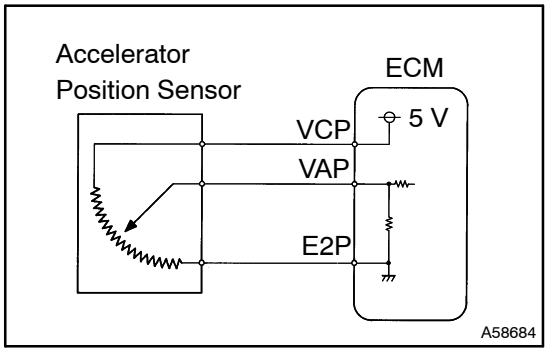
DTC	P1133	ACCELERATOR POSITION SENSOR CIRCUIT HIGH

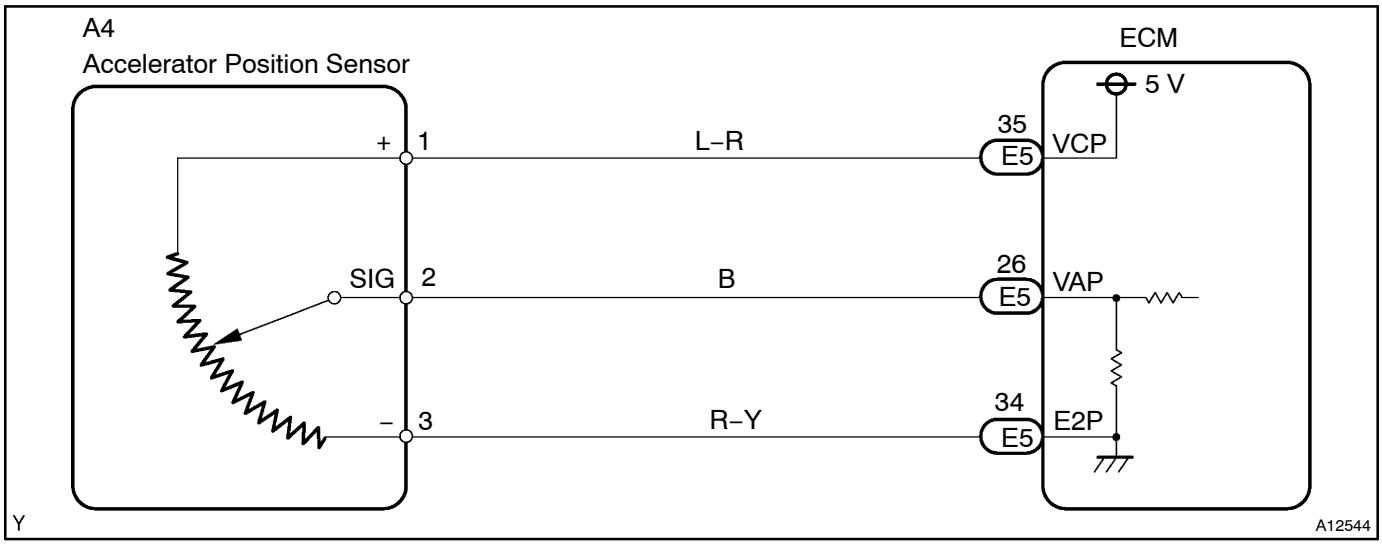
CIRCUIT DESCRIPTION



The outer accelerator position sensor, mounted on the accelerator bellcrank, is used to control the PTO. The sensor converts the opening degrees of the accelerator pedal into voltage of 0 to 5 V and output it to the ECM.

DTC No.	DTC Detection Condition	Trouble Area
P1133	Short in accelerator position sensor circuit for more than 1 second	• Short in accelerator position sensor circuit • Accelerator position sensor • ECM

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

Read freeze frame data using the hand–held tester. 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.

When using hand–held tester:

1	READ VALUE OF DATA LIST

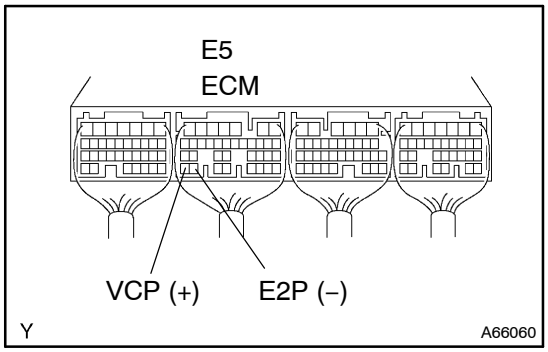
(a) Connect the hand–held tester (with 24 V VIM) to the DLC3.
(b) Start the engine.
(c) Turn the hand–held tester ON.
(d) On the hand–held tester, enter the following menus: DIAGNOSIS / OBD/MOBD / DATA LIST / ALL / PTO SW. Read the values.
Standard:

PTO Switch Condition	Specified Condition
Fully closed → Fully open	0.7 to 1.0 V → 3.3 to 3.9 V (voltage changes constantly)

OK → **CHECK FOR INTERMITTENT PROBLEMS (See page 05–10)**

NG

2	CHECK ECM (VCP VOLTAGE)



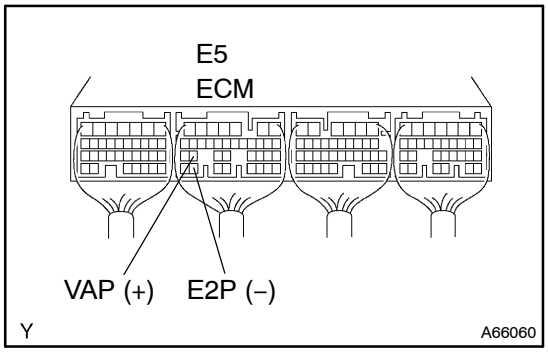
(a) Turn the ignition switch ON.
(b) Measure the voltage of the ECM connector.
Standard:

Tester Connection	Specified Condition
E5–35 (VCP) – E5–34 (E2P)	4.5 to 5.5 V

NG → **REPLACE ECM (See page 10–10)**

OK

3	CHECK ECM (VAP VOLTAGE)



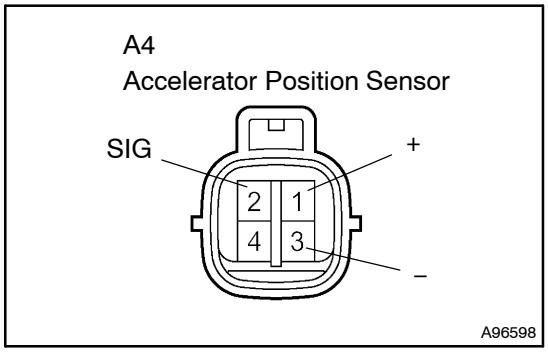
(a) Turn the ignition switch ON.
(b) Measure the voltage of the ECM connector.
Standard:

Tester Connection	PTO Switch Condition	Specified Condition
E5–26 (VAP) – E5–34 (E2P)	Fully closed	0.7 to 1.0 V
E5–26 (VAP) – E5–34 (E2P)	Fully open	3.3 to 3.9 V
E5–26 (VAP) – E5–34 (E2P)	Fully closed → Fully open → Fully closed	Voltage changes constantly

OK → **REPLACE ECM (See page 10–10)**

NG

4 INSPECT ACCELERATOR POSITION SENSOR ASSY



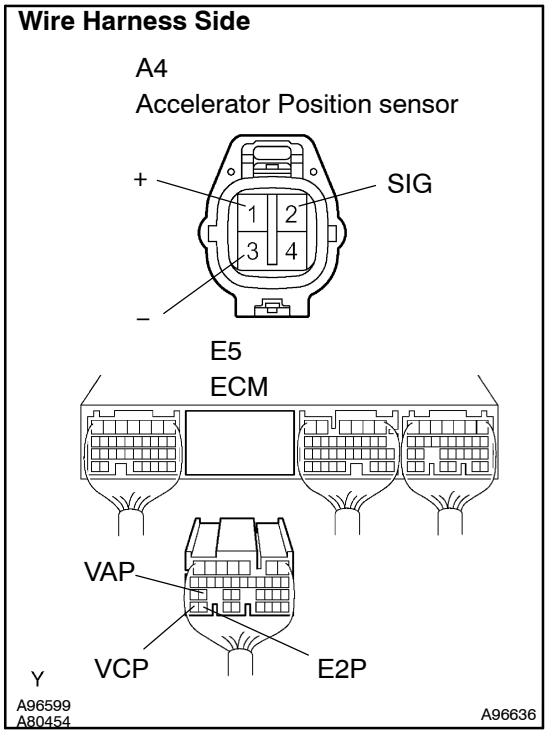
(a) Disconnect the A4 sensor connector.
(b) Measure the resistance of the sensor.
Standard:

Tester Connection	Accelerator Pedal Condition	Specified Condition
A4–1 (+) – A4–3 (–)	–	1.6 to 2.4 kΩ
A4–2 (SIG) – A4–3 (–)	Released → Depressed	Resistance changes constantly

NG → **REPLACE ACCELERATOR POSITION SENSOR ASSY**

OK

5 CHECK WIRE HARNESS (ECM – ACCELERATOR POSITION SENSOR)



(a) Disconnect the A4 sensor connector.
(b) Disconnect the E5 ECM connector.
(c) Measure the resistance of the wire harness side connectors.
Standard:

Tester Connection	Specified Condition
E5 – 35 (VCP) – A4 – 1 (+) E5 – 28 (E2P) – A4 – 3 (–) E5 – 26 (VAP) – A4 – 2 (SIG)	Below 1 Ω
E5–35 (VCP) or A4–1 (+) – Body ground E5–28 (E2P) or A4–3 (–) – Body ground E5–26 (VAP) or A4–2 (SIG) – Body ground	10 kΩ or higher

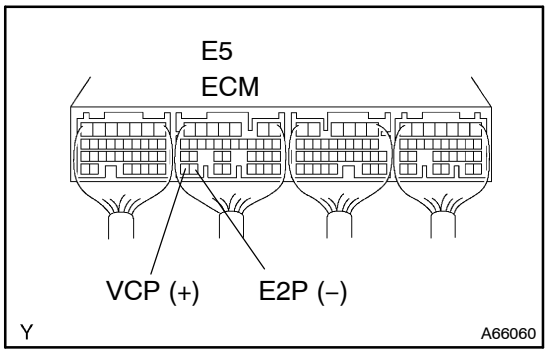
NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

REPLACE ECM (See page 10–10)

When not using hand–held tester:

1 CHECK ECM (VCP VOLTAGE)



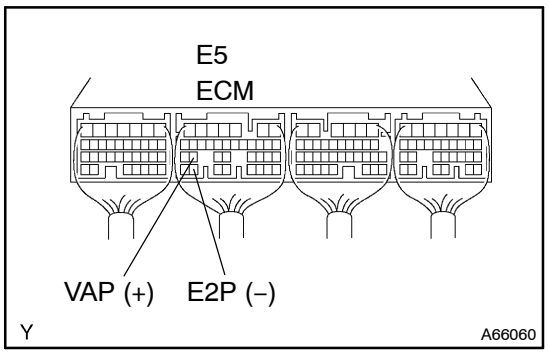
(a) Turn the ignition switch ON.
(b) Measure the voltage of the ECM connector.
Standard:

Tester Connection	Specified Condition
E5–35 (VCP) – E5–34 (E2P)	4.5 to 5.5 V

NG → **REPLACE ECM (See page 10–10)**

OK

2 CHECK ECM (VAP VOLTAGE)



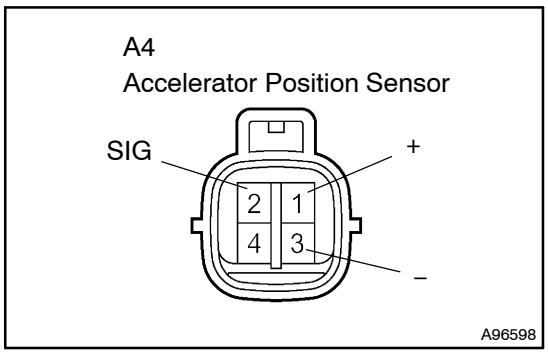
(a) Turn the ignition switch ON.
(b) Measure the voltage of the ECM connector.
Standard:

Tester Connection	PTO Switch Condition	Specified Condition
E5–26 (VAP) – E5–34 (E2P)	Fully closed	0.7 to 1.0 V
E5–26 (VAP) – E5–34 (E2P)	Fully open	3.3 to 3.9 V
E5–26 (VAP) – E5–34 (E2P)	Fully closed → Fully open → Fully closed	Voltage changes constantly

OK → **REPLACE ECM (See page 10–10)**

NG

3 INSPECT ACCELERATOR POSITION SENSOR ASSY



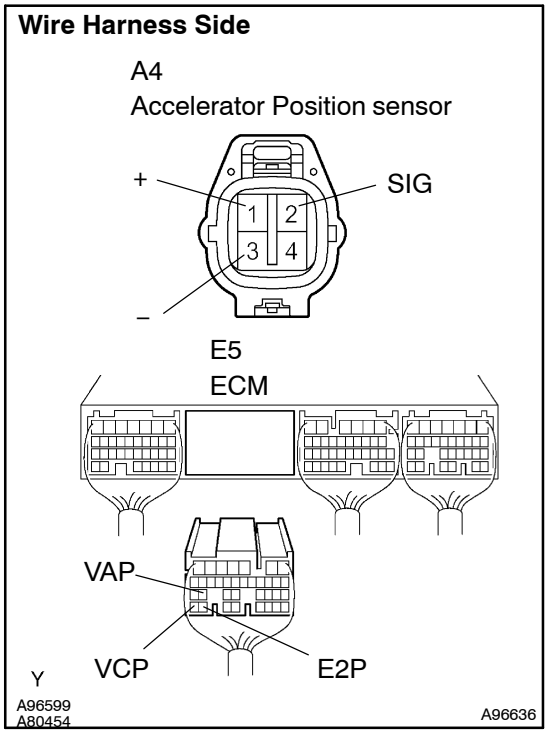
(a) Disconnect the A4 sensor connector.
(b) Measure the resistance of the sensor.
Standard:

Tester Connection	Accelerator Pedal Condition	Specified Condition
A4–1 (+) – A4–3 (–)	–	1.6 to 2.4 kΩ
A4–2 (SIC) – A4–3 (–)	Released → Depressed	Resistance changes constantly

NG → **REPLACE ACCELERATOR POSITION SENSOR ASSY**

OK

4	CHECK WIRE HARNESS (ECM – ACCELERATOR POSITION SENSOR)



(a) Disconnect the A4 sensor connector.
(b) Disconnect the E5 ECM connector.
(c) Measure the resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
E5–35 (VCP) – A4–1 (+) E5–28 (E2P) – A4–3 (–) E5–26 (VAP) – A4–2 (SIG)	Below 1 Ω
E5–35 (VCP) or A4 1 (+) – Body ground E5–28 (E2P) or A4–3 (–) – Body ground E5–26 (VAP) or A4–2 (VICM) – Body ground	10 kΩ or higher

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

OK

REPLACE ECM (See page 10–10)