DTC	P0335	Crankshaft Position Sensor "A" Circuit

DTC	P0339	Crankshaft Position Sensor "A" Circuit Intermittent

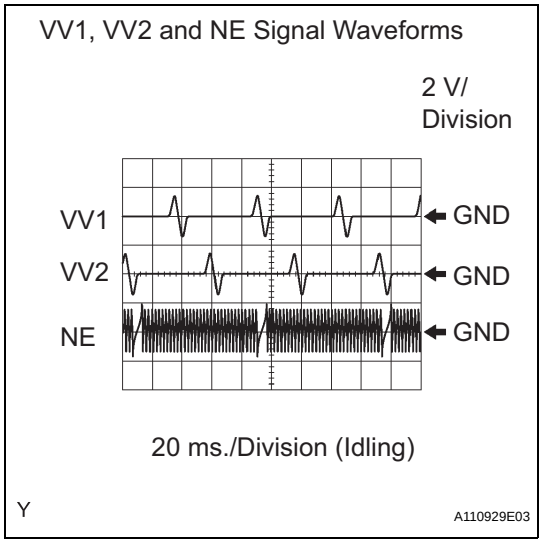
DESCRIPTION

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.

ES

DTC No.	DTC Detection Condition	Trouble Area
P0335	No CKP sensor signal to ECM while engine running (Engine rotating signal from ECM) (1 trip detection logic)	• Open or short in CKP sensor circuit • CKP sensor • CKP sensor plate • ECM
P0335	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 • 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	• Open or short in crankshaft position sensor circuit • Crankshaft position sensor • Crankshaft timing pulley • ECM

Reference: Inspection using an oscilloscope.



HINT:
- The correct waveform is as shown.
- VV1+ and VV2+ stands for the VVT sensor signal, and NE+ stands for the CKP sensor signal.

Item	Content
Terminals	VV1+ - NE- VV2+ - NE- NE+ - NE-
Equipment Settings	5 V/Division, 20ms/Division

Item	Content
Conditions	Cranking or idling

MONITOR DESCRIPTION

If there is no signal from the crankshaft position sensor despite the engine revolving, the ECM interprets this as a malfunction of the sensor.
If the malfunction is not repaired successfully, these DTCs are set 10 seconds after the engine is next started.

MONITOR STRATEGY

Related DTCs	P0335: CKP sensor range check during cranking P0335: CKP sensor range check during engine running
Required Sensors/Components (Main)	Crankshaft Position (CKP) 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 of Operation	None

TYPICAL ENABLING CONDITIONS

All:

The monitor will run whenever these DTCs are not present	None

Crankshaft Position Sensor Range Check During Cranking:

Starter	ON
Minimal battery voltage while starter is ON	Less than 11 V

Crankshaft Position Sensor Range Check During Engine Running:

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

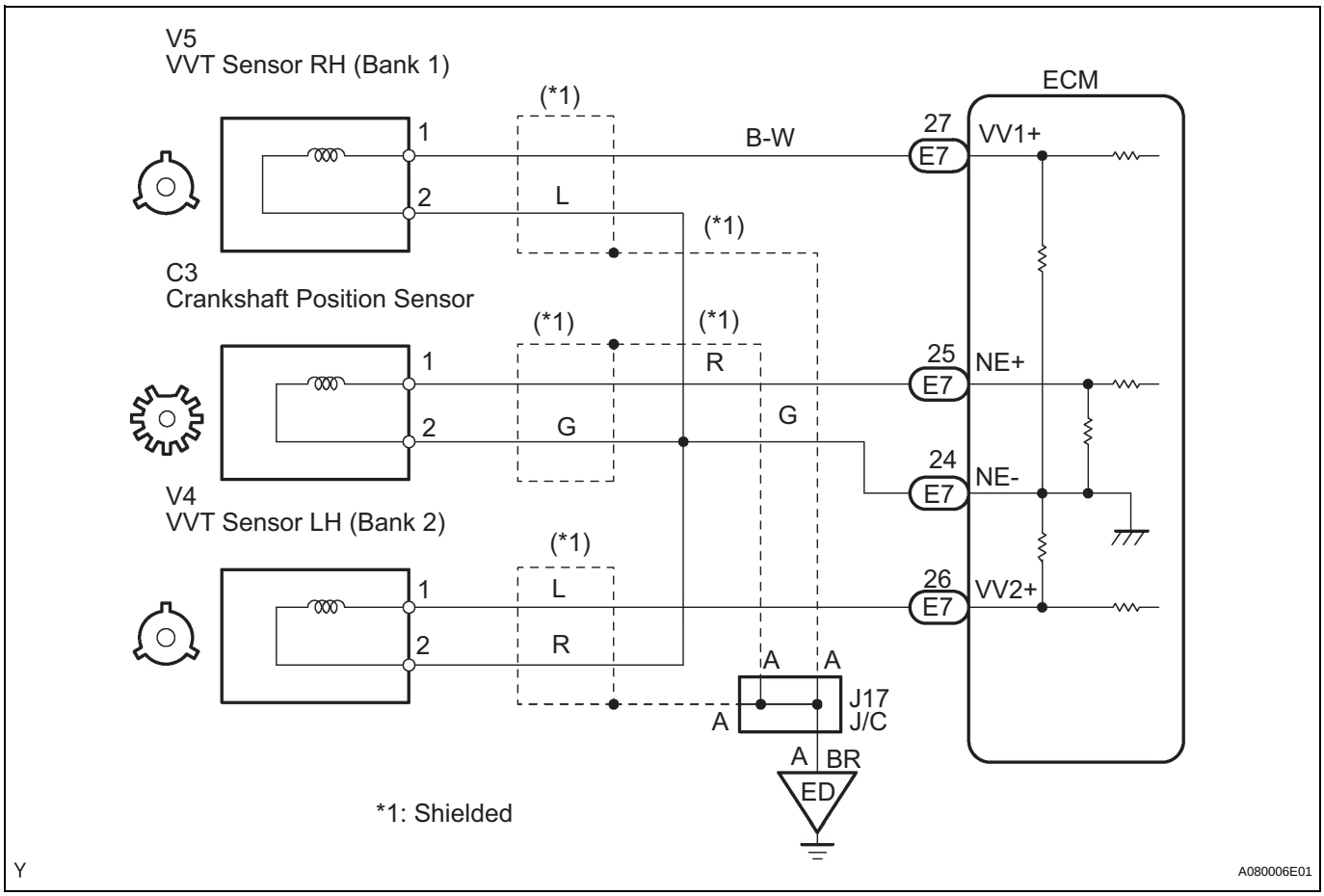
TYPICAL MALFUNCTION THRESHOLDS

CKP signal	No signal

COMPONENT OPERATING RANGE

Crankshaft position sensor signal	Crankshaft position sensor voltage fluctuates when the crankshaft rotates 34 crankshaft position sensor signals per 1 revolution of crankshaft

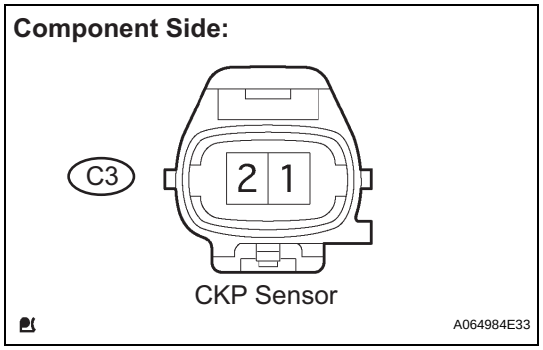
WIRING DIAGRAM



HINT:

- If no problem is found by this diagnostic troubleshooting procedure, troubleshooting the engine mechanical system.
- Check the engine speed. The engine speed can be checked by using the intelligent tester. To check, follow the operation below:
  (a) Connect the intelligent tester to the DLC3.
  (b) Start the engine.
  (c) Turn the tester ON
  (d) Enter the following menus: DIAGNOSIS / ENHANCED OBD II / DATA LIST / PRIMARY / ENGINE SPD.
  The engine speed may be indicated as zero despite the engine revolving normally. This is caused by a lack of NE signals from the crankshaft position (CKP) sensor. Alternatively, the engine speed may be indicated as lower than the actual engine speed, if the CKP sensor output voltage is insufficient.
- Read freeze frame data using the intelligent tester. The ECM records vehicle and driving condition information as freeze frame data the moment a DTC is stored. 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.

1 INSPECT CRANKSHAFT POSITION SENSOR (RESISTANCE)



(a) Disconnect the C3 crankshaft position (CKP) sensor connector.

(b) Measure the resistance of the between terminal 1 and 2.

Standard resistance

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

HINT:
Terms cold and hot refer to the temperature of the coils.
"Cold" means approximately -10 to 50°C (14 to 122°F).
"Hot" means approximately 50 to 100°C (122 to 212°F).

(c) Reconnect the CKP sensor connector.

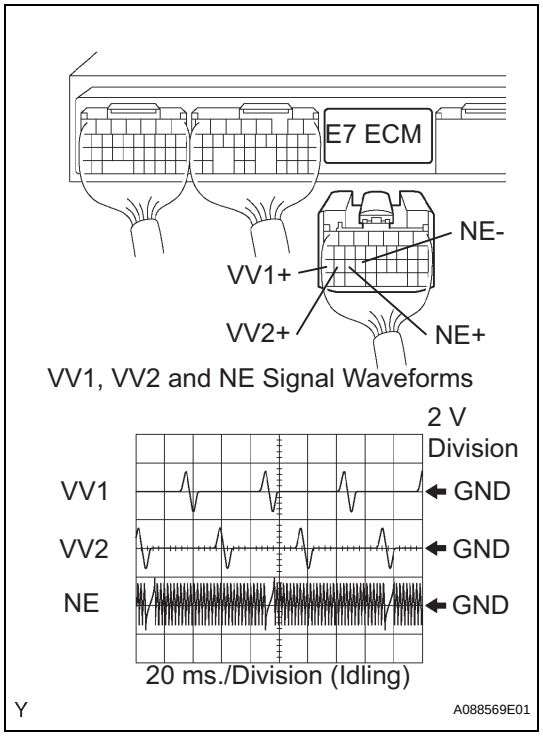
Reference

Inspection using the oscilloscope.

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

Standard

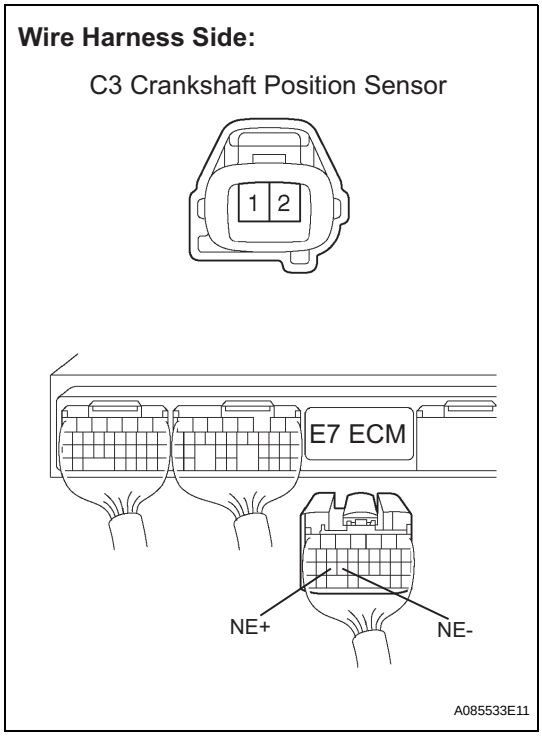
Tester Connection	Specified Condition
VV1+ (E7-27) - NE- (E7-24)	Correct waveform is as shown
VV2+ (E7-26) - NE- (E7-24)	Correct waveform is as shown
NE+ (E7-25) - NE- (E7-24)	Correct waveform is as shown



NG → **REPLACE CRANKSHAFT POSITION SENSOR**

OK

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



(a) Disconnect the C3 CKP sensor connector.
(b) Disconnect the E7 ECM connector.
(c) Measure the resistance of the wire harness side connectors.

Standard resistance (Check for open)

Tester Connection	Specified Condition
C3-1 - E7-25 (NE+)	Below 1 Ω
C3-2 - E7-24 (NE-)	Below 1 Ω

Standard resistance (Check for short)

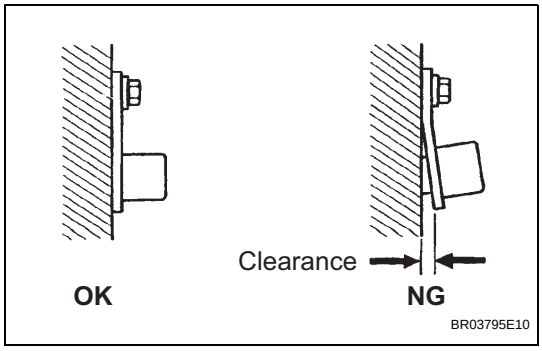
Tester Connection	Specified Condition
C3-1 or E7-25 (NE+) - Body ground	10 kΩ or higher
C3-2 or E7-24 (NE-) - Body ground	10 kΩ or higher

(d) Reconnect the ECM connector.
(e) Reconnect the CKP sensor connector.

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

OK

3	CHECK SENSOR INSTALLATION (CRANKSHAFT POSITION SENSOR)



(a) Check the CKP sensor installation.

OK:

Sensor is installed correctly.

NG → **TIGHTEN SENSOR**

OK

4	CHECK CRANKSHAFT TIMING PULLEY

(a) Check the teeth of the sensor plate.

OK:

Sensor plate does not have any crack or deformation.

NG → **REPLACE CRANKSHAFT TIMING PULLEY**

OK

REPLACE ECM