Misfire Detected

Mi002–01

Misfire Monitor Description

MODEL YEAR APPLICATION TABLE

Four different misfire systems have been used in Toyota and Lexus vehicles since the introduction of OBD ll in 1996. Use the table below to determine which system is used on each model.

A: FTP mode (Misfires are checked between 400 rpm and 4,000 rpm)

B: Full Range detection mode (Misfires are checked between 400 rpm and the allowable engine rpm limit)

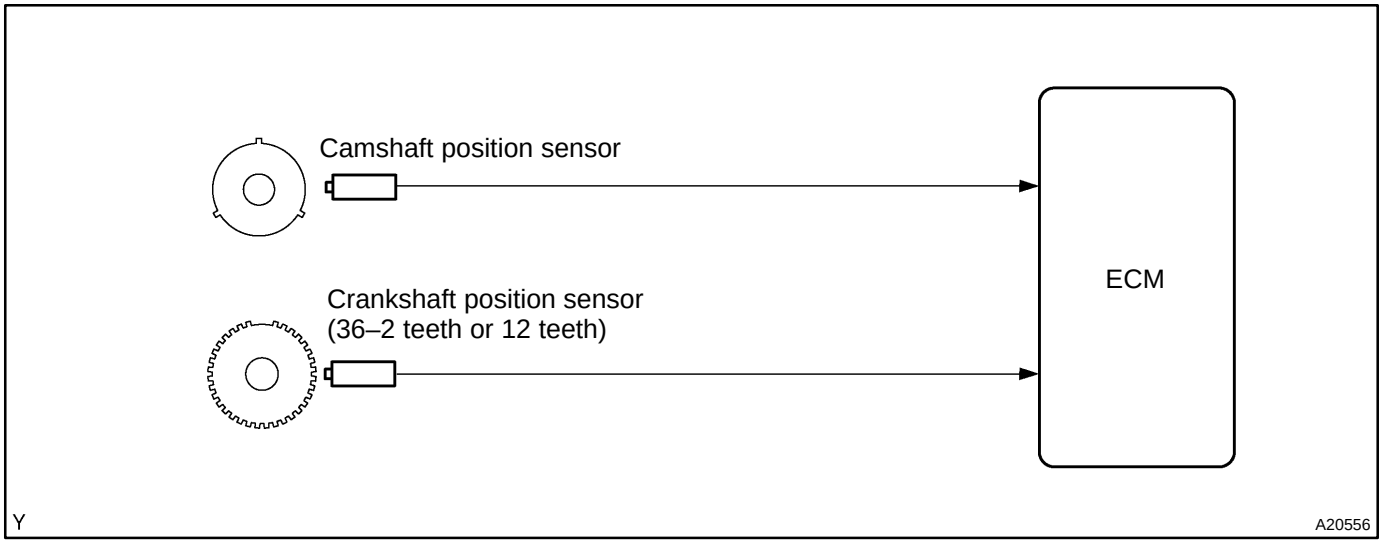
C: A and misfires are detected within 2 or 3 revolutions after engine start

D: B and misfires are detected within 2 or 3 revolutions after engine start

Engine Family	1996 MY	1997 MY	1998 MY	1999 MY	2000 MY	2001 MY	2002 MY	2003 MY	2004 MY
4A–FE and 7A–FE	A	A	–	–	–	–	–	–	
1AZ–FE	–	–	–	–	–	B	D	D	
2AZ–FE Camry and Solara	–	–	–	–	–	–	D	D	
2AZ–FE Highlander	–	–	–	–	–	B	D	D	
5E–FE	A	B	B	B	–	–	–	–	
1FZ–FE	A	A	–	–	–	–	–	–	
1GR–FE	–	–	–	–	–	–	–	D	
2JZ–GE	A	A	A	A	B	B	D	D	
2JZ–GTE	A	A	A	–	–	–	–	–	
1MZ–FE Avalon	A	B	B	B	B	D	D	D	
1MZ–FE Camry (A/T)	A	B	B	B	B	D	D	D	
1MZ–FE Camry (M/T)	A	A	A	A	A	A	–	–	
1MZ–FE ES300	A	B	B	B	B	D	D	D	
1MZ–FE Highlander	–	–	–	–	–	D	D	D	
1MZ–FE RX300	–	–	–	A	B	D	D	D	
1MZ–FE Sienna	–	–	B	B	B	D	D	D	
1MZ–FE Solara (A/T)	–	–	–	B	B	D	D	D	
1MZ–FE Solara (M/T)	–	–	–	A	A	C	C	–	
3MZ–FE	–	–	–	–	–	–	–	–	D
1NZ–FE	–	–	–	–	B	B	D	D	
2RZ–FE and 3RZ–FE	A	B	B	B	B	B	D	D	
3S–FE	A	B	B	B	B	–	–	–	
5S–FE Camry	A	B	B	B	B	B	–	–	
5S–FE Celica	A	B	B	B	–	–	–	–	
2TZ–FZE	A	A	–	–	–	–	–	–	
1UZ–FE	A	A	A	A	A	–	–	–	
2UZ–FE	–	–	A	A	A	D	D	D	
3UZ–FE GS430 and LS430	–	–	–	–	–	D	D	D	
3UZ–FE SC430	–	–	–	–	–	–	B	D	
5VZ–FE (A/T)	A	A	B	B	B	D	D	D	
5VZ–FE (M/T)	A	A	A	B	B	D	D	D	
1ZZ–FE Corolla	–	–	B	B	B	B	B	D	
1ZZ–FE Celica and MR2	–	–	–	–	B	B	D	D	
1ZZ–FE Matrix	–	–	–	–	–	–	–	D	
2ZZ–GE	–	–	–	–	A	A	C	D	

MONITOR SUMMARY

The ECM monitors the engine operation for misfires and counts the number of misfires that occur in a specified number of engine revolutions. Misfires generate unburned hydrocarbons and increase the load on the catalytic converter. If the misfire rate is excessive, the catalytic converter can overheat and be damaged. Under these conditions it is also possible that unburned hydrocarbons could pass through the converter.
For monitoring misfire, the ECM uses both the camshaft sensor and the crankshaft sensor. The camshaft position sensor is used to identify misfiring cylinders and the crankshaft position sensor is used to measure variations in the crankshaft rotation speed.



If the crankshaft rotation slows for a moment during a revolution, the ECM concludes that a misfire has occurred. The misfire counter increments when crankshaft rotation speed below the threshold values.
The ECM illuminates the MIL (2–trip detection logic) and sets a DTC if the misfiring rate exceeds specified values that would cause emissions deterioration or catalyst damage.
There are several diagnostic thresholds and test modes:

(a) Misfires occurring in 1,000 revolutions which could result in a deterioration of emissions. This will set a DTC.
(b) Misfires occurring in 200 revolutions exceed the specified limit for catalyst damage will set a DTC.
(c) In 6 and 8 cylinder engines, misfires occurring in paired cylinders 150 times in 200 engine revolutions will set a DTC.
(d) In FTP mode, misfires are checked between 400 and 4,000 rpm.
(e) In “Full Range” detection mode, misfires are checked between 400 rpm the allowable engine rpm limit.
(f) In 2002 and later models, misfires are detected within 2 or 3 revolutions after engine start.

RELATED DTC

Related DTCs	P0300	Misfire detected in 2 or more cylinders at the same time
	P0301 (cylinder No. 1)	Misfire detected in each cylinder
	P0302 (cylinder No. 2)	
	P0303 (cylinder No. 3)	
	P0304 (cylinder No. 4)	
	P0305 (cylinder No. 5)	
	P0306 (cylinder No. 6)	
	P0307 (cylinder No. 7)	
	P0308 (cylinder No. 8)	

MODEL YEAR CHART

Model Year	See Page
1996	Mi–4
1997	Mi–6
1998	Mi–8
1999	Mi–10
2000	Mi–12
2001	Mi–14
2002	Mi–16
2003	Mi–18
2004	Mi–20