1998 to 2004 MY Valve Timing Monitor (P0011, P0012, P0021, P0022, P1349, P1354)

To return to monitor description, see page Co–6.

MONITOR STRATEGY

Required sensors/Components	Main	Camshaft position sensor, Crankshaft position sensor and VVT sensor
	Sub	ECT sensor
Frequency of operation	Once per driving cycle	
Duration	Within 10 sec.	
MIL operation	Immediate	Intake valve timing advance
	2 driving cycles	Intake valve timing retard
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	
Battery voltage	11 V	–
Engine RPM	500 rpm	4,000 rpm
ECT	75˚C (167˚F)	100˚C (212˚F)

TYPICAL MALFUNCTION THRESHOLDS

˚CA indicates crankshaft angle.

Detection Criteria	Threshold
Case 1: Intake valve timing advance/retard	
Difference between target valve timing and detected valve timing	More than 5˚CA for 5 sec.
Case 2: Intake valve timing advance	
Change amount of valve timing when OCV for VVT operating when valve timing advances than neutral position of valve timing*	Less than 5˚CA for 5 sec. (when advanced valve timing)
Case 3: Intake valve timing retard	
Change amount of valve timing when OCV for VVT operating when valve timing retards than neutral position of valve timing*	Less than 5˚CA for 5 sec. (when retarded valve timing)

*** Neutral position of valve timing:**

Engine Family	Specification
1AZ–FE	53˚CA
2AZ–FE	67˚CA
1GR–FE, 2JZ–GE, 1MZ–FE and 3MZ–FE	63.5˚CA
1NZ–FE	68˚CA
2002 MY 3UZ–FE	63.5˚CA
2003 MY 3UZ–FE	55˚CA
2002 MY 1ZZ–FE	55˚CA
2003 MY 1ZZ–FE	67˚CA (Corolla) 55˚CA (Celica and MR2)
2ZZ–GE	67˚CA

1996–2003 ADDITION OF OBD (OTH021U)