

Automotive Technology 6th Edition

Chapter 30 – Cylinder Head and Valve Guide Service

Lesson Plan



CHAPTER SUMMARY:

1. Cylinder heads
 2. Intake and exhaust ports
 3. Cylinder head passages, cylinder head servicing, and aluminum cylinder head straightening
 4. Cylinder head resurfacing and intake manifold alignment
 5. Valve guides and valve guide replacement
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OBJECTIVES:

1. Explain the design and construction of cylinder heads.
 2. Discuss intake and exhaust ports.
 3. Discuss cylinder head passages and cylinder head servicing.
 4. Explain aluminum cylinder head straightening, cylinder head resurfacing, and intake manifold alignment.
 5. Explain valve guides and the procedure for valve guide replacement.
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RESOURCES: (All resources may be found at <http://www.jameshalderman.com>)

1. **Task Sheet ASE (A1-B-1) P-1:** Cylinder Head Specifications
 2. **Task Sheet ASE (A1-B-2) P-1:** Cylinder Head Flatness Measurement
 3. **Task Sheet ASE (A1-B-9) P-3:** Valve Guide Specifications and Measurement
 4. **Task Sheet ASE(A1-B-2) P-1:** Cylinder Head and Valve Train Components
 5. Chapter PowerPoint
 6. Chapter Crossword Puzzle and Word Search
 7. Animations: Valve Seals, Valve Guide Wear, and Valve Cover Gasket
 8. Animations: Valve Stem Clearance, Valve Spring Installed Height, and Valve Stem Height
 9. Videos: Valve adjustment (time 3:04) and Torque a cylinder head (time 25:08)
 10. Videos: Cylinder head repair (time 2:41) and Checking cylinder head warpage (time 2:51)
 11. Videos: Valve Guide inspection (time 3:30)
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ACTIVITIES:

1. **Task Sheet ASE (A1-B-1) P-1:** Have students complete Cylinder Head Specifications Task Sheet.
 2. **Task Sheet ASE (A1-B-2) P-1:** Have students complete Cylinder Head Flatness Measurement Task Sheet.
 3. **Task Sheet ASE (A1-B-9) P-3:** Have students complete Valve Guide Specifications and Measurement Task Sheet.
 4. **Task Sheet ASE(A1-B-2) P-1:** Have students complete Cylinder Head and Valve Train Components 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:
