DTC	P0741	Torque Converter Clutch Solenoid Performance (Shift Solenoid Valve SL)

DESCRIPTION

The ECM uses the signals from the throttle position sensor, air flow meter, turbine (input) speed sensor, intermediate (counter) shaft speed sensor and crankshaft position sensor to monitor the engagement condition of the lock-up clutch.
Then the ECM compares the engagement conditions of the lock-up clutch with the lock-up schedule in the ECM memory to detect mechanical problems of the shift solenoid valve SL, valve body and torque converter clutch.

DTC No.	DTC Detection Condition	Trouble Area
P0741	• Lock-up does not occur when driving in lock-up range (normal driving at 80 km/h [50 mph]), or lock-up remains ON in lock-up OFF range (2 trip detection logic) • When lock-up is ON, clutch or brake slips or gear is broken (2 trip detection logic)	• Shift solenoid valve SL remains open or closed • Valve body is blocked • Shift solenoid valve SL • Torque converter clutch • Automatic transaxle (clutch, brake, gear, etc.) • ECM

MONITOR DESCRIPTION

Based on the signals from the throttle position sensor, air flow meter and crankshaft position sensor, the ECM sends a signal to the shift solenoid valve SL to regulate the hydraulic pressure and provide smoother gear shifts. The shift solenoid valve SL responds to commands from the ECM. The valve controls the lock-up relay valve to perform torque-converter lock-up and flexible lock-up functions.
The ECM compares the engine rpm (NE) signal and the input turbine speed signal to detect torque converter lock-up. The ECM then compares the lock-up status against the lock-up schedule in the ECM memory. If the ECM does not detect lock-up at the appropriate time, it will conclude that there is a malfunction in shift solenoid valve SL. The ECM will illuminate the MIL.

AX

MONITOR STRATEGY

Related DTCs	P0741: Shift solenoid valve SL/OFF malfunction Shift solenoid valve SL/ON malfunction
Required sensors/Components	Shift solenoid valve SL
Frequency of operation	Continuous
Duration	OFF malfunction 3.5 sec. ON malfunction 1.8 sec.
MIL operation	2 driving cycles
Sequence of operation	None

TYPICAL ENABLING CONDITIONS

The following items are common to all conditions below:

The monitor will run whenever the following DTCs are not present	None
ECT (Engine coolant temperature)	60°C (140°F) or higher
Vehicle speed	25 km/h (15.5 mph) or more
Transmission range	"D"
ECM selected gear	3rd or 4th
Shift solenoid S1 circuit	Not circuit malfunction
Shift solenoid S2 circuit	Not circuit malfunction

Shift solenoid SL circuit	Not circuit malfunction
ECT sensor circuit	Not circuit malfunction
Input (turbine) speed sensor circuit	Not circuit malfunction
Internal counter shaft speed sensor circuit	Not circuit malfunction
Throttle position sensor circuit	Not circuit malfunction

OFF malfunction

ECM lock-up command	ON

ON malfunction

ECM lock-up command	OFF
Throttle valve opening angle	8% or more
Vehicle speed	Less than 60 km/h (37.3 mph)

TYPICAL MALFUNCTION THRESHOLDS

OFF malfunction

Engine speed - input (turbine) speed	100 rpm or more

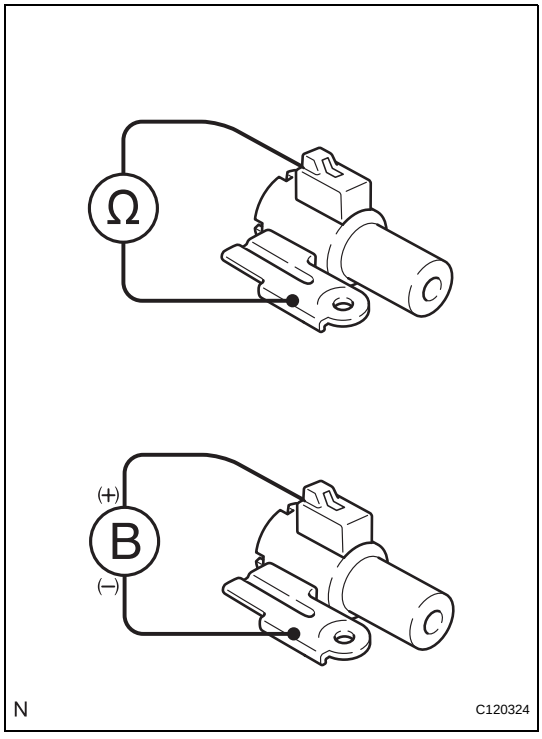
ON malfunction

2 detections are necessary per driving cycle:
1st detection; temporary flag ON
2nd detection; pending fault code ON
Vehicle speed must be under 10 km/h (6.2 mph) once before 2nd detection

Difference between engine speed and input (turbine) speed	Less than 35 rpm

1	INSPECT SHIFT SOLENOID VALVE SL

AX



(a) Remove the shift solenoid valve SL.
(b) Measure the resistance of the solenoid valve.
Standard resistance:
11 to 15 Ωat 20°C (68°F)
(c) Connect the battery's positive (+) lead to the terminal of the solenoid connector, and the negative (-) lead to the solenoid body.
(d) Check the operating noise of the solenoid valve.
OK:
Solenoid makes operating noise.

NG → **REPLACE SHIFT SOLENOID VALVE SL**

OK

2	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 ↓

3	INSPECT TORQUE CONVERTER CLUTCH ASSEMBLY

(a) Check the torque converter clutch assembly (see page AX-147).

OK:

The torque converter clutch operates normally.

NG → **REPLACE TORQUE CONVERTER CLUTCH ASSEMBLY**

OK ↓

REPAIR AUTOMATIC TRANSAXLE ASSEMBLY