DTC	62(1)	SHIFT SOLENOID A ELECTRICAL (S1)

DTC	63(2)	SHIFT SOLENOID B ELECTRICAL (S2)

CIRCUIT DESCRIPTION

Shifting from 1st to O/D is performed in combination with ON and OFF of the S1 and S2 solenoid valves controlled by ECM. If an open or short circuit occurs in either of the solenoid valves, the ECM controls the remaining normal solenoid valve to allow the vehicle to be operated smoothly (Fail safe function).

Fail Safe Function:

If either of the solenoid valve circuits develops an open or short, the ECM turns the other solenoid valve ON and OFF to shift to the gear positions shown in the table below. The ECM also turns the SL solenoid valve 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 below table must be done (In the case of a short circuit, the ECM stops sending current to the short circuited solenoid).

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

X: Malfunctions

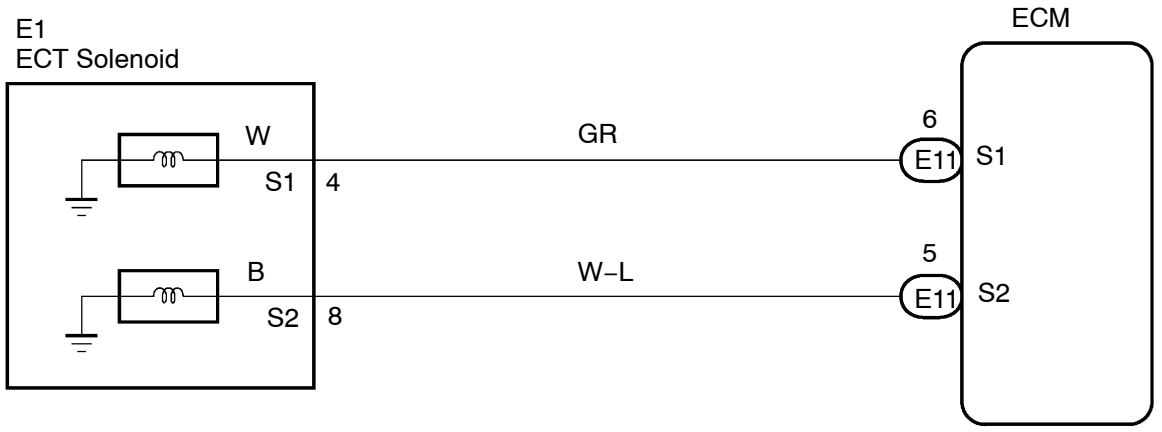
DTC No.	DTC Detecting Condition	Trouble Area
62(1) 63(2)	The ECM checks for an open or short circuit in the S1 or S2 solenoid valve circuit when it changes. The ECM records DTC 62 or 63 if condition (a) or (b) is detected once, but it does not light up check engine warning light. After ECM detects condition (a) or (b) continuously 20 times or more in one–trip, it causes the check engine warning light light up until condition (a) or (b) disappears. After that, if the ECM detects condition (a) or (b) once, it starts lighting up check engine warning light again. (a) ECM detects short in solenoid valve S1/S2 circuit when solenoid valve S1/S2 is operated. (b) ECM detects open in solenoid valve S1/S2 circuit when solenoid valve S1/S2 is not operated.	• Open or short in shift solenoid valve S1/S2 circuit • Shift solenoid valve S1/S2 • ECM

HINT:

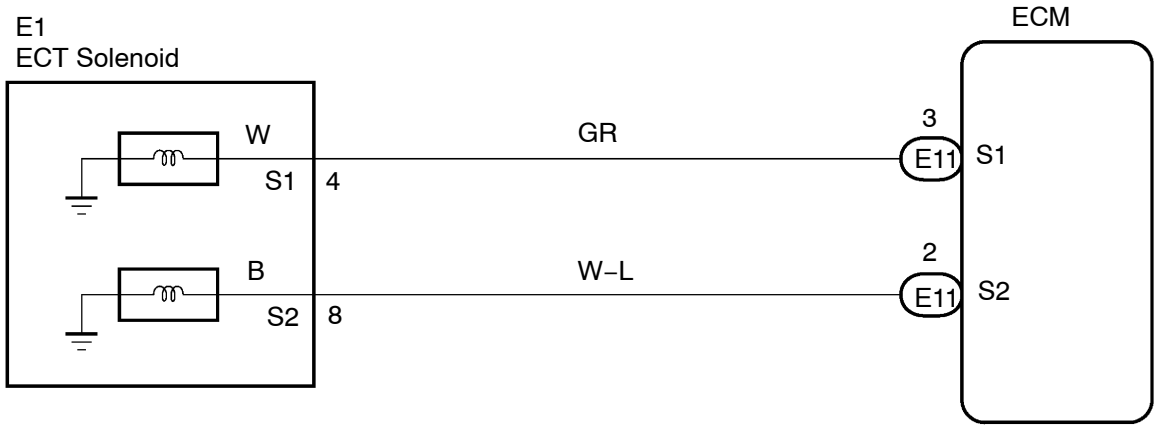
Check the S1 solenoid valve when DTC 62(1) is output and check the S2 solenoid valve when DTC 63(2) is output.

WIRING DIAGRAM

1KZ–TE:

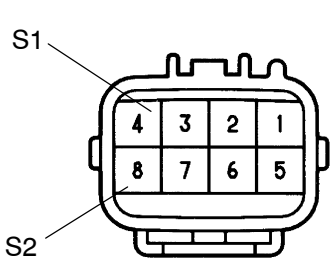


1KD–FTV:



INSPECTION PROCEDURE

1	INSPECT TRANSMISSION WIRE(S1/S2)



(a) Disconnect the transmission wire connector from the transmission.

(b) Measure resistance between terminal S1 or S2 of transmission wire connector and body ground.

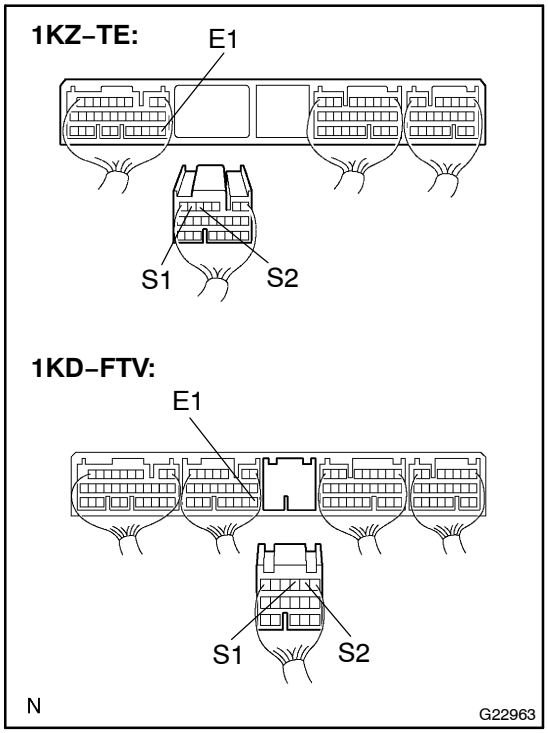
OK:

Resistance: 11 – 15 Ω at 20°C (68°F)

NG → **Go to step 3**

OK

2 CHECK HARNESS AND CONNECTOR(TRANSMISSION WIRE – ECM)



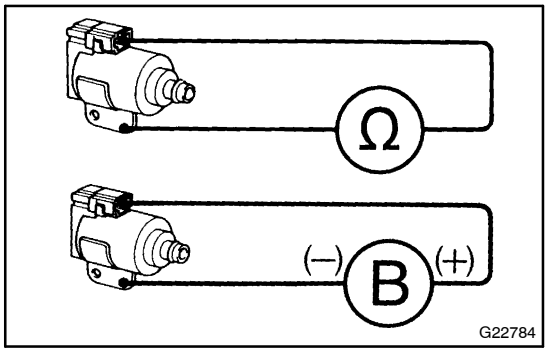
(a) Connect the transmission wire from the transmission.
(b) Disconnect the ECM connector.
(c) Measure resistance between terminals.
OK:
Resistance:
S1 – E1: 11 – 15 Ω at 20°C (68°F)
S2 – E1: 11 – 15 Ω at 20°C (68°F)

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR(See page 01–36)**

OK

CHECK AND REPLACE ECM(See page 01–36)

3 INSPECT SHIFT SOLENOID VALVE(S1/S2)



(a) Remove the shift solenoid valve S1 or S2.
(b) Measure the resistance between the solenoid connector and the solenoid body.
OK:
Resistance: 11 – 15 Ω at 20°C (68°F)
(c) Connector positive (+) lead to the terminal of solenoid connector, negative (–) lead to the solenoid body.
OK:
The solenoid makes an operating noise.

NG → **REPLACE SHIFT SOLENOID VALVE (See page 40–54)**

OK

REPAIR OR REPLACE TRANSMISSION WIRE(See page 40–50)