

Automotive Technology 6th Edition

Chapter 111 – ABS Diagnosis and Service

Lesson Plan



CHAPTER SUMMARY:

1. ABS fault diagnosis and retrieving ABS codes prior to 1996
 2. ABS diagnosis on OBD-II equipped vehicles and wheel speed sensor diagnosis
 3. Hydraulic ABS service and ABS safety precautions
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OBJECTIVES:

1. Explain the ABS diagnostic procedure and retrieval of diagnostic codes.
 2. Explain how to diagnose the OBD-II ABS system.
 3. Explain how to diagnose wheel speed sensors.
 4. List the steps in the hydraulic ABS service procedure.
 5. Discuss ABS safety precautions.
 6. This chapter will help prepare for Brakes (A5) ASE certification test content area “D” (Electronic Brake Control Systems: Antilock Brake System (ABS), Traction Control System (TCS), and Electronic Stability Control System (ESC) Diagnosis and Repair).
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RESOURCES: (All resources may be found at <http://www.jameshalderman.com>)

1. **Task Sheet ASE (A5-G-1) P-1:** Electronic Brake (ABS) Component Inspection
 2. **Task Sheet ASE (A5-G-3) P-2, (A5-G-4) P-2:** Electronic Brake (ABS) Fault Diagnosis
 3. **Task Sheet ASE (A5-G-5) P-2:** Depressurization of High-Pressure ABS
 4. **Task Sheet ASE (A5-G-6) P-1:** Bleed ABS Hydraulic Circuits
 5. **Task Sheet ASE (A5-G-7) P-2:** ABS Wheel Speed Sensor Testing
 6. **Task Sheet ASE (A5-G-8) P-1:** Modified Vehicle ABS Problem Diagnosis
 7. Chapter PowerPoint
 8. Chapter Crossword Puzzle and Word Search
 9. Animations: Wheel Speed Sensor - AC Voltage and Wheel Speed Sensor - Bias Voltage
 10. Animations: Wheel Speed Sensor - Resistance and Wheel Speed Sensor - Short to Ground
 11. Videos: See list at the end of the lesson plan.
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ACTIVITIES:

1. **Task Sheet ASE (A5-G-1) P-1:** Have students complete Electronic Brake (ABS) Component Inspection Task Sheet.
 2. **Task Sheet ASE (A5-G-3) P-2, (A5-G-4) P-2:** Have students complete Electronic Brake (ABS) Fault Diagnosis Task Sheet.
 3. **Task Sheet ASE (A5-G-5) P-2:** Have students complete Depressurization of High-Pressure ABS Task Sheet.
 4. **Task Sheet ASE (A5-G-6) P-1:** Have students complete Bleed ABS Hydraulic Circuits Task Sheet.
 5. **Task Sheet ASE (A5-G-7) P-2:** Have students complete ABS Wheel Speed Sensor Testing Task Sheet.
 6. **Task Sheet ASE (A5-G-8) P-1:** Have students complete Modified Vehicle ABS Problem Diagnosis 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:

Videos: (at <http://www.jameshalderman.com>)

- ABS sensor replacement (time 2:22)
- ABS diagnosis (time 2:43)
- WSS testing (time 2:17)
- ABS sensor testing (time 4:24)
- ABS sensor replacement (time 3:25)
- ABS sensor replacement (time 1:57)
- ABS sensor diagnosis (time 5:56)
- ABS diagnosis (time 1:24)
- ABS sensor diagnostics (time 5:56)
- Replace a reluctor ring (time 7:32)
- Tone ring repair (time 3:58)
- ABS light (time 4:21)
- Low speed cut in part 1 (time 4:20)
- Low speed cut in part 2 (time 1:52)
- WSS adjustment (time 1:39)
- ABS wiring harness (time 11:00)
- ABS bleeding (time 1:24)
- Wheel speed sensors (time 14:39)
- ABS diagnosis (time 8:36)
- ABS repair (time 2:01)
- Wet road ABS test (time 0:29)