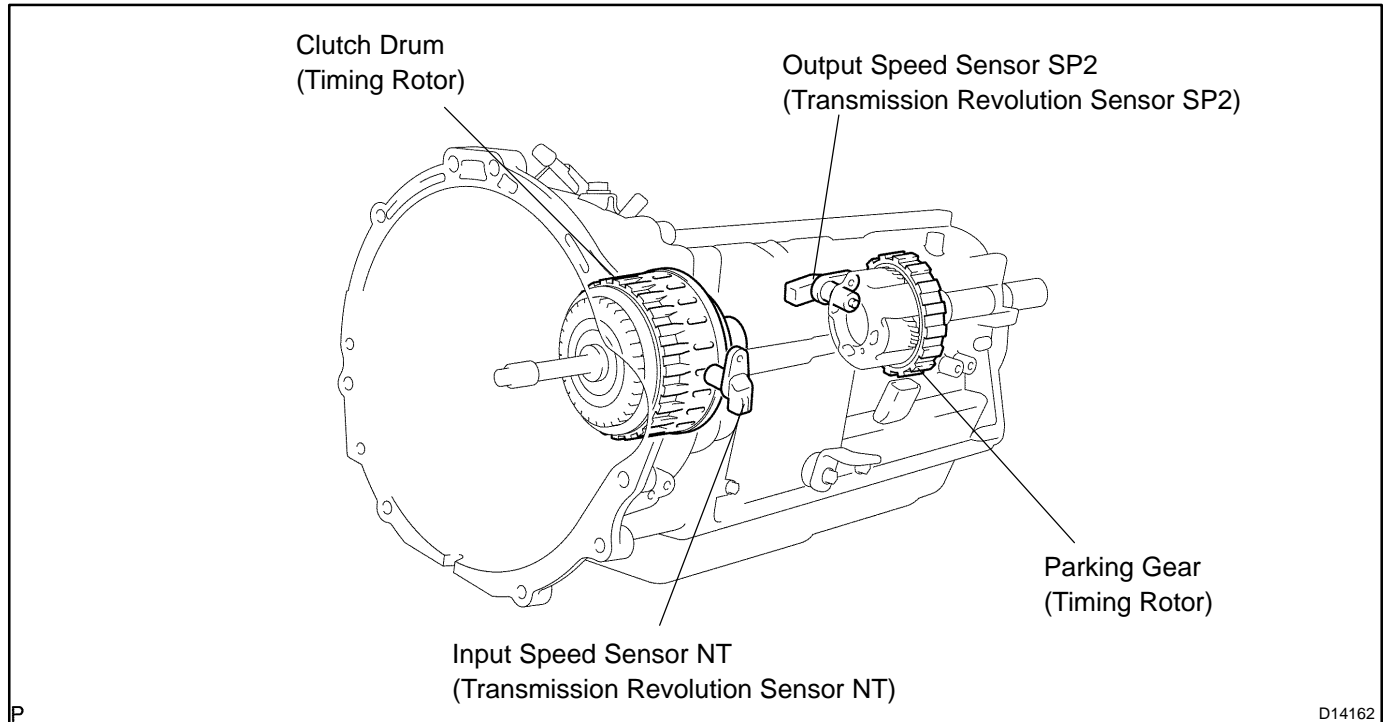


DTC	P0717	Input Speed Sensor Circuit No Signal
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CIRCUIT DESCRIPTION

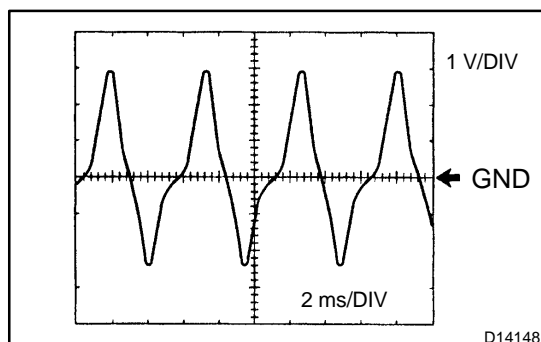
This sensor detects the rotation speed of the turbine which shows the input revolution of transmission. By comparing the input turbine speed signal (NT) with the counter gear speed sensor signal (SP2), the ECM detects the shift timing of the gears and appropriately controls the engine torque and hydraulic pressure according to various conditions, thus, providing smooth gear shift.



P

D14162

DTC No.	DTC Detection Condition	Trouble Area
P0717	<p>All conditions below are detected for 5 secs. or more (1-trip detection logic)</p> <p>(a) Gear change is not performed</p> <p>(b) Gear position: 4th or 5th</p> <p>(c) T/M input shaft rpm: 300 rpm or less</p> <p>(d) T/M output shaft rpm: 1,000 rpm or more</p> <p>(e) Park/neutral position switch:</p> <ul style="list-style-type: none"> • NSW input signal is OFF • R input signal is OFF • L input signal is OFF <p>(f) Shift solenoid valves and park/neutral position switch are in normal operation</p>	<ul style="list-style-type: none"> • Open or short in speed sensor (NT) circuit • Speed sensor (NT) • ECM • Automatic transmission (clutch, brake or gear, etc.)



D14148

Reference (Using an oscilloscope):

Check the waveform between terminals NT+ and NT- of the ECM connector.

Standard: Refer to the illustration.

Terminal	NT+ – NT-
Tool setting	1V/DIV, 2ms/DIV
Vehicle condition	Engine idle speed (P or N position)

MONITOR DESCRIPTION

This DTC indicates that pulse is not output from the speed sensor NT (Turbine (input) speed sensor) or is output only little. The NT terminal of the ECM detects the revolving signal from the speed sensor (NT) (input RPM). The ECM outputs a gearshift signal comparing the input speed sensor (NT) with the output speed sensor (SP2).

While the vehicle is operating in the 4th or 5th gear position in the shift position of D, if the input shaft revolution is less than 300 rpm^{*1} although the output shaft revolution is more than 1000 rpm or more^{*2}, the ECM detects the trouble, illuminates the MIL and stores the DTC.

*1: Pulse is not output or is irregularly output.

*2: The vehicle speed is approx. 50 km/h (31 mph) or more.

MONITOR STRATEGY

Related DTCs	P0717	Speed sensor (NT)/Verify pulse input
Required sensors/Components	Main	Speed sensor (NT)
	Sub	Speed sensor (NO)
Frequency of operation	Continuous	
Duration	5 sec.	
MIL operation	Immediate	
Sequence of operation	None	

TYPICAL ENABLING CONDITIONS

Item	Specification	
	Minimum	Maximum
The monitor will run whenever this DTC is not present.	See page DI-963	
Shift change	Shift change is completed and before starting next shift change operation	
ECM selected gear	4th or 5th	
Output shaft rpm	1,000 rpm or more	–
NSW switch	OFF	
R switch	OFF	
L switch	OFF	
Engine	Running	
Ignition switch	ON	
Starter	OFF	
NSW switch fail	Not detected	
Battery voltage	8 V or more	

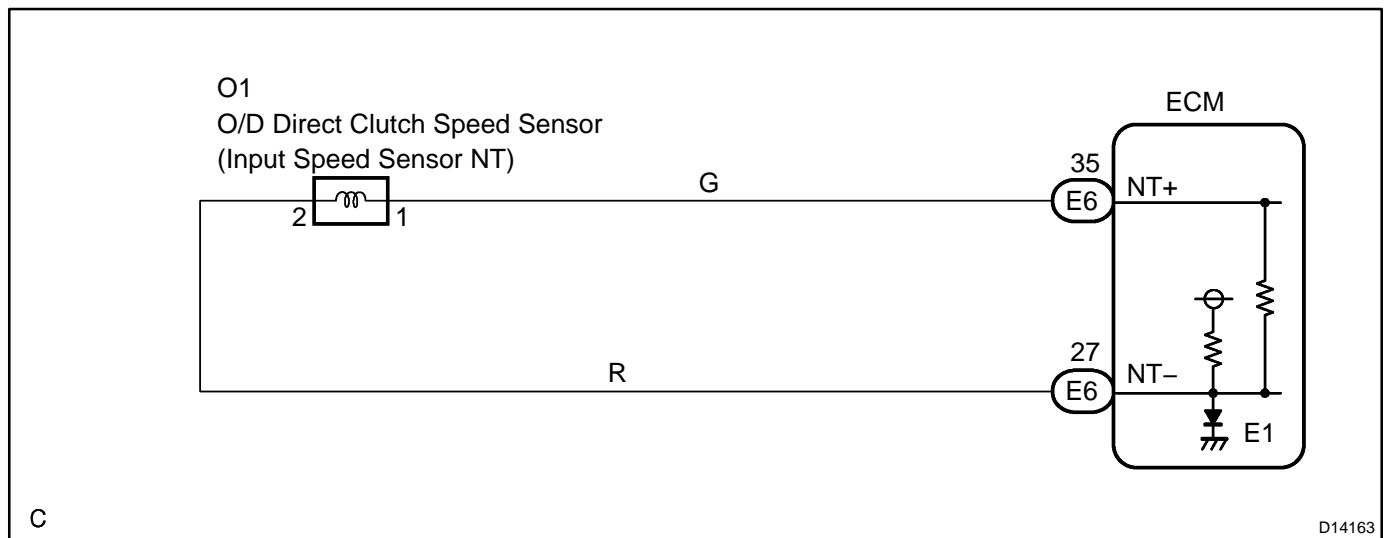
TYPICAL MALFUNCTION THRESHOLDS

Detection criteria	Threshold
Sensor signal rpm	Less than 300 rpm

COMPONENT OPERATING RANGE

Parameter	Standard value
Speed sensor (NT)	Input speed is equal to engine speed when lock-up ON.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

According to the DATA LIST displayed by the OBD II scan tool or hand-held tester, you can read the value of the switch, sensor, actuator and so on without parts removal. Reading the DATA LIST as the first step of troubleshooting is one method to shorten labor time.

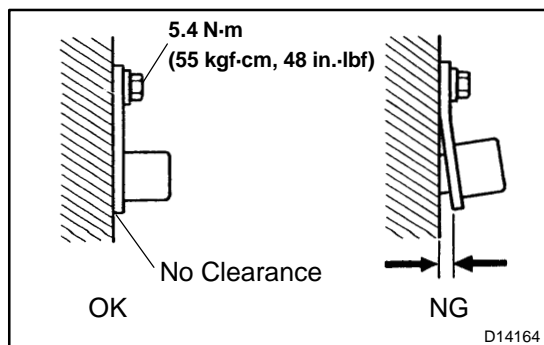
- Warm up the engine.
- Turn the ignition switch off.
- Connect the OBD II scan tool or hand-held tester to the DLC3.
- Turn the ignition switch to the ON position.
- Push the "ON" button of the OBD II scan tool or the hand-held tester.
- When you use the hand-held tester:
Select the item "DIAGNOSIS / ENHANCED OBD II / DATA LIST".
- According to the display on the tester, read the "DATA LIST".

Item	Measurement Item/ Range (display)	Normal Condition
SPD (NT)	Input Turbine Speed/ display: 50 r/min	<p>[HINT]</p> <ul style="list-style-type: none"> Lock-up ON (After warming up the engine); Input Turbine speed (NT) equal to the engine speed. Lock-up OFF (Idling at N position); Input Turbine speed (NT) nearly equal to the engine speed.

HINT:

- SPD (NT) is always 0 while driving:
Open or short in the sensor or circuit.
- SPD (NT) is always more than 0 and less than 300 rpm while driving the vehicle at 50 km/h (31 mph) or more:
Sensor trouble, improper installation, or intermittent connection trouble of the circuit.

1 Inspect speed sensor installation.



PREPARATION:

Jack up the vehicle.

CHECK:

Check the speed sensor (NT) installation.

OK:

The installation bolt is tightened properly and there is no clearance between the sensor and transmission case.

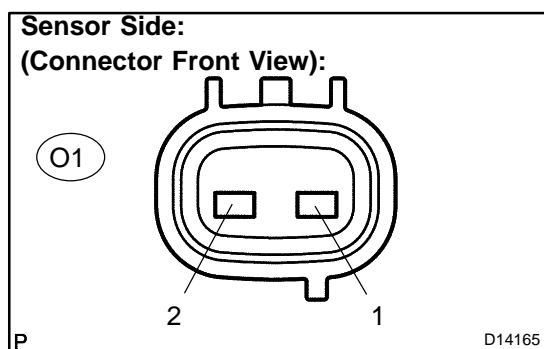
Torque: 5.4 N·m (55 kgf·cm, 48 in.-lbf)

NG

Replace speed sensor NT (See page [AT-8](#)).

OK

2 Inspect speed sensor NT.



PREPARATION:

Disconnect the speed sensor connector from the transmission.

CHECK:

Measure the resistance according to the value(s) in the table below.

OK:

Tester Connection	Specified Condition 20 °C (68 °F)
1 – 2	560 to 680 Ω

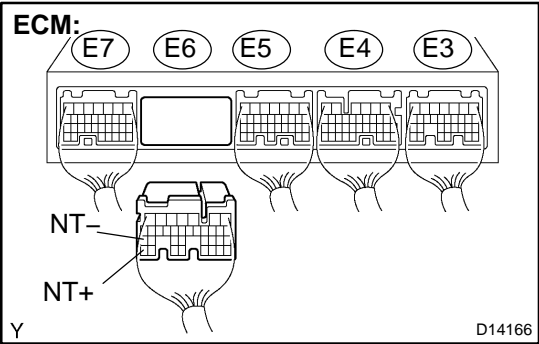
NG

Replace speed sensor NT (See page [AT-8](#)).

OK

3

Check harness and connector (ECM – speed sensor NT).



PREPARATION:

- (a) Connect the speed sensor connector.
- (b) Disconnect the ECM connector.

CHECK:

Measure the resistance according to the value(s) in the table below.

OK:

Tester Connection	Specified Condition 20°C (68°F)
E6 – 35 (NT+) – E6 – 27 (NT-)	560 to 680 Ω

CHECK:

Measure the resistance according to the value(s) in the table below.

OK:

Tester Connection	Specified Condition
E6 – 35 (NT+) – Body ground	10 kΩ or higher
E6 – 27 (NT-) – Body ground	↑

NG

Repair or replace harness or connector
(See page IN-30).

OK

Replace the ECM (See page SF-66).