GALION MANUFACTURING COMPANY, Galion, Ohio 44833, U.S.A.
a Jeffrey Galion Inc. Company

REBUILD & ADJUSTMENT OF SELF-ADJUSTING BRAKES ON GALION GRADERS

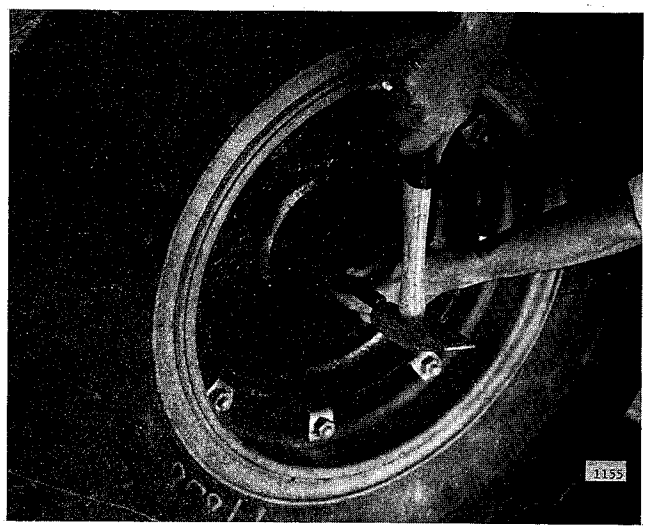
The instructions in this section apply to rebuild and initial adjustment of the self-adjusting brakes used on the graders listed below:

Model 104	Serial Number 3439 to 8838
Model 118	Serial Number 3439 to 8838
Model 160	Serial Number 1477 to 2334
Model T-500	Serial Number 1719 to 3024
Model T-600	Serial Number 1279 to 1652
Model T-700	Serial Number 1058 to 1081

Disassembly

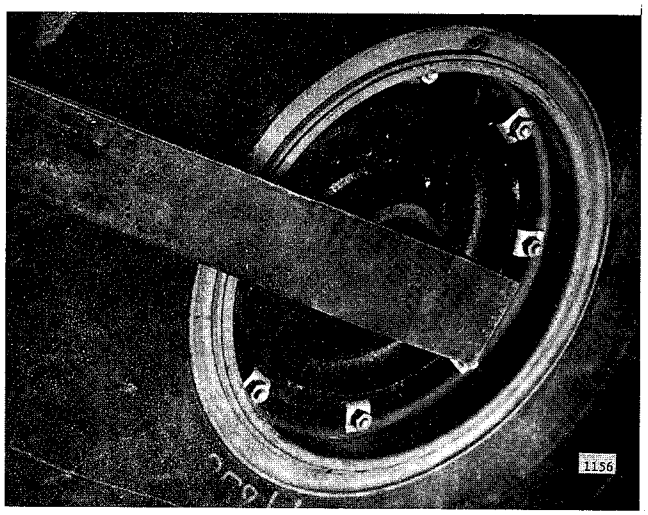
1

Bend nut locking washer flat with chisel and hammer.



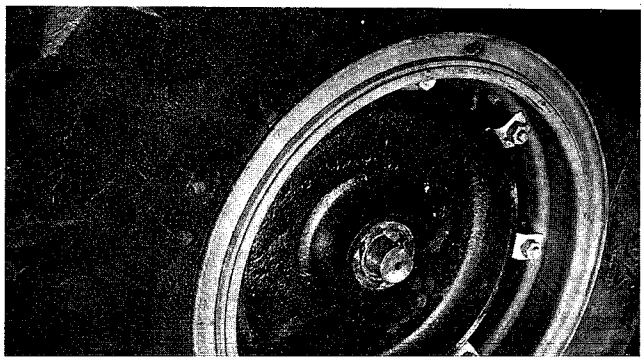
2

Loosen wheel nut.



3

Remove nut, locking washer, and flat washer from axle.



4

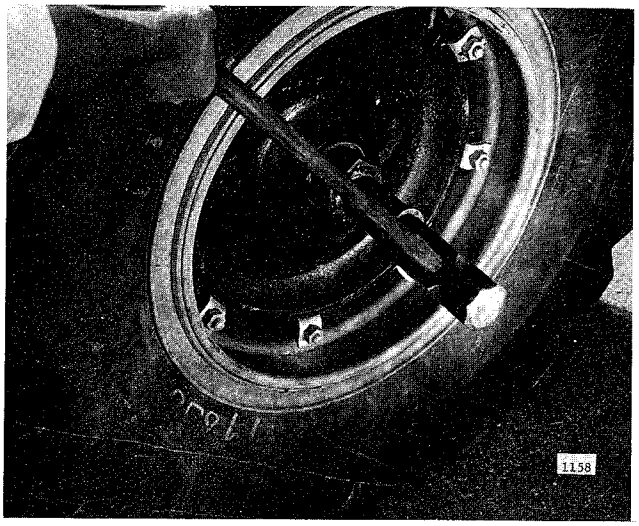
Install wheel knocker and tighten.

To assist in removal of wheel from tapered axle shaft, wheel being removed should remain on ground and wheels of other side should be raised clear of ground.

Strike knocker sharply several times with hammer.

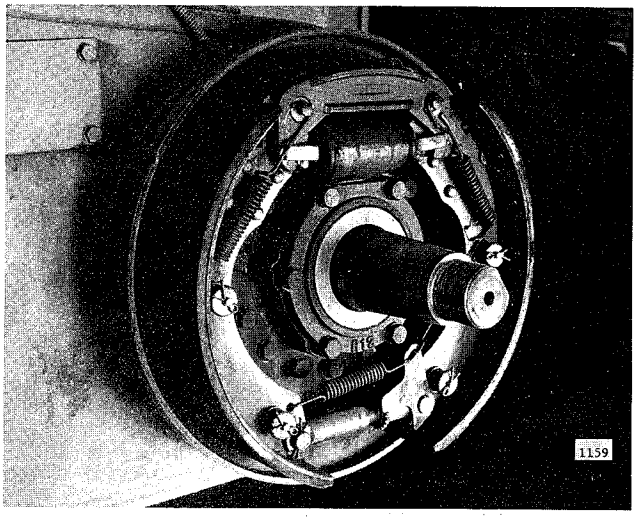
When wheel assembly is loose on axle, raise wheel clear of ground and remove from axle.

Details of knocker shown on page 12 of this section.



5

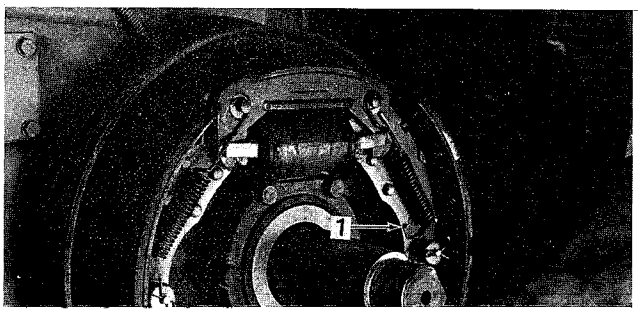
Brake assembly.



6

Remove adjuster lever and spring by pulling the lever toward the shoe rim and lifting it off the pin.

Unhook spring from primary shoe web.

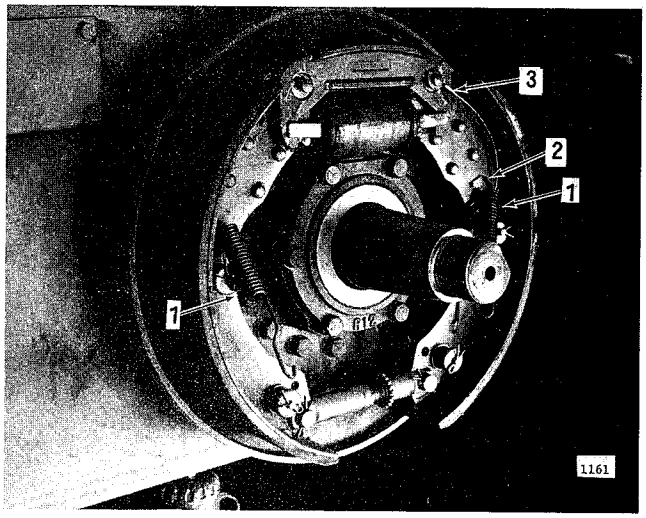


7

Remove the two shoe return springs (1).

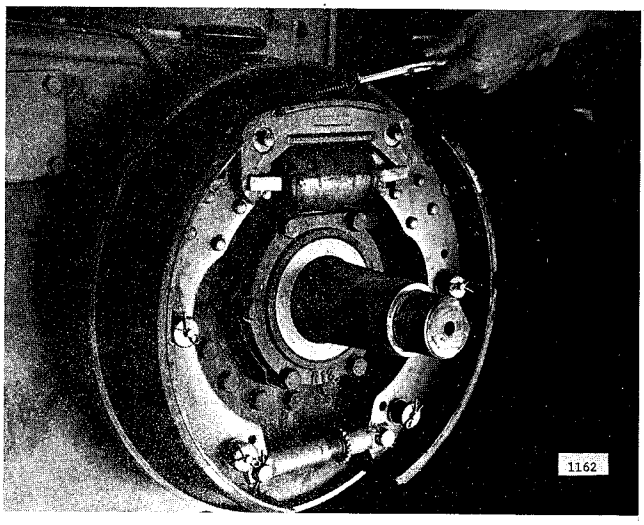
See that the cable guide (2) is also removed with the secondary shoe spring.

Remove the adjuster cable fitting (3) from the secondary anchor.



8

Remove shoe to shoe spring.



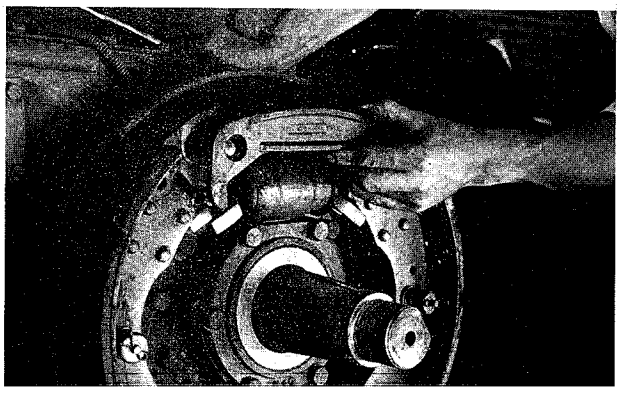
9

Spread both primary and secondary shoes as shown.

Move wheel cylinder connecting links downward and clear of anchor reinforcement plate.

Remove anchor reinforcement plate.

Remove wheel cylinder connecting links.

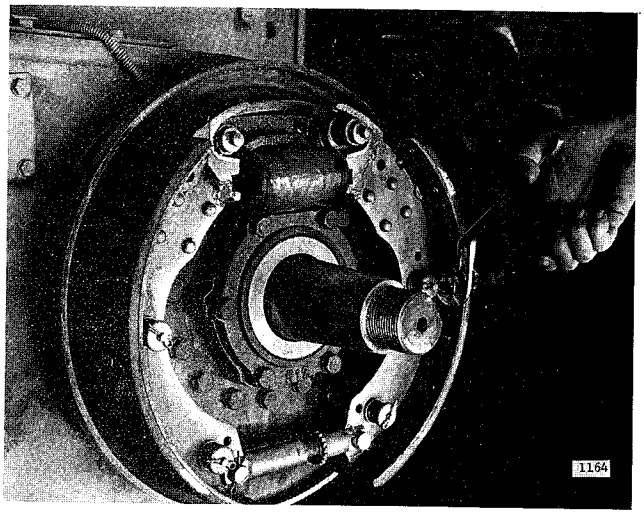


10

Pull shoes back into position.

Remove the four hold down spring and cup assemblies.

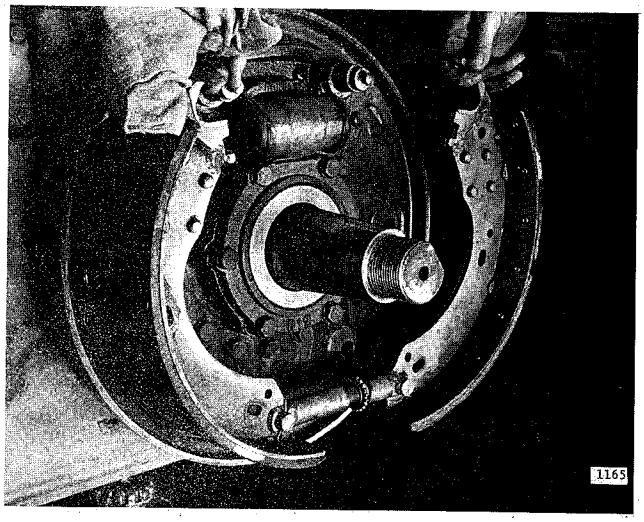
CAUTION: Hold cloth over each assembly as the cotter pin is removed to prevent loss of parts.



11

Spread the ends of the shoes apart to free anchor ends.

Remove shoes and lay on work surface.



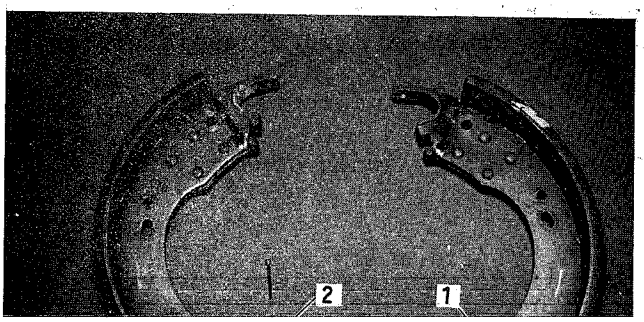
12

Remove cotter pins from adjusting screw pin.

Remove clevis pins and adjusting ends--socket (1) and threaded (2).

Disassemble adjusting screw end (starwheel and nut).

Clean all parts thoroughly in approved metal parts cleaner.

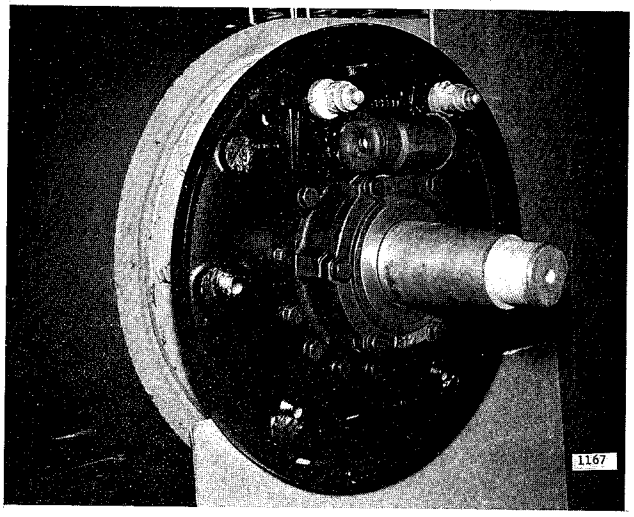


13

Service wheel cylinder at this time.

Torque backing plate screws to 75 ft.-lbs.

Check axle seal for leakage and replace if necessary.

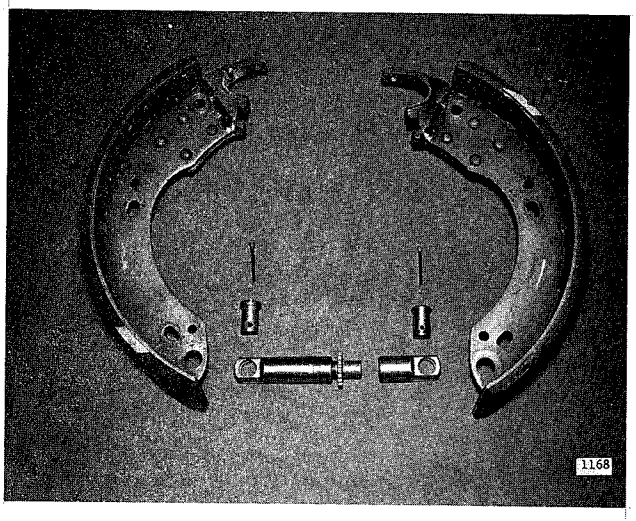


Assembly

14

Place the newly lined shoes in position for assembling the adjusting screws to them.

NOTE: The round rivet heads at the anchor ends of the shoes must be on the upper side of the shoes.



15

Place the adjusting screw (socket) in position on the secondary (rear) shoe.

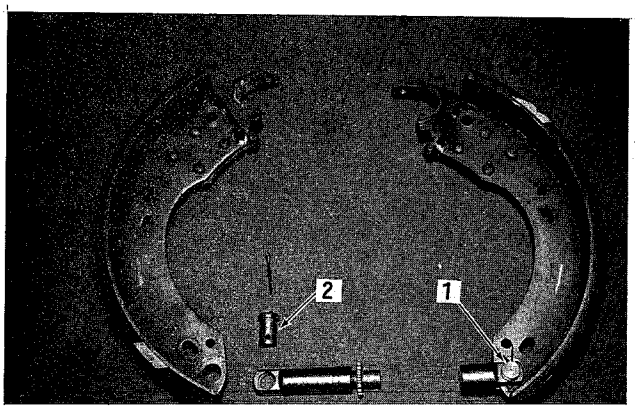
Insert grooved end clevis pin (1).

Fasten in place with cotter pin.

Install adjusting screw (nut) in position on primary (front) shoe.

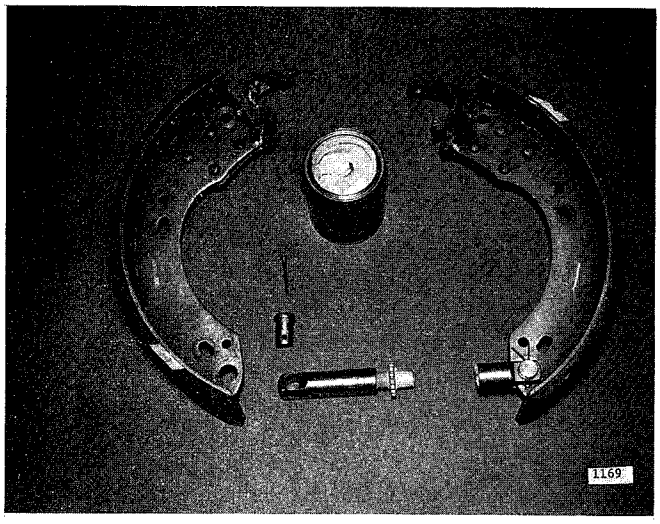
Install plain end clevis pin (2).

Fasten in place with cotter pin.



16

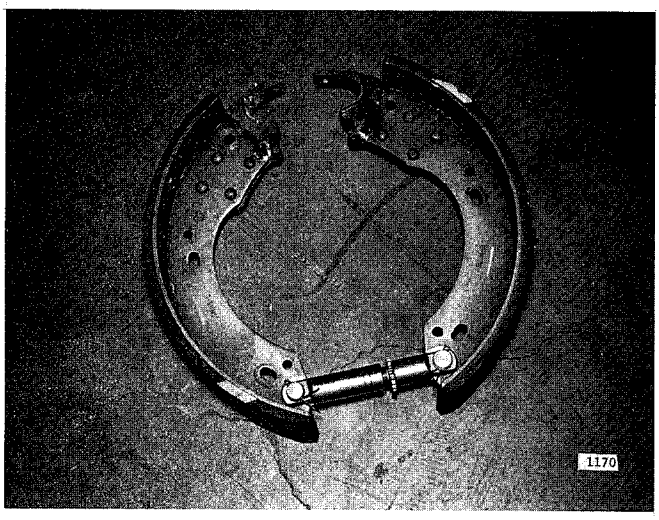
Lubricate the threads and the socket end of the screw with Lubriplate Number 630AA, Type 2, or equal.



17

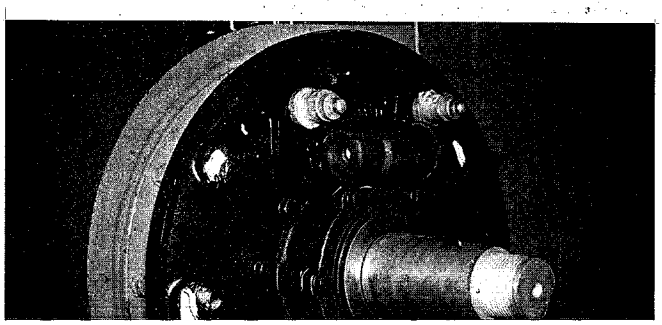
Thread the adjusting screw into the nut to the limit of the threads.

Then back it off 1/2 to 1 turn.



18

Lubricate anchor cams and shoe contact points on backing plate with Lubriplate #630AA, type 2, or equal.



19

Position shoes on backing plate--round heads of rivets on anchor ends outward.

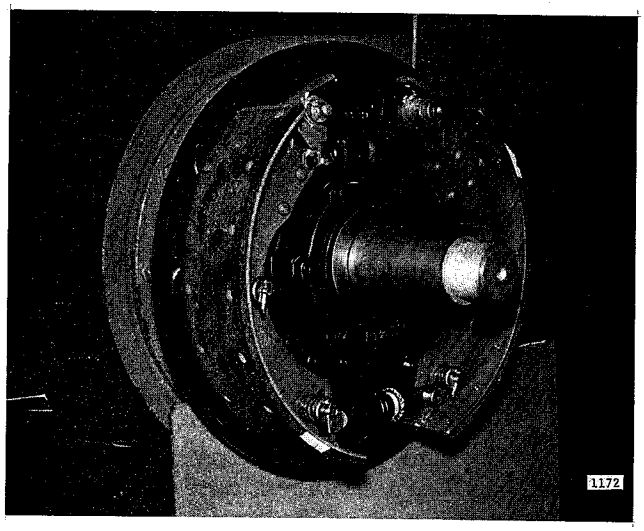
Place hold down pins through a countersunk hole in the backing plate.

Assemble a cup on each end of a hold down spring and place in position over pin.

While one operator holds the pin in position with the cotter pin ready for insertion, the other operator compresses the spring using a 3/4" open end wrench or other suitable tool.

Cotter pin is then inserted and spread.

Install the other three hold down springs in the same manner.

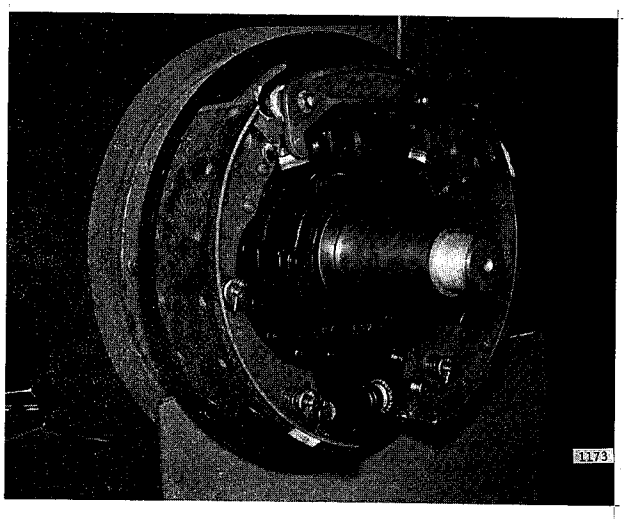


20

Spread both primary and secondary shoes as shown.

Install cylinder connecting links--offset out as shown--into wheel cylinder boots and pistons.

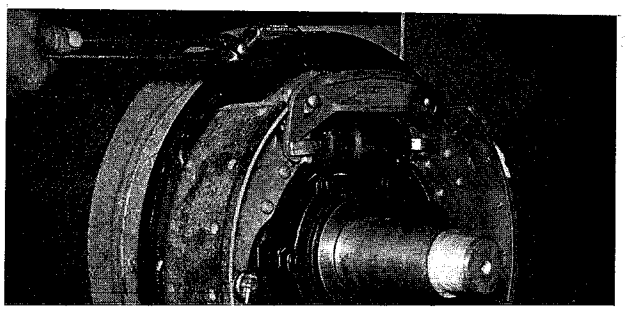
Install anchor reinforcement plate at this time.



21

Then raise the cylinder connecting links to the horizontal position to engage both the shoes and the anchor reinforcement plate.

Install shoe to shoe spring.



22

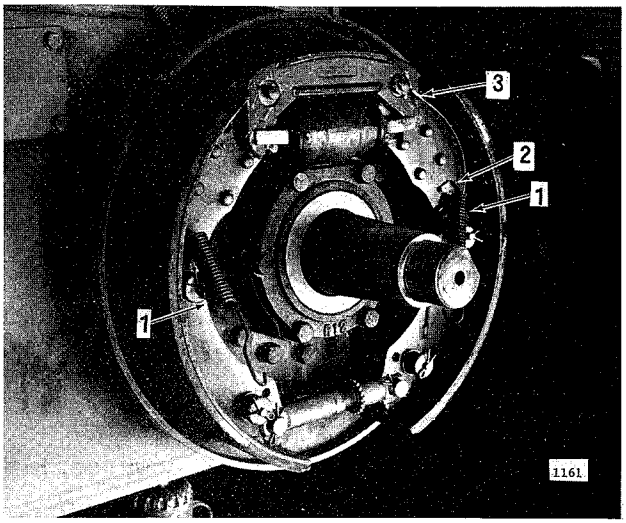
Install the adjuster cable (3) on the secondary anchor pin.

Install the cable guide (2) and shoe spring on the secondary shoe. (Color code--black.)

Install shoe spring on primary shoe. (Color code--red.)

Hook springs to respective anchors.

Check cable and guide to insure no interference has been created during spring installation.



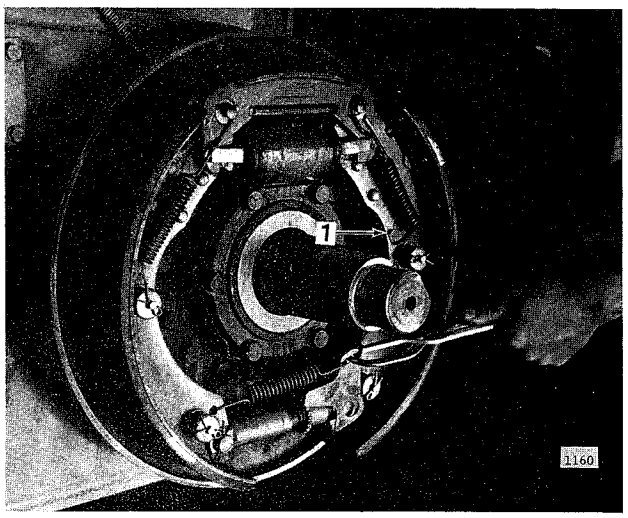
23

Hook adjuster spring in hole on primary shoe and in slot in adjuster plate.

Run adjuster cable around cable guide (1).

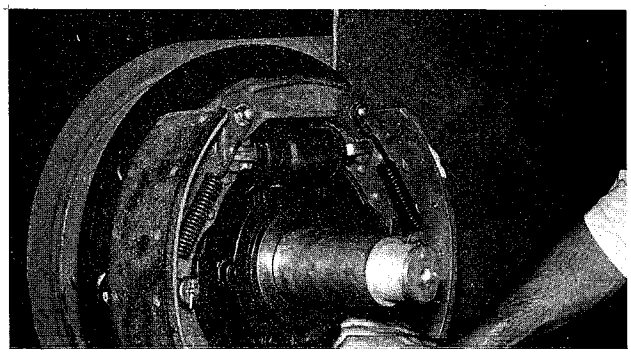
Hook in slot on adjuster plate.

Hook adjuster plate in slotted clevis pin as shown.



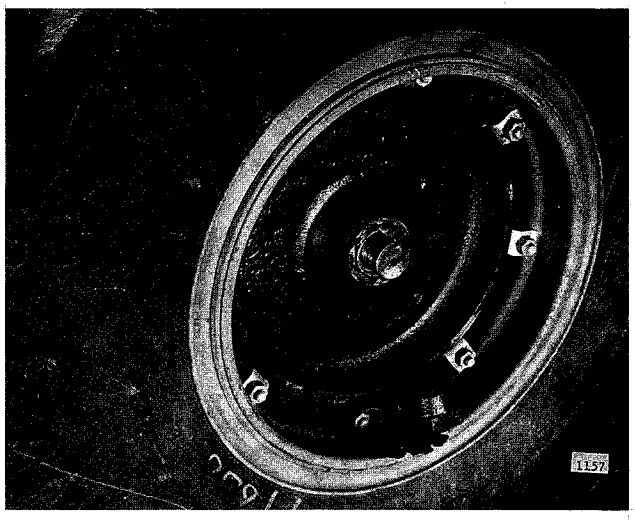
24

Hold adjuster lever away from star wheel and manually turn star wheel to adjust the shoes outward until about six of the threads are exposed.



25

Install wheel assembly, flat washer, locking plate, and nut.

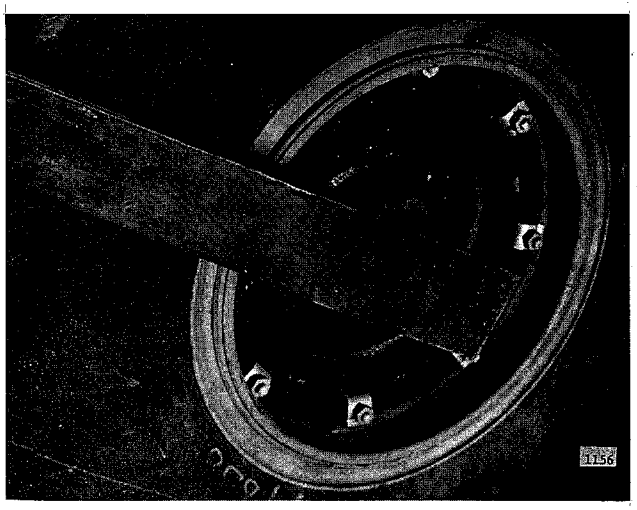


26

Torque wheel nuts to 1250 foot pounds.

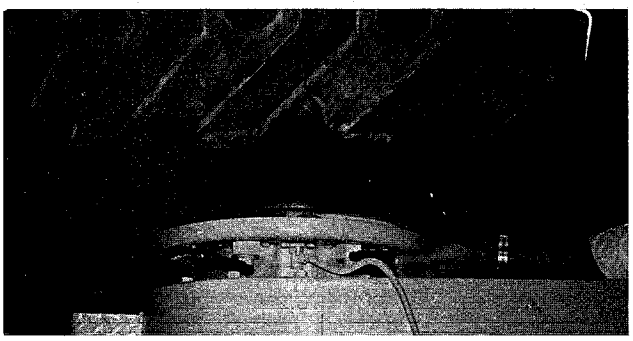
NOTE: After the first 50 hours of operation, retorque wheel nuts.

Bend locking plate against flat side of nut after torquing.



27

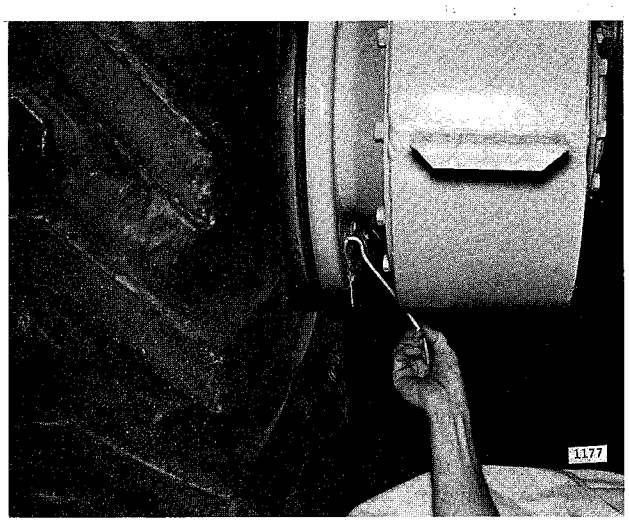
Open the adjusting screw and the four gage slot covers on the backing plate.



28

To adjust brake, use an adjusting tool (Galion part number 54 or equal) through the adjusting slot and engage with a notch in the star wheel.

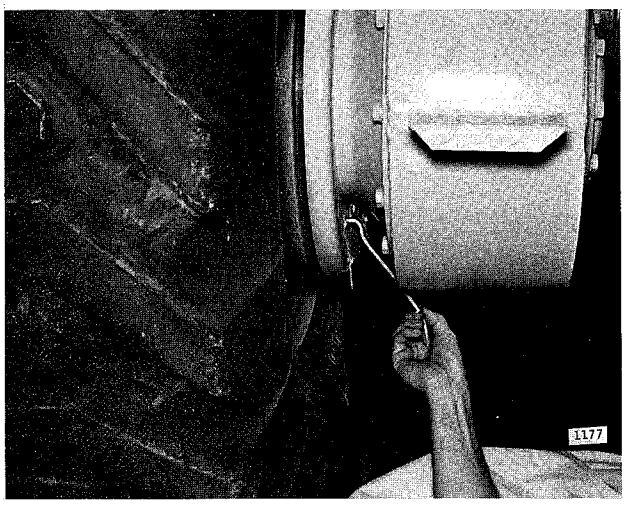
Move free end of tool away from axle to tighten.



29

Turn the star wheel until the shoes are tightly expanded into the drum.

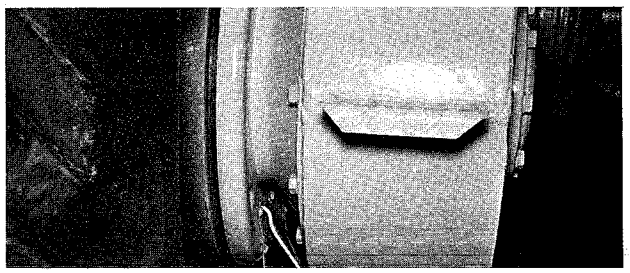
NOTE: This is done to insure positive seating of all parts thus lessening the possibility of a false adjustment.



30

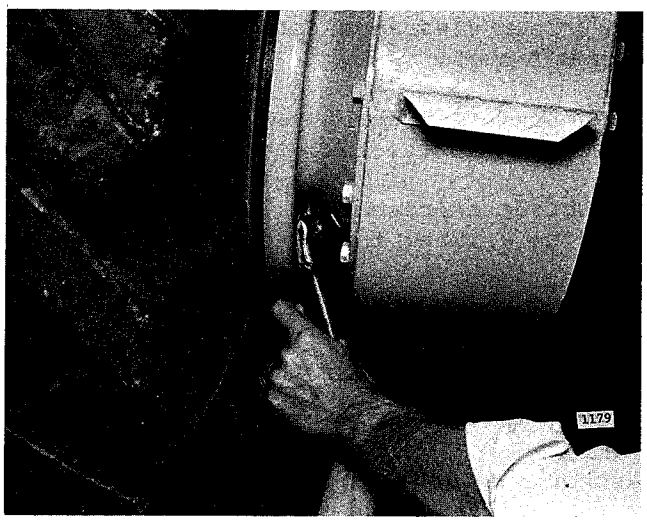
Use a small diameter push tool at the side of the adjusting tool and above the socket to hold the lever away from the star wheel for backing off to proper clearances.

CAUTION: Push the lever no more than 1/8" away from star wheel. Pushing it further can damage the pivot hole.



31

Back off the star wheel 8 to 10 notches by moving the free end of the adjusting tool toward the axle while the lever is held away.



Check the clearances with feeler gages at the four gage slots.

The recommended clearances are .004" at the anchor or upper ends of the shoes and .010" at the lower ends.

Clearances can be equalized by prying the star wheel toward the larger clearance with the adjusting tool.

Continue adjustment of star wheel until clearances are as close as possible to the .004" and .010" values.

The clearance at the adjusting ends should be approximately double that at the anchor ends of the shoes.

If clearances are near this proportion (such as .006" and .015") at each shoe, adjustment of the anchor pins is not necessary.

32

If anchor adjustment is required to obtain proper clearances, loosen each anchor nut not more than one turn.

To adjust, turn the arrow point on the end of the anchor away from the axle to reduce clearance or toward the axle to increase clearance at the anchor ends.

A wrench 18" to 24" is required to turn the anchor if the anchor nut has been loosened correctly.

33

Readjust the adjusting screw each time the anchor pin is moved as clearances at both ends of the shoes are changed by anchor adjustment.

34

After proper clearances are obtained, tighten the anchor nuts.

Hold anchor pin securely and tighten anchor nuts to 400-440 ft.-lbs. torque.

(This torque represents a 140 pound force applied to a three foot wrench.)

35

Clearances should be rechecked after anchor nuts are tightened.

If anchor nuts were too loose during adjustment to hold the anchor pins in correct position, tightening will cause the anchor pins to move and, in turn, call for re-adjustment of anchor pins.

Notes:

Brake is adjusted during operation when grader is moving rearward and brakes are applied.

A reasonable number of reverse brake applications are required to maintain proper adjustment.

Brakes will not become too tight by a high number of reverse brake applications.

Lining wear must be checked at reasonable intervals determined by grader use to prevent drum damage from rivets exposed by worn out lining.