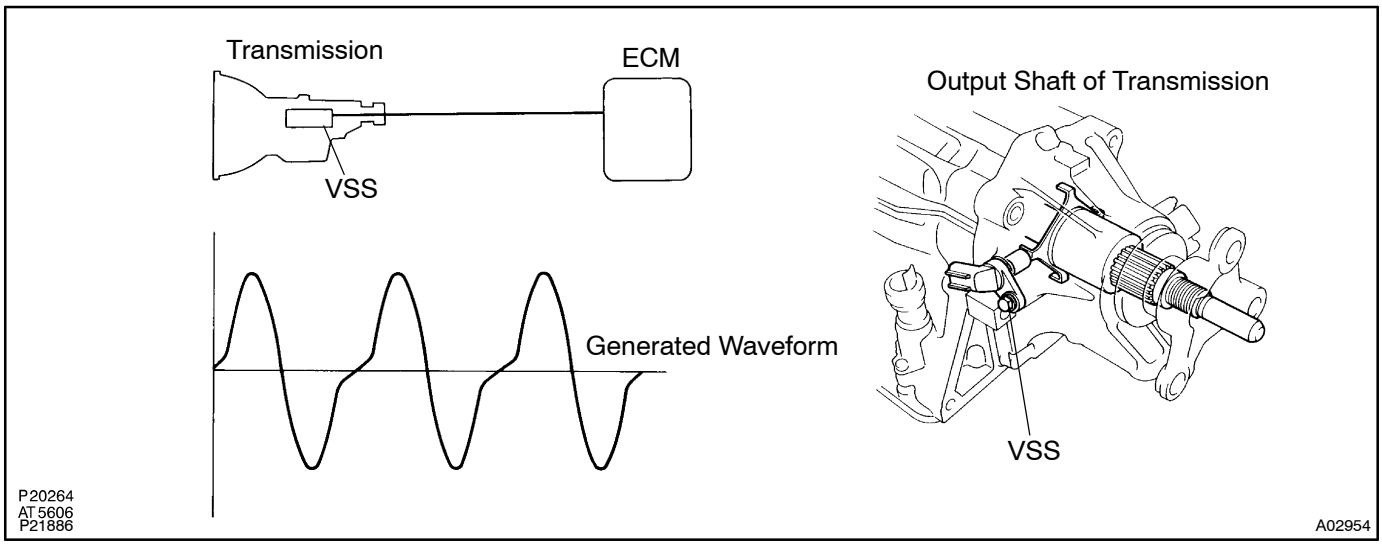
DTC	P0500	VEHICLE SPEED SENSOR ”A”

CIRCUIT DESCRIPTION

The Vehicle Speed Sensor (VSS) outputs a 4–pulse signal for every revolution of the rotor shaft, which is rotated by the transmission output shaft via the driven gear. The ECM determines the vehicle speed based on this signal.

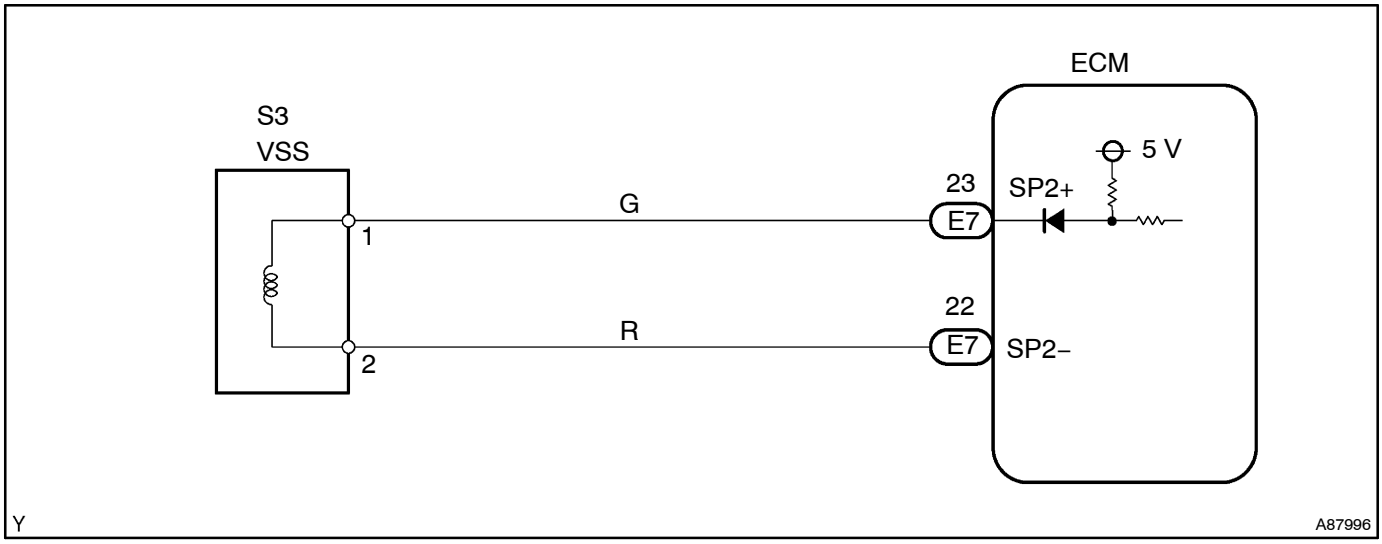


DTC No.	DTC Detection Condition	Trouble Area
P0500	ECM does not detects any vehicle speed signal when vehicle is being driven (1 trip detection logic)	• Open or short in VSS circuit • VSS • ECM

MONITOR DESCRIPTION

The ECM assumes that the vehicle is being driven when the engine RPM is more than 2,000 rpm and the Park/Neutral Position (PNP) switch was turned OFF (for 30 seconds). If there is no signal from the VSS when the vehicle is being driven, the ECM interprets this as a malfunction in the VSS. The ECM illuminates the MIL and sets a DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

Read freeze frame data using the Intelligent Tester II. Freeze frame data records the engine conditions when a malfunction is detected. When troubleshooting, freeze frame data can help determine if the vehicle was running or stopped, if the engine was warmed up or not, if the air–fuel ratio was lean or rich, and other data from the time the malfunction occurred.

1	READ VALUE OF INTELLIGENT TESTER II (VEHICLE SPEED)

(a) Connect the Intelligent tester II to the DLC3.
(b) Enter the following menus: Enter/ Diagnosis/ OBD·MOBD/ Power train/ Engine and ECT/ Data List/ All Data/ Vehicle Speed.
(c) Drive the vehicle at 2,500 rpm or more.

Result:

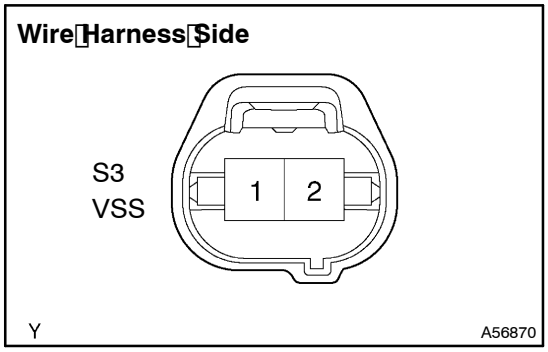
Vehicle speed	Proceed to
Vehicle speed remains 0 km/h (0 mph)	A
Vehicle speed is lower than actual speed	B
Vehicle speed is same as actual speed	C

B → **Go to step 3**

C → **CHECK FOR INTERMITTENT PROBLEM (See page 05–11)**

A

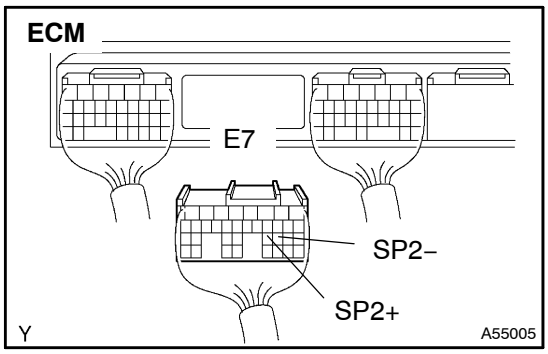
2	CHECK WIRE HARNESS (VSS – ECM)



(a) Disconnect the S3 VSS connector.
(b) Disconnect the E7 ECM connector.
(c) Measure the resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
S3–1 – E7–23 (SP2+)	Below 1 Ω
S3–2 – E7–22 (SP2–)	Below 1 Ω
S3–1 or E7–23 (SP2+) – Body ground	10 kΩ or higher
S3–2 or E7–22 (SP2–) – Body ground	10 kΩ or higher

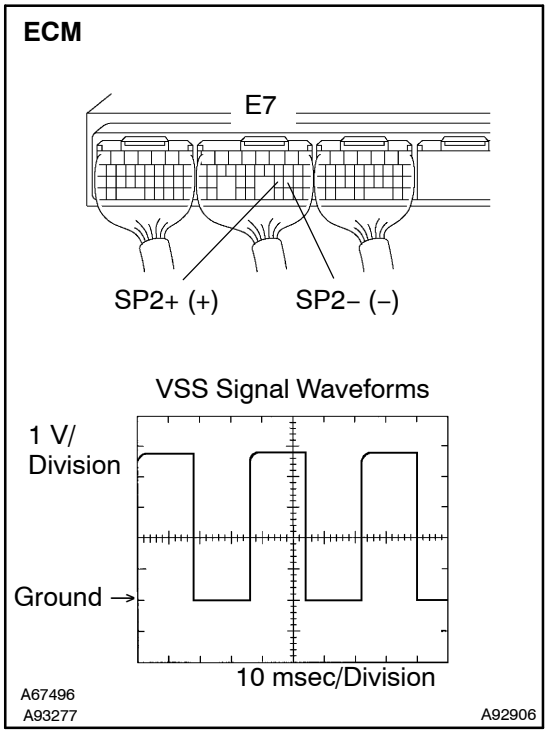


(d) Reconnect the ECM connector.
(e) Reconnect the VSS connector.

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

3 INSPECT SPEED SENSOR (VSS WAVEFORM)



Check the waveform of the ECM connector when the vehicle speed is approximately 60 km/h (37 mph).

Tester Connection	Specified condition
E7–23 (SP2+) – E7–22 (SP2–)	Correct waveform is as shown

OK: The correct waveforms are as shown.

NG → **REPLACE SPEED SENSOR**

OK

4 INSPECT SPEED SENSOR (INSTALLATION)

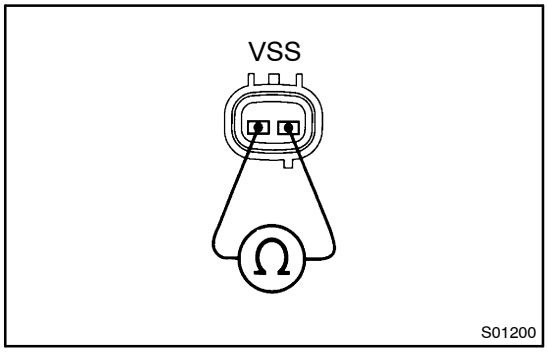
Check that the VSS is installed securely.

OK: The VSS is installed securely.

NG → **TIGHTEN SPEED SENSOR**

OK

5 INSPECT SPEED SENSOR (RESISTANCE)



(a) Measure the resistance between the terminals of the VSS.

Standard: 560 to 680 Ω

NG → **REPLACE SPEED SENSOR**

OK

6	CHECK DTC

(a) Connect the Intelligent Tester II to the DLC3.
(b) Drive the vehicle at 3,000 rpm or more for 10 seconds or more.
(c) Read DTCs.

Result:

Display (DTC output)	Proceed to
No DTC	A
P0500	B

B → **REPLACE ECM (See page 10–21)**

A

END