DTC P0722 Output Speed Sensor Circuit No Signal

for Preparation [Click here]

DESCRIPTION

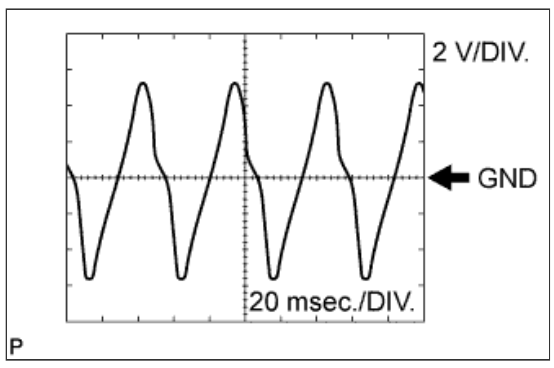
The speed sensor SP2 detects the rotation speed of the transmission output shaft and sends signals to the ECM. The ECM determines the vehicle speed based on these signals. An AC voltage is generated in the speed sensor SP2 coil as the parking gear mounted on the rear planetary gear assembly rotates, and this voltage is sent to the ECM. The parking gear on the rear planetary gear is used as the timing rotor for this sensor.
The gear shift point and lock-up timing are controlled by the ECM based on the signals from this vehicle speed sensor and the throttle position sensor signal.

DTC Code	DTC Detection Condition	Trouble Area
P0722	All conditions are met for 5 seconds or more continuously (2-trip detection logic): (a) No signal from speed sensor SP2 is input to the ECM while 4 pulses of the No. 1 vehicle speed sensor signal are sent. (b) Vehicle speed is 9 km/h (5.59 mph) or more. (c) Park/neutral position switch is OFF.	• Open or short in speed sensor SP2 circuit • Speed sensor SP2 • ECM • Automatic transmission (clutch, brake, gear, etc.)

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

Standard:

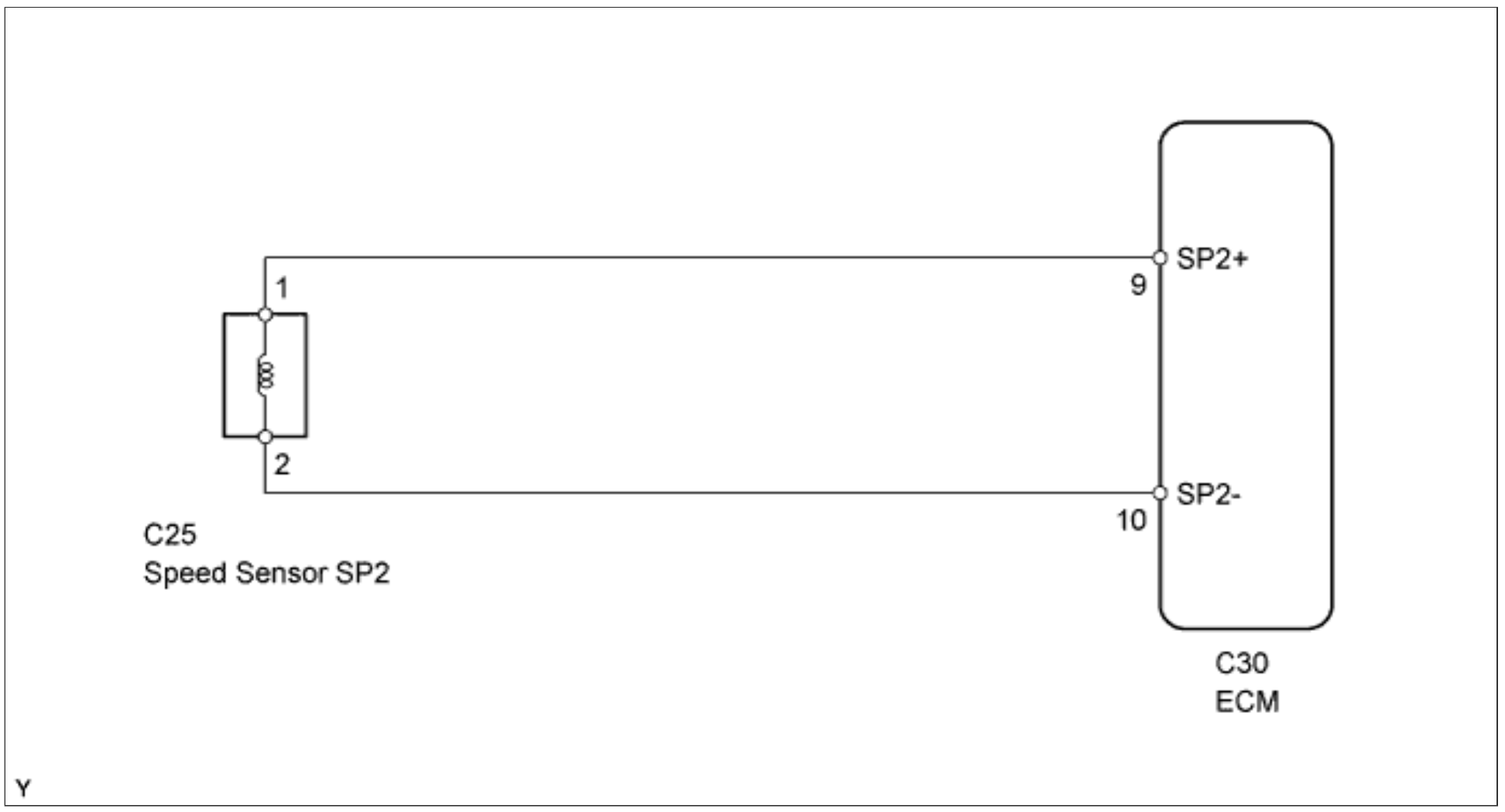
Terminal No. (Symbol)	Tool Setting	Condition	Specified Condition
C30-9 (SP2+) - C30-10 (SP2-)	2 V/DIV., 20 msec./DIV	Vehicle speed 20 km/h (12 mph)	Refer to illustration



MONITOR DESCRIPTION

The output speed sensor SP2 monitors the output shaft speed. The ECM controls the gear shift point and lock-up timing based on the signals from the output speed sensor SP2 and throttle position sensor.
If the ECM detects no signal from the output speed sensor SP2 even while the vehicle is moving, it will conclude that there is a malfunction of the output speed sensor SP2. The ECM will illuminate the MIL and store the DTC.

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 (SP2)	Output shaft speed/ Min.: 0 km/h (0 mph) Max.: 255 km/h (158 mph)	Vehicle stopped: 0 km/h (0 mph) (output shaft speed equal to vehicle speed)	-

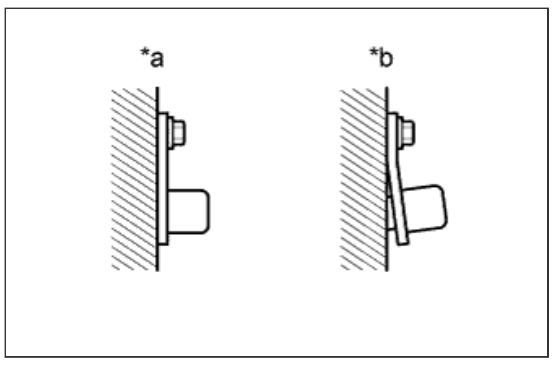
HINT:

- **SPD (SP2) is always 0 while driving:**
  Open or short in the sensor or circuit.
- **The SPD (SP2) value displayed on the intelligent tester is much lower than the actual vehicle speed:**
  Sensor trouble, improper installation or intermittent connection trouble of the circuit.

1.INSPECT SPEED SENSOR SP2 INSTALLATION

a. Check the speed sensor SP2 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

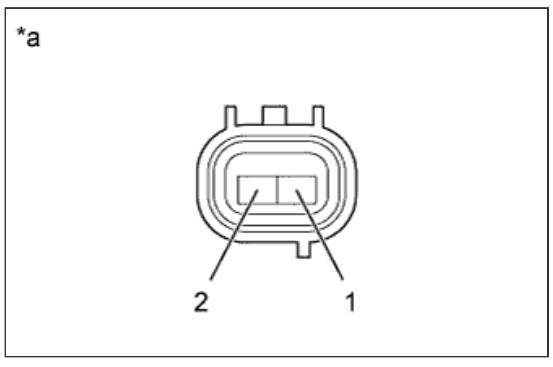
NG → **SECURELY INSTALL OR REPLACE SPEED SENSOR SP2 (Click here)**

OK

2.INSPECT SPEED SENSOR SP2

a. Disconnect the C25 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 SP2)

NG → **REPLACE SPEED SENSOR SP2 (Click here)**

OK

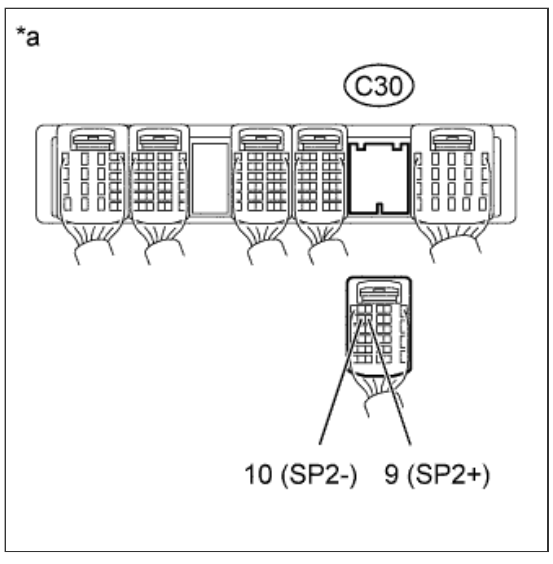
3.CHECK HARNESS AND CONNECTOR (SPEED SENSOR SP2 - ECM)

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
C30-9 (SP2+) - C30-10 (SP2-)	20°C (68°F)	560 to 680 Ω
C30-9 (SP2+) - Body ground	Always	10 kΩ or higher
C30-10 (SP2-) - 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)