

Electric & Hybrid Electric Vehicles 1st Edition

Chapter 9 – Low-Voltage Batteries and Stop-Start Micro Hybrids

Lesson Plan



CHAPTER SUMMARY:

1. Introduction to the 12-Volt Battery, How a Battery Works, and Valve-Regulated Lead-Acid Batteries
2. 12-Volt Battery Ratings, Battery Service Safety Precautions, and 12-Volt Battery Voltage Test
3. 12-Volt Battery Load Testing and 12-Volt Battery Conductance Testing
4. 12-Volt Battery Charging, The 36-48-Volt Battery and Stop-Start Defined
5. Stop-Start Systems, Micro Hybrids, Battery Diagnosis, and Mild Hybrids,

OBJECTIVES:



1. Describe the purpose of the 12-volt battery.
2. Explain the 12-volt battery rating systems.
3. Describe the 12-volt battery test procedures.
4. Describe the function of the 36-48-volt battery.
5. Explain the 36-48-volt battery test procedure.
6. Describe the main advantages of a stop-start system.
7. Explain the difference between a micro and mild hybrid.
8. Explain how a disable condition prevents the operation of a stop-start system.

RESOURCES: ([All resources may be found at jameshalderman.com](http://www.jameshalderman.com))



1. Task Sheet: Hybrid and Electric Vehicle Auxiliary Battery
2. Task Sheet: Stop-Start Scan Tool Diagnosis
3. Chapter PowerPoint
4. [Crossword Puzzle and Word Search \(L3\)](#)
5. [Crossword Puzzle and Word Search \(A6\)](#)
6. [Videos: \(L3\) Light Duty Hybrid Electric](#)
7. [Videos: \(A6\) Electrical/Electronic Systems](#)
8. [Animations: \(L3\) Light Duty Hybrid Electric](#)
9. [Animations: \(A6\) Electrical/Electronic Systems](#)

ACTIVITIES:



1. Task Sheet: Hybrid and Electric Vehicle Auxiliary Battery
2. Task Sheet: Stop-Start Scan Tool Diagnosis

ASSIGNMENTS:



1. Chapter crossword and word search puzzles from the website.
2. Complete end of chapter quiz from the textbook.
3. Complete multiple choice and short answer quizzes downloaded from the website.

CLASS DISCUSSION:



1. Review and group discussion chapter [Frequently Asked Questions](#) and [Tech Tips](#) sections.
 2. Review and group discussion of the five (5) chapter [Review Questions](#).
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NOTES AND EVALUATION:

