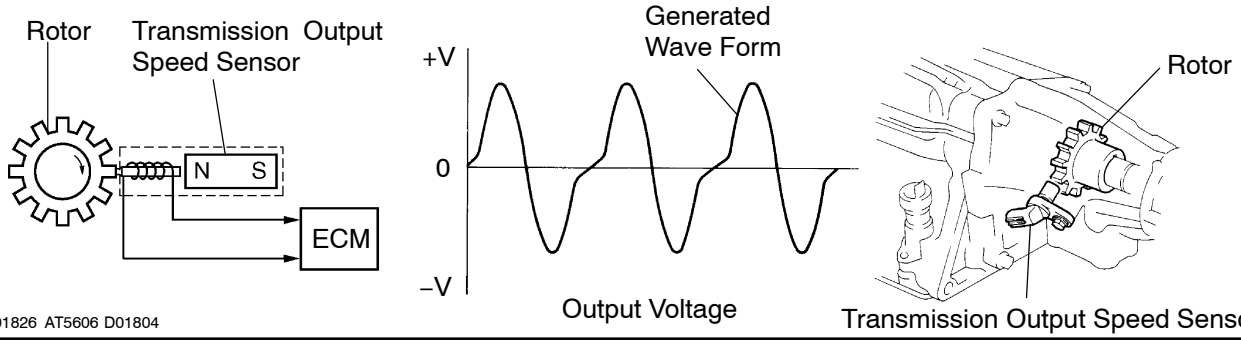
DI645–01

| DTC | P0500/42 | Vehicle Speed Sensor Malfunction |
|---|---|---|

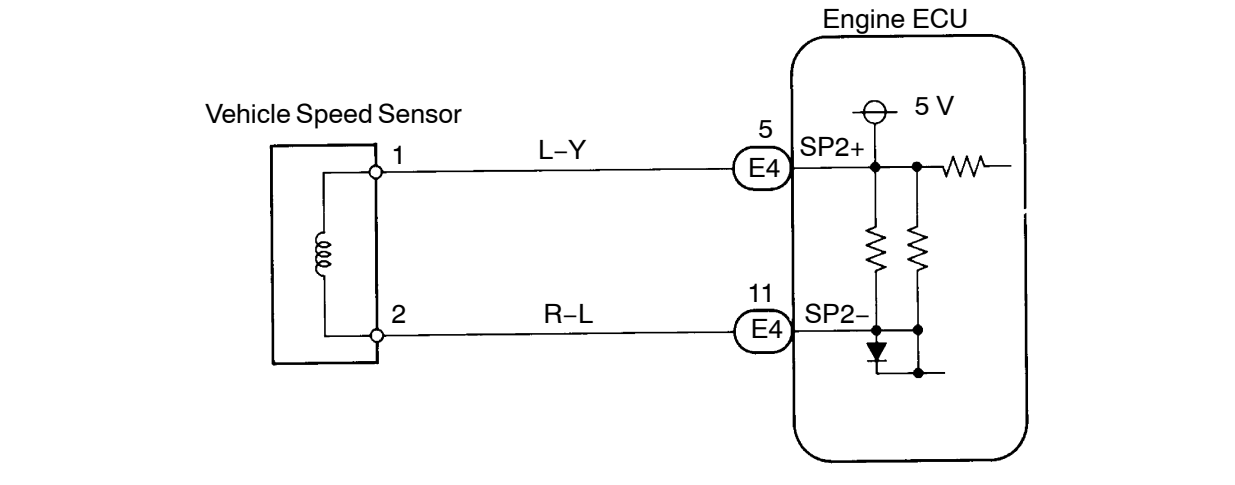
## CIRCUIT DESCRIPTION

The vehicle speed sensor detects the rotation speed of the transmission output shaft and sends signals to the engine ECU. The engine ECU determines the vehicle speed based on these signals. An AC voltage is generated in the vehicle speed sensor coil as the rotor mounted on the output shaft rotates, and this voltage is sent to the engine ECU.




| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| P0500/42 | No vehicle speed sensor signal to engine ECU under conditions (a) and (b):<br>(a) Park/neutral position switch is OFF<br>(b) Vehicle is being driven | • Open or short in vehicle speed sensor circuit<br>• Transmission output speed sensor<br>• Engine ECU |

## WIRING DIAGRAM



## INSPECTION PROCEDURE

### When using hand–held tester:

HINT:
Read freeze frame data using hand–held tester. Because freeze frame records the engine conditions when the malfunction is detected. When troubleshooting it is useful for determining whether the vehicle was running or stopped, the engine was warmed up or not, the air–fuel ratio was lean or rich, etc. at the time of the malfunction.

| | |
|---|---|
| 1 | **Connect hand–held tester and read value of vehicle speed value.** |

**PREPARATION:**
(a) Connect the hand–held tester to the DLC3.
(b) Start the engine and push the the hand–held tester main switch ON.

**CHECK:**
Drive the vehicle and read vehicle speed value.

**OK:**

**Vehicle speed matches tester speed value.**

**OK** → **Check and replace engine ECU (See page IN–32).**

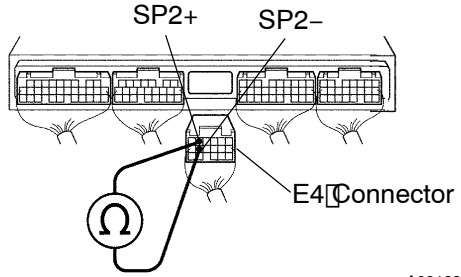
**NG**

| | |
|---|---|
| 2 | **Check speedometer circuit (See page BE–83).** |

**NG** → **Repair or replace speedometer circuit.**

**OK**

| | |
|---|---|
| 3 | **Check resistance between terminals SP2+ and SP2– of engine ECU connector.** |




**PREPARATION:**
(a) Remove the engine ECU hood.
(b) Disconnect the E4 connector from the engine ECU.

**CHECK:**
Check the resistance between terminals SP2+ and SP2– of the engine ECU connector.

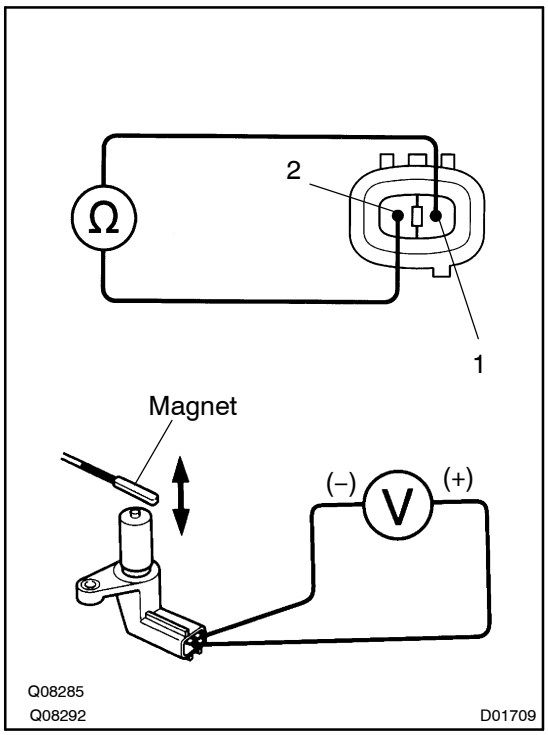
**OK:**

**Resistance: 560 – 680 Ω**

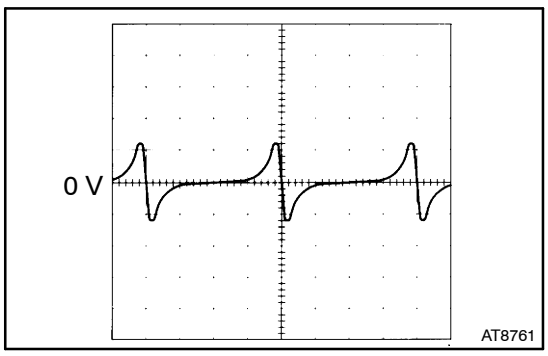
**OK** → **Check and replace engine ECU (See page IN–32).**

NG

| 4 | Check vehicle speed sensor. |
|---|---|




**PREPARATION:**
Remove the vehicle speed sensor from the transmission.
**CHECK:**
Measure the resistance between terminals 1 and 2 of the speed sensor.
**OK:**
**Resistance: 560 – 680 Ω**
**Reference: CHECK VEHICLE SPEED SENSOR'S FUNCTION**
**CHECK:**
Check the voltage between terminals 1 and 2 of the vehicle speed sensor when a magnet is put close to the front end of the vehicle speed sensor then taken away quickly.
**OK:**
**Voltage is generated intermittently.**
HINT:
Voltage generated is extremely low.




**Reference: INSPECTION USING OSCILLOSCOPE**
Check the waveform between terminals SP2+ and SP2– when the vehicle speed is approx. 60 km/h (37 mph).

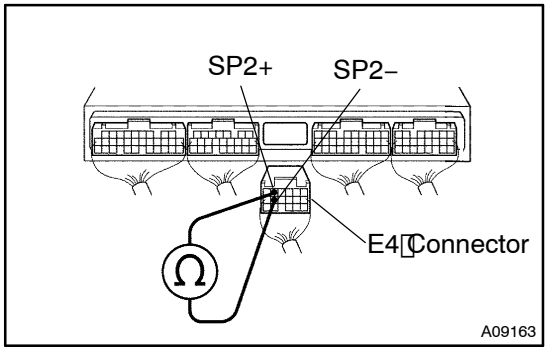
NG → **Replace vehicle speed sensor.**

OK

**Check and repair harness and connector between engine ECU and vehicle speed sensor (See page IN–32).**

## When not using hand-held tester:

| | |
|---|---|
| 1 | Check resistance between terminals SP2+ and SP2– of engine ECU connector. |

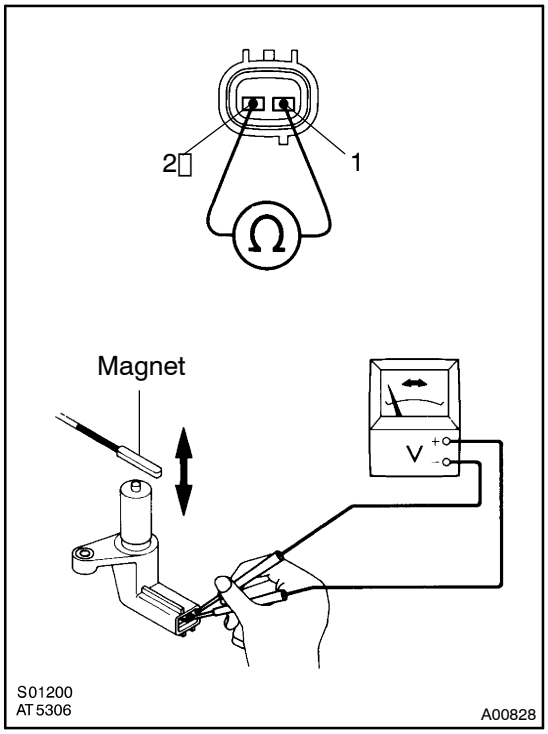



**PREPARATION:**
(a) Remove the engine ECU hood.
(b) Disconnect the E4 connector from the engine ECU.
**CHECK:**
Check the resistance between terminals SP2+ and SP2– of the engine ECU connector.
**OK:**
**Resistance: 560 – 680 Ω**

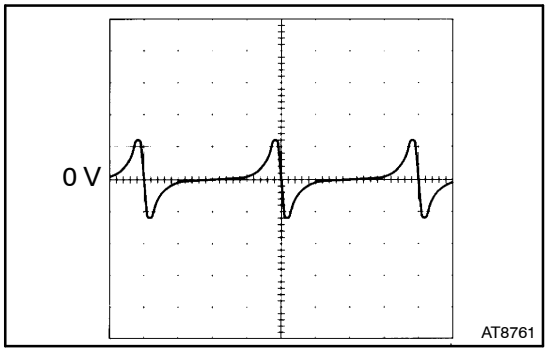
| | |
|---|---|
| OK | Check and replace engine ECU (See page FI–67). |

NG

| | |
|---|---|
| 2 | Check vehicle speed sensor. |




**PREPARATION:**
Remove the vehicle speed sensor from the transmission.
**CHECK:**
Measure the resistance between terminals 1 and 2 of the speed sensor.
**OK:**
**Resistance: 560 – 680 Ω**
**Reference: CHECK VEHICLE SPEED SENSOR'S FUNCTION**
**CHECK:**
Check the voltage between terminals 1 and 2 of the vehicle speed sensor when a magnet is put close to the front end of the vehicle speed sensor then taken away quickly.
**OK:**
**Voltage is generated intermittently.**
HINT:
Voltage generated is extremely low.




**Reference: INSPECTION USING OSCILLOSCOPE**
Check the waveform between terminals SP2+ and SP2– when the vehicle speed is approx. 60 km/h (37 mph).

**NG** → **Replace vehicle speed sensor.**

**OK**

**Check and repair harness and connector between engine ECU and vehicle speed sensor (See page DI–91).**