

# Automotive Technology 6<sup>th</sup> Edition

## Chapter 81 – Gasoline Direct-Injection Systems

### Lesson Plan



#### **CHAPTER SUMMARY:**

1. Direct fuel injection, direct-injection fuel delivery system, and gasoline direct-injection fuel injectors
  2. Modes of operation, piston top designs, and Port and direct injection systems
  3. Engine start systems, gasoline direct-injection issues, and GDI service
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#### **OBJECTIVES:**

1. List the advantages and disadvantages of direct fuel injection.
  2. Explain how a gasoline direct-injection system works.
  3. List the various modes of operation of a gasoline direct-injection system.
  4. Describe common piston top designs.
  5. Describe the differences between port fuel-injection and gasoline direct-injection systems.
  6. Discuss how to troubleshoot a gasoline direct-injection system.
  7. This chapter will help prepare for Engine Repair (A8) ASE certification test content area “C” (Fuel, Air Induction, and Exhaust Systems Diagnosis and Repair).
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**RESOURCES:** (All resources may be found at <http://www.jameshalderman.com>)

1. **Task Sheet ASE (A8-A-2) P-1:** Gasoline Direct Injection Identification
  2. Chapter PowerPoint
  3. Chapter Crossword Puzzle and Word Search
  4. Animations: Direct Fuel Injection - Mechanical
  5. Videos: Gasoline direct injection (time 5:50) and Bosch Gasoline Direct Injection System (time 6:20)
  6. Videos: Accelerator pedal position sensor testing (time 3:22) and Electronic throttle (time 4:15)
  7. Videos: Accelerator pedal position sensor (time 5:35)
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#### **ACTIVITIES:**

1. **Task Sheet ASE (A8-A-2) P-1:** Have students complete Gasoline Direct Injection Identification Task Sheet.
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#### **ASSIGNMENTS:**

1. Chapter crossword and word search puzzles.
  2. Complete end of chapter 10 question quiz.
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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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