DTC	P0016	Crankshaft Position - Camshaft Position Correlation (Bank 1 Sensor A)

DTC No.	DTC Detection Condition	Trouble Area
P0016	Deviations in crankshaft and camshaft position sensor signals (2 trip detection logic)	• Mechanical system (Timing chain has jumped tooth or chain stretched) • ECM

Related DTCs	P0016: Camshaft timing (bank 1) misalignment
Required Sensors/Components (Main)	VVT actuator
Required Sensors/Components (Related)	Camshaft position sensor, Crankshaft position sensor
Frequency of Operation	Once per driving cycle
Duration	Within 60 seconds
MIL Operation	2 driving cycles
Sequence of Operation	None

Monitor runs whenever following DTCs not present	P0011 (VVT system 1 - advance) P0012 (VVT system 1 - retard) P0115 - P0118 (ECT sensor)
Engine RPM	550 to 1,000 rpm

Valve timing when camshaft retarded maximum	Less than 33 q or more than 51 q

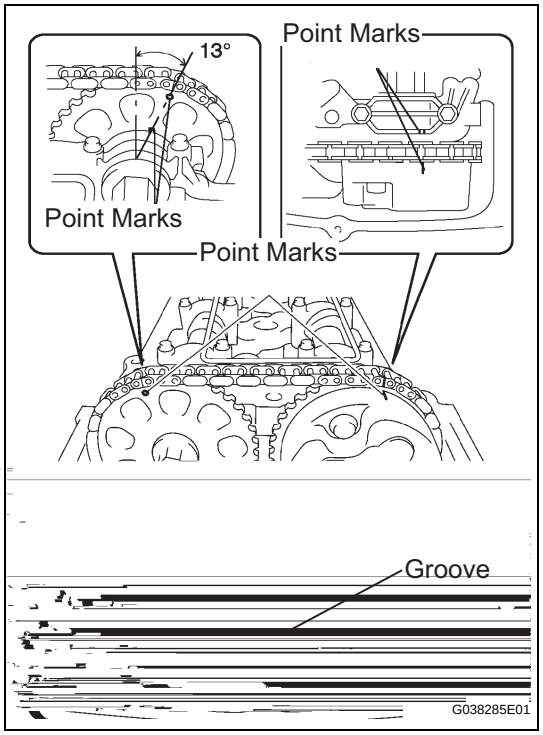
Refer to DTC P0335 (See page ES-173).

HINT:

- Read freeze frame data using an intelligent tester. Freeze frame data record the engine condition when malfunctions are detected. When troubleshooting, freeze frame data can help determine if the vehicle was moving or stationary, 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.
- After replacing the ECM or adjusting intake valve timing, confirm that the DTC output does not recur.
  (a) Connect an intelligent tester to the DLC3.
  (b) Turn the ignition switch to ON.
  (c) Turn the tester ON.
  (d) Clear DTCs (see page ES-40).
  (e) Switch the ECM from normal mode to check mode using the tester (see page ES-43).
  (f) Start the engine and warm it up.
  (g) Allow the engine to idle for 1 minute or more, and then drive the vehicle for 1 minute or more.
  (h) Confirm that no DTC is set, using the tester.

ES

1	CHECK VALVE TIMING (CHECK FOR LOOSE AND JUMPED TEETH ON TIMING CHAIN)



(a) Remove the cylinder head cover.
(b) Turn the crankshaft pulley, and align its groove with the timing mark "0" on the timing chain cover.
(c) Check that the point marks on the camshaft timing gears are as shown in the illustration.

If not, turn the crankshaft 1 revolution (360°) and align the marks as above.

OK:

Point marks on camshaft timing gears are aligned as shown in illustration.

(d) Reinstall the cylinder head cover.

NG → **ADJUST VALVE TIMING**

OK ↓

REPLACE ECM