

Last Modified: 12-04-2024	6.11:8.1.0	Doc ID: RM10000002BEIC
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 Does Not Start at Scheduled Start Time; 2023 - 2024 MY Prius Prime [03/2023 -]		

Charging Does Not Start at Scheduled Start Time

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 (RoB)

(a) Enter the following menus.

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 (RoB) not stored	A
Vehicle Control History (RoB) stored	B

(d) Turn the ignition switch off.

B  **GO TO VEHICLE CONTROL HISTORY**

- PLUG-IN CHARGE CONTROL SYSTEM

Click here 

- HYBRID CONTROL SYSTEM

Click here 

A


3.	SIMULATION TEST (SETTING CHARGE SCHEDULE)
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NOTICE:

- Make sure to use a known good AC power source.
- Use the same voltage that the customer used to plug-in charge the vehicle.

HINT:

When setting a charging start time, make sure to set it for least 5 minutes from the current time.

Setting the date (year/month/day) and time:

Make sure to check that the time setting GPS compensation on the navigation receiver assembly clock setting screen is set to ON. If the setting is OFF, then after turning it ON, move the vehicle to a location where it can receive a GPS signal.

(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 (RoB) items.

(e) Enter the following menus.

Powertrain > Hybrid Control > Utility

TESTER DISPLAY
Vehicle Control History (RoB)

(f) Clear all Vehicle Control History (RoB) items.

(g) Check that the date and time displayed on the multi-information display are correct and adjust them if necessary.

HINT:

As timer charging is performed based on the time, year, month and day of the radio and display receiver assembly, make sure that they are set correctly.

(h) Check that the time displayed on the multi-information display is correct.

(i) Using the multi-information display, set a charging start time.

(j) Connect the charging cable (electric vehicle charger cable assembly) and perform AC charging according to the set charging start time.

(k) Enter the following menus: Health Check.

(l) Check DTCs.

(m) Enter the following menus.

Powertrain > Plug-in Control > Utility

TESTER DISPLAY
Vehicle Control History (RoB)

(n) 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.

(o) Enter the following menus.

Powertrain > Hybrid Control > Utility

TESTER DISPLAY
Vehicle Control History (RoB)

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

(q) Turn the ignition switch off.

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

RESULT	PROCEED TO
DTCs output	A
No DTCs output, Vehicle Control History (RoB) stored	B
DTCs and Vehicle Control History (RoB) not stored and timer charging started at scheduled charging start time	C
DTCs and Vehicle Control History (RoB) not stored and timer charging did not start at scheduled charging start time	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 (USER / ENVIRONMENT / EXTERNAL POWER SOURCE/CHARGING STAND RELATED)**

(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
Incorrect time, year, month or day set on multi-information display	<p>Explain to the customer that the charge schedule operates according to the time and date (day of week) set in the vehicle.</p> <p>HINT: Explain to the customer that as the time and date are set using the GPS</p>

POSSIBLE CAUSE	ACTION TO BE TAKEN
	function of the radio and display receiver assembly. Therefore, turn the GPS ON.
Charge schedule setting was wrong	<p>Interview customer and provide instruction on usage.</p> <p>INFO</p> <p>Confirm how to properly use the charge schedule with user's manual or instructions etc.</p>
Charging was performed at public charging station with charge schedule set	<p>Interview customer and provide instruction on usage.</p> <p>INFO</p> <p>Explain to the customer that the timer charging may be unavailable depending on the specifications of the charging station.</p>
Charging connector was connected after scheduled charging start time	<p>Explain to the customer that the charging connector should be connected before the scheduled charging start time.</p>
Charging connector was not securely connected to charging inlet	<p>Interview customer and provide instruction on usage.</p> <p>INFO</p> <ul style="list-style-type: none"> Explain to the customer that the charging connector should be fully inserted into the charging inlet. Explain to the customer that if the charging connector is connected when the charge schedule is set, the charging indicator will blink (normal: 1 second interval).
Plug-in charging was attempted when HV supply battery was fully charged	<ul style="list-style-type: none"> Explain to the customer that charging will not be performed if the HV battery is fully charged. Explain to the customer that even if the vehicle is driven after the HV battery is fully charged, charging may not be performed if the SOC of the HV battery has not decreased sufficiently.

POSSIBLE CAUSE	ACTION TO BE TAKEN
	<ul style="list-style-type: none"> Explain to the customer that if the charging connector is connected to the vehicle when the traction battery assembly is fully charged, the EV charger lid indicator (EV charger lid indicator assembly) will illuminate (when timer charging is off) or blink (when timer charging is operating) for several seconds and then turn off and plug-in charging will not start.

Environment Related Cause

POSSIBLE CAUSE	ACTION TO BE TAKEN
<p>Plug-in charging was suspended due to power outage, circuit breaker operation, etc.</p>	<p>Interview customer and provide instruction on usage.</p> <p>INFO</p> <p>Explain to the customer that the plug-in charging was suspended due to power outage, circuit breaker operation, etc.</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 provide instruction on usage.</p> <p>INFO</p> <ul style="list-style-type: none"> Explain to the customer that plug-in charging may not start due to a power management function or charging control function of the charging station. Also, charging may not be performed if the charging station is incompatible. (Check the charging station specifications provided by the manufacturer.) Explain to the customer that depending on the specifications of the charging station, plug-in charging may

POSSIBLE CAUSE	ACTION TO BE TAKEN
	be suspended when traction battery assembly cooling system is being operated.

(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 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 (RoB) items.
- (e) Enter the following menus.

Powertrain > Hybrid Control > Utility

TESTER DISPLAY
Vehicle Control History (RoB)

- (f) Clear all Vehicle Control History (RoB) items.
- (g) Set "Charge Now" on.

HINT:

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

[Click here](#) 

- (h) On the customer's vehicle, perform AC charging using a known good electric vehicle charger cable assembly and a known good external AC power source.
- (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).
- (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 (Electric vehicle charger cable assembly provided with the vehicle was used when malfunction occurred)	C
DTCs and Vehicle Control History (RoB) not stored and plug-in charging did not start (Charging station or electric vehicle charger cable assembly other than one provided with the vehicle was used when malfunction occurred)	D
DTCs and Vehicle Control History (RoB) not stored but plug-in charging started (Charging station or electric vehicle charger cable assembly other than one provided with the vehicle was used when malfunction occurred)	E

A  **GO TO DTC CHART**

B  **GO TO VEHICLE CONTROL HISTORY (RoB)**

- PLUG-IN CHARGE CONTROL SYSTEM

Click here [INFO](#)

- HYBRID CONTROL SYSTEM

Click here [INFO](#)

D ► 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

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

E ► 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
Charging station was used improperly	Confirm how to properly use the charging station with user's manual or instructions etc.
Charging connector was not securely connected to charging inlet	Interview customer and provide instruction on usage. INFO Explain to the customer that the charging connector should be fully inserted into the charging inlet.

POSSIBLE CAUSE	ACTION TO BE TAKEN
Plug-in charging was attempted when HV supply battery was fully charged	Explain to the customer that if the charging connector is connected to the vehicle when the HV battery is fully charged, the charging indicator (EV charger lid indicator) will illuminate (Charge Now) or blink (timer charging) for several seconds and then turn off and plug-in charging will not start.

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> <p>Explain to the customer that the plug-in charging was suspended due to power outage, circuit breaker operation, etc.</p>

External Power Source/Charging Stand Related Cause

POSSIBLE CAUSE	ACTION TO BE TAKEN
Charging was suspended by charging station or charging station was incompatible	<p>Interview customer and check the charging station.</p> <p>INFO</p> <ul style="list-style-type: none"> Explain to the customer that plug-in charging may not start due to a power management function or charging control function of the charging station. Also, charging may not be performed if the charging station is incompatible. (Check the charging station specifications provided by the manufacturer.) Explain to the customer that depending on the specifications of the charging station, plug-in charging may be suspended when traction battery assembly cooling system is being operated.

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



5.	CHECK PLUG-IN CHARGE STATE (USING THE ELECTRIC VEHICLE CHARGER CABLE ASSEMBLY PROVIDED WITH THE VEHICLE)
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Click here [INFO](#)

RESULT	PROCEED TO
Vehicle Control History (RoB) stored	A
Vehicle Control History (RoB) not stored and plug-in charging did not start	B
Vehicle Control History (RoB) not stored but plug-in charging started	C

A ► GO TO VEHICLE CONTROL HISTORY (RoB)

- PLUG-IN CHARGE CONTROL SYSTEM

Click here [INFO](#)

- HYBRID CONTROL SYSTEM

Click here [INFO](#)

B ► 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
Electric vehicle charger cable assembly malfunction	Inspect 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
Charging station was used improperly	Confirm how to properly use the charging station with user's manual or instructions etc.
Charging connector was not securely connected to charging inlet	Interview customer and provide instruction on usage. INFO Explain to the customer that the charging connector should be fully inserted into the charging inlet.
Plug-in charging was attempted when HV supply battery was fully charged	Explain to the customer that if the charging connector is connected to the vehicle when the HV battery is fully charged, the charging indicator (EV charger lid indicator) will illuminate (Charge Now) or blink (timer charging) for several seconds and then turn off and plug-in charging will not start.

Environment Related Cause

POSSIBLE CAUSE	ACTION TO BE TAKEN
Plug-in charging was suspended due to power outage, circuit breaker operation, etc.	Interview customer and provide instruction on usage. INFO Explain to the customer that the plug-in charging was suspended due to power outage, circuit breaker operation, etc.

External Power Source/Charging Stand Related Cause

POSSIBLE CAUSE	ACTION TO BE TAKEN
Charging was suspended by charging station	Interview customer and check the charging station. INFO

POSSIBLE CAUSE	ACTION TO BE TAKEN
or charging station was incompatible	<ul style="list-style-type: none"> • Explain to the customer that plug-in charging may not start due to a power management function or charging control function of the charging station. Also, charging may not be performed if the charging station is incompatible. (Check the charging station specifications provided by the manufacturer.) • Explain to the customer that depending on the specifications of the charging station, plug-in charging may be suspended when traction battery assembly cooling system is being operated.

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

