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

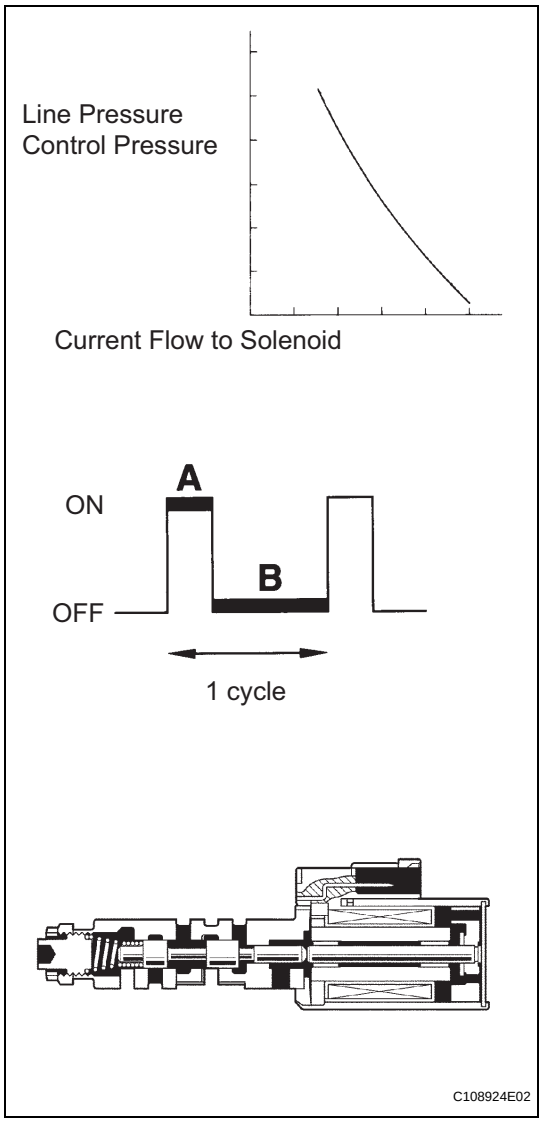
## SYSTEM DESCRIPTION

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 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.

(*): 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

Duty Ratio=A/(A+B) x 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, intermediate and the output shaft, and also by the oil pressure. (2-trip detection logic) | • Shift solenoid valve SLT remains closed<br>• Valve body is blocked<br>• Automatic transaxle (clutch, brake or gear, etc.) |

## 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 store 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" |
| TFT (Transmission fluid temperature) | -20°C (-4°F) or more |
| TFT 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 |

AX

### ON malfunction (A):

| | |
|---|---|
| ECM selected gear | 1st |
| Temporary MAIN gear | 1st or 2nd or 3rd or 4th |
| NT - NC x Temporary MAIN gear ratio<br>NT: Input (turbine) speed<br>NC: Intermediate shaft speed | 100 rpm or more at Intermediate shaft speed 1,000 rpm |
| Temporary U/D gear | Low |
| NC - NO x Temporary U/D gear ratio<br>NO: Output speed | 300 rpm or more at Output speed 1,000 rpm |
| TT<br>TT: Turbine Torque | 900 Nm or more |
| NT | 250 rpm or more |
| NC | 250 rpm or more |
| NO | 250 rpm or more |

**ON malfunction (B):**

| | |
|---|---|
| ECM selected gear | 2nd |
| Temporary MAIN gear | 1st or 2nd or 3rd or 4th |
| NT - NC x Temporary MAIN gear ratio<br>NT: Input (turbine) speed<br>NC: Intermediate shaft speed | 100 rpm or more at Intermediate shaft speed 1,000 rpm |
| Temporary U/D gear | Low |
| NC - NO x Temporary U/D gear ratio<br>NO: Output speed | 300 rpm or more at Output speed 1,000 rpm |
| TT<br>TT: Turbine Torque | 192 Nm or more |
| NT | 250 rpm or more |
| NC | 250 rpm or more |
| NO | 250 rpm or more |

**ON malfunction (C):**

| | |
|---|---|
| ECM selected gear | 3rd |
| Temporary MAIN gear | 1st or 2nd or 3rd or 4th |
| NT - NC x Temporary MAIN gear ratio<br>NT: Input (turbine) speed<br>NC: Intermediate shaft speed | 100 rpm or more at Intermediate shaft speed 1,000 rpm |
| Temporary U/D gear | Low |
| NC - NO x Temporary U/D gear ratio<br>NO: Output speed | 300 rpm or more at Output speed 1,000 rpm |
| TT<br>TT: Turbine Torque | 900 Nm or more |
| NT | 250 rpm or more |
| NC | 250 rpm or more |
| NO | 250 rpm or more |

**ON malfunction (D):**

| | |
|---|---|
| ECM selected gear | 4th |
| Temporary MAIN gear | 1st or 2nd or 3rd or 4th |
| NT - NC x Temporary MAIN gear ratio<br>NT: Input (turbine) speed<br>NC: Intermediate shaft speed | 100 rpm or more at Intermediate shaft speed 1,000 rpm |
| Temporary U/D gear | Low |
| NC - NO x Temporary U/D gear ratio<br>NO: Output speed | 300 rpm or more at Output speed 1,000 rpm |
| TT<br>TT: Turbine Torque | 189 Nm or more |
| NT | 250 rpm or more |
| NC | 250 rpm or more |
| NO | 250 rpm or more |

**ON malfunction (E):**

| | |
|---|---|
| ECM selected gear | 5th |
| Temporary MAIN gear | 1st or 2nd or 3rd or 4th |
| NT - NC x Temporary MAIN gear ratio<br>NT: Input (turbine) speed<br>NC: Intermediate shaft speed | 100 rpm or more at Intermediate shaft speed 1,000 rpm |
| Temporary U/D gear | Low |
| NC - NO x Temporary U/D gear ratio<br>NO: Output speed | 300 rpm or more at Output speed 1,000 rpm |
| TT<br>TT: Turbine Torque | 189 Nm 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), (c), (d) and (e) is 0.5 second or more

**ON malfunction (A):**

| | |
|---|---|
| NT - NC x 1st 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 |
| Shift Solenoid valve SL1 Performance | Not performance malfunction |

**ON malfunction (B):**

| | |
|---|---|
| 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 |
| Shift Solenoid valve SL1 Performance | Not performance malfunction |

**ON malfunction (C):**

| | |
|---|---|
| NT - NC x 3rd 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 |
| Shift Solenoid valve SL1 Performance | Not performance malfunction |

**ON malfunction (D):**

| | |
|---|---|
| NT - NC x 4th 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 |
| Shift Solenoid valve SL1 Performance | Not performance malfunction |

AX

**ON malfunction (E):**

| | |
|---|---|
| NT - NC x 4th gear ratio | 100 rpm or more at Intermediate shaft speed 1,000 rpm |
| NC - NO x High gear ratio | 300 rpm or more at Output speed 1,000 rpm |
| Duration | 1 sec. or more |
| Shift Solenoid valve SL1 Performance | Not performance malfunction |

## INSPECTION PROCEDURE

| | |
|---|---|
| **1** | **CHECK OTHER DTCS OUT PUT (IN ADDITION TO DTC P2714)** |

(a) Connect the OBD II scan tool or intelligent tester together with the CAN VIM (controller area network vehicle interface module) to the DLC3.
(b) Turn the ignition switch to the ON position and turn the OBD II scan tool or the intelligent tester main switch ON.
(c) When you use intelligent tester:
Select the item "DIAGNOSIS / ENHANCED OBD II / DTC INFO / CURRENT CODES"
(d) Read the DTCs using the OBD II scan tool or the intelligent tester.

**Result**

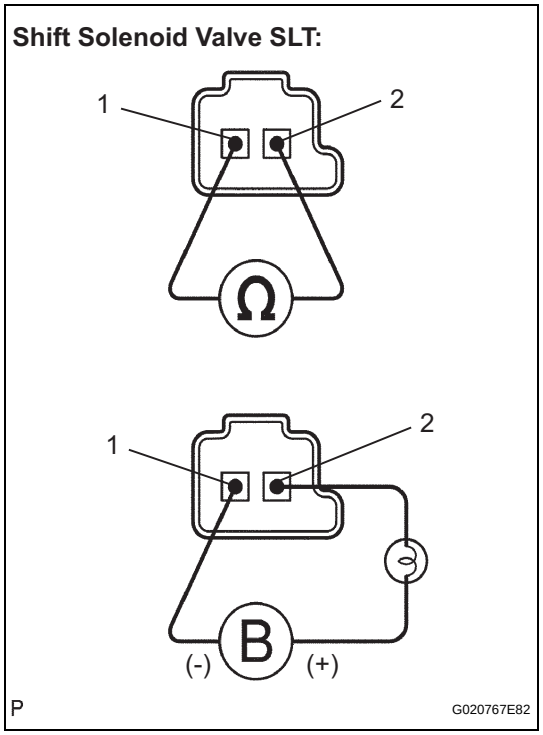
| Result | Proceed to |
|---|---|
| P2714 | A |
| P2714 and other DTCs | B |

HINT:
If any other codes besides "P2714" are output, perform the 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 according to the value(s) in the table below.

**Standard resistance**

| 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**

AX

OK

## 3 INSPECT 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

**OK:**
**The torque converter clutch operates normally.**

NG → **REPLACE TORQUE CONVERTER CLUTCH ASSEMBLY**

OK

**REPAIR OR REPLACE AUTOMATIC TRANSAXLE ASSEMBLY**