



## WORKSHEET 4-1 *Out of Gas Condition*

Vehicle	Year/Prod. Date	Engine	Transmission
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### Worksheet Objectives

This worksheet will give you additional experience diagnosing hybrid system diagnostic codes and identifying a common “Out of Gas” condition.

### Tools and Equipment

- Vehicle
- Diagnostic Tester
- Repair Manual or TIS

**NOTE: DO NOT operate the vehicle with a SOC (State of Charge) below 35%!!! Reinstall the Circuit Opening Relay and cycle the key to recharge the battery. Do not leave the parking lot area!!**

### Section 1 – Battery Data List

1. Connect the Diagnostic Tester to DLC3.
2. Access the **Battery ECU Data List**.
3. Create a **User Data** list (use YES/NO keys to turn ON) with the following:
  - BATTERY SOC
  - BATT TEMP 1
  - BATT TEMP 2
  - BATT TEMP 3
  - BATT TEMP 4
  - BATT BLOCK V1
  - BATT BLOCK V2
4. What is the SOC (State of Charge)?

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5. Using the Repair Manual, locate the Circuit Opening Relay. Leave the engine running and remove the Circuit Opening Relay to shut OFF the fuel pump. What happened to the engine?

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6. After the circuit-opening relay is removed, turn the ignition OFF and attempt to restart the vehicle. Describe what happens.

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7. Drive under normal acceleration and observe the SOC. What is the SOC doing as the temperature increases?

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8. What is the SOC%?

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9. Approximately how long can you operate the vehicle only on the HV Battery?

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10. Exit out of the Data List and enter back into **OBD/MOBD**. Select **CODES ALL**.

11. On the Diagnostic Tester, highlight each system with a “**NG**” and press enter to retrieve the codes. Record the DTCs and the related system below:

**CODES**

**SYSTEM**

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12. After the codes are recorded, clear all the codes by entering each area individually.
13. Re-install the circuit opening relay and cycle the ignition key OFF and back to the READY position to re-start engine.
14. Using TIS, look up the **TSB** regarding **Maintenance for HV and Aux. Batteries at Port and Dealers**. Once you have opened the TSB, search for **Onboard Equalizing Charge of HV Battery**. Follow the instructions and begin the battery equalization process to re-charge the HV battery.

**NOTE: This procedure is only for the '01-'03 Prius.**

**Notify the instructor when you are finished.**



## Notes



## SELF-ASSESSMENT 4-1 Out of Gas Condition

Name:	Date:
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### Self-assessment Objectives

Review this sheet as you are doing the Out of Gas Condition worksheet. Check off either category after completing the worksheet and instructor presentation. Ask the instructor if you have questions. The **Comments** section is for you to write notes on where to find the information, questions, etc.

I have questions

I know I can

Topic			Comment
Create User Data from the Battery ECU Data List.			
Locate and remove the circuit-opening relay.			
Determine the SOC.			
Record DTCs.			



## Notes