DTC	P0504	Brake Switch "A" / "B" Correlation

DTC	P0724	Brake Switch "B" Circuit High

DESCRIPTION

The stop light switch is a duplex system that transmits two signals: STP and ST1-. These two signals are used by the ECM to monitor whether or not the brake system is working properly. If the signals, which indicate the brake pedal is being depressed or released, are detected simultaneously, the ECM interprets this as a malfunction in the stop light switch and sets the DTC.

HINT:

The normal conditions are as shown in the table below. The signals can be read using the intelligent tester.

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Signals	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 (1 trip detection logic): (a) Ignition switch in the ON position (b) Brake pedal released (c) STP signal OFF when ST1- signal OFF	• Short in stop light switch signal circuit • STOP fuse • Stop light switch • ECM
P0724	The stop light switch remains ON even when the vehicle is driven in a STOP (less than 2 mph (3 km/h)) and GO (19 mph (30 km/h) or more) fashion 5 times. (2 trip detection logic)	• Short in stop light switch signal circuit • Stop light switch • ECM

MONITOR DESCRIPTION

This DTC indicates that the stop light switch remains on. When the stop light switch remains ON during "stop and go" driving, the ECM interprets this as a fault in the stop light switch and the MIL comes on and the ECM stores the DTC. The vehicle must stop (less than 2 mph (3 km/h)) and go (19 mph (30 km/h) or more) 5 times for two driving cycles in order to detect a malfunction.

MONITOR STRATEGY

Related DTCs	P0724: Stop light switch/Rationality
Required sensors/Components	Stop light switch, Vehicle speed sensor
Frequency of operation	Continuous
Duration	GO and STOP 5 times
MIL operation	2 driving cycles
Sequence of operation	None

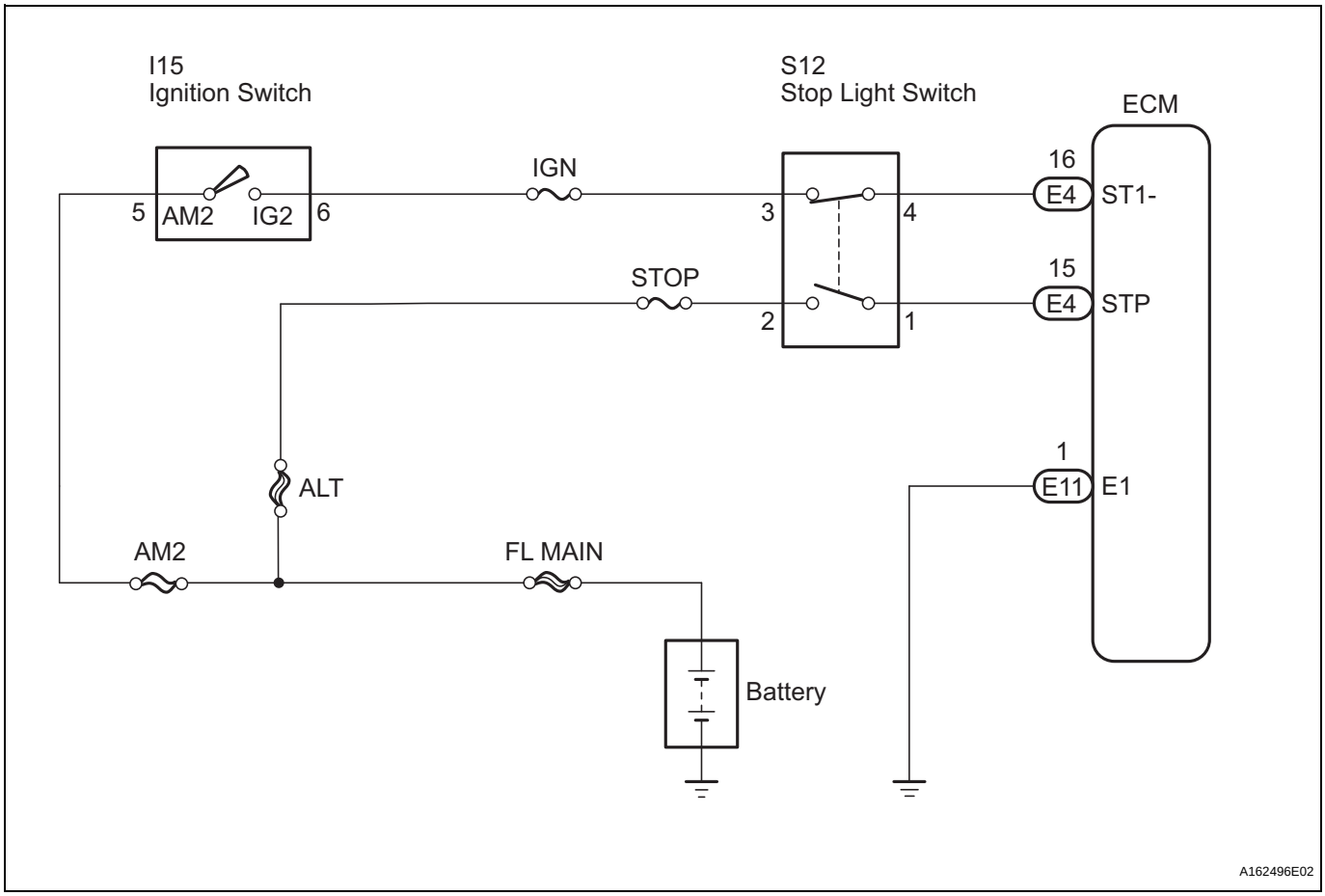
TYPICAL ENABLING CONDITIONS

The monitor will run whenever this DTC is not present	None
Ignition switch	ON
Starter	OFF
Battery voltage	8 V or more
GO (Vehicle speed is 18.65 mph (30 km/h) or more)	Once
STOP (Vehicle speed is less than 1.86 mph (3 km/h))	Once

TYPICAL MALFUNCTION THRESHOLDS

Switch status ON stuck	Remain ON during GO and STOP 5 times

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

Read freeze frame data using the intelligent tester. The ECM records vehicle and driving condition information as freeze frame data the moment a DTC is stored. When troubleshooting, freeze frame data can be helpful in determining whether the vehicle was running or stopped, whether the engine was warmed up or not, whether the air-fuel ratio was lean or rich, as well as other data recorded at the time of a malfunction.

1	**CHECK OPERATION OF STOP LIGHT**

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

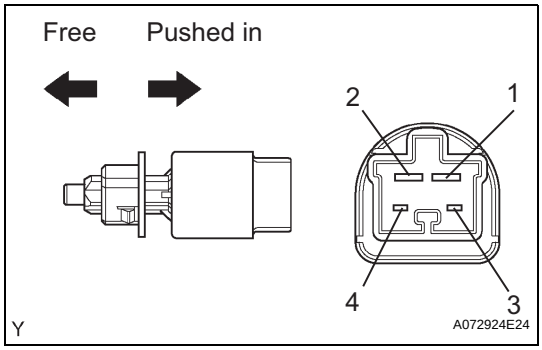
OK:

Stop lights turn on when brake pedal is depressed.

NG → **GO TO TAILLIGHT RELAY CIRCUIT (See page LI-114)**

OK

2 INSPECT STOP LIGHT SWITCH ASSEMBLY



(a) Remove the S12 stop light switch assembly.
(b) Measure the resistance according to the value(s) in the table below.
Standard resistance

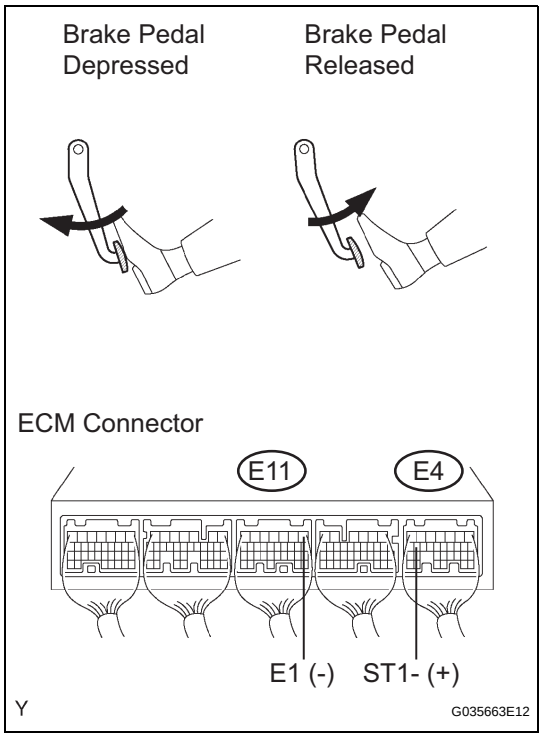
Switch Position	Tester Connection	Specified Condition
Switch pin free	1 - 2	Below 1 Ω
Switch pin free	3 - 4	10 kΩ or higher
Switch pin pushed in	1 - 2	10 kΩ or higher
Switch pin pushed in	3 - 4	Below 1 Ω

(c) Reinstall the stop light switch assembly.

NG → REPLACE STOP LIGHT SWITCH ASSEMBLY

OK

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



(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch to the ON position and turn the tester on.
(c) Select the following menu items: DIAGNOSIS / ENHANCED OBD II / DATA LIST / PRIMARY / STOP LIGHT SW.
(d) Check the STP signal when the brake pedal is depressed and released.
Standard

Brake Pedal Operation	Specified Condition
Depressed	STP signal ON
Released	STP signal OFF

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

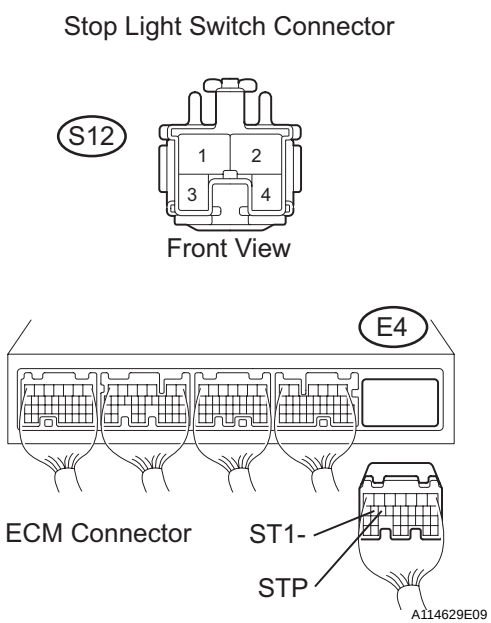
Tester Connection	Brake Pedal Operation	Specified Condition
ST1- (E4-16) - E1 (E11-1)	Depressed	Below 1.5 V
ST1- (E4-16) - E1 (E11-1)	Released	7.5 to 14 V

OK → CHECK FOR INTERMITTENT PROBLEMS

NG

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

Wire Harness Side:



(a) Disconnect the S12 stop light switch connector.
(b) Disconnect the E4 ECM connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance :

Check for open

Tester Connection	Specified Condition
Stop light switch (S12-1) - STP (E4-15)	Below 1 Ω
Stop light switch (S12-4) - ST1- (E4-16)	Below 1 Ω

Check for short

Tester Connection	Specified Condition
Stop light switch (S12-1) or STP (E4-15) - Body ground	10 kΩ or higher
Stop light switch (S12-4) or ST1- (E4-16) - Body ground	10 kΩ or higher

(d) Reconnect the stop light switch connector.
(e) Reconnect the ECM connector.

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR (STOP LIGHT SWITCH - ECM)**

OK

REPLACE ECM (See page ES-498)

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