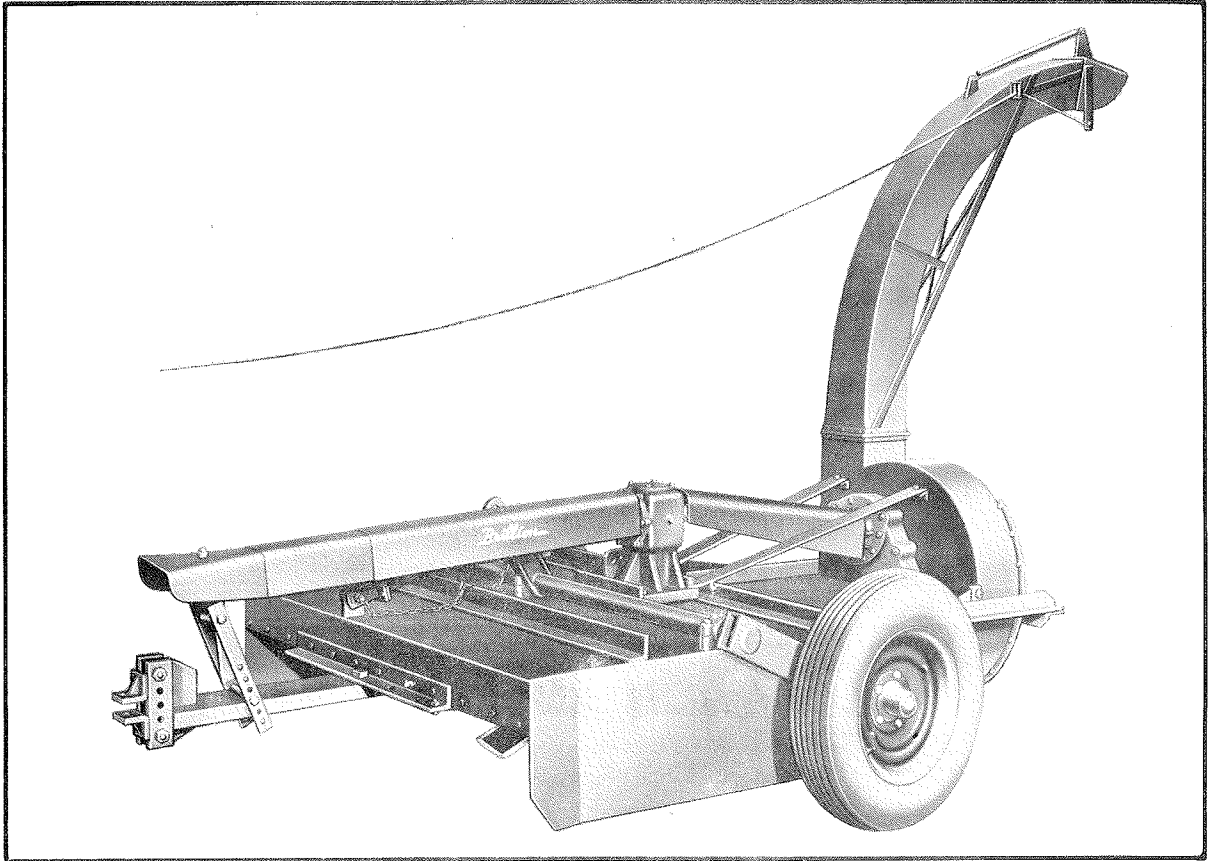


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# OPERATOR'S MANUAL

# *Brillion*

## SHREDDER HARVESTER



BRILLION IRON WORKS, INC.  
BRILLION, WISCONSIN

*Brillion*

## **COBRA HEAD HARVESTER**

The "Brillion" Cobra Head Harvester is constructed with the best materials and workmanship available. The machine is factory adjusted to assure proper operation.

You can avoid many future difficulties by following the operating and maintenance instructions, and by correctly adjusting and lubricating the machine when necessary.

### **LOCATION REFERENCE**

"Right" and "Left", "Front" and "Rear" refer to the operators "Right" and "Left", "Front" or "Rear" when he faces the same direction as the machine is traveling.

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## REFERENCE NOTE

When reference to Page 1, Page 2, Page 3, etc., is made in the text, these numbers will appear at the bottom of each page of this manual.

When reference to (Fig. 1), (Fig. 2), etc., is made, it refers to the respective Instructional Views of this manual.

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## SETTING UP INSTRUCTIONS

When attaching the Cobra Unit Attachment to the shredder, (not originally ordered out as a harvester), it will be necessary to remove the center and left rear plates from the shredder housing.

If you ordered a Cobra Head Harvester, it was shipped less these two plates as they are not used in the Cobra assembly.

Assembly can be simplified if all parts are first assembled with all bolts drawn up to finger tightness. When all the bolts are in their proper location, draw each up tight.

### DUCT AND FAN HOUSING

To begin assembly, attach the blower duct and fan housing to the shredder, as shown in (Fig. 1) and (Fig. 2). Two of the bolts are positioned from inside the duct, (See Fig. 1), in the center top position of the duct. Access to these bolt locations is through the clean-out door in the fan housing. Six (6) 1/2 x 1 1/2 long bolts are supplied to attach the duct and fan housing to the shredder hood.

### CUTTERWAY PLATE

Place the cutterway plate (Fig. 3) underneath the left side of the shredder as shown. Be sure the way plate (as indicated by the arrow) lies above the joint strip of the bottom plate of the fan housing duct. Bolt the way plate to the L.H. side of the shredder housing, using (2) 1/2" x 1 1/4" lg. hex. head machine bolts.

Fig. 1

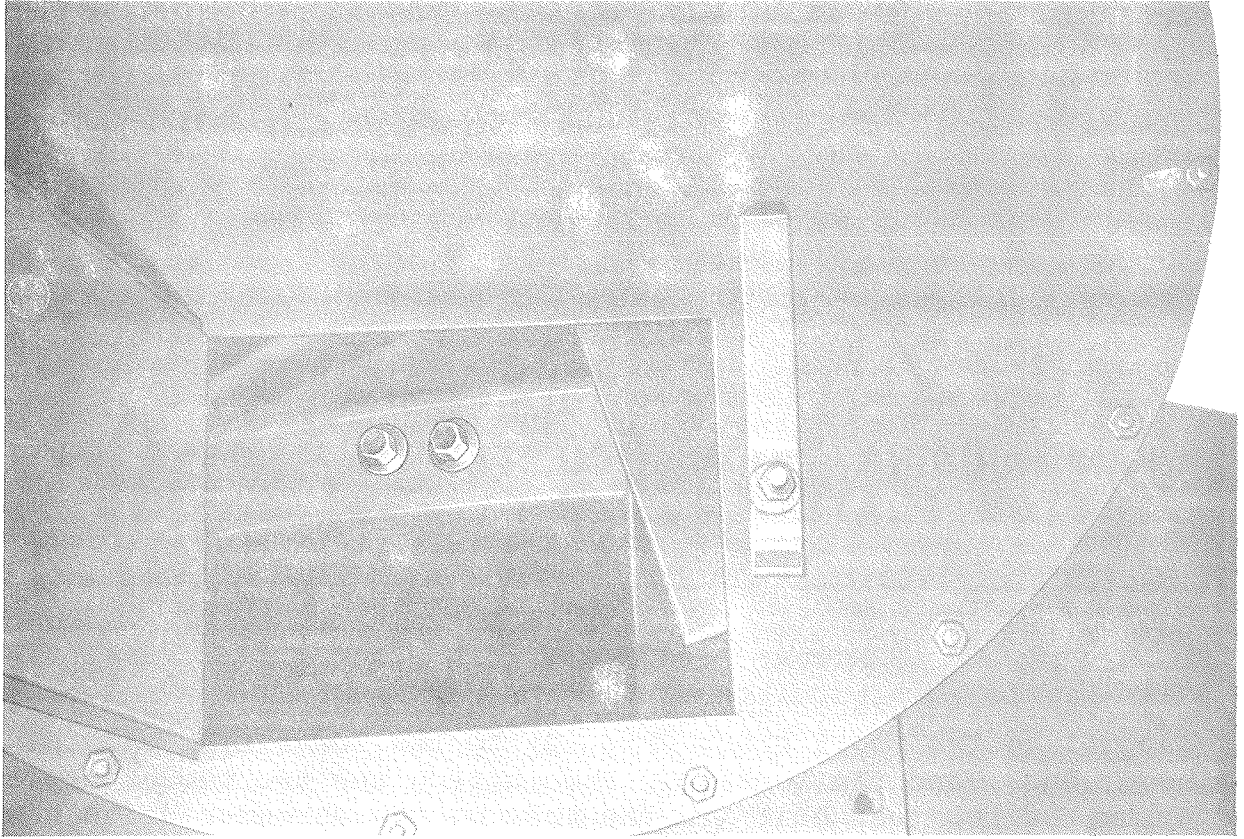


Fig. 2

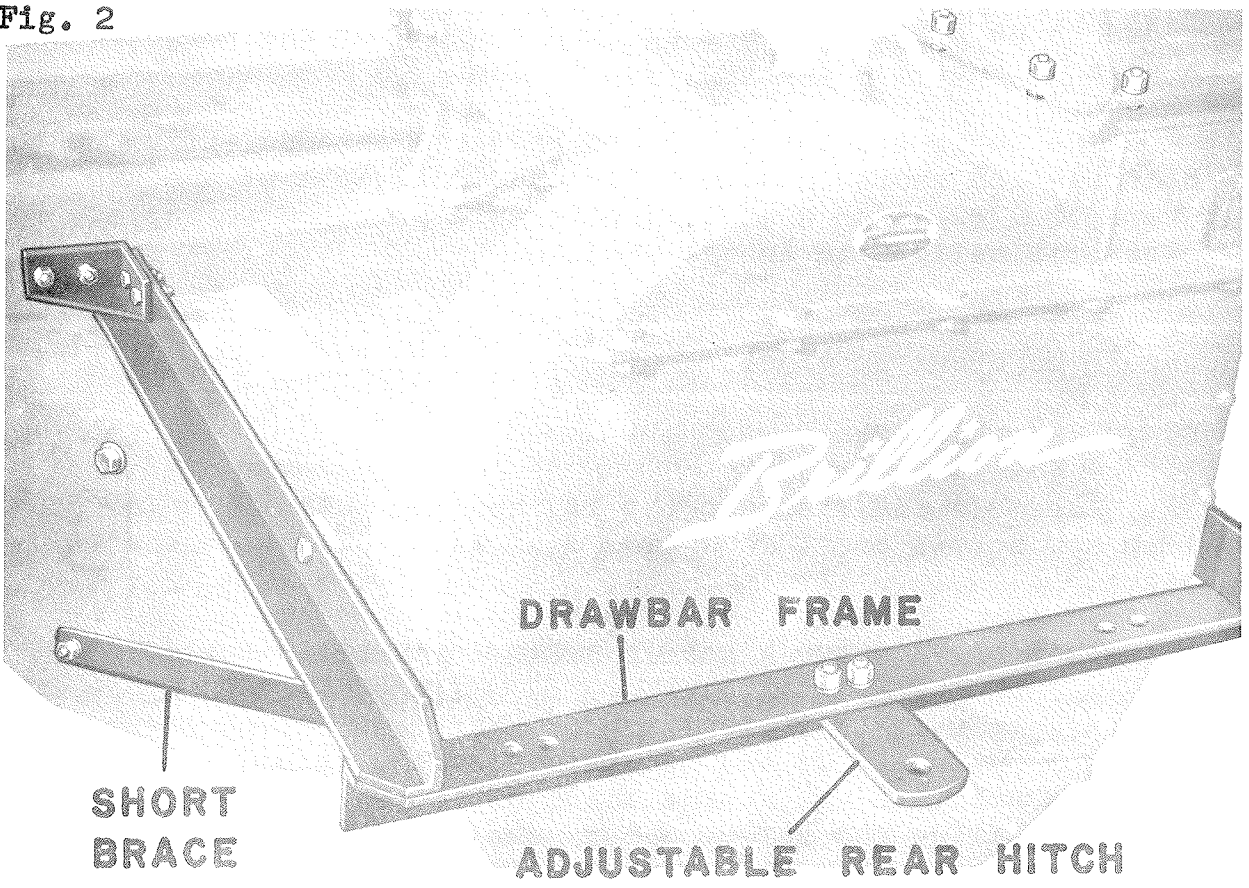
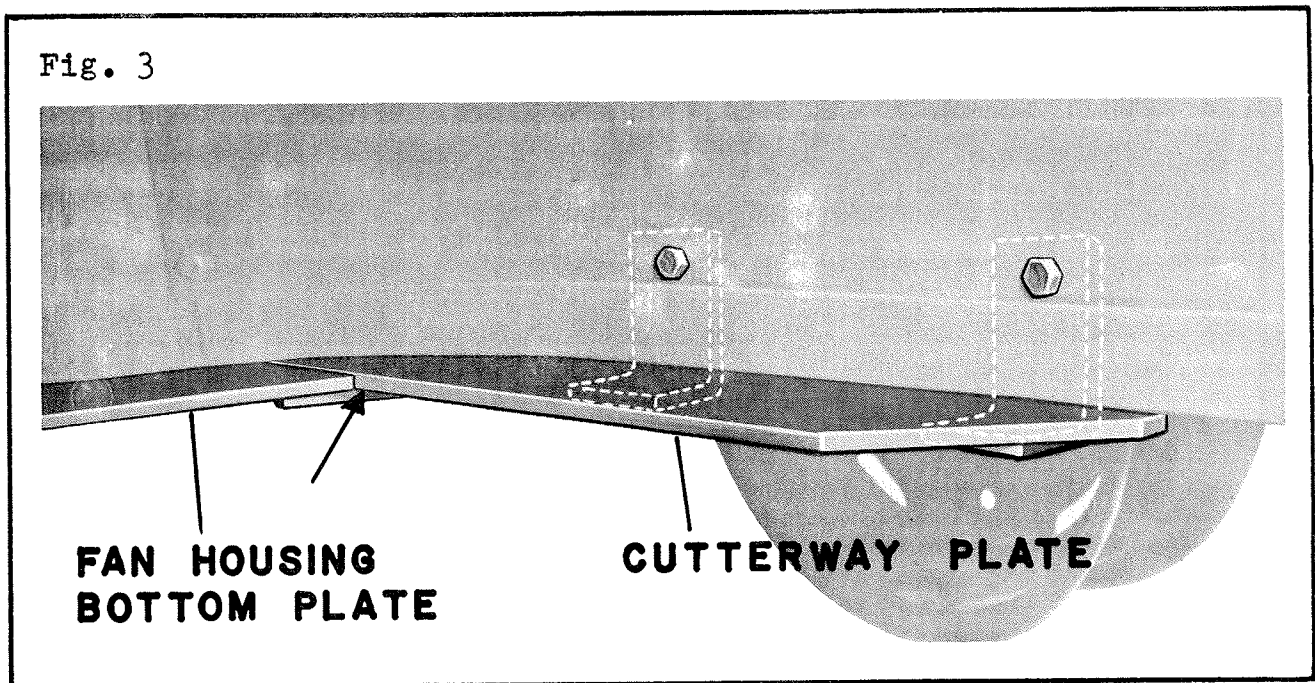


Fig. 3



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### BRACES

The three braces should follow next in assembly, by first assembling the short brace (Fig. 2) to the lower L.H. side of the hood, duct, and fan housing. Then attach the two top brackets (Fig. 4) to the two rear bolts in the base of the shredder drive housing and the two angle brackets located on the upper front face of the blower housing. Two 1 1/2" round x 1 1/4" long spacers are provided to be placed between the top surface of the shredder drive housing flange and the two rear braces.

The bolts presently used to bolt the shredder drive to the hood are too short to accommodate the thickness of the two spacers. Therefore, (2) 5/8" x 4" long bolts are provided to replace the ones originally used in the machine.

Following the assembly thus far completed, all of the bolts should be drawn up tight.

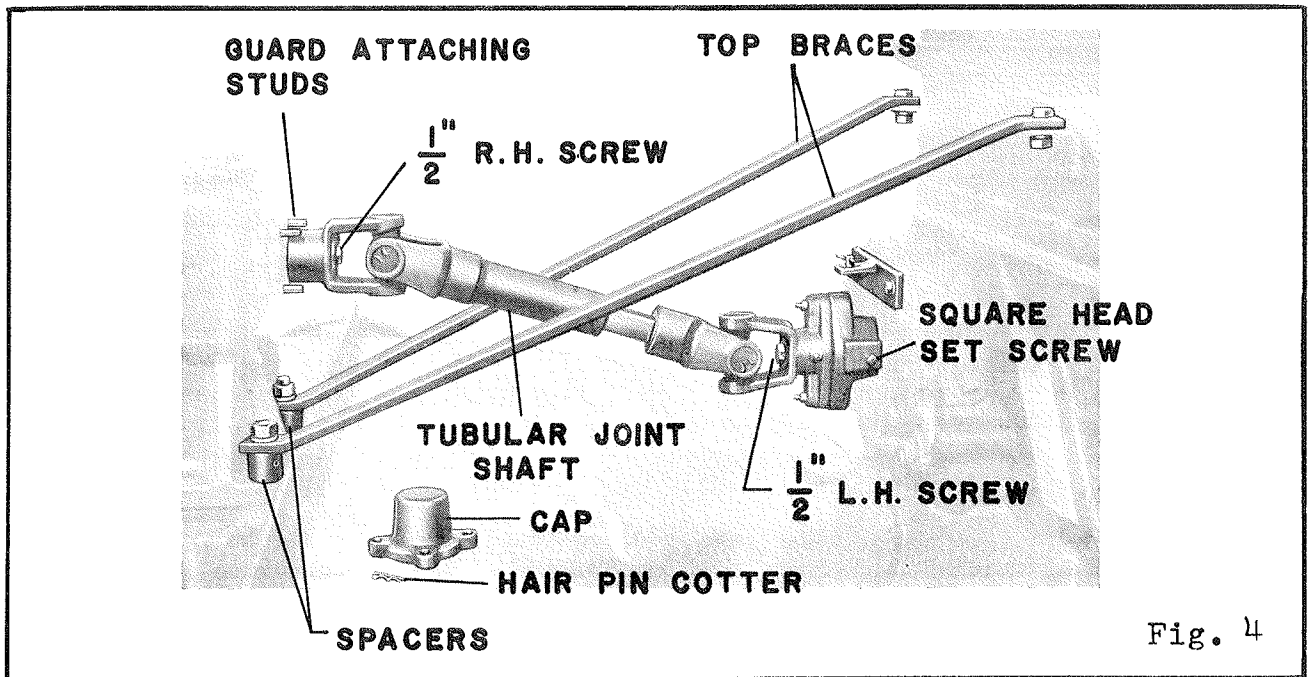
### STACK (See Fig. 2)

Assemble the stack to the fan housing, using the (3) 3/8 x 1" long cap screws and Stover Nuts. Draw all eight of the bolts up tight.

### UNIVERSAL DRIVE SHAFT & SAFETY SHEAR ASSEMBLY (See Fig. 4)

Assemble the universal square shaft and safety shear assembly to the input shaft of the fan drive housing, along with the tubular joint assembly to the output shaft of the shredder drive housing. When assembling the safety shear unit to the fan drive input shaft, it will be necessary to remove the 1/2" LEFT HAND cap screw and

washer from the end of the shaft. (Fig. 4). Then slide the shear joint onto the shaft, making sure the square key is in the key-way of the shaft and hub. Complete the assembly of the shear joint by locking the flange to the blower drive shaft, by tightening the square head set screw in the hub of the flange. Then replace the washer and L. H. capscrew in the end of the input shaft, to retain the yoke.



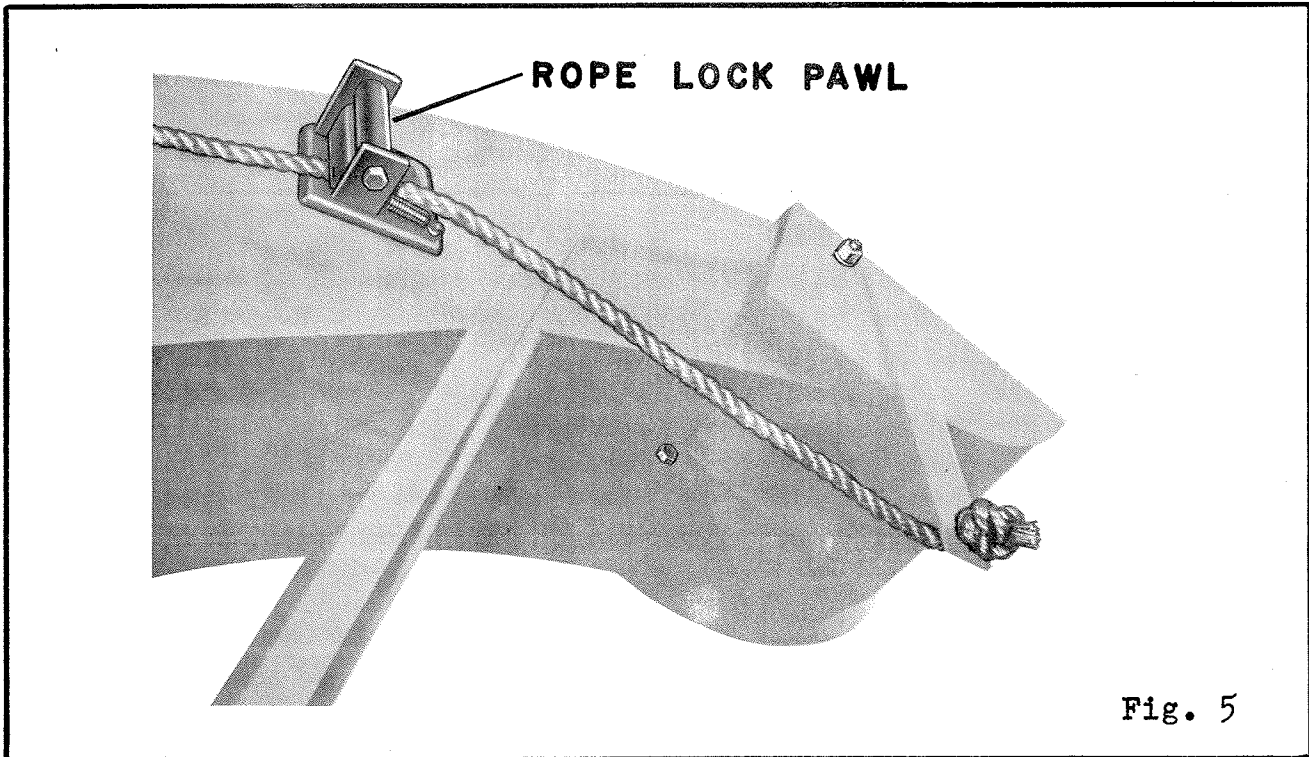
To attach the universal tube and yoke assembly to the output shaft of the shredder drive, place the 5/16" square key in the key-way of the shaft. Then slide the yoke onto the shaft. To complete assembly of these parts, place the 3/16" thick washer into the counterbored face of the joint, then turn in the 1/2" x 1" R. H. long capscrew. (The screw and key are found in the bag assembly attached to the stack.)

#### P.T.O. SHIELD (Not Shown, But Supplied)

The forward end of the P.T.O. Shield has a bracket with two holes. These two holes provide means for attaching the guard to the shredder drive housing. The two guard studs, (See Fig. 4) in the rear flange of the shredder drive are to go through the two holes in the shield bracket. The single mounting holes in the top-rear portion of the guard is intended to drop over the pin in the bracket on the face of the fan drive housing. Secure the shield in place with the 5/32" x 1" long cotter pin found in the bag assembly.

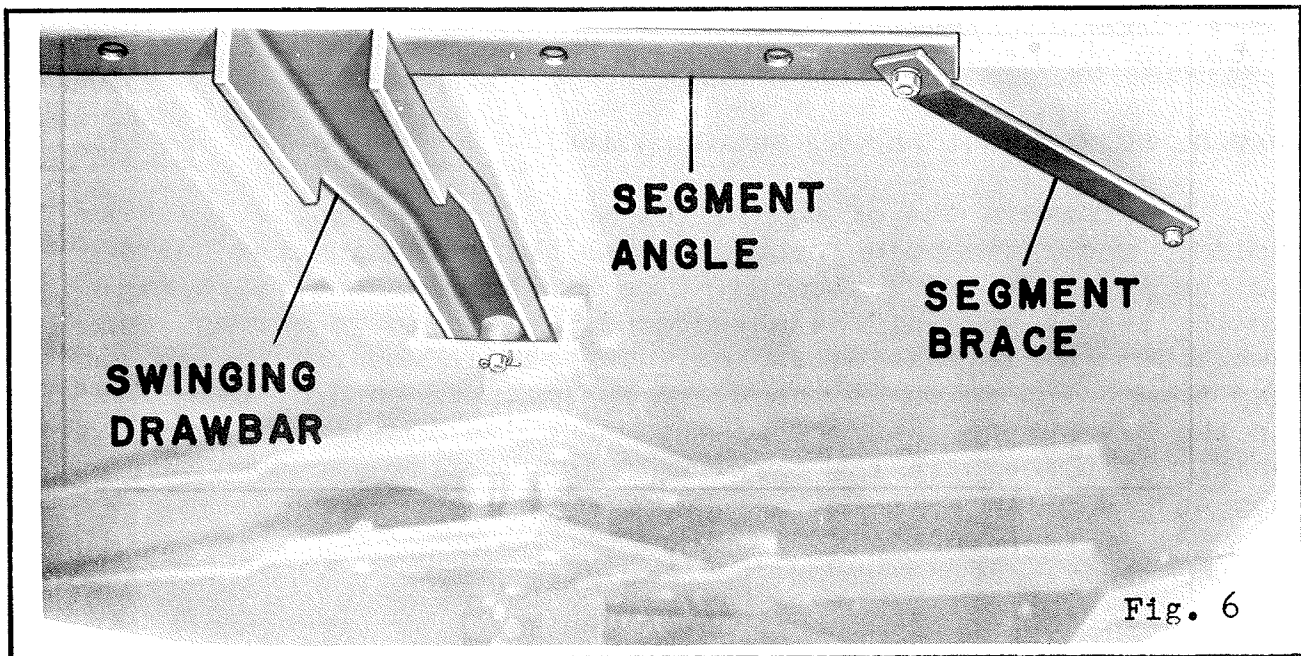
**STACK CONTROL ROPE (See Fig. 5)**

Thread the control rope through the rope lock pawl located at the upper end of the stack and tie it to the arm of the deflector head.



**SWINGING DRAWBAR (See Fig. 6)**

All Cobra Harvesters have, as part of the assembly, a swinging drawbar. To attach it to the shredder, begin by bolting the Segment Angle to the front of the shredder hood with the (6) 3/8 x 1 1/2" long bolts found in the bag assembly. Follow this by assembling the (2) segment braces to the outer holes in the Segment Angle and to the forward bolts in both the right and left bearing blocks as shown in Fig. 6. Then slide the offset channel drawbar



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into the rectangular opening in the bottom frame and insert the 1" round pin through the boss in the drawbar and the upper and lower plate of the drawbar frame. Lock the pin in place with the two cotter pins supplied with the pin.

Now remove the 3/4" x 1 1/4" long bolt from the top face of the drawbar and from the lock nut, found in the box section of the channel. Set the drawbar to the desired amount of offset. Replace the bolt, by bolting through the elongated holes in the segment angle thus locking the drawbar to the previously set amount of offset.

#### WAGON DRAWBAR FRAME & HITCH PLATE (See Fig. 2)

The wagon drawbar frame is attached to the rear angle of the shredder, with the bolts found in the frame attaching brackets. The frame is also bolted to both the right and left hand sides of the blower housing by bolting through the brackets attached to the housing.

The rear hitch plate (Fig. 2) is adjustable from right to left. By removing the two bolts from this plate, the plate can be shifted to either the R.H. or L.H. position as indicated on this figure.

## OPERATING INSTRUCTIONS

#### LUBRICATION NOTE

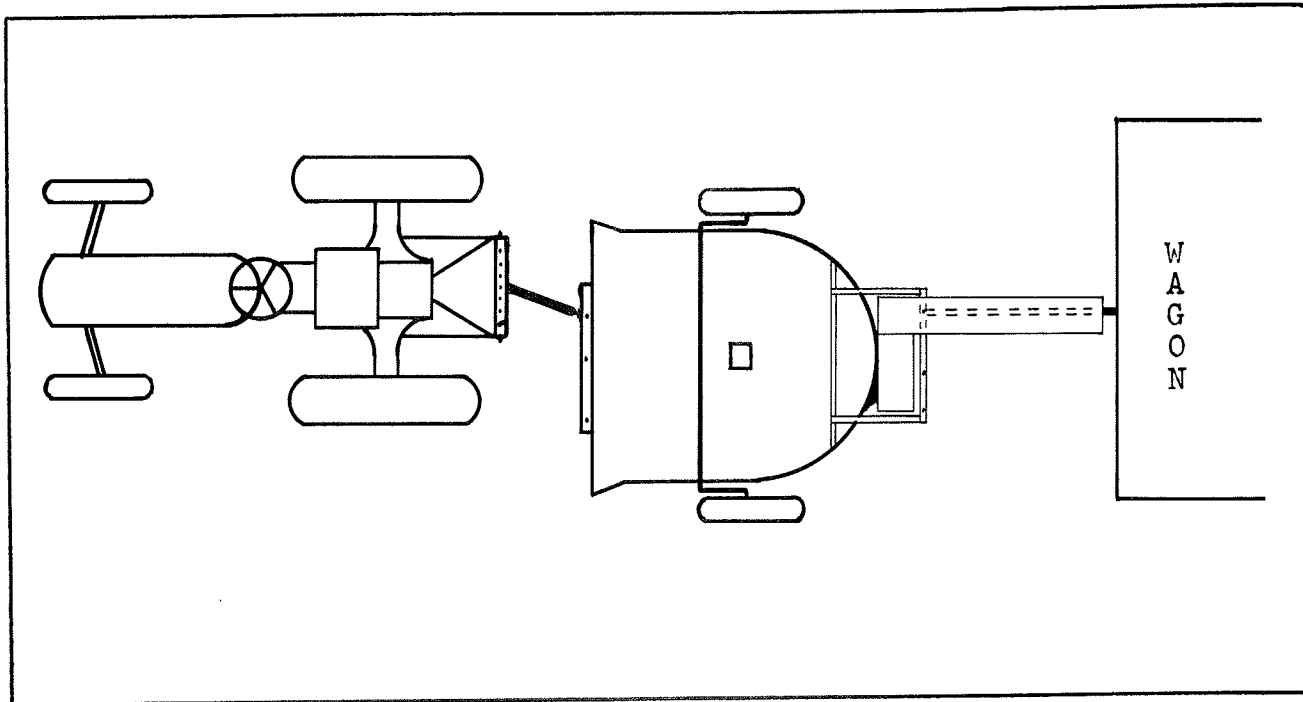
Before attempting to operate the Cobra Head Harvester, check the oil level in both the shredder drive housing and the fan drive housing. The oil in the shredder drive housing should be kept to the height of the level plug on the L.H. side of the gear box. The level of oil in the fan drive can be checked in the glass sight oil level gauge on the lower front face of the housing. Also grease the universal joints to assure smooth operation of the unit. For further lubrication instructions, see Page-12 under LUBRICATION.

#### SWINGING DRAWBAR & WAGON HITCH PLATE

All Cobra Harvester units are equipped with swinging drawbars and adjustable rear hitch plates, making them adjustable to allow for offsetting the unit to either the R.H. or L.H. side of the tractor. It will be found most advantageous to offset the unit to the L.H. side of the tractor, and to cut in a counter-clockwise direction around the field. Going counter-clockwise results in eliminating tractor wheel marks.

When the shredder is offset to the left of the tractor, (note illustration below), the wagon hitch plate should be set to the

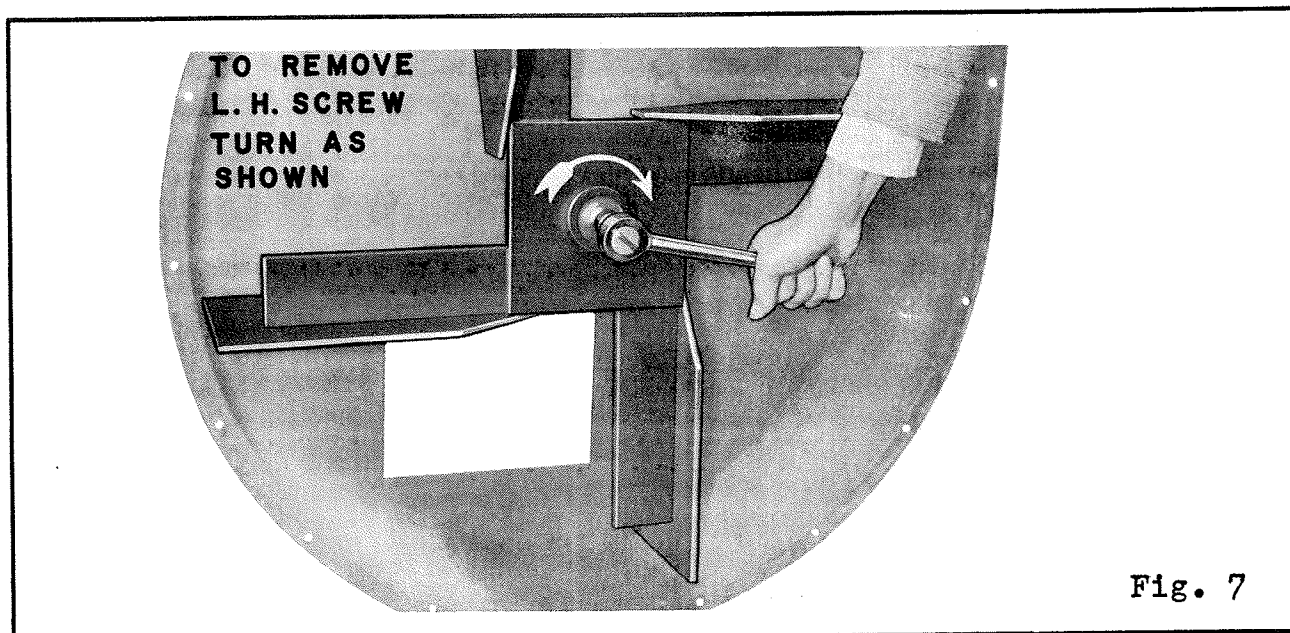
R. H. offset position. This tends to create a straighter line of pull between the tractor, shredder and wagon.



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**FAN ASSEMBLY (See Fig. 7)**

The blower fan consists of the spider and four fan blades. Should the fan blades become bent, they can be removed and straightened or replaced, as each is individually bolted to the spider. The entire fan assembly can be removed by first removing the wagon drawbar frame and the rear cover plate from the fan housing. To loosen the cap screw in the fan shaft, turn the screw in a clockwise direction (See arrow in Fig. 7). After the cap screw and washer are removed, the fan assembly can be removed from the shaft.



**Fig. 7**

## SAFETY SHEAR ASSEMBLY (See Fig. 4)

The universal joint shaft assembly is equipped with two safety shear bolts. This assembly is located at the front face of the blower drive housing. Its purpose is to prevent overloading of the blower drive, should the fan become blocked. The shear bolts in the shear joint are 5/16" diameter bolts. If necessary, REPLACE THESE (2) SHEAR BOLTS AND THEN DRAW THE ELASTIC NUTS UP TO A POINT WHERE ALL END PLAY OF THE BOLT DISAPPEARS. DO NOT DRAW THE BOLTS UP TOO TIGHT AS THIS WILL CAUSE THE SHEAR JOINT TO BIND AND THUS PREVENT SHEARING OF THE BOLTS WHEN THE UNIT IS OVERLOADED.

## STACK DEFLECTOR HEAD (See Fig. 5)

The deflector head is controlled by a rope from the tractor seat. The head can be raised, lowered or be held in a set position by the rope lock pawl on the upper L.H. side of the stack. To raise the head, simply lift up and pull on the rope and allow it to travel free. To lock the deflector head in a selected position, simply pull down on the rope, and the pawl will grip the rope locking the deflector head into position.

## SHREDDER CUTTING BLADES

The Cobra Head Harvester is equipped with bent suction blades on both the upper and lower mounting plates. These blades are reversible, each blade having two cutting edges. When the blade edge becomes worn, they can be turned over to provide a new cutting edge.

The pair of bent blades on the bottom are intended to be used only when the unit is used as a harvester. (NEVER USE THE BENT BLADES FOR WORK IN HEAVY BRUSH, ETC. FLAT BLADES MUST BE USED IN THEIR PLACE !!)

When the Cobra Unit is detached from the shredder and the shredder is used to cut brush, it will be necessary to substitute straight flat blades on the bottom blade plate. Failure to do this can result in destruction of the clutch facings and clutch parts!

# FIELD OPERATING INSTRUCTIONS

## 1 -- Proper Shredder Hood Adjustment

The unit should be run just as near level as it is possible to adjust. By removing the two bolts from the adjustable drawbar hitch plate, the hitch point can be either raised or lowered to level the hood in relation to the ground level.

## 2 -- Cutting Height For Best Pick Up

The shredder hood should be adjusted so that it is approximately two to four (2"-4") above the ground level.

### **3 -- Forward Speed Of Operation - For Tractor**

Maintain a speed of two to three (2-3) miles per hour. A lower speed always results in a better shredding job.

### **4 -- Maintain Sharp Blades**

For best results in grasses, standing forage, dry hay and straw, the sharper the blade the better will be the cutting action. Remember -- blades are reversible -- each has two sharpened cutting edges.

### **5 -- Tractor Throttle Setting**

The tractor used to power the shredder harvester should be operated at a wide open throttle. Maximum P.T.O. speed can then be developed for proper shredder harvester operation.

### **6 -- Eliminating Wheel Track Marks**

The three basic types of tractors commonly used to operate the shredder harvester are the Row Crop, the Standard and the Adjustable Front Wheel type. For best results, offset the shredder 1' to the left of the tractor and cut counter-clockwise around the field.

### **7 -- Positioning Shredder For Best Operation**

When attaching the shredder to the tractor, it is best to offset the shredder one foot to the left and go counter-clockwise around the field. In making this adjustment, it is very important that the left rear tractor wheel travels approximately six inches in from the left hand side of the shredder. (Facing the shredder from the rear). If necessary, the tractor left hand wheel should be adjusted on its axle, so it will travel in this position. At no time should a tractor wheel mark be directly in the center of the shredder because the cutting blades cannot cut under the runover material and will leave a mark after it has passed.

## **LUBRICATION**

The lubrication instructions for the Cut-All Rotary Shredder can be found on Page 5C-103-9 of the Operators Manual.

Both the shredder drive assembly and the blower drive assembly use the same type of oil; #140 gear oil for summer use, and #90 oil for winter use.

The fan drive housing is equipped with a glass sight oil level gauge. The oil level should be kept to within the glass window of the gauge. Do not carry a higher level than is indicated by the level gauge. The total capacity of oil in the blower drive housing is 3/4 pint. The oil level should be checked at the beginning of each day's operation.

## MAINTENANCE

After each year of use, the fan drive housing should be drained, flushed and refilled with 3/4 pint of new oil. The oil seals on the input and output shaft should likewise be checked to assure an oil tight and dirt free drive. Should the seals need replacing, it is best taken care of when the case is drained and flushed.

To disassemble the fan drive from the blower housing, remove the blower fan from the fan shaft. (See Fig. 7). Then detach the P.T.O. shear joint assembly from the input shaft by first backing off the set screw in the shear flange hub. The 1/2" LEFT HAND cap screw holding the shear joint on the end of the input shaft is then removed and the joint assembly can be slipped from the shaft. Now remove the four 1/2" bolts holding the blower drive to the fan housing.

To disassemble the drive begin by removing the large input flange. The input gear and shaft with bearings can then be removed.

To further disassemble the gear and shaft, the followed procedure should be followed. First drive the engaging lug of the bearing lockwasher out of the slot in the bearing locknut; then remove the locknut and washer. The gear and bearing cones can be pressed off of the shaft.

Now remove the washer and pinion gear from the shaft. Then press the shaft out of the bearing carrier, pressing down on the pinion end of the shaft.

When replacing worn gears, the gears are to be replaced as a set, consisting of one pinion and one gear.

## ASSEMBLY OF THE FAN DRIVE HOUSING

When assembling the fan drive housing, be sure all four of the bearing cups are seated down against the shoulders in the flanges and bearing carrier. Then reassemble the input shaft, bearing cones and gear. Place the bearing cones on the shaft, with the large side of the cones resting against the hub of the large gear. Now replace the bearing lockwasher in the shaft, making sure the tongue on the inside diameter of the washer engages the slot provided in the shaft.

Turn the bearing locknut on the shaft and draw the assembly up tight. Lock the nut in place by bending over one of the ears nearest in line with any one of the slots in the locknut. NOTE: When assembling the bearing lockwasher and locknut, be sure to place the tapered tongues of the washer away from the bearing cone. The locknut should be assembled on the shaft with the tapered face seated in the tapered side of the lockwasher. If these parts are assembled incorrectly, the bearing lockwasher will strike the bearing cage, which will result in premature bearing failure. Now assemble the bearing flange, cup carrier flange, and shaft and gear assembly into the housing. Bearing adjustment is provided for through the several shims between the bearing cap and the housing. The large front flange is provided with only a single gasket to seal against oil leakage. To obtain the correct bearing adjustment, the following steps should be followed:

- 1 --- Bolt the large input flange in place. Now draw all screws up tight.
- 2 --- Take up on cup carrier flange at rear of housing until bearings bind slightly in rotation.
- 3 --- Measure shim gap between the flange and the case and provide sufficient shims to allow for .003" to .005" end play of the bearings.

Now assemble the fan bearing carrier assembly by first placing the bearing cone on the shaft, with the large end of the cone resting against the shoulder of the shaft. Then place the shaft through the carrier housing, and assemble the remaining bearing cone and pinion with the key to the fan shaft.

Then assemble the washer and slotted nut on the shaft. When adjusting the fan carrier bearings, the following procedures should be followed:

- 1 --- Take up on the slotted nut until the bearings bind slightly in rotation.
- 2 --- Back the nut off (Loosen) to the nearest slot or castellation and lock securely with cotter pin through the nut and shaft.

Now place the pinion end of the carrier into the housing, making sure to have the gasket between the bearing carrier and the drive housing. Draw all capscrews up tight.

Before replacing the oil in the housing, be sure the drain plug is in tight. Fill the case with 3/4 pint (1 1/2 cups) of oil as specified in the lubrication instructions.