**Automotive Technology 6th Edition**

**Chapter 67 –** **Heating and Air-Conditioning System Service**

**Lesson Plan**

**CHAPTER SUMMARY:**

1. Blower motor service, cooling system service, and refrigerant recovery procedures

2. Evacuation procedures, noncondensable gases and refrigerant recycling

3. Recharging a system and retrofitting a CFC-12 system to an HFC-124A system

4. Compressor service, condenser service, and evaporator service

5. Receiver/drier or accumulator/drier service and orifice tube/expansion valve service

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**OBJECTIVES:**

1. Discuss blower motor service, cooling system service, and refrigerant recovery procedures.

2. Describe evacuation procedures and how to identify noncondensable gas in refrigerant.

3. Explain how to recycle refrigerants, recharge a system, and retrofit a CFC-12 system to an HFC-134A system.

4. Describe how to service the compressor, condenser, evaporator, receiver/drier or accumulator/drier, and orifice tube/expansion valve.

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**RESOURCES:** (All resources may be found at <http://www.jameshalderman.com>) Internet access required to hyperlink.

**1.** **Task Sheet ASE (A7-B-1) P-1, (A7-B-2) P-2, (A7-B-3) P2**: Air Conditioning Compressor Service

**2**. **Task Sheet ASE (A7-B-7) P-1**: Inspect the Air Conditioning Condenser

**3**. **Task Sheet ASE (A7-B-8) P-2**: Receiver/Drier Accumulator Drier

**4**. **Task Sheet ASE (A7-B-9) P-1**: Replace Expansion Valve/Orifice Tube

**5**. **Task Sheet ASE (A7-B-6) P-2**: A/C Hoses and Lines

**6**. **Task Sheet ASE (A7-B-10) P-1:** Evaporator Housing Drain

**7**. **Task Sheet ASE (A7-B-12) P-2, (A7-C-4) P-2**: Evaporator Replacement

**8**. **Task Sheet ASE (A7-B-13) P-2**: Condenser Replacement

**9**. **Task Sheet ASE (A7-C-1) P-1**: Inspect Belts and Hoses

**10. Task Sheet ASE (A7-E-1) P-1**: Refrigerant Handling Equipment

**11**. **Task Sheet ASE (A7-E-2) P-1**: Identify and Recover Refrigerant

**12**. **Task Sheet ASE (A7-E-3) P-1**: Recycle Refrigerant

**13**. **Task Sheet ASE (A7-E-1) P-1**: Evacuate and Charge A/C System

14. Chapter PowerPoint

15. Chapter Crossword Puzzle and Word Search

16. Videos: [(A7) Heating & Air Conditioning Videos](https://jameshalderman.com/a7_vid_lib_page/)

17. Animations: [(A7) Heating & Air Conditioning Animations](https://jameshalderman.com/a7_anim_lib_page/)

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**Lesson Plan**

**ACTIVITIES:**

**1. Task Sheet ASE (A7-B-1) P-1, (A7-B-2) P-2, (A7-B-3) P2**: Have students complete Air Conditioning Compressor Service Task Sheet.

**2**. **Task Sheet ASE (A7-B-7) P-1**: Have students complete Inspect the Air Conditioning Condenser Task Sheet.

**3**. **Task Sheet ASE (A7-B-8) P-2**: Have students complete Receiver/Drier Accumulator Drier Task Sheet.

**4**. **Task Sheet ASE (A7-B-9) P-1**: Have students complete Replace Expansion Valve/Orifice Tube Task Sheet.

**5**. **Task Sheet ASE (A7-B-6) P-2**: Have students complete A/C Hoses and Lines Task Sheet.

**6**. **Task Sheet ASE (A7-B-10) P-1:** Have students complete Evaporator Housing Drain Task Sheet. Task Sheet.

**7**. **Task Sheet ASE (A7-B-12) P-2, (A7-C-4) P-2**: Have students complete Evaporator Replacement Task Sheet.

**8**. **Task Sheet ASE (A7-B-13) P-2**: Have students complete Condenser Replacement Task Sheet.

**9**. **Task Sheet ASE (A7-C-1) P-1**: Have students complete Inspect Belts and Hoses Task Sheet.

**10. Task Sheet ASE (A7-E-1) P-1**: Have students complete Refrigerant Handling Equipment Task Sheet.

**11**. **Task Sheet ASE (A7-E-2) P-1**: Have students complete Identify and Recover Refrigerant Task Sheet.

**12**. **Task Sheet ASE (A7-E-3) P-1**: Have students complete Recycle Refrigerant Task Sheet.

**13**. **Task Sheet ASE (A7-E-1) P-1**: Have students complete Evacuate and Charge A/C System 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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