

2000 MY for Pressure Control Solenoid "A" Performance (Shift Solenoid Valve SL1) Monitor (P0750)

2000 MY for Shift Solenoid "A" Performance (Shift Solenoid Valve S1) Monitor (P0750)

To return to monitor description, see page [Cm-2](#).

MONITOR STRATEGY

Required sensors/Components	Main	Shift solenoid valve No.1
	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
3RZ-FE	OFF malfunction		
	Intake air temperature	–10 °C (14 °F) or more	Less than 90 °C (194 °F)
	Engine coolant temperature	55 °C (131 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Battery voltage	10 V or more	–
	Spark retard by KCS control	–	Less than 10° CA
	Transfer range "Hi" [4WD]		
	Throttle valve opening angle	0 % or more	–
	Vehicle speed	5 km/h (3 mph) or more	–
	ECM selected gear	1st	
	Throttle valve opening angle	80 % or more	–
	ON malfunction		
	Intake air temperature	–10 °C (14 °F) or more	Less than 90 °C (194 °F)
	Engine coolant temperature	55 °C (131 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Battery voltage	10 V or more	–
	Spark retard by KCS control	–	Less than 10° CA
	Transfer range "Hi" [4WD]		
	Throttle valve opening angle	0 % or more	–
	Vehicle speed	5 km/h (3 mph) or more	–
	ECM selected gear	4th	
	Throttle valve opening angle	15 % or more	Less than 45 %

Component T/M Outputs – Solenoid

5VZ-FE	OFF malfunction		
	Intake air temperature	-10 °C (14 °F) or more	Less than 70 °C (158 °F)
	Engine coolant temperature	-60 °C (140 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Battery voltage	10 V or more	–
	Spark retard by KCS control	–	Less than 8° CA
	Transfer range "Hi" [4WD]		
	Throttle valve opening angle	0 % or more	–
	Vehicle speed	5 km/h (3 mph) or more	–
	ECM selected gear	1st	
	Throttle valve opening angle	50 % or more	–
	ON malfunction		
	Intake air temperature	-10 °C (14 °F) or more	Less than 70 °C (158 °F)
	Engine coolant temperature	60 °C (140 °F) or more	Less than 105 °C (221 °F)
	ECM selected gear	"D"	
	Battery voltage	10 V or more	–
	Spark retard by KCS control	–	Less than 8° CA
	Transfer range "Hi" [4WD]		
	Throttle valve opening angle	0 % or more	–
	Vehicle speed	5 km/h (3 mph) or more	–
	ECM selected gear	4th	
	Throttle valve opening angle	17 % or more	Less than 40 % [4WD] Less than 38 % [2WD]
1MZ-FE (AVALON, ES300, CAMRY, CAMRY SOLARA)	OFF malfunction (A)		
	Engine coolant temperature	60 °C (140 °F) or more	–
	Transmission range	"D"	
	ECM selected gear	1st	
	Vehicle speed	40 km/h (25 mph) or more	–
	Throttle valve opening angle	15 % or more and 10.5 % or more at engine speed 3,000 rpm (condition vary with engine speed)	–
	OFF malfunction (B)		
	Engine coolant temperature	60 °C (140 °F) or more	–
	Transmission range	"D"	
	Current ECM selected gear	4th	
	Last ECM selected gear	3rd	

1MZ-FE (AVALON, ES300, CAMRY, CAMRY SOLARA)	ON malfunction (A)		
	Engine coolant temperature	60 °C (140 °F) or more	—
	Transmission range	"D"	
	Time after shifting "N" to "D"	4.5 sec. or more	—
	Current ECM selected gear	4th	
	Last ECM selected gear	3rd	
	Vehicle speed	40 km/h (25 mph) or more	—
	Throttle valve opening angle	10.5 % or more at engine speed 3,000 rpm (condition vary with engine speed)	—
	ON malfunction (B)		
	Engine coolant temperature	60 °C (140 °F) or more	—
	Transmission range	"D"	
	Current ECM selected gear	4th	
	ON malfunction (C)		
	Engine coolant temperature	60 °C (140 °F) or more	—
	Transmission range	"D"	
	Vlast – Vcurrent	15 km/h (9 mph) or more	—
	THlast – THcurrent	20 % or more	—
	Vehicle speed	85 km/h (53 mph) or more	—
5S-FE	OFF malfunction		
	Intake air temperature	–10 °C (14 °F) or more	Less than 70 °C (158 °F)
	Engine coolant temperature	60 °C (140 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Battery voltage	10 V or more	—
	Spark retard by KCS control	—	Less than 10° CA
	ECM selected gear	1st	
	Throttle valve opening angle	35 % or more	—
	ON malfunction		
	Intake air temperature	–10 °C (14 °F) or more	Less than 70 °C (158 °F)
	Engine coolant temperature	60 °C (140 °F)	105 °C (221 °F)
	Transmission range	"D"	
	Battery voltage	10 V or more	—
	Spark retard by KCS control	—	Less than 10° CA
	ECM selected gear	4th	
	Throttle valve opening angle	13 % or more	Less than 30 %
	Time after gear shifting	0.6 sec. or more	—
	Throttle valve opening angle	13 %	38 %

Component T/M Outputs – Solenoid

2ZZ-GE	Rationality check (A)		
	Engine coolant temperature	60 °C (140 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Transmission fluid temperature	-20 °C (-4 °F) or more	Less than 105 °C (221 °F)
	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)	–
	Rationality check (B)		
	Engine coolant temperature	60 °C (140 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Transmission fluid temperature	-20 °C (-4 °F) or more	Less than 105 °C (221 °F)
	ECM selected gear	2nd	
	Vehicle speed	10 km/h (6 mph)	–
	Throttle valve opening angle	4.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	Rationality check (C)		
	Engine coolant temperature	60 °C (140 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Transmission fluid temperature	-20 °C (-4 °F) or more	Less than 105 °C (221 °F)
	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)	–
	Rationality check (D)		
	Engine coolant temperature	60 °C (140 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Transmission fluid temperature	-20 °C (-4 °F) or more	Less than 105 °C (221 °F)
	ECM look-up command	OFF	
	ECM selected gear	3rd or 4th	
	Actual gear	3rd or 4th	

1ZZ-FE (CELICA)	OFF malfunction (A)		
	Engine coolant temperature	60 °C (140 °F) or more	–
	Transmission range	"D"	
	ECM selected gear	1st	
	Vehicle speed	9 km/h (6 mph) or more	Less than 40 km/h (25 mph)
	Throttle valve opening angle	15 % or more and 7.0 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	OFF malfunction (B)		
	Engine coolant temperature	60 °C (140 °F) or more	–
	Transmission range	"D"	
	Current ECM selected gear	4th	
	Last ECM selected gear	3rd	
	Throttle valve opening angle	7.0 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	ON malfunction (A)		
	Engine coolant temperature	60 °C (140 °F) or more	–
	Transmission range	"D"	
	Current ECM selected gear	4th	
	Last ECM selected gear	3rd	
	Throttle valve opening angle	7.0 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	ON malfunction (B)		
	Engine coolant temperature	60 °C (140 °F) or more	–
	Transmission range	"D"	
	ECM selected gear	4th	
	Throttle valve opening angle	7.0 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	ON malfunction (C)		
	Engine coolant temperature	60 °C (140 °F) or more	–
	Transmission range	"D"	
	Vlast – Vcurrent	15 km/h (9 mph) or more	–
	THlast – THcurrent	20 % or more	–
	Vehicle speed	85 km/h (53 mph) or more	–

Component T/M Outputs – Solenoid

1ZZ-FE (COROLLA)	OFF malfunction		
	Intake air amount per revolution	-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"	
	Battery voltage	10 V or more	–
	Spark retard by KCS control	9° CA or more	–
	ECM selected gear	1st	
	Throttle valve opening angle	30 % or more	–
	ON malfunction		
	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"	
	Battery voltage	10 V or more	–
	Spark retard by KCS control	9° CA or more	–
	ECM selected gear	4th	
	Throttle valve opening angle	12 % or more	35 % or more
1NZ-FE	OFF malfunction (A)		
	Engine coolant temperature	60 °C (140 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	ECM selected gear	1st	
	Vehicle speed	9 km/h (6 mph) or more	Less than 40 km/h (25 mph)
	Throttle valve opening angle	25 % or more and 7.0 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	OFF malfunction (B)		
	Engine coolant temperature	60 °C (140 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Current ECM selected gear	4th	
	Last ECM selected gear	3rd	
	Throttle valve opening angle	7.0 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	ON malfunction (A)		
	Engine coolant temperature	60 °C (140 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Current ECM selected gear	4th	
	Last ECM selected gear	3rd	
	Throttle valve opening angle	7.0 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–

1NZ-FE	ON malfunction (B)		
	Engine coolant temperature	60 °C (140 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	ECM selected gear	4th	
	Throttle valve opening angle	7.0 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	ON malfunction (C)		
	Engine coolant temperature	60 °C (140 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Vlast – Vcurrent	15 km/h (9 mph) or more	–
	THlast – THcurrent	30 % or more	–
	Vehicle speed	85 km/h (53 mph) or more	–
	Throttle valve opening angle (current)	45 % or more	–
2JZ-GE (GS300)	OFF malfunction (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	–
	ECM selected gear	1st	
	Duration time from shifting	2 sec. or more	–
	Vehicle speed	2 km/h (1 mph) or more	Less than 40 km/h (25 mph)
	Throttle valve opening angle	8 % or more and 6.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	OFF malfunction (B)		
	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	–
	Current ECM selected gear	5th	
	Last ECM selected gear	4th	
	Vehicle speed	2 km/h (1 mph) or more	–
	Throttle valve opening angle	6.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	OFF malfunction (C)		
	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	–
	Current ECM selected gear	5th	
	Last ECM selected gear	4th	

Component T/M Outputs – Solenoid

2JZ-GE (GS300)	ON malfunction (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	–
	ECM selected gear	1st	
	Vehicle speed	2 km/h (1 mph) or more	Less than 40km/h (25 mph)
	Throttle valve opening angle	8 % or more and 6.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	ON malfunction (B)		
	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	–
	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)	–
1UZ-FE	OFF malfunction (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	–
	ECM selected gear	1st	
	Vehicle speed	2 km/h (1 mph) or more	Less than 40 km/h (25 mph)
	Throttle valve opening angle	8 % or more and 6.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	OFF malfunction (B)		
	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	–
	Current ECM selected gear	5th	
	Last 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)	–

1UZ-FE	OFF malfunction (C)		
	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	—
	Current ECM selected gear	5th	
	Last ECM selected gear	4th	
	ON malfunction (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	—
	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 1,900 rpm (condition vary with engine speed)	—
	ON malfunction (B)		
	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	—
	ECM selected gear	4th	
	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)	—
2UZ-FE (LX470, LAND CRUISER)	OFF malfunction (A)		
	Engine coolant temperature	40 °C (104 °F) or more	—
	Transmission range	"D"	
	Transfer range "Hi" [4WD]		
	Throttle valve opening angle	0 % or more	—
	Vehicle speed	5 km/h (3 mph) or more	—
	ECM selected gear	1st	
	Duration time (3 km/h (2 mph) or more)	—	Less than 3.5 sec.
	Vehicle speed	3 km/h (2 mph) or more	Less than 40 km/h (25 mph)
	Throttle valve opening angle	15 % or more and 6.5 % or more at engine speed 2,000 rpm (condition vary with engine speed)	—
	OFF malfunction (B)		
	Engine coolant temperature	40 °C (104 °F) or more	—
	Transmission range	"D"	

Component T/M Outputs – Solenoid

2UZ-FE (LX470, LAND CRUISER)	Transfer range "Hi" [4WD]	
	Throttle valve opening angle	0 % or more
	Vehicle speed	5 km/h (3 mph) or more
	Current ECM selected gear	4th
	Last ECM selected gear	3rd
	Vehicle speed	3 km/h (2 mph) or more
	Throttle valve opening angle	6.5 % or more at engine speed 2,000 rpm (condition vary with engine speed)
	ON malfunction (A)	
	Engine coolant temperature	40 °C (104 °F) or more
	Transmission range	"D"
	Transfer range "Hi" [4WD]	
	Throttle valve opening angle	0 % or more
	Vehicle speed	5 km/h (3 mph) or more
	Current ECM selected gear	4th
	Last ECM selected gear	3rd
	Vehicle speed	3 km/h (2 mph) or more
	Throttle valve opening angle	6.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)
	ON malfunction (B)	
	Engine coolant temperature	40 °C (104 °F) or more
	Transmission range	"D"
	Transfer range "Hi" [4WD]	
	Throttle valve opening angle	0 % or more
	Vehicle speed	5 km/h (3 mph) or more
	ECM selected gear	4th
	Vlast – Vcurrent	10 km/h (6 mph) or less
	THlast – THcurrent	10 % or less
	Vehicle speed	85 km/h (53 mph) or more
	Throttle valve opening angle (current)	20 % or more
3S-FE (2WD)	OFF malfunction	
	Intake air temperature	–10 °C (14 °F) or more
	Engine coolant temperature	60 °C (140 °F) or more
	Transmission range	"D"
	Battery voltage	10 V or more
	Spark retard by KCS control	10° CA or more
	ECM selected gear	1st
	Throttle valve opening angle	35 % or more

3S-FE (2WD)	ON malfunction		
	Intake air temperature	-10 °C (14 °F) or more	Less than 70 °C (158 °F)
	Engine coolant temperature	60 °C (140 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Battery voltage	10 V or more	–
	Spark retard by KCS control	10° CA or more	–
	ECM selected gear	4th	
	Throttle valve opening angle	7 % or more	–
	Time after gear-shifting	2 sec. or more	–
3S-FE (4WD)	OFF malfunction		
	Intake air temperature	-10 °C (14 °F) or more	Less than 70 °C (158 °F)
	Engine coolant temperature	60 °C (140 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Battery voltage	10 V or more	–
	Spark retard by KCS control	10° CA or more	–
	ECM selected gear	1st	
	Throttle valve opening angle	35 % or more	–
	ON malfunction		
	Intake air temperature	-10 °C (14 °F) or more	Less than 70 °C (158 °F)
	Engine coolant temperature	60 °C (140 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Battery voltage	10 V or more	–
	Spark retard by KCS control	10° CA or more	–
	ECM selected gear	4th	
	Throttle valve opening angle	15 % or more	Less than 38 %
1MZ-FE (RX300)	Rationality check (A)		
	Engine coolant temperature	60 °C (140 °F) or more	–
	Transmission range	"D"	
	Transmission fluid temperature	-20 °C (-4 °F) or more	–
	ECM selected gear	1st	
	Vehicle speed	10 km/h (6 mph)	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)	–
	Rationality check (B)		
	Engine coolant temperature	60 °C (140 °F) or more	–
	Transmission range	"D"	
	Transmission fluid temperature	-20 °C (-4 °F) or more	–
	ECM selected gear	2nd	
	Vehicle speed	10 km/h (6 mph)	–
	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 (RX300)	Rationality check (C)		
	Engine coolant temperature	60 °C (140 °F) or more	–
	Transmission range	"D"	
	Transmission fluid temperature	–20 °C (–4 °F) or more	–
	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)	–
	Rationality check (D)		
	Engine coolant temperature	60 °C (140 °F) or more	–
	Transmission range	"D"	
	Transmission fluid temperature	–20 °C (–4 °F) or more	–
	ECM look–up command	OFF	
	ECM selected gear	3rd or 4th	
	Actual gear	3rd or 4th	
2JZ–GE (SC300)	OFF malfunction (A)		
	Engine coolant temperature	40 °C (104 °F) or more	–
	Transmission range	"D"	
	Spark advance from Max. retard timing by KCS control	10° CA or more	–
	ECM selected gear	1st	
	Vehicle speed	10 km/h (6 mph) or more	–
	Throttle valve opening angle	15 % or more and 6.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	OFF malfunction (B)		
	Engine coolant temperature	40 °C (104 °F) or more	–
	Transmission range	"D"	
	Spark advance from Max. retard timing by KCS control	10° CA or more	–
	Current ECM selected gear	4th	
	Last ECM selected gear	3rd	
	Vehicle speed	10 km/h (6 mph) or more	–
	Throttle valve opening angle	6.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–

2JZ-GE (SC300)	ON malfunction (A)		
	Engine coolant temperature	40 °C (104 °F) or more	–
	Transmission range	"D"	
	Spark advance from Max. retard timing by KCS control	10° CA or more	–
	Current ECM selected gear	4th	
	Last ECM selected gear	3rd	
	Vehicle speed	10 km/h (6 mph) or more	–
	Throttle valve opening angle	6.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	ON malfunction (B)		
	Engine coolant temperature	40 °C (104 °F) or more	–
	Transmission range	"D"	
	Spark advance from Max. retard timing by KCS control	10° CA or more	–
	ECM selected gear	4th	
	Vlast – Vcurrent	–	Less than 10 km/h (6 mph)
	THlast – THcurrent	–	Less than 10 %
	Vehicle speed	–	Less than 85 km/h (53 mph)
	Throttle valve opening angle (current)	–	Less than 20 %
1MZ-FE (SIENNA)	OFF malfunction		
	Intake air temperature	–10 °C (14 °F) or more	Less than 70 °C (158 °F)
	Engine coolant temperature	60 °C (140 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Battery voltage	10 V or more	–
	Spark retard by KCS control	10° CA or more	–
	ECM selected gear	1st	
	Throttle valve opening angle	25 % or more	–
	ON malfunction		
	Intake air temperature	–10 °C (14 °F) or more	Less than 70 °C (158 °F)
	Engine coolant temperature	60 °C (140 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Battery voltage	10 V or more	–
	Spark retard by KCS control	10° CA or more	–
	ECM selected gear	4th	
	Throttle valve opening angle	13 % or more	Less than 30 %
2UZ-FE (TUNDRA)	OFF malfunction (A)		
	Engine coolant temperature	40 °C (104 °F) or more	–
	Transmission range	"D"	

Component T/M Outputs – Solenoid

2UZ-FE (TUNDRA)	Transfer range "Hi" [4WD]		
	Throttle valve opening angle	0 % or more	—
	Vehicle speed	5 km/h (3 mph) or more	—
	ECM selected gear	1st	
	Vehicle speed	3 km/h (2 mph) or more	Less than 40 km/h (25 mph)
	Throttle valve opening angle	15 % or more and 6.5 % or more at engine speed 2,000 rpm (condition vary with engine speed)	—
	OFF malfunction (B)		
	Engine coolant temperature	40 °C (104 °F) or more	—
	Transmission range	"D"	
	Transfer range "Hi" [4WD]		
	Throttle valve opening angle	0 % or more	—
	Vehicle speed	5 km/h (3 mph) or more	—
	Current ECM selected gear	4th	
	Last ECM selected gear	3rd	
	Vehicle speed	3 km/h (2 mph) or more	—
	Throttle valve opening angle	6.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)	—
	ON malfunction (A)		
	Engine coolant temperature	40 °C (104 °F) or more	—
	Transmission range	"D"	
	Transfer range "Hi" [4WD]		
	Throttle valve opening angle	0 % or more	—
	Vehicle speed	5 km/h (3 mph) or more	—
	Current ECM selected gear	4th	
	Last ECM selected gear	3rd	
	Vehicle speed	3 km/h (2 mph) or more	—
	Throttle valve opening angle	6.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)	—
	ON malfunction (B)		
	Engine coolant temperature	40 °C (104 °F) or more	—
	Transmission range	"D"	
	Transfer range "Hi" [4WD]		
	Throttle valve opening angle	0 % or more	—
	Vehicle speed	5 km/h (3 mph) or more	—
	ECM selected gear	4th	
	Vlast – Vcurrent	10 km/h (6 mph) or more	—
	THlast – THcurrent	10 % or more	—
	Vehicle speed	85 km/h (53 mph) or more	—
	Throttle valve opening angle (current)	25 % or more	—

TYPICAL MALFUNCTION THRESHOLDS

Engine family	Detection criteria	Threshold
3RZ-FE	It is necessary 2 judgments/driving cycle 1st judgement; temporary flag ON 2nd judgement; pending fault code ON	
	OFF malfunction	
	Engine speed	$< 0.7 \times \text{NO} + 1,700 \text{ rpm}$
	ON malfunction	
	Engine speed	$\geq 1.3 \times \text{NO} + 1,100$
5VZ-FE	It is necessary 2 judgments/driving cycle 1st judgement; temporary flag ON 2nd judgement; pending fault code ON	
	OFF malfunction	
	Engine speed	$< 0.5 \times \text{NO} + 2,100 \text{ rpm}$
	ON malfunction	
	Engine speed	$\geq 1.1 \times \text{NO} + 1,700 \text{ rpm}$
1MZ-FE (AVALON, ES300, CAMRY, CAMRY SOLARA)	[OFF malfunction]	
	Following conditions met OFF malfunction (A) and OFF malfunction (B)	
	It is necessary 2 judgments/driving cycle 1st judgement; temporary flag ON 2nd judgement; pending fault code ON	
	OFF malfunction (A)	
	Input speed/Output speed (NC2/NO)	$0.63 \leq \text{NC2/NO} \leq 0.77$
	OFF malfunction (B)	
	Input speed/Output speed (NC2/NO)	Changed as follows $0.88 \leq \text{NC2/NO} \leq 1.02$ ↓ $0.63 \leq \text{NC2/NO} \leq 0.77$
	[ON malfunction]	
	Following conditions met On malfunction (A) and ON malfunction (B) and ON malfunction (C)	
	ON malfunction (A)	
	Input speed/Output speed (NC2/NO)	Not changed as follows $0.88 \leq \text{NC2/NO} \leq 1.02$ ↓ $0.63 \leq \text{NC2/NO} \leq 0.77$
	ON malfunction (B)	
	NElast – NEcurrent	1,100 rpm or more
	ON malfunction (C)	
	Engine speed	3,200 rpm or more
5S-FE	It is necessary 2 judgments/driving cycle 1st judgement; temporary flag ON 2nd judgement; pending fault code ON	
	OFF malfunction	
	Engine speed	$< 0.65 \times \text{NO} + 1,900 \text{ rpm}$
	ON malfunction	
	Engine speed	$\geq 1.1 \times \text{NO} + 1,700 \text{ rpm}$

Component T/M Outputs – Solenoid

1MZ-FE (RX300), 2ZZ-GE	Following conditions met Rationality check (A) or (Rationality check (B) and Rationality check (C) and Rationality check (D))	
	It is necessary 2 judgments/driving cycle 1st judgment; temporary flag ON 2nd judgment; pending fault code ON	
	Rationality check (A)	
	Input speed/Output speed (NT/NC)	$1.49 \leq NT/NC \leq 1.63$
	Rationality check (B)	
	Input speed/Output speed (NT/NC)	$2.72 \leq NT/NC \leq 2.86$
	Rationality check (C)	
	Input speed/Output speed (NT/NC)	$0.93 \leq NT/NC \leq 1.07$
	Rationality check (D)	
	Engine speed – Input shaft speed (NE – NT)	250 rpm or more
1ZZ-FE (CELICA), 1NZ-FE	[OFF malfunction]	
	Following conditions met OFF malfunction (A) and OFF malfunction (B)	
	It is necessary 2 judgments/driving cycle 1st judgment; temporary flag ON 2nd judgment; pending fault code ON	
	OFF malfunction (A)	
	Input speed/Output speed (NT/NO)	$0.64 \leq NT/NO \leq 0.78$
	OFF malfunction (B)	
	Input speed/Output speed (NT/NO)	Changed as follows $0.95 \leq NT/NO < 1.09$ (Last) ↓ $0.64 \leq NT/NO < 0.78$ (Current)
	[ON malfunction]	
	Following conditions met ON malfunction (A) and ON malfunction (B) and ON malfunction (C)	
	ON malfunction (A)	
	Input speed/Output speed (NT/NO)	Not changed as follows $0.95 \leq NT/NO < 1.09$ (Last) ↓ $0.64 \leq NT/NO < 0.78$ (Current)
	ON malfunction (B)	
	NElast – NEcurrent	1,100 rpm or more
	ON malfunction (C)	
	Engine speed	3,200 rpm or more
1ZZ-FE (COROLLA)	It is necessary 2 judgments/driving cycle 1st judgment; temporary flag ON 2nd judgment; pending fault code ON	
	OFF malfunction	
	Engine speed	$< 0.7 \times NO + 2,100$ rpm
	ON malfunction	
	Engine speed	$\geq 1.8 \times NO + 1,200$ rpm

1UZ-FE, 2JZ-GE (GS300)	[OFF malfunction]	
	Following conditions met OFF malfunction (A) and OFF malfunction (B) and OFF malfunction (C)	
	It is necessary 2 judgments/driving cycle 1st judgement; temporary flag ON 2nd judgement; pending fault code ON	
	OFF malfunction (A)	
	Input speed/Output speed (NC0/NO)	$0.00 \leq \text{NC0/NO} \leq 0.20$
	OFF malfunction (B)	
	Input speed/Output speed (NC0/NO)	Changed as follows $0.93 \leq \text{NC0/NO} \leq 1.07$ ↓ $0.00 \leq \text{NC0/NO} \leq 0.20$
	OFF malfunction (C)	
	Output record from ECM for 4th → 5th upshifting	Recorded
	[ON malfunction]	
	Following conditions met ON malfunction (A) and ON malfunction (B)	
	ON malfunction (A)	
	Input speed/Output speed (NC0/NO)	$3.14 \leq \text{NC0/NO} \leq 7.34$
2UZ-FE (LX470, LAND CRUISER), 2JZ-GE (SC300)	[OFF malfunction]	
	Following conditions met OFF malfunction (A) and OFF malfunction (B)	
	It is necessary 2 judgments/driving cycle 1st judgement; temporary flag ON 2nd judgement; pending fault code ON	
	OFF malfunction (A)	
	Input speed/Output speed (NC0/NO)	$0.00 \leq \text{NC0/NO} \leq 0.22$
	OFF malfunction (B)	
	Input speed/Output speed (NC0/NO)	Changed as follows $0.93 \leq \text{NC0/NO} \leq 1.07$ (Last) ↓ $0.00 \leq \text{NC0/NO} \leq 0.22$ (Current)
	[ON malfunction]	
	Following conditions met ON malfunction (A) and ON malfunction (B)	
	ON malfunction (A)	
	Input speed/Output speed (NC0/NO)	Not changed as follows $0.93 \leq \text{NC0/NO} \leq 1.07$ (Last) ↓ $0.00 \leq \text{NC0/NO} \leq 0.22$ (Current)
	ON malfunction (B)	
	NElast – NEcurrent	950 rpm or more
	Engine speed	3,200 rpm or more

Component T/M Outputs – Solenoid

3S-FE (2WD)	It is necessary 2 judgments/driving cycle 1st judgement; temporary flag ON 2nd judgement; pending fault code ON	
	OFF malfunction	
	Engine speed	$< 0.7 \times \text{NO} + 1,900 \text{ rpm}$
	ON malfunction	
	Engine speed	$\geq 2 \times \text{NO} + 1,000 \text{ rpm}$
3S-FE (4WD)	It is necessary 2 judgments/driving cycle 1st judgement; temporary flag ON 2nd judgement; pending fault code ON	
	OFF malfunction	
	Engine speed	$< 0.65 \times \text{NO} + 1,800 \text{ rpm}$
	ON malfunction	
	Engine speed	$\geq 1.2 \times \text{NO} + 1,600 \text{ rpm}$
1MZ-FE (SIENNA)	It is necessary 2 judgments/driving cycle 1st judgement; temporary flag ON 2nd judgement; pending fault code ON	
	OFF malfunction	
	Engine speed	$< 0.65 \times \text{NO} + 2,100 \text{ rpm}$
	ON malfunction	
	Engine speed	$\geq 1.1 \times \text{NO} + 1,700 \text{ rpm}$
2UZ-FE (TUNDRA)	[OFF malfunction]	
	Following conditions met OFF malfunction (A) and OFF malfunction (B)	
	It is necessary 2 judgments/driving cycle 1st judgement; temporary flag ON 2nd judgement; pending fault code ON	
	OFF malfunction (A)	
	Input speed/Output speed (NC0/NO)	$0.00 \leq \text{NC0/NO} \leq 0.22$
	OFF malfunction (B)	
	Input speed/Output speed (NC0/NO)	Changed as follows $0.93 \leq \text{NC0/NO} \leq 1.07 \text{ (Last)}$ ↓ $0.00 \leq \text{NC0/NO} \leq 0.22 \text{ (Current)}$
	[ON malfunction]	
	Following conditions met ON malfunction (A) and ON malfunction (B)	
	ON malfunction (A)	
	Input speed/Output speed (NC0/NO)	Not changed as follows $0.93 \leq \text{NC0/NO} \leq 1.07 \text{ (Last)}$ ↓ $0.00 \leq \text{NC0/NO} \leq 0.22 \text{ (Current)}$
	ON malfunction (B)	
	NElast – NEcurrent	500 rpm or more
	Engine speed	3,200 rpm or more