

FAIL-SAFE CHART

1. FAIL-SAFE CHART

- (a) This function minimizes the loss of the ECT functions when a malfunction occurs in each sensor or solenoid.

Malfunction Part	Function
DTC P0710, P0712 and P0713: No. 1 ATF Temperature Sensor	During a No. 1 ATF temperature sensor malfunction, up-shift to the 5th gear and flex lock-up clutch control are prohibited.
DTC P0722: Output Speed Sensor (SP2)	During an output speed sensor malfunction, shift control is effected through the input speed sensor signal (NT).
DTC P0751, P0756, P0771, P0973, P0974, P0976, P0977, P0985 and P0986: Shift Solenoid Valve S1, S2 and SR	The current to the failed solenoid valve is cut off and control is effected by operating the other solenoid valves with normal operation. Shift control is effected depending on the failed solenoid as described in the table below.
DTC P0748, P0776 and P0778: Shift Solenoid Valve SL1 and SL2	During a solenoid valve SL1 or SL2 malfunction, up-shift to the 5th gear is prohibited.
DTC P02714 and P2716: Shift Solenoid Valve SLT	During a solenoid valve SLT malfunction, the current to the solenoid valve is stopped. This stops line pressure optimal control, and shift shock increases. However, shifting is effected through normal clutch pressure control.
DTC P2757: Shift Solenoid Valve SLU	During a solenoid valve SLU malfunction, the current to the solenoid valve is stopped. This stops lock-up control and flex lock-up control, and fuel economy decreases.

- (b) Fail-safe function:

If either of the shift solenoid valve circuits has an open or short failure, the ECM turns the other shift solenoid ON and OFF in order to shift into the gear positions shown in the table below.

In case of a short circuit, the ECM stops sending current to the short circuit solenoid.

Even if starting the engine again in the fail-safe mode, the gear position remains in the same position.

Position	Normal						Shift Solenoid S1 Malfunction					
	Gear	S1	S2	SR	SL1	SL2	Gear	S1	S2	SR	SL1	SL2
R	R	ON	OFF	OFF	OFF	ON	R	X	OFF	OFF	OFF	ON
D	1st	ON	OFF	OFF	OFF	ON	4th ↓ 3rd	X	OFF ↓ ON	OFF	OFF	ON
	2nd	ON	ON	OFF	OFF	ON	3rd	X	ON	OFF	OFF	ON
	3rd	OFF	ON	OFF	OFF	ON	3rd	X	ON	OFF	OFF	ON
	4th	OFF	OFF	OFF	OFF	ON	4th	X	OFF	OFF	OFF	ON
	5th	OFF	OFF	ON	ON	OFF	5th	X	OFF	ON	ON	OFF
4	1st	ON	OFF	OFF	OFF	ON	4th ↓ 3rd	X	OFF ↓ ON	OFF	OFF	ON
	2nd	ON	ON	OFF	OFF	ON	3rd	X	ON	OFF	OFF	ON
	3rd	OFF	ON	OFF	OFF	ON	3rd	X	ON	OFF	OFF	ON
	4th	OFF	OFF	OFF	OFF	ON	4th	X	OFF	OFF	OFF	ON

Position	Normal						Shift Solenoid S1 Malfunction					
	Gear	S1	S2	SR	SL1	SL2	Gear	S1	S2	SR	SL1	SL2
3	1st	ON	OFF	OFF	OFF	ON	3rd ↓ 3rd E/B	X	OFF ↓ ON	OFF	OFF	ON ↓ OFF
	2nd	ON	ON	OFF	OFF	ON	3rd ↓ 3rd E/B	X	ON	OFF	OFF	ON ↓ OFF
	3rd E/B	OFF	ON	OFF	OFF	OFF	3rd E/B	X	ON	OFF	OFF	OFF
2	1st	ON	OFF	OFF	OFF	ON	1st	X	OFF	OFF	OFF	ON
	2nd E/B	ON	ON	ON	OFF	OFF	3rd E/B	X	ON	ON	OFF	OFF
L	1st E/B	ON	OFF	OFF	OFF	OFF	1st E/B	X	OFF	OFF	OFF	OFF

X: Malfunction

Position	Shift Solenoid S2 Malfunction						Shift Solenoid SR Malfunction					
	Gear	S1	S2	SR	SL1	SL2	Gear	S1	S2	SR	SL1	SL2
R	R	ON	X	OFF	OFF	ON	R	ON	OFF	X	OFF	ON
D	1st	ON	X	OFF	OFF	ON	1st	ON	OFF	X	OFF	ON
	1st ↓ 4th	ON ↓ OFF	X	OFF	OFF	ON	2nd	ON	ON	X	OFF	ON
	4th	OFF	X	OFF	OFF	ON	3rd	OFF	ON	X	OFF	ON
	4th	OFF	X	OFF	OFF	ON	4th	OFF	OFF	X	OFF	ON
	5th	OFF	X	ON	ON	OFF	4th	OFF	OFF	X	ON	OFF
4	1st	ON	X	OFF	OFF	ON	1st	ON	OFF	X	OFF	ON
	1st ↓ 4th	ON ↓ OFF	X	OFF	OFF	ON	2nd	ON	ON	X	OFF	ON
	4th	OFF	X	OFF	OFF	ON	3rd	OFF	ON	X	OFF	ON
	4th	OFF	X	OFF	OFF	ON	4th	OFF	OFF	X	OFF	ON
3	1st	ON	X	OFF	OFF	ON	1st	ON	OFF	X	OFF	ON
	1st ↓ 3rd E/B	ON ↓ OFF	X	OFF	OFF	ON ↓ OFF	2nd	ON	ON	X	OFF	ON
	3rd E/B	OFF	X	OFF	OFF	OFF	3rd E/B ↓ 3rd	OFF	ON	X	OFF	OFF ↓ ON
2	1st	ON	X	OFF	OFF	ON	1st	ON	OFF	X	OFF	ON
	2nd E/B ↓ 4th	ON ↓ OFF	X	ON	OFF	OFF ↓ ON	2nd	ON	ON	X	OFF	OFF
L	1st E/B	ON	X	OFF	OFF	OFF	1st E/B	ON	OFF	X	OFF	OFF

X: Malfunction

Position	Shift Solenoid S1 and S2 Malfunction						Shift Solenoid S1 and SR Malfunction					
	Gear	S1	S2	SR	SL1	SL2	Gear	S1	S2	SR	SL1	SL2
R	R	X	X	OFF	OFF	ON	R	X	OFF	X	OFF	ON
D	4th	X	X	OFF	OFF	ON	4th ↓ 3rd	X	OFF ↓ ON	X	OFF	ON
	4th	X	X	OFF	OFF	ON	3rd	X	ON	X	OFF	ON
	4th	X	X	OFF	OFF	ON	3rd	X	ON	X	OFF	ON
	4th	X	X	OFF	OFF	ON	4th	X	OFF	X	OFF	ON
	5th	X	X	ON	ON	OFF	4th	X	OFF	X	ON ↓ OFF	OFF ↓ ON

AT

Position	Shift Solenoid S1 and S2 Malfunction						Shift Solenoid S1 and SR Malfunction					
	Gear	S1	S2	SR	SL1	SL2	Gear	S1	S2	SR	SL1	SL2
4	4th	X	X	OFF	OFF	ON	4th ↓ 3rd	X	OFF ↓ ON	X	OFF	ON
	4th	X	X	OFF	OFF	ON	3rd	X	ON	X	OFF	ON
	4th	X	X	OFF	OFF	ON	3rd	X	ON	X	OFF	ON
	4th	X	X	OFF	OFF	ON	4th	X	OFF	X	OFF	ON
3	3rd ↓ 3rd E/B	X	X	OFF	OFF	ON ↓ OFF	3rd	X	OFF ↓ ON	X	OFF	ON
	3rd ↓ 3rd E/B	X	X	OFF	OFF	ON ↓ OFF	3rd	X	ON	X	OFF	ON
	3rd E/B	X	X	OFF	OFF	OFF	3rd E/B ↓ 3rd	X	ON	X	OFF	OFF ↓ ON
2	1st	X	X	OFF	OFF	ON	1st	X	OFF	X	OFF	ON
	4th	X	X	ON	OFF	OFF ↓ ON	2nd	X	ON	X	OFF	OFF
L	1st E/B	X	X	OFF	OFF	OFF	1st E/B	X	OFF	X	OFF	OFF

X: Malfunction

Position	Shift Solenoid S2 and SR Malfunction						Shift Solenoid S1, S2 and SR Malfunction					
	Gear	S1	S2	SR	SL1	SL2	Gear	S1	S2	SR	SL1	SL2
R	R	ON	X	X	OFF	ON	R	X	X	X	OFF	ON
D	1st	ON	X	X	OFF	ON	4th	X	X	X	OFF	ON
	1st ↓ 4th	ON ↓ OFF	X	X	OFF	ON	4th	X	X	X	OFF	ON
	4th	OFF	X	X	OFF	ON	4th	X	X	X	OFF	ON
	4th	OFF	X	X	OFF	ON	4th	X	X	X	OFF	ON
	4th	OFF	X	X	ON ↓ OFF	OFF ↓ ON	4th	X	X	X	ON ↓ OFF	OFF ↓ ON
4	1st	ON	X	X	OFF	ON	4th	X	X	X	OFF	ON
	1st ↓ 4th	ON ↓ OFF	X	X	OFF	ON	4th	X	X	X	OFF	ON
	4th	OFF	X	X	OFF	ON	4th	X	X	X	OFF	ON
	4th	OFF	X	X	OFF	ON	4th	X	X	X	OFF	ON
3	1st	ON	X	X	OFF	ON	3rd	X	X	X	OFF	ON
	1st ↓ 3rd	ON ↓ OFF	X	X	OFF	ON	3rd	X	X	X	OFF	ON
	3rd E/B ↓ 3rd	OFF	X	X	OFF	OFF ↓ ON	3rd E/B ↓ 3rd	X	X	X	OFF	OFF ↓ ON
2	1st	ON	X	X	OFF	ON	1st	X	X	X	OFF	ON
	1st E/B ↓ 1st	ON	X	X	OFF	OFF ↓ ON	1st E/B ↓ 1st	X	X	X	OFF	OFF ↓ ON
L	1st E/B	ON	X	X	OFF	OFF	1st E/B	X	X	X	OFF	OFF

X: Malfunction

AT

HINT:

- ↓: Condition in the electrical malfunction is shown above "↓".
- ↓: Condition in the fail-safe mode is shown below "↓".
- E/B: Engine brake.