

# M-30 BRAKE KIT

## (With Z-Brake Rod)

### INSTRUCTIONS

The M-30 Brake Kit consists of the necessary parts and hardware for:

1. Converting earlier Model E-12's, E-12S's, E-15's and E-20's to the heavy-duty brake assembly with Z-rod. - 247A7842G1.

2. Converting later model tractors which have the M-30 brake to use the Z-shaped brake rod. - 247A7842G2.

The M-30 brake with the Z-rod brake system will give more effective braking, with longer service life, and require less frequent adjustment.

The attached instructions are in four parts:

#### CONVERTING TO THE M-30 BRAKE

INSTALLING THE Z-BRAKE ROD ONLY  
(FOR THOSE TRACTORS WHICH PRESENTLY HAVE THE M-30 BRAKE)

#### BRAKE ADJUSTMENT

#### BRAKE CUT-OFF SWITCH ADJUSTMENT

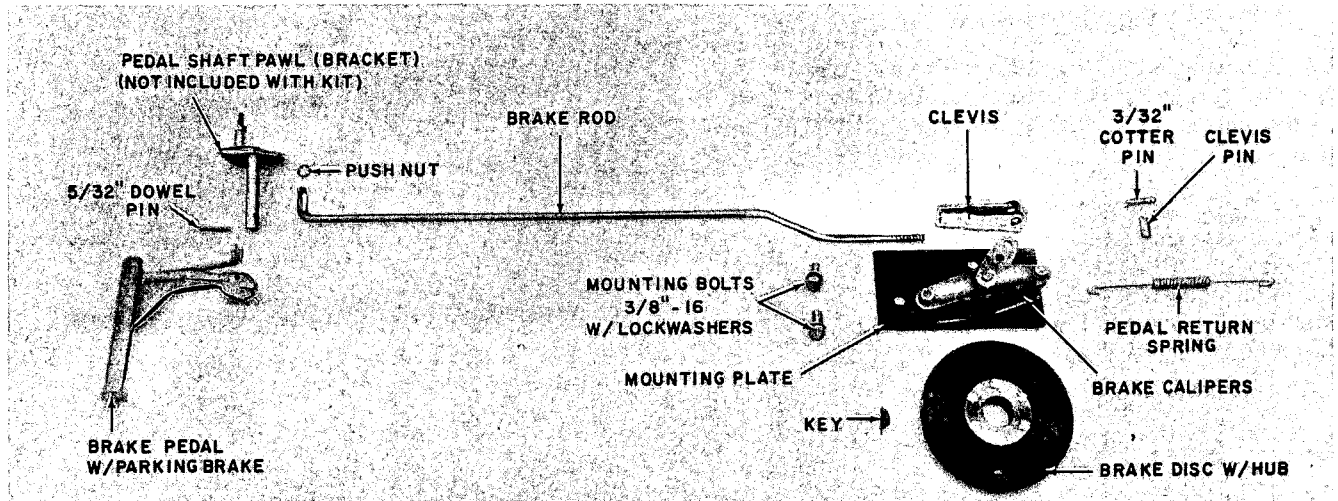


Fig. 1

### CONVERTING TO THE M-30 BRAKE

#### Removal Of Old Brake

1. Block the front tires and jack up the left rear wheel of the tractor. Place a jack stand under the tractor frame and remove the jack. Remove the rear wheel.

2. Place a scissors jack under the transaxle at the left wheel bearing. Loosen the transaxle mounting bolts at the mounting pads on the right side of the transaxle.

3. With the scissors jack contacting the left rear wheel bearing of the transaxle, remove the mounting bolts completely from the mounting pad.

4. Lower the scissors jack to obtain clearance (approximately 1/2 to 1 inch) between the trans-

axle mounting pad and the frame. It may be necessary to tap a wooden wedge in place to gain accessibility to brake mounting bolts. (See Fig. 2.)

5. Using a drift pin, drive out the 5/32 inch diameter dowel pin at the brake pedal base. Slide the brake pedal off the shaft and lower the shaft unit (with the brake rod attached) to the floor.

6. Slide or cut off the push-nut retaining the brake rod to the pedal shaft assembly. **DO NOT RE-USE THE PUSH-NUT.**

7. Unhook the pedal return spring from the tractor frame and actuating lever. (See Fig. 2.)

8. Remove the two 3/8-16 brake assembly mounting bolts from the transaxle. Remove the brake calipers and mounting brackets from the transaxle. It may be necessary to first remove

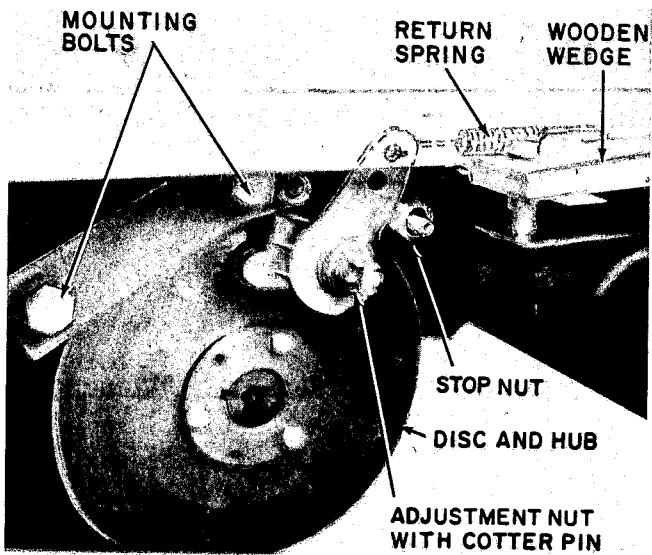


Fig. 2 Old Brake Unit

the actuating lever from the calipers. This is done by removing the cotter pin, adjustment nut and washers, then sliding the lever off the caliper unit.

9. Next, loosen the set screw on the disc hub and remove the brake disk from its shaft on the transaxle. If heat is required for brake disk hub removal, be sure to protect the transaxle shaft seal by placing a damp cloth over it while heating the hub.

## Assembling M-30 Brake To The Tractor

1. Mount the M-30 brake calipers to the transaxle mounting plate as shown in Fig. 3, if not already mounted.

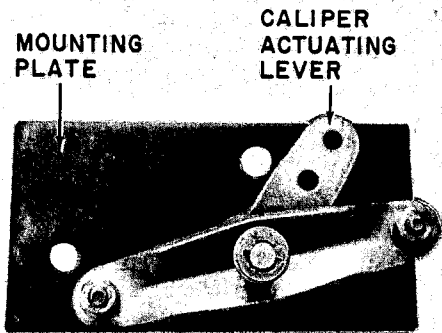


Fig. 3

2. Place the new (riveted) brake disk, supplied with the kit, on the transaxle shaft as shown in Fig. 4. Use the new Woodruff key provided and check to insure that the disk moves freely back and forth on the transaxle shaft.

3. Insert the caliper assembly over the disk and align the mounting plate holes with those of the transaxle. Install the two 3/8-16 bolts and lockwashers to attach the plate to the case. (See Fig. 4.)

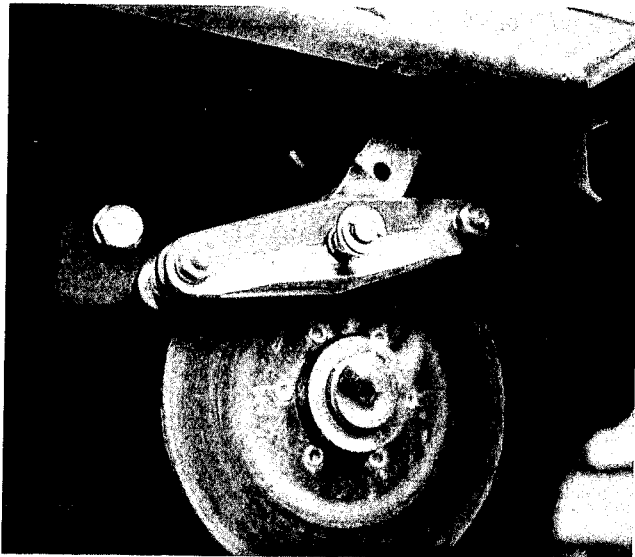


Fig. 4 M-30 Brake Unit

4. Place the short, bent end of the new brake rod in the hole provided on the pedal shaft unit. (See Fig. 1.) Apply the push-nut over the end of the brake rod such that 1/4 inch remains between the push-nut and the end of the rod.

5. Insert the pedal shaft through the bushing in the tractor frame at the footrest.

6. The new brake pedal supplied with the kit may or may not be required, depending on the particular tractor involved. The old brake assembly removed has a stop nut on the calipers. The M-30 brake requires a pedal stop (see Fig. 5). If your brake pedal is like that in Fig. 5, the new pedal is not required. Only brake pedals with a stop tab can be used with the M-30 brake.

7. Drive the dowel pin through the pedal and shaft unit.

8. Attach the straight clevis to the threaded end of the Z-shaped brake rod by rotating clevis clockwise on the rod. Continue rotating clevis

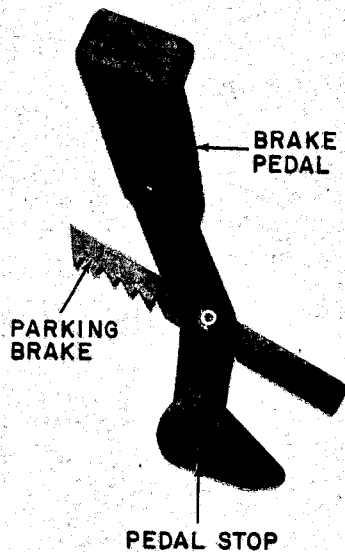


Fig. 5

until one-half of the clevis threads are engaged by the rod.

9. Replace the return spring with the longer spring provided. Place the new spring from the upper hole of the actuating lever to the chassis hole on the side of the frame.

10. Position the clevis to the lower hole on the caliper actuating lever. Insert the clevis pin and install the cotter pin.

11. Remove the wooden wedge from the left transaxle mounting pad. Jack the transaxle to its original position. Replace and tighten the transaxle mounting bolts on both sides of the transaxle.

12. Next, replace the rear wheel and lower the tractor to the floor. Test the brakes and adjust them if necessary.

13. Determine if the brake switch needs adjustment. Refer to the BRAKE CUT-OFF SWITCH ADJUSTMENT section.

## INSTALLING THE Z-BRAKE ROD ONLY

To install the Z-brake rod on an existing M-30 brake assembly, proceed as follows:

1. Jack up the left rear of the tractor and remove the wheel.

2. Remove the cotter pin and clevis pin from the brake rod clevis. Lower the brake rod from the calipers.

3. Remove the 5/32 inch dowel pin from the brake pedal and remove the pedal shaft from the frame bushing.

4. Remove the push nut from the end of the brake rod and slide the rod out of the pedal shaft bracket.

5. Screw the straight clevis provided on the new Z-rod until one-half of the clevis threads are engaged by the rod.

6. Reassemble the new rod to the pedal shaft bracket. Place the push nut over the bent end of the rod so that it is 1/4 inch in from the end of the rod.

7. Re-install the brake pedal.

8. Attach the clevis to the lower hole on the caliper actuating arm (where the return spring is presently attached). Move the return spring to the top hole in the arm.

9. Test the brakes and adjust them, including the brake switch, as required.

## BRAKE ADJUSTMENT

1. Remove the rear wheel on the brake side of the transaxle.

2. Remove the cotter pin from the brake clevis pin. See Fig. 1.

3. Remove the brake clevis pin.

4. Rotate the brake clevis clockwise to shorten the brake linkage until the brake drags. The clevis and clevis pin must be reinstalled temporarily to check brake drag. Test by manually rotating the brake disk, then back off one-half turn at a time until brake drag is relieved. The pedal is now in the upright, OFF position.

5. Reinstall the clevis, clevis pin, and cotter pin on the brake actuating lever.

6. Reinstall the wheel and test the brake function for more effective stopping.

## BRAKE CUT-OFF SWITCH ADJUSTMENT

As part of any brake service procedure, the brake switch adjustment should also be checked and corrected if necessary. Brake switch adjustment should be determined as follows. Proper switch adjustment is achieved when the drive motor is shut off just prior to the mechanical

braking action as the brake pedal is depressed. The switch should be adjusted for actuation with minimal brake pedal travel from the pedal OFF or rest position.

If adjustment is necessary, locate the brake switch mounted on the underside of the frame immediately to the right of the brake pedal. Notice that the switch is actuated when its lever arm is deflected as the brake pedal is depressed. During this actuation, the lever arm rides on a shoulder bolt mounted on a slotted pawl. (See Fig. 1.) It

is this bolt that must be repositioned in the slot to adjust the drive-motor/brake cut-off point.

1. Loosen the shoulder screw.
2. Reposition the shoulder screw in the slotted pawl and tighten it in place. Move the screw forward to delay actuation of the brake switch.
3. Retest the brake.
4. Repeat Steps 1 through 4 if required.