

DTC	P0973	Shift Solenoid "A" Control Circuit Low (Shift Solenoid Valve S1)
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DTC	P0974	Shift Solenoid "A" Control Circuit High (Shift Solenoid Valve S1)
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CIRCUIT DESCRIPTION

Shifting from 1st to 5th is performed in combination with "ON" and "OFF" operation of the shift solenoid valves SL1, SL2, S1, S2 and SR which are 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 valves to allow the vehicle to be operated smoothly (See page [DI-985](#)).

DTC No.	DTC Detection Condition	Trouble Area
P0973	ECM detects short in solenoid valve S1 circuit 2 times when solenoid valve S1 is operated (1-trip detection logic)	<ul style="list-style-type: none"> • Short in shift solenoid valve S1 circuit • Shift solenoid valve S1 • ECM
P0974	ECM detects open in solenoid valve S1 circuit 2 times when solenoid valve S1 is not operated (1-trip detection logic)	<ul style="list-style-type: none"> • Open in shift solenoid valve S1 circuit • Shift solenoid valve S1 • ECM

MONITOR DESCRIPTION

These DTCs indicate an open or short in the shift solenoid valve S1 circuit. When there is an open or short circuit in any shift solenoid valve circuit, the ECM detects the problem and illuminates the MIL and stores the DTC. When the shift solenoid valve S1 is on, if resistance is 8 Ω or less, the ECM determines there is a short in the shift solenoid valve S1 circuit.

When the shift solenoid valve S1 is off, if resistance is 100 k Ω or more, the ECM determines there is an open in the shift solenoid valve S1 circuit (See page [DI-985](#)).

MONITOR STRATEGY

Related DTCs	P0973	Shift solenoid valve S1/Range check (Low resistance)
	P0974	Shift solenoid valve S1/Range check (High resistance)
Required sensors/Components	Shift solenoid valve S1	
Frequency of operation	Continuous	
Duration	0.064 sec.	
MIL operation	Immediate	
Sequence of operation	None	

TYPICAL ENABLING CONDITIONS

Item	Specification	
	Minimum	Maximum
The monitor will run whenever these DTCs are not present.	See page DI-963	
Range check (Low resistance)		
Shift solenoid valve S1	ON	
Range check (High resistance)		
Shift solenoid valve S1	OFF	

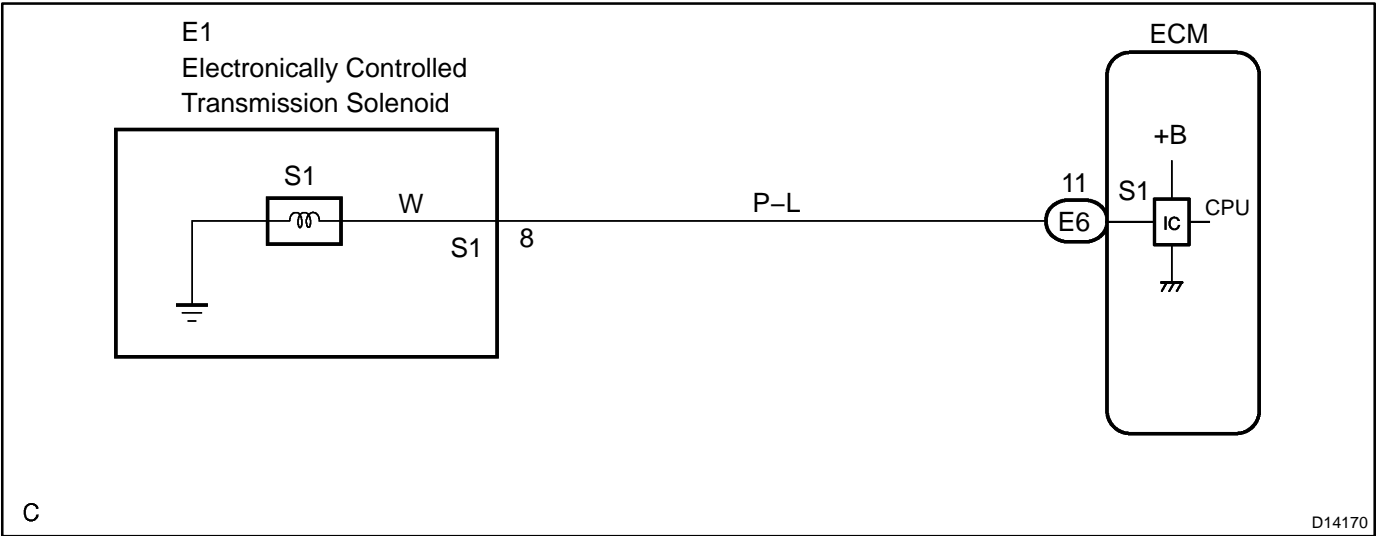
TYPICAL MALFUNCTION THRESHOLDS

Detection criteria	Threshold
Range check (Low resistance)	
Shift solenoid valve S1 resistance	8 Ω or less
Range check (High resistance)	
Shift solenoid valve S1 resistance	100 kΩ or more

COMPONENT OPERATING RANGE

Parameter	Standard value
Shift solenoid valve S1	Resistance: 11 to 15 Ω at 20°C (68°F)

WIRING DIAGRAM



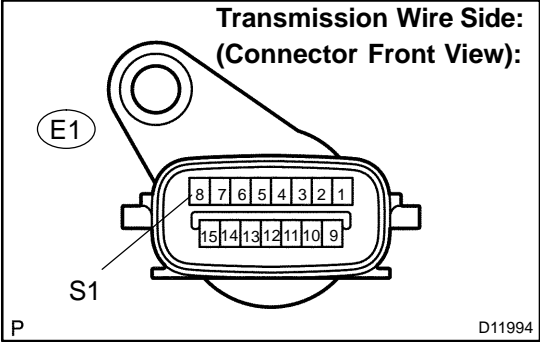
INSPECTION PROCEDURE

HINT:

- The shift solenoid valve S1 is turned on/off normally when the shift lever is in the D position:

ECM command gearshift	1st	2nd	3rd	4th	5th
Shift solenoid valve S1	ON	ON	OFF	OFF	OFF

1	Check transmission wire.
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PREPARATION:

Disconnect the transmission wire connector.

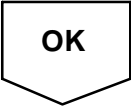
CHECK:

Measure the resistance according to the value(s) in the table below.

OK:

Tester Connection	Specified Condition 20°C (68°F)
8 – Body ground	11 to 15 Ω

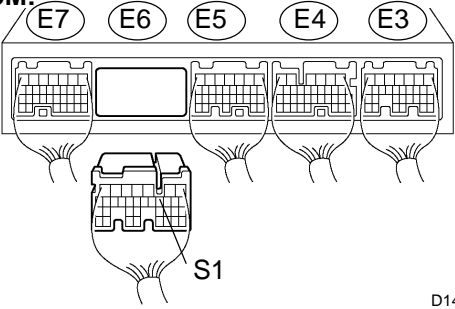
NG	Go to step 3.
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2

Check harness and connector (Transmission wire – ECM)

ECM:



PREPARATION:

- (a) Connect the transmission wire connector.
- (b) Disconnect the ECM connector.

CHECK:

Measure the resistance according to the value(s) in the table below.

OK:

Tester Connection	Specified Condition 20°C (68°F)
E6 – 11 (S1) – Body ground	11 to 15 Ω

NG

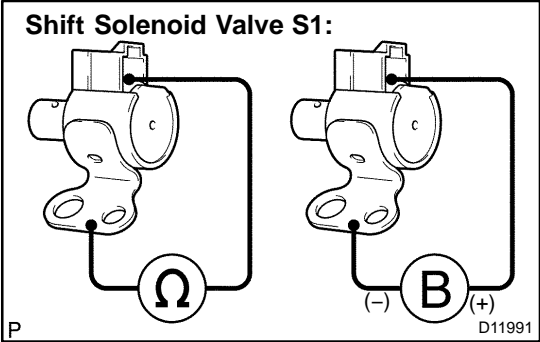
**Repair or replace the harness or connector
(See page [IN-30](#)).**

OK

Replace the ECM (See page [SF-66](#)).

3

Check shift solenoid valve S1.



PREPARATION:

Remove the shift solenoid valve S1 (See page [AT-12](#)).

CHECK:

Measure the resistance according to the value(s) in the table below.

OK:

Tester Connection	Specified Condition 20°C (68°F)
Solenoid Connector (S1) – Solenoid Body (S1)	11 to 15 Ω

CHECK:

Connect the positive (+) lead to the terminal of the solenoid connector, and the negative (–) lead to the solenoid body.

OK:

The solenoid makes an operating sound.

NG

Replace the shift solenoid valve S1
(See page [AT-12](#)).

OK

Repair or replace the transmission wire
(See page [AT-9](#)).