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Model Year Start: 2023	Model: Prius Prime	Prod Date Range: [03/2023 -]
Title: HYBRID / BATTERY CONTROL: PLUG-IN CHARGE CONTROL SYSTEM (for PHEV Model): Charging Stops during AC Charging; 2023 - 2024 MY Prius Prime [03/2023 -]		

Charging Stops during AC Charging

PROCEDURE

1. CHECK DTC OUTPUT (HEALTH CHECK)

(a) Enter the following menus: Health Check.

(b) Check DTCs.

RESULT	PROCEED TO
No DTCs are output	A
DTCs are output	B

(c) Turn the ignition switch off.

B  **GO TO DTC CHART**

A


2. CHECK FOR VEHICLE CONTROL HISTORY

(a) Check for Vehicle Control History.

Powertrain > Plug-in Control > Utility

TESTER DISPLAY
Vehicle Control History (RoB)

(b) Enter the following menus.

Powertrain > Hybrid Control > Utility

TESTER DISPLAY
Vehicle Control History (RoB)

(c) Check for Vehicle Control History (RoB) except AC Charging History (X10F0).

HINT:

Vehicle Control History (RoB) items AC Charging History (X10F0) is stored each time plug-in charging is performed, and is also stored when plug-in charging completes without error from start to finish.

For this reason, the fact that they are output does not directly indicate any malfunction or problem.

RESULT	PROCEED TO
Vehicle Control History not stored	A
Vehicle Control History stored	B

(d) Turn the ignition switch off.

B  **GO TO VEHICLE CONTROL HISTORY**

- PLUG-IN CHARGE CONTROL SYSTEM

Click here [INFO](#)

- HYBRID CONTROL SYSTEM

Click here [INFO](#)

A


3.	CHECK PLUG-IN CHARGE STATE (USING A KNOWN GOOD ELECTRIC VEHICLE CHARGER CABLE ASSEMBLY)
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NOTICE:

- On the customer's vehicle, perform AC charging using a known good electric vehicle charger cable assembly and a known good AC power source.
- Use the same voltage that the customer used to plug-in charge the vehicle.

(a) Enter the following menus: Health Check.

(b) Clear DTCs.

(c) Enter the following menus.

Powertrain > Plug-in Control > Utility

TESTER DISPLAY
Vehicle Control History (RoB)

(d) Clear all Vehicle Control History items.

(e) Enter the following menus.

Powertrain > Hybrid Control > Utility

TESTER DISPLAY
Vehicle Control History (RoB)

(f) Clear all Vehicle Control History items.

(g) Turn the Charge Now on.

HINT:

- If no charge schedule has been registered, the above step is not necessary.
- "Charge Now" setting method:

[Click here](#) INFO

(h) On the customer's vehicle, perform plug-in charging using a known good charging cable and a known good AC power source until the HV battery is fully charged.

(i) Enter the following menus: Health Check.

(j) Check DTCs.

(k) Enter the following menus.

Powertrain > Plug-in Control > Utility

TESTER DISPLAY
Vehicle Control History (RoB)

(l) Check for Vehicle Control History (RoB) except AC Charging History (X10F0).

HINT:

Vehicle Control History (RoB) items AC Charging History (X10F0) is stored each time plug-in charging is performed, and is also stored when plug-in charging completes without error from start to finish.

For this reason, the fact that they are output does not directly indicate any malfunction or problem.

(m) Enter the following menus.

Powertrain > Hybrid Control > Utility

TESTER DISPLAY
Vehicle Control History (RoB)

(n) Check for Vehicle Control History (RoB)

(o) Turn the ignition switch off.

(p) Disconnect the electric vehicle charger cable assembly.

RESULT	PROCEED TO
DTCs output	A
Vehicle Control History (RoB) stored	B
DTCs and Vehicle Control History (RoB) not stored and AC charging suspended	C
DTCs and Vehicle Control History (RoB) not stored and AC charging did not suspend	D

A ► **GO TO DTC CHART**

B ► **GO TO VEHICLE CONTROL HISTORY**

- PLUG-IN CHARGE CONTROL SYSTEM

Click here [INFO](#)

- HYBRID CONTROL SYSTEM

Click here [INFO](#)

C ► **CAUSE ANALYSIS (VEHICLE RELATED CAUSE)**

(a) Analyze the cause according to the following table.

Vehicle Related Cause

POSSIBLE CAUSE	ACTION TO BE TAKEN
Discharged auxiliary battery	Inspect auxiliary battery INFO
Open in control pilot signal circuit	Control pilot signal circuit INFO
Charging inlet (Inlet Charging AC Cable) GND malfunction	Inspect normal charging inlet INFO INFO
Charging inlet (Inlet Charging AC Cable) PISW malfunction	Inspect normal charging inlet INFO INFO

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

D
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4.	CHECK PLUG-IN CHARGE STATE (USING THE CHARGING CABLE (ELECTRIC VEHICLE CHARGER CABLE ASSEMBLY) PROVIDED WITH THE VEHICLE)
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NOTICE:

- On the customer's vehicle, perform AC charging using the customer's charging cable (electric vehicle charger cable assembly) and a known good AC power source.
- Use the same voltage that the customer used to plug-in charge the vehicle.

(a) On a known good vehicle, perform AC charging using the customer's electric vehicle charger cable assembly and a known good AC power source until the HV battery is fully charged.

(b) Enter the following menus.

Powertrain > Plug-in Control > Utility

TESTER DISPLAY
Vehicle Control History (RoB)

(c) Check for Vehicle Control History (RoB) except AC Charging History (X10F0).

HINT:

Vehicle Control History (RoB) items AC Charging History (X10F0) is stored each time plug-in charging is performed, and is also stored when plug-in charging completes without error from start to finish.

For this reason, the fact that they are output does not directly indicate any malfunction or problem.

(d) Enter the following menus.

Powertrain > Hybrid Control > Utility

TESTER DISPLAY
Vehicle Control History (RoB)

(e) Check for Vehicle Control History (RoB).

(f) Turn the ignition switch off.

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

RESULT	PROCEED TO
Vehicle Control History (RoB) stored	A

RESULT	PROCEED TO
Vehicle Control History not stored and AC charging suspended	B
Vehicle Control History not stored and AC charging did not suspend	C

A ► GO TO VEHICLE CONTROL HISTORY

- PLUG-IN CHARGE CONTROL SYSTEM

Click here [INFO](#)

- HYBRID CONTROL SYSTEM

Click here [INFO](#)

B ► CAUSE ANALYSIS (CHARGING CABLE RELATED CAUSE)

(a) Analyze the cause according to the following table.

Charging Cable Related Cause

POSSIBLE CAUSE	ACTION TO BE TAKEN
Open in control pilot signal circuit	Control pilot signal circuit INFO
Charging cable (Electric vehicle charger cable assembly) malfunction	Inspect charging cable (electric vehicle charger cable assembly) INFO INFO

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

C ► CAUSE ANALYSIS (USER / ENVIRONMENT / EXTERNAL POWER SOURCE/CHARGING STAND RELATED CAUSE)

(a) Perform cause analysis in the order of "User Related Cause", "Environment Related Cause" and "External Power Source/Charging Stand Related Cause" categories as specified in the following tables below.

User Related Cause

POSSIBLE CAUSE	ACTION TO BE TAKEN
Charge schedule settings changed during plug-in charging	Explain to the customer that if the charge schedule is changed during normal charging, charging will be performed in accordance with the modified time.
Improper use of charging station	Confirm how to properly use the charging station with user's manual or

POSSIBLE CAUSE	ACTION TO BE TAKEN
	instructions etc.
The charging cable was disconnected.	<p>Interview customer and provide instruction on usage.</p> <p>INFO</p> <ul style="list-style-type: none"> • Explain to the customer that if the charging connector is disconnected during plug-in charging, charging will be suspended and " Charging Stopped Connect Plug to Charge" will be displayed on the multi-information display when the door opened while the ignition switch is turned off. • Explain to the customer that if the charging cable is disconnected from the electrical outlet during plug-in charging, charging will be suspended and " Charging Stopped Check Charging Source" will be displayed on the multi-information display when the door opened while the ignition switch is turned off.
Auxiliary power consumption was high due to headlights being left on, use of accessories or additional electrical components etc.	<p>Explain to the customer that if the auxiliary power consumption is high, AC charging may stop before complete.</p> <p>The auxiliary battery may have been discharged if AC charging cannot be performed.</p>
Plug-in charging was attempted when traction battery assembly was fully charged	<p>Explain to the customer that charging will be suspended if the traction battery assembly is fully charged.</p>

Environment Related Cause

POSSIBLE CAUSE	ACTION TO BE TAKEN
Plug-in charging was suspended due to power outage, circuit breaker operation, etc.	<p>Interview customer and provide instruction on usage.</p> <p>INFO</p>

POSSIBLE CAUSE	ACTION TO BE TAKEN
	<p>Explain to the customer that if a power outage occurs or a breaker is tripped, charging will be suspended.</p>

External Power Source/Charging Stand Related Cause

POSSIBLE CAUSE	ACTION TO BE TAKEN
<p>Charging was suspended by charging station or charging station was incompatible</p>	<p>Interview customer and check the charging station.</p> <p>INFO</p> <p>It is possible that plug-in charging was suspended due to a power management function or charging control function of the charging station, or due to a compatibility problem. Check with the manufacturer of the charging station for details.</p>
<p>Charging was suspended due to a malfunction caused by an abnormal electrical outlet voltage</p>	<p>Interview customer and check the electrical outlet.</p> <p>INFO</p> <p>If charging is stopped due to an abnormal electrical outlet voltage, check that plug-in charging can be performed at several different electrical outlets.</p> <ul style="list-style-type: none"> ◦ If the malfunction can be reproduced only at a specific electrical outlet, the electrical outlet voltage may be abnormal and should be checked by a qualified tradesperson. ◦ If the malfunction can be reproduced at several different electrical outlets, replace the electric vehicle charger cable assembly. (Using the electric vehicle charger cable assembly of the customer's vehicle, try charging the vehicle at an electrical outlet other

POSSIBLE CAUSE	ACTION TO BE TAKEN
	than one used by the customer, such as at the dealer.)
Power supply plug overheating protection function operated	<p data-bbox="984 300 1398 369">Interview customer and check the electrical outlet.</p> <p data-bbox="1000 380 1057 407">INFO</p> <p data-bbox="1057 438 1446 541">Check that power supply plug is securely and fully inserted into electrical outlet.</p>

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

