

Automotive Technology 6th Edition

Chapter 97 – Brake Principles and Friction Materials

Lesson Plan



CHAPTER SUMMARY:

1. Energy and work, inertia, and the coefficient of friction
 2. Brake fade, deceleration rates, brake friction materials, and asbestos
 3. Semimetallic friction materials and non-asbestos/ceramic friction materials
 4. Carbon fiber friction materials, brake pads and environmental concerns, and edge codes
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OBJECTIVES:

1. Discuss the energy principles that apply to brakes.
 2. Discuss the friction principles that apply to brakes.
 3. Describe how brakes can fade due to excessive heat.
 4. Describe how deceleration rates are measured.
 5. Discuss friction materials used in brake systems.
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RESOURCES: (All resources may be found at <http://www.jameshalderman.com>)

1. **Task Sheet:** Brake System Principles
 2. **Task Sheet:** Brake Friction Material Identification
 3. Chapter PowerPoint
 4. Chapter Crossword Puzzle and Word Search
 5. Animations: Brake Pedal Force, Brake Pedal Travel, and Coefficient of Friction
 6. Animations: Pascal's Law - Area, Pascal's Law - Force, and Pascal's Law - Pressure
 7. Videos: How brakes work (time 0:14)
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ACTIVITIES:

1. **Task Sheet:** Have students complete Brake System Principles Task Sheet.
 2. **Task Sheet:** Have students complete Brake Friction Material 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:
