DI2LB–02

DTC	P0753/62	Shift Solenoid A Electrical Malfunction (No. 1 Solenoid Valve)

DTC	P0758/63	Shift Solenoid B Electrical Malfunction (No. 2 Solenoid Valve)

DTC	P0763/76	Shift Solenoid C Electrical Malfunction (No. 3 Solenoid Valve)

CIRCUIT DESCRIPTION

Shifting from 1st to 5th is performed in combination with ON and OFF of the No. 1, No. 2 and No. 3 solenoid valves controlled by Engine & ECT ECU. If an open or short circuit occurs in either of the solenoid valves, the Engine & ECT ECU controls the remaining normal solenoid valve to allow the vehicle to be operated smoothly (Fail safe function).

HINT:

Check the No. 1 solenoid valve when DTC P0753/62 is output, check the No. 2 solenoid valve when DTC P0758/63 is output and check the No. 3 solenoid valve when DTC P0763/76 is output.

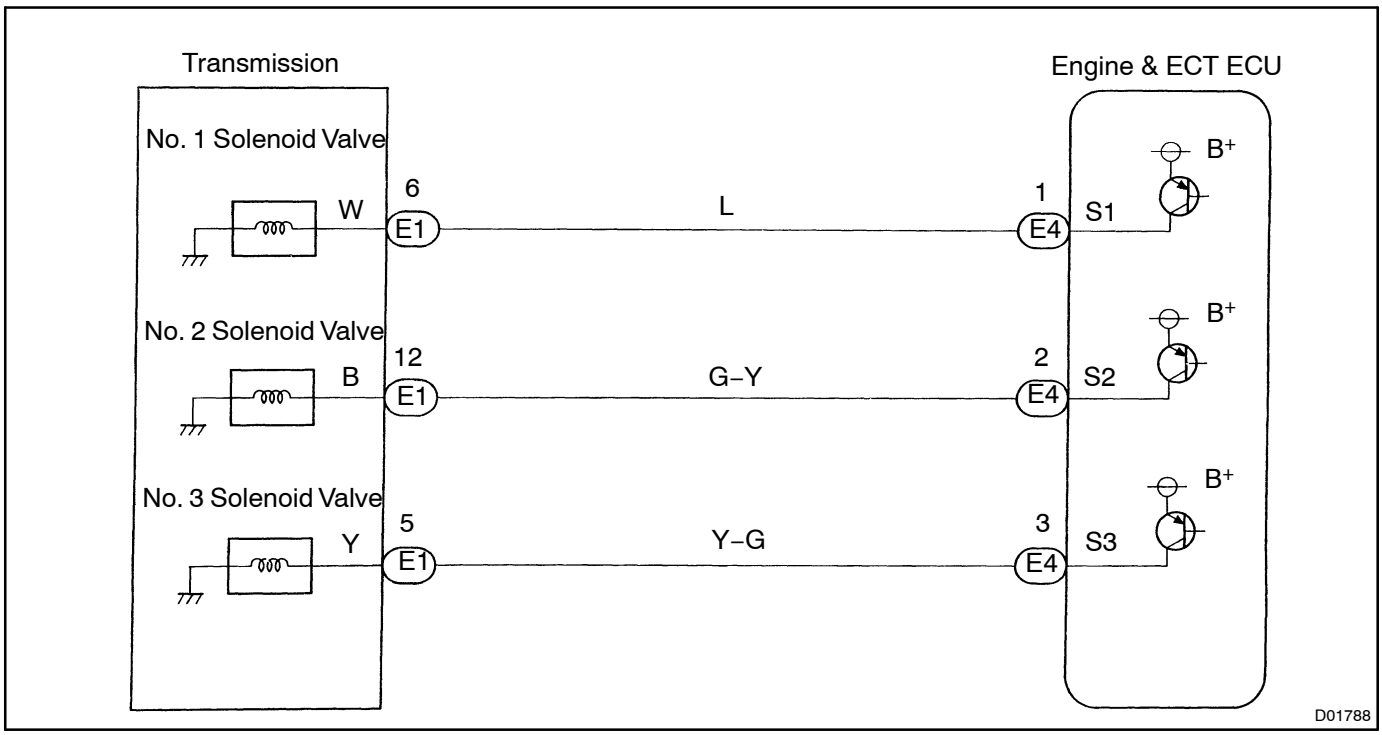
DTC No.	DTC Detecting Condition	Trouble Area
P0753/62 P0758/63 P0763/76	The Engine & ECT ECU checks for an open or short circuit in the No. 1, No. 2 or No. 3 solenoid valve circuit when it changes. The Engine & ECT ECU records DTC P0753/62, P0758/63 or P0763/76 if condition (a) or (b) is detected once, but it does not light up CHK ENG. After Engine & ECT ECU detects condition (a) or (b) continuously 8 times or more in 1 trip, it causes the CHK ENG lights up until condition (a) or (b) disappears. After that, if the Engine & ECT ECU detects condition (a) or (b) once, it starts lighting up CHK ENG again. (a) Solenoid resistance is 8 Ω or less (short circuit) when the solenoid is energized. (b) Solenoid resistance is 100 kΩ or more (open circuit) when the solenoid is not energized.	• Open or short in No. 1/No. 2/No. 3 solenoid valve circuit • No. 1/No. 2/No. 3 solenoid valve • Engine & ECT ECU

Fail Safe Function:
If either of the shift solenoid valve circuits develops an open or short, the Engine & ECT ECU turns the other solenoid valve ON and OFF to shift to the gear positions shown in the table below. The Engine & ECT ECU also turns the SLU solenoid valve OFF at the same time. If both solenoids are malfunctioning, 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 & ECT ECU stops sending current to the short circuited solenoid).

Range	Normal				No. 1 Solenoid Valve Malfunction				No. 2 Solenoid Valve Malfunction				No. 3 Solenoid Valve Malfunction			
	Solenoid Valve			Gear	Solenoid Valve			Gear	Solenoid Valve			Gear	Solenoid Valve			Gear
	No. 1	No. 2	No. 3		No. 1	No. 2	No. 3		No. 1	No. 2	No. 3		No. 1	No. 2	No. 3	
D	ON	OFF	OFF	1	X	OFF→ON	OFF	5→3	ON	X	OFF	1	ON	OFF	X	1
	OFF	ON	OFF	3	X	ON	OFF	3	OFF	X	OFF→ON	5→4	OFF	ON	X	3
	OFF	OFF	ON	4	X	OFF	ON	4	OFF	X	ON	4	OFF	OFF	X	5
	OFF	OFF	OFF	5	X	OFF	OFF	5	OFF	X	OFF	5	OFF	OFF	X	5
4	ON	OFF	OFF	1	X	OFF→ON	OFF	5→3	ON	X	OFF	1	ON	OFF	X	1
	OFF	ON	OFF	3	X	ON	OFF	3	OFF	X	OFF→ON	5→4	OFF	ON	X	3
	OFF	OFF	ON	4	X	OFF	ON	4	OFF	X	ON	4	OFF	OFF	X	5
3	ON	OFF	OFF	1	X	OFF→ON	OFF→ON	4→3	ON	X	OFF	1	ON	OFF	X	1
	OFF	ON	ON	3	X	ON	ON	3	OFF	X	ON	4	OFF	ON	X	3
	OFF	OFF	ON	4	X	OFF	ON	4	OFF	X	ON	4	OFF	OFF	X	4
2	ON	OFF	ON	1	X	OFF	ON	3	ON	X	ON	1	ON	OFF	X	1
	OFF	ON	ON	3	X	ON	ON	3	OFF	X	ON	3	OFF	ON	X	3
L	ON	OFF	OFF	1	X	OFF	OFF	3	ON	X	OFF	1	ON	OFF	X	1

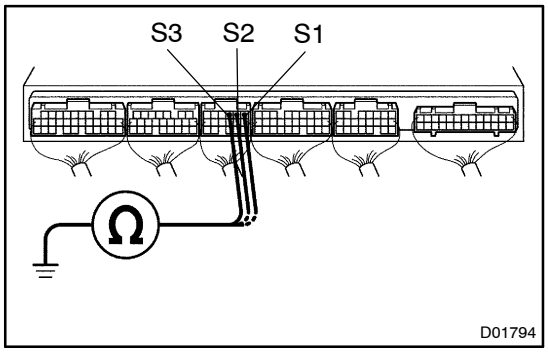
Range	No. 1 and No. 2 Solenoid Valve Malfunction				No. 1 and No. 3 Solenoid Valve Malfunction				No. 2 and No. 3 Solenoid Valve Malfunction				No. 1, No. 2 and No. 3 Solenoid Valve Malfunction			
	Solenoid Valve			Gear	Solenoid Valve			Gear	Solenoid Valve			Gear	Solenoid Valve			Gear
	No. 1	No. 2	No. 3		No. 1	No. 2	No. 3		No. 1	No. 2	No. 3		No. 1	No. 2	No. 3	
D	X	X	OFF→ON	5→4	X	OFF→ON	X	5→3	ON	X	X	1	X	X	X	5
	X	X	OFF→ON	5→4	X	ON	X	3	OFF	X	X	5	X	X	X	5
	X	X	ON	4	X	OFF	X	5	OFF	X	X	5	X	X	X	5
	X	X	OFF	5	X	OFF	X	5	OFF	X	X	5	X	X	X	5
4	X	X	OFF→ON	5→4	X	OFF→ON	X	5→3	ON	X	X	1	X	X	X	5
	X	X	OFF→ON	5→4	X	ON	X	3	OFF	X	X	5	X	X	X	5
	X	X	ON	4	X	OFF	X	5	OFF	X	X	5	X	X	X	5
3	X	X	OFF	4	X	OFF→ON	X	4→3	ON	X	X	1	X	X	X	4
	X	X	ON	4	X	ON	X	3	OFF	X	X	4	X	X	X	4
	X	X	ON	4	X	OFF	X	4	OFF	X	X	4	X	X	X	4
2	X	X	OFF	3	X	OFF	X	3	ON	X	X	1	X	X	X	3
	X	X	ON	3	X	ON	X	3	OFF	X	X	3	X	X	X	3
L	X	X	OFF	3	X	OFF	X	3	ON	X	X	1	X	X	X	3

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Measure resistance between terminal S1, S2 or S3 of Engine & ECT ECU and body ground.**



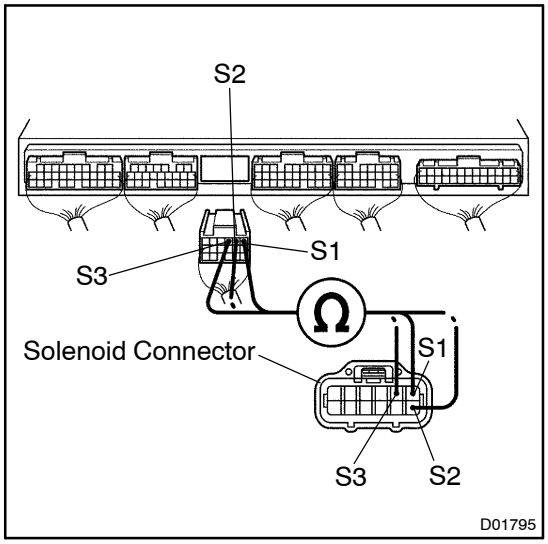
PREPARATION:
Disconnect the connector from Engine & ECT ECU.
CHECK:
Measure resistance between terminal S1, S2 or S3 of Engine & ECT ECU and body ground.
OK:

Resistance: 11 – 15 Ω at 20 °C (68 °F)

OK	**Check and replace the Engine & ECT ECU (See page IN–30).**

NG

2	**Check harness and connector between Engine & ECT ECU and automatic transmission solenoid connector.**



PREPARATION:
Disconnect the solenoid connector from the automatic transmission.
CHECK:
Check the harness and connector between terminal S1, S2 or S3 of Engine & ECT ECU and terminal S1, S2 or S3 of solenoid connector.
OK:

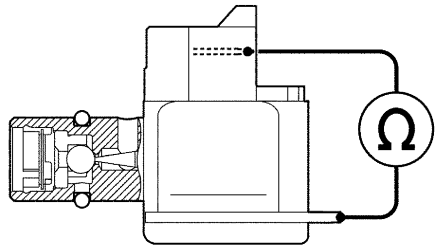
There is no open and no short circuit.

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

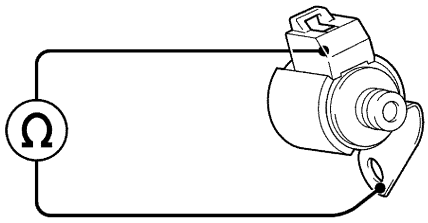
OK

3	Check No. 1, No. 2 or No. 3 solenoid valve.

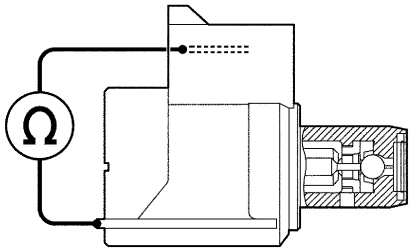
No. 1 Solenoid Valve



No. 2 Solenoid Valve



No. 3 Solenoid Valve



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Electrical Check:

PREPARATION:

(a) Remove the oil pan.

(b) Remove the No. 1, No. 2 or No. 3 solenoid valve.

CHECK:

(a) Measure resistance between solenoid connector and body ground.

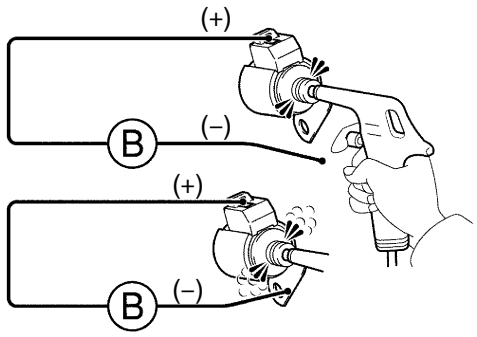
(b) Connect positive ⊕ lead to terminal of solenoid connector, negative ⊖ lead to solenoid body.

OK:

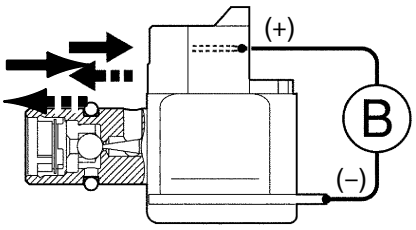
(a) Resistance: 11 – 15 Ω at 20 °C (68 °F)

(b) The solenoid makes an operating noise.

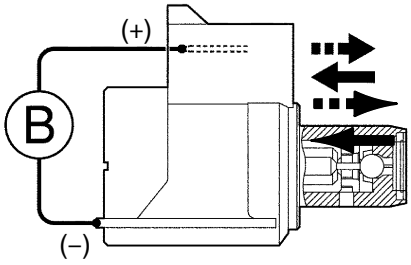
No. 2 Solenoid Valve



No. 1 Solenoid Valve



No. 3 Solenoid Valve



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Mechanical Check:

PREPARATION:

(a) Remove the oil pan.

(b) Remove the No. 1, No. 2 or No. 3 solenoid valve.

CHECK:

No. 2 solenoid valve:

(a) Applying 490 kPa (5 kgf/cm^2, 71 psi) of compressed air, check that the solenoid valves do not leak air.

(b) When battery positive voltage is supplied to the shift solenoid valves, check that the solenoid valves open.

No. 1 and No. 3 solenoid valves:

Connect the positive (+) lead with 8 – 10 W bulb to terminal 2 and the negative (–) lead to terminal 1, then check the movement of the valve.

OK:

When B^+ is applied.	Valve moves in ◀ direction in the illustration on the left.
When B^+ is cut off.	Valve moves in ■■■▶ direction in the illustration on the left.

NG → **Replace the solenoid valve.**

OK

Repair or replace the solenoid wire.