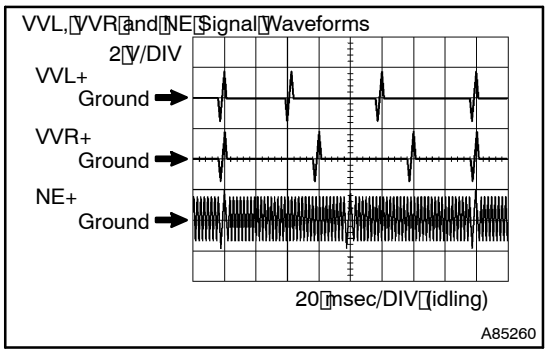
DTC	P0335	CRANKSHAFT POSITION SENSOR "A" CIRCUIT

DTC	P0339	CRANKSHAFT POSITION SENSOR "A" CIRCUIT INTERMITTENT

CIRCUIT DESCRIPTION

The Crankshaft Position (CKP) sensor system consists of a CKP sensor plate and a magnetic coil. The sensor plate has 34 teeth and is installed on the crankshaft. The pick–up coil is made of windings, 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 CKP and engine RPM. Using these calculations, the fuel injection time and ignition timing are controlled.

DTC No.	DTC Detection Condition	Trouble Area
P0335	No CKP sensor signal to ECM during cranking (2 trip detection logic)	• Open or short in CKP sensor circuit • CKP sensor • Crankshaft timing pulley • ECM
P0335	No CKP sensor signal to ECM with 450 rpm or more (2 trip detection logic)	• Open or short in CKP sensor circuit • CKP sensor • Crankshaft timing pulley • ECM
P0339	No CKP sensor signal to ECM is input for 0.05 seconds or more, and conditions (a) and (b) are met: (a) 1,000 rpm or more (b) Starter is OFF	• Open or short in CKP sensor circuit • CKP sensor • Crankshaft timing pulley • ECM



Reference: Inspection using an oscilloscope.
The correct waveform is as shown.

Tester Connection	Specified Condition
E6–19 (VV1+) – E6–31 (NE–)	Correct waveform is as shown
E5–19 (VV2+) – E6–31 (NE–)	Correct waveform is as shown
E6–32 (NE+) – E6–31 (NE–)	Correct waveform is as shown

MONITOR DESCRIPTION

If there is no signal from the CKP sensor even though the engine is revolving, the ECM interprets this as a malfunction of the sensor.
This monitor runs for 10 seconds (the first 10 seconds of engine idle) after the engine is started.

WIRING DIAGRAM

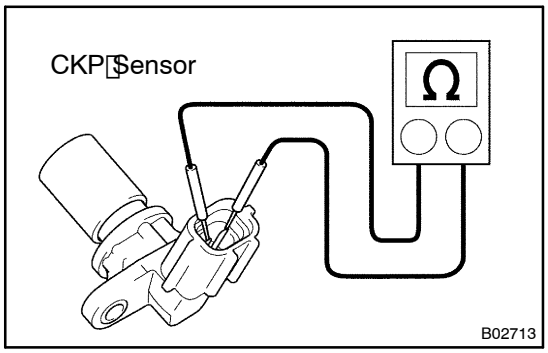
Refer to DTC P0016 on page 05–51.

INSPECTION PROCEDURE

HINT:

- Read freeze frame data using the Intelligent Tester II. 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.
- The engine RPM can be confirmed in Data List using the Intelligent Tester II. If no NE signals are sent from the CKP sensor even though the engine is revolving, the engine RPM will be indicated as zero. If the CKP sensor voltage is insufficient, the engine RPM will be indicated as lower than its actual RPM.

1	INSPECT CKP SENSOR (RESISTANCE)



(a) Disconnect the C4 CKP sensor connector.

(b) Measure the resistance between terminals of the sensor.

Standard:

Tester Connection	Specified Condition
1 – 2	1,630 to 2,740 Ω at cold
1 – 2	2,065 to 3,225 Ω at hot

NOTICE:

In the above chart, the terms "cold" and "hot" refer to the temperature of the coils.

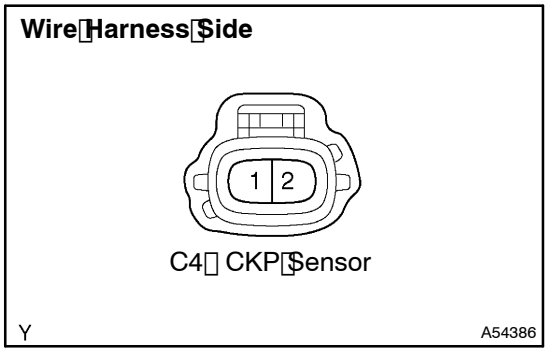
"Cold" means approximately –10 to 50°C (14 to 122°F).

"Hot" means approximately 50 to 100°C (122 to 212°F).

NG → **REPLACE CKP SENSOR (See page 18–14)**

OK

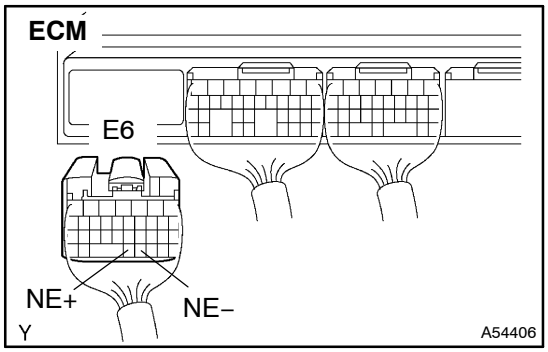
2 CHECK WIRE HARNESS (CRANKSHAFT POSITION SENSOR – ECM)



(a) Disconnect the C4 CKP sensor connector.
(b) Disconnect the E6 ECM connector.
(c) Measure the resistance of the wire harness side connectors.

Standard:

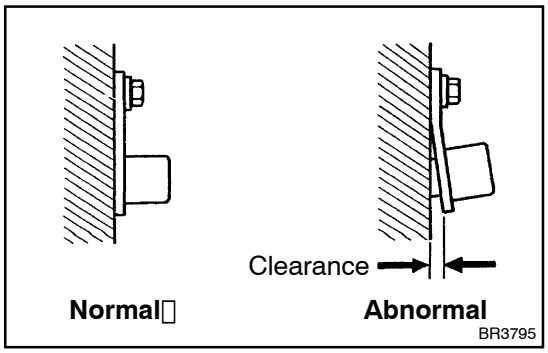
Tester Connection	Specified Condition
C4–1 – E6–32 (NE+)	Below 1 Ω
C4–2 – E6–31 (NE–)	Below 1 Ω
C4–1 or E6–32 (NE+) – Body ground	10 kΩ or higher
C4–2 or E6–32 (NE–) – Body ground	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

3 CHECK SENSOR INSTALLATION (CKP SENSOR)



OK: The CKP sensor is installed properly.

NG → TIGHTEN SENSOR

OK

4 CHECK CRANKSHAFT TIMING PULLEY (TEETH OF PLATE)

OK: Timing pulley's teeth have no deformation or cracks.

NG → REPLACE CRANKSHAFT TIMING PULLEY

OK

REPLACE ECM (See page 10–21)