

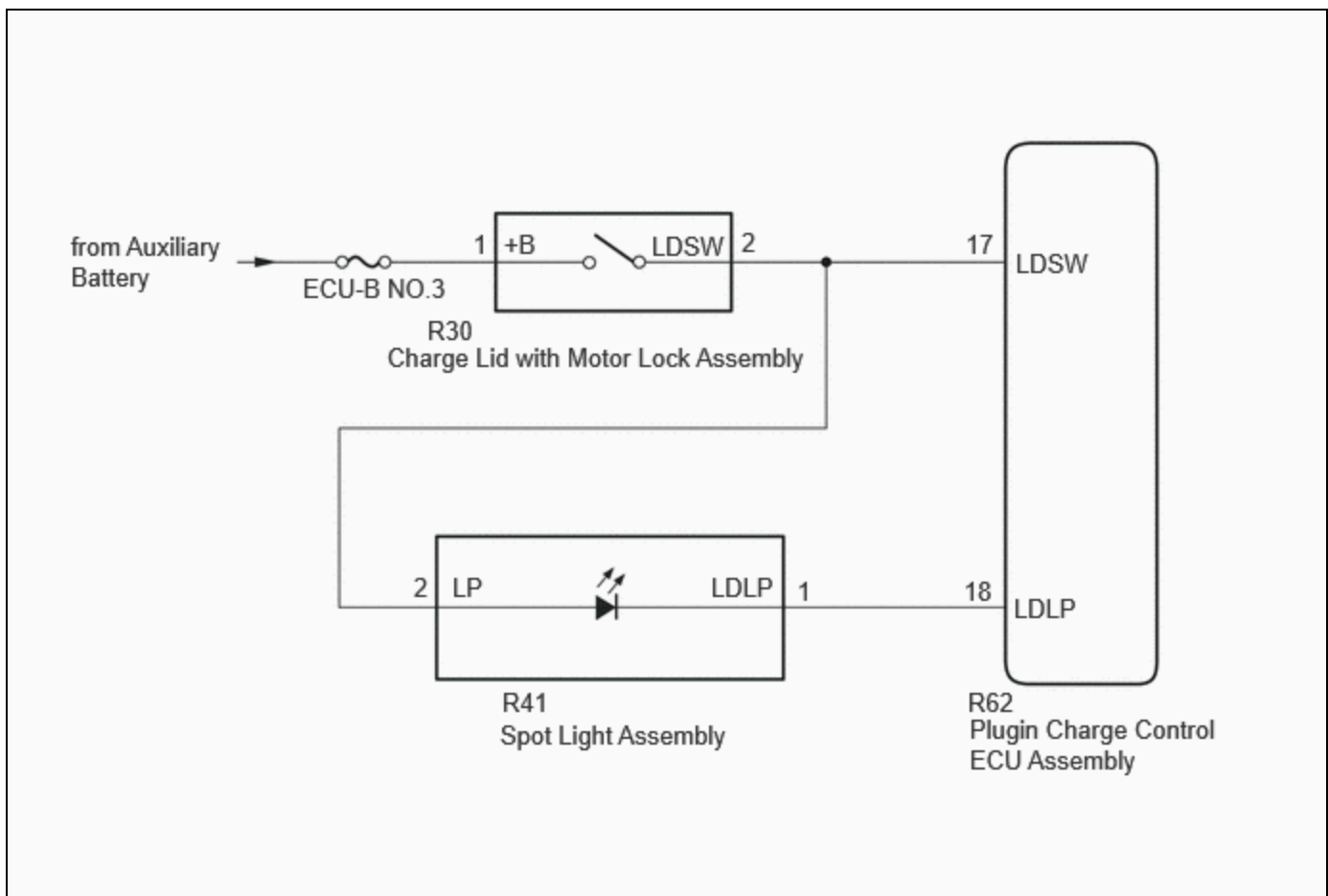
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Model Year Start: 2023	Model: Prius Prime	Prod Date Range: [03/2023 -]
Title: LIGHTING (EXT): LIGHTING SYSTEM: Charge Lid Illumination Malfunction; 2023 - 2024 MY Prius Prius Prime [03/2023 -]		

Charge Lid Illumination Malfunction

DESCRIPTION

The plugin charge control ECU assembly turns the spot light assembly on when the charging port lid is open and turns it off when the charging port lid is closed. The spot light assembly will turn off when the charger cable (electric vehicle charger cable assembly) is connected and turn on when the charger cable (electric vehicle charger cable assembly) is disconnected.

WIRING DIAGRAM



CAUTION / NOTICE / HINT

CAUTION:

- Before the following operations are conducted, take precautions to prevent electric shock by turning the ignition switch off, wearing insulated gloves, and removing the service plug grip from HV battery.



- To prevent electric shock, make sure to remove the service plug grip to cut off the high voltage circuit before



servicing the vehicle.

- After removing the service plug grip, put it in your pocket to prevent other technicians from accidentally reconnecting it while you are working on the high-voltage system.



- After removing the service plug grip, wait for at least 10 minutes before touching any of the high-voltage connectors or terminals.

Waiting for at least 10 minutes is required to discharge the high-voltage capacitor inside the inverter with converter assembly.

Click here [INFO](#)



*a Without waiting for 10 minutes

NOTICE:

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

PROCEDURE

1.	CHECK FOR DTC
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- (a) Enter the following menus: System Select / Health Check.
- (b) Check for DTCs.

RESULT	PROCEED TO
DTCs are not output	A
DTCs are output	B

- (c) Turn the ignition switch off.

B ► GO TO OTHER DTC CHART

A
▼

2.	INSPECT PLUGIN CHARGE CONTROL ECU ASSEMBLY (CHARGE LID WITH MOTOR LOCK ASSEMBLY STATUS)
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CAUTION:

Be sure to wear insulated gloves.

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch to on (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Connect the cable to the negative (-) auxiliary battery terminal.

(c) Turn the ignition switch to ON.

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

HINT:

- When the charging port lid is opened with all of the doors unlocked, the charging port lid is judged to be open.
- When the charging port lid is closed with all of the doors locked, the charging port lid is judged to be closed.

Standard Voltage:



[Click Location & Routing\(R62\)](#)

[Click Connector\(R62\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R62-17 (LDSW) - Body ground	Ignition switch on, charging port lid open, all doors unlocked	11 to 14 V
R62-17 (LDSW) - Body ground	Ignition switch on, charging port lid closed, all doors locked	0 to 1.5 V

(e) Turn the ignition switch off.

NG **GO TO STEP 11**

OK



3.	INSPECT PLUGIN CHARGE CONTROL ECU ASSEMBLY (LDSW TERMINAL VOLTAGE)
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(a) Disconnect the R62 plugin charge control ECU assembly connector.

(b) Turn the ignition switch to ON.

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

Standard Voltage:



[Click Location & Routing\(R62\)](#)

[Click Connector\(R62\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R62-17 (LDSW) - Body ground	Ignition switch on, charging port lid open, all doors unlocked	11 to 14 V

(d) Turn the ignition switch off.

NG  **GO TO STEP 11**

OK



4.	READ VALUE USING GTS
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CAUTION:

Be sure to wear insulated gloves.

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch to on (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Connect the R62 plugin charge control ECU assembly connector.

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

HINT:

- When the charging port lid is opened with all of the doors unlocked, the charging port lid is judged to be open.
- When the charging port lid is closed with all of the doors locked, the charging port lid is judged to be closed.

Standard Voltage:

[Click Location & Routing\(R62\)](#)[Click Connector\(R62\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R62-17 (LDSW) - Body ground	Ignition switch on, charging port lid open, all doors unlocked	11 to 14 V
R62-17 (LDSW) - Body ground	Ignition switch on, charging port lid closed, all doors locked	0 to 1.5 V

(d) Read the Data List according to the display on the GTS.

Powertrain > Plug-in Control > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Charging Lid Switch Status	Charge lid with motor lock assembly status	OFF or ON	OFF: Charging port lid closed ON: Charging port lid open	-

Powertrain > Plug-in Control > Data List

TESTER DISPLAY
Charging Lid Switch Status

HINT:

- The Data List allows the state of the inspection terminal to be read.
- As the value of the Data List may vary when taking measurements due to factors such as the environment, vehicle age, etc., the result should be used as a reference only.

(e) Turn the ignition switch off.

RESULT	PROCEED TO
The Data List item and voltage change accordingly	A
The Data List item and voltage do not change accordingly	B

B  **REPLACE PLUGIN CHARGE CONTROL ECU ASSEMBLY**

A


5.	INSPECT PLUGIN CHARGE CONTROL ECU ASSEMBLY (SPOT LIGHT ASSEMBLY STATUS)
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CAUTION:

Be sure to wear insulated gloves.

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch to on (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Turn the ignition switch to ON.

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

HINT:

- When the charging port lid is opened with all of the doors unlocked, the charging port lid is judged to be open.
- When the charging port lid is closed with all of the doors locked, the charging port lid is judged to be closed.

Standard Voltage:



[Click Location & Routing\(R62\).](#)

[Click Connector\(R62\).](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R62-18 (LDLP) - Body ground	Ignition switch on, charging port lid closed, all doors locked	0 to 1.5 V

(d) Turn the ignition switch off.

NG ► **GO TO STEP 8**

OK



6.	INSPECT PLUGIN CHARGE CONTROL ECU ASSEMBLY (LDLP TERMINAL VOLTAGE)
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(a) Disconnect the R62 plugin charge control ECU assembly connector.

(b) Turn the ignition switch to ON.

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

Standard Voltage:



[Click Location & Routing\(R62\).](#)

[Click Connector\(R62\).](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R62-18 (LDLP) - Body ground	Ignition switch on, charging port lid open, all doors unlocked	5 to 14 V

(d) Turn the ignition switch off.

NG ► **GO TO STEP 8**

OK



7. READ VALUE USING GTS

CAUTION:

Be sure to wear insulated gloves.

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch to on (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Connect the R62 plugin charge control ECU assembly connector.

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

HINT:

- The spot light assembly illuminates when the charging port lid is opened with all of the doors unlocked.
- When any of the following conditions is met, the spot light assembly turns off.
 - The charging port lid is open and the spot light assembly is illuminated for 20 minutes or more.
 - The charge plug is connected when the charging port lid open. (The spot light assembly turns off 7.5 seconds after the charge plug is connected.)
- The charging port lid is closed with all of the doors locked.

Standard Voltage:



[Click Location & Routing\(R62\)](#)

[Click Connector\(R62\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R62-18 (LDLP) - Body ground	Ignition switch on, charging port lid closed, spot light assembly not illuminated	0 to 1.5 V
R62-18 (LDLP) - Body ground	Ignition switch on, charging port lid open, spot light assembly not illuminated	5 to 14 V
R62-18 (LDLP) - Body ground	Ignition switch on, charging port lid open, spot light assembly illuminated	0 to 5 V

(d) Enter the following menus: Powertrain / Plug-in Control / Data List.

(e) Read the Data List according to the display on the GTS.

Powertrain > Plug-in Control > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Charging Lid Lamp Status	Spot light assembly status	OFF, Fade Out or ON	OFF: Spot light assembly off Fade Out: Spot light assembly fading out ON: Spot light assembly on	-

Powertrain > Plug-in Control > Data List

TESTER DISPLAY
Charging Lid Lamp Status

HINT:

- The Data List allows the state of the inspection terminal to be read.
- As the value of the Data List may vary when taking measurements due to factors such as the environment, vehicle age, etc., the result should be used as a reference only.

RESULT	PROCEED TO
<ul style="list-style-type: none"> • The Data List item value is OFF and the voltage is 0 to 1.5 V • The Data List item value is Fade Out and the voltage is 5 to 14 V • The Data List item value is ON and the voltage is 0 to 5 V 	A
Other than above	B

A ► GO TO CAUSE ANALYSIS (USER RELATED CAUSE)

(a) Perform cause analysis as specified in the following table.

POSSIBLE CAUSE	ACTION TO BE TAKEN
Entry function of smart key system disabled	<p>Explain to the customer that as the entry function was disabled, it did not operate even when the electrical key transmitter sub-assembly was brought near the charging port lid.</p> <p>HINT:</p> <ul style="list-style-type: none"> • Conditions in which the spot light assembly illuminates when the entry function is disabled: When the charging port lid is opened, the charge plug is connected or the charge plug is disconnected. • Conditions in which the spot light assembly turns off when the entry function is disabled: When the charging port lid is closed, the charge plug is locked, the ignition switch is on (READY), rapid charging is started or a certain period of time has elapsed since the spot light assembly illuminated.
Charging connector lock was operated repeatedly	Explain to the customer the spot light assembly will not illuminate if the push lifter of the charge lid with motor lock assembly (charging lid courtesy switch) is

POSSIBLE CAUSE	ACTION TO BE TAKEN
	pushed in (the charging port lid is judged as closed).

(b) Take appropriate action in accordance with the result of the cause analysis.

B  **REPLACE PLUGIN CHARGE CONTROL ECU ASSEMBLY**

8. INSPECT SPOT LIGHT ASSEMBLY

Click here 

NG  **REPLACE SPOT LIGHT ASSEMBLY**

OK



9. CHECK HARNESS AND CONNECTOR (CHARGE LID WITH MOTOR LOCK ASSEMBLY - SPOT LIGHT ASSEMBLY)

- (a) Disconnect the R30 charge lid with motor lock assembly connector.
- (b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:



[Click Location & Routing\(R30,R41\)](#)

[Click Connector\(R30\)](#)

[Click Connector\(R41\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R30-2 (LDSW) - R41-2 (LP)	Always	Below 1 Ω
R30-2 (LDSW) or R41-2 (LP) - Body ground	Always	10 kΩ or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



10.**CHECK HARNESS AND CONNECTOR (SPOT LIGHT ASSEMBLY - PLUGIN CHARGE CONTROL ECU ASSEMBLY)**

- (a) Disconnect the R62 plugin charge control ECU assembly connector.
- (b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:



[Click Location & Routing\(R41,R62\).](#)

[Click Connector\(R41\).](#)

[Click Connector\(R62\).](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R41-1 (LDLP) - R62-18 (LDLP)	Always	Below 1 Ω
R41-1 (LDLP) or R62-18 (LDLP) - Body ground	Always	10 k Ω or higher

OK ► **REPLACE PLUGIN CHARGE CONTROL ECU ASSEMBLY**

NG ► **REPAIR OR REPLACE HARNESS OR CONNECTOR**

11.**INSPECT CHARGE LID WITH MOTOR LOCK ASSEMBLY**Click here [INFO](#)

NG ► **REPLACE CHARGE LID WITH MOTOR LOCK ASSEMBLY**

OK**12.****CHECK HARNESS AND CONNECTOR (AUXILIARY BATTERY - CHARGE LID WITH MOTOR LOCK ASSEMBLY)**

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

Standard Voltage:



[Click Location & Routing\(R30\).](#)

[Click Connector\(R30\).](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R30-1 (+B) - Body ground	Ignition switch off	11 to 14 V

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK



13.	CHECK HARNESS AND CONNECTOR (CHARGE LID WITH MOTOR LOCK ASSEMBLY - PLUGIN CHARGE CONTROL ECU ASSEMBLY)
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(a) Disconnect the R62 plugin charge control ECU assembly connector.

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

Standard Resistance:



[Click Location & Routing\(R30,R62\).](#)

[Click Connector\(R30\).](#)

[Click Connector\(R62\).](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R30-2 (LDSW) - R62-17 (LDSW)	Always	Below 1 Ω
R30-2 (LDSW) or R62-17 (LDSW) - Body ground	Always	10 k Ω or higher

OK ► REPLACE PLUGIN CHARGE CONTROL ECU ASSEMBLY

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

