

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

## Chapter 56 – Lighting and Signaling Circuits

### Lesson Plan



#### **CHAPTER SUMMARY:**

1. Lighting systems, LED lighting, and bulb numbers
  2. Brake lights, turn signals, daytime running lights, and headlights
  3. High-intensity discharge headlights, LED headlights, and adaptive front lighting systems
  4. Automatic headlights, high/low beam switch, auto dimming headlights, and headlight aiming
  5. Fog and driving lights, automatic dimming mirrors, and courtesy lights
  6. Illuminated entry, headlight system diagnosis, and lighting system diagnosis
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#### **OBJECTIVES:**

1. Explain lighting systems in an automobile and list the advantages of using LED lights.
  2. Read and interpret a bulb chart.
  3. Discuss the operation of brake lights and turn signals.
  4. Describe daytime running lights, fog lights, driving lights, types of headlights, adaptive headlights, and how to aim headlights.
  5. Describe automatic dimming mirrors, courtesy lights, and illuminated entry.
  6. Explain the procedures to inspect and troubleshoot lighting and signaling systems.
  7. This chapter will help you prepare for the ASE Electrical/Electronic Systems (A6) certification test content area “E” (Lighting Systems diagnosis and repair).
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#### **RESOURCES:** (All resources may be found at <http://www.jameshalderman.com>)

1. **Task Sheet ASE (A6-E-1) P-1, (A6-E-2) P-1:** Lighting System Diagnosis
  2. **Task Sheet ASE (A6-E-4) P-2:** High-Intensity Discharge Headlights
  3. **Task Sheet ASE (A6-E-3) P-2:** Aim Headlights
  4. Chapter PowerPoint
  5. Chapter Crossword Puzzle and Word Search
  6. Animations: Courtesy Lights, Hazard Lights, and Headlight Circuit - Parking Lights
  7. Animations: Headlight Circuit - High Beam and Headlight Circuit - Low Beam
  8. Animations: Lights, Turn & Stop, Rear Lights, Stop Lights, and Turn Indicators
  9. Videos: See list at the end of the lesson plan.
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#### **ACTIVITIES:**

1. **Task Sheet ASE (A6-E-1) P-1, (A6-E-2) P-1:** Have students complete Lighting System Diagnosis Task Sheet.
  2. **Task Sheet ASE (A6-E-4) P-2:** Have students complete High-Intensity Discharge Headlights Task Sheet.
  3. **Task Sheet ASE (A6-E-3) P-2:** Have students complete Aim Headlights 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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**Videos:** (at <http://www.jameshalderman.com>)

Dome light (time 2:37)	Dash lights (time 8:07)
Brake lights (time 3:11)	Tail lights (time 2:09)
Door ajar light (time 7:13)	Head light switch (time 1:30)
Turn signal switch (time 2:25)	Head light bulb (time 1:34)
Clean an electrical socket (time 1:27)	Brake light switch (time 7:07)
Multifunction switch (time 8:50)	Head light bulb (time 7:17)
Brake lights repair (time 2:27)	Head light switch (time 7:45)
Radio bulb replacement (time 9:21)	Multi function switch (time 12:55)
Dash bulb replacement (time 5:40)	Multi function switch (time 8:18)
Corvette lights (time 7:35)	Dome light switch (time 2:50)
Turn signal repair (time 6:01)	Multi function switch (time 8:55)
Interior lights repair (time 1:18)	Turn signal switch (time 1:24)
Headlight switch (time 4:28)	Dim headlight diagnosis (time 6:54)
Brake light repair (time 3:47)	Headlight Aiming (time 8:41)
Turn signal socket (time 1:52)	HID headlight diagnosis (time 7:56)
	How to Replace a Brake Pedal Switch (time 1:30)