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

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.

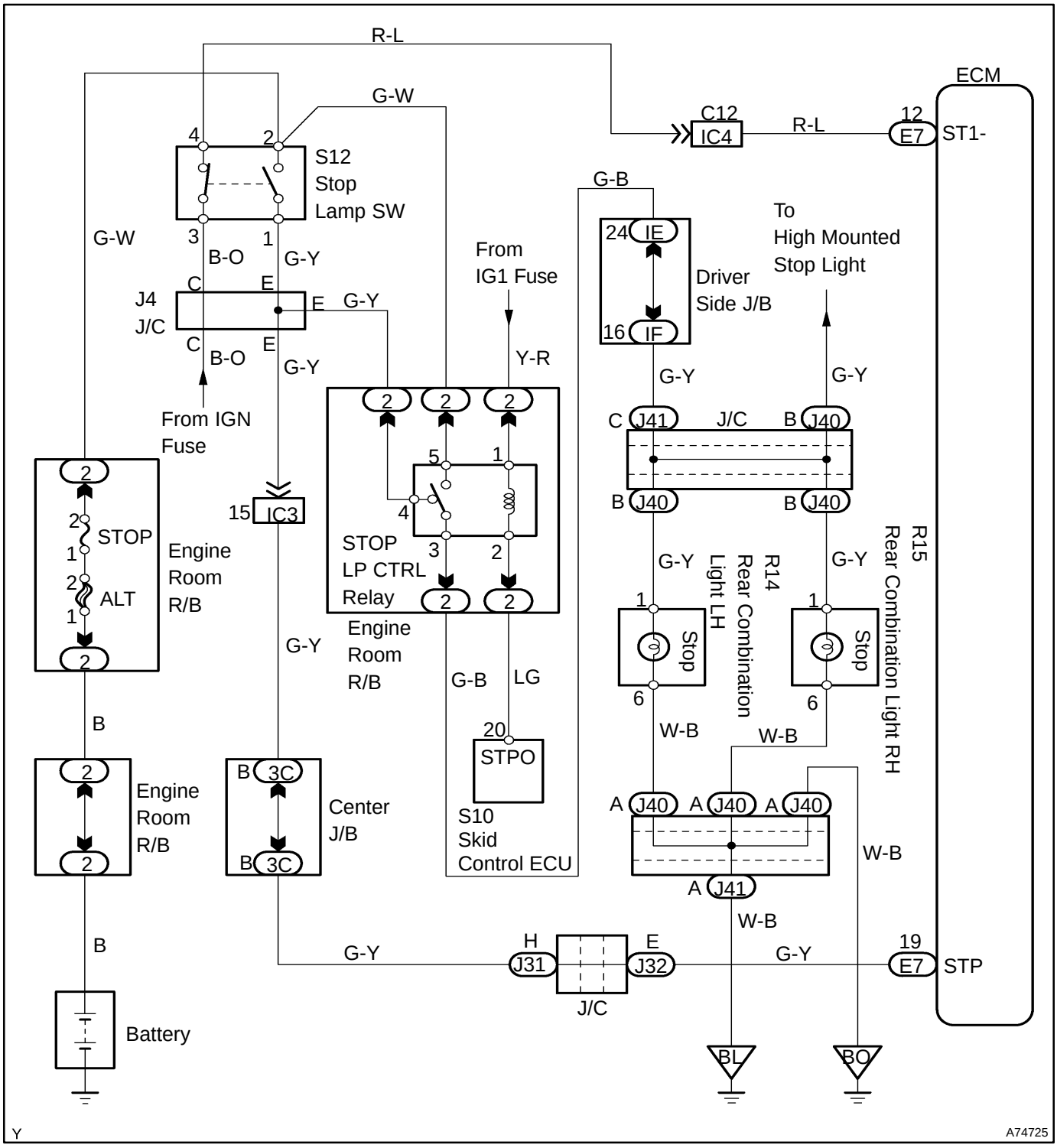
HINT:

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	• Short in stop lamp switch signal circuit • Stop lamp switch • ECM

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

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:

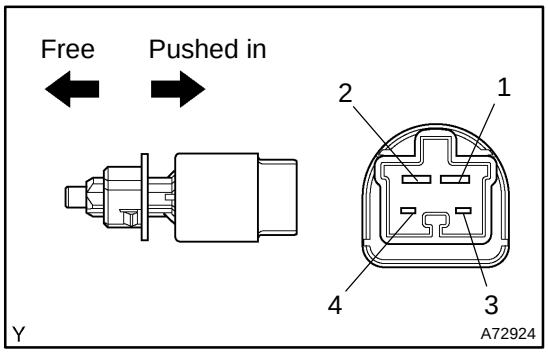
1	CHECK OPERATION OF STOP LIGHT

(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 for continuity between each pair of terminals.

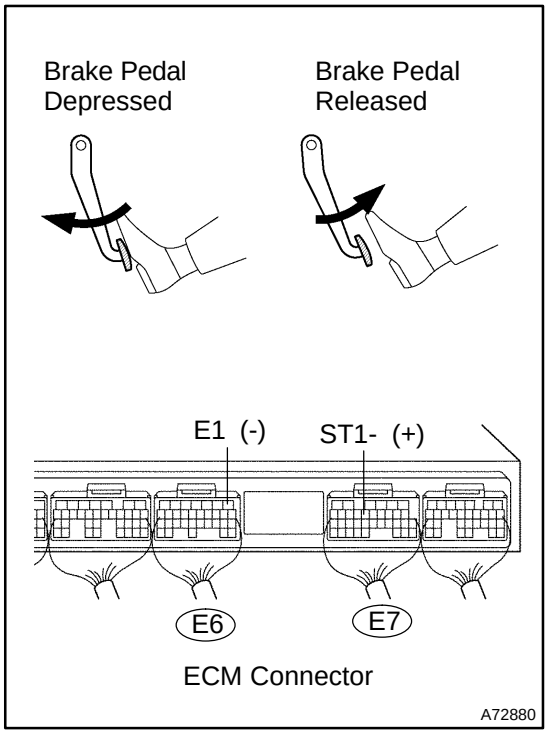
Standard:

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.

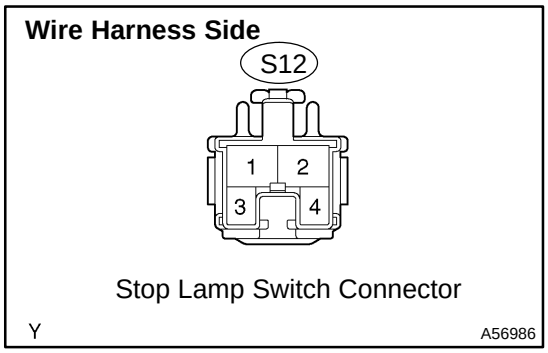
Standard:

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

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

NG

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



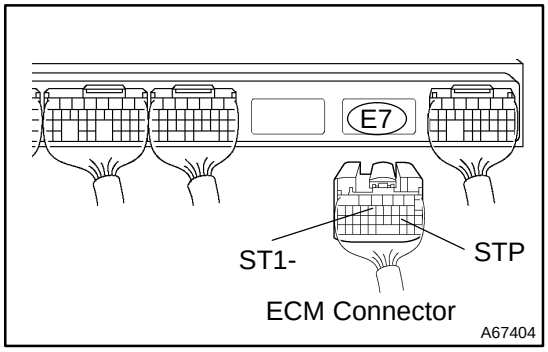
(a) Disconnect the stop lamp switch connector.
(b) Disconnect the E7 ECM connector.
(c) Check for continuity between the wire harness side connectors.

Standard (Check for open):

Symbols (Terminal No.)	Specified condition
Stop lamp switch (S12-1) - STP (E7-19)	Continuity
Stop lamp switch (S12-4) - ST1- (E7-12)	

Standard (Check for short):

Symbols (Terminal No.)	Specified condition
Stop lamp switch (S12-1) or STP (E7-19) - Body ground	No continuity
Stop lamp switch (S12-4) or ST1- (E7-12) - Body ground	



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

OK

CHECK AND REPLACE ECM (See page 01-35)

OBD II scan tool (excluding hand-held tester):

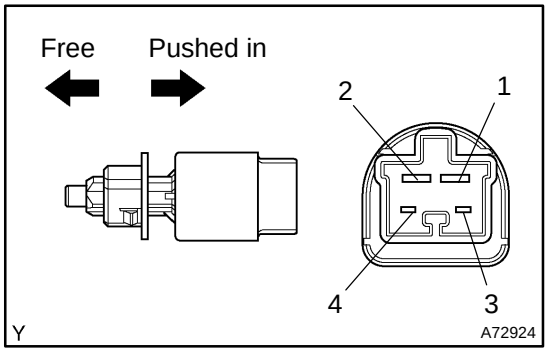
1	CHECK OPERATION OF STOP LIGHT

(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



(a) Check for continuity between each pair of terminals.

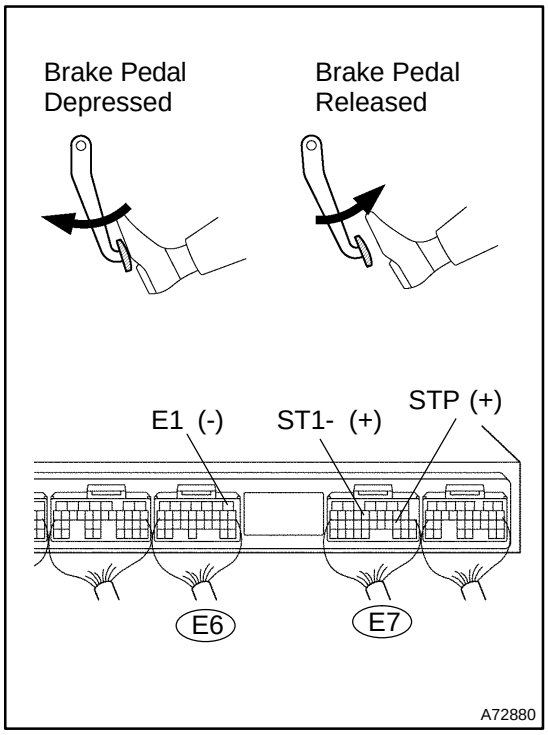
Standard:

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)



(a) Turn the ignition switch ON.
(b) Measure the voltage between the terminals of the E6 and E7 ECM connectors.

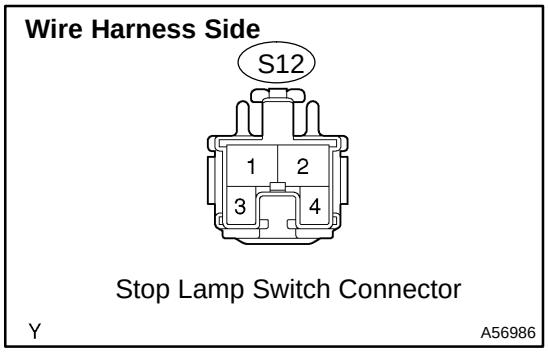
Standard:

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

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

NG

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



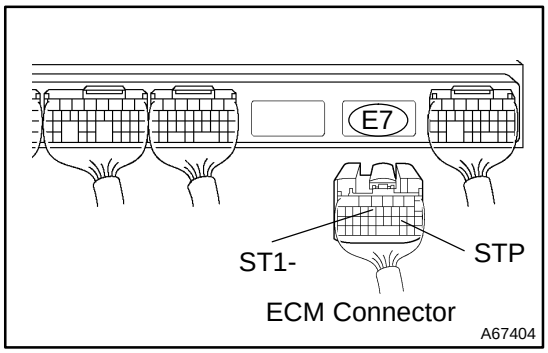
(a) Disconnect the stop lamp switch connector.
(b) Disconnect the E7 ECM connector.
(c) Check for continuity between the wire harness side connectors.

Standard (Check for open):

Symbols (Terminal No.)	Specified condition
Stop lamp switch (S12-1) - STP (E7-19)	Continuity
Stop lamp switch (S12-4) - ST1- (E7-12)	

Standard (Check for short):

Symbols (Terminal No.)	Specified condition
Stop lamp switch (S12-1) or STP (E7-19) - Body ground	No continuity
Stop lamp switch (S12-4) or ST1- (E7-12) - Body ground	



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

OK

CHECK AND REPLACE ECM (See page 01-35)