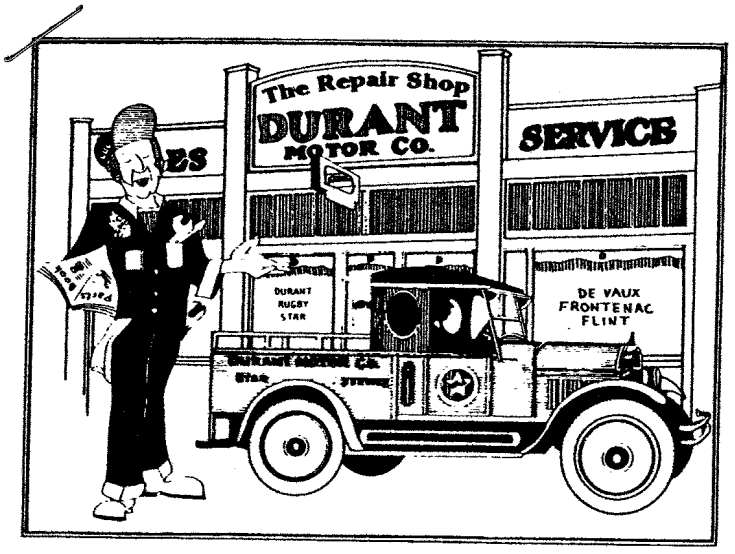

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FUNDAMENTALS OF BRAKE MAINTENANCE

The following article is a reprint of an article Reg Bent forwarded to me shortly after the meet here in Fremont, Nebraska in 1994. It deals with proper adjustment of brakes for old cars. The first part of the article deals in generalities. Next time, we'll cover specifics for Durant, Star and Flint.

The most important practical requirement for securing satisfactory results in the adjustment and maintenance of brakes is ABSOLUTE FREEDOM OF MOVEMENT AT ALL PARTS OF THE BRAKE OPERATING LINKGE. Unless all bearings, toggles, cams flexible shafts, springs, clevis pins, etc, are perfectly free it is impossible to get a permanently satisfactory adjustment. Because of the necessity for "free working" of the brake linkage all routine brake adjusting jobs should begin with the cleaning, loosening and lubrication of all clevises, lever and bearings on all the brake rods, rockers, cross shafts and band or shoe assemblies in the system. Clean with gas or kerosene, loosen with some good make of penetrating oil and lubricate with oil or high-grade, non-caking grease.

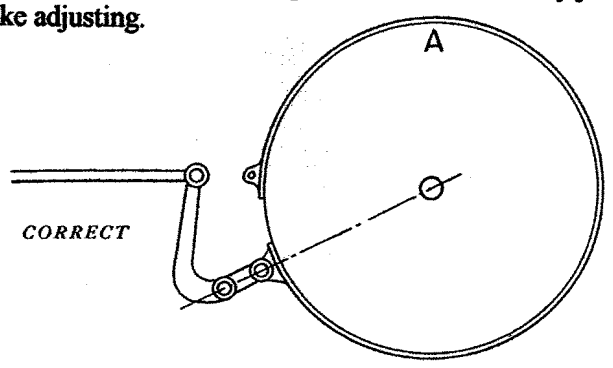
Never attempt to adjust any type of brake without first adjusting the front and rear wheel bearings. This is very important.

NECESSITY OF LEVERAGE

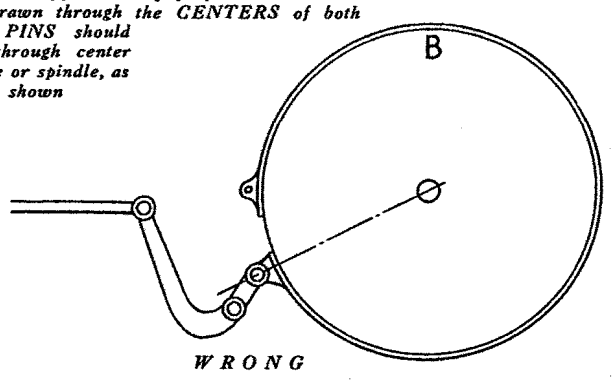
The second requirement for satisfactory brake adjustment is proper leverage. In order to get the desired pressure of the brake lining against its drum, it is necessary that the various levers and cranks in the linkage be set at certain relative positions. The desired lever angle for the RELEASED position of the brakes may vary slightly on the different make of cars, by even where the mechanic does not know the exact factory recommendations he should be able to get fairly satisfactory results by using common sense based on a preliminary knowledge of mechanics.

An almost infallible rule the brake mechanic should memorize and apply is as follows: WITH THE BRAKES FULLY APPLIED ALL OPERATING LEVERS SHOULD STAND PERPENDICULAR, OR AT RIGHT ANGLES TO THE ACTUATING ROD.

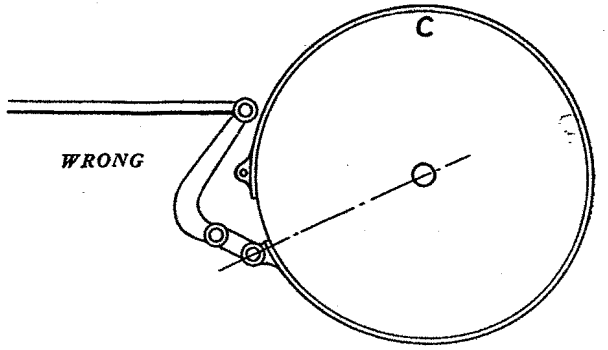
The accompanying illustrations show the correct and incorrect lever positions for maximum torque or leverage. It is urged that the mechanic carefully study these drawings, because he must have a full understanding of the principles of leverage before he can expect to do a satisfactory job of brake adjusting.



—CORRECT relative position of band operating lever and lever pins. With brake APPLIED the lever should be approximately perpendicular and a line drawn through the CENTERS of both lever PINS should pass through center of axle or spindle, as shown



—WRONG position of band operating lever and lever pins. Top of lever is too far forward. Position of pins would cause one end of lining to dig into drum. Position shown with brake APPLIED



—WRONG position of band-operating lever and lever pins. Top of levers is too far back. Pin positions would cause one end of lining to dig into drum, other to pull away. Position shown with brake APPLIED

QUALIZERS AND RODS

Equalizers on mechanical type brakes are often a source of considerable trouble. In some cases better results are obtained by eliminating them. Where the car is equipped with an equalizer, always be sure the pull rods are so adjusted as to bring the equalizer bar square across, as indicated in the following figure. Also be sure the rod from equalizer to pedal is properly adjusted to give clearance at floorboard and upper leverage.

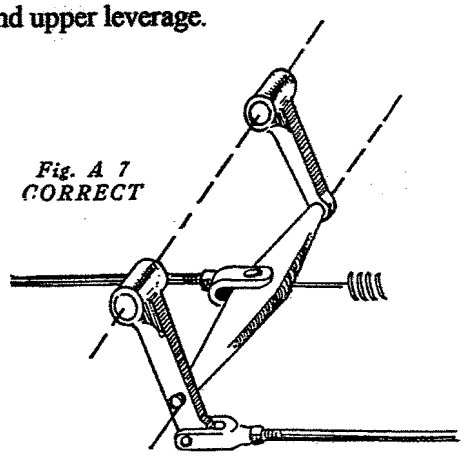


Fig. A 7—Correct position of equalizer cross bar. Note that bar is parallel to an imaginary line drawn through top of both levers. This condition should exist with brakes applied and also with brakes released

The brake pedal on practically all cars is equipped with a stop to limit its backward travel. In the absence of definite specifications it's advisable to set the pedal stop so the pedal arm clears the bottom of the floor-boards by 3/16 of an inch.

Mechanics sometimes make the mistake of shortening rods to remove slack, without first making sure that the various levers are properly positioned. All mechanical brake systems are built to have a certain amount of free travel of the pedal before the brakes are actually applied. NEVER SHORTEN BRAKE RODS WITHOUT FIRST MAKING SURE THE LEVERS IN THE SYSTEM ARE AGAINST THEIR STOPS. Where there are no stops be sure the levers are at the correct angle.

LINING TO DRUM CLEARANCE

The third requirement in successful brake maintenance is clearance between the brake lining and its drum. Clearance and leverage are closely inter-related. Leverage, however, is the most important factor, and although clearance specifications should be followed wherever possible, it is better to alter the clearance and get proper leverage than to reduce or destroy the leverage in order to get any specified clearance.

In connection with lining clearance it should be borne in mind that repeated use of the brake, such as in descending a mountain or making frequent , quick stops, (like parades), causes a rise in temperature of the brake drum. On internal type brakes, heating and consequent expansions of the drum, produce an increase in clearance. This means that the hotter the drum gets the less effective will be the brake. In other words, the drum may expand away from the lining so far that the pedal pad will strike the floor. Many makes of internal brakes are adjusted to the point where the lining drags and are then backed off just enough to eliminate the drag. The average internal brake carries not to exceed .010 of an inch clearance. An exception to this general rule is the Steeldraulic make of brake, which is given an average clearance of approximately .050 of an inch.

WIRING - REVISITED

Many of you have written following the column last month dealing with wiring, lights etc. The most often asked question was "where can I obtain a wiring loom for my car?" Following is a listing of companies that list wiring harnesses for Durant, DeVaux and Flint. For the Rugby and Frontenac you will have to use the appropriate substitute from those listed.

1. Harnesses Unlimited
   PO Box 435
   Wayne, PA 19087 215-688-3998

2. Y 'n Z's Yesterdays Parts
   333 East Stuart Ave Unit A
   Redlands, CA 92374 714-798-1498

3. Egge Machine Co
   8403 Allport Ave.
   Sante Fe Springs, CA 90670 213-945-3419

4. Rhode Island Wiring Service, Inc
   PO Box 434
   West Kingston, Rhode Island 02892
   401-789-1955

TIRE DEMOUNTING

Often when trying to demount a tire that has been on a rim for some time, the tire will not cooperate. To help position the tire so the beads will drop into the drop center, use two 8 inch C-clamps spaced about 8 to 10 inches apart and screwed on tightly. Then demount the tire in the usual manner.

BUG REMOVAL

This tip comes from an old service station helpful hints pamphlet I picked up at a swap meet several years ago. After you finish the tour you've been on and the windshield is covered with bugs and other foreign material, it's best to remove them immediately. They will come off a windshield easily if it is scraped with a pine block that has been soaked in water. This idea is especially useful in stations where the block is kept in a bucket of water soaking all the time. Better to put the pine block soaking before you leave on the tour!