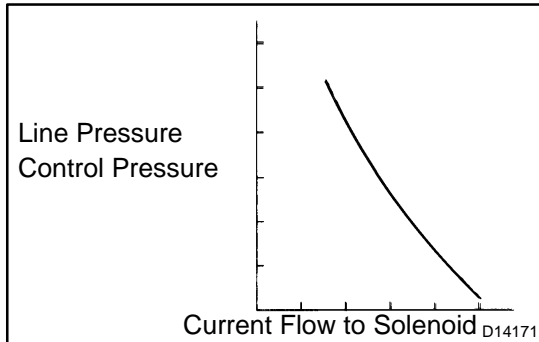


DTC	P2714	Pressure Control Solenoid "D" Performance (Shift Solenoid Valve SLT)
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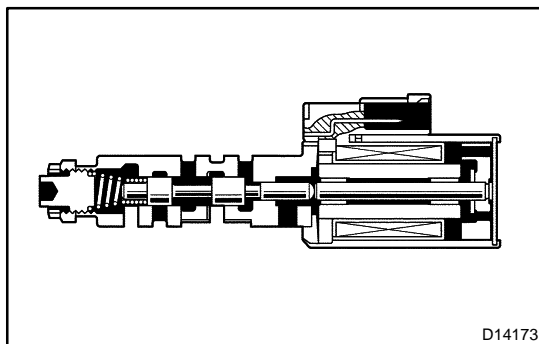
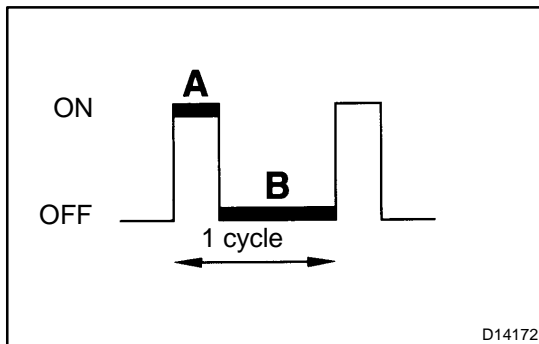
SYSTEM DESCRIPTION

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 cycle 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.

(*): Duty Ratio

The duty ratio is the ratio of the period of continuity in one cycle. For example, if A is the period of continuity in one cycle, and B is the period of non-continuity, then

$$\text{Duty Ratio} = A / (A + B) \times 100 (\%)$$



DTC No.	DTC Detection Condition	Trouble Area
P2714	ECM detects a malfunction on SLT (ON side) according to the revolution difference of the turbine and the output shaft, and also by the oil pressure. (2-trip detection logic)	<ul style="list-style-type: none"> • Shift solenoid valve SLT remains open or closed • Valve body is blocked • Automatic transmission (clutch, brake or gear, etc.)

MONITOR DESCRIPTION

The ECM calculates the amount of heat absorbed by the friction material based on the difference in revolution (clutch slippage) between the turbine and output shaft. The ECM turns on the MIL and outputs this DTC when the amount of heat absorption exceeds the specified value.

When the shift solenoid valve SLT remains on, oil pressure goes down and clutch engagement force decreases.

NOTE: 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	Main	Shift solenoid valve SLT
	Sub	Valve body, ATF temperature sensor, Speed sensor (NT), Speed sensor (NO)
Frequency of operation	Continuous	
Duration	Immediate	
MIL operation	2 driving cycles	
Sequence of operation	None	

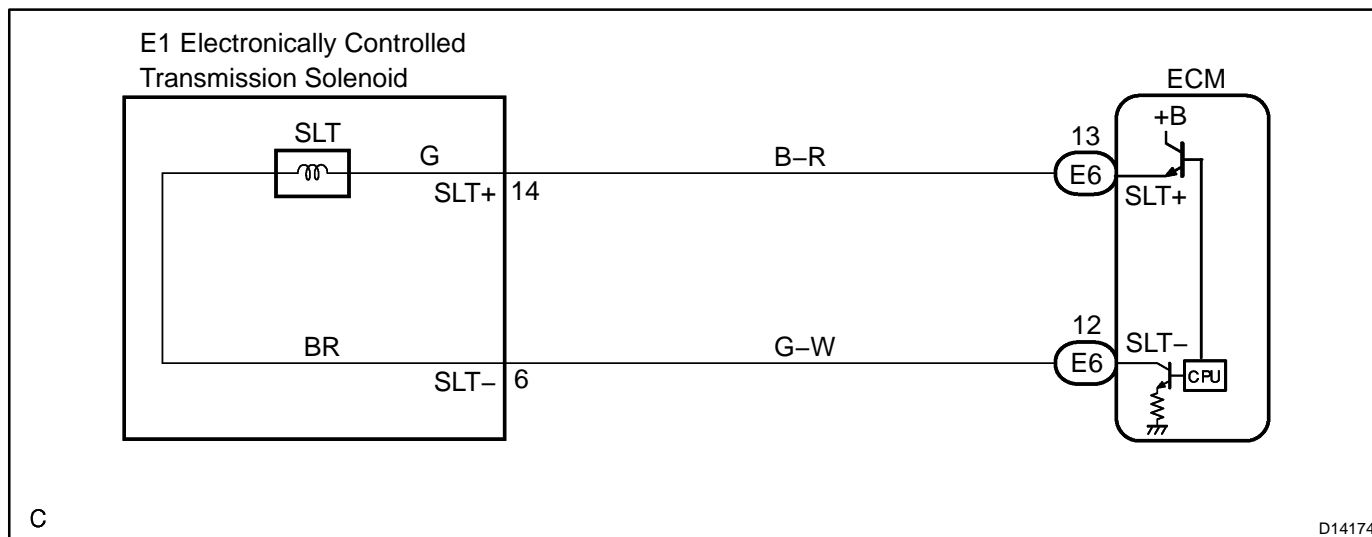
TYPICAL ENABLING CONDITIONS

Item	Specification	
	Minimum	Maximum
All:		
Turbine speed sensor circuit	Not circuit malfunction	
Output speed sensor circuit	Not circuit malfunction	
Transmission Fluid Temperature Sensor circuit	Not circuit malfunction	
Shift solenoid valve S1 circuit	Not circuit malfunction	
Shift solenoid valve S2 circuit	Not circuit malfunction	
Shift solenoid valve SR circuit	Not circuit malfunction	
Shift solenoid valve SL1 circuit	Not circuit malfunction	
Shift solenoid valve SL2 circuit	Not circuit malfunction	
Shift solenoid valve SLT circuit	Not circuit malfunction	
ECT (Engine coolant temperature) sensor circuit	Not circuit malfunction	
KCS sensor circuit	Not circuit malfunction	
ETCS (Electric throttle control system)	Not system down	
Transmission range	"D"	
ECT	40°C (104°F) or more	–
Spark advance from Max. retard timing by KCS control	0° CA or more	–
Engine	Starting	
Transfer range	"HIGH"*1	
TFT (transmission fluid temperature)	10°C or more	–
Transfer range "HIGH" *1 (This condition is applied only 4WD)		
*1 Following conditions met		
Vehicle speed sensor circuit	Not circuit malfunction	
Output shaft speed sensor circuit	Not circuit malfunction	
Transfer output speed	143 rpm or more	–
NO/NOtf (Transfer input speed/Transfer output speed)	0.9 to 1.1	

TYPICAL MALFUNCTION THRESHOLDS

Detection criteria	Threshold
Summation of C1 clutch heat generations = $\sum (\text{Turbine speed} - \text{Output speed} \times \text{Temporary ratio})$	Specified value

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

Performing the ACTIVE TEST using the hand-held tester allows the relay, VSV, actuator and so on to operate without parts removal. Performing the ACTIVE TEST as the first step of troubleshooting is one method to shorten labor time.

It is possible to display the DATA LIST during the ACTIVE TEST.

- (a) Warm up the engine.
- (b) Turn the ignition switch off.
- (c) Connect the hand-held tester to the DLC3.
- (d) Turn the ignition switch to the ON position.
- (e) Turn on the tester.
- (f) Select the item "DIAGNOSIS / ENHANCED OBD II / ACTIVE TEST".
- (g) According to the display on tester, perform the "ACTIVE TEST".

Item	Test Details	Diagnostic Note
LINE PRESS UP *	[Test Details] Operate the shift solenoid SLT and raise the line pressure. [Vehicle Condition] • Vehicle Stopped. • IDL: ON [HINT] OFF: Line pressure up (When the active test of "Control the Line Pressure Up" is performed, the ECM commands the SLT solenoid to turn off). ON: No action (normal operation)	–

*: "LINE PRESS UP" in the ACTIVE TEST is performed to check the line pressure changes by connecting the SST to the automatic transaxle, which is used in the HYDRAULIC TEST (See page [DI-1123](#)) as well.

HINT:

- The pressure values in ACTIVE TEST and HYDRAULIC TEST are different from each other.
- Normally, the line pressure detected in the ACTIVE TEST is approximately half of the value detected in the HYDRAULIC TEST's stall test.

1	Check other DTCs output (in addition to DTC P2714).
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PREPARATION:

- (a) Turn the ignition switch off.
- (b) Connect the OBD II scan tool or hand-held tester to the DLC3.
- (c) Turn the ignition switch to the ON position.
- (d) Turn on the tester.
- (e) Select the item "DIAGNOSIS / ENHANCED OBD II / DTC INFO / CURRENT CODES".

CHECK:

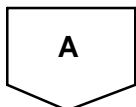
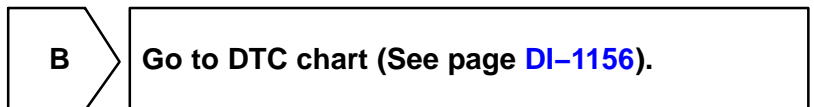
Read the DTCs using the OBD II scan tool or the hand-held tester.

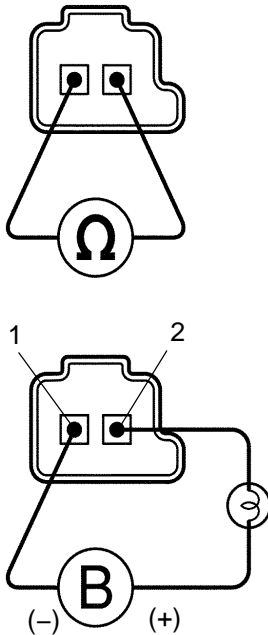
RESULT:

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

HINT:

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



2 Inspect shift solenoid valve SLT operation.**Shift Solenoid Valve SLT:****PREPARATION:**

Remove the shift solenoid valve SLT (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)
1 – 2	5.0 to 5.6 Ω

CHECK:

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.

OK:

The solenoid makes an operating sound.

NG

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

OK**3 Inspect valve body (See page [AT-12](#)).****OK:**

There are no foreign objects on each valve.

NG

Repair or replace valve body.

OK

Repair or replace transmission (See page [AT-34](#)).