DTC	P2769	Short in Torque Converter Clutch Solenoid Circuit (Shift Solenoid Valve SL)

DTC	P2770	Open in Torque Converter Clutch Solenoid Circuit (Shift Solenoid Valve SL)

DESCRIPTION

The shift solenoid valve SL is turned ON and OFF by signals from the ECM to control the hydraulic pressure acting on the lock-up relay valve, which then controls operation of the lock-up clutch.

DTC No.	DTC Detection Condition	Trouble Area
P2769	ECM detects short in shift solenoid valve SL circuit when shift solenoid valve SL is operated (2 trip detection logic)	• Short in shift solenoid valve SL circuit • Shift solenoid valve SL • ECM
P2770	ECM detects open in shift solenoid valve SL circuit when shift solenoid valve SL is not operated (2 trip detection logic)	• Open in shift solenoid valve SL circuit • Shift solenoid valve SL • ECM

Fail-safe function:
If the ECM detects a malfunction, it turns the shift solenoid valve SL OFF.

MONITOR DESCRIPTION

Based on the signals from the throttle position sensor, the air flow meter and the crankshaft position sensor, the ECM sends a signal to the solenoid valve SL to regulate the hydraulic pressure and provide smoother gear shifts. The shift solenoid valve SL responds to commands from the ECM. The valve controls the lock-up relay valve to perform the torque-converter lock-up function. If the ECM detects an open or short circuit for shift solenoid valve SL, it will illuminate the MIL.

MONITOR STRATEGY

AX

Related DTCs	P2769: Shift solenoid valve SL/Range check (Low resistance) P2770: Shift solenoid valve SL/Range check (High resistance)
Required sensors/Components	Shift solenoid valve SL
Frequency of operation	Continuous
Duration	1 time
MIL operation	2 driving cycles
Sequence of operation	None

TYPICAL ENABLING CONDITIONS

P2769: Range check (Low resistance)

The monitor will run whenever the following DTCs are not present	None
Solenoid	ON
Time after solenoid OFF to ON	More than 0.008 sec.

P2770: Range check (High resistance)

The monitor will run whenever the following DTCs are not present	None
Solenoid	OFF
Time after solenoid ON to OFF	More than 0.008 sec.

TYPICAL MALFUNCTION THRESHOLDS

P2769: Range check (Low resistance)

Intelligent power MOS diagnosis fail signals detected while the solenoid is operated	Fail at solenoid resistance: 8 Ω or less

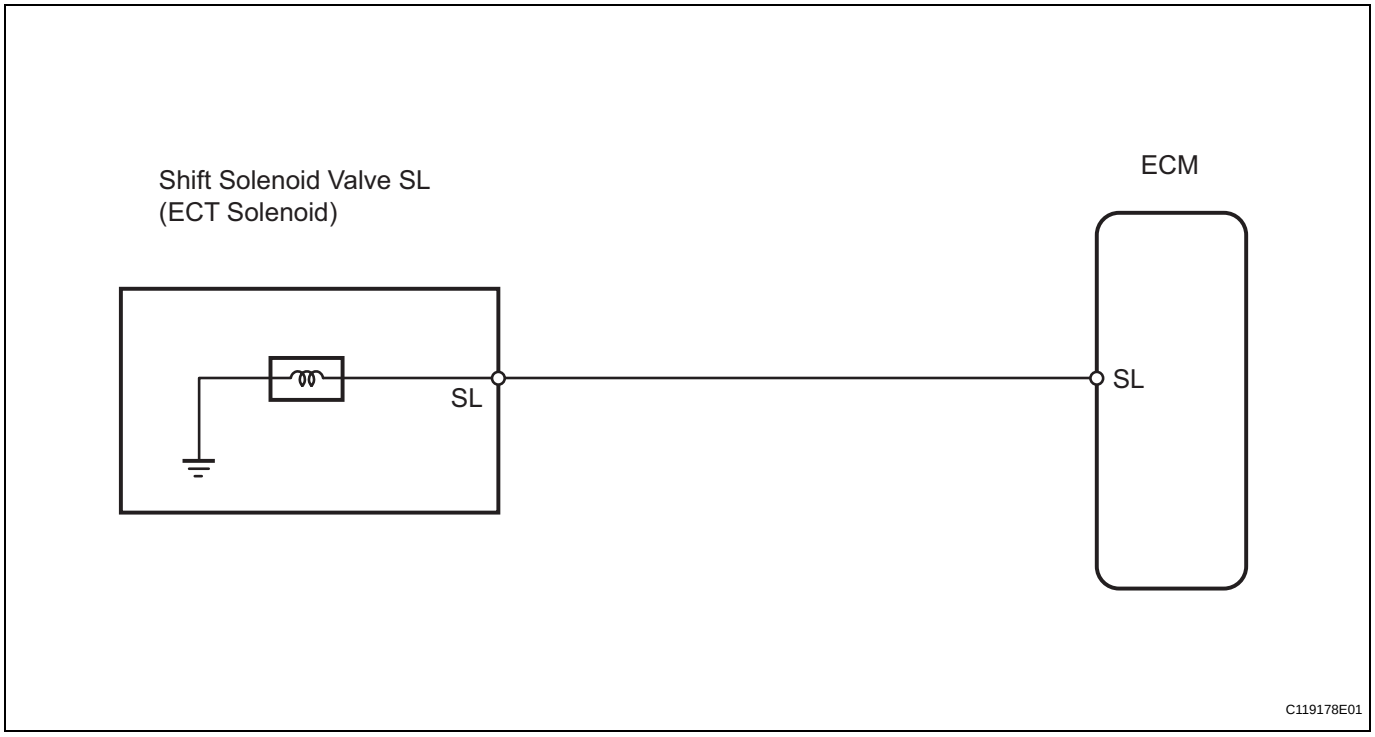
P2770: Range check (High resistance)

Intelligent power MOS diagnosis fail signals detected while the solenoid is not operated	Fail at solenoid resistance: 100 kΩ or more

COMPONENT OPERATING RANGE

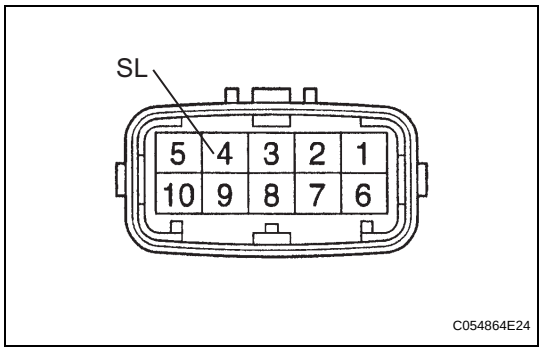
Shift solenoid valve SL	Resistance: 11 to 15 Ω at 20°C (68°F)

WIRING DIAGRAM



AX

1	INSPECT TRANSMISSION WIRE (SHIFT SOLENOID VALVE SL)



(a) Disconnect the E1 wire connector.
(b) Measure the resistance of the transmission wire.

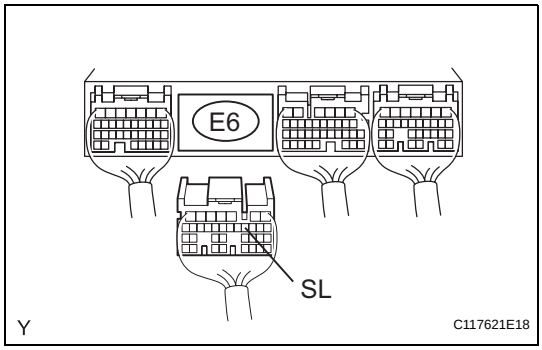
Standard resistance

Tester Connection	Condition	Specified Condition
4 (SL) - Body ground	20°C (68°F)	11 to 15 Ω

NG → **Go to step 3**

OK

2	CHECK WIRE HARNESS (TRANSMISSION WIRE - ECM)



(a) Disconnect the E6 ECM connector.
(b) Measure the resistance of the wire harness side connector.
Standard resistance

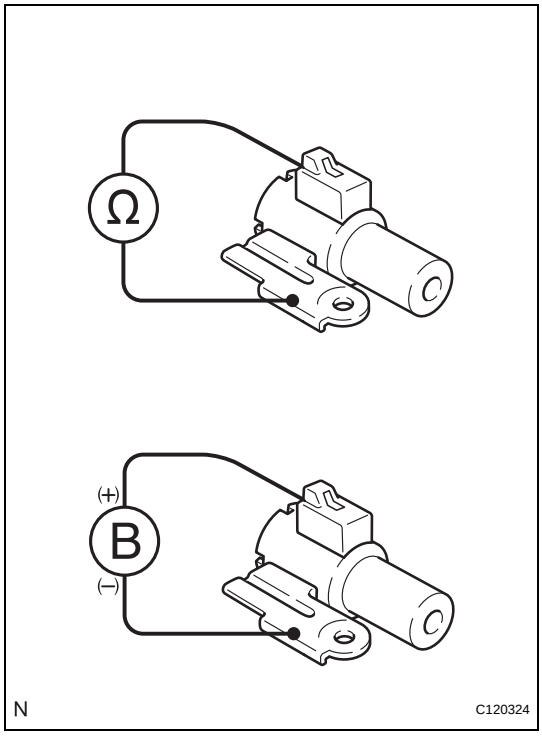
Tester Connection	Condition	Specified Condition
E6-11 (SL) - Body ground	20°C (68°F)	11 to 15 Ω

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

REPLACE ECM

3	INSPECT SHIFT SOLENOID VALVE SL



(a) Remove the shift solenoid valve SL.
(b) Measure the resistance between the solenoid valve terminal and solenoid valve body.
Standard resistance:
11 to 15 Ω at 20°C (68°F)
(c) Connect the battery's positive (+) lead to the terminal of the solenoid connector, and the negative (-) lead to the solenoid body.
(d) Check the operating noise of the solenoid valve.
OK:
Solenoid makes operating noise.

NG → **REPLACE SHIFT SOLENOID VALVE SL**

OK

REPAIR OR REPLACE TRANSMISSION WIRE

AX