

Automotive Technology 6th Edition

Chapter 91 – Introduction to Hybrid Vehicles

Lesson Plan



CHAPTER SUMMARY:

1. Hybrid vehicles, electric vehicles, and driving and owning a hybrid electric vehicle
 2. Classifications of hybrid electric vehicles and belt alternator starter systems
 3. Modes of operation and levels of hybrid vehicles
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OBJECTIVES:

1. Discuss the evolution of electric and hybrid vehicles.
 2. Describe how owning a hybrid electric vehicle is different from a conventional vehicle.
 3. Explain the classifications of hybrid electric vehicles.
 4. Explain the operation of belt-alternator-starter (BAS) systems.
 5. Discuss the common features of most hybrids and the levels of hybrid vehicle.
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RESOURCES: (All resources may be found at <http://www.jameshalderman.com>)

1. **Task Sheet:** Hybrid Electric Vehicle Nomenclature
 2. **Task Sheet ASE (A5-G-2) P-3:** Hybrid Regenerative Brake Systems
 3. Chapter PowerPoint
 4. Chapter Crossword Puzzle and Word Search
 5. Animations: Parallel Hybrid and Regenerative Braking
 6. Animations: Series Hybrid
 7. Videos: See list at the end of the lesson plan.
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ACTIVITIES:

1. **Task Sheet:** Have students complete Hybrid Electric Vehicle Nomenclature Task Sheet.
 2. **Task Sheet ASE (A5-G-2) P-3:** Have students complete Hybrid Regenerative Brake Systems Task Sheet.
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ASSIGNMENTS:

1. Chapter crossword and word search puzzles.
 2. Complete end of chapter 10 question quiz.
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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:

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Videos: (at <http://www.jameshalderman.com>)

Hybrid inverter operation (time 4:19)
Hybrid motor (time 4:01)
Hybrid electric motor principles (time 7:10)
Hybrid regeneration (time 3:12)
Hybrid vehicle normal driving mode (time 2:59)
Hybrid acceleration mode (time 3:12)
Hybrid systems powertrain (time 6:36)
Hybrid drive – how it works (time 1:13)
GM E Assist (time 16:17)
Prius high voltage system (time 26:36)
Honda civic high voltage system (time 23:18)
Buick lacrosse e assist system (time 21:50)
Hybrid electrical problems (time 2:42)
Hybrid battery (time 1:04)
Prius battery repair (time 7:37)
Prius Battery R and R (time 2:14)
Prius jump start (time 9:32)
Disconnecting high voltage battery (time 0:47)