

# Automotive Electrical and Engine Performance - 9th edition

## Ch16: Charging System Diagnosis and Service

### Lesson Plan



#### **CHAPTER SUMMARY:**

1. Charging System Testing and Service, Drive Belt Inspection and Replacement, and AC Ripple Voltage Check
  2. Testing AC Ripple Current, Charging System Voltage Drop Testing, and Alternator Output Test
  3. Minimum Required Alternator Output, Alternator Removal, and Alternator Installation
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#### **OBJECTIVES:**

1. Discuss the various methods to test the charging system.
  2. Describe how to inspect and replace the drive belts.
  3. Describe the h- ripple voltage check.
  4. Describe how to test h- ripple current.
  5. Describe charging system voltage drop testing.
  6. Discuss the alternator output test.
  6. Discuss minimum required alternator output.
  7. Explain how to remove an alternator.
  8. Explain how to install an alternator.
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#### **RESOURCES:** (All resources may be found at [jameshalderman.com](http://jameshalderman.com))

1. Task Sheet: Alternator Rotor Testing
  2. Task Sheet: Alternator Stator Testing
  3. Task Sheet: Charging System Output Test
  4. Task Sheet: Alternator Disassembly
  5. Task Sheet: Remove and Install Alternator
  6. Task Sheet: Charging System Diagnosis
  7. Task Sheet: Charging Circuit Voltage Drop
  8. Crossword Puzzle and Word Search
  9. Videos: (A6) Electrical/Electronic Systems Videos
  10. Animations: (A6) Electrical/Electronic Systems Animations
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#### **ACTIVITIES:**

1. Task Sheet: Alternator Rotor Testing
  2. Task Sheet: Alternator Stator Testing
  3. Task Sheet: Charging System Output Test
  4. Task Sheet: Alternator Disassembly
  5. Task Sheet: Remove and Install Alternator
  6. Task Sheet: Charging System Diagnosis
  7. Task Sheet: Charging Circuit Voltage Drop
  8. Crossword Puzzle and Word Search
  9. Chapter PowerPoint
  10. Crossword Puzzle and Word Search
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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. Ten (10) question end of Chapter Quiz.
  3. Five (5) end of chapter Review Question for class discussion.
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#### **NOTES AND EVALUATION:**