DTC P0504/51 BRAKE SWITCH ”A”/”B” CORRELATION

CIRCUIT DESCRIPTION

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

The stop lamp switch has a duplex system (signals STP and ST1–) to detect abnormalities. When the signals of depressing and releasing the brake pedal are detected simultaneously, the ECM interprets this as a malfunction of the stop lamp switch.

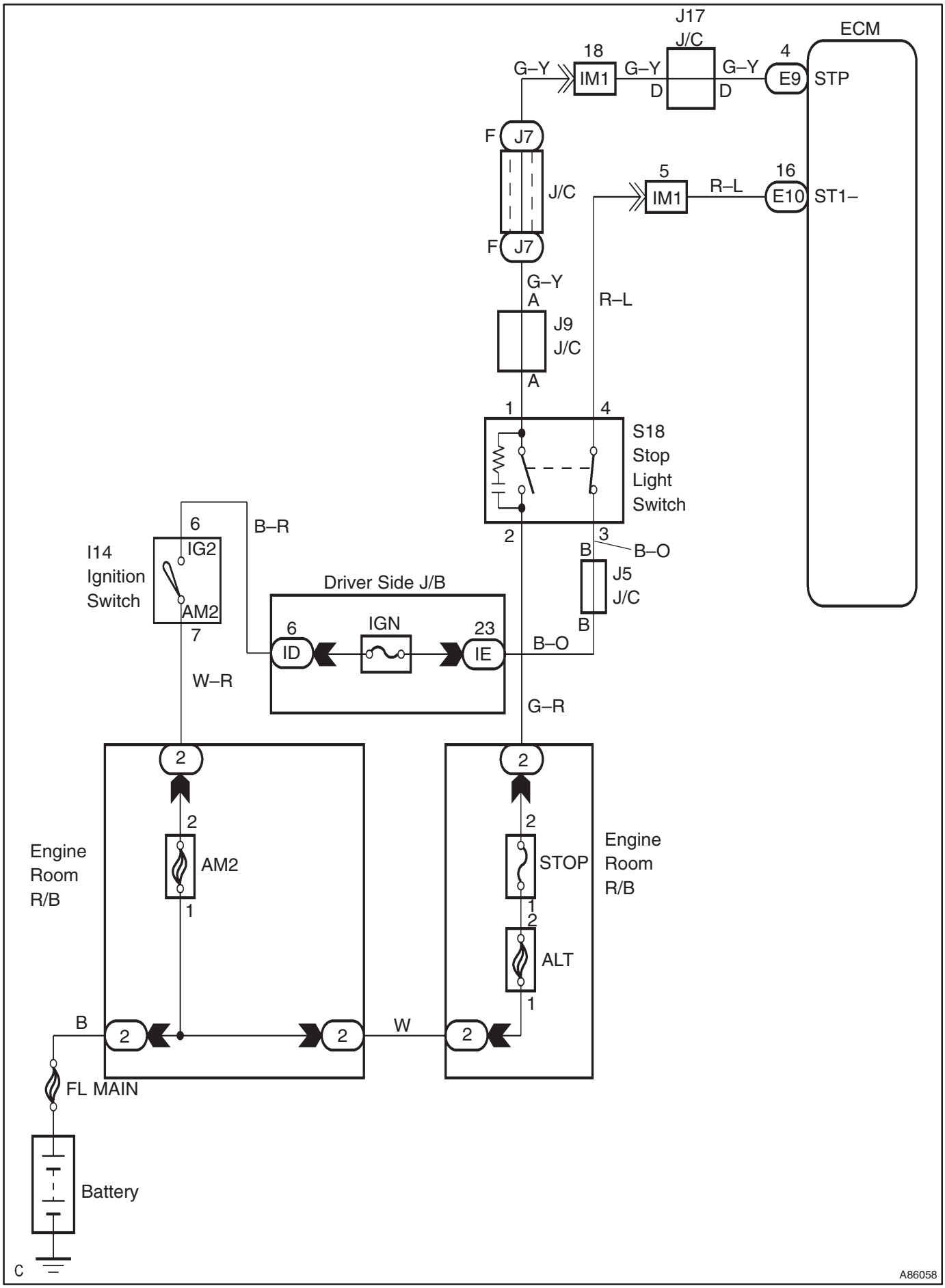
HINT:

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
P0504/51	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 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 intelligent tester II. Freeze frame data record the engine condition when malfunctions are detected. When troubleshooting, freeze frame data can help determine if the vehicle was moving or stationary, 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.

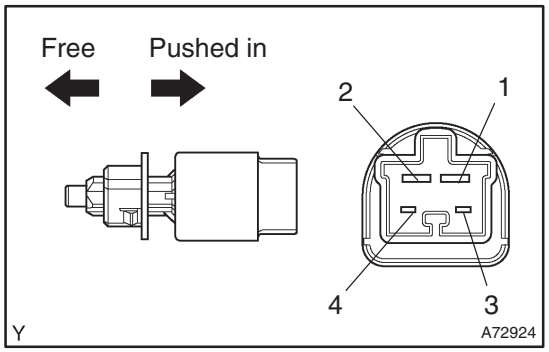
1	CHECK OPERATION OF STOP LAMP

(a) Check if the stop lamps 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



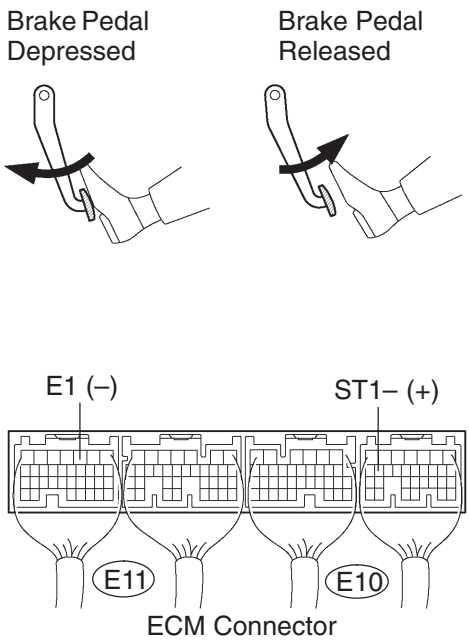
(a) Disconnect the S18 stop lamp switch connector.
(b) Check the resistance between each pair of terminals.
Standard:

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

NG → **REPLACE STOP LAMP SWITCH ASSY**

OK

3	READ VALUE OF INTELLIGENT TESTER II(STP SIGNAL AND ST1– VOLTAGE)



(a) Connect the intelligent tester II to the DLC3.
(b) Turn the ignition switch to ON and turn the intelligent tester II ON.
(c) Select the following menu items: Powertrain / Engine and ECT / Data List / Stop Light SW.
(d) Check the result.

Standard:

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

(e) Measure the voltage according to the value(s) in the table below.

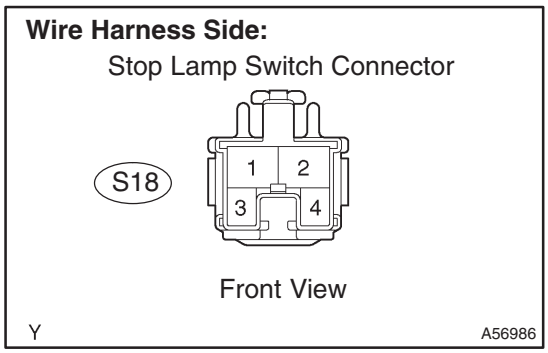
Standard:

Tester Connection	Brake Pedal	Specified Condition
ST1– (E10–16) – E1 (E11–3)	Depressed	Below 1.5 V
ST1– (E10–16) – E1 (E11–3)	Released	7.5 to 14 V

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

NG

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

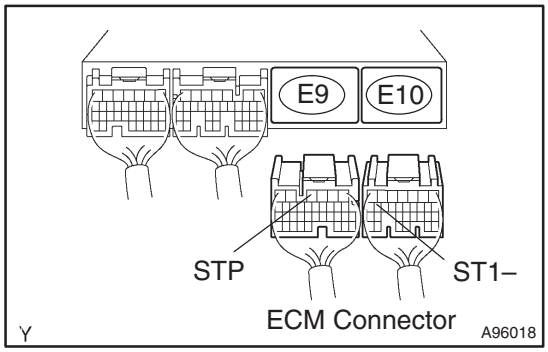


(a) Disconnect the S18 stop lamp switch connector.
(b) Disconnect the E9 and E10 ECM connectors.
(c) Measure the resistance according to the value(s) in the table below.

Standard (Check for open):

Tester Connection	Specified Condition
Stop lamp switch (S18–1) – STP (E9–4)	Below 1 Ω
Stop lamp switch (S18–4) – ST1– (E10–16)	Below 1 Ω

(d) Reconnect the stop lamp switch connector.
(e) Reconnect the ECM connectors.



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

OK

REPLACE ECM (See page 10–12)