FAIL-SAFE CHART

1. FAIL-SAFE

This function minimizes the loss of the ECT functions when any malfunction occurs in each sensor or solenoid.

(a) Vehicle speed signal (SPD):
The vehicle speed is detected through signals from the crankshaft position sensor and shift position signal to maintain normal control when the speed sensor has a malfunction.

(b) Shift solenoid valve SL:
If the ECM detects a malfunction in the solenoid valve SL, it turns the valve off.

(c) Shift solenoid valve S1 and S2:
Fail safe function:
If either of the shift solenoid valve circuits develops an open or short, the ECM turns the other shift solenoid "ON" and "OFF" in order to shift into the gear positions shown in the table below.
The ECM also turns the shift solenoid valve ST OFF at the same time. If both solenoids malfunction, hydraulic control cannot be performed electronically and must be done manually.
Manual shifting as shown in the following table must be done (In case of a short circuit, the ECM stops sending current to the short circuit solenoid).
Even if starting the engine in the fail-safe mode, the gear position remains in the same position.

Position	NORMAL			SHIFT SOLENOID S1 MALFUNCTIONING		
	Solenoid valve		Gear	Solenoid valve		Gear
	S1	S2		S1	S2	
D	ON	OFF	1st	X	ON	3rd
	ON	ON	2nd	X	ON	3rd
	OFF	ON	3rd	X	ON	3rd
	OFF	OFF	O/D	X	OFF	O/D
2	ON	OFF	1st	X	ON	3rd
	ON	ON	2nd	X	ON	3rd
	OFF	ON	3rd	X	ON	3rd
L	ON	OFF	1st	X	OFF	1st
	ON	ON	2nd	X	ON	2nd

Position	SHIFT SOLENOID S2 MALFUNCTIONING			BOTH SOLENOIDS MALFUNCTIONING
	Solenoid valve		Gear	Gear when shift selector is manually operated
	S1	S2		
D	ON	X	1st	O/D
	OFF	X	O/D	O/D
	OFF	X	O/D	O/D
	OFF	X	O/D	O/D
2	ON	X	1st	O/D
	OFF	X	3rd	O/D
	OFF	X	3rd	O/D
L	ON	X	1st	1st
	ON	X	1st	1st

X: OFF (the ECM stops sending current to a malfunctioning solenoid valve)