

W. & A. MANUFACTURING CO.



SPECIALIZED FARM EQUIPMENT

PHONE 870/534-7420 • P.O. BOX 5238 • 1810 OHIO ST. • PINE BLUFF, ARKANSAS 71611



PTO DITCHER OWNER'S MANUAL

Revised 10.21



This manual is applicable to: PTO Ditcher

Record the model number and serial number of your PTO Ditcher along with date purchased:

MODEL NUMBER _____

SERIAL NUMBER _____

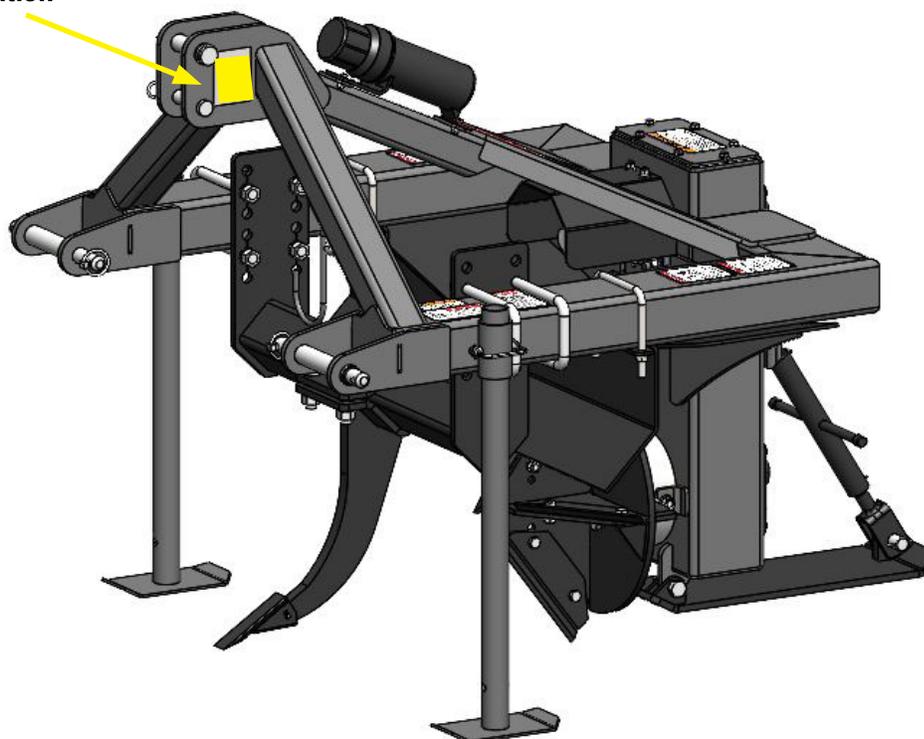
DATE PURCHASED _____

SERIAL NUMBER

The serial number plate is located on the frame to be readily available. It is suggested that your serial number and purchase date also be recorded above.

The serial number provides important information about your PTO Ditcher and may be required to obtain the correct replacement part. Always provide the model number and serial number to your W&A Manufacturing dealer when ordering parts or anytime correspondence is made with W&A Manufacturing.

Serial Number Plate Location





TO THE DEALER

Factory to Farm™ service includes full factory assembly. Dealer is responsible for field readiness.

PRE-DELIVERY CHECKLIST

Use the following checklist after your PTO Ditcher is completely assembled. Check off each item as it is found satisfactory or after proper adjustment is made.

- All working parts move freely, bolts are tight, and cotter pins are spread.
- Ensure Skid Plate is properly installed (see page 10).
- Ensure PTO Shaft is properly installed (see page 11-13).
- Check lubricant level in Bearing housing (page 33).
- All safety decals correctly located and legible. Replace if damaged (See page 5).
- All reflective decals are correctly located and visible when the PTO Ditcher is in transport position (See page 5).
- Paint all parts scratched during shipment or assembly.
- All safety lockup devices on the PTO Ditcher are correctly located.

The PTO Ditcher has been thoroughly checked and to the best of my knowledge is ready for delivery to the customer.

(Signature Of Set-Up Person/Dealer Name/Date)

NAME _____ DELIVERY DATE _____

STREET ADDRESS _____ MODEL NO. _____ SERIAL NO. _____

CITY, STATE/PROVINCE _____ DEALER NAME _____

ZIP/POSTAL CODE _____ DEALER NO. _____



DELIVERY CHECKLIST

Use the following checklist after your PTO Ditcher is delivered as a reminder of very important information which should be conveyed to retail customer/end user. Check off each item as it is fully explained.

- Life expectancy of this or any other machine is dependent on regular maintenance as directed in the Owner's Manual.
- All applicable safety precautions.
- Along with retail customer/end user, check reflective decals and SMV sign are clearly visible with PTO Ditcher in transport position and attached to tractor. Tell retail customer/end user to check federal, state/provincial, and local regulations before towing or transporting on a road or highway.
- Give Owner's Manual and all Instruction Sheets to retail customer/end user and explain all operating adjustments.
- Read warranty to retail customer/end user.
- Complete Warranty and Delivery Report form.

To the best of my knowledge, this machine has been delivered ready for field use and customer has been fully informed as to proper care and operation.

(Signature Of Set-Up Person/Dealer Name/Date)

AFTER DELIVERY CHECKLIST

The following is a list of items we suggest to check during the first season of use of the equipment.

- Check PTO Ditcher performance with retail customer/end user.
- Review importance of proper maintenance and adherence to all safety precautions with retail customer/end user.
- Check for parts that may need to be adjusted or replaced.
- Check all safety decals and reflective decals are correctly located as shown in the Parts Guide and that decals are legible. Replace if damaged or missing.

(Signature Of Set-Up Person/Dealer Name/Date)

All registrations must be submitted to W&A Manufacturing within 5 business days of delivery. Retain a copy of this form for auditing purposes.

All registrations must be submitted to:

W&A Manufacturing
PO Box 5238
Pine Bluff, AR 71611



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GENERAL INFORMATION



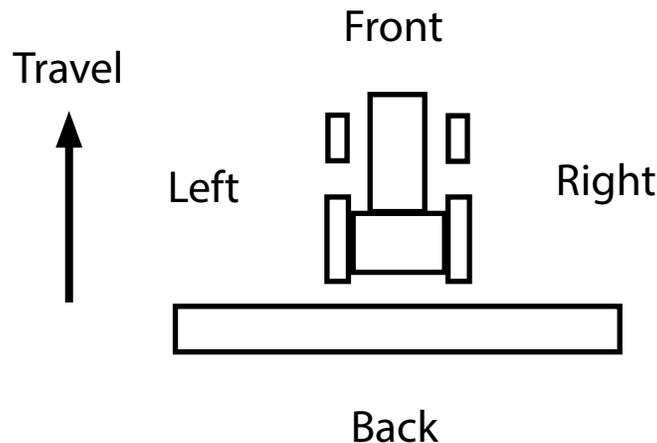
HOW TO USE THIS MANUAL

This manual is divided into sections. The first section contains a Table of Contents, General Information, and a Part Number Index. The remaining sections divide the machine into assemblies and sub-assemblies which illustrate and list all parts.

W&A Manufacturing parts in this manual are specially designed for this machine and should be replaced with W&A Manufacturing parts only.

Information in this manual was current at time of printing. However, due to W&A Manufacturing's ongoing product improvement, production changes may cause your machine to appear slightly different in detail. W&A Manufacturing reserves the right to change specifications or design without notice and without incurring obligation to install the same on machines previously manufactured.

Right-hand and left-hand as used in this manual are determined by facing the direction the machine will travel while in use.



MANUAL REPLACEMENT INFORMATION

Replacement manuals are available. Call the W&A Manufacturing Main Office at 308.708.8185, or download a printable PDF from our website, www.wamfgco.com.

MANUAL REVISIONS

When this manual is revised, the modification date is printed on the front cover and on the revised page(s).

TOUCH-UP PAINT

Repaint parts where paint is worn or scratched to prevent rust. Aerosol touch-up paint is available. To order, call W&A Manufacturing at 308.708.8185.



INTRODUCTION

Thank you for your purchase of a W&A Manufacturing PTO Ditcher. Putting your trust in our equipment is something we don't take lightly and are humbled that you chose W&A Manufacturing. Having designed all of our equipment with farmers like you in mind, we hope you enjoy years of productive use from it. Please read and understand this manual before operation.

WARRANTY INFORMATION

AGROdeviate LLC (AGROdeviate) warrants each W&A Manufacturing product it manufactures to be free from defects in material and workmanship for a period not to exceed one (1) year from the date of sale to the original owner. The warranty is valid provided written notice of the alleged defect is received by AGROdeviate during said period and within ten (10) working days after its discovery.

In addition, AGROdeviate warrants each TOOLBAR FRAMEWORK to be free from defects in material and workmanship for a period not to exceed three (3) years from the date of sale to the original owner. The warranty is valid providing written notice of the alleged defect is received by AGROdeviate during said period and within ten (10) working days after its discovery.

This warranty is subject to completion of Product Registration and submission to AGROdeviate. Warranty applies only if product is installed, operated, and maintained according to product manual and instructions. Warranty will be void if the product has been subject to misuse, misapplication, neglect, collision with obstruction, or alteration.

For products, parts, and components NOT manufactured by AGROdeviate, the warranty obligations of AGROdeviate shall be limited to the Original Equipment Manufacturers' warranty. Tires on AGROdeviate equipment are warranted through the respective tire manufacturer and their network of dealers.

All returns must be pre-approved by AGROdeviate and authorization issued before return. All returns must include a copy of the original invoice in order to be processed. Any returns without a copy of the original invoice will not be eligible to receive credit.

If determined that the product is defective in material and/or workmanship, the necessary parts will be replaced and/or repaired. All warranty repair or labor is to be performed by an AGROdeviate authorized party. AGROdeviate obligation under this warranty shall be limited to repairing or replacing parts deemed defective. Warranty does not cover travel expenses. AGROdeviate will bear no other costs including loss, incurred labor, rental fees, nor other.

All returns shall be pre-paid. If warranty is approved by AGROdeviate, return freight will be credited.

This warranty by AGROdeviate LLC is expressly in lieu of all other warranties, expressed or implied, including warranty of merchantability and fitness for use. We neither assume, nor authorize, any other entity to accept for us any liability relating to the sale of our products.



SAFETY

TAKE NOTE! THIS SAFETY ALERT SYMBOL FOUND THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY AND THE SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.



**THIS SYMBOL MEANS:
-ATTENTION!
-BECOME ALERT!
-YOUR SAFETY IS INVOLVED!**

SIGNAL WORDS:

Note the use of signal words DANGER, WARNING, and CAUTION with the safety messages. The appropriate signal word for each has been selected using the following guidelines:



DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations typically for machine components which, for functional purposes, cannot be guarded.



WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.



CAUTION: Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

If you have questions not answered in this manual, require additional copies, or the manual is damaged, please contact W&A Manufacturing, PO Box 5238, Pine Bluff, AR, 71611 308.708.8185, or visit our website: www.wamfgco.com.



SAFETY... YOU CAN LIVE WITH IT!



EQUIPMENT SAFETY GUIDELINES

Safety of the operator is one of the main concerns in designing and developing a new piece of equipment. Designers and manufacturers build in as many safety features as possible. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions in this section. To avoid personal injury, study the following precautions and insist those working with you, or for you, follow them.

In order to provide a better view, certain photographs or illustrations in this manual may show an assembly with a safety shield removed. However, equipment should never be operated in this condition. Keep all shields in place. If shield removal becomes necessary for repairs, replace the shield prior to use.

Replace any CAUTION, WARNING, DANGER or instruction safety decal that is not readable or is missing. Location of such decals is indicated in this booklet.

Do not attempt to operate this equipment under the influence of drugs or alcohol.

Review the safety instructions with all users annually.

This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible adult familiar with farm machinery and trained in this equipment's operations. Do not allow persons to operate or assemble the unit until they have read this manual and have developed an understanding of the safety precautions and how it works.

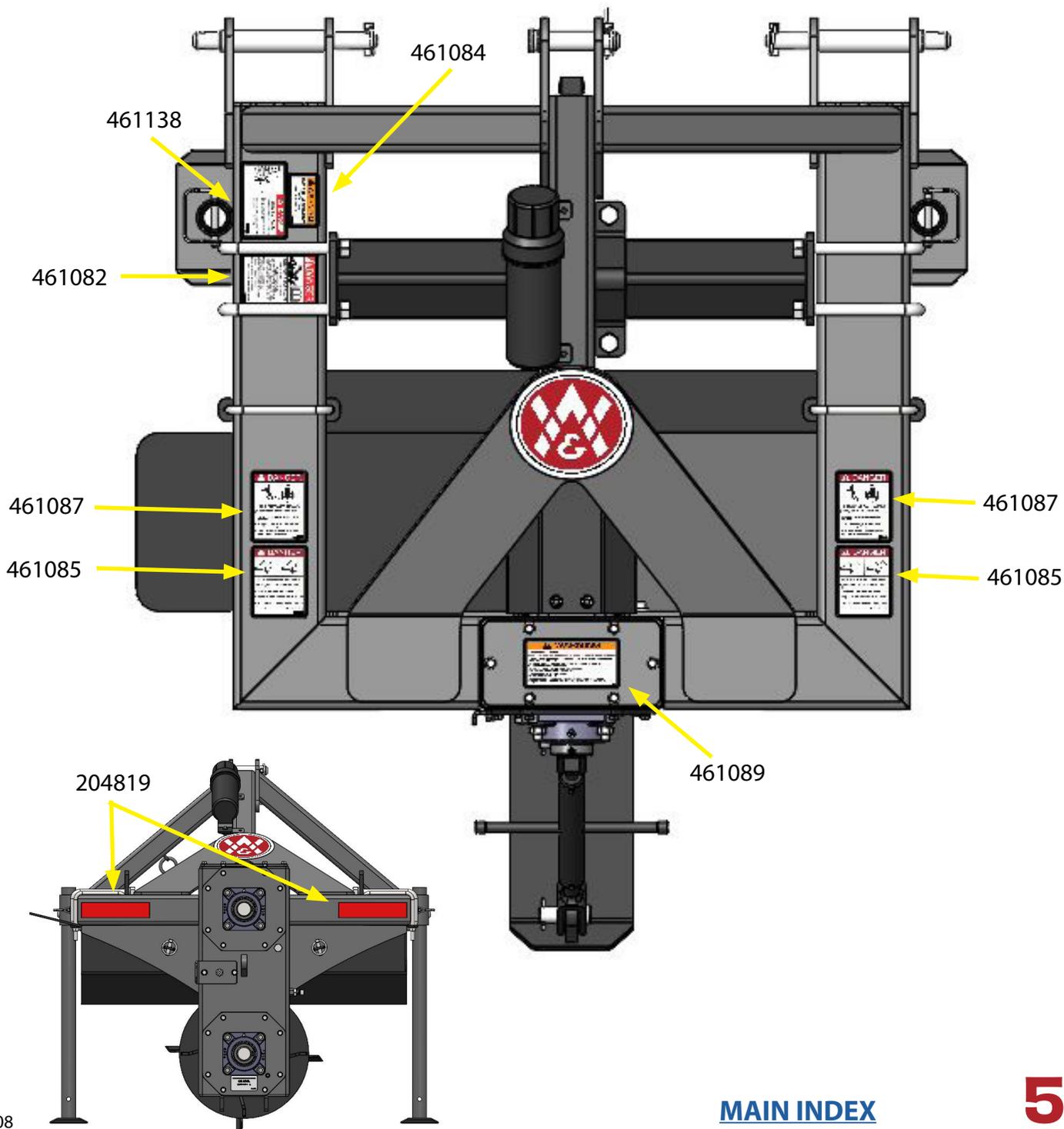
To prevent injury or death, use a tractor with a Rollover Protective Structure (ROPS). Do not paint over, remove or deface any safety signs or warning decals on your equipment. Observe all safety signs and practice the instructions on them.

Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in question - DON'T TRY IT.



SAFETY SIGN LOCATIONS

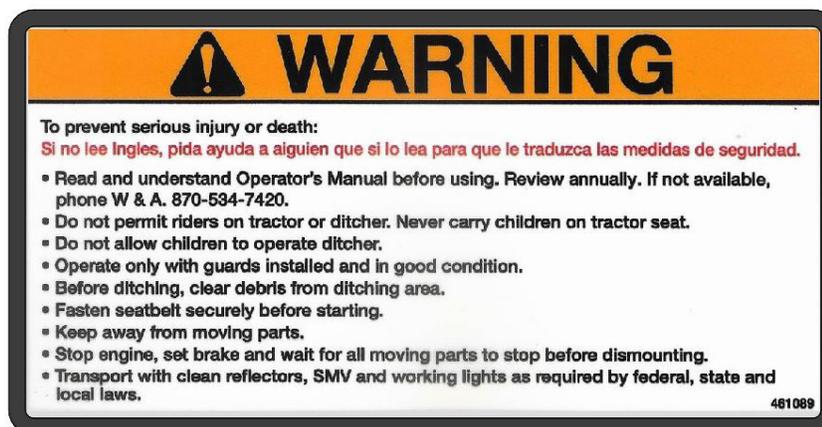
These types of Safety Signs and locations on the equipment are shown in the illustrations below. Good safety requires that you familiarize yourself with the various Safety Signs, the type of warning and the area, or particular function related to that area, that require your SAFETY AWARENESS





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NEVER EXCEED RECOMMENDED PTO SPEED - WARNING



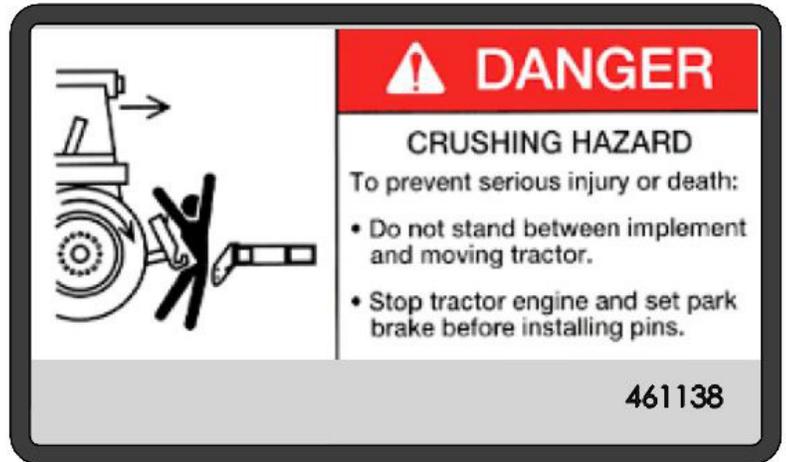
461089

READ/UNDERSTAND MANUAL - WARNING



461082

ROTATING DRIVE SHAFT - DANGER



461138

CRUSHING HAZARD - DANGER



461087

THROWN OBJECT HAZARD - DANGER



461085

ROTATING BLADES - DANGER



SAFETY SIGN CARE

- Keep safety signs clean and legible at all times.
- Replace safety signs that are missing or have become illegible.
- Replaced parts that displayed a safety sign should also display the current sign.
- Safety signs are available from W&A Manufacturing.

HOW TO INSTALL SAFETY SIGNS

- Be sure that the installation area is clean and dry.
- Decide on the exact position before you remove the backing paper.
- Remove the smallest portion of the split backing paper.
- Align the decal over the specified area and carefully press the small portion with the exposed stick backing in place.
- Slowly peel back the remaining paper and carefully smooth the remaining portion of the decal in place.
- Small air pockets can be pierced with a pin and smoothed out using the piece of decal backing paper.

REMEMBER: If Safety Signs have been damaged, removed, become illegible or parts replaced without decals, new decals must be applied. New decals are available from W&A Manufacturing.

**W&A Manufacturing
PO Box 5238
Pine Bluff, AR 71611**

**308.708.8185
www.wamfgco.com**

PREPARATION & SET-UP



This section helps you prepare your tractor and PTO Ditcher for use.

PRE-DELIVERY CHECKLIST

Use the following checklist after your PTO Ditcher is completely assembled. Check off each item as it is found satisfactory or after proper adjustment is made.

- All working parts move freely, bolts are tight, and cotter pins are spread.
- Ensure Skid Plate is properly installed (see page 10).
- Ensure PTO Shaft is properly installed (see page 11-13).
- Check lubricant level in Bearing housing (page 33).
- All safety decals correctly located and legible. Replace if damaged (see page 5).
- All reflective decals are correctly located and visible when the PTO Ditcher is in transport position (see page 5).
- Paint all parts scratched during shipment or assembly.
- All safety lockup devices on the PTO Ditcher are correctly located.

POST-DELIVERY/SEASONAL SET-UP

On initial delivery, use with a new tractor, and seasonally check and as necessary, complete these items before continuing to the routine set-up items:

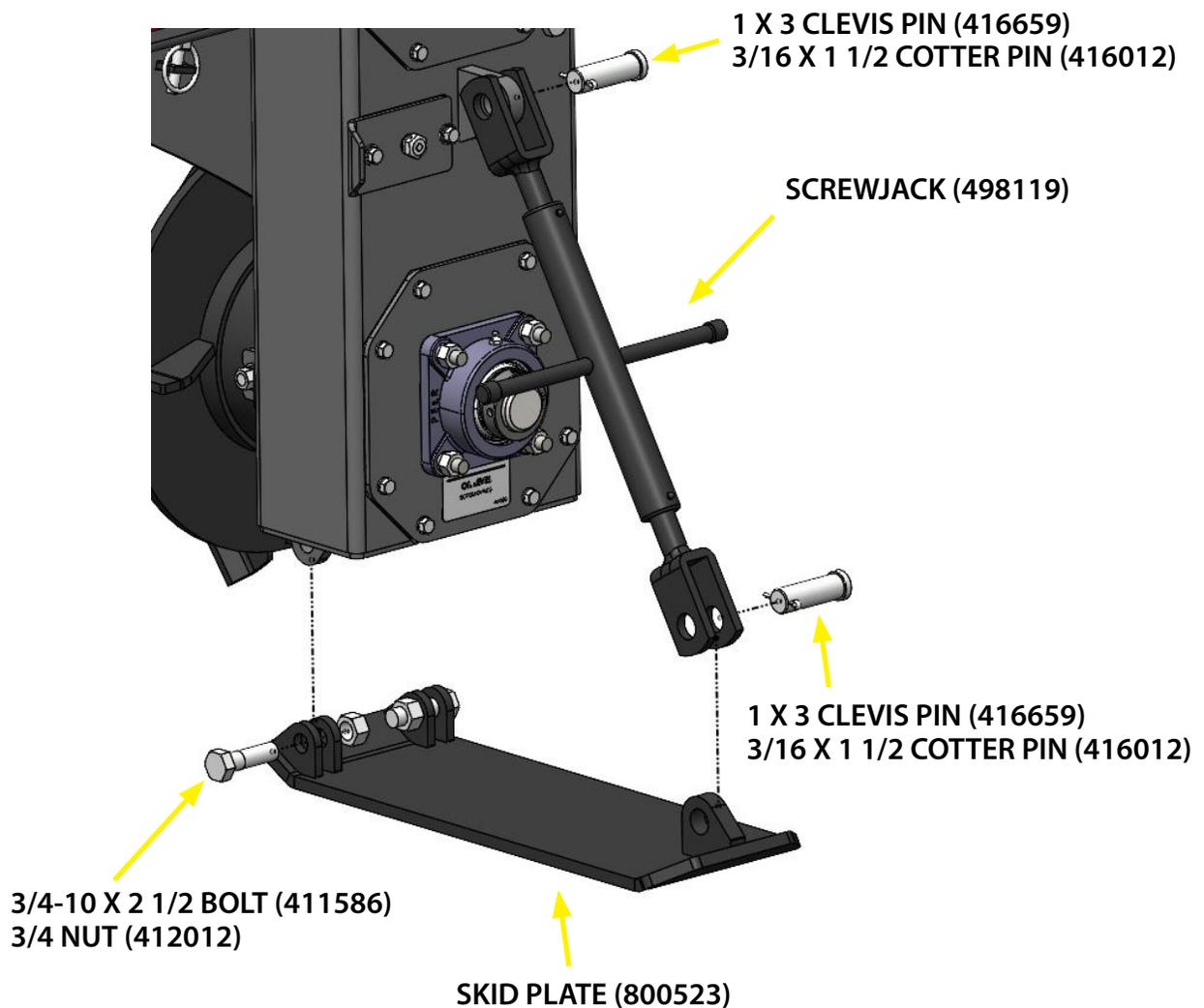
- Check/Change Hitch Configuration
- Hitching Tractor to Implement
- Leveling the Implement



SKID PLATE INSTALLATION

The Skid Plate assembly is shipped uninstalled, and must be installed prior to operation.

1. With rear of the PTO Ditcher raised off the ground with proper support, install the **Skid Plate (800523)** using **3/4-10 X 2 1/2 Bolts (411586)** and **3/4 Nuts (416012)**
2. With Skid Plate hinge installed, proceed to install the **Screwjack (498119)** using **1 X 3 Clevis Pins (416659 x 2)** and **3/16 X 1 1/2 Cotter Pins (416012 x 2)**



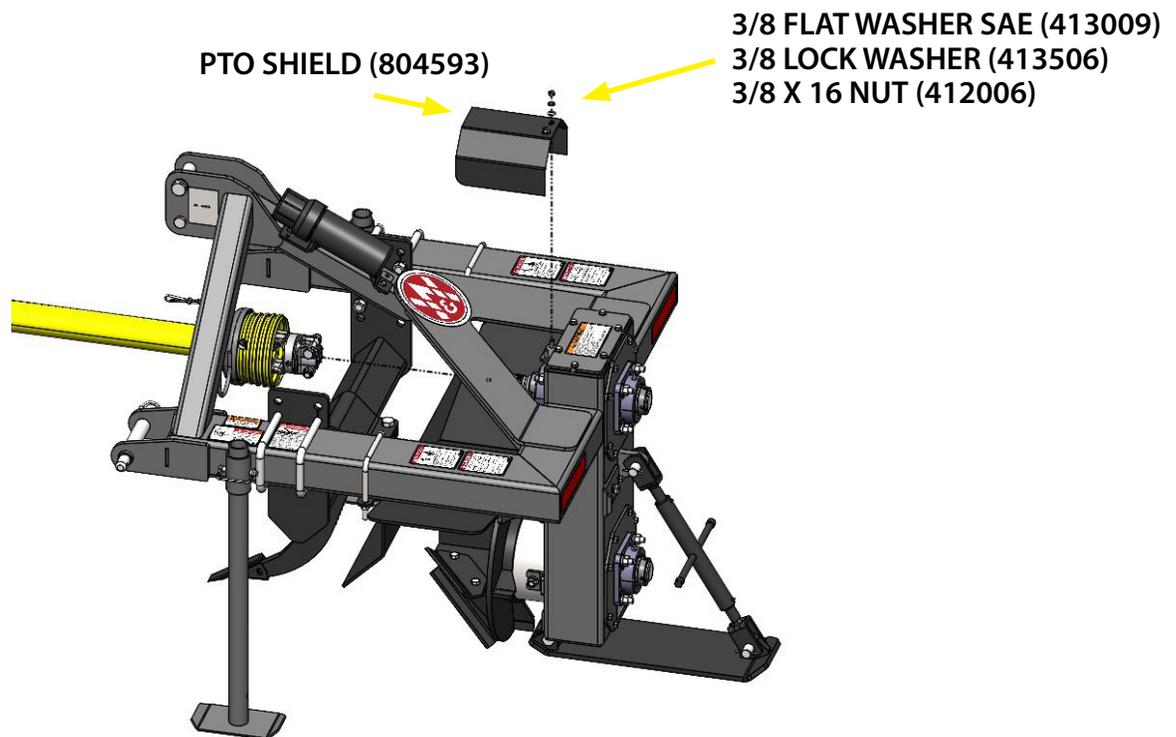


PTO SHAFT INSTALLATION

Drivelines are shipped uninstalled and must be installed prior to operation

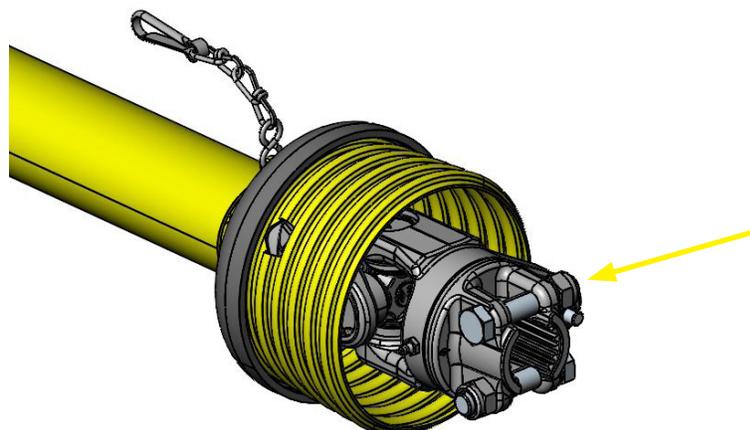
1. Remove **PTO Shield (804593)** by removing **3/8 Flat Washer SAE (413009)**, **3/8 Lock Washer (413506)**, and **3/8 X 16 (412006)** as shown in Figure 1. Keep hardware to re-install PTO Shield at step 4.

Figure 1



2. Loosen Bolts on PTO Shaft.

Figure 2

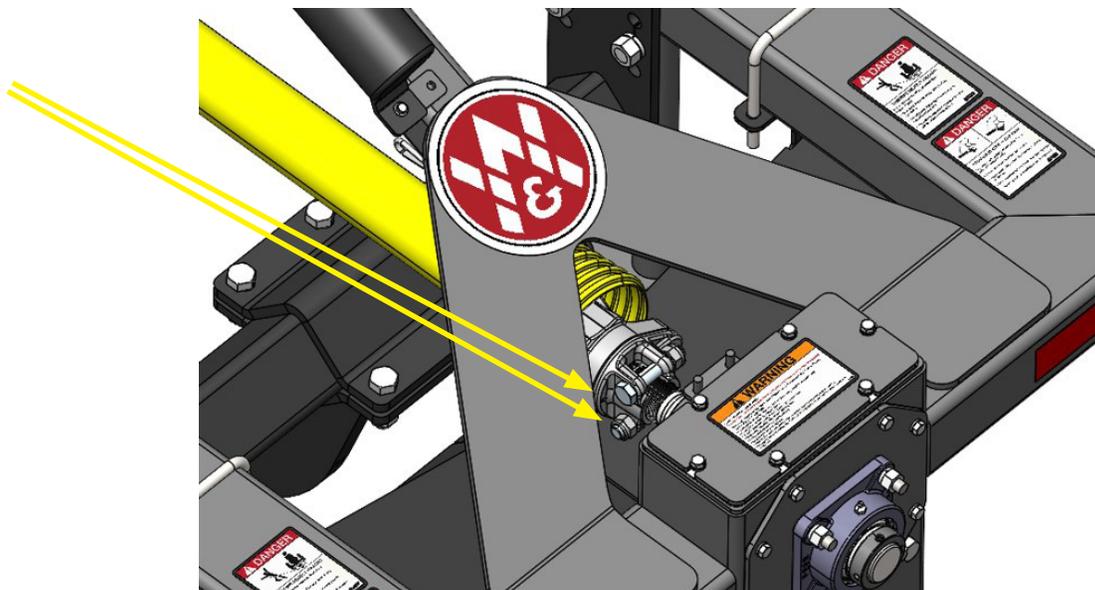




PTO SHAFT INSTALLATION

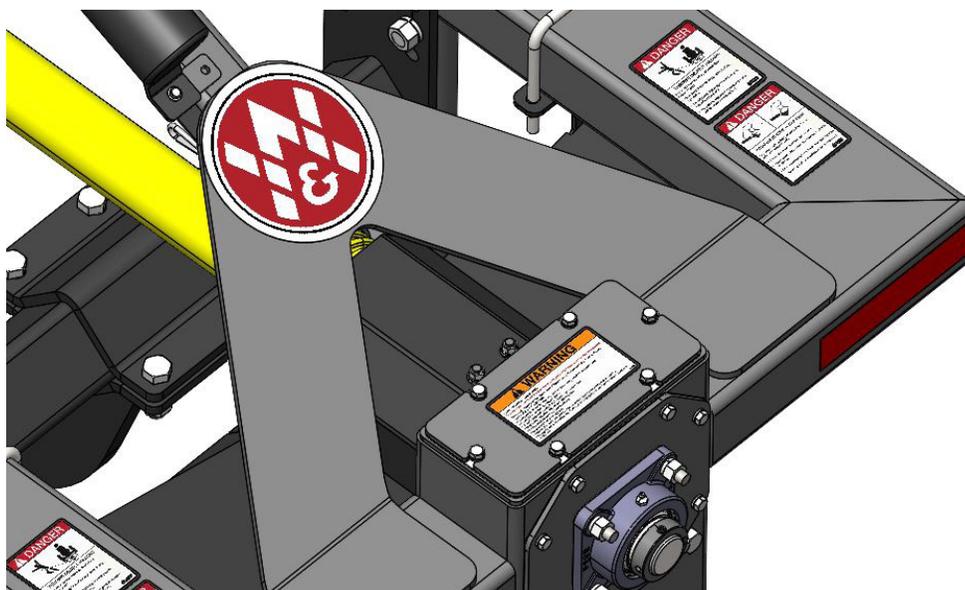
3. Install PTO Shaft on Upper Drive Shaft by aligning the spline shaft groove so the bolt holes line up in alternating directions. Then tighten bolts (Figure 3).

Figure 3



4. Re-install PTO Shield (Figure 4).

Figure 4

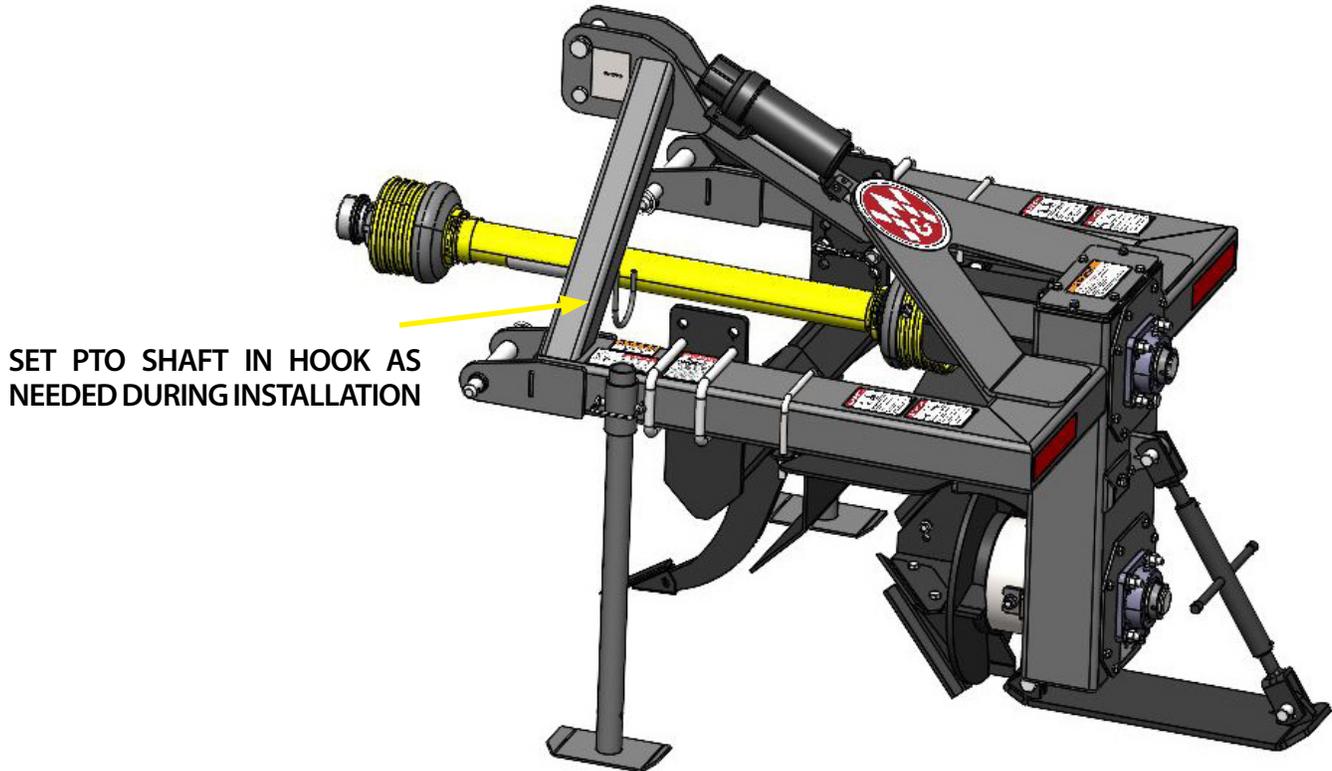




PTO SHAFT INSTALLATION

5. Push/pull on shear bolt end of driveline to ensure it is securely fastened to the input drive shaft (Figure 5).

Figure 5



SET PTO SHAFT IN HOOK AS NEEDED DURING INSTALLATION

PREPARATION & SET-UP



CHECK/CHANGE HITCH CONFIGURATION

On initial delivery, use with a new tractor, we recommend you seasonally check and as necessary, complete these items before continuing to the routine set-up items:

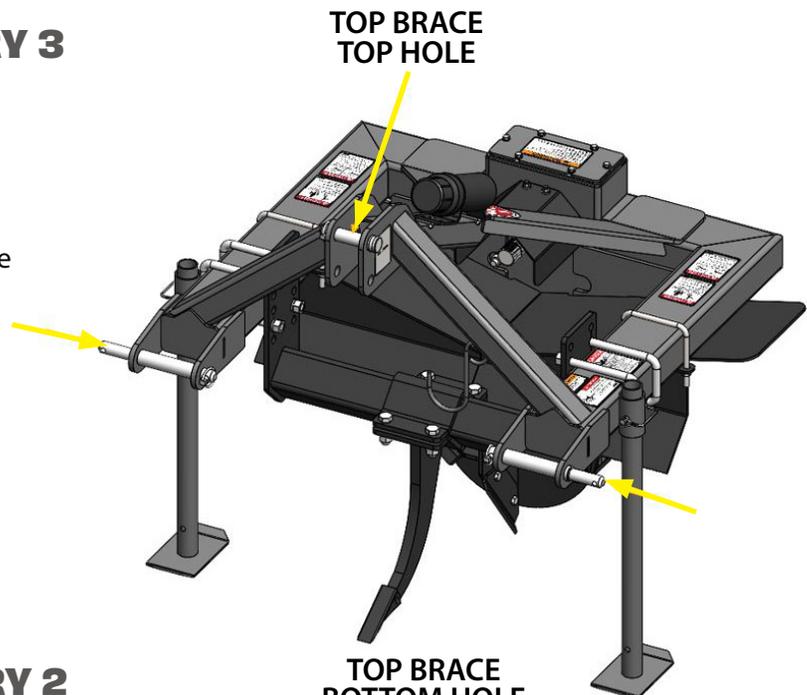
Choose a hitch option that is compatible with your tractor 3-point. The PTO Ditcher has two hitch configurations:

- Category 3
- Category 2

Changing between hitch categories requires removing pins at the implement hitch.

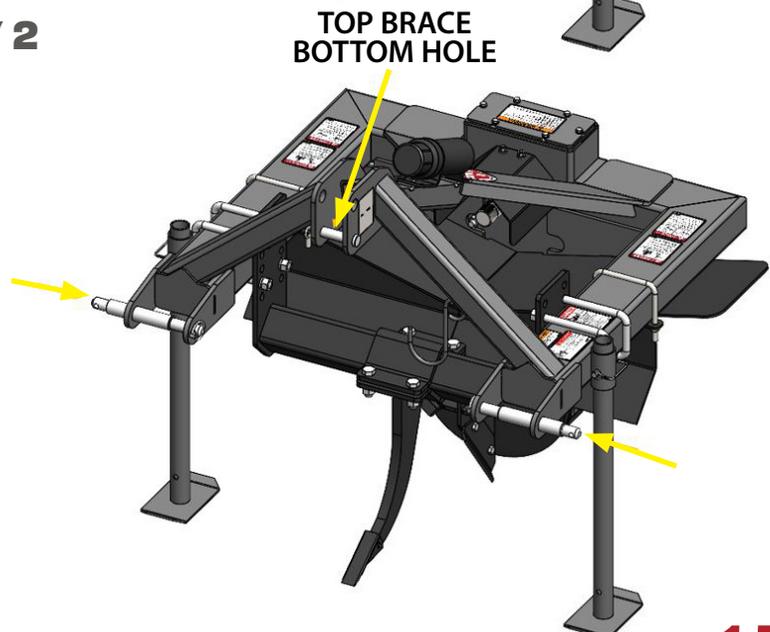
TO OPERATE AS CATEGORY 3

1. Position top brace pin into the top hole and side pins in as shown.



TO OPERATE AS CATEGORY 2

1. Using the small diameter pin provided for the top brace and place it in the bottom hole of the top brace.
2. Flip pins from image shown above and insert as shown in the image to the right.



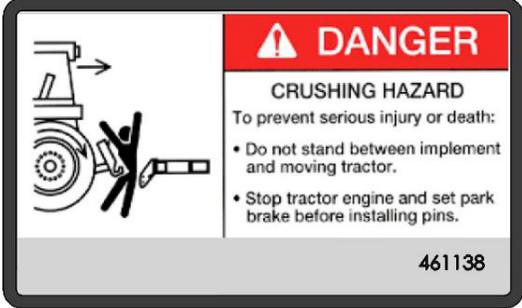


PREPARATION & SET-UP

HITCHING TRACTOR TO IMPLEMENT

On initial delivery, use with a new tractor, and seasonally check and as necessary, complete these items before continuing to the routine set-up items:

1. Connect the tractor 3-point lift arms to the lower hitch pins. If using a quick hitch, ensure that the pins lock securely.
2. Connect the top link to the upper hitch pin. Front-to-back leveling is performed in later steps.
3. Move, or remove, tractor drawbar to prevent interference with the driveline. See tractor Operator's Manual for instructions.
4. After ensuring PTO Ditcher is properly hitched to the tractor, move barstands up to highest position.



461138

CRUSH HAZARD - WARNING

- Keep clear of moving and shifting equipment. Equipment movement area; will result in death or serious injury.
- Hazards may include, but are not limited to, connection and disconnection of equipment, unexpected equipment shifting, etc.

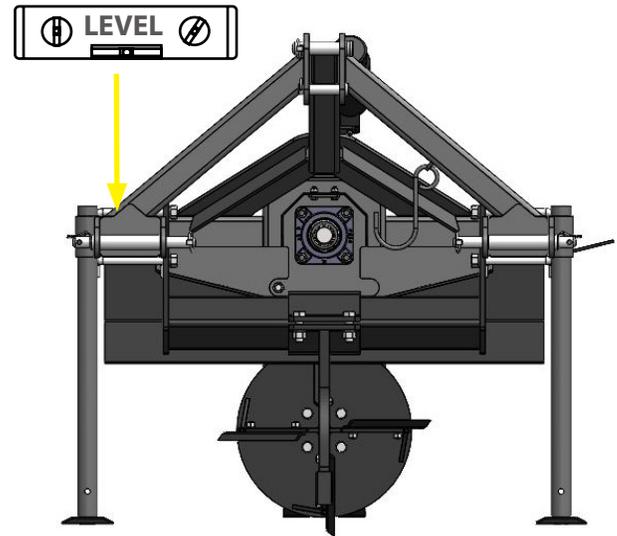


LEVELING THE IMPLEMENT

L/R Leveling (Figure 1)

1. Hitch the PTO Ditcher to a tractor (page 14).
2. Raise the implement.
3. Adjust the tractor 2-point lift arms so that the PTO Ditcher is level.

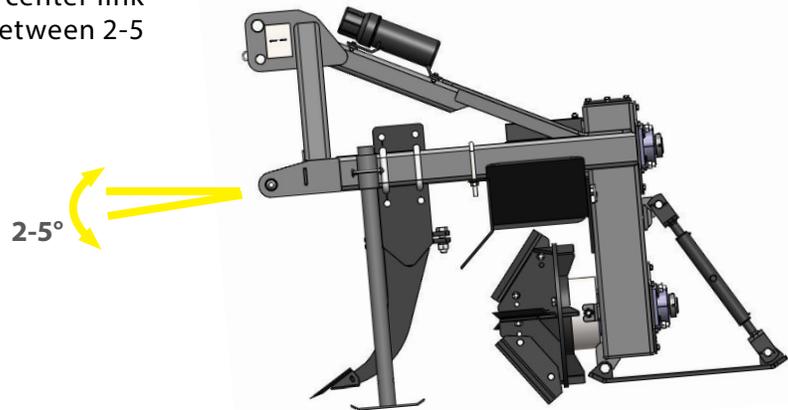
Figure 1



Front-to-Back Leveling

1. Manually adjust the length of the top center link to tilt the front of the ditcher down between 2-5 degrees.

Figure 2



CRUSH HAZARD - WARNING

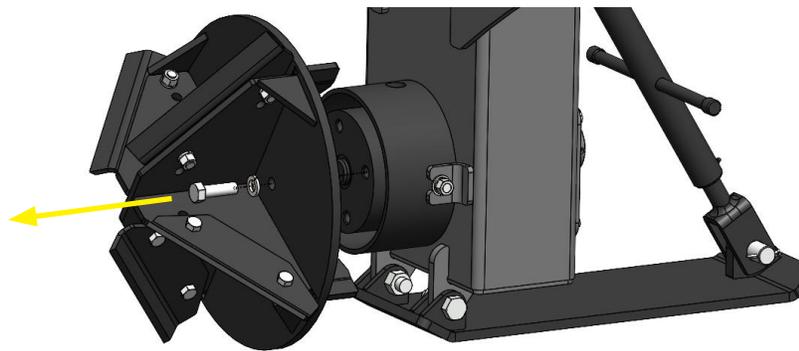
- Keep clear of moving and shifting equipment. Equipment can move or shift; can result in death or serious injury.
- Hazards may include, but are not limited to, folding wing movement, raised equipment movement and shifting, etc.



CUTTING HEAD DIAMETER

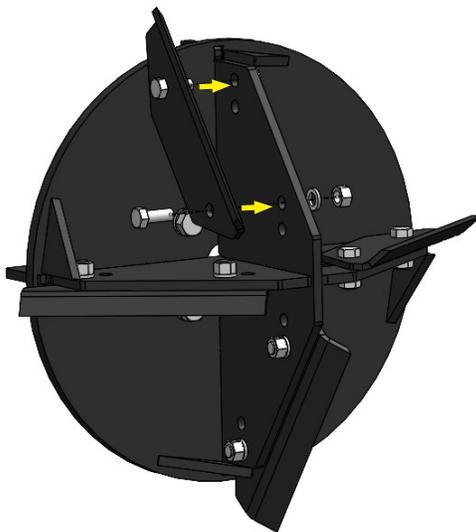
Cutting head capable of two different diameters, 19" and 21". To move to smaller or larger diameter, or to replace blades, follow the procedure below.

1. The Cutting head comes installed, but can be removed for easier maintenance by removing **4 X 5/8-18 UNF Bolts (411060)** and **5/8 Lock Washers (413510)**.

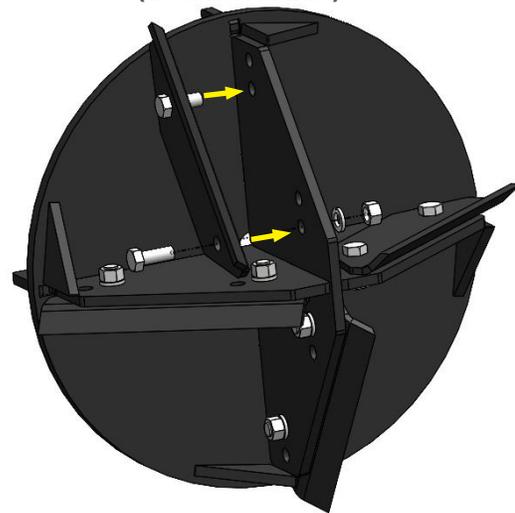


2. The Cutting Head blades come installed in the 21" diameter. You can move the blades to the 19" diameter position by loosening 1/2" hardware and then moving blades into the innermost set of holes on the cutting head. Replace hardware and tighten.

**21" DIAMETER
(STANDARD)**



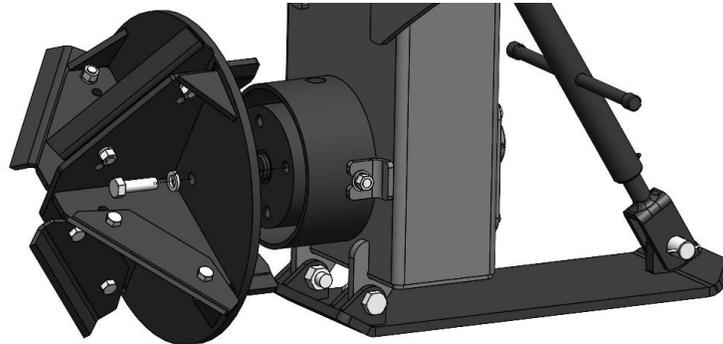
**19" DIAMETER
(LOWER HOLES)**



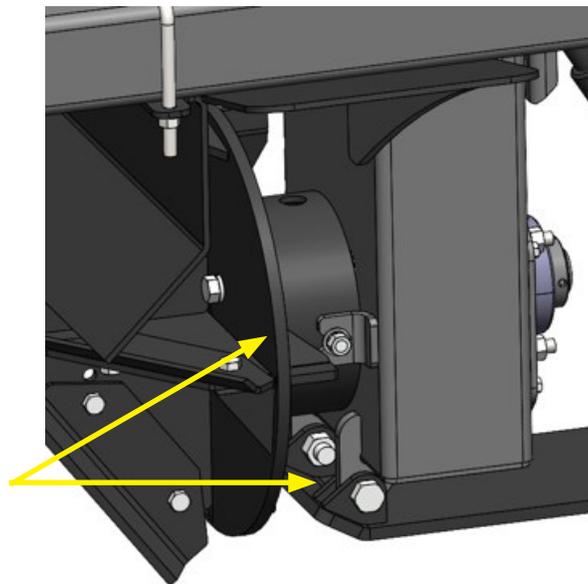


CUTTING HEAD DIAMETER

3. If cutting head removed for maintenance, reinstall by re-inserting and tightening 4 X 5/8-18 UNF Bolts (411060) and 5/8 Lock Washers (413510).



4. The cutting head should spin freely. If it does not spin freely, check that the cutting head shield hardware has not been overtightened causing it to be out of round interfering with rotation (always make sure that the shield is installed with the grease zerk access hole facing up).





REMEMBER

Your best assurance against accidents is a careful and responsible operator. If there is any portion of this manual or function you do not understand, contact W&A Manufacturing.



BEFORE OPERATION

- Carefully study and understand this manual.
- Do not wear loose-fitting clothing which may catch in moving parts.
- Always wear protective clothing and substantial shoes.
- It is recommended that suitable eye protection be worn.
- The operator may come in contact with certain materials which may require specific safety equipment (ie: extremely dusty, molds, fungus, bulk fertilizers).
- Keep bolts tightened to specific torque listed on **Bolt Torque Chart**.
- Give the unit a visual inspection for any loose bolts, worn parts or cracked welds, and make necessary repairs. Follow the maintenance safety instructions included in this manual.
- Be sure that there are no tools lying on or near the equipment.
- Do not use the unit until you are sure that the area is clear, especially children and animals.
- Because it is possible that this equipment may be used in dry areas or in the presence of combustibles, special precautions should be taken to prevent fires and fire fighting equipment should be readily available.
- Don't hurry the learning process or take the unit for granted. Ease into it and become familiar with your new equipment.
- Practice operation of your equipment and its attachments. Completely familiarize yourself and other operators with its operation before using.



DURING OPERATION

- Keep hands, feet, and clothing clear of moving parts.
- Do not clean, lubricate or adjust your equipment while it is moving.
- Be especially observant of the operating area and terrain - watch for holes, rocks or other hidden hazards. Always inspect the area prior to operation.
- Periodically clear the equipment of brush, twigs or other materials to prevent buildup of dry combustible materials.
- Do not walk or work under raised components or attachments unless securely positioned and blocked.
- Keep all bystanders, pets, and livestock clear of the work area.
- Never stand alongside of unit with engine running or attempt to start engine and/or operate machine while standing alongside of unit.
- As a precaution, always recheck the hardware on equipment following every 100 hours of operation. Correct all problems. Follow the maintenance safety procedures.



This section covers general operating procedures. Experience, machine familiarity, and the following information will lead to efficient operation and good working habits. Always operate farm machinery with safety in mind.

PRE-START CHECKLIST

Perform the following steps before transporting the PTO Ditcher to the field.

- Carefully read "Important Safety Information" on pages 3-8.
- Check all bolts, pins, and fasteners. Torque as shown in "Bolt Torque Chart" on page 37.
- Check implement for worn or damaged parts. Repair or replace parts before going to the field.
- Perform all beginning-of-season and daily service items under "Maintenance & Lube" on page 31 & 37.



TRANSPORT CHECKLIST

Before transporting the implement, check the following items.

- Transport only with a tractor of proper size and adequate ballast.
- Hitch implement securely to tractor. See “Hitching Tractor to Implement” on page 14.
- Comply with all national, regional, and local safety laws when traveling on public roads.
- Travel with caution.



DANGER

LOSS OF CONTROL HAZARD:

Ensure that the towing vehicle is adequate for the task. Using an inadequate tow vehicle is extremely unsafe, and can result in loss of control, serious injury and death. To reduce the hazard, use only a 3-point towing vehicle that is both rated for the implement load, and properly ballasted for the load.



OPERATING INSTRUCTIONS

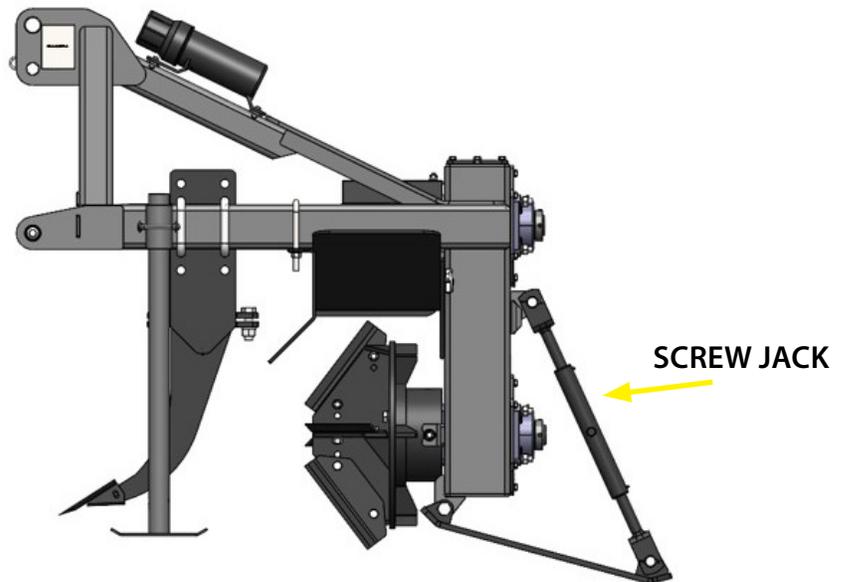
1. Make sure the cutting head and cutting blades are not making contact with the soil before engaging the PTO.
2. To start the ditcher, throttle the tractor engine speed to lowest RPM, then lower the ditcher to slightly above the ground and engage the tractor PTO.
3. After the cutting head has started rotating, set the engine speed as follows: 540 RPM PTO speed for the 540 RPM rated PTO Ditcher. Set to 1000 RPM PTO speed for the 1000 RPM rated PTO Ditchers.
4. Start the forward motion of the tractor and lower the ditcher into the ground. Forward speed and depth of cut should be matched to soil conditions.
5. Proper operating depth and ground speed are interrelated and performance of the PTO Ditcher will improve with operator experience.
6. Periodically check for foreign objects wrapped around the blades and remove them after disengaging power take-off, turning off tractor, and removing ignition key.



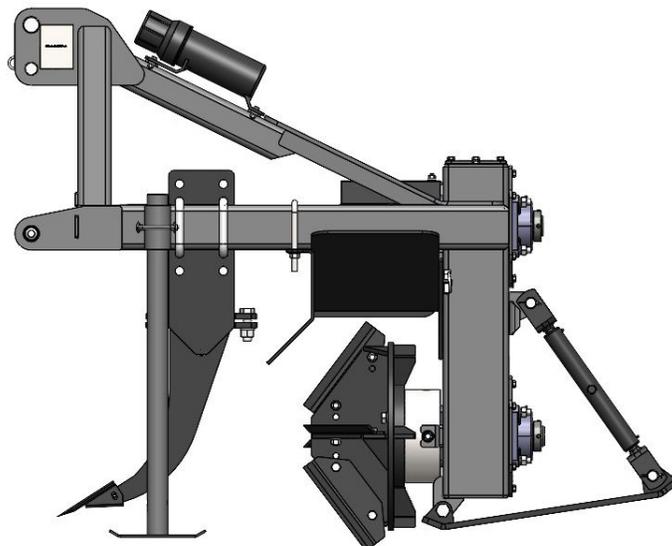
SKID PLATE ADJUSTMENT

The skid plate controls the depth of the cut, and is adjusted by extending or retracting the screw jack.

FULLY EXTENDED
(SHALLOW CUT)



FULLY RETRACTED
(DEEPER CUT)



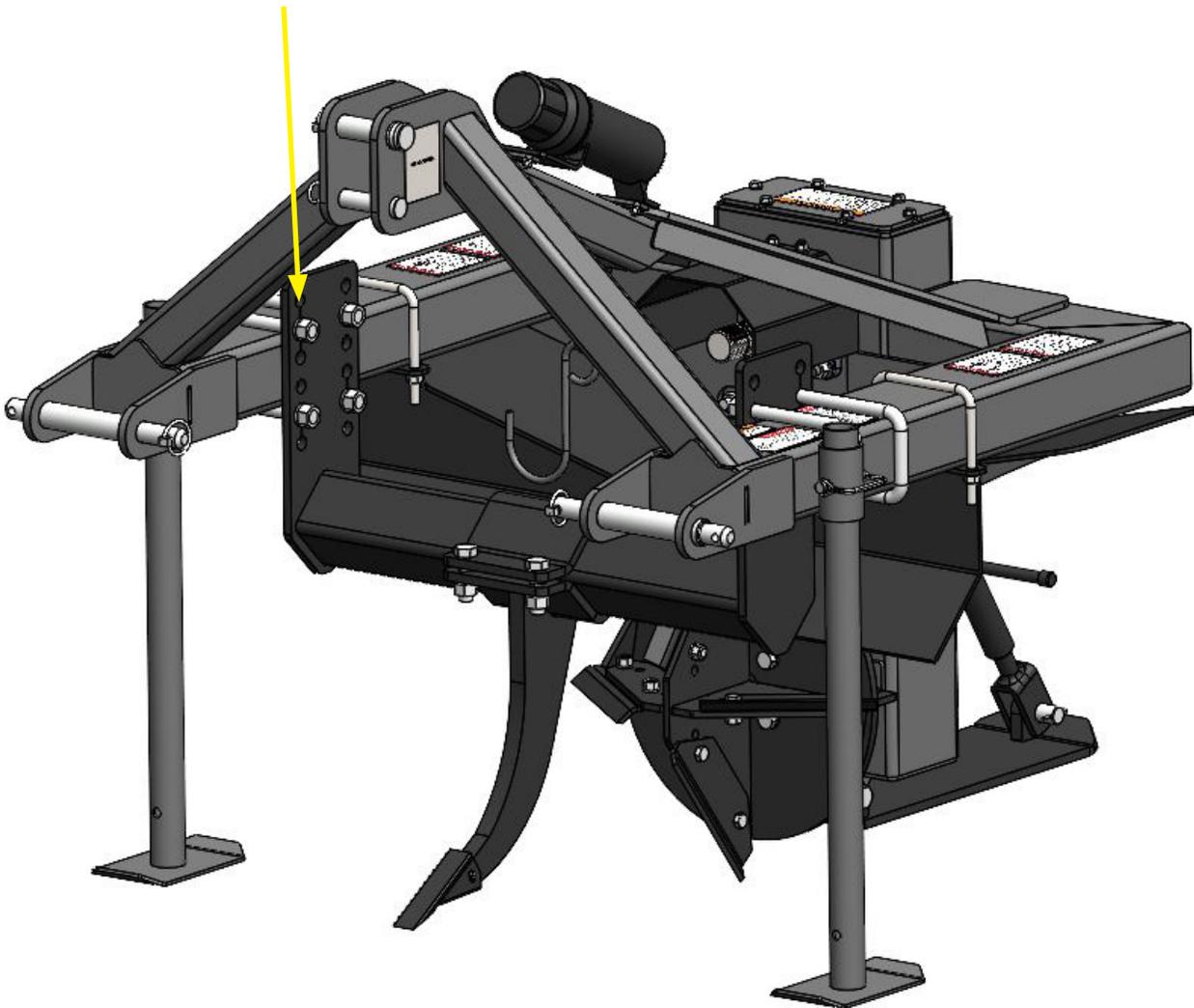


RIPPER ADJUSTMENT

Ripper depth can be adjusted to aid in ripping up hard ground for easier ditching, and to provide a clean path for the cutting head.

- Recommended running at, or below, the bottom of the cutting head height.
- Factory setting for the PTO Ditcher is in the holes shown in the figure below.

**RIPPER DEPTH CAN BE ADJUSTED BY LOOSENING 3/4" U-BOLT
HARDWARE & MOVING SHANK TO DESIRED DEPTH**

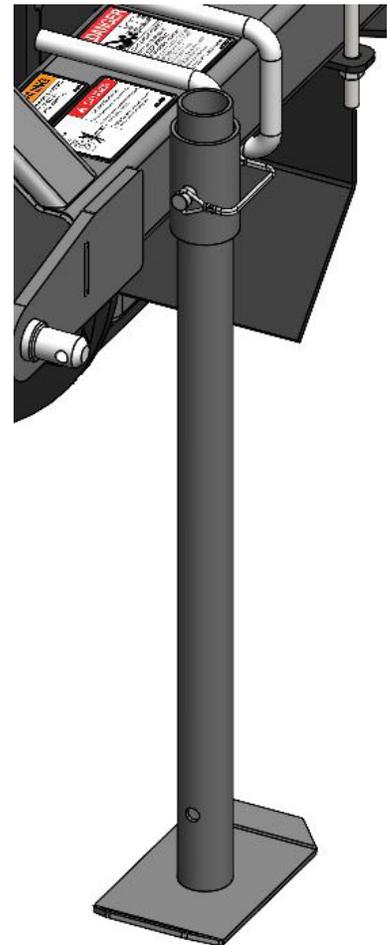
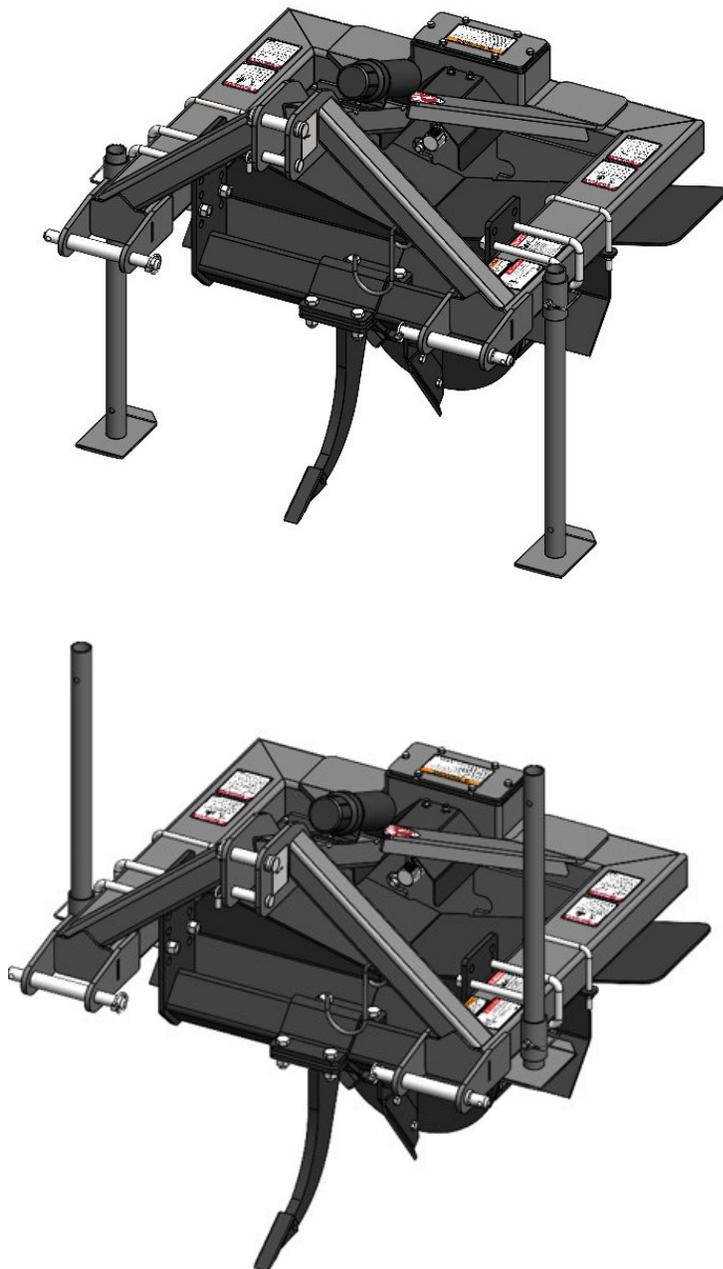




PARKING STANDS

Parking Stands have two available positions:

1. When the machine is not in use, parking stands can be pinned in the lowered position
2. When the machine is in use, parking stands can be pinned in the up position





SPEED RECOMMENDATIONS

The ideal operating speed for the PTO Ditcher is 2.5-5 mph. Field conditions can change the effectiveness of the PTO Ditcher and need to be taken into consideration by the operator.

- Ideal operating speed: 2.5-5 mph
- Minimum operating speed: 2 mph
- Maximum operating speed: 5 mph

SPEED EFFECTS

- Ground speed will vary for various soil types, especially in extreme, rocky conditions. Rule of thumb for all conditions, the slower the ground speed, the better the PTO Ditcher will perform. Lower speeds allow the PTO Ditcher to effectively create a uniform furrow to allow efficient movement of water off your fields.
- Operating at too high of a speed will cause undue stress and wear on the PTO Ditcher while also creating uneven, inefficient furrows.



PARKING

For long-term parking, see also “**Storage**” below.

1. Choose a parking location that has room, is level, has firm soil and is unlikely to develop soft soil in rain. With the implement still hitched, maneuver it to the parking location.
2. Lower the implement to just above ground level. Set the tractor remote to Neutral to hold at slight lift. Shut off the tractor and remove the key.
3. Lower Bar Stand to just above the ground. Use appropriate blocking under level skid shoe to keep the machine from resting on the cutting head.
4. Disconnect PTO shaft from the tractor and store in PTO Shaft hook.
5. Start the tractor. Lower the 3-point hitch until the implement is supported by the Parking Stand.
6. Disconnect the hitch arms and link.

LONG TERM STORAGE

Store the PTO Ditcher where children do not play. If possible, store the implement inside for longer life.

1. Thoroughly clean implement.
2. Park the implement at the storage location as per “Parking” above.
3. Check all lubricant and grease levels and lubricate and grease as needed (see pages 31-36).
4. Inspect implement for worn or damaged parts. Make repairs and service during the off-season.
5. Use spray paint to cover scratches, chips, and worn areas on the implement to protect the metal.
6. Replace all damaged or missing decals.
7. Apply a light coat of oil or grease to the blades on the cutting head to minimize oxidation.
8. The PTO Ditcher should be stored inside a storage building, on a solid and flat surface in a dry location.



TIP OVER/CRUSHING HAZARD AND EQUIPMENT DAMAGE RISK:

Never unhitch, park, or store a partially folded implement. A partially folded implement could topple backward or forward immediately or at a later time, causing serious injury or death and certain severe equipment damage. When unhitched, the implement is supported at the rear only by row unit tools and spring tension. Slopes, soft soils, and soils later softened by rain are particularly dangerous.



FOLLOWING OPERATION

- Store the unit in an area away from human activity.
- Do not park equipment where it will be exposed to livestock for long periods of time. Damage and livestock injury could result.
- Do not permit children to play on or around the stored unit.
- Make sure all parked machines are on a hard, level surface.



PERFORMING MAINTENANCE

- Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.
- Before working on this machine, stop the towing vehicle, set the brakes, shut off the engine and remove the ignition keys.
- Be certain all moving parts on attachments have come to a complete stop before attempting to perform maintenance.
- Always use the proper tools or equipment for the job at hand.
- Use extreme caution when making adjustments.
- Follow the torque chart in this manual when tightening bolts.
- Replace all shields and guards after servicing and before moving.
- After servicing, be sure all tools, parts and service equipment are removed.
- Never replace hex bolts with less than Grade 5 bolts unless otherwise specified. Refer to **Bolt Torque Chart** for head identification marking.
- Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer will not claim responsibility for use of unapproved parts and/or accessories and other damages as a result of their use.
- If equipment has been altered in any way from the original design, the manufacturer does not accept any liability for injury or warranty.
- A first aid kit should be kept readily accessible while performing maintenance on this equipment.



PTO DITCHER DO'S AND DON'TS

- DO follow all safety precautions in this manual.
- DO locate and familiarize yourself with the various Safety Signs and instructional decals prior to operation.
- DO inspect equipment for damage and wear before use; repair as needed.
- DO follow recommend maintenance.
- DO level the PTO Ditcher for optimum performance.
- DO lift implements completely out of the soil before turning the unit.
- DO use caution when moving large equipment. Using a spotter is recommended when working around obstacles on the ground and/or overhead.
- DON'T engage power take-off with machine in the fully raised position.
- DON'T drop 3-point hitch. Lower the PTO Ditcher slowly to the ground.
- DON'T exceed the limits of a piece of machinery.
- DON'T modify equipment from factory build; modification may compromise equipment safety and integrity and will void product warranty.

TROUBLESHOOTING



Troubleshooting		
Problem	Possible Cause	Solution
PTO shaft vibrates	Check for worn out universal joints	Replace universal joints if needed
	Check for bent PTO shaft	Replace PTO shaft if it is bent
Ditcher is not achieving desired cutting depth	Ditcher cutting depth is restricted by tractor 3-point	Adjust tractor 3-point lift arms to a deeper depth setting
	3-point top link too long	Shorten top link
	Ground hard enough to require Ripper	Install Ripper, or set Ripper deeper if already installed
	Depth control set too low (Skid Plate)	Adjust to depth required
Cutting head will not rotate	PTO shaft is not engaged	Engage PTO shaft
	PTO shaft shear bolt may be sheared	Replace shear bolt
	Drive chain may be broken or has jumped off the drive sprockets	Repair drive chain or realign on drive sprockets and adjust tension
Excessive noise in chain gear case (Some noise will be present during normal operation)	Drive chain is loose	Tighten idler sprocket to remove slack in chain tension
	Sprocket to chain alignment	Adjust sprocket to chain alignment
	Spring loose from idler	Re-hook spring to idler and adjust
Ditcher gear case has excessive vibration	Cutting head is out of balance	Check for unevenly worn or missing cutting blades. Check for soil or other debris build up on the cutting head
Cutting blades do not leave a smooth soil surface	Worn cutting blades	If the cutting blades are reversible, rotate them. If not, or completely worn out, replace them
Machine vibration	Debris and dirt lodged in rotor	Clean rotor



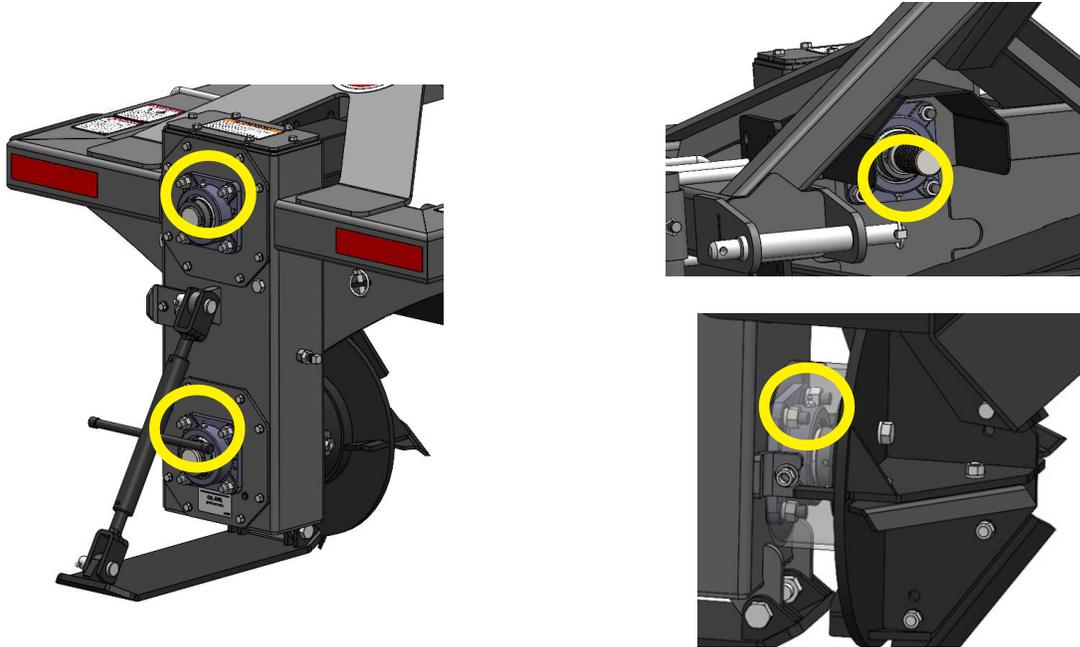
MAINTENANCE

- Proper maintenance will ensure longevity and optimum performance of your W&A equipment.
- Visual inspection is recommended before each use. Check for loose bolts, worn parts, cracked welds and other damage. Replace and repair as needed.
- Always replace bolts with the same grade, refer to **Bolt Torque Chart** for grade identification. Tighten bolts according to **Bolt Torque Chart**.
- Always replace parts with W&A parts only.
- Before long-term storage (3 months or more) clean debris from equipment and touch-up paint to prevent corrosion.
- Store in a flat dry place away from human activity and livestock.
- After long-term storage (3 months or more) visually inspect equipment and carefully inspect all components. Especially parts more easily affected by weather damage, such as wiring. Repair and replace as needed before use.



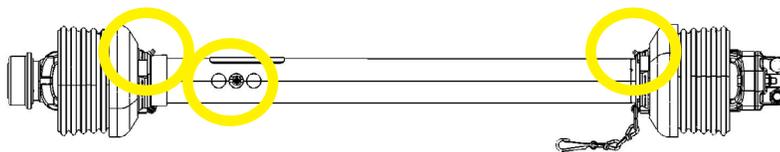
DAILY MAINTENANCE (10 HOURS OF OPERATION)

- Visually check chain housing for oil leaks
- Inspect for loose or damaged blades
- Visually inspect entire PTO Ditcher for worn, loose, damaged, or missing parts
- Grease 1-15/16" chain housing bearings



WEEKLY MAINTENANCE (25-50 HOURS OF OPERATION)

- Grease driveline. Use a good grade of clean grease
- Check chain housing oil level. Use a good grade of clean HD 85W90 gear lube when adding oil



YEARLY MAINTENANCE (250 HOURS OF OPERATION)

- Clean machine off
- Inspect for worn or damaged parts and replace if needed
- Remove oil from chain housing and flush case with kerosene or diesel fuel to remove contamination. Replace oil with a good grade of clean HD 85W90 gear lube
- Inspect chain, sprockets, and bearings for wear and replace if needed
- Inspect universal drive shaft for worn or damaged parts and replace if needed
- Inspect blades for wear, replacing blades if worn or damaged
- Thoroughly inspect entire PTO Ditcher for missing, worn, or damaged parts
- Review safety regulations and rules with all operators and personnel

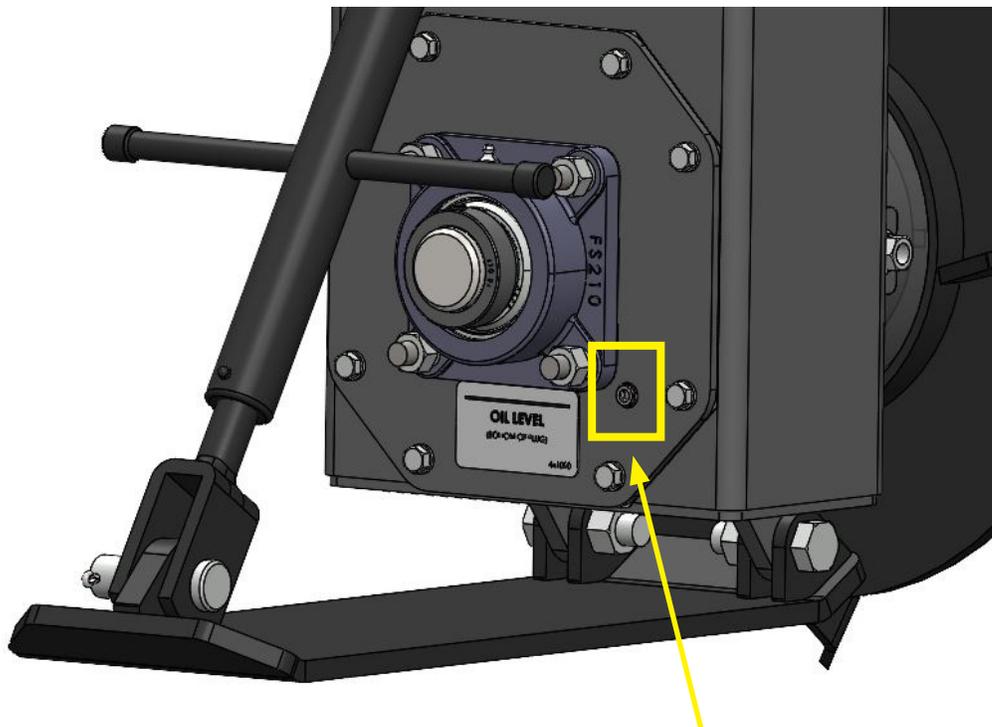


CHECKING OIL LEVEL FOR BEARING HOUSING

Gear oil level should always be checked before using the machine. We recommend using **85W90 Gear Oil**.

To check if there is enough gear oil to properly operate the machine:

1. Remove 1/4" NPT Plug by using appropriate size Allen key
2. If gear oil seeps out, or is at the bottom edge of the hole, then the oil level is appropriate for running the machine
3. If gear oil is not at the recommended level to run the machine correctly, add gear oil as needed to reach recommended level (See next page for adding additional gear oil)

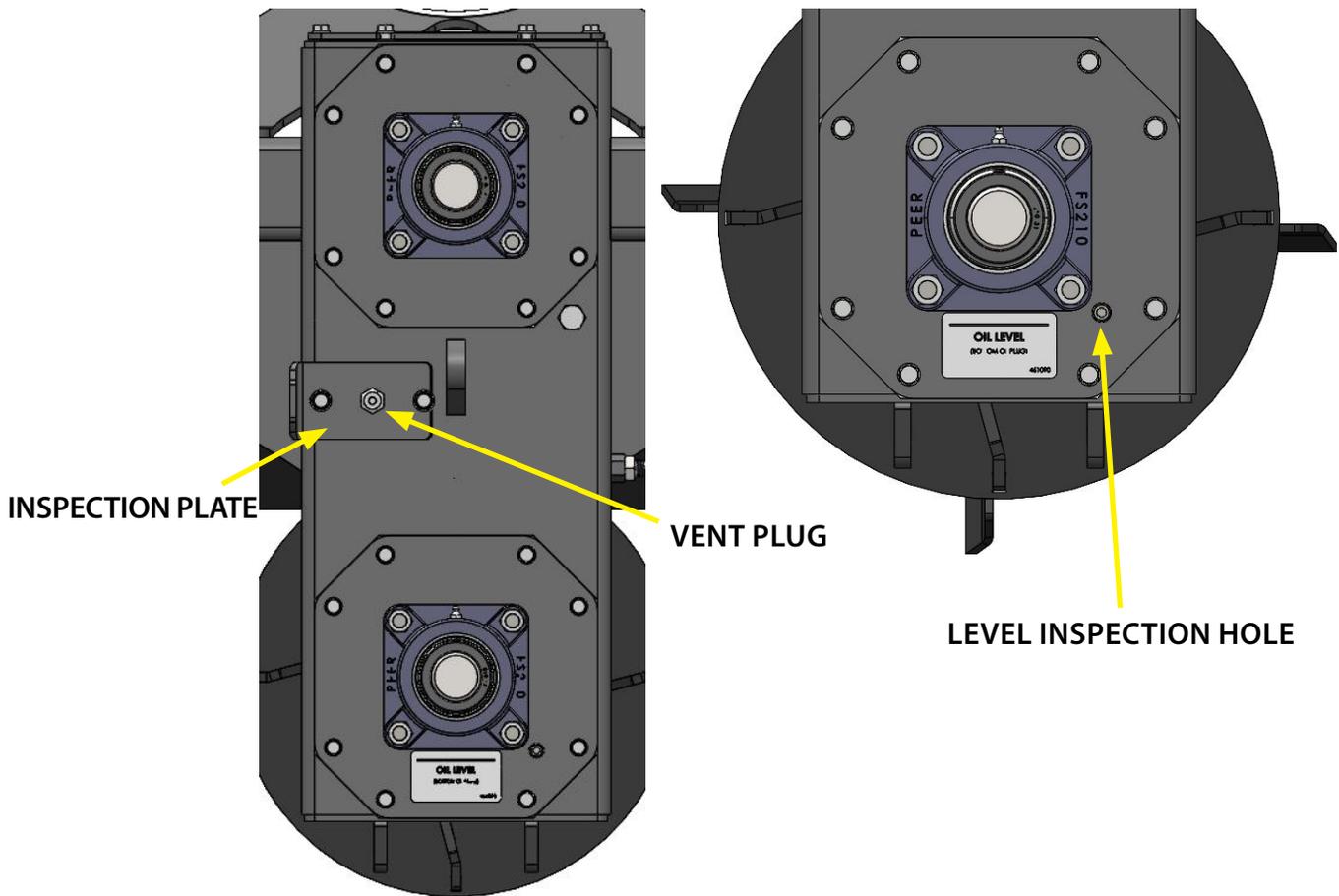




ADDING OIL TO BEARING HOUSING

To add gear oil:

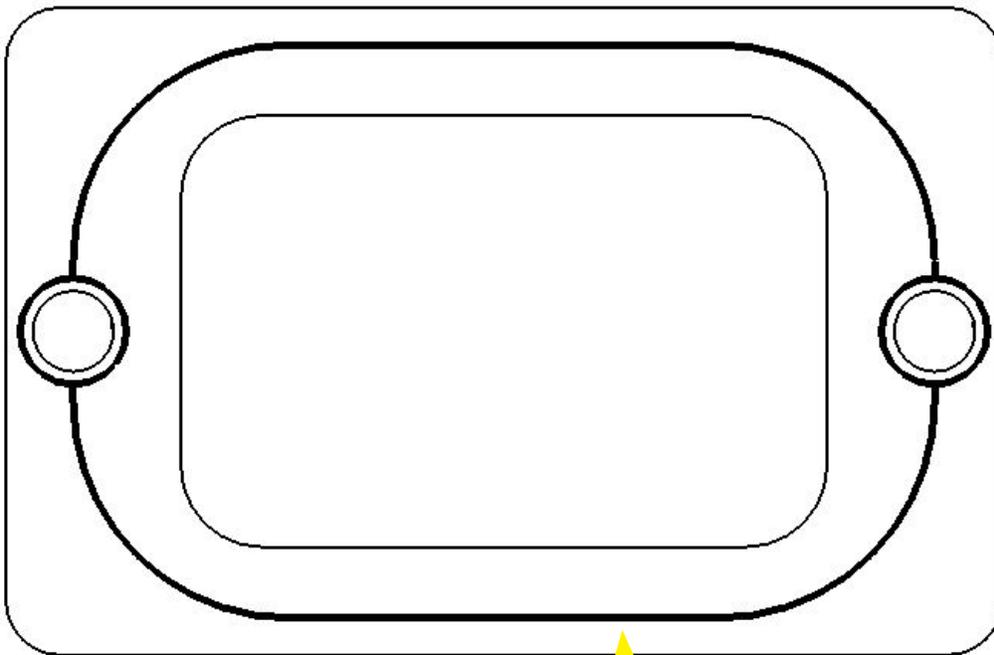
1. Remove vent plug or complete inspection plate assembly.
2. Remove 1/4" NPT Plug used to check gear oil level
3. Add enough 85W90 Gear Oil so that it starts seeping out of the 1/4" NPT oil level inspection hole
4. Re-install the 1/4" NPT Plug





REPLACING TOP GASKET COVER

1. Clean the Chain Housing surfaces that come in contact with the Inspection Cover so that the surfaces are smooth and no Gasket Maker residue is present
2. Apply 1/8" bead of Gasket Maker (we recommend using Permatex Black One Minute Gasket #85224) to one side of the Inspection Cover and place on top of Chain Housing, making sure that the gasket holes are lined up with the bolt holes
3. Apply 1/8" bead of Gasket Maker to the top facing side of the new gasket
4. Install the Inspection Cover so that all of the bolt holes are lined up
5. Install the Inspection Cover 3/8" hardware

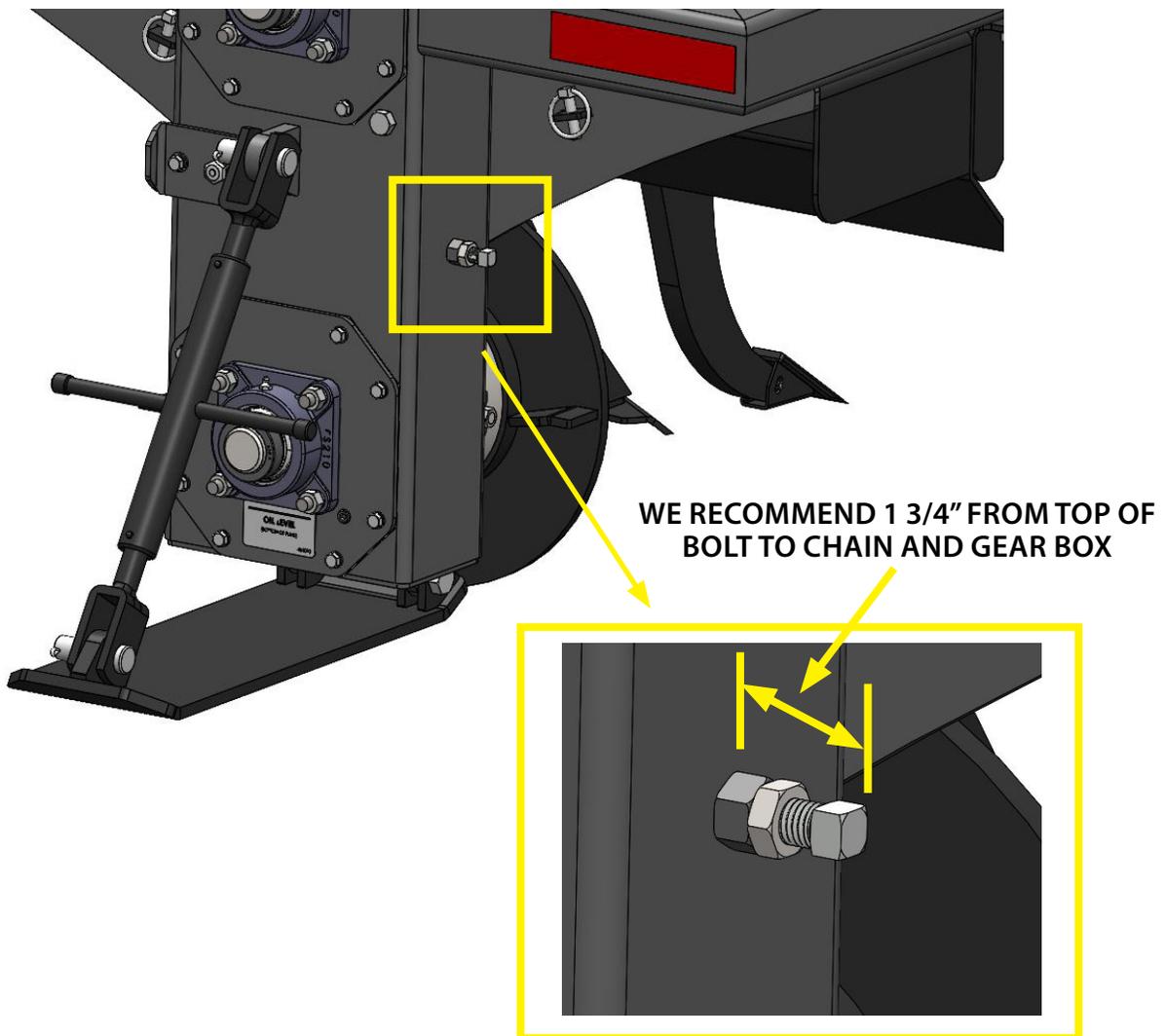


APPLY GASKET MAKER TO GASKET IN PATTERN SHOWN



CHAIN TENSION ADJUSTMENT

1. Loosen 5/8-11 Jam Nut
2. Adjust 5/8-11 Square Head Bolt to tighten or loosen chain tension as needed
3. Re-tighten 5/8-11 Jam Nut to secure 5/8-11 Square Head Bolt





CHECKING BOLT TORQUE

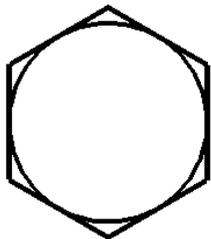
The table shown below gives correct torque values for various bolts and capscrews. Tighten all bolts to the torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt torque chart as a guide. Replace hardware with the same grade bolt.

BOLT TORQUE CHART

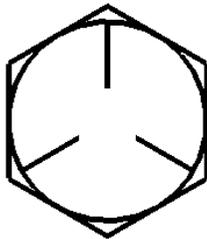
Torque Specifications						
Bolt Diameter	Bolt Torque*					
	SAE Grade 2		SAE Grade 5		SAE Grade 8	
INCH	lbft	(Nm)	lbft	(Nm)	lbft	(Nm)
1/4	6	(8)	9	(12)	12	(17)
5/16	10	(13)	19	(25)	27	(36)
3/8	20	(27)	33	(45)	45	(63)
7/16	30	(41)	53	(72)	75	(100)
1/2	45	(61)	80	(110)	115	(155)
9/16	70	(95)	115	(155)	165	(220)
5/8	95	(128)	160	(215)	220	(305)
3/4	165	(225)	290	(390)	400	(540)
7/8	170	(230)	420	(570)	650	(880)
1	226	(345)	630	(850)	970	(1320)

BOLT HEAD IDENTIFICATION

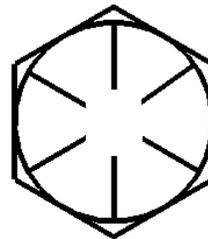
Grade 2



Grade 5

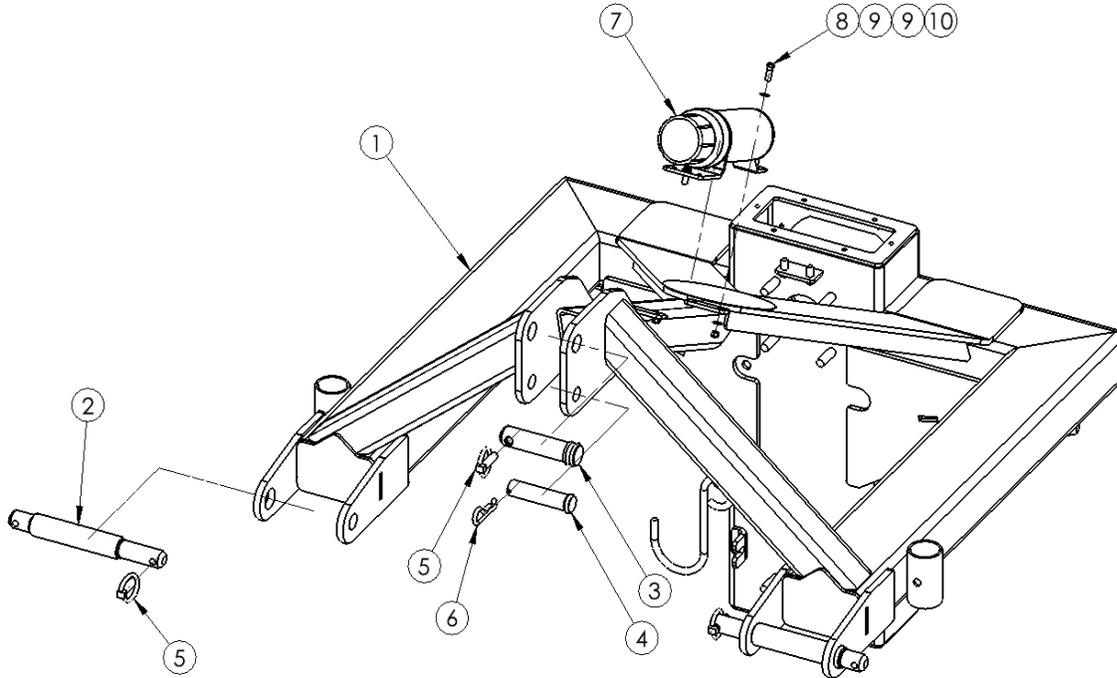


Grade 8





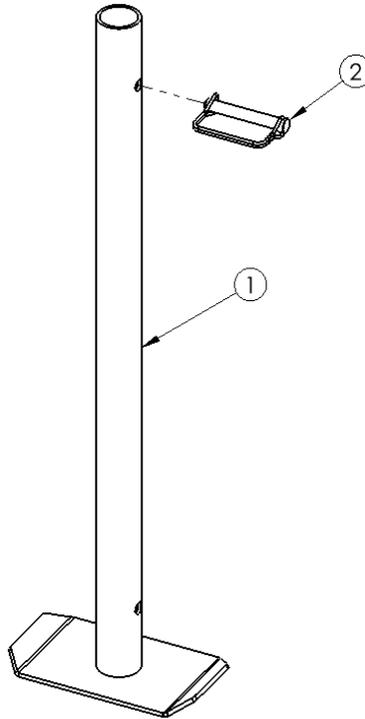
MAIN FRAME & HITCH



Item Number	Part #	Description	Quantity
1	800970	PTO DITCHER MAIN FRAME WELDMENT	1
2	416715	PTO DITCHER LOWER HITCH PIN	2
3	416698	PTO DITCHER HITCH MAST UPPER PIN	1
4	416666	CLEVIS PIN 1 X 4 1/2 PLATED Z/C	1
5	416207	LYNCH PIN WITH RING 7/16" X 1 3/4" PLATED Z/Y	2
6	416800	HAIR PIN .177 WIRE X 3.25 OVERALL LENGTH Z/C	1
7	700389	MANUAL CANISTER	1
8	411471	1/4-20 X 1 HEX BOLT GR5 Z/C	2
9	413004	1/4 FLAT WASHER SAE Z/C	4
10	410004	1/4-20 HEX NUT CENTER LOCK GRA Z/C	2



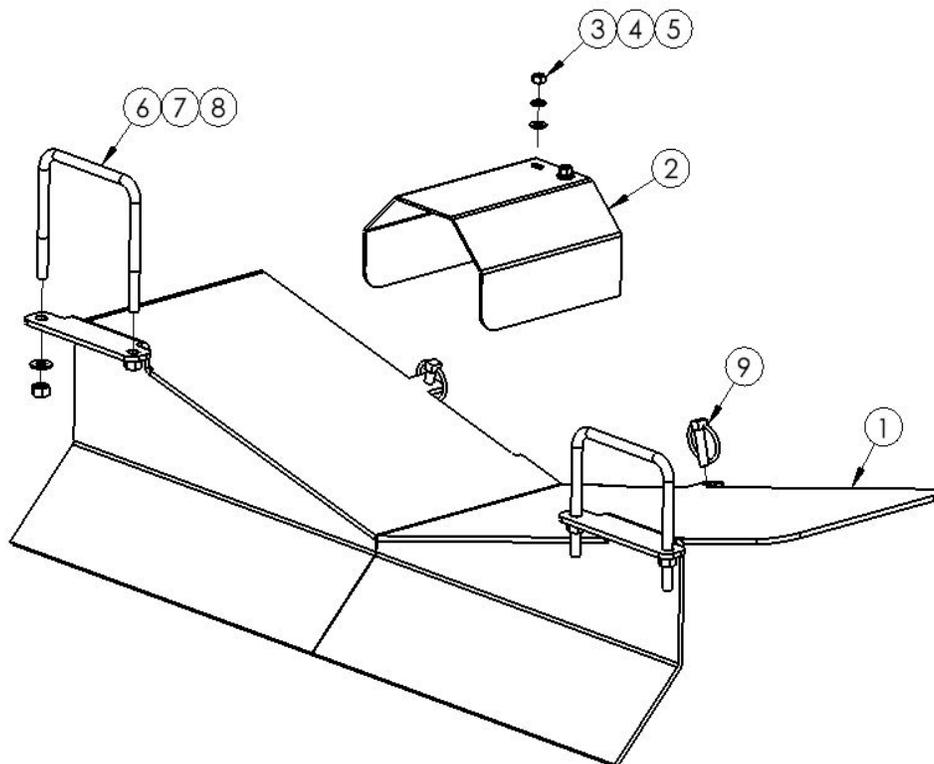
BAR STANDS



Item Number	Part #	Description	Quantity
1	800524	PARKING STAND	2
2	416228	1/12 X 3 LOCKING PIN RETAINER	2



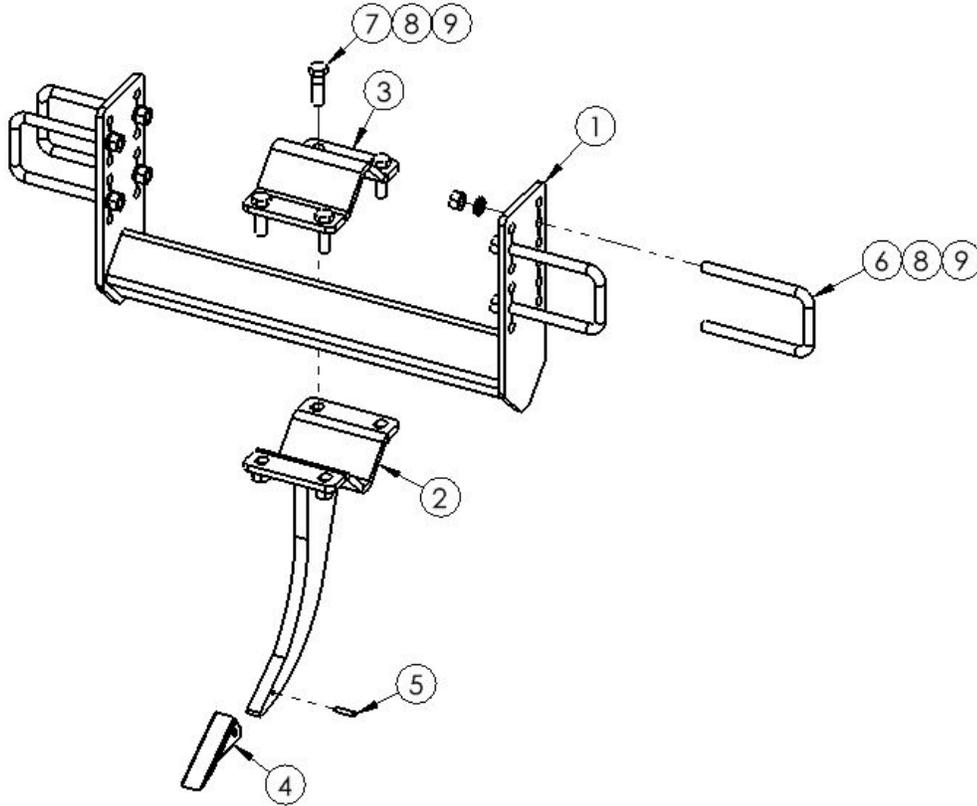
DEFLECTOR SHIELD



Item Number	Part #	Description	Quantity
1	800971	DEFLECTOR SHIELD	1
2	804593	PTO SHIELD	1
3	413009	3/8 FLAT WASHER SAE	2
4	413506	3/8 LOCK WASHER	2
5	412006	3/8-16 NUT	2
6	415118	1/2-13 X 6W X 6H U-BOLT	2
7	413007	1/2 FLAT WASHER SAE	4
8	410008	1/2-13 CENTER LOCK NUT	4
9	416207	7/16 X 1 3/4 LINCH PIN W/RING	2



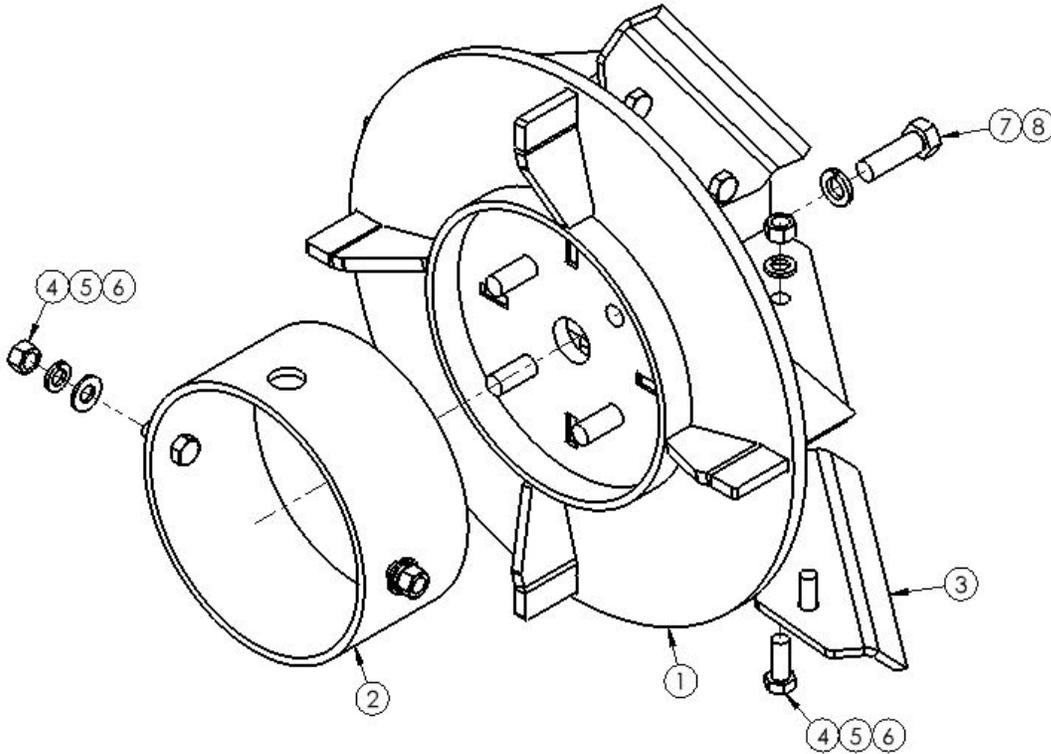
RIPPER ASSEMBLY



Item Number	Part #	Description	Quantity
1	800527	SHANK MOUNT FRAME	1
2	800526	SHANK	1
3	804584	SHANK CLAMP	1
4	475030	SHANK POINT	1
5	416110	5/16 X 1 1/2 ROLL PIN	1
6	415014	3/4-10 X 4W X 7 3/4H U-BOLT	4
7	411586	3/4-10 X 2 1/2 BOLT	4
8	413512	3/4 LOCK WASHER	12
9	412012	3/4-10 NUT	12



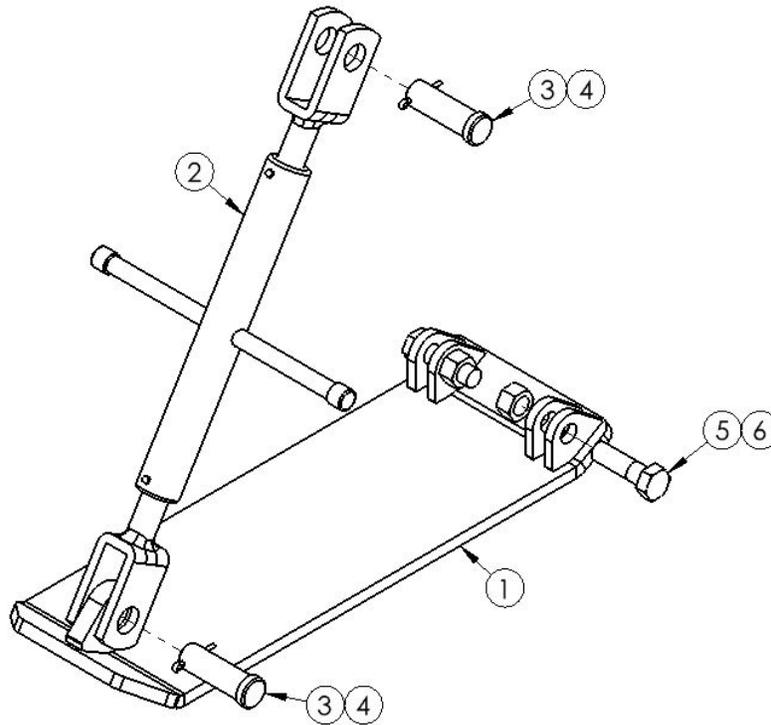
CUTTING HEAD



Item Number	Part #	Description	Quantity
1	800521	CUTTING HEAD	1
2	800522	CUTTING SHIELD	1
3	474200	CUTTING HEAD BLADE	4
4	411544	1/2-13 X 1 1/4 BOLT	8
5	413508	1/2 LOCK WASHER	8
6	412058	1/2-13 NUT	8
7	411060	5/8-18 X 2 UNF BOLT	4
8	413510	5/8 LOCK WASHER	4



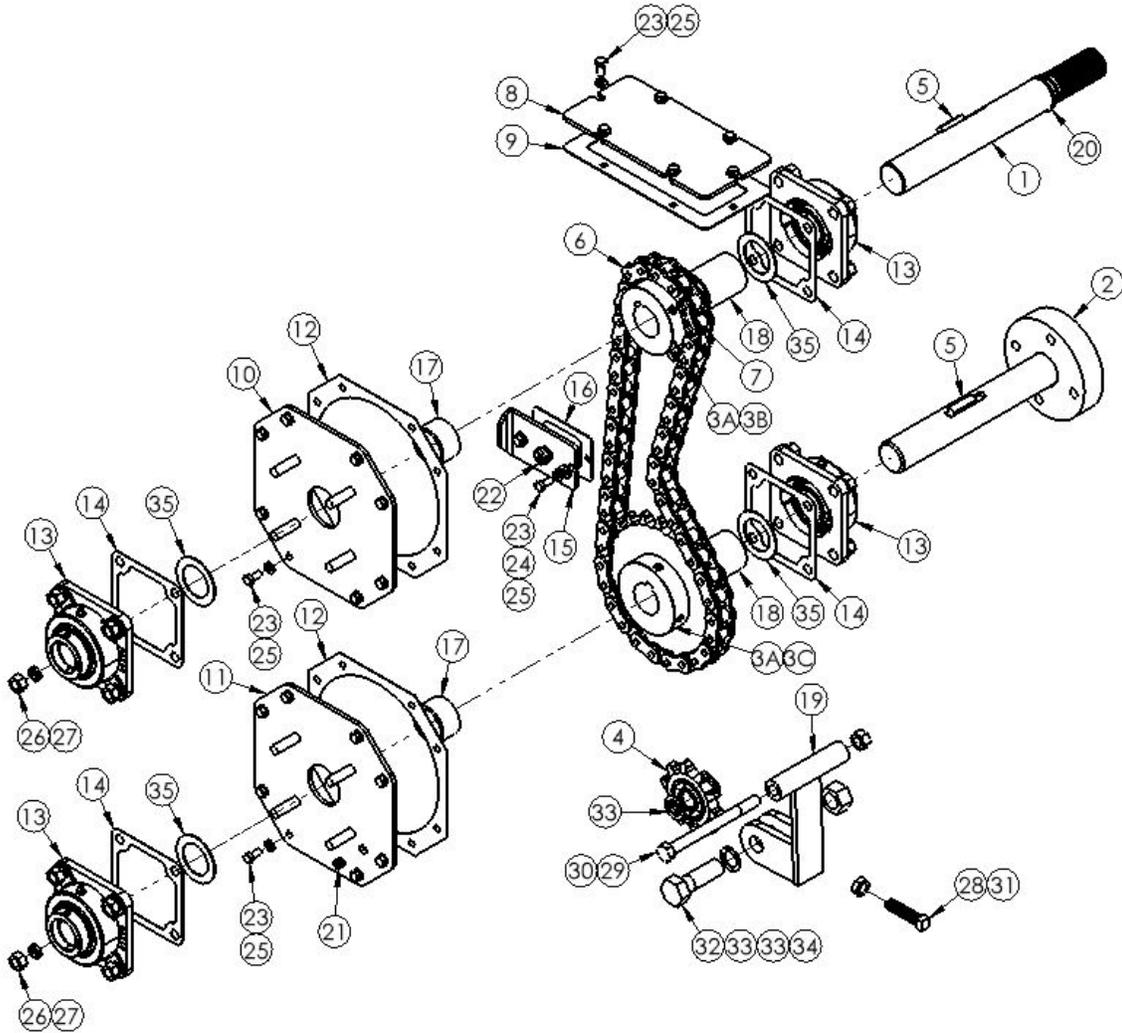
SKID PLATE ASSEMBLY



Item Number	Part #	Description	Quantity
1	800523	SKID PLATE	1
2	498119	SCREW JACK	1
3	416659	CLEVIS PIN 1 X 3	2
4	416012	3/16 X 1 1/2 COTTER PIN	2
5	411586	3/4-10 X 2 1/2 BOLT	2
6	412012	3/4-10 NUT	2



CHAIN & GEAR BOX



Item Number	Part #	Description	Quantity
1	402866	UPPER DRIVE SHAT	1
2	800973	LOWER DRIVE SHAFT	1
3A	403088	18 TOOTH SPROCKET FOR 3600 MODEL	2
3B	403084	14 TOOTH SPROCKET FOR 3700 MODEL	1
3C	403092	22 TOOTH SPROCKET FOR 3700 MODEL	1
4	403080	IDLER SPROCKET	1
5	403820	1/2 X 1/2 KEYSTOCK	2

****CONTINUED ON NEXT PAGE****



CHAIN AND GEAR BOX

Item Number	Part #	Description	Quantity
6	701516	#100 ROLLER CHAIN	1
7	402101	#100 CONNECTOR LINK	1
8	804595	TOP COVER	1
9	445054	TOP COVER GASKET	1
10	800512	UPPER BEARING PLATE	1
11	800513	LOWER BEARING PLATE	1
12	445052	BEARING PLATE GASKET	2
13	482215	1 15/16 FLANGE BEARING	4
14	445050	FLANGE BEARING GASKET	4
15	804594	INSPECTION PLATE	1
16	445055	INSPECTION PLATE GASKET	1
17	804547	FRONT SPROCKET SPACER	2
18	804548	REAR SPROCKET SPACER	2
19	800516	IDLER ARM	1
20	483260	1 15/16 EXTERNAL RETAINING RING	1
21	456204	1/4 NPT PLUG	1
22	456158	1/2 NPT VENT PLUG	1
23	411505	3/8-16 X 3/4 BOLT	24
24	413009	3/8 FLAT WASHER SAE	2
25	413506	3/8 LOCK WASHER	24
26	413123	9/16 LOCK WASHER	16
27	412059	9/16-12 NUT	16
28	414830	5/8-11 X 2 1/2 SQ. HEAD NUT	1
29	411573	5/8-11 X 7 BOLT	1
30	510009	5/8-11 CENTER LOCK NUT	1
31	412410	5/8-11 JAM NUT	1
32	411641	1-8 X 3 BOLT	1
33	413115	1 ID X 1.5 OD X 14GA MACHINE BUSHING	4
34	410016	1-8 CENTER LOCK NUT	1
35	413123	2 X 3 14GA MACHINE BUSHING	4

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