

Automotive Technology 7th Edition

Chapter 23 – Engine Condition Diagnosis

Lesson Plan



CHAPTER SUMMARY:

1. Typical Engine Related Complaints, Engine Smoke Diagnosis, and The Driver is Your Best Resource
2. Visual Checks, Engine Noise Diagnosis, Oil Pressure Testing, and Oil Pressure Warning Lamp
3. Cylinder Contribution Test, Relative Compression Test, and Compression Test
4. Wet Compression Test, Running (Dynamic) Compression Test, and Cylinder Leakage Test
5. Cylinder Power Balance Test, Vacuum Test, Exhaust Restriction Test, and Diagnosing Head Gasket Failure
6. Dash Warning Lights



OBJECTIVES:

1. Discuss typical engine-related complaints.
2. Discuss engine smoke diagnosis.
3. Discuss the importance of the driver's description.
4. Discuss visual checks.
5. Discuss engine noise diagnosis.
6. Explain oil pressure testing and the purpose of oil pressure warning lamps.
7. Describe the cylinder contribution test.
8. Describe the relative compression test.
9. Describe compression testing.
10. Describe wet compression tests.
11. Describe running compression tests.
12. Describe the cylinder leakage test.
13. Describe the cylinder power balance test.
14. Explain vacuum tests.
15. Explain how to test back pressure with a vacuum gauge and a pressure gauge.
16. Explain how to diagnose head gasket failure.
17. Discuss the operation of dash warning lights.



RESOURCES: (All resources may be found at jameshalderman.com)

1. Task Sheet: Engine Problem Analysis
2. Task Sheet: Fluid Leakage Detection
3. Task Sheet: Engine Noise and Vibration Diagnosis
4. Task Sheet: Vacuum Testing
5. Task Sheet: Cylinder Power Balance Tests
6. Task Sheet: Compression Testing
7. Task Sheet: Cylinder Leakage Test
8. Task Sheet: Oil Pressure Measurement
9. Chapter PowerPoint
10. Crossword Puzzle and Word Search
11. Videos: [\(A1\) Engine Repair Videos](#)
12. Animations: [\(A1\) Engine Repair Animations](#)

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ACTIVITIES:

1. Task Sheet: Engine Problem Analysis
2. Task Sheet: Fluid Leakage Detection
3. Task Sheet: Engine Noise and Vibration Diagnosis
4. Task Sheet: Vacuum Testing
5. Task Sheet: Cylinder Power Balance Tests
6. Task Sheet: Compression Testing
7. Task Sheet: Cylinder Leakage Test
8. Task Sheet: Oil Pressure Measurement
9. Crossword Puzzle and Word Search



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.



NOTES AND EVALUATION:
