HINIKER

REGULAR FLAIL SHREDDER
MODEL 4000

(WITH IDENTIFICATION No.'s ENDING 103 AND HIGHER)

OPERATOR'S MANUAL

DO NOT USE OR OPERATE THIS EQUIPMENT UNTIL THIS MANUAL
HAS BEEN READ AND THOROUGHLY UNDERSTOOD

PART NUMBER 792 01436

TO THE PURCHASER

This product is designed and manufactured to give years of dependable service, when properly maintained and used for the purpose for which is intended. Never allow anyone to operate this equipment until they fully understand the complete contents of this manual. It is the responsibility of owner's, who do not operate this equipment, to insure the operator is properly instructed and is fully aware, and understands, the contents of this manual. It is also the owner's responsibility to insure that anyone operating this equipment is mentally and physically capable of so doing.

Important information is contained in this manual to help insure safe and efficient operation.

If you have any questions about this manual, or the equipment discussed therein, contact your HINIKER dealer.

⚠ THIS IS THE SAFETY ALERT SYMBOL. IT ALERTS AN OPERATOR TO INFORMATION CONCERNING PERSONAL SAFETY. ALWAYS OBSERVE, AND HEED, THESE INSTRUCTIONS, OTHERWISE DEATH, OR SERIOUS INJURY CAN RESULT!

All references to LEFT or RIGHT means viewing the equipment from the rear and facing the tractor.

This Operator's Manual is shipped with this equipment. If it has not been supplied to you, contact your HINIKER dealer for a replacement.

ALWAYS OBTAIN ORIGINAL HINIKER SERVICE PARTS BECAUSE SUBSTITUTE PARTS COULD ADVERSELY AFFECT EQUIPMENT PERFORMANCE AND WARRANTY.

All photos in this manual refer to paragraph(s) preceeding the photo.

A TRIPLICATE (3 COPIES) DELIVERY REPORT IS TO BE FILLED OUT BY YOUR HINIKER DEALER WHEN YOU ACCEPT THIS EQUIPMENT. ONE COPY IS TO BE GIVEN TO YOU. DO NOT ACCEPT THIS EQUIPMENT UNTIL YOU ARE SATISFIED ALL ITEMS THEREON HAVE BEEN CHECKED, AND YOU UNDERSTAND THEM.

Check that your dealer has forwarded the HINIKER delivery report copy, along with the machine serial number, because it helps maintain maximum service and warranty benefits. This does not put you on any mailing list and information thereon is not available to others.

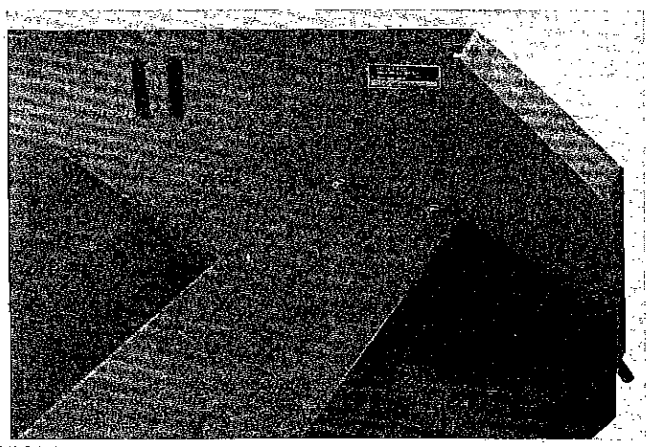

FIGURE 1 PHOTO NO. 2979

Record the following information for later reference when obtaining service parts:

Purchase Date _____

Purchaser's Name _____

Dealer's Name _____

Machine Serial No. _____

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792-01436 02/94 FN823-#352

SAFETY

THIS IS THE SAFETY ALERT SYMBOL. IT ALERTS AN OPERATOR TO INFORMATION CONCERNING PERSONAL SAFETY. ALWAYS OBSERVE, AND HEED, THESE SYMBOLS AND INSTRUCTIONS, OTHERWISE DEATH, OR SERIOUS INJURY CAN RESULT!

Operator safety is a principle concern in equipment design and distribution. However, many accidents occur because a few seconds of thought, and a more careful approach to handling, were ignored.

ACCIDENTS CAN BE AVOIDED BY KNOWING, AND FOLLOWING, THE PRECAUTIONS CITED IN THIS MANUAL.

For better viewing, certain photos may show a safety shield open or removed. This equipment should never be operated without factory installed shields in place.

Replace any decals that are not readable, or missing. Their ordering numbers and proper location are shown in the DECAL LOCATION section of this manual. Keep decals free of dirt, grease, etc.

Throughout this manual, and on all safety related decals, a safety alert symbol, along with the signal word **CAUTION, WARNING or DANGER** will be found. These are defined as follows:

CAUTION: A reminder for proper safety practices and directs attention to following them. Decals of this class are yellow and black.

WARNING: A reminder for proper safety practices and what can happen if they are ignored. This has a more serious consequence than CAUTION. Decals of this class are yellow and black.

DANGER: Denotes a most serious safety hazard. It is a reminder for observing the stated precautions and what can happen if they are ignored. Decals of this class are red and white.

There are other decals, and copy, in this manual that pertain to protecting the equipment. They are not directly related to operator safety. These have black letters on a white background to distinguish them from safety decals. They lack the safety alert symbol, but carry the words NOTICE or **IMPORTANT** defined as follows:

NOTICE: INFORMS THE READER OF SOMETHING THAT CAN CAUSE MINOR MACHINE DAMAGE, OR POOR PERFORMANCE, IF IGNORED.

IMPORTANT: WARNS THE READER OF POTENTIALLY MORE SERIOUS MACHINE DAMAGE, OR POOR PERFORMANCE IF IGNORED.

GENERAL

1. If the Operator's Manual is missing from this equipment, obtain a replacement from your HINIKER dealer. If you sell this equipment, insure the new owner acknowledges receipt of this manual.

2. Read this manual thoroughly. Make sure the operator understands it and knows how to operate this equipment safely. Farm equipment can kill or injure an untrained, or careless, operator.

3. Do not attempt to handle and service this equipment, or direct others to do the same, unless you know how to do it safely.

4. Keep all shields and guards in place.

5. Keep hands, feet, hair and clothing away from moving parts.

6. Disengage P.T.O., stop tractor engine, set brakes and wait for all motion to stop before adjusting, or servicing, this equipment.

7. Keep off, keep others off, and insure everyone is clear before starting, actuating hydraulics, and during equipment operation.

8. Do not service, or otherwise handle, a shredder in a raised position unless it is securely blocked against unexpected falling.

9. Keep all front flipper shields in place and free swinging.

10. Never shred in areas littered with glass, rocks, metal, etc. Use cab tractor if operating in unfamiliar areas. Keep cab windows clean to maintain good visibility.

11. Escaping hydraulic/diesel fluid under pressure can penetrate the skin causing serious injury.

DO NOT use your hand to check for leaks. Use a piece of cardboard.

Stop tractor and relieve pressure before connecting/disconnecting lines.

Tighten all connections before pressurizing hydraulic lines.

If fluid is injected into the skin, get medical attention to prevent serious infection.

12. Discipline yourself to always visually inspect this equipment for any excessively worn, damaged, or cracked parts before starting use. Replace these with genuine HINIKER parts.

13. Stalk shredding often involves a combustible environment. Carry a fire extinguisher and first aid kit with tractor.

14. OSHA requires farm employers to meet certain safety standards. Become familiar with, and comply with them.

15. Do not alter this equipment to the extent of compromising safety and performance.

16. Do not substantially operate tractor in a closed building.

17. Ag chemicals can be dangerous. Always follow the manufacturer's label safety precautions when using them.

18. Do not assume everyone is as safety conscious as yourself.

BEFORE OPERATION

1. Insure unit's P.T.O. assembly is fully engaged with gearbox and tractor shafts and SLIDING COLLARS ARE RETURNED TO THEIR LOCKED POSITIONS.

2. NEVER allow improperly supervised minors, or anyone else, to operate this equipment. It is your responsibility to insure that any operator is mentally and physically capable of so doing.

3. The 12' wide HINIKER 4000 shredder has optional 540 RPM or 1000 RPM P.T.O. inputs. NEVER HOOK A 1000 RPM TRACTOR TO A 540 RPM UNIT. This will seriously overspeed the rotor. Also, do not operate a 1000 RPM shredder with a 540 RPM tractor.

4. Do not "jump start" the tractor from along side it. Start tractor only from seat.

5. For trail hitch units, lock any swinging tractor drawbar before hooking up. Use a cross retainer in end of the hitch pin.

6. For 3 point hitch units, it is CRITICALLY IMPORTANT NOT TO OPERATE WITH A TRACTOR OF INSUFFICIENT SIZE AND/OR WITHOUT ADEQUATE FRONT END WEIGHTS. Ignoring this can result in dangerously unstable front steering!

7. Disengage P.T.O., stop tractor engine, and remove key before hooking up shredder P.T.O.

8. Clear area of people, and debris, before engaging tractor P.T.O. Be alert for blind areas of operator. Slow down P.T.O. and "feather" into engagement to prevent unnecessary stress on shredder's driveline.

9. DO NOT OPEN MACHINE SHIELDS WITH TRACTOR ENGINE RUNNING.

10. Do not stand close to, immediately behind or in front of, a running shredder.

11. Five different P.T.O's., involving 2 different hitches, are available. INSURE YOU UNDERSTAND CORRECT SHREDDER HOOKUP

FOR YOUR TRACTOR USAGE (SEE "FIELD PREPARATION" in this manual).

DURING OPERATION

1. Gradually bring unit up to operating speed and check for any abnormal vibration, or performance. IF ABNORMAL VIBRATION IS PRESENT AT ANY TIME, IMMEDIATELY DISENGAGE P.T.O., STOP TRACTOR ENGINE, REMOVE KEY AND DETERMINE/ CORRECT CAUSE BEFORE PROCEEDING.

2. Disengage P.T.O., stop tractor engine, remove key and allow EQUIPMENT TO COME TO A COMPLETE STOP before:

   - Cleaning, unclogging, lubricating, inspecting, or otherwise servicing, any part of this equipment.
   - Connecting or disconnecting the shredder from the tractor.
   - Allowing anyone else near the equipment.
   - Dismounting from the tractor seat and parking the equipment.
   - Placing any part of your body in dangerous proximity to shredder.

3. When parking this equipment, lower it to full "down" position. Set the tractor brakes and block wheels if on an extreme slope.

4. Never use the disc hitch accessory on a 3 point hitch shredder. This can cause dangerous tractor tip over forces and possibly damage the shredder.

TOWING

1. When towing on public highways:

   - Use an aftermarket safety towing chain between either the trail hitch, or the end transport accessory, and the towing tractor. (Safety towing chains are not marketed by HINIKER.)
   - Use a tractor of sufficient size, and weight, required for field operation.
   - Do not tow faster than 25 MPH (40 kph).
   - BE AWARE THE TRAIL HITCH WIDTH, WITH END TRANSPORT KIT, IS 132" (11') WIDE. THE 3 POINT HITCH WIDTH, WITH END TRANSPORT KIT, IS 107" (8'-11") WIDE. THESE WIDTHS ARE WITH THE P.T.O. REMOVED. If these widths are not permitted, or advisable, under your circumstances, the hitch of either machine must be removed.
   - Check local regulations on towing width and warning lights.

2. Never tow trailing shredders in field mode with the P.T.O. detached from the tractor and hooked to the gearbox.

3. Whenever using the end transport accessory, ALWAYS REMOVE COMPLETE P.T.O. FROM THE GEARBOX and secure it above, and behind, a front cross drive shield.

4. HINIKER shredders are provided with (1) ASAE SMV (slow moving vehicle) emblem and (2) mounting sockets therefor. One socket is for towing in FIELD mode and one socket is for towing with the END TRANSPORT accessory.

5. At sundry locations, RED (rear facing) and AMBER (forward facing) reflectors are provided. Insure these do not become defaced or covered with debris.

SERVICE

1. Service information herein is intended for dealers and others correspondingly competent. If you are not experienced and/or capable of handling such service, do not attempt it.

2. Disengage P.T.O., stop tractor engine, remove key and allow EQUIPMENT TO COME TO A COMPLETE STOP before:

   - Cleaning, unclogging, lubricating, inspecting, or otherwise servicing, any part of this equipment.
   - Connecting or disconnecting the shredder from the tractor.
   - Allowing anyone else near the equipment.
   - Placing any part of your body in dangerous proximity to shredder.

3. Do not service, or otherwise handle, a shredder in a raised position unless it is securely blocked against unexpected falling.

4. Stalk shredders operate in a naturally vibratory environment. Discipline yourself to always visually inspect this equipment for any excessively worn, damaged, or cracked parts before starting use. Replace these with genuine HINIKER parts.

5. DO NOT SERVICE END DRIVE BELTS WHEN TRACTOR IS RUNNING!

6. Replace all shields removed for service, and check P.T.O. shield for free rotation, before operating this equipment.

REMEMBER-ACCIDENT PREVENTION IS PART OF YOUR JOB!

DECAL LOCATION

It is an owner's, and dealer's, responsibility to insure clear, complete decals are maintained on equipment, whether operating or offered for sale.

Information herein is provided for proper decal ordering and placement.

Decal surfaces should be free of dirt, grease, etc. Temperatures should be above 50° F. To apply, remove the smaller part of the decal backing paper and apply this part of the exposed adhesive to the desired location. Peel the other part of the backing paper slowly off and smooth out the entire decal.

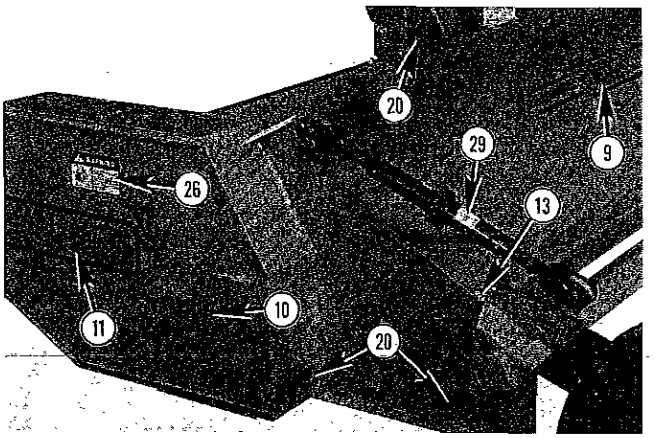


FIGURE 2 PHOTO NO. 2998

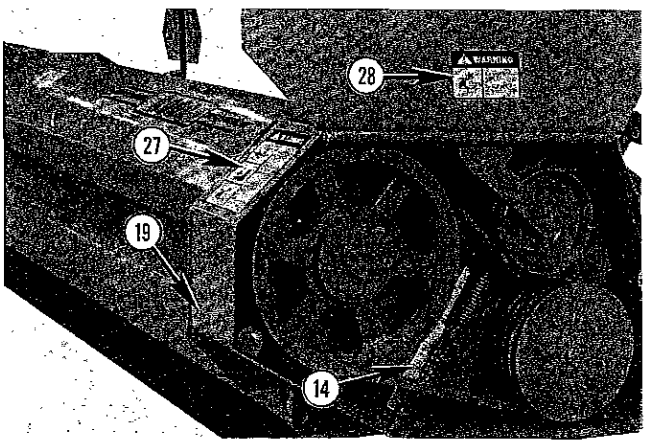


FIGURE 3 PHOTO NO. 2999

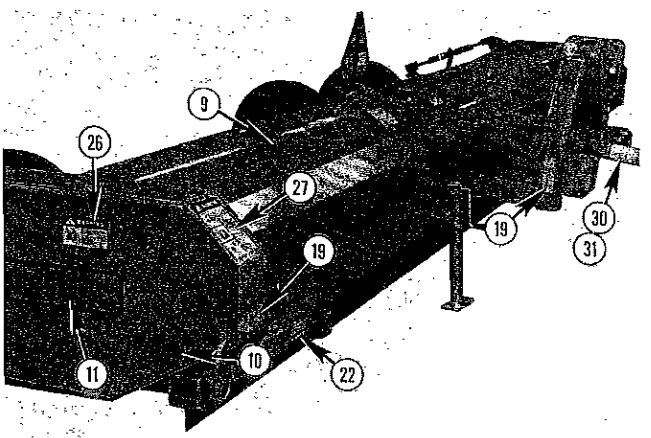


FIGURE 4 PHOTO NO. 3000

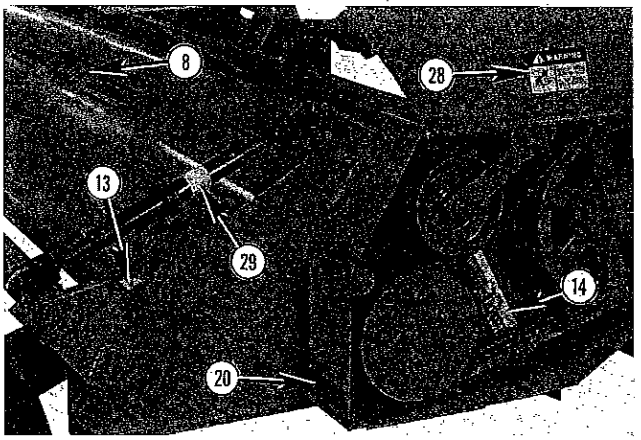


FIGURE 5 PHOTO NO. 3001

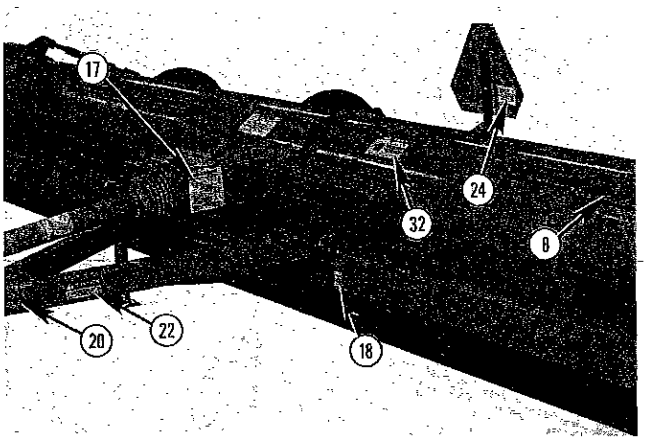


FIGURE 6 PHOTO NO. 3002

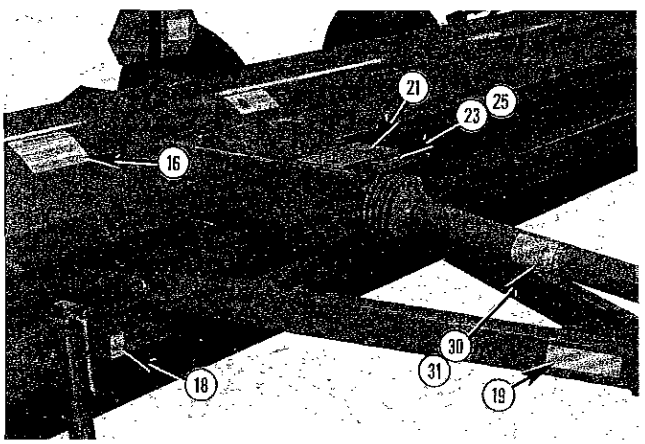


FIGURE 7 PHOTO NO. 3003

FIGURE 8 71505160 Logo 4000

FIGURE 9 71505161 Logo Hiniker

FIGURE 10 71505162 Logo Brady

FIGURE 11 71505163 Logo Hiniker

FIGURE 13 71504136 Important: Maintain tires...

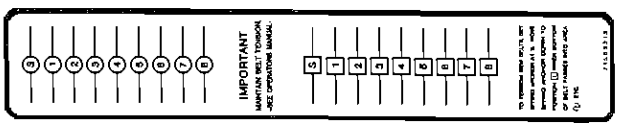


FIGURE 14 71503213 Important: Maintain belts...

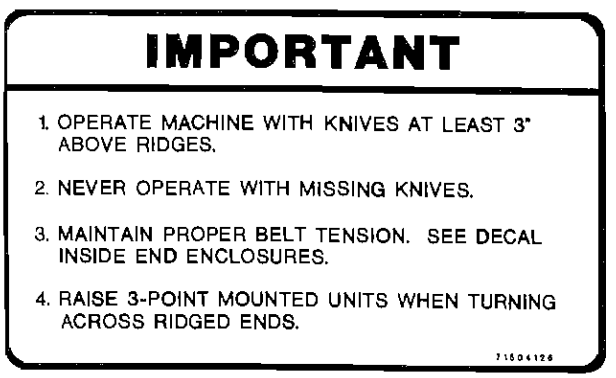


FIGURE 16 71504126 Important: Operate...

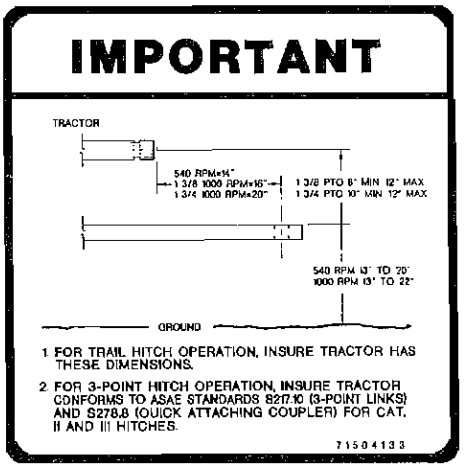


FIGURE 17 71504133 Important:Hitch...

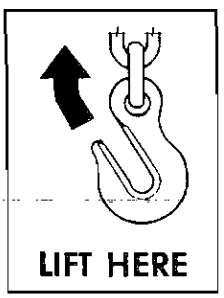


FIGURE 18 715-03174 Lift

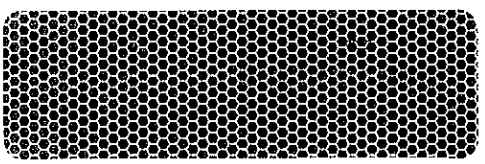


FIGURE 19 715-06004 Amber reflector

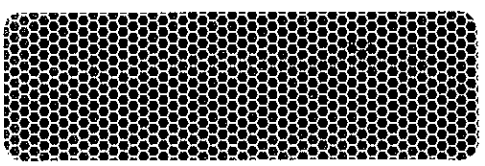


FIGURE 20 715-06000 Red reflector

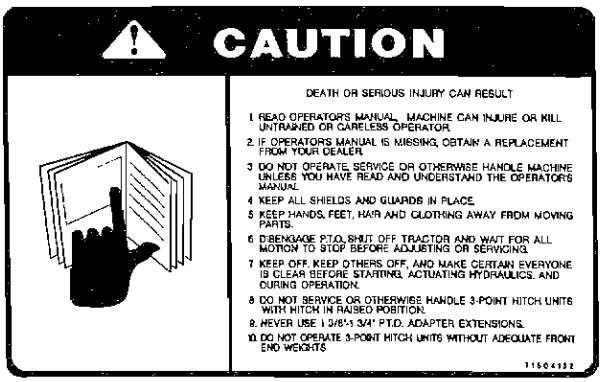


FIGURE 21 715-04132 Caution: Read Manual...

FIGURE 22 71504135 Caution: Safety chain...

FIGURE 23 71504129 Caution: 1000 RPM...

FIGURE 24 715-03056 Caution: Reverse 25 mph...

FIGURE 25 71504128 Warning: 540 RPM...

FIGURE 26 71504127 Warning: Look and listen...

FIGURE 27 71504130 Warning: Keep hands, etc...

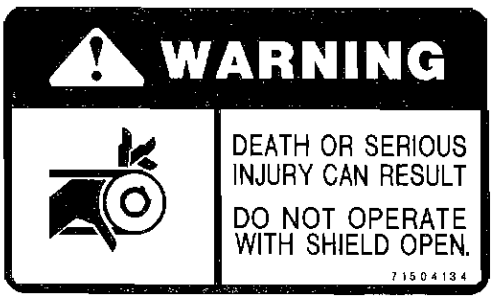


FIGURE 28 71504134 Warning: Do not operate...

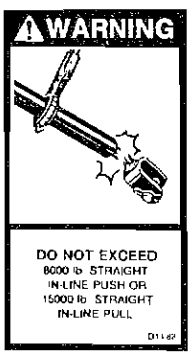


FIGURE 29 Warning: Do not exceed...

FIGURE 30 520-03138 Danger: Rotating drive...

FIGURE 31 520-03139 Danger: Shield missing...

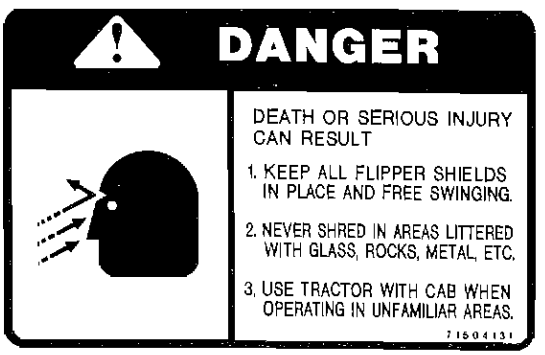


FIGURE 32 71504131 Danger: Keep Flippers ...

FIELD PREPARATION

WARNING: DEATH OR SERIOUS INJURY CAN RESULT. BEFORE FIELD PREPARING, READ SAFETY-GENERAL, BEFORE OPERATION, DURING OPERATION AND TOWING AT FRONT OF THIS MANUAL.

TRACTOR-GENERAL

IMPORTANT: IT IS CRITICAL TO KNOW WHAT SHREDDER CONFIGURATION IS INVOLVED BEFORE TRACTOR HOOKUP. CONVERSELY, IF THE TRACTOR CONFIGURATION IS A GIVEN, THE SHREDDER MUST CONFORM TO IT, OTHERWISE POTENTIAL EQUIPMENT DAMAGE CAN RESULT.

HINIKER shredders are available with:

TWO DIFFERENT hitches (trail and 3 point) for all widths. Upon choice of hitch, DETERMINE THE TRACTOR'S P.T.O. OUTPUT. This will be 1 of 3 choices:

540 RPM 1 3/8"-6B spline

1000 RPM 1 3/8"-21 spline

1000 RPM 1 3/4"-20 spline

Twelve foot width units have 540 RPM drive for TRAILING hitch only and 1000 RPM drive for either 3 POINT or TRAILING hitches.

Fifteen through 20' width units have ONLY 1000 RPM drive.

All TRAILING units use ONLY C.V. (constant velocity) P.T.O's. These are identified by extended front yokes separated by a large guide hub between them.

All 3 POINT units use ONLY NON C.V. P.T.O's. These are identified by front yokes joined with a conventional (simple) front cross.

IMPORTANT: IDENTIFY CORRECT SHREDDER P.T.O. FOR TRACTOR USED BY CHECKING FORWARD YOKE SPLINE AND NOTING WHETHER THE P.T.O. IS A C.V. OR NON C.V. DO NOT INTERMIX FRONT AND REAR P.T.O. HALVES BETWEEN DIFFERENT P.T.O's.

REFERENCE: COMPRESSED O.A. LENGTH EACH AVAILABLE P.T.O.

SIZE	RPM	TYPE & W.G. * NO.	LENGTH
1 3/8"	(540)	6B Spline Trailing 79200994 *	– 52 15/32"
1 3/8"	(1000)	21 Spline Trailing 79200992 *	– 53 1/32"
1 3/4"	(1000)	20 Spline Trailing 79201100 *	– 55"
1 3/8"	(1000)	21 Spline 3 Point 79200989 *	– 38 1/16"
1 3/4"	(1000)	20 Spline 3 Point 79201014 *	– 39 1/4"

* **Whole Goods**

CAUTION: DEATH OR SERIOUS INJURY CAN RESULT. NEVER USE 1 3/8" TO 1 3/4" P.T.O. "ADAPTER" EXTENSIONS.

TRACTOR-3 POINT GEOMETRY

Adjust the tractor's lower links sway stops to provide no more than "moderate" sway. That is, do not operate with full, or no, lower link sway.

During shredding, maintain the tractor's 3 point lift system in POSITION CONTROL mode.

HINIKER 3 point hitch shredders are designed to operate with Cat. II, III and IIIN free link (direct) hitches and integral Cat. II, III and IIIN quick hitches, having standard (ASAE S217.10 and S278.6) dimensions:

	Category	
	II	III & IIIN
Horizontal distance from end of 1 3/8" P.T.O's. to lower hitch points in horizontal position.	20" – 22"	
Horizontal distance from end of 1 3/4" P.T.O's. to lower hitch points in horizontal position.	24" – 26"	
Upper hitch pin diameter.	1"	1 1/4"
Lower hitch pin diameter.	1 1/8"	1 7/16"

These shredders will also satisfactorily operate with "add on" Cat. II, III and IIIN quick hitches, provided the horizontal distance from end of P.T.O's. to lower hitch points in horizontal position does not exceed:

1 3/8 P.T.O's. 27"

1 3/4" P.T.O's. 28"

Some tractors, with free links only (ie. without a quick hitch), may have less than the above minimums. In such curcumstance, it is recommended to use an "add on" quick hitch

IMPORTANT: FAILURE TO VERIFY TRACTOR'S CONFORMITY TO THESE DIMENSIONS CAN DAMAGE BOTH TRACTOR AND SHREDDER DRIVELINE. IF THIS IS NEGLECTED, HINIKER OFFERS NO ASSURANCE THE DRIVELINE WILL PROPERLY FUNCTION. BEFORE OPERATING, CAREFULLY CHECK THAT YOUR P.T.O. HOOK UP NEITHER "BOTTOMS", NOR EXCESSIVELY "DECOUPLES".

For 3 point hitch hookups, it is:

IMPORTANT: REALIZE THE OVERHUNG MACHINE MOMENT (WEIGHT) SUBSTANTIALLY VARIES FROM THE NARROWEST (12') TO THE WIDEST (20') SHREDDERS.

Typical minimum unit's weights are:

WIDTH	LBS.	KG.
12 foot	2921	1325
15 foot	3503	1589
18 foot	3866	1754
20 foot	4163	1888

DANGER: DEATH OR SERIOUS INJURY CAN RESULT. DO NOT OPERATE 3 POINT HITCH UNITS WITHOUT ADEQUATE TRACTOR FRONT END WEIGHTS. USING AN UNDERSIZE, OR INADEQUATELY FRONT END WEIGHTED TRACTOR, WILL RESULT IN DANGEROUS LOSS OF STEERING CONTROL.

FOR ROAD TRAVEL, ALLOW WHEELS TO RUN IN GROUND CONTACT.

TRACTOR-TRAILING GEOMETRY

IMPORTANT: INSURE TRACTOR P.T.O., AND DRAWBAR CONFORM TO DIMENSIONS BELOW.

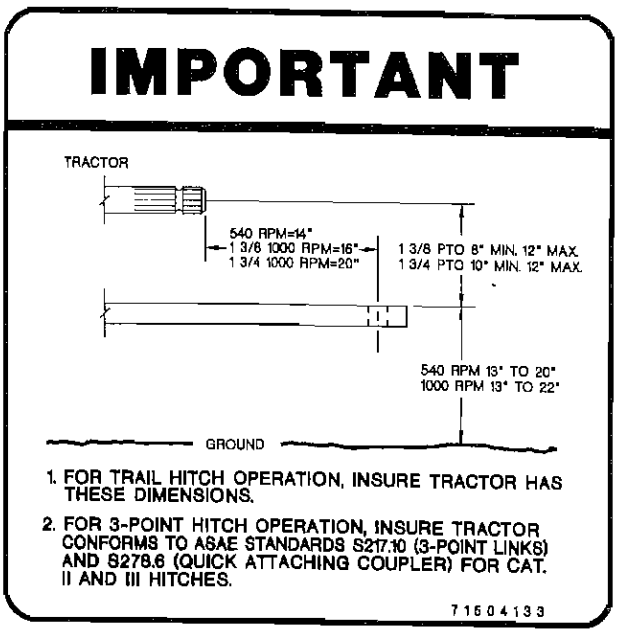


FIGURE 33 DWG. NO. 71504133

IMPORTANT: AFTER TRACTOR HOOKUP, ALWAYS STORE HITCH JACK ON PEDESTAL AT TOP OF GEARCASE (REF. (4), FIGURE 110, PAGE 54).

SHREDDER-3 POINT HITCH

Three point hitch shredders have furnished 2 lower link pins (1) and 1 upper link pin (2). These are sized for Cat. II; thus, may be used directly for that mode.

Pins (1) also have 2 spacers on each. These are 1 3/4" O.D. (3) and 1 7/16" O.D. (4). The larger spacer is factory installed furthermost from the hitch centerline.

The inner 1 7/16" O.D. spacers should be removed when operating in Cat. II mode.

Pin (2) has a 1 1/4" O.D. factory installed spacer (5) and P.T.O. transport support (6) thereon. The spacer should be removed for Cat. II mode.

To operate in Cat. III mode, the lower link pins spacers should be reversed from factory installa-

tion (ie. larger spacer (3) innermost and smaller spacer (4) outermost).

To operate in Cat. IIIN mode, leave the lower link pins spacers as factory installed (ie. larger spacer (3) outermost and smaller spacer (4) innermost).

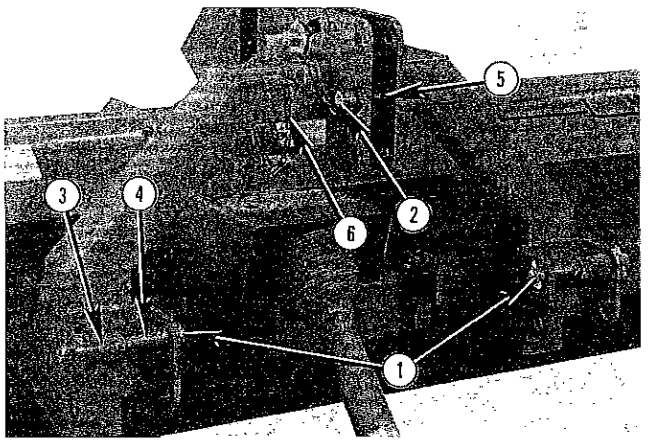


FIGURE 34 PHOTO NO 2965

The 3 point hitch has lower link pin holes (1 & 2). These are 4" apart and allow varying tractor tire sizes and/or 3 point lift ranges. EITHER HOLE MAY BE USED FOR BOTH CAT. II, III AND IIIN MODES.

Generally, the LOWERMOST link pin hole (1) is appropriate for tractors with smaller tires and/or less lift range. The UPPERMOST link pin hole (2) is generally appropriate for tractors with larger tires and/or greater lift range. Refer to figure 35.

Three upper link pin holes (3, 4 & 5) are also 4" apart each.

IF OPERATION IS IN CAT. II MODE AND:

LOWERMOST lower link pin hole (1) is used, install upper link pin in hole (3) or if,

UPPERMOST lower link pin hole (2) is used, install upper link pin in hole (4).

IF OPERATION IS IN CAT. III OR IIIN MODE AND:

LOWERMOST lower link pin hole (1) is used, install upper link pin in hole (4) or if,

UPPERMOST lower link pin hole (2) is used, install upper link pin in hole (5).

IMPORTANT: INITIAL LOWER LINK PIN LOCATIONS MAY HAVE TO BE REPOSITIONED AFTER FIRST FIELDING THE TRACTOR AND SHREDDER.

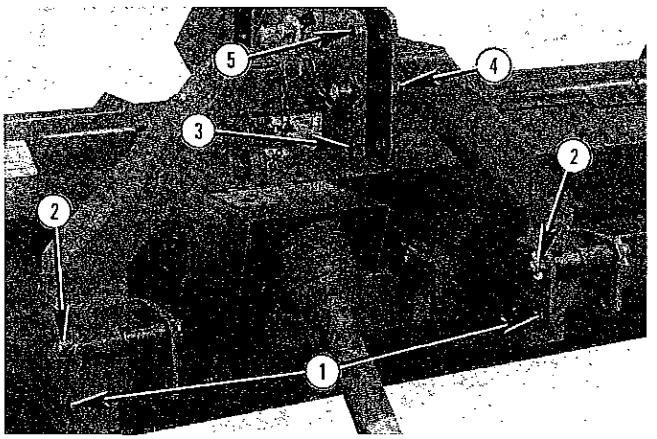


FIGURE 35 PHOTO NO 2965A

Support stand assembly (1) is for hook up and machine storage. FOR SHREDDER OPERATION AND TRANSPORT, lower hole (2) for cross pin (3) is used.

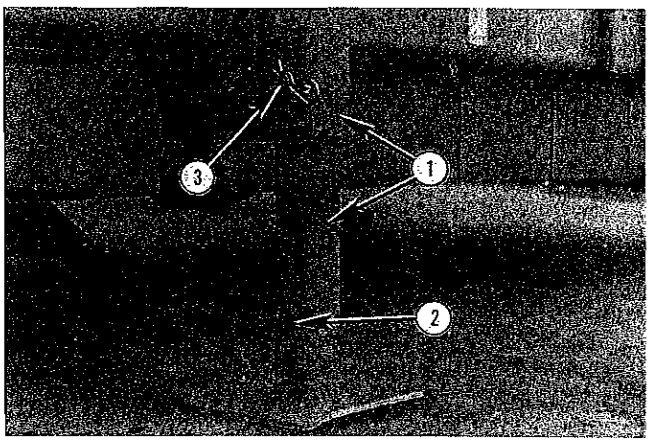


FIGURE 35A PHOTO NO 3031A

IMPORTANT: AFTER TRACTOR HOOK UP, RAISE AND LOCK SUPPORT STAND BY INSTALLING CROSS PIN AND Q.A. PIN IN LOWER STAND HOLE.

Hitch jack (1), Figure 108, page 52 is not needed on 3 point hitch units, except when an end transport accessory is used. Its storage position is on pedestal on top the gearcase.

The "lost motion" slot (1) provides ground float when the tractor's upper link (2) is properly length adjusted. Normally, cross pin (3) should operate in the REAR SECTOR of the slot. That is, from the slot's center position to about 1" from its rear. Actual adjustment herein is made by VARYING THE TRACTOR'S UPPER LINK LENGTH.

IMPORTANT: CORRECT "LOST MOTION" AND TRACTOR UPPER LINK ADJUSTMENT CANNOT BE MADE UNTIL AFTER THE

SHREDDER IS INITIALLY FIELDED AND FINAL FIELD SETTINGS ARE MADE.

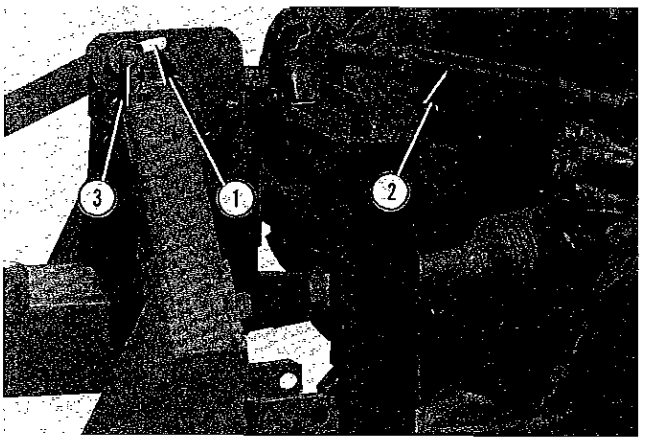


FIGURE 36 PHOTO NO 2972

No hose support is furnished with 3 point hitch units because generally remote hydraulics are not needed in this mode. After initial fielding, the wheel legs rockshaft position is normally adjusted with the ratchet jack(s) and left unchanged unless field conditions change.

SHREDDER-TRAILING HITCH

Trailing shredders have a screw thread hitch height adjustment (1) to match various tractor drawbar heights.

IMPORTANT: CORRECT TRAILING HITCH DRAFT LINK LENGTH ADJUSTMENT CANNOT BE MADE UNTIL AFTER THE SHREDDER IS INITIALLY FIELDED.

The pivotable hitch yoke (2) conforms to up to 2 1/8" thick drawbars. It has a hitch pin storage (non operating) hole (3) that also is a yoke positioning stop when the shredder is being hooked up.

Raise the shredder with hitch jack until the hitch yoke corresponds with the tractor's drawbar.

IMPORTANT: IF TRACTOR DRAWBAR IS LESS THAN 2 1/8" THICK, INSERT 1 OR MORE FLAT WASHERS BETWEEN DRAWBAR TOP AND UNDERNEATH TOP HITCH YOKE. (SUGGESTED WASHER SIZE IS 1 1/16" I.D. X 2 1/2" O.D. X 1/8" THICK.) THIS GREATLY REDUCES HITCH YOKE WEAR. ALWAYS USE A 1" DIAMETER HITCH PIN (4).

Remove the hitch pin from its storage hole and insert it through hitch yoke and tractor drawbar.

⚠ CAUTION: DEATH OR SERIOUS INJURY CAN RESULT. ALWAYS INSERT THE HITCH PIN POINT DOWN WITH A CROSS LOCKING PIN Through ITS LOWER END.

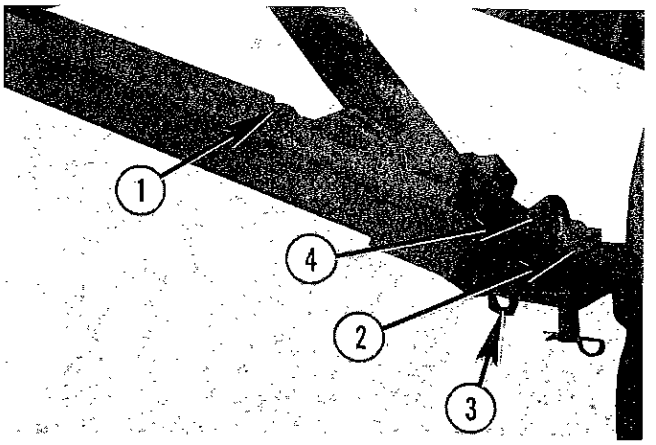


FIGURE 37 PHOTO NO 2987

SHREDDER-P.T.O's.

IMPORTANT: IT IS CRITICAL TO KNOW WHAT TRACTOR CONFIGURATION IS INVOLVED BEFORE HOOKUP. THE PROPER SHREDDER P.T.O. MUST BE USED, OTHERWISE UNSATISFACTORY PERFORMANCE WILL RESULT.

HINIKER shredders are available with:

TWO DIFFERENT hitches (trail and 3 point) for all widths. Upon choice of hitch, DETERMINE THE TRACTOR'S P.T.O. OUTPUT. This will be 1 of 3 choices:

540 RPM	1 3/8"-6B spline
1000 RPM	1 3/8"-21 spline
1000 RPM	1 3/4"-20 spline

Twelve foot width units have 540 RPM drive for TRAILING hitch only and 1000 RPM drive for either 3 POINT or TRAILING hitches.

Fifteen through 20' width units have ONLY 1000 RPM drive.

All TRAILING UNITS use ONLY C.V. (constant velocity) P.T.O.'s. These are identified by extended front yokes separated by a large guide hub between them.

All 3 POINT UNITS use ONLY NON C.V. P.T.O.'s. These are identified by front yokes joined with a conventional (simple) front cross.

IMPORTANT: IDENTIFY CORRECT SHREDDER P.T.O. FOR TRACTOR USED BY CHECKING FORWARD YOKE SPLINE AND NOTING WHETHER IT IS A C.V. OR NON C.V. DO NOT INTERMIX FRONT AND REAR HALVES BETWEEN DIFFERENT P.T.O's.

See reference table, page 15 for identifying correct P.T.O

All shredder P.T.O's. have similar sliding yoke couplers at the tractor and gearbox ends. GEARBOX ENDS ARE IDENTIFIED BY AN OVERRUNNING CLUTCH (1).

Clean gearbox spline of any encrusted dirt or grease and lightly oil it. Slide outer P.T.O. collar (2) toward its adjacent yoke (3) and slide P.T.O. over the gearbox spline. Reverse the sliding collar to lock the assemblies together.

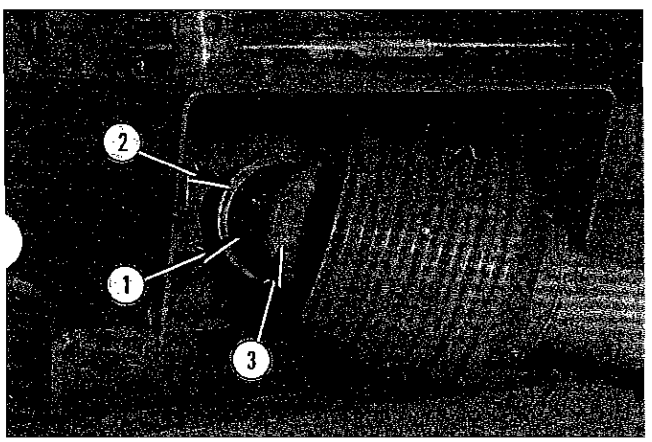


FIGURE 38 PHOTO NO 2969A

NOTICE: TO FACILITATE P.T.O. HOOK UPS, CHECK TRACTOR SPLINE FOR BURRS, OR OTHER DAMAGE. IF SHREDDER'S LOCKING COLLAR IS DIFFICULT TO PROPERLY ENGAGE, CLEAN AND LIGHTLY OIL SPLINE.

The tractor P.T.O. spline engages similar to above. Slide outer collar (1) toward its adjacent yoke (2) and slide P.T.O. over the tractor spline. Reverse the sliding collar to lock the assemblies together.

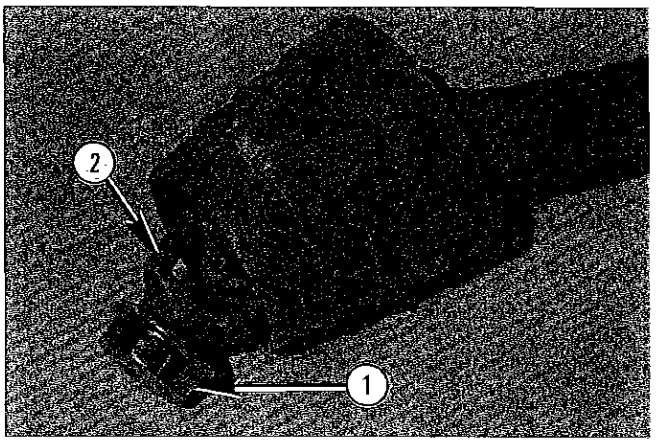


FIGURE 39 PHOTO NO 2966A

WARNING: DEATH OR SERIOUS INJURY CAN RESULT. NEVER OPERATE A SHREDDER UNLESS BOTH ENDS OF THE P.T.O. ARE PROPERLY LOCKED TO THEIR INTENDED SPLINES.

Recheck 1 of 2 following possible decals on gearbox shield to insure proper tractor/shredder RPM matching.

FIGURE 40 DWG NO 71504128

FIGURE 41 DWG NO 71504129

DANGER: DEATH OR SERIOUS INJURY CAN RESULT. KEEP AWAY AND KEEP OTHERS AWAY FROM AN OPERATING P.T.O. DO NOT OPERATE WITHOUT ALL SHIELDS IN PLACE. INSURE P.T.O. SHIELDS FREE WHEEL AND BOTH P.T.O.'S ENDS ARE SECURELY ATTACHED.

IMPORTANT: NEVER TOW A TRAILING SHREDDER UNLESS THE P.T.O. IS PROPERLY HOOKED UP TO BOTH TRACTOR AND SHREDDER. OTHERWISE, IT CAN BE DAMAGED. IF NECESSARY TO OTHERWISE TOW, DETACH ENTIRE P.T.O. ASSEMBLY (1) FROM GEARBOX AND SECURE IT BEHIND A DRIVE SHAFT SHIELD (2).

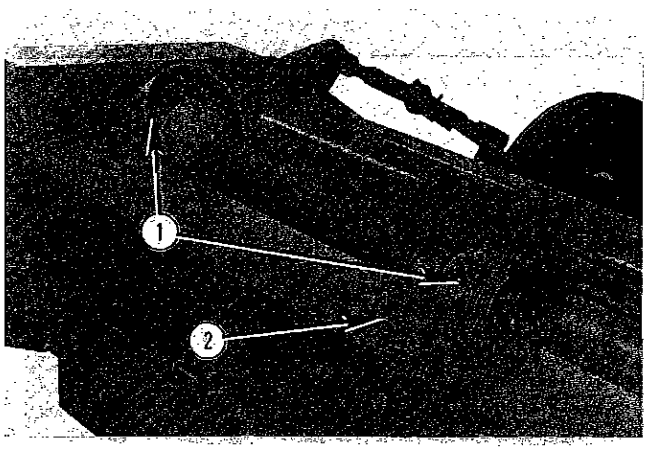


FIGURE 42 PHOTO NO. 2994

Three point hitch shredders may be field mode towed with the P.T.O. detached from the tractor, PROVIDED support chain (1) is wrapped around the P.T.O. and hooked up. Before operation, always insure this chain is removed from the P.T.O., wrapped around the "A" frame and rehooked on itself.

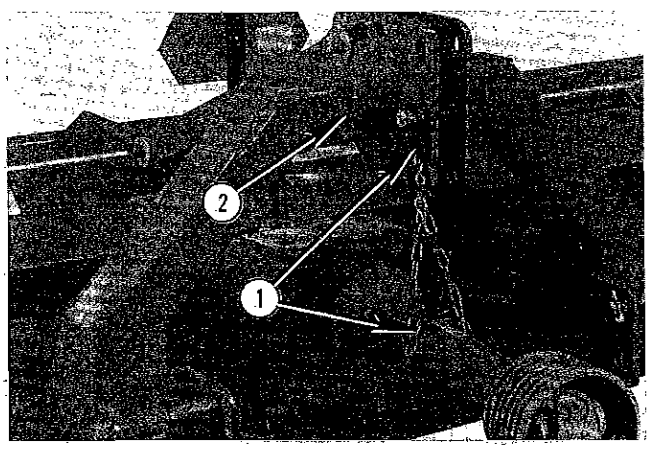


FIGURE 43 PHOTO NO. 3016

SHREDDER ROCKSHAFT & WHEELS

If the shredder has been delivered without accessory ratchet jack(s), or aftermarket hydraulics, install either at this time. See ASSEMBLY, page 50 or 55. It is not recommended necessary to use hydraulics on 3 point hitch shredders.

If aftermarket hydraulics are used on a trailing unit, pass hoses through the hose support ring and engage hose couplers with tractor's remote hydraulic outlets.

Insert tractor quick couplers to give shredder a DOWNWARD movement when tractor hydraulic lever is shoved FORWARD and vice versa.

⚠ CAUTION: DEATH OR SERIOUS INJURY CAN RESULT. STOP TRACTOR ENGINE AND RELIEVE HYDRAULIC PRESSURE BEFORE CONNECTING OR DISCONNECTING HYDRAULIC LINES.

DO NOT USE YOUR HAND TO CHECK FOR HYDRAULIC LEAKS. HIGH PRESSURE FLUID CAN PENETRATE THE SKIN.

⚠ WARNING: DEATH OR SERIOUS INJURY CAN RESULT. DISENGAGE P.T.O., STOP TRACTOR ENGINE, SET BRAKES, REMOVE KEY AND ALLOW EQUIPMENT TO COME TO A COMPLETE STOP BEFORE:

CLEANING, UNCLOGGING, LUBRICATING, INSPECTING, OR OTHERWISE SERVICING, ANY PART OF THIS EQUIPMENT.

DO NOT INSPECT AND/OR SERVICE A SHREDDER IN A RAISED POSITION UNLESS IT HAS BEEN SECURELY BLOCKED FROM UNEXPECTED DROPPING.

HINIKER shredders are shipped with a 5/8" diameter lockup bolt(s) thru rockshaft bracket(s) (2) and "lost motion" link(s) (3) at (1). Move bolt(s) to hole(s) (4) for trail hitch operation, except when using an end transport accessory (see ASSEMBLY, page 54).

IMPORTANT: LEAVE LOCKUP BOLT(S) IN HOLE(S) (4) DURING TRAIL HITCH OPERATION.

Never remove lockup bolt(s) from rockshaft bracket(s) (2) and "lost motion" link(s) (3) for 3 point hitch operation. This is to keep wheels from dropping.

IMPORTANT: LEAVE LOCKUP BOLT(S) THRU LOST MOTION" LINK(S) AND ROCKSHAFT BRACKET(S) FOR ALL 3 POINT HITCH OPERATION.

IMPORTANT: TO PREVENT ROCKSHAFT TWISTING ON 18' & 20' UNITS:

ACTUATE BOTH RATCHET JACKS UNIFORMLY OR,

INSTALL IDENTICAL LENGTH OF STOP COLLARS ON EACH CYLINDER ROD OR,

IDENTICALLY SET BOTH HYDRAULIC CYLINDER INTEGRAL TRIPS.

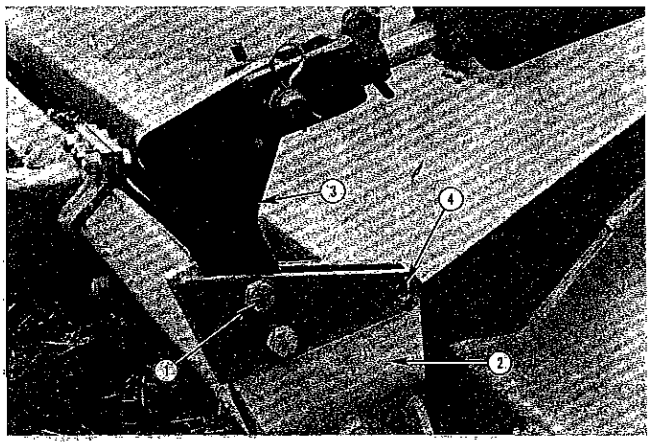


FIGURE 44 PHOTO NO. 3197

To adjust transverse spacing of a trailing unit's wheels, raise it with either the ratchet jack(s), or hydraulic cylinder(s). Do this with the shredder hitched to a tractor of adequate size to operate the unit; thus, stabilizing it.

⚠ CAUTION: DEATH OR SERIOUS INJURY CAN RESULT. MAKE ADJUSTMENTS ONLY ON A LEVEL SURFACE. SET THE TRACTOR'S BRAKES AND, SHUT OFF THE ENGINE BEFORE PROCEEDING. BLOCK UNIT OFF GROUND AS SPECIFIED BELOW.

Insert approx. 8" high SECURE blocks under each side of the shredder at its rear. Lower shredder onto these blocks and continue retracting either the ratchet jack(s), or hydraulic cylinder(s), until the tires come free of the ground.

Loosen the 6 5/8" leg bolts for each wheel and transversely slide the entire assembly to the following tire centerline (as applicable). Tire centerline spacings should be EQUALIZED on each side of the shredder's centerline.

		Dimns.	30" Rows	36" Rows
12 foot units		(1)	60"	72"
15 foot units	(outer)	(1)	90"	72"
	(inner)	(2)	30"	36"
18 foot units	(outer)	(1)	90"	108"
	(inner)	(2)	60"	72"
20 foot units	(outer)	(1)	120"	108"
	(inner)	(2)	60"	72"

For other row spacings, adjust the above settings accordingly. Torque up each wheel leg's 6 clamping bolts by uniformly tightening the lower 3 to snug fit. Subsequently, torque, and retorque top 3 to **146-206 Ft/lbs. (198-279 N/m.)**. Raise the shredder, remove blocks and lower the unit.

To adjust the transverse spacing of a 3 point hitch shredder's wheels, a similar procedure is used. Except, the shredder is raised with the tractor's 3 point hitch and subsequent steps followed.

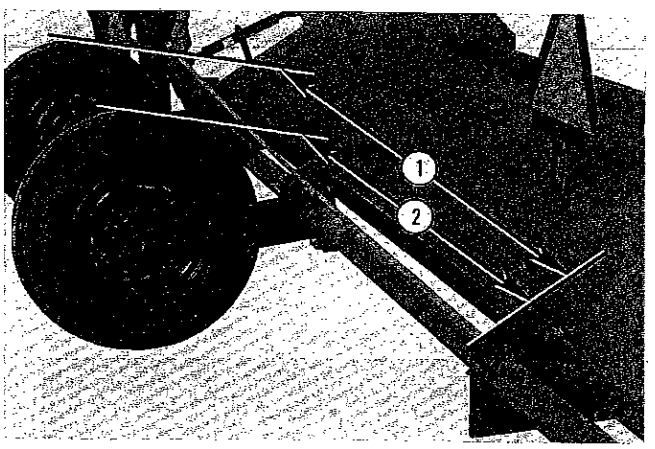


FIGURE 45 PHOTO NO. 2995

SHREDDER TIRES

HINIKER recommends aftermarket 7.60 x 15-4PR I1 (implement), or equivalent, tires. It is not necessary to inflate tires to normally used implement pressures because wheel loadings are comparatively light. The shredder will perform better, especially under ridged conditions, if tire pressures are kept no greater that recommended. (If the shredder tends to "yaw", or climb ridged rows, decrease pressure in the outside tires to the lower range cited and recheck that tire centerline are running in the row middles.

FIGURE 46 DWG. NO. 71504136

SHREDDER-FIELD MODE TOWING

Shredders are furnished with 1 SMV emblem (1) and sockets (2 & 3) therefor. If it is to be towed on public highways, WITHOUT AN END TRANSPORT ACCESSORY, install SMV emblem in socket (2). If it is to be towed on public highways, WITH AN END TRANSPORT ACCESSORY, install SMV emblem in socket (3). The SMV's reflective surface should face the rear.

⚠ CAUTION: DEATH OR SERIOUS INJURY CAN RESULT. WHEN TOWING ON PUBLIC HIGHWAYS:

USE A TRACTOR OF SUFFICIENT SIZE, AND WEIGHT, REQUIRED FOR FIELD OPERATION.

DO NOT TOW AT SPEEDS IN EXCESS OF 25 MPH (40 KPH).

USE AN AFTERMARKET SAFETY TOWING CHAIN BETWEEN TOWING VEHICLE AND SHREDDER.

USE THE SMV EMBLEM AS SPECIFIED ABOVE.

CHECK LOCAL REGULATIONS ON TOWING WIDTH AND WARNING LIGHTS.

TOW 3 POINT HITCH UNITS WITH WHEELS RUNNING IN GROUND CONTACT.

IMPORTANT: NEVER TOW A TRAILING SHREDDER UNLESS THE P.T.O. IS PROPERLY HOOKED UP TO BOTH TRACTOR AND SHREDDER. OTHERWISE, IT CAN BE DAMAGED. IF NECESSARY TO OTHERWISE TOW, DETACH ENTIRE P.T.O. ASSEMBLY FROM GEARBOX AND SECURE IT BEHIND A DRIVE SHAFT SHIELD.

Three point hitch shredders may be towed with the P.T.O. detached from the tractor, PROVIDED its support chain is used.

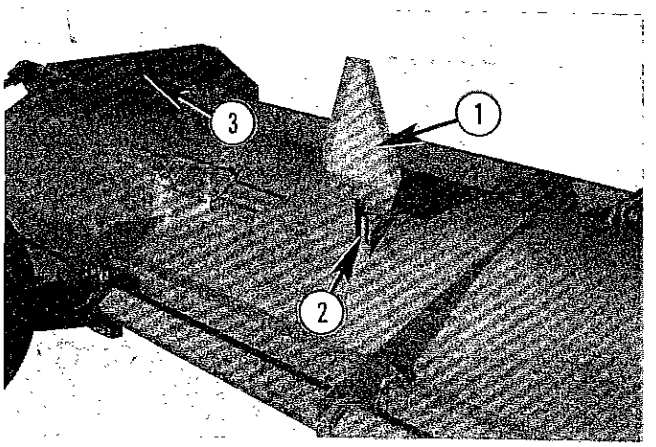


FIGURE 47 PHOTO NO. 2993A

Use an aftermarket safety towing chain (1) between the shredder and towing vehicle. Hook chain around bracket (2) and pass forward through aftermarket clevis (3). Fix chain's forward end (4) to tractor.

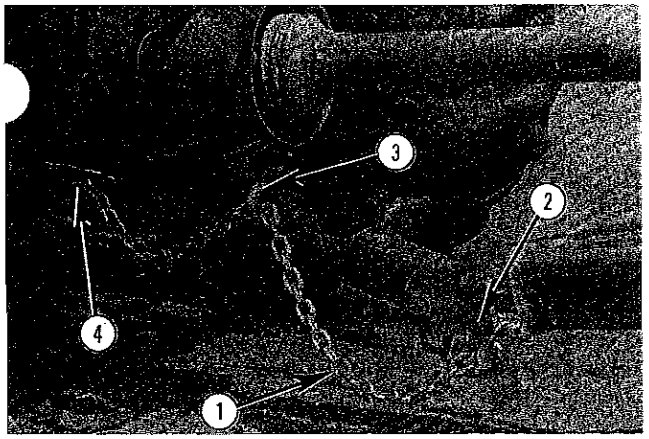


FIGURE 48 PHOTO NO 2997

The shredder can be towed, or stored, with either the ratchet jack(s) or hydraulic cylinder(s) removed.

FOR TRAIL HITCH UNITS, It is merely a matter of contracting them until the "lost motion" link is free of any force.

FOR 3 POINT HITCH UNITS, instructions are for 18' and 20' units; however, same principles apply to 12' and 15' (single rockshaft lift arm) units. Extend or contract one side until lockup bolt can be removed from hole (1). Further extend until hole (2) clears nd panel (3). Install bolt and nut in hole (2). .emove jack and go to opposite side and repeat.

IMPORTANT: NEVER LIFT A 3-POINT HITCH SHREDDER WITH LOCKUP BOLT(S) AND RATCHET JACK(S) REMOVED BECAUSE THE WHEELS WILL DROP.

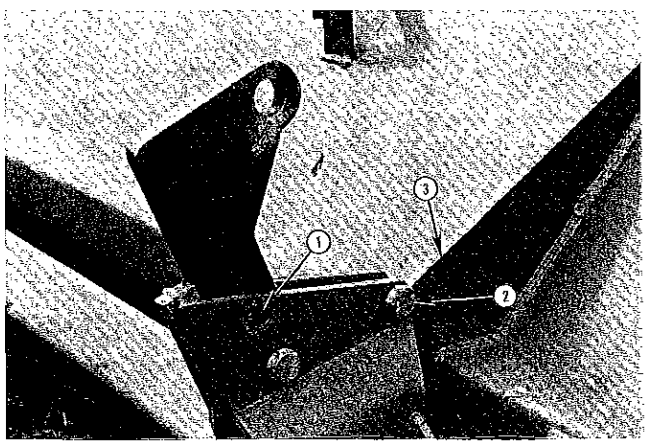


FIGURE 49 PHOTO NO 3198

SHREDDER-END TRANSPORT TOWING

nstallation instructions for the end transport accessory are in ASSEMBLY, page 56. Use an aftermarket safety towing chain (1) between the shredder and towing vehicle. Hook chain around bracket (2) and pass forward through bracket (3) and aftermarket clevis (4). Fix chain's forward end to tractor.

CAUTION: DEATH OR SERIOUS INJURY CAN RESULT. WHEN TOWING ON PUBLIC HIGHWAYS:

USE A TRACTOR OF SUFFICIENT SIZE, AND WEIGHT, REQUIRED FOR FIELD OPERATION.

DO NOT TOW AT SPEEDS IN EXCESS OF 25 MPH (40 KPH).

USE AN AFTERMARKET SAFETY TOWING CHAIN BETWEEN TOWING VEHICLE AND SHREDDER.

USE THE SMV EMBLEM AS SPECIFIED ABOVE.

CHECK LOCAL REGULATIONS ON TOWING WIDTH AND WARNING LIGHTS.

WARNING: DEATH OR SERIOUS INJURY CAN RESULT. NEVER LEAVE EITHER P.T.O. HOOKED TO SHREDDER GEARBOX WHEN USING END TRANSPORT. THEY EXTEND FURTHER LEFTWARD THAN THE BELOW DIMENSIONS.

TRAILING HITCH WIDTH, WITH END TRANSPORT, IS 132" (11'). THE 3 POINT HITCH WIDTH, WITH END TRANSPORT, IS 107" (8'-11").

IF THESE WIDTHS ARE NOT PERMITTED, OR ADVISABLE, UNDER YOUR CIRCUMSTANCES, REMOVE HITCH FROM SHREDDER.

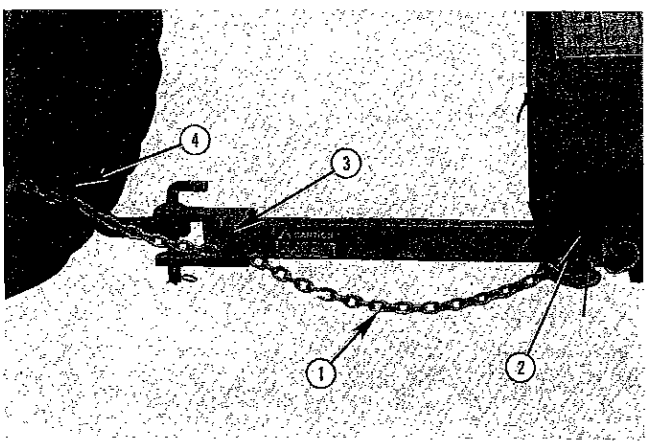


FIGURE 50 PHOTO NO 3018

IMPORTANT: NEVER USE AN END TRANSPORT ACCESSORY WITH ROCKSHAFT LOCKUP BOLT(S) AND RATCHET JACK(S), OR HYDRAULIC CYLINDER(S) REMOVED, BECAUSE THE WHEELS WILL DRAG.

OPERATION

⚠ WARNING: DEATH OR SERIOUS INJURY CAN RESULT. BEFORE OPERATING, READ SAFETY-GENERAL, BEFORE OPERATION, DURING OPERATING AND TOWING AT FRONT OF THIS MANUAL.

GENERAL

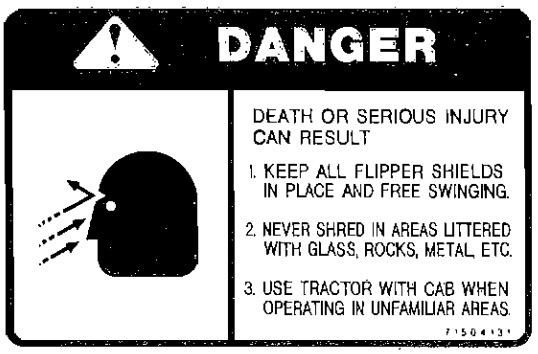


FIGURE 51 DWG. NO. 71504131

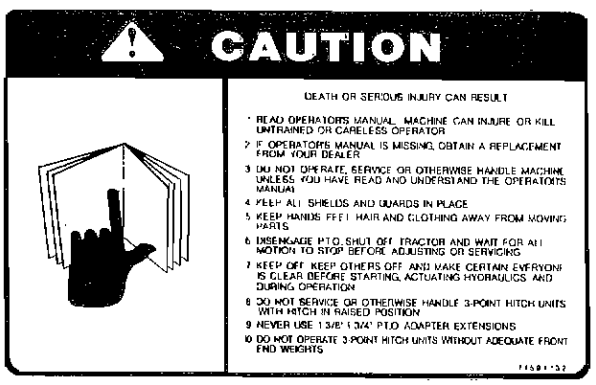


FIGURE 52 DWG. NO. 71504132

Always operate tractor at standard 1000, or 540, RPM P.T.O. Use transmission up, or down, shift to vary forward speed. CONSISTENTLY OVER-SPEEDING THE P.T.O. WASTES FUEL AND AGGRAVATES KNIFE WEAR.

Avoid "jackrabbit" P.T.O. engagement at full speed because it overstresses the shredder's driveline. Engage P.T.O. at slow speed and throttle up to operating speed.

If aftermarket hydraulics are used on a trailing hitch unit, insert quick couplers to give shredder a DOWNWARD movement when tractor hydraulic lever is shoved FORWARD and vice versa.

IMPORTANT: FOR 3 POINT HITCH END TURNS ACROSS RIDGED ROWS, ALWAYS RAISE UNIT TO MINIMIZE CROSSWISE STRESS ON WHEELS. LOWER UNIT, FOR OPERATION, AT REASONABLE RATE TO PREVENT REPEATED "CRASHING" GROUND CONTACT.

IMPORTANT: FOR TRAILING HITCH END TURNS ACROSS RIDGED ROWS, SLOW FORWARD SPEED TO MINIMIZE EXCESSIVE BOUNCING AND SCALPING IF AFTERMARKET HYDRAULICS ARE NOT USED.

⚠ CAUTION: DEATH OR SERIOUS INJURY CAN RESULT. FOR TRAILING UNITS, SOME TRACTOR MASTER P.T.O. SHIELD'S MAY CONTACT SHREDDER'S FRONT P.T.O. SHIELD ON TURNS. BE ALERT FOR THIS AND MAXIMIZE TURNING RADII. REPLACE SHREDDER FRONT P.T.O. SHIELD IF IT BECOMES DAMAGED.

IMPORTANT: INITIALLY START SHREDDING WITH UNIT SET SUBSTANTIALLY HIGHER THAN THE RECOMMENDED MINIMUM KNIFE/ROW CLEARANCE OF 3".

Shred a short distance and check performance. The higher knife/row clearance may not give satisfactory results; therefore, lower unit and check again. Progressively lower unit until good results are obtained. DO NOT OPERATE WITH LESS THAN 3" KNIVES CLEARANCE TO HIGHEST GROUND POINT WITHIN SHREDDED WIDTH.

IMPORTANT: "SCALPING" ROWS WASTES FUEL AND RAPIDLY AGGRAVATES KNIFE WEAR. THIS IS PARTICULARILY TRUE IN ROCKY FIELDS. IF YOUR FIELD HAS PROTRUDING ROCKS, KEEP UNIT'S HEIGHT SUFFICIENT FOR KNIVES TO CLEAR THEM. STALK SHREDDERS ARE NOT INTENDED TO BE USED AS A "ROCK PICKER", OR A "ROTOTILLER".

Operate the shredder approximately LEVEL. That is, front (1) of main frame should clear ground about the same as the rear (2).

CAUTION: DEATH OR SERIOUS INJURY CAN RESULT. EXCESSIVE FRONT FRAME/GROUND CLEARANCE CAUSES MORE DEBRIS TO THROW FORWARD UNDER THE TRASH SHIELDS. NEVER STAND NEAR, AND AHEAD OF, A RUNNING MACHINE.

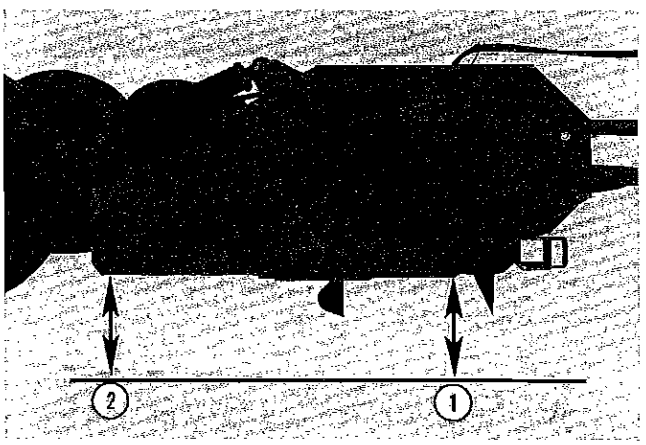


FIGURE 52A PHOTO NO. 3048A

WARNING: DEATH OR SERIOUS INJURY CAN RESULT. NEVER ATTACH A DISC HITCH ACCESSORY TO A 3 POINT HITCH SHREDDER. THIS CAN CREATE DANGEROUS TRACTOR TIP OVER FORCES, AND POSSIBLY DAMAGE THE SHREDDER.

IMPORTANT: IF DISC HITCH ACCESSORY IS USED, ALWAYS RAISE DISC ON TURNS TO PREVENT ABNORMAL SIDE LOADS ON DISC HITCH. AVOID EXCESSIVELY SHARP TURNS TO PREVENT DAMAGING SHREDDER'S OUTER TIRES.

TRAILING HITCH HEIGHT ADJUSTMENT

1. Position unit astraddle rows and insure wheels are centered in row middles before making any adjustments. Rotate rockshaft/wheels until knives clear rows by GREATER than 3". Loosen jam nut on drawbar's underneath draft link and adjust draft link's length until unit is approximately level. (A 1 3/4" across flats wrench is required.)

2. Recheck knives/row clearance and readjust rockshaft/wheels, as well as draft link length, if necessary.

3. Shred a short distance, stop and check stubble to insure knives are properly clearing rows and satisfactory performance is obtained. If necessary, reset rockshaft/wheels and drawbar's underneath draft link. Lock jam nut on thread of draft link.

4. If aftermarket hydraulics are installed, insure cylinder stop collars, or integral trips, are EQUALIZED on 18' and 20' units.

3 POINT HITCH HEIGHT ADJUSTMENT

Three point height adjustment differs from trailing height adjustment because:

No shredder drawbar and underneath draft link exist.

The tractor's 3 point POSITION CONTROL and upper link length are involved.

Tractor lower links height above the ground may vary because of differing wheel sizes. See FIELD PREPARATION, page 17.

1. Set tractor 3 point hitch hydraulics in POSITION CONTROL mode.

IMPORTANT: NEVER OPERATE SHREDDER WITH TRACTOR 3 POINT HYDRAULICS IN OTHER THAN POSITION CONTROL MODE. FAILURE TO DO THIS CAN RESULT IN INADVERTENT SHREDDER "PLOWING" INTO THE GROUND.

2. Temporarily set position control stop to maintain lower links approx. parallel to the ground.

3. Position unit astraddle rows and insure wheels are centered in row middles before making any adjustments. Rotate rockshaft/wheels until knives clear rows by GREATER than 3".

IMPORTANT: CHECK TRACTOR UPPER LINK LENGTH WHEN ADJUSTING WHEELS TO INSURE "LOST MOTION" LINKAGE DOES NOT GO "SOLID".

4. Readjust tractor's position control stop until shredder is approximately level.

5. Shred a short distance, stop and check stubble to insure knives are properly clearing rows and satisfactory performance is obtained. If necessary, reset rockshaft/wheels and tractor's position control stop.

6. Adjust 3 point upper link length to position cross pin in "lost motion" slot approximately 1" from rear of slot.

IMPORTANT: ALWAYS OPERATE CROSS PIN IN "LOST MOTION" SLOT WITH APPROX. 1" CLEARANCE FROM REAR OF SLOT. IF THIS IS NOT MAINTAINED, DAMAGE CAN OCCUR FROM UPPER LINKAGE "BOTTOMING".

STORAGE

⚠ CAUTION: DEATH OR SERIOUS INJURY CAN RESULT. DISENGAGE P.T.O., STOP TRACTOR ENGINE, SET BRAKES, REMOVE KEY AND ALLOW EQUIPMENT TO COME TO A COMPLETE STOP BEFORE:

CLEANING, UNCLOGGING, LUBRICATING, INSPECTING, OR OTHERWISE SERVICING, ANY PART OF THIS EQUIPMENT.

Do not store the shredder outside between seasons of use. That lowers resale/trade in value.

The following will insure equipment is in top operating condition at start of next season.

1. Open end shields and thoroughly clean out dirt and trash. Clean out any other trash hanging on unit. Check drive shaft and gearbox bearing seals for trash entanglement.

2. Back off backwrap belt idlers to relax tension on "V" belts. Inspect belts for wear.

3. Clean debris from P.T.O. ends and insure safety shield freely rotates.

4. Relube machine and check gearbox lube level.

5. Clean rust off exposed surfaces and repaint any requiring it. Also check for any loose hardware.

6. Inspect both rotor assemblies for lost, broken, or worn out knives. Replace these as required. Also, replace any other deteriorated parts, especially decals and reflectors.

7. If ratchet jack(s), or aftermarket hydraulics, are to be used elsewhere, insure rockshaft lockup bolt(s) are in their storage position. See Figure 49, page 23.

LUBRICATION

⚠ WARNING: DEATH OR SERIOUS INJURY CAN RESULT. BEFORE LUBRICATING, READ SAFETY-GENERAL AND SERVICE AT FRONT OF THIS MANUAL.

⚠ CAUTION: DEATH OR SERIOUS INJURY CAN RESULT. DISENGAGE P.T.O., STOP TRACTOR ENGINE, REMOVE KEY AND ALLOW EQUIPMENT TO COME TO A COMPLETE STOP BEFORE:

CLEANING, UNCLOGGING, LUBRICATING, INSPECTING, OR OTHERWISE SERVICING, ANY PART OF THIS EQUIPMENT.

DO NOT SERVICE OR OTHERWISE HANDLE A 3 POINT, OR HYDRAULICALLY RAISED TRAIL UNIT, IN A RAISED POSITION UNLESS IT HAS BEEN SECURELY BLOCKED FROM UNEXPECTED FALLING.

HINIKER shredders have been factory checked and lubricated. However, it is a good idea to recheck and relubricate a unit prior to first field operation.

Shredders operate in an extremely dirty (fine dust) environment. Proper maintenance attention to the anti-friction bearings will save money!

IMPORTANT: WIPE ALL ZERKS AND GUN TIPS BEFORE LUBRICATING. ADHERE TO 1 PUMP PER FITTING ON AN 8 HOUR (DAILY) INTERVAL, EXCEPT (23) CV DOUBLE YOKE WHICH NEED 15 TO 20 PUMPS. Ratchet Jack(s) need only periodic lube.

Replace any damaged fittings and use a good grade of lithium base grease.

A 1000 RPM gearbox is checked by measuring 3 7/8" TO 4" DEPTH TO LUBE LEVEL BELOW FILL HOLE THREAD TOP OR USE CHECK PLUG AT REAR.

A 540 RPM gearbox is checked by LUBE LEVEL AT CHECK PLUG AT FRONT R.H. CENTERLINE. THIS PLUG, AND DRAIN PLUG, REQUIRE AN 8 MM. ALLEN WRENCH FOR REMOVAL.

Either gearbox should be checked at least seasonally. After 300 hours operation, drain and refill.

Either gearbox is filled through a top plug. BLOW DEBRIS FROM FILL PLUG AREA BEFORE REMOVING IT. Use a good A.P.I. 85W-140 GL5 (extreme pressure) lubricant.

The drain plug is at reference item (22) in Figure 62.

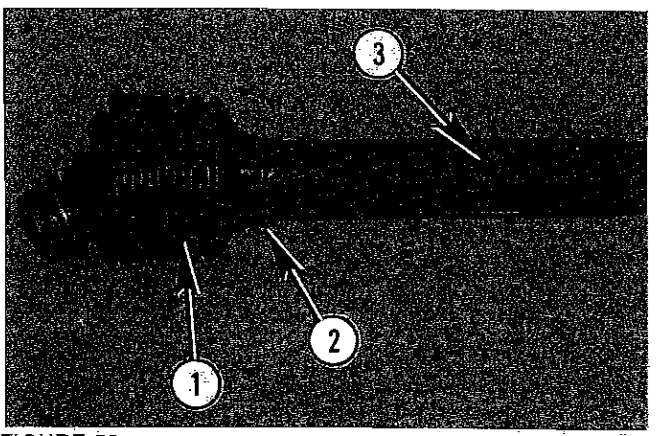


FIGURE 53 PHOTO NO. 2964

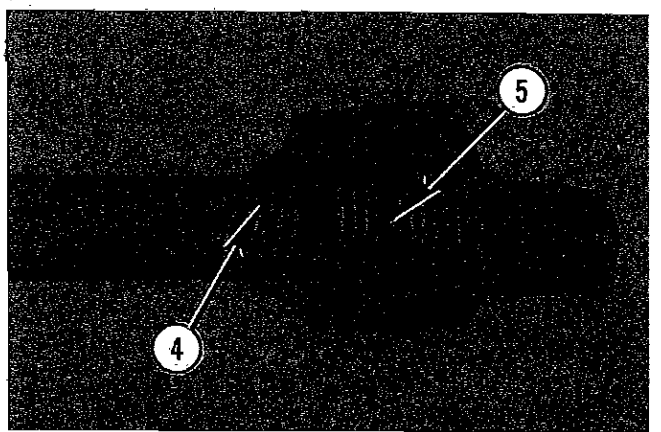


FIGURE 54 PHOTO NO. 2968

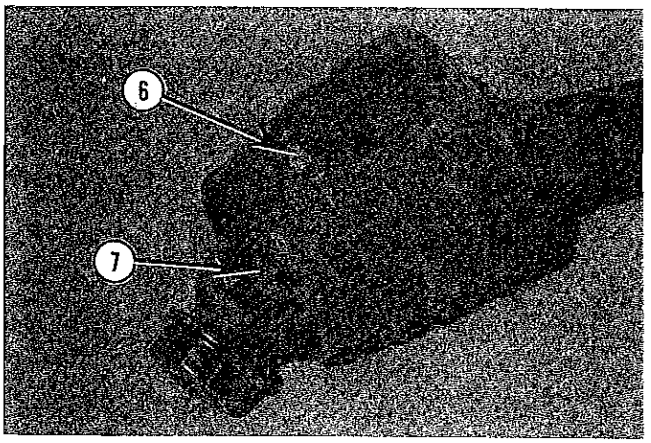


FIGURE 55 PHOTO NO 2966

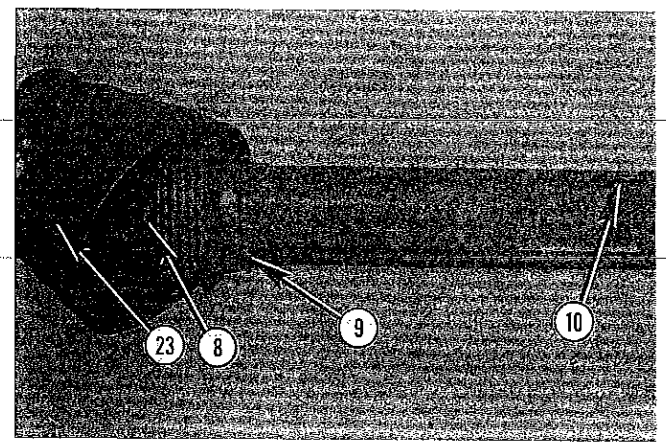


FIGURE 56 PHOTO NO 2967

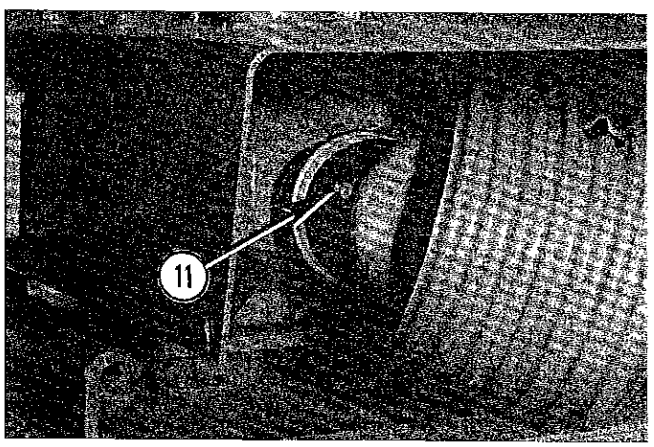


FIGURE 57 PHOTO NO 2969

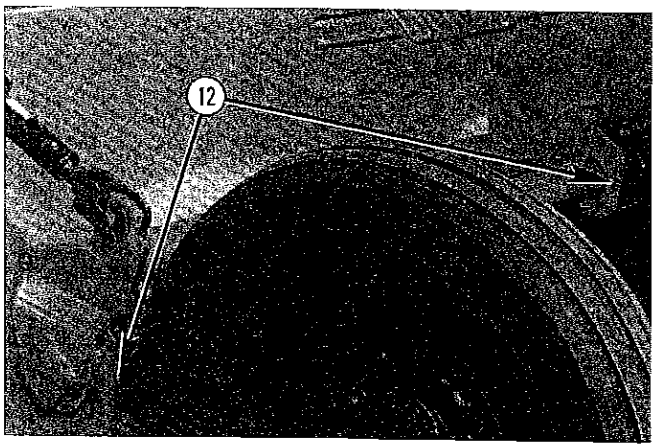


FIGURE 58 PHOTO NO 2970

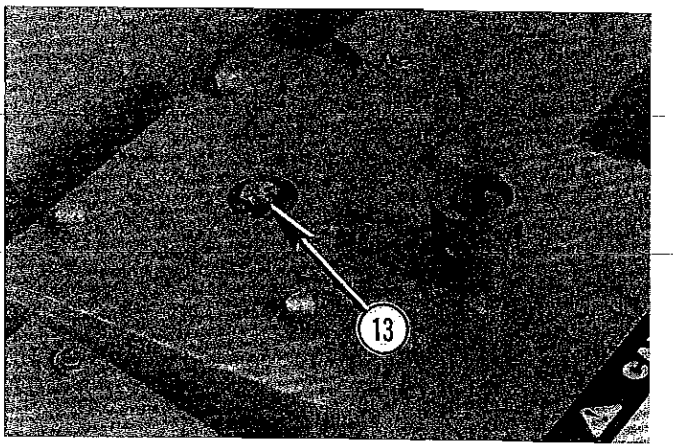


FIGURE 59 PHOTO NO 2978

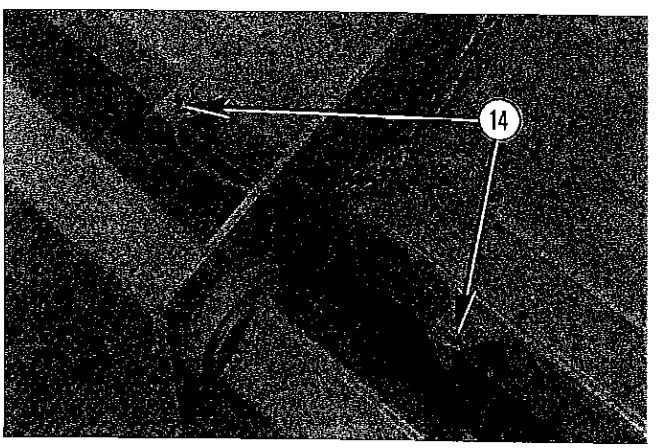


FIGURE 60 PHOTO NO 2971

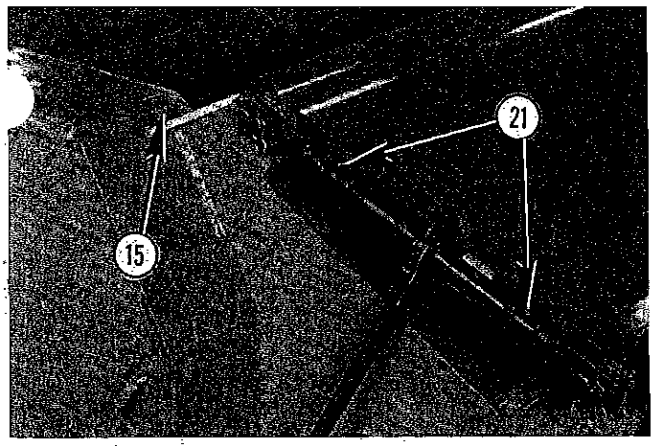


FIGURE 61 PHOTO NO 2977

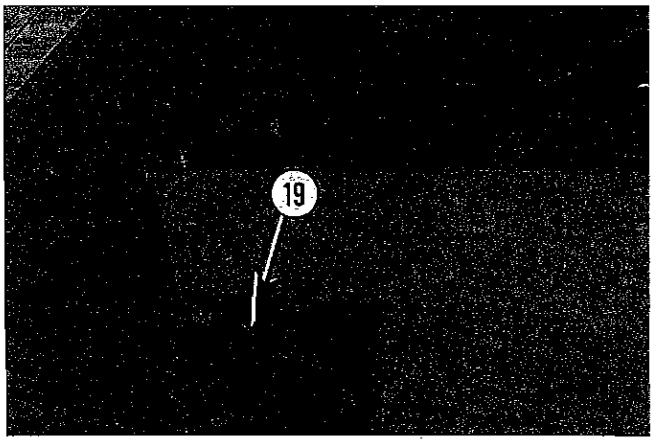


FIGURE 64 PHOTO NO 2975

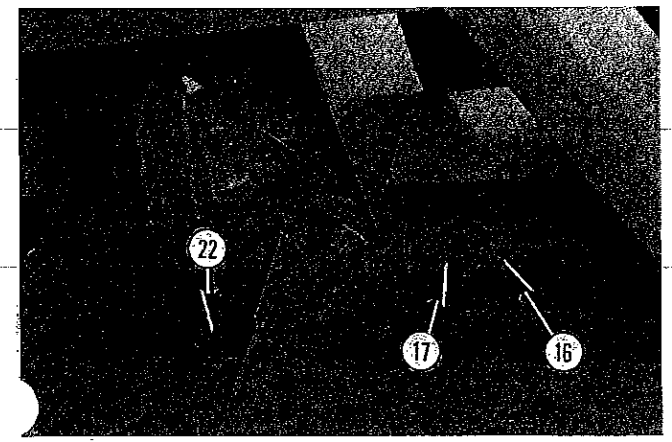


FIGURE 62 PHOTO NO 2973

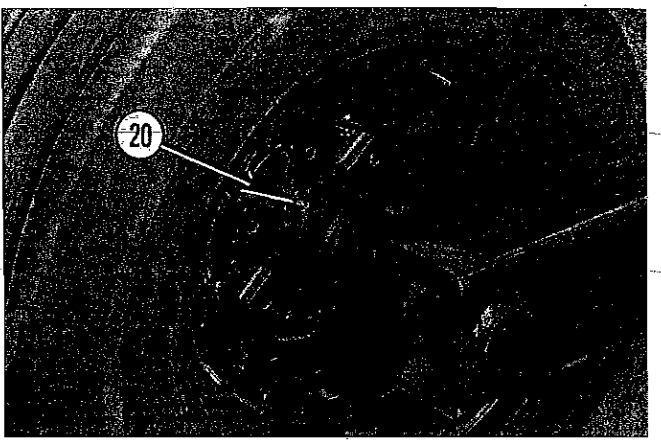


FIGURE 65 PHOTO NO 2976

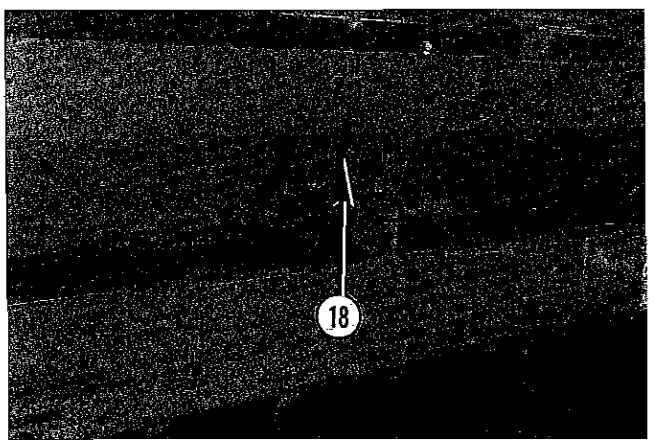


FIGURE 63 PHOTO NO 2974

TROUBLE SHOOTING

CONDITION	POSSIBLE CAUSE	CORRECTION
Poor shredding.	1. Missing, or broken knives.	1. Inspect and replace. See SERVICE section.
	2. Knives worn out.	2. Same as above.
	3. Under speed P.T.O.	3. Check tractor for 540 or 1000 P.T.O. RPM.
	4. Slipping belts.	4. Check belts backwrap idler adjustment. See SERVICE Section
	5. Worn out belts.	5. Inspect belts for wear or mismatching. Replace only in matched sets.
	6. Shredder bouncing.	6. Deflate tires to 15-20 psi. Slow down ground speed.
	7. Operating too high.	7. Decrease knives operating height to approx. 3" above rows.
	8. Excessive ground speed.	8. Slow down.
	9. "Cup" knives in cotton or lighter grass/weed clipping.	9. Convert to "side slicer". See SERVICE Section.
Excessive row knife wear.	1. Operating too low.	1. Raise knives operating height to approx 3" above rows.
Excessive knife stone damage.	1. Using "cup" knives on stony ground.	1. Convert to "side slicer". See SERVICE Section.
	2. Running too low.	2. Raise knives operating height to approx. 3" above rows, or to clear rocks.

CONDITION	POSSIBLE CAUSE	CORRECTION
"Entire shredder crosswise yawing".	1. Wheel not exactly centered on middles.	1. Readjust wheel spacings.
	2. Different tire sizes on same unit.	2. Correct.
Excessive shredder vibration.	1. Missing or broken knives.	1. Inspect and replace. See SERVICE section.
	2. Rock damaged rotor.	2. Replace.
	3. Worn or loose rotor bearings.	3. Inspect and maintain. See SERVICE section.
	4. Loose or misaligned end sheaves.	4. Inspect and maintain. See SERVICE section.
	5. Deteriorated belts.	5. Replace belts.
	6. High tire air pressure.	6. Bleed to 15-20 PSI.
Too rapid belt wear.	1. Belts too loose or too tight.	1. Backwrap idler tension not properly maintained. See SERVICE section.
Crossways tilted operation.	1. Unequalized ratchet jacks or hydraulic cylinder stops.	1. Equalize ratchet jacks or hydraulic cylinder stops.
Bottoming at front of lost motion slot.	1. Tractor top link too short.	1. Lengthen top link so cross pin is near rear of slot.
	2. Tractor top link in wrong position.	2. See FIELD PREPARATION.
Excessive power for available tractor.	1. Using "cup" knives.	1. Convert to "side slicer". See SERVICE Section.
	2. Excessive ground speed.	2. Slow Down.

SERVICE

WARNING: DEATH OR SERIOUS INJURY CAN RESULT. BEFORE SERVICING, READ SAFETY-GENERAL, BEFORE OPERATION, DURING OPERATION AND SERVICE AT FRONT OF THIS MANUAL.

CAUTION: DEATH OR SERIOUS INJURY CAN RESULT. DISENGAGE P.T.O., STOP TRACTOR ENGINE, SET BRAKES, REMOVE KEY AND ALLOW EQUIPMENT TO COME TO A COMPLETE STOP BEFORE:

CLEANING, UNCLOGGING, LUBRICATING, INSPECTING, OR OTHERWISE SERVICING, ANY PART OF THIS EQUIPMENT.

DO NOT SERVICE OR OTHERWISE HANDLE A 3 POINT, OR HYDRAULIC RAISED TRAILING UNIT, IN A RAISED POSITION UNLESS IT IS SECURELY BLOCKED AGAINST UNEXPECTED FALLING.

DO NOT SERVICE END DRIVE BELTS WHEN TRACTOR IS RUNNING.

REPLACE ALL SHIELDS REMOVED FOR SERVICE BEFORE OPERATING THIS EQUIPMENT.

HARDWARE

Shredders operate in an inherently vibratory environment. Discipline yourself to regularly check suspect bolt torques and lost, worn out, or broken parts. Replace these promptly.

HINIKER shredders are EQUIPPED ONLY WITH GRADE 5 BOLTS (3 marks on heads) and retained with TYPE B or F LOCKNUTS (except on wheel legs, sheaves, backwrap idler inside nut, and the gearbox which have lockwashers). Type B locknuts are PLAIN hex. Type F locknuts are FLANGED hex.

IMPORTANT: DO NOT REPLACE HARDWARE WITH LOWER GRADE ITEMS. EXCEPTING ON SHEAVES (PAGE 39), ALL BOLT TORQUES ARE GRADE 5. HARDWARE OVER, OR UNDER, TORQUING, CAN RESULT IN UNSATISFACTORY DURABILITY.

GRADE 5 TYPE B & F LOCKNUT TORQUES

Diameter	Ft/lbs.	N/m.
5/16"	13-18	17-25
3/8"	23-33	31-44
7/16"	38-54	51-73
1/2"	58-82	79-112
5/8"	117-165	158-223
3/4"	206-292	280-396
1"	500-708	678-960

GRADE 5 BOLT TORQUES*

Diameter	Ft/lbs.	N/m.
3/8"	29-41	39-56
1/2"	73-103	99-140
5/8"	146-206	198-279
* applications without locknuts		

It is a good idea to recheck critical bolt torques after the first 2 or 3 hours of operation.

KNIVES

HINIKER shredder rotors are factory dynamically balanced.

WARNING: DEATH OR SERIOUS INJURY CAN RESULT. SHOULD ABNORMAL ROTOR VIBRATION OCCUR AT ANY TIME, IMMEDIATELY DISENGAGE P.T.O., STOP TRACTOR ENGINE, SET BRAKES, REMOVE KEY AND DETERMINE/CORRECT CAUSE BEFORE PROCEEDING.

Periodically inspect rotor assemblies for broken or missing knives. Immediately replace those so ıdicated because they will cause the rotor to run out of balance. Partially worn out SIDE SLICER knives may be removed and reversed to give a fresher cutting edge. HINIKER knives are marketed singularly; however,

IMPORTANT: REPLACE KNIVES IN OPPOSITE (180° APART) SETS. ALSO, REPLACE CORRESPONDING IDENTICAL KNIVES AT OTHER END OF SAME ROTOR HALF.

Shredders are factory shipped either with CUP knives, per Figure 66, or with SIDE SLICER knives, per Figure 67.

Generally, CUP knives are most commonly used in ridged row crops where:

Higher middles trash suction is desired,

Marginal tractor power is not a problem.

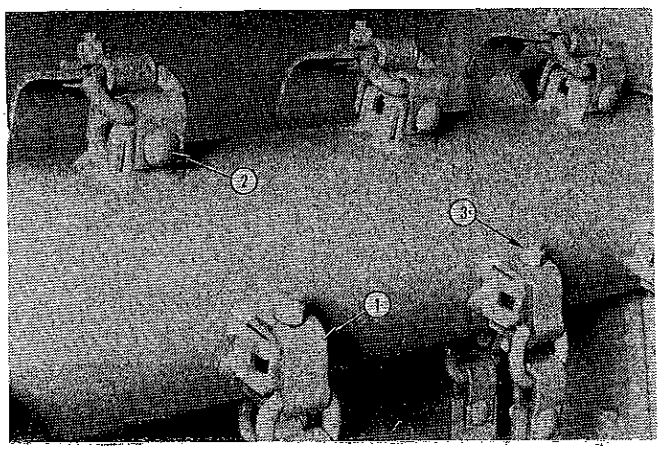


Figure 66 PHOTO NO. 3240

Generally, SIDE SLICER knives are most commonly used where:

Rocky ground is expected,

Marginaly tractor power is a problem,

Cotton stalks are to be shredded,

Lighter grass/weed clipping is expected.

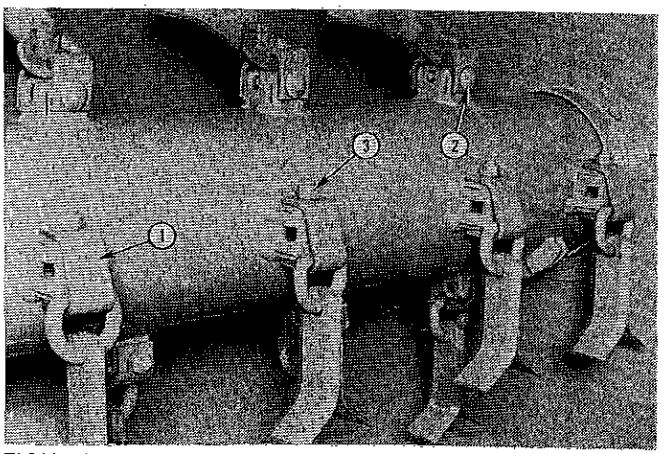


FIGURE 67 PHOTO NO. 3241

Machines can be field converted from CUP to SIDE SLICER, and vice versa, by ordering per each knife mounting, these items thru REPAIR PARTS:

CUP TO SIDE SLICER:

"D" Ring	P/N 000-65142
Knives	P/N 000-65143 (2 req'd)

Existing knife hangers (1) and 1/2 x 3 3/4 cge. bolts (2) are reuseable.

SIDE SLICER TO CUP:

Cup assembly P/N 792-01437 (w/knife, "D" ring, 1/2 x 1 1/2 cge. bolt and locknut.

Existing knife hangers (1) and 1/2 x 3 3/4 cge. bolts (2) are reuseable.

IMPORTANT: WHEN SERVICING KNIVES, ALWAYS DISCARD ANY LOCKNUT THAT HAS BEEN LOOSENED. NEVER REPLACE THESE TYPE B LOCKNUTS WITH ORDINARY NUTS. INSTALL KNIFE HANGERS (1) AND MOUNTING BOLTS (2) SO CGE. HEADS ALWAYS TRAIL DIRECTION OF ROTOR ROTATION. LOCKNUT (3) SHOULD ALWAYS LEAD DIRECTION OF ROTOR ROTATION.

Knives hardware should be torqued to 58-82 ft/lb(79-112 N/m).

BELTS

HINIKER shredders are EQUIPPED ONLY WITH PREMIUM GRADE MATCHED BELTS. Do not replace these with "garden variety" UNMATCHED belts because their power transmission capability, and durability, will be degraded.

NOTICE: ADEQUATE TENSION IS NECESSARY FOR FULL POWER TRANSMISSION AND SATISFACTORY BELT PERFORMANCE.

This is obtained by following instructions on decal located on endplates inside each end shield.

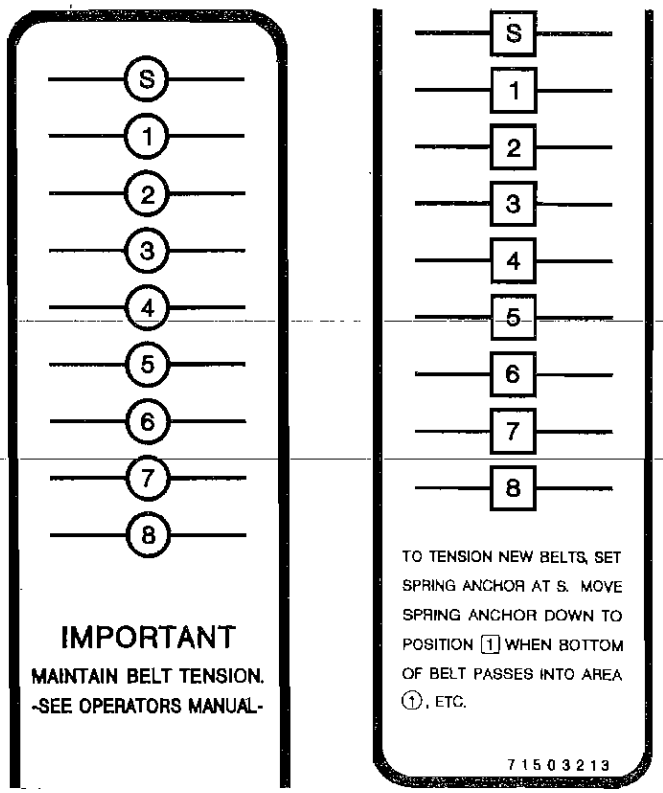


FIGURE 68 71503213

1. New belts are initially tensioned by moving spring anchor downward until outer inside of spring loop (1) is horizontally level with position [S] on the decal.

2. Horizontally sight across lower edge (2) of upper belt run. If this edge has stretched into position (1) on decal, move spring anchor downward to position [1] on decal.

3. Washer (3) and adjusting bar slots (4) permit levering spring into desired position with a screwdriver.

4. Roll the belts through a partial revolution to recheck operating tension.

5. For subsequent adjustments, if the lower edge (2) of upper belt run has moved to position (2), (3), etc. on decal, move spring loop (1) to position [2], [3], etc. on decal.

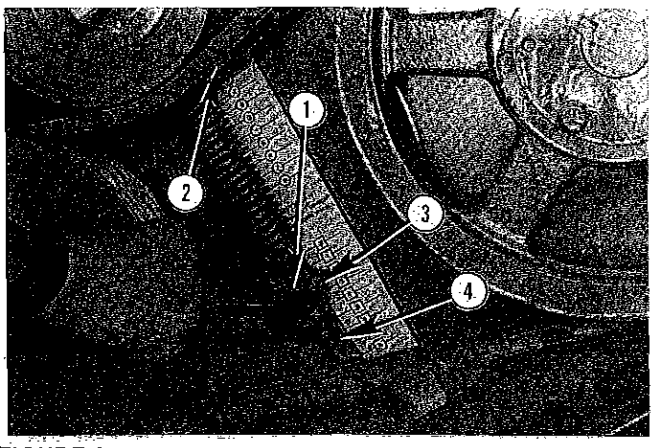


FIGURE 69 PHOTO NO. 3004

Recheck initial belt tension after first hour and first day of operation. Loose belts can "glaze" and contribute to slippage. DO NOT USE BELT DRESSING ON "V" BELTS. This will aggravate poor belt function.

If evidence exists of belts overheating and/or excessive side wrapper wear, check belt alignment. See Figure 75, page 38.

When purchasing/installing matched belt sets, take care to NOT MIX BELTS FROM DIFFERENT SETS. Also, loosen backwrap idler spring to provide adequate installation slack. NEVER PRY "V" BELTS OVER SHEAVE RIMS!

Replacement belt sets should only be ordered by specific HINIKER part number. Do not measure around a belt set's length. The correct belt set part numbers are:

12' & 15' shredders (2 matched strands)
516-15001

18' & 20' shredders (3 matched strands)
000-25168

OUTER ROTOR BEARINGS

All 4 rotor bearings are identical. Each is flange mounted and piloted. They have no eccentric locking collars and are loosened from their shafts by removing 2 3/8" Allen set screws (1) from their inner races. Because of high vibration associated with shredders, these set screws are factory retained with an anaerobic threadlock (eg. Locktite 242 (blue) or Perma-Lok HM 118 (red). Removal procedure DIFFERS BETWEEN THE INNER AND OUTER ROTOR BEARINGS.

1. Loosen and remove belts and driveN sheave. See Fig. 76, page 38.

⚠ CAUTION: DEATH OR SERIOUS INJURY CAN RESULT. ROTORS ARE HEAVY AND SUBJECT TO UNEXPECTED MOVEMENT. SECURELY UNDERNEATH BLOCK ROTOR END BEING SERVICED AGAINST DROPPING OR SHIFTING BEFORE THE END BEARING IS REMOVED FROM ITS PILOT HOLE.

2. Remove 4 3/8" bolts (2) and the 2 inside anti- wrap shields. This allows wrench access to the bearing mounting bolt heads.

3. Loosen outer end zerk hex nut of lube tube (3) and detach tube from bearing (4). Circumferentially polish shaft (5).

4. Remove 4 1/2" locknuts (6) which are factory retained with anaerobic threadlock (eg. Locktite 242 (blue) or Perma-Lok HM 118 (red). Modestly pry plate (7) outward to start bearing off shaft.

5. A varying quantity of 2" nom. I.D. washers are factory installed between the inner end of bearing (4) and the shoulder on shaft (5). Because replacement bearings vary in axial dimensions, care must be exercised to FULLY WASHER THE SPACE BETWEEN THE BEARING AND SHAFT SHOULDER. Reinstall plate (7) and bearing (4) by temporarily snugging up 2 each of their bolts (without anti-wrap shields). Visually check above cited washers to insure no looseness, or substantial axial preload, exists. Two inch nom. I.D. washers are available as part numbers:

Washer	Part Number
1/16" Thick	710-05333
1/8" Thick	710-05332

6. After the washers have been checked, torque bearing mounting bolts and Allen set screws. Torque the Allen screws once, loosen and torque a second time. Reinstall anti-wrap shields and torque support plate bolts.

IMPORTANT: WHENEVER THESE LOCKNUTS/BOLTS ARE DISCARDED, ONLY GRADE 5 BOLTS AND TYPE B LOCKNUTS SHOULD BE REINSTALLED. THE ABOVE CITED (OR SIMILAR) ANAEROBIC THREADLOCK SHOULD BE USED IN REASSEMBLY OF BEARING MOUNTING BOLTS AND ALLEN SET SCREWS. TORQUE ALL BEARING MOUNTING BOLTS TO 58-82 Ft/lbs. (79-112 N/m).

Commercial anaerobic threadlocks have installation instructions, and SAFETY CAUTIONS, on their containers. These should be adhered to.

7. Reinstall and realign previously removed sheave and belt.

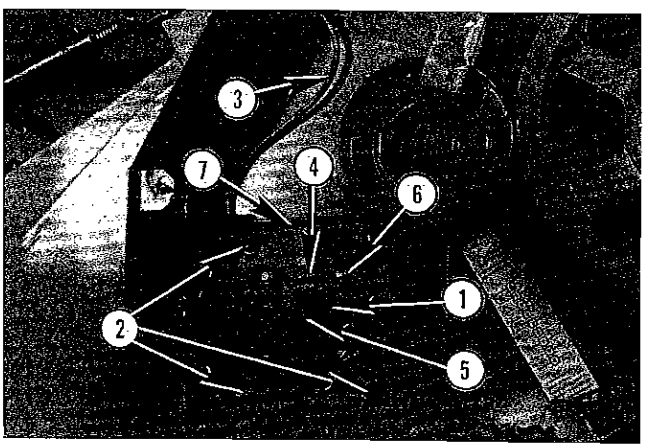


FIGURE 70 PHOTO NO. 3005

INNER ROTOR BEARINGS

1. The entire affected rotor must be removed. Thus, the shredder must be turned upside down.

2. Raise front of unit 12" or more off ground with trail hitch jack, or tractor 3 point hitch. Block both front corners accordingly and move hitch jack to shipping pedestal (1). Remove SMV, P.T.O., and either 3 point, or trailing, hitch. See ASSEMBLY, page 51 or 52 and perform in reverse order as stated therein.

3. Remove belts and drive sheave. See Figure 76, page 38. If unit is equipped with aftermarket hydraulics, remove hose support and fully retract cylinder(s). Loosen both inner and outer bearing's lube tube zerk nuts and detach lube tubes from their supports.

4. Temporarily insure end panel shields are latched shut. Reinstall hitch draft pins (2) and their cotters.

⚠ WARNING: DEATH OR SERIOUS INJURY CAN RESULT. DO NOT ATTEMPT TO REMOVE A ROTOR FROM UNDERNEATH A SHREDDER IN ITS OPERATING POSITION.

ROTORS SHOULD ONLY BE HANDLED, AND CONTROLLED, WITH AN OVERHEAD SLING HOIST. (EG. A 20' ROTOR WEIGHS 385 LBS. (175 KG.).

NEVER ATTEMPT TO REMOVE A ROTOR WITH THE UNIT UPENDED INTO A VERTICAL POSITION. THE SHREDDER WILL BE INHERENTLY UNSTABLE.

⚠ WARNING: DEATH OR SERIOUS INJURY CAN RESULT. USE HOISTING EQUIPMENT CAPABLE OF SAFELY HANDLING NO LESS THAN:

HOIST CAPACITY	FOR A:
4000# (1814 KG.)	20' SHREDDER
3700# (1678 KG.)	18' SHREDDER
3300 #(1498 KG.)	15' SHREDDER
2800# (1270 KG.)	12' SHREDDER

⚠ WARNING: DEATH OR SERIOUS INJURY CAN RESULT. CLEAR PEOPLE FROM WORK AREA WHEN TIPPING SHREDDER OVER. DO NOT WORK ON SOFT, OR UNEVEN, GROUND. AVOID HIGH WORK SPEEDS AND "JACKRABBIT" MANEUVERING.

5. Securely block rear (3) of each wheel and approach shredder from REAR. Use a chain sling (4) approx. 5' long on each run. Fix EACH sling chain hook SECURELY around both 1" diameter hitch pins (2) where shown by decal (5). Lift unit until wheels are about to clear the ground.

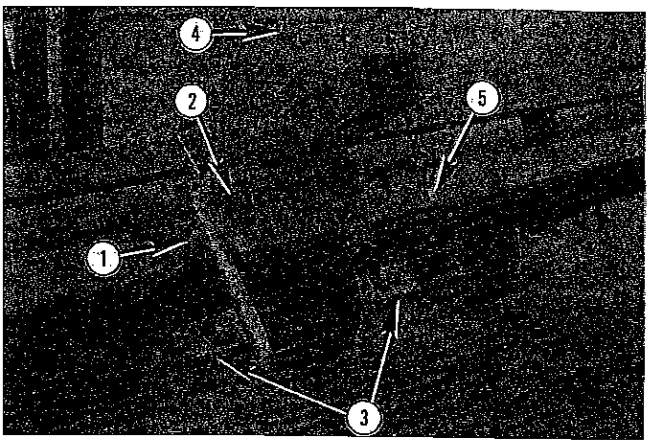


FIGURE 71 PHOTO NO. 2990A

6. Move wheel blocks previously installed to opposite side of wheels (1). LOCK RATCHET JACK HANDLE(S) (2) into position shown to prevent damaging them. Swing unit rearward and overcenter, then slowly slacken hoist to lower the unit to the ground. Open end shield (3) and detach bottom enclosure plate (4).

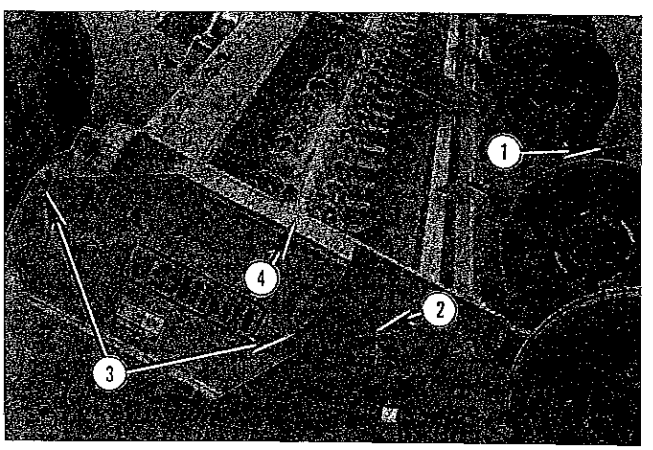


FIGURE 72 PHOTO NO. 3014

7. Attach sling (1) hooks through 2 outside "D" rings (2) on 1 knife row. Snug up hoist, but do not overly tighten it.

IMPORTANT: AVOID USING EITHER ROTOR'S TRANSVERSE CENTERS FOR SHREDDER LIFTING OR OTHER STRUCTURAL REPAIR. POSSIBLE ROTOR DAMAGE CAN OCCUR.

8. Loosen outer bearing from its mounting as shown in Figure 70, page 35. Unless this bearing is also being serviced, it is not necessary to remove it from the rotor at this time.

9. Remove 4 3/8" bolts (3) and center anti- wrap shields (4). This allows access, through the rotor's inner end notches to bearing's inner race Allen set screws. Detach shield (5) and lube tube (6) from bearing.

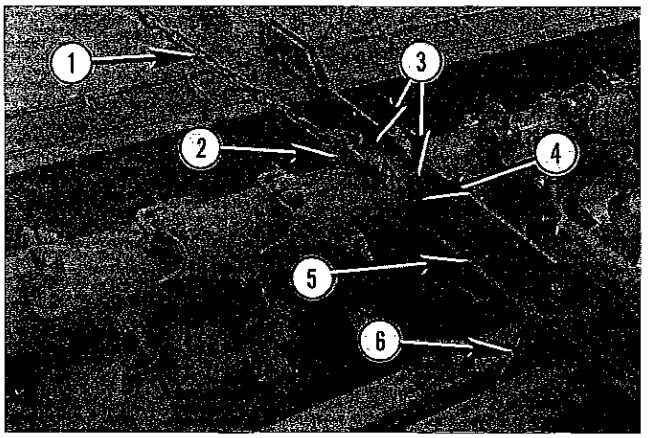


FIGURE 73 PHOTO NO. 3019

10. Remove 2 3/8" Allen set screws (1). These are factory retained with anaerobic threadlock (eg. Locktite 242 (blue) or Perma-lok HM 118 (red).

Commercial anaerobic threadlocks have installation instructions, and SAFETY CAUTIONS, on their ontainers. These should be adhered to.

11. By axially prying and "jarring" rotor, edge it free of its inner bearing (2) and swing it clear of working area. Replace the old bearing by removing 4 1/2" bolts, or nuts, (3). A thin box, or open end, wrench (4) can be used to prevent bolt/nut turning.

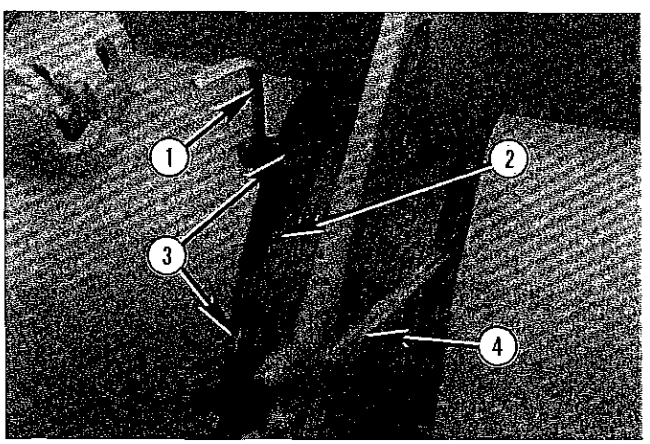


FIGURE 74 PHOTO NO. 3015

12. Circumferentially polish rotor center stub shaft and reinstall it in replaced bearing. Insure stub shaft shoulder is against bearing inner race. Torque 2 Allen set screws once, loosen and torque them a second time.

IMPORTANT: WHENEVER THESE LOCKNUTS/BOLTS ARE DISCARDED, ONLY GRADE 5 BOLTS AND TYPE B LOCKNUTS SHOULD BE REINSTALLED. THE ABOVE CITED (OR SIMILAR) ANAEROBIC THREADLOCK SHOULD BE USED IN REASSEMBLY OF BEARING MOUNTING BOLTS AND ALLEN SET SCREWS. TORQUE ALL BEARING MOUNTING BOLTS TO 58-82 Ft/lbs. (79-112 N/m.).

13. Temporarily reinstall 4 3/8" bolts through outer bearing mounting plate and snug them up. Do not reinstall outer anti-wrap shields at this time. Check varying quantity of 2" nom. I.D. washers between outer bearing's inner race and shoulder of rotor shaft. If these are axially SNUG WITH NO PRELOAD, proceed to completely reinstall outer bearing and anti-wrap shields.

14. If washers are not as stated above, it will be necessary to remove outer bearing. See Figure 70, page 35 and add, or subtract, washers. Two inch nom. I.D. washers are available as part numbers:

Washer	Part Number
1/16" Thick	710-05333
1/8" Thick	710-05332

Check that all previously removed and/or loosened parts are properly reinstalled. Remove hoist and reverse above tipping procedure to return the unit to operating position and reinstall previously removed hitch, etc.

SHEAVES ALIGNMENT

It is unnecessary to realign sheaves unless they have been damaged, removed or loosened. Do not realign sheaves unless they are more than + or - 1/16" misaligned.

1. It is generally best to align driveR (1) to driveN sheave (2); thus, only 1 sheave need be loosened.

2. Determine misalignment by placing a steel stralght edge (3) across sheaves as shown.

3. Fully relieve belts tension by removing all tension on backwrap idler spring (4). The spring anchor (5) can be released by gripping it with locking pliers, pulling outward and simultaneously twisting downward.

4. Refer to Figure 76 at right for sheave loosening procedure and adjust driveR sheave's inner bushing in or out as required for realignment. Then reinstall sheave per Figure 77, page 39.

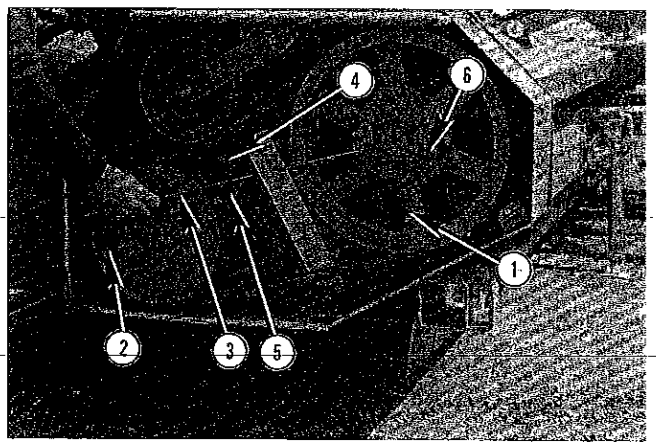


FIGURE 75 PHOTO NO. 3009

SHEAVES REMOVAL/INSTALLATION

1. Loosen belt's backwrap idler (1) and remove belts.

2. Loosen and remove bolts from 3 UNTHREADED holes (2). These are 3/8" diameter on 12' and 15' units and 1/2" diameter on 18' and 20' units.

3. Insert these bolts in the 3 THREADED holes (3). Start with the bolt furtherest from the inner bushing's slot (4) and gradually alternately torque bolts in a uniform pattern. Continue torquing in small increments until the tapered surfaces disengage. The same procedure is used if driveN sheave (6) is to be removed.

NOTICE: EXCESSIVE AND/OR UNEQUAL BOLT TORQUES CAN BREAK THE INNER BUSHING'S FLANGE.

4. Except on 12' 540 RPM units, the driveR sheave (5) disengages AWAY from the shredder's centerline. On all units, the driveN sheave (6) disengages AWAY from the shredder's centerline. On 12' 540 RPM units, the driveR sheave (5) disengages TOWARD the shredder's centerline.

5. The inner bushings are retained with 3/8" Allen set screws over their keyways. Remove the set screw to enable removal of the inner bushing.

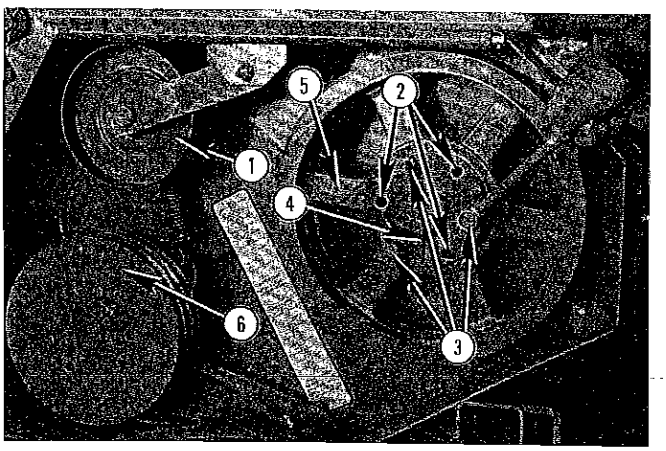


FIGURE 76 PHOTO NO. 3010

6. For installation, insure the tapered mating surfaces of the inner bushing (1 or 2) and sheave (3 or 4) are free of dirt, paint, rust, metal chips and LUBRICANT.

IMPORTANT: DO NOT USE LUBRICANTS, ANTI SEIZE, AND/OR EXCESSIVE BOLT TORQUES WHEN ASSEMBLING Q.D. SHEAVES. THESE CAN BREAK THE ASSEMBLY.

7. Except on 12' 540 RPM units, install driveR sheave (3) OUTBOARD of bushing's (1) flange. Install driveN sheave (4) OUTBOARD of bushing's (2) flange on all units. On 12' 540 RPM units, install driveR sheave (3) INBOARD of bushing's (1) flange.

8. Insure woodruff key is in place before sliding inner bushing on shaft. Align (in/out) the Allen set screw hole of the bushing being installed with existing witness marks on its shaft and torque the set screw.

9. Align 3 UNTHREADED bolt holes (5 or 6) with THREADED bolt holes in mating sheave or bushing. Insert bolts and lockwashers in these UNTHREADED holes and tighten about 2 turns each.

10. Alternately torque these bolts , in a uniform pattern, until the tapers are seated (approx. 1/2 bolt torque). Check for sheave alignment and possible wobble. Correct if necessary.

IMPORTANT: SHEAVE BOLTS ARE ONLY TORQUED TO GRADE 2 VALUES:

Dia.	Ft/lbs.	N/m.
3/8"	18-24	24-33
1/2"	37-43	50-58

11. Continue bolt torquing until above values occur, or NO LESS THAN 1/8" HUB FLANGE TO SHEAVE CLEARANCE EXISTS. There will always be a gap in the inner bushing hub when proper procedure is followed.

NOTICE: INDIVIDUAL BOLT TORQUES SHOULD BE ACHIEVED NO MORE THAN 2 TIMES IN THE TIGHTENING CYCLE.

12. Reinstall belts and reposition backwrap idler. See Figure 69, page 34.

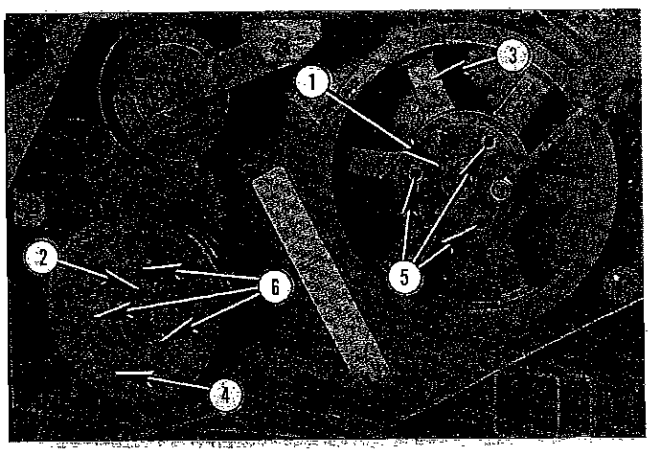
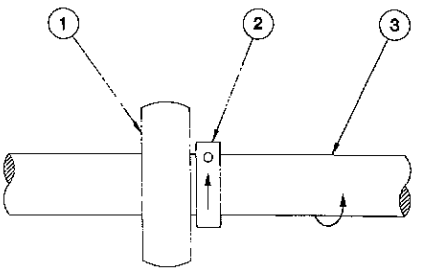


FIGURE 77 PHOTO NO. 3010A

DRIVE SHAFTS BEARINGS

The 4 front drive shafts bearings (1) have eccentic lock collars (2). To loosen these, remove 3/8" Allen set screw therein. With a drift, drive collar (2) OPPOSITE to direction of rotation of shaft (3). When reinstalling bearing, drive collar (2) in SAME DIRECTION as rotation of shaft (3) and retighten set screw.

Servicing these bearings requires removing the driveR sheave, See Figure 76, page 38 and extract the drive shaft. Paint must be polished off drive shaft to permit stripping it thru the bearings.



1. Bearing 2. Bearing Collar 3. Shaft

FIGURE 78 DWG. NO. 2256A

WHEEL BEARINGS & SEALS

HINIKER shredders are equipped with O.D. riding triplex (3 labyrinths) seals. They also have a replaceable seal riding ring (6) and zerk relube in the hub. This system is highly effective when properly installed and maintained.

IMPORTANT: WHEEL SEAL AND RIDING RING MUST BE INSTALLED IN THE RIGHT DIRECTION, PROPERLY PRE LUBED AND THE HUB FULLY PACKED WITH LUBE. IGNORING PROCEDURES BELOW WILL RESULT IN PREMATURE CONTAMINATION AND FAILURE.

1.) Remove hub, inboard bearing cone (1), outboard bearing cone (2) and seal (3) from spindle. Thoroughly clean hub's interior grease cavity, both bearing cups (4), cones, hub cap (5) and pre load hardware.

2.) Discard old seal (3) and inspect bearings for deterioration. Replace both cups and cones if necessary. Generally, seal riding ring (6) should be replaced when doing wheel hub maintenance.

IMPORTANT: PRESS SEAL RIDING RING INTO HUB WITH INTERIOR EDGE FLANGE TOWARD INBOARD BEARING CUP. MANUALLY WORK LUBE INWARD BETWEEN 3 SEAL LABYRINTHS BEFORE INSTALLING. CAREFULLY START NEW SEAL (3) ONTO SPINDLE WITH BEARING CONE (1) WHICH CAN BE SEATED WITH A 3/16" PUNCH OR 1 1/2" I.D. DRIVER. INSURE SEAL IS NOT CROOKED AND IS INSTALLED WITH ITS SHARP EDGED INSIDE FLANGE TOWARD THE OUTBOARD SPINDLE END. THE OPPOSITE (SMOOTH) SEAL FACE IS USUALLY MARKED "OUTSIDE". THIS MUST ALWAYS FACE THE SPINDLE'S INBOARD END, OTHERWISE THE SEAL WILL NOT FUNCTION CORRECTLY.

4. Install hub, outboard bearing cone (2), end washer and adjusting nut. Adjust nut with a HAND WRENCH ONLY. Tighten until seal is seated and bearings substantially drag, then back nut off 1/6 turn to insert and spread cotter.

5. Use zerk to fully lube hub cavity and bearings, while rotating hub, and until lube emerges through outboard bearing. Pack hub cap (5) with lube and drive it home. Continue lubing hub until lube emerges around seal's outside diameter.

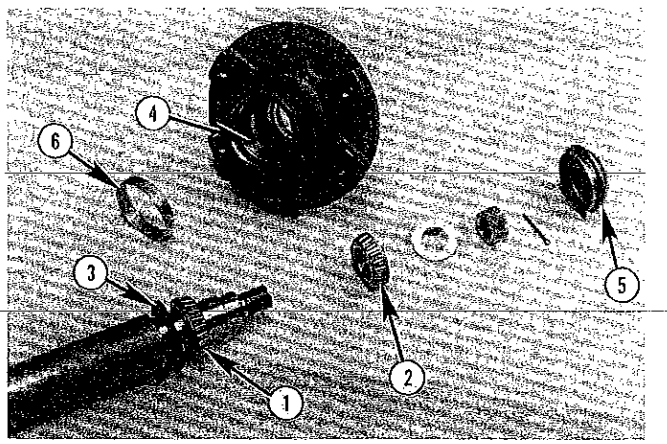


FIGURE 79 PHOTO NO. 3011

GEARBOXES

All widths 1000 RPM shredders are equipped with a common 1.00:1.00 ratio gearbox.

The 540 RPM (12' width) shredder is equipped with a different 1.00:1.92 ratio gearbox. The two gearboxes are serviced differently.

Gearboxes can best be worked on as follows:

1. Detach tractor P.T.O. at gearbox input spline.

2. Remove the left cross drive shaft shield. Loosen and remove left outboard drive shaft bearing flange bolts. This can be done without removing the driveR sheave by slacking off the backwrap idler and removing belts. This permits sliding the entire left drive shaft assembly leftward; thus, allowing room to slide the gearbox loose from its R.H. spline coupling.

3. Remove the 2 right 3/8" bolts nearest the gearbox holding the right cross shaft shield.

4. Remove the top 4 1/2" (or 5/8") bolts holding the gearbox/P.T.O. input shield and remove this shield.

5. Remove the bottom 4 1/2" (or 5/8") gearbox mounting bolts and slide the gearbox leftward sufficient to uncouple it from its right splined coupler. Then slide the gearbox forward to remove it for placing on a workbench.

6. Remove the gearbox drain plug and discard the lube.

The 1000 RPM gearbox has no shims because preload and backlash are factory set. To service this box proceed as follows:

1. Remove 12 3/8" socket head bolts (1) holding the 2 halves together. Tap input shaft (2) with a soft hammer, while holding the output shaft (3) off the work table. Be careful to not damage the case's mating surfaces by prying them apart.

2. The input and output shafts and gears are precision fitted. Do not separate them by prying on an individual set. Lift them apart together.

3. Remove old anaerobic sealant and complete necessary maintenance. Whenever a gearbox is opened, all 3 oil seals (4) should be replaced. Lube the seal's inside diameters before reinstalling and insure their spring garters are toward the gearbox's inside.

4. Clean gearbox of all dirt and metal particles. Inspect all removed parts for wear. Replace any bearing showing signs of pitting, inability to rotate freely and discoloration. Clean any bearings to be reused and coat with gear lube. Replace gears showing pitting, breaks or deformation. Replace input and through shafts having spline wear or deformation.

5. Whenever shafts are disassembled, make sure the same thickness snap rings (5) are used to maintain backlash and preload. There are 3 external snap rings used. For reassembly, capture bearings and seals in appropriate machined areas. Tap gently with a soft hammer to seat, being careful to not damage seals.

6. After both shafts have been reseated, apply anaerobic sealant (eg. Locktite 518 (red) or Perma-Lok HH 190 (dark purple) or Permatex silicone sealant 765-1344/1485) to housing top half and reseat it on bottom half. Apply pressure, or tap lightly, until top half is firmly in place. Replace, and retorque the 12 previously removed socket head bolts.

Commercial anaerobic sealants have installation and SAFETY CAUTIONS on their containers. These should be adhered to.

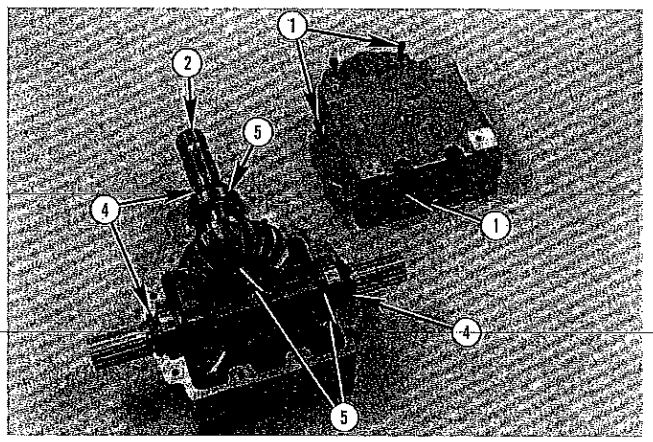


FIGURE. 80 PHOTO NO. 3008

Servicing the 540 RPM gearbox requires a small flat screwdriver, internal and external snap ring pliers, punch, 1 3/4" (small), 3" (large) O.D. bearing drivers and a soft hammer.

1. Remove the rear cover (1) and take care not to damage O-ring seal (2). Remove and discard 3 oil seals (3) and (4). Pierce these seals and pry them out.

2. Remove snap rings (5), (6) and (7) and any shims found behind them. Sort shims by shaft from which they were removed.

3. Press through shaft (8), and its gear, out in direction shown by arrow (9). This will also carry out roller bearing (10). Tap end of this shaft on a soft surface to remove its bearing cone.

4. Remove snap ring (19) and remove ball bearing (11) with a punch and tapping shaft on a soft surface.

5. Press input shaft (12) out in direction shown by arrow (13). Tap end of this shaft on a soft surface to remove the cone of roller bearing (14) and gear (15).

6. Remove cup of roller bearing (14) with a punch. Remove ball bearing (16) with the large driver.

7. Clean gearbox of all dirt and metal particles. Inspect all removed parts for wear. Replace any bearing showing signs of pitting, inability to rotate freely and discoloration. Clean any bearings to be reused and coat with gear lube.

8. Replace gears showing pitting, breaks or deformation. Both gears, including through shaft (8), are only serviced by HINIKER as a complete set. Replace input and through shafts showing spline wear or deformation.

9. Reassemble by driving gear (15) and cone of roller bearing (14) firmly on input shaft (12) with the small driver. Seat ball bearing (16) with the large driver. Seat cup of bearing (14) with large driver from rear of gearbox. Press the input shaft and gear sub assembly into place from rear of the gearbox.

10. Reinstall snap ring (19) and seat ball bearing (11) on through shaft (8) with the small driver. Firmly seat cone of roller bearing (10) with the small driver. Press through shaft and gear sub assembly into place and drive cup of roller bearing (10) in only sufficient to reinstall snap ring (5).

11. Properly adjusted gears should have backlash stated below and contact their entire tooth width. Install shims (17) on through shaft (8) until no perceptible end play exists. This preloads roller bearing (10). Install snap ring (6).

12. Install shims (18) on input shaft (12) until .004"-.012" backlash can be felt by hand. Re- install snap ring (7). Check shaft rotation and tooth contact and reshim if necessary.

13. Lube oil seals (3) and (4) on their inside diameters and drive into place with a soft hammer. Reinstall O-ring (2) and seat cover (1) with a soft hammer.

IMPORTANT: CHECK, FILL AND DRAIN PLUGS HAVE BSPT THREADS. REPLACE ONLY WITH:

Plug Type	Part Number
Check & Drain	203-51173
Fill Breather	203-51174

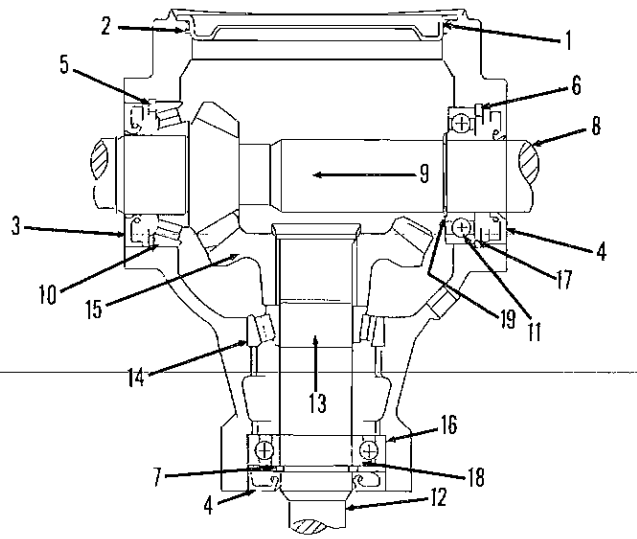


FIGURE 81 DWG. NO. 2474

Reinstall either gearbox on the shredder in reverse order of removal.

Insure gearbox mounting bolts have their lockwashers installed and they are brought to full torque.

Insure drain plug is installed. Fill gearbox to level specified in LUBRICATION, page 27 with A.P.I. 85W-140 GL 5. On 540 RPM boxes, reinstall check plug.

P.T.O.-OVERRUN CLUTCH

All 5 P.T.O's. have an overrun clutch at their juncture with the gearbox input shaft.

1. Twelve foot 540 RPM units have a sliding lock collar, with fingertip "wings", (1). All other units have a sliding lock collar identical to the lock collar at the tractor end of the P.T.O. That collar replaces (2) shown adjacent.

2. Either collar is removed similarly. Extract external snap ring (3), allowing collar to slide off overrun clutch hub.

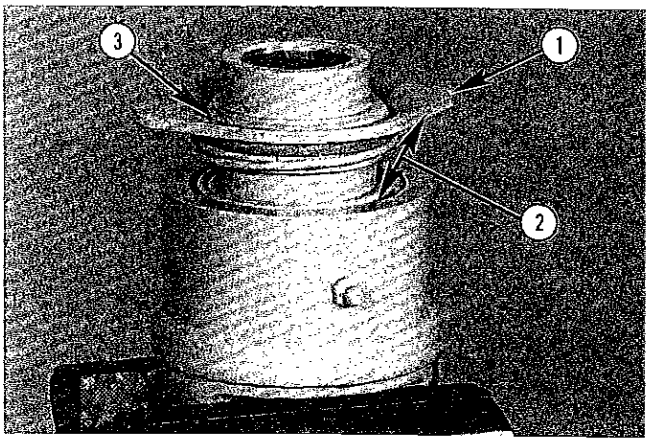


FIGURE 82 PHOTO NO. 3033

3. Insure balls in 3 holes (1) are preserved for reinstallation. Contract internal snap ring (2) and at same time axially withdraw clutch hub (3), along with 2 driving keys and 2 leaf springs from the external enclosure.

IMPORTANT: PARTICULARLY NOTE DIRECTION OF ORIGINAL FACTORY CLUTCH KEYS AND LEAF SPRINGS INSTALLATION. INSURE CLUTCH IS REASSEMBLED THE SAME WAY, OTHERWISE IT WILL NOT FUNCTION.

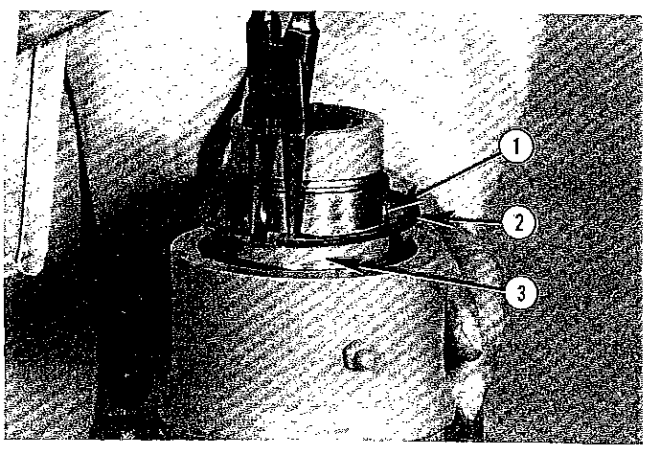
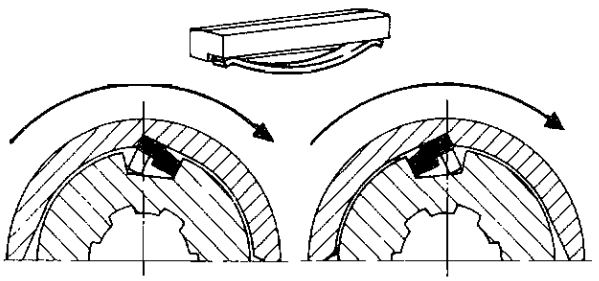


FIGURE 83 PHOTO NO. 3034

4. Clean entire clutch and lock collar assembly. Replace broken or worn parts and reassemble with leaf springs between internal "step" of driving keys and clutch hub. OBSERVE "STEP" AND LEAF SPRING ARE ASSEMBLED **AWAY FROM DIRECTION OF ROTATION.**

5. Reinstall 3 balls previously removed and reassemble lock collar with snap ring. Thoroughly lubricate overrun clutch while rotating it.



RIGHT **WRONG**

FIGURE 84 PHOTO NO. 3035

P.T.O.-SHIELDS

Three point (conventional), or trailing (C.V.), shields are serviced in a similar manner. These illustrations show a constant velocity (C.V.) P.T.O. shield servicing.

1. Remove 6 Phillips screws (1) and axially slide large double yoke cone (2) off large plastic bearing ring in direction (3).

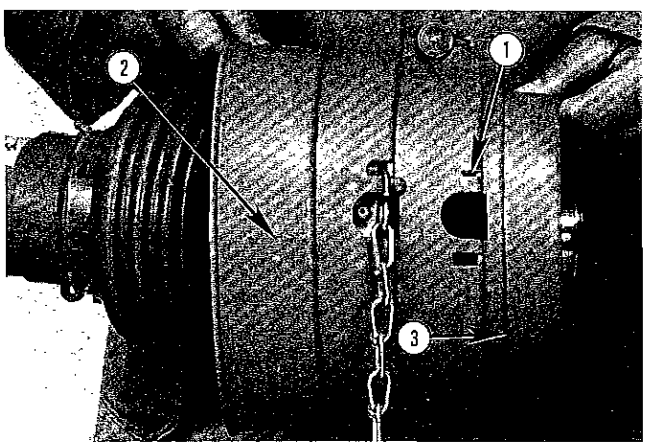


FIGURE 85 PHOTO NO. 3036

2. Remove, clean and inspect large bearing ring (1). Replace if worn or damaged. Clean ring track (2) and thoroughly relube it, as well as bearing ring, before reassembly.

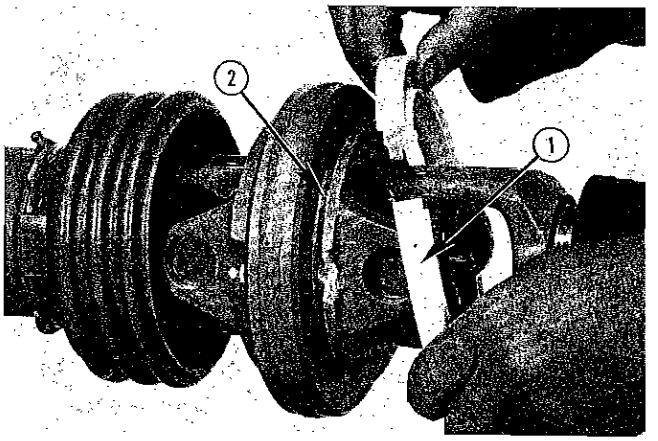


FIGURE 86 PHOTO NO. 3037

3. Remove Phillips locking screw (1) and rotate shield cone (2) to disassembly position (3). Snap cone and tube shield free of small plastic bearing ring. Shield cone (2) and tube shield (4) can be pryed apart with a flat screwdriver applied along area (5).

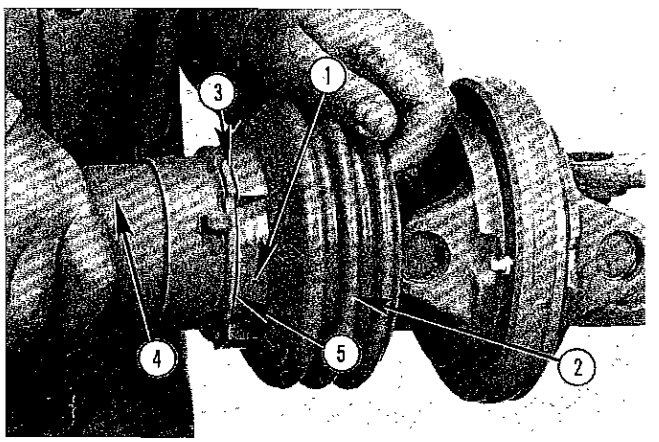


FIGURE 87 PHOTO NO. 3038

4. Remove, clean and inspect small bearing ring (1). Replace if worn or damaged. Clean ring track (2) and thoroughly relube it, as well as bearing ring, before reassembly. When reinstalling bearing ring, insure recesses and tabs (3) are AWAY from "U" joint (4). Reinstall shield cone in original locked position and reinsert Phillips screw

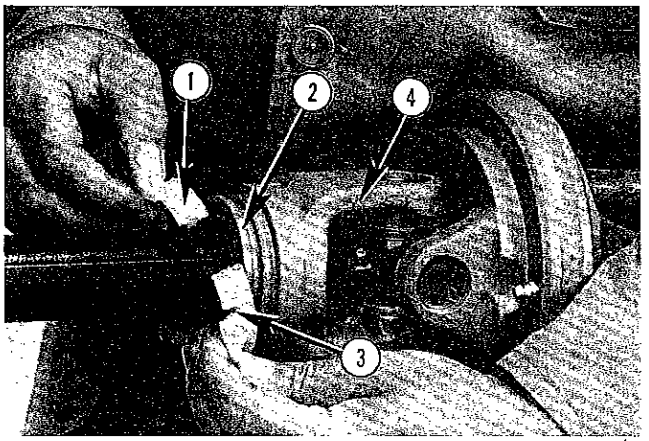


FIGURE 88 PHOTO NO. 3039

5. Reinstall double yoke cone (1) over large bearing ring. Insure zerk is aligned with cone cut out (2). Check that 6 holes for previously removed Phillips screws are aligned with recesses (3) provided and reinstall screws.

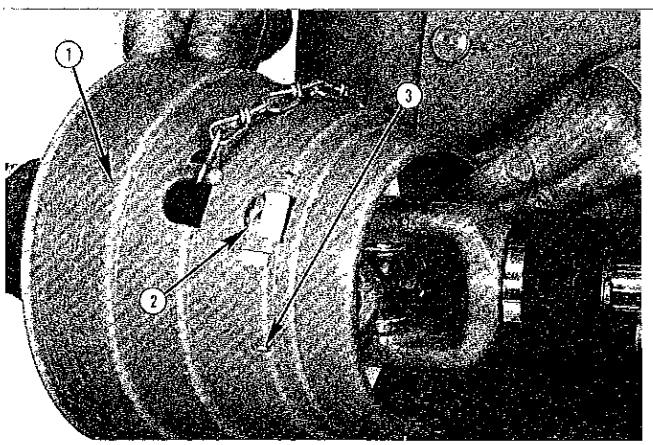


FIGURE 89 PHOTO NO. 3040

P.T.O.-CONVENTIONAL JOINTS

Following pertains to the "conventional" (ie. not C. V.) joint used on both ends of all 3 point hitch units, as well as the rear joint on all trailing units.

1. Refer to Figures 85 and 87, page 43 for removal of necessary P.T.O. shields.

2. Relieve radial drag on the internal snap ring (eg. (1) in yoke (2) by circumferentially tapping it with a drift. With snap ring pliers, remove it. Repeat this for the other side of the yoke.

3. With a good solvent, thoroughly remove all paint around inner and outer surfaces of both needle bushings. This is necessary to facilitate their removal.

4. Rest joint assembly in a vice with yoke (3) across top of vice jaws. Use CAREFUL hammer blows to drive center cross needle bushing (4) upward.

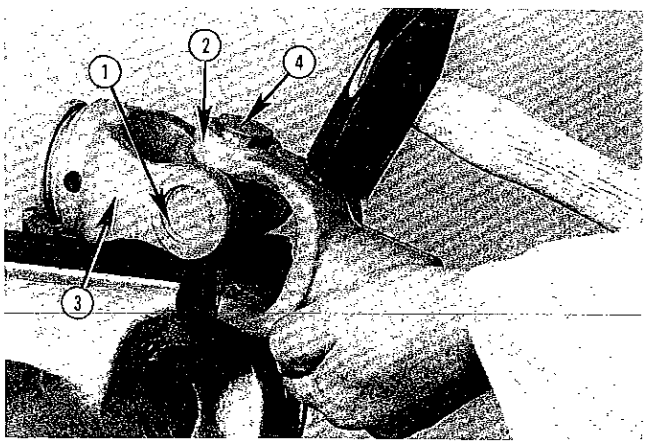


FIGURE 90 PHOTO NO. 3041

5. The partially extracted needle bushing (1) can be removed with a Walterscheid tool SW23 (2). This tool inserts between vice jaws (3) and radially clamps the partially extracted bushing.

6. LIGHTLY tap yoke at position shown until bushing is fully out. Repeat this for other side of the yoke and separate it from center cross remaining in undisturbed yoke (4).

NOTICE: WALTERSCHEID TOOL SW23 IS NOT SERVICED BY HINIKER. PROCURE DIRECT FROM VENDOR AT:

16 W 030 83rd ST.
BURR RIDGE, IL 60521-5802
FAX (708) 887-8386

7. Repeat above steps to remove both needle bushings and center cross from yoke (4), except rest the "bare" center cross ends on the vice jaws because it will be discarded.

IMPORTANT: NEVER POUND, OR OTHERWISE ABUSE, ANY NEEDLE BUSHING'S REPLACEMENT INTERNAL SHAFTS. AVOID UNINTELLIGENT BEATING ABUSE OF P.T.O. YOKES.

8. The joint repair kit is serviced complete with: center cross, 4 needle bushings and 4 snap rings.

IMPORTANT: DIRT IS A PRIME ENEMY OF NEEDLE BUSHINGS. INSURE YOKES ARE CLEAN BEFORE REASSEMBLING NEW BUSHINGS. KEEP REPAIR KIT COMPONENTS THOROUGHLY CLEAN DURING INSTALLATION.

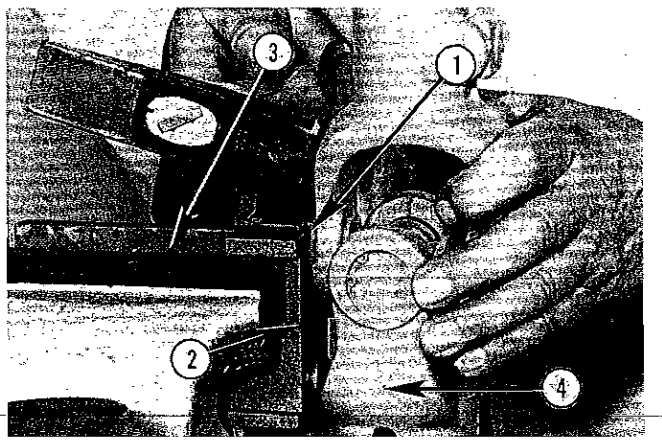


FIGURE 91 PHOTO NO. 3042

9. For reassembly, insert replaced center cross (1) into yoke and start replaced needle bushings (2) into yoke. With a 1 3/8" O.D. driver (3), continue seating both bushings inward. Insure both center cross shafts are correctly piloting into needle bushings.

10. Seat needle bushings until both snap rings can be reinserted. Before mounting other yoke, insure center cross zerk is aligned for gun access.

11. After completion of yokes and center cross assembly, hammer strike all 4 yoke ears at (4) for stress relief. Thoroughly lube joint assembly before reinstalling shields and placing on unit.

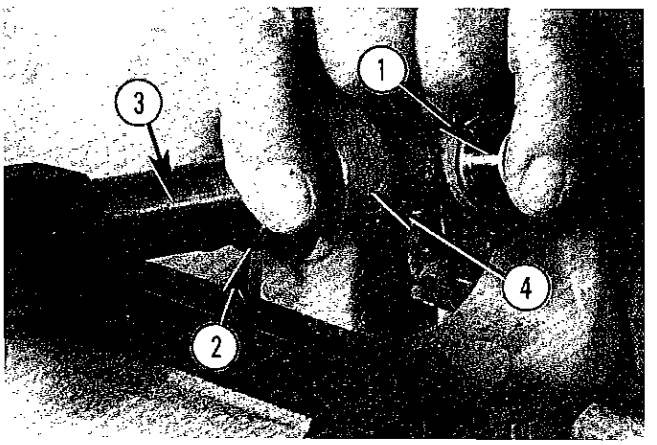


FIGURE 92 PHOTO NO. 3043

P.T.O.-CONSTANT VELOCITY JOINTS

Following pertains to the "C.V." (ie. not conventional) joint used on tractor end of all trailing units. Service procedures are similar to that previously covered under conventional joints

1. Refer to Figures 85 and 87, page 43 for removal of necessary P.T.O. shields.

2. Relieve radial drag on the internal snap ring (eg. (1) in flange yoke (2) by circumferentially tapping it with a drift. With snap ring pliers, remove it. Repeat this for the opposite side of the flange yoke.

3. With a good solvent, thoroughly remove all paint around inner and outer surfaces of both needle bushings. This is necessary to facilitate their removal.

4. Rest joint assembly in a vice with outer yoke (3) across top of vice jaws. Use CAREFUL hammer blows to drive center cross needle bushing (4) upward. Vertically rocking yoke (5), as bushing is driven out, provides ear clearance between yokes (2) and (3).

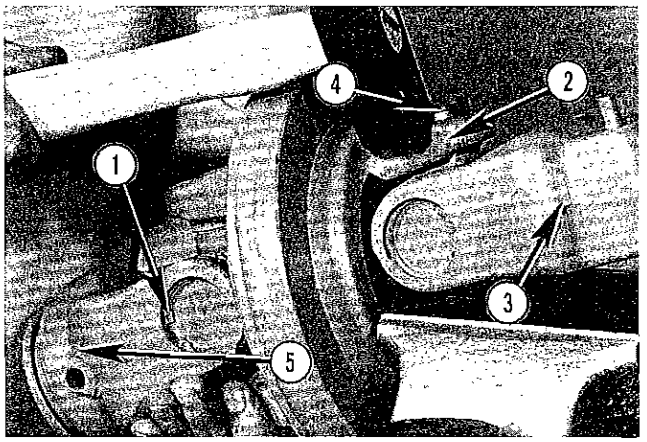


FIGURE 93 PHOTO NO. 3044

5. The partially extracted needle bushing (1) can be removed with a Walterscheid tool SW23 (2). This tool inserts between vice jaws (3) and radially clamps the partially extracted bushing.

6. Carefully rock flange assembly (4) in direction of arrows (5) until bushing is fully out. Repeat this for other side of flange yoke and separate it from center cross remaining in undisturbed outer yoke (6).

NOTICE: WALTERSCHEID TOOL SW23 IS NOT SERVICED BY HINIKER. PROCURE DIRECT FROM VENDOR AT:

16 W 030 83rd ST.
BURR RIDGE, IL 60521-5802
FAX (708) 887-8386

7. Repeat above steps to remove both needle bushings and center cross from opposite end (7) of flange assembly. Refer to Figures 90 and 91, page 44 and 45 for removal of needle bushings and center crosses from both outer yokes. Rest their "bare" center crosses on the vice jaws because they will be discarded.

IMPORTANT: NEVER POUND, OR OTHERWISE ABUSE, ANY NEEDLE BUSHING'S REPLACEMENT INTERNAL SHAFTS.

8. Joint repair kits are serviced complete with center cross, 4 needle bushings and 4 snap rings.

IMPORTANT: DIRT IS A PRIME ENEMY OF NEEDLE BEARINGS. INSURE YOKES ARE CLEAN BEFORE REASSEMBLING NEW BEARINGS. KEEP REPAIR KIT COMPONENTS THOROUGHLY CLEAN DURING INSTALLATION.

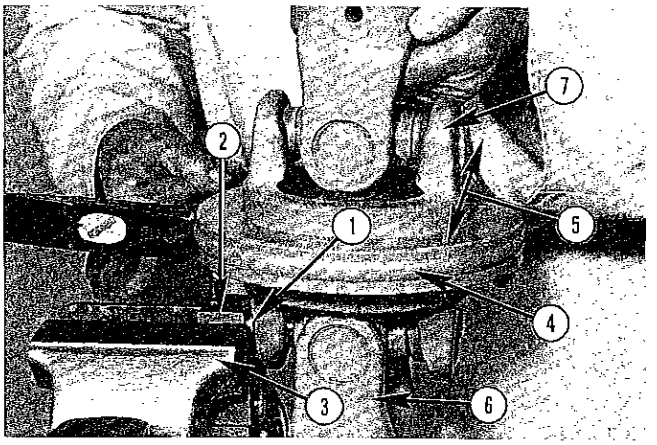


FIGURE 94 PHOTO NO. 3045

9. Before reassembly, clean and inspect both outer yoke's ball (1). If more than 1/8" play in relation to its centering disc socket, or noticeable wear around (2) exists, replace the yoke.

10. For reassembly, insert replaced center cross (3) into outer yoke (4). Start replaced needle bushings (5) into yoke. With a 1 3/8" O.D. driver (not shown), continue seating both bushings inward. Insure both center cross shafts are correctly piloting into needle bushings.

11. Seat needle bushings until both snap rings can be reinserted. Repeat above steps for installing center cross, and needle bushings, in remaining outer yoke. Before mounting either outer yoke to flange yokes assembly, insure center cross zerks are aligned for gun access.

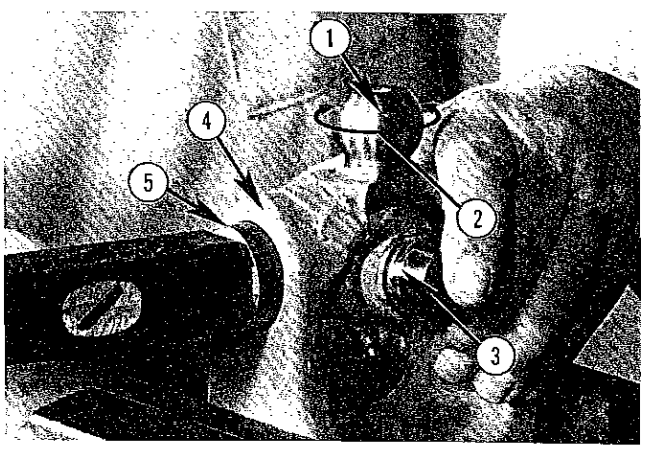


FIGURE 95 PHOTO NO. 3046

12. Clamp flange yokes assembly (1) between vice jaws as shown. Insert outer yoke and replaced center cross assembly (2) into yoke (3). Start needle bushing (4) into yoke. With a 1 1/4" O.D. driver (not shown), continue seating both bushings inward. Insure both center cross shafts are correctly piloting into needle bushings. Seat needle bushings until both snap rings can be reinserted.

13. After completion of yokes and center crosses assembly, hammer strike all 8 yoke ears at (5) for stress relief. Thoroughly lube both joint assemblies and flange zerk before reinstalling shields and placing on unit. Align yokes straight when lubing flange zerk. Pump until substantial lube shows around centering disc.

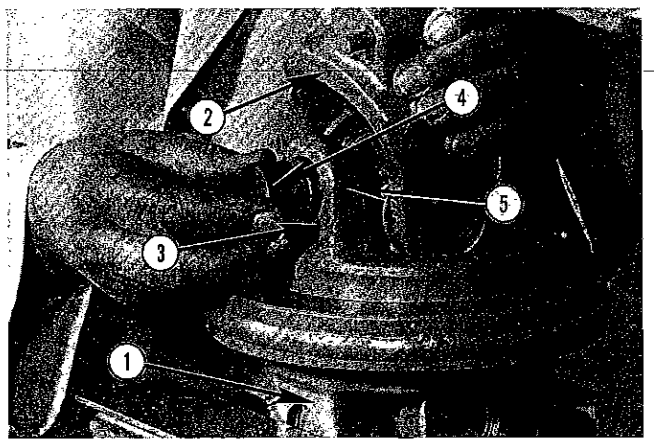


FIGURE 96 PHOTO NO. 3047

ASSEMBLY

⚠ WARNING: DEATH OR SERIOUS INJURY CAN RESULT. BEFORE ASSEMBLING, READ SAFETY-GENERAL AT FRONT OFTHIS MANUAL.

OFFLOADING

⚠ WARNING: DEATH OR SERIOUS INJURY CAN RESULT. USE EQUIPMENT CAPABLE OF SAFELY HANDLING NO LESS THAN:

HOIST CAPACITY	SHIPPING PACKAGE
4000# (1814 KG.)	20'SHREDDER
3700# (1678 KG.)	18' SHREDDER
3300 #(1498KG.)	15' SHREDDER
2800# (1270 KG.)	12' SHREDDER

⚠ WARNING: DEATH OR SERIOUS INJURY CAN RESULT. CLEAR PEOPLE FROM CARRIER AND OFFLOADING AREA. DO NOT OFFLOAD ON SOFT, OR UNEVEN GROUND. AVOID HIGH WORK SPEEDS AND 'JACKRABBIT' MANEUVERING.

HINIKER shredders are shipped vertical with self contained storage and handling dunnage. They may be offloaded with a forklift or an overhead chain sling.

For forklift offloading, 2 fork pockets (1), spaced 32" apart, are provided. The forklift may approach the shredder from either the knives, or hood, face. Set forks centerlines 32" apart and position forklift as close as possible to shipping package. Lift off carrier and deposit on a firm, clear and level work area.

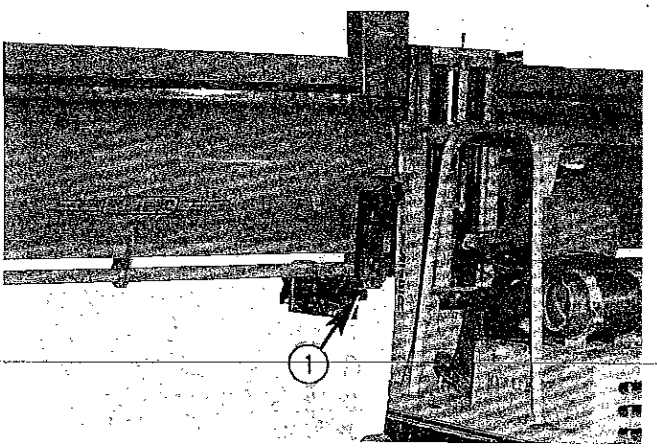


FIGURE 97 PHOTO NO. 2980

For overhead chain sling offloading, use a chain sling (1) approx. 5' long on each run. Fix EACH sling chain hook SECURELY around both 1" dia. hitch pins (2) where shown by decal (3). Lift off carrier and deposit on a firm, clear and level work area.

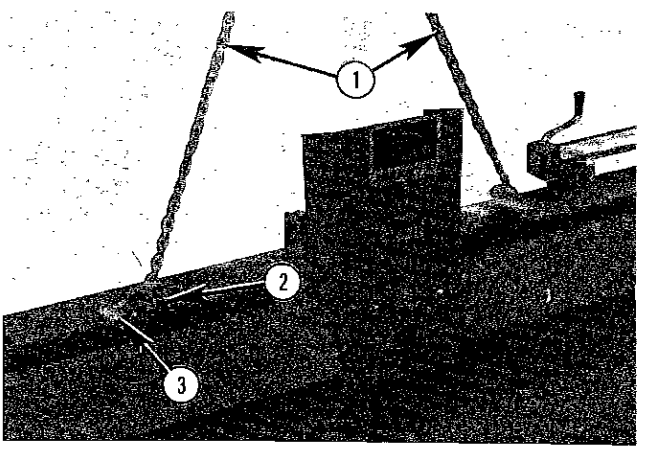


FIGURE 98 PHOTO NO. 2981

Shredder hitches (whether trailing or 3 point) are shipped separate from the basic package.

⚠ CAUTION: DEATH OR SERIOUS INJURY CAN RESULT. DO NOT ATTEMPT TO "MANHANDLE" THE HITCHES WITHOUT PROPER EQUIPMENT. THE 3 POINT HITCH WEIGHS 220# (100 KG.).

Remove and discard all shipping dunnage associated with wheels (1) and P.T.O. (2). Do not forget to remove and discard 2 metal dunnage brackets (3). Pull out and temporarily set aside wheels and P.T.O. Trailing hitch P.T.O's. ONLY have a hydraulic hose carrier bundled to them. This is for aftermarket hydraulic lift installation. Cut bottom skids dunnage bands and remove 3/8" lag screws, along with, dunnage "U" retainers at (4).

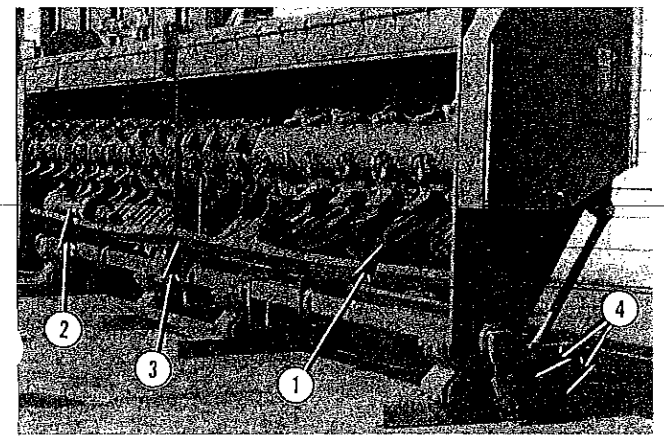


FIGURE 99 PHOTO NO. 3136

⚠ WARNING: DEATH OR SERIOUS INJURY CAN RESULT. CLEAR PEOPLE FROM ERECTING AREA BEFORE TIPPING SKIDDED UNIT DOWN.

Irrespective of the above 2 offloading methods used, prepare to tilt the unit down by hooking an approx. 5' long sling chain (1) securely around both 1" dia. hitch pins (2) the same as in Figure 98 above. Securely place solid (do not use hollow concrete) blocks under rear corners of each end of the unit as shown at (3). Blocks should be approximately 8" square.

With either an overhead crane, or forklift, allow a SMALL AMOUNT of slack in the sling chain and slowly tip the unit forward until its downward force is being supported by the sling chain.

IMPORTANT: GROSSLY LOOSE SLING CHAIN SLACK CAN ALLOW THE SHREDDER TO FALL WITH EXCESSIVE FORCE ON THE SUPPORTING EQUIPMENT.

Slowly lower unit onto the rear corner blocks (3) until its front (4) is approx. 18" above the ground.

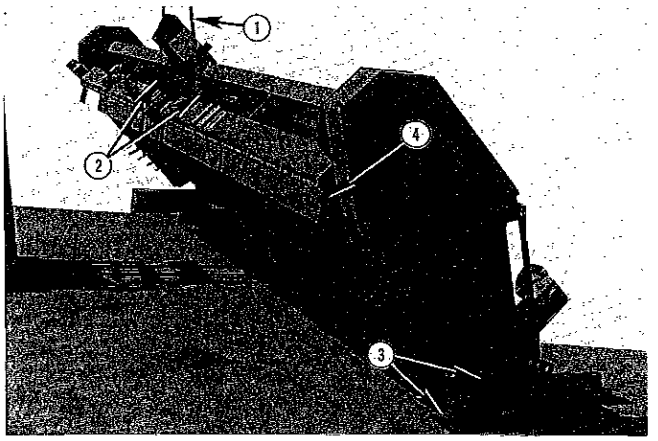


FIG. 100 PHOTO NO. 3137

Place blocks under each front corner as at (1). These blocks should be approximately 8"-10" high and wide enough for stability. Insure they clear the front flipper shields. Continue lowering the unit onto these blocks. Loosen and remove the sling chains.

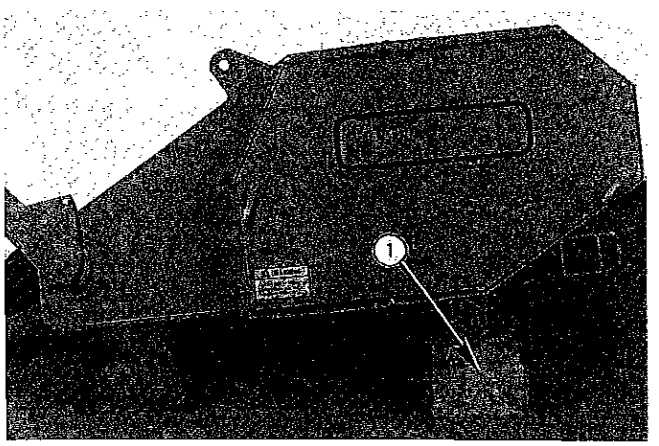


FIGURE 101 PHOTO NO. 2984A

Remove and discard both forklift pockets (1). Also remove and discard wheel leg shipping "U" bolts (2) and other dunnage & bolts (3). There are 4 wheel legs on all width shredders, except 12', which has only 2.

Remove and discard rockshaft shipping brace(s) (4). There are 2 of these on 18' and 20' units. The 12' and 15' units have only 1.

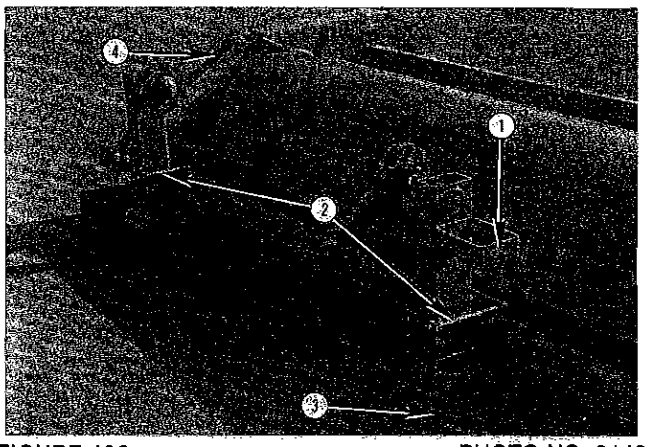


FIGURE 102 PHOTO NO. 3143

ROCKSHAFT AND WHEEL LEGS

Leave 5/8" rockshaft lockup bolt (1) in place and install a ratchet jack accessory (2) at each end on 18' and 20' units, or install 1 ratchet jack in the center on 12' and 15' units.

IMPORTANT: ALWAYS KEEP BOTH RATCHET JACKS ON 18' AND 20' UNITS AT EQUAL LENGTH WHEN FIELD USING. OTHERWISE, THE ROCKSHAFT CAN BE TWISTED.

If aftermarket hydraulic cylinder(s) and hoses are to be installed, instead of ratchet jack(s), see AFTERMARKET HYDRAULICS, page 55.

Each wheel leg bracket (3) is clamped to the rockshaft with 6 5/8" bolts, lockwashers and nuts (4). These, sheaves, backwrap idlers and gearbox bolts, are the only hardware retained with lockwashers. Install wheel legs in their approximate transverse positions; however, do not torque up their bolts.

Wheel leg (5) position, with respect to rockshaft bracket (6) differs on 18' units, (20' unit shown).

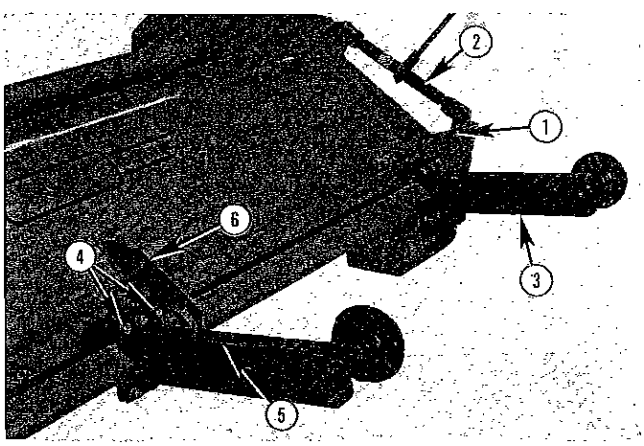


FIGURE 103 PHOTO NO. 2986

HINIKER shredders are furnished with 15 x 5 wheels, less tires. The recommended aftermarket tire size is 7.60 x 15-4PR I1 (implement) or equivalent. Install tires on wheels. It is not necessary to inflate tires to normally used implement pressures because wheel loadings on shredders are comparatively light. In fact, the shredder will perform better, especially under ridged conditions, if tire pressures are kept no greater than recommended.

FIGURE 104 71504136

Contract ratchet jack(s) to rotate wheel legs sufficiently upward to permit installation of wheels and tires.

The wheels are offset, that is, the wheel "dish" is greater on one side than the other. Install the wheels and tires with the deepest dish TOWARD the wheel leg. This places its loaded centerline between the hub bearings. Torque up the 6 1/2" wheel bolts on each wheel.

Transversely slide the entire wheel leg and wheel/tire assemblies to these recommended tire centerlines (as applicable). Tire centerline spacings should be EQUALIZED on each side of the shredder's centerline.

	30" rows	36" rows
12' units (2 wheels)	120"	144"
15' units (2 outboard wheels) (2 inboard wheels)	 180" 60"	 144" 72"
18' units (2 outboard wheels) (2 inboard wheels)	 180" 120"	 216" 144"
20' units (2 outboard wheels) (2 inboard wheels)	 240" 120"	 216" 144"

For other row spacings, adjust above settings accordingly. Torque up each wheel leg's 6 clamping bolts by uniformly tightening the lower 3 to snug

fit. Subsequently, Torque, and retorque, top 3 to **146-206 Ft/lbs. (198-279 N/m.)**.

Extend the ratchet jack(s); thus, lowering the wheels and raising the shredder's rear until both previously inserted rear blocks can be removed.

TRAILING HITCH

The trailing hitch bundle consists of the hitch "A" frame (1) and a lower adjustable draft link (2).

Remove both base unit draft pins (3) and position hitch (1) with clevis hitch pin storage hole (4) down. Insert hitch's rear brackets (5) between both sets of base unit ears (6) and reinstall pins (3). Insure cotters on each end of both pins are spread.

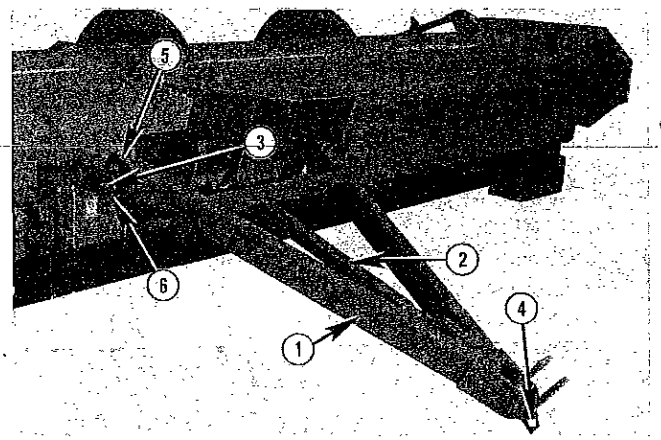


FIGURE 105 PHOTO NO. 2988A

Loosen adjustable draft link locking nut (1) and remove rear draft pin (2). Clip dunnage at rear of the adjustable draft link (3) and install its rear bracket between base unit ears (4) with pin (2). Insure both pin cotters are spread.

Draft link's (3) length (ie. hitch clevis height) can be adjusted by hand turning, or using a wrench with 1 3/4" across flats. Extend link (3) until the hitch clevis is approx. 17" above the ground; however, final adjustment, to a customer's tractor drawbar height, must await actual field preparation.

NOTICE: BEFORE DELIVERING UNIT, TEMPORARILY LOCK NUT (1) AGAINST LINK (3).

Move hitch jack (5) from shipping position (6) to "use" position (7) and raise it sufficient to loosen each front corner's blocks and remove them.

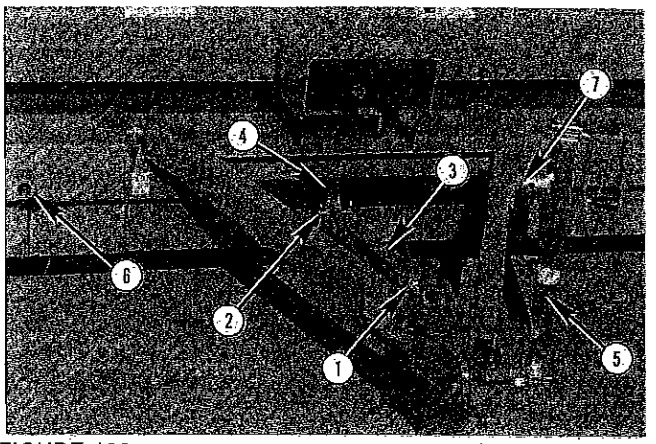


FIGURE 106 PHOTO NO. 3138

IMPORTANT: AFTER TRACTOR HOOKUP, ALWAYS STORE HITCH JACK ON PEDESTAL AT TOP OF GEARCASE. (REF. (4), FIGURE 110, PAGE 54.)

P.T.O's.

It is easiest to install the trailing P.T.O. AFTER completing the trailing hitch installation. It is easiest to install the 3 point P.T.O. BEFORE completing the 3 point hitch installation. Both P.T.O's. are installed the same; however, Figure 109, page 53 shows only a 3 point P.T.O.

FIVE DIFFERENT P.T.O's. are available and are variably shipped pursuant to dealer's order:

1 3/8" (540) 6B spline trailing 12' width
(52 15/32" Telescoped O.A. length)
Whole goods item 79200994

1 3/8" (1000) 21 spline trailing all widths
(53 1/32" Telescoped O.A. length)
Whole goods item 79200992

1 3/4" (1000) 20 spline trailing all widths
(55" Telescoped O.A. length)
Whole goods item 79201100

1 3/8" (1000) 21 spline 3 point all widths
(38 1/16" Telescoped O.A. length)
Whole goods item 79200989

1 3/4" (1000) 20 spline 3 point all widths.
(39 1/4" Telescoped O.A. length)
Whole goods item 79201014

All TRAILING P.T.O's. are C.V. (constant velocity) and identified by extended front yokes separated by a large guide hub between them.

ALL 3 POINT P.T.O'S. ARE NON C.V. and identified by front yokes joined with a conventional front cross.

IMPORTANT: IT IS CRITICAL TO KNOW WHAT TRACTOR CONFIGURATION IS INVOLVED BEFORE HOOKUP. THE PROPER SHREDDER P.T.O. MUST BE USED, OTHERWISE POTENTIAL EQUIPMENT DAMAGE CAN RESULT.

IDENTIFY CORRECT SHREDDER P.T.O. FOR TRACTOR USED BY CHECKING FORWARD YOKE SPLINE AND NOTING WHETHER IT IS A C.V. OR NON C.V. DO NOT INTERMIX FRONT AND REAR HALVES BETWEEN DIFFERENT P.T.O's.

All shredder P.T.O's. have similar sliding yoke couplers at tractor and gearbox ends. GEARBOX ENDS ARE IDENTIFIED BY AN OVERRUNNING CLUTCH (1).

Clean gearbox spline of any encrusted dirt or grease and lightly oil it. Slide outer P.T.O. collar (2) toward its adjacent yoke (3) and slide P.T.O. over the gearbox spline. Reverse the sliding collar to lock the assemblies together.

IMPORTANT: NEVER TOW A TRAILED SHREDDER IN FIELD MODE UNLESS THE P.T.O. IS PROPERLY HOOKED UP TO BOTH TRACTOR AND SHREDDER. OTHERWISE, IT CAN BE DAMAGED. IF TOWED WITHOUT FULL HOOKUP, DETACH ENTIRE P.T.O. FROM GEARBOX AND SECURE IT BEHIND CROSS DRIVE SHAFT SHIELD.

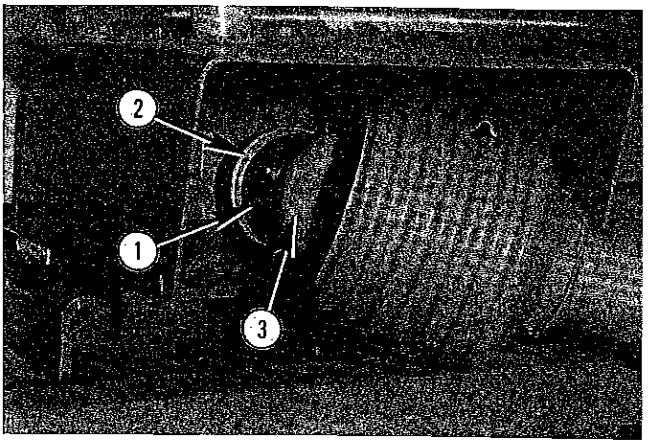


FIGURE 107 PHOTO NO. 2969A

3 POINT HITCH

NOTICE: MOVE HITCH JACK (1) FROM SHIPPING POSITION TO PEDESTAL (2) AT TOP OF GEARCASE. THIS JACK IS NOT NEEDED ON 3 POINT UNITS, EXCEPT WHEN AN END TRANSPORT ACCESSORY IS USED.

This hitch weighs 220# (100 kg.); therefore, use a hoist to move it into working position.

The bundle contains the hitch "A" frame (3), separate draft link (4) and separate support stand (5). The tractor's 2 lower and 1 upper hitch pins (6), along with their 7/16" dia. linch pins, and a P.T.O. support chain, are factory installed. Also factory installed are tractor hitch pin spacers for Cat. II, III and IIIN applications. All 3 tractor hitch pins should be left as factory installed until customer's final field preparation. Clip dunnage and remove support stand and draft link.

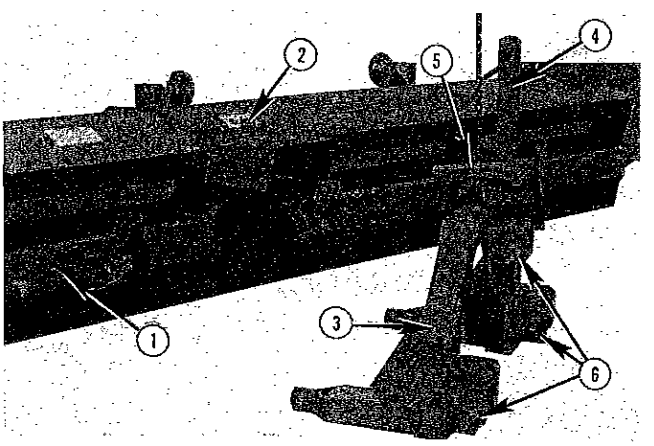


FIGURE 108 PHOTO NO. 3139

Install support stand assembly (1) with pin (2), along with its cotters. Install cross pin (3) and Q.A. pin (4) in hookup and storage hole (5). Hole (6) is for shredder operation and transport.

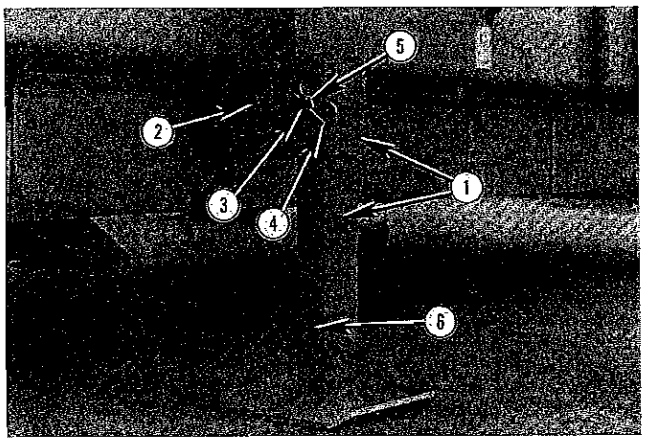


FIGURE 108A PHOTO NO. 3031

IMPORTANT: AFTER TRACTOR HOOK UP, RAISE AND LOCK SUPPORT STAND BY INSTALLING CROSS PIN AND Q.A. PIN IN LOWER STAND HOLE.

Insure the hoist chain (1) is SECURELY hooked around top link side plates as shown. This provides the best balance for easier installation.

Remove both base unit draft pins (2), hoist hitch into position shown and insert hitch's rear brackets between both sets of base unit ears. Reinstall draft pins and insure cotters on each end of both pins are spread.

If necessary, adjust hoist chain height until top draft link (3) can be installed between "lost motion" slot (4) and base unit's top draft hole (5).

Remove "lost motion" pin (6), along with its OUTSIDE 1/8" x 2 1/2" dia. flat washers (7) and 2 INSIDE 1 1/2" dia. spacers.

Install single flat end of link (3) between double "lost motion" slots and reinsert pin (6), along with flat washers and spacers. The flat washers go to the OUTSIDE and the spacers go BETWEEN the "lost motion" slots and the top draft link.

Remove pin (8) from double flat ends of link (3) and install it astraddle draft hole (5). Insure both pin cotters are spread. Raise shredder with hoist (1) suficient to loosen each front corner's blocks and remove them.

Chain and anchor eye (9) are always maintained on whatever position top link pin (10) is in. It supports the P.T.O. whenever it is not hooked to the tractor.

IMPORTANT: DO NOT MANEUVER A 3 POINT SHREDDER UNLESS P.T.O. IS HOOKED TO TRACTOR OR SUPPORTED BY THE CHAIN. WRAP AND HOOK P.T.O. SUPPORT CHAIN AROUND THE "A" FRAME AS SHOWN WHENEVER THE P.T.O. IS HOOKED TO THE TRACTOR.

This prevents damage to the P.T.O. and/or support chain.

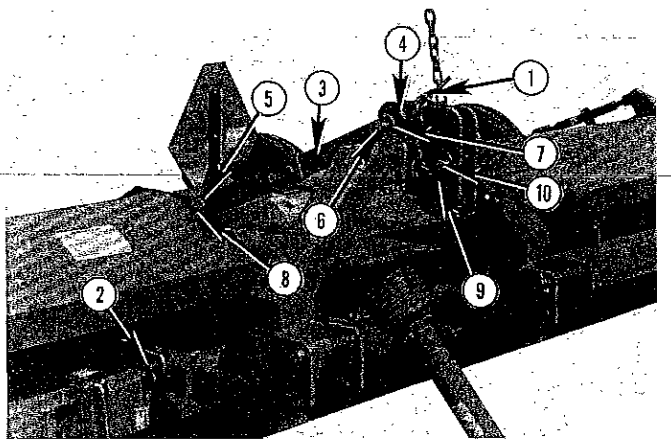


FIGURE 109 PHOTO NO. 2992

MISCELLANEOUS

The SMV (slow moving vehicle) emblem and spade bracket (1) are shipped inside an end enclosure. This emblem is provided with 2 female sockets. Location (2) is for towing in normal field mode and location (3) is for the end transport kit.

Also shipped with the unit are 2 cans of HINIKER gray touch up paint.

Check the gearbox lube level. See LUBRICATION, page 27. Checking location, and method differ between 540 and 1000 RPM units.

After hooking up the trailing hitch unit to a tractor, raise and remove the hitch jack. Store it for towing, or operation, on pedestal (4).

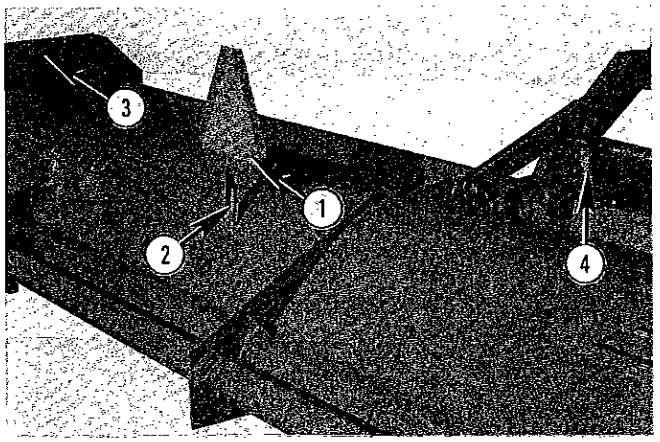


FIGURE 110 PHOTO NO. 2993

PREDELIVERY RUN IN

Refer to DELIVERY check list, page 1 and routinely perform all relevant checks thereon.

Refer to FIELD PREPARATION page 18 and insure specific hitch, P.T.O., wheel settings, etc. are configured to customer's stated requirements.

CAUTION: DEATH OR SERIOUS INJURY CAN RESULT. DISENGAGE P.T.O., STOP TRACTOR ENGINE, SET BRAKES, REMOVE KEY AND ALLOW EQUIPMENT TO COME TO A COMPLETE STOP BEFORE:

CLEANING, UNCLOGGING, LUBRICATING, INSPECTING, OR OTHERWISE SERVICING ANY PART OF THIS EQUIPMENT.

DO NOT INSPECT AND/OR SERVICE A SHREDDER IN A RAISED POSITION UNLESS IT HAS BEEN SECURELY BLOCKED FROM UNEXPECTED FALLING.

KEEP OFF, KEEP OTHERS OFF AND MAKE CERTAIN EVERYONE IS CLEAR BEFORE STARTING, ACTUATING HYDRAULICS, AND DURING OPERATION.

END TRANSPORT ACCESSORY

This is furnished with 2 15 x 5 wheels, less tires. The recommended aftermarket tire size is 7.60 x 15-4PR I1 (implement) or equivalent. Install tires on wheels and inflate to 36-40 psi. for a 20' shredder. Lower inflation may be used on narrower shredders.

Also furnished in this accessory are:

2 spindle and hub assemblies

1 rear spindle receptacle

1 front spindle receptacle with 2 1/2" bolts

1 drawbar with a 1" lock pin and Q.A. hairpin

2 5/8" spindle lock pins and Q.A. hairpins

Sundry bolts and locknuts.

NOTICE: INSTALLATION INSTRUCTIONS RETAIN "FRONT", "REAR", "R.H." AND "L.H." DESIGNATIONS AS IF UNIT WERE IN NORMAL FIELD MODE (IE. FACING THE TRACTOR).

CAUTION: DEATH OR SERIOUS INJURY CAN RESULT. DISENGAGE P.T.O., STOP TRACTOR ENGINE, SET BRAKES, REMOVE KEY AND ALLOW EQUIPMENT TO COME TO A COMPLETE STOP BEFORE:

CLEANING, UNCLOGGING, LUBRICATING, INSPECTING, OR OTHERWISE SERVICING ANY PART OF THIS EQUIPMENT.

DO NOT INSPECT AND/OR SERVICE A SHREDDER IN A RAISED POSITION UNLESS IT HAS BEEN SECURELY BLOCKED FROM UNEXPECTED FALLING.

KEEP OFF, KEEP OTHERS OFF AND MAKE CERTAIN EVERYONE IS CLEAR BEFORE STARTING, ACTUATING HYDRAULICS, AND DURING OPERATION.

1. Initially have shredder hooked to tractor in approx. normal operating configuration. Install receptacle (1) on shredder center plate with 3 3/4" bolts and locknuts (2).

2. With either ratchet jack(s), or aftermarket hydraulics, raise shredder sufficient to slide wheel spindle (3) into receptacle. Insert lock pin (4) through hole and retain with its Q.A. hairpin.

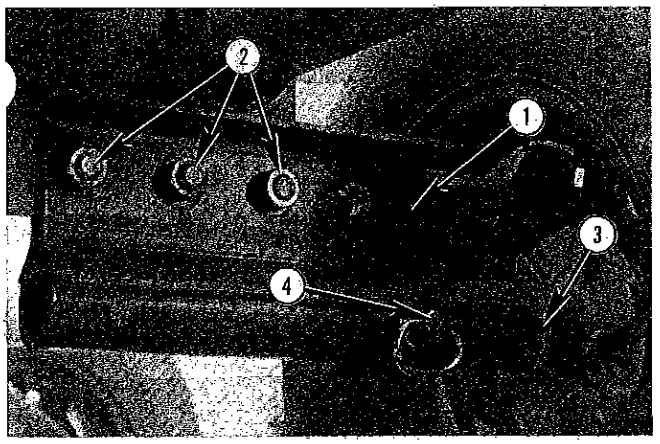


FIGURE 111 PHOTO NO. 3023

3. Install front receptacle (1) with 2 1/2" x 8" bolts and locknuts at location (2).

4. FOR TRAIL HITCH UNITS: If unit needs further raising to install front wheel, use ratchet jack(s), or aftermarket hydraulics, in combination with front hitch jack in its "use" position.

5. FOR 3 POINT HITCH UNITS: If unit needs further raising to install front wheel, use ratchet jack(s) in combination with tractor hydraulics.

6. Slide wheel spindle into receptacle and insert 5/8" lock pin thru hole (3) and retain with its Q.A. hairpin.

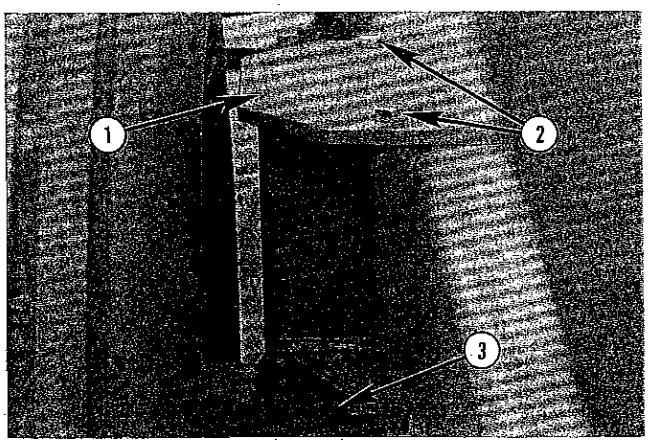


FIGURE 112 PHOTO NO. 3032

7. Move hitch jack (1) from "use" position (trailing hitch units), or top of gearcase (3 point hitch units), to original shipping pedestal (2). Extend the jack sufficiently to stabilize the shredder. Fully retract ratchet jack(s), or aftermarket hydraulics, to bring regular wheels free of ground. Detach shredder from tractor.

NOTICE: 5/8" LOCKUP BOLT(S) MUST BE INSTALLED THRU ROCKSHAFT "LOST MOTION" LINK(S) AND ROCKSHAFT BRACKET(S) TO PERMIT RAISING REGULAR WHEELS FOR TRANSPORT. REFER TO FIGURE 44, PAGE 21.

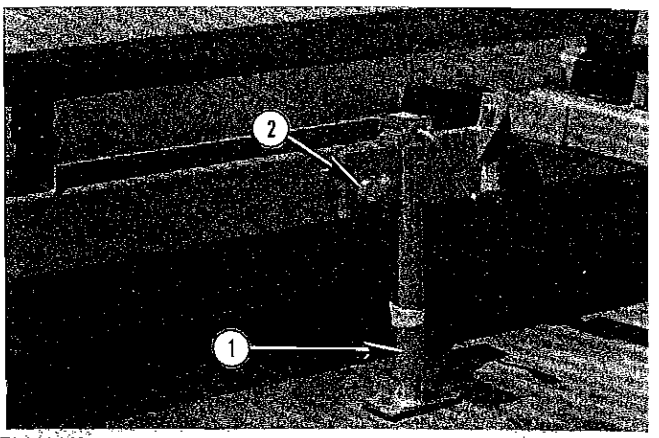


FIGURE 113 PHOTO NO. 3142

8. Install transport drawbar (1) through pocket (2) with safety chain pocket (3) facing front. Retain with 1" pin (4) and Q.A. hairpin.

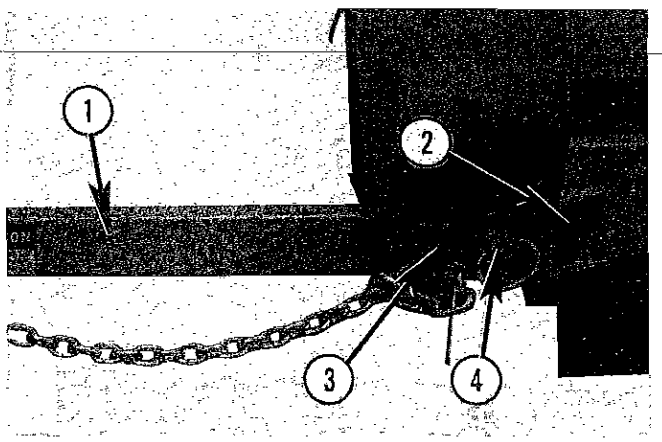


FIGURE 114 PHOTO NO. 3018A

⚠ WARNING: DEATH OR SERIOUS INJURY CAN RESULT. DO NOT USE END TRANSPORT ACCESSORY ON PUBLIC HIGHWAYS UNLESS YOU HAVE READ AND THOROUGHLY UNDERSTAND PREPARATION "SHREDDER-END TRANSPORT TOWING", PAGE 23.

AFTERMARKET HYDRAULICS

HINIKER does not market shredder hydraulic cylinders, hoses, fittings, couplers, etc. However, all TRAILING HITCH UNITS ONLY are furnished with a hose support (1) and 4 hose clamps on 18' and 20' units. The hose clamps (2) are shipped at rear of cross shaft shields and the hose support is banded to the C.V. P.T.O.

1. The shredders accept ASAE S201.4 (20 1/4" retracted and 28 3/8" extended) 8" stroke cylinders. Recommended minimum cylinder

bore is 2 1/2". Always install cylinder(s) with anchor end (3) on the shredder and rod end on the rockshaft link.

2. Eighteen foot and 20' hose routings must be through separate "T" connections for BOTH extension and retraction sides of the hydraulic circuit as shown at (4) and (5). Twelve and 15' hose routing can be directly from cylinder to tractor.

IMPORTANT: IF NPT HYDRAULIC FITTINGS ARE USED, WRAP ALL MALE THREADS WITH TEFLON TAPE TO PREVENT LEAKS.

3. After plumbing the hose circuit to appropriate length, install hose support (1) to a gearbox shield bolt (6). Insure the 1 original 1/2" flat washer is between this bolt head/lockwasher and the hose support. Route hoses through support and install quick couplers appropriate for tractor being used.

CAUTION: DEATH OR SERIOUS INJURY CAN RESULT. STOP TRACTOR ENGINE AND RELIEVE HYDRAULIC PRESSURE BEFORE CONNECTING OR DISCONNECTING HYDRAULIC LINES.

DO NOT USE YOUR HAND TO CHECK FOR HYDRAULIC LEAKS. HIGH PRESSURE FLUID CAN PENETRATE THE SKIN.

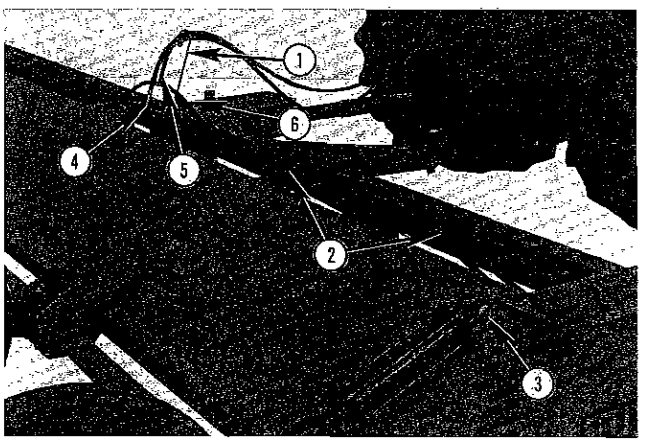


FIGURE 115 PHOTO NO. 3021

Insert tractor quick couplers to give shredder a DOWNWARD movement when tractor hydraulic lever is shoved FORWARD and vice versa.

IMPORTANT: TO PREVENT ROCKSHAFT TWISTING ON 18' & 20' UNITS: INSTALL IDENTICAL LENGTH OF STOP COLLARS ON EACH CYLINDER ROD, OR IDENTICALLY SET BOTH HYDRAULIC CYLINDER INTEGRAL TRIPS.

It is not recommended necessary to use remote hydraulics on 3 point hitch shredders.

SPECIFICATIONS

NOMINAL CUTTING WIDTH	144" (12')	180" (15')	216" (18')	240" (20')
Field Overall Width	162"	198"	234"	258"
Field Overall Length (Trail Hitch)	136"			
Field Overal Length (3 Point Hitch)	132"			
End Transport Overall Width (Trail Hitch)	132"			
End Transport Overall Width (3 Point Hitch)	107"			
End Transport Overall Length	193"	229"	265"	289"
Standard Knife Type	1/4" x 3" Cup or 1/4" X 2 3/4" Side Slicer			
Theor. Knife Tip Speed @ 1000 RPM (Cup)	9873 Feet Per Minute			
Theor. Knife Tip Speed @ 540 RPM (Cup)	10,236 FPM	N/A		
Number Knives	48	72	72	96
Total Cuts Per Minute @ 1000 RPM	73,152	109,728	109,728	146,304
1 3/8" (540) 6B Spline P.T.O. (Trailing)	Optional	N/A		
1 3/4" (1000) 20 Spline P.T.O. (Trailing)	Optional			
1 3/8" (1000) 21 Spline P.T.O. (Trailing)				
1 3/8" (1000) 21 Spline P.T.O. (3 Point)				
1 3/4" (1000) 20 Spline P.T.O. (3 Point)				
Constant Velocity P.T.O.	Trail (Standard)			
Premium Matched "C" End Drive Belts	4		6	
15 x 5KB 6 Bolt Wheels	2	4		
Recommended Tires	7.60 x 15-4PR, or Equal			
Approx. Trail Hitch Weight (W/Tires)	2866 lbs / 1300 Kg	3448 lbs / Kg 1564	3811 lbs / 1729 Kg	4108 lbs / 1863 Kg
Approx. 3 Point Hitch Weight (W/Tires)	2921 lbs / 1325 Kg	3503 lbs / Kg 1589	3866 lbs / 1754 Kg	4163 lbs / 1888 Kg
ACCESSORY EQUIPMENT				
End Transport Kit	Optional			
Ratchet Lift Jacks	1		2	
Extra Wheel Leg (Pair)	Optional			

HINIKER WARRANTY
4000 SERIES SHREDDERS

The only warranty the company gives and the only warranty the dealer is authorized to give is as follows:

We warranty products sold by us to be in accordance with our published specifications or those specifications agreed to by us in writing at time of sale. Our obligation and liability under this warranty is expressly limited to repairing or replacing, at our option, within one year after date of retail delivery, any product not meeting the specification. **WE MAKE NO OTHER WARRANTY, EXPRESS OR IMPLIED AND MAKE NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE.** Our obligation under this warranty shall not include any transportation charges or costs or installation or any liability for direct, indirect or consequential damage or delay. If requested by us, products or parts for which a warranty claim is made are to be returned freight prepaid to our factory. Any improper use, operation beyond rated capacity, reasonable intended use, substitution of parts not approved by us, or any alteration or repair by others in such manner as in our judgement affects the product materially and adversely shall void this warranty. **NO EMPLOYEE OR REPRESENTATIVE IS AUTHORIZED TO CHANGE THIS WARRANTY IN ANY WAY OR GRANT ANY OTHER WARRANTY.**

HINIKER reserves the right to make improvement changes, alter features, specifications, options and standard equipment on any of our products without notice and incurrence of obligation on prior manufactured machines.

Warranty does not apply to any machine or part which has been repaired or altered in any way so as in the company's judgement to affect its reliability, or which has been subject to misuse, negligence or accident.

Warranty may be **LIMITED and/or NOT APPLICABLE** to machines and/or components where damage is incurred from ingestion of foreign material other than crops intended.

A DELIVERY REPORT FORM must be filled out and received by HINIKER COMPANY to initiate the warranty coverage.

HINIKER COMPANY
AIRPORT ROAD
P. O. BOX 3407
MANKATO, MN 56002-3407