

Tinnerman nuts and remove the brake drum.

If the brake drum will not come off, insert a narrow screw driver through the brake adjusting hole in the carrier plate, and disengage the adjusting lever from the adjusting screw. While thus holding the adjusting lever away from the adjusting screw, back off the adjusting screw with the brake adjusting tool (Fig. 6). Back off the adjustment only if the drum cannot be removed. Be very careful not to burr, chip, or damage the notches in the adjusting screw; otherwise, the self adjusting mechanism will not function properly.

INSTALLATION

1. Remove the protective coating from a new drum with carburetor degreaser.

2. Place the drum over the brake assembly and into position. Install the 3 Tinnerman nuts and tighten securely.

If it was necessary to back off the brake adjustment, in step 2 above, adjust the brakes as outlined in this section.

3. Install the wheel and tire assembly and hub cap.

BRAKE DRUM REFINISHING

Minor scores on a brake drum can be removed with a fine emery cloth. A drum that is excessively scored or shows a total indicator runout of over 0.007 inch should be turned down. Remove only enough stock to

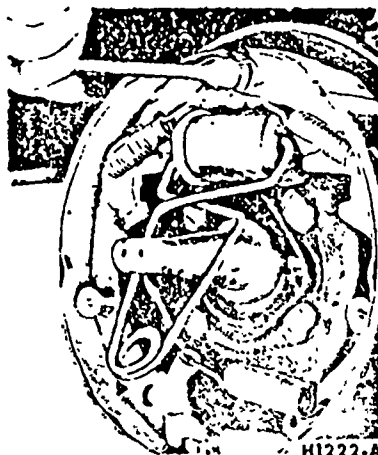


FIG. 7—Retracting Spring Removal

eliminate the scores and true up the drum. The refinished diameter must not exceed 0.060 inch oversize (10.060 inches).

If the drum diameter is less than 0.030 inch oversize (10.030 inches) after refinishing, standard lining may be installed. If the drum diameter is 10.030-10.060 inches, oversize linings must be installed.

After a drum is turned down, wipe the refinished surface with a cloth soaked in clean denatured alcohol. If one drum is turned down, the opposite drum on the same axle should also be cut down to the same size.

BRAKE SHOE AND ADJUSTING SCREW REMOVAL AND INSTALLATION

CLEANING AND INSPECTION

1. Remove the wheel and drum. Wash all the parts except the brake shoes in a cleaning fluid and dry with compressed air.

2. Brush all dust from the carrier plates and interior of the brake drums.

3. Inspect the brake shoes for excessive lining wear or shoe damage. If the lining is worn to within $\frac{1}{16}$ inch of the rivet heads or if the shoe are damaged, they must be replaced. Replace any lining that has been oil saturated. Replace lining in axle sets. Prior to replacement of lining, the drum diameter should be checked to determine if oversize or shimmed linings must be installed.

4. Inspect all other brake parts and replace any that are worn or damaged.

5. Inspect the brake drums and, if necessary, refinish as outlined in this section.

REMOVAL

1. With the wheel and drum removed, install a clamp over the ends of the brake cylinder as shown in Fig. 7.

2. Contract the shoes as follows:

a. Disengage the adjusting lever from the adjusting screw by pulling backward on the adjusting lever (Fig. 1).

b. Move the outboard side of the adjusting screw upward and back off the pivot nut as far as it will go.

3. Pull the adjusting lever, cable and automatic adjuster spring down and toward the rear to unhook the

pivot hook from the large hole in the secondary shoe web. Do not attempt to pry the pivot hook out of the hole.

4. Remove the automatic adjuster spring and adjusting lever (Fig. 1).

On front brakes, remove the retracting assist spring.

5. Remove the secondary shoe anchor spring with the tool shown in Fig. 7. With the same tool, remove the primary shoe to anchor spring and unhook the cable anchor.

6. Remove the cable guide from the secondary shoe (Fig. 1).

7. Remove the shoe hold-down springs, shoes, adjusting screw, pivot nut, and socket.

8. On rear brakes, remove the parking brake link and spring. Connect the parking brake cable to the parking brake lever.

9. After removing the rear secondary shoe, disassemble the parking brake lever from the shoe by removing the retaining clip and spring washer (Fig. 1).

INSTALLATION

1. Before installing the rear shoes, assemble the parking brake lever to the secondary shoe and secure with the spring washer and retaining clip.

2. Apply a light coating of high-temperature grease at the points where the brake shoes contact the carrier plate.

3. Position the brake shoes on the carrier plate, and install the brake down spring pins, springs, and adjuster. On the rear brake, install the parking brake link and spring. Connect the parking brake cable to the parking brake lever (Fig. 1).

4. Place the cable anchor over the anchor pin with the crimping tool toward the carrier plate.

5. Install the primary shoe anchor spring with the tool shown in Fig. 8.

6. Install the cable guide on the secondary shoe web with the hole fitted into the hole in the secondary shoe web. Thread the cable around the cable guide (Fig. 1).

It is imperative that the cable be positioned in this groove and secured between the guide and the shoe web.

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7. Install the secondary shoe to anchor spring (Fig. 8).

Be certain that the cable end is not cocked or binding on the anchor pin when installed. All parts should be flat on the anchor pin. Remove the brake cylinder clamp.

On front brakes, install the shoe retracting assist spring.

8. Apply high-temperature grease to the threads and the socket end of the adjusting screw. Turn the adjusting screw into the adjusting pivot nut to the limit of the threads and then back off $\frac{1}{2}$ turn.

Interchanging the brake shoe adjusting screw assemblies from one side of the car to the other would cause the brake shoes to retract rather than expand each time the automatic adjusting mechanism operated. To prevent installation on the wrong side of the car, socket end of the adjusting screw is stamped with an R or L (Fig. 9). The adjusting pivot nuts can be distinguished by the number of lines machined around the body of the nut. Two lines indicate a right hand nut; one line indicates a left hand nut.

9. Place the adjusting socket on the screw and install this assembly between the shoe ends with the adjusting screw nearest the secondary shoe.

10. Hook the cable hook into the hole in the adjusting lever from the backing plate side. The adjusting levers are stamped with an R or L to indicate their installation on a right or left hand brake assembly (Fig. 9).



FIG. 8—Retracting Spring Installation

11. Position the hooked end of the adjuster spring into the large hole in the primary shoe web, and connect the loop end of the spring to the adjuster lever hole.

12. Pull the adjuster lever, cable and automatic adjuster spring down and toward the rear to engage the pivot hook in the large hole in the secondary shoe web (Fig. 1).

13. After installation, check the action of the adjuster by pulling the section of the cable between the cable guide and the adjusting lever toward the secondary shoe web far enough to lift the lever past a tooth on the adjusting screw wheel. The lever should snap into position behind the next tooth, and release of the cable should cause the adjuster spring to return the lever to its original position. This return action of the lever will turn the adjusting screw 1 tooth.

If pulling the cable does not produce the action described, or if the lever action is sluggish instead of positive and sharp, check the position of the lever on the adjusting screw-toothed wheel. With the brake in a vertical position (anchor at the top), the lever should contact the adjusting wheel $\frac{3}{8}$ inch (plus or minus $\frac{1}{2}$ inch) above the center line of the screw. If the contact point is below this center line, the lever will not lock on the teeth in the adjusting screw wheel, and the screw will not be turned as the lever is actuated by the cable.

To determine the cause of this condition:

a. Check the cable end fittings. The cable should completely fill or extend slightly beyond the crimped section of the fittings. If it does not meet this specification, possible damage is indicated and the cable assembly should be replaced.

b. Check the cable length. The cable should measure $11\frac{1}{4}$ inches (plus or minus $1/64$ inch) from the end of the cable anchor to the end of the cable hook.

c. Check the cable guide for damage. The cable groove should be parallel to the shoe web, and the body of the guide should lie flat against the web. Replace the guide if it shows damage.

d. Check the pivot hook on the lever. The hook surfaces should be square with the body of the lever for proper pivoting. Repair the hook or

replace the lever if the hook shows damage.

e. See that the adjusting screw socket is properly seated in the notch in the shoe web.

ADJUSTMENT

The hydraulic service brakes are self-adjusting and require a manual adjustment only after the brake shoe have been relined, replaced, or when the length of the adjusting screw has been changed while performing some other service operation.

1. After the shoes have been installed or the adjusting screw has been turned, install the drum. Be sure that all excess grease, oil, and other foreign material are wiped off the carrier plate and drum.

Before installing the brake drum on the front wheel spindle, wipe the spindle completely free of grease. Install the drum carefully so that the grease seal retainers within the hub will not be damaged.

2. Remove the adjusting hole cover from the carrier plate and, from the carrier plate side, turn the adjusting screw upward to expand the shoe (Fig. 10). Expand the shoes until a slight drag is felt when the drum is rotated.

3. Remove the drum. While holding the adjusting lever out of engagement with the adjusting screw, back off the adjusting screw $\frac{3}{4}$ of a turn with the fingers. If finger movement will not turn the screw, free it up, otherwise, the self-adjusting lever will not turn the screw. Lubricate the screw with oil and coat with wheel bearing grease.

Any other adjustment procedure may cause damage to the adjusting screw with consequent self-adjuster problems.

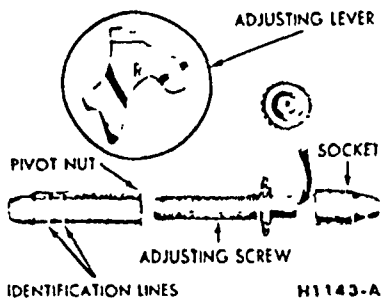


FIG. 9—Adjusting Screw and Lever Identification

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FIG. 10—Expanding Brake Shoes

4. Apply a small quantity of high-temperature grease to the points where the shoes contact the carrier plate, being careful not to get the lubricant on the linings. Install the wheel and drum.

5. Install the adjusting hole cover on the brake carrier plate.

6. When adjusting the rear brake shoes, check the parking brake cables for proper adjustment. Make sure that the equalizer lever operates freely.

7. After the brake shoes have been properly adjusted, check the operation of the brakes.

BRAKE SHOE RELINING

Brake linings that are worn to within $\frac{1}{32}$ inch of the rivet or have been saturated with grease or oil should be replaced. Failure to replace worn linings will result in a scored drum. When it is necessary to replace linings, they must also be replaced on the wheel on the opposite side of the car.

Inspect brake shoes for distortion, cracks, or looseness. If this condition exists, the shoe should be discarded. Do not repair a defective brake shoe.

1. Wash the brake shoes thoroughly in a clean solvent. Remove all burrs or rough spots from the shoes.

2. Check the inside diameter of the brake drum. If the drum is less than 10.030 inches, standard lining may be installed. If the diameter is 10.030 inches or over, oversize lining should be installed.

3. Position the new lining on the shoes. Starting in the center, insert and secure the rivets, working out-

nately towards each end. Install all parts supplied in the kit. Ford replacement linings are ground and no further grinding is required.

4. Check the clearance between the shoe and linings. The lining must seat tightly against the shoe with not more than 0.005-inch clearance between any 2 rivets.

BRAKE CYLINDER REPLACEMENT

REMOVAL

1. With the wheel in a raised position, remove the wheel and the drum.

2. Place a clamp over the ends of the brake cylinder as shown in Fig. 8.

3. Remove the brake shoe assemblies, following procedures outlined in this section.

4. Disconnect the brake line from the brake cylinder. To disconnect the hose at a front cylinder, loosen the tube fitting that connects the opposite end of the hose to the brake tube at a bracket on the frame. Remove the horseshoe-type retaining clip from the hose and bracket, disengage the hose from the bracket, then unscrew the entire hose assembly from the front brake cylinder.

At a rear cylinder, unscrew the fitting that connects the tube to the cylinder. Be sure the engine is stopped and there is no vacuum in the booster system before disconnecting the hydraulic lines.

5. Remove the brake cylinder retaining bolts and lock washers and remove the cylinder. Remove the clamp from the cylinder.

INSTALLATION

1. Insert the cylinder into the opening on the carrier plate and install the retaining bolts and lock washers. Install a front wheel cylinder with the inlet toward the rear of the car.

2. On a front cylinder, install a new copper gasket over the hose fitting. Screw the hose assembly into the cylinder. Engage the opposite end of the hose to the bracket on the frame, install the horseshoe-type retaining clip, and connect the brake tube to the hose with the tube fitting nut. Tighten the nut to specification with tool 1112-144.

On a rear cylinder, connect the

tube to the cylinder by tightening the tube fitting nut to the cylinder. Tighten the nut to specification with tool 1112-144.

3. Install the links in the ends of the brake cylinder, install the shoe and adjuster assemblies, and adjust the shoes as outlined in this section.

4. Install the brake drum and wheel, then bleed the brakes as outlined in this section.

BRAKE CYLINDER OVERHAUL

It is not necessary to remove the brake cylinder from the carrier plate to disassemble, inspect, or hone and overhaul. Removal is necessary only when the cylinder is damaged or scored beyond repair.

DISASSEMBLY

1. With the wheel in a raised position, remove the wheel and the drum.

2. Place a clamp over the ends of the brake cylinder as shown in Fig. 8.

3. Remove the brake shoe assemblies following procedures outlined in this section.

4. Remove the links and the rubber boots from the ends of the brake cylinder. Remove the pistons, cups, and return spring from the cylinder bore (Fig. 11).

5. Remove the bleeder screw from the cylinder.

INSPECTION

1. Wash all parts in clean denatured alcohol and dry with compressed air.

2. Check all internal parts for excessive wear or damage. If any of the internal parts require replacing, all should be replaced.

3. Inspect the cylinder bore for score marks or rust. If either condition is present, the cylinder bore must be honed. However, the cylinder should not be honed more than 0.003 inch beyond its original diameter.

4. Check the bleeder hole to be sure that it is open.

ASSEMBLY

1. Apply a coating of heavy-duty brake fluid to all internal parts.

2. Thread the bleeder screw into the cylinder and tighten securely.

3. Insert the return spring, cups, and pistons into their respective po-