

DTC**P0504****Brake Switch "A" / "B" Correlation****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 and released, are detected simultaneously, the ECM interprets this as a malfunction in the stop light switch and sets the DTC.

HINT:

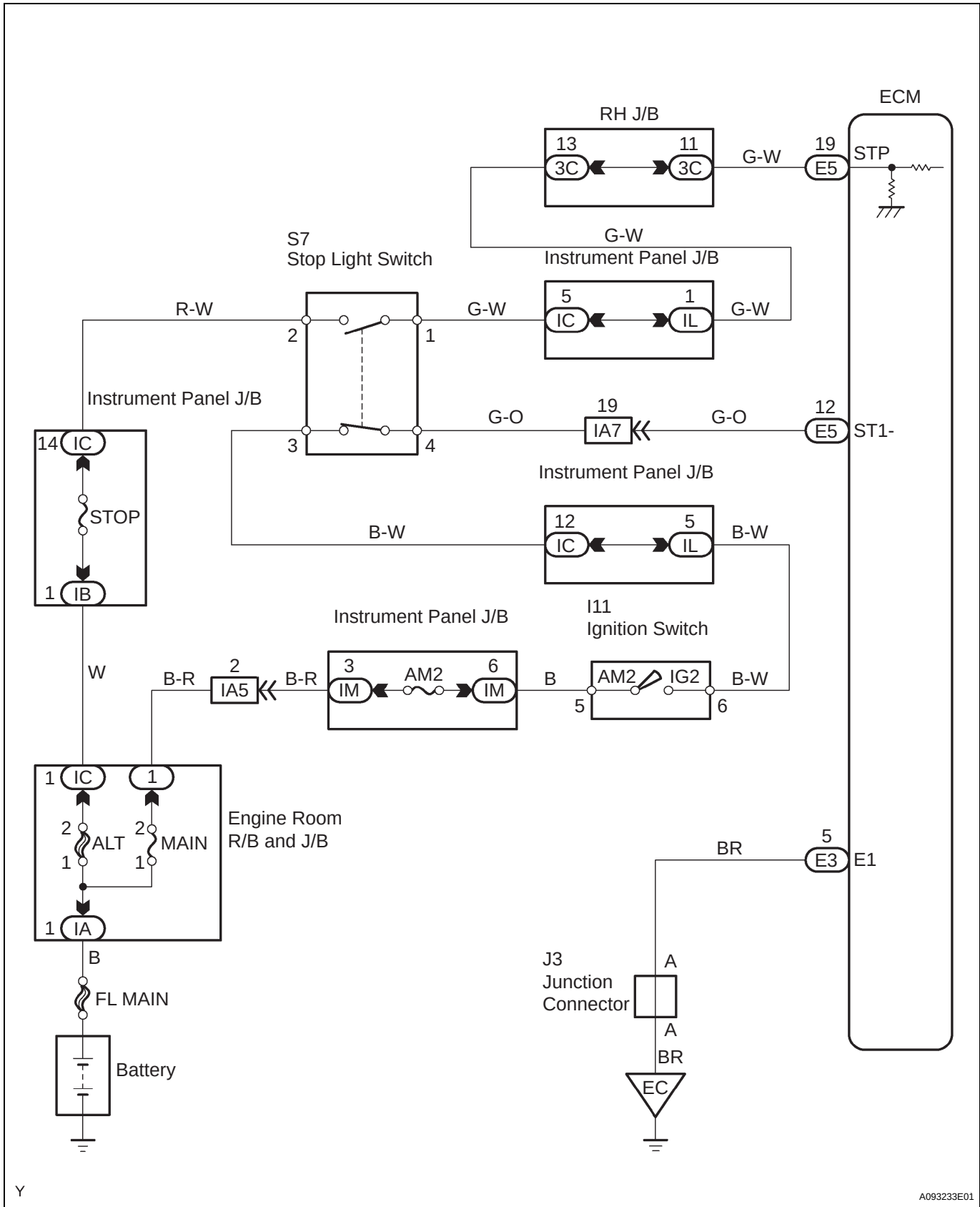
The normal conditions are as shown in the table below. The signals can be read using an intelligent tester.

Signals	Brake Pedal Released	In Transition	Brake Pedal Depressed
STP	OFF	ON	ON
ST1-	ON	ON	OFF

DTC No.	DTC Detection Conditions	Trouble Areas
P0504	Conditions (a), (b) and (c) continue for 0.5 seconds or more (1 trip detection logic): (a) Ignition switch ON (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

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WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

Read freeze frame data using an intelligent tester or OBD II scan tool. 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.

When using intelligent tester:

1 CHECK STOP LIGHT (OPERATION)

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

OK:

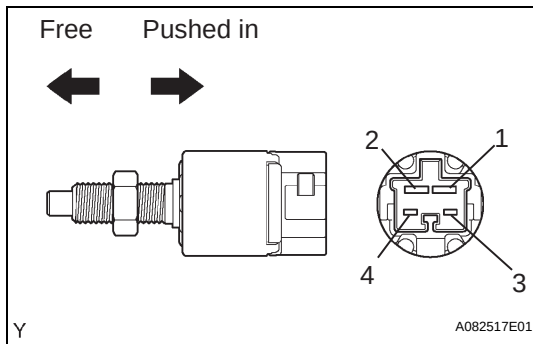
Stop lights turn ON when brake pedal is depressed.

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REPAIR OR REPLACE STOP LIGHT SWITCH CIRCUIT

OK

2 INSPECT STOP LIGHT SWITCH ASSEMBLY



- (a) Remove the stop light switch assembly.
(b) Check the resistance.

Standard resistance

Switch Positions	Tester Connections	Specified Conditions
Switch pin free	1 - 2	Below 1 Ω
Switch pin free	3 - 4	10 k Ω or higher
Switch pin pushed in	1 - 2	10 k Ω or higher
Switch pin pushed in	3 - 4	Below 1 Ω

- (c) Reinstall the stop light switch assembly.

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REPLACE STOP LIGHT SWITCH ASSEMBLY

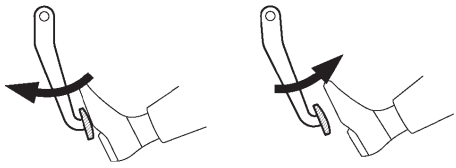
OK

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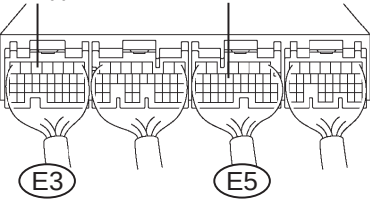
3

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

Brake Pedal
DepressedBrake Pedal
Released

E1 (-)

ST1- (+)



ECM Connector

Y

A093220E05

- Connect an intelligent tester to the DLC3.
- Turn the ignition switch to ON and turn the tester ON.
- Select the following menu items: DIAGNOSIS / ENHANCED OBD II / DATA LIST / ALL / STOP LIGHT SW.
- Check the STP signal when the brake pedal is depressed and released.

Standard

Brake Pedal Operations	Specified Conditions
Depressed	STP signal ON
Released	STP signal OFF

- Measure the voltage between the terminals of the E3 and E5 ECM connectors.

Standard voltage

Tester Connections	Brake Pedal Operations	Specified Conditions
ST1- (E5-12) - E1 (E3-5)	Depressed	Below 1.5 V
ST1- (E5-12) - E1 (E3-5)	Released	Between 7.5 V and 14 V

OK

CHECK FOR INTERMITTENT PROBLEMS

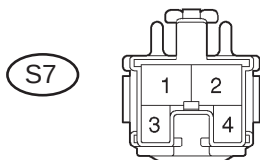
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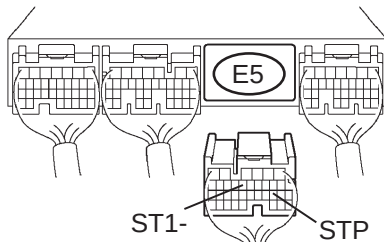
CHECK HARNESS AND CONNECTOR (STOP LIGHT SWITCH - ECM)

Wire Harness Side:

Stop Light Switch Connector



Front View



ECM Connector

Y

A136265E01

- Disconnect the S7 stop light switch connector.
- Disconnect the E5 ECM connector.
- Check the resistance.

Standard resistance (Check for open)

Tester Connections	Specified Conditions
Stop light switch (S7-1) - STP (E5-19)	Below 1 Ω
Stop light switch (S7-4) - ST1- (E5-12)	Below 1 Ω

- Reconnect the stop light switch connector.
- Reconnect the ECM connector.

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REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE ECM

When Using OBD II Scan Tool:

1

CHECK STOP LIGHT (OPERATION)

- (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.

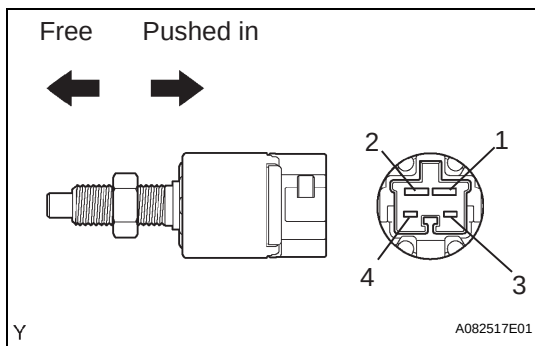
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REPAIR OR REPLACE STOP LIGHT SWITCH CIRCUIT

OK

2

INSPECT STOP LIGHT SWITCH ASSEMBLY



- (a) Remove the stop light switch assembly.
(b) Check the resistance.

Standard resistance

Switch Positions	Tester Connections	Specified Conditions
Switch pin free	1 - 2	Below 1 Ω
Switch pin free	3 - 4	10 k Ω or higher
Switch pin pushed in	1 - 2	10 k Ω or higher
Switch pin pushed in	3 - 4	Below 1 Ω

- (c) Reinstall the stop light switch assembly.

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REPLACE STOP LIGHT SWITCH ASSEMBLY

OK

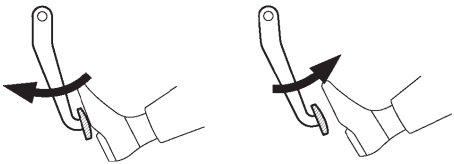
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3

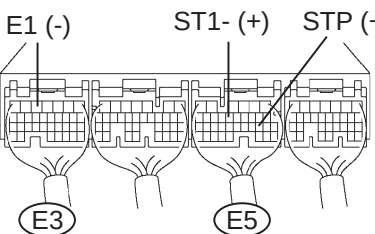
INSPECT ECM (STP AND ST1 - VOLTAGE)

Brake Pedal Depressed

Brake Pedal Released



E1 (-) ST1- (+) STP (+)



E3 E5

ECM Connector

Y

A093220E06

- (a) Turn the ignition switch to ON.
- (b) Measure the voltage between the terminals of the E3 and E5 ECM connectors.

Standard voltage

Tester Connections	Brake Pedal Operations	Specified Conditions
STP (E5-19) - E1 (E3-5)	Depressed	Between 7.5 V and 14 V
STP (E5-19) - E1 (E3-5)	Released	Below 1.5 V
ST1- (E5-12) - E1 (E3-5)	Depressed	Below 1.5 V
ST1- (E5-12) - E1 (E3-5)	Released	Between 7.5 V and 14 V

OK

CHECK FOR INTERMITTENT PROBLEMS

NG

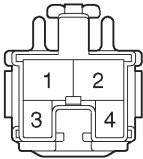
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CHECK HARNESS AND CONNECTOR (STOP LIGHT SWITCH - ECM)

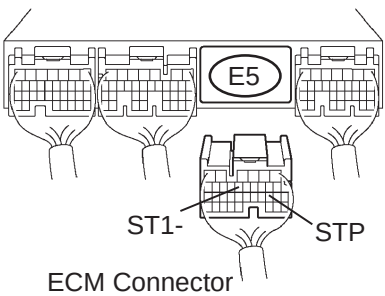
Wire Harness Side:

Stop Light Switch Connector

S7



Front View



ECM Connector

Y

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- (a) Disconnect the S7 stop light switch connector.
- (b) Disconnect the E5 ECM connector.
- (c) Check the resistance.

Standard resistance (Check for open)

Tester Connections	Specified Conditions
Stop light switch (S7-1) - STP (E5-19)	Below 1 Ω
Stop light switch (S7-4) - ST1- (E5-12)	Below 1 Ω

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

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REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE ECM

ES