

<b>DTC</b>	<b>P0973</b>	<b>Shift Solenoid "A" Control Circuit Low</b>
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<b>DTC</b>	<b>P0974</b>	<b>Shift Solenoid "A" Control Circuit High</b>
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<b>DTC</b>	<b>P0976</b>	<b>Shift Solenoid "B" Control Circuit Low</b>
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<b>DTC</b>	<b>P0977</b>	<b>Shift Solenoid "B" Control Circuit High</b>
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## CIRCUIT DESCRIPTION

Shifting from 1st to O/D is performed in combination with ON and OFF of the shift solenoid valves No. 1 and No. 2 controlled by the ECM. If an open or short circuit occurs in either of the shift solenoid valves, the ECM controls the remaining normal shift solenoid valve in order to allow the vehicle to be operated safely (Fail-safe function).

Fail-safe Function:

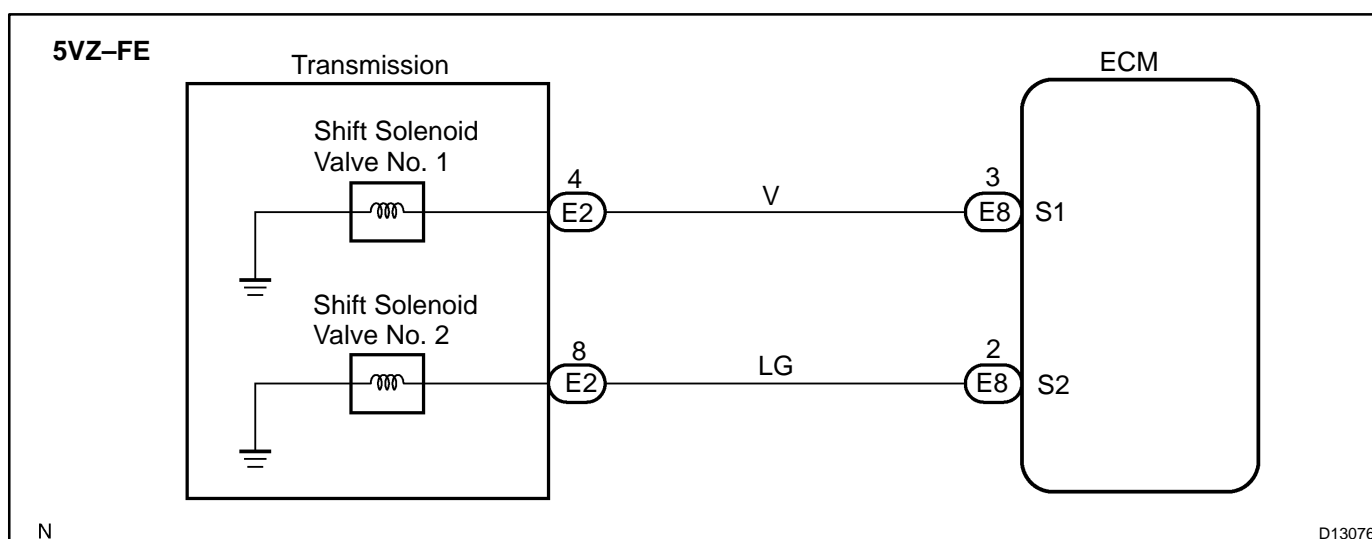
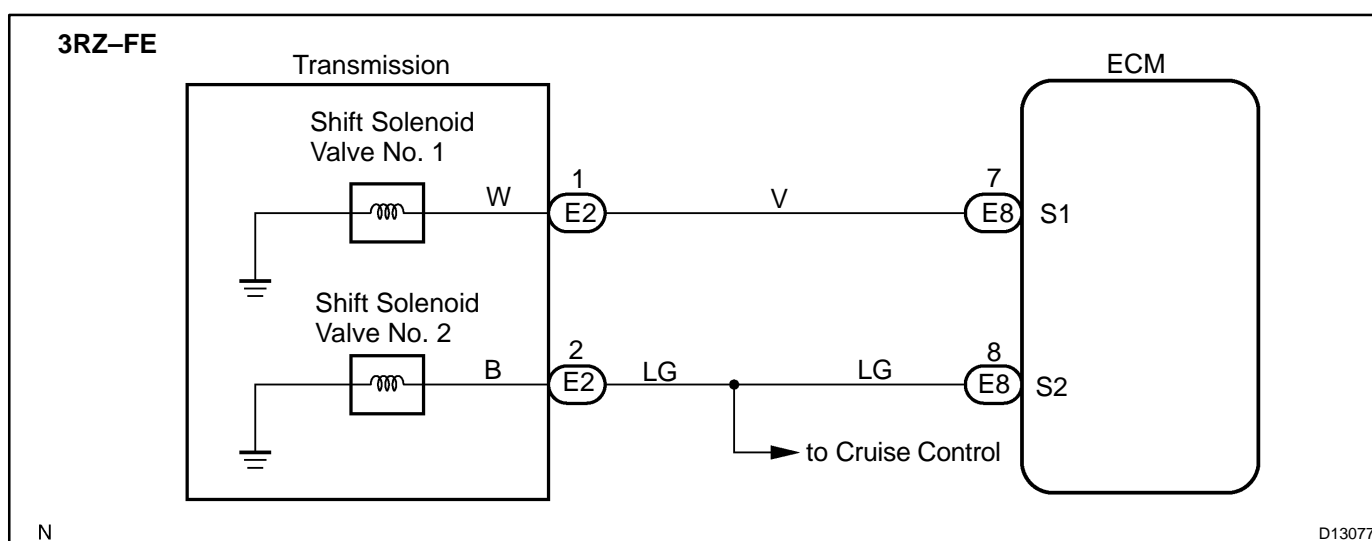
If either of the shift solenoid valve circuits develops an open or short, the ECM turns the other shift solenoid ON and OFF in order to shift to the gear positions shown in the table below. The ECM also turns the shift solenoid valve SL OFF at the same time. If both solenoids are malfunctioning, hydraulic control cannot be performed electrically but must be done manually. Manual shifting must be performed as shown in the following table (In the case of a short circuit, the ECM stops sending current to the short circuited solenoid).

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

DTC No.	DTC Detection Condition	Trouble Area
P0973	ECM detects open in solenoid valve No. 1 circuit 4 times when solenoid valve No. 1 is not operated	<ul style="list-style-type: none"> <li>• Open in shift solenoid valve No. 1 circuit</li> <li>• Shift solenoid valve No. 1</li> <li>• ECM</li> </ul>
P0974	ECM detects short in solenoid valve No. 1 circuit 4 times when solenoid valve No. 1 is operated	<ul style="list-style-type: none"> <li>• Short in shift solenoid valve No. 1 circuit</li> <li>• Shift solenoid valve No. 1</li> <li>• ECM</li> </ul>
P0976	ECM detects open in solenoid valve No. 2 circuit 4 times when solenoid valve No. 2 is not operated	<ul style="list-style-type: none"> <li>• Open in shift solenoid valve No. 2 circuit</li> <li>• Shift solenoid valve No. 2</li> <li>• ECM</li> </ul>
P0977	ECM detects short in solenoid valve No. 2 circuit 4 times when solenoid valve No. 2 is operated	<ul style="list-style-type: none"> <li>• Short in shift solenoid valve No. 2 circuit</li> <li>• Shift solenoid valve No. 2</li> <li>• ECM</li> </ul>

## WIRING DIAGRAM



### HINT:

Check the shift solenoid valve No. 1 when DTC P0973 and P0974 is output. Check the shift solenoid valve No. 2 when DTC P0976 and P0977 is output.

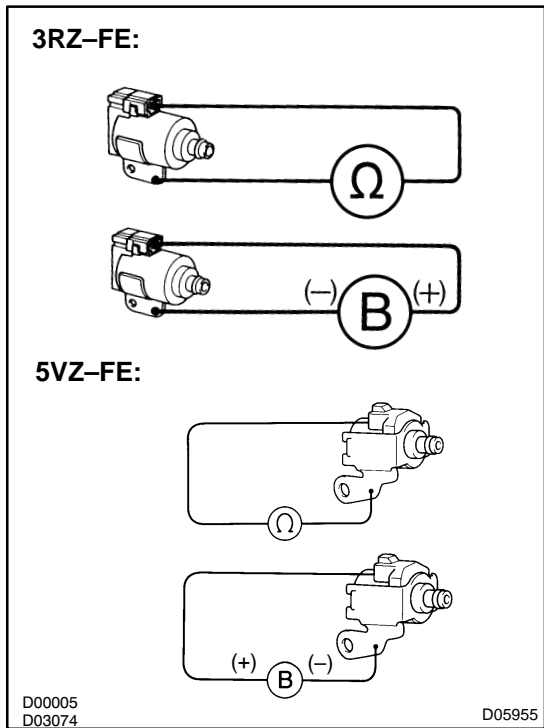
**INSPECTION PROCEDURE**

<b>1</b>	<b>Check harness and connector between ECM and shift solenoid valve No. 1 or No. 2.</b>
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<b>NG</b>	<b>Repair or replace harness or connector.</b>
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**OK**

<b>2</b>	<b>Check shift solenoid valve No. 1 or No. 2.</b>
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**PREPARATION:**

- (a) Jack up the vehicle.
- (b) Remove the oil pan.
- (c) Remove the shift solenoid valve No. 1 or No. 2.

**CHECK:**

- (a) Measure the resistance between the solenoid connector terminal and the body ground.  
**Standard: 11 – 15 Ω at 20 °C (68 °F)**
- (b) Connect the battery positive lead to the solenoid connector terminal and the battery negative lead to the solenoid body ground.  
**Standard: Solenoid operation noise is produced.**

**OK:**

**Standard.**

<b>NG</b>	<b>Replace solenoid valve.</b>
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**OK**

<b>Check and replace the ECM (See page IN-28).</b>
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