

DTC	P0504	BRAKE SWITCH "A"/"B" CORRELATION
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CIRCUIT DESCRIPTION

In this system, the signal of the stop lamp switch is used to judge whether the acceleration system is abnormal or not.

The stop lamp switch has a duplex system (signals STP and ST1-) to memorize the abnormality when the signals of depressing and releasing the brake pedal are detected simultaneously.

HINT:

Normal condition is as shown in the table.

Signal	Brake pedal released	In transition	Brake pedal depressed
STP	OFF	ON	ON
ST1-	ON	ON	OFF

DTC No.	DTC Detection Condition	Trouble Area
P0504	Condition (a), (b) and (c) continue for 0.5 sec. or more (a) Ignition switch ON (b) Brake pedal released (c) STP signal is OFF when the ST1- signal is OFF	<ul style="list-style-type: none"> • Short in stop lamp switch signal circuit • Stop lamp switch • ECM

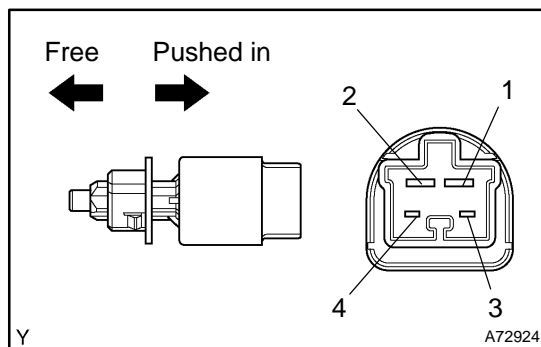
The diagram illustrates the Stop Lamp Control System. It shows the following components and connections:

- Battery:** Connected to the system via a fuse.
- IGNITION FUSE:** Provides power to the system.
- STOP LP CTRL Relay:** Controls the stop lamp circuit.
- S10 Skid Control ECU:** Receives input from the relay and outputs to the ECM.
- ECM (ECM):** The Engine Control Module, which controls the stop lamp system.
- Wiring:** Various colored wires (G-W, G-Y, G-B, B-O, Y-R, LG, W-B, G-Y, B, H, E) connect the components.
- Terminals:** Terminal numbers (1, 2, 3, 4, 5, 6, 12, 15, 16, 19, 20, 24) are shown at various points in the circuit.
- Notes:** "To High Mounted Stop Light" and "Rear Combination Light RH" are noted.

Read freeze frame data using the hand-held tester or the OBD II scan tool, as freeze frame data records the engine conditions when a 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.

Hand-held tester:**1 CHECK OPERATION OF STOP LIGHT**

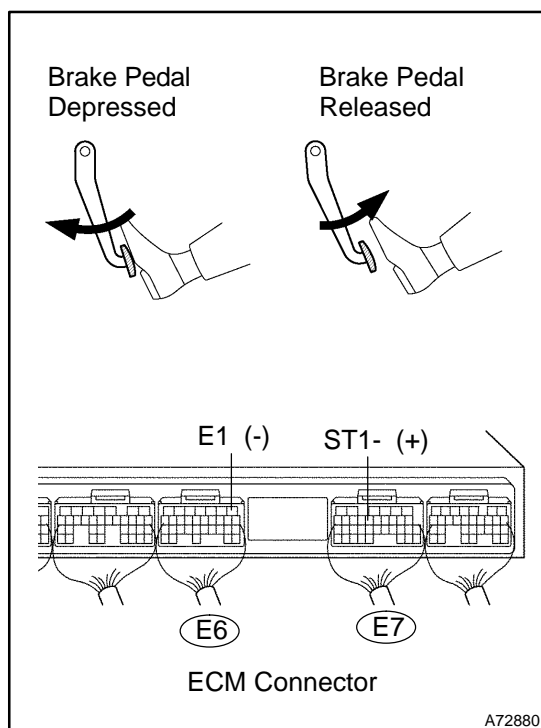
- (a) Check if the stop lights go on and off normally when the brake pedal is depressed and released.

NG**REPAIR OR REPLACE STOP LAMP SWITCH CIRCUIT****OK****2 INSPECT STOP LAMP SWITCH ASSY**

- (a) Check that there is continuity between each terminals.

Standard:

Switch position	Between terminals	Specified condition
Switch pin free	1 - 2	Continuity
	3 - 4	No continuity
Switch pin pushed in	1 - 2	No continuity
	3 - 4	Continuity

NG**REPLACE STOP LAMP SWITCH ASSY****OK****3 READ VALUE OF HAND-HELD TESTER(STP SIGNAL AND ST1- VOLTAGE)**

- (a) Turn the ignition switch ON.
 (b) Select the item "DIAGNOSIS/ENHANCED OBD II/DATA LIST/ALL/STOP LIGHT SW" and read its value displayed on the hand-held tester.

Standard:

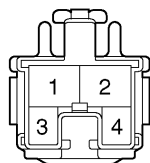
Brake Pedal	Specified condition
Depressed	STP Signal ON
Released	STP Signal OFF

- (c) Measure the voltage between the terminals of the E6 and E7 ECM connectors.

Standard:

Symbols (Terminal No.)	Brake pedal	Specified condition
ST1- (E7-12) ⇔ E1 (E6-1)	Depressed	Below 1.5 V
	Released	7.5 - 14 V

OK**CHECK FOR INTERMITTENT PROBLEMS
(See page 05-5)****NG**

4 CHECK HARNESS AND CONNECTOR(STOP LAMP SWITCH - ECM)**Wire Harness Side**

Stop Lamp Switch Connector

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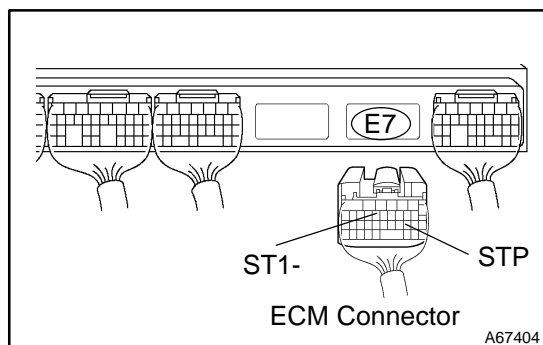
- (a) Disconnect the stop lamp switch connector.
- (b) Disconnect the E7 ECM connector.
- (c) Check the continuity between the wire harness side connectors.

Standard (Check for open):

Symbols (Terminal No.)	Specified condition
Stop lamp switch (1) ⇔ STP (E7-19)	Continuity
Stop lamp switch (4) ⇔ ST1- (E7-12)	

Standard (Check for short):

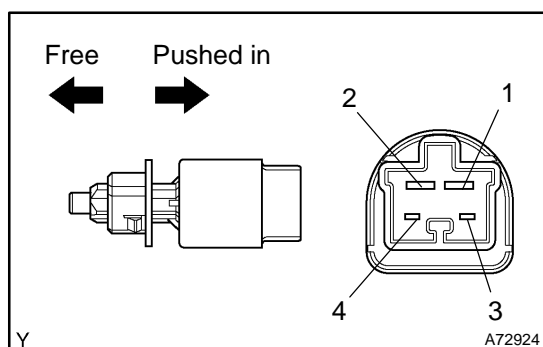
Symbols (Terminal No.)	Specified condition
Stop lamp switch (1) or STP (E7-19) ⇔ Body ground	No continuity
Stop lamp switch (4) or ST1- (E7-12) ⇔ Body ground	



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NG**REPAIR OR REPLACE HARNESS OR CONNECTOR****OK****CHECK AND REPLACE ECM (See page 01-35)****OBD II scan tool (excluding hand-held tester):****1 CHECK OPERATION OF STOP LIGHT**

- (a) Check if the stop lights go on and off normally when the brake pedal is depressed and released.

NG**REPAIR OR REPLACE STOP LAMP SWITCH CIRCUIT****OK****2 INSPECT STOP LAMP SWITCH ASSY**

Y

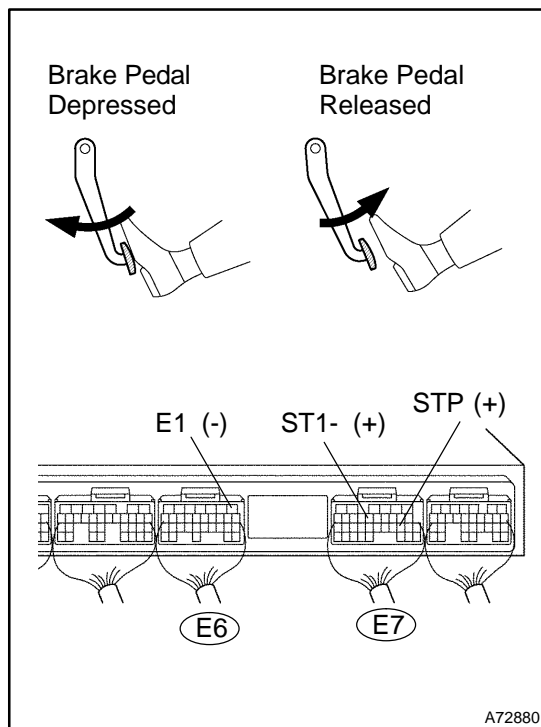
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- (a) Check that there is continuity between each terminals.
Standard:

Switch position	Between terminals	Specified condition
Switch pin free	1 - 2	Continuity
	3 - 4	No continuity
Switch pin pushed in	1 - 2	No continuity
	3 - 4	Continuity

NG**REPLACE STOP LAMP SWITCH ASSY****OK**

3 INSPECT ECM(STP AND ST1- VOLTAGE)



- Turn the ignition switch ON.
- Measure the voltage between the terminals of the E6 and E7 ECM connectors.

Standard:

Symbols (Terminal No.)	Brake pedal position	Specified condition
STP (E7-19) ⇔ E1 (E6-1)	Depressed	7.5 - 14 V
	Released	Below 1.5 V
ST1- (E7-12) ⇔ E1 (E6-1)	Depressed	Below 1.5 V
	Released	7.5 - 14 V

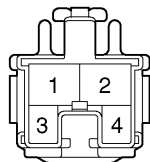
OK

CHECK FOR INTERMITTENT PROBLEMS
(See page 05-5)

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4 CHECK HARNESS AND CONNECTOR(STOP LAMP SWITCH - ECM)

Wire Harness Side



Stop Lamp Switch Connector

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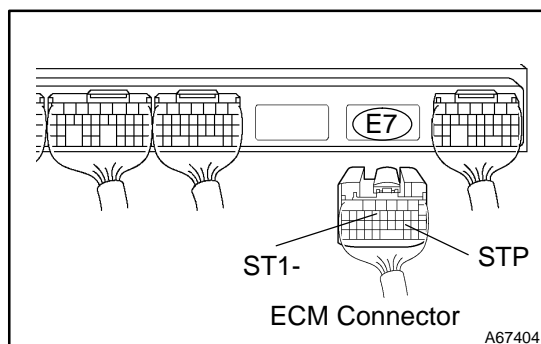
- Disconnect the stop lamp switch connector.
- Disconnect the E7 ECM connector.
- Check the continuity between the wire harness side connectors.

Standard (Check for open):

Symbols (Terminal No.)	Specified condition
Stop lamp switch (1) ⇔ STP (E7-19)	Continuity
Stop lamp switch (4) ⇔ ST1- (E7-12)	

Standard (Check for short):

Symbols (Terminal No.)	Specified condition
Stop lamp switch (1) or STP (E7-19) ⇔ Body ground	No continuity
Stop lamp switch (4) or ST1- (E7-12) ⇔ Body ground	



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REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

CHECK AND REPLACE ECM (See page 01-35)