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Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: HYBRID / BATTERY CONTROL: HYBRID BATTERY SYSTEM (for PHEV Model): DIAGNOSIS SYSTEM; 2023 - 2024 MY Prius Prime [03/2023 -]		

DIAGNOSIS SYSTEM

DESCRIPTION

(a) The battery ECU assembly has a self-diagnosis system. If the computer, hybrid control system, or a component is not working properly, the ECU records the conditions that relate to the fault. The ECU also illuminates the master warning in the combination meter assembly and provides other appropriate messages on the multi-information display, such as the HV system warning message, HV battery warning message, or discharge warning message.

- When troubleshooting OBD II (On-Board Diagnostics) vehicles, the GTS (complying with SAE J1978) must be connected to the DLC3 (Data Link Connector 3) of the vehicle. Various data in the vehicle ECM (Engine Control Module) can then be read.
- OBD II regulations require that the vehicle's on-board computer illuminates the MIL (Malfunction Indicator Lamp) on the instrument panel when the computer detects a malfunction in:

a. The emission control system components.
b. The powertrain control components (which affect vehicle emissions).
c. The computer itself.

In addition, the applicable DTCs prescribed by SAE J2012 are recorded in the battery ECU assembly memory. If the malfunction does not recur in 3 consecutive trips, the MIL turns off automatically but the DTCs remain recorded in the battery ECU assembly memory.

- To check for DTCs, connect the GTS to the DLC3. The GTS displays DTCs, freeze frame data, and a variety of hybrid control system data. The DTCs and freeze frame data can be cleared with the GTS. In order to enhance the OBD function on vehicles and develop the off-board diagnosis system, Controller Area Network (CAN) communication is used in this system. CAN is a network which uses a pair of data transmission lines spanning multiple computers and sensors. It allows for high speed communications between the systems and simplification of the wire harness connections.

2 TRIP DETECTION LOGIC

Following is the description for storage of DTC using "2 trip detection logic".

When a malfunction is first detected, the malfunction is temporarily stored in the battery ECU assembly memory (1st trip). If the same malfunction is detected during the next drive cycle, the MIL is illuminated (2nd trip).

FREEZE FRAME DATA

The battery ECU assembly records vehicle and driving condition information as freeze frame data the moment a DTC is stored. When troubleshooting, freeze frame data can be helpful in determining whether the vehicle was moving or stationary, whether the engine was warmed up or not, as well as other data recorded at the time of a malfunction.

AUXILIARY BATTERY VOLTAGE

Standard Voltage:

SWITCH CONDITION	SPECIFIED CONDITION
Ignition switch ON	11 to 14 V

If voltage is below 11 V, replace or recharge the auxiliary battery.

NOTICE:

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

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- When disconnecting and reconnecting the auxiliary battery.

HINT:

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

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MIL (Malfunction Indicator Lamp)

(a) The MIL is illuminated when the ignition switch is first turned to ON, before the READY light comes on.

(b) When the READY indicator turns on, the MIL should turn off. If the MIL remains illuminated, the diagnosis system has detected a malfunction or abnormality in the system.

HINT:

If the MIL is not illuminated when the ignition switch is first turned to ON, check the MIL circuit.

for SFI System: Click here INFO