

# Automotive Technology 6<sup>th</sup> Edition

## Chapter 33 – Pistons, Rings, and Connecting Rods

### Lesson Plan



#### **CHAPTER SUMMARY:**

1. Pistons, piston construction, and piston pins
  2. Piston pin retaining methods, piston rings, and piston ring construction
  3. Connecting rods and connecting rod service, piston and rod assembly
  4. Piston and rod assembly and Piston ring service
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#### **OBJECTIVES:**

1. Explain the purpose, function, and construction of pistons.
  2. Discuss piston pins and their retaining methods.
  3. Explain piston rings and their construction.
  4. Discuss connecting rods and their service.
  5. Explain piston and rod assembly and piston ring service.
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**RESOURCES:** (All resources may be found at <http://www.jameshalderman.com>)

1. **Task Sheet ASE (A1-A-2) P-1:** Vehicle Emission Control Information
  2. **Task Sheet ASE (A1-C-9) P-3:** Piston and Bearing Wear Patterns
  3. **Task Sheet ASE (A1-C-10) P-2:** Piston Inspection and Measurement
  4. **Task Sheet ASE (A1-C-12) P-2:** Piston Rings
  5. Chapter PowerPoint
  6. Chapter Crossword Puzzle and Word Search
  7. Animations: Cooling the Piston and Piston Size Checks
  8. Animations: Piston Side Thrust and Top Ring Pressure
  9. Videos: See list at the end of the lesson plan.
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#### **ACTIVITIES:**

1. **Task Sheet ASE (A1-A-2) P-1:** Have students complete Vehicle Emission Control Information Task Sheet.
  2. **Task Sheet ASE (A1-C-9) P-3:** Have students complete Piston and Bearing Wear Patterns Task Sheet.
  3. **Task Sheet ASE (A1-C-10) P-2:** Have students complete Piston Inspection and Measurement Task Sheet.
  4. **Task Sheet ASE (A1-C-12) P-2:** Have students complete Piston Rings 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>)

Piston measurement (time 1:56)

Piston rings (time 1:52)

Piston ring installation (time 2:14)

Piston installation (time 1:36)

Piston operation (time 0:56)

Piston ring end gap (time 6:50)

Broken ring lands (time 6:40)

Connecting rods (time 1:38)

Pistons, rings and cylinders (time  
1:07)

Piston to deck clearance (time 6:25)