

DTC	P0756	SHIFT SOLENOID "B" PERFORMANCE (SHIFT SOLENOID VALVE S2)
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SYSTEM DESCRIPTION

The ECM uses signals from the vehicle speed sensor and speed sensor NT to detect the actual gear position (1st, 2nd, 3rd or O/D gear).

Then the ECM compares the actual gear with the shift schedule in the ECM memory to detect the mechanical problems of the shift solenoid valves, the valve body or automatic transaxle (clutch, brake or gear etc.).

DTC No.	DTC Detecting Condition	Trouble Area
P0756	The gear required by the ECM does not match the actual gear when driving (2-trip detection logic)	<ul style="list-style-type: none"> • Shift solenoid valve S2 remains open or closed • Valve body is blocked • Shift solenoid valve S2 • Automatic transaxle (clutch, brake or gear etc.) • ECM

MONITOR DESCRIPTION

The ECM commands gear shifts by turning the shift solenoid valves "ON/OFF". According to the input shaft revolution, intermediate (counter) shaft revolution and output shaft revolution, the ECM detects the actual gear position (1st, 2nd, 3rd or O/D gear position). When the gear position commanded by the ECM and the actual gear position are not same, the ECM illuminates the MIL.

MONITOR STRATEGY

Related DTCs	P0756	Shift solenoid "B" (S2)/Rationality check
		Shift solenoid "B" (S2)/OFF malfunction
		Shift solenoid "B" (S2)/ON malfunction
Required sensors/Components	Shift solenoid valve S2	
Frequency of operation	Continuous	
Duration	0.85 sec.	
MIL operation	2 driving cycles	
Sequence of operation	None	

TYPICAL ENABLING CONDITIONS

Item	Specification	
	Minimum	Maximum
The monitor will run whenever the following DTCs are not present.	See page 05-389	
OFF malfunction (A)		
ECT	60 °C (140 °F) or more	–
Transmission shift position	"D"	
Shift solenoid "A" (S1) circuit	Not circuit malfunction	
Shift solenoid "B" (S2) 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	
ECM selected gear	1st	
Vehicle speed	9 km/h (6 mph) or more	Less than 40 km/h (25 mph)
Throttle valve opening angle	7 % or more at engine speed 1,900 rpm (Condition vary with engine speed)	–

OFF malfunction (B)		
ECT	60 °C (140 °F) or more	–
Transmission shift position	"D"	
Shift solenoid "A" (S1) circuit	Not circuit malfunction	
Shift solenoid "B" (S2) 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	
ECM selected gear	3rd	
Throttle valve opening angle	7 % or more at engine speed 1,900 rpm (Condition vary with engine speed)	–
OFF malfunction (C)		
ECT	60 °C (140 °F) or more	–
Transmission shift position	"D"	
Shift solenoid "A" (S1) circuit	Not circuit malfunction	
Shift solenoid "B" (S2) 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	
ECM selected gear	4th	
Throttle valve opening angle	7 % or more at engine speed 1,900 rpm (Condition vary with engine speed)	–
ON malfunction (A)		
ECT	60 °C (140 °F) or more	–
Transmission shift position	"D"	
Shift solenoid "A" (S1) circuit	Not circuit malfunction	
Shift solenoid "B" (S2) 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	
ECM selected gear	2nd	
Throttle valve opening angle	7 % or more at engine speed 1,900 rpm (Condition vary with engine speed)	–
ON malfunction (B)		
ECT	60 °C (140 °F) or more	–
Transmission shift position	"D"	
Shift solenoid "A" (S1) circuit	Not circuit malfunction	
Shift solenoid "B" (S2) 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	
ECM selected gear	3rd	
Throttle valve opening angle	7 % or more at engine speed 1,900 rpm (Condition vary with engine speed)	–
ON malfunction (C)		
ECT	60 °C (140 °F) or more	–
Transmission shift position	"D"	
Shift solenoid "A" (S1) circuit	Not circuit malfunction	
Shift solenoid "B" (S2) circuit	Not circuit malfunction	

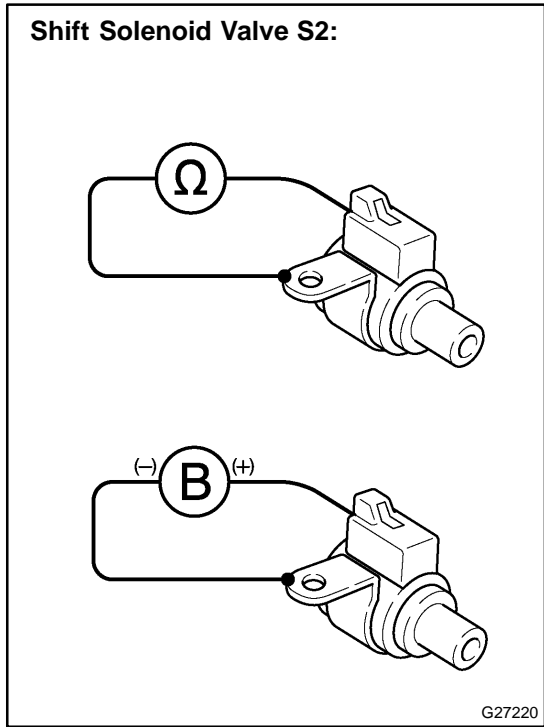
ECT sensor circuit	Not circuit malfunction	
Input (turbine) speed sensor circuit	Not circuit malfunction	
Internal counter shaft speed sensor circuit	Not circuit malfunction	
Throttle position sensor circuit	Not circuit malfunction	
ECM selected gear	4th	
Throttle valve opening angle	7 % or more at engine speed 1,900 rpm (Condition vary with engine speed)	–

TYPICAL MALFUNCTION THRESHOLDS

Detection criteria	Threshold
OFF malfunction:	
Following conditions met OFF malfunction (A), (B) and (C).	
It is necessary 2 judgments/driving cycle 1st judgment: temporary flag ON 2nd judgment: pending fault code ON	
OFF malfunction (A)	
Input speed/Output speed (NT/NO) NT: Input (turbine) speed NO: Internal counter shaft speed	$1.50 \leq NT/NO < 1.80$
OFF malfunction (B)	
Input speed/Output speed (NT/NO) NT: Input (turbine) speed NO: Internal counter shaft speed	$0.95 \leq NT/NO < 1.09$
OFF malfunction (C)	
Input speed/Output speed (NT/NO) NT: Input (turbine) speed NO: Internal counter shaft speed	$0.95 \leq NT/NO < 1.09$
ON malfunction:	
Following conditions met ON malfunction (A), (B) and (C).	
ON malfunction (A)	
Input speed/Output speed (NT/NO) NT: Input (turbine) speed NO: Internal counter shaft speed	$2.75 \leq NT/NO < 3.35$
ON malfunction (B)	
Input speed/Output speed (NT/NO) NT: Input (turbine) speed NO: Internal counter shaft speed	$0.64 \leq NT/NO < 0.78$
ON malfunction (C)	
Input speed/Output speed (NT/NO) NT: Input (turbine) speed NO: Internal counter shaft speed	$0.64 \leq NT/NO < 0.78$

INSPECTION PROCEDURE

1 INSPECT SHIFT SOLENOID VALVE(S2)



- (a) Remove the shift solenoid valve S2.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester Connection	Specified Condition 20 °C (68 °F)
Solenoid Connector (S2) – Solenoid Body (S2)	11 to 15 Ω

- (c) Connect the positive (+) battery lead to the solenoid connector terminal, and the negative (-) battery lead to the solenoid body for checking the solenoid valve operation.

Standard:

The solenoid makes an operating noise.

NG → **REPLACE SHIFT SOLENOID VALVE(S2)**

OK

2 INSPECT TRANSMISSION VALVE BODY ASSY (See chapter 2 in the problem symptoms table) (See page 05-394)

NG → **REPAIR OR REPLACE TRANSMISSION VALVE BODY ASSY (See page 40-24)**

OK

REPAIR OR REPLACE AUTOMATIC TRANSAXLE ASSY(See page 40-7)