

Automotive Technology 6th Edition

Chapter 42 – Circuit Testers and Digital Meters

Lesson Plan



CHAPTER SUMMARY:

1. Fused jumper wire, test light, and logic probe
 2. Digital multimeters and inductive meters
 3. Diode check, duty cycle, and frequency
 4. Electric unit prefixes and how to read digital meters
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OBJECTIVES:

1. Discuss how to safely set up and use a fused jumper wire, a test light, and a logic probe.
 2. describe the uses of digital multimeters and inductive ammeters.
 3. discuss diode check and frequency.
 4. Describe the prefixes used with electrical units and how to read digital meters.
 5. Explain how to safely use a digital meter to read voltage, resistance, and current, and compare to factory specifications.
 6. This chapter will help you prepare for the ASE Electrical/ Electronic systems (A6) certification test content area “A” (General Electrical/Electronic System Diagnosis).
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RESOURCES: (All resources may be found at <http://www.jameshalderman.com>)

1. **Task Sheet ASE (A6-A-3) P-1:** Digital Multimeter Use for Electrical Problems
 2. **Task Sheet ASE (A6-A-5) P-1:** Test Light Usage
 3. **Task Sheet ASE (A6-A-6) P-1:** Circuit Testing Using a Fused Jumper Wire
 4. Chapter PowerPoint
 5. Chapter Crossword Puzzle and Word Search
 6. Animations: See list at the end of the lesson plan.
 7. Videos: See list at the end of the lesson plan.
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ACTIVITIES:

1. **Task Sheet ASE (A6-A-3) P-1:** Have students complete Digital Multimeter Use for Electrical Problems Task Sheet
 2. **Task Sheet ASE (A6-A-5) P-1:** Have students complete Test Light Usage Task Sheet.
 3. **Task Sheet ASE (A6-A-6) P-1:** Have students complete Circuit Testing Using a Fused Jumper Wire 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:



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

Bulb Test, Meter	Meter Usage Testing Diode
Circuit Test, Amps, Meter	Test Blower Motor with Test Light
Circuit Test, Meter	Test Compressor Clutch Circuit with Clamp Meter
Circuit Test, Test Light	Test Compressor Clutch Circuit with Test Light
Meter Usage Measure Amps	Test Bulb
Meter Usage Measure Frequency	Test Light
Meter Usage Measure Ohms	Tone Generator

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

Electrical shorts (time 2:44)
Electrical diagnosis (time 3:37)
How to use a DMM (time 9:27)
Fuse testing (time 3:01)
Resistance test with a DMM (time 6:26)
Fused jumper wire (time 16:21)
Inductive ammeter (time 1:30)
Inductive ammeter (time 7:16)
Voltage testing fundamentals (time 39:42)
Electric fuel pump testing (time 13:54)
Online Service Manual (time 4:22)