Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM100000002BEIF
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: HYBRID / BATTERY CONTROL: PLUG-IN CHARGE CONTROL SYSTEM (for PHEV Model): Control Pilot Signal Circuit; 2023 - 2024 MY Prius Prime [03/2023 -]		

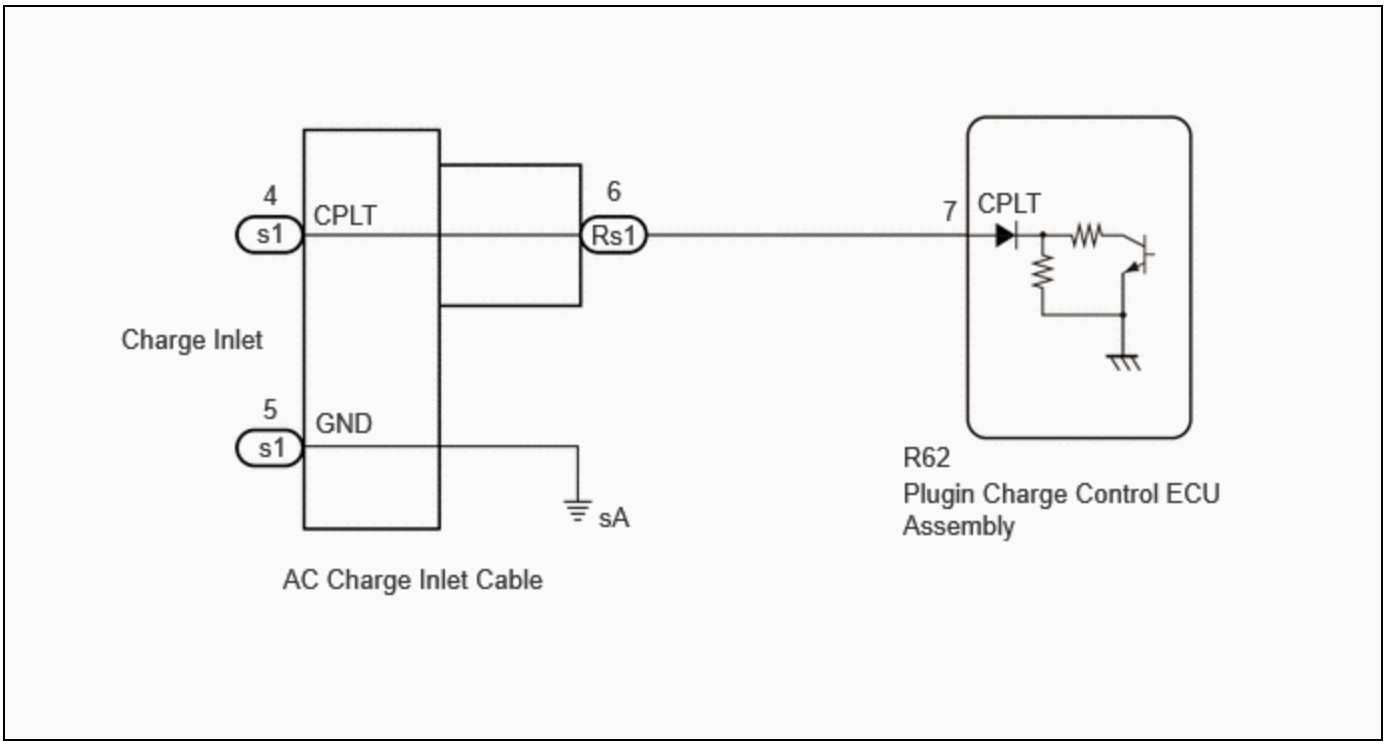
Control Pilot Signal Circuit

DESCRIPTION

The plugin charge control ECU assembly detects when a charging connector has been connected and charging is possible by using the CPLT signal (control pilot signal). The plugin charge control ECU assembly will then start the plug-in charge control system and change the CPLT signal (control pilot signal).

Using the waveform duty ratio of the CPLT signal (control pilot signal), the plugin charge control ECU assembly recognizes the rated amperage of a charging facility (a socket using a charging cable) or charging station. By changing the CPLT signal (control pilot signal), the plugin charge control ECU assembly transmits the status that the vehicle is ready to start charging, to the charging cable (CCID unit).

WIRING DIAGRAM



CAUTION / NOTICE / HINT

CAUTION:

Refer to the precautions before inspecting high voltage circuit.

Click here INFO

NOTICE:

- After the ignition switch is turned off, there may be a waiting time before disconnecting the negative (-) auxiliary battery terminal.

Click here INFO

- When disconnecting and reconnecting the auxiliary battery.

Click here

HINT:

When disconnecting and reconnecting the auxiliary battery, there is an automatic learning function that completes learning when the respective system is used.

Click here INFO

PROCEDURE

1.	**READ VALUE USING GTS (CHARGING CURRENT DUTY FROM CHARGER, TIME CYCLE OF CHARGING CURRENT DUTY FROM CHARGER)**

(a) Using the charging cable (electric vehicle charger cable assembly), plug-in charge the vehicle.

(1) Enter the following menus.

Powertrain > Plug-in Control > Data List

TESTER DISPLAY
Charging Current Duty from Charger
Time Cycle of Charging Current Duty from Charger

(2) Read the values displayed on the GTS.

Powertrain > Plug-in Control > Data List

TESTER DISPLAY	MEASUREMENT ITEM	NORMAL CONDITION
Charging Current Duty from Charger	Duty value of CPLT signal generated from the electric vehicle charger assembly	Electric vehicle charger cable assembly connected: 5 to 39%
Time Cycle of Charging Current Duty from Charger	Duration of 1 cycle of CPLT signal	CPLT (control pilot signal) generated: 951 to 1049 µs

RESULT	PROCEED TO
Values are as specified in Normal Condition column	A
Values are not as specified in Normal Condition column	B

(3) Turn the ignition switch off.

(4) Disconnect the charging cable (electric vehicle charger cable assembly).

A ▶ **GO TO PROBLEM SYMPTOMS TABLE (PLUG-IN CHARGE CONTROL SYSTEM)**

B

2.	**CHECK AC CHARGER INLET CABLE (BODY GROUND)**

(a) Open the charging port lid.

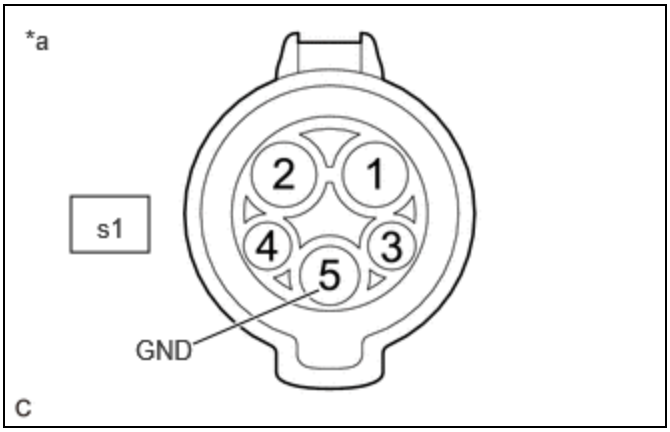
(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

EWD INFO

Click Location & Routing(s1)
Click Connector(s1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
s1-5 (GND) - Body ground	Ignition switch off	Below 1 Ω



*a	AC Charger Inlet Cable (Charging Inlet)

(c) Close the charging port lid.

NG ▶ **GO TO STEP 5**

OK

3.	**CHECK HARNESS AND CONNECTOR (PLUGIN CHARGE CONTROL ECU ASSEMBLY - CHARGING INLET)**

(a) Open the charging port lid.

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

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

Standard Resistance:

EWD INFO

Click Location & Routing(s1,R62)
Click Connector(s1)
Click Connector(R62)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
s1-4 (CPLT) - R62-7 (CPLT)	Ignition switch off	Below 1 Ω
s1-4 (CPLT) or R62-7 (CPLT) - Body ground and other terminals	Ignition switch off	10 kΩ or higher
s1-5 (GND) - Other terminals	Ignition switch off	10 kΩ or higher

(d) Turn the ignition switch to ON.

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

Standard Voltage:

EWD INFO

Click Location & Routing(s1,R62)
Click Connector(s1)
Click Connector(R62)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
s1-4 (CPLT) or R62-7 (CPLT) - Body ground	Ignition switch ON	Below 1 V

NOTICE:

Turning the ignition switch to ON with the plugin charge control ECU assembly connector disconnected causes other DTCs to be stored. Clear the DTCs after performing this inspection.

(f) Turn the ignition switch off.

(g) Reconnect the plugin charge control ECU assembly connector.

(h) Close the charging port lid.

NG ▶ **GO TO STEP 6**

OK ▼

4.	**INSPECT CHARGING CABLE (ELECTRIC VEHICLE CHARGER CABLE ASSEMBLY) (CPLT TERMINAL VOLTAGE)**

Click here INFO

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

NG ▶ **REPLACE CHARGING CABLE (ELECTRIC VEHICLE CHARGER CABLE ASSEMBLY)**

5.	**CHECK AC CHARGER INLET CABLE (BODY GROUND TERMINAL CONNECTION CONDITION)**

(a) Check the installation condition of the AC charger inlet cable ground wire sA.

OK:

The ground wire is securely installed.

OK ▶ **REPLACE AC CHARGER INLET CABLE**

NG ▶ **CONNECT SECURELY**

6.	**CHECK HARNESS AND CONNECTOR (PLUGIN CHARGE CONTROL ECU ASSEMBLY - AC CHARGER INLET CABLE)**

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) Disconnect the Rs1 AC charger inlet cable connector.

NOTICE:

If the Rs1 connector is disconnected with the auxiliary battery connected, P0D5615 may be detected. Check that the cable is disconnected from the negative (-) auxiliary battery terminal before proceeding work.

(c) Disconnect the R62 plugin charge control ECU assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(Rs1,R62)
Click Connector(Rs1)
Click Connector(R62)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
Rs1-6 (CPLT) - R62-7 (CPLT)	Ignition switch off	Below 1 Ω
Rs1-6 (CPLT) or R62-7 (CPLT) - Body ground and other terminals	Ignition switch off	10 kΩ or higher

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

(f) Turn the ignition switch to ON.

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

Standard Voltage:

EWD INFO

Click Location & Routing(Rs1,R62)
Click Connector(Rs1)
Click Connector(R62)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
Rs1-6 (CPLT) or R62-7 (CPLT) - Body ground	Ignition switch ON	Below 1 V

NOTICE:

Turning the ignition switch to ON with the electric vehicle charger assembly connector disconnected causes other DTCs to be stored. Clear the DTCs after performing this inspection.

(h) Turn the ignition switch off.

(i) Disconnect the cable from the negative (-) auxiliary battery terminal.

(j) Reconnect the plugin charge control ECU assembly connector.

(k) Reconnect the AC charger inlet cable connector.

OK ▶ **REPLACE AC CHARGER INLET CABLE**

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