**Advanced Engine Performance Diagnosis 7th Edition**

**Chapter 24 –** **Fuel-Injection Systems Diagnosis and Service**

**Lesson Plan**

**CHAPTER SUMMARY:**

1. Port Fuel-Injection Pressure Regulator Diagnosis

2. Diagnosing Electronic Fuel-Injection Problems Using Visual Inspection

3. Port Fuel-Injection System Diagnosis, Testing for an Injector Pulse, and Checking Fuel-Injector Resistance

4. Pressure -Drop Balance Test, Injector Voltage-Drop Test, and Scope-Testing Fuel Injectors

5. Idle Air Speed Control Diagnosis, Fuel Injection Service, and Fuel-System Scan Tool Diagnostics

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**OBJECTIVES:**

1. Explain how to check a fuel-pressure regulator.

2. Explain how to diagnose electronic fuel-injection problems.

3. Describe how to test fuel injectors.

4. Describe how to service the fuel-injection system.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

1. Task Sheet: Scan Tool Diagnosis

2. Task Sheet: Fuel Trim Diagnosis

3. Task Sheet: Port Fuel-Injection System Diagnosis

4. Task Sheet: Injector Resistance Testing

5. Task Sheet: Fuel Injector Balance Test

6. Task Sheet: Injector Voltage Waveform Test

7. Chapter PowerPoint

8. [Crossword and Word Search Puzzles (A8)](https://jameshalderman.com/a8_puzzles_lib_page/)

9. [Videos: (A8) Engine Performance](https://jameshalderman.com/a8_vid_lib_page/)

10. [Animations: (A8) Engine Performance](https://jameshalderman.com/a8_anim_lib_page/) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**ACTIVITIES:**

1. Task Sheet: Scan Tool Diagnosis

2. Task Sheet: Fuel Trim Diagnosis

3. Task Sheet: Port Fuel-Injection System Diagnosis

4. Task Sheet: Injector Resistance Testing

5. Task Sheet: Fuel Injector Balance Test

6. Task Sheet: Injector Voltage Waveform Test \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**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.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Advanced Engine Performance Diagnosis 7th Edition**

**Chapter 24 –** **Fuel-Injection Systems Diagnosis and Service**

**Lesson Plan**

**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**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_