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

CIRCUIT DESCRIPTION

In addition to turning on the stop lamps, the stop lamp switch signals are used for a variety of engine, transmission, and suspension functions as well as being an input for diagnostic checks. It is important that the switch operates properly, therefore this switch is designed with two complementary signal outputs: STP and ST1–. The ECM analyzes these signal outputs to detect malfunctions in the stop lamp switch.

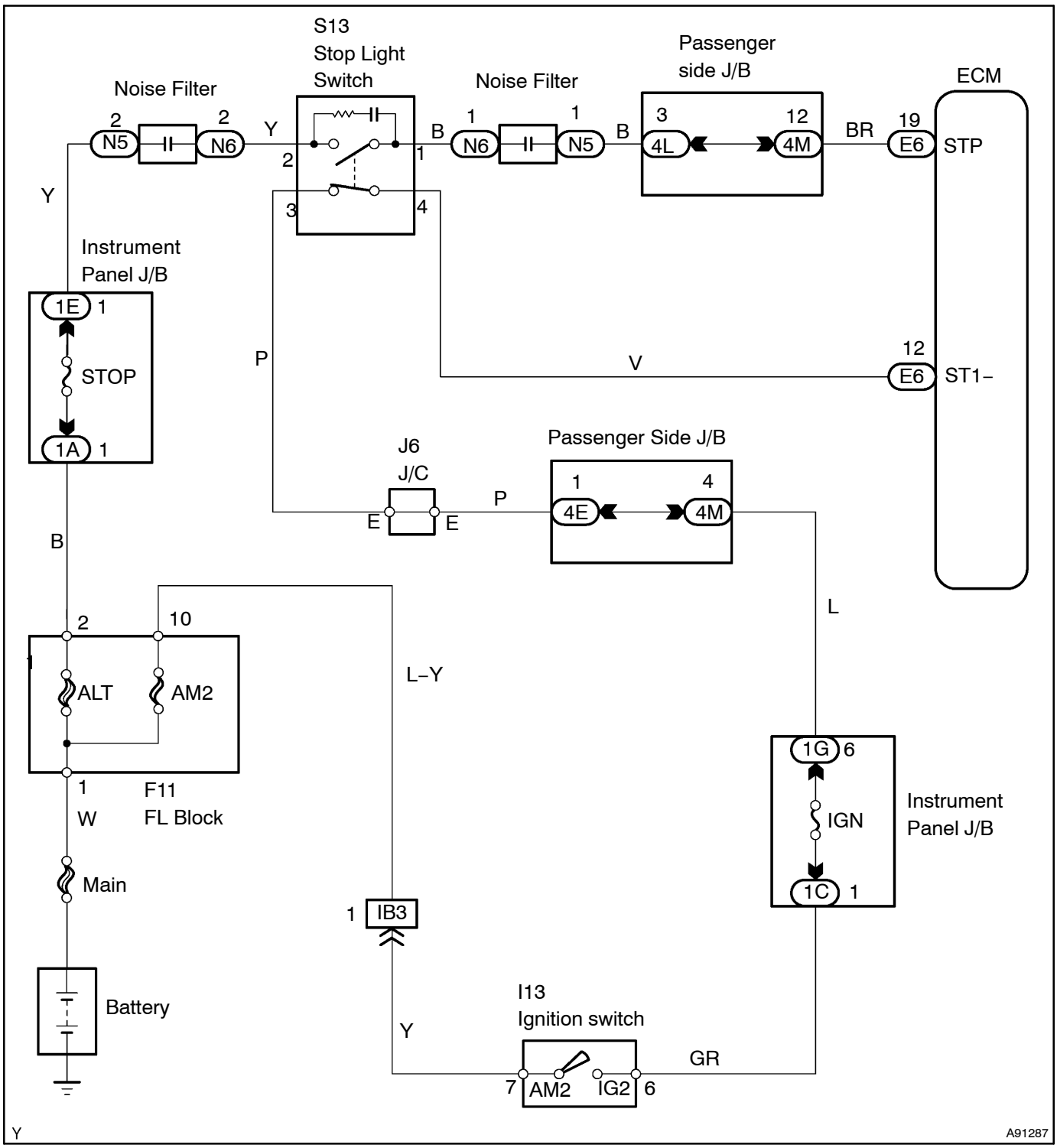
HINT:

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	Conditions (a), (b) and (c) continue for 0.5 seconds or more: (a) Ignition switch ON (b) Brake pedal released (c) STP signal is OFF when the ST1– signal is OFF	• Short in stop lamp switch signal circuit • STOP lamp fuse • Stop lamp switch • 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.

1 CHECK STOP LAMP (OPERATION)

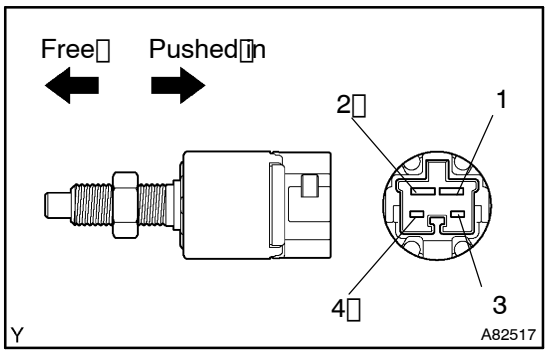
(a) Check if the stop lights go on and off normally when the brake pedal is depressed and released.

OK: The stop lamps turn on when you depress the brake pedal.

NG → **REPAIR OR REPLACE STOP LAMP SWITCH CIRCUIT**

OK

2 INSPECT STOP LAMP SWITCH ASSY



(a) Check the resistance of the switch terminals.

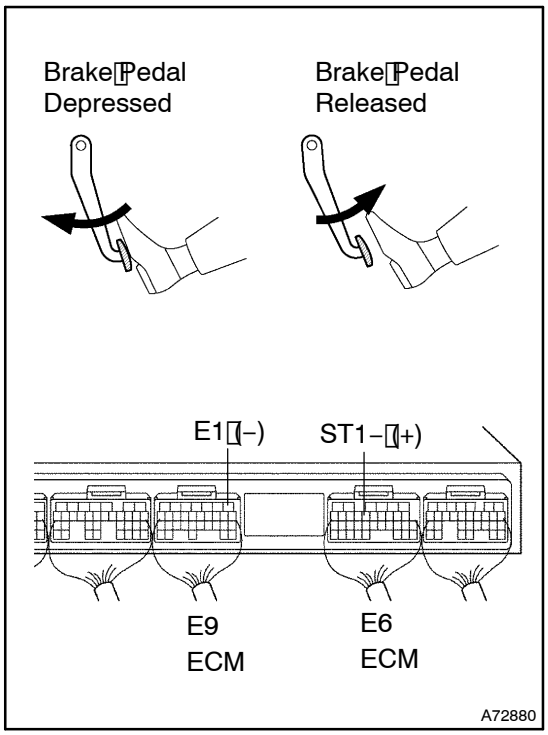
Standard:

Switch condition	Tester Connection	Specified Condition
Switch pin free	1 – 2	Below 1 Ω
Switch pin free	3 – 4	10 kΩ or higher
Switch pin pushed in	1 – 2	10 kΩ or higher
Switch pin pushed in	3 – 4	Below 1 Ω

NG → **REPLACE STOP LAMP SWITCH ASSY**

OK

3 READ VALUE OF HAND–HELD TESTER (STP SIGNAL AND ST 1– VOLTAGE)



(a) Turn the ignition switch ON.

(b) On the hand–held tester, enter the following menus: DIAGNOSIS / OBD/MOBD / DATA LIST / ALL / STOP LIGHT SW. Read the values.

Standard:

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

(c) Check the voltage of the ECM connectors.

Standard:

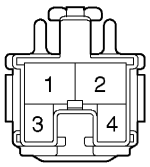
Tester Connection	Brake Pedal Condition	Specified Condition
E6–12 (ST1–) – E9–1 (E1)	Depressed	Below 1.5 V
E6–12 (ST1–) – E9–1 (E1)	Released	7.5 to 14 V

OK → **CHECK FOR INTERMITTENT PROBLEMS (See page 05–8)**

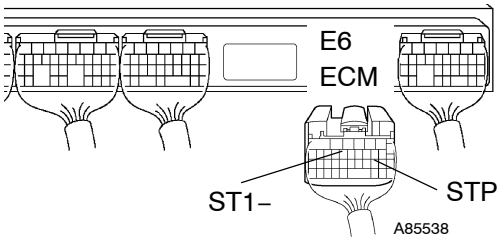
NG

4	CHECK WIRE HARNESS (STOP LAMP SWITCH – ECM)

Wire Harness Side



S13
Stop Lamp Switch



Y
A56986
A67404

A87771

(a) Disconnect the S13 stop lamp switch connector.
(b) Disconnect the E6 ECM connector.
(c) Check the resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
S13–1 – E6–19 (STP) S13–4 – E6–12 (ST1–)	Below 1 Ω
S13–1 or E6–19 (STP) – Body ground S13–4 or E6–12 (ST1–) – Body ground	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE ECM (See page 10–13)