**Advanced Engine Performance Diagnosis 8th Edition**

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

**Lesson Plan**

**CHAPTER SUMMARY:**

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

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

3. Fuel-Injection Service and Fuel-Pump Relay Circuit Diagnosis

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**OBJECTIVES:**

1. Explain fuel-injection system diagnosis including scan tool diagnosis.

2. Describe how to test for an injector pulse.

3. Describe how to check fuel-injection resistance.

4. Describe the pressure-drop balance test.

5. Describe injection voltage-drop tests.

6. Describe scope-testing fuel injectors.

7. Describe how to service the fuel-injection system. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

1. Task Sheet: Scan Tool Diagnosis

2. Task Sheets: Fuel Trim Diagnosis

3. Task Sheets: Port Fuel-Injection System Diagnosis

4. Task Sheets: Injector Resistance Testing

5. Task Sheets: Fuel Injector Balance Test

6. Task Sheets: Injector Voltage Waveform Test

7. Chapter PowerPoint

8. Crossword and Word Search Puzzles

9. Videos: (A8) Fuel, Air Induction, and Exhaust Systems Diagnosis and Repair

10. Animations: (A8) Fuel, Air Induction, and Exhaust Systems Diagnosis and Repair

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**ACTIVITIES:**

1. Task Sheet: Scan Tool Diagnosis

2. Task Sheets: Fuel Trim Diagnosis

3. Task Sheets: Port Fuel-Injection System Diagnosis

4. Task Sheets: Injector Resistance Testing

5. Task Sheets: Fuel Injector Balance Test

6. Task Sheets: Injector Voltage Waveform Test

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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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