

2003 MY for Shift Solenoid "E" Performance (Shift Solenoid Valve SR) Monitor (P0771)

To return to monitor description, see page [Cm-342](#).

MONITOR STRATEGY

Required sensors/Components	Main	Shift solenoid valve SR
	Sub	None
Frequency of operation	Continuous	
Duration	1MZ-FE (ES300, CAMRY '03/01 L/O)	(A) & OFF malfunction (A) 1 sec. (A) & OFF malfunction (B) 3.5 sec. (A) & ON malfunction (A) Immediate (A) & (ON malfunction (B), ON malfunction (C)) 0.8 sec. (A) & (ON malfunction (D)) 0.6 sec.
	Except 1MZ-FE (ES300, CAMRY '03/01 L/O)	(A) & (OFF malfunction (B)), (A) & (OFF malfunction (C)) Immediate (A) & (OFF malfunction (A)) 0.4 sec. (A) & (ON malfunction) 0.015 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	
Engine family	Item	Specification	
		Minimum	Maximum
1MZ-FE (ES300)	Condition (A)		
	Engine coolant temperature	10 °C (50 °F) or more	–
	Transmission range	"D"	
	Transmission fluid temperature	20 °C (–4 °F) or more	–
	Transmission fluid temperature Sensor "A" circuit	Not circuit malfunction	
	ECT sensor circuit	Not circuit malfunction	
	Turbine speed sensor circuit	Not circuit malfunction	
	Intermediate shaft speed sensor "A" circuit	Not circuit malfunction	
	Output shaft speed sensor circuit	Not circuit malfunction	
	Pressure control solenoid "A" (SL1) circuit	Not circuit malfunction	
	Pressure control solenoid "B" (SL2) circuit	Not circuit malfunction	
	Pressure control solenoid "C" (SL3) circuit	Not circuit malfunction	
	Shift solenoid "D" (S4) circuit	Not circuit malfunction	
	Shift solenoid "E" (SR) circuit	Not circuit malfunction	
	Torque converter clutch solenoid (DSL) circuit	Not circuit malfunction	
	OFF malfunction (A)		
	ECM selected gear	5th	
	Throttle valve opening angel	5 % or more	–
	Vehicle speed	10 km/h (6 mph) or more	–
	OFF malfunction (B)		
	ECM lock-up command	ON	
	ECM selected gear	3rd or 4th or 5th	
	Vehicle speed	25 km/h (16 mph) or more	–
	ON malfunction (A)		
	ECM lock-up command	OFF	
	ON malfunction (B)		
	ECM selected gear	1st	
	Vehicle speed	–	Less than 40 km/h (25 mph)
	Throttle valve opening angle	4.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	ON malfunction (C)		
	ECM selected gear	3rd	
	Throttle valve opening angle	4.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–

1996–2003 ADDITION OF OBD (OTH021U)

1MZ-FE (ES300)	ON malfunction (D)			
	ECM selected gear	4th or 5th		
1MZ-FE (CAMRY '03/01 L/O)	Condition (A)			
	Engine coolant temperature	10 °C (50 °F) or more	–	
	Transmission range	"D"		
	Transmission fluid temperature	20 °C (–4 °F) or more	–	
	Transmission fluid temperature Sensor "A" circuit	Not circuit malfunction		
	ECT sensor circuit	Not circuit malfunction		
	Turbine speed sensor circuit	Not circuit malfunction		
	Intermediate shaft speed sensor "A" circuit	Not circuit malfunction		
	Output shaft speed sensor circuit	Not circuit malfunction		
	Pressure control solenoid "A" (SL1) circuit	Not circuit malfunction		
	Pressure control solenoid "B" (SL2) circuit	Not circuit malfunction		
	Pressure control solenoid "C" (SL3) circuit	Not circuit malfunction		
	Shift solenoid "D" (S4) circuit	Not circuit malfunction		
	Shift solenoid "E" (SR) circuit	Not circuit malfunction		
	Torque converter clutch solenoid (DSL) circuit	Not circuit malfunction		
	OFF malfunction (A)			
		ECM selected gear	5th	
		Throttle valve opening angel	5 % or more	–
		Vehicle speed	10 km/h (6 mph) or more	–
	OFF malfunction (B)			
		ECM lock-up command	ON	
		ECM selected gear	3rd or 4th or 5th	
		Vehicle speed	25 km/h (16 mph) or more	–
	ON malfunction (A)			
		ECM lock-up command	OFF	
	ON malfunction (B)			
		ECM selected gear	1st	
		Vehicle speed	–	Less than 40 km/h (25 mph)
		Throttle valve opening angle	4.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	ON malfunction (C)			
		ECM selected gear	3rd	
		Throttle valve opening angle	4.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	ON malfunction (D)			
		ECM selected gear	4th or 5th	

Component T/M Outputs – Solenoid

Except 1MZ–FE (ES300, CAMRY '03/01 L/O)	Condition (A)		
	Engine coolant temperature	40 °C (104 °F) or more	–
	Transmission range	"D"	
	Spark advance from MAX. retard timing by KCS control	0° CA or more	–
	Transfer range "Hi" [4WD]		
	Vehicle speed sensor "A" circuit	Not circuit malfunction	
	Output shaft speed sensor circuit	Not circuit malfunction	
	ECM	Not circuit malfunction	
	OFF malfunction (A)		
	ECM selected gear	5th	
	Vehicle speed	2 km/h (1 mph) or more	–
	Throttle valve opening angel	6.5 % or more at engine speed 2,000 rpm (Condition vary with engine speed)	–
	OFF malfunction (B)		
	Current ECM selected gear	5th	
	Last ECM selected gear	4th	
	Vehicle speed	2 km/h (1 mph) or more	–
	Throttle valve opening angel	6.5 % or more at engine speed 2,000 rpm (Condition vary with engine speed)	–
	OFF malfunction (C)		
	Current ECM selected gear	5th	
	Last ECM selected gear	4th	
	ON malfunction		
	Current ECM selected gear (During 1 to 2 shift)	2nd	
	Last ECM selected gear	1st	
	Throttle valve opening angle	6.5 % or more at engine speed 2,000 rpm (condition vary with engine speed)	–

TYPICAL MALFUNCTION THRESHOLDS

1MZ-FE (ES300)	Following condition met (a. and b.) or (c. and d. and e. and f.)	
	a. = (A) & OFF malfunction (A)	
	Intermediate shaft speed/Output speed (NC/NO)	$1.34 \leq \text{NC/NO} < 1.48$
	b. = (A) & OFF malfunction (B)	
	Engine speed – Input speed (NE – NT)	
	When condition "a." of the shift solenoid "D" is detected:	75 rpm or more
	When condition "a." of the shift solenoid "D" is not detected:	100 rpm or more
	c. = (A) & ON malfunction (A)	
	Engine speed – Input speed (NE – NT)	150 rpm or more
	d. = (A) & ON malfunction (B)	
	Input speed/Intermediate shaft speed (NT – NC)	$0.93 \leq \text{NT/NC} < 1.07$
	e. = (A) & ON malfunction (C)	
	Input speed/Intermediate shaft speed (NT – NC)	$0.93 \leq \text{NT/NC} < 1.07$
	f. = (A) & ON malfunction (D)	
	Input speed/Intermediate shaft speed (NT – NC)	$0.64 \leq \text{NT/NC} < 0.74$
1MZ-FE (CAMRY '03/01 L/O)	Following condition met (a. and b.) or (c. and d. and e. and f.)	
	a. = (A) & OFF malfunction (A)	
	Intermediate shaft speed/Output speed (NC/NO)	$1.44 \leq \text{NC/NO} < 1.58$
	b. = (A) & OFF malfunction (B)	
	Engine speed – Input speed (NE – NT)	
	When condition "a." of the shift solenoid "D" is detected:	75 rpm or more
	When condition "a." of the shift solenoid "D" is not detected:	100 rpm or more
	c. = (A) & ON malfunction (A)	
	Engine speed – Input speed (NE – NT)	150 rpm or more
	d. = (A) & ON malfunction (B)	
	Input speed/Intermediate shaft speed (NT – NC)	$0.93 \leq \text{NT/NC} < 1.07$
	e. = (A) & ON malfunction (C)	
	Input speed/Intermediate shaft speed (NT – NC)	$0.93 \leq \text{NT/NC} < 1.07$
	f. = (A) & ON malfunction (D)	
	Input speed/Intermediate shaft speed (NT – NC)	$0.64 \leq \text{NT/NC} < 0.74$

Component T/M Outputs – Solenoid

Except 1MZ-FE (ES300, CAMRY '03/01 L/O)	OFF malfunction	
	Following condition met a. and b. and c.	
	It is necessary 2 judgements/driving cycle 1st judgement; temporary flag ON 2nd judgement; pending fault code ON	
	a. = (A) & OFF malfunction (A)	
	Input speed/Output speed (NT/NO)	$0.93 \leq NT/NO \leq 1.07$
	b. = (A) & OFF malfunction (B)	
	Input speed/Output speed (NT/NO)	Change as follows $0.93 \leq NT/NO \leq 1.07$ ↓ $0.65 \leq NT/NO \leq 0.79$
	c. = (A) & OFF malfunction (C)	
	Output record from ECM for 4th → 5th upshifting	Recorded
	ON malfunction	
	It is necessary 2 judgements/driving cycle 1st judgement; temporary flag ON 2nd judgement; pending fault code ON	
	(A) & ON malfunction	
	Input speed – Output speed x 1st gear ratio (NT – NO x 1st gear ratio)	150 rpm or more