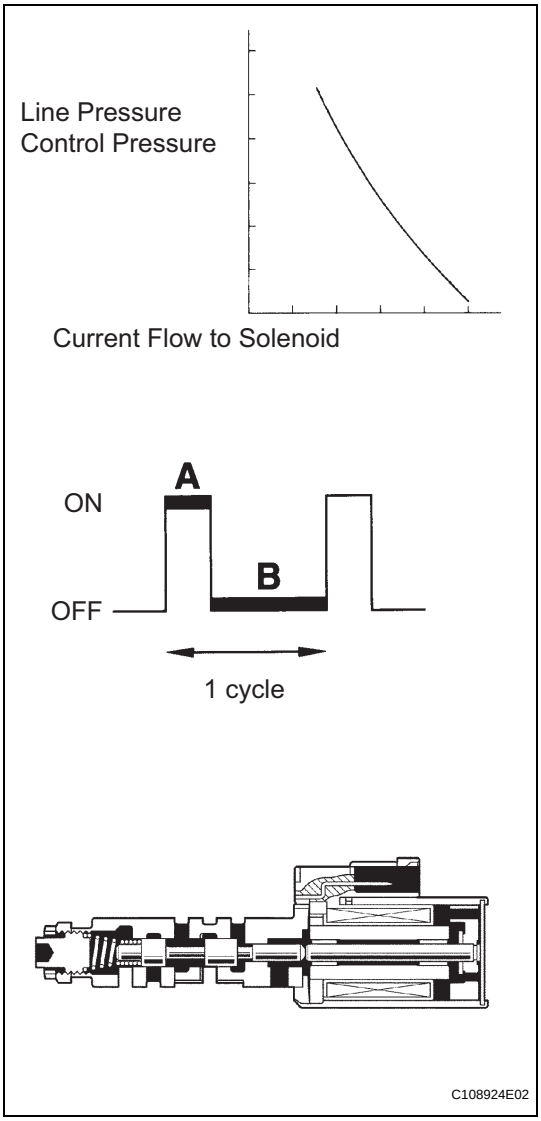
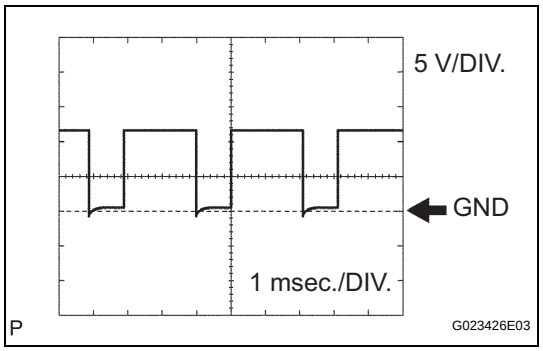
DTC	P2716	Pressure Control Solenoid "D" Electrical (Shift Solenoid Valve SLT)

DESCRIPTION



The throttle pressure that is applied to the primary regulator valve (which modulates the line pressure) causes the solenoid valve SLT, under electronic control, to precisely modulate and generate the line pressure according to the extent that the accelerator pedal is depressed or the output of engine power. This controls the line pressure and provides smooth shifting characteristics.
Upon receiving a signal of the throttle valve opening angle, the ECM controls the line pressure by sending a predetermined duty ratio* to the solenoid valve, modulating the line pressure and generating throttle pressure.
HINT:
*: The duty ratio is the ratio of the current ON time (A) to the total of the current ON and OFF time (A + B).
Duty Ratio (%) = A / (A + B) x 100

DTC No.	DTC Detection Condition	Trouble Area
P2716	Condition (a) or (b) below is detected for 1 sec. or more (1 trip detection logic): (a) SLT - terminal: 0 V (b) SLT - terminal: 12 V	• Open or short in shift solenoid valve SLT circuit • Shift solenoid valve SLT • ECM



1. Reference: Inspect using an oscilloscope.
Check the waveform of the ECM connector.
OK:
Refer to illustration.

Item	Content
Tester Connection	**E6-12 (SLT+) - E6-13 (SLT-)**
Tool Setting	**5 V/DIV., 1 msec./DIV.**
Condition	**Engine idle speed**

MONITOR DESCRIPTION

The shift solenoid valve SLT controls the transmission line pressure for smooth transmission operation based on signals from the throttle position sensor and the vehicle speed sensor. The ECM adjusts the duty cycle of the solenoid valve SLT to control hydraulic line pressure coming from the primary regulator valve. Appropriate line pressure assures smooth shifting with varying engine outputs. When an open or short in the shift solenoid valve SLT circuit is detected, the ECM interprets this as a fault. The ECM will illuminate the MIL.

MONITOR STRATEGY

Related DTCs	P2716: Shift solenoid valve SLT/Range check
Required sensors/Components	Shift solenoid valve SLT
Frequency of operation	Continuous
Duration	1 sec.
MIL operation	Immediate
Sequence of operation	None

TYPICAL ENABLING CONDITIONS

The monitor will run whenever the following DTCs are not present.	None
Solenoid current cut status	Not cut
Battery voltage	11 V or more

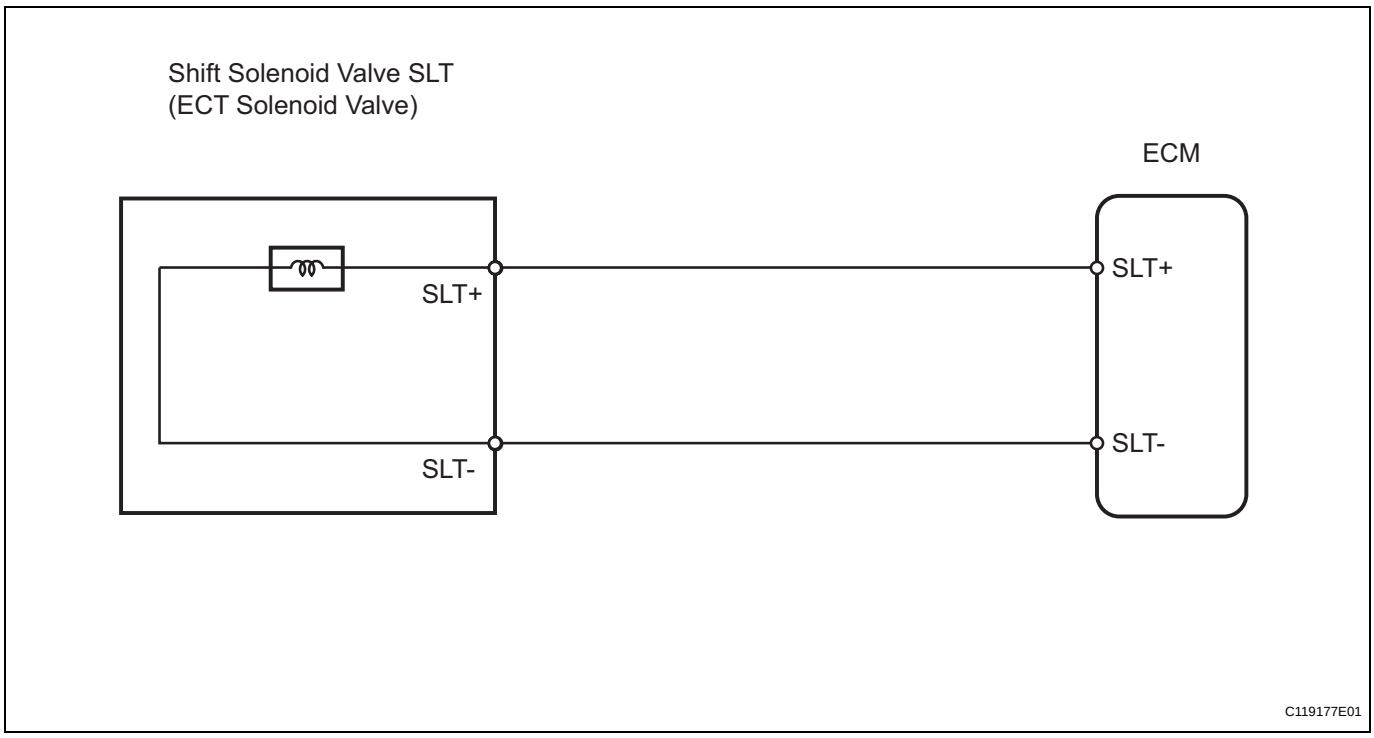
TYPICAL MALFUNCTION THRESHOLDS

Solenoid status (SLT) from MIC	Fail (open or short) (Output signal duty equal to 100%)

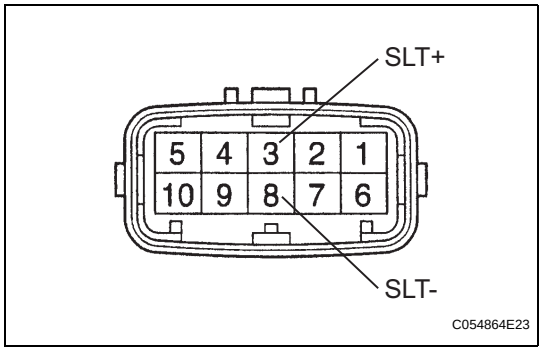
COMPONENT OPERATING RANGE

Shift solenoid valve SLT	Resistance: 5.0 to 5.6 Ω at 20°C (68°F)

WIRING DIAGRAM



1 INSPECT TRANSMISSION WIRE (SHIFT SOLENOID VALVE SLT)



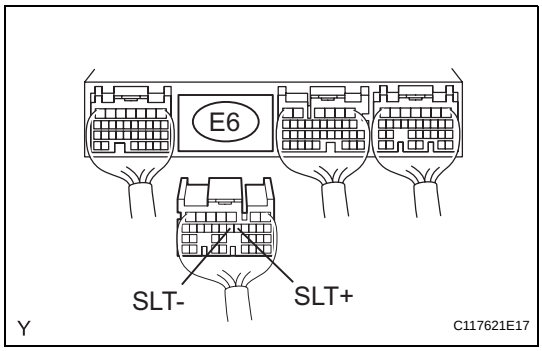
(a) Disconnect the E1 wire connector.
(b) Measure the resistance of the transmission wire.
Standard resistance

Tester Connection	Condition	Specified Condition
3 (SLT+) - 8 (SLT-)	20°C (68°F)	5.0 to 5.6 Ω
3 (SLT+) - Body ground	20°C (68°F)	10 kΩ or higher
8 (SLT-) - Body ground	20°C (68°F)	10 kΩ or higher

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

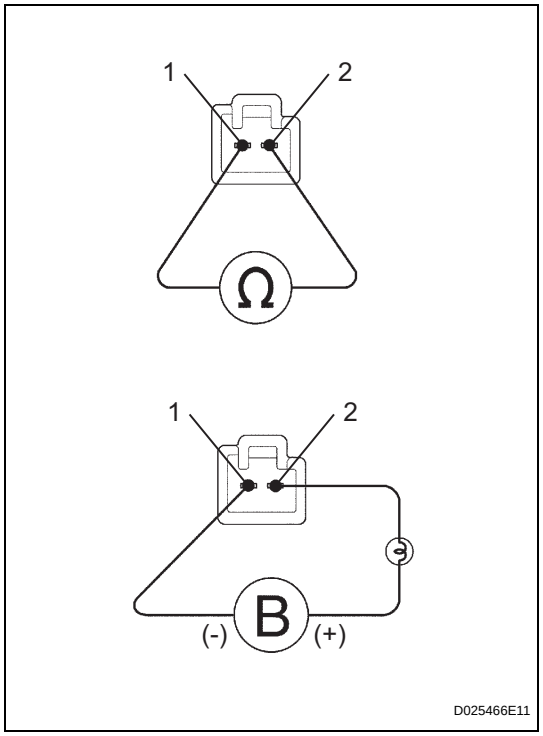
Tester Connection	Condition	Specified Condition
E6-12 (SLT+) - E6-13 (SLT-)	20°C (68°F)	5.0 to 5.6 Ω
E6-12 (SLT+) - Body ground	20°C (68°F)	10 kΩ or higher
E6-13 (SLT-) - Body ground	20°C (68°F)	10 kΩ or higher

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

OK

REPLACE ECM

3	INSPECT SHIFT SOLENOID VALVE SLT



(a) Remove the shift solenoid valve SLT.
(b) Measure the resistance of the solenoid valve.
Standard resistance:
5.0 to 5.6 Ωat 20°C (68°F)
(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.
(d) Check the operating noise of terminal 1 of the solenoid valve.
OK:
Solenoid makes operating noise.

NG → **REPLACE SHIFT SOLENOID VALVE SLT**

OK

REPAIR OR REPLACE TRANSMISSION WIRE

AX