**Advanced Engine Performance Diagnosis 8th Edition**

**Chapter 19 – Narrow and Wide-Band Oxygen Sensors**

**Lesson Plan**

**CHAPTER SUMMARY:**

1. Oxygen Sensors, PCM Uses of the Oxygen Sensor, and Oxygen Sensor Diagnosis

2. Post-Catalytic Converter Oxygen Sensor Testing, and Wide-Band Oxygen Sensors

3. Dual-Cell Planer Wide-Band Sensor Operation, Dual Cell, and Single-Cell Wide-Band Oxygen Sensors

4. Oxygen Sensor-Related Diagnostic Trouble Codes

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**OBJECTIVES:**

1. Discuss how oxygen sensors (O2S) work.

2. Discuss PCM uses of the oxygen sensor.

3. Discuss oxygen sensor diagnosis.

4. Discuss post-catalytic converter O2S testing.

5. Explain the operation of wide-band oxygen sensors.

6. Describe dual-cell planar wide-band sensor operation.

7. Discuss dual-cell diagnosis.

8. Describe single-cell wide-band oxygen sensors.

9. Interpret oxygen-sensor-related diagnostic trouble codes. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

1. Task Sheet: Oxygen Sensor Diagnosis

2. Task Sheet: Wide-Band Oxygen Sensor

3. Chapter PowerPoint

4. Crossword and Word Search Puzzles

5. Videos: (A8) Computerized Engine Controls Diagnosis and Repair

6. Animations: (A8) Computerized Engine Controls Diagnosis and Repair

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**ACTIVITIES:**

1. Task Sheet: Oxygen Sensor Diagnosis

2. Task Sheet: Wide-Band Oxygen Sensor

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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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