DTC	P0778	PRESSURE CONTROL SOLENOID ”B” ELECTRICAL (SHIFT SOLENOID VALVE SL2)

CIRCUIT DESCRIPTION

Shifting from 1st to 5th is performed in combination with ”ON” and ”OFF” operation of the shift solenoid valves SL1, SL2, SL3, S4 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 (Fail safe function).

DTC No.	DTC Detection Condition	Trouble Area
P0778	ECM checks for an open or short circuit in shift solenoid valves SL2 (1−trip detection logic) • Hybrid IC for solenoid indicates fail (Except PZEV) • Output signal duty equals to 100% (PZEV)	• Open or short in shift solenoid valve SL2 circuit • Shift solenoid valve SL2 • ECM

MONITOR DESCRIPTION

The ECM commands gear shifts by turning the shift solenoid valves ”ON/OFF”. 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. And the ECM performs the fail−safe function and turns the other normal shift solenoid valves ”ON/OFF” (In case of an open or short circuit, the ECM stops sending current to the circuit.)
(see page 05−1148).

MONITOR STRATEGY

Related DTCs	P0778: Shift solenoid valve SL2/Range check
Required sensors/Components	Shift solenoid valve SL2
Frequency of operation	Continuous
Duration	1 sec.
MIL operation	Immediate
Sequence of operation	None

TYPICAL ENABLING CONDITIONS

Except PZEV:

The monitor will run whenever this DTC is not present.	See page 05−1125
Solenoid current cut status	Not cut
CPU commanded duty ratio to SL2	19% or more
Battery voltage	11 V or more
Ignition switch	ON
Starter	OFF

PZEV:

The monitor will run whenever this DTC is not present.	See page 05−1125
Battery voltage	10 V or more
CPU commanded duty ratio to SL2	Less than 75%
Ignition switch	ON
Starter	OFF

TYPICAL MALFUNCTION THRESHOLDS

Except PZEV:

Solenoid status from IC	Fail (Open or short)

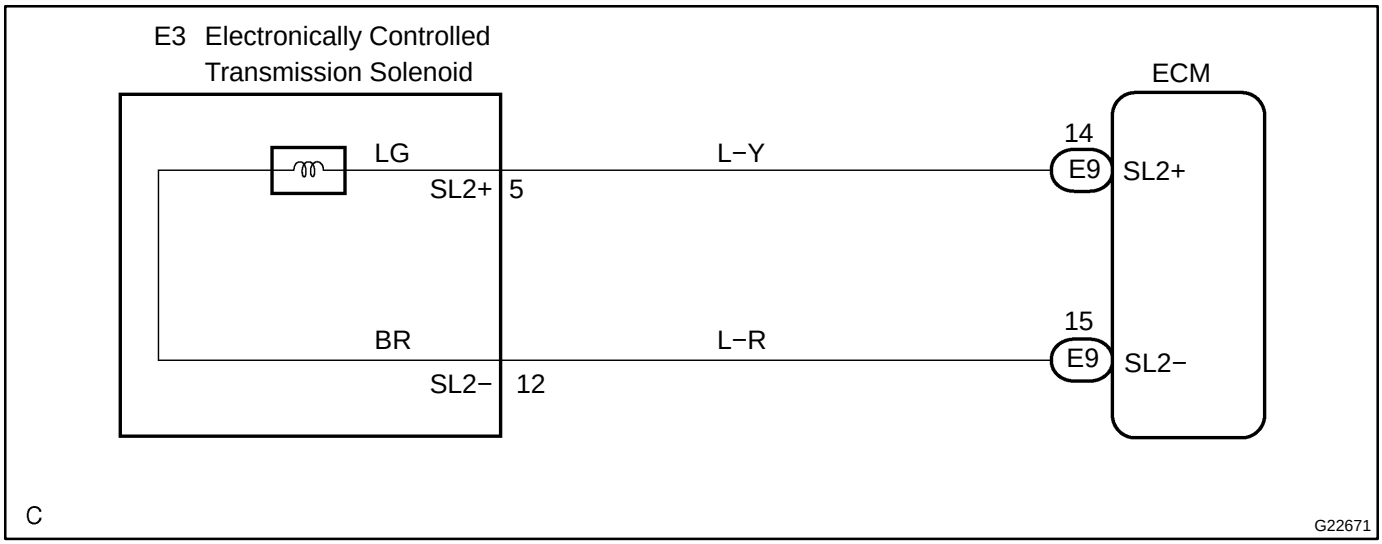
PZEV:

Output signal duty	100%

COMPONENT OPERATING RANGE

Output signal duty	Less than 100%

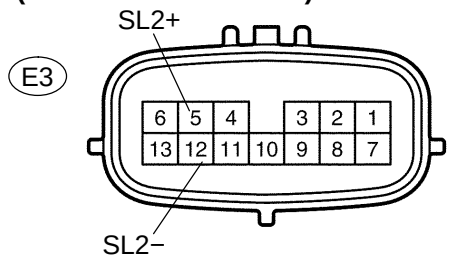
WIRING DIAGRAM



INSPECTION PROCEDURE

1	INSPECT TRANSMISSION WIRE(SL2)

Transmission Wire Side:
(Connector Front View):



(a) Disconnect the transmission wire connector from the transaxle.

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

Standard:

Tester Connection	Specified Condition 20°C (68°F)
5 (SL2+) – 12 (SL2–)	5.0 to 5.6 Ω

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

OK:

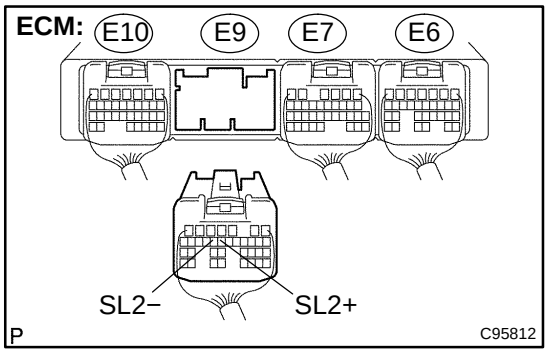
Standard (Check for short):

Tester Connection	Specified Condition
5 (SL2+) – Body ground	10 kΩ or higher
12 (SL2–) – Body ground	↑

NG → **Go to step 3**

OK

2 CHECK HARNESS AND CONNECTOR(TRANSMISSION WIRE − ECM)



(a) Connect the transmission connector to the transaxle.
(b) Disconnect the connector from the ECM.
(c) Measure the resistance according to the value(s) in the table below.

Standard:

Tester Connection	Specified Condition 20°C (68°F)
E9 − 14 (SL2+) − E9 − 15 (SL2−)	5.0 to 5.6 Ω

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

OK:

Standard (Check for short):

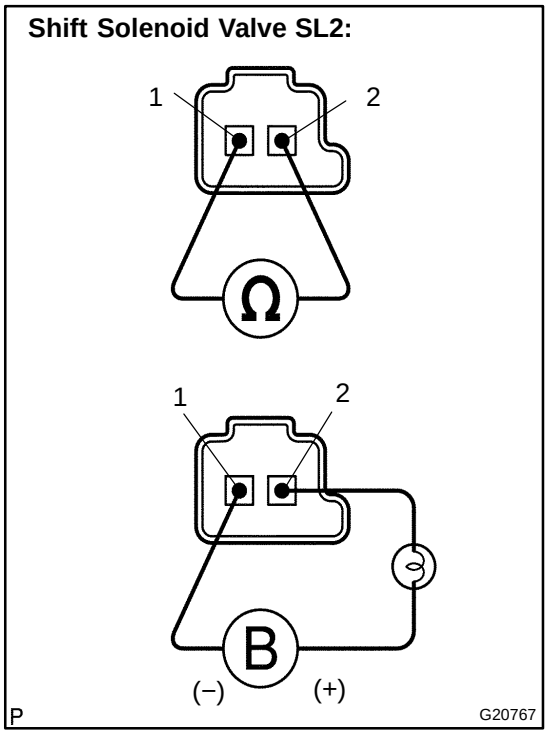
Tester Connection	Specified Condition
E9 − 14 (SL2+) − Body ground	10 kΩ or higher
E9 − 15 (SL2−) − Body ground	↑

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR (SEE PAGE 01−32)**

OK

REPLACE ECM (SEE PAGE 10−9)

3 INSPECT SHIFT SOLENOID VALVE(SL2)



(a) Remove the shift solenoid valve SL2.
(b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester Connection	Specified Condition 20°C (68°F)
1 − 2	5.0 to 5.6 Ω

(c) Connect the positive (+) lead with a 21 W bulb to terminal 2 and the negative (−) lead to terminal 1 of the solenoid valve connector, then check the movement of the valve.

Standard:

The solenoid makes an operating noise.

NG → **REPLACE SHIFT SOLENOID VALVE(SL2)**

OK

REPAIR OR REPLACE TRANSMISSION WIRE (SEE PAGE 40−34)