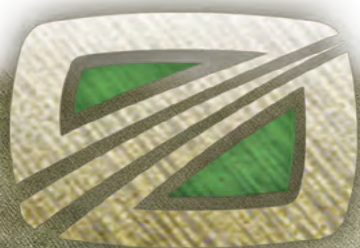




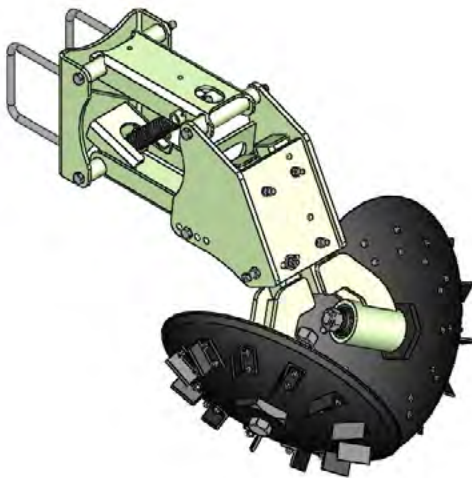
**5|SP Stalk Puller
Operator's Manual**

Part #125-031-01

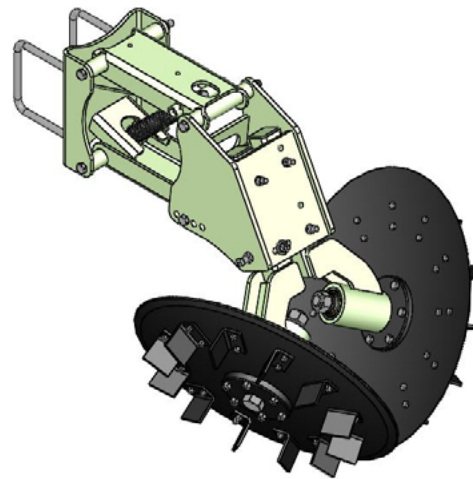


The Orthman 5|SP Stalk Puller is a high-speed, low-horsepower fall or spring residue management tool with large V-disks to pinch and pull out the sub-soil root mass and crop stalk/stem. Typically operated at 10 to 12 MPH, the Stalk Puller provides a residue-free seedbed prepared for the planting operation. Plus, grease-less parallel linkages make the Stalk Puller a virtually maintenance-free machine.

Options for the 5|SP Stalk Puller include chopper units to aid in the management of residue, and gauge wheels for uniform operating depth.



24" DISC CORN ROW UNIT



28" DISC COTTON ROW UNIT

This manual is considered to be an integral component of the 5|SP Stalk Puller and is designed to educate the owner and/or operator(s) regarding safety, operation, maintenance, troubleshooting, and component identification. All personnel involved in the operation of this implement are responsible for reading and understanding entire manual content. This manual is designed to keep the operator safe and knowledgeable as well as prolong the life of the implement and maximize field efficiency. This manual should accompany the implement if it were ever to be sold.

We would like to thank you for placing your confidence in Orthman Mfg., Inc. Your 5|SP Stalk Puller is manufactured to meet the highest standards and is built with precision and strength to increase your agricultural operation's dependability and profitability.

Thank you for choosing Orthman.

To The Dealer:

Inspect the implement thoroughly after assembly to be certain it is functioning properly before delivering it to the customer. The following checklist is a reminder of points to cover. Check off each item as it is found satisfactory or after proper adjustment is made.

Pre-Delivery Checklist

- 1. All Hardware properly tightened.
- 2. Lubrication of grease fittings.
- 3. All decals properly located and readable.
- 4. All implement tools and options are installed and set.
- 5. Check overall condition of implement.
- 6. Make sure Operator's manual is included.

Date Set Up. _____ Signature. _____

Delivery

Review the operator's manual with the customer. Explain the following:

1. Introduce the machine to the customer. Give the customer this manual and encourage them to read it.
2. Make the customer aware of all the safety precautions that must be exercised when using and transporting this machine.
3. Make customer aware of the different tooling options available.
4. This machine does not come set to run in the field from the factory. The Field settings section in this manual is meant to help set the machine for optimal performance. Explain all operating adjustments.
5. Explain to the customer that the life expectancy of this machine depends on regular maintenance as directed in this manual.
6. Tell the customer to use the proper tools for service and make them aware of Orthman parts availability.
7. Write machine model number and serial number in the spaces provided below.

Date delivered. _____ Signature. _____

Model Number. _____

Serial Number. _____

INTRODUCTION

WARRANTY

Orthman warrants each new wholegood product to be free from defects in manufactured components and workmanship. This warranty is applicable only for the normal service life expectancy of the product or components, not to exceed twenty-four (24) consecutive months from date of purchase of the new Orthman product to the original purchaser.

Purchased components installed by Orthman (blades, bearings, controls, hoses, wheels, coulters, cylinders, fittings, etc.) shall be warranted by the respective manufacturer for a period of twelve (12) consecutive months from date of delivery of the new Orthman product to the original purchaser.

A completed online Warranty Registration for the original purchaser must be received by Orthman to activate warranty coverage. Non-receipt of warranty registration may void warranty coverage. The Orthman warranty is non-transferable.

Genuine Orthman replacement parts and components will be warranted for ninety (90) days from date of purchase, or the remainder of the original equipment warranty period, whichever is greater.

All warranty work is to be performed by an authorized Orthman dealer at the repairing dealer's location, unless otherwise approved by Orthman.

Under no circumstances, will this warranty cover any merchandise or component thereof, which, in the opinion of Orthman, has been subjected to misuse, unauthorized modifications or alteration, accident, collision with obstruction/ground, or if repairs have been made with parts other than those obtainable through Orthman.

Orthman warranty policies do not cover travel expenses, after-hours field/service time, overnight expenses, or expenses not related to regular shop labor rates or parts replaced during actual warranty repair. Orthman reserves the right to adjust warranty labor credits to believed normal repair times as directed by state law(s).

This warranty shall be limited to repairing or replacing, free of charge to the purchaser, any part, which Orthman's judgment shows evidence of such defect. Additionally, the defective part(s) shall be returned within thirty (30) days from the date of failure to Orthman through the dealer or distributor from whom the product was purchased or repaired; transportation charges prepaid.

This warranty shall not be interpreted to render Orthman liable for injury or damages of any kind or nature to person or property. This warranty does not extend to the loss of crops, loss of delay in harvesting/planting, or any expense or loss incurred for labor, substitute machinery, rental, or any subsequent reasons thereof.

Except as set forth above, Orthman shall have no obligation or liability of any kind on account of its equipment and shall not be liable for special or consequential damages. **Orthman makes no other warranty, expressed or implied, and, specifically disclaims any implied warranty or merchantability or fitness for a particular purpose.** Some states or provinces do not permit limitations or exclusions of implied warranties or incidental or consequential damages, so the limitations or exclusion in this warranty may not apply. This warranty is subject to any existing conditions of supply, which may directly affect ability to obtain materials or manufacture replacement parts.

Orthman reserves the right to make improvements in design or changes in specifications at any time, without incurring any obligation to owners of units previously sold; to include, but not limit to engineering prototype machines. No one is authorized to alter, modify, or enlarge this warranty nor the exclusions, limitations, and reservations.

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Lexington, Nebraska
All rights reserved.

Orthman provides this manual without warranty of any kind, expressed or implied. This manual reflects the product at the time of publication. All information within is based upon current information on the publication date. Orthman assumes no responsibility for damages incurred due to the use of the illustrations, information, and specifications within this publication.

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Farm Safety

Contrary to the popular image of fresh air and peaceful surroundings, a farm is not a hazard-free work setting. Every year, thousands of farm workers are injured and hundreds more die in farming accidents. According to the National Safety Council, agriculture is the most hazardous industry in the nation.

How You Can Improve Farm Safety

You can start by increasing your awareness of farming hazards and making a conscious effort to prepare for emergency situations including fires, vehicle accidents, electrical shocks from equipment and wires, and chemical exposures. Be especially alert to hazards that may affect children and the elderly. Minimize hazards by carefully selecting the products you buy to ensure that you provide good tools and equipment. Always use seat belts when operating tractors, and establish and maintain good housekeeping practices. Here are some other steps you can take to reduce illnesses and injuries on the farm:

- Read and follow instructions in equipment operator’s manuals and on product labels.
- Inspect equipment routinely for problems that may cause accidents.
- Discuss safety hazards and emergency procedures with your workers.
- Install approved rollover protective structures, protective enclosures, or protective frames on tractors.
- Make sure that guards on farm equipment are replaced after maintenance.
- Review and follow instructions in material safety data sheets (MSDSs) and on labels that come with chemical products and communicate information on these hazards to your workers.

Health and Safety Hazards on Farms

Farm workers including farm families and migrant workers are exposed to hazards such as the following:

Danger	Potential Effect or Injury	Prevention
Chemicals/Pesticides	Skin and respiratory injury or death	MSDS and proper Personal Protective Equipment. Review Manufacturers data sheets
Cold	Illness, Frostbite or death	Dress properly for the day.
Dust	Respiratory injury or explosive combinations	Be aware of your surroundings and activity
Electricity	Shock, burns, fire, death	Use a qualified professional for wiring dangerous electrical devices. Never overload a circuit. Replace damaged electrical devices or cords. Electrical tape will not insulate you from injury.
Grain bins, Silos	Entrapment, Suffocation, Explosion from formation of dangerous gases and poisoning.	Make sure the bin is properly ventilated and maintained. Never walk the grain.
Hand tools	Injury including cuts abrasions, electrocution, strains, sprains and death	Make sure you hand tools are in good condition. Never leave a damaged tooling accessible for someone else to use.
Highway traffic	Collisions resulting in injury or death	Follow regulations, stay alert. Avoid alcohol and use of communication devices while driving
Lifting & lifting devices	Back injury, sprains, strains. Falling material resulting in being struck or crushed by heavy material	Use proper lifting technique. Get help when the load is too heavy. Inspect chains, straps or cables routinely to make sure they are in good condition.
Livestock handling	Serious injury or death resulting from being pinned struck or trampled.	Always make sure you have adequate room and an escape route
Machinery/Equipment	Cuts, abrasions, amputations, death.	Thoroughly read and understand your Owners Equipment Manual. Never operate the equipment without guards in place. Make sure the equipment can not be energized or otherwise put into operation while you are working on it.
Manure pits	Explosion from formation of dangerous gases. Suffocation. Poisoning	Proper maintenance.
Mud	Sprains, strains, entrapment and suffocation. Eye injury and skin irritation.	Proper Personal Protective Equipment. In some conditions a "Spotter" may be needed.
Noise	Hearing damage	Personal Protective Equipment.
Ponds	Drowning	Wear a life preserver and make sure help is readily available.
Slips/Trips/Falls	Sprains, strains, back and neck injury, bone breaks or death	Keep work area free from clutter and organized. If working on anything elevated make sure you have appropriate guarding and/or fall protection such as a harness and lanyard.
Sun/Heat	Sunburn, Heat Stroke, shock, death	Use common sense on excessively hot days, use sun screen, wear a hat and stay hydrated.
Toxic gases	Skin and respiratory injury or death. Explosion.	MSDS and proper Personal Protective Equipment. Review Manufacturers data sheets
Tractors	Cuts, abrasions, amputations, death.	Thoroughly read and understand your Owners Equipment Manual. Never operate the equipment without guards in place. Anti-roll over devices.
Wells	Electrocution, amputation, death	Avoid contact with water while working on an electrical device. Always be sure the equipment can/will not be energized during repair or maintenance. Make sure all guarding is in place.
Severe Weather	Electrocution, "struck by" injuries, death	Move to a safe place. Lightening, hail and tornadoes are unpredictable.

Orthman Manufacturing, Inc. does not limit the potential effects or injuries nor prevention measures to those listed above. They are provided solely as a guideline to making your farm life safer. Always consult your Owner/Operators Manual for specific tool and equipment safety requirements.

SAFETY INFORMATION

High Risk Factors on Farms

The following factors may increase risk of injury or illness for farm workers:

- **Age**—Injury rates are highest among children age 15 and under and adults over 65.
- **Equipment and Machinery**—Most farm accidents and fatalities involve machinery. Proper machine guarding and doing equipment maintenance according to manufacturers' recommendations can help prevent accidents.
- **Protective Equipment**—Using protective equipment, such as seat belts on tractors, and personal protective equipment (such as safety gloves, coveralls, boots, hats, aprons, goggles, face shields) could significantly reduce farming injuries.
- Take precautions to prevent entrapment and suffocation caused by unstable surfaces of grain storage bins, silos, or hoppers. Never "walk the grain."
- Be aware that methane gas, carbon dioxide, ammonia, and hydrogen sulfide can form in unventilated grain silos and manure pits and can suffocate or poison workers or explode.
- Take advantage of safety equipment, such as bypass starter covers, power take-off master shields, and slow-moving vehicle emblems.
- **Medical Care**—Hospitals and emergency medical care are typically not readily accessible in rural areas near farms.

The Benefits of Improved Safety and Health Practices

Orthman Manufacturing Provides this document in the hope that everyone that has a job to do, does it SAFELY. Our goal and yours should be to end each day in the best possible health. Better safety and health practices reduce fatalities, injuries, and illnesses as well as associated costs such as workers' compensation insurance premiums, lost production, and medical expenses. A safer and more healthful workplace improves morale and productivity.

⚠ FOR YOUR PROTECTION

READ AND UNDERSTAND THE ENTIRE CONTENT OF THIS MANUAL BEFORE OPERATING OR SERVICING IMPLEMENT. Read and understand all operator manuals for the machinery used in conjunction with your Orthman equipment.

- Carefully **READ ALL SAFETY DECALS** in this manual as well as on the implement. Keep implement clean so decals are easily visible. Keep all safety decals in good, clean, and legible condition. Immediately replace damaged and/or missing decals. Replacement decals are available from your Orthman dealer.
- Learn to operate the implement and all components properly. Do not let others operate implement without proper instruction. Unauthorized implement modifications may impair function and safety. If you do not understand any content in this manual or need assistance, contact your Orthman dealer.

⚠ EQUIPMENT SAFETY GUIDELINES

Operator safety is the primary concern when designing an Orthman implement. Orthman integrates as many safety features into the implement as possible. You can avoid many hazards and possible accidents by observing precautions in this safety section.

- Insist that yourself and personnel working with and around you follow all safety precautions. Be cautious when working with or around implement to avoid injury.

SAFETY ALERT SYMBOL

The **SAFETY ALERT SYMBOL** warns of potential hazards to personal safety and that extra precautions must be taken. When you see this symbol, carefully read the message(s) that follow. Follow all recommended precautions and safe operating practices in this manual.

NOTE: Hazard control and accident prevention are dependent upon the safety awareness and proper training of personnel involved in the operation of this implement.

SAFETY INFORMATION

BE AWARE OF SIGNAL WORDS

SIGNAL WORDS designate a degree or level of **HAZARD** seriousness. These signal words include:



DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury. **DANGER** is limited to extreme situations, typically for machine components which for functional purposes, cannot be guarded.

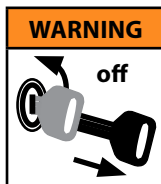


WARNING indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. **WARNING** includes hazards that are exposed when safety guards are removed. Warning may also be used to alert against unsafe practices.



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

SHUTDOWN AND STORAGE



AVOID CRUSHING. Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.

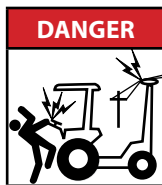


USE BAR STANDS AND CYLINDER STOPS TO SUPPORT THE IMPLEMENT.

Store implement on a clean, dry, and level surface. An uneven surface could cause implement to shift or fall, resulting in injury or death, as well as implement damage. Securely support all implement components that must be raised. Store implement away from human activity.

SAFE TRANSPORT

- Engage transport locking devices prior to transport.
- Plan your route to avoid traffic. Yield to traffic in all situations.
- Maximum transport speed is 20 mph (32 kph). Various conditions will require reduced speed. Travel at speeds that allow for adequate control of stopping and steering.



AVOID ELECTROCUTION. Be aware of overhead power lines. Contact or close proximity to power lines can result in injury or death. Use extreme care when operating implement near power lines.

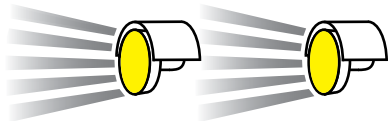


- Know implement transport height and gross weight. Avoid overhead obstructions not allowing your transport height. Do not use bridges rated below combined implement and tractor weight.
- Make sure a slow moving vehicle (SMV) placard is mounted to the implement and is easily visible to other motorists.
- Make allowances for implement size when transporting. Sudden braking can cause a towed load to swerve and/or rollover. Never use independent braking with implement in tow as loss of control and/or rollover can result. Reduce speed if towed implement is not equipped with brakes.
- Do not coast. Always keep tractor or towing device in gear to provide engine braking when traveling downhill.
- Comply with state and local laws governing implement transport.



WARNING AND SAFETY LIGHTS

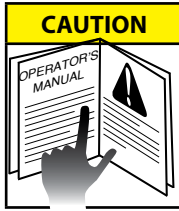
CAUTION



- Oversized implements and slow moving vehicles create a hazard when transported on public roads.
- Make sure all warning, safety lights, and turning signals are working and clean. Use safety lighting when using public roads day and night. Replace missing or damaged lights immediately. Comply with state and local laws governing implement safety lighting.
- A safety lighting package, conforming to implement lighting standard ANSI/SAE S279.12, if not supplied with, is available for addition to your equipment. Contact your Orthman dealer for safety lighting package information. Refer to toolbar operator's manual for safety lighting package installation and adjustment.

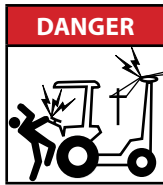
SAFETY INFORMATION

SAFE OPERATION



READ AND UNDERSTAND THE ENTIRE CONTENT OF THIS MANUAL BEFORE OPERATING OR SERVICING IMPLEMENT.

Implement is to be operated by qualified personnel only. Never let children operate implement. A complete understanding of safety precautions, operation, and maintenance is mandatory before implement use.



AVOID ELECTROCUTION. Be aware of overhead power lines. Contact or close proximity to power lines can result in injury or death. Use extreme care when operating implement near power lines.

- Know implement transport height and gross weight. Avoid overhead obstructions not allowing your transport height. Do not use bridges rated below combined implement and tractor weight.



AVOID ROLLOVER. Do not fold or unfold implement and avoid sharp turns when on a hillside, as shift of weight could cause rollover. Operate implement at a safe distance from terrain irregularities and other obstructions that could cause rollover.

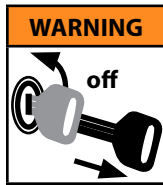


AVOID CRUSHING. Make sure all personnel are clear of implement at all times implement is in motion. Be aware of obstructions above, below, and around implement when in operation or transport. Injury or death can result from being struck by the implement.



NO RIDERS

NEVER ALLOW RIDERS ON TRACTOR OR IMPLEMENT. Riders hinder operator visibility and can be thrown from the implement and/or be struck by foreign objects resulting in injury or death.

▲ PRACTICE SAFE MAINTENANCE


Proper maintenance is your responsibility. Maintenance neglect and/or poor maintenance practices can result in injury or death. Always use the proper tools to maintain implement.

AVOID CRUSHING. Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.


USE BAR STANDS AND CYLINDER STOPS TO SUPPORT THE IMPLEMENT.

Store implement on a clean, dry, and level surface. An uneven surface could cause implement to shift or fall, resulting in injury or death, as well as implement damage. Securely support all implement components that must be raised. Store implement away from human activity.



AVOID ENTANGLEMENT. Never lubricate or service implement in motion. Keep away from power driven parts when in motion. Disengage power sources prior to maintaining implement. Injury or death can result from contact with power driven parts when in motion.



AVOID CRUSHING. Do not stand between the tractor and implement when connecting or disconnecting implement. Injury or death can result from being trapped between the tractor and implement.



Escaping pressurized hydraulic fluid can penetrate skin, resulting in injury or death. Relieve hydraulic system pressure before connecting or disconnecting tractor. Use cardboard or wood, **NOT BODY PARTS**, to check for suspected hydraulic leaks. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. If an accident occurs, see a doctor immediately for proper treatment.

SAFETY INFORMATION

⚠ PRACTICE SAFE MAINTENANCE



- Never operate a combustion engine in an enclosed area. Make sure there is adequate ventilation. Exhaust fumes can cause asphyxiation.



- Service tires safely. Tire and rim separation can result in serious injury or death. Do not over inflate tires. Only mount or dismount tires if you possess the proper equipment, otherwise contact a trained professional. Always maintain correct tire pressure. Inspect tires and wheels daily. Do not operate tires with inadequate pressure, cuts, visible damage, or missing hardware.



- Be extremely careful working around unshielded sharp edges. Injury may result from contact with sharp edges.
- Keep all parts in good condition and properly installed. Replace damaged or missing parts immediately.
- Remove tools and unused parts prior to implement operation.

⚠ PREPARE FOR EMERGENCIES



- Be prepared for a fire. Keep a readily accessible fire extinguisher at all times.
- Keep a readily accessible stocked first aid kit and emergency phone numbers for your doctor, hospital, ambulance, and fire department.
- Wear protective clothing and equipment. Wear clothing appropriate for the situation. Protect your eyes, ears, hands, and feet with the use of protective goggles, ear plugs, gloves, boots, etc.

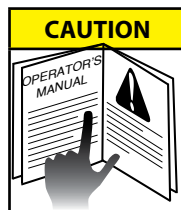
**⚠ ANHYDROUS AMMONIA - NH₃
LIQUID FERTILIZER**



ANHYDROUS AMMONIA (NH₃) AND LIQUID FERTILIZER APPEARS HARMLESS. DIRECT EXPOSURE TO NH₃ OR LIQUID FERTILIZER IS EXTREMELY DANGEROUS AND CAN RESULT IN INJURY AND/OR DEATH.

- Keep a clean supply of water readily accessible in case of exposure to NH₃ or liquid fertilizer.
- Wear protective goggles and gloves when working with NH₃ or liquid fertilizer. Be sure all persons involved in the operation are properly trained concerning the dangers and precautions involved in the application of NH₃ or liquid fertilizer.
- If you choose to apply NH₃ or liquid fertilizer, it is advisable to consult documented information regarding safe handling and application of NH₃ or liquid fertilizer. Information is available from the following recognized sources:

1. American National Standards Institute - www.ansi.org - (212) 642-4900
2. Material Safety Data Sheets - MSDS - www.msdsonline.com
3. National Safety Council - www.nsc.org/necas
4. The Fertilizer Institute - www.tfi.org
5. United States Department of Transportation - D.O.T. - www.dot.gov
6. Compressed Gas Association - www.cganet.com



⚠ SAFETY NEVER HURTS

READ AND UNDERSTAND THE ENTIRE CONTENT OF THIS MANUAL BEFORE OPERATING OR SERVICING IMPLEMENT.

- Understand all implement functions.
- Never stand between tractor and implement when connecting or disconnecting implement.
- Be aware of all surroundings before moving implement.
- Operate implement from operator's seat only.
- Never mount or dismount a moving tractor.
- Never leave engine running when implement is unattended.
- Keep away from power driven parts when in motion.
- Make sure all personnel are clear before lowering implement to the ground.

SAFETY INFORMATION

DANGER

RED

WARNING

ORANGE

CAUTION

YELLOW

SAFETY DECALS

Safety decals promote awareness and knowledge concerning safe operation and maintenance of the implement.

Carefully **READ ALL SAFETY DECALS** in this manual as well as on the implement. Keep implement clean so decals are easily visible. Keep all decals in good and legible condition. Immediately replace damaged and/or missing decals. Replacement decals are available from your Orthman dealer.

To install decals: Thoroughly clean area where decal is to be placed and attach decal void of bubbles. Refer to this safety information section for proper decal placement.

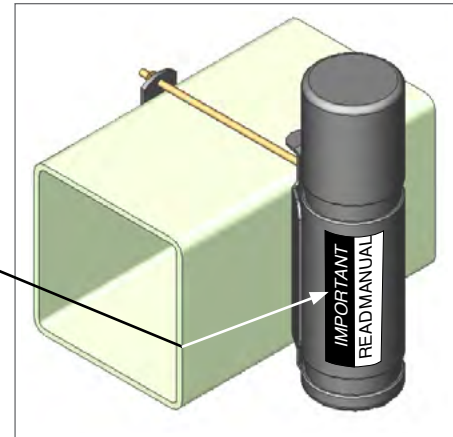


IMPORTANT

Equipment operators should understand the enclosed manual before operating this equipment. Replacement manual, call 308-324-4654

Orthman Mfg., Inc. - 75765 Rd. 435 - Lexington, NE 68850 153-101

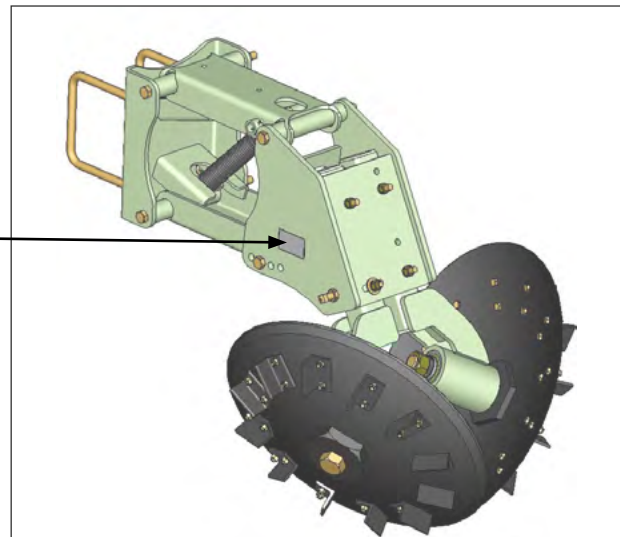
(manual enclosure)



CAUTION

Be extremely careful working around unshielded sharp edges. Injury may result from contact with sharp edges.

153-045



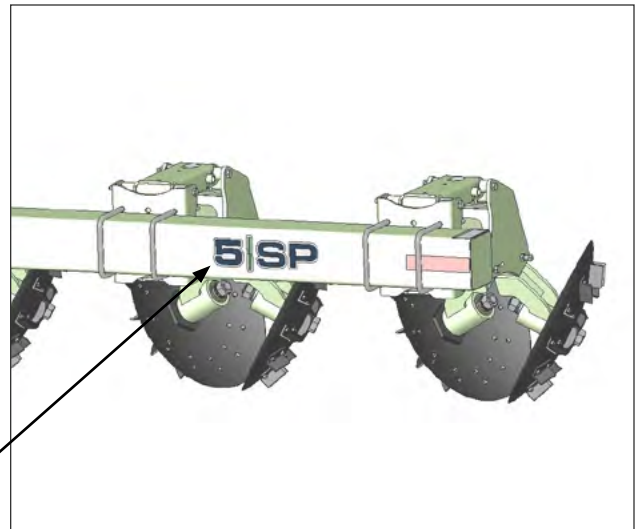
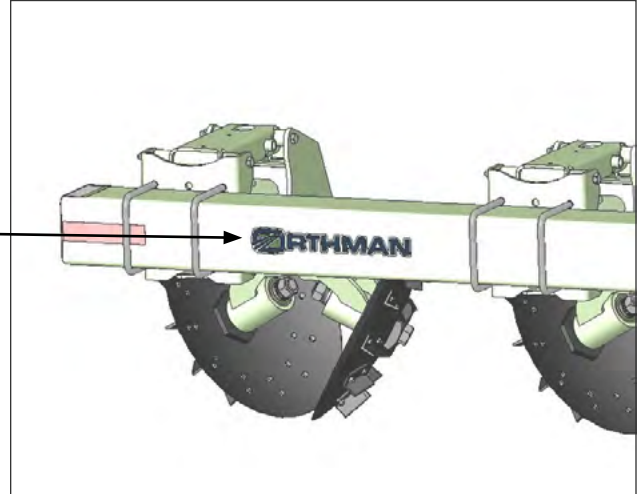
SIDE OF ROW UNIT

ORTHMAN DECALS



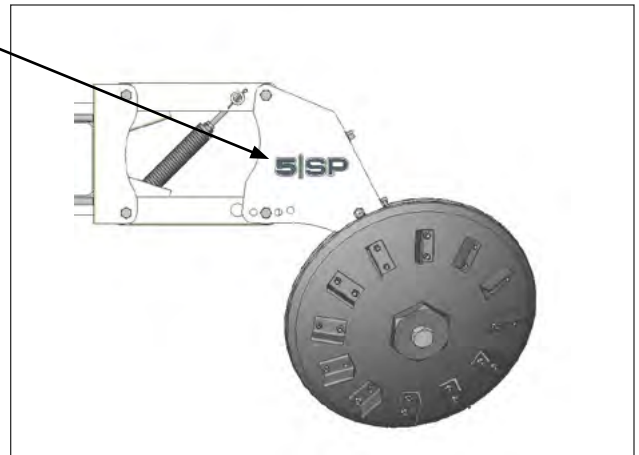
(front left and rear left of toolbar)

153-430



(front right and rear right of toolbar)
(side of outer row units)

153-437



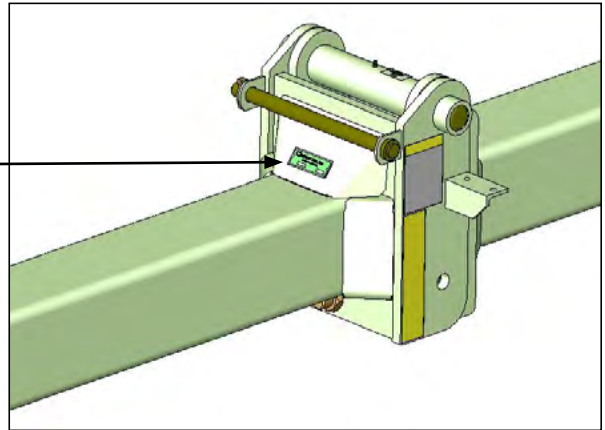
SAFETY INFORMATION

ORTHMAN SERIAL TAG

The Orthman serial tag contains valuable information. The model and serial numbers provide Orthman dealers and the Orthman Service Department with the exact specifications of your implement if any warranty or service issues need to be addressed.

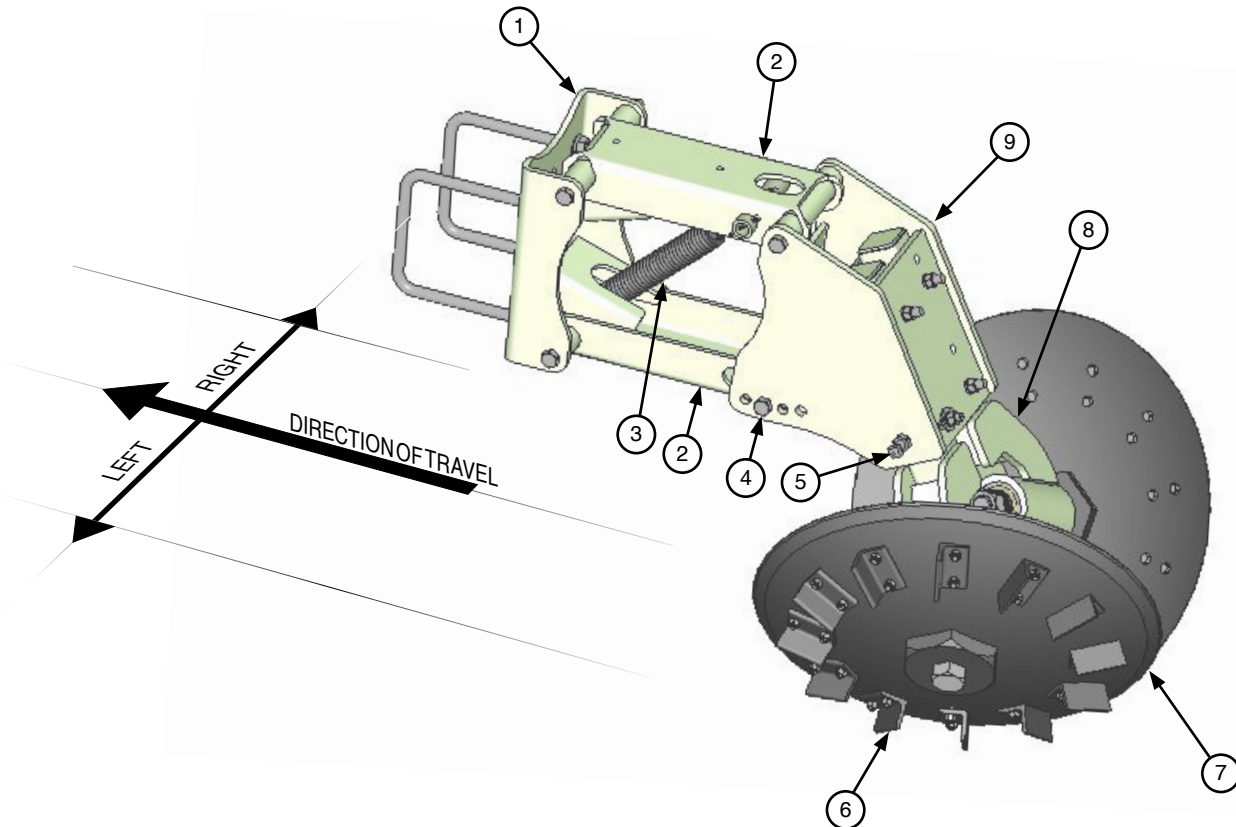


153-011



TOOLBAR HINGE

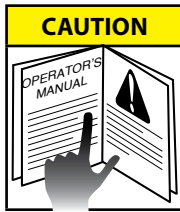
**ROW UNIT
COMPONENT IDENTIFICATION**



NOTE: Right and left as illustrated above and referenced from this point on, is determined by facing the same direction the implement will travel while in use.

- 1. MOUNT.** Mounts flush with the 7 x 7 toolbar.
- 2. PARALLEL LINKAGES.** Parallel linkages allow the row unit to operate independently of the toolbar for constant depth control in uneven field conditions.
- 3. DOWN PRESSURE SPRING.** Adjustable spring which increases the row unit's down pressure to aid in performance.
- 4. PINCH POINT ANGLE ADJUSTMENT.** Adjusts the slicing angle of the V-disks .
- 5. PINCH FORCE SET SCREW.** Tightening this screw increases the pinch pressure between the two V-disks.
- 6. DISC CLEAT.** Provides the V-disks with traction to continuously spin in all field conditions.
- 7. V-DISK.** One of two disks that slice and remove the root ball to provide a residue-free seedbed.
- 8. V-DISK MOUNTING LEG.** Connects a V-Disk to the row unit mainframe.
- 9. MAINFRAME.** The row unit mainframe serves as the primary mount for row unit tooling.

PREPARATION AND SETUP



PREPARING THE IMPLEMENT

Field adjustments are illustrated and explained in the field settings section of this manual. Refer to the Orthman toolbar operator's manual used in conjunction with the 5|SP Stalk Puller for toolbar preparation. Read and understand operator manuals for machinery used in conjunction with the 5|SP Stalk Puller.



Before each use, check hardware for wear and proper torque. Replace damaged or missing hardware with hardware of an identical grade to restore implement to original specifications.



Be sure implement is properly lubricated before use. Only use high quality multi-purpose grease.

IMPLEMENT TO TRACTOR CONNECTION



AVOID CRUSHING. Do not stand between tractor and implement when connecting or disconnecting implement. Injury or death can result from being trapped between the tractor and implement.

AVOID CRUSHING. Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.



USE BAR STANDS TO SUPPORT THE IMPLEMENT. Park implement on a clean, dry, and level surface. An uneven surface could cause implement to shift or fall, resulting in injury or death, as well as implement damage. Securely support all implement components that must be raised.

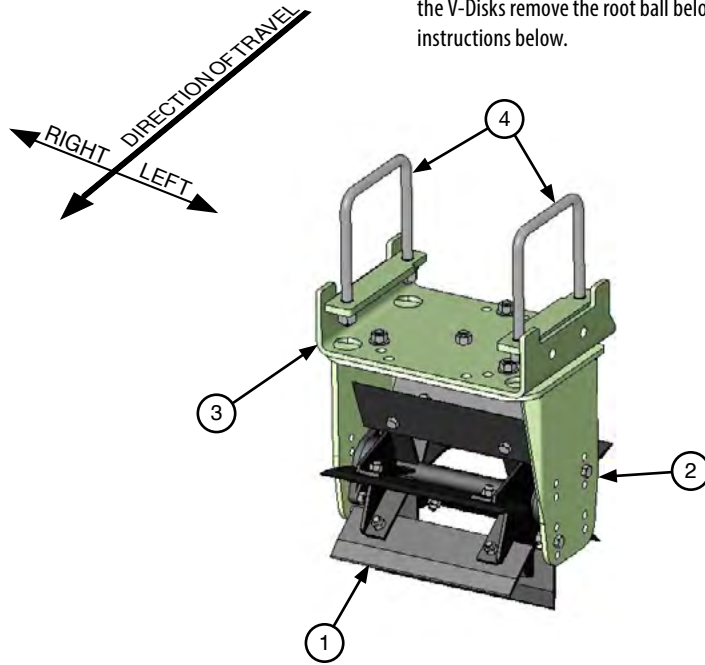
Refer to your tractor operator's manual for proper use of the 3-point hitch to make the connection between the implement and tractor.

Refer to the toolbar operator's manual for proper connection of the toolbar hydraulic hoses.

TOOLING OPTIONS AND INSTALLATION

CHOPPER UNIT

To aid in the management of crop residue, toolbar-mounted chopper units may be installed. The chopper units mount in front of each Stalk Puller row unit, and chop up the stalks above the soil surface before the V-Disks remove the root ball below the soil surface. To install the chopper units, refer the installation instructions below.



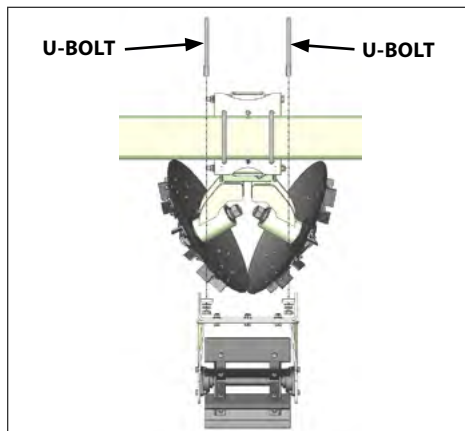
1. CHOPPER BLADE.
2. ROTATIONAL BASKET MOUNTING BRACKET.
3. STATIONARY UNIT MOUNT.
4. MOUNTING U-BOLTS.

INSTALLATION

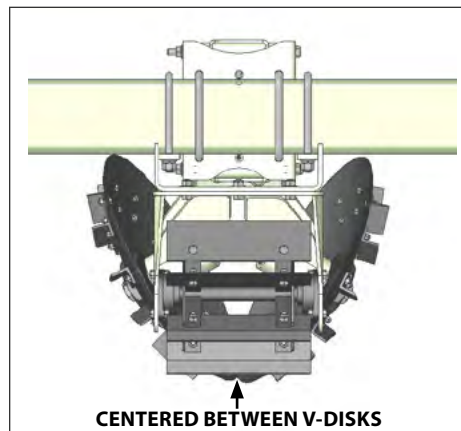


AVOID CRUSHING. Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.

USE BAR STANDS TO SUPPORT THE IMPLEMENT. Park implement on a clean, dry, and level surface. An uneven surface could cause implement to shift or fall, resulting in personal injury or death, as well as implement damage. Securely support all implement components that must be raised.



CHOPPER UNIT MOUNTING

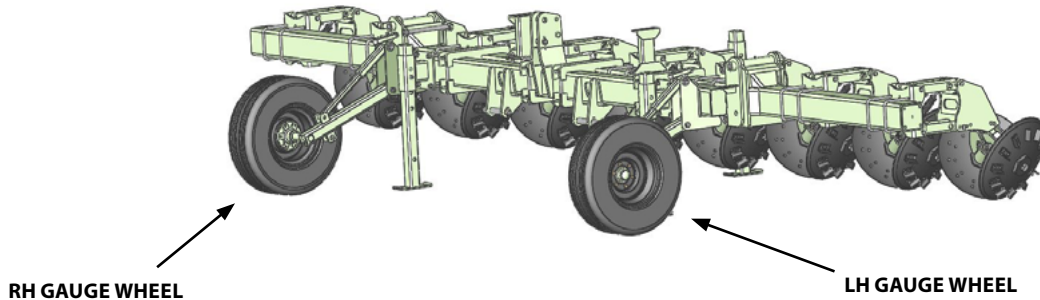


CHOPPER UNIT ALIGNMENT

1. Align the chopper unit with its corresponding row unit as shown.
2. Bring the chopper unit against the bottom face of the toolbar and attach mounting U-bolts.
3. Tighten U-bolts and re-check the chopper unit's alignment.

GAUGE WHEELS

Gauge wheels may be equipped to the 5|SP Stalk Puller to provide consistent operating depth. Gauge wheels mount to the front of the toolbar, in front of each wing hinge on folding machines or towards the outer section of rigid machines. Below are installation instructions for mounting the gauge wheels.

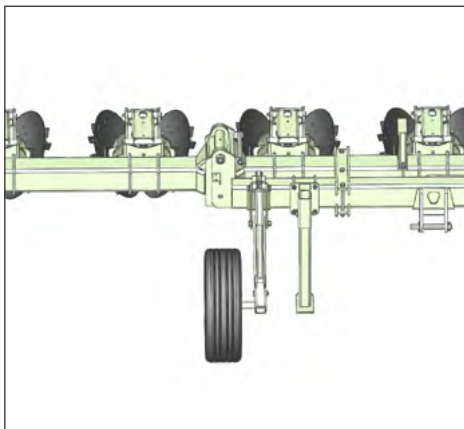


INSTALLATION (FOLDING MACHINES)

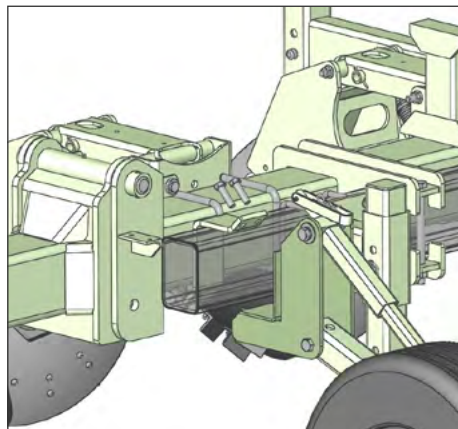
AVOID CRUSHING. Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.



USE BAR STANDS TO SUPPORT THE IMPLEMENT. Park implement on a clean, dry, and level surface. An uneven surface could cause implement to shift or fall, resulting in personal injury or death, as well as implement damage. Securely support all implement components that must be raised.



GAUGE WHEEL ALIGNMENT



GAUGE WHEEL MOUNTING

1. There is a LH and RH gauge wheel assembly for each machine. Each gauge wheel mounts to the 5 x 7 hitch bar, with the tire facing outward.
2. When mounted, the gauge wheel should align with the toolbar hinge on folding toolbar machines (see illustration).
3. To mount the gauge wheel assembly, place the gauge wheel angle mount squarely against the hitch bar.

4. Place the rear clamp plate opposite the gauge wheel angle mount and install hardware.
5. Be sure gauge wheel is properly aligned and tighten down hardware evenly. Repeat steps for the opposite side gauge wheel.

TOOLING OPTIONS AND INSTALLATION

GAUGE WHEELS (CONTINUED)

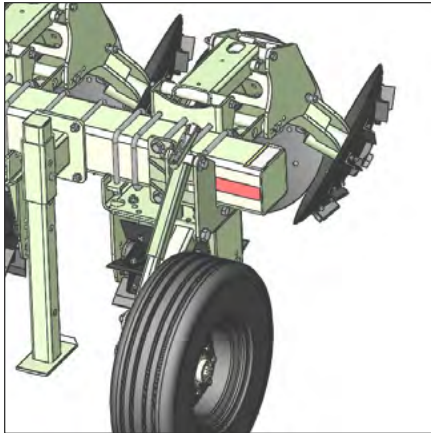
INSTALLATION (RIGID MACHINES WITH CHOPPER UNITS)

Rigid machines' gauge wheels mount directly to the 7 x 7 toolbar as shown below. Gauge wheels for 30" row spacing, rigid machines equipped with chopper units utilize a gauge wheel mount that differs from that used for rigid, 30" row spacing machines NOT equipped with chopper units as well as all folding machines. Review the following instructions for those machines to determine your mounting style and location.

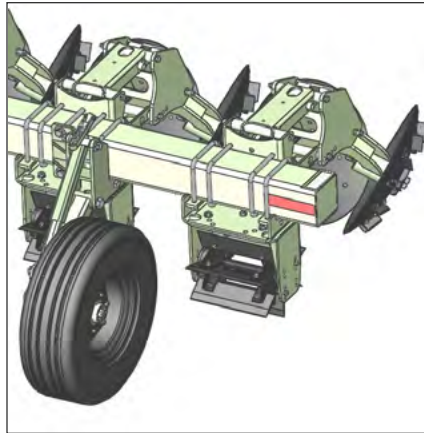


AVOID CRUSHING. Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.

USE BAR STANDS TO SUPPORT THE IMPLEMENT. Park implement on a clean, dry, and level surface. An uneven surface could cause implement to shift or fall, resulting in personal injury or death, as well as implement damage. Securely support all implement components that must be raised.

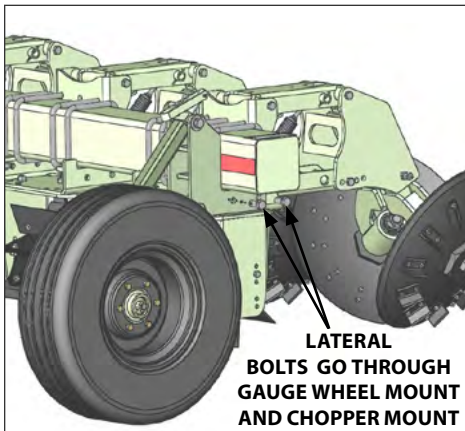


**6R30" W/ CHOPPERS GAUGE WHEEL
MOUNTING LOCATION**



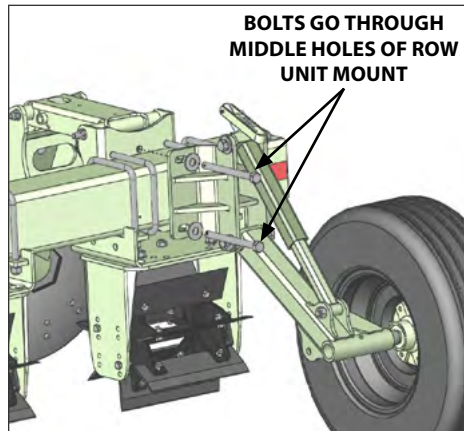
**8R30" W/ CHOPPERS GAUGE WHEEL
MOUNTING LOCATION**

1. There is a LH and RH gauge wheel assembly for each machine. Each gauge wheel mounts to the center section of the toolbar, with the tire facing outward.
2. When mounted, the gauge wheel should align as shown in the illustrations at left.
3. To mount the gauge wheel assembly, place the gauge wheel mount squarely against the toolbar and install the (2) 3/4" x 9" bolts through the gauge wheel mount and Stalk Puller row unit mount.



MOUNTING GAUGE WHEEL

**LATERAL
BOLTS GO THROUGH
GAUGE WHEEL MOUNT
AND CHOPPER MOUNT**



MOUNTING GAUGE WHEEL

**BOLTS GO THROUGH
MIDDLE HOLES OF ROW
UNIT MOUNT**

4. Install the (2) 3/4" x 1 3/4" lateral bolts through the side of the gauge wheel mount and the side of the chopper unit mount.
5. Reaffirm the gauge wheel alignment and tighten all hardware.
6. Repeat the previous steps for the opposite side gauge wheel.

PRE - FIELD OPERATION

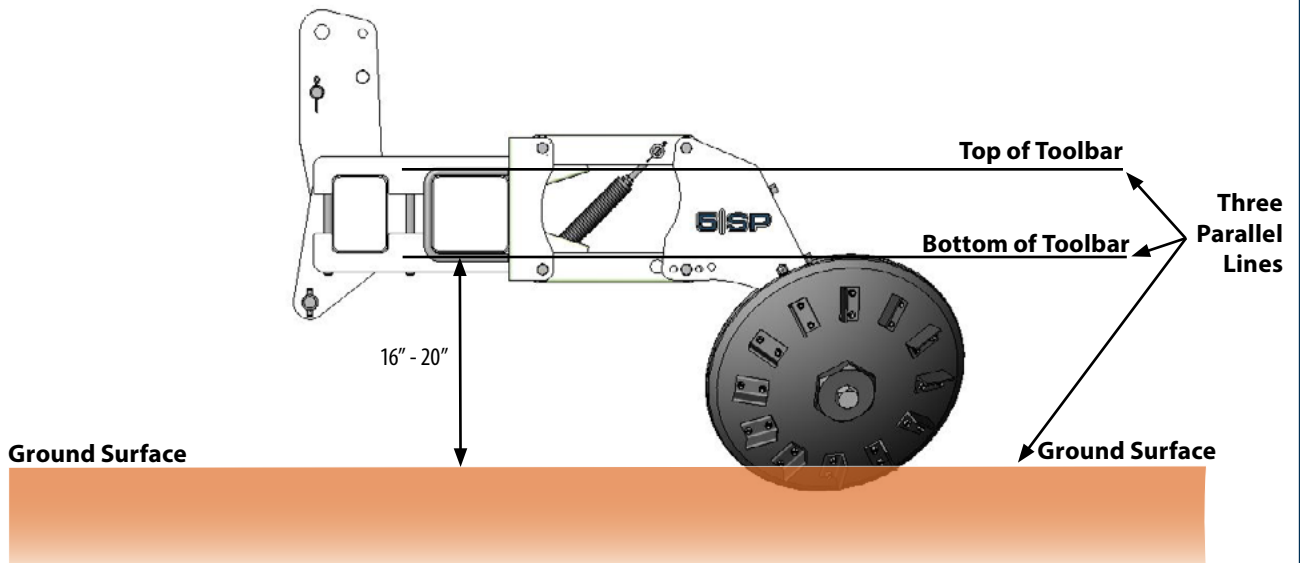


TOOLBAR HEIGHT AND ORIENTATION

⚠️ PLACE TRACTOR IN PARK AND REMOVE KEY BEFORE DISMOUNTING TRACTOR TO ADJUST IMPLEMENT.

NEVER ALLOW RIDERS ON TRACTOR OR IMPLEMENT. Riders hinder operator visibility and can be thrown from the implement and/or be struck by foreign objects resulting in injury or death.

NOTE: WHEN SETTING TOOLBAR HEIGHT AND ORIENTATION, DISREGARD ROW UNIT PERFORMANCE. TOOLBAR HEIGHT AND ORIENTATION MUST BE ESTABLISHED PRIOR TO TOOLING ADJUSTMENT.

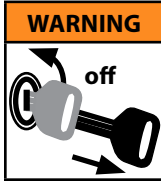


The top and bottom of the toolbar must operate parallel with the ground surface to allow the toolbar to act as a towing device. Adjustment of tractor three point third link, lift assist wheels, and/or toolbar gauge wheels, if equipped, will allow the toolbar to operate parallel with the ground surface.

The bottom of the toolbar should operate approximately 16 - 20 inches above the ground surface. Use tractor lower hitch stop, lift assist wheels, and/or toolbar gauge wheels, if equipped, to set desired toolbar height.

Have an assistant pull the tractor and implement slowly forward in the field position as you view the end of the toolbar from a safe distance. Observe toolbar height and orientation while in operation. Make adjustments accordingly until the top and bottom of the toolbar operate parallel with the ground surface and the bottom of the toolbar operates approximately 16 - 20 inches above the ground surface. (as pictured above)

PRE - FIELD OPERATION



ROW UNIT ORIENTATION

▲ PLACE TRACTOR IN PARK AND REMOVE KEY BEFORE DISMOUNTING TRACTOR TO ADJUST IMPLEMENT.

NEVER ALLOW RIDERS ON TRACTOR OR IMPLEMENT. Riders hinder operator visibility and can be thrown from the implement and/or be struck by foreign objects resulting in injury or death.

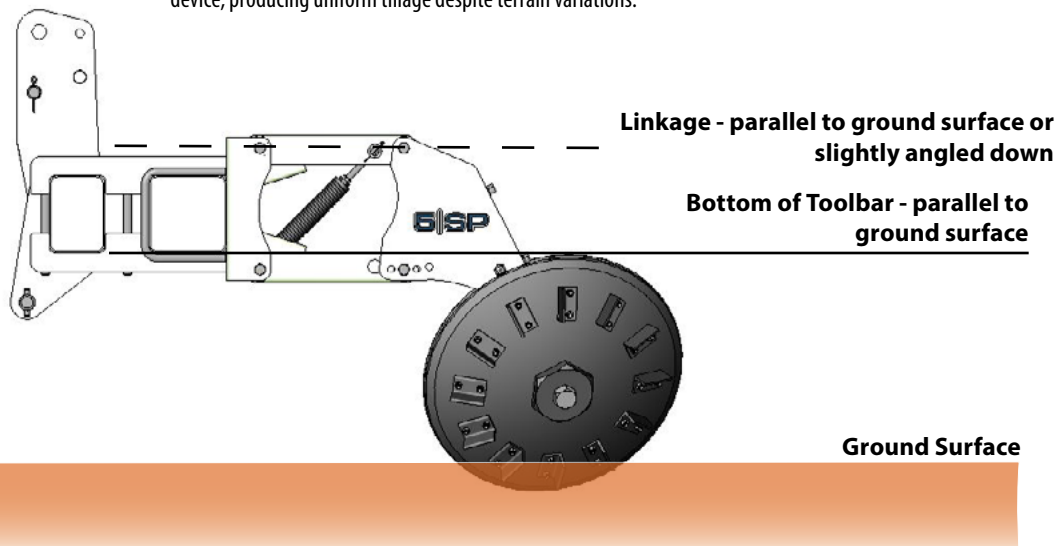
After desired toolbar height and orientation is established, set tractor lower hitch stop, lift assist wheels, and/or toolbar gauge wheels, if equipped.

NOTE: LARGER IMPLEMENTS AND/OR SMALLER TRACTORS MAY REQUIRE LIFT ASSIST WHEELS AND/OR TOOLBAR GAUGE WHEELS TO SUPPORT TOOLBAR WEIGHT. LIFT ASSIST WHEELS AND/OR TOOLBAR GAUGE WHEELS DISPLACE A PORTION OF TOOLBAR WEIGHT TO ALLOW MAXIMUM PARALLEL LINKAGE TRAVEL.

NOTE: SMALLER IMPLEMENTS AND/OR LARGER TRACTORS MAY OPERATE WITHOUT LIFT ASSIST WHEELS AND/OR TOOLBAR GAUGE WHEELS. THE TRACTOR HITCH WILL BEAR A PORTION OF THE TOOLBAR WEIGHT BY SETTING A LOWER HITCH STOP ON THE TRACTOR THREE POINT HITCH CONTROL.

ROW UNIT DEPTH

The V-Disks, due to their unique orientation, will effectively maintain a uniform operating depth. This depth can be adjusted by changing the row unit pinch point angle (see "Pinch Point Angle" section). An adjustable down pressure spring supplies the row unit with down pressure to assist with row unit soil penetration. Parallel linkages, with the ability to travel vertically, allow row units to operate independent of the toolbar. The V-Disks, down pressure spring, and parallel linkages should allow the toolbar to serve as a towing device, producing uniform tillage despite terrain variations.



For the toolbar to serve as a towing device, the ground surface, toolbar, and linkage must generally operate parallel to one another when in the field position. (In most field conditions, the linkage will operate at a slight upward angle.) It is important to arrive at the setting illustrated above so further tooling adjustments will be uniform.

FIELD OPERATION

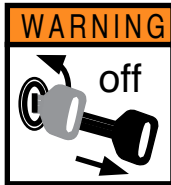


⚠ AVOID CRUSHING. Do not stand between tractor and implement when connecting or disconnecting implement. Injury or death can result from being trapped between the tractor and implement.

⚠ AVOID CRUSHING. Be sure the weight of the machine is fully supported by the tractor.

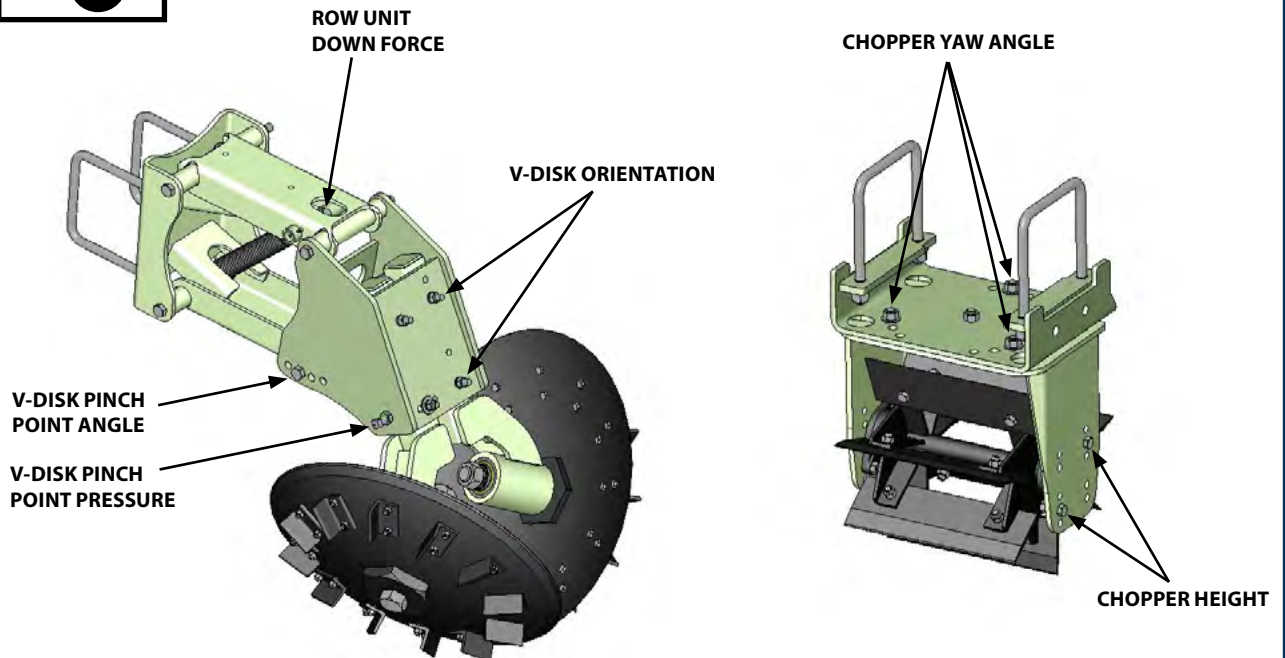


PLACE TRACTOR IN PARK AND REMOVE KEY BEFORE DISMOUNTING TRACTOR TO ADJUST IMPLEMENT.



⚠ NEVER ALLOW RIDERS ON TRACTOR OR IMPLEMENT. Riders hinder operator visibility and can be thrown from the implement and/or be struck by foreign objects resulting in injury or death.

PLACE IMPLEMENT IN "FIELD READY" POSITION. MAKE NECESSARY ADJUSTMENT TO IMPLEMENT BY FOLLOWING ADJUSTMENT PROCEDURES IN THIS MANUAL. BELOW ARE ADJUSTABLE COMPONENTS OF THE STALK PULLER ROW UNIT AND OPTIONAL CHOPPER UNIT.

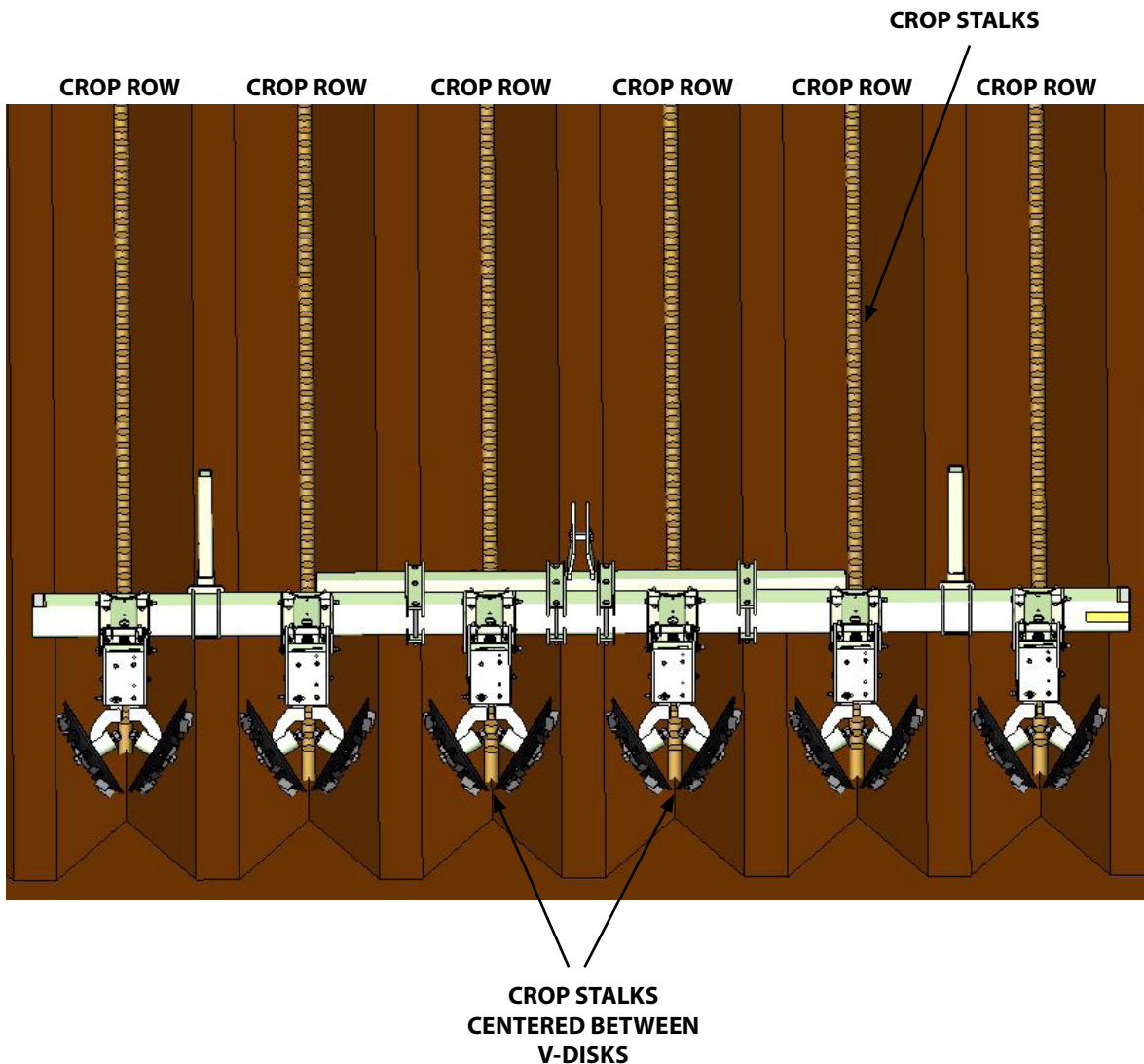


FIELD OPERATION (CONTINUED)

OPERATING SPEED. The 5|SP Stalk Puller should be operated at speeds between 10 and 12 MPH. This speed range has been found to produce the highest quality results.

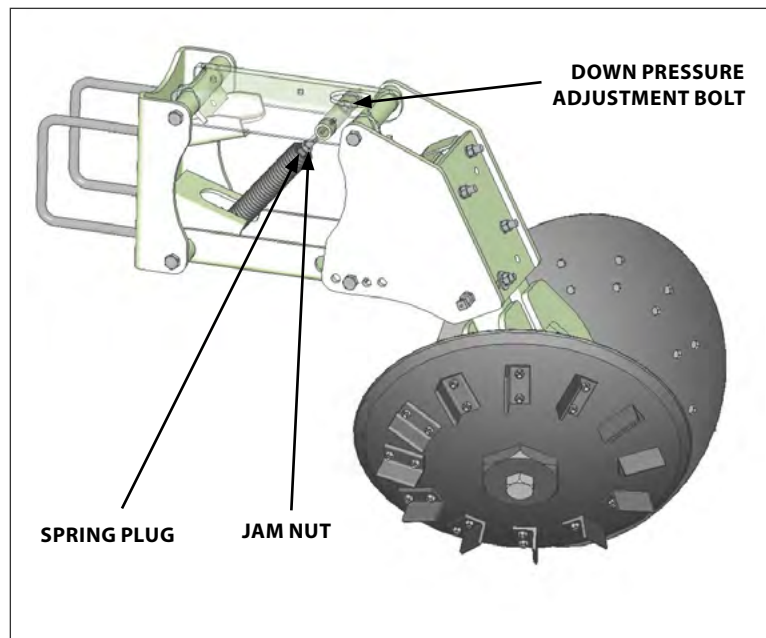
NOTE: DO NOT OPERATE IMPLEMENT AT AN UNSAFE SPEED. EXCEEDING 12 MPH IS POTENTIALLY DANGEROUS TO THE OPERATOR AND TO OTHERS.

IMPLEMENT ALIGNMENT. During field operation, each row unit should run in line with the previous crop row. The previous crop-stalk should be centered between the V-Disks to achieve the proper 'slicing' and 'pulling' effect.



FIELD ADJUSTMENTS

ROW UNIT DOWN PRESSURE. An adjustable down pressure spring supplies the row unit with down pressure to assist with row unit tooling soil penetration. After toolbar height and orientation is set, row unit down pressure can be adjusted. The down pressure spring should be adjusted so that the parallel linkages operate independent of the toolbar and the toolbar serves as a towing device. Compacted soil conditions may require an increase in down pressure and softer soil conditions may require a decrease in down pressure to provide adequate soil penetration across the implement. If a rigid toolbar is used with 5|SP Stalk Puller row units, down pressure adjustment between row units typically varies slightly. If a folding toolbar is used, wing sections tend to float upward, unless mechanically restrained (refer to toolbar operator's manual). Wing row units, not mechanically restrained, may require a decreased amount of down pressure to allow row units to perform consistently across the implement.



NOTE: RECOMMENDED TOOLS: DOWN PRESSURE ADJUSTMENT BOLT AND JAM NUT - 3/4" END WRENCH, SPRING PLUG - 1 1/4" END WRENCH.



1. Loosen jam nut from spring plug.
2. Adjust down pressure adjustment bolt.
(clockwise - increase pressure, counterclockwise - decrease pressure)
3. Tighten jam nut against spring plug.

NOTE: TOO MUCH DOWN PRESSURE APPLIED TO THE INDIVIDUAL ROW UNITS CAN ESSENTIALLY LIFT THE TOOLBAR TO AN UNDESIREABLE OPERATING HEIGHT. LIFTING THE TOOLBAR WILL CAUSE THE PARALLEL LINKAGES TO "BOTTOM OUT" AND THE ROW UNITS WILL NOT OPERATE INDEPENDENT OF THE TOOLBAR RESULTING IN NON-UNIFORM TILLAGE ACROSS THE IMPLEMENT.

FIELD ADJUSTMENTS (CONTINUED)

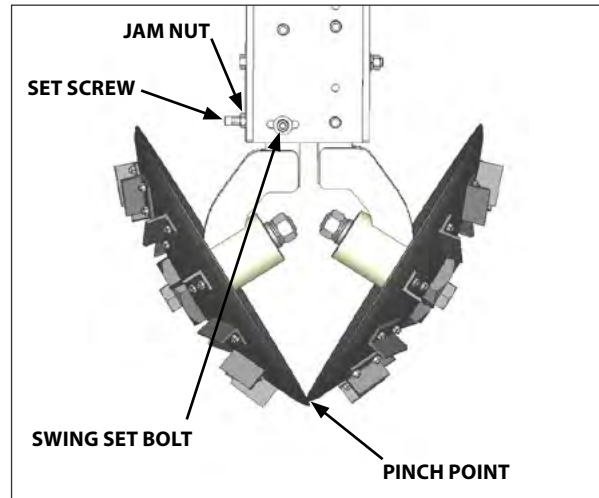
PINCH POINT PRESSURE. The pinch point is the point of contact between the two V-Disks. Pressure applied to this point increases the 'slicing' effect of the two disks, however, too much pressure will decrease the rolling performance of the V-Disk. The amount of pressure to be applied to the pinch point should only be enough to spin both disks when one disk is spun. The pinch point pressure should be checked periodically throughout the operating season, as the edge of the disk will wear down.



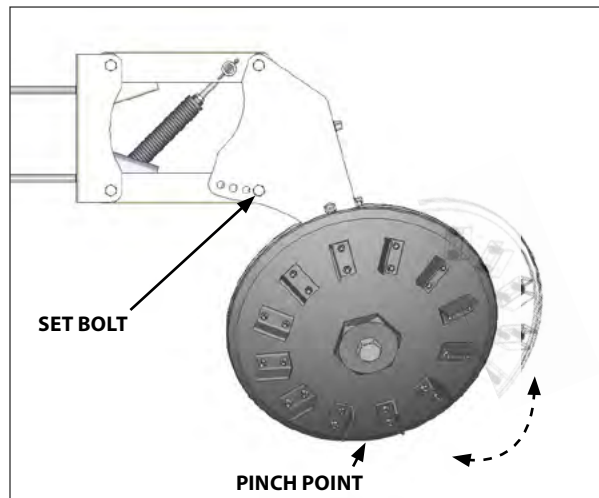
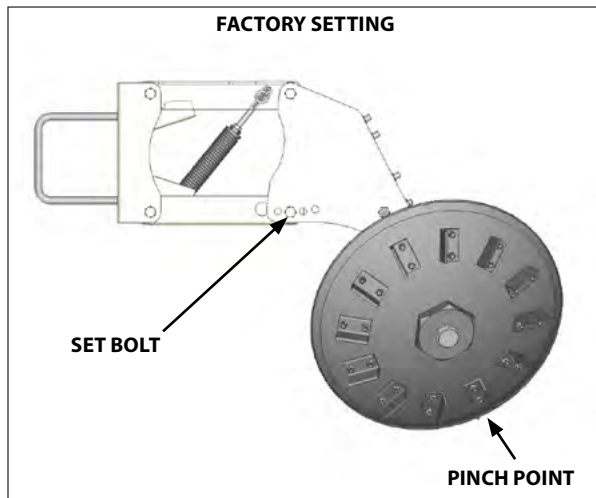
NOTE: RECOMMENDED TOOLS: SET SCREW AND SWING SET BOLT - 3/4" END WRENCH; JAM NUT - 15/16" END WRENCH.

1. Loosen swing set-bolt on LH V-Disk Mount Leg.
2. Loosen jam nut on set screw.
3. Tighten set screw for more pinch point pressure.
4. Re-tighten jam nut and swing set-bolt.

NOTE: TOO MUCH PRESSURE AT THE PINCH POINT WILL REDUCE THE ROLLING PERFORMANCE OF THE V-DISK.



PINCH POINT ANGLE. The pinch point angle is the angle of the pinch point of the V-Disks in relation to the ground surface. A larger angle allows the V-Disks to run deeper, thus causing more soil disturbance and root ball removal. A smaller angle will cause less soil disturbance and root ball removal. The factory setting is the recommended setting, however, not all situations are the same.



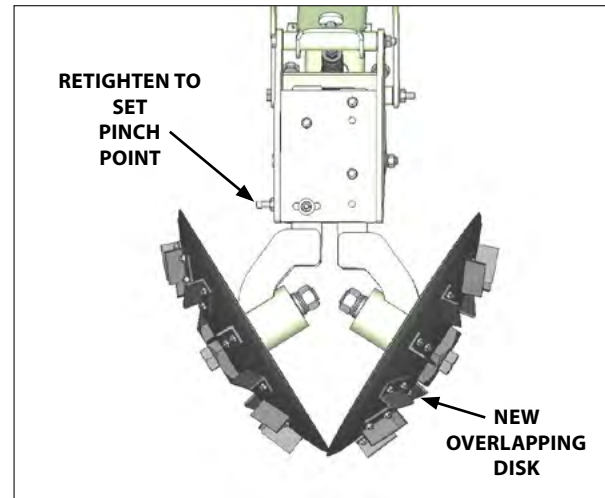
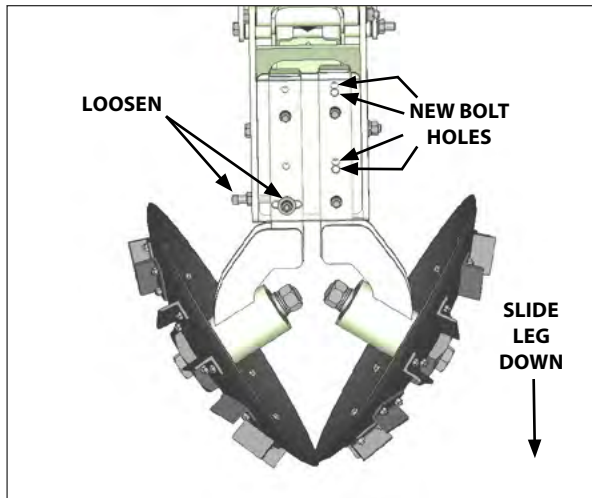
NOTE: FACTORY SETTING IS RECOMMENDED

NOTE: RECOMMENDED TOOLS: 15/16" SOCKET AND WRENCH; 15/16" END WRENCH. AN ASSISTANT IS ALSO RECOMMENDED TO HOLD UNIT MAINFRAME.

1. Have an assistant hold the row unit mainframe.
2. Loosen the set bolt nut and remove the set bolt.
3. Align the holes of the new setting and replace the set bolt.
4. Re-tighten the set bolt nut.

FIELD ADJUSTMENTS (CONTINUED)

V-DISK ORIENTATION. The V-Disks on each row unit of the 5JSP Stalk Puller overlap each other to create the pinch point necessary to 'slice' the previous crop root ball. The standard orientation of the V-Disks is left overlaps right. Due to this, over the life of the V-Disks, a groove will appear in the LH V-Disk, and the RH V-Disk will become dull. When this happens, the V-Disk orientation must be changed so that the RH V-Disk will overlap the LH V-Disk, and extend the overall life of the V-Disks.



NOTE: RECOMMENDED TOOLS: LEG MOUNTING BOLTS, SWING SET-BOLT, AND SET SCREW - 3/4" END WRENCH; JAM NUT - 15/16" END WRENCH.

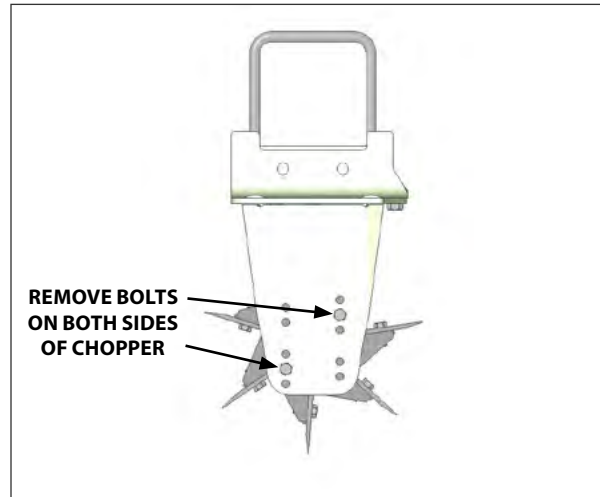
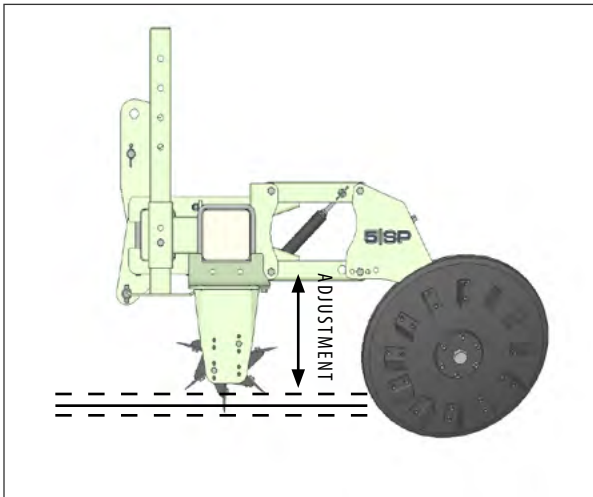


1. Loosen swing set-bolt on LH V-Disk Mount Leg.
2. Loosen jam nut on set screw and loosen set screw to allow LH Mount leg to swing out.
3. Loosen and remove RH Leg mounting carriage bolts.
4. Slide RH V-Disk leg down and align the new bolt holes. Replace Leg mounting carriage bolts and tighten.
5. Reset the pinch point by tightening the set screw.
6. Retighten the swing set-bolt and jam nut.

NOTE: TOO MUCH PRESSURE AT THE PINCH POINT WILL REDUCE THE ROLLING PERFORMANCE OF THE V-DISK.

FIELD ADJUSTMENTS (CONTINUED)

CHOPPER HEIGHT. For implements equipped with the optional chopper units, the chopper unit height may be adjusted to fine-tune desirable performance. Lower the chopper unit for more aggressive tillage, and raise the chopper unit for less aggressive tillage. Keep in mind, more aggressive tillage at the chopper may reduce performance below desirable levels at the V-Disks.

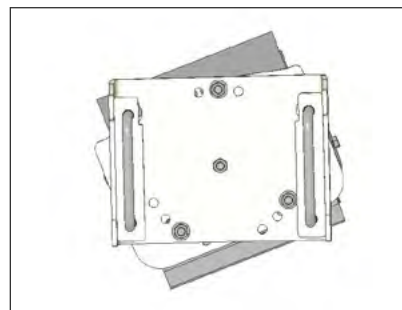
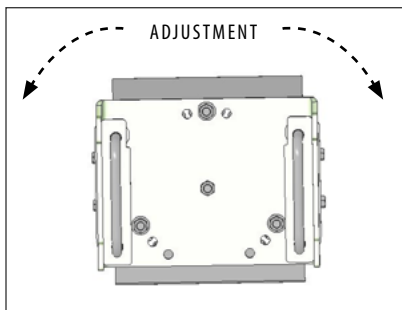


NOTE: FACTORY SETTING IS RECOMMENDED
NOTE: RECOMMENDED TOOLS: 3/4" SOCKET AND WRENCH; 3/4" END WRENCH; BLOCK AND JACK.

1. Place a block and jack beneath the chopper basket.
2. Loosen and remove bearing housing mount bolts on either side of chopper unit.
3. Raise or lower the chopper basket to the new height setting.
4. Replace hardware and re-tighten.

CHOPPER 'YAW' ANGLE. The chopper 'yaw' angle may be adjusted to fine-tune desirable tillage performance.

NOTE: RECOMMENDED SETTING FOR THE CHOPPER 'YAW' ANGLE IS STRAIGHT FORWARD NOT ROTATED FOR BEST RESULTS.



NOTE: FACTORY SETTING IS RECOMMENDED
NOTE: RECOMMENDED TOOLS: 3/4" SOCKET AND WRENCH; 3/4" END WRENCH.

1. Loosen and remove the three outer bolts.
2. Loosen, but do not remove the center bolt.
3. Rotate the chopper basket assembly to the desired setting.
4. Replace hardware and re-tighten.



⚠ AVOID CRUSHING. Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.

USE BAR STANDS TO SUPPORT THE IMPLEMENT. Park implement on a clean, dry, and level surface. An uneven surface could cause implement to shift or fall, resulting in injury or death, as well as implement damage. Securely support all implement components that must be raised. Remove buildup of grease, oil, or debris prior to adjusting implement.

PROBLEM: Disks are plugging with debris

SOLUTION OPTIONS:

1. Speed is too low
 - Increase speed to between 10 and 12 MPH.
2. Conditions are too wet
 - Let dry.
3. Too much down pressure
 - Reduce down pressure by adjusting down pressure spring.
4. Pinch point angle too aggressive
 - Reduce pinch point angle by adjusting row unit mainframe (see field adjustments).
5. Failed hub bearing
 - Replace hub bearing.



TROUBLESHOOTING



⚠ AVOID CRUSHING. Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.

USE BAR STANDS TO SUPPORT THE IMPLEMENT. Park implement on a clean, dry, and level surface. An uneven surface could cause implement to shift or fall, resulting in injury or death, as well as implement damage. Securely support all implement components that must be raised. Remove buildup of grease, oil, or debris prior to adjusting implement.

PROBLEM: Stalks not being cut

SOLUTION OPTIONS:

1. Speed is too low.
 - Increase speed to between 10 and 12 MPH.
2. Pinch point pressure is too low.
 - Increase pinch point pressure by tightening set screw.



PROBLEM: Disks won't stay in the ground

SOLUTION OPTIONS:

1. V-Disk pinch point angle is too low
 - Increase V-Disk pinch point angle by adjusting row unit mainframe (see field adjustments).
2. Not enough row unit down pressure
 - Tighten row unit down pressure spring.



⚠ AVOID CRUSHING. Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.

USE BAR STANDS TO SUPPORT THE IMPLEMENT. Park implement on a clean, dry, and level surface. An uneven surface could cause implement to shift or fall, resulting in injury or death, as well as implement damage. Securely support all implement components that must be raised. Remove buildup of grease, oil, or debris prior to adjusting implement.

PROBLEM:
Disks are skipping stalks

SOLUTION OPTIONS:

1. Row unit may be bouncing from too little down pressure
 - Increase down pressure by tightening down pressure spring.
2. Pinch point pressure is too low.
 - Increase pinch point pressure by tightening set screw.
3. Soil too hard/frozen



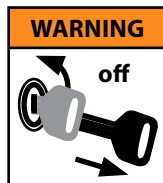
PROBLEM:
Voids in the soil after operation

SOLUTION OPTIONS:

1. V-Disks are operating too deep
 - Decrease V-Disk pinch point angle.

⚠ PRACTICE SAFE MAINTENANCE

Proper maintenance is your responsibility. Maintenance neglect and/or poor maintenance practices can result in injury or death. Always use the proper tools to maintain implement.



AVOID CRUSHING.

Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.



USE BAR STANDS AND CYLINDER STOPS TO SUPPORT THE IMPLEMENT. Park implement on a clean, dry, and level surface. An uneven surface could cause implement to shift or fall, resulting in injury or death, as well as implement damage. Securely support all implement components that must be raised. Remove buildup of grease, oil, or debris prior to maintaining implement.



AVOID ENTANGLEMENT. Never lubricate or service implement in motion. Keep away from power driven parts when in motion. Disengage power sources prior to maintaining implement. Injury or death can result from contact with power driven parts when in motion.



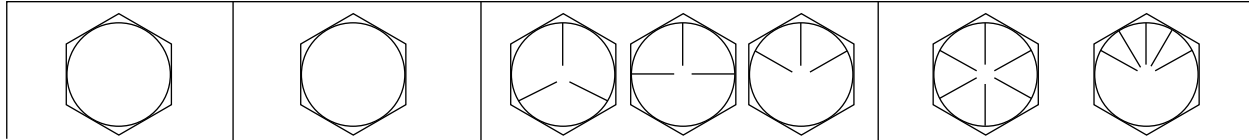
AVOID CRUSHING. Do not stand between the tractor and implement when connecting or disconnecting implement. Injury or death can result from being trapped between the tractor and implement.



Escaping pressurized hydraulic fluid can penetrate skin, resulting in injury or death. Relieve hydraulic system pressure before connecting or disconnecting tractor. Use cardboard or wood, NOT BODY PARTS, to check for suspected hydraulic leaks. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. If an accident occurs, see a doctor immediately for proper treatment.

TORQUE SPECIFICATIONS

Unified Inch Bolt and Screw Torque Values



Bolt or Screw Size	SAE Grade 1				SAE Grade 2 ^a				SAE Grade 5, 5.1 or 5.2				SAE Grade 8 or 8.2			
	Lubricated ^b		Dry ^c		Lubricated ^b		Dry ^c		Lubricated ^b		Dry ^c		Lubricated ^b		Dry ^c	
	N•m	lb-in	N•m	lb-in	N•m	lb-in	N•m	lb-in	N•m	lb-in	N•m	lb-in	N•m	lb-in	N•m	lb-in
1/4	3.7	33	4.7	42	6	53	7.5	66	9.5	84	12	106	13.5	120	17	150
													N•m	lb-ft	N•m	lb-ft
5/16	7.7	68	9.8	86	12	106	15.5	137	19.5	172	25	221	28	20.5	35	26
									N•m	lb-ft	N•m	lb-ft				
3/8	13.5	120	17.5	155	22	194	27	240	35	26	44	32.5	49	36	63	46
			N•m	lb-ft	N•m	lb-ft	N•m	lb-ft								
7/16	22	194	28	20.5	35	26	44	32.5	56	41	70	52	80	59	100	74
	N•m	lb-ft														
1/2	34	25	42	31	53	39	67	49	85	63	110	80	120	88	155	115
9/16	48	35.5	60	45	76	56	95	70	125	92	155	115	175	130	220	165
5/8	67	49	85	63	105	77	135	100	170	125	215	160	240	175	308	225
3/4	120	88	150	110	190	140	240	175	300	220	380	280	425	315	540	400
7/8	190	140	240	175	190	140	240	175	490	360	615	455	690	510	870	640
1	285	210	360	265	285	210	360	265	730	540	920	680	1030	760	1300	960
1-1/8	400	300	510	375	400	300	510	375	910	670	1150	850	1450	1075	1850	1350
1-1/4	570	420	725	535	570	420	725	535	1280	945	1630	1200	2050	1500	2600	1920
1-3/8	750	550	950	700	750	550	950	700	1700	1250	2140	1580	2700	2000	3400	2500
1-1/2	990	730	1250	930	990	730	1250	930	2250	1650	2850	2100	3600	2650	4550	3350

Torque values listed are for general use only, based on the strength of the bolt or screw. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For plastic insert or crimped steel type lock nuts, for stainless steel fasteners, or for nuts on U-bolts, see the tightening instructions for the specific application. Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Replace fasteners with the same or higher grade. If higher grade fasteners are used, tighten these to the strength of the original. Make sure fastener threads are clean and that you properly start thread engagement. When possible, lubricate plain or zinc plated fasteners other than lock nuts, wheel bolts or wheel nuts, unless different instructions are given for the specific application.

^a Grade 2 applies for hex cap screws (not hex bolts) up to 6 in. (152 mm) long. Grade 1 applies for hex cap screws over 6 in. (152 mm) long, and for all other types of bolts and screws of any length.

^b "Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or 7/8 in. and larger fasteners with JDM F13C zinc flake coating.

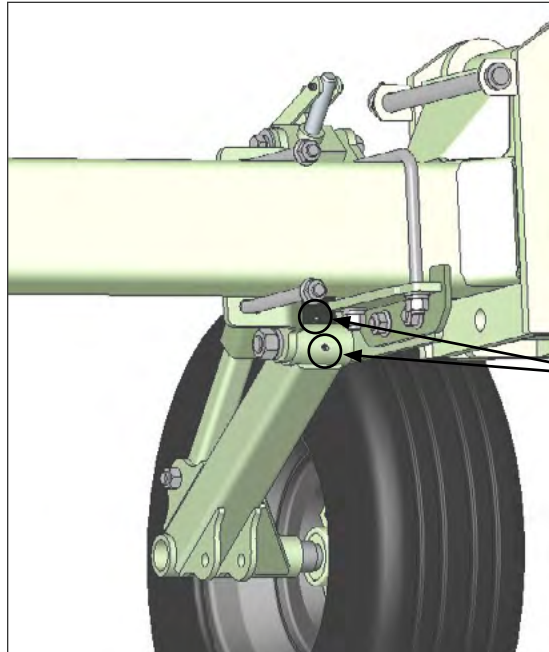
^c "Dry" means plain or zinc plated without any lubrication, or 1/4 to 3/4 in. fasteners with JDM F13B zinc flake coating.


D188Z

LUBRICATION

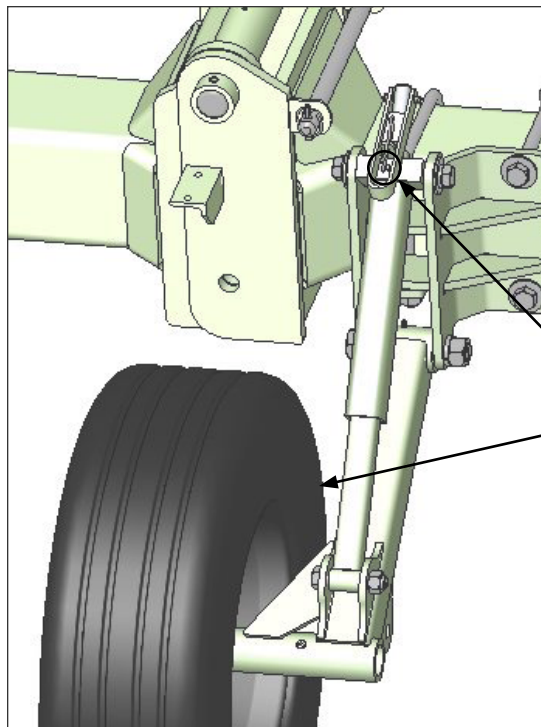



- Grease - use high quality multi-purpose grease.
- Follow recommended service interval illustrated below.



50 
Gauge wheel pivot point

30" GAUGE WHEEL



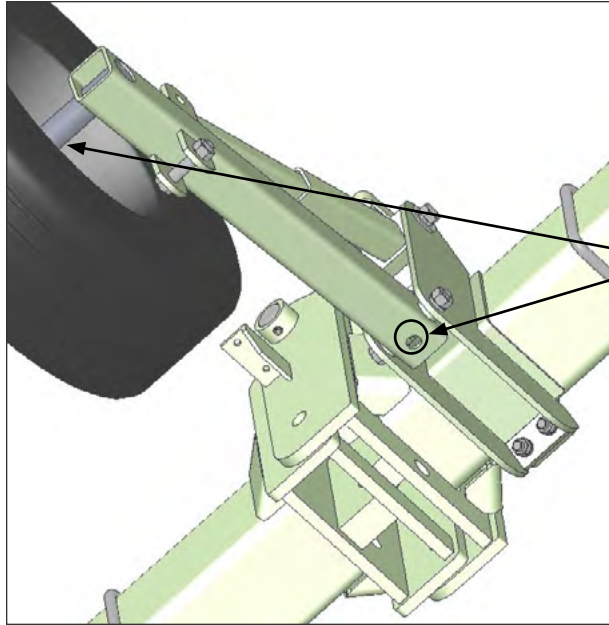
50 
Adjustment Crank;
Wheel hub bearing


30" GAUGE WHEEL

LUBRICATION

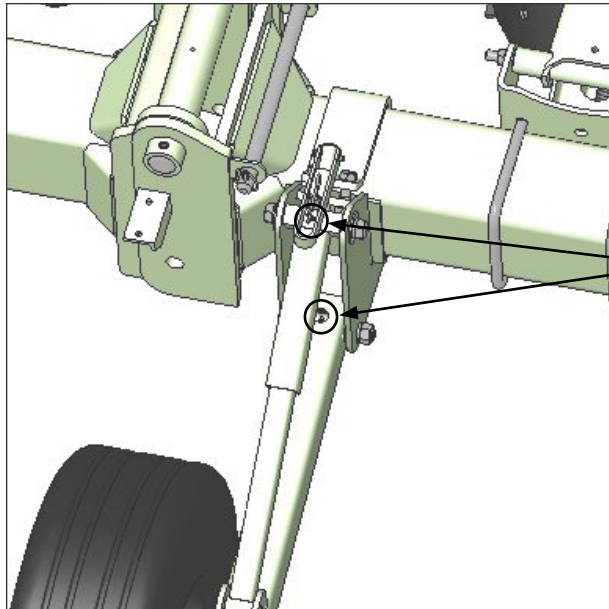



- Grease - use high quality multi-purpose grease.
- Follow recommended service interval illustrated below.




50 ☒
Bottom of pivot arm;
Wheel hub bearing

36", 38", AND 40" GAUGE WHEEL




50 ☒
Top of pivot arm;
Adjustment crank

36", 38", AND 40" GAUGE WHEEL

IMPLEMENT INSPECTION

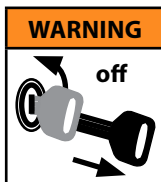


- When replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore implement to original specifications. Replace broken or worn parts immediately. Contact your Orthman dealer for replacement parts.



- During break-in (40 hours), check hardware for proper torque every 10 to 20 hours.
- Before each use, check hardware for wear and proper torque. Replace damaged or missing hardware with hardware of an identical grade to restore implement to original specifications.
- Do not allow debris to buildup on any surface of the implement.
- Replace all shields and guards. Be sure all tools, parts, and service equipment are removed prior to transporting equipment.

IMPLEMENT STORAGE

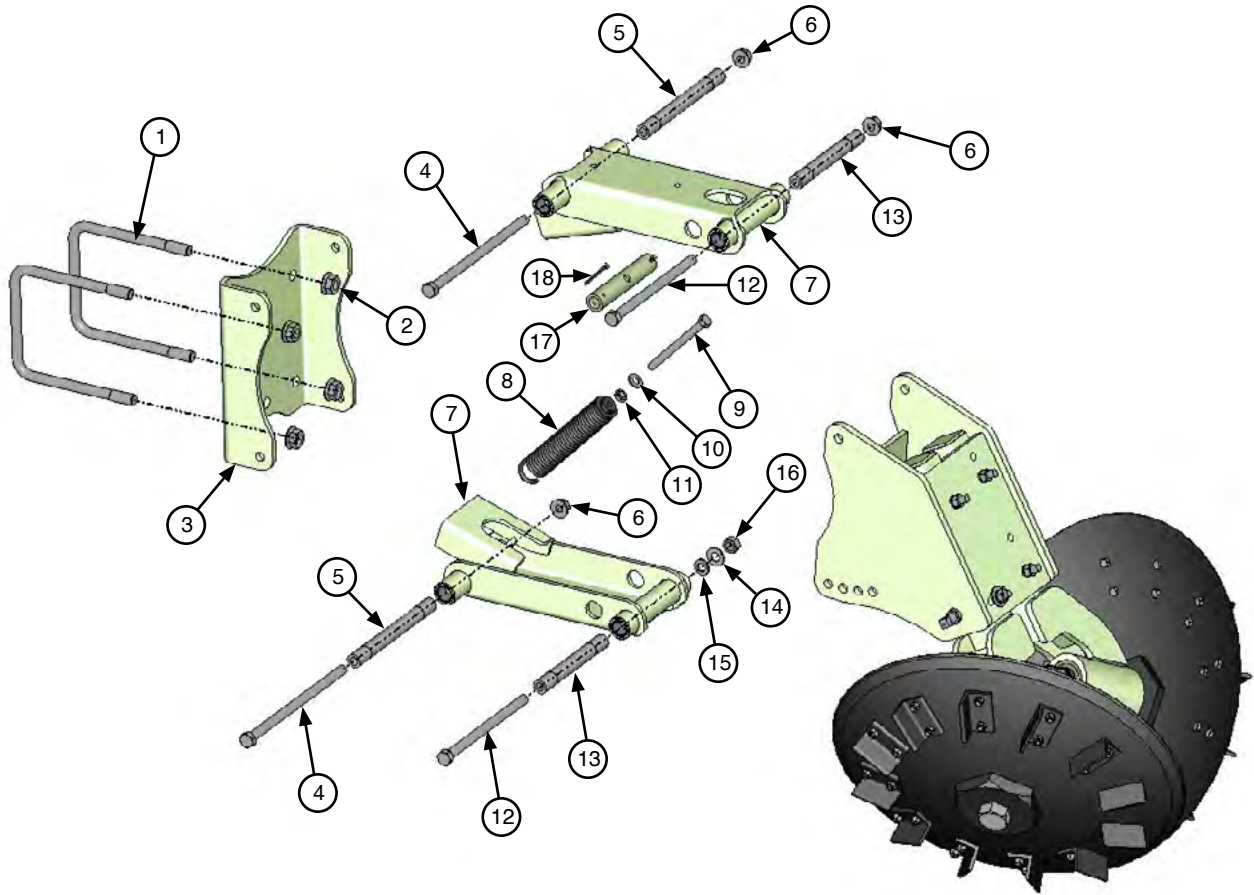


- Clean and touch up paint seasonally to avoid corrosion and rust. Contact your Orthman dealer for touch up paint.
- Inspect all safety and Orthman decals and replace if missing or damaged. Contact your Orthman dealer for replacement decals.
- Grease all zerks regardless of hourly interval prior to storage.
- Check all hardware according to torque specifications prior to storage.
- Replace all worn or damaged parts prior to storage.
- Store inside if possible. Storing implement inside will prolong the life of the components.



⚠ AVOID CRUSHING. Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.

Storing implement on the ground will relieve the tractor three point hitch of hydraulic pressure.

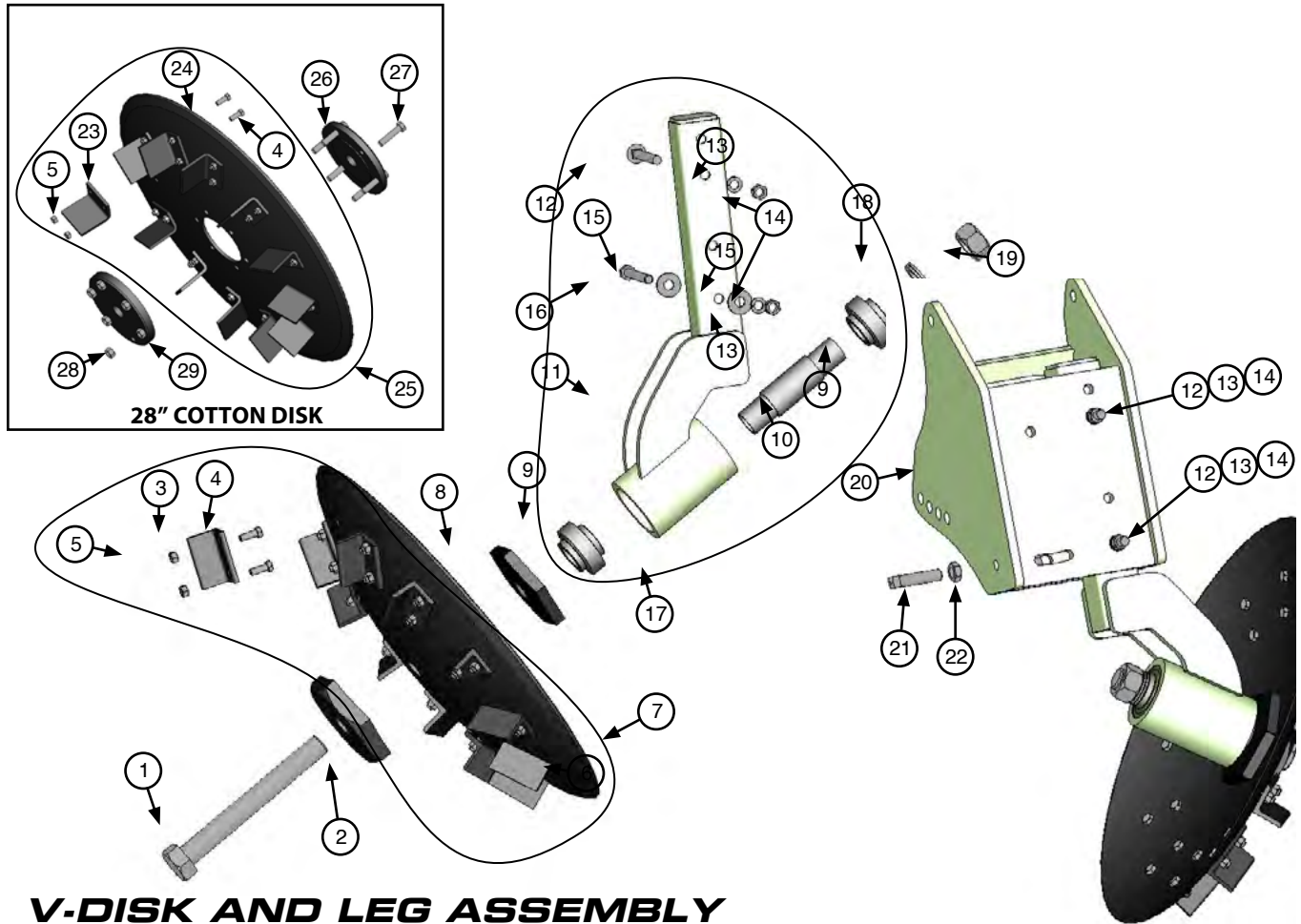


MOUNT AND PARALLEL LINKAGE ASSEMBLY

Key	Part #	Description	Qty	Notes
1	315-031	U-bolt	2	3/4"; 7x7 bar
2	102-121	Nut; Flanged	4	3/4"
3	386-189	Mount	1	----
4	100-470	Bolt	2	5/8" x 12"; GR. 8
5	386-192	Bushing	2	----
6	102-122	Nut; Flanged	3	5/8"
7	386-260	Parallel Linkage	2	Includes items 5 & 13
8	319-493	Spring	1	----
9	100-281	Bolt	1	1/2" x 6"; GR. 5

Key	Part #	Description	Qty	Notes
10	108-001	Flat washer	1	1/2"
11	102-015	Jam nut	1	1/2"
12	100-152	Bolt	2	5/8" x 10"; GR. 8
13	386-175	Bushing	2	----
14	108-002	Flat washer	1	5/8"
15	108-021	Lock washer	1	5/8"
16	102-017	Nut	1	5/8"
17	386-193	Trunion	1	----
18	104-030	Cotter pin	2	----

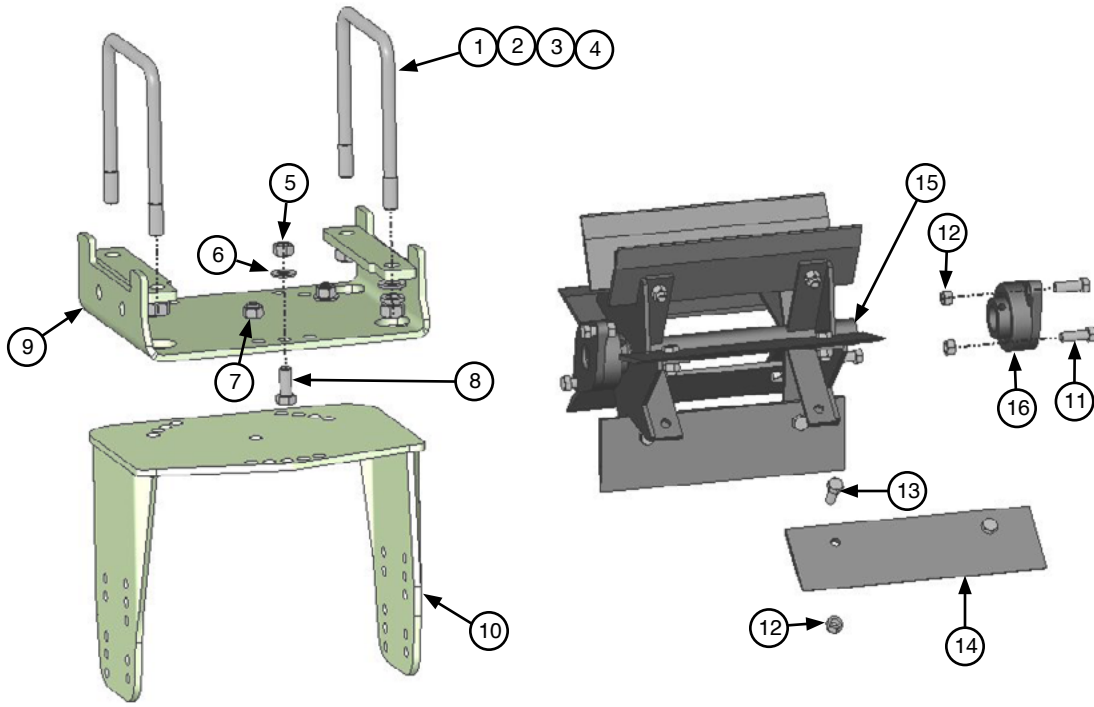
PARTS IDENTIFICATION



V-DISK AND LEG ASSEMBLY

Key	Part #	Description	Qty	Notes
1	100-518	Spindle bolt	1	1 1/4" x 10"; GR. 5
2	386-173	Outer washer	1	For 24" disk
3	386-178	Cleat	12	For 24" disk
4	100-107	Bolt	24	*per disk; 3/8" x 1"
5	102-027	Nut	24	*per disk; 3/8"
6	386-122	V-Disk only	1	24" - 3" concavity
7	386-141	V-Disk assembly	-	Items 3-6
8	386-176	Inner washer	1	24" disk
9	120-180	Bearing	2	----
10	386-171	Hub spacer	1	----
11	-	Disk leg mount	-	I.D. purposes only
12	100-028	Carriage bolt	3	1/2" x 4 1/2"; GR. 5
13	108-020	Lock washer	4	1/2"
14	102-007	Nut	4	1/2"
15	108-009	Flat washer	4	1/2"

Key	Part #	Description	Qty	Notes
16	100-125	Bolt	1	1/2" x 4 1/2"; GR. 8
17	386-195	Leg assembly	-	Includes items 9-11
18	152-758	Washer, Nordlock	1	1 1/4"
19	102-135	Lock nut	1	1 1/4"
20	386-166	Mainframe	1	Only includes mainframe
21	106-160	Set screw	1	5/8" x 2 1/2"
22	102-016	Jam nut	1	5/8"
23	386-177	Cleat	12	For 28" disk
24	386-196	V-Disk only	1	28" - 1.56" concavity
25	386-140	V-Disk assembly	-	Items 4, 5, 23, and 24
26	386-172	Inner washer	1	28" disk; bolts not incl.
27	100-119	Bolt	6	1/2" x 2 1/4"; GR. 5
28	102-028	Lock nut	6	1/2"
29	386-179	Outer washer	1	28" disk; nuts not incl.
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CHOPPER UNIT ASSEMBLY

Key	Part #	Description	Qty	Notes
1	315-031	U-bolt	2	3/4"; 7x7 bar
2	108-003	Flat washer	4	3/4"
3	108-022	Lock washer	4	3/4"
4	102-009	Nut	4	3/4"
5	102-008	Nut	4	5/8"
6	108-002	Flat washer	4	5/8"
7	102-029	Lock nut	4	5/8"
8	100-131	Bolt	4	5/8" x 1 1/2"; GR. 5
9	386-157	Upper mount	1	----
10	386-154	Yolk chopper mount	1	----
11	100-116	Bolt	4	1/2" x 1 1/2"; GR. 5
12	102-028	Lock nut	18	1/2"
13	100-115	Bolt	14	1/2" x 1 1/4"; GR. 5
14	152-628	Blade	7	----
15	386-150	Chopper reel	-	Only reel assembly; Does not include blades, bearings, or hardware
16	120-178	Bearing assembly	2	Complete with housing



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