

2003 MY VVT System Monitor (P0016, P0018, P1346, P1351)

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MONITOR STRATEGY

Required sensors/Components	Main	VVT sensor and Crankshaft position sensor
	Sub	OCV for VVT and ECT sensor
Frequency of operation	Once per driving cycle	
Duration	Within 60 sec.	
MIL operation	2 driving cycles	
Sequence of operation	None	

TYPICAL ENABLING CONDITIONS

Item	Specification	
	Minimum	Maximum
The monitor will run whenever the following DTCs are not present	See page In-39	
VVT status	Feedback (for 8 sec. or more)	
Engine RPM	500 rpm	1,400 rpm
ECT	75°C (167°F)	100°C (212°F)
Difference between target valve timing and detected valve timing	–	5°CA*1 within 15 sec.
Change in valve timing is small (Change amount of valve timing when they are between 180° and 360°CA*2 is 1.875°CA)		

*1 °CA indicates crankshaft angle.

*2 4-cylinder engine has 360°CA. 6-cylinder engine has 240°CA. 8-cylinder engine has 180°CA.

TYPICAL MALFUNCTION THRESHOLDS

Engine Family	Detection Criteria	Threshold
1AZ-FE	Valve timing at idle (valve timing is retarded to maximum)	Less than 27°CA
		More than 49°CA
2AZ-FE Camry and Solara	Valve timing at idle (valve timing is retarded to maximum)	Less than 21°CA
		More than 46°CA
2AZ-FE Highlander	Valve timing at idle (valve timing is retarded to maximum)	Less than 27°CA
		More than 49°CA
1GR-FE	Valve timing at idle (valve timing is retarded to maximum)	Less than 22°CA
		More than 47°CA
2JZ-GE	Valve timing at idle (valve timing is retarded to maximum)	Less than 22°CA
		More than 47°CA
1MZ-FE Camry and ES300	Valve timing at idle (valve timing is retarded to maximum)	Less than 21°CA
		More than 46°CA
	Valve timing at idle (Bank 2) (valve timing is retarded to maximum)	Less than 22°CA
		More than 40°CA
1MZ-FE except Camry and ES300	Valve timing at idle (valve timing is retarded to maximum)	Less than 20°CA
		More than 46°CA
1NZ-FE	Valve timing at idle (valve timing is retarded to maximum)	Less than 25°CA
		More than 51°CA

Components E/G Outputs – VVT System

Engine Family	Detection Criteria	Threshold
3UZ-FE	Valve timing at idle (valve timing is retarded to maximum)	Less than 20° CA
		More than 39° CA
1ZZ-FE	Valve timing at idle (valve timing is retarded to maximum)	Less than 24° CA
		More than 46° CA
2ZZ-GE	Valve timing at idle (valve timing is retarded to maximum)	Less than 19° CA
		More than 41° CA