

# Advanced Engine Performance Diagnosis 8<sup>th</sup> Edition

## Chapter 16 – Temperature and Throttle Position Sensors

### Lesson Plan



#### **CHAPTER SUMMARY:**

1. Engine Coolant Temperature Sensors and Testing the Engine Coolant Temperature Sensor
  2. Intake Air Temperature Sensor, Other Temperature Sensors, and Throttle Position Sensor Construction
  3. TP Sensor Computer Input Functions and PCM Uses for the TP Sensor
  4. Testing the Throttle Position Sensor
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#### **OBJECTIVES:**

1. Describe the purpose and function of engine coolant temperature sensors.
  2. Describe how to inspect and test temperature sensors.
  3. Explain the function and testing of intake air temperature sensors, including sensor DTCs.
  4. Discuss the other temperature sensors that may be found on vehicles.
  5. Discuss the construction and function of a -m sensor.
  6. Discuss TP sensor input.
  7. Discuss the PCM uses for the TP sensor.
  8. Discuss how to test the -m sensor, including sensor DTCs.
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#### **RESOURCES:** (All resources may be found at [jameshalderman.com](http://jameshalderman.com))

1. Task Sheet: Temperature Sensor Visual Inspection
  2. Task Sheet: ECT Sensor DMM Testing
  3. Task Sheet: Temperature Sensors
  4. Task Sheet: Engine Coolant Temperature (ECT) Graph
  5. Task Sheet: Temperature Sensor Scan Tool Diagnosis
  6. Task Sheet: Position Sensor Diagnosis
  7. Task Sheet: Throttle Position Waveform Testing
  8. Task Sheet: Primary Ignition Inspection and Testing
  9. Task Sheet: Throttle Position Sensor Visual Inspection
  10. Task Sheet: Throttle Position Sensor DMM Testing
  11. Task Sheet: Throttle Position Sensor Scope Test
  12. Task Sheet: TP Sensor Voltmeter Test
  13. Task Sheet: TP Graph Test
  14. Task Sheet: Throttle Position Sensor Scan Tool Diagnosis
  15. Task Sheet: Throttle Position Sensor Resistance Test
  16. Chapter PowerPoint
  17. Crossword and Word Search Puzzles
  18. Videos: (A8) Computerized Engine Controls Diagnosis and Repair
  19. Animations: (A8) Computerized Engine Controls Diagnosis and Repair
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DEMO

#### **ACTIVITIES:**

1. Task Sheet: Temperature Sensor Visual Inspection
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  15. 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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#### **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:**