

Automotive Engines Theory and Servicing 10th Edition

Chapter 31 – Crankshafts, Balance Shafts, and Bearings

Lesson Plan



CHAPTER SUMMARY:

1. Crankshaft. Crankshaft Construction, Crankshaft Oiling Holes, and Engine Crankshaft Types
2. Counterweights, and Externally and Internally Balanced Engines
3. Flat-Plan vs Cross-Plane Crankshafts, Engine Balance, Balance Shafts, and Crankshaft Service
4. Engine Bearings, Bearing Clearance, and Camshaft Bearings

OBJECTIVES:



1. Explain the purpose of crankshaft, crankshaft construction, and crankshaft oiling holes.
2. Discuss the different engine crankshaft types.
3. Explain the purpose and function of counterweights.
4. Discuss engine balance, and explain externally and internally balanced engines.
5. Explain the purpose of balance shafts.
6. Discuss crankshaft service.
7. Describe engine bearings and discuss the importance of bearing clearance.
8. Discuss camshaft bearings.

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



1. Task Sheet: Inspect Crankshaft Vibration Damper
2. Task Sheet: Crankshaft Inspection
3. Task Sheet: Inspect Main and Rod Bearings
4. Task Sheet: Auxiliary and Balance Shafts
5. Chapter PowerPoint
6. [Crossword Puzzle and Word Search \(A1\)](#)
7. [Videos: \(A1\) Engine Repair](#)
8. [Animations: \(A1\) Engine Repair](#)

ACTIVITIES:



1. Task Sheet: Inspect Crankshaft Vibration Damper
2. Task Sheet: Crankshaft Inspection
3. Task Sheet: Inspect Main and Rod Bearings
4. Task Sheet: Auxiliary and Balance Shafts

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.

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:


