EXTERNAL TYPE Band Brakes

Although the external type of hand brake has not been used as standard equipment on motor vehicles for several years, there still are some motor cars in daily use with mechanically or hydraulically operated external band brakes. There are many types of design and various means for operating but in general the principle is the same. A typical external type band brake is shown in Fig. 21.

In order to better understand the general layout of the conventional mechanically-operated external-type band brake reference should be made to Fig. 22. This shows the correct relative position of the mechanism. When the brakes are released and the adjustments are correct the equalizer bar is kept parallel with the cross shaft by lengthening or shortening the right and left brake rods. Clevises are provided at the ends of the rods for doing this.

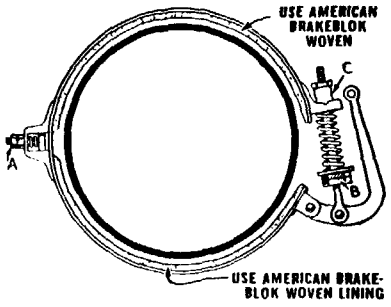


Figure 21
External Type Brake Mechanically Operated

NECESSITY OF CORRECT LEVERAGE

Satisfactory brake adjustment and operation requires proper leverage. The various cranks and levers shown in Fig. 22, must be set at such angles or in certain positions relative to one another to get the desired pressure of the bands against the brake drums when the brake pedal is depressed. Although the positions of brake levers and arms vary with different motor vehicles, a safe rule for the mechanic to follow is to see that the levers do not pull past a straight up and down position when the brakes are fully applied.

LINING-TO-DRUM CLEARANCE

External type band brakes have more lining-to-drum clearance than internal types because the hotter the brake drums get, the greater the chance for brake drag.

In connection with lining-to-drum clearance, brake drums must be checked for out-of-round condition. Out-of-round or scored drums can be reconditioned by turning or grinding. In some cases a new drum must be used.

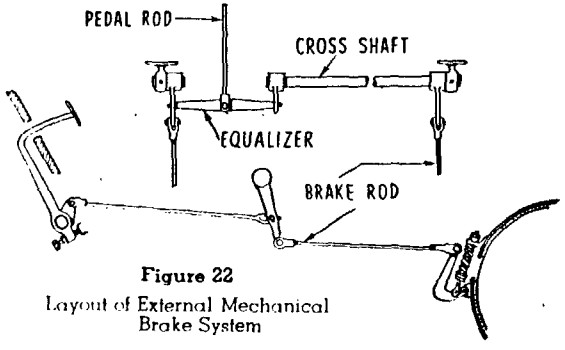


Figure 22
Layout of External Mechanical Brake System

EXTERNAL BAND BRAKE ADJUSTMENT

1. Jack up wheels and lubricate all working parts of brake system.
2. Try working parts to see if all connections and each shaft is free. Brake pedal should be snapped on and off to see if linkage is sluggish.
3. Test wheel bearings. Adjust if bearings are loose.
4. Disconnect brake pull rods.
5. Note whether band operating levers are against their stops.
6. Turn anchor adjusting screw A (Fig. 21) to get a .015 inch clearance between drum and lining.
7. Turn nut B (Fig. 21) to get a .030 inch clearance between drum and lining at the lever end of the lining.
8. Turn nut C (Fig. 21) to get a .030 inch clearance at other end of the lining.
9. Reconnect pull rods and note angle of operating levers. Equalizer bar must be parallel with brake cross shaft.
10. Test brakes. If pedal goes to toe board before brakes are applied, disconnect pedal rod and take up play by clevis adjustment or renewal of parts.

SERVICE HELPS

Relined brake bands should be reshaped to proper drum fit before they are applied. The hydraulic system on hydraulically-operated external brakes is serviced in the same manner as the Lockheed system previously described except that the fluid reservoir is usually separated from the master cylinder and equipped with a hand pump for use in bleeding lines and replacing fluid. To eliminate chatter, squeal or other noises the toe-ends of the brake band should be bent away from the drums. A little oil at nuts B and C (Fig. 21) as well as on the clevis pins reduces brake noise and makes for better brake operation. A better action usually is obtained by cutting the lining at the anchor and chamfering the ends of the lining.

American Brakeblok, as well as most other lining manufacturers, recommend the use of a woven lining on external type brakes.

We do this because external brakes are, as a general rule, not very well protected against the entrance of sand, dirt and other foreign materials. When abrasive substances, such as particles of sand or dirt enter the brake assembly and contact the brake lining, there is much less likelihood of damage to the lining if woven material is used. This is true because woven brake lining is soft and more or less porous and under the pressure of braking the abrasive substances imbed themselves in the lining and do little damage unless they are hard enough to cut the steel brake drum. With a molded brake lining, however, the sand and dirt are unable to imbed themselves because the molded lining is hard and non-porous. As a result, these abrasive substances remain on the surface and are rubbed along the face of the brake lining. The effect is much like that of sandpaper and under these sand and dirt conditions we find molded lining wearing out faster than woven lining. However, if external brake assemblies were especially protected against the entrance of sand and dirt it would be found best to use a molded brake lining.