crankshaft position sensor circuit • Crankshaft position sensor • Crankshaft timing pulley • ECM
P0335	No crankshaft position sensor signal to ECM with engine speed 600 rpm or more (2 trip detection logic)	<ul style="list-style-type: none"> • Open or short in crankshaft position sensor circuit • Crankshaft position sensor • Crankshaft timing pulley • ECM
P0339	No crankshaft position sensor signal is input to ECM for 0.05 seconds. or more, and conditions (a), (b) and (c) are met: (a) Engine is at 1,000 rpm or more (b) STA signal is OFF (c) 3 seconds or more have elapsed after STA signal is switched from ON to OFF	<ul style="list-style-type: none"> • Open or short in crankshaft position sensor circuit • Crankshaft position sensor • Crankshaft timing pulley • ECM

MONITOR DESCRIPTION

If there is no signal from the crankshaft sensor even though the engine is cranking, the ECM interprets this as a malfunction of the sensor.

MONITOR STRATEGY

Related DTCs	P0335: CKP Sensor Range Check during Cranking P0335: CKP Sensor Range Check during Engine Running
Required sensors / components (Main)	CKP (Crankshaft position) sensor
Required sensors / components (Related)	-
Frequency of operation	Continuous
Duration	4.7 seconds: CKP Sensor Range Check during Cranking 0.016 seconds: CKP Sensor Range Check during Engine Running
MIL operation	2 driving cycles
Sequence operation	None

TYPICAL ENABLING CONDITIONS

All:

The monitor will run whenever these DTCs are not present	See page 05-377
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CKP Sensor Range Check during Cranking P0335:

Starter	ON
Minimum battery voltage while starter is ON	Below 11 V

CKP Sensor Check during Engine Running P0335:

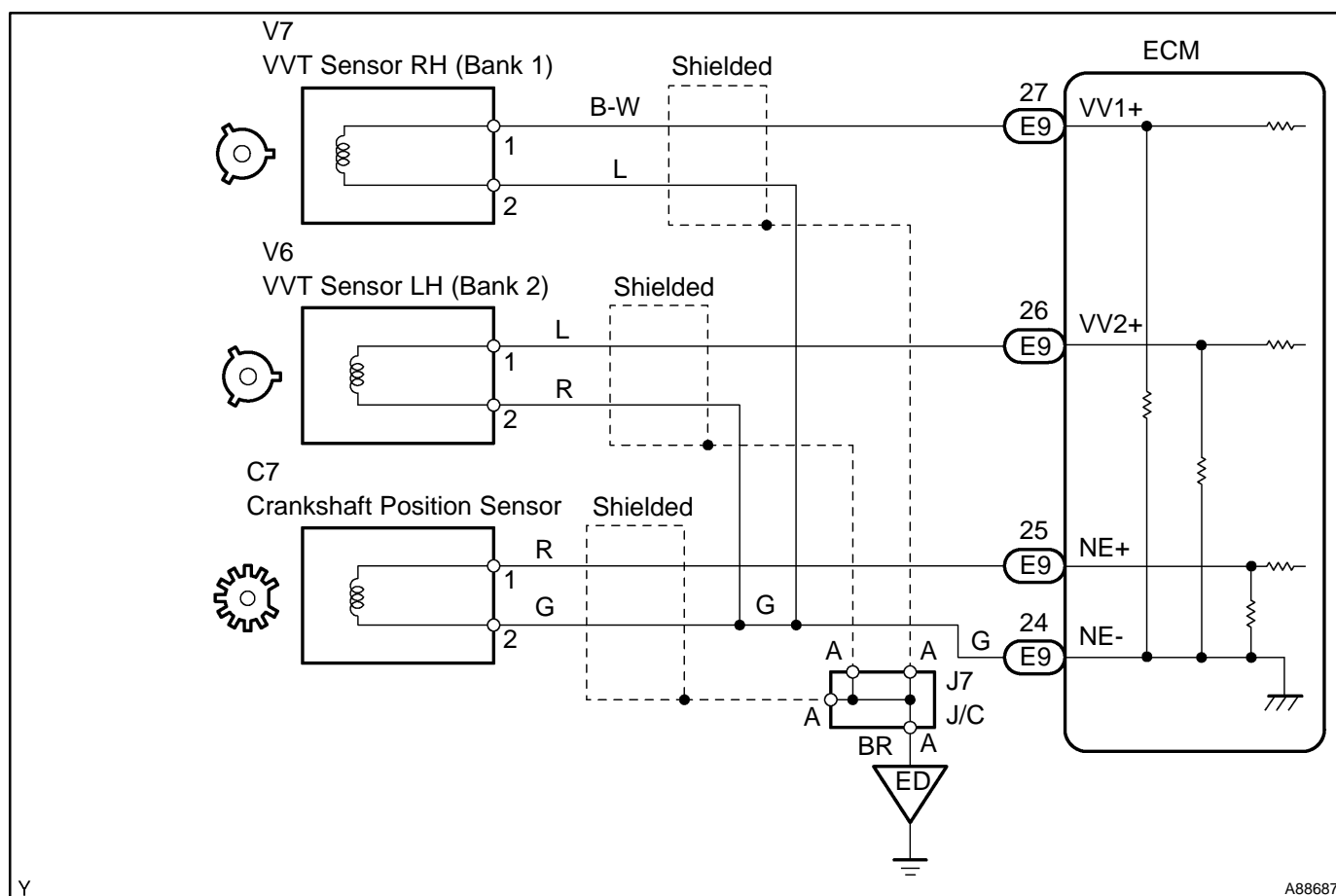
Engine RPM	600 rpm or more
Starter	OFF
Time after starter turns from ON to OFF	3 seconds or more

TYPICAL MALFUNCTION THRESHOLDS

CKP signal	No signal
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COMPONENT OPERATING RANGE

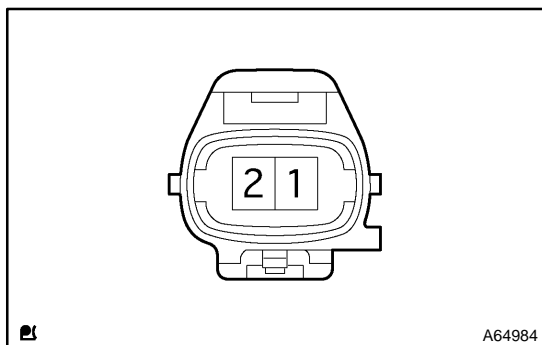
CKP signal	CKP sensor voltage fluctuates when the crankshaft rotates 34 CKP signals per 1 revolution crankshaft
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WIRING DIAGRAM**INSPECTION PROCEDURE****HINT:**

- 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, freeze frame data can help determine if the vehicle was running or stopped, 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.
- Read values on the hand-held tester or OBD II scan tool.
 - Connect the hand-held tester or the OBD II scan tool to the DLC3.
 - Start the engine and push the hand-held tester or the OBD II scan tool main switch ON.
 - 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 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 than the actual rpm.

1 INSPECT CRANKSHAFT POSITION SENSOR (RESISTANCE)



- Disconnect the C7 sensor connector.
- Measure the resistance between the terminals of the sensor.

Standard:

Tester Connection	Condition	Specified Condition
1 - 2	Cold	1,630 to 2,740 Ω
1 - 2	Hot	2,065 to 3,225 Ω

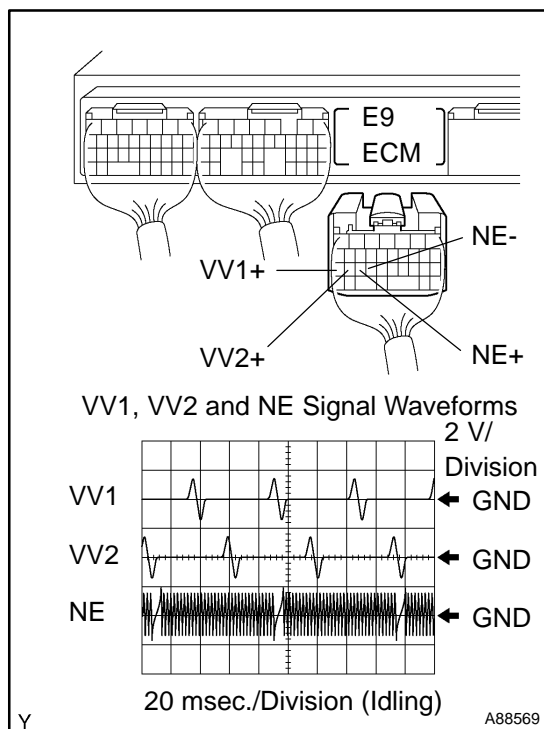
NOTICE:

In the above section, the terms "cold" and "hot" refer to the temperature of the coils. "Cold" means approximately -10°C to 50°C (14°F to 122°F). "Hot" means approximately 50°C to 100°C (122°F to 212°F).

HINT:

Reference: Inspection using the oscilloscope.

During cranking or idling, check the waveform of the ECM connector.

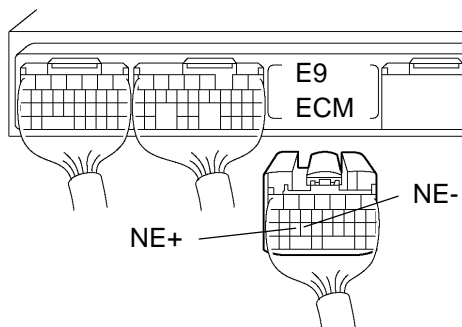


Tester Connection	Specified Condition
E9-27 (VV1+) - E9-24 (NE-)	Correct waveform is as shown
E9-26 (VV2+) - E9-24 (NE-)	
E9-25 (NE+) - E9-24 (NE-)	

NG

REPLACE CRANKSHAFT POSITION SENSOR
(See page 18-9)

OK

2 CHECK WIRE HARNESS (CRANKSHAFT POSITION SENSOR - ECM)**Wire Harness Side**

Y
A54385
A81699

A85533

- (a) Disconnect the C7 sensor connector.
- (b) Disconnect the E9 ECM connector.
- (c) Check the resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
C7-1 - E9-25 (NE+) C7-2 - E9-24 (NE-)	Below 1 Ω
C7-1 or E9-25 (NE+) - Body ground C7-2 or E9-24 (NE-) - Body ground	10 k Ω or higher

NG**REPAIR OR REPLACE HARNESS AND CONNECTOR****OK****3 CHECK SENSOR INSTALLATION (CRANKSHAFT POSITION SENSOR)**

- (a) Check the crankshaft position sensor installation.

OK: Sensor is installed correctly.**NG****TIGHTEN SENSOR****OK****4 CHECK CRANKSHAFT TIMING PULLEY**

- (a) Check the teeth of the crankshaft timing pulley.

OK: The pulley does not have any cracks or deformation.**NG****REPLACE CRANKSHAFT TIMING PULLEY****OK****REPLACE ECM (See page 10-24)**