DI6RY–01

DTC	P0753/62	Shift Solenoid A Electrical Malfunction (SL1 Solenoid Valve)

DTC	P0758/63	Shift Solenoid B Electrical Malfunction (SL2 Solenoid Valve)

DTC	P0768/65	Shift Solenoid D Electrical Malfunction (S4 Solenoid Valve)

CIRCUIT DESCRIPTION

Shifting from 1st to O/D is performed in combination with ON and OFF of the SL1 and SL2 solenoid valves controlled by Engine and ECT ECU. If an open or short circuit occurs in either of the solenoid valves, the Engine and ECT ECU controls the remaining normal solenoid valve to allow the vehicle to be operated smoothly (Fail safe function).

DTC No.	DTC Detecting Condition	Trouble Area
P0753/62 P0758/63	The Engine and ECT ECU checks for an open or short circuit in the SL1 and SL2 solenoid valves. (a) When the solenoid is energized, the duty ratio exceed 75 %. (b) When the solenoid is not energized, the duty ratio is less than 3 %.	• Open or short in SL1/SL2/S4 solenoid valve circuit • SL1/SL2/S4 solenoid valve • Engine and ECT ECU
P0768/65	The Engine and ECT ECU checks for an open or short circuit in the S4 solenoid valve circuit when it changes. The Engine and ECT ECU records DTC P0768/65 if condition (a) or (b) is detected. (a) When the solenoid is energized, the solenoid resistance is 8 Ω or less and is counted. (b) When the solenoid is not energized, the solenoid resistance is 100 kΩ or more and is counted.	

HINT:

Check the SL1 solenoid valve when DTC P0753/62 is output, check the SL2 solenoid valve when DTC P0758/63 is output and check the S4 solenoid valve when DTC P0768/65 is output.

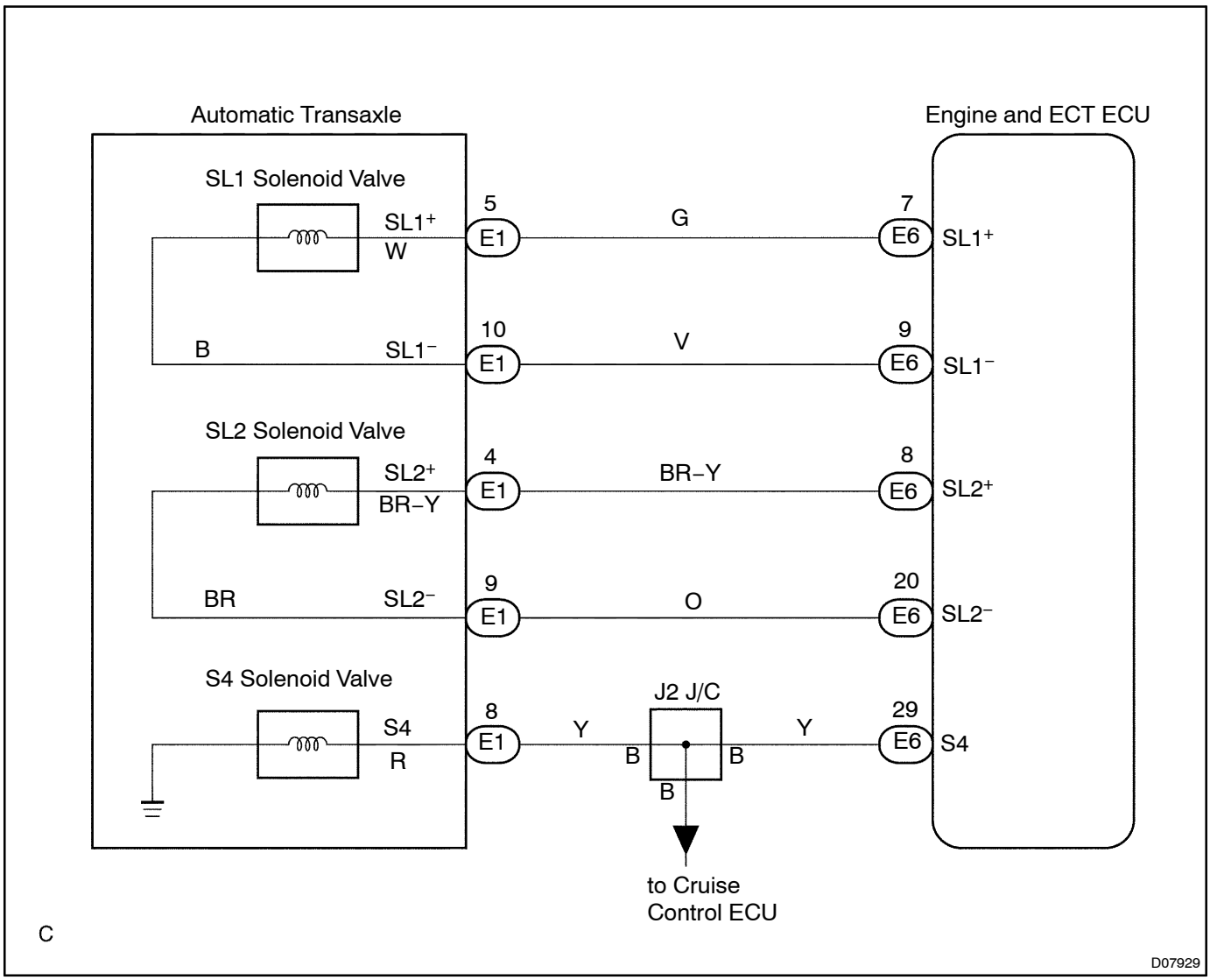
Fail safe function:
If either of the shift solenoid valve circuits develops an open or short, the Engine and ECT ECU turns the other solenoid ON and OFF to shift to the gear positions shown in the table below. The Engine and ECT ECU also turns the DSL solenoid valve OFF at the same time. If both solenoids are malfunction, hydraulic control cannot be performed electronically and must be done manually.
Manual shifting as shown in the following table must be done (In the case of a short circuit, the Engine and ECT ECU stops sending current to the short circuited solenoid).

NORMAL				SL1 SOLENOID MALFUNCTIONING								SL2 SOLENOID MALFUNCTIONING			
				Driving at 3rd or O/D				Driving at 1st or 2nd							
Solenoid Valve			Gear	Solenoid Valve			Gear	Solenoid Valve			Gear	Solenoid Valve			Gear
SL1	SL2	S4		SL1	SL2	S4		SL1	SL2	S4		SL1	SL2	S4	
ON	ON	OFF	1st	X	ON → OFF	OFF	3rd	X	ON	OFF	2nd	ON → OFF	X	OFF	3rd
OFF	ON	OFF	2nd	X	ON → OFF	OFF	3rd	X	ON	OFF	2nd	OFF	X	OFF	3rd
	OFF	OFF	3rd	X	OFF	OFF	3rd	X	OFF → ON	OFF → ON	3rd		X	OFF	3rd
	OFF	ON	O/D	X	OFF	ON	O/D	X	OFF → ON	ON	3rd		X	ON	O/D

S4 SOLENOID MALFUNCTIONING				SL1 AND SL2 SOLENOID MALFUNCTIONING				SL1 AND S4 SOLENOID MALFUNCTIONING							
								Driving at 3rd or O/D				Driving at 1st or 2nd			
Solenoid Valve			Gear	Solenoid Valve			Gear	Solenoid Valve			Gear	Solenoid Valve			Gear
SL1	SL2	S4		SL1	SL2	S4		SL1	SL2	S4		SL1	SL2	S4	
ON	ON	X	1st	X	X	OFF	3rd	X	ON → OFF	X	3rd	X	ON	X	2nd
OFF	ON	X	2nd	X	X	OFF	3rd	X	ON → OFF	X	3rd	X	ON	X	2nd
	OFF	X	3rd	X	X	OFF	3rd	X	OFF	X	3rd	X	OFF → ON	X	2nd
	OFF	X	3rd	X	X	ON	O/D	X	OFF	X	3rd	X	OFF → ON	X	2nd

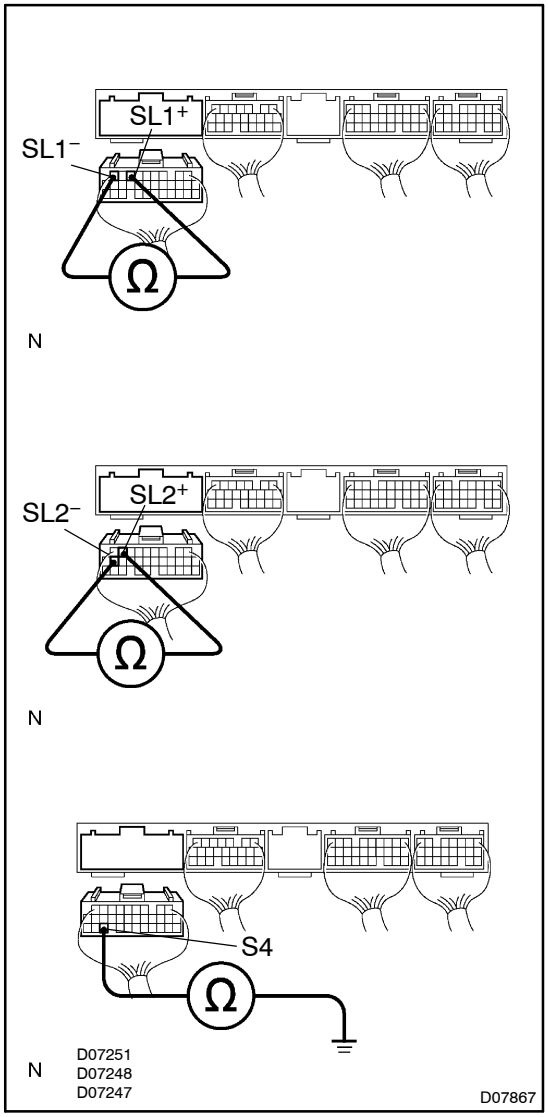
SL2 AND S4 SOLENOID MALFUNCTIONING				SL1, SL2 AND S4 SOLENOID MALFUNCTIONING			
Solenoid Valve			Gear	Solenoid Valve			Gear
SL1	SL2	S4		SL1	SL2	S4	
ON → OFF	X	X	3rd	X	X	X	3rd
OFF	X	X	3rd	X	X	X	3rd
	X	X	3rd	X	X	X	3rd
	X	X	3rd	X	X	X	3rd

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Measure resistance between terminals of Engine and ECT ECU.**



PREPARATION:

Disconnect the connector from Engine and ECT ECU.

CHECK:

(a) Measure resistance between terminals SL1+ and SL1– of Engine and ECT ECU connector.

(b) Measure resistance between terminals SL2+ and SL2– of Engine and ECT ECU connector.

(c) Measure resistance between terminal S4 of Engine and ECT ECU connector and body ground.

OK:

Resistance:

(a) SL1+ – SL1–: 5.3 ± 0.2 Ω

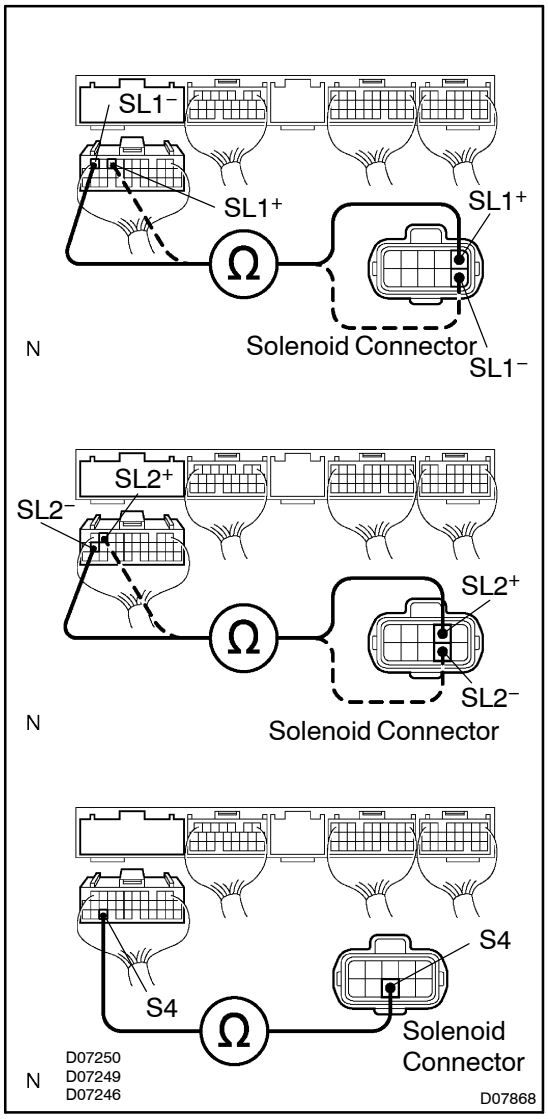
(b) SL2+ – SL2–: 5.3 ± 0.2 Ω

(c) S4 – Body ground: 13 ± 2 Ω

OK	**Check and replace the Engine and ECT ECU.**

NG

2	**Measure harness and connector between Engine and ECT ECU and automatic transaxle solenoid connector.**



PREPARATION:

(a) Disconnect the solenoid connector from the automatic transaxle.

(b) Disconnect the connector from the Engine and ECT ECU.

CHECK:

(a) Measure the harness and connector between terminal $SL1^+$ or $SL1^-$ of Engine and ECT ECU and terminal $SL1^+$ or $SL1^-$ of solenoid connector.

(b) Measure the harness and connector between terminal $SL2^+$ or $SL2^-$ of Engine and ECT ECU and terminal $SL2^+$ or $SL2^-$ of solenoid connector.

(c) Measure the harness and connector between terminal S4 of Engine and ECT ECU and terminal S4 of solenoid connector.

OK:

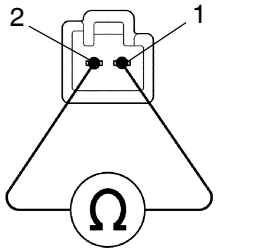
Resistance: 0 Ω

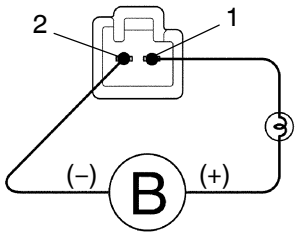
NG → **Repair or replace the harness or connector.**

OK

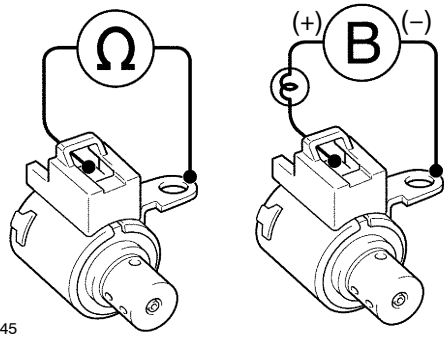
3	**Check SL1, SL2 or S4 solenoid valve.**

SL1 and SL2 solenoid valve





S4 solenoid valve



D03445
D03446
D03424 D03423
D03724

PREPARATION:

(a) Jack up the vehicle.
(b) Remove the oil pan.
(c) Remove the SL1, SL2, or S4 solenoid valve.

Check Solenoid Resistance:

CHECK:

(a) SL1 or SL2 solenoid valve:
Measure resistance between terminals 1 and 2 of solenoid connector.
(b) S4 solenoid valve:
Measure resistance between terminal 1 of solenoid connector and solenoid body.

OK:

Resistance: 5.1 – 5.5 Ω

Check Solenoid Operation:

CHECK:

(a) SL1 or SL2 solenoid valve:
Connect the positive (+) lead with an 23–W bulb to terminal 1 and the negative (–) lead to terminal 2 of solenoid connector, then check the movement of the valve.
(b) S4 solenoid valve:
Connect the positive (+) lead with an 23–W bulb to terminal 1 of solenoid connector and the negative (–) lead to the solenoid valve body, then check the movement of the valve.

OK:

The shift solenoid valve makes operation noise.

NG → **Replace the solenoid valve.**

OK

Repair or replace the solenoid wire, harness and connector between Engine and ECT ECU and automatic transaxle solenoid connector.