

1998 MY for Torque Converter Clutch Solenoid Performance (Shift Solenoid Valve SL) Monitor (P0770)

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MONITOR STRATEGY

Required sensors/Components	Main	Shift solenoid valve SL (DSL)
	Sub	None
Frequency of operation	Continuous	
Duration	Less than 10 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
5S-FE (CAMRY), 1MZ-FE, 2JZ-GE, 2JZ-GTE, 1UZ-FE, 3S-FE, 3RZ-FE (Except Prerunner), 5VZ-FE (Except Prerunner), 5E-FE (PASEO), 1ZZ-FE	Function check transmission range	"D"	
5S-FE (CELICA)	OFF malfunction		
	Transmission range	"D"	
	Engine coolant temperature	60 °C (140 °F)	105 °C (221 °F)
	Spark retard by KCS control	—	Less than 10° CA
	Intake air temperature	-10 °C (14 °F)	70 °C (158 °F)
	ECM selected gear	4th with lock up	
	ON malfunction		
	Transmission range	"D"	
	Engine coolant temperature	60 °C (140 °F)	105 °C (221 °F)
	Spark retard by KCS control	—	Less than 10° CA
	Intake air temperature	-10 °C (14 °F)	70 °C (158 °F)
	ECM selected gear	4th	
	Throttle valve opening angle	7 % or more	—

3RZ-FE (Prerunner)	OFF malfunction		
	Transmission range	"D"	
	Engine coolant temperature	55 °C (131 °F)	105 °C (221 °F)
	Spark retard by KCS control	—	Less than 10° CA
	Transmission fluid temperature	—	Less than 130 °C (266 °F) (hysteresis 110 °C (230 °F))
	Battery voltage	10 V or more	—
	Intake air temperature	−10 °C (14 °F)	90 °C (194 °F)
	ECM selected gear	4th with lock up	
	ON malfunction		
	Transmission range	"D"	
	Engine coolant temperature	55 °C (131 °F)	105 °C (221 °F)
	Spark retard by KCS control	—	Less than 10° CA
	Transmission fluid temperature	—	Less than 130 °C (266 °F) (hysteresis 110 °C (230 °F))
	Battery voltage	10 V or more	—
	Intake air temperature	−10 °C (14 °F)	90 °C (194 °F)
	ECM selected gear	4th	
	Throttle valve opening angle	12 % or more	—
5VZ-FE (Prerunner)	OFF malfunction		
	Transmission range	"D"	
	Engine coolant temperature	60 °C (140 °F)	105 °C (221 °F)
	Spark retard by KCS control	—	Less than 8° CA
	Transmission fluid temperature	—	Less than 130 °C (266 °F) (hysteresis 110 °C (230 °F))
	Battery voltage	10 V or more	—
	Intake air temperature	−10 °C (14 °F)	70 °C (158 °F)
	ECM selected gear	4th with lock up	
	ON malfunction		
	Transmission range	"D"	
	Engine coolant temperature	60 °C (140 °F)	105 °C (221 °F)
	Spark retard by KCS control	—	Less than 8° CA
	Transmission fluid temperature	—	Less than 130 °C (266 °F) (hysteresis 110 °C (230 °F))
	Battery voltage	10 V or more	—
	Intake air temperature	−10 °C (14 °F)	70 °C (158 °F)
	ECM selected gear	4th	
	Throttle valve opening angle	7 % or more	—

Component T/M Outputs – Solenoid

1UZ-FE	OFF malfunction		
	Transmission range	"D"	
	Engine coolant	40 °C (104 °F) or more	–
	Transmission fluid temperature	–	Less than 130 °C (266 °F) (hysteresis 110 °C (230 °F))
	Transfer range	Hi	
	ECM lock-up command	ON	
	Actual gear	4th	
	Actual gear at 2nd gear selected	Except 1st	
	Vehicle speed	–	Less than 100 km/h (62 mph)
	Intake air temperature	–10 °C (14 °F)	90 °C (194 °F)
	ON malfunction		
	Transmission range	"D"	
	Engine coolant	40 °C (104 °F) or more	–
	Transmission fluid temperature	–	Less than 130 °C (266 °F) (hysteresis 110 °C (230 °F))
	Transfer range	Hi	
	ECM lock-up command	OFF	
	Actual gear	3rd	
	Throttle valve opening angle	10 % or more	–
	Vehicle speed	60 km/h (37 mph) or more	Less than 100 km/h (62 mph)
	Intake air temperature	–10 °C (14 °F)	90 °C (194 °F)
	Throttle valve opening angle (current)	–	20 % or less

TYPICAL MALFUNCTION THRESHOLDS

Engine family	Detection criteria	Threshold
5E-FE (PASEO), 1ZZ-FE, 5S-FE (CAMRY), 1MZ-FE, 2JZ-GE, 2JZ-GTE, 1UZ-FE, 3S-FE, 3RZ-FE (Except Pre-runner), 5VZ-FE (Except Prerunner)	Functional check	
	ECM command vs actual operating gear	Don't match
5S-FE (CELICA), 5VZ-FE (Prerunner), 3RZ-FE (Prerunner)	(A) & OFF malfunction	
	Engine speed	$\geq$ 4th gear ratio x output speed + 100 rpm < 3rd gear ratio x output speed – 100 rpm
	Number of detections	1 time/trip
	(A) & ON malfunction	
	Engine speed	$\geq$ 4th gear ratio x output speed – 50 rpm < 3rd gear ratio x output speed + 50 rpm
	Number of detections	2 times/trip
1UZ-FE	(A) & OFF malfunction	
	Engine speed – Output speed x 4th gear ratio	70 rpm or more
	Number of detections	1 time/trip
	(A) & ON malfunction	
	Engine speed – Input speed	Less than 350 rpm
	Number of detections	1 time/trip