DTC	P2714	Pressure Control Solenoid "D" Performance (Shift Solenoid Valve SLT)

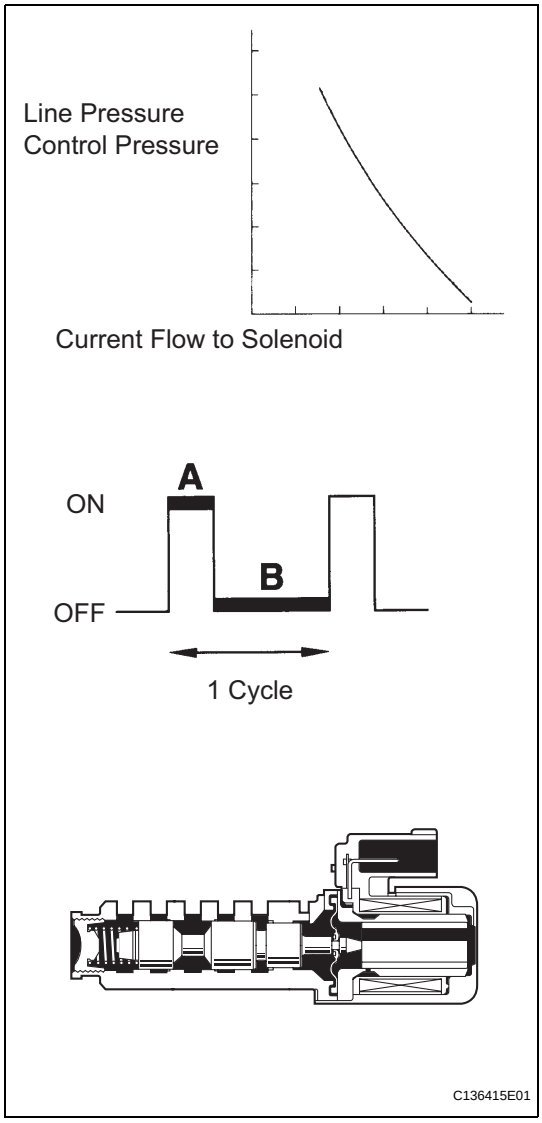
DESCRIPTION

The linear 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 ratio* of the SLT solenoid valve to control hydraulic line pressure coming from the primary regulator valve. Appropriate line pressure assures smooth shifting with varying engine outputs.

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
P2714	ECM detects malfunction on SLT (ON side) according to difference in revolutions of turbine (input), intermediate and output shaft (2 trip detection logic)	• Shift solenoid valve SLT remains closed • Valve body is blocked • Torque converter clutch • Automatic transaxle (clutch, brake, gear, etc.) • ECM

MONITOR DESCRIPTION

In any forward position, when the difference between the revolutions of the turbine, intermediate and output shaft exceeds the specified value (varies with intermediate, output speed) determined by the ECM, the ECM illuminates the MIL and outputs the DTC. When shift solenoid valve SLT remains on, the oil pressure goes down and the clutch engagement force decreases.

NOTICE:

If you continue driving under these conditions, the clutch will burn out and the vehicle will no longer be drivable.

MONITOR STRATEGY

Related DTCs	P2714: Shift solenoid valve SLT/ON malfunction
Required sensors/Components	Shift solenoid valve SLT, Speed sensor (NT), Speed sensor (NC), Crankshaft position sensor (NE)
Frequency of operation	Continuous
Duration	0.5 sec.
MIL operation	2 driving cycles
Sequence of operation	None

TYPICAL ENABLING CONDITIONS

ON malfunction:

The monitor will run whenever this DTC is not present.	None
Transmission range	"D"
ATF temperature	-20°C (-4°F) or more
ATF temperature sensor circuit	Not circuit malfunction
Turbine speed sensor circuit	Not circuit malfunction
Intermediate shaft speed sensor circuit	Not circuit malfunction
Output speed sensor circuit	Not circuit malfunction
Shift solenoid valve SL1 circuit	Not circuit malfunction
Shift solenoid valve SL2 circuit	Not circuit malfunction
Shift solenoid valve SL3 circuit	Not circuit malfunction
Shift solenoid valve S4 circuit	Not circuit malfunction
Shift solenoid valve SR circuit	Not circuit malfunction
Shift solenoid valve DSL circuit	Not circuit malfunction
Shift solenoid valve SLT circuit	Not circuit malfunction
Electronic throttle system	Not circuit malfunction

ON malfunction (a):

ECM gearshift command	2nd
Temporary MAIN gear	1st, 2nd, 3rd or 4th
NT - NC x Temporary MAIN gear ratio NT: Input (turbine) speed NC: Intermediate shaft speed	100 rpm or more at intermediate shaft speed 1,000 rpm
Temporary U/D gear	Low or High
NC - NO x Temporary U/D gear ratio NO: Output speed	300 rpm or more at output speed 1,000 rpm
TT: Turbine Torque	192 N*m or more
NT	250 rpm or more
NC	250 rpm or more
NO	250 rpm or more

ON malfunction (b):

ECM gearshift command	1st, 3rd or 3.5th (MAIN: 3rd and U/D: High)

Temporary MAIN gear	1st, 2nd, 3rd or 4th
NT - NC x Temporary MAIN gear ratio NT: Input (turbine) speed NC: Intermediate shaft speed	100 rpm or more at intermediate shaft speed 1,000 rpm
Temporary U/D gear	Low or High
NC - NO x Temporary U/D gear ratio NO: Output speed	300 rpm or more at output speed 1,000 rpm
TT: Turbine Torque	900 N*m or more
NT	250 rpm or more
NC	250 rpm or more
NO	250 rpm or more

ON malfunction (c):

ECM gearshift command	4th or 5th
Temporary MAIN gear	1st, 2nd, 3rd or 4th
NT - NC x Temporary MAIN gear ratio NT: Input (turbine) speed NC: Intermediate shaft speed	100 rpm or more at intermediate shaft speed 1,000 rpm
Temporary U/D gear	Low or High
NC - NO x Temporary U/D gear ratio NO: Output speed	300 rpm or more at output speed 1,000 rpm
TT: Turbine Torque	189 N*m or more
NT	250 rpm or more
NC	250 rpm or more
NO	250 rpm or more

TYPICAL MALFUNCTION THRESHOLDS

[ON malfunction]

Detection condition: Total accumulated time of ON malfunctions (a), (b) and (c) is 1 second or more

ON malfunction (a):

NT - NC x 2nd gear ratio	100 rpm or more at intermediate shaft speed 1,000 rpm
NC - NO x Low gear ratio	300 rpm or more at output speed 1,000 rpm
Duration	1 sec. or more

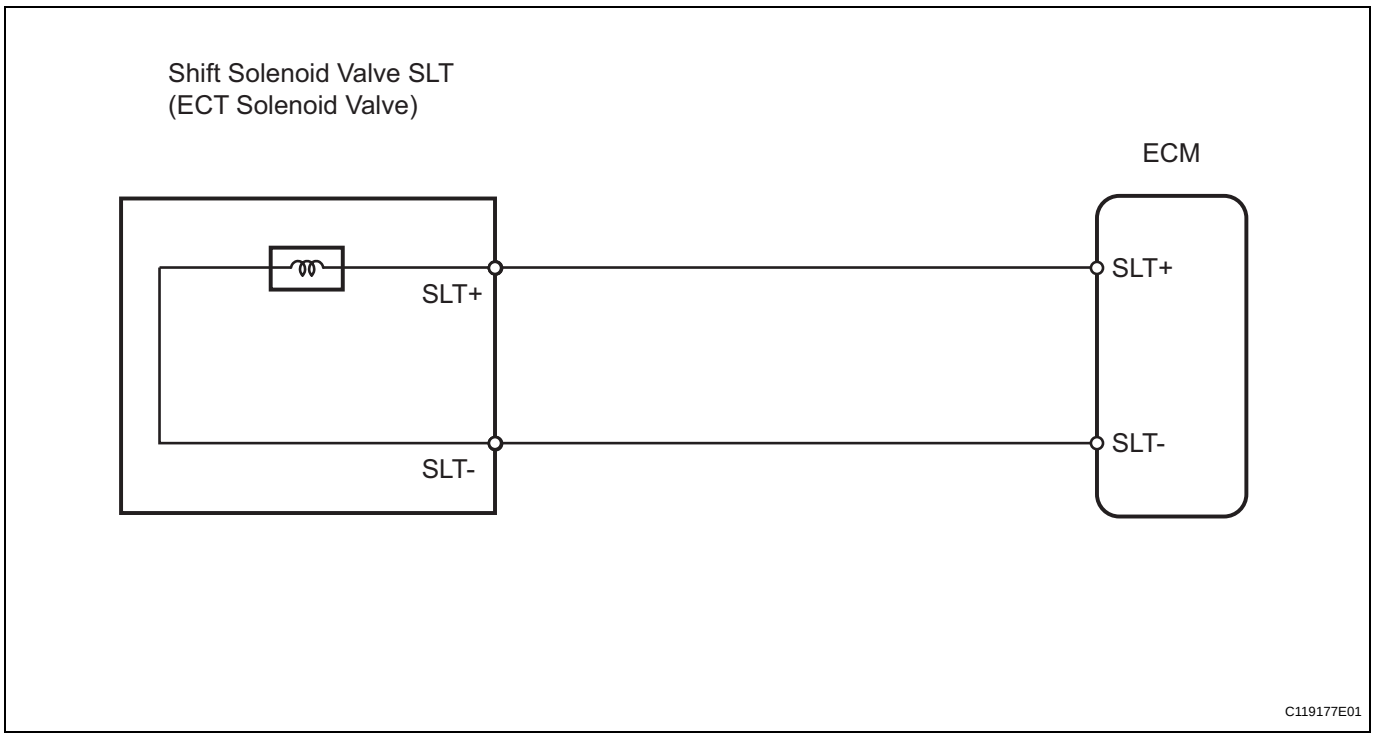
ON malfunction (b):

NT - NC x 1st gear ratio, NT - NC x 3rd gear ratio or NT - NC x 3.5th gear ratio	100 rpm or more at intermediate shaft speed 1,000 rpm
NC - NO x Low gear ratio or NC - NO x High gear ratio	300 rpm or more at output speed 1,000 rpm
Duration	1 sec. or more

ON malfunction (c):

NT - NC x 4th gear ratio or NT - NC x 5th gear ratio	100 rpm or more at intermediate shaft speed 1,000 rpm
NC - NO x Low gear ratio or NC - NO x High gear ratio	300 rpm or more at output speed 1,000 rpm
Duration	1 sec. or more

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:
Performing the intelligent tester's ACTIVE TEST allows relay, VSV, actuator and other items to be operated without removing any parts. Performing the ACTIVE TEST early in troubleshooting is one way to save time.
The DATA LIST can be displayed during the ACTIVE TEST.

1. Warm up the engine.
2. Turn the ignition switch OFF.
3. Connect the intelligent tester to the CAN VIM. Then connect the CAN VIM to the DLC3.
4. Turn the ignition switch ON and turn the tester ON.
5. Enter the following menus: DIAGNOSIS / ENHANCED OBD II / ACTIVE TEST.
6. Perform the ACTIVE TEST.

ECM:

Item	Test Details	Diagnostic Note
SOLENOID (SLT)*	[Test Details] Operate shift solenoid SLT and raise line pressure [Vehicle Condition] • Vehicle stopped • IDL: ON HINT: OFF: Line pressure up (when Active Test "SOLENOID (SLT)" is performed, ECM commands SLT solenoid to turn OFF) ON: No action (normal operation)	-

HINT:
*: "SOLENOID (SLT)" in the ACTIVE TEST is performed to check the line pressure changes by connecting SST to the automatic transaxle, which is used in the HYDRAULIC TEST (see page AX-18) as well. Please note that the pressure values in the ACTIVE TEST and HYDRAULIC TEST are different.

1 CHECK OTHER DTCS OUTPUT (IN ADDITION TO DTC P2714)

(a) Connect the intelligent tester to the CAN VIM. Then connect the CAN VIM to the DLC3.
(b) Turn the ignition switch ON and turn the tester ON.
(c) Enter the following menus: DIAGNOSIS / ENHANCED OBD II / DTC INFO / CURRENT CODES.
(d) Read the DTCs using the tester.

Result

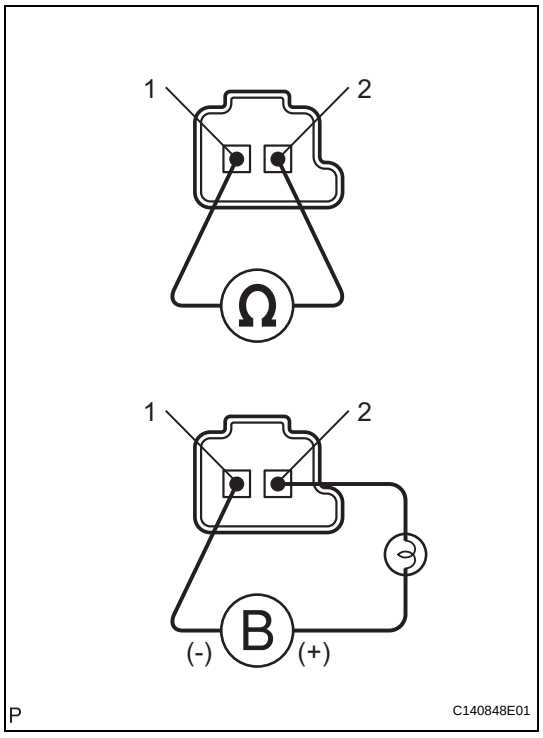
Display (DTC output)	Proceed to
Only P2714 is output	A
P2714 and other DTCs are output	B

HINT:
If any other codes besides P2714 are output, perform troubleshooting for those DTCs first.

B → **GO TO DTC CHART**

A

2 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 Ω at 20°C (68°F)
(c) Connect the battery's positive (+) lead with a 21 W bulb to terminal 2 and the negative (-) lead to terminal 1 of the solenoid valve connector. Then check that the valve moves and makes an operating noise.
OK:
Valve moves and makes operating noise.

NG → **REPLACE SHIFT SOLENOID VALVE SLT**

OK

3 INSPECT TRANSMISSION VALVE BODY ASSEMBLY

(a) Check the transmission valve body assembly.
OK:
There are no foreign objects on each valve.

NG → **REPAIR OR REPLACE TRANSMISSION VALVE BODY ASSEMBLY**

OK

4	INSPECT TORQUE CONVERTER CLUTCH ASSEMBLY

(a) Check the torque converter clutch assembly (see page AX-178).

OK:

The torque converter clutch operates normally.

NG → **REPLACE TORQUE CONVERTER CLUTCH ASSEMBLY**

OK

REPAIR OR REPLACE AUTOMATIC TRANSAXLE ASSEMBLY