

Advanced Engine Performance Diagnosis 7th Edition

Chapter 20 – Fuel Trim Diagnosis

Lesson Plan



CHAPTER SUMMARY:

1. Fuel Trim, Base Pulse Width, Measuring Pulse Width, and Fuel Trim Operation
 2. Using Fuel Trim as a Diagnostic Aid, Fuel Trim Cells, and Fuel Trim Cell Diagnosis
 3. Mass Air Flow Accuracy and Volumetric Efficiency
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OBJECTIVES:

1. Explain the purpose and function of fuel trim.
 2. Discuss the difference between speed density and mass air flow fuel control.
 3. Explain how the PCM determines the base injector pulse width.
 4. Compare short-term and long-term fuel trim.
 5. Explain how fuel trim can aid in diagnosis.
 6. List factors that can affect the accuracy of the mass air flow sensor.
 7. Describe how knowing the volumetric efficiency of the engine can help diagnose engine performance concerns.
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RESOURCES: ([All resources may be found at jameshalderman.com](http://www.jameshalderman.com))

1. Task Sheet: Fuel Trim Diagnosis
 2. Chapter PowerPoint
 3. [Crossword and Word Search Puzzles \(A8\)](#)
 4. [Videos: \(A8\) Engine Performance](#)
 5. [Animations: \(A8\) Engine Performance](#)
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ACTIVITIES:

1. Task Sheet: Fuel Trim Diagnosis
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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:
