Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM1000000028X24
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [12/2022 -]
Title: BRAKE CONTROL / DYNAMIC CONTROL SYSTEMS: ELECTRONICALLY CONTROLLED BRAKE SYSTEM: C13807F; Stop Lamp Relay Actuator Stuck Off; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DTC	**C13807F**	**Stop Lamp Relay Actuator Stuck Off**

DESCRIPTION

Refer to DTC C13807E.

Click here INFO

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
C13807F	Stop Lamp Relay Actuator Stuck Off	Either of the following is detected: • When the IG1 terminal voltage exceeds 10 V and the +BS terminal voltage is from 9.5 to 17.4 V, stop light drive output (STPO) is ON, STP is OFF and STP2 is OFF continuously for 2 seconds or more. • When the IG1 terminal voltage exceeds 10 V and the +BS terminal voltage is from 9.5 to 17.4 V, STP is OFF and STP2 is ON continuously for 5 seconds or more.	• Wire harness and connector • Stop light switch assembly • STP circuit • STP2 circuit • No. 2 skid control ECU (brake actuator assembly)	Does not come on	Brake/EPB	B	Output ECU: No. 2 skid control ECU (brake actuator assembly)

WIRING DIAGRAM

Refer to DTC C13807E.

Click here INFO

CAUTION / NOTICE / HINT

NOTICE:

Inspect the fuses for circuits related to this system before performing the following procedure.

PROCEDURE

1.	**CHECK DTC**

(a) Check the DTCs that are output.

Chassis > Brake/EPB > Trouble Codes

RESULT	PROCEED TO
Only C13807F is output	A
C13807F and other DTCs are output	B

B ▶ **REPAIR CIRCUITS INDICATED BY OUTPUT DTCS**

A ▼

2.	**PERFORM ACTIVE TEST USING GTS (STOP LAMP RELAY)**

(a) Perform the stop light control relay (stop light switch assembly) Active Test, and confirm that the stop lights illuminate and turn off and the value of "Stop Light SW", "Stop Light Relay" and "STPO" changes.

Chassis > Brake/EPB > Active Test

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	RESTRICT CONDITION	DIAGNOSTIC NOTE
Stop Lamp Relay	Stop light control relay (Stop light switch assembly)	OFF / ON	Vehicle condition: Vehicle stopped **HINT:** To protect this Actuator and Solenoid, this test will only last 5 seconds.	With the brake pedal released, check that the stop lights illuminate and the value of Stop Light Relay on the GTS changes to ON when Stop Lamp Relay is ON

Chassis > Brake/EPB > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Stop Light SW	Stop light switch assembly status (STP or STP2 terminal input)	OFF / ON	OFF: Brake pedal released ON: Brake pedal depressed	**HINT:** • Stop light control relay (stop light switch assembly) off: STP terminal status displayed. • Stop light control relay (stop light switch assembly) on: STP2 terminal status displayed.
Stop Light Relay	Stop light control relay (Stop light switch assembly) status (STP terminal input)	OFF / ON	OFF: Stop light control relay (Stop light switch assembly) off and brake pedal released ON: Stop light control relay (Stop light switch assembly) on or brake pedal depressed	**HINT:** The voltage of power supplied to the stop lights is measured at the STP terminal.
STPO	Stop light control relay (Stop light switch assembly) status (STPO terminal output)	OFF / ON	OFF: Stop light control relay (Stop light switch assembly) off (Stop light off) ON: Stop light control relay (Stop light switch assembly) on (Stop light on)	**HINT:** When STPO is ON, the stop light control relay (stop light switch assembly) turns ON and the stop lights illuminate

Chassis > Brake/EPB > Active Test

ACTIVE TEST DISPLAY
Stop Lamp Relay

DATA LIST DISPLAY
Stop Light SW
Stop Light Relay
STPO

DATA LIST STATUS			STOP LIGHT ILLUMINATION STATUS	PROCEED TO
STOP LIGHT SW	STOP LIGHT RELAY	STPO		
OFF	OFF	ON	Not illuminated	A

DATA LIST STATUS			STOP LIGHT ILLUMINATION STATUS	PROCEED TO
STOP LIGHT SW	STOP LIGHT RELAY	STPO		
OFF	OFF	ON	Illuminated	B
ON	ON	ON	Illuminated	C

B ▶ **GO TO STEP 8**

C ▶ **GO TO STEP 9**

A

3.	**CHECK HARNESS AND CONNECTOR (STOP LIGHT SWITCH ASSEMBLY - BRAKE ACTUATOR ASSEMBLY)**

Pre-procedure1

(a) Turn the ignition switch off.

Procedure1

(b) Make sure that there is no looseness at the locking part and the connecting part of the connectors.

OK:
The connector is securely connected.

Pre-procedure2

(c) Disconnect the A4 No. 2 skid control ECU (brake actuator assembly) connector.

Procedure2

(d) Check both the connector case and the terminals for deformation and corrosion.

OK:
No deformation or corrosion.

Procedure3

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

Standard Voltage:

EWD INFO

Click Location & Routing(A4)
Click Connector(A4)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
A4-32 (STPO) - Body ground	Always	11 to 14 V	V

Post-procedure1

(f) None

NG ▶ **GO TO STEP 7**

OK ▼

4.	CHECK BRAKE ACTUATOR ASSEMBLY

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

Standard Voltage:

EWD INFO

Click Location & Routing(A4)
Click Connector(A4)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
A4-11 (STP) - Body ground	Stop light switch assembly on (Brake pedal depressed)	11 to 14 V	V

OK ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY** INFO

NG ▼

5.	CHECK FOR SHORT TO GROUND IN STP CIRCUIT

(a) Check that there is no short to ground in the STP circuit (wire harnesses, connectors, stop lights and ECUs)

OK:

There is no short to ground.

NG ▶ **REPAIR OR REPLACE MALFUNCTIONING PART**

OK

6.	**CHECK HARNESS AND CONNECTOR (STOP LIGHT SWITCH ASSEMBLY - BRAKE ACTUATOR ASSEMBLY)**

Procedure1

(a) Make sure that there is no looseness at the locking part and the connecting part of the connectors.

OK:
The connector is securely connected.

Pre-procedure1

(b) Disconnect the A18 stop light switch assembly connector.

Procedure2

(c) Check both the connector case and the terminals for deformation and corrosion.

OK:
No deformation or corrosion.

Procedure3

(d) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

EWD INFO

Click Location & Routing(A18,A4)
Click Connector(A18)
Click Connector(A4)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
A18-1 (OUT) - A4-11 (STP)	Always	Below 1 Ω	Ω

Post-procedure1

(e) None

OK ▶ **REPLACE STOP LIGHT SWITCH ASSEMBLY**

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

7.	**CHECK STOP LIGHT SWITCH ASSEMBLY**

(a) Make sure that there is no looseness at the locking part and the connecting part of the connectors.

OK:
The connector is securely connected.

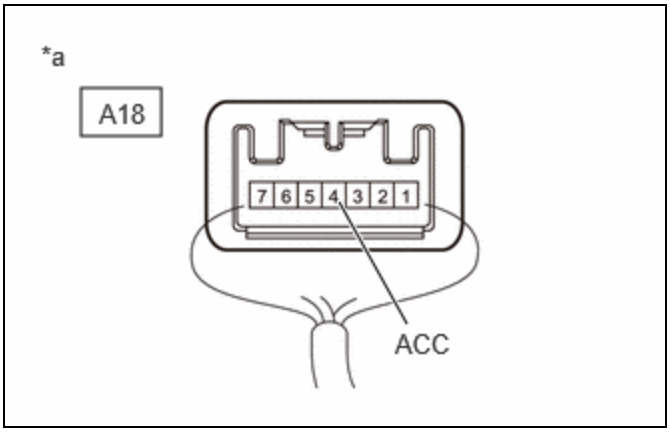
(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

EWD INFO

Click Location & Routing(A18)
Click Connector(A18)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
A18-4 (ACC) - Body ground	Always	11 to 14 V	V



*a	Component with harness connected (Stop Light Switch Assembly)

OK ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

NG ▶ **REPLACE STOP LIGHT SWITCH ASSEMBLY**

8.	**CHECK BRAKE ACTUATOR ASSEMBLY**

Pre-procedure1

(a) Turn the ignition switch off.

Procedure1

(b) Make sure that there is no looseness at the locking part and the connecting part of the connectors.

OK:
The connector is securely connected.

Pre-procedure2

(c) Disconnect the A4 No. 2 skid control ECU (brake actuator assembly) connector.

Procedure2

(d) Check both the connector case and the terminals for deformation and corrosion.

OK:
No deformation or corrosion.

Procedure3

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

Standard Voltage:

EWD INFO

Click Location & Routing(A4)
Click Connector(A4)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
A4-11 (STP) - Body ground	Stop light switch assembly on (Brake pedal depressed)	11 to 14 V	V

Post-procedure1

(f) None

OK ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY** INFO

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

9.	**CHECK BRAKE ACTUATOR ASSEMBLY**

Pre-procedure1

(a) Turn the ignition switch off.

Procedure1

(b) Make sure that there is no looseness at the locking part and the connecting part of the connectors.

OK:
The connector is securely connected.

Pre-procedure2

(c) Disconnect the A4 No. 2 skid control ECU (brake actuator assembly) connector.

Procedure2

(d) Check both the connector case and the terminals for deformation and corrosion.

OK:
No deformation or corrosion.

Procedure3

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

Standard Voltage:

EWD INFO

Click Location & Routing(A4)
Click Connector(A4)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
A4-37 (STP2) - Body ground	Stop light switch assembly off (Brake pedal released)	Below 1.5 V	V

Post-procedure1

(f) None

OK ▶ **REPLACE BRAKE ACTUATOR ASSEMBLY** INFO

NG ▼

10.	**CHECK STOP LIGHT SWITCH ASSEMBLY**

Procedure1

(a) Make sure that there is no looseness at the locking part and the connecting part of the connectors.

OK:
The connector is securely connected.

Pre-procedure1

(b) Disconnect the A18 stop light switch assembly connector.

Procedure2

(c) Check both the connector case and the terminals for deformation and corrosion.

OK:
No deformation or corrosion.

Procedure3

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

Standard Voltage:

EWD INFO

Click Location & Routing(A4)
Click Connector(A4)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
A4-37 (STP2) - Body ground	Always	Below 1.5 V	V

Post-procedure1

(e) None

OK ▶ **REPLACE STOP LIGHT SWITCH ASSEMBLY**

NG ▼

11.	**CHECK FOR SHORT TO +B IN STP2 CIRCUIT**

(a) Check that there is no short to +B in the STP2 circuit (wire harnesses, connectors and ECUs).

OK:

No short to +B.

OK ▶ **USE SIMULATION METHOD TO CHECK**

NG ▶ **REPAIR OR REPLACE MALFUNCTIONING PART**