**Advanced Engine Performance Diagnosis 7th Edition**

**Chapter 19 –** **Oxygen Sensors**

**Lesson Plan**

**CHAPTER SUMMARY:**

1. Oxygen Sensors, Titania Oxygen Sensor, 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 Planar Wide-Band Sensor Operation and Dual Cell Diagnosis

4. Single Cell Wide-Band Oxygen Sensors and Wide-Band Oxygen Pattern Failures

5. Oxygen Sensor Related Diagnostic Trouble Codes

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**OBJECTIVES:**

1. Discuss how oxygen sensors (O2S) work.

2. List the methods that can be used to test oxygen sensors.

3. Describe how a wide-band oxygen sensor works and how to test it.

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

1. Task Sheet: Electronic Oxygen Sensor Diagnosis

2. Task Sheet: Wide-Band Oxygen Sensor

3. Chapter PowerPoint

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

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

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

**ACTIVITIES:**

1. Task Sheet: Electronic 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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