DTC	P0340	Camshaft Position Sensor ”A” Circuit (Bank 1 or Single Sensor)

DTC	P0341	Camshaft Position Sensor ”A” Circuit Range/Performance (Single Sensor)

DTC	P0345	Camshaft Position Sensor ”A” Circuit (Bank 2)

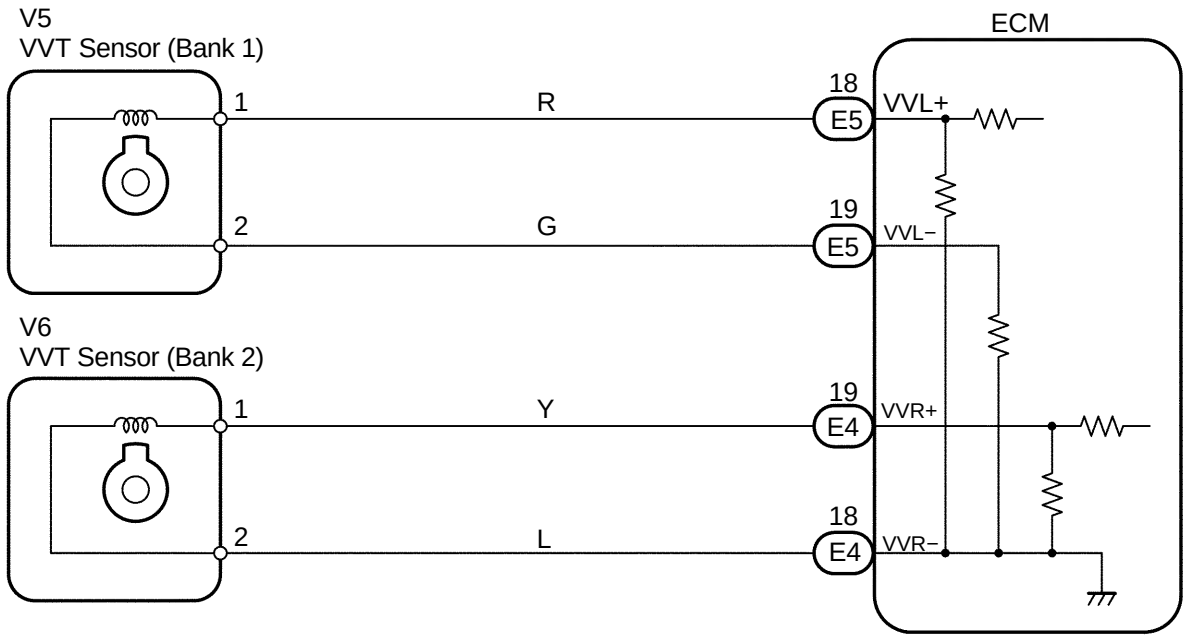
DTC	P0346	Camshaft Position Sensor ”A” Circuit Range/Performance (Bank 2)

CIRCUIT DESCRIPTION

VVT sensor (VVL or VVR signal) consist of a signal plate and pickup coil.
The VVL or VVR signal plate has 3 teeth on its outer circumference and is mounted on the intake camshafts. When the camshafts rotate, the protrusion on the signal plate and the air gap on the pickup coil change, causing fluctuations in the magnetic field and generating an electromotive force in the pickup coil.
The actual camshaft angle is detected by the VVT sensor and it provides feedback to the ECM to control the intake valve timing in response to during condition.

DTC No.	DTC Detecting Condition	Trouble Area
P0340 P0341 P0345 P0346	No VVT sensor signal to ECM during cranking at 4 sec. or more	• Open or short in VVT sensor circuit • VVT sensor • ECM
	No VVT sensor signal to ECM with 5 sec. or more engine speed 600 rpm or more	
	While the crankshaft rotates twice, VVT sensor signal will be input to ECM 5 times	

WIRING DIAGRAM

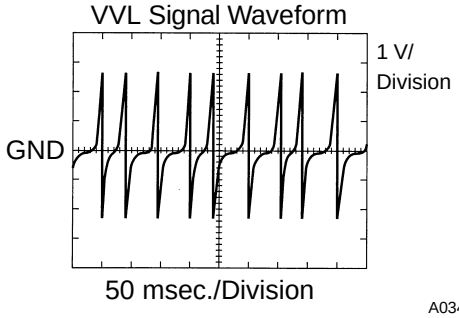


INSPECTION PROCEDURE

HINT:

- If DTC P0340 is displayed, check left bank VVT sensor.
- If DTC P0345 is displayed, check right bank VVT sensor.
- 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	**Check resistance of VVT sensor (See page SF−85).**



Reference: INSPECTION USING OSCILLOSCOPE

During idling, check the waveform between terminals VVL+ and VVL−, and VVR+ and VVR− of the ECM connector.

HINT:

- The correct waveform is as shown.
- The waveform frequency is shortened as the engine speed becomes higher.

NG	**Replace VVT sensor.**

OK

2	**Check for open and short in harness and connector between ECM and VVT sensor (See page IN−34).**

NG → **Repair or replace harness or connector.**

OK

3	**Inspect sensor installation.**

NG → **Tighten sensor.**

OK

Check and replace ECM (See page IN−34).