

# Automotive Heating and Air Conditioning 9<sup>th</sup> Edition

## Chapter 3 – The Refrigeration Cycle

### Lesson Plan



#### **CHAPTER SUMMARY:**

1. The Refrigeration Cycle, How the AC System Works, Expansion Devices, and Evaporators
2. Condensers, Refrigerant Charge Level, and Evaporator Icing Controls

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#### **OBJECTIVES:**



1. Prepare for the ASE Heating and Air Conditioning (A7) certification test content area “A” (A/C System Service, Diagnosis and Repair).
2. Define the terms superheat and sub cooling.
3. Discuss pressure-temperature relationship.
4. Explain heating and cooling load.
5. Explain flooded versus starved evaporator.
6. Describe saturated liquid/vapor.
7. Explain how the refrigeration system works.
8. Identify the low and high side of an A/C system.
9. Explain the purpose and function of evaporators in an A/C system.
10. Explain the purpose and function of thermal expansion valves and orifice tube systems.
11. Explain the purpose and function of condensers.

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



1. Task Sheet: A/C Component Purpose and Function
2. Chapter PowerPoint
3. [Crossword Puzzle and Word Search \(A7\)](#)
4. [Videos: \(A7\) Heating & Air Conditioning](#)
5. [Animations: \(A7\) Heating & Air Conditioning](#)

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#### **ACTIVITIES:**



1. Task Sheet: A/C Component Purpose and Function

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#### **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.

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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:**

