DTC	P0335/12	CRANKSHAFT POSITION SENSOR ”A” CIRCUIT

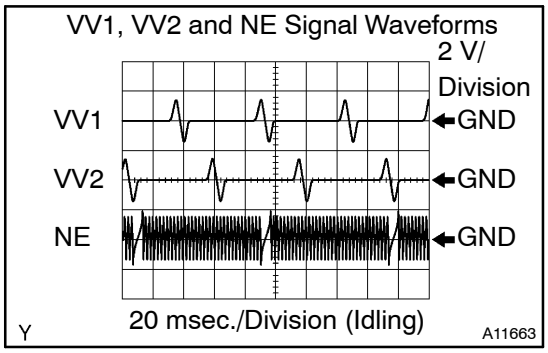
DTC	P0335/13	CRANKSHAFT POSITION SENSOR ”A” CIRCUIT

DTC	P0339/13	CRANKSHAFT POSITION SENSOR ”A” CIRCUIT INTERMITTENT

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 at every engine revolution. The ECM detects the crankshaft angle and the engine revolution based on the NE signal, and the cylinder and the angle of the variable valve timing (VVT) based on the combination of the VV and NE signal.

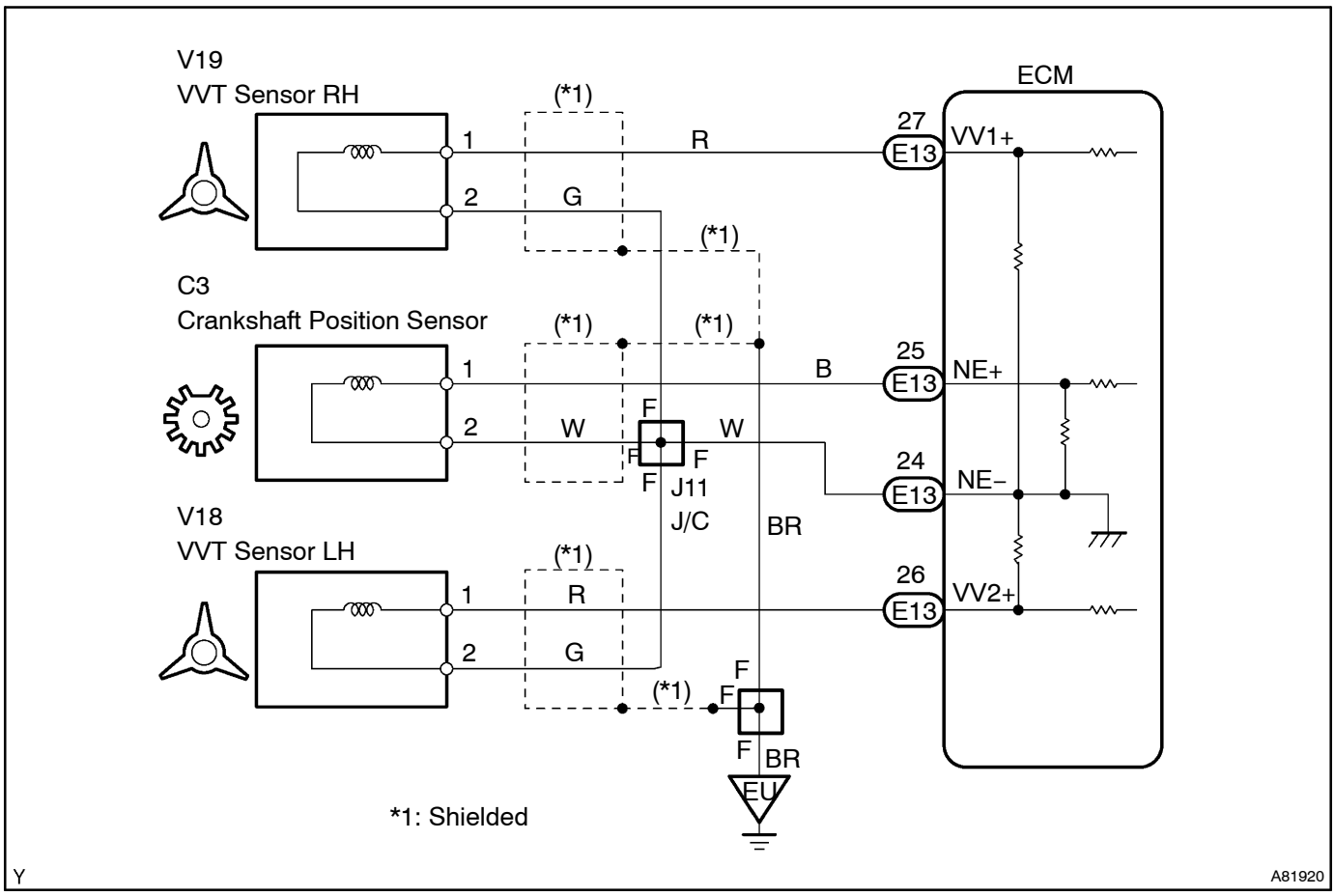
DTC No.	DTC Detection Condition	Trouble Area
P0335/12	No crankshaft position sensor signal to ECM during cranking (2 trip detection logic)	• Open or short in crankshaft position sensor circuit • Crankshaft position sensor • Signal plate (crankshaft) • ECM
P0335/13	No crankshaft position sensor signal to ECM with engine speed 600 rpm or more (2 trip detection logic)	
P0339/13	In condition (a), (b) and (c), when no crankshaft position sensor (NE) signal is input for 0.05 sec. or more. (a) Engine revolution 1,000 rpm or more (b) STA signal is OFF (c) 3 sec. or more has lapsed after STA signal is switched from ON to OFF.	



Reference: Inspection using the oscilloscope.
The correct waveform is as shown in the diagram on the left.

Symbols (Terminal No.)	Specified condition
VV1+ (E13–27) – NE– (E13–24)	Correct waveform is as shown
VV2+ (E13–26) – NE– (E13–24)	
NE+ (E13–25) – NE– (E13–24)	

WIRING DIAGRAM

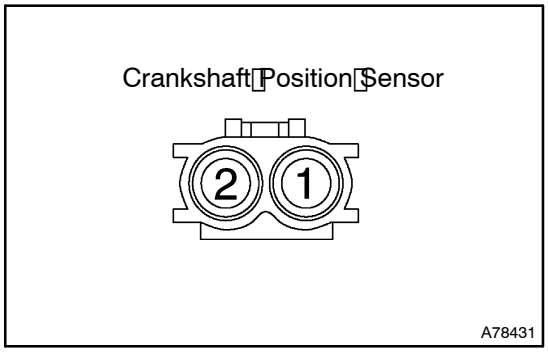


INSPECTION PROCEDURE

HINT:

- Perform troubleshooting of DTC P0335/12, 13 first. If no trouble is found, troubleshoot the engine mechanical systems.
- Read freeze frame data using the hand−held tester, as 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.

1 INSPECT CRANKSHAFT POSITION SENSOR(RESISTANCE)



(a) Measure the resistance between terminals 1 and 2.

Resistance:

1,630 to 2,740 Ω at cold

2,065 to 3,225 Ω at hot

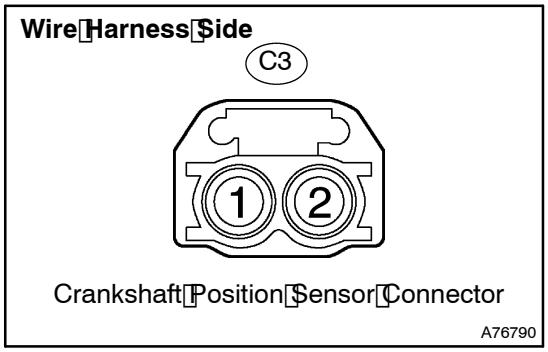
NOTICE:

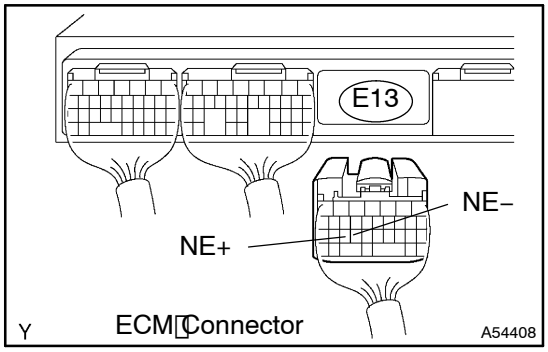
"Cold" and "Hot" shown above mean the temperature of the coils themselves. "Cold" is from –10°C (14°F) to 50°C (122°F) and "Hot" is from 50°C (122°F) to 100°C (212°F).

NG → **REPLACE CRANKSHAFT POSITION SENSOR (See page 18–7)**

OK

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





(a) Disconnect the crankshaft position sensor connector.

(b) Disconnect the E13 ECM connector.

(c) Check for continuity between the wire harness side connectors.

Standard (Check for open):

Symbols (Terminal No.)	Specified condition
Crankshaft position sensor (C3–1) – NE+ (E13–25)	Continuity
Crankshaft position sensor (C3–2) – NE– (E13–24)	

Standard (Check for short):

Symbols (Terminal No.)	Specified condition
Crankshaft position sensor (C3–1) or NE+ (E13–25) – Body ground	No continuity
Crankshaft position sensor (C3–2) or NE– (E13–24) – Body ground	

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

OK

3 CHECK SENSOR INSTALLATION(CRANKSHAFT POSITION SENSOR)

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

CHECK AND REPLACE ECM (See page 01–35)