

Instructional Plan

Section 1—Brake Systems

FOCUS & PLANNING

Section 1 Objectives

- Identify the two basic types of wheel brakes.
- Explain how friction provides braking action in a motor vehicle.

INSTRUCTION & PRACTICE

Using the Volume 1 Student Edition, have students:

- Read Section 1 on pages BR-109 through BR-111.
- Read *Excellence in Science: Friction Stops!* on page BR-110 and complete the Apply It! activity.
- Complete the Section 1 Knowledge Check on page BR-111.

Using Technical Applications Volume 1, assign:

- Job Sheet BR-1: Completing a Vehicle Repair Order for a Brakes Concern

Using Academic Applications, assign:

- Excellence in Science: Friction Stops!* on pages 115 through 116 and complete the Apply It! activity.

REVIEW & ASSESSMENT

- Use *ExamView® Test Generator* on the Instructor Resource CD-ROM to create a Section 1 Test.

Section 1 Answer Key

Knowledge Check

1. Service brakes and parking brakes.
2. Brake fluid reservoir for the service brakes and a component that converts mechanical force to hydraulic pressure for the braking system.
3. Brake hoses/lines.
4. Friction.
5. The resistance between objects that are in contact but at rest.
6. More friction.

ASE Test Prep

7. c

Instructional Plan

Section 2—Service Brake System

FOCUS & PLANNING

Section 2 Objectives

- Activate a vehicle's service braking system.
- Explain the advantage of a dual braking system.

INSTRUCTION & PRACTICE

- Read Section 2 on pages BR-112 through BR-113.
- Complete the Section 2 Knowledge Check on page BR-113.

REVIEW & ASSESSMENT

- Use *ExamView® Test Generator* to create a Section 2 Test.

Section 2 Answer Key

Knowledge Check

1. Drum brakes.
2. Fluid is forced through the braking system lines and hoses. The fluid pressure activates the brakes.
3. The best braking performance occurs just before the tires begin to lose traction.
4. If one system fails, the other system continues to work.
5. Front to rear or diagonally.
6. Diagonally split system.

ASE Test Prep

7. b

Instructional Plan

Section 3—Brake Fluid

FOCUS & PLANNING

Section 3 Objectives

- B8 • Select, handle, store, and fill brake fluids to proper level.
• Safely support a vehicle for brake servicing.

INSTRUCTION & PRACTICE

- Read Section 3 on pages BR-114 through BR-117.
- Read *Excellence in Math: Converting Temperatures* on page BR-116 and complete the Apply It! activity. *Answers:* (1) 37°C; (2) 205°C; (3) 104°F.
- Complete the Section 3 Knowledge Check on page BR-117.

Using Academic Applications, assign:

- Excellence in Math: Converting Temperatures* on pages 15 through 16 and complete the Apply It! activity.
- Excellence in Communication: Taking Notes* on pages 277 through 278 and have students complete the Apply It! activity.

REVIEW & ASSESSMENT

- Use *ExamView® Test Generator* to create a Section 3 Test.

Section 3 Answer Key

Knowledge Check

1. A liquid used to transfer hydraulic pressure from the master cylinder to the wheel brake mechanism.
2. Be compatible with metals, lubricate moving parts, will not become too thin or thick with temperature changes, will not evaporate easily, will not soften or damage rubber parts, will not boil at high temperatures.
3. When fluid boils it becomes a gas. Vapor being compressed in the hydraulic lines does not transfer pressure.
4. Higher boiling point. Does not damage paint. Does not absorb moisture.
5. Clean dirt and grease from cap. Remove cover. Pour fresh brake fluid into the reservoir to the maximum mark. Inspect/clean reservoir screen. Replace cap.
6. Safety stands; hydraulic/electric hoist with safety support mechanism engaged.

ASE Test Prep

7. b
8. c

Chapter 1 Review & Assessment

- Assign the Review Questions on page BR-118.
- Assign *Excellence in Communication: Taking Notes* on page BR-118 and have students complete the Apply It! activity.
- Assign the Automotive Service Excellence Test Prep Questions on page BR-119.
- Use *ExamView® Test Generator* to create a Chapter 1 Test.

Chapter 1 Answer Key

Review Questions

1. Rear wheels.
2. Static friction is resistance between objects at rest. Kinetic is resistance between objects in motion.
3. Disc brakes.
4. Just before the tires begin to lose traction.
5. Two.
6. Boiling brake fluid.
7. Moisture in the fluid can cause brake failure.
8. Presence of asbestos.
9. Wear goggles, rinse eyes, ensure ventilation, do not breathe vapors, wear protective clothing, wash after exposure, change clothes that are contaminated.
10. At two appropriate lift points on each side of the car frame.

Automotive Service Excellence Test Prep

1. c
2. a
3. b
4. a
5. c
6. c
7. c
8. c
9. c
10. d