

# Tech Tip®

## HOW TO REPLACE YOUR DRUM BRAKES

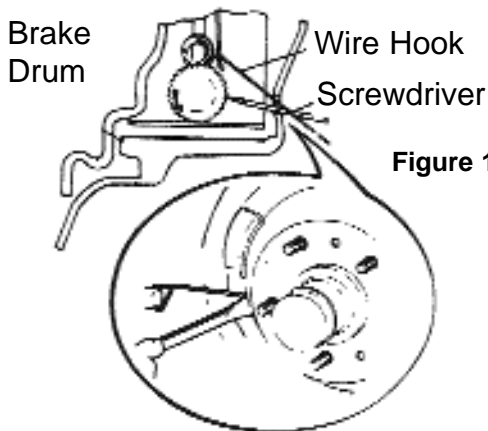


Figure 1

Backing Off Adjustment Through Drum

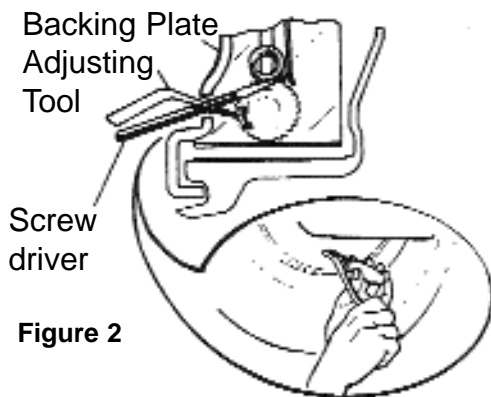


Figure 2

Backing Off Adjustment Through Backing Plate

### ITEMS NEEDED:

- Your Vehicle's Jack and Lug Wrench
- A Piece of Chalk or Tire Lettering
- A Pair of Jackstands
- A Brake Spring Pliers
- A Brake Holddown Spring Remover
- A Spoon-type Adjusting Tool
- A Replacement Set of Brake Shoes
- A Spray-type Brake Cleaner
- A Brake Lubricant Kit
- A Pair of Safety Goggles
- A Protective Dust Mask

**1** Your Vehicle's brakes are one of the most often used systems of your car, but are often overlooked and taken for granted. Good brakes are essential for safe driving and maintenance of your vehicle's brakes ensures safe stopping.

Servicing your vehicle's drum brake system is easy and doing the job yourself can save a costly repair at a service facility. Symptoms to look for to determine if your brakes need service are:

- A low brake pedal (or a pedal which almost goes to the floor as the brakes are applied).
- A dive or pulling to one side during stopping.
- Squealing or scraping sounds when braking.
- Pedal surging while the brakes are applied.

### **2** PREPARATION

Park the vehicle on level ground and block the tires on the opposite end of the vehicle from where you will be working. Remove the hub caps and loosen the lug nuts one-half turn. Do not totally remove the lug nuts at this time. Raise the vehicle with the jack until the bottom of the tires are lifted on the ground. Support the frame of the vehicle with jackstands. NEVER work underneath the vehicle without the support of jackstands. Finish removing the lug nuts and remove the tires. With a piece of chalk, mark the location on the backside of the tire as to where it was removed from on the car such as "left rear", "right rear", etc.

### **3** DRUM REMOVAL

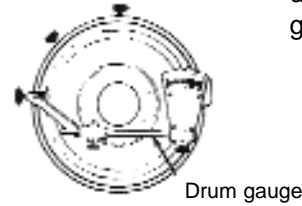
Loosen the holddown clamp on the top of the master cylinder. This will allow room for expansion of the brake fluid as the wheel cylinders are compressed. With the chalk, mark the stud-to-drum relationship for proper balance on reassembly. If you're working on the rear brakes, you should release the emergency brake lever. Now rotate the brake adjusters to contract the brake shoes. This will ease removal of the brake drums (see Figures 1 and 2). If you are working on a rear axle type drum assembly, you may need to remove the sheet metal tinnermans nuts or spray some penetrating oil around the studs and drum assembly to loosen the drum from the axle and wheel studs. Tapping the face of drum lightly with a hammer may also help removal. If you are working on a spindle type drum assembly, remove the dust cap, the cotter key, the lock nut and the outer bearing assembly (see Figure 3). Now remove the hub and drum. With the chalk, mark the drum location and keep the bearings matched with the same hub and drum assembly they were removed from.



Figure 3

Before cleaning and disassembly, it is important to inspect for seal leaks. Look for signs of leakage around the axle seal, wheel seal and wheel cylinder if leakage is present, replacement or repair of the old components is necessary before replacing your brake shoes. After inspecting, clean the backing plate areas and old shoes with the spray brake cleaner. This will remove the asbestos dust and fibers from the brake assemblies.

**Figure 4-**Measuring drum diameter with a drum gauge.



**5 BRAKE SHOE REMOVAL**

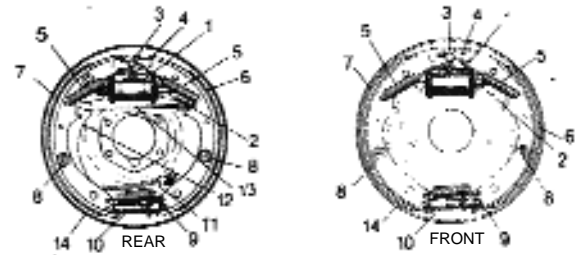
The brake shoes will need to be replaced if the thickness of the brake lining is 1/16" or less. If the lining have grooves, or show signs of cracks or glazing, replace them. Look at the location of the brake springs, hold-downs and links or cables. Make a sketch of these items and their locations for reference during reassembly or only disassemble one side at a time. This will allow you to review the opposite side during reassembly.

The first step in removing the brake shoes is to remove the upper return springs (see Figure 6). A brake spring removal tool is inexpensive and may be purchased or rented, and will make the job much easier. Disconnect and remove the self-adjuster cable link and assembly.

Next, remove the brake shoe holddown springs (see Figure 7). Hold the spring retaining pin in location from the backside, and depress and twist the spring cap to remove the spring and cap. Remove the parking brake assembly or cable (see Figure 8). Remove the brake shoes and adjusters as one assembly (see Figure 9). Match the old shoes to the new shoes to make sure they are the same before reassembly. We suggest replacing the old hardware and springs whenever doing a brake job, as springs lose their tension from use and brake heat build-up.

Inspect the backing plate for signs of wear or sharp edges on the shoe contact points and file or dress off any sharp edges (see Figure 10). Spread a light film of brake lubricant onto these contact points, but be careful not to get any of this lube onto the face of the new brake lining.

**Fig. 5 - Typical Drum Brake Assemblies**



- 1. Wheel Cylinder
- 2. Cylinder Link
- 3. Anchor Pin
- 4. Anchor Plate
- 5. Return Spring
- 6. Primary Shoe
- 7. Secondary Shoe
- 8. Hold down cup and spring
- 9. Shoe connecting spring
- 10. Adjusting Screw Assembly
- 11. Parking brake cube
- 12. Parking brake lever
- 13. Parking brake strut
- 14. Backing Plate

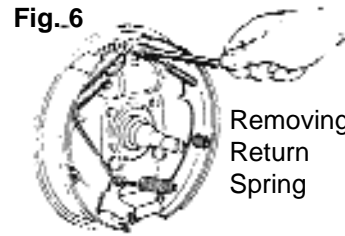
**6 REASSEMBLY**

Now disassemble, clean and lubricate the brake adjuster. Adjust the brake adjuster all the way in and assemble it and the spring onto the new shoes. Inspect the holddown pins and replace them if they are bent or corroded. Attach the new brake shoes and adjuster assembly to the backing plate with the holddown pins and springs. Align the shoes with the slotted links (see Figure 11) and the wheel cylinders and reconnect the emergency brake cable. Reinstall the self-adjuster lever and cable assembly (see Figure 12). Reinstall the brake shoe return springs (see Figure 13). Make sure the shoes are fully seated and the springs are in the correct position. Slide the brake drum on. Align the chalk mark on the drum with the chalk mark on the wheel stud. If you are working on a spindle mount type drum, repack and reinstall the wheel bearings, the washer and hub nut, the locking ring and new cotter pin and the outer dust cap.

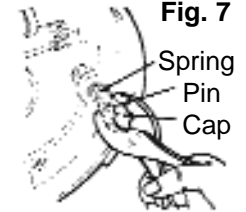
For the correct wheel bearing tightening specifications for your vehicle, refer to a published service manual.

**7 ADJUSTING AND DRIVING**

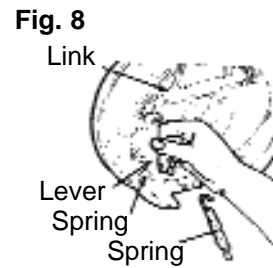
Now, adjust the brake adjuster until the drum turns with a very slight drag. Put the wheels back on and tighten the lug nuts securely. Remove the vehicle from the jackstands and recheck the lug nuts for tightness. Open the car door and gently pump the brake pedal until a firm pedal is felt. Check the level of the brake fluid in the master cylinder and add brake fluid as necessary. Be careful not to spill any brake fluid when adding, as brake fluid may seriously damage a vehicle's finish. Make sure you tightly reinstall the master cylinder cap and holddown. Reinstall the hub caps and with the car in reverse, make several slow stops. If your vehicle has self-adjusting brakes, this will activate the self-adjusters. Drive your vehicle for one to two weeks, and manually readjust the brakes, if necessary.



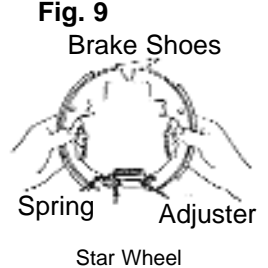
**Fig. 6**



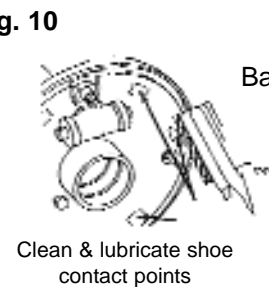
**Fig. 7**



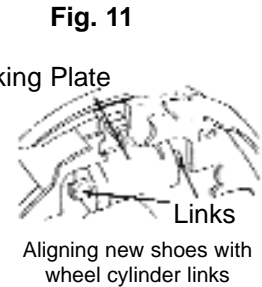
**Fig. 8**



**Fig. 9**  
Brake Shoes



**Fig. 10**



**Fig. 11**

**Fig. 12**

Anchor Pin

**Fig. 13**