

2001 MY for Pressure Control Solenoid "A" Performance (Shift Solenoid Valve SL1) Monitor (P0750)**2001 MY for Shift Solenoid "A" Performance (Shift Solenoid Valve S1) Monitor (P0750)**

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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
5VZ-FE	OFF malfunction (A)		
	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	–
	OFF malfunction (B)		
	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	–
	Last ECM selected gear	1st	
	Current ECM selected gear	2nd	
	Throttle valve opening angle	10 % or more	Less than 2 %
	Closing change of throttle valve opening angle	–2 % or more	Less than 2 %

5VZ-FE	OFF malfunction (C)		
	Intake air temperature	-10 °C (14 °F) or more	–
	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	–
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	2nd	
	Throttle valve opening angle	7 % or more	Less than 50 %
	OFF malfunction (D)		
	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	–
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	2nd	
	Throttle valve opening angle	7 % or more	Less than 50 %
	OFF malfunction (E)		
	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	–
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	2nd	
	Throttle valve opening angle	7 % or more	Less than 50 %
	OFF malfunction (F)		
	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

Component T/M Outputs – Solenoid

5VZ-FE	Transfer range "Hi" [4WD]	
	Throttle valve opening angle	0 % or more
	Vehicle speed	5 km/h (3 mph) or more
	Engine idling	OFF
	Braking	OFF
	ECM selected gear	2nd
	Throttle valve opening angle	5 % or more
	Transmission output speed	1,200 rpm or more
	Intake air amount per revolution	0.30 g/rev. or more
	OFF malfunction (G)	
	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	-
	Transfer range "Hi" [4WD]	
	Throttle valve opening angle	0 % or more
	Vehicle speed	5 km/h (3 mph) or more
	Engine idling	OFF
	Braking	OFF
	ECM selected gear	3rd
	Throttle valve opening angle	5 % or more
	OFF malfunction (H)	
	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	-
	Transfer range "Hi" [4WD]	
	Throttle valve opening angle	0 % or more
	Vehicle speed	5 km/h (3 mph) or more
	Engine idling	OFF
	Braking	OFF
	ECM selected gear	4th
	Throttle valve opening angle	5 % or more
	OFF malfunction (I)	
	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	-

5VZ-FE	Transfer range "Hi" [4WD]		
	Throttle valve opening angle	0 % or more	—
	Vehicle speed	5 km/h (3 mph) or more	—
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	4th	
	Throttle valve opening angle	5 % or more	Less than 50 %
	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	—	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 [4WD] 17 % or more [2WD]	Less than 40 % [4WD] Less than 38 % [2WD]
1MZ-FE (AVALON, CAMRY, CAMRY SOLARA)	OFF malfunction (A)		
	Engine coolant temperature	60 °C (140 °F) or more	—
	Transmission range	"D"	
	ECM selected gear	1st	
	Vehicle speed	—	Less than 40 km/h (25 mph)
	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	
	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	
	Intake air amount per revolution	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"	
ECM selected gear	4th		

Component T/M Outputs – Solenoid

1MZ-FE (AVALON, CAMRY, CAMRY SOLARA)	ON malfunction (C)		
	Engine coolant temperature	60 °C (140 °F) or more	–
	Transmission range	"D"	
	Vlast – Vcurrent	–	Less than 15 km/h (9 mph)
	THlast – THcurrent	–	Less than 20 %
	Vehicle speed	–	Less than 85 km/h (53 mph)
	Throttle valve opening angle (current)	–	Less than 35 %
5S-FE	OFF malfunction (A)		
	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
	IAT	–10 °C (14 °F) or more	Less than 70 °C (158 °F)
	ECM selected gear	1st	
	Throttle valve opening angle	35 % or more	–
	OFF malfunction (B)		
	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
	IAT	–10 °C (14 °F) or more	Less than 70 °C (158 °F)
	Current ECM selected gear	2nd	
	Last ECM selected gear	1st	
	Throttle valve opening angle	7 % or more	–
	OFF malfunction (C)		
	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
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	2nd	
	Throttle valve opening angle	7 % or more	Less than 60 %
	OFF malfunction (D)		
	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
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	2nd	
	Throttle valve opening angle	7 % or more	Less than 60 %

5S-FE	OFF malfunction (E)		
	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
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	2nd	
	Throttle valve opening angle	7 % or more	Less than 60 %
	OFF malfunction (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
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	3rd	
	Throttle valve opening angle	5 % or more	Less than 60 %
	OFF malfunction (G)		
	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
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	3rd	
	Throttle valve opening angle	5 % or more	Less than 60 %
	OFF malfunction (H)		
	Engine coolant temperature	60 °C (140 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Time after shifting "N" to "D"	2 sec. or more	–
	Battery voltage	10 V or more	–
	Spark retard by KCS control	–	Less than 10° CA
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	4th	
	Throttle valve opening angle	5 % or more	Less than 60 %
	OFF malfunction (I)		
	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
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	3rd	
	Throttle valve opening angle	5 % or more	Less than 60 %

Component T/M Outputs – Solenoid

5S-FE	ON malfunction		
	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
	IAT	–10 °C (14 °F) or more	Less than 70 °C (158 °F)
	ECM selected gear	4th	
	Throttle valve opening angle	13 % or more	Less than 38 %
2ZZ-GE	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) 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	–
	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)	–
	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	

1ZZ-FE (CELICA)	OFF malfunction (A)		
	Engine coolant temperature	60 °C (140 °F) or more	–
	Transmission range	"D"	
	ECM selected gear	1st	
	Vehicle speed	10 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	–	Less than 15 km/h (9 mph)
	THlast – THcurrent	–	Less than 20 %
	Vehicle speed	–	Less than 85 km/h (53 mph)
	Throttle valve opening angle (current)	–	Less than 35 %

Component T/M Outputs – Solenoid

1ZZ-FE (COROLLA)	OFF malfunction (A)		
	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 advance from Max. retard timing by KCS control	0° CA or more	—
	IAT	-10 °C (14 °F) or more	Less than 70 °C (158 °F)
	ECM selected gear	1st	
	Transmission output speed	770 rpm or more	—
	Throttle valve opening angle	30 % or more	—
	OFF malfunction (B)		
	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	0° CA or more	—
	IAT	-10 °C (14 °F) or more	Less than 70 °C (158 °F)
	Current ECM selected gear	2nd	
	Last ECM selected gear	1st	
	Throttle valve opening angle	10 % or more	—
	Closing change of throttle valve opening angle	-5 % or more	Less than 5 %
	OFF malfunction (C)		
	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	0° CA or more	—
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	2nd	
	Throttle valve opening angle	7 % or more	Less than 50 %
	OFF malfunction (D)		
	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	0° CA or more	—
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	2nd	
	Throttle valve opening angle	7 % or more	Less than 50 %
	OFF malfunction (E)		
	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	0° CA or more	—
	Engine idling	OFF	
	Braking	OFF	

1ZZ-FE (COROLLA)	ECM selected gear	2nd	
	Throttle valve opening angle	7 % or more	Less than 50 %
	OFF malfunction (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	0° CA or more	–
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	3rd	
	Throttle valve opening angle	7 % or more	Less than 50 %
	OFF malfunction (G)		
	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	0° CA or more	–
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	3rd	
	Throttle valve opening angle	7 % or more	Less than 50 %
	OFF malfunction (H)		
	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	0° CA or more	–
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	4th	
	Throttle valve opening angle	7 % or more	Less than 50 %
	OFF malfunction (I)		
	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	0° CA or more	–
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	4th	
	Throttle valve opening angle	7 % or more	Less than 50 %
	ON malfunction		
	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	0° CA or more	–
	IAT	–10 °C (14 °F) or more	Less than 70 °C (158 °F)
	ECM selected gear	4th	
	Throttle valve opening angle	12 % or more	Less than 35 %

Component T/M Outputs – Solenoid

1NZ-FE	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 (3 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	–
	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 less
	THlast – THcurrent	–	30 % or less
	Vehicle speed	–	Less than 85 km/h (53 mph)
	Throttle valve opening angle (current)	–	Less than 45 %

1MZ-FE (ES300)	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	3.5 % 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) or more	–
	Throttle valve opening angle	3.5 % 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	–
	Transmission range	"D"	
	Transmission fluid temperature	–20 °C (–4 °F) or more	–
	Throttle valve opening angle	3.5 % 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	

Component T/M Outputs – Solenoid

2JZ-GE	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 and 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"	
	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)	—
	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	—
	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)		
	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)	—

3UZ-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 or more	Less than 40 km/h (25 mph)
	Throttle valve opening angle	8 % 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"	
	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)	—
	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	—
	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)		
	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)	—

Component T/M Outputs – Solenoid

1AZ-FE, 2AZ-FE, 1MZ-FE (RX300, HIGH LANDER)	Rationality check (A)		
	Engine coolant temperature	60 °C (104 °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) 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 (104 °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) or more	–
	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 (104 °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 (104 °F) or more	–
	Transmission range	"D"	
	Transmission fluid temperature	–20 °C (–4 °F) or more	–
	ECM lock-up command	OFF	
	ECM selected gear	3rd or 4th	
	Actual gear	3rd or 4th	

2UZ-FE (SEQUOIA, 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
	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 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 2,000 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 (current)	85 km/h (53 mph) or less
	Throttle valve opening angle (current)	20 % or less

Component T/M Outputs – Solenoid

3RZ-FE	OFF malfunction (A)		
	Engine coolant temperature	55 °C (131 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Spark retard by LCS control	–	Less than 10° CA
	Battery voltage	10 V or more	–
	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	–
	OFF malfunction (B)		
	Engine coolant temperature	55 °C (131 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Spark retard by KCS control	–	Less than 10° CA
	Battery voltage	10 V or more	–
	Transfer range "Hi" [4WD]		
	Throttle valve opening angle	0 % or more	–
	Vehicle speed	5 km/h (3 mph) or more	–
	Current ECM selected gear	2nd	
	Last ECM selected gear	1st	
	Throttle valve opening angle	10 % or more	–
	Closing change of throttle valve opening angle	–2 % or more	Less than 2 %
	OFF malfunction (C)		
	Engine coolant temperature	55 °C (131 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Spark retard by KCS control	–	Less than 10° CA
	Battery voltage	10 V or more	–
	Transfer range "Hi" [4WD]		
	Throttle valve opening angle	0 % or more	–
	Vehicle speed	5 km/h (3 mph) or more	–
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	2nd	
	Throttle valve opening angle	7 % or more	Less than 50 %
	OFF malfunction (D)		
	Engine coolant temperature	55 °C (131 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Spark retard by KCS control	–	Less than 10° CA
	Battery voltage	10 V or more	–

3RZ-FE	Transfer range "Hi" [4WD]		
	Throttle valve opening angle	0 % or more	–
	Vehicle speed	5 km/h (3 mph) or more	–
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	2nd	
	Throttle valve opening angle	7 % or more	Less than 50 %
	OFF malfunction (E)		
	Engine coolant temperature	55 °C (131 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Spark retard by KCS control	–	Less than 10° CA
	Battery voltage	10 V or more	–
	Transfer range "Hi" [4WD]		
	Throttle valve opening angle	0 % or more	–
	Vehicle speed	5 km/h (3 mph) or more	–
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	2nd	
	Throttle valve opening angle	7 % or more	Less than 50 %
	OFF malfunction (F)		
	Engine coolant temperature	55 °C (131 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Spark retard by KCS control	–	Less than 10° CA
	Battery voltage	10 V or more	–
	Transfer range "Hi" [4WD]		
	Throttle valve opening angle	0 % or more	–
	Vehicle speed	5 km/h (3 mph) or more	–
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	3rd	
	Throttle valve opening angle	5 % or more	Less than 50 %
	OFF malfunction (G)		
	Engine coolant temperature	55 °C (131 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Spark retard by KCS control	–	Less than 10° CA
	Battery voltage	10 V or more	–
	Transfer range "Hi" [4WD]		
	Throttle valve opening angle	0 % or more	–
	Vehicle speed	5 km/h (3 mph) or more	–
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	3rd	
	Throttle valve opening angle	5 % or more	Less than 50 %

Component T/M Outputs – Solenoid

3RZ-FE	OFF malfunction (H)		
	Engine coolant temperature	55 °C (131 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Spark retard by LCS control	–	Less than 10° CA
	Battery voltage	10 V or more	–
	Transfer range "Hi" [4WD]		
	Throttle valve opening angle	0 % or more	–
	Vehicle speed	5 km/h (3 mph) or more	–
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	4th	
	Throttle valve opening angle	5 % or more	Less than 50 %
	OFF malfunction (I)		
	Engine coolant temperature	55 °C (131 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Spark retard by KCS control	–	Less than 10° CA
	Battery voltage	10 V or more	–
	Transfer range "Hi" [4WD]		
	Throttle valve opening angle	0 % or more	–
	Vehicle speed	5 km/h (3 mph) or more	–
	Engine idling	OFF	
	Braking	OFF	
	ECM selected gear	4th	
	Throttle valve opening angle	5 % or more	Less than 50 %
	ON malfunction		
	Engine coolant temperature	55 °C (131 °F) or more	Less than 105 °C (221 °F)
	Transmission range	"D"	
	Spark retard by KCS control	–	Less than 10° CA
	Battery voltage	10 V or more	–
	Transfer range "Hi" [4WD]		
	Throttle valve opening angle	0 % or more	–
	Vehicle speed	5 km/h (3 mph) or more	–
	Intake air temperature	–10 °C (14 °F) or more	Less than 90 °C (14 °F)
	ECM selected gear	4th	
	Throttle valve opening angle	15 % or more	Less than 45 %

1MZ–FE (SIENNA)	OFF malfunction (A)		
	Engine coolant temperature	60 °C (140 °F) or more	–
	Transmission range	"D"	
	ECM selected gear	1st	
	Vehicle speed	–	Less than 40 km/h (25 mph)
	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	
	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	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"	
	ECM selected gear (current)	4th	
	ON malfunction (C)		
	Engine coolant temperature	60 °C (140 °F) or more	–
	Transmission range	"D"	
	Vlast – Vcurrent	–	Less than 15 km/h (9 mph)
	THlast – THcurrent	–	Less than 20 %
	Vehicle speed (current)	–	Less than 85 km/h (53 mph)
	Throttle valve opening angle (current)	–	Less than 35 %
2UZ–FE (TUNDRA)	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	
	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)	–

Component T/M Outputs – Solenoid

2UZ-FE (TUNDRA)	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 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 2,000 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 (current)	—	85 km/h (53 mph) or less
	Throttle valve opening angle (current)	—	25 % or less

TYPICAL MALFUNCTION THRESHOLDS

Engine family	Detection criteria	Threshold
5VZ-FE (Prerunner, 4RUNNER)	OFF malfunction	
	There are 2 judgment steps/driving cycle 1st judgment step; when following condition met, temporary flag becomes ON. OFF malfunction (A) (2 times) or OFF malfunction (B) (2 times) 2nd judgment step; when following condition met, pending fault code becomes ON. [OFF malfunction (E) and (not OFF malfunction (G)) and (not OFF malfunction (H))] or [(not OFF malfunction (C)) and (not OFF malfunction (D)) and OFF malfunction (F) and OFF malfunction(I)]	
	OFF malfunction (A)	
	Engine speed (NE)	$< 0.5 \times NO + 2,100 \text{ rpm}$
	OFF malfunction (B)	
	NElast – NEcurrent	$< 300 \text{ rpm}$ at throttle angle 40 % (condition vary with throttle angle)
	OFF malfunction (C)	
	Engine speed	$\geq 1\text{st gear ratio} \times NO + 50 \text{ rpm}$
	OFF malfunction (D)	
	Engine speed	$\geq 2\text{nd gear ratio} \times NO - 50 \text{ rpm}$ $< 2\text{nd gear ratio} \times NO + 50 \text{ rpm}$
	OFF malfunction (E)	
	Engine speed	$\geq 3\text{rd gear ratio} \times NO - 50 \text{ rpm}$ $< 3\text{rd gear ratio} \times NO + 50 \text{ rpm}$
	OFF malfunction (F)	
	Engine speed	$\geq 3\text{rd gear ratio} \times NO - 50 \text{ rpm}$ $< 3\text{rd gear ratio} \times NO + 50 \text{ rpm}$
	OFF malfunction (G)	
	Engine speed	$\geq 4\text{th gear ratio} \times NO - 50 \text{ rpm}$ $< 4\text{th gear ratio} \times NO + 50 \text{ rpm}$
	OFF malfunction (H)	
	Engine speed	$\geq 3\text{rd gear ratio} \times NO - 50 \text{ rpm}$ $< 3\text{rd gear ratio} \times NO + 50 \text{ rpm}$
	OFF malfunction (I)	
	Engine speed	$\geq 4\text{th gear ratio} \times NO - 50 \text{ rpm}$ $< 4\text{th gear ratio} \times NO + 50 \text{ rpm}$
	ON malfunction	
	Engine speed	$\geq 1.1 \times NO + 1,700 \text{ rpm}$
1MZ-FE (SIENNA, AVALON)	[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)	$0.63 \leq NC2/NO \leq 0.77$
	OFF malfunction (B)	
	Input speed/Output speed (NC2/NO)	Changed as follows $0.88 \leq NC2/NO \leq 1.02$ (Last) ↓ $0.63 \leq NC2/NO \leq 0.77$ (Current)

Component T/M Outputs – Solenoid

1MZ-FE (SIENNA, AVALON)	[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 $0.88 \leq NC2/NO \leq 1.02$ (Last) ↓ $0.63 \leq NC2/NO \leq 0.77$ (Current)
	ON malfunction (B)	
	NElast – NEcurrent	1,100 rpm or more
	ON malfunction (C)	
	Engine speed	3,200 rpm or more
5S-FE	[OFF malfunction]	
	There are 2 judgment steps/driving cycle 1st judgment step; when following condition met, temporary flag becomes ON. OFF malfunction (A) or OFF malfunction (B) It is necessary 2 judgments/driving cycle 2nd judgment step; when following condition met, pending fault code becomes ON. [(OFF malfunction (E) and (not OFF malfunction (G)) and (not OFF malfunction (H))) or [(not OFF malfunction (C)) and (not OFF malfunction (D)) and OFF malfunction (F) and OFF malfunction(I)]]	
	OFF malfunction (A)	
	Engine speed (NE)	$< 0.65 \times NO + 1,900$ rpm
	OFF malfunction (B)	
	NElast – NEcurrent	< 475 rpm at throttle angle 30 % (condition vary with throttle angle)
	OFF malfunction (C)	
	Engine speed	$\geq 1st \text{ gear ratio} \times NO + 50$ rpm
	OFF malfunction (D)	
	Engine speed	$\geq 2nd \text{ gear ratio} \times NO - 50$ rpm $< 2nd \text{ gear ratio} \times NO + 50$ rpm
	OFF malfunction (E)	
	Engine speed	$\geq 3rd \text{ gear ratio} \times NO - 50$ rpm $< 3rd \text{ gear ratio} \times NO + 50$ rpm
	OFF malfunction (F)	
	Engine speed	$\geq 3rd \text{ gear ratio} \times NO - 50$ rpm $< 3rd \text{ gear ratio} \times NO + 50$ rpm
	OFF malfunction (G)	
	Engine speed	$\geq 4th \text{ gear ratio} \times NO - 50$ rpm $< 4th \text{ gear ratio} \times NO + 50$ rpm
	OFF malfunction (H)	
	Engine speed	$\geq 3rd \text{ gear ratio} \times NO - 50$ rpm $< 3rd \text{ gear ratio} \times NO + 50$ rpm
	OFF malfunction (I)	
	Engine speed	$\geq 4th \text{ gear ratio} \times NO - 50$ rpm $< 4th \text{ gear ratio} \times NO + 50$ rpm
	ON malfunction	
	Engine speed	$\geq 1.1 \times NO + 1,700$ rpm

1MZ-FE (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
1MZ-FE (RX300), 2ZZ-GE, 1AZ-FE	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)	$1.49 \leq \text{NT/NC} < 1.63$
	Rationality check (B)	
	Input speed/Output speed (NT/NC)	$2.72 \leq \text{NT/NC} < 2.86$
	Rationality check (C)	
	Input speed/Output speed (NT/NC)	$0.93 \leq \text{NT/NC} < 1.07$
	Rationality check (D)	
	Engine speed/Input shaft speed (NE/NT)	250 rpm or more

Component T/M Outputs – Solenoid

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 judgement; temporary flag ON 2nd judgement; pending fault code ON	
	OFF malfunction (A)	
	Input speed/Output speed (NT/NO)	$0.64 \leq \text{NT/NO} < 0.78$
	OFF malfunction (B)	
	Input speed/Output speed (NT/NO)	Changed as follows $0.95 \leq \text{NT/NO} < 1.09$ (Last) ↓ $0.64 \leq \text{NT/NO} < 0.78$ (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 $0.95 \leq \text{NT/NO} < 1.09$ (Last) ↓ $0.64 \leq \text{NT/NO} < 0.78$ (Current)
	ON malfunction (B)	
1ZZ-FE (COROLLA)	NElast – NEcurrent	1,100 rpm or more
	ON malfunction (C)	
	Engine speed	3,200 rpm or more
	[OFF malfunction]	
	There are 2 judgment steps/driving cycle 1st judgment step; when following condition met, temporary flag becomes ON. OFF malfunction (A) or OFF malfunction (B) It is necessary 2 judgments/driving cycle 2nd judgment step; when following condition met, pending fault code becomes ON. [OFF malfunction (E) and (not OFF malfunction (G)) and (not OFF malfunction (H))] or [(not OFF malfunction (C)) and (not OFF malfunction (D)) and OFF malfunction (F) and OFF malfunction(I)]	
	OFF malfunction (A)	
	Engine speed (NE)	$< 0.7 \times \text{NO} + 2,100 \text{ rpm}$
	OFF malfunction (B)	
	NElast – NEcurrent	$< 512.5 \text{ rpm}$ at throttle angle 40 % (condition vary with throttle angle)
	OFF malfunction (C)	
	Engine speed	$\geq 1\text{st gear ratio} \times \text{NO} + 50 \text{ rpm}$
	OFF malfunction (D)	
	Engine speed	$\geq 2\text{nd gear ratio} \times \text{NO} - 50 \text{ rpm}$ $< 2\text{nd gear ratio} \times \text{NO} + 50 \text{ rpm}$
	OFF malfunction (E)	
	Engine speed	$\geq 3\text{rd gear ratio} \times \text{NO} - 50 \text{ rpm}$ $< 3\text{rd gear ratio} \times \text{NO} + 50 \text{ rpm}$
	OFF malfunction (F)	
	Engine speed	$\geq 3\text{rd gear ratio} \times \text{NO} - 50 \text{ rpm}$ $< 3\text{rd gear ratio} \times \text{NO} + 50 \text{ rpm}$

1ZZ-FE (COROLLA)	OFF malfunction (G)	
	Engine speed	$\geq 4\text{th gear ratio} \times \text{NO} - 50 \text{ rpm}$ $< 4\text{th gear ratio} \times \text{NO} + 50 \text{ rpm}$
	OFF malfunction (H)	
	Engine speed	$\geq 3\text{rd gear ratio} \times \text{NO} - 50 \text{ rpm}$ $< 3\text{rd gear ratio} \times \text{NO} + 50 \text{ rpm}$
	OFF malfunction (I)	
	Engine speed	$\geq 4\text{th gear ratio} \times \text{NO} - 50 \text{ rpm}$ $< 4\text{th gear ratio} \times \text{NO} + 50 \text{ rpm}$
	ON malfunction	
	Engine speed	$\geq 1.8 \times \text{NO} + 1,200 \text{ rpm}$
1MZ-FE (ES300)	Following conditions met Rationality check (A) or (Rationality check (B) and Rationality check (C) and Rationality check (D))	
	It is necessary 2 judgements/driving cycle 1st judgment; temporary flag ON 2nd judgment; pending fault code ON	
	Rationality check (A)	
	Input speed/Output speed (NT/NC)	$1.49 \leq \text{NT/NC} < 1.63$
	Rationality check (B)	
	Input speed/Output speed (NT/NC)	$2.72 \leq \text{NT/NC} < 2.86$
	Rationality check (C)	
	Input speed/Output speed (NT/NC)	$0.93 \leq \text{NT/NC} < 1.07$
	Rationality check (D)	
	Engine speed/Input shaft speed (NE/NT)	200 rpm or more
2JZ-GE	[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)	$3.14 \leq \text{NC0/NO} \leq 7.34$
	ON malfunction (B)	
	Input speed/Output speed (NC0/NO)	$3.14 \leq \text{NC0/NO} \leq 7.34$

Component T/M Outputs – Solenoid

3UZ-FE (LS430)	[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)	$0.93 \leq \text{NCC0/NO} \leq 1.07$
	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)	$3.14 \leq \text{NC0/NO} \leq 7.34$
	ON malfunction (B)	
	Input speed/Output speed (NC0/NO)	$3.14 \leq \text{NC0/NO} \leq 7.34$
2AZ-FE, 1MZ-FE (HIGH LANDER)	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)	$1.49 \leq \text{NT/NC} < 1.63$
	Rationality check (B)	
	Input speed/Output speed (NT/NC)	$2.72 \leq \text{NT/NC} < 2.86$
	Rationality check (C)	
	Input speed/Output speed (NT/NC)	$0.93 \leq \text{NT/NC} < 1.07$
	Rationality check (D)	
	Engine speed – Input shaft speed (NE – NT)	250 rpm or more
2UZ-FE (SEQUOIA, LX470, LAND CRUISER)	[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)

2UZ-FE (SEQUOIA, LX470, LAND CRUISER)	[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 $0.93 \leq NC0/NO \leq 1.07$ (Last) ↓ $0.00 \leq NC0/NO \leq 0.22$ (Current)
	ON malfunction (B)	
	NElast – NEcurrent	950 rpm or more
	Engine speed	3,200 rpm or more
3RZ-FE	[OFF malfunction]	
	There are 2 judgment steps/driving cycle 1st judgment step; when following condition met, temporary flag becomes ON. OFF malfunction (A) (2 times) or OFF malfunction (B) (2 times) 2nd judgment step; when following condition met, pending fault code becomes ON. [OFF malfunction (E) and (not OFF malfunction (G)) and (not OFF malfunction (H))] or [(not OFF malfunction (C)) and (not OFF malfunction (D)) and OFF malfunction (F) and OFF malfunction(I)]	
	OFF malfunction (A)	
	Engine speed	< 0.7 x NO + 1,700 rpm
	OFF malfunction (B)	
	NElast – NEcurrent	< 475 rpm at throttle angle 40 % (condition vary with throttle angle)
	OFF malfunction (C)	
	Engine speed	≥ 1st gear ratio x NO + 50 rpm
	OFF malfunction (D)	
	Engine speed	≥ 2nd gear ratio x NO – 50 rpm and < 2nd gear ratio x NO + 50 rpm
	OFF malfunction (E)	
	Engine speed	≥ 3rd gear ratio x NO – 50 rpm and < 3rd gear ratio x NO + 50 rpm
	OFF malfunction (F)	
	Engine speed	≥ 3rd gear ratio x NO – 50 rpm and < 3rd gear ratio x NO + 50 rpm
	OFF malfunction (G)	
	Engine speed	≥ 4th gear ratio x NO – 50 rpm and < 4th gear ratio x NO + 50 rpm
	OFF malfunction (H)	
	Engine speed	≥ 3rd gear ratio x NO – 50 rpm and < 3rd gear ratio x NO + 50 rpm
	OFF malfunction (I)	
	Engine speed	≥ 4th gear ratio x NO – 50 rpm and < 4th gear ratio x NO + 50 rpm
	ON malfunction	
	Engine speed	≥ 1.3 x NO + 1,100 rpm

Component T/M Outputs – Solenoid

5VZ-FE (TACOMA,TUNDRA)	[OFF malfunction]	
	There are 2 judgment steps/driving cycle 1st judgment step; when following condition met, temporary flag becomes ON. OFF malfunction (A) (2 times) or OFF malfunction (B) (2 times) 2nd judgment step; when following condition met, pending fault code becomes ON. [OFF malfunction (E) and (not OFF malfunction (G)) and (not OFF malfunction (H))] or [(not OFF malfunction (C)) and (not OFF malfunction (D)) and OFF malfunction (F) and OFF malfunction(I)]	
	OFF malfunction (A)	
	Engine speed (NE)	$< 0.5 \times NO + 2,100 \text{ rpm}$
	OFF malfunction (B)	
	NElast – NEcurrent	$< 300 \text{ rpm}$ at throttle angle 40 % (condition vary with throttle angle)
	OFF malfunction (C)	
	Engine speed	$\geq 1\text{st gear ratio} \times NO + 50 \text{ rpm}$
	OFF malfunction (D)	
	Engine speed	$\geq 2\text{nd gear ratio} \times NO - 50 \text{ rpm}$ $< 2\text{nd gear ratio} \times NO + 50 \text{ rpm}$
	OFF malfunction (E)	
	Engine speed	$\geq 3\text{rd gear ratio} \times NO - 50 \text{ rpm}$ $< 3\text{rd gear ratio} \times NO + 50 \text{ rpm}$
	OFF malfunction (F)	
	Engine speed	$\geq 3\text{rd gear ratio} \times NO - 50 \text{ rpm}$ $< 3\text{rd gear ratio} \times NO + 50 \text{ rpm}$
	OFF malfunction (G)	
	Engine speed	$\geq 4\text{th gear ratio} \times NO - 50 \text{ rpm}$ $< 4\text{th gear ratio} \times NO + 50 \text{ rpm}$
	OFF malfunction (H)	
	Engine speed	$\geq 3\text{rd gear ratio} \times NO - 50 \text{ rpm}$ $< 3\text{rd gear ratio} \times NO + 50 \text{ rpm}$
	OFF malfunction (I)	
	Engine speed	$\geq 4\text{th gear ratio} \times NO - 50 \text{ rpm}$ $< 4\text{th gear ratio} \times NO + 50 \text{ rpm}$
	ON malfunction	
	Engine speed	$\geq 1.1 \times NO + 1,700 \text{ rpm}$

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)	$0.00 \leq \text{NCC0/NO} \leq 0.22$
	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)	
3UZ-FE (GS430)	NElast – NEcurrent	500 rpm or more
	Engine speed	3,200 rpm or more
	[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)	$0.93 \leq \text{NCC0/NO} \leq 1.07$
	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)	$3.14 \leq \text{NC0/NO} \leq 7.34$
	ON malfunction (B)	
	Input speed/Output speed (NC0/NO)	$3.14 \leq \text{NC0/NO} \leq 7.34$