



**MODEL AR-2000
FLAIL SHREDDER**

OPERATOR'S MANUAL

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

PART NUMBER 79203019 Rev. A

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79203019RevA

3/11

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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 it 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.

Additional copies of this manual are available from your Hiniker Dealer

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) preceding the photo.

ATRIPLICATE (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. 3540

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

Purchase Date: _____

Purchaser's Name: _____

Dealer's Name: _____

Machine Serial #: _____

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 orange 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. Additional copies of this operator's manual are available 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 PTO, 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.

4 Safety

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 PTO 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. 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 PTO, stop tractor engine, and remove key before hooking up shredder PTO.
8. Clear area of people, and debris, before engaging tractor PTO. Be alert for blind areas of operator. Slow down PTO 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. Four different PTO'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 DIS-ENGAGE PTO, STOP TRACTOR ENGINE, REMOVE KEY AND DETERMINE/ CORRECT CAUSE BEFORE PROCEEDING.
2. Disengage PTO, 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.

TOWING

1. When towing on public highways:
 - Use a safety chain between the shredder hitch and the towing vehicle (The 10,000# safety chain is part number 85501539).
 - 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 PTO 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 PTO detached from the tractor and hooked to the gearbox.
 3. HINIKER shredders are provided with (1) ASAE SMV (slow moving vehicle) emblem and (2) mounting sockets there for. One socket is for towing in FIELD mode and one socket is for towing with the END TRANSPORT accessory.
 4. 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 PTO, stop tractor engine, re-move 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.

6 Safety

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 PTO 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 ensure 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.

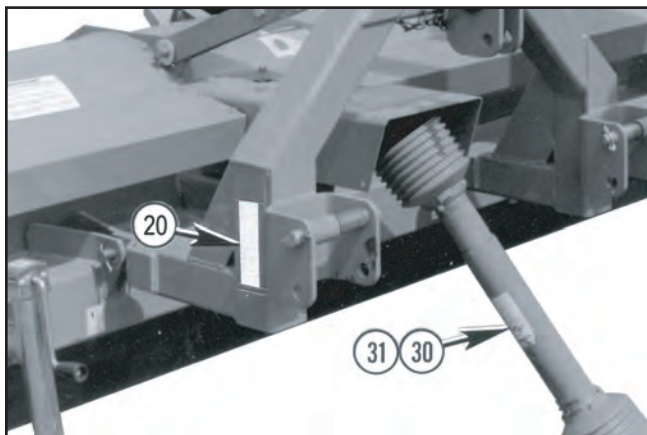


FIGURE 1 PHOTO NO. 2992B

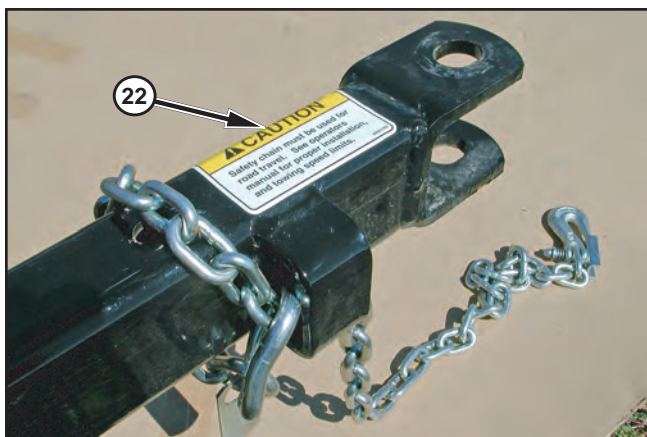


FIGURE 1 PHOTO NO. DSCN4637A

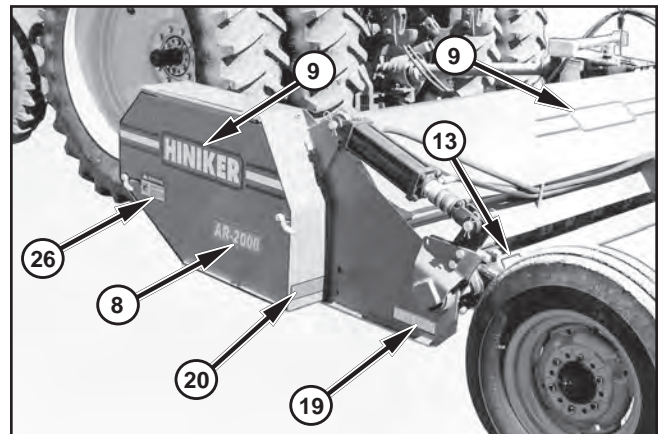


FIGURE 2 PHOTO NO. 3541B

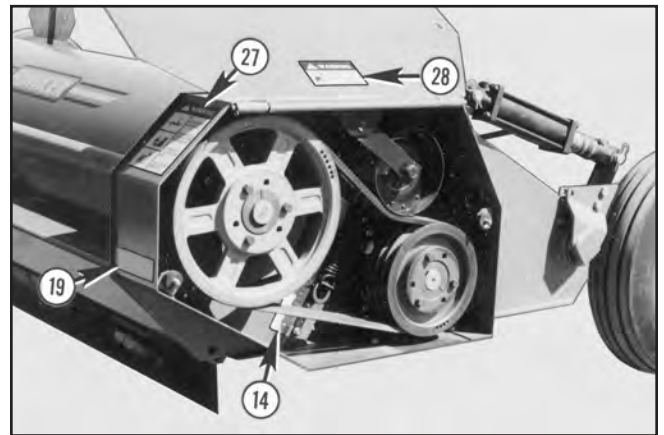


FIGURE 3 PHOTO NO. 3542

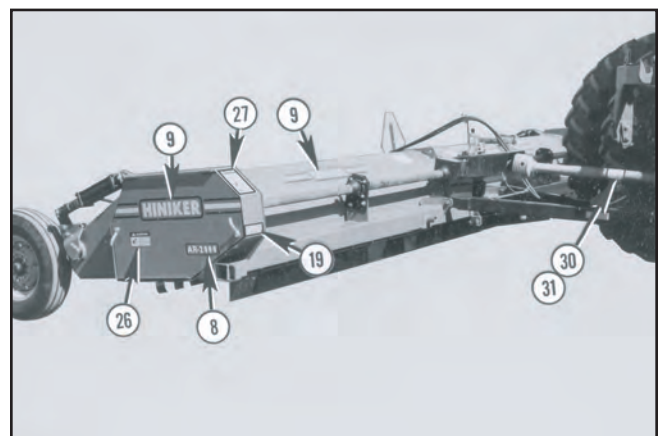


FIGURE 4 PHOTO NO. 3543A

8 Decal Location

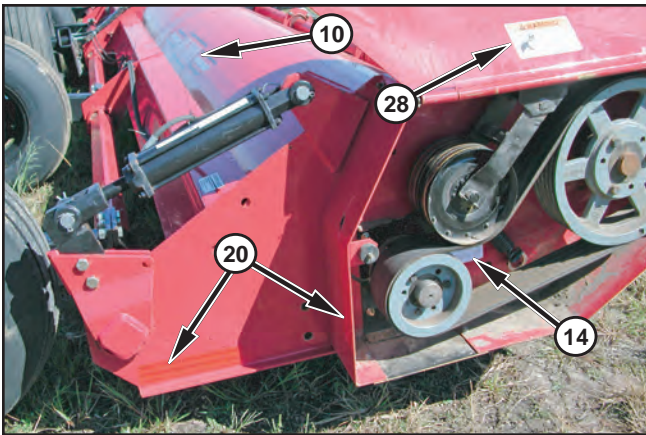


FIGURE 5 PHOTO NO. DSCN4654A

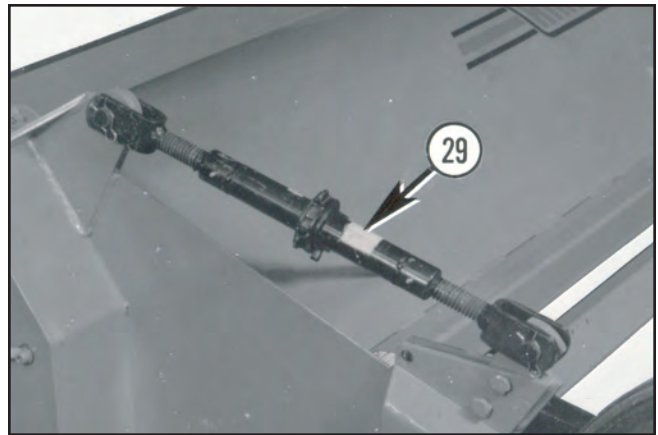


FIGURE 7A PHOTO NO. 2998A

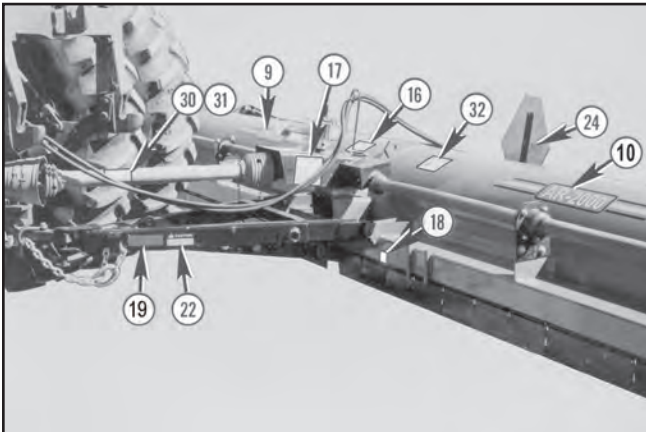


FIGURE 6 PHOTO NO. 3545B

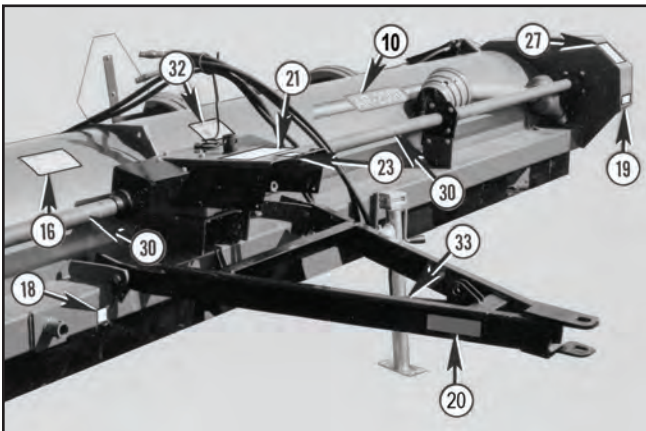


FIGURE 7 PHOTO NO. 3546B

AR-2000

FIGURE 8 79202299 LOGO AR-2000

HINKER

FIGURE 9 71505168 LOGO HINKER

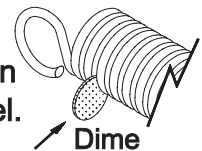
AR-2000

FIGURE 10 79202337 LOGO AR-2000

IMPORTANT: Maintain Belt Tension

Stop unit completely for maintenance.
No Rotation. Read Operators Manual.

Adjust tension to allow a Dime to freely pass between spring coils, but not a Nickel.



79203023

FIGURE 14 79203023 IMPORTANT: MAINTAIN BELTS...

IMPORTANT

1. OPERATE MACHINE WITH KNIVES AT LEAST 3" ABOVE RIDGES.
2. NEVER OPERATE WITH MISSING KNIVES.
3. MAINTAIN PROPER BELT TENSION. SEE DECAL INSIDE END ENCLOSURES.
4. RAISE 3-POINT MOUNTED UNITS WHEN TURNING ACROSS RIDGED ENDS.

71504126

FIGURE 16 71504126 IMPORTANT: OPERATE MACHINE...

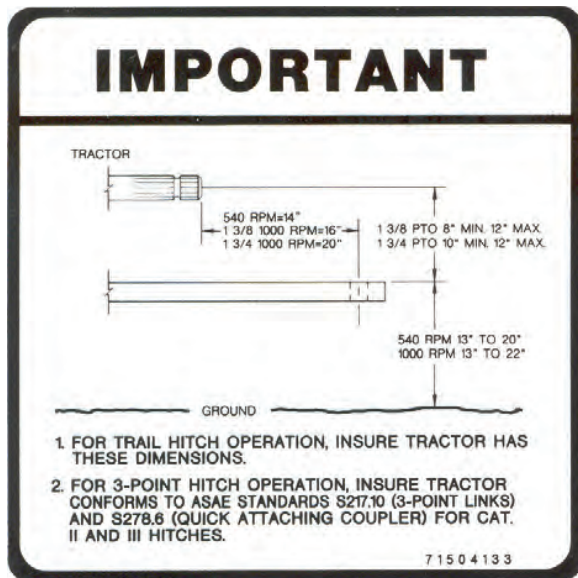


FIGURE 17 71504133 IMPORTANT: HITCH...



FIGURE 18 715-03174 IMPORTANT: LIFT...

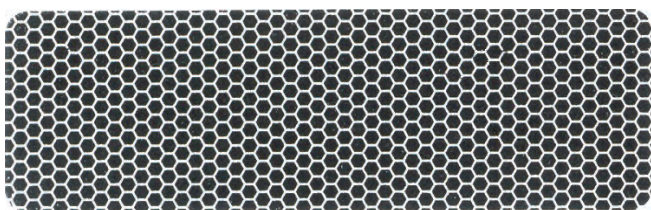


FIGURE 19 850-001-285 TAPE YELLOW REFLECTOR

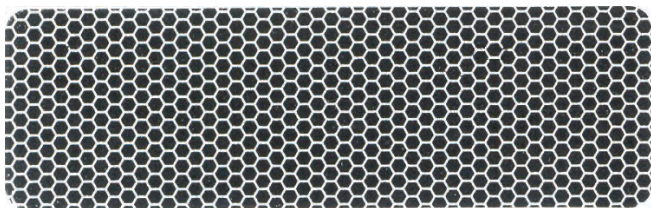


FIGURE 20 850-001-305 TAPE RED REFLECTOR

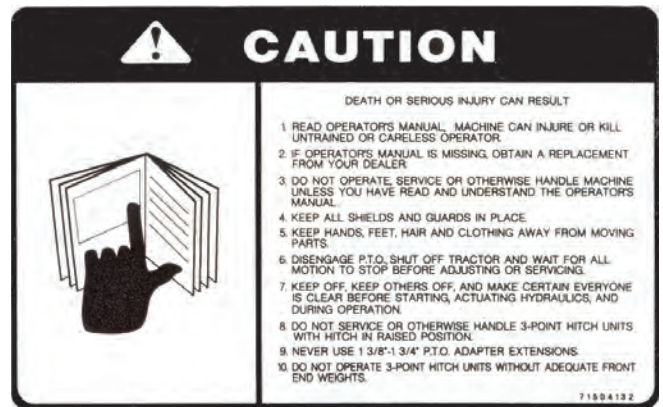


FIGURE 21 715-04132 CAUTION: READ MANUAL...



FIGURE 22 85501787 CAUTION: SAFETY CHAIN...



FIGURE 23 71504129 CAUTION: 1000 RPM



FIGURE 24 715-03056 CAUTION: REVERSE 25 MPH...



FIGURE 26 71505169 WARNING: LOOK AND LISTEN...



FIGURE 30 520-03138 DANGER: ROTATING DRIVE...



FIGURE 27 71505171 WARNING: KEEP HANDS, ETC...



FIGURE 31 520-03139 DANGER: SHIELD MISSING...



FIGURE 28 71505170 WARNING: DO NOT OPERATE...

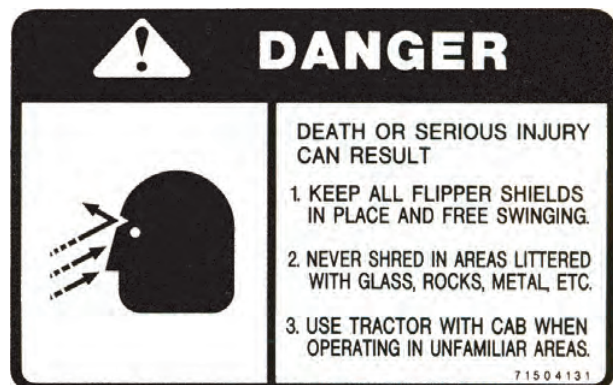


FIGURE 32 71504131 DANGER: KEEP FLIPPERS...



FIGURE 29 WARNING: DO NOT EXCEED...



FIGURE 33 71505172 WARNING: WEIGHT..

FIELD PREPARATION



WARNING: DEATH OR SERIOUS INJURY CAN RESULT. BEFORE FIELD PREPARATION, 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 PTO OUTPUT. This will be 1 of 2 choices:

1000 RPM 1 3/8"-21 spline

1000 RPM 1 3/4"-20 spline

All TRAILING units use ONLY CV (constant velocity) PTO's. These are identified by extended front yokes separated by a large guide hub between them.

All 3 POINT units use ONLY NON CV PTO's. These are identified by front yokes joined with a conventional (simple) front cross.

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

REFERENCE: COMPRESSED O.A. LENGTH EACH AVAILABLE PTO.

SIZE	RPM	TYPE & ACC.* NO.	LENGTH
1 3/8"	(1000)	21 Spline Trailing 79202278 *	- 55"
1 3/4"	(1000)	20 Spline Trailing 79202277 *	- 55"
1 3/8"	(1000)	21 Spline 3 Point 520-02157 *	- 38 1/16"
1 3/4"	(1000)	20 Spline 3 Point 520-02159 *	- 39 1/4"
* Accessory			



CAUTION: DEATH OR SERIOUS INJURY CAN RESULT. NEVER USE 1 3/8" TO 1 3/4" PTO "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 S217.12 and S278.7) dimensions:

	Category	
	II	III & IIIN
Horizontal distance from end of 1 3/8" PTO to lower hitch points in horizontal position.	20" - 22"	
Horizontal distance from end of 1 3/4" PTO 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"

12 Field Preparation

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

1 3/8” PTO 27”

1 3/4” PTO 28”

Some tractors, with free links only (ie. without a quick hitch), may have less than the above minimums. In such circumstance, 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 PTO HOOK UP NEITHER “BOTTOMS”, NOR EXCESSIVELY “DECOUPLES”.

IMPORTANT: BE SURE TO SET MAXIMUM UP STOP ON 3-POINT POSITION CONTROL LEVER TO AVOID AN EXCESSIVE UNIVERSAL OPERATING ANGLE. ANY ANGLE IN EXCESS OF 30 DEGREES GREATLY REDUCES THE FUNCTIONAL LIFE OF DRIVE LINE.

For 3 point hitch hookups, it is:

IMPORTANT: REALIZE THE OVERHUNG MACHINE MOMENT (WEIGHT) SUBSTANTIALLY VARIES FROM THE NARROWEST (15’) TO THE WIDEST (25’) SHREDDERS.

Typical minimum unit’s weights are:

WIDTH	LBS.	KG.
15 foot	3375	1531
18 foot	3866	1754
20 foot	4163	1888
25 foot	5200	2360

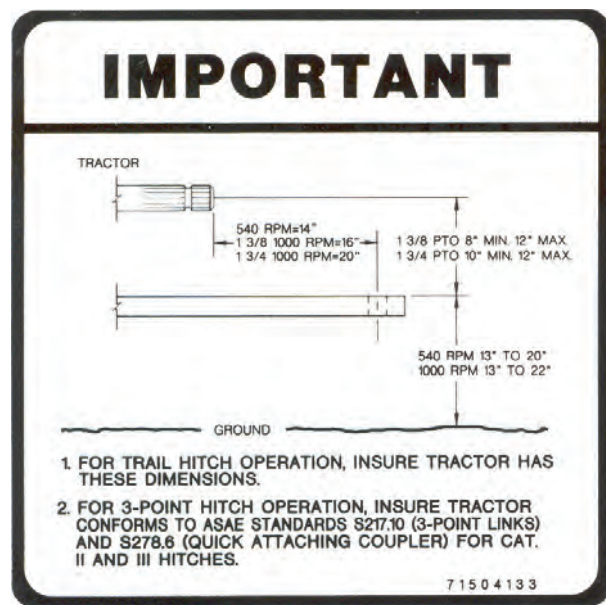


DANGER: DEATH OR SERIOUS INJURY CAN RESULT. DO NOT OPERATE 3 POINT HITCH UNITS WITHOUT ADEQUATE TRACTOR FRONT END WEIGHTS. USING AN UNDERSIZE, OR INADEQUATELY FRONT END WEIGHTED TRACTOR, WILL RESULT IN DANGEROUS LOSS OF STEERING CONTROL.

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

TRACTOR-TRAILING GEOMETRY

IMPORTANT: INSURE TRACTOR PTO AND DRAWBAR CONFORM TO DIMENSIONS BELOW.



DWG. NO. 71504133

IMPORTANT: AFTER TRACTOR HOOKUP, ALWAYS STORE HITCH JACK ON PEDESTAL AT TOP OF GEARCASE.

SHREDDER 3-POINT HITCH

Three point hitch shredders have furnished 2 lower link pins (Item 1) and 1 upper link pin (Item 2). These are sized for Cat. II; thus, may be used directly for that mode. Refer to Photo 2965.

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

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

Pin (Item 2) has a 1 1/4" O.D. factory installed spacer (Item 5) and PTO transport support (Item 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 installation (ie. larger spacer (Item 3) innermost and smaller spacer (Item 4) outermost).

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

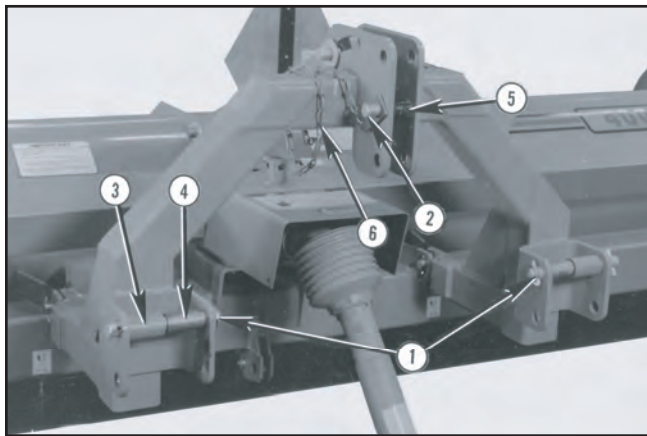


PHOTO NO. 2965

The 3 point hitch has lower link pin holes (Item 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 (Item 1) is appropriate for tractors with smaller tires and/or less lift range. The UPPERMOST link pin hole (Item 2) is generally appropriate for tractors with larger tires and/or greater lift range. Refer to Photo 2965A.

Three upper link pin holes (Item 3, 4 & 5) are also 4" apart each. Refer to Photo 2965A.

IF OPERATION IS IN CAT. II MODE AND:

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

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

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

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

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

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

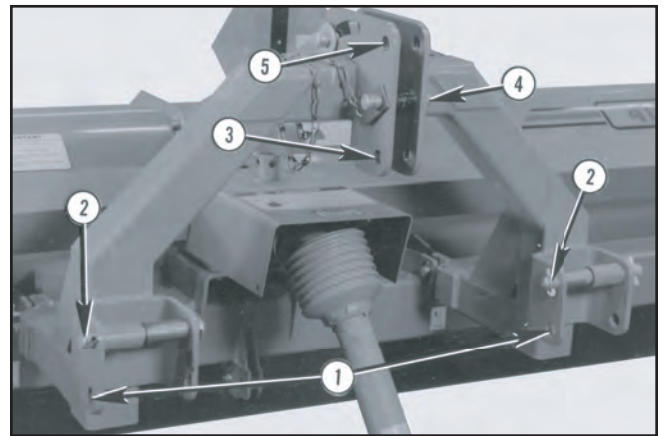


FIGURE 36

PHOTO NO. 2965A

Support stand assembly (Item 1) is for hook up and machine storage. FOR SHREDDER OPERATION AND TRANSPORT, lower hole (Item 2) for cross pin (Item 3) is used. Refer to Photo 3031A.

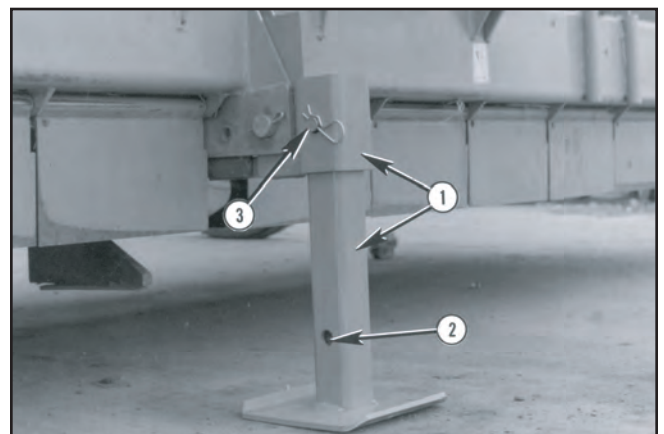


PHOTO NO. 3031A

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

Hitch jack (Item 1), Photo DCP0603 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 (Item 1) provides ground float when the tractor’s upper link (Item 2) is properly length adjusted. Normally, cross pin (Item 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.

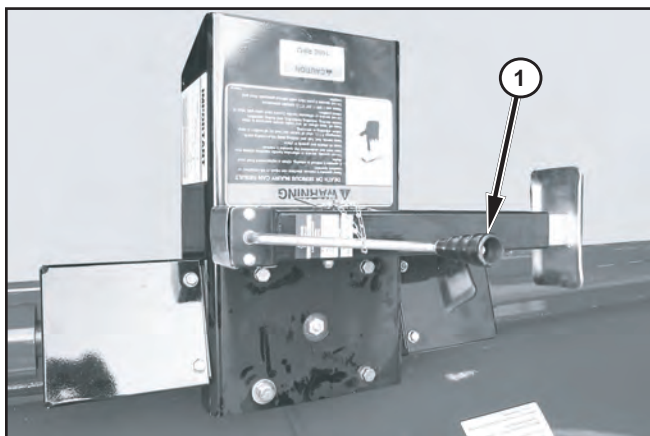


PHOTO NO. DCP0603

IMPORTANT: CORRECT “LOST MOTION” AND TRACTOR UPPER LINK ADJUSTMENT CAN NOT BE MADE UNTIL AFTER THE SHREDDER IS INITIALLY FIELDDED AND FINAL FIELD SETTINGS ARE MADE.

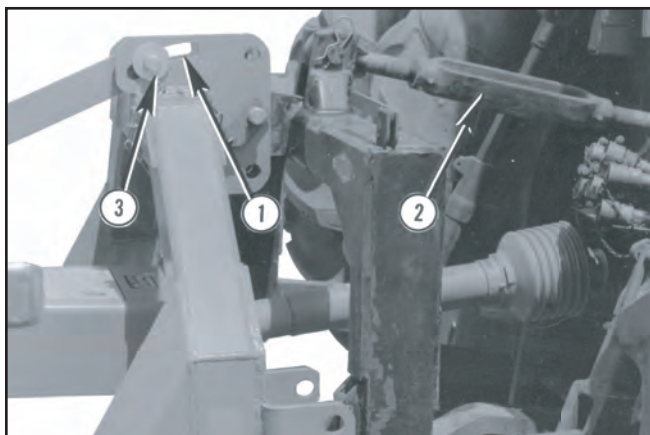


PHOTO NO. 2972

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 an adjustable hitch height adjustment (Item 1) to match various tractor drawbar heights. Refer to Photo 3555A.

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

Raise the shredder with hitch jack until the hitch yoke corresponds with the tractor’s drawbar and insert hitch pin. Always store the hitch jack (Item 1) as shown in Photo DCP0603.

IMPORTANT: ALWAYS USE A 1” DIAMETER HITCH PIN.



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

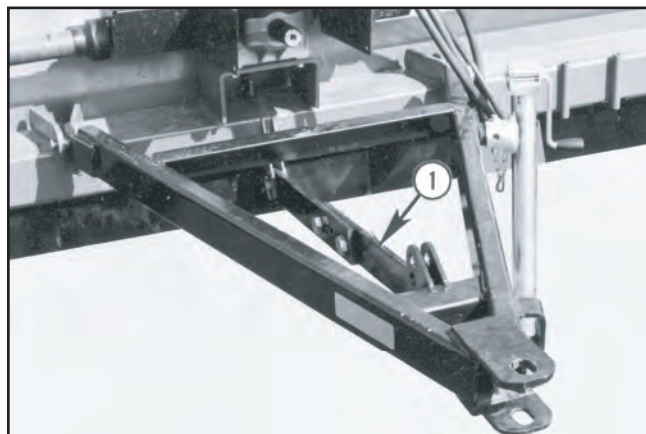


PHOTO NO. 3555A

SHREDDER-PTO's

IMPORTANT: IT IS CRITICAL TO KNOW WHAT TRACTOR CONFIGURATION IS INVOLVED BEFORE HOOKUP. THE PROPER SHREDDER PTO 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 PTO OUTPUT. This will be 1 of 2 choices:

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

All TRAILING UNITS use ONLY CV (constant velocity) PTO's. These are identified by extended front yokes separated by a large guide hub between them.

All 3 POINT UNITS use ONLY NON CV PTO's. These are identified by front yokes joined with a conventional (simple) front cross.

IMPORTANT: IDENTIFY CORRECT SHREDDER PTO FOR TRACTOR USED BY CHECKING FORWARD YOKE SPLINE AND NOTING WHETHER IT IS A CV OR NON CV. FRONT AND REAR CV PTO HALVES CAN BE SWAPPED IN THE FIELD, IF THE PTO'S HAVE BLACK PLASTIC SHIELDS.

See reference table, page 11 for identifying correct PTO.

All shredder PTO's have similar sliding yoke couplers at the tractor and gearbox ends. GEARBOX ENDS ARE IDENTIFIED BY AN OVERRUNNING CLUTCH (Item 1).

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

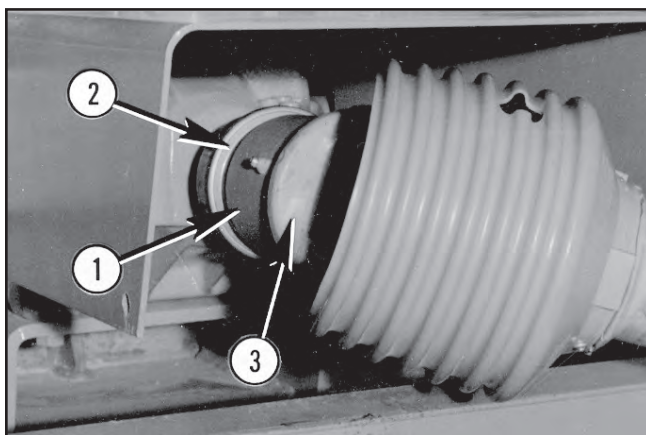


PHOTO NO. 2969A

NOTICE: TO FACILITATE PTO 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 PTO spline engages similar to above. Slide outer collar (Item 1) toward its adjacent yoke (Item 2) and slide PTO over the tractor spline. Reverse the sliding collar to lock the assemblies together.

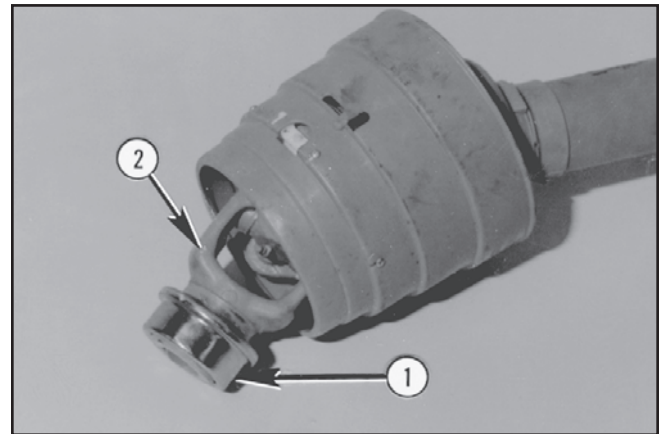


PHOTO NO. 2966A



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

Check the decal on gearbox shield to insure proper tractor/shredder RPM matching.



DWG. NO. 71504129



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

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

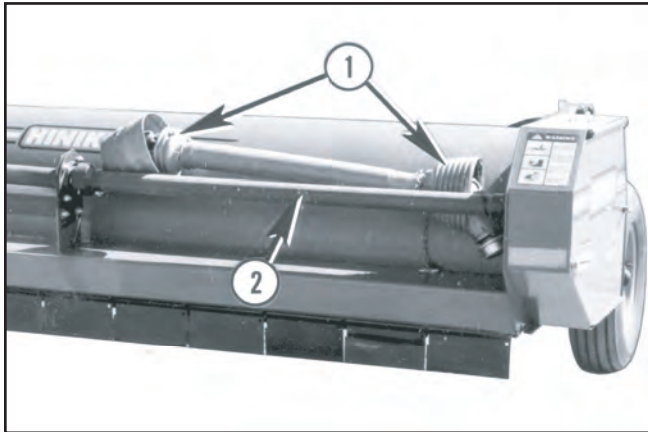


PHOTO NO. 3547

Three point hitch shredders may be field mode towed with the PTO detached from the tractor, PROVIDED support chain (Item 1) is wrapped around the PTO and hooked up. Before operation, always insure this chain is removed from the PTO, wrapped around the "A" frame and re-hooked on itself. Refer to Photo 3016.

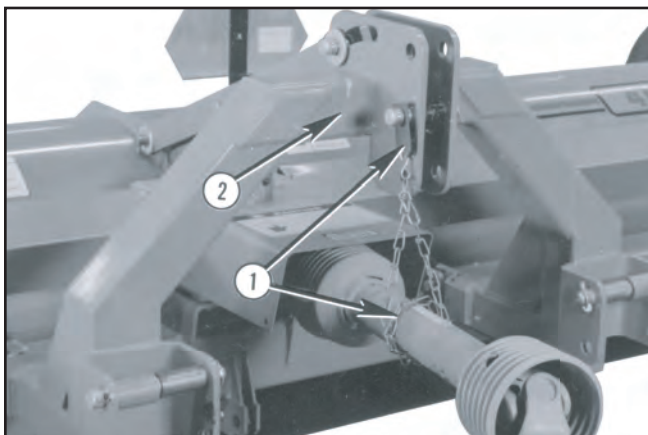


PHOTO NO. 3016

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 45 or 50. It is not necessary to use hydraulics on 3 point hitch shredders.

If optional 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 PTO, 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) through rockshaft bracket(s) (Item 2) and "lost motion" link(s) (Item 3) at (Item 1).

IMPORTANT: TO PREVENT ROCKSHAFT TWISTING ON 18' AND 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.

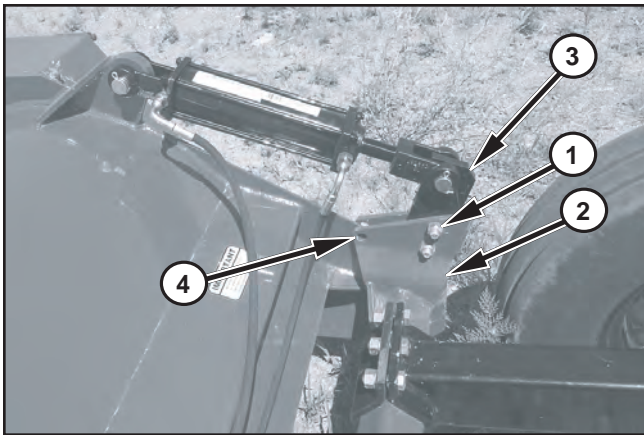


PHOTO NO. DCP0545

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 approximately 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.

		Dimns.	30" Rows	36" Rows
15 foot units	(outer)	(1)	90"	72"
	(inner)	(2)	60"	36"
18 foot units	(outer)	(1)	90"	108"
	(inner)	(2)	60"	72"
20 foot units	(outer)	(1)	120"	108"
	(inner)	(2)	60"	72"
25 foot units	(outer)	(1)	150"	144"
	(inner)	(2)	90"	72"

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.

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.

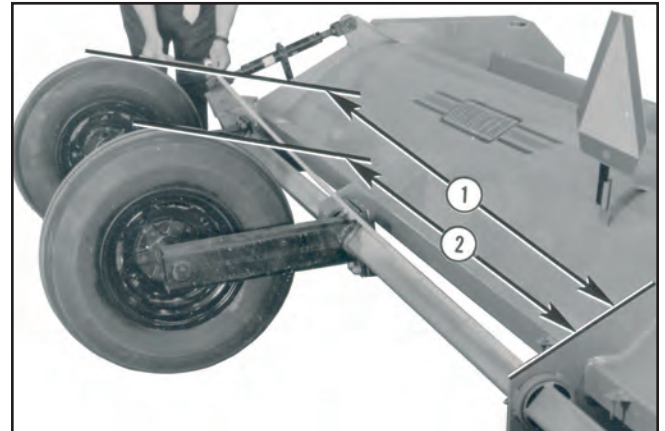


PHOTO NO. 2995

SHREDDER TIRES

Recommended tires on 5" wide rims are 7.60 x 15-8PR L1 (implement) or equivalent. When equipped with 8" wide rims 9.5L x 15 8 ply (implement) tires are recommended. The shredder will perform better, especially under ridged conditions, if tire pressures are kept no greater than 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 centerlines are running in the row middles.

SHREDDER-FIELD MODE TOWING

Shredders are furnished with 1 SMV emblem (Item 1) and sockets (Item 2 & 3) Photo 2993A therefor. If it is to be towed on public highways, **WITHOUT AN END TRANSPORT ACCESSORY**, install SMV emblem in socket (Item 2). If it is to be towed on public highways, **WITH AN END TRANSPORT ACCESSORY**, install SMV emblem in socket (Item 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 PTO IS PROPERLY HOOKED UP TO BOTH TRACTOR AND SHREDDER. OTHERWISE, IT CAN BE DAMAGED. IF NECESSARY TO OTHERWISE TOW, DETACH ENTIRE PTO ASSEMBLY FROM GEARBOX AND SECURE IT BEHIND A DRIVE SHAFT SHIELD.

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

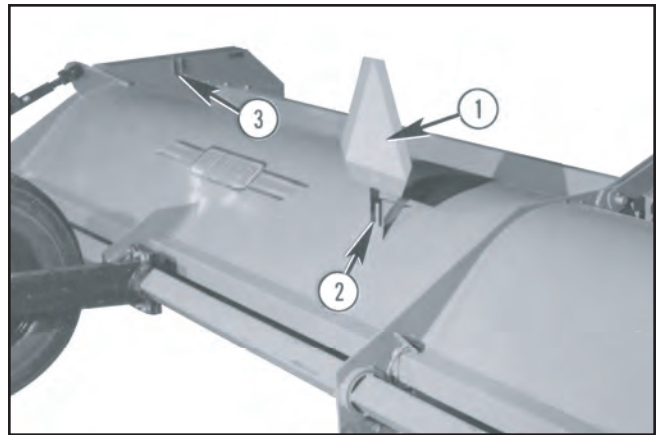


PHOTO NO. 2993A

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

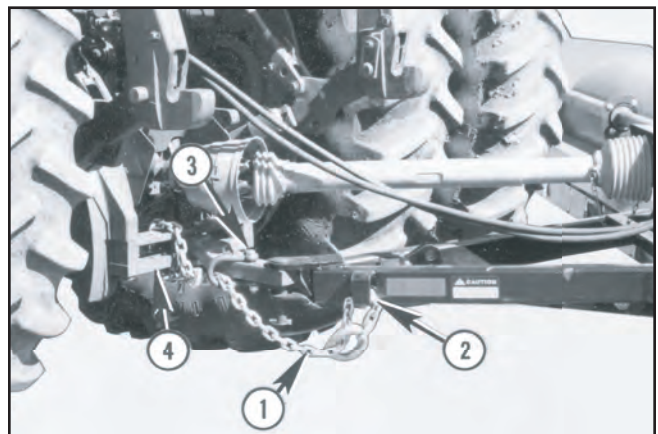


PHOTO NO. 3550

Shredder- Warning Light Package

Install the warning lights into the two SMV style sockets provided on the end panels of the shredder. Route the warning light cable from each light assembly to the center of the machine. Run the cable forward over the top of the shredder and down along the hitch until the connector reaches the tractor 7 pin lighting connector. Secure the cable with plastic cable ties. **Important- Make sure the cable will not be tangled in the PTO when making sharp turns.**

Check the lights to be sure they are connected properly so that turn signal flashers operate correctly.

SHREDDER-END TRANSPORT TOWING

Use a safety chain between the shredder hitch and the towing vehicle (The 10,000# safety chain is part number 85501539).



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 KMH).

USE A TOWING CHAIN BETWEEN TOWING VEHICLE AND SHREDDER.

THE SMV'S REFLECTIVE SURFACE MUST BE VISIBLE FROM THE REAR OF UNIT.

CHECK LOCAL REGULATIONS ON TOWING WIDTH AND WARNING LIGHTS.




WARNING: DEATH OR SERIOUS INJURY CAN RESULT. NEVER LEAVE 3-POINT PTO HOOKED TO SHREDDER GEARBOX WHEN USING END TRANSPORT.


THE FRONT HITCH, PTO AND PTO HOLDER MAY BE REMOVED TO REDUCE THE END TRANSPORT WIDTH IF REQUIRED.

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

 DANGER	
	DEATH OR SERIOUS INJURY CAN RESULT
	<ol style="list-style-type: none"> 1. KEEP ALL FLIPPER SHIELDS IN PLACE AND FREE SWINGING. 2. NEVER SHRED IN AREAS LITTERED WITH GLASS, ROCKS, METAL, ETC. 3. USE TRACTOR WITH CAB WHEN OPERATING IN UNFAMILIAR AREAS. <p style="text-align: right; font-size: small;">7 150 4 13 1</p>

DWG. NO. 71504131

 CAUTION	
	DEATH OR SERIOUS INJURY CAN RESULT
	<ol style="list-style-type: none"> 1. READ OPERATOR'S MANUAL. MACHINE CAN INJURE OR KILL UNTRAINED OR CARELESS OPERATOR. 2. IF OPERATOR'S MANUAL IS MISSING, OBTAIN A REPLACEMENT FROM YOUR DEALER. 3. DO NOT OPERATE, SERVICE OR OTHERWISE HANDLE MACHINE UNLESS YOU HAVE READ AND UNDERSTAND THE OPERATOR'S MANUAL. 4. KEEP ALL SHIELDS AND GUARDS IN PLACE. 5. KEEP HANDS, FEET, HAIR AND CLOTHING AWAY FROM MOVING PARTS. 6. DISENGAGE P.T.O. SHUT OFF TRACTOR AND WAIT FOR ALL MOTION TO STOP BEFORE ADJUSTING OR SERVICING. 7. KEEP OFF, KEEP OTHERS OFF, AND MAKE CERTAIN EVERYONE IS CLEAR BEFORE STARTING, ACTUATING HYDRAULICS, AND DURING OPERATION. 8. DO NOT SERVICE OR OTHERWISE HANDLE 3-POINT HITCH UNITS WITH HITCH IN RAISED POSITION. 9. NEVER USE 1 3/8"-1 3/4" P.T.O. ADAPTER EXTENSIONS. 10. DO NOT OPERATE 3-POINT HITCH UNITS WITHOUT ADEQUATE FRONT END WEIGHTS. <p style="text-align: right; font-size: small;">7 150 4 13 2</p>

DWG. NO. 71504132


Always operate tractor at standard 1000 RPM PTO. Use transmission up, or down, shift to vary forward speed. **CONSISTENTLY OVERSPEEDING THE PTO WASTES FUEL AND AGGRAVATES KNIFE WEAR.**

Avoid "jackrabbit" PTO engagement at full speed because it overstresses the shredder's driveline. Engage PTO at slow speed and throttle up to operating speed.

If aftermarket or optional 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 PTO SHIELD'S MAY CONTACT SHREDDER'S FRONT PTO SHIELD ON TURNS. BE ALERT FOR THIS AND MAXIMIZE TURNING RADII. REPLACE SHREDDER FRONT PTO 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 PARTICULARLY 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 (Item 1) of main frame should clear ground about the same as the rear (Item 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.

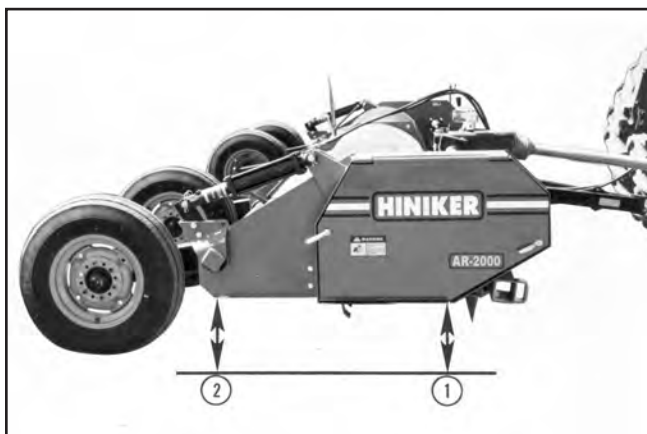


PHOTO NO. 3558A



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 Skid Plate Kit is used always run the skid plate OFF of the ground. The skid plate is just to prevent the knives from digging into the dirt. The skid plates must be at least 2 1/2” above the highest ground point within the shredded width.

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”.

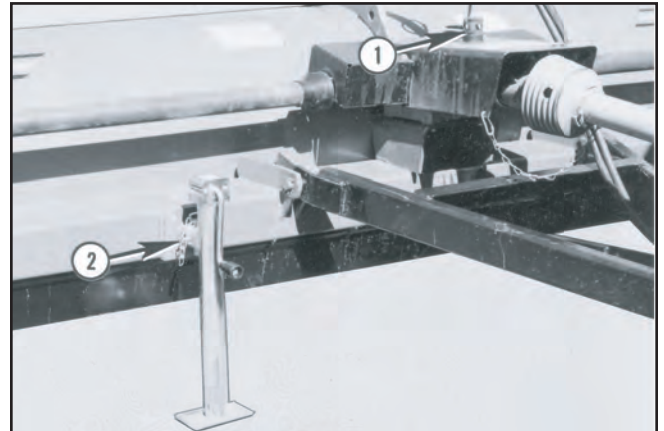


PHOTO NO. 3551

With unit attached to tractor, remove hitch jack from storage position on top of gear box at (Item 1) and insert on pivot provided on right side of unit at (Item 2). Adjust jack to remove unit weight from hitch and tractor drawbar. See Photo 3551.



WARNING: DEATH OR SERIOUS INJURY CAN RESULT. NEVER ATTEMPT TO ADJUST DRAFT LINK WITHOUT FIRST SUPPORTING THE WEIGHT OF SHREDDER WITH HITCH JACK AT PIVOT PROVIDED.

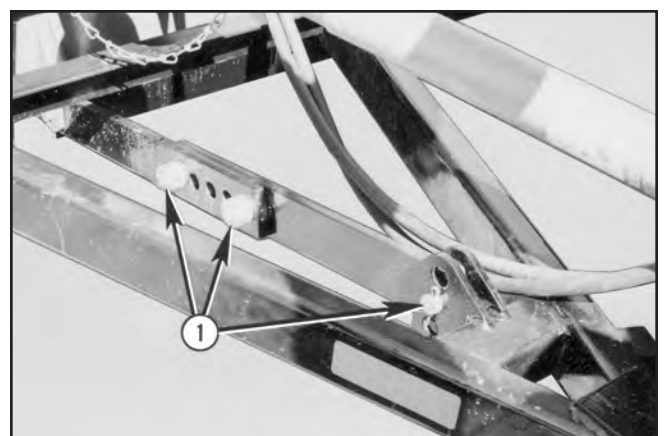


FIGURE 56

PHOTO NO. 3548

At this time remove bolts and or pin adjustment from draft link (See Item 1 Photo 3548) and proceed to adjust jack in combination with wheel arms to achieve desired unit profile (See Photo 3558A). Reattach draft link and remove hitch jack and return to storage position on top of gear box.

22 Operation

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.
4. If aftermarket or optional hydraulics are installed, insure cylinder stop collars, or integral trips, are EQUALIZED on 18', 20 and 25' 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 13.

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 approximately 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 down 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 APPROXIMATELY 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 PTO, 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 PTO ends and insure safety shield freely rotates.
4. Relube machine and check gearbox lube level.
5. Clean rust off exposed surfaces and repaint any surface 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.

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 PTO, 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. SECURELY BLOCK UNIT BEFORE SERVICING TO PREVENT UNEXPECTED FALLING.

HINIKER shredders have been factory checked and lubricated. However, re-check 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 (8 & 15) CV DOUBLE YOKE WHICH NEED 15 TO 20 PUMPS.

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

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

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. CLEAN PLUG BEFORE REMOVING. USE A.P.I. 85W-1406L5 EXTREME PRESSURE LUBRICANT.

Items 29 and 30 are only on 25 foot machines.

Lubrication Chart		
Ref. No.	Description	Interval
1.	Front Cross & Bearing	Daily
2.	Front Shield Bearing	Daily
3.	Sliding Tube	Daily
4.	Rear Shield Bearing	Daily
5.	Rear Cross & Bearing	Daily
6.	Overrunning Clutch	Daily
7.	Front Shield Bearing	Daily
8.	CV Cross	Daily
9.	CV Cone Shield & Bearing	Daily
10.	Front Cross & Bearing	Daily
11.	Chain Coupler (Oil If Equipped)	Daily
12.	Overrunning Clutch	Daily
13.	Rear Cross & Bearing	Daily
14.	Rear Shield Bearing	Daily
15.	CV Flange (15-20 Pumps)	Daily
16.	Line Shaft Coupler	Daily
17.	Outer Rotor Bearing	Daily
18.	Rockshaft Bearing	Daily
19.	Mid Rockshaft Bearing	Daily
20.	Wheel Hub	Weekly
21.	Ratchet Jack	Seasonal
22.	Gearbox Drain	300 Hours
23.	Center Rotor Bearings	Daily
24.	Outer Lineshaft Bearing	Daily
25.	Mid Lineshaft Bearing	Daily
26.	Mid Rockshaft Bearing	Daily
27.	Gearbox Breather	-----
28.	Gearbox Oil Level Check Plug	-----
29.	Rotor Coupler (15-20 Pumps)	Daily
30.	Center Bearings	Daily

24 Lubrication

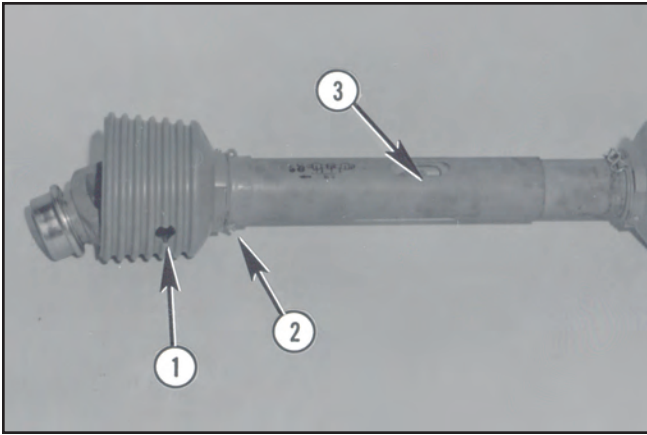


PHOTO NO. 2964

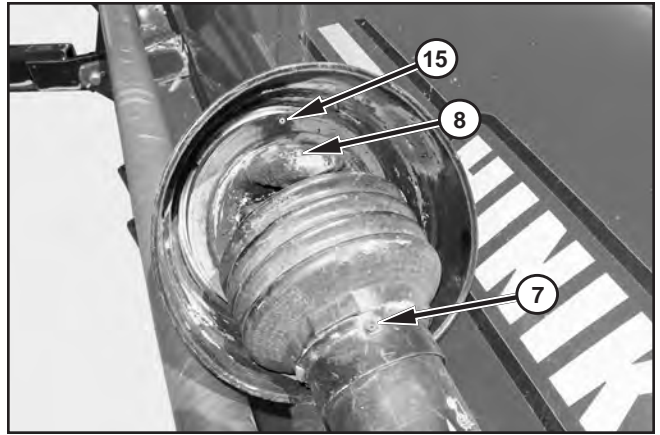


PHOTO NO. DCP0571

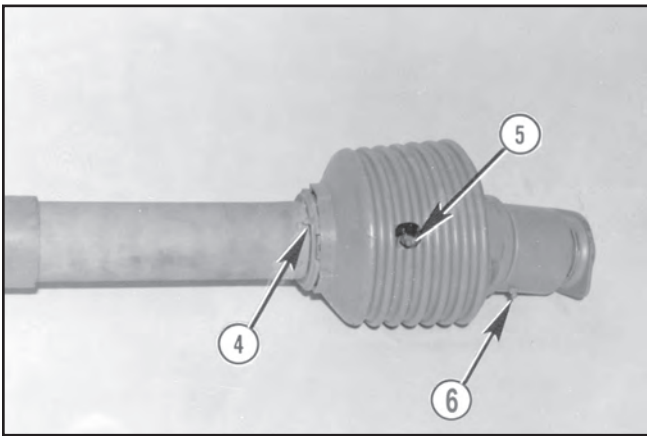


PHOTO NO. 2968B

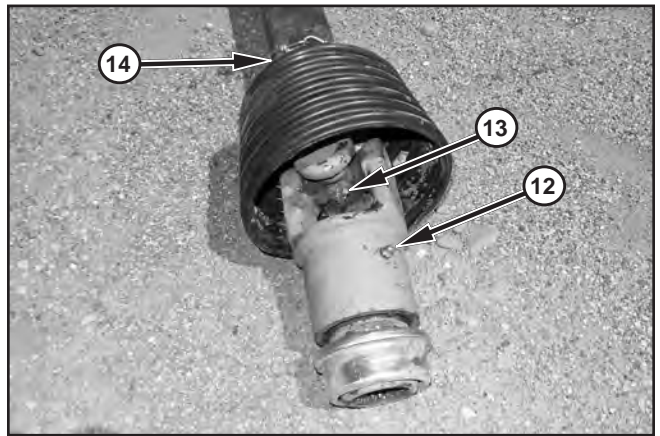


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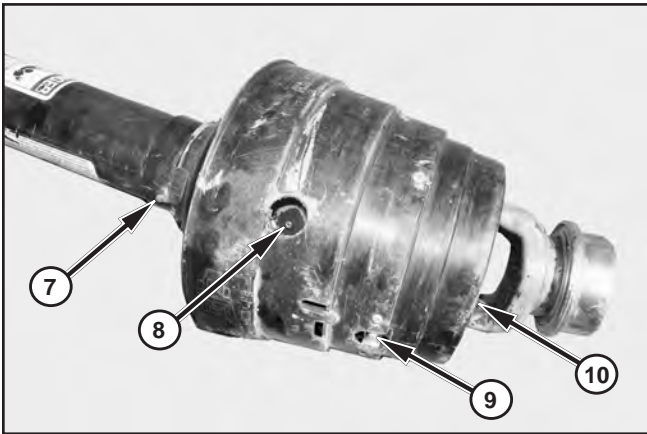


PHOTO NO. DCP0560

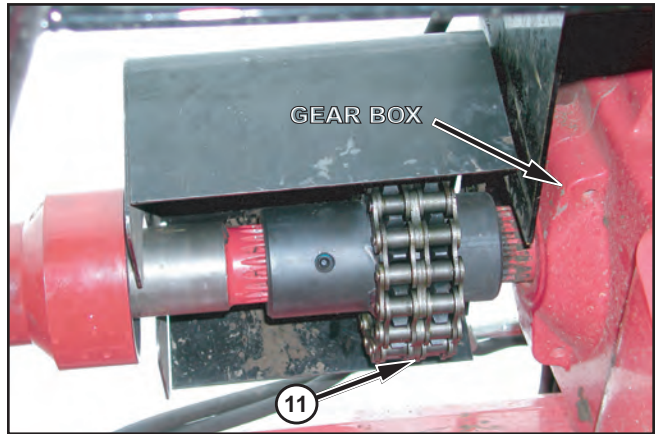


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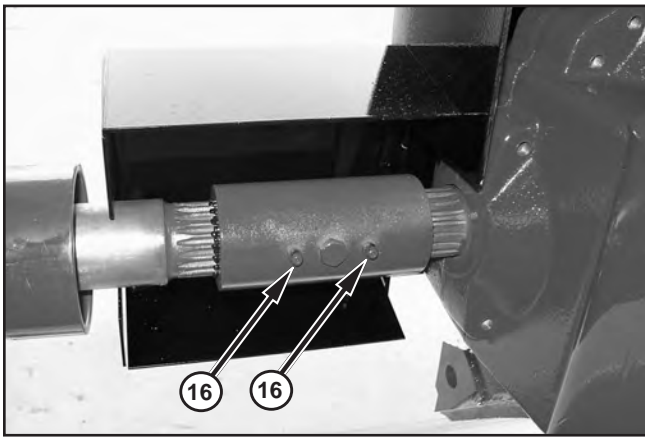


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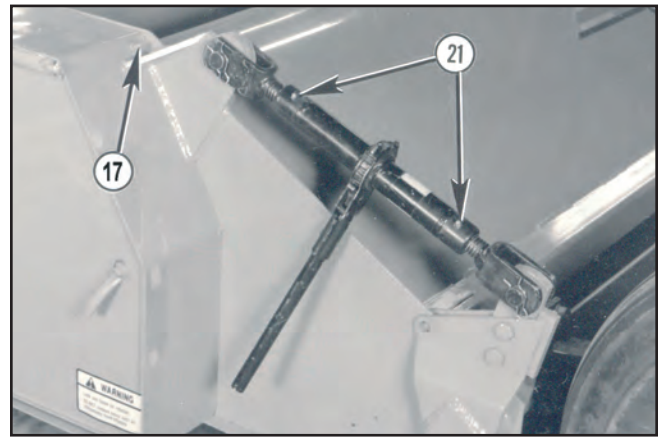


PHOTO NO. 2977A

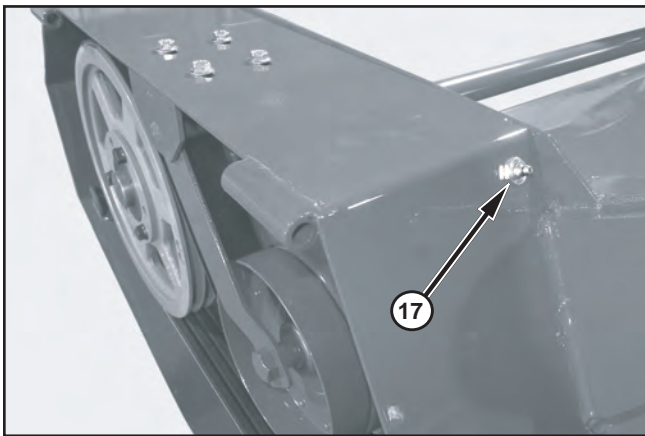


PHOTO NO. DCP0625

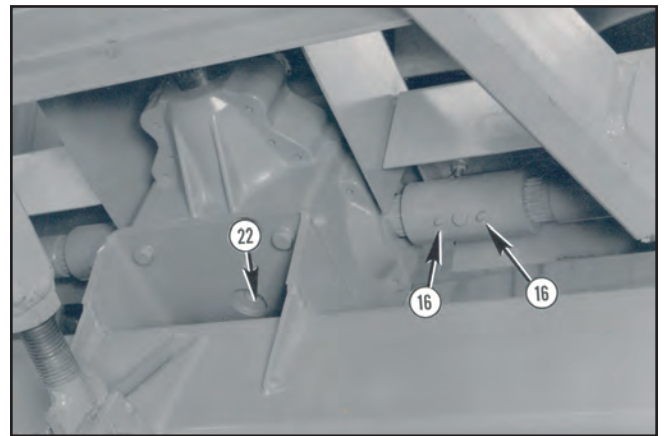


PHOTO NO. 2973B

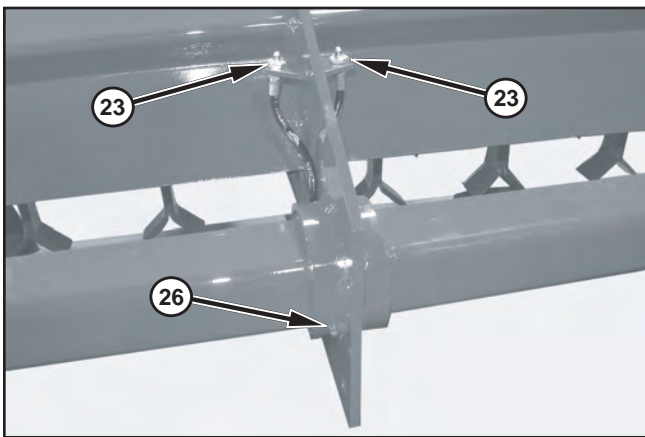


PHOTO NO. DCP0631

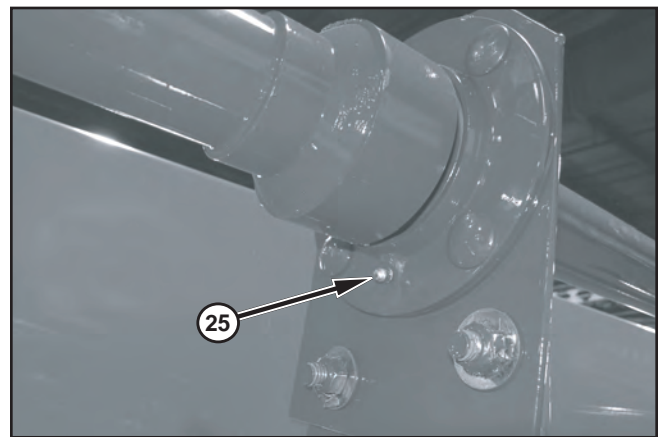


PHOTO NO. DCP0641

26 Lubrication

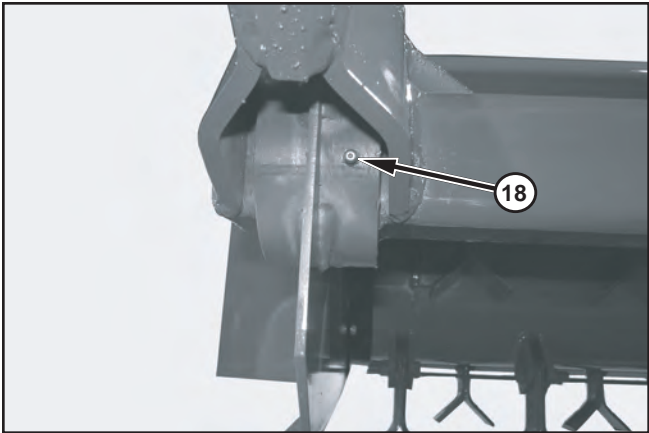


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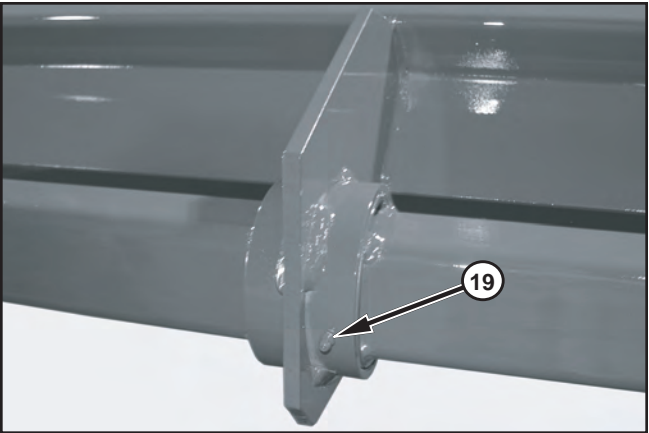


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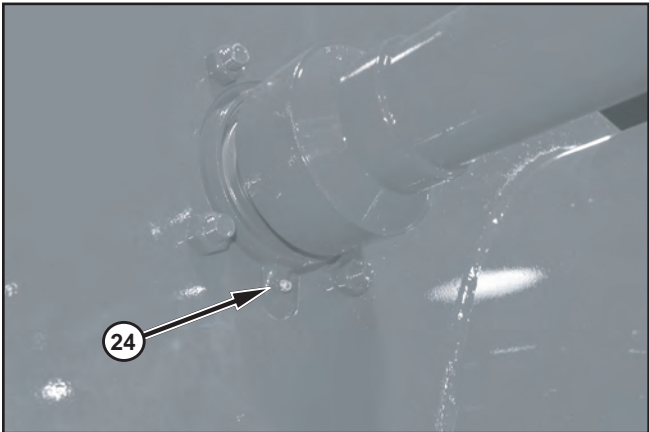


PHOTO NO. DCP0643

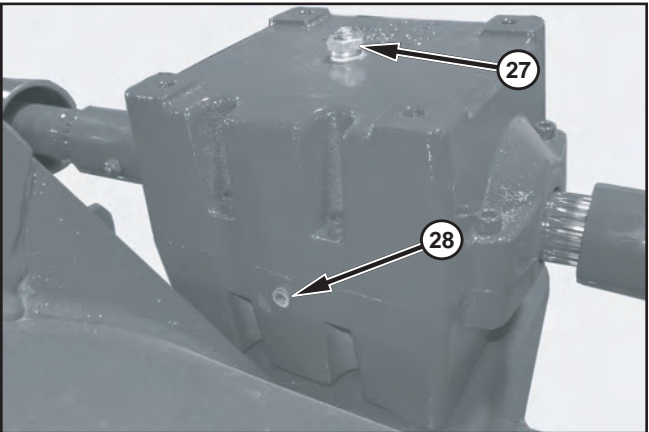


PHOTO NO. DCP0647



PHOTO NO. 2976

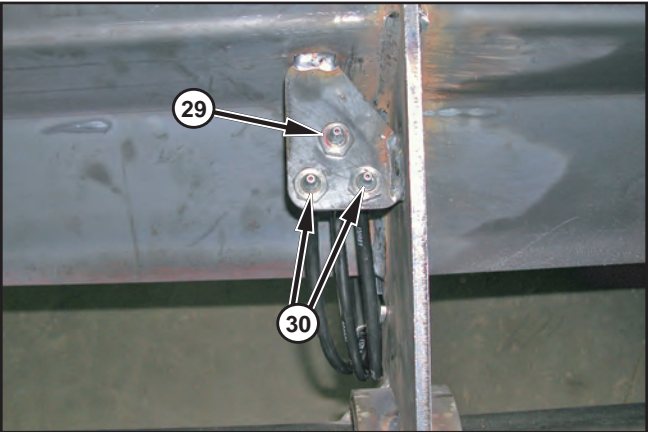


PHOTO NO. DSCN4609A

TROUBLE SHOOTING

CONDITION	POSSIBLE CAUSE	CORRECTION
Poor shredding.	<ol style="list-style-type: none"> 1. Missing, or broken knives. 2. Knives worn out. 3. Under speed PTO. 4. Slipping belts. 5. Worn out belts. 6. Shredder bouncing. 7. Operating too high. 8. Excessive ground speed. 	<ol style="list-style-type: none"> 1. Inspect and replace. See SERVICE section. 2. Same as above. 3. Check tractor for 1000 PTO RPM. 4. Check belts backwrap idler adjustment. See SERVICE Section 5. Inspect belts for wear or mismatching. Replace only in banded sets. 6. Deflate tires to 15-20 psi. Slow down ground speed. 7. Decrease knives operating height to approximately 3" above rows. 8. Slowdown.
Excessive row knife wear.	<ol style="list-style-type: none"> 1. Operating too low. 	<ol style="list-style-type: none"> 1. Raise knives operating height to approximately 3" above rows.
Excessive knife stone damage	<ol style="list-style-type: none"> 1. Running too low. 	<ol style="list-style-type: none"> 1. Raise knives operating height to approximately 3" above rows, or to clear rocks.
Entire shredder crosswise "yawing".	<ol style="list-style-type: none"> 1. Wheel not exactly centered on middles. 2. Different tire sizes on same unit. 	<ol style="list-style-type: none"> 1. Readjust wheel spacings. 2. Correct.
Excessive shredder vibration.	<ol style="list-style-type: none"> 1. Missing or broken knives. 2. Rock damaged rotor. 3. Worn or loose rotor bearings. 4. Loose or misaligned end sheaves. 5. Deteriorated belts. 6. High tire air pressure. 	<ol style="list-style-type: none"> 1. Inspect and replace. See SERVICE section. 2. Replace. 3. Inspect and maintain. See SERVICE section. 4. Inspect and maintain. See SERVICE section. 5. Replace belts. 6. Bleed to 15-20 PSI.
Too rapid belt wear.	<ol style="list-style-type: none"> 1. Belts too loose or too tight. 	<ol style="list-style-type: none"> 1. Backwrap idler tension not properly maintained. See SERVICE section.
Crossways tilted operation.	<ol style="list-style-type: none"> 1. Unequalized ratchet jacks or hydraulic cylinder stops. 	<ol style="list-style-type: none"> 1. Equalize ratchet jacks or hydraulic cylinder stops.
Bottoming at front of lost motion slot.	<ol style="list-style-type: none"> 1. Tractor top link too short. 2. Tractor top link in wrong position. 	<ol style="list-style-type: none"> 1. Lengthen top link so cross pin is near rear of slot. 2. See FIELD PREPARATION.
Excessive power required for available tractor.	<ol style="list-style-type: none"> 1. Cutting too low. 2. Excessive ground speed. 	<ol style="list-style-type: none"> 1. Raise knives operating height to approximately 3" above rows. 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 PTO, 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. EXCEPT ON SHEAVES (PAGE 34), ALL BOLT TORQUE VALUES ARE FOR GRADE 5. HARDWARE OVER, OR UNDER, TORQUING, CAN RESULT IN UNSATISFACTORY DURABILITY.

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 TYPE B & F LOCKNUT TORQUE VALUES

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		

GRADE 5 BOLT TORQUE VALUES*

It is a good idea to recheck critical bolt torque values 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 PTO, 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 indicated 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 with SIDE SLICER knives, per Photo DCP0575.

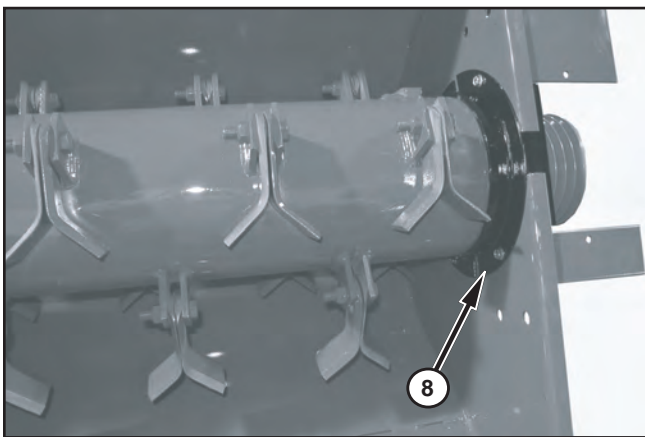


PHOTO NO. DCP0575

Shredder side slicer knife Service

To rotate side slicer knives loosen the 5/8" x 2 3/4" Gr. 8 bolt and lock nut. Remove the bolt from the ears on the shredder rotor and pull out the two side slicer knives and the bushing. See Photo DCP0594.



PHOTO NO. DCP0594

Rotate the knives so that the edge of the side slicer knives that is not worn is facing in the direction of travel. Put the knives and bushing back between the same ears that they came from on the shredder rotor. Secure them by torquing the 5/8 x 2 3/4" Gr. 8 bolt and lock nut to 95 -110 lb. ft.

To replace side slicer knives loosen the 5/8" x 2 3/4" Gr. 8 bolt and lock nut.

Remove the bolt from the ears on the shredder rotor and pull out the two side slicer knives and the bushing. See Photo DCP0594.

Examine the side slicer knives (Item 1), bushing (Item 2), 5/8 x 2 3/4" Gr. 8 bolt (Item 3) and the 5/8" lock nut (Item 4). Replace the worn knives and the bushings if worn or cracked. Always replace knives in opposite (180 degree apart) sets. Also, replace corresponding knives at the other end of the same rotor. This will help to keep the rotors balanced. See Photo DCP0597.

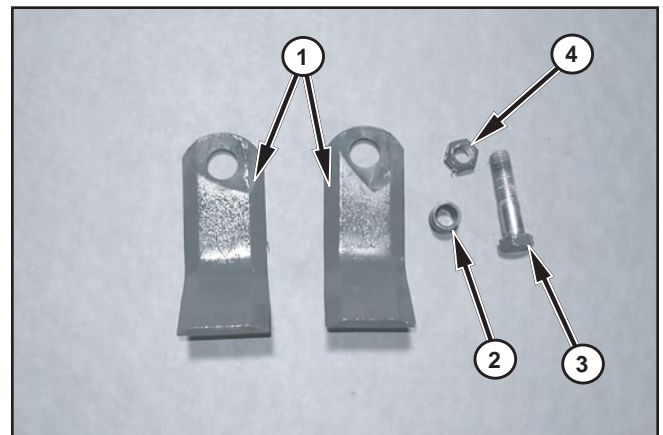


PHOTO NO. DCP0597

Knives hardware should be torqued to 95-110 ft/lbs (128-149 N/m).

BELTS

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

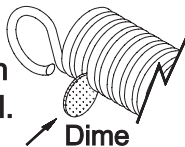
NOTICE: ADEQUATE TENSION IS NECESSARY FOR FULL POWER TRANSMISSION AND SATISFACTORY BELT PERFORMANCE.

1. Belt tension is obtained by following instructions on decal located on endplates inside each end shield.

IMPORTANT: Maintain Belt Tension

Stop unit completely for maintenance. No Rotation. Read Operators Manual.

Adjust tension to allow a Dime to freely pass between spring coils, but not a Nickel.



79203023

DWG. NO. 79203023

2. 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 Photo DCP0618, page 33.

3. Replacement belts should only be ordered by specific HINIKER part number. The correct belt part numbers are:

15', 18', & 20' shredders (4/5VL749 banded belt)

Part No. 79202321

25' shredders (5/5VL749 banded belt)

Part No. 79202936

4. Install new belts as follows:
 - a. Release spring idler tension completely. Disengage bottom spring anchor using a large locking grip pliers.
 - b. Remove old belts.

- c. Roll (DO NOT PRY) the new belt into the pulley grooves working back and forth between the large and small pulley.

OUTER ROTOR BEARINGS

All rotor bearings are flange mounted and piloted. They have no eccentric locking collars and are loosened from their shafts by removing 2 3/8” Allen set screws from their inner races. Because of high vibration associated with shredders, these set screws are retained with an anaerobic threadlock (eg. Loctite 242 (blue) or Perma-Lok HM 118 (red)). **Important:** Use only grade 5 bolts and type B lock nuts with thread lock when replacing.

1. Loosen spring tension (Item 1) and remove belt (Item 2) and driveN sheave (Item 3). See Photo DCP0613.

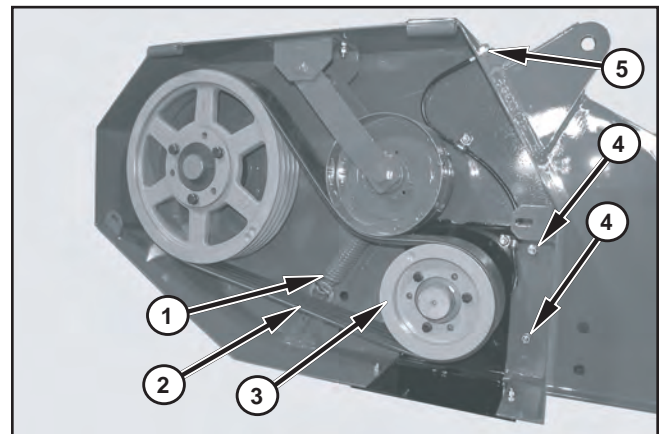


PHOTO NO. DCP0613

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

2. Remove (4) 3/8” bolts (Item 4) and the 2 inside anti-wrap shields. This allows wrench access to the bearing mounting bolt heads. See Photo DCP0613 and Photo DCP0659.
3. Loosen outer end zerk hex nut of lube tube (Item 5) and detach tube from bearing. Circumferentially polish shaft (Item 5). Remove (3) 3/8 bolts (Item 2) securing the bearing support plate to the shredder end panel. See Photo DCP0659.

- Remove (2) 3/8" Allen set screws from the inner race of the outer rotor bearing (Item 1) which are factory retained with anaerobic thread lock Perma-Lok HM118 (red) or Lock-tite 242 (blue).

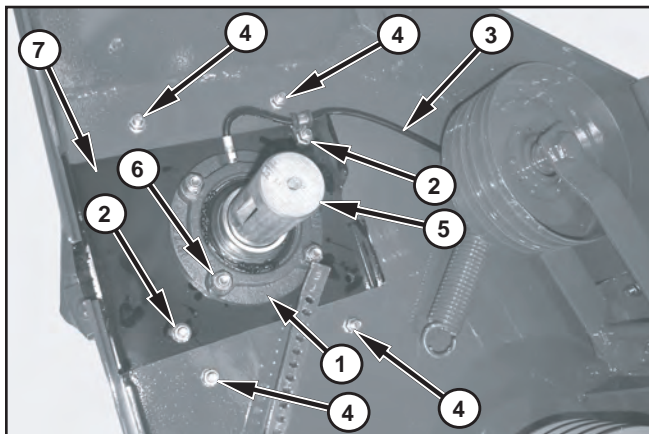


PHOTO NO. DCP0659

- Remove (4) 1/2" locknuts (Item 6) which are factory retained with anaerobic threadlock (eg. Lock-tite 242 (blue) or Perma-Lok HM 118 (red)). Modestly pry plate (Item 7) outward to start bearing (Item 1) off shaft.
- A varying quantity of 2 3/16" nominal. I.D. washers are factory installed between the inner end of bearing (Item 1) and the shoulder on shaft (Item 5). Because replacement bearings vary in axial dimensions, care must be exercised to FULLY WASH THE SPACE BETWEEN THE BEARING AND SHAFT SHOULDER. Reinstall plate (Item 7) and bearing (Item 1) by temporarily snug-ging up 2 each of their bolts (without anti-wrap shields). Visually check above cited washers to insure no looseness, or substantial axial preload, exists. 2 3/16 inch nominal I.D. washers are available as part numbers:

Washer	Part Number
1/16" Thick	79202329
1/8" Thick	79202328

- 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 (Item 8) and torque support plate bolts. See Photo DCP0575 on page 29.

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

- Reinstall and realign previously removed sheave and belt.

INNER ROTOR BEARINGS

- To remove the rotor the shredder must be turned upside down.
- Raise front and securely block front corners. Remove SMV, PTO, and 3 point, or trailing, hitch.
- Remove belt and driveN sheave. 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.
- Temporarily insure end panel shields are latched shut. Reinstall hitch draft pins (Item 2 Photo 2990A) on page 32 and their cotters.



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

NEVER ATTEMPT TO REMOVE A ROTOR WITH THE UNIT UPENDED IN A VERTICAL POSITION.



WARNING: DEATH OR SERIOUS INJURY CAN RESULT. USE HOISTING EQUIPMENT CAPABLE OF SAFELY HANDLING NO LESS THAN 3 TON (6000#).



WARNING: DEATH OR SERIOUS INJURY CAN RESULT. CLEAR PEOPLE FROM WORK AREA WHEN TIPPING SHREDDER OVER. DO NOT WORK ON SOFT, OR UNEVEN, GROUND. LIFT ONLY FROM MAIN FRAME 1 INCH DIAMETER HITCH PINS.

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

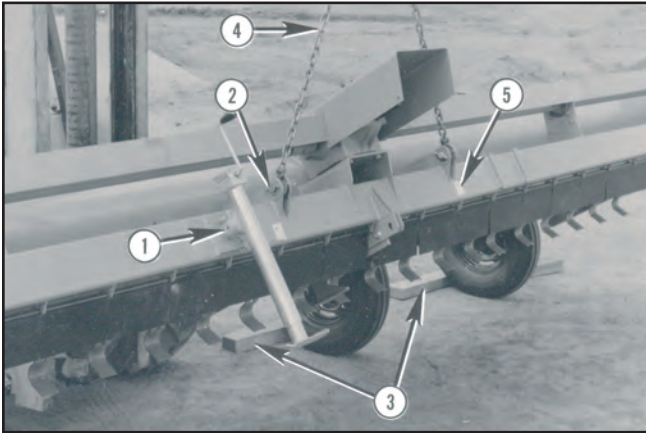


PHOTO NO. 2990A

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

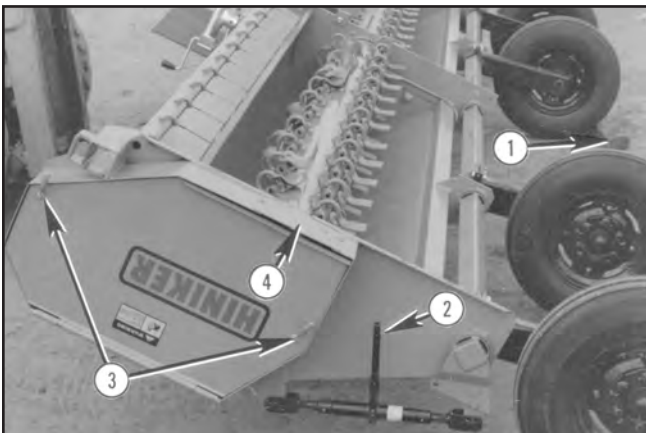


PHOTO NO. 3014

- Loosen outer bearing from its mounting as shown in Photo DCP0659 on page 31. Unless this bearing is also being serviced, it is not necessary to remove it from the rotor at this time.

- Remove center anti-wrap shields. This allows access, through the rotor's inner end notches to bearing's inner race Allen set screws. Detach shield and lube tube.
- Loosen (2) 3/8" Allen set screws (Item 1) from center bearing (Item 2). These are retained with anaerobic threadlock (eg. Loctite 242 (blue) or Perma-lok HM 118 (red)). See Photo DCP0591.

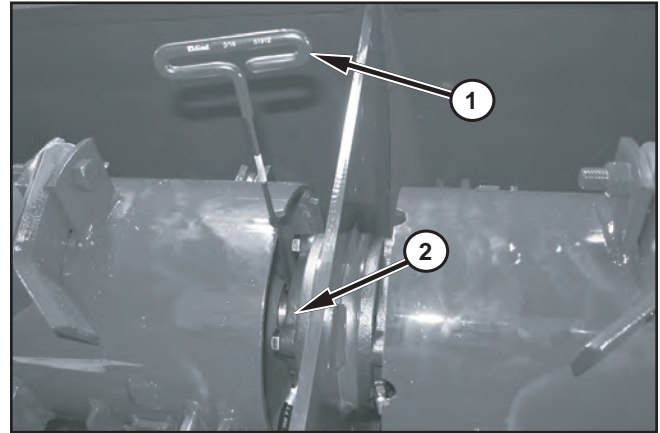
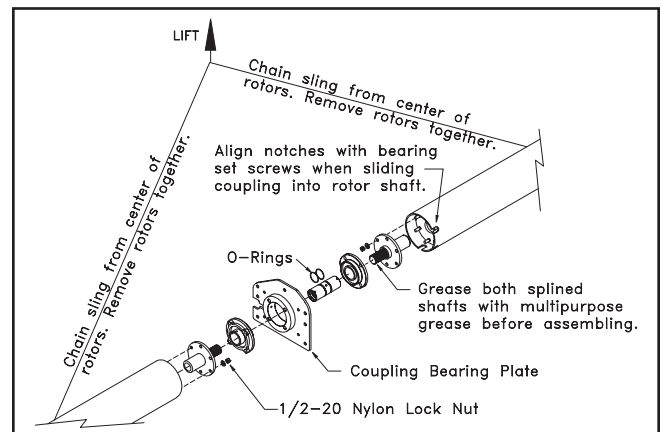


PHOTO NO. DCP0591

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

- Attach chain sling around rotor. Outer end of rotor is lifted above frame to obtain clearance.

Axially pry rotor free of its inner bearing and swing it clear of working area. **NOTE:** Carefully lift both split rotors together on units with four rotors. Sling should be from center of rotors to reduce stress on coupling.



DWG. NO. 6384

11. Circumferentially polish rotor center stub shaft and reinstall it in replaced bearing. In-
sure stub shaft shoulder is against bearing
inner race. Torque (2) Allen set screws once,
loosen and torque them a second time.

**IMPORTANT: WHENEVER THESE LOCK NUTS/
BOLTS ARE DISCARDED, ONLY GRADE 5
BOLTS AND TYPE B LOCKNUTS SHOULD BE
REINSTALLED. THE ABOVE CITED (OR SIMI-
LAR) 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.).**

12. 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 3/16"
nominal I.D. washers between outer bear-
ing's inner race and shoulder of rotor shaft.
If these are axially SNUG WITH NO PRE-
LOAD, proceed to completely reinstall outer
bearing and anti-wrap shields.

13. If washers are not as stated above, it will be
necessary to remove outer bearing. See Pho-
to DCP0659, page 31 and add, or subtract,
washers. 2 3/16" nominal I.D. washers are
available as part numbers:

Washer	Part Number
1/16" Thick	79202329
1/8" Thick	79202328

Check that all previously removed and/or
loosened parts are properly reinstalled. Re-
move hoist and reverse above tipping proce-
dure 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. See Photo DCP0618.

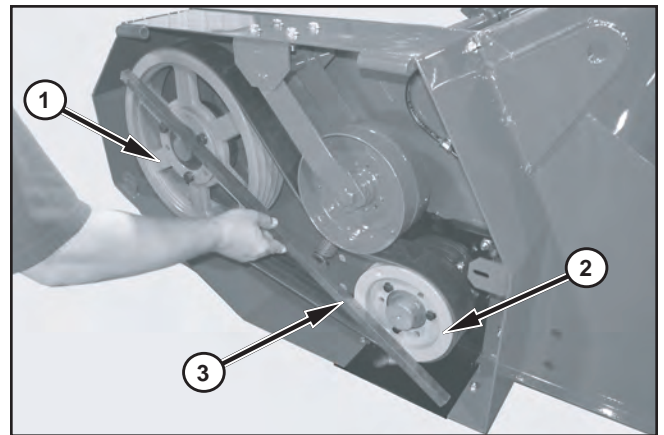


PHOTO NO. DCP0618

1. It is generally best to align driveR (Item 1) to
driveN sheave (Item 2); thus, only 1 sheave
need be loosened.
2. Determine misalignment by placing a steel
straight edge (Item 3) across sheaves as
shown. Move sheave in or out to align.

SHEAVES REMOVAL/INSTALLATION

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

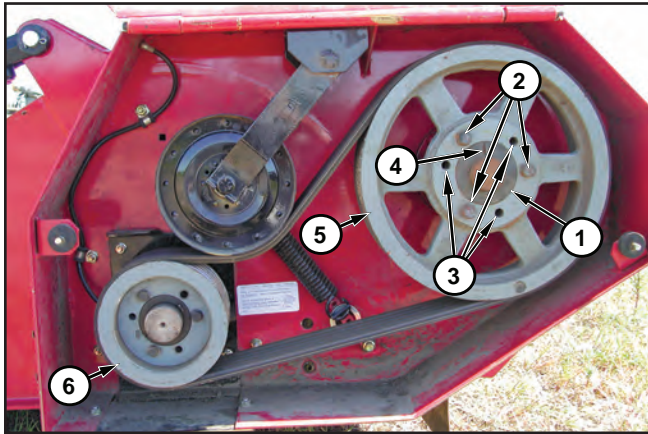


PHOTO NO. DSCN4648B

2. Loosen and remove bolts from 3 UN-THREADED holes (Item 2).
3. Insert these bolts in the 3 THREADED holes (Item 3). Start with the bolt furthest from the inner bushing's slot (Item 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 (Item 6) is to be removed.

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

4. The inner bushings are retained with 3/8" Allen set screws (Item 1) over their keyways (Item 2). Remove the set screw to enable removal of the inner bushing.

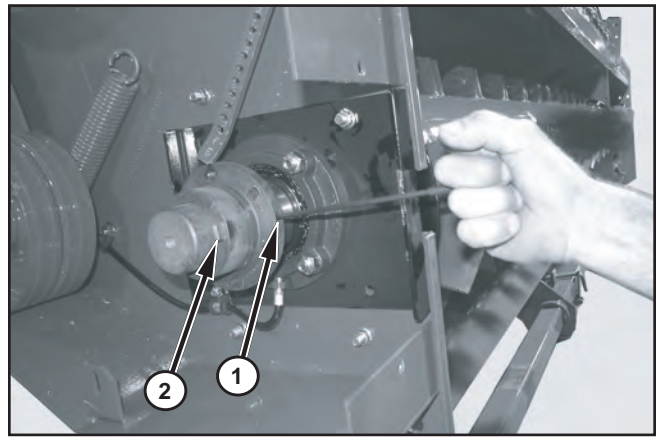


PHOTO NO. DCP0656

5. For installation, insure the tapered mating surfaces of the inner bushing (Item 1) and sheave (Item 5) are free of dirt, paint, rust, metal chips and LUBRICANT.

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

6. 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.
7. Align 3 UNTHREADED bolt holes with THREADED bolt holes in mating sheave or bushing. Inset bolts and lockwashers in these UNTHREADED holes and tighten about 2 turns each.
8. Alternately torque these bolts , in a uniform pattern, until the tapers are seated (approximately 1/2 bolt torque). Check for sheave alignment and possible wobble. Correct if necessary.

IMPORTANT: SHEAVE BOLTS ARE ONLY TORQUED TO VALUES:

Dia.	Ft/lbs.	N/m.
3/8"	30	24-33
1/2"	60	50-58

9. 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.

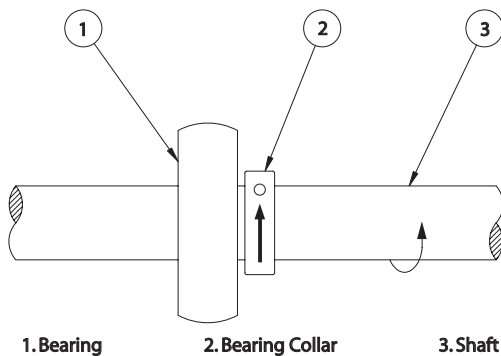
NOTICE: INDIVIDUAL BOLT TORQUES SHOULD BE ACHIEVED NO MORE THAN 2 TIMES IN THE TIGHTENING CYCLE.

10. Reinstall belts and reposition backwrap idler.

DRIVE SHAFTS BEARINGS

The front drive shafts bearings (Item 1) have eccentric lock collars (Item 2). To loosen these, remove 3/8" Allen set screw therein. With a drift, drive collar (Item 2) OPPOSITE to direction of rotation of shaft (Item 3). When reinstalling bearing, drive collar (Item 2) in SAME DIRECTION as rotation of shaft (Item 3) and retighten set screw. See DWG. 2256A

Servicing these bearings requires removing the driven sheave, See page 34-35 and extract the drive shaft. Paint must be polished off drive shaft to permit stripping it through the bearings.



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 (Item 6) and zerk relube in the hub. This system is highly effective when properly installed and maintained. See Photo 3011 on page 36.

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 (Item 1), outboard bearing cone (Item 2) and seal (Item 3) from spindle. Thoroughly clean hub's interior grease cavity, both bearing cups (Item 4), cones (Item 1 and Item 2), hub cap (Item 5) and pre load hardware.
2. Discard old seal (Item 3) and inspect bearings for deterioration. Replace both cups and cones if necessary. Generally, seal riding ring (Item 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 (ITEM 3) ONTO SPINDLE WITH BEARING CONE (ITEM 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.

3. Install hub, outboard bearing cone (Item 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.
4. Use zerk to fully lube hub cavity and bearings, while rotating hub, and until lube emerges through outboard bearing. Pack hub cap

(Item 5) with lube and drive it home. Continue lubing hub until lube emerges around seal's outside diameter.

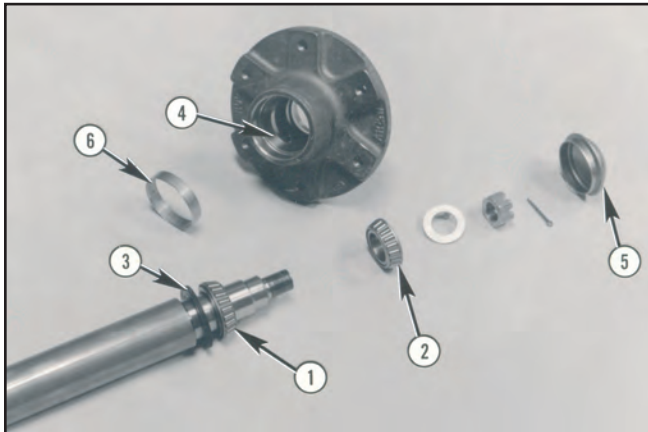


PHOTO NO. 3011

GEARBOX

All widths 1000 RPM shredders are equipped with a common 1.00:1.00 ratio gearbox. Refer to Photo 3008A and DWG. 6088 on page 38.

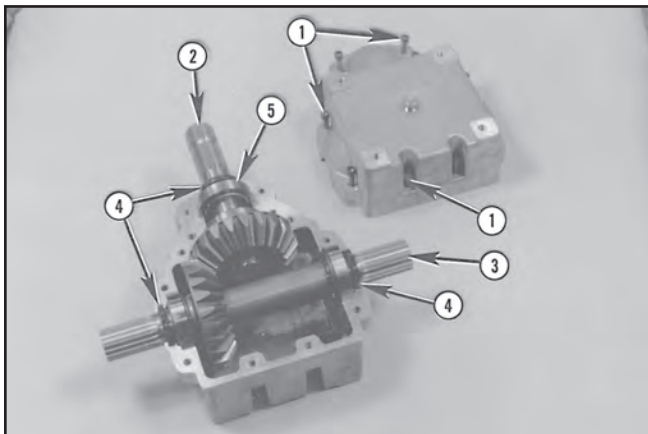


PHOTO NO. 3008A

Gearbox can best be worked on as follows:

1. Detach tractor PTO 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" bolts holding the gearbox/PTO input shield and remove this shield.
5. Remove the bottom 4 1/2" 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 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 (Item 1) holding the 2 halves together. Tap input shaft (Item 2) with a soft hammer, while holding the output shaft (Item 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 (Item 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 ring (Item 5) are used to maintain backlash and preload. There is 1 external snap ring 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 resealed, apply anaerobic sealant (eg. Loctite 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.

PTO-OVERRUN CLUTCH

All 4 PTO's have an overrun clutch at their juncture with the gearbox input shaft. This includes a sliding lock collar identical to the lock collar at the tractor end.

1. Depress collar (Item 1) and extract external snap ring (2), allowing collar to slide off. See Photo 3349.

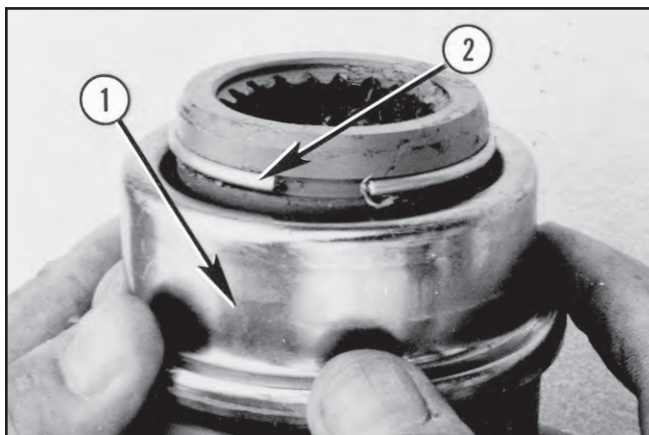


PHOTO NO. 3349

2. Insure balls in 3 holes (Item 1) are preserved for reinstallation. Contract internal snap ring (Item 2) and at same time axially withdraw clutch hub (Item 3), along with 2 driving keys and 2 leaf springs from the external enclosure. See Photo 3034.

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.

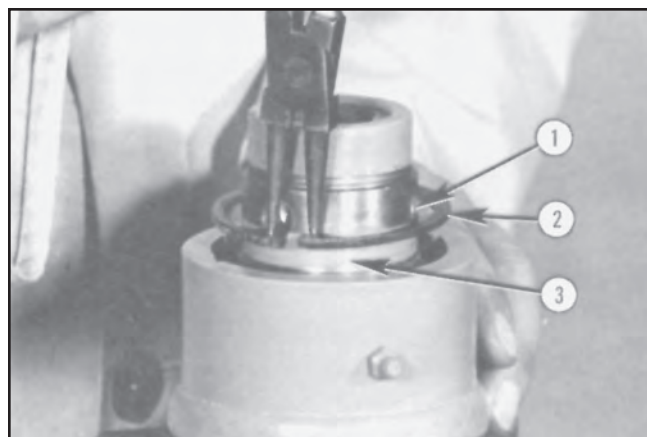
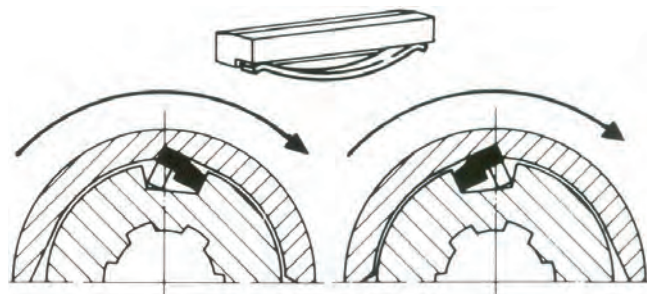


PHOTO NO. 3034

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. See Photo 3035.
5. Reinstall 3 balls previously removed and reassemble lock collar with snap ring. Thoroughly lubricate overrun clutch while rotating it.

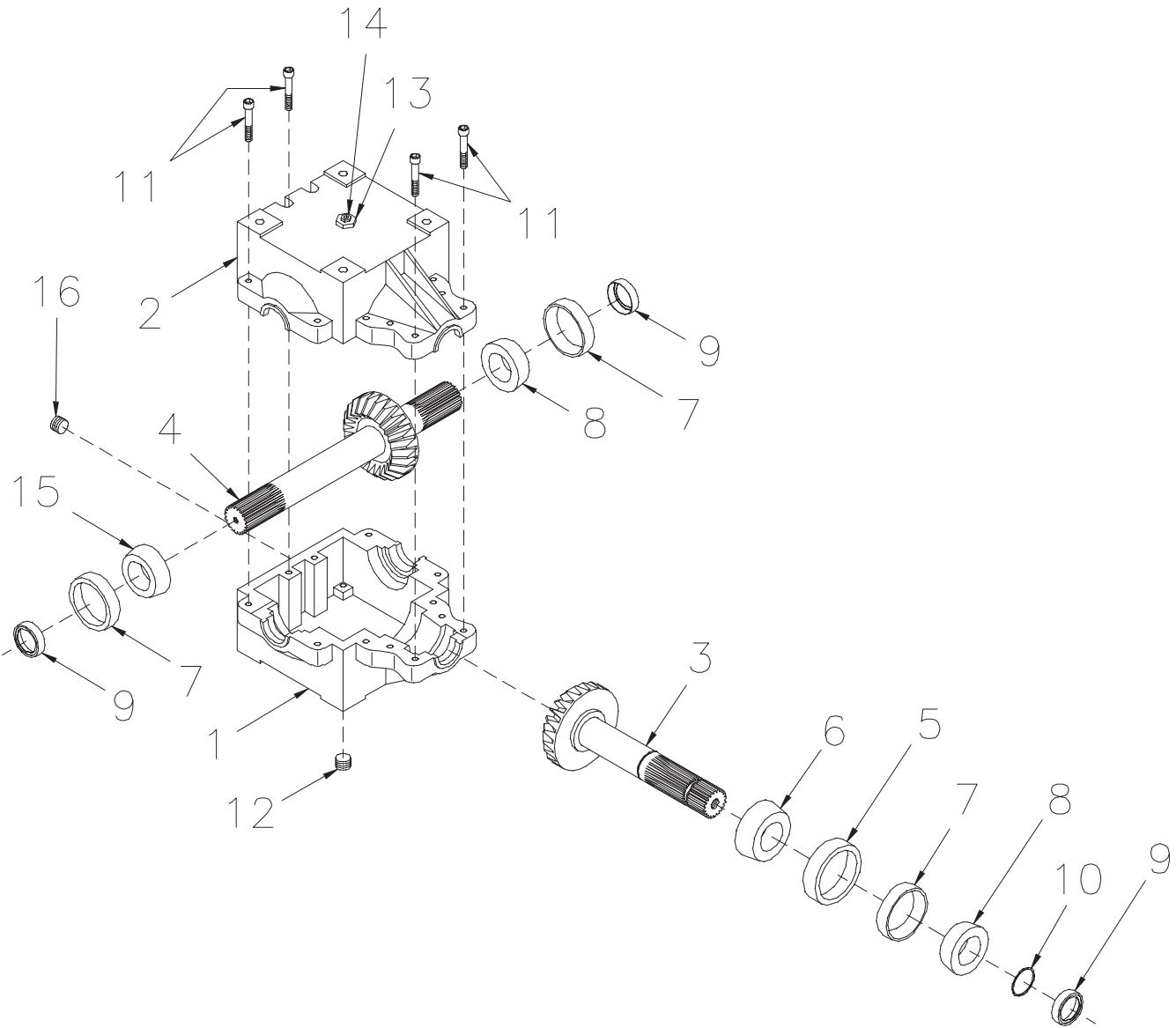


RIGHT

WRONG

PHOTO NO. 3035

1000 RPM GEARBOX ASSEMBLY



Gearbox Assembly 51700216

DWG. NO. 6088

REF. NO.	PART NUMBER	DESCRIPTION	QTY.	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	400-17205	Casting (Tapped Holes)	1	9	650-06056	Seal (1 3/4 Shaft)	3
2	400-17206	Casting (Thru Holes)	1	10	702-05093	Retaining Ring (1 3/4 Shaft)	1
3	50106488	Pinion Shaft/Gear	1	11	950-011-032	Socket Head Cap Screw 3/8-16 x 2 1/4	12
4	50106489	Cross Shaft/Gear	1	12	203-51156	Plug, 1/2 NPT Sock Head Hex	1
5	601-05002	Bearing Cup (Large)	1	13	203-51074	Bushing, 1/2 NPT - 1/8 NPT	1
6	601-02075	Bearing Cone (Large)	1	14	203-50308	Pressure Relief	1
7	601-05001	Bearing Cup (Small)	3	15	601-02001	Bearing Cone 625580	1
8	601-03003	Bearing Cone (Small)	2	16	79201412	Plain Plug 1/4 NPT #200300	1

PTO-SHIELDS

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

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

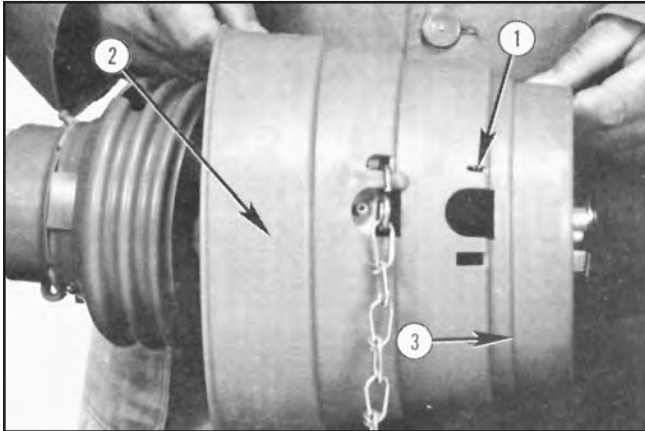


FIGURE 88

PHOTO NO. 3036

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

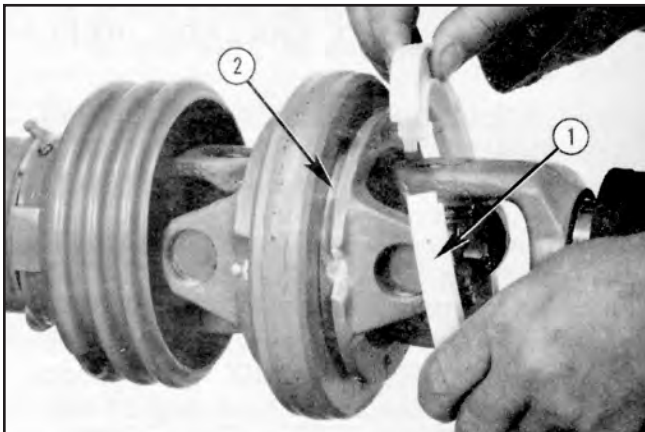


FIGURE 89

PHOTO NO. 3037

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

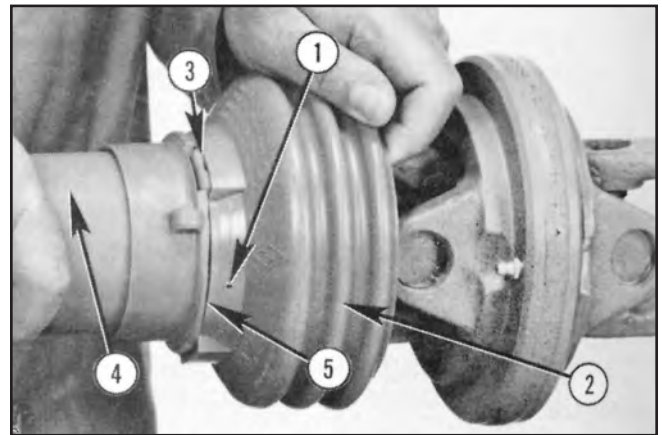


FIGURE 90

PHOTO NO. 3038

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

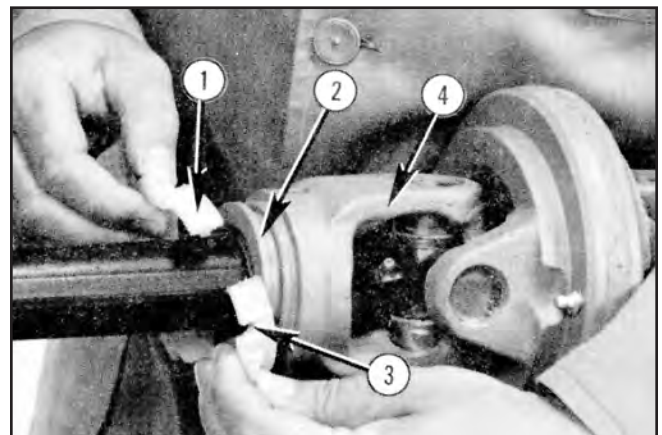


FIGURE 91

PHOTO NO. 3039

5. Reinstall double yoke cone (Item 1) over large bearing ring. Insure zerk is aligned with cone cut out (Item 2). Check that 6 holes for previously removed Phillips screws are aligned with recesses (Item 3) provided and reinstall screws. See Photo 3040 on Page 40.

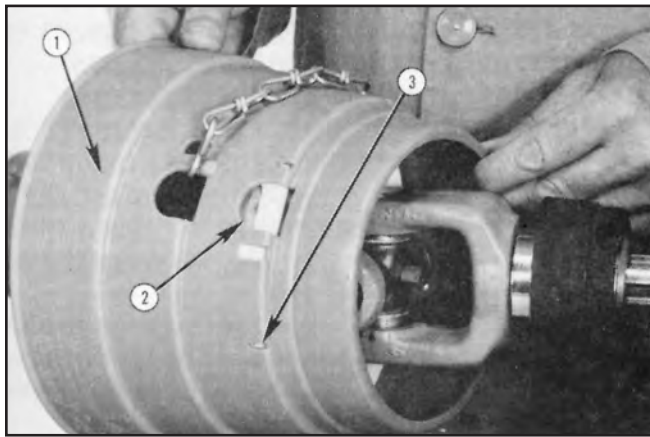


PHOTO NO. 3040

PTO-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 Photo 3038 and 3039, page 39 for removal of necessary PTO shields.
2. Relieve radial drag on the internal snap ring (eg. (Item 1) in yoke (Item 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 (Item 3) across top of vice jaws. Use CAREFUL hammer blows to drive center cross needle bushing (Item 4) upward.

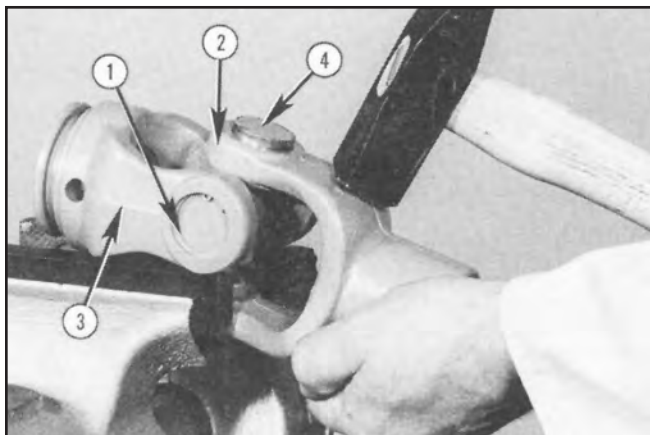


PHOTO NO. 3041

5. The partially extracted needle bushing (Item 1) can be removed with a Walterscheid tool SW23 (Item 2).

This tool inserts between vice jaws (Item 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 (Item 4).

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

GKN Walterscheid Inc.

2715 Davey Road

Woodridge, IL 60517

FAX (630) 972-9392 Ph (630) 972-9300

7. Repeat above steps to remove both needle bushings and center cross from yoke (Item 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 PTO 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.

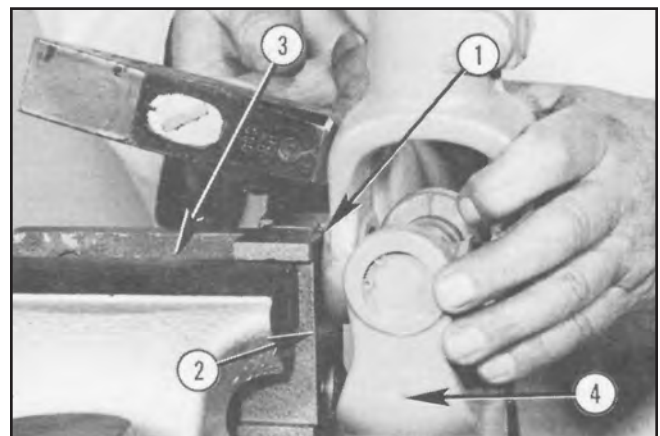


PHOTO NO. 3042

9. For reassembly, insert replaced center cross (Item 1) into yoke and start replaced needle bushings (Item 2) into yoke. With a 1 3/8” O.D. driver (Item 3), continue seating both bushings inward.

Insure both center cross shafts are correctly piloting into needle bushings. See Photo 3043.

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 (Item 4) for stress relief. Thoroughly lube joint assembly before reinstalling shields and placing on unit.

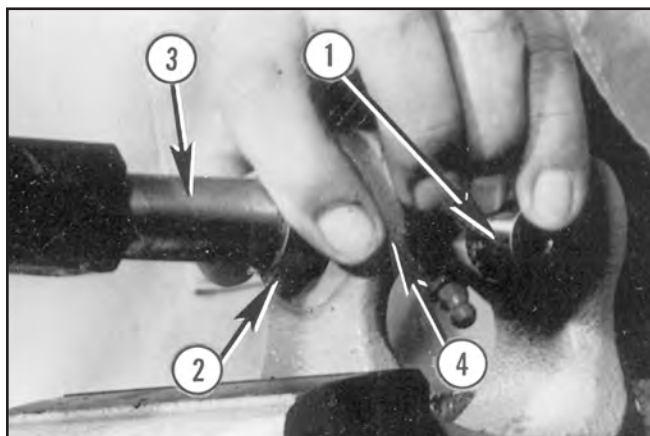


PHOTO NO. 3043

PTO-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 Photo's 3036, 3037, 3038 and 3039 page 39 for removal of necessary PTO shields.
2. Relieve radial drag on the internal snap ring (eg. (Item 1) in flange yoke (Item 2) by circumferentially tapping it with a drift. With snap ring pliers, remove it. Repeat this for the opposite side of the flange yoke. Refer to Photo 3044.
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 (Item 3) across top of vice jaws. Use CAREFUL hammer blows to drive center cross needle bushing (Item 4) upward. Vertically rocking yoke (Item 5), as bushing is driven out, provides ear clearance between yokes (Item 2) and (Item 3).

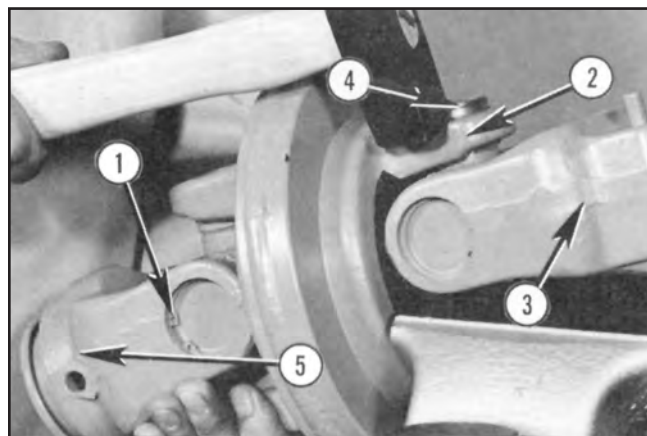


PHOTO NO. 3044

5. The partially extracted needle bushing (Item 1) can be removed with a Walterscheid tool SW23 (Item 2). This tool inserts between vice jaws (Item 3) and radially clamps the partially extracted bushing.
6. Carefully rock flange assembly (Item 4) in direction of arrows (Item 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 (Item 6).

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

GKN Walterscheid Inc. 16 W 030 83rd ST.
2715 Davey Road
Woodridge, IL 60517
FAX (630) 972-9392 Ph (630) 972-9300

7. Repeat above steps to remove both needle bushings and center cross from opposite end (Item 7) of flange assembly. Refer to Photo 3041 and 3042, page 40 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.

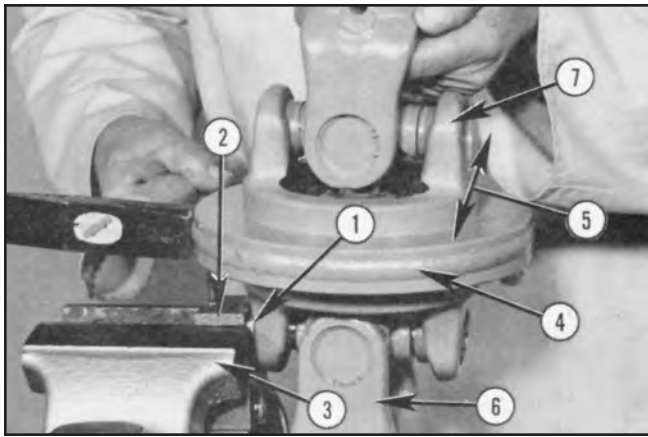


PHOTO NO. 3045

9. Before reassembly, clean and inspect both outer yoke's ball (Item 1). If more than 1/8" play in relation to its centering disc socket, or noticeable wear around (Item 2) exists, replace the yoke.
10. For reassembly, insert replaced center cross (Item 3) into outer yoke (Item 4). Start replaced needle bushings (Item 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. See Photo 3046.
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.

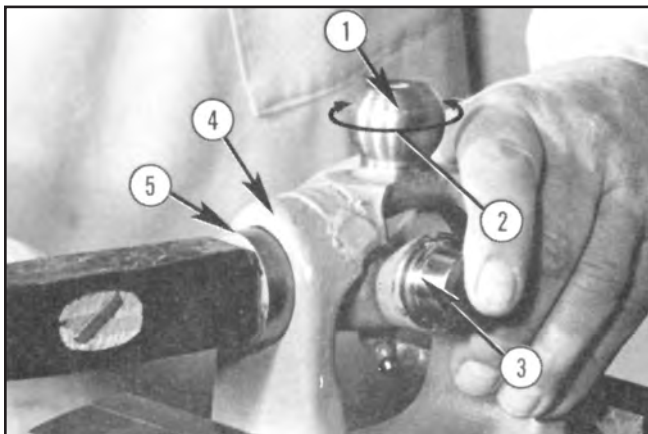


FIGURE 98

PHOTO NO. 3046

12. Clamp flange yokes assembly (Item 1) between vice jaws as shown. Insert outer yoke and replaced center cross assembly (Item 2) into yoke (Item 3). Start needle bushing (Item 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. See Photo 3047.
13. After completion of yokes and center crosses assembly, hammer strike all 8 yoke ears at (Item 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.

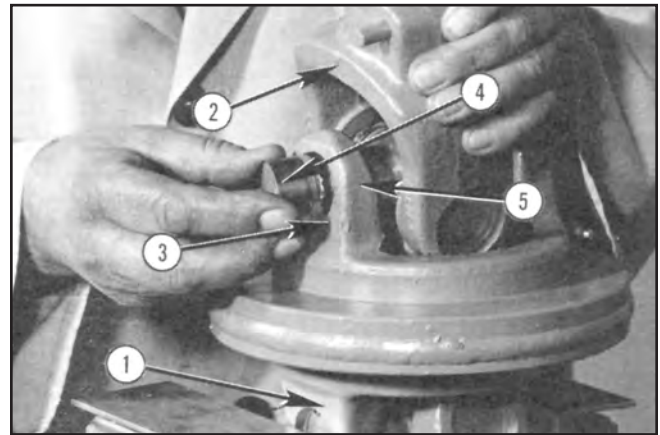




FIGURE 99


PHOTO NO. 3047

ASSEMBLY

 **WARNING: DEATH OR SERIOUS INJURY CAN RESULT. BEFORE ASSEMBLING, READ SAFETY-GENERAL AT FRONT OF THIS MANUAL.**

OFFLOADING

 **Warning: Death Or Serious Injury Can Result. Use Equipment Capable Of Safely Handling No Less Than: 3 Ton (6000#).**

 **WARNING: DEATH OR SERIOUS INJURY CAN RESULT. CLEAR PEOPLE FROM CARRIER AND OFF-LOADING AREA. DO NOT OFF-LOAD 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 off-loaded with a forklift or an overhead chain sling.

For forklift off-loading, 2 fork pockets (Item 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. See Photo 2980.

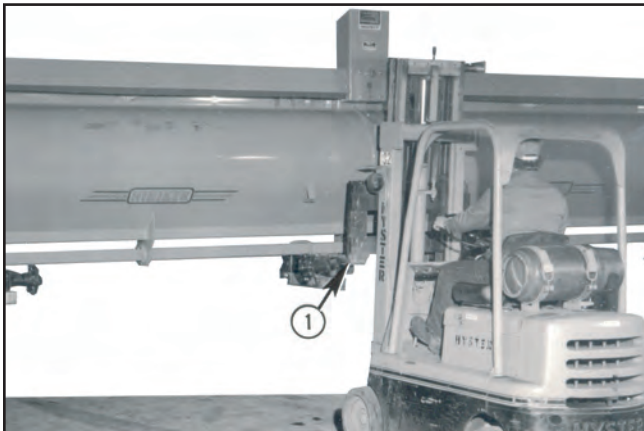


PHOTO NO. 2980

For overhead chain sling off-loading, use a chain sling (Item 1) approximately 5' long on each run. Fix EACH sling chain hook SECURELY around both 1" diameter hitch pins (Item 2) where shown by decal (Item 3). Lift off carrier and deposit on a firm, clear and level work area. See Photo 2981.

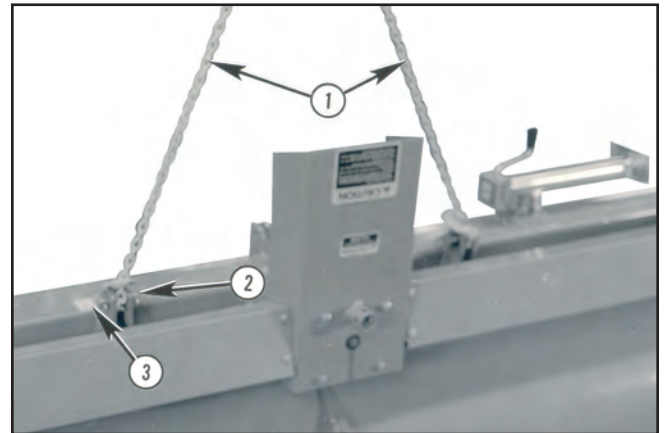



PHOTO NO. 2981

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 PTO (Item 1). See Photo 3136A. Do not forget to remove and discard 2 metal dunnage brackets (Item 2). Pull out and temporarily set aside wheels and PTO. Cut bottom skids dunnage bands and remove 3/8" lag screws, along with, dunnage "U" retainers at (Item 3).

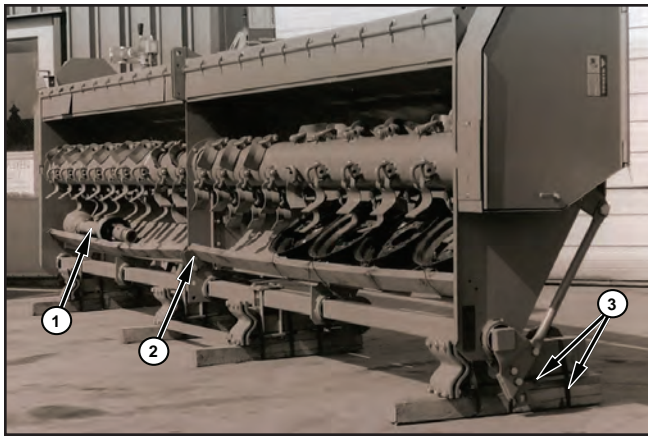


PHOTO NO. 3136A

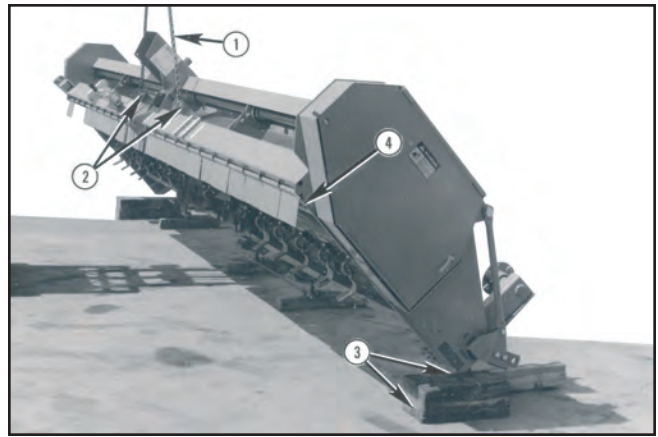


PHOTO NO. 3137

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

Irrespective of the above 2 off-loading methods used, prepare to tilt the unit down by hooking an approximately 5' long sling chain (Item 1) securely around both 1" diameter hitch pins (Item 2) the same as in Photo 3137. Securely place solid (do not use hollow concrete) blocks under rear corners of each end of the unit as shown at (Item 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 (Item 3) until its front (Item 4) is approximately 18" above the ground.

Place blocks under each front corner as at (Item 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. See Photo 2984A.

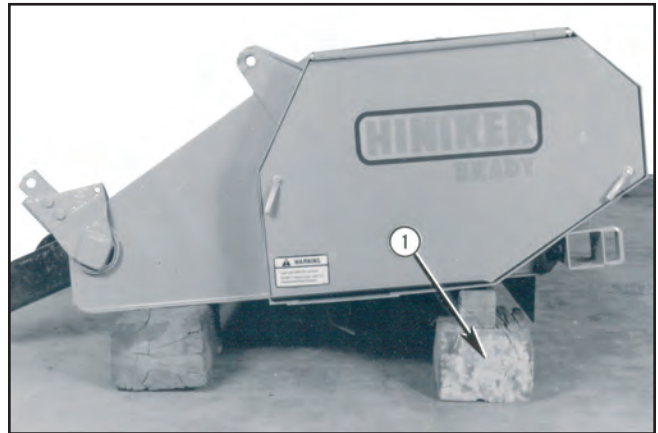


PHOTO NO. 2984A

Remove and discard both forklift pockets (Item 1). Also remove and discard wheel leg shipping "U" bolts (Item 2) and other dunnage & bolts (Item 3). There are 4 wheel legs on all width shredders. Refer to Photo 3143 on page 45.

Remove and discard rockshaft shipping brace(s) (Item 4). There are 2 of these on 18' and 20' units.

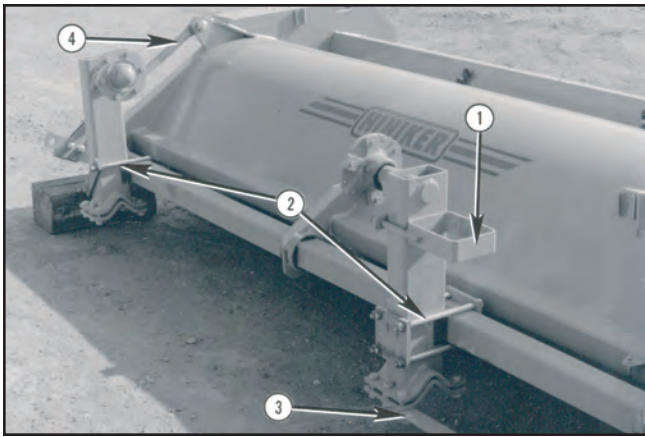


PHOTO NO. 3143

ROCKSHAFT AND WHEEL LEGS

Leave 5/8" rockshaft lockup bolt (Item 1) in place and install a ratchet jack accessory (Item 2) at each end on 18' and 20' units or in the center on 15' units. See Photo 2986.

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

If optional hydraulic cylinder(s) and hoses are to be installed, instead of ratchet jack(s), see **OPTIONAL HYDRAULICS**, page 50.

Each wheel leg bracket (Item 3) is clamped to the rock-shaft with (6) 5/8" bolts, lock washers and nuts (Item 4). These, sheaves, backwrap idlers and gearbox bolts, are the only hardware retained with lock-washers. Install wheel legs in their approximate transverse positions; however, do not torque up their bolts. See Photo 2986.

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

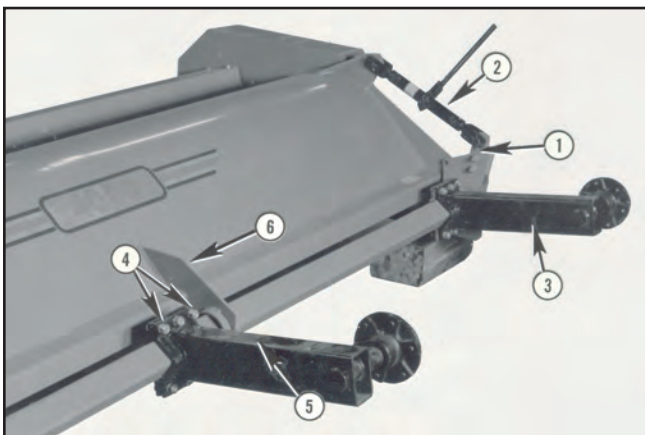


PHOTO NO. 2986

The recommended tires on Hiniker shredders are 7.60 x 15-6PR L1 (implement) on 5" rims or 9.5L x 15-8 ply (implement) tires on 8" rims. Install tires on wheels. The shredder will perform better, especially under ridged conditions, if tire pressures are kept no greater than recommended.

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
15' units (2 outboard wheels) (2 inboard wheels)	180" 120"	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"
25' units (2 outboard wheels) (2 inboard wheels)	300" 180"	288" 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 (Item 1) and a lower adjustable draft link (Item 2).

Remove both base unit draft pins (Item 3) and position hitch (Item 1) with thicker hitch clip on top (Item 4). Insert hitch's rear brackets (Item 5) between both sets of base unit ears (Item 6) and reinstall pins (Item 3). Insure cotters on each end of both pins are spread. See Photo 3555 below.

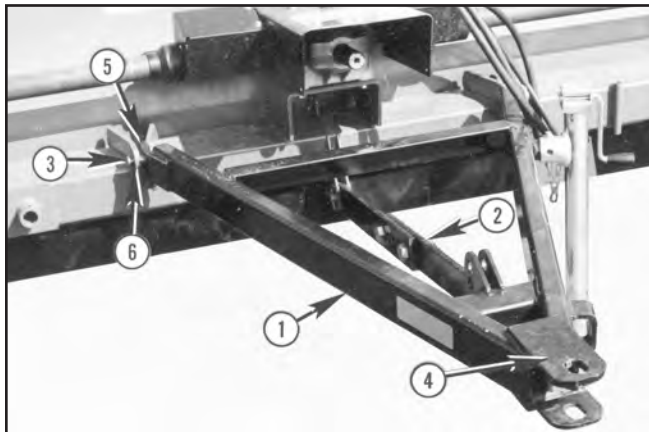


PHOTO NO. 3555

Remove rear draft pin (Item 2). Clip dunnage at rear of the adjustable draft link (Item 3) and install its rear bracket between base unit ears (Item 4) with pin (Item 2). Insure both pin cotters are spread. Remove the hose carrier and put it aside.

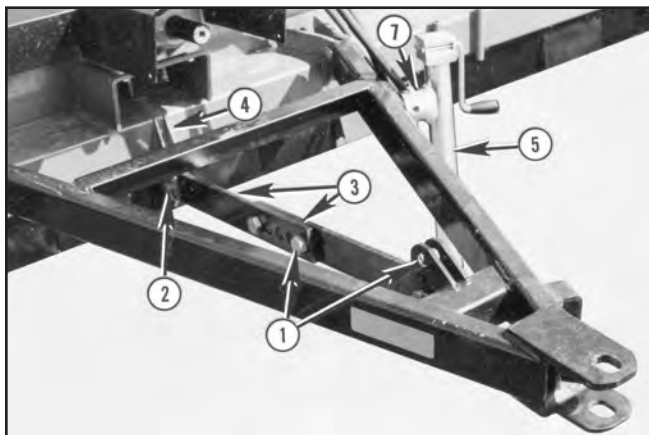


PHOTO NO. 3556

Adjustable draft link is preset to facilitate an approximate 18 inch draw bar height and yield an acceptable stubble. However, final adjustment to a customer's tractor drawbar height, must await actual field operation.

IMPORTANT: AFTER TRACTOR HOOKUP, ALWAYS STORE HITCH JACK ON PEDESTAL AT TOP OF GEARCASE. (Item 1), Photo DCP0603.

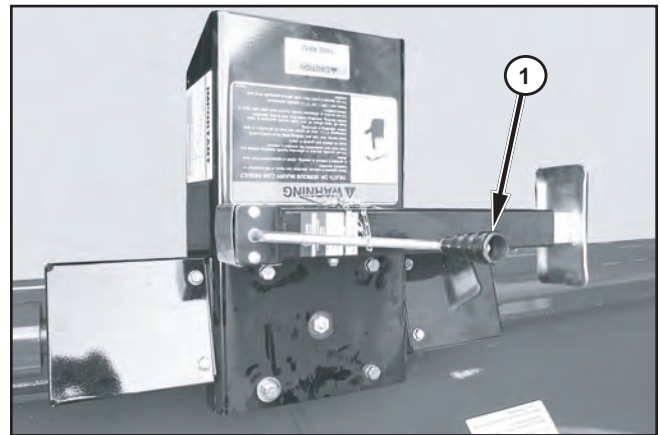


PHOTO NO. DCP0603

PTO's

It is easiest to install the trailing PTO AFTER completing the trailing hitch installation. It is easiest to install the 3 point PTO BEFORE completing the 3 point hitch installation. Both PTO's are installed the same; however, Photo 2992, page 48 shows only a 3 point PTO. See Page 18, Photo 3550 for Trailing CV PTO.

FOUR DIFFERENT PTO's are available and are variably shipped pursuant to dealer's order:

1 3/8" (1000) 21 spline trailing all widths.
(55" Telescoped O.A. length)
Whole goods item 79202278

1 3/4" (1000) 20 spline trailing all widths.
(55" Telescoped O.A. length)
Whole goods item 79202277

1 3/8" (1000) 21 spline 3 point all widths.
(38 1/16" Telescoped O.A. length)
Whole goods item 520-02157

1 3/4" (1000) 20 spline 3 point all widths.
(39 1/4" Telescoped O.A. length)
Whole goods item 520-02159

All TRAILING PTO's are C.V. (constant velocity) and identified by extended front yokes separated by a large guide hub between them.

ALL 3 POINT PTO'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 PTO MUST BE USED, OTHERWISE POTENTIAL EQUIPMENT DAMAGE CAN RESULT.

IDENTIFY CORRECT SHREDDER PTO 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 NON CV PTO's.

All shredder PTO's have similar sliding yoke couplers at tractor and gearbox ends. GEARBOX ENDS ARE IDENTIFIED BY AN OVERRUNNING CLUTCH (Item 1). See Photo 2969A.

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

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

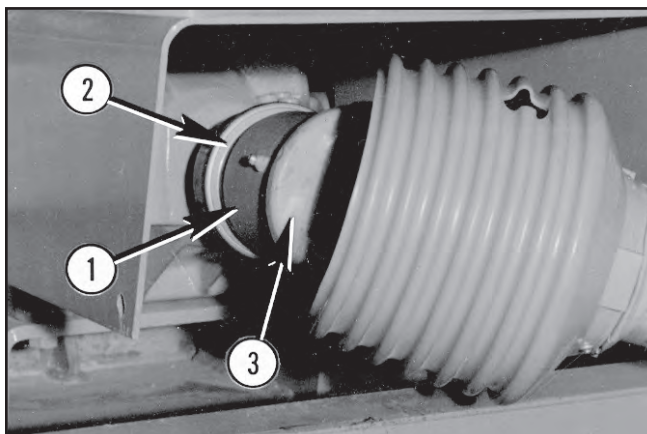


PHOTO NO. 2969A

3 POINT HITCH

NOTICE: MOVE HITCH JACK (ITEM 1) FROM SHIPPING POSITION TO PEDESTAL (ITEM 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 300# (136 kg.); Therefore, use a hoist to move it into working position. See Photo 3139.

The bundle contains the hitch "A" frame (Item 3), separate draft link (Item 4) and separate support stand (Item 5). The tractor's 2 lower and 1 upper hitch pins (Item 6), along with their 7/16" diameter lynch pins, and a PTO 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.

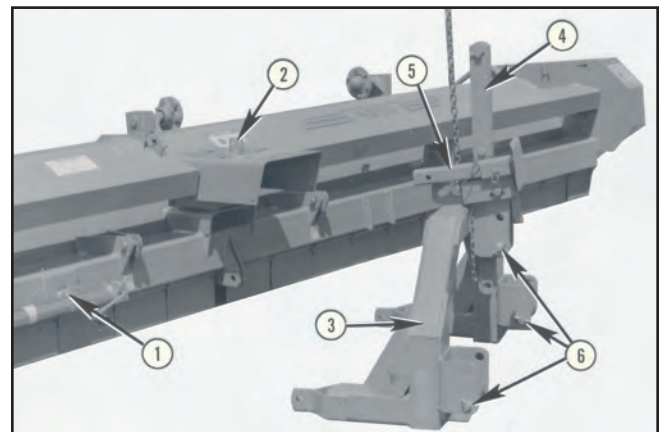


PHOTO NO. 3139

Install support stand assembly (Item 1) with pin (Item 2), along with its cotters. Install cross pin (Item 3) and Q.A. pin (Item 4) in hookup and storage hole (Item 5). Hole (Item 6) is for shredder operation and transport. See Photo 3031.

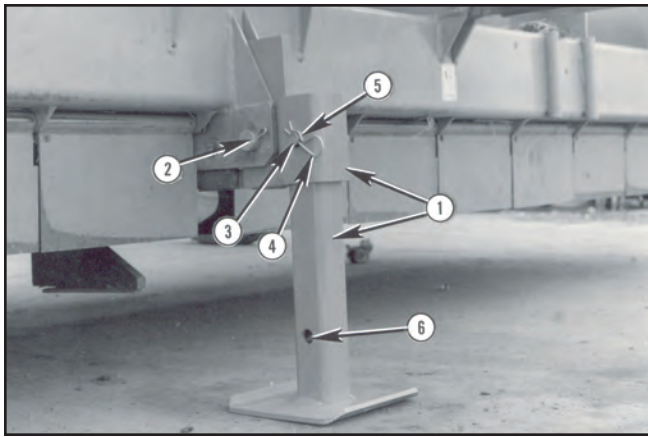


PHOTO NO. 3031

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 (Item 1) is SECURELY hooked around top link side plates as shown. This provides the best balance for easier installation. See Photo 2992.

Remove both base unit draft pins (Item 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 (Item 3) can be installed between "lost motion" slot (Item 4) and base unit's top draft hole (Item 5).

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

Install single flat end of link (Item 3) between double "lost motion" slots and reinsert pin (Item 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 (Item 8) from double flat ends of link (Item 3) and install it astraddle draft hole (Item 5). Insure both pin cotters are spread. Raise shredder with hoist (Item 1) sufficient to loosen each front corner's blocks and remove them.

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

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

This prevents damage to the PTO and/or support chain. See Photo 3016 on page 16.

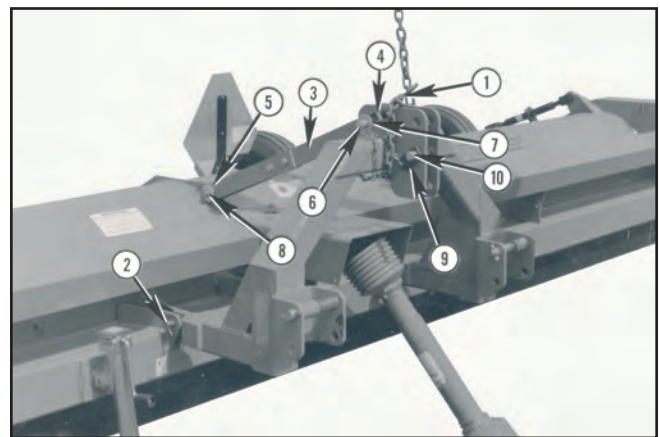


PHOTO NO. 2992

MISCELLANEOUS

The SMV (slow moving vehicle) emblem and spade bracket (Item 1) are shipped inside an end enclosure. This emblem is provided with 2 female sockets. Location (Item 2) is for towing in normal field mode and location (Item 3) is for the end transport kit. See Photo 2993.

Check the gearbox lube level. See LUBRICATION, page 23.

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

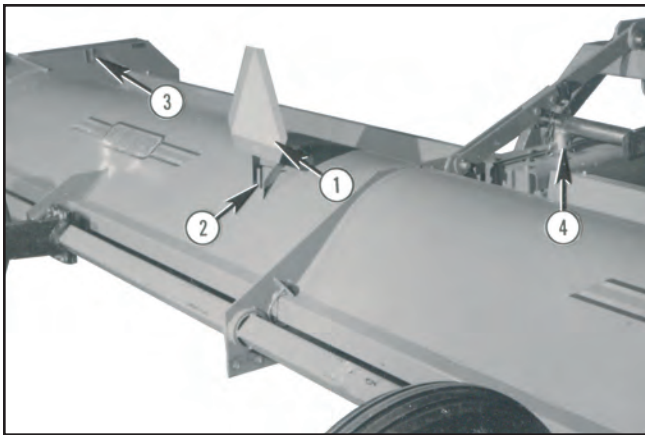


PHOTO NO. 2993

PREDELIVERY RUN IN

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

Refer to FIELD PREPARATION page 11 and insure specific hitch, PTO, wheel settings, etc. are configured to customer's stated requirements.



CAUTION: DEATH OR SERIOUS INJURY CAN RESULT. DISENGAGE PTO, 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

The hydraulic end transport 9.5L x 15" 8 ply (impliment) tires are to be inflated to 40 psi.

OPERATION

1. With the tractor connected to the field hitch, insert the male couplers into the tractor hydraulic system. Cycle the machine up and

down several times to make sure all air is purged from the hydraulic hoses and cylinders. Check the hydraulic level on the tractor and refill as needed.

2. Using the tractor controls, fully extend the end transport cylinders. Move the jack to the tube on the end transport hitch. Raise or lower the jack so the hitch will be in position to hook to the drawbar of the tractor.
3. With the end transport cylinders fully extended, insert the (2) cylinder stops over the cylinder rods to hold the cylinders in the fully extended position. Secure the cylinder stops in position using the (4) tab lock pins. Slowly collapse the hydraulic end transport cylinders so that the cylinder stops are held tight by the cylinder. Fully raise the rockshaft tires.
4. Remove the PTO shaft holder pin. Lift the PTO shaft onto the PTO shaft holder. Reinstall the pin to secure the PTO shaft in position. Secure the pin using the removed hair pin cotter. Unhook the tractor from the shredder field hitch. Insert the hydraulic coupler into the slotted holes of the hydraulic coupler holder plate. Attach the tractor to the end transport hitch.
5. Verify that the sliding tongue hitch is securely pinned, safety chain is installed and SMV is mounted on end shield bracket provided. The SMV's reflective surface must be visible from the rear. **DO NOT EXCEED SPEEDS OF 25 MPH (40Km/h).**



PHOTO NO. DSCN4638

AFTERMARKET HYDRAULICS

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 (Item 3) on the shredder and rod end on the rockshaft link.
2. Hose routings must be through separate "T" connections for BOTH extension and retraction sides of the hydraulic circuit as shown at (Item 4) and (Item 5).

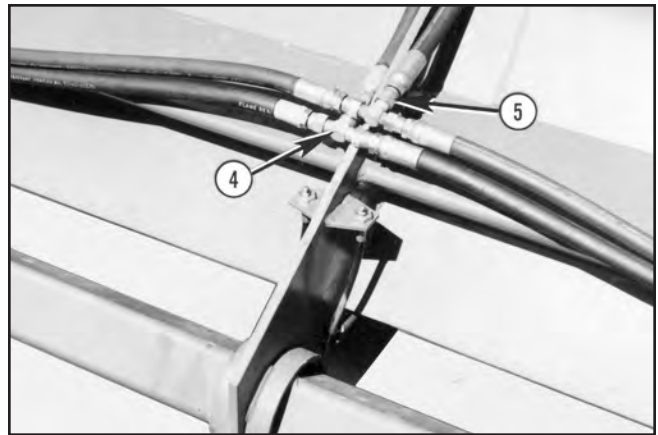


PHOTO NO. 3552A

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 (Item 1) to a gearbox shield bolt (Item 6). Insure the 1 original 1/2" flat washer is between this bolt head/lock washer 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.

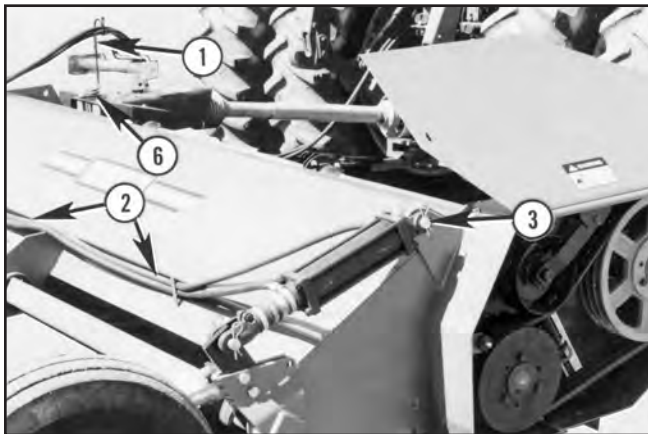


PHOTO NO. 3559

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, INSTALL IDENTICAL LENGTH OF STOP COLLARS ON EACH CYLINDER ROD, OR IDENTICALLY SET BOTH HYDRAULIC CYLINDER INTEGRAL TRIPS.

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

OPTIONAL HYDRAULICS

Hiniker does offer an optional hydraulic lift kit. It contains 8" stroke ASAE cylinders, hoses, fittings, plastic tie straps and tractor ISO (Pioneer) couplers. A hose support is furnished with the trailing hitch. Hiniker does not supply stroke controls for the hydraulic cylinders. Stroke controls must be purchased from after market sources.

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

Always install the cylinders (Item 1) with the anchor end (Item 3) on the shredder using the cylinder pin in the cylinder. Refer to Photo DCP0542. The rod end (Item 2) will be attached to the rockshaft link (Item 4) after the hydraulic lines and cylinders have been fully charged with oil. Support both cylinders so the rod end is free to move in and out.

Both hydraulic cylinders should have their ports point towards the center of the machine.

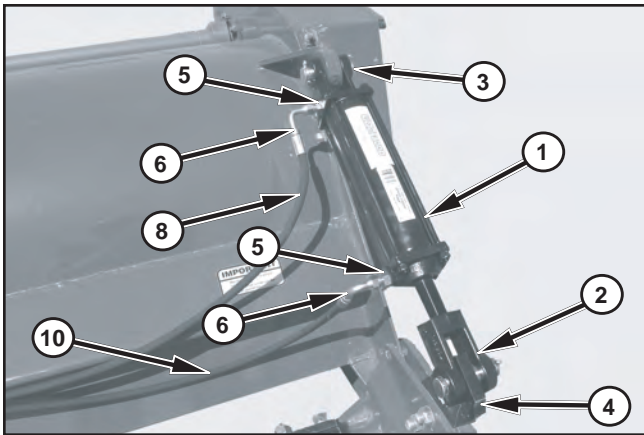


PHOTO NO. DCP0542

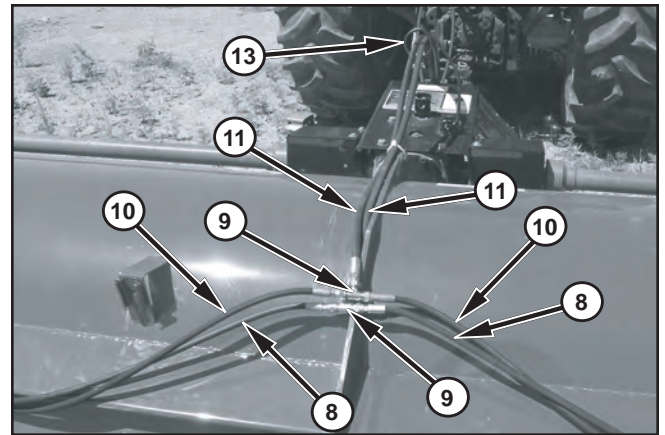


PHOTO NO. DCP0554

2. Remove the plugs from both hydraulic cylinders and replace with 3/4" ORB to 9/16" JIC straight adapters (Item 5).
3. Attach the 1/4 x 126" hoses (Item 6) to the adapters coming out of the hydraulic cylinders. The 90 degree elbow on the hoses should be on the cylinder end of the hose.
4. Run both hoses (base end hose (Item 8) and rod end hose (Item 10) from each hydraulic cylinder to the center of the machine. Refer to Photo DCP0542. The hoses should be run behind the formed angle and the upright flat bar gussets (Item 7) on the rear of the shredder. Run the hoses to the center of the shredder from both sides. Refer to Photo DCP 0549.

6. Connect the two 3/8" x 120" hoses (Item 11) to the fitting tees (Item 9). Run the hoses forward and through the hose carrier (Item 13) provided with the hitch. Refer to Photo DCP0554.

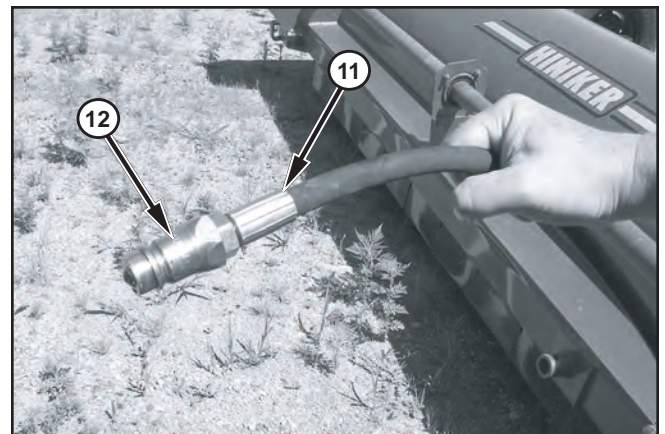


PHOTO NO. DCP0557

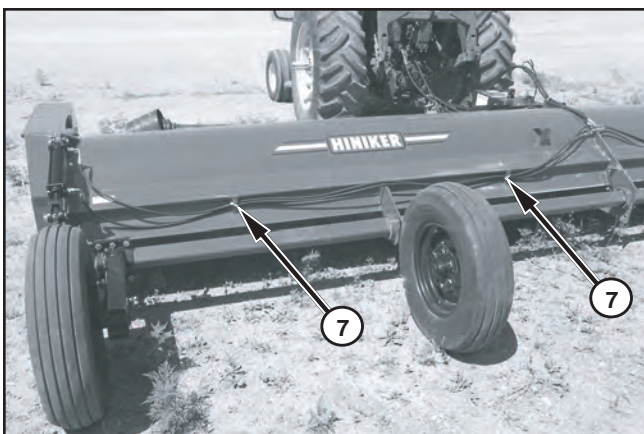
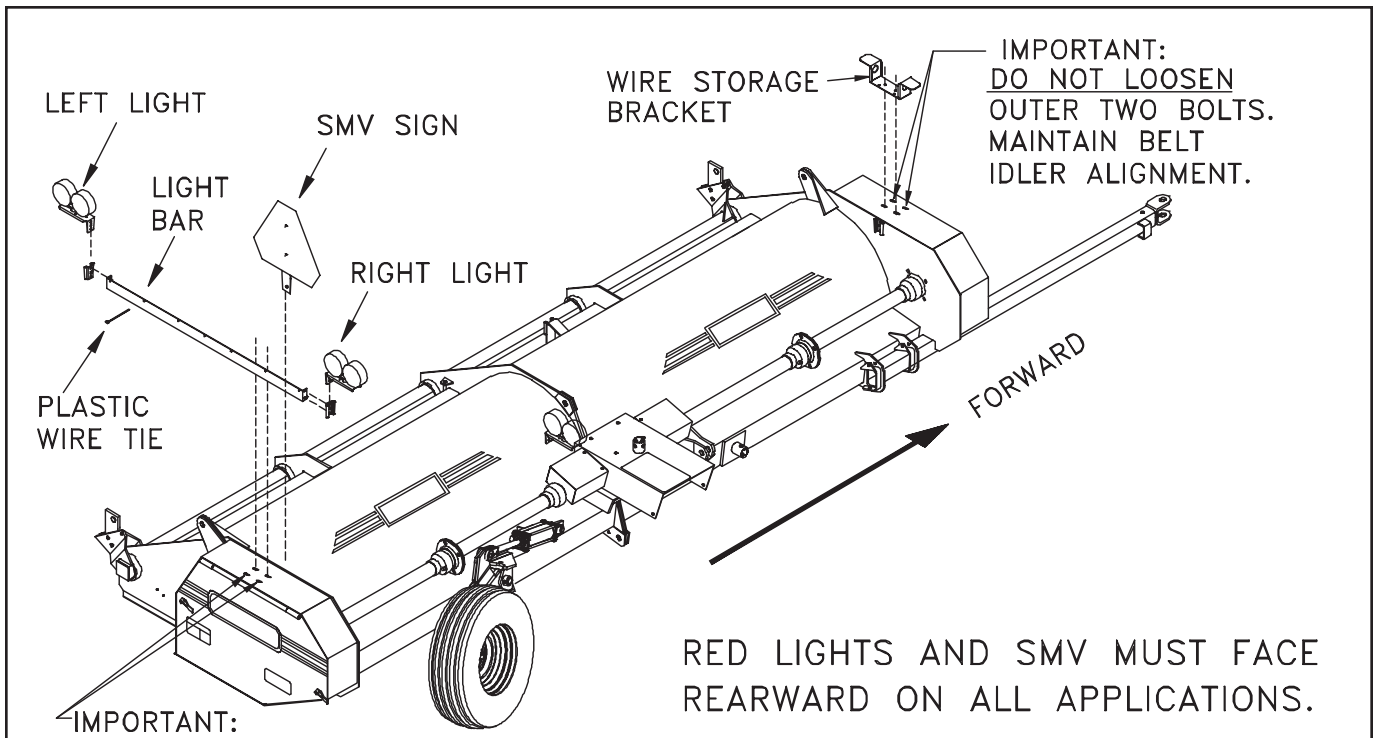


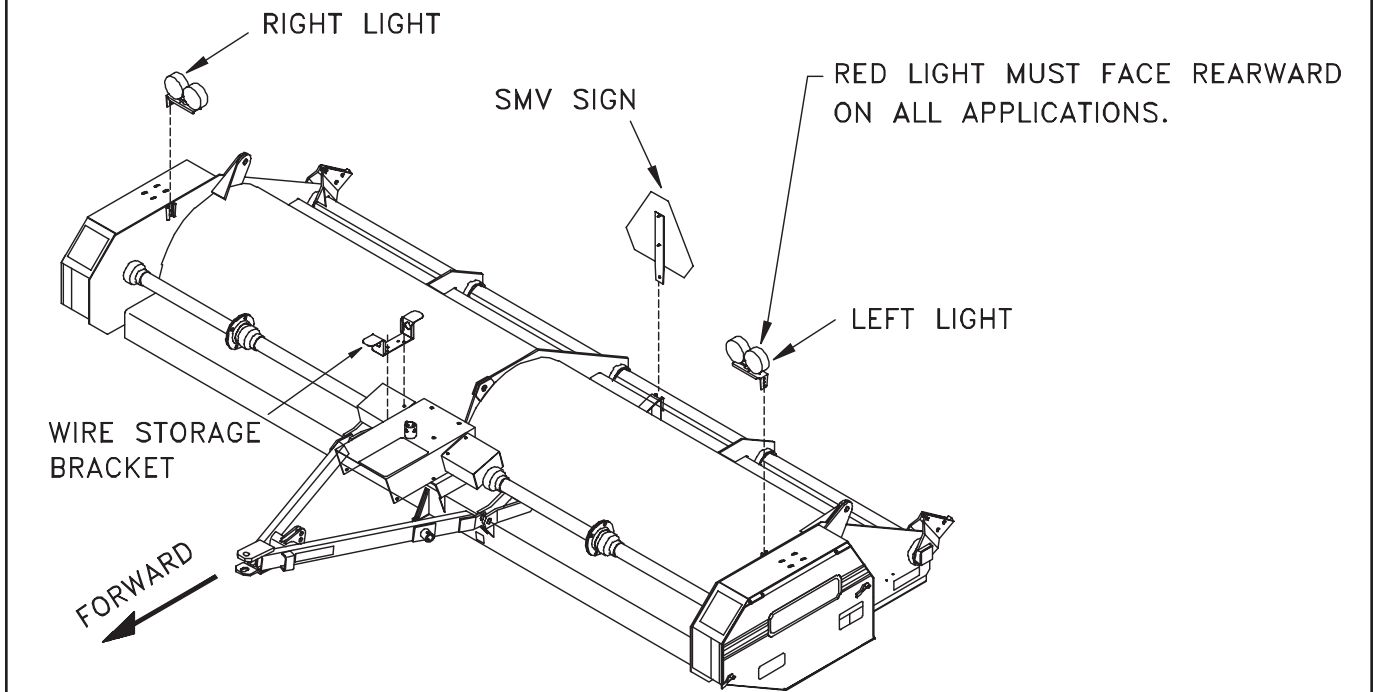
PHOTO NO. DCP0549

5. The hoses connected to the rod end ports (Item 10) should be connected to one tee (Item 9) and the hoses from the base end ports (Item 8) should be connected to the other tee (Item 9). Refer to Photo DCP0554.

7. The hose carrier will lift the hoses over the gearbox and drive lines. Turn the ISO male connectors (Item 12) onto the ORB end of the hoses. Refer to Photo DCP0557.
8. Connect the hoses to a tractor and cycle the cylinders back and forth until all air is worked out of the hydraulic system.
9. Remove the blocks supporting the hydraulic cylinders and connect the rod ends to rock shaft links.



LIGHT ASSEMBLY & SMV LOCATION.
END TRANSPORT USE



LIGHT ASSEMBLY & SMV LOCATION
FIELD USE

OPTIONAL WARNING LIGHT PACKAGE

Hiniker offers an optional warning light package. It contains right and left warning light assemblies, mounting brackets, wiring cable with standard 7 pin connector, and necessary attaching hardware.

There are two locations to mount the lights and SMV sign. Determine if lights are to be installed in field mode or end transport mode configuration (see illustration).

All lights and the SMV must face rearward and be visible from the rear of the unit. The red light is one (1) sided and must be visible from the rear only.

END TRANSPORT MODE INSTALLATION ONLY.

1. Install the end transport light bar mount angle on the shield towards the rear of the direction of travel. Use two (2) existing bolts on the top of the shield.

Important: Loosen only two (2) inner bolts. **DO NOT LOOSEN** the two (2) outer bolts as this will require realigning the belt idler pulley.

Note: The 15 foot Model 1700 manual end transport pulls from the opposite end and is not illustrated. Reverse the forward direction shown on illustration. Follow all other directions mounting the light bar and SMV toward the rear of the direction of travel.

2. Install two spade mount brackets on each end of mounting angle bar with 5/16 hardware provided.
3. Install the wire storage bracket on the opposite shield using two existing bolts.

Important: Use two existing bolts on top of the shield. Loosen only two (2) inner bolts. **DO NOT LOOSEN** the two (2) outer bolts as this will require realigning the belt idler pulley.

4. Install the lights and SMV into the appropriate socket.

6. Install the excess wire storage bracket using two (2) existing bolts on the right side gear box shield as illustrated.

ALL UNITS

7. Connect the "Left" and "Right" wiring harness to the light assemblies.

Note: Left and Right are determined by standing behind the unit and facing in the direction of travel.

8. Insert the 7 pin connector into the tractor receptacle. Test the lights for proper function of amber flashers, red tail and left and right turn signals.

Note: When testing the turn signals, the amber flasher opposite the turn direction should be on continuously.

9. Secure all loose sections of the wiring harness to the shredder and the hydraulic hoses with the provided plastic ties. Coil the excess wire and store the 7 pin connector on the wire storage bracket provided.

OPTIONAL SKID SHOES

Hiniker offers an optional skid shoe package that will help with keeping the shredder knives from contacting the ground. The skid plates extend approximately 1/2" below the shredder knives.

1. Break the bands securing the skid shoes with hardware together.
2. Remove the (4) 3/4 x 1 3/4" long bolts and 3/4 inch lock nuts in each skid shoe and save them for assembly to the shredder.
3. Raise the shredder as high as the hydraulic lift will allow it while attached to tractor and block it in this position with stands.
4. The Skid shoes are mounted to the inside of the shredder end panels.

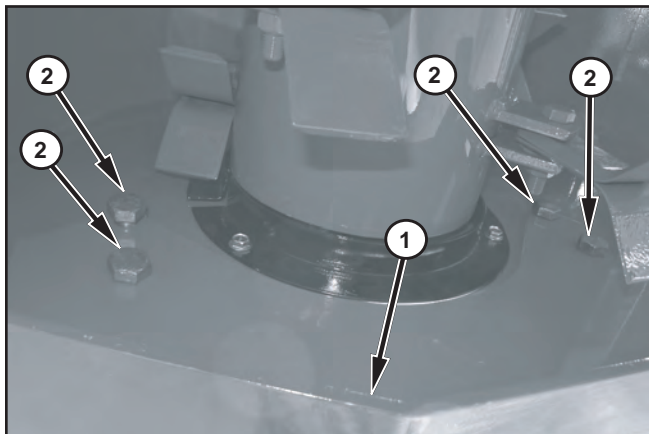


PHOTO NO. DCP0669

5. Secure the skid shoes (Item 1) to the end panels using the (4) 3/4 x 1 3/4 bolts (Item 2) provided, making sure the head of the bolt is on the rotor side of the end panel. Use the 3/4 locknuts (Item 3) provided on the out side of the end panel as shown in Photo DCP0669 and DCP0677.

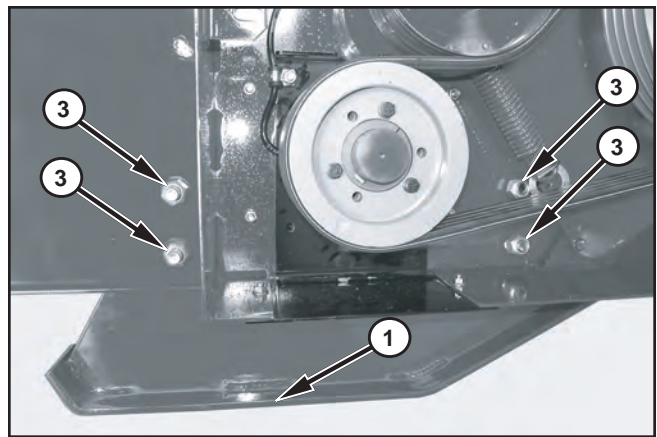


PHOTO NO. DCP0677

OPTIONAL CENTER GRASS DIVIDER ASSEMBLY

This is used to reduce center "streaking" when shredding/clipping grass, etc. Remove the (2) 1/2" bolts and Mac-lock nuts from the grass divider assembly (Item 1). Insert the flat bar between the base unit ears and secure in the front 5/8" hole with 1/2 x 2 1/4" bolt and 1/2" Mac-lock nut (Item 2). Swing the grass divider up and secure to the hole provided in the center plate with the 1/2 x 1 1/2 bolt and 1/2" Mac-lock nut (Item 3). Tighten both bolts at this time. The grass divider is just in front of the center bearing weed ring (Item 4). See Photo DCP0695.

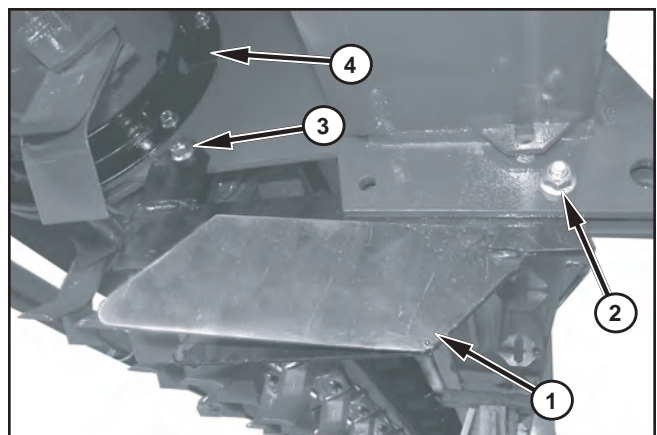


PHOTO NO. DCP0695

SPECIFICATIONS

NOMINAL CUTTING WIDTH	180" (15')	216" (18')	240" (20')	300" (25')
Field Overall Width	198"	234"	258"	318"
Field Overall Length (Trail Hitch)	11' 8"			
Field Overall Length (3 Point Hitch)	11'			
End Transport Overall Width (Trail Hitch)	11' 8"			
End Transport Overall Width (3 Point Hitch)	9'			
End Transport Overall Length	240"	276"	300"	360"
Standard Knife Type	5/16" x 2 1/2" Dura Faced Side Slice			
The. Knife Tip Speed @ 1000 RPM (Side Slicer)	12,700 Feet Per Minute			
Number Knives	144	144	192	256
Total Cuts Per Minute @ 1000 RPM	288,000	288,000	384,000	512,000
1 3/4" (1000) 20 Spline PTO (Trailing)	Optional			
1 3/8" (1000) 21 Spline PTO (Trailing)				
1 3/8" (1000) 21 Spline PTO (3 Point)				
1 3/4" (1000) 20 Spline PTO (3 Point)				
Constant Velocity PTO	Trail (Standard)			
5V Banded Drive Belts	4 Groove	4 Groove	4 Groove	5 Groove
Rim Width	5" or 8" Wide	5" or 8" Wide	5" or 8" Wide	8" Wide
Approximate Trail Hitch Weight (W/Tires)	7.60 x 15-6PR, or 9.5L x 15	7.60 x 15-6PR, or 9.5L x 15	7.60 x 15-6PR, or 9.5L x 15	9.5L x 15
Approximate Trail Hitch Weight (W/Tires)	3730 lbs. 1692 lbs.	4090 lbs. 1859 lbs.	4480 lbs. 2041 lbs.	5200 lbs. 2360 lbs.
Approximate Trail Hitch Weight (W/Tires)	3870 lbs. 1755 lbs.	4223 lbs. 1920 lbs.	4623 lbs. 2101 lbs.	----- -----
ACCESSORY EQUIPMENT				
End Transport Kit	Optional			
Ratchet Lift Jacks	1	2	2	2
Hydraulic Lift Kit	Optional			
Extra Wheel Leg (Pair)	Optional			
Grass Divider	Optional			
7.60 x 15 6 Ply Tires or 9.5L x 15" 8 ply	Optional (4)			
Safety Chain	Optional			
Safety Lighting Package	Optional			
Skid Plate Kit	Optional			

HINIKER WARRANTY

The only warranty Hiniker Company (Hiniker) gives and the only warranty the dealer is authorized to give is as follows:

We warranty new products sold by Hiniker or authorized Hiniker dealers 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, to the original purchaser, 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 any liability for direct, indirect or consequential damage or delay. If requested by Hiniker Company, 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, substitution of parts not approved by Hiniker Company, 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 on any of our products without notice.

HINIKER does not warrant the following:

1. Used products
2. Any product that has been repaired modified or altered in a way not approved by Hiniker Company.
3. Depreciation or damage caused by normal wear, lack of reasonable and proper maintenance, failure to follow Operator Manual Instructions, misuse, lack of proper protection during storage, or accident.
4. Parts replacement and service necessitated by normal wear or maintenance including, but not limited to, belts, cutting parts, and ground engaging parts.
5. Damage or breakage caused by rocks.

A DELIVERY REPORT FORM and warranty registration form must be filled out and received by HINIKER COMPANY to initiate the warranty coverage. Failure to complete the forms will void the warranty.

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