

# Maintenance for HV and Auxiliary Batteries

**Service Category** General

**Section** Pre-Delivery Service

**Market** USA

Toyota Supports  
 ASE Certification 

## Applicability

YEAR(S)	MODEL(S)	ADDITIONAL INFORMATION
2020	Avalon HV, Camry HV, Corolla HV, Highlander HV, Mirai, Prius, Prius C, Prius Prime, RAV4 HV	

### REVISION NOTICE

**February 11, 2019 Rev1:**

- The Introduction and Every Two Months sections have been updated.
- Any previous printed versions of this bulletin should be discarded.

## Introduction

Hybrid vehicles are equipped with two types of batteries:

- Hybrid Vehicle (HV) battery
- Auxiliary (12V) battery

If the hybrid vehicle is put into storage, the State-Of-Charge (SOC) of its HV battery and auxiliary battery will gradually decrease. To prevent the auxiliary battery from becoming discharged during storage, proper maintenance is necessary.

Perform the following maintenance service for the HV battery and auxiliary battery.

### NOTE

- BEFORE disconnecting the auxiliary battery, confirm the shift lever is in the "P" position and apply the parking brake completely. The shift lever CANNOT be shifted from the "P" position with the auxiliary battery disconnected.
- If the negative (-) terminal of the auxiliary battery is reconnected, even if the vehicle is powered ON (Ready ON), the hybrid system may NOT start. In this case, depress the brake pedal and press the Power button to start the hybrid system (the Ready light is ON). If the hybrid system still does NOT start (the Ready light is OFF), refer to the Repair Manual.

## Maintenance for HV and Auxiliary Batteries

### Maintenance Items

CONDITION*	MAINTENANCE OPERATION
Before Delivery	Fully charge the auxiliary battery (deliver the vehicle to the customer AFTER it is fully charged to 12.6V or more).
To Store for 30 Days or More	Disconnect the negative (-) terminal of the auxiliary battery in the luggage compartment to prevent the SOC of the auxiliary battery from decreasing during storage due to parasitic current.
Just After Unloading and Every 2 Months	Keep the hybrid system ON for 30 minutes with the transmission in the "P" position (in order to charge the HV battery and the auxiliary battery).

\*The condition also corresponds with the section titles within this bulletin.

### Warranty Information

OP CODE	DESCRIPTION	TIME	OFF	T1	T2
N/A	Not Applicable to Warranty	-	-	-	-

### Required Tools & Equipment

SPECIAL SERVICE TOOLS (SST)	PART NUMBER	QTY
GR8 Battery Diagnostic Station*	<a href="#">00002-MCGR8</a>	1

\*Essential SST.

#### NOTE

- The GR8 battery diagnostic station (P/N 00002-MCGR8) supersedes the automatic trickle charger (P/N 00002-YA122-01) and fast battery chargers (Associated P/N ASE6003 and Christie P/N CAPPDQ). P/N 00002-YA122-01, ASE6003, and CAPPDQ are now obsolete.
- Additional SSTs may be ordered by calling 1-800-933-8335.

### Before Delivery

- BEFORE charging the auxiliary battery, turn OFF ALL lights, accessories, and the hybrid system.

## Maintenance for HV and Auxiliary Batteries

### Before Delivery (continued)

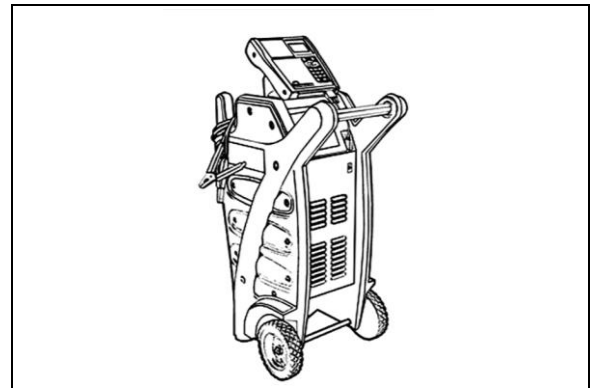
2. Check the battery SOC.
  - If the battery voltage is LESS THAN 12.6V, continue to step 3.
  - If the battery voltage is 12.6V or MORE, replace the positive (+) terminal cover, install the battery cover, and close the back door.

#### NOTE

- If measuring the voltage with the negative (–) terminal connected, turn OFF the Power button and turn ON the headlights for 20 – 30 seconds. This will remove the surface charge from the battery.
- If the engine has been running before measuring the voltage, wait 20 minutes or more after the engine stops. This removes the surface charge.

3. Test the auxiliary battery using the GR8 battery diagnostic station.
  - If the battery tests good, continue to step 4.
  - If the battery tests bad (“Replace Battery”), replace the auxiliary battery.

Figure 1. GR8 Battery Diagnostic Station



4. Charge the auxiliary battery using the GR8 battery diagnostic station.
  - A. Connect the red charger clamp to the positive (+) battery terminal and the black charger clamp to the negative (–) battery terminal.
  - B. Plug the charger into a grounded 110V nominal outlet and flip the Power switch to the “ON” position.
  - C. Once the charger is properly turned ON, perform a diagnostic charge.
  - D. The GR8 battery diagnostic station will indicate results when complete.

#### CAUTION

- Charge in a well-ventilated area.
- Do not allow sparks or fire near the auxiliary battery.

#### NOTE

If the auxiliary battery was stored at 32°F (0°C) or below, charge the auxiliary battery in a room above 32°F (0°C).

## Maintenance for HV and Auxiliary Batteries

### Before Delivery (continued)

5. If the GR8 battery diagnostic station is NOT available, you may charge the auxiliary battery by cycling the vehicle to Ready ON.
  - Run time will vary depending on the SOC.
  - If this method is used, you MUST confirm that the battery is charged to 12.8V using a DVOM.

### To Store for 30 Days or More

1. Turn OFF ALL lights, accessories, and the hybrid system.
2. Disconnect the negative (-) terminal.

**NOTE**

When it is necessary to move the vehicle, reconnect the negative (-) terminal.

3. When removing the vehicle from storage, connect the negative (-) terminal.

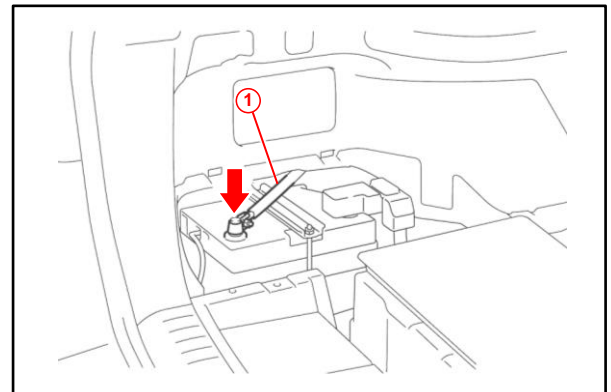
**Torque: 6.5 N\*m (66 kgf\*cm, 58 in\*lbf)**

**NOTE**

AFTER recharging the auxiliary battery, the hybrid system may NOT start. Follow the procedure below to initialize the system.

1. Put the shift lever in the "P" position.
2. Open and close ANY of the doors.
3. Restart the hybrid system.

**Figure 2.**



**1 Negative (-) Terminal**

### Every Two Months

**NOTE**

- When the remaining capacity of the HV battery is low, the gasoline engine automatically starts and the HV battery is charged by the generator. The auxiliary battery is also charged by the HV battery regardless of the gasoline engine operation.
- Be sure to reconnect the negative (-) terminal of the auxiliary battery BEFORE performing this procedure.

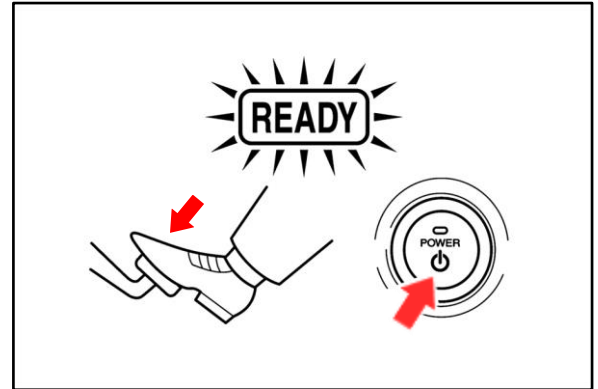
1. Park the vehicle in open air or connect the exhaust extraction hose to the exhaust pipe.
2. Apply the parking brake.

## Maintenance for HV and Auxiliary Batteries

### Every Two Months (continued)

3. With the brake pedal depressed, push the Power button and check that the Ready light in the meter illuminates when the hybrid system starts (the Ready light is ON).

Figure 3.



4. Turn OFF ALL lights and accessories.
5. Check that the shift lever is in the "P" position.
6. Keep the Ready light ON and charge the HV battery for 30 minutes.

#### NOTE

- If the amount of charging energy is small, the display may NOT indicate the energy flow.
- Ensure there is a sufficient amount of fuel for the vehicle to run for 30 minutes.