

# Automotive Engines Theory and Servicing 10<sup>th</sup> Edition

## Chapter 27 – Camshafts and Valve Trains

### Lesson Plan



#### **CHAPTER SUMMARY:**

1. Camshaft, Camshaft Design, Camshaft Drives, Camshaft Movement, and Rocker Arms
2. Pushrods, Lifters or Tappets, Overhead Camshaft Valve Trains, and Valve Train Lubrication
3. Valve Train Problem Diagnosis, Camshaft Specifications, Camshaft Removal
4. Measuring Camshaft and Selecting a Camshaft

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#### **OBJECTIVES:**



1. Describe the purpose and function of camshaft and camshaft design.
2. Discuss camshaft drives and camshaft movement.
3. Discuss rocker arms, pushrods, and lifters or tappets.
4. Explain overhead camshaft valve trains, their lubrication, and problem diagnosis.
5. Explain camshaft specifications.
6. Explain how to remove, measure, and select a camshaft.
7. Explain variable valve timing, and variable lift and cylinder deactivation systems.

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



1. Task Sheet: Verify Engine Mechanical Timing
2. Task Sheet: Pushrods and Rocker Arm Inspection
3. Task Sheet: Inspect and Replace Timing Chain(s) and Gears
4. Task Sheet: Valve Lifter Inspection
5. Task Sheet: Camshaft Inspection
6. Task Sheet: Camshaft Bearing Surface Inspection
7. Task Sheet: Camshaft Bearing Inspection
8. Chapter PowerPoint
9. [Crossword Puzzle and Word Search \(A1\)](#)
10. [Videos: \(A1\) Engine Repair](#)
11. [Animations: \(A1\) Engine Repair](#)

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#### **ACTIVITIES:**



1. Task Sheet: Verify Engine Mechanical Timing
2. Task Sheet: Pushrods and Rocker Arm Inspection
3. Task Sheet: Inspect and Replace Timing Chain(s) and Gears
4. Task Sheet: Valve Lifter Inspection
5. Task Sheet: Camshaft Inspection
6. Task Sheet: Camshaft Bearing Surface Inspection
7. Task Sheet: Camshaft Bearing Inspection

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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:**

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