

Automotive Technology 6th Edition
Chapter 63
Heating and Air-Conditioning Components and Operation
Lesson Plan



CHAPTER SUMMARY:

1. Heating system, air-conditioning refrigerant cycle, and expansion valve systems
 2. Orifice tube systems, thermostatic controls, refrigerants, and refrigerants and the environment
 3. HFO-1234YF, Refrigerant oils, condensers, evaporators, receiver-driers and accumulators
 4. refrigerant lines and hoses, thermostatic expansion valves, and fixed-orifice tubes
 5. Compressors and compressor controls
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OBJECTIVES:

1. Describe how an automotive heating, ventilation, and air- conditioning system works.
 2. Describe the parts and operation of the heating system.
 3. Explain the air-conditioning refrigeration cycle.
 4. Describe the operation of expansion valve systems, orifice tube systems, and thermostatic control systems.
 5. Discuss the refrigerants used and their impact on the environment.
 6. Explain the function of refrigerant oils, condensers, and evaporators.
 7. Explain the function of receiver-dryers, accumulators, refrigerant lines and hoses, thermostatic expansion valves, and fixed-orifice tubes.
 8. Explain the operation of a compressor and its controls.
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RESOURCES: (All resources may be found at <http://www.jameshalderman.com>)

1. Task Sheet ASE (A7-A-2) P-1: A/C Component Identification
 2. Task Sheet ASE (A7-B-4) P-2: Hybrid Vehicle A/C System Precautions
 3. Chapter PowerPoint
 4. Chapter Crossword Puzzle and Word Search
 5. Animations: Conduction, Convection, Heat Transfer & Boiling, and Heat Transfer
 6. Animations: Heat Transfer Through Latent Heat, HVAC Functions, Radiant Heat, and Refrigeration Cycle
 7. Videos: Auto Air Conditioning Systems at a Glance (time 3:53)
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ACTIVITIES:

1. Task Sheet ASE (A7-A-2) P-1: Have students complete A/C Component Identification Task Sheet.
 2. Task Sheet ASE (A7-B-4) P-2: Have students complete Hybrid Vehicle A/C System Precautions 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:


