

DTC	P0340	CAMSHAFT POSITON SENSOR CIRCUIT MALFUNCTION
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CIRCUIT DESCRIPTION

The camshaft position sensor (VV1 signal) consists of a signal plate and a pick up coil. On the signal plate for a cam position sensor, there are three convex on its outer circumference and it is fixed to the camshaft timing gear.

When the camshaft turns, the convex of the signal plate and the air-gap over the pick up coil will switch, and with this the magnetic field will change and generate electricity inside the pick up coil. In addition, VV2 signal adopts a sensor using a signal plate and a magnetic resistance element. By switching the air-gap of the signal plate and the sensor, ECM voltage will be converted to a rectangular wave and output as a signal. The NE signal plate has 34 teeth and is mounted on the crankshaft. The NE signal sensor generates 34 signals at every engine revolution. The ECM detects the crankshaft angle based on the G signal and the actual crankshaft angle and the engine speed by the NE signal.

DTC No.	DTC Detecting Condition	Trouble Area
P0340	No crank position sensor No.1 signal to ECM during cranking (2 trip detection logic)	• Open or short in camshaft position sensor circuit • Crank position sensor No.1 • Camshaft timing gear • ECM
	No crank position sensor No.1 signal to ECM with engine speed 600 rpm or more	

WIRING DIAGRAM

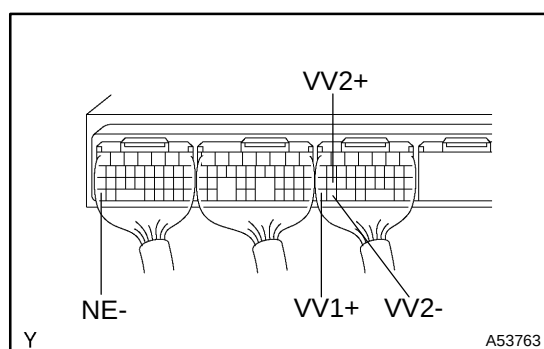
Refer to DTC P0335 on page 05-80 .

INSPECTION PROCEDURE

HINT:

Read freeze frame data using hand-held tester or OBD II scan tool. Because freeze frame records the engine conditions when the 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 CRANK POSITION SENSOR (See page 18-2)

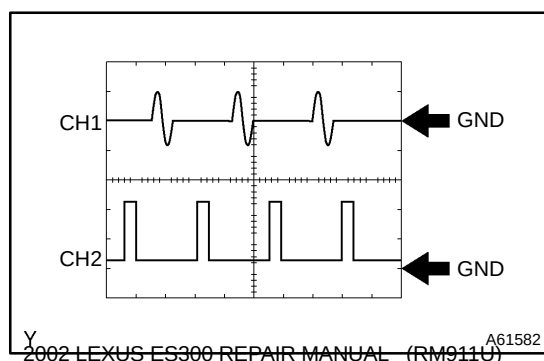


(a) Check the output waveform.

Item	Contents
Terminal	CH1: VV1+↔NE- CH2: VV2+↔VV2-
Equipment Set	5V/DIV, 20MS/DIV
Condition	During Cranking or idling

HINT:

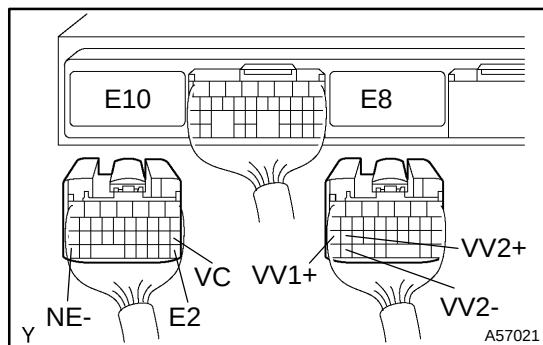
The correct waveforms are as shown.



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REPLACE CRANK POSITION SENSOR

OK

2 CHECK HARNESS AND CONNECTOR(ECM - CRANK POSITION SENSOR NO.1)

- (a) Disconnect the ECM E8 and E10 connector.
 (b) Disconnect the crank position sensor No.1 connector.
 (c) Check for continuity between terminals shown in the illustration and table.

Standard (check for open) :

Sensor position	Crank position sensor No.1 Connector terminal	ECM Connector terminal	Continuity
Bank 1	VV1+	VV1+	Continuity
Bank 1	NE-	NE-	Continuity
Bank 2	VC	VC	Continuity
Bank 2	VVL+	VV2+	Continuity
Bank 2	VVL-	VV2-	Continuity

(Check for short)

Sensor position	Crank position sensor No.1 Connector terminal	ECM Connector terminal	Continuity
Bank 1	VV1+	E2	No Continuity
Bank 1	NE-	E2	No Continuity
Bank 2	VC	E2	No Continuity
Bank 2	VVL+	E2	No Continuity
Bank 2	VVL-	E2	No Continuity

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REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

3 CHECK SENSOR INSTALLATION(CRANK POSITION SENSOR NO.1)

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TIGHTEN SENSOR. REPLACE CAMSHAFT TIMING GEAR

OK

4 CHECK CAMSHAFT TIMING PULLEY

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REPLACE CAMSHAFT TIMING PULLEY

OK

CHECK AND REPLACE ECM