

Automotive Technology 7th Edition

Chapter 89 – EV and High-Voltage Batteries

Lesson Plan



CHAPTER SUMMARY:

1. Hybrid and Electric Vehicle High-Voltage Batteries, and Nickel-Metal Hybrid Batteries
2. Lithium-Ion High-Voltage Batteries, and Designs of Lithium-Ion Cells
3. Types of Lithium-Ion Batteries, HEV/EV Electronics Cooling, and High-Voltage Battery Cooling and Heating
4. Battery Capacity Vs Vehicle Range, and High-Voltage Battery Control Components
5. Lithium-Ion Battery Repair, and Battery Degradation and Balancing



OBJECTIVES:

1. Discuss hybrid and electric vehicle high-voltage batteries.
2. Describe nickel-metal hydride batteries and designs used in hybrid electric vehicles.
3. Explain the operation of lithium-ion high-voltage batteries.
4. Describe the designs of lithium-ion cells.
5. Describe the types of lithium-ion batteries.
6. Explain HEV/EV electronics cooling.
7. Explain high-voltage battery cooling and heating.
8. Discuss battery capacity versus vehicle range.
9. Discuss the high-voltage battery control components.
10. Discuss the factory authorized lithium-ion battery repair procedure.
11. Describe battery degradation and balancing.



RESOURCES: (All resources may be found at jameshalderman.com)

1. Task Sheet: High-Voltage Batteries
2. Task Sheet: High-Voltage Battery Diagnosis
3. Crossword Puzzle and Word Search
4. Chapter PowerPoint
5. Videos: [\(L3\) Light Duty Hybrid Electric Videos](#)
6. Animations: [\(L3\) Light Duty Hybrid Electric Animations](#)



ACTIVITIES:

1. Task Sheet: High-Voltage Batteries
2. Task Sheet: High-Voltage Battery Diagnosis
3. Crossword Puzzle and Word Search



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:


