

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

## Chapter 58 – Safety, Comfort, and Convenience Circuits

### Lesson Plan



#### **CHAPTER SUMMARY:**

1. Horns, horn diagnosis, windshield wipers, windshield washer, and rain-sense wipers
  2. Cruise control, radar cruise control, heated rear window defoggers, and power windows
  3. Electric power door locks, turn/lift gate locks, power sun/moon roof, and sun shades
  4. Power seats, electrically heated seats, and heated and cooled seats
  5. Heated steering wheel, heated mirrors, adjustable pedals, and folding outside mirrors
  6. Keyless entry, garage door opener and remote start
- 



#### **OBJECTIVES:**

1. Describe how the horn operates and diagnose faulty horn operation.
  2. Explain the testing and diagnosis of windshield wipers and windshield washers.
  3. Describe the operation of cruise control, including radar cruise control systems.
  4. Discuss electrically heated rear window defogger systems.
  5. Explain the operation and testing procedures for power windows and locks.
  6. Discuss the operation of power sunroofs, moon roofs, and sun shades.
  7. Describe the operation of power seats and heated/cooled seats, plus heated steering wheels and mirrors.
  8. Explain the operation of adjustable pedals and folding outside mirrors.
  9. Describe the operation and diagnosis of remote keyless entry, garage door openers, and remote start systems.
  10. This chapter will help prepare for the ASE Electrical/Electronic Systems (A6) certification test content area “G” (repair Body electrical Systems diagnosis and repair).
- 



#### **RESOURCES:** (All resources may be found at <http://www.jameshalderman.com>)

1. Task Sheet ASE (A6-F-3) P-2: Reset Maintenance Indicator
  2. Task Sheet ASE (A6-G-4) P-1: Horn
  3. Task Sheet ASE (A6-G-4) P-1: Windshield Wiper/Washer
  4. Task Sheet ASE(A6-G-1) P-2: Comfort and Convenience Accessories
  5. Chapter PowerPoint
  6. Chapter Crossword Puzzle and Word Search
  7. Animations: See list at the end of the lesson plan.
  8. Videos: See list at the end of the lesson plan.
- 



#### **ACTIVITIES:**

1. Task Sheet ASE (A6-F-3) P-2: Have students complete Reset Maintenance Indicator Task Sheet.
  2. Task Sheet ASE (A6-G-4) P-1: Have students complete Horn Task Sheet.
  3. Task Sheet ASE (A6-G-4) P-1: Have students complete Windshield Wiper/Washer Task Sheet.
  4. Task Sheet ASE(A6-G-1) P-2: Have students complete Comfort and Convenience Accessories Task Sheet.
- 



#### **ASSIGNMENTS:**

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

**Automotive Technology 6<sup>th</sup> Edition**  
**Chapter 58 – Safety, Comfort, and Convenience Circuits**  
**Lesson Plan**



**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.
- 



**NOTES AND EVALUATION:**

---

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

Blower  
Blower Control, Manual  
Blower Control, PWM  
Rain Sensing  
Test Blower Motor with Clamp Meter  
Test Blower Motor with Test Light  
Test Compressor Clutch Circuit with Clamp Meter  
Test Compressor Clutch Circuit with Test Light  
Door Lock Motor

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

Blower resistor (time 7:58)	Horn repair (time 1:17)
Blower motor amperage test (time 7:16)	Horn contact repair (time 5:16)
Blower resistor (time 7:49)	Wiper diagnosis (time 3:04)
Blower motor speed control (8:49)	Wiper motor replacement (time 5:30)
Wiper repair (time 11:34)	Wiper motor replacement (time 7:38)
Horns and wiring diagrams (time 3:33)	Washer repair (time 1:42)
Horn troubleshooting (time 3:39)	Wiper motor (time 3:21)
Repairing wipers (time 4:03)	Wiper and washer repair (time 3:42)
How to test a wiper motor (time 3:04)	Wiper motor repair (time 2:22)
Wiper motor diagnosis (time 9:05)	Wiper switch (time 1:27)
Windshield washer pump (time 3:52)	Wiper linkage (time 12:11)
Wiper motor (time 1:15)	Wiper switch (time 4:41)