

2003 MY for Shift Solenoid "B" Performance (Shift Solenoid Valve S2) Monitor (P0776)

2003 MY for Pressure Control Solenoid "B" Performance (Shift Solenoid Valve SL2) Monitor (P0776)

To return to monitor description, see page [Cm-158](#).

MONITOR STRATEGY

Required sensors/Components	Main	Shift solenoid valve No.2
	Sub	None
Frequency of operation	Continuous	
Duration	2ZZ-GE	0.8 sec.
	1MZ-FE (CAMRY)	0.85 sec.
	1MZ-FE (RX300, HIGH LANDER)	1 sec.
	2UZ-FE	(A) & ON malfunction (A), (A) & ON malfunction (B), (A) & ON malfunction (C) 0.4 sec. (A) & ON malfunction (D), (A) & ON malfunction (E) 0.5 sec.
	2AZ-FE (CAMRY SOLARA, CAMRY)	(A) & OFF malfunction, (A) & ON malfunction 0.85 sec.
	1MZ-FE (ES300, CAMRY '03/01 L/O)	(A) & OFF malfunction (A) 1.8 sec. (A) & OFF malfunction (B), (C) 0.8 sec. (A) & ON malfunction (A), (B) 0.8 sec. (A) & ON malfunction (C) 0.4 sec.
	2AZ-FE (CAMRY Supplement)	(A) & OFF malfunction (A), (A) & ON malfunction 0.8 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
2ZZ-GE (CELICA)	Condition (A)		
	Engine coolant temperature	60 °C (140 °F) or more	–
	Transmission range	"D"	
	Transmission fluid temperature	–20 °C (4 °F) or more	–
	Transmissions 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 speed sensor circuit	Not circuit malfunction	
	Pressure control solenoid "A" (SL1) circuit	Not circuit malfunction	
	Pressure control solenoid "B" (SL2) circuit	Not circuit malfunction	
	Shift solenoid "D" (S4) circuit	Not circuit malfunction	
	Electronic throttle system	Not circuit malfunction	
	OFF malfunction		
	ECM selected gear	1st	
	Vehicle speed	10 km/h (6 mph) or more	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)	–
	Throttle valve opening angle	15 % or more	–
	ON malfunction		
	ECM selected gear	3rd or 4th	
	Vehicle speed	10 km/h (6 mph) or more	–
	Throttle valve opening angle	4.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–

Component T/M Outputs – Solenoid

1MZ–FE (CAMRY), 2AZ–FE (CAMRY, CAMRY SOLARA)	Condition (A)		
	Engine coolant temperature	60 °C (140 °F) or more	–
	Transmission range	"D"	
	Transmission fluid temperature	–20 °C (4 °F) or more	–
	Transmissions 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 speed sensor circuit	Not circuit malfunction	
	Pressure control solenoid "A" (SL1) circuit	Not circuit malfunction	
	Pressure control solenoid "B" (SL2) circuit	Not circuit malfunction	
	Shift solenoid "D" (S4) circuit	Not circuit malfunction	
	Electronic throttle system	Not circuit malfunction	
	OFF malfunction		
	ECM selected gear	1st	
	Vehicle speed	10 km/h (6 mph) or more	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)	–
	Throttle valve opening angle	15 % or more	–
	ON malfunction		
	ECM selected gear	3rd or 4th	
	Vehicle speed	10 km/h (6 mph) or more	–
	Throttle valve opening angle	4.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
1MZ–FE (RX300, HIGH LANDER)	Condition (A)		
	Engine coolant temperature	60 °C (140 °F) or more	–
	Transmission range	"D"	
	Transmission fluid temperature	–20 °C (4 °F) or more	–
	Transmissions 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 speed sensor circuit	Not circuit malfunction	
	Pressure control solenoid "A" (SL1) circuit	Not circuit malfunction	
	Pressure control solenoid "B" (SL2) circuit	Not circuit malfunction	
	Shift solenoid "D" (S4) circuit	Not circuit malfunction	

1MZ-FE (RX300, HIGH LANDER)	OFF malfunction		
	ECM selected gear	1st	
	Throttle valve opening angle	4.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)	—
	Throttle valve opening angle	15 % or more	—
	Vehicle speed	10 km/h (6 mph) or more	Less than 40 km/h (25 mph)
	ON malfunction		
	ECM selected gear	3rd or 4th	
	Throttle valve opening angle	4.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)	—
	Vehicle speed	10 km/h (6 mph) or more	—
2UZ-FE	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	Not circuit malfunction	
	Output speed sensor circuit	Not circuit malfunction	
	ECM	Not circuit malfunction	
	ON malfunction (A)		
	ECM selected gear	1st	
	Vehicle speed	2 km/h (1 mph) or more	Less than 40 km/h (25 mph)
	Throttle valve opening angle	6.5 % or more at engine speed 2,000 rpm (condition vary with engine speed)	—
	ON malfunction (B)		
	ECM selected gear	3rd	
	Vehicle speed	2 km/h (1 mph) or more	—
	Throttle valve opening angle	6.5 % or more at engine speed 2,000 rpm (condition vary with engine speed)	—
	ON malfunction (C)		
	ECM selected gear	4th	
	Vehicle speed	2 km/h (1 mph) or more	—
	Throttle valve opening angle	6.5 % or more at engine speed 2,000 rpm (condition vary with engine speed)	—
	ON malfunction (D)		
	Current ECM selected gear	5th	
	Last ECM selected gear (During 4 to 5 shift)	4th	
	Vehicle speed	—	Less than 100 km/h (62 mph)
	ON malfunction (E)		
	ECM selected gear (After 4 to 5 shift)	5th	
	Vehicle speed	—	Less than 100 km/h (62 mph)

Component T/M Outputs – Solenoid

1MZ-FE (ES300, 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 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 lock-up command	OFF	
	Vehicle speed	–	Less than 60 km/h (37 mph)
	Throttle valve opening angle	13 % or more	–
	OFF 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)	–
	OFF 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)	–
	OFF malfunction (D)		
	ECM selected gear	4th or 5th	
	ON malfunction (A)		
	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)	–

1MZ-FE (ES300, CAMRY '03/01 L/O)	ON malfunction (B)		
	ECM selected gear	3rd	
	Throttle valve opening angle	7.0 % or more at output speed 1,400 rpm (condition vary with output speed)	—
	Malfunction of pressure control so- lenoid "B" & "C"	Not detected	
	ON malfunction (C)		
	Throttle valve opening angle	7.0 % or more at output speed 1,050 rpm (condition vary with output speed)	—
	Malfunction of pressure control so- lenoid "B"	Not detected	
2AZ-FE (CAMRY Supplement)	Condition (A)		
	Engine coolant temperature	60 °C (140 °F) or more	—
	Transmission fluid 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 speed sensor circuit	Not circuit malfunction	
	Pressure control solenoid "A" (SL1) circuit	Not circuit malfunction	
	Pressure control solenoid "B" (SL2) circuit	Not circuit malfunction	
	Shift solenoid "D" (S4) circuit	Not circuit malfunction	
	Electronic throttle system	Not circuit malfunction	
	OFF malfunction		
	ECM selected gear	1st	
	Vehicle speed	10 km/h (6 mph) or more	Less than 40 km/h (25 mph)
	Throttle valve opening angle	3.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)	—
	Throttle valve opening angle	5 % or more	—
	ON malfunction		
	ECM selected gear	3rd or 4th	
	Vehicle speed	10 km/h (6 mph) or more	—
	Throttle valve opening angle	3.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)	—

TYPICAL MALFUNCTION THRESHOLDS

Engine family	Detection criteria	Threshold
2ZZ-GE, 2AZ-FE, 1MZ-FE (CAMRY, RX300, HIGH LANDER)	Following condition met a. or b.	
	It is necessary 2 judgments/driving cycle 1st judgment; temporary flag ON 2nd judgment; pending fault code ON	
	a. = (A) and OFF malfunction	
	Input speed/Intermediate speed (NT/NC)	$0.93 \leq \text{NT/NC} \leq 1.07$
	b. = (A) and ON malfunction	
	Input speed/Intermediate speed (NT/NC)	$1.49 \leq \text{NT/NC} \leq 1.63$
2UZ-FE	ON malfunction	
	Following conditions met ((a. and b.) or c.) and (d. and e.)	
	a. = (A) and ON malfunction (A)	
	Input speed/Output speed (NT/NO)	$3.30 \leq \text{NT/NO} \leq 7.50$
	b. = (A) and ON malfunction (B)	
	Input speed/Output speed (NT/NO)	$1.28 \leq \text{NT/NO} \leq 1.53$
	c. = (A) and ON malfunction (C)	
	Input speed/Output speed (NT/NO)	$0.93 \leq \text{NT/NO} \leq 1.07$
	d. = (A) and ON malfunction (D)	
	Input speed – Output speed x 4th gear ratio (NT – NO x 4th gear ratio)	1,000 rpm or more
1MZ-FE (ES300, CAMRY '03/01 L/O)	e. = (A) & ON malfunction (E)	
	Input speed – Output speed x 4th gear ratio (NT – NO x 4th gear ratio)	1,000 rpm or more
	Following conditions met (a. and b. and c. and d.) or (e. and f. and g.)	
	a. = (A) & OFF malfunction (A)	
	Engine speed – Input speed (NE – NT)	Less than 35 rpm
	b. = (A) & OFF malfunction (B)	
	Input speed/Intermediate speed (NT/NC)	$0.93 \leq \text{NT/NC} \leq 1.07$
	c. = (A) & OFF malfunction (C)	
	Input speed/Intermediate speed (NT/NC)	$0.93 \leq \text{NT/NC} \leq 1.07$
	d. = (A) & ON malfunction (D)	
	Input speed/Intermediate speed (NT/NC)	$0.64 \leq \text{NT/NC} \leq 0.74$
	e. = (A) & ON malfunction (A)	
	Input speed/Intermediate speed (NT/NC)	$2.72 \leq \text{NT/NC} \leq 2.86$
	f. = (A) & ON malfunction (B)	
	Input speed – Intermediate speed (NT – NC)	700 rpm or more
	g. = (A) & ON malfunction (C)	
	Input speed – Intermediate speed (NT – NC)	< 500 rpm or ≥ 700 rpm