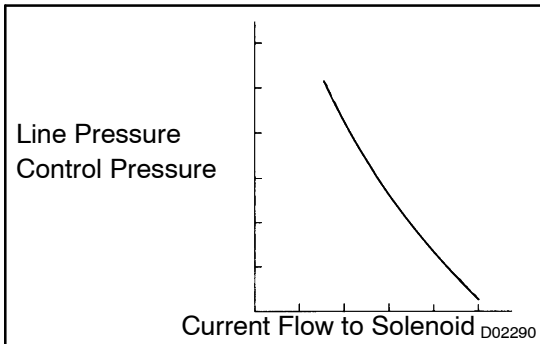


DTC	P2714	PRESSURE CONTROL SOLENOID "D" PERFORMANCE (SHIFT SOLENOID VALVE SLT)
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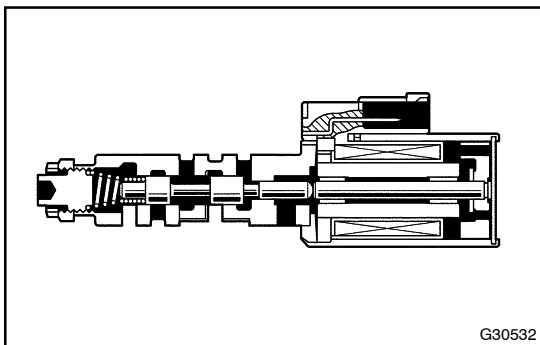
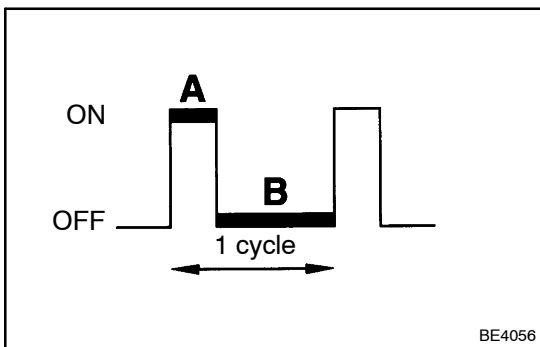
SYSTEM DESCRIPTION

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

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



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	Shift solenoid valve SLT, 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

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
TFT (transmission fluid temperature)	10°C or more
Transfer range	"HIGH"*1

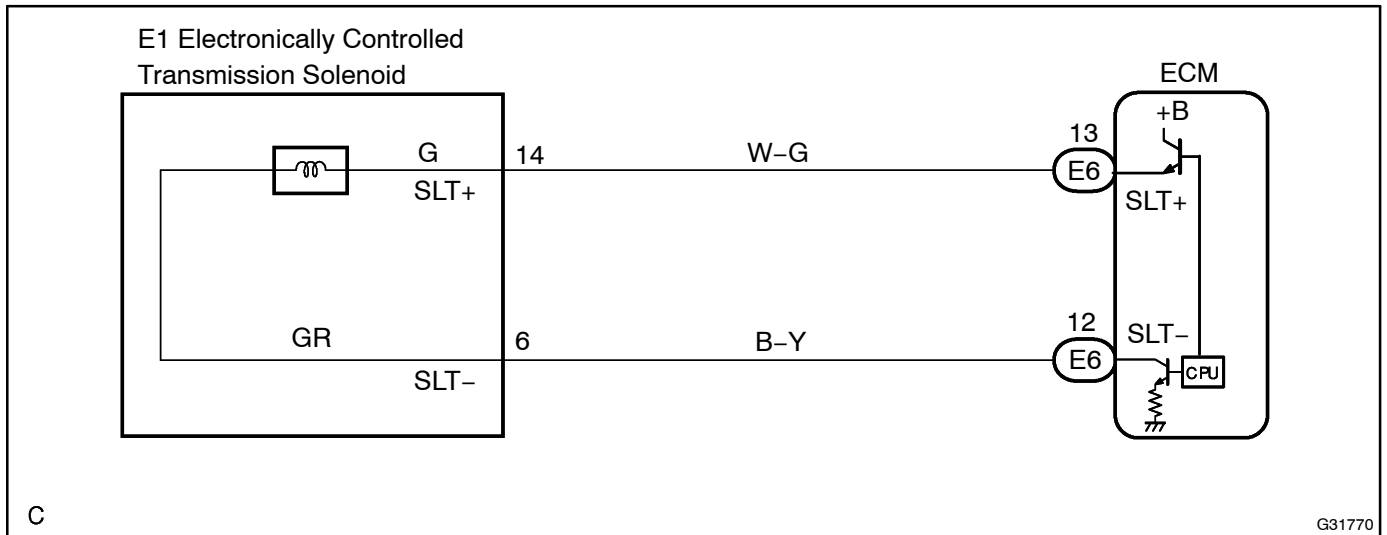
Transfer range "HIGH" *1 (This condition is applied only 4WD)

*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

Summation of C1 clutch heat generations = \sum (Turbine speed – Output speed x Temporary ratio)	Specified value
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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 together with the CAN VIM (controller area network vehicle interface module) 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 *	<p>[Test Details] Operate the shift solenoid SLT and raise the line pressure.</p> <p>[Vehicle Condition] • Vehicle Stopped. • IDL: ON</p> <p>[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)</p>	-

*: "LINE PRESS UP" in the ACTIVE TEST is performed to check the line pressure changes by connecting the SST to the automatic transmission, which is used in the HYDRAULIC TEST (see page 05-920) 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)

- (a) Connect the OBD II scan tool or the hand-held tester to the DLC3.
- (b) Turn the ignition switch to the ON position and push the OBD II scan tool or the hand-held tester main switch ON.
- (c) When you use hand-held tester:
Select the item "DIAGNOSIS / ENHANCED OBD II / DTC INFO / CURRENT CODES".
- (d) 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

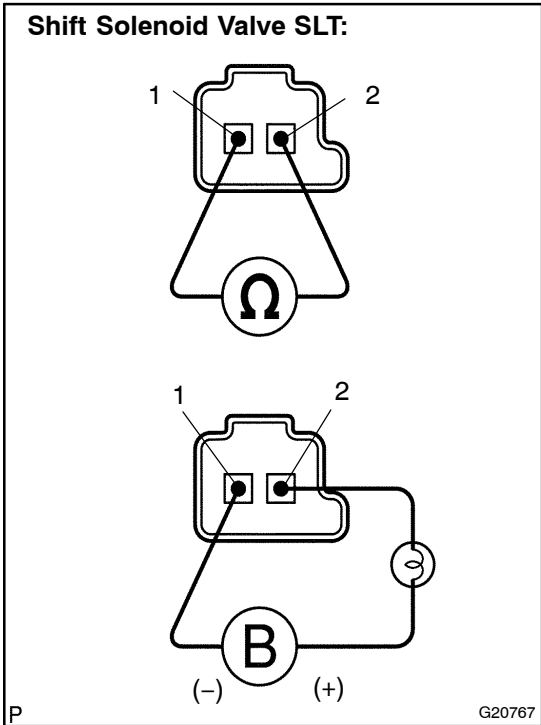
HINT:

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

B → **GO TO DTC CHART (SEE PAGE 05-955)**

A

2 INSPECT SHIFT SOLENOID VALVE(SLT)



- (a) Remove the shift solenoid valve SLT.
- (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.

OK:

The solenoid makes an operating sound.

NG → **REPLACE SHIFT SOLENOID VALVE (SLT) (SEE PAGE 40-31)**

OK

3 INSPECT TRANSMISSION VALVE BODY ASSY (SEE PAGE 40-31)

OK:

There are no foreign objects on each valve.

NG

**REPAIR OR REPLACE TRANSMISSION VALVE
BODY ASSY**

OK

REPAIR OR REPLACE AUTOMATIC TRANSMISSION ASSY (SEE PAGE 40-13)