

<b>DTC</b>	<b>62, 63</b>	<b>No. 1, No. 2 Solenoid Valve Circuit Malfunction</b>
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## CIRCUIT DESCRIPTION

Shifting from 1st to O/D is performed in combination with ON and OFF of the No. 1 and No. 2 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).

Range	NORMAL			NO. 1 SOLENOID MALFUNCTIONING			NO. 2 SOLENOID MALFUNCTIONING			BOTH SOLENOIDS MALFUNCTIONING
	Solenoid valve		Gear	Solenoid valve		Gear	Solenoid valve		Gear	Gear when shift selector is manually operated
	No. 1	No. 2		No. 1	No. 2		No. 1	No. 2		
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

### HINT:

Check the No. 1 solenoid valve when DTC 62 is output and check the No. 2 solenoid valve when DTC 63 is output.

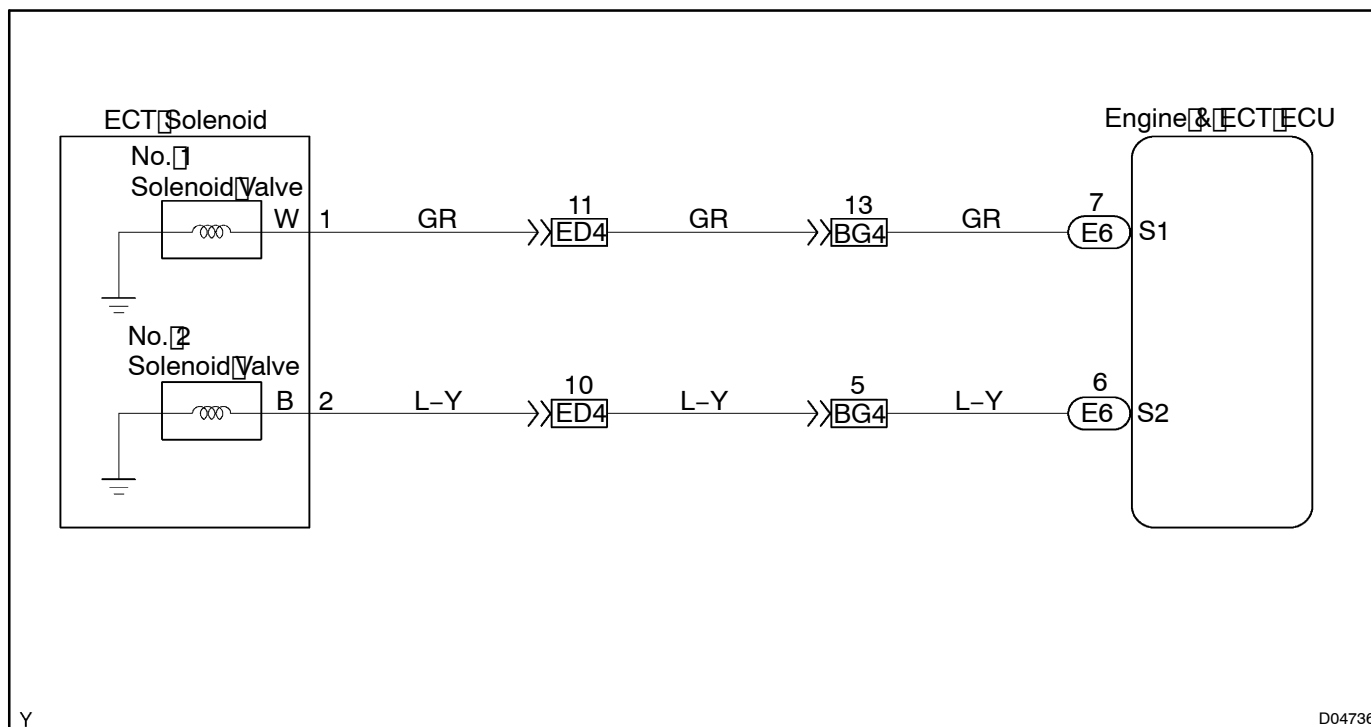
DTC No.	DTC Detecting Condition	Trouble Area
62, 63	<p>The Engine &amp; ECT ECU checks for an open or short circuit in the No. 1 or No. 2 solenoid valve circuit when it changes.</p> <p>The Engine &amp; ECT ECU records DTC 62 or 63 if condition (a) or (b) is detected once, but it does not blink the O/D OFF indicator light.</p> <p>After Engine &amp; ECT ECU detects condition (a) or (b) continuously 8 times or more in one-trip, it causes the O/D OFF indicator light light up until condition (a) or (b) disappears.</p> <p>After that, if the Engine &amp; ECT ECU detects condition (a) or (b) once, it starts lighting up O/D OFF indicator light again.</p> <p>(a) Solenoid resistance is 8 <math>\Omega</math> or less (short circuit) when the solenoid is energized.</p> <p>(b) Solenoid resistance is 100 k<math>\Omega</math> or more (open circuit) when the solenoid is not energized.</p>	<ul style="list-style-type: none"> <li>• Open or short in No. 1/No. 2 solenoid valve circuit</li> <li>• No. 1/No. 2 solenoid valve</li> <li>• Engine &amp; ECT ECU</li> </ul>

### Fail safe function:

If either of the 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 above. The Engine & ECT ECU 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.

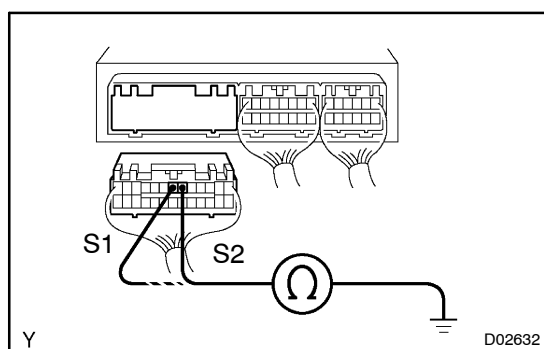
Manual shifting as shown in the above table must be done (In the case of a short circuit, the Engine & ECT ECU stops sending current to the short circuited solenoid).

## WIRING DIAGRAM



## INSPECTION PROCEDURE

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

**PREPARATION:**

Disconnect the connector from the Engine & ECT ECU.

**CHECK:**

Measure resistance between terminal S1 or S2 of the Engine & ECT ECU and body ground.

**OK:**

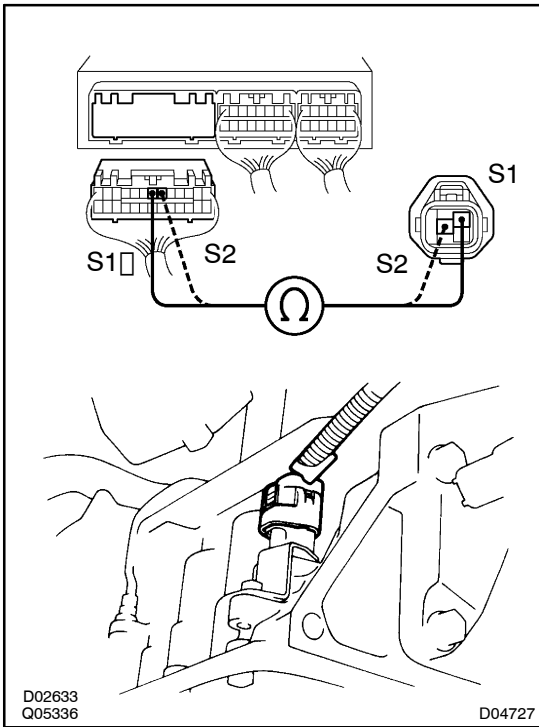
Resistance: 11 – 15  $\Omega$  at 20°C (68°F)

OK

Check and replace the Engine & ECT ECU (See page IN-30).

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## 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 or S2 of the Engine & ECT ECU and terminal S1 or S2 of solenoid connector.

### OK:

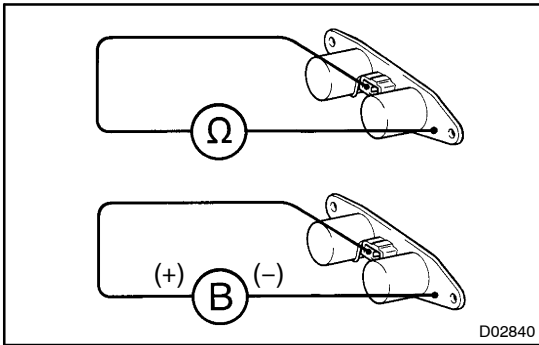
There is no open and short circuit.

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Repair or replace the harness or connector (See page IN-30).

OK

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



#### Electrical Check:

##### PREPARATION:

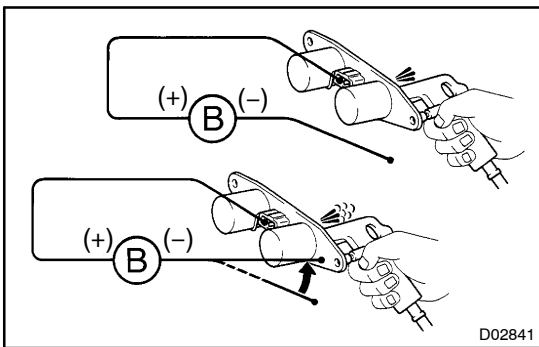
- Jack up the vehicle.
- Remove the oil pan.
- Disconnect the solenoid connector.
- Remove the No. 1 & No. 2 solenoid valve.

##### CHECK:

- Measure resistance between the solenoid connector and solenoid body.
- Connect positive  $\oplus$  lead of the battery to terminal of solenoid connector, negative  $\ominus$  lead of the battery to the solenoid body.

##### OK:

- Resistance: 11 – 15  $\Omega$  at 20 °C (68 °F)
- The solenoid makes an operating noise



#### Mechanical Check:

##### PREPARATION:

- Jack up the vehicle.
- Remove the oil pan.
- Disconnect the solenoid connector.
- Remove the No. 1 & No. 2 solenoid valve.

##### CHECK:

- Applying 490 kPa (5 kgf/cm<sup>2</sup>, 71 psi) of compressed air, check that the solenoid valve does not leak air.
- When battery voltage is supplied to the solenoid valve, check that the valve opens.

##### OK:

- Solenoid valve does not leak air
- Solenoid valve opens

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Replace the solenoid valve.

OK

Repair or replace the solenoid wire.