DTC P0717 Turbine Speed Sensor Circuit No Signal

for Preparation Click here

DESCRIPTION

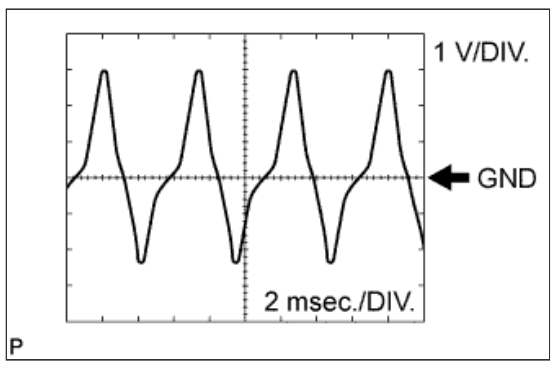
This sensor detects the rotation speed of the turbine which indicates the input speed of the transmission. By comparing the input turbine speed signal NT with the output speed sensor signal SP2, the ECM detects the shift timing of the gears and appropriately controls the engine torque and hydraulic pressure according to various conditions, and as a result, the gears shift smoothly.

DTC Code	DTC Detection Condition	Trouble Area
P0717	All conditions are met for 5 seconds or more (1-trip detection logic): (a) Gear change is not performed. (b) Transmission input shaft speed is 300 rpm or less. (c) Transmission output shaft speed is 1000 rpm or more. (d) Park/neutral position switch R input signal is OFF. (e) Shift solenoid valves and the park/neutral position switch are operating normally.	• Open or short in speed sensor NT circuit • Speed sensor NT • ECM • Automatic transmission (clutch, brake, gear, etc.)

Reference: Inspect using an oscilloscope.
Check the waveform of the ECM connector.

Standard:

Terminal No. (Symbol)	Tool Setting	Condition	Specified Condition
C30-3 (NT+) - C30-4 (NT-)	1 V/DIV., 2 msec./DIV.	Engine is idling (Shift lever in P or N)	Refer to illustration



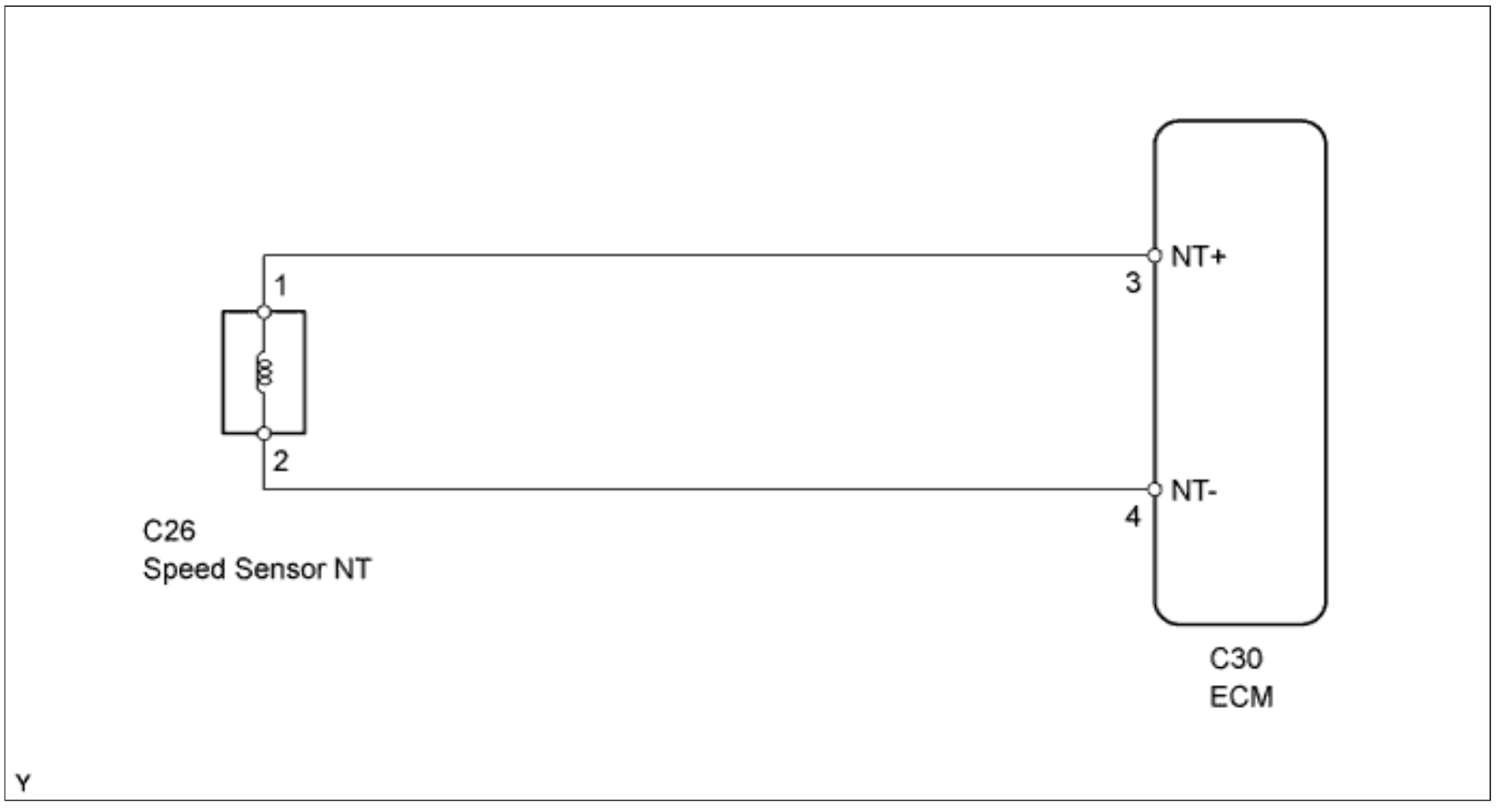
MONITOR DESCRIPTION

This DTC indicates that a pulse is not output from the speed sensor NT (turbine (input) speed sensor) or is output only a little. The NT terminal of the ECM detects the pulse signal from the speed sensor NT (input RPM). The ECM outputs a gear shift signal by comparing the input speed sensor NT signal with the output speed sensor SP2 signal.
While the vehicle is operating in 4th, 5th or 6th gear with the shift lever in D, if the input shaft speed is less than 300 rpm*1 although the output shaft speed is 1000 rpm or more*2, the ECM detects the trouble, illuminates the MIL and stores the DTC.

HINT:

- ***1: A pulse is not output or is irregularly output.**
- ***2: The vehicle speed is approximately 50 km/h (30 mph) or more.**

WIRING DIAGRAM



INSPECTION PROCEDURE

DATA LIST

HINT:

Using the intelligent tester to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

NOTICE:

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

a. Warm up the engine.

b. Turn the engine switch off.

c. Connect the intelligent tester to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the intelligent tester on.

f. Enter the following menus: Powertrain / Engine and ECT / Data List.

g. According to the display on the tester, read the Data List.

Engine and ECT

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
SPD (NT)	Input shaft speed/ Min.: 0 rpm Max.: 12750 rpm	• Lock-up ON (after warming up engine): Input turbine speed (NT) equal to engine speed • Lock-up OFF (idling with shift lever in N): Input turbine speed (NT) nearly equal to engine speed	Data is displayed in increments of 50 rpm.

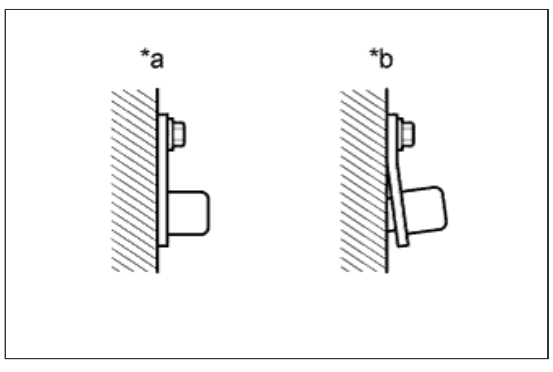
HINT:

- **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 (30 mph) or more:**
  Sensor trouble, improper installation or intermittent connection trouble of the circuit.

1.INSPECT SPEED SENSOR NT INSTALLATION

a. Check the speed sensor NT installation.

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



Text in Illustration

*a	CORRECT
*b	INCORRECT

NG → **SECURELY INSTALL OR REPLACE SPEED SENSOR NT (Click here)**

OK

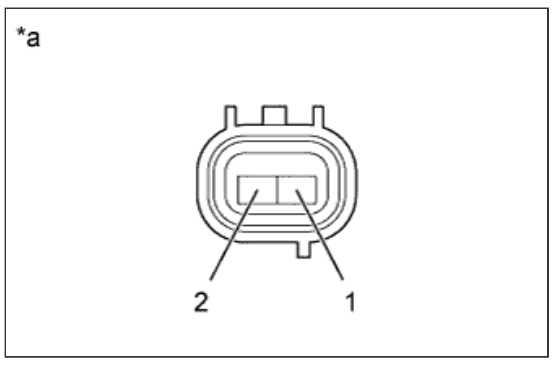
2.INSPECT SPEED SENSOR NT

a. Disconnect the C26 speed sensor connector.

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

Standard Resistance:

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



Text in Illustration

*a	Component without harness connected

	(Speed Sensor NT)

NG → REPLACE SPEED SENSOR NT (Click here)

OK

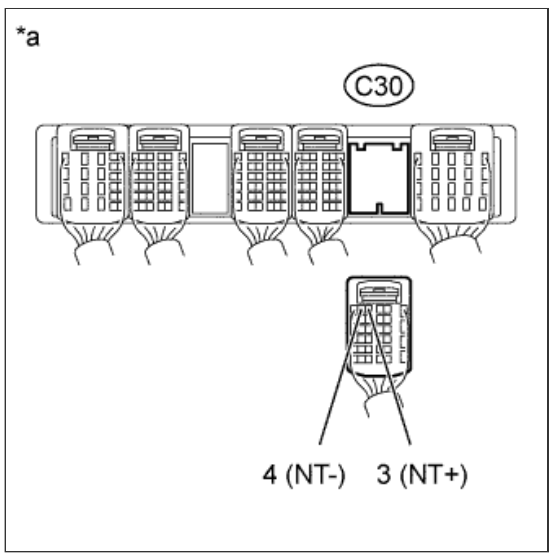
3.CHECK HARNESS AND CONNECTOR (SPEED SENSOR NT - ECM)

a. Disconnect the C30 ECM connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
C30-3 (NT+) - C30-4 (NT-)	20°C (68°F)	560 to 680 Ω
C30-3 (NT+) - Body ground	Always	10 kΩ or higher
C30-4 (NT-) - Body ground	Always	10 kΩ or higher



Text in Illustration

*a	Front view of wire harness connector (to ECM)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE ECM (Click here)