

# Advanced Engine Performance Diagnosis 7<sup>th</sup> 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](http://www.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 \(A8\)](#)
13. [Videos: \(A8\) Engine Performance](#)
14. [Animations: \(A8\) Engine Performance](#)

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#### **ACTIVITIES:**



1. Task Sheet: Position Sensor Diagnosis
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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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