

2003 MY for Shift Solenoid "B" Performance (Shift Solenoid Valve S2) Monitor (P0755)

2003 MY for Pressure Control Solenoid "B" Performance (Shift Solenoid Valve SL2) Monitor (P0755)

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MONITOR STRATEGY

Required sensors/Components	Main	Shift solenoid valve No.2
	Sub	None
Frequency of operation	Continuous	
Duration	1ZZ-FE (MATRIX 2WD, CO-ROLLA)	Less than 10 sec.
	1ZZ-FE (MATRIX 4WD)	0.85 sec.
	2ZZ-GE, 2AZ-FE (HIGH LANDER)	0.8 sec.
	1AZ-FE	1 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
Item	Specification	
	Minimum	Maximum
1ZZ-FE (COROLLA, MATRIX 2WD)	Condition (A)	
	Intake air temperature	-10 °C (14 °F) or more Less than 70 °C (158 °F)
	Engine coolant temperature	55 °C (131 °F) or more Less than 105 °C (221 °F)
	Transmission range	"D"
	Shift solenoid "A" (S1) circuit	Not circuit malfunction
	Shift solenoid "B" (S2) circuit	Not circuit malfunction
	Shift solenoid "E" (SL) circuit	Not circuit malfunction
	Battery voltage	10 V or more –
	Spark retard by KCS control	0° CA or more –
	OFF malfunction (A)	
	ECM selected gear	2nd
	Throttle valve opening angle	10 % or more Less than 35 %

Component T/M Outputs – Solenoid

1ZZ-FE (COROLLA, MATRIX 2WD)	OFF malfunction (B)		
	ECM selected gear	2nd	
	Last ECM selected gear	1st	
	Throttle valve opening angle	7 % or more	—
	THlast – THcurrent	–5 % or more	Less than 5 %
	OFF malfunction (C)		
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	2nd	
	Throttle valve opening angle	7 % or more	Less than 60 %
	OFF malfunction (D)		
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	2nd	
	Throttle valve opening angle	7 % or more	Less than 60 %
	OFF malfunction (E)		
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	2nd	
	Throttle valve opening angle	7 % or more	Less than 60 %
	OFF malfunction (F)		
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	3rd	
	Throttle valve opening angle	5 % or more	Less than 60 %
	OFF malfunction (G)		
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	3rd	
	Throttle valve opening angle	5 % or more	Less than 60 %
	OFF malfunction (H)		
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	4th	
	Throttle valve opening angle	5 % or more	Less than 60 %
	OFF malfunction (I)		
	Engine idling	ON	
	Braking	ON	
	ECM selected gear	2nd	
	Throttle valve opening angle	< 5 % or ≥ 65 %	
	THcurrent – TH2ndstep	10 % or more	Less than –10 %
	Closing change of throttle valve opening angle	10 % or more	Less than –10 %

1ZZ-FE (COROLLA, MATRIX 2WD)	OFF malfunction (J)	
	Engine idling	ON
	Braking	ON
	ECM selected gear	3rd
	Throttle valve opening angle	< 3 % or $\geq$ 65 %
	THcurrent – TH2ndstep	10 % or more Less than –10 %
	Closing change of throttle valve opening angle	10 % or more Less than –10 %
	OFF malfunction (K)	
	Engine idling	ON
	Braking	ON
	ECM selected gear	4th
	Throttle valve opening angle	< 3 % or $\geq$ 65 %
	THcurrent – TH2ndstep	10 % or more Less than –10 %
	Closing charge of throttle valve opening angle	10 % or more Less than –10 %
	ON malfunction (A)	
	ECM selected gear	4th with lock up
	ON malfunction (B)	
	Current ECM selected gear	2nd
	Last ECM selected gear	1st
	Throttle valve opening angle	7 % or more –
	Closing change of throttle valve opening angle	–5 % or more Less than 5 %
	THlast – THcurrent	–5 % or more Less than 5 %
	ON malfunction (C)	
	Engine idling	OFF
	Braking	OFF
	ECM selected gear	2nd
	Throttle valve opening angle	7 % or more Less than 60 %
	ON malfunction (D)	
	Engine idling	OFF
	Braking	OFF
	ECM selected gear	2nd
	Throttle valve opening angle	7 % or more Less than 60 %
	ON malfunction (E)	
	Engine idling	OFF
	Braking	OFF
	ECM selected gear	2nd
	Throttle valve opening angle	7 % or more Less than 60 %
	ON malfunction (F)	
	Engine idling	OFF
	Braking	OFF
	ECM selected gear	3rd
	Throttle valve opening angle	5 % or more Less than 60 %

Component T/M Outputs – Solenoid

1ZZ–FE (COROLLA, MATRIX 2WD)	ON malfunction (G)		
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	4th	
	Throttle valve opening angle	5 % or more	Less than 60 %
	ON malfunction (H)		
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	4th	
	Throttle valve opening angle	5 % or more	Less than 60 %
	ON malfunction (I)		
	Engine idling	ON	
	Braking	ON	
	ECM selected gear	2nd	
	Throttle valve opening angle	< 5 % or ≥ 65 %	
	THcurrent – TH2ndstep	10 % or more	Less than –10 %
	Closing change of throttle valve opening angle	10 % or more	Less than –10 %
	ON malfunction (J)		
	Engine idling	ON	
	Braking	ON	
	ECM selected gear	3rd	
	Throttle valve opening angle	< 3 % or ≥ 65 %	
	THcurrent – TH2ndstep	10 % or more	Less than –10 %
	Closing change of throttle valve opening angle	10 % or more	Less than –10 %
	ON malfunction (K)		
	Engine idling	ON	
	Braking	ON	
	ECM selected gear	4th	
	Throttle valve opening angle	< 3 % or ≥ 65 %	
	THcurrent – TH2ndstep	10 % or more	Less than –10 %
	Closing change of throttle valve opening angle	10 % or more	Less than –10 %
1ZZ–FE (MATRIX 4WD)	Condition (A)		
	Engine coolant temperature	60 °C (140 °F) or more	–
	Transmission range	"D"	
	Shift solenoid "A" (S1) circuit	Not circuit malfunction	
	Shift solenoid "B" (S2) circuit	Not circuit malfunction	
	ECT sensor circuit	Not circuit malfunction	
	Input shaft speed sensor circuit	Not circuit malfunction	
	Output shaft speed sensor circuit	Not circuit malfunction	
	OFF malfunction (A)		
	ECM selected gear	1st	
	Vehicle speed	9 km/h (6 mph) or more	Less than 40 km/h (25 mph)

1ZZ-FE (MATRIX 4WD)	Throttle valve opening angle	4.0 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	OFF malfunction (B)		
	ECM selected gear	3rd	
	Throttle valve opening angle	4.0 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	OFF malfunction (C)		
	ECM selected gear	4th	
	Throttle valve opening angle	4.0 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	ON malfunction (A)		
	ECM selected gear	2nd	
	Throttle valve opening angle	4.0 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	ON malfunction (B)		
	ECM selected gear	3rd	
	Throttle valve opening angle	4.0 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	ON malfunction (C)		
	ECM selected gear	4th	
	Throttle valve opening angle	4.0 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–

Component T/M Outputs – Solenoid

1AZ–FE, 2AZ–FE (HIGH LAND-ER)	Condition (A)		
	Engine coolant temperature	60 °C (140 °F) or more	–
	Transmission range	"D"	
	Transmission fluid temperature	–20 °C (–4 °F) or more	–
	Transmission fluid temperature sensor circuit	Not circuit malfunction	
	ECT sensor circuit	Not circuit malfunction	
	Input shaft speed sensor circuit	Not circuit malfunction	
	Internal counter shaft speed sensor circuit	Not circuit malfunction	
	Output shaft speed sensor circuit	Not circuit malfunction	
	Shift solenoid "A" circuit	Not circuit malfunction	
	Shift solenoid "B" circuit	Not circuit malfunction	
	Shift solenoid "D" 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)	–
2ZZ–GE (MATRIX)	Condition (A)		
	Engine coolant temperature	60 °C (140 °F) or more	–
	Transmission range	"D"	
	Transmission fluid temperature	–20 °C (–4 °F) or more	
	Transmission fluid temperature sensor circuit	Not circuit malfunction	
	ECT sensor circuit	Not circuit malfunction	
	Input shaft speed sensor circuit	Not circuit malfunction	
	Internal counter shaft speed sensor circuit	Not circuit malfunction	
	Output shaft speed sensor circuit	Not circuit malfunction	
	Shift solenoid "A" circuit	Not circuit malfunction	
	Shift solenoid "B" circuit	Not circuit malfunction	
	Shift solenoid "D" circuit	Not circuit malfunction	

2ZZ-FE (MATRIX)	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	5 % 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)	–

TYPICAL MALFUNCTION THRESHOLDS

1ZZ-FE (MATRIX 4WD)	OFF malfunction	
	Following conditions met a. and b. and c.	
	It is necessary 2 judgments/driving cycle 1st judgment; temporary flag ON 2nd judgment; pending fault code ON	
	a. = (A) & OFF malfunction (A)	
	Input speed/Output speed (NT/NO)	$1.50 \leq \text{NT/NO} \leq 1.80$
	b. = (A) & OFF malfunction (B)	
	Input speed/Output speed (NT/NO)	$0.95 \leq \text{NT/NO} \leq 1.09$
	c. = (A) & OFF malfunction (C)	
	Input speed/Output speed (NT/NO)	$0.95 \leq \text{NT/NO} \leq 1.09$
	ON malfunction	
	Following conditions met a. and b. and c.	
	a. = (A) & ON malfunction (A)	
	Input speed/Output speed (NT/NO)	$2.75 \leq \text{NT/NO} \leq 3.35$
	b. = (A) & ON malfunction (B)	
	Input speed/Output speed (NT/NO)	$0.64 \leq \text{NT/NO} \leq 0.78$
	c. = (A) & ON malfunction (C)	
	Input speed/Output speed (NT/NO)	$0.64 \leq \text{NT/NO} \leq 0.78$

Component T/M Outputs – Solenoid

1ZZ-FE (COROLLA, MATRIX 2WD)	OFF malfunction	
	Following condition met I or II	
	I = a. II = b. c. d. e. f. g. h.	
	(I)	
	It is necessary 2 judgments/driving cycle 1st judgment; temporary flag ON 2nd judgment; pending fault code ON	
	a. = (A) & OFF malfunction (A)	
	Engine speed	$\geq$ 1st gear ratio x NO rpm
	(II)	
	There are 2 judgment steps/driving cycle 1st judgment step; when following condition met, temporary flag becomes ON. b. (times) or c. (times) It is necessary 2 judgments/driving cycle 2nd judgment step; when following condition met, pending fault code becomes ON. (c. and f. and h.) or (d. and e. and g. and h.)	
	b. = (A) & OFF malfunction (B)	
	NElanst – NEcurrent	< 512.5 rpm at throttle angle 40 % (condition vary with throttle angle)
	c. = (A) & OFF malfunction (C)	
	Engine speed	$\geq$ 1st gear ratio x NO + 50 rpm
	d. = (A) & OFF malfunction (D)	
	Engine speed	$\geq$ 2nd gear ratio x NO – 50 rpm < 2nd gear ratio x NO + 50 rpm
	e. = (A) & OFF malfunction (E)	
	Engine speed	$\geq$ 3rd gear ratio x NO – 50 rpm < 3rd gear ratio x NO + 50 rpm
	f. = (A) & OFF malfunction (F)	
	Engine speed	$\geq$ 3rd gear ratio x NO – 50 rpm < 3rd gear ratio x NO + 50 rpm
	g. = (A) & OFF malfunction (G)	
	Engine speed	$\geq$ 4th gear ratio x NO – 50 rpm < 4th gear ratio x NO + 50 rpm
	h. = (A) & OFF malfunction (H)	
	Engine speed	$\geq$ 3rd gear ratio x NO – 50 rpm < 3rd gear ratio x NO + 50 rpm
	(A) & OFF malfunction (I) and (J) and (K)	
	When following secondary parameter conditions met, 2nd judgment is stopped.	(See secondary parameters and condition)

1ZZ-FE (COROLLA, MATRIX 2WD)	ON malfunction	
	Following condition met I or II I = a. II = b. c. d. e. f. g. h.	
	(I)	
	a. = (A) & ON malfunction (A)	
	Engine speed	$\geq$ 3rd gear ratio x NO – 50 rpm and < 3rd gear ratio x NO + 50 rpm
	(II)	
	There are 2 judgment steps/driving cycle 1st judgment step; when following condition met, temporary flag becomes ON. b.(times) or c. (times) It is necessary 2 judgments/driving cycle 2nd judgment step; when following condition met, pending fault code becomes ON. (d. and f. and h.) or (c. and e. and f. and g.)	
	b. = (A) & ON malfunction (B)	
	NElast – NEcurrent	< 512.5 rpm at throttle angle 40 % (condition vary with throttle angle)
	c = (A) & ON malfunction (C)	
	Engine speed	$\geq$ 1st gear ratio x NO + 50 rpm
	d. = (A) & ON malfunction (D)	
	Engine speed	$\geq$ 2nd gear ratio x NO – 50 rpm < 2nd gear ratio x NO + 50 rpm
	e. = (A) & ON malfunction (E)	
	Engine speed	$\geq$ 3rd gear ratio x NO – 50 rpm < 3rd gear ratio x NO + 50 rpm
	f. = (A) & ON malfunction (F)	
	Engine speed	$\geq$ 3rd gear ratio x NO – 50 rpm < 3rd gear ratio x NO + 50 rpm
	g. = (A) & ON malfunction (G)	
	Engine speed	$\geq$ 4th gear ratio x NO – 50 rpm < 4th gear ratio x NO + 50 rpm
	h. = (A) & ON malfunction (H)	
	Engine speed	$\geq$ 3rd gear ratio x NO – 50 rpm < 3rd gear ratio x NO + 50 rpm
	(A) & ON malfunction (I) and (J) and (K)	
	When following secondary parameter conditions met, 2nd judgment is stopped.	(See secondary parameters and condition)
2ZZ-GE, 2AZ-FE (HIGH LANDER), 1AZ-FE	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)	$1.49 \leq \text{NT/NC} \leq 1.63$