

2002 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	3RZ-FE, 5VZ-FE, 3UZ-FE (SC430), 1ZZ-FE (COROLLA)	Less than 10 sec.
	1MZ-FE (RX300, HIGH LANDER), 1AZ-FE	OFF malfunction (A) 3.5 sec. OFF malfunction (B) 1 sec. ON malfunction 1.8 sec.
	1MZ-FE (SIENNA, AVALON, CAMRY SOLARA), 1ZZ-FE (CELICA), 1NZ-FE	OFF malfunction 3.5 sec. ON malfunction 1.8 sec.
	2AZ-FE (HIGH LANDER), 2ZZ-GE	(A) & OFF malfunction (A) 3.5 sec. (A) & OFF malfunction (B) 0.8 sec. ON malfunction 1.8 sec.
	1MZ-FE (ES300)	(A) & OFF malfunction (A) 0.05 sec. (A) & OFF malfunction (B) 1 sec. (A) & OFF malfunction (C) 3.5 sec. ON malfunction (A) 1.8 sec.
	1MZ-FE (CAMRY), 2AZ-FE (CAMRY, CAMRY SOLARA)	(A) & OFF malfunction (A) 3.5 sec. (A) & OFF malfunction (B) 0.85 sec. (A) & ON malfunction 1.8 sec.
	2UZ-FE (TUNDRA, SEQUOIA)	(A) & ON malfunction, (A) & OFF malfunction 1.0 sec.

Duration	2UZ-FE (LX470, LAND CRUISER), 2JZ-GE, 3UZ-FE (LS430, GS430)	(A) & ON malfunction 2.0 sec. (A) & OFF malfunction 1.8 sec.
MIL operation	2 driving cycles	
Sequence of operation	None	

TYPICAL ENABLING CONDITIONS

Item		Specification	
		Minimum	Maximum
The monitor will run whenever the following DTCs are not present.		See page In-39	
Engine family	Item	Specification	
		Minimum	Maximum
1MZ-FE (RX300, HIGH LANDER)	Condition (A)		
	Engine coolant	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	
	Shift solenoid "E" circuit	Not circuit malfunction	
	OFF malfunction (A)		
	ECM lock-up command	ON	
	ECM selected gear	3rd or 4th	
	Vehicle speed	25 km/h (16 mph) or more	–
	OFF malfunction (B)		
	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)	–
	ON malfunction		
	ECM lock-up command	OFF	
	ECM selected gear	3rd or 4th	
	Throttle valve opening angle	8 % or more	–
	Vehicle speed	25 km/h (16 mph) or more	Less than 60 km/h (37 mph)

Component T/M Outputs – Solenoid

1MZ-FE (SIENNA)	Condition (A)		
	Engine coolant temperature	60 °C (140 °F) or more	—
	Vehicle speed	25 km/h (16 mph) or more	—
	Transmission range	"D"	
	ECM selected gear	3rd or 4th	
	ECT sensor circuit	Not circuit malfunction	
	Shift solenoid "A" circuit	Not circuit malfunction	
	Shift solenoid "B" circuit	Not circuit malfunction	
	Shift solenoid "E" circuit	Not circuit malfunction	
	OFF malfunction		
	ECM lock-up command	ON	
	ON malfunction		
	ECM lock-up command	OFF	
	Throttle valve opening angle	8 % or more	—
	Vehicle speed	—	Less than 60 km/h (37 mph)

1MZ-FE (CAMRY), 1AZ-FE, 2AZ-FE (HIGH LANDER)	Condition (A)		
	Engine coolant temperature	60 °C (140 °F) or more	—
	Transmission range	"D"	
	Transmission fluid temperature	−20 °C (−4 °F) or more	—
	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	
	Shift solenoid "E" circuit	Not circuit malfunction	
	Electronic throttle system	Not circuit malfunction	
	OFF malfunction (A)		
	ECM lock-up command	ON	
	ECM selected gear	3rd or 4th	
	Vehicle speed	25 km/h (16 mph) or more	—
	OFF malfunction (B)		
	ECM selected gear	2nd	
	Duration time from shift command of ECM	1 sec. or more	—
	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)	—
	ON malfunction		
	ECM lock-up command	OFF	
	ECM selected gear	3rd or 4th	
	Throttle valve opening angle	8 % or more	—
	Vehicle speed	25 km/h (16 mph) or more	Less than 60 km/h (37 mph)

Component T/M Outputs – Solenoid

1MZ-FE (AVALON)	Condition (A)		
	Engine coolant temperature	60 °C (140 °F) or more	—
	Vehicle speed	25 km/h (16 mph) or more	—
	Transmission range	"D"	
	ECM selected gear	3rd or 4th	
	Coolant temperature sensor circuit	Not circuit malfunction	
	Shift solenoid "A" circuit	Not circuit malfunction	
	Shift solenoid "B" circuit	Not circuit malfunction	
	Shift solenoid "E" circuit	Not circuit malfunction	
	OFF malfunction		
	ECM lock-up command	ON	
	ON malfunction		
	ECM lock-up command	OFF	
	Throttle valve opening angle	8 % or more	—
	Vehicle speed	—	Less than 60 km/h (37 mph)
1MZ-FE (CAMRY SOLARA)	Condition (A)		
	Engine coolant temperature	60 °C (140 °F) or more	—
	Vehicle speed	25 km/h (16 mph) or more	—
	Transmission range	"D"	
	ECM selected gear	3rd or 4th	
	ECT 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	
	OFF malfunction		
	ECM lock-up command	ON	
	ON malfunction		
	ECM lock-up command	OFF	
	Throttle valve opening angle	8 % or more	—
	Vehicle speed	—	Less than 60 km/h (37 mph)

1MZ-FE (ES300)	Condition (A)		
	Engine coolant temperature	10 °C (50 °F) or more	–
	Transmission range	"D"	
	Transmission fluid temperature	–20 °C (–4 °F) or more	–
	Transmission fluid temperature sensor 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 "C" circuit	Not circuit malfunction	
	Shift solenoid "D" circuit	Not circuit malfunction	
	"SR" solenoid circuit	Not circuit malfunction	
	Shift solenoid "E" circuit	Not circuit malfunction	
	OFF malfunction (A)		
	ECM selected gear	3rd	
	During gear shifting	2nd to 3rd	
	Throttle valve opening angle	4.5 % or more at engine speed 1,900 rpm (condition vary with engine speed)	–
	OFF malfunction (B)		
	ECM selected gear	5th	
	Throttle valve opening angle	5 % or more	–
	Vehicle speed	10 km/h (6 mph) or more	–
	OFF malfunction (C)		
	ECM lock-up command	ON	
	Vehicle speed	25 km/h (16 mph) or more	–
	ON malfunction		
	ECM lock-up command	OFF	
	ECM selected gear	3rd or 4th or 5th	
	Throttle valve opening angle	13 % or more	–
	Vehicle speed	25 km/h (16 mph) or more	Less than 60 km/h (37 mph)

Component T/M Outputs – Solenoid

3RZ-FE	Condition (A)		
	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"	
	Shift solenoid "A" circuit	Not circuit malfunction	
	Shift solenoid "B" circuit	Not circuit malfunction	
	Shift solenoid "E" circuit	Not circuit malfunction	
	Battery voltage	10 V or more	-
	Spark retard by KCS control	2° CA or more	-
	Transfer range "Hi" [4WD]		
	Vehicle speed sensor circuit	Not circuit malfunction	
	Output shaft speed sensor circuit	Not circuit malfunction	
	Throttle valve opening angle	0 % or more	-
	OFF malfunction		
	ECM selected gear	4th with lock up	
	ON malfunction		
	ECM selected gear	4th	
	Throttle valve opening angle	8 % or more	-
5VZ-FE	Condition (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"	
	Shift solenoid "A" circuit	Not circuit malfunction	
	Shift solenoid "B" circuit	Not circuit malfunction	
	Shift solenoid "E" circuit	Not circuit malfunction	
	Battery voltage	10 V or more	-
	Spark retard by KCS control	-	Less than 8° CA
	Transfer range "Hi" [4WD]		
	Vehicle speed sensor circuit	Not circuit malfunction	
	Output shaft speed sensor circuit	Not circuit malfunction	
	Throttle valve opening angle	0 % or more	-
	OFF malfunction		
	ECM selected gear	4th with lock up	
	ON malfunction		
	ECM selected gear	4th	
	Throttle valve opening angle	7 % or more	-

2UZ-FE (TUNDRA, SEQUOIA)	Condition (A)		
	Engine coolant temperature	40 °C (104 °F) or more	–
	Transmission range	"D"	
	Shift solenoid "A" circuit	Not circuit malfunction	
	Shift solenoid "B" circuit	Not circuit malfunction	
	Shift solenoid "E" circuit	Not circuit malfunction	
	Battery voltage	10 V or more	–
	Spark retard by KCS control	0° CA or more	–
	Transfer range "Hi" [4WD]		
	Vehicle speed sensor circuit	Not circuit malfunction	
	Output shaft speed sensor circuit	Not circuit malfunction	
	Throttle valve opening angle	0 % or more	–
	OFF malfunction		
	ECM selected gear	3rd or 4th	
	ECM lock-up command	ON	
	Vehicle speed	25 km/h (16 mph) or more	Less than 100 km/h (62 mph)
	IAT	–10 °C (14 °F) or more	Less than 70 °C (158 °F)
	ON malfunction		
	ECM selected gear	3rd or 4th	
	ECM lock-up command	OFF	
	Throttle valve opening angle	9 % or more	–
	Vehicle speed	25 km/h (16 mph) or more	Less than 60 km/h (37 mph)
	IAT	–10 °C (14 °F) or more	Less than 70 °C (158 °F)
2UZ-FE (LX470, LAND CRUISER)	Condition (A)		
	Engine coolant temperature	40 °C (104 °F) or more	–
	Transmission range	"D"	
	Shift solenoid "A" circuit	Not circuit malfunction	
	Shift solenoid "B" circuit	Not circuit malfunction	
	Shift solenoid "E" circuit	Not circuit malfunction	
	Battery voltage	10 V or more	–
	Spark retard by KCS control	0° CA or more	–
	Transfer range "Hi" [4WD]		
	Vehicle speed sensor circuit	Not circuit malfunction	
	Output shaft speed sensor circuit	Not circuit malfunction	
	Throttle valve opening angle	0 % or more	–
	OFF malfunction		
	ECM selected gear	3rd or 4th	
	ECM lock-up command	ON	
	Vehicle speed	25 km/h (16 mph) or more	Less than 100 km/h (62 mph)
	IAT	–10 °C (14 °F) or more	Less than 70 °C (158 °F)
	ON malfunction		
	ECM selected gear	3rd or 4th	
	ECM lock-up command	OFF	
	Throttle valve opening angle	9 % or more	–
	Vehicle speed	25 km/h (16 mph) or more	Less than 60 km/h (37 mph)
	IAT	–10 °C (14 °F) or more	Less than 70 °C (158 °F)

Component T/M Outputs – Solenoid

3UZ–FE (SC430)	Condition (A)		
	Engine coolant temperature	40 °C (104 °F) or more	–
	Vehicle speed	25 km/h (16 mph) or more	–
	Transmission range	"D"	
	Spark advance from Max. retard timing by KCS control	0° CA or more	–
	ECM selected gear	4th or 5th	
	OFF malfunction		
	ECM lock–up command	ON (SLU pressure 513 kPa or more)	
	ECM selected gear	5th	
	ECM selected gear 3rd gear selected	Except 1st	
	Vehicle speed	–	Less than 100 km/h (62 mph)
	ON malfunction		
	ECM lock–up command	OFF (SLU pressure less than 4 kPa)	
	ECM selected gear	4th	
	Throttle valve opening angle	9 % or more	–
	Vehicle speed	–	Less than 60 km/h (37 mph)
3UZ–FE (LS430, GS430)	Condition (A)		
	Engine coolant temperature	40 °C (104 °F) or more	–
	Vehicle speed	25 km/h (16 mph) or more	–
	Transmission range	"D"	
	Spark advance from Max. retard timing by KCS control	0° CA or more	
	ECM selected gear	4th or 5th	
	SLU solenoid circuit	Not circuit malfunction	
	OFF malfunction		
	ECM lock–up command	ON (SLU pressure 513 kPa or more)	
	ECM selected gear	5th	
	Vehicle speed	–	Less than 100 km/h (62 mph)
	ON malfunction		
	ECM lock–up command	OFF (SLU pressure less than 4 kPa)	
	ECM selected gear	4th	
	Throttle valve opening angle	9 % or more	–
	Vehicle speed	–	Less than 60 km/h (37 mph)

2JZ-GE (GS300)	Condition (A)		
	Engine coolant temperature	40 °C (104 °F) or more	-
	Vehicle speed	25 km/h (16 mph) or more	-
	Transmission range	"D"	
	Spark advance from Max. retard timing by KCS control	0° CA or more	-
	ECM selected gear	4th or 5th	
	SLU solenoid circuit	Not circuit malfunction	
	OFF malfunction (A)		
	ECM lock-up command	ON (SLU duty ratio 90 % or more)	
	ECM selected gear	5th	
	Vehicle speed	-	Less than 100 km/h (62 mph)
	ON malfunction		
	ECM lock-up command	OFF (SLU duty ratio 10 % or more)	
	ECM selected gear	4th	
	Throttle valve opening angle	9 % or more	-
	Vehicle speed	-	Less than 60 km/h (37 mph)
2JZ-GE (IS300)	Condition (A)		
	Engine coolant temperature	40 °C (104 °F) or more	-
	Vehicle speed	25 km/h (16 mph) or more	-
	Transmission range	"D"	
	Spark advance from Max. retard timing by KCS control	0° CA or more	-
	ECM selected gear	4th or 5th	
	SLU solenoid circuit	Not circuit malfunction	
	OFF malfunction (A)		
	ECM lock-up command	ON (SLU duty ratio 90 % or more)	
	ECM selected gear	5th	
	Vehicle speed	-	Less than 100 km/h (62 mph)
	ON malfunction		
	ECM lock-up command	OFF (SLU duty ratio 10 % or more)	
	ECM selected gear	4th	
	Throttle valve opening angle	8 % or more	-
	Vehicle speed	-	Less than 60 km/h (37 mph)

Component T/M Outputs – Solenoid

2JZ-GE (SC300)	Condition (A)		
	Engine coolant temperature	40 °C (104 °F) or more	-
	Vehicle speed	25 km/h (16 mph) or more	-
	Transmission range	"D"	
	Spark advance from Max. retard timing by KCS control	0° CA or more	-
	ECM selected gear	4th or 5th	
	SLU solenoid circuit	Not circuit malfunction	
	OFF malfunction (A)		
	ECM lock-up command	ON (SLU duty ratio 90 % or more)	
	ECM selected gear	5th	
	Vehicle speed	-	Less than 100 km/h (62 mph)
	ECM lock-up command	OFF (SLU duty ratio 10 % or more)	
	ECM selected gear	4th	
	Vehicle speed	-	Less than 60 km/h (37 mph)
	2ZZ-GE	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	
Shift solenoid "E" circuit		Not circuit malfunction	
OFF malfunction (A)			
ECM lock-up command		ON	
ECM selected gear		3rd or 4th	
Vehicle speed		25 km/h (16 mph) or more	-
Input speed/Output speed (NT/NC)		Following conditions 0.93 ≤ NT/NC ≤ 1.07	
OFF malfunction (B)			
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)	-
ON malfunction			
ECM lock-up command		OFF	
ECM selected gear		3rd or 4th	
Throttle valve opening angle		8 % or more	-
Vehicle speed		25 km/h (16 mph) or more	Less than 60 km/h (37 mph)

1ZZ-FE (CELICA), 1NZ-FE	Condition (A)		
	Engine coolant temperature	60 °C (140 °F) or more	—
	Vehicle speed	25 km/h (16 mph) or more	—
	Transmission range	"D"	
	ECM selected gear	3rd or 4th	
	Shift solenoid "A" circuit	Not circuit malfunction	
	Shift solenoid "B" circuit	Not circuit malfunction	
	Shift solenoid "E" 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		
	ECM lock-up command	ON	
	ON malfunction		
	ECM lock-up command	OFF	
	Throttle valve opening angle	8 % or more	—
	Vehicle speed	—	Less than 60 km/h (37 mph)
2AZ-FE (CAMRY, CAMRY SOLARA)	Condition (A)		
	Engine coolant temperature	60 °C (140 °F) or more	—
	Transmission range	"D"	
	Transmission fluid temperature	−20 °C (−4 °F) or more	—
	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	
	Shift solenoid "E" circuit	Not circuit malfunction	
	Electronic throttle system	Not circuit malfunction	
	OFF malfunction (A)		
	ECM lock-up command	ON	
	ECM selected gear	3rd or 4th	
	Vehicle speed	25 km/h (16 mph) or more	—
	OFF malfunction (B)		
	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)	—

Component T/M Outputs – Solenoid

2AZ-FE (CAMRY, CAMRY SOLARA)	ON malfunction		
	ECM lock-up command	OFF	
	ECM selected gear	3rd or 4th	
	Throttle valve opening angle	8 % or more	—
	Vehicle speed	25 km/h (16 mph) or more	Less than 60 km/h (37 mph)
1ZZ-FE (COROLLA)	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"	
	Battery voltage	10 V or more	—
	Spark retard by KCS control	0° CA or more	—
	OFF malfunction		
	ECM selected gear	4th with lock up	
	ON malfunction		
	ECM selected gear	4th	
	Throttle valve opening angle	7 % or more	—

TYPICAL MALFUNCTION THRESHOLDS

Engine family	Detection criteria	Threshold
1MZ-FE (RX300, HIGH LANDER, CAMRY), 2AZ-FE, 1AZ-FE, 2ZZ-GE	Following condition met (a. and b.) or c.	
	a. = (A) & OFF malfunction (A)	
	Engine speed – Input speed (NE – NT)	100 rpm or more
	b. = (A) & OFF malfunction (B)	
	Input speed/Intermediate shaft speed (NT – NC)	$1.49 \leq \text{NT/NC} < 1.63$
	c. = (A) & ON malfunction	
	Engine speed – Input speed (NE – NT)	Less than 35 rpm
	It is necessary 2 judgments/driving cycle 1st judgment; temporary flag ON 2nd judgment; pending fault code ON Vehicle speed must be under 10 km/h (6 mph) once before 2nd judgment	
1MZ-FE (SIENNA, AVALON)	Following conditions met	
	(A) & OFF malfunction	
	Engine speed – Input speed (NE – NC2)	130 rpm or more
	It is necessary 2 judgments/driving cycle 1st judgment; temporary flag ON 2nd judgment; pending fault code ON Vehicle speed must be under 10 km/h (6 mph) once before 2nd judgment	
	(A) & ON malfunction	
	Engine speed – Input speed (NE – NC2)	Less than 35 rpm

1MZ-FE (CAMRY SOLARA)	Following conditions met	
	(A) & OFF malfunction	
	Engine speed – Input speed (NE – NC2)	200 rpm or more
	It is necessary 2 judgments/driving cycle 1st judgment; temporary flag ON 2nd judgment; pending fault code ON Vehicle speed must be under 10 km/h (6 mph) once before 2nd judgment	
	(A) & ON malfunction	
	Engine speed – Input speed (NE – NC2)	Less than 35 rpm
1MZ-FE (ES300)	Following condition met (a. and b. and c.) or d.	
	a. = (A) & OFF malfunction (A)	
	Input speed/Intermediate speed (NT/NC)	$0.93 \leq NT/NC < 1.07$
	b. = (A) & OFF malfunction (B)	
	Intermediate speed/Output speed (NC/NO)	$0.95 \leq NC/NO < 1.09$
	c. = (A) & OFF malfunction (C)	
	Engine speed – Input speed (NE – NT)	
	When condition "a" of shift solenoid "D" is detected;	75 rpm or more
	When condition "a" of shift solenoid "D" is not detected;	100 rpm or more
	d. = (A) & ON malfunction	
	Engine speed – Input speed (NE – NT)	Less than 35 rpm
3RZ-FE, 5VZ-FE, 1ZZ-FE (COROLLA)	(A) & OFF malfunction	
	Engine speed	$\geq 4\text{th gear ratio} \times \text{NO} + 100 \text{ rpm}$ $< 3\text{rd gear ratio} \times \text{NO} - 100 \text{ rpm}$
	(A) & ON malfunction	
	Engine speed	$\geq 4\text{th gear ratio} \times \text{NO} - 50 \text{ rpm}$ $< 4\text{th gear ratio} \times \text{NO} + 50 \text{ rpm}$
2UZ-FE	Following condition met a. or b.	
	a. = (A) & OFF malfunction	
	NE – NO x 4th gear ratio	70 rpm or more
	b. = (A) & ON malfunction	
	NE – NC0	Less than 35 rpm
	It is necessary 2 judgments/driving cycle 1st judgment; temporary flag ON 2nd judgment; pending fault code ON Vehicle speed must be under 10 km/h (6 mph) once before 2nd judgment	

Component T/M Outputs – Solenoid

3UZ-FE	(A) & OFF malfunction	
	Engine speed – Output speed x 5th gear ratio (NE – NO x 5th gear ratio)	70 rpm or more
	It is necessary 2 judgments/driving cycle 1st judgment; temporary flag ON 2nd judgment; pending fault code ON	
	(A) & ON malfunction	
	Engine speed – Input speed (NE – NC0)	Less than 35 rpm
2JZ-GE	(A) & OFF malfunction	
	Engine speed – Output speed x 5th gear ratio (NE – NO x 5th gear ratio)	150 rpm or more
	It is necessary 2 judgments/driving cycle 1st judgment; temporary flag ON 2nd judgment; pending fault code ON	
	(A) & ON malfunction	
	Engine speed – Input speed (NE – NC0)	Less than 35 rpm
1ZZ-FE (CELICA), 1NZ-FE	[OFF malfunction]	
	It is necessary 2 judgments/driving cycle 1st judgment; temporary flag ON 2nd judgment; pending fault code ON	
	(A) & OFF malfunction	
	Engine speed – Input shaft speed (NE – NT)	100 rpm or more
	[ON malfunction]	
	It is necessary 2 judgments/driving cycle 1st judgment; temporary flag ON 2nd judgment; pending fault code ON Vehicle speed must be under 10 km/h (6 mph) once before 2nd judgment	
	(A) & ON malfunction	
	Engine speed – Input shaft speed (NE – NT)	Less than 35 rpm