



**Technical Service
BULLETIN**

March 31, 2006

Title:

**MAINTENANCE FOR HV BATTERY &
AUXILIARY BATTERY**

Models:

'07 Camry HV

PRE-DELIVERY SERVICE
PD020-06

Introduction The Camry HV is equipped with 2 types of batteries:

- Hybrid Vehicle (HV) battery
- 12-volt auxiliary battery

If the Camry HV is put into storage, the state of charge (SOC) of its HV battery and auxiliary battery will gradually decrease. To prevent the batteries from deteriorating during storage, proper maintenance is **necessary and required**.

Perform the following maintenance service for the HV battery and 12-volt 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 12-volt auxiliary battery disconnected.
- After the auxiliary battery terminals have been reconnected, the power windows and sliding roof must be initialized.
- If the negative (-) terminal of the auxiliary battery is reconnected, even if the power switch is turned to the "START" mode, the hybrid system may NOT start. At this time, the "READY" light is OFF. In this case, turn the power switch to "START" again 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.

**Applicable
Vehicles**

- 2007 model year Camry HV vehicles.

**Maintenance
Items**

CONDITION*	MAINTENANCE OPERATION
Before Delivery (to customer)	ONLY fully charge auxiliary battery in slow charge (5 amperes max.). Quick charge is prohibited. (Deliver the vehicle to the customer after it is fully charged.)
To Store for 30 Days or More	Disconnect the negative (-) terminal of the 12-volt 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 & Every 2 Months	Keep the Hybrid System ON for 30 minutes (in order to charge the HV battery and the auxiliary battery).

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

**Warranty
Information**

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



Required SSTs

ITEM NO.	SPECIAL SERVICE TOOLS (SSTs)	PART NUMBER	QTY	DRW**
1	Automatic Battery Trickle Charger* NOTE: • All components from this kit/set are required	00002-YA122-01***	1	19



* Essential SSTs.

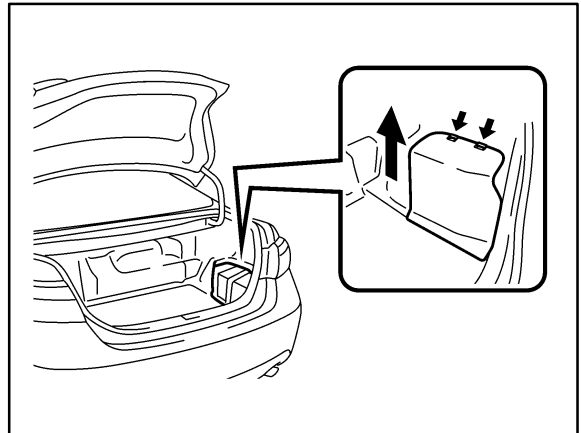
** Refers to drawer number in SST Storage System.

*** Supercedes 00002-YA121-01. P/N 00002-YA121-01 may still be used (with switch in 10 AMP position).

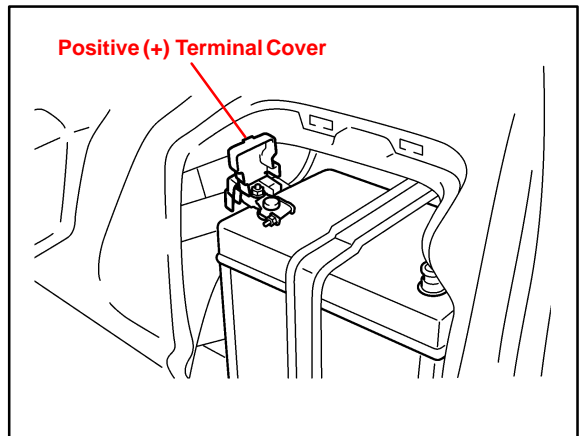
NOTE:
Additional SSTs may be ordered by calling SPX/OTC at 1-800-933-8335.

Before Delivery Fully charge the 12-volt auxiliary battery.

1. Before charging the auxiliary battery:
 - A. Turn OFF all lights, accessories, and the hybrid system.
 - B. Open the trunk lid and remove the trim cover.



- C. Remove the positive (+) terminal cover.



Before Delivery
(Continued)

2. Charge the auxiliary battery.

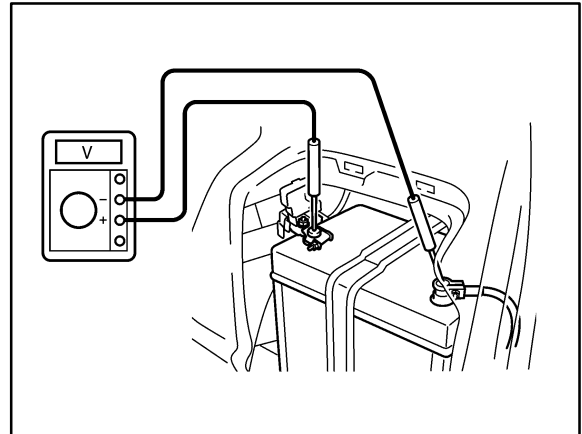
HINT:

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) using the following procedure.

- A. Using a digital voltmeter, measure the auxiliary battery voltage between the terminals to determine the charging time.

AUXILIARY BATTERY VOLTAGE	CHARGING TIME
Above 12.4 V	2 – 3 hours
12.0 – 12.4 V	5 – 6 hours
11.9 V or below	8 – 10 hours*

* Do NOT charge for over 10 hours.



NOTE:

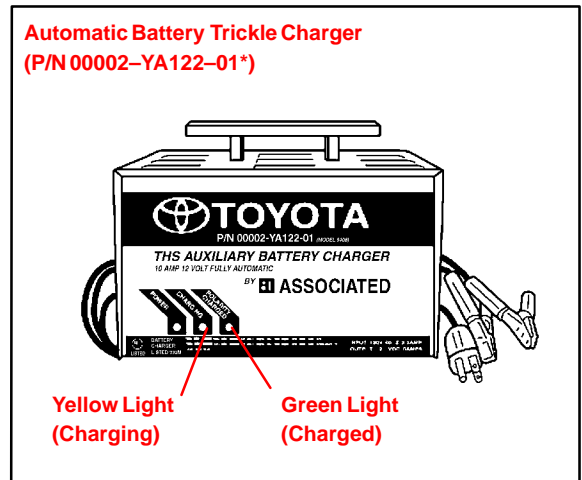
- If measuring the voltage with the negative (-) terminal connected, push the power switch to select the “OFF” mode, turn OFF all electrical systems, and wait 60 seconds or more. This removes the surface charge.
- Prior to measuring the voltage, wait 20 minutes or more after the hybrid system stops. This removes the surface charge.

CAUTION:

- Do NOT charge with the battery mounted in the vehicle.
- Charge in a well-ventilated area.
- Do NOT allow sparks or fire near the battery.

- B. Obtain the Automatic Battery Trickle Charger (SST P/N 00002–YA122–01*).

* Supersedes P/N 00002–YA121–01. P/N 00002–YA121–01 may still be used (with switch in 10 AMP position).



Before
Delivery
(Continued)

NOTE IF USING P/N 00002–YA121–01:

Ensure that the charge current switch is set on the 10 AMP position. When operated in the 10 AMP position, the Automatic Battery Trickle Charger (SST P/N 00002–YA121–01) is designed to automatically regulate charging current and voltage. Using this mode, the charger will minimize charge time, while preventing overheating and possible battery damage. Charging in the 2 AMP position is NOT recommended for the Camry HV 12-volt battery, due to prolonged charge time.

CAUTION:

Use of standard battery chargers is NOT recommended on the Camry HV 12-volt auxiliary battery, in order to prevent battery damage.

- C. Connect the red charger clamp to the positive (+) battery terminal and the black charger clamp to the negative (–) battery terminal.
- D. Plug the charger into a grounded 110V nominal outlet and verify the RED “POWER” light is ON.

NOTE:

The Automatic Battery Trickle Charger (SST P/N 00002–YA122–01) control tests for correct polarity before applying current to the battery (a built-in safety feature). When connected properly, the GREEN light will come on for 2 seconds before the YELLOW light comes on. If NO lights come on, check for proper connection and/or a dead battery.

- E. Once the charger is properly connected, the YELLOW light indicates the battery is charging.

The battery is charged once the GREEN light comes on.

NOTE:

The GREEN charged light and YELLOW charging light will switch back and forth once the battery is at 80% state of charge. At this point the battery is charged and may be returned to the vehicle. If you continue charging, the switching between YELLOW (charging) and GREEN (charged) will slow until the GREEN (charged) light stays ON continuously at 100% state of charge.

- 3. If the Automatic Battery Trickle Charger is NOT available, you may charge the 12-volt battery by turning the vehicle on to “READY.”
 - Ensure there is a sufficient amount of fuel for vehicle during this run time. Run time will vary depending on the state of charge.
 - If this method is used, you MUST confirm that the battery is charged to 12.8 volts using a DVOM.

The Camry HV auxiliary battery is NOT part of the TrueStart™ Replacement Program.

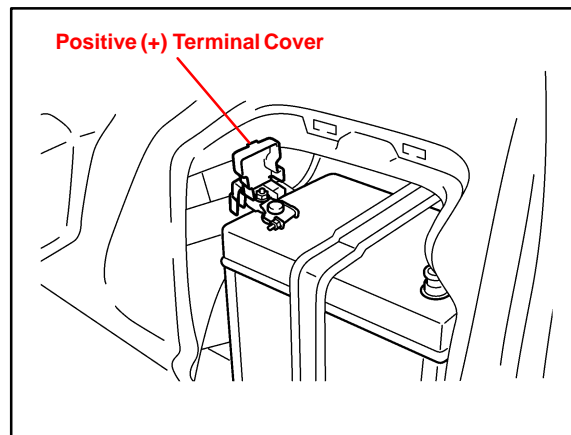
CAUTION:

The Camry HV auxiliary battery is a special Valve Regulated Absorbed Glass Mat (AGM) design and should NEVER be replaced with a conventional battery design.

Before Delivery
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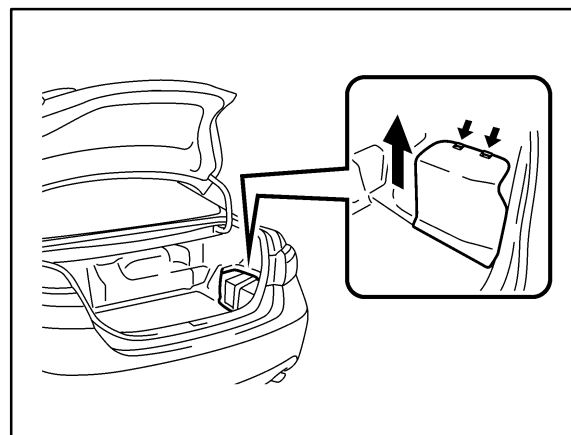
- F. After charging, check that the auxiliary battery charge is 12.6 V. If it is BELOW 12.6 V, recharge the auxiliary battery for the time determined in step 2A above.

- 4. After charging the auxiliary battery:
 - A. Reinstall the positive (+) terminal cover.
 - B. Install the trim cover and close the trunk lid.



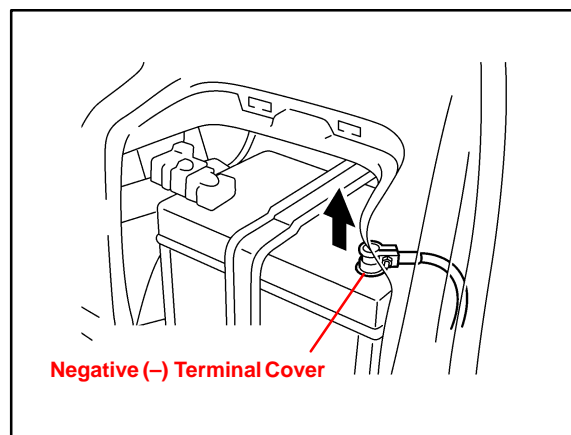
To Store for 30 Days or More

- 1. Prior to vehicle storage, disconnect the negative (-) terminal.
 - A. Turn OFF all lights, accessories, and the hybrid system.
 - B. Open the trunk lid and remove the trim cover.



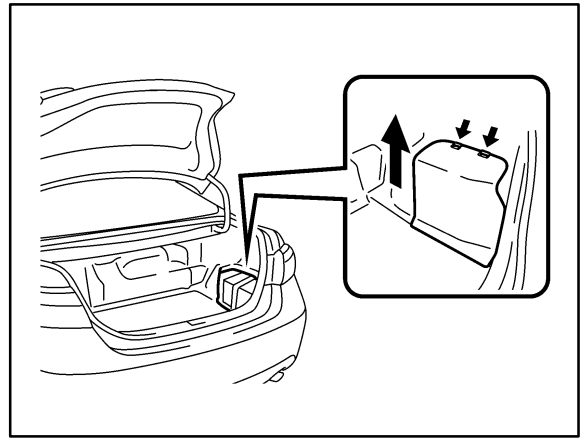
- C. Disconnect the negative (-) terminal.
- D. Install the trim cover and close the trunk lid.

NOTE:
When necessary to move the vehicle, reconnect the negative (-) terminal.

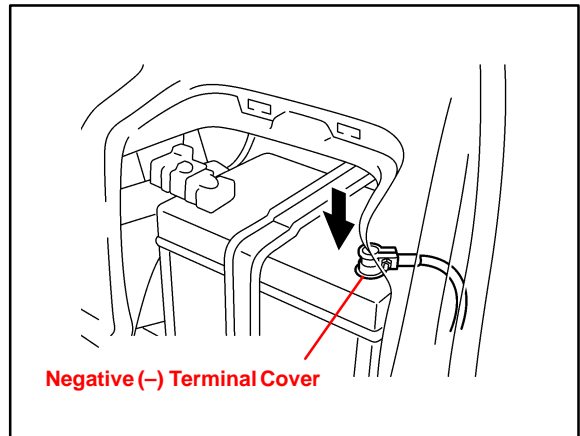


**To Store
for 30 Days
or More**
(Continued)

2. After vehicle storage, reconnect the negative (-) terminal.
 - A. Open the trunk lid and remove the trim cover.



- B. Reconnect the negative (-) terminal.
 Torque: **6.0 N•m**
 (61 kgf•cm, 4.4 ft•lbf)
 - C. Install the cover and close the trunk lid.



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

- Put the shift lever in the “P” position.
- Open and close any of the doors.
- Restart the hybrid system.

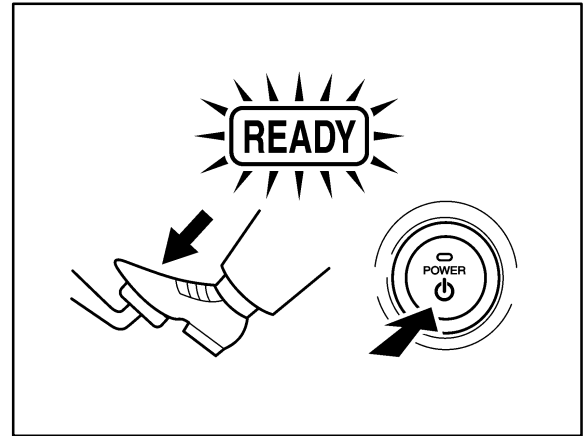
NOTE:
 Any time the negative (-) battery terminal has been disconnected, systems requiring initialization may need to be re-initialized after the negative (-) battery terminal has been reconnected.

Every Two Months Turn vehicle to “READY” ON.

HINT:

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.

1. Park the vehicle in open air or connect the exhaust extraction hose to the exhaust pipe.
2. Apply the parking brake.
3. With the brake pedal depressed, turn the power switch to the “START” mode and check that the “READY” light in the meter illuminates when the hybrid system starts (the “READY” light is ON).
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.
- The I.C. engine may start at any time while in this mode.
- Ensure there is a sufficient amount of fuel for vehicle to run for 30 minutes.

