**Advanced Engine Performance Diagnosis 7th Edition**

**Chapter 16 –** **Throttle Position Sensors**

**Lesson Plan**

**CHAPTER SUMMARY:**

1. Throttle Position Sensor, TP Sensor PCM Input Functions, and PCM Uses for the TP Sensor

2. Testing the Throttle Position Sensor and TP Sensor Diagnostic Trouble Codes

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**OBJECTIVES:**

1. Explain the operation of a potentiometer and a Hall-effect throttle position sensor.

2. Describe the interaction between the throttle position sensor and the PCM.

3. Discuss how to test a TP sensor using a digital multimeter, scope, and scan tool.

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

1. Task Sheet: Position Sensor Diagnosis

2. Task Sheet: Throttle Position Waveform Testing

3. Task Sheet: Primary Ignition Inspection and Testing

4. Task Sheet: Throttle Position Sensor Visual Inspection

5. Task Sheet: Throttle Position Sensor DMM Testing

6. Task Sheet: Throttle Position Sensor Scope Test

7. Task Sheet: TP Sensor Voltmeter Test

8. Task Sheet: TP Graph Test

9. Task Sheet: Throttle Position Sensor Scan Tool Diagnosis

10. Task Sheet: Throttle Position Sensor Resistance Test

11. Chapter PowerPoint

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

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

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

**ACTIVITIES:**

1. Task Sheet: Position Sensor Diagnosis

2. Task Sheet: Throttle Position Waveform Testing

3. Task Sheet: Primary Ignition Inspection and Testing

4. Task Sheet: Throttle Position Sensor Visual Inspection

5. Task Sheet: Throttle Position Sensor DMM Testing

6. Task Sheet: Throttle Position Sensor Scope Test

7. Task Sheet: TP Sensor Voltmeter Test

8. Task Sheet: TP Graph Test

9. Task Sheet: Throttle Position Sensor Scan Tool Diagnosis

10. Task Sheet: Throttle Position Sensor Resistance 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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**Chapter 15 –** **Temperature Sensors**

**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.

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**NOTES AND EVALUATION:**

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