

W. & A. MANUFACTURING CO.



SPECIALIZED FARM EQUIPMENT



# DELTAMAX™ OWNER'S MANUAL

Revised 5.26



This manual is applicable to:       DeltaMax™

Record the model number and serial number of your DeltaMax™ along with date purchased:

**MODEL NUMBER** \_\_\_\_\_

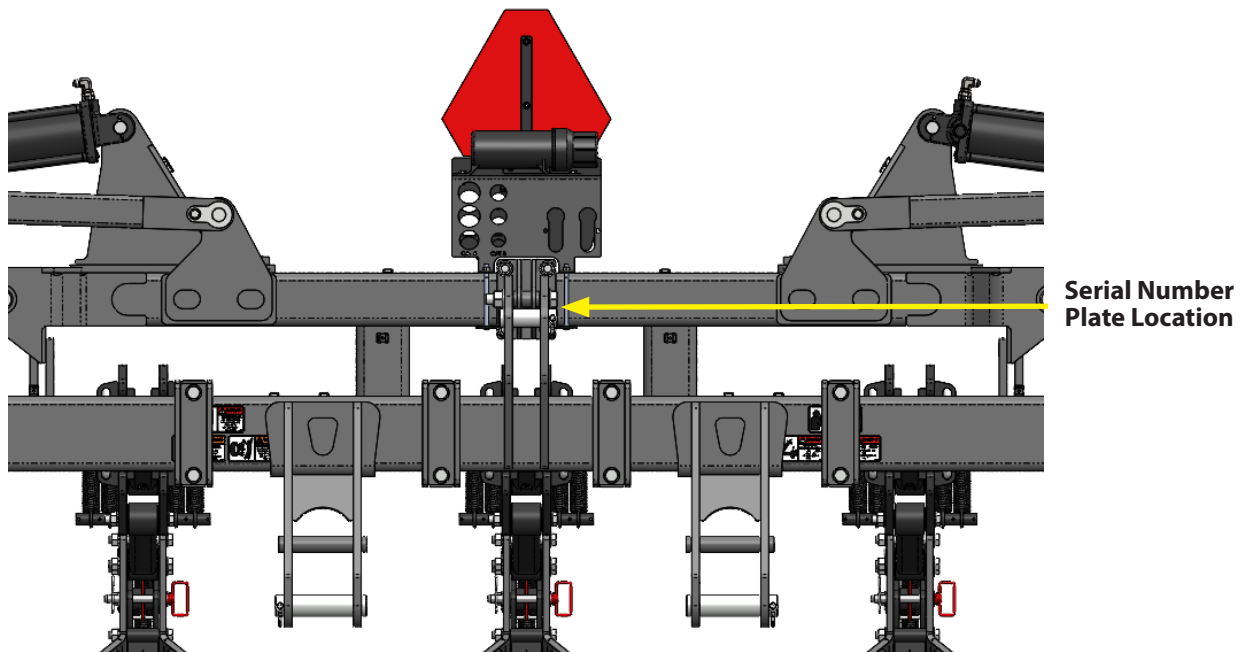
**SERIAL NUMBER** \_\_\_\_\_

**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 DeltaMax™ 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.





## 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 DeltaMax™ 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.
- Check for oil leaks and proper hydraulic operation.
- Hydraulic hoses correctly routed to prevent damage.
- Inflate tires to specified air pressure and torque wheel lug bolts and lug nuts as specified in the manual.
- All safety decals correctly located and legible. Replace if damaged.
- All reflective decals and SMV sign correctly located and visible when the disc is in transport position.
- Safety/warning lights correctly installed and working properly.
- Paint all parts scratched during shipment or assembly.
- All safety lockup devices on the DeltaMax™ are correctly located.

*The DeltaMax™ 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 DeltaMax™ 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 lubrication 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 DeltaMax™ in transport position and attached to tractor. Check safety/warning lights are in working condition. 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 DeltaMax™ 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, reflective decals, and SMV sign are correctly located as shown in the Parts Guide and that decals are legible. Replace if damaged or missing.
- Check safety/warning lights are properly.

---

(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:

**AGROdeviate, LLC**  
2600 Highway 30 E Rover Park #2  
Kearney, NE 68847



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# GENERAL INFORMATION



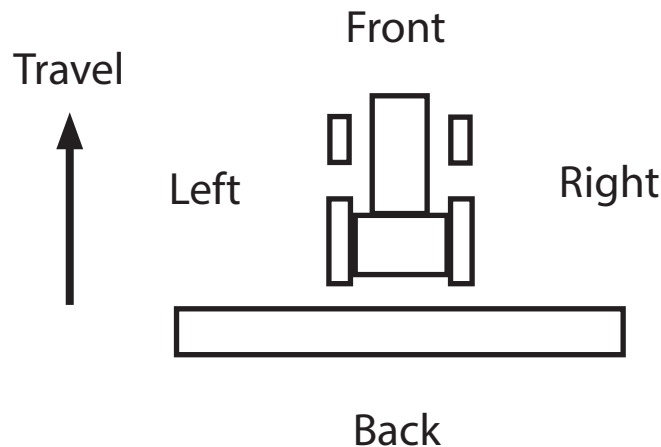
## HOW TO USE THIS MANUAL

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](http://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).



## INTRODUCTION

Thank you for your purchase of a W&A Manufacturing DeltaMax™. 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, 2600 Highway 30 E Rover Park #2, Kearney, NE, 308.708.8185, or visit our website: [www.wamfgco.com](http://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.

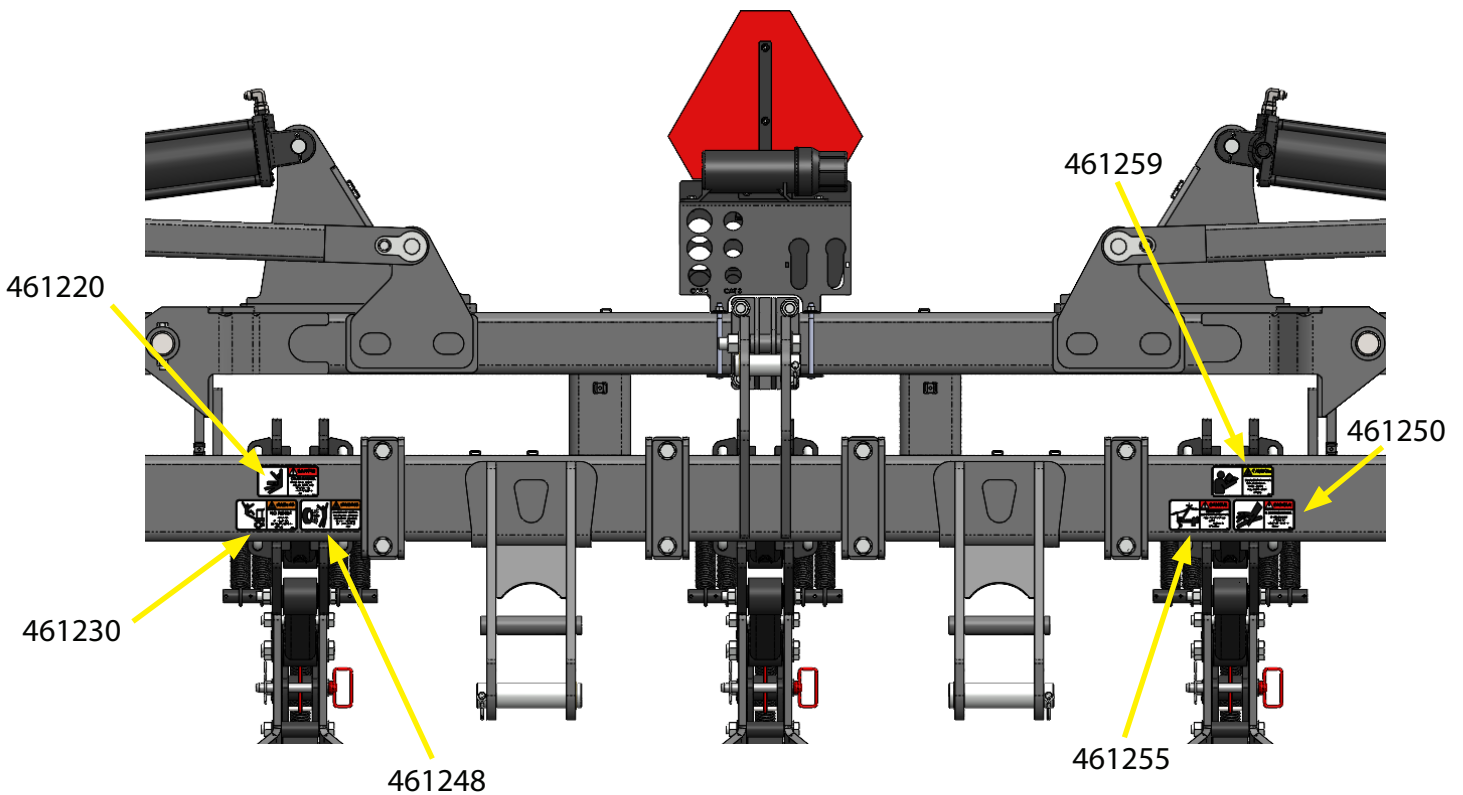
Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in question - DON'T TRY IT.



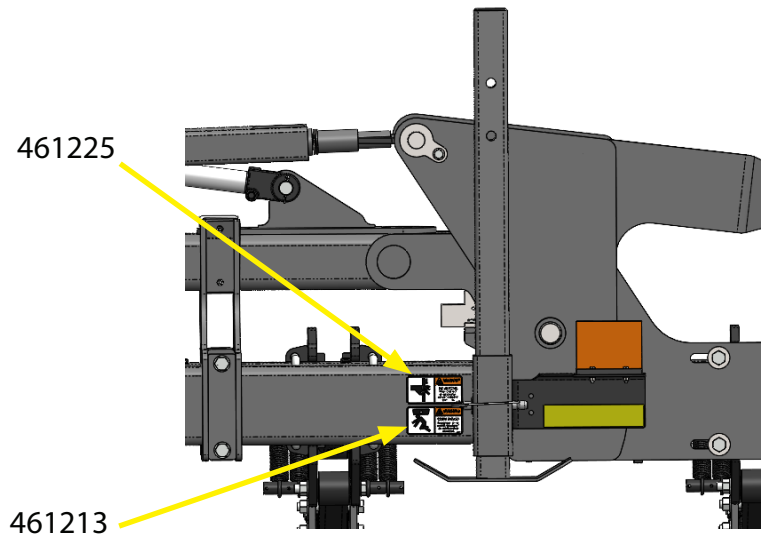


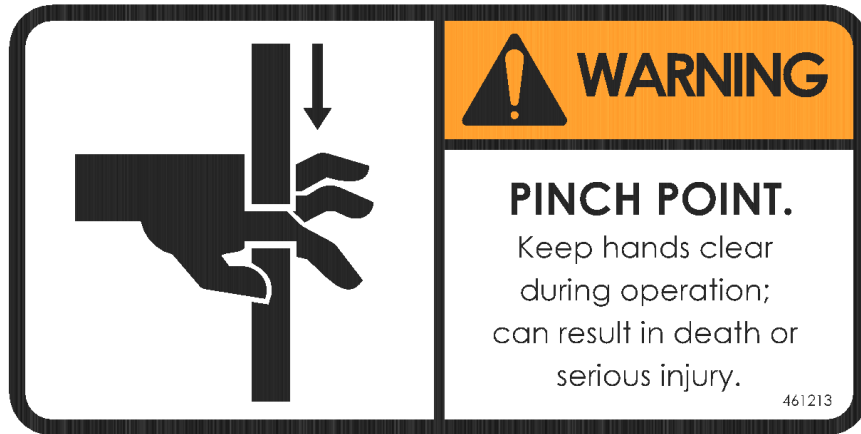
## SAFETY SIGN LOCATIONS

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.



**NOTE: LH/RH Safety Signs and locations are similar**

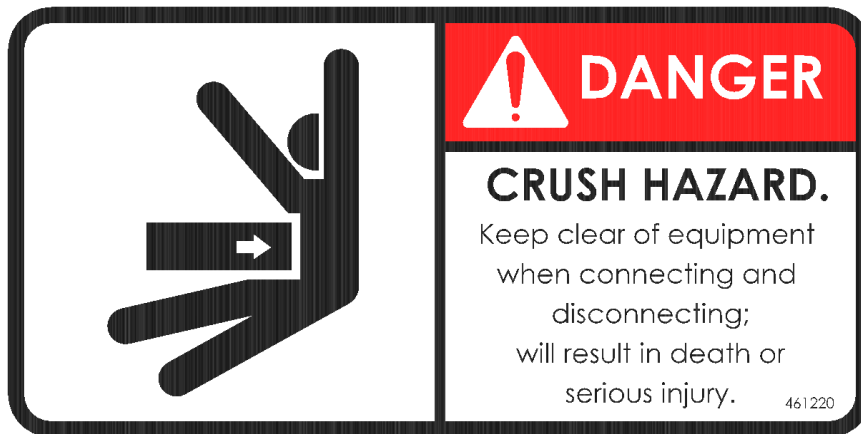




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## **PINCH POINT - WARNING**

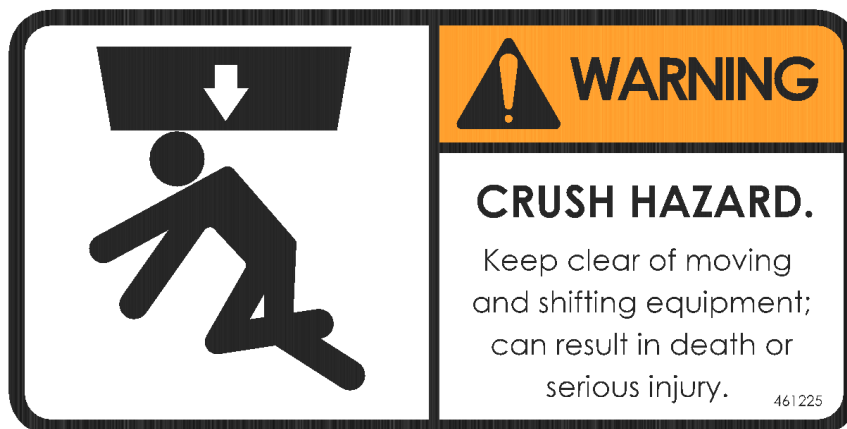
- Keep extremities clear of equipment. Object(s) can move or shift; can result in death or serious injury.
- Hazards may include, but are not limited to, hinge mechanism movement, pin movement, row unit movement and shifting, accessory movement and shifting, etc.



461220

## **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.



461225

## 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.



461230

## NO RIDERS - WARNING

- Never allow riders on equipment; can result in death or serious injury.
- Hazards may include, but are not limited to, falling from equipment, falling into equipment, injury while on equipment, etc.



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## CONTENTS UNDER PRESSURE - WARNING

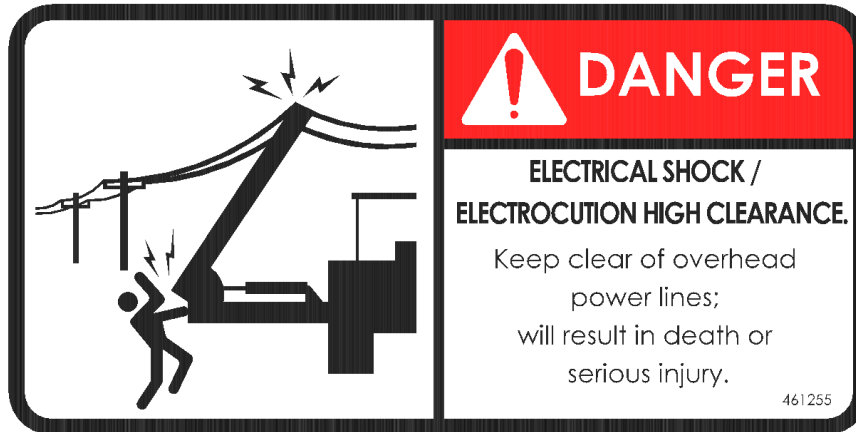
- Do not operate if damaged or improperly pressurized. Damaged or improperly pressurized components can discharge; can result in death or serious injury.
- Hazards may include, but are not limited to, damaged tire and/or rim, over pressurized tire, excessive tire wear, tire tears or punctures, ect.



461250

## HIGH PRESSURE FLUID - DANGER

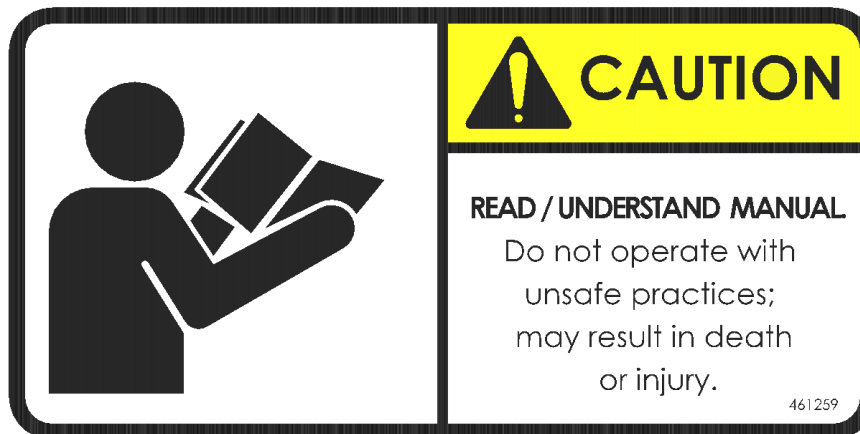
- Use safe practices. Fluid injection can occur; will result in death or serious injury.
- Hazards may include, but are not limited to, injury beyond the entry point, over pressurized components, damaged components, components with excessive wear, swollen components, ect.



461255

## **ELECTRICAL SHOCK/ELECTROCUTION HIGH-CLEARANCE DANGER**

- Keep clear of overhead power lines, maintain 20-foot minimum distance. Electrical shock and/or electrocution can occur; will result in death or serious injury.
- Hazards may include, but are not limited to, high clearance equipment, low clearance power lines, lack of awareness of surroundings, etc.



461259

## **READ/UNDERSTAND MANUAL - CAUTION**

- Do not operate without a complete understanding of the owner's manual. Do not operate with unsafe practices; may result in death or injury.
- Hazards may include, but are not limited to, compromising the safety of yourself and/or others, lack of awareness, damage to equipment, etc.



## 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 Hawkins Ag.

## 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.**

**AGROdeviate, LLC - W&A Manufacturing**  
2600 Highway 30 E Rover Park #2  
Kearney, NE 68848

**308.708.8185**  
**[www.wamfgco.com](http://www.wamfgco.com)**



# PREPARATION & SET-UP



This section helps you prepare your tractor and DeltaMax™ for use. You must level the implement, hook up the implement hydraulics to the tractor, and check that the hydraulics have been bled.

## 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:

- Bleed hydraulic fold system (page 48)
- Check/Change Hitch Configuration
- Hitching Tractor to Implement
- Hydraulic Hose Hook-up
- Light Kit Guide and Relocation
- Electrical Hook-up
- Leveling the Implement

## PRE-TILLAGE SET-UP

Complete this checklist before routine set-up:

- Read and understand important "Safety" information starting on page 9.
- Check that all working parts are moving freely, bolts are tight, and cotter pins are spread.
- Check that all grease fittings are in place and lubricated. See "Maintenance & Lube" on page 49.
- Check that all safety decals and reflectors are correctly located and legible. Replace if damaged. See "Safety Sign Locations" starting on page 13.

# PREPARATION & SET-UP



## CHECK/CHANGE HITCH CONFIGURATION

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:

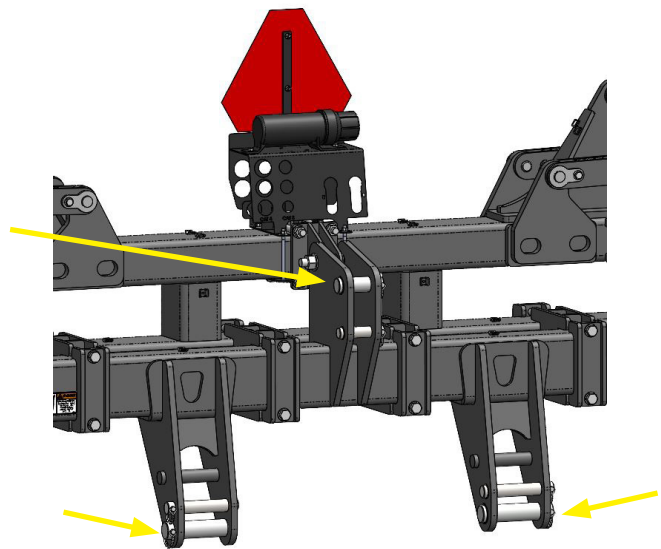
Choose a hitch option that is compatible with your tractor 3-point. The DeltaMax™ has two hitch configurations. It is recommended to operate the machine in the Category 4 configuration:

- Category 3
- Category 4

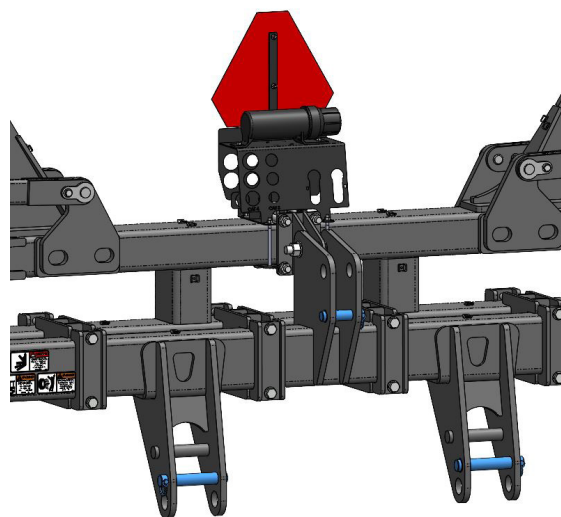
Changing between hitch categories requires removing pins at the implement hitch.

## TO OPERATE AS CATEGORY 3

1. Remove and store the Category 4N pins shown.



2. Once removed, the remaining pins are set to run the implement with a Category 3 hitch.



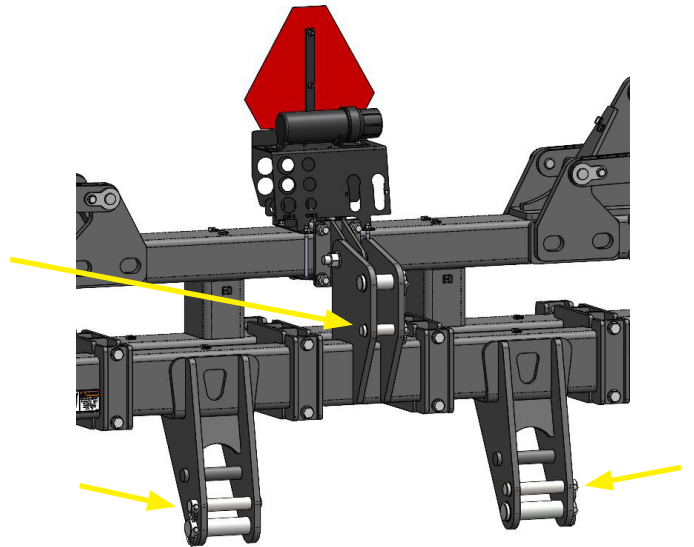
**\*\*SEE NEXT PAGE FOR CATEGORY 4N HITCH SET-UP\*\***

# PREPARATION & SET-UP

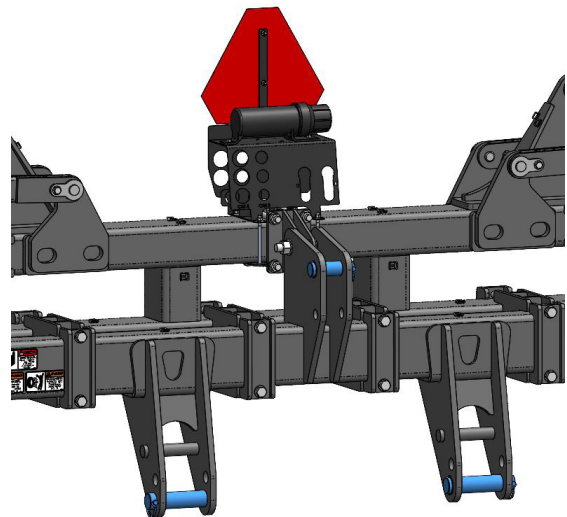


## TO OPERATE AS CATEGORY 4

1. Remove top and lower Category 3 pins shown and store them.



2. Once removed, the remaining pins are set to run the implement with a Category 4 hitch.



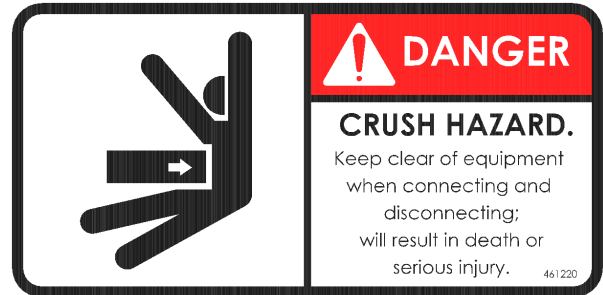
# PREPARATION & SET-UP



## 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.



461220

### 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.

# PREPARATION & SET-UP



## HYDRAULIC HOSE HOOK-UP

Folding and Stacking DeltaMax™ are equipped with independently controlled fold cylinders to individually fold the left and right wings. This section does not apply to Rigid toolbar models.

This requires the use of two remote valves. Hoses at base end of cylinder will unfold machine. Rod end hoses will fold machine up.

1. Connect fold hoses for left wing into remote valve of choice.
2. Connect fold hoses for right wing into remote valve of choice.
3. Check and make sure all hoses are tied up and secure before use.



461250

## HIGH PRESSURE FLUID - DANGER

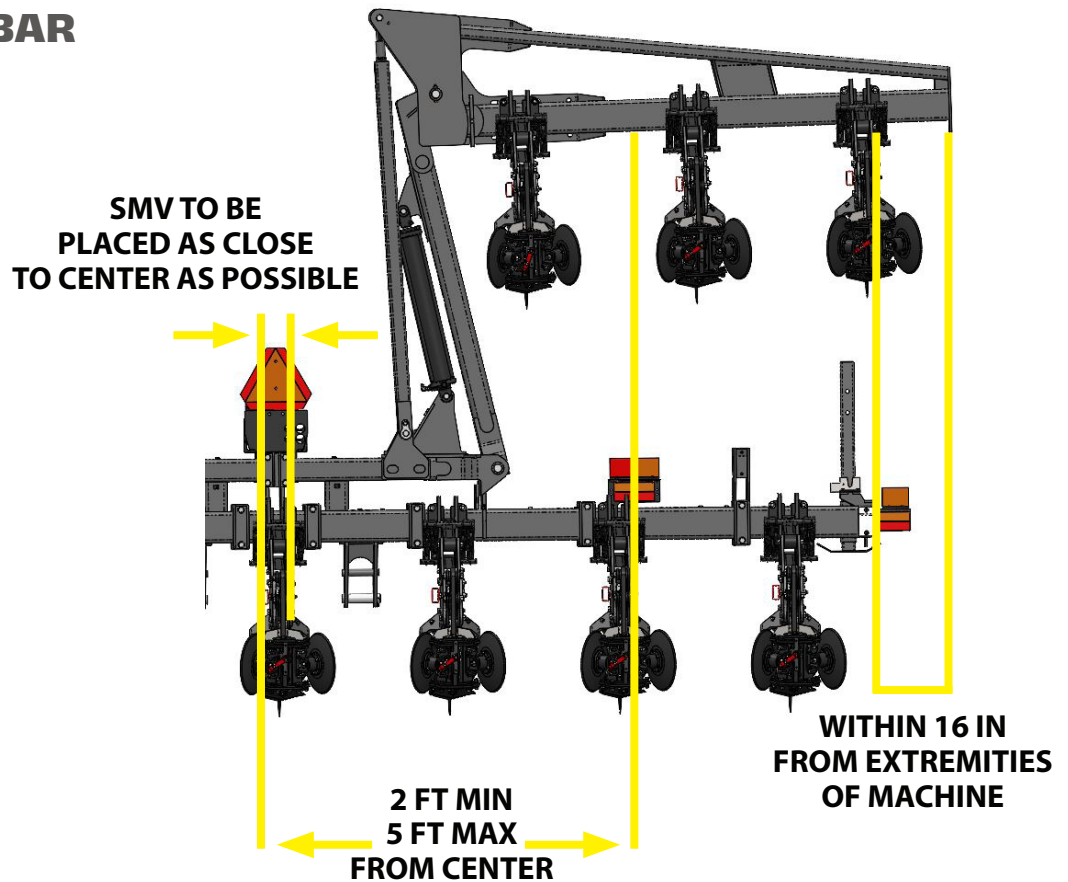
- Use safe practices. Fluid injection can occur; will result in death or serious injury.
- Hazards may include, but are not limited to, injury beyond the entry point, over pressurized components, damaged components, components with excessive wear, swollen components, ect.



## LIGHT KIT GUIDE AND RELOCATION

The light kit is installed at the factory. However, due to shipping requirements and other circumstances, some positions are altered and SMV sign or lights may need relocated before use. Typically, the SMV sign is the only component that needs relocated; please check all components. Check that all forward-facing reflectors and lights are visible from the front and all rear-facing reflectors and lights are visible from the rear. Please refer to the depiction below for component locations.

## STACKING TOOLBAR





## ELECTRICAL HOOK-UP

Lights are connected using a standard 7-pin connector. To connect, simply lift receptacle cover, align plug and insert. To disconnect, lift receptacle cover and remove plug. Once connected, check to make sure all lights are working properly. If lights are not working properly, contact your dealer to fix before transporting on public roadways.

**7-pin Connector**



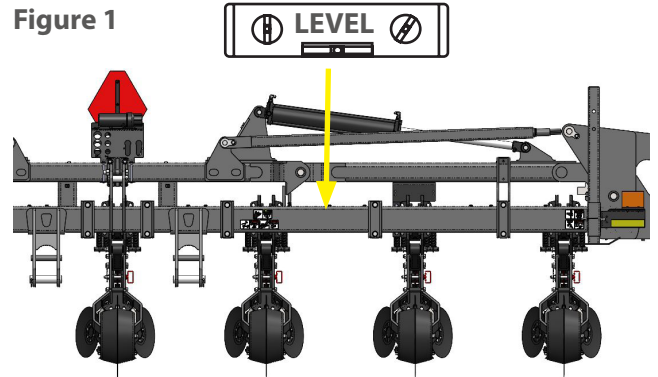


## LEVELING THE IMPLEMENT - STACKING

### Center Frame L/R Leveling (Figure 1)

1. Hitch the DeltaMax™ to a tractor (page 22).
2. Raise the implement.
3. Adjust the tractor 2-point lift arms so that the center section tool bar is level.

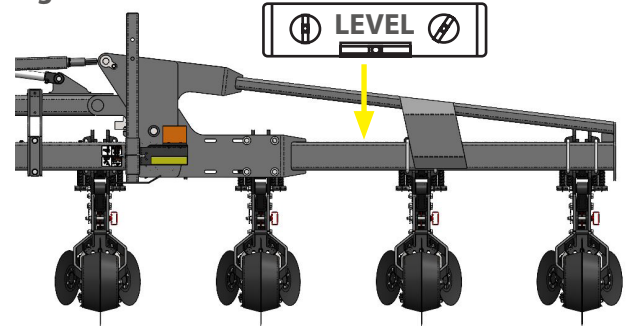
Figure 1



### Wing Leveling (Stacking - Figure 2 & 3)

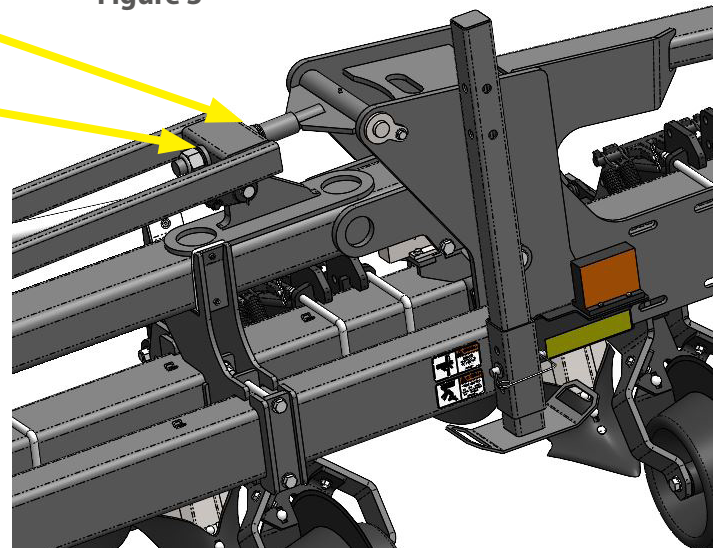
4. Check wing for level at the top of the tool bar.
5. If wing is too high, remove washers (413120). If wing is too low, add washers and re-check level.
6. Repeat process until wing is level.

Figure 2



**WASHERS (413120) CAN BE ADDED OR REMOVED FROM THESE LOCATIONS TO LEVEL THE WINGS**

Figure 3



## WARNING

### 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.



## 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 DeltaMax™ to the field.

- Carefully read "Important Safety Information" on page 9.
- Lubricate implement as indicated under "Maintenance & Lube" on page 47.
- Check all tires for proper inflation.
- Check all bolts, pins, and fasteners. Torque as shown in "Bolt Torque Chart" on page 50.
- Check implement for worn or damaged parts. Repair or replace parts before going to the field.
- Check hydraulic hoses, fittings, and cylinders for leaks. Repair or replace before going to the field.
- Perform all beginning-of-season and daily service items under "Maintenance & Lube" on page 48.



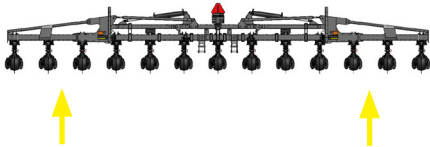
## FOLDING

Fold the implement for movements on public roads and between fields and narrow clearances. Do not use the folded configuration for parking or storage. The DeltaMax™ stacking toolbar is equipped with hydraulic actuated locking mechanisms. These lock the machine in its unstacked configuration in order to prevent the wing from drifting up and down during operation. When folding the implement these mechanisms will automatically unlock to allow the machine to stack properly.

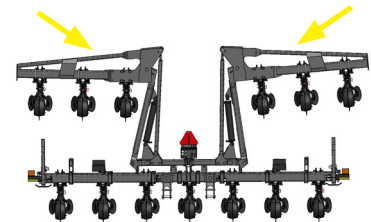
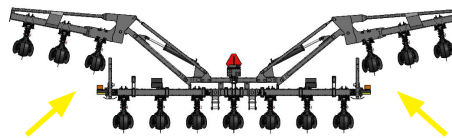


1. Hitch tractor (page 14).
2. Move to level ground. Be aware of vertical clearance needed to fold implement.
3. Put tractor in Park with parking brake engaged.
4. Clear all persons from on or near the implement.
5. Use the tractor 3-point hitch to raise the implement slightly (so that the row units are off the ground).
6. Slowly move fold circuit lever(s) to retract/extend cylinders. Observe the fold/unfold operation.
7. Wait for both wings to reach the fully folded position. Set tractor remote(s) to Neutral to hold at folded or unfold.

UNFOLDED



FOLDED



**TIP OVER/CRUSHING HAZARD AND EQUIPMENT DAMAGE RISK:**

Never unhitch a folded implement. A folded implement could topple backward or forward, 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.



**ELECTRICAL SHOCK/ELECTROCUTION HIGH-CLEARANCE DANGER:**

- Keep clear of overhead power lines, maintain 20-foot minimum distance. Electrical shock and/or electrocution can occur; will result in death or serious injury.
- Hazards may include, but are not limited to, high clearance equipment, low clearance power lines, lack of awareness of surroundings, etc.



**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.



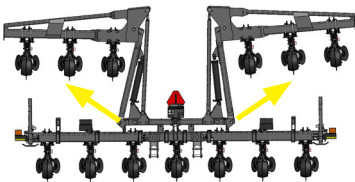
## UNFOLDING

Unfold the implement for field operations, maintenance, parking and storage. The DeltaMax™ stacking toolbar is equipped with hydraulic actuated locking mechanisms. These lock the machine in it's unstacked configuration in order to prevent the wing from drifting up and down during operation. When unfolding the implement these mechanisms will automatically lock machine in place.

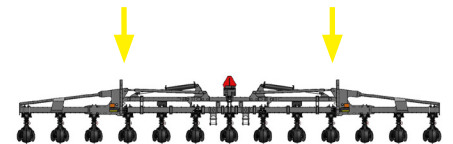
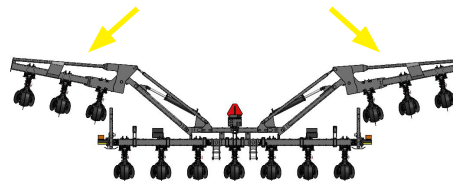


1. Hitch tractor (page 14).
2. Move to level ground. Be aware of vertical clearance needed to fold implement.
3. Put tractor in Park with parking brake engaged.
4. Clear all persons from on or near the implement.
5. Use the tractor 3-point hitch to raise the implement slightly (so that the row units are off the ground).
6. Slowly move fold circuit lever(s) to retract/extend cylinders. Observe the fold/unfold operation.
7. Wait for both wings to reach the fully folded position. Set tractor remote(s) to Neutral to hold at folded or unfold.

### FOLDED



### UNFOLDED



#### **TIP OVER/CRUSHING HAZARD AND EQUIPMENT DAMAGE RISK:**

Never unhitch a folded implement. A folded implement could topple backward or forward, 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.



#### **ELECTRICAL SHOCK/ELECTROCUTION HIGH-CLEARANCE DANGER:**

- Keep clear of overhead power lines, maintain 20-foot minimum distance. Electrical shock and/or electrocution can occur; will result in death or serious injury.
- Hazards may include, but are not limited to, high clearance equipment, low clearance power lines, lack of awareness of surroundings, etc.



#### **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.



## 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.
- Plug implement safety lights into tractor seven-pin connector.
- Make sure implement is folded properly. See "Folding" on page 31. Raise the implement for adequate ground clearance.
- Comply with all national, regional, and local safety laws when traveling on public roads.
- Travel with caution.



### **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.



### **ELECTRICAL SHOCK/ELECTROCUTION HIGH-CLEARANCE DANGER:**

- Keep clear of overhead power lines, maintain 20-foot minimum distance. Electrical shock and/or electrocution can occur; will result in death or serious injury.
- Hazards may include, but are not limited to, high clearance equipment, low clearance power lines, lack of awareness of surroundings, etc.



### **BRAKING AND LOSS OF CONTROL HAZARD:**

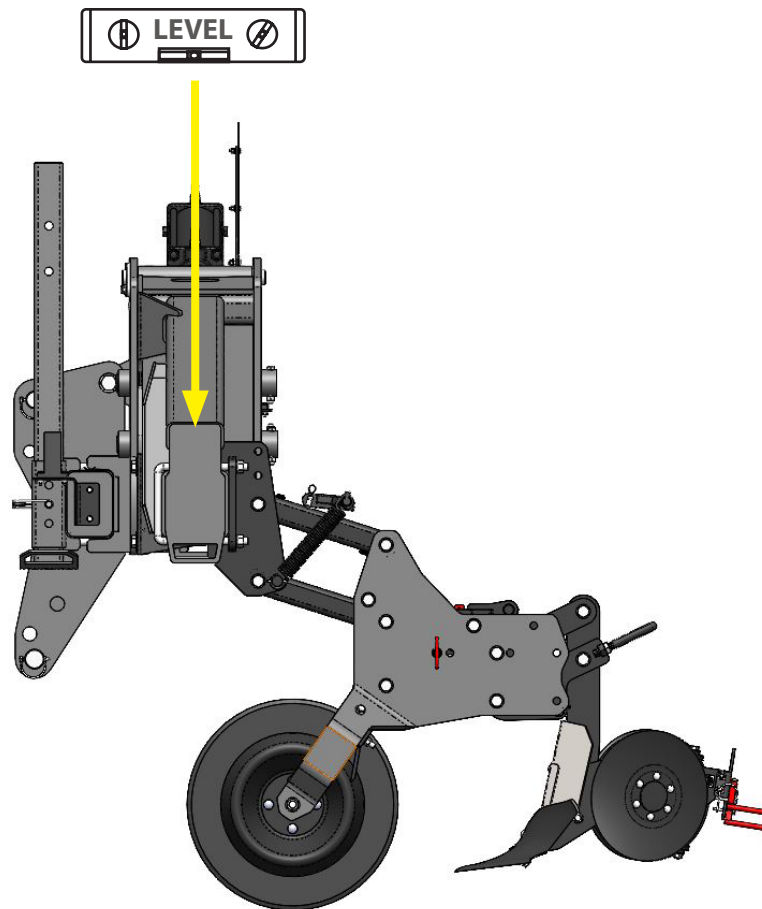
Do not exceed 20 mph (32km/h) when driving straight. Do not exceed 13 mph (21 km/h) in turns. The weight of the implement can cause under-steer, and the height of the implement is a tipping hazard.



## LEVELING THE MACHINE

When initially setting the DeltaMax™ up to operate in the field the machine should be set level front to back and level left to right. To level center and wings refer to “Leveling the Implement” section on page 18.

Initial operating setting is level front to back. Adjust third-link on tractor until toolbar is level.



Tipping the machine front to back in operation can be used to change the shape of the beds, by increasing or decreasing depth of the rear tooling and depth band. Only minimal adjustment should be made using the third link on the tractor.

For greater adjustment, see rear cleanout depth adjustment.



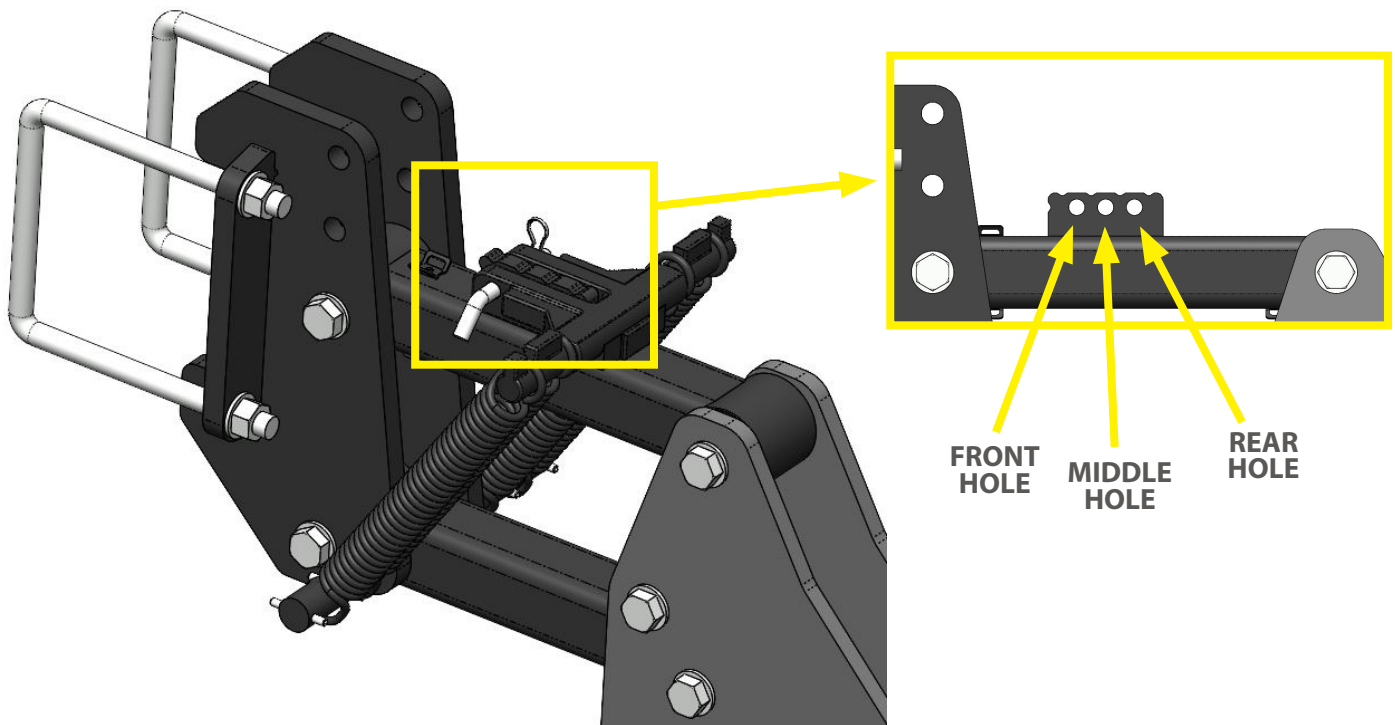
## DOWN PRESSURE SPRINGS

The down pressure on each row unit can be adjusted by changing which pin hole the spring retainer is set at:

**FRONT HOLE:** Lightest down pressure for light or sandy soils.

**MIDDLE HOLE:** Medium down pressure for most soil types.

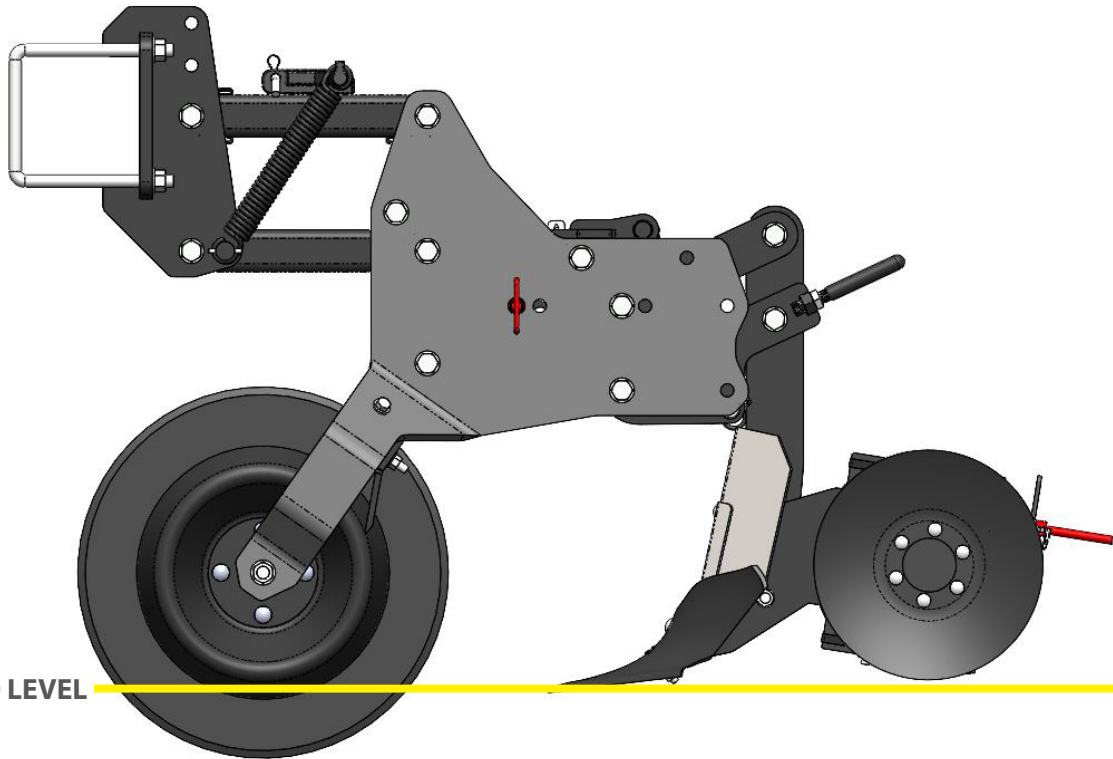
**REAR HOLE:** Maximum down pressure for high clay soils, compacted soils, and heavy residue.



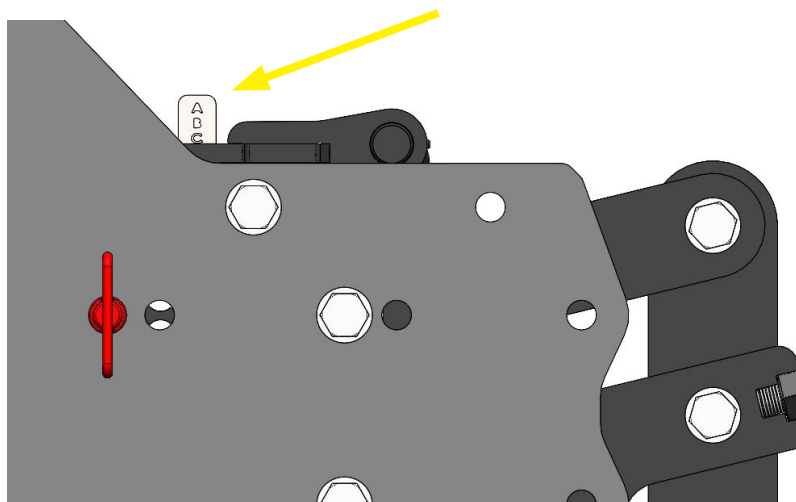
\*On rows directly behind tractor tires, it may be necessary to increase the down pressure due to compaction caused by the tractor



## ROW UNIT DEPTH ADJUSTMENT



The DeltaMax™ is equipped from the factory with eight depth settings for the shovel to accommodate your specific needs. The depth indicated by the lettered rod visible above the depth adjustment pin. Use the table to determine which settings are needed for your requirements.

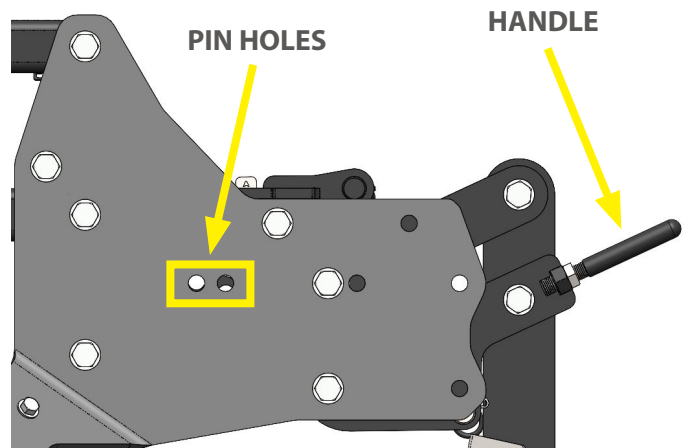
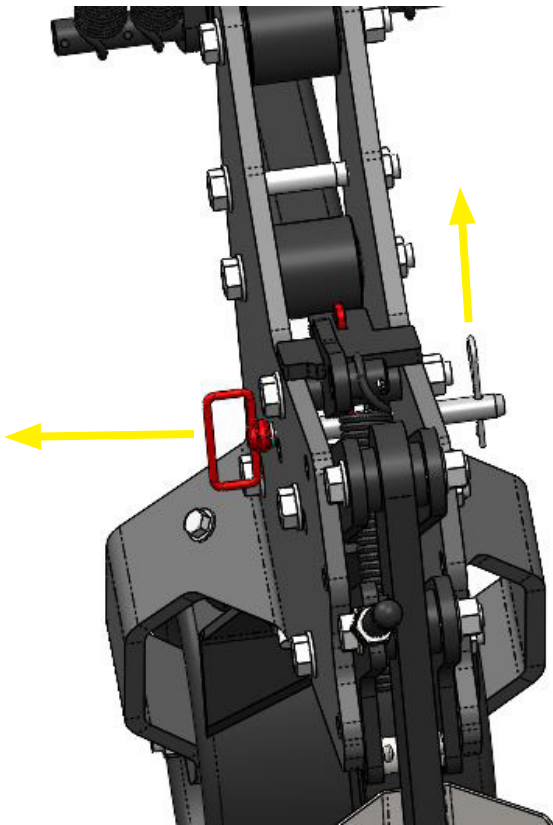


Depth Settings Relative to Ground Level	
Letter Designation	Depth in Inches
A	0
B	1
C	2
D	3
E	4
F	5
G	6
H	7

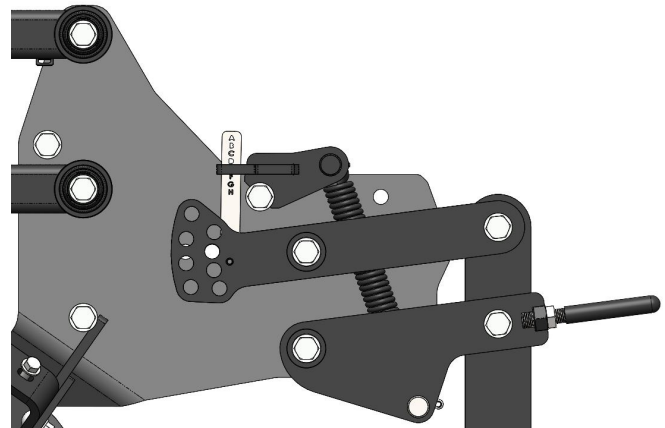
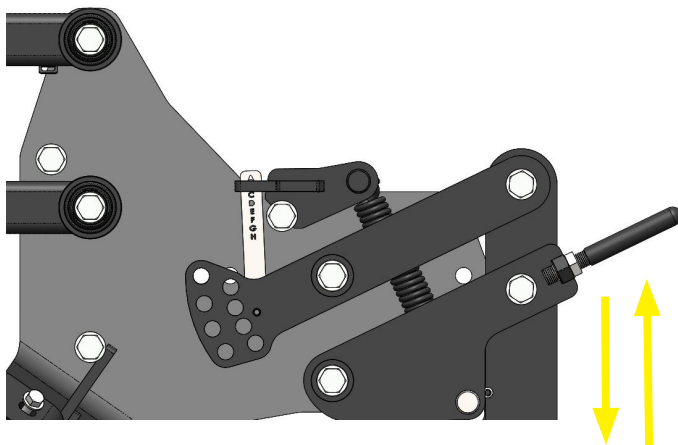


## ROW UNIT DEPTH ADJUSTMENT

In order to adjust the depth of the shovel start by ensuring the machine is suspended with no weight on the row units. Then, remove the cotter and depth adjustment pin.



The desired depth can then be set using one of the two holes and lettered gauge rod. Use the handle to move the unit up and down.

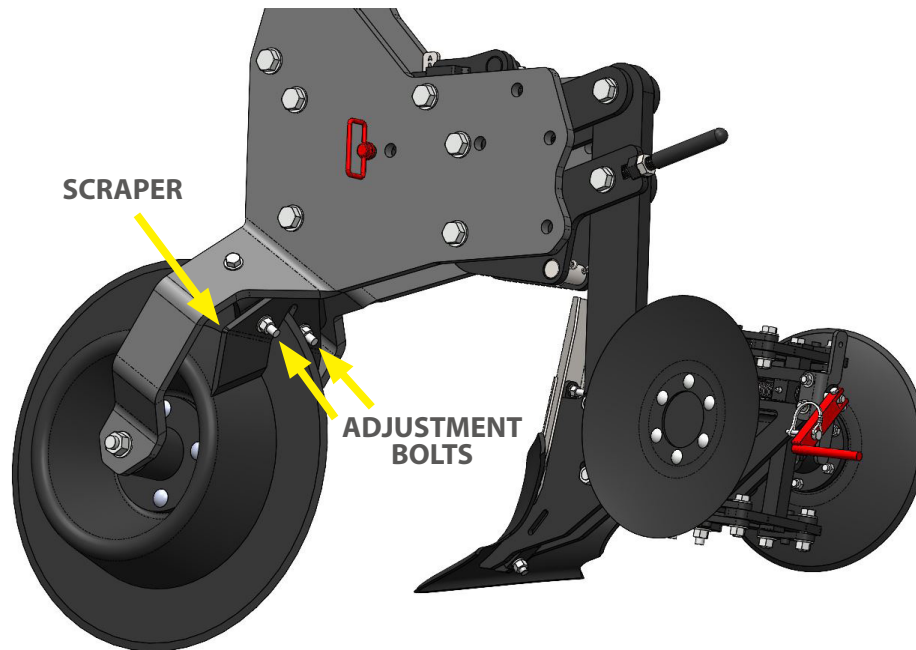


After achieving the desired depth simply replace the pin and cotter pin in one of the corresponding pin holes to lock the unit in place

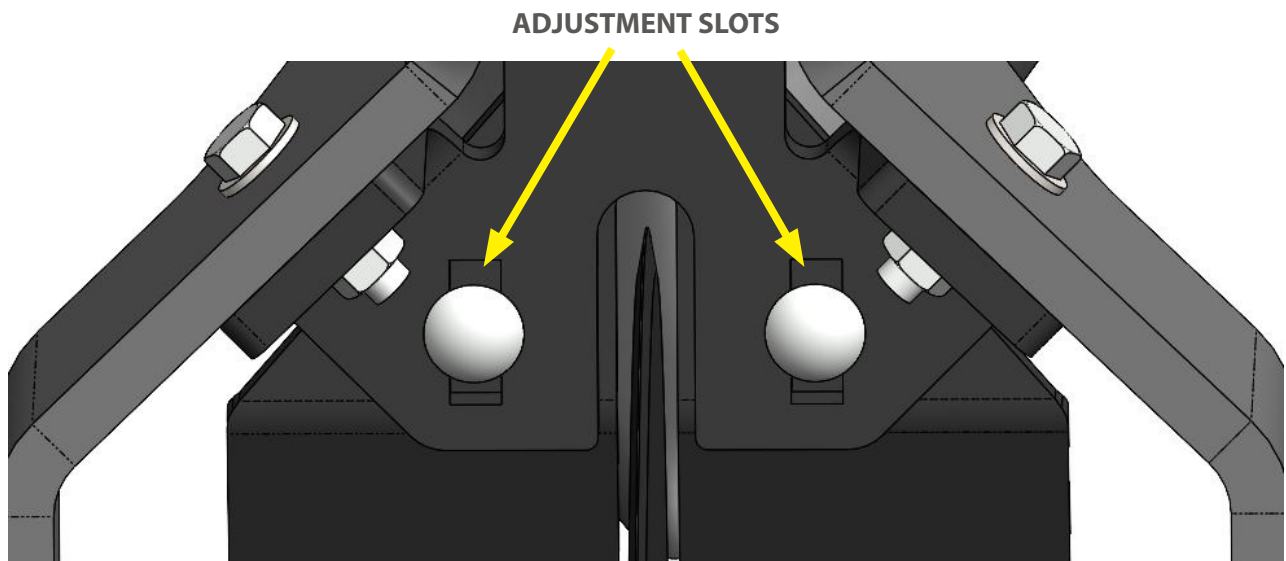


## SCRAPER ADJUSTMENT

To accommodate wear, the DeltaMax™ has been equipped with an adjustable scraper. To adjust it, loosen the scraper adjustment bolts.



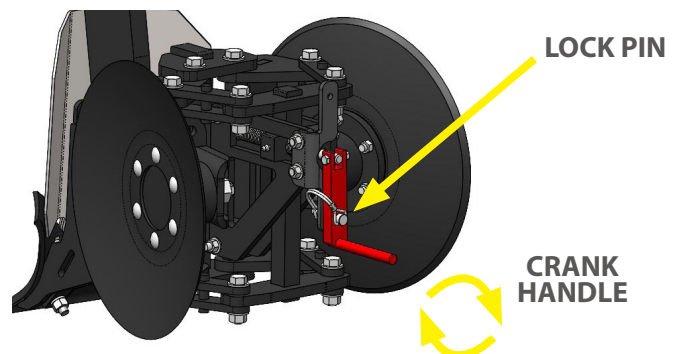
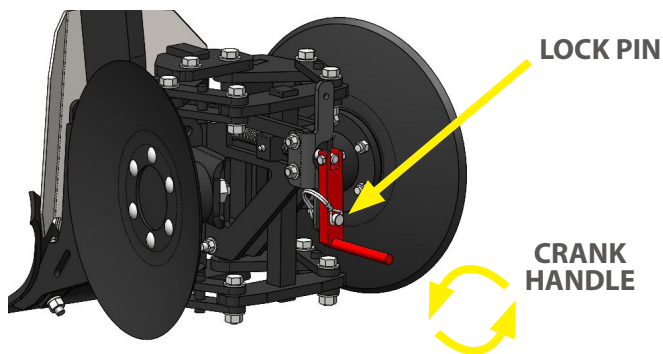
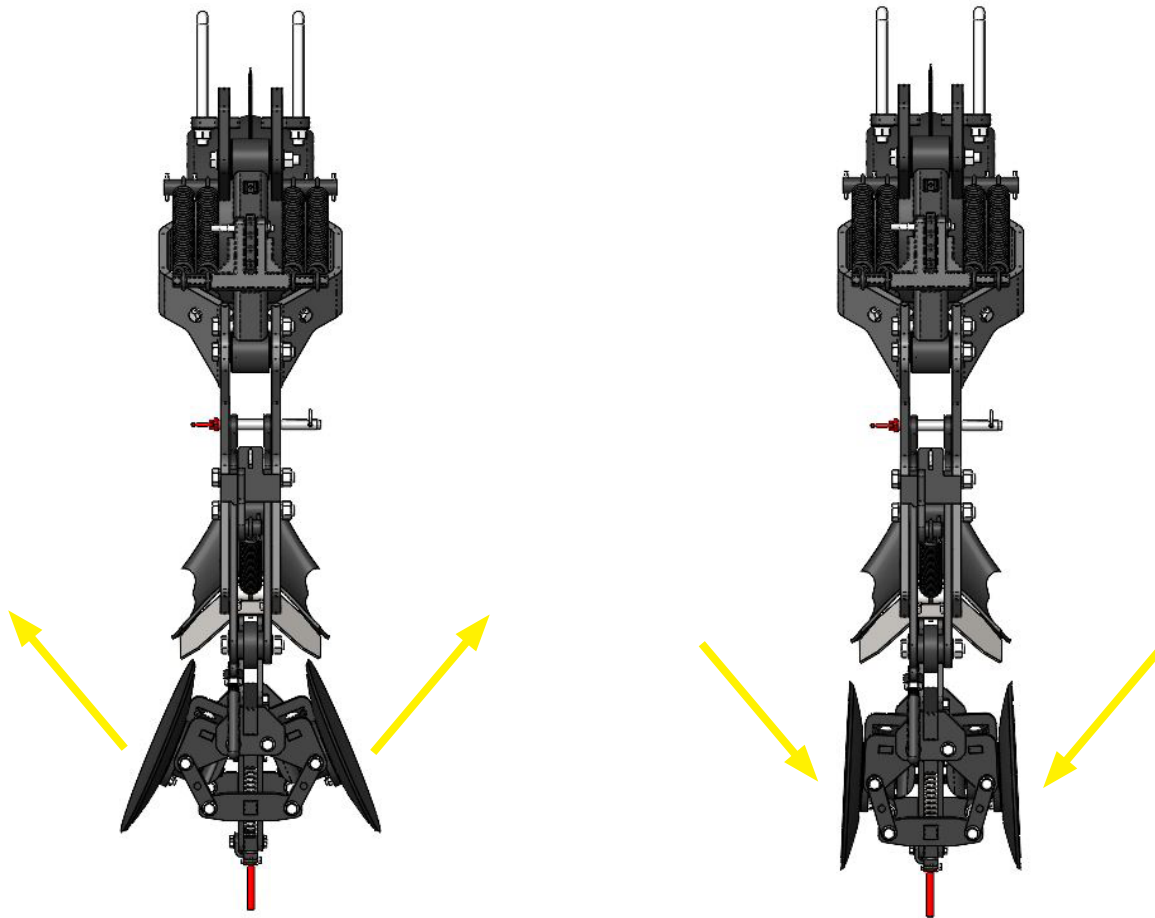
The scraper can then be adjusted up and down according to your needs. Retighten the bolts once the desired position is reached. We recommend 1/8" clearance between the scraper and the depth band.





## VERSABED ADJUSTMENT

The VersaBed adjustment system allows for easy adjustment to the width of your beds. The system utilizes a threaded rod and linkages to allow for any blade angle that fits your needs by turning the crank at the back of the machine. Simply remove the lock pin holding the handle in place to make an adjustment. Rotating the crank clockwise narrows the blade angle while rotating it counterclockwise widens it.

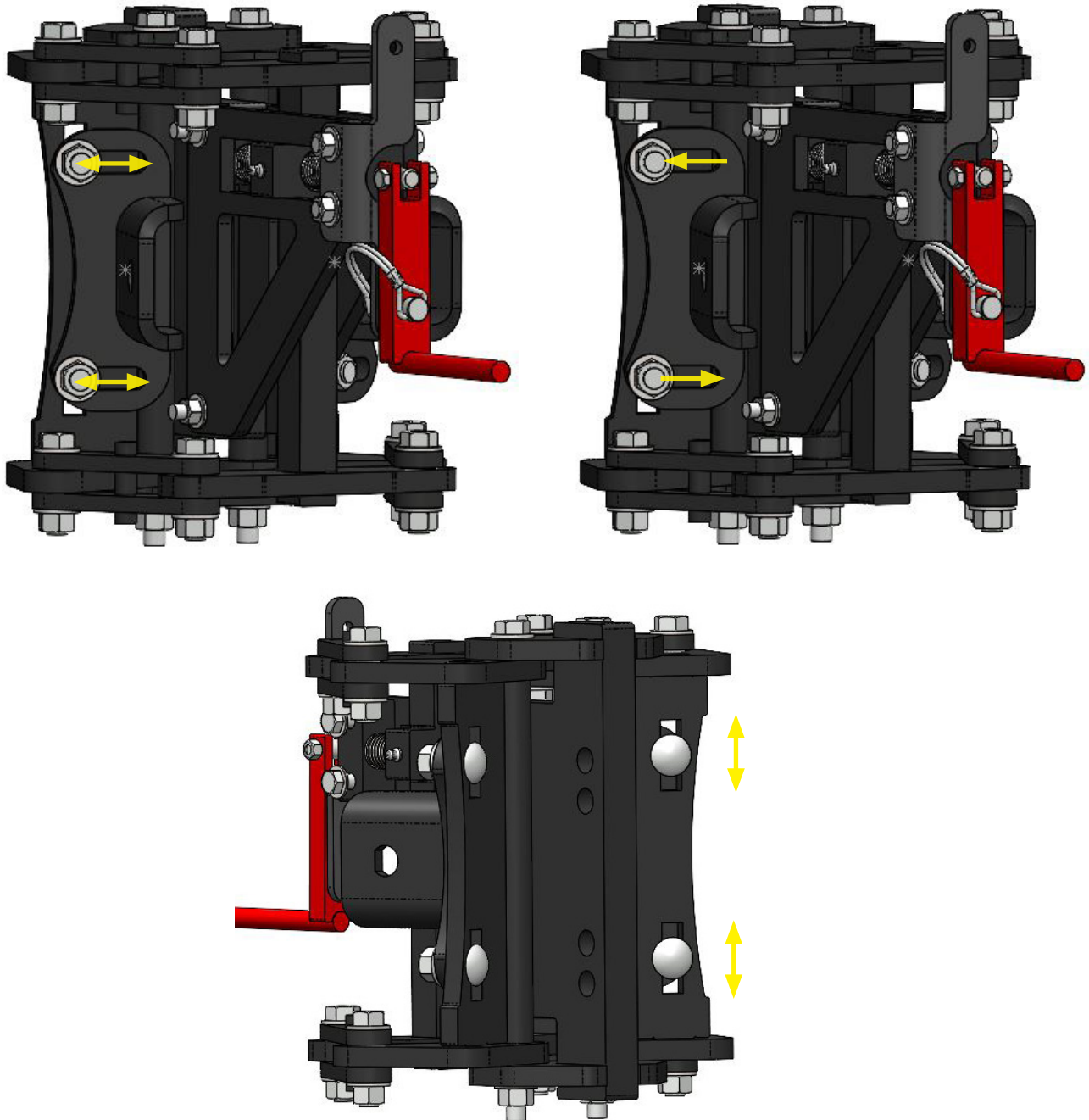




## VERSABED ADJUSTMENT

The width can also be adjust by loosening the retaining bolts that mount the couler.

## WIDTH, HEIGHT & ANGLE ADJUSTMENT

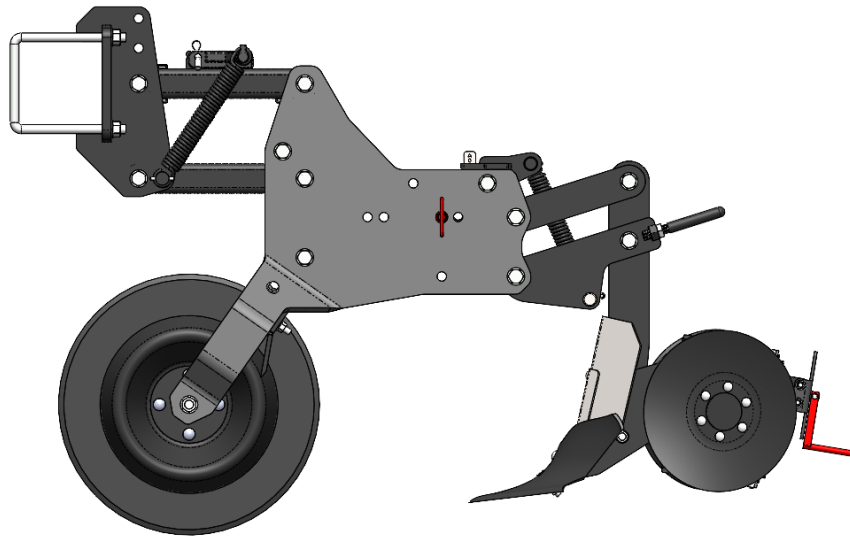




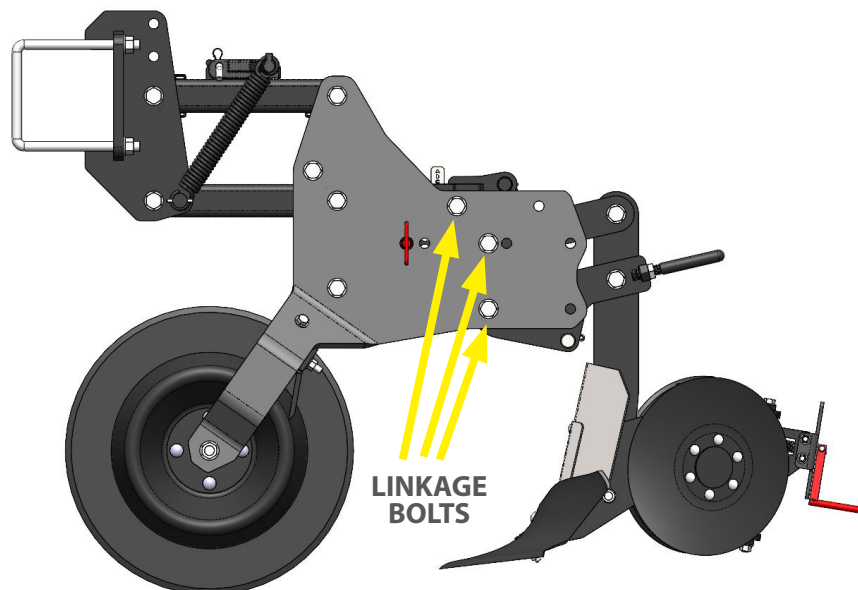
## ROW UNIT LENGTH

The DeltaMax™ can be placed in a longer configuration to accommodate high residue application. To change configurations, remove the three bolts shown below holding the secondary parallel linkage in place. The second set of bolt holes can then be utilized to lengthen the row unit. Be mindful of the tension spring used to make the depth adjustments, as it can be under high tension.

### LONG CONFIGURATION



### SHORT CONFIGURATION





## SPEED RECOMMENDATIONS

The ideal operating speed for the DeltaMax is 4-6 mph. Field conditions can change the effectiveness of the DeltaMax and need to be taken into consideration by the operator.

- Ideal operating speed: 4-6 mph
- Minimum operating speed: 3.5 mph
- Maximum operating speed: 7 mph

## SPEED EFFECTS

- In most conditions, speeding up will cause the soil to move further and peak beds higher.
- In most conditions, slowing down will cause the soil to move less, creating shorter, wider beds. Lack of sufficient speed may cause a dip in the center of the bed, especially on row spacings wider than 30".
- See troubleshooting section for more information on performance issues related to speed.

# OPERATION



## PARKING

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

1. Choose a parking location that has room for unfolding, 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.

If the implement must be parked folded, leave it hitched to the tractor. Skip steps 2, 4, and 7.

2. Unfold the implement. Set the fold circuit(s) to Float.
3. Lower the implement to just above ground level at the rear of the row units. Set the tractor remotes to Neutral to hold at slight lift. Shut off the tractor and remove the key (Refer to Figure 18).
4. Unplug implement hydraulic hoses and electrical lines from tractor.
5. Start the tractor. Lower the 3-point hitch until the implement is supported by the parking stands.
6. Disconnect the hitch arms and link.

## STORAGE

Store the DeltaMax™ 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. Lubricate areas noted under “Maintenance & Lube” beginning on page 47. Apply heavy grease to exposed cylinder rods.
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. Cover with a tarp if stored outside.



### **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.



## DELTAMAX™ 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 use caution when connecting pressurized systems, such as hydraulics and pneumatics.
- DO follow recommend maintenance.
- DO level the toolbar 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 over-pressurize the hydraulic system; DeltaMax™ hydraulics are designed for 3,000 PSI MAX working pressure.
- 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
Row unit tooling does not penetrate soil.	Row unit down pressure is too low.	Increase row unit down pressure by adjusting the down pressure springs. (Refer to pg. 27)
	Row unit depth is too shallow.	Increase row unit depth using the hand crank depth adjustment.
Implement does not trail straight.	Tooling adjustments not uniform.	Ensure all row unit tooling adjustments are uniform from row unit to row unit.
	Toolbar not level side to side.	Adjust the toolbar to be level from side to side. (Refer to pg. 26)
Bedding discs not turning.	Bedding discs not making contact with the ground.	Adjust operating depth to ensure listing discs are engaging the soil.
	Residue build-up is preventing the discs from turning.	Remove residue build-up from the listing discs.
	Bedding disc bearing has gone out or is seized.	Replace listing disc hub and bearing assembly.
Bedding discs plugging with mud.	Ground conditions too wet.	Allow soil to dry further before tilling.
	Bedding discs plugging with mud.	Increase ground speed to improve soil flow through the bedding discs.
Beds are uneven.	Bedding disc adjustments not uniform side to side.	Adjust both listing discs equally. Both disc angle and disc pitch must match from side to side.
	Toolbar wings not level due to washer adjustment.	Check and adjust toolbar washer to ensure the toolbar wings are level. (Refer to pg. 18)

# TROUBLESHOOTING



Troubleshooting		
Problem	Possible Cause	Solution
Bed shape or size not as desired.	Bedding disc angle not set correctly.	Adjust the bedding disc angle by turning the adjustment handle. (Refer to pg. 31)
	Bedding disc pitch not set correctly.	Adjust the bedding disc pitch by loosening the upper and lower hex nuts and pivoting the discs in or out. (Refer to pg. 31)
	Shank depth not set correctly.	Adjust shank depth by moving the shank up or down to achieve desired tillage depth. (Refer to pg. 28-29)
Wings are floating up.	Hydraulic wing lock not engaged.	Ensure the hydraulic wing lock is engaged and holding the wings in position.
	Hydraulic wing lock not functioning properly.	Check hydraulic lines and fittings for leaks or damage. Verify hydraulic pressure is adequate.
	Toolbar shims out of adjustment	Check and adjust toolbar shims to ensure the toolbar is level. ( Refer to pg. 18)
Furrow depth too shallow or bed height too low.	Operating machine too shallow.	Adjust shank depth by moving the shank up or down to achieve desired tillage depth (Refer to pg. 28-29)
	Down pressure springs set too light.	Increase row unit down pressure by adjusting spring position (Refer to pg. 27)
Furrow depth too deep or bed height too tall.	Operating machine too deep.	Adjust shank depth by moving the shank up or down to achieve desired tillage depth. (Refer to pg. 28-29)





## 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.
- In addition to visual inspection before each use, carefully inspect hydraulic components every 100 hours for leaks, excessive wear, swelling and damage. Leaks should be corrected by tightening the fittings according to the **Hydraulic Fitting Torque Chart** or replacing components. Replace any components showing signs of excessive wear, swelling or damage.
- 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.
- We recommend greasing each grease zerk on the toolbar hinge every 100 hours. Grease all attachment grease zerks weekly, or according to specified lubrication schedule.
- 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 hydraulic hoses and wiring. Repair and replace as needed before use.

# MAINTENANCE & LUBE

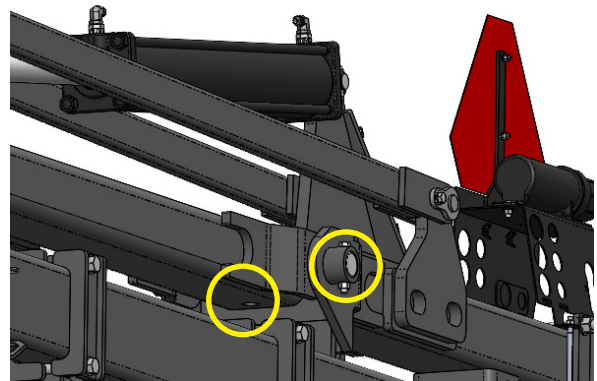
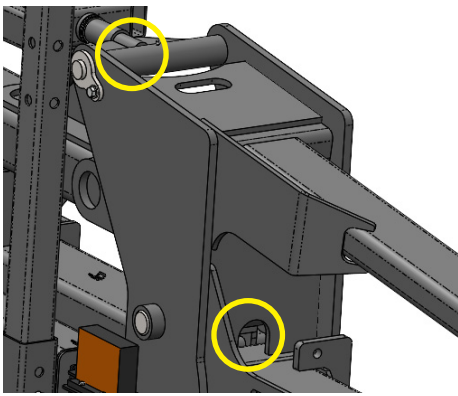


## WEEKLY MAINTENANCE

1. Inspect machine for any loose or missing hardware.
2. Inspect hydraulic lines and connections for wear, bulging hoses, or leakage.

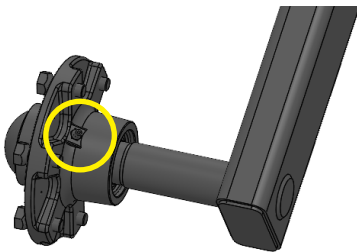
## WEEKLY MAINTENANCE

1. Grease the toolbar hinges and inspect retaining bolts.

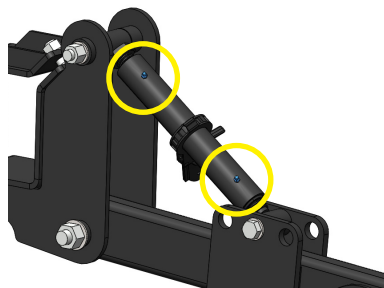


3. Grease Gauge Wheel bearings and turnbuckles and check air pressure. (If equipped)

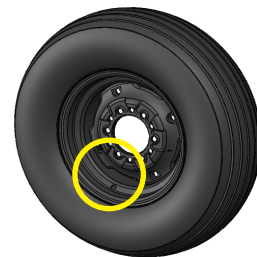
### GAUGE WHEEL HUB



### GAUGE WHEEL TURNBUCKLE



### GAUGE WHEEL VALVE STEM



## YEARLY MAINTENANCE

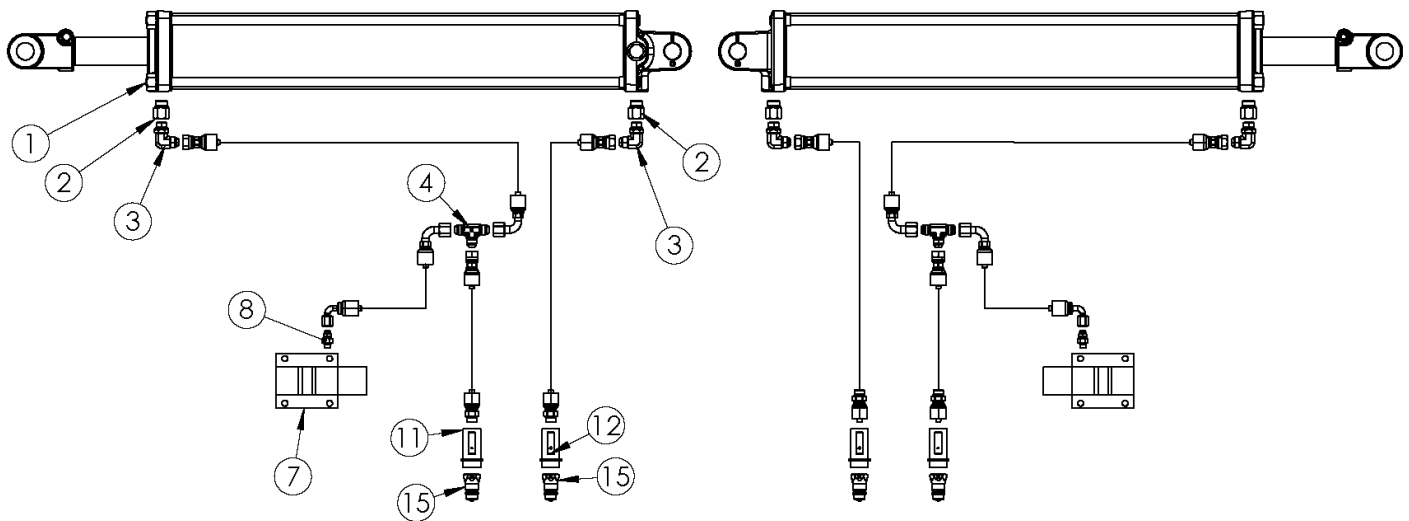
1. Clean machine off.
2. Grease all grease zerks.
3. Replace all parts as necessary.
4. Check Bolt Torque on Hubs.



## BLEEDING FOLD HYDRAULICS

To function properly, the hydraulics must be free of air. If hydraulics have not been bled, they will operate with jerky, uneven motions and could cause wings to drop rapidly during folding or unfolding. If hydraulics were not bled during initial implement setup or if you replace a part in the hydraulic system during the life of the implement, complete the following procedures:

1. Check hydraulic fluid level in tractor reservoir and fill to proper level. Add fluid to system as needed.
2. With implement unfolded and fold cylinders completely extended, disconnect rod end pins and swing the cylinders so they will not contact anything when extended.
3. Loosen rod end hose fittings (1) at the JIC connection.
4. Slowly supply oil to rod end of fold cylinders until oil appears at loosened hose fitting. Tighten fitting and completely retract fold cylinders.
5. With cylinders completely retracted, loosen base end hose fittings (2) at the JIC connection.
6. Slowly supply oil to base end of fold cylinders until oil appears at loosened hose fitting. Tighten base end hose fitting and cycle fold cylinders in and out several times.
7. Re-pin cylinder rod clevises.



### HIGH PRESSURE FLUID - DANGER

- Use safe practices. Fluid injection can occur; will result in death or serious injury.
- Hazards may include, but are not limited to, injury beyond the entry point, over pressurized components, damaged components, components with excessive wear, swollen components, ect.



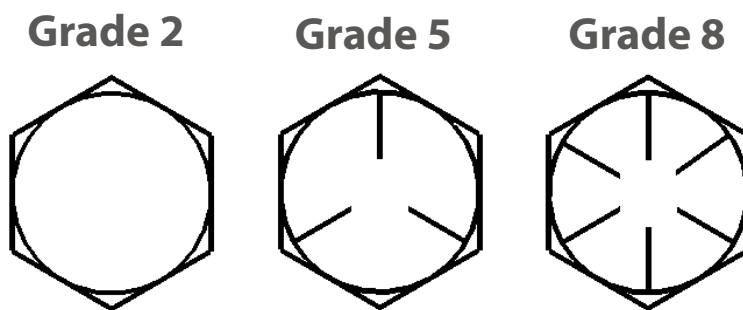
## CHECKING BOLT TORQUE

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





## HYDRAULIC FITTING IDENTIFICATION

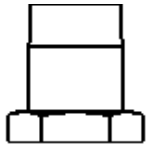
Hydraulic fitting styles, types and sizes are numerous and at times easily confused. The chart below shows the most common types and sizes of hydraulic fittings for the industry, male ends depicted. This chart is printed at 1 to 1 for ease of identification.

**NPTF** (National Pipe Taper Fuel) uses tapered threads to create a seal.

**ORB** (O-Ring Boss) uses an O-ring to seal after threads.

**JIC** (Joint Industry Council) 37-degree flare sealing surface before threads.

**ORFS** (O-Ring Face Seal) uses an O-ring to seal before threads.



-4 NPTF



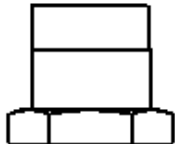
-4 ORB



-4 JIC



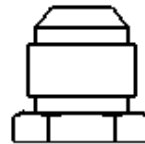
-4 ORFS



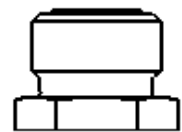
-6 NPTF



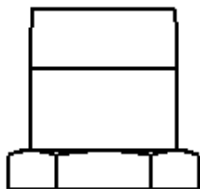
-6 ORB



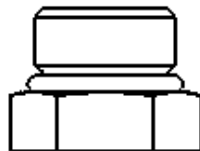
-6 JIC



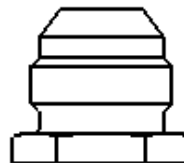
-6 ORFS



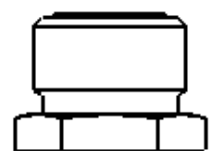
-8 NPTF



-8 ORB



-8 JIC

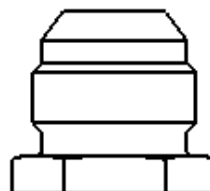


-8 ORFS

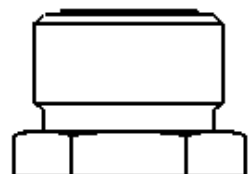
**N/A**



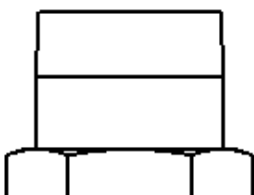
-10 ORB



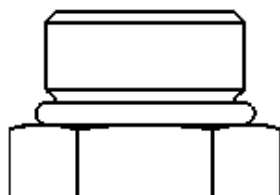
-10 JIC



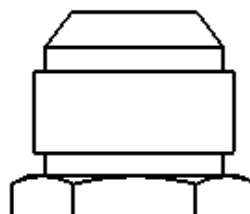
-10 ORFS



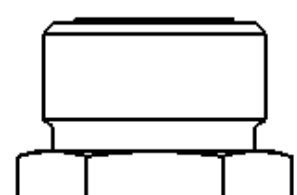
-12 NPTF



-12 ORB



-12 JIC



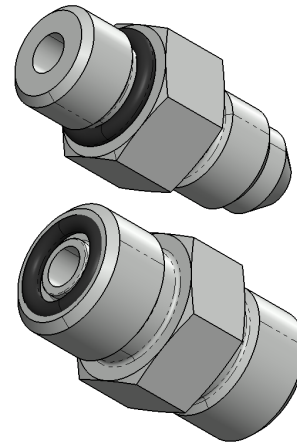
-12 ORFS



# MAINTENANCE & LUBE

## CHECKING HYDRAULIC FITTINGS

- Before connecting hydraulic fittings, check that fittings are clean and undamaged. Replacement fittings and hoses are available from W&A Manufacturing.
- Ensure O-ring(s) are installed properly as shown in the image. (ORB fitting above, ORFS fitting below)
- “Wet Torque” fittings according to the chart below. Wet Torque is the process of lubricating all threads, O-rings and sealing surfaces with the hydraulic fluid used in the system. Then tightening to a specified torque.
- Do not force fittings together. Ensure male and female are of the same type and size, align sealing surfaces and threads properly.
- Do not apply force to a connection or use the connection as support. Doing so may damage components and/or cause the connection to leak.



## HYDRAULIC FITTING TORQUE CHART

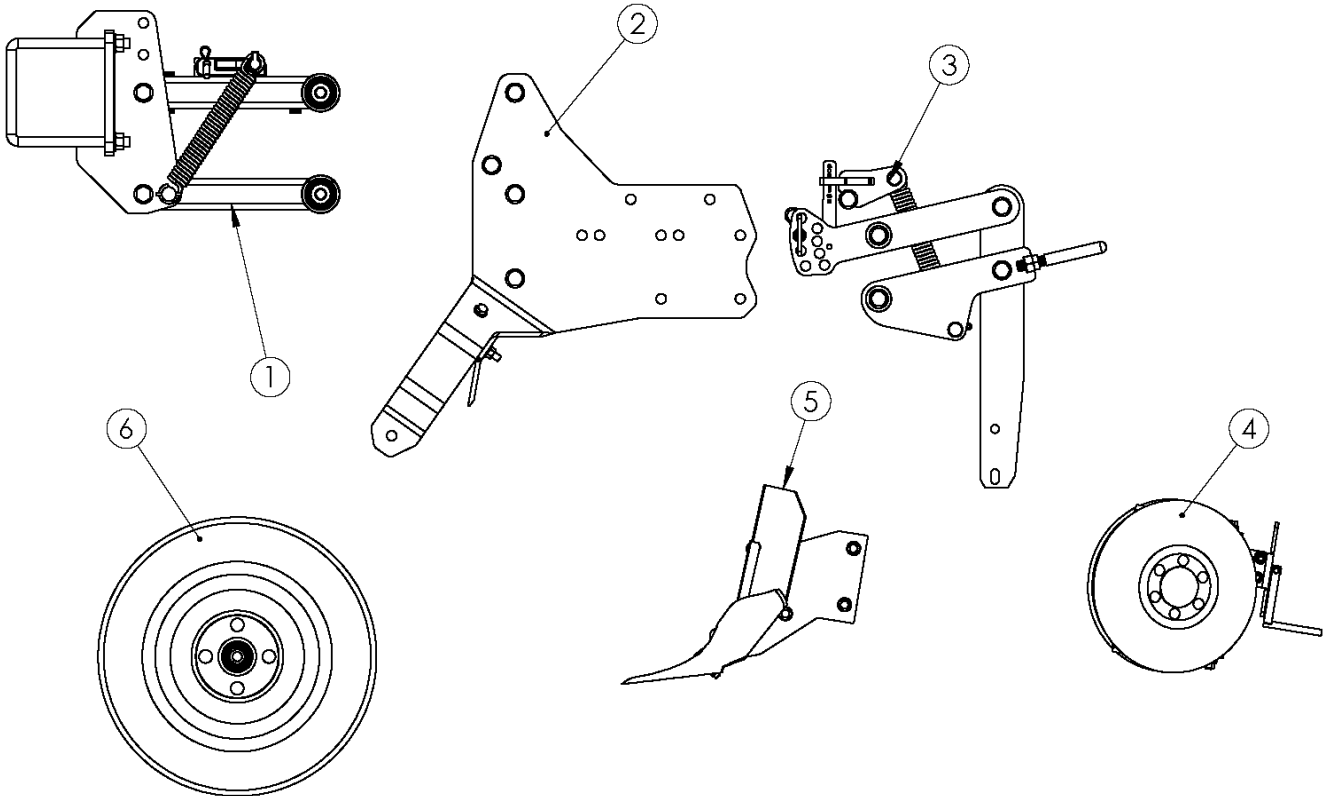
Torque lbft (Nm)				
Dash Size	NPTF	ORB	JIC	ORFS
-4	12-16 (16-22)	10-15 (14-20)	11-13 (15-18)	10-12 (14-16)
-6	14-32 (19-43)	17-21 (23-28)	20-22 (27-30)	18-20 (24-27)
-8	32-40 (43-54)	30-35 (41-47)	43-47 (58-64)	32-35 (43-47)
-10	-	30-35 (41-47)	55-65 (75-88)	45-50 (61-68)
-12	40-48 (54-65)	30-35 (41-47)	80-90 (108-122)	65-70 (88-95)







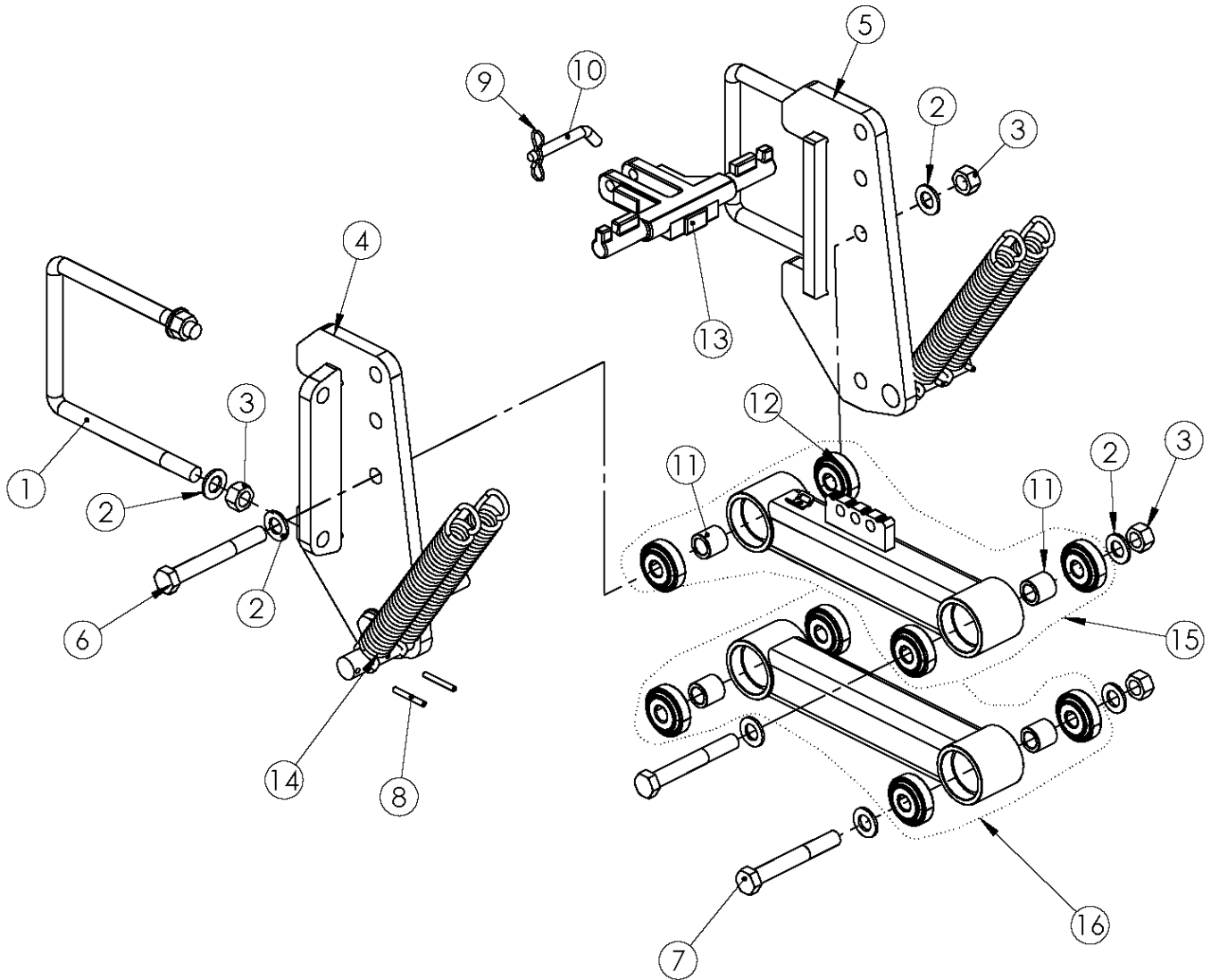
## INDEX



Item Number	Description	Page Number
1	MOUNT AND PARALLEL LINKAGES	44-45
2	ROW UNIT BODY AND SCRAPER	46-47
3	DEPTH ADJUSTMENT SYSTEM	48-49
4	VERSABED	50-53
5	SHOVEL & MOUNT	54-55
6	DEPTH BAND	56



## MOUNT AND PARALLEL LINKAGES



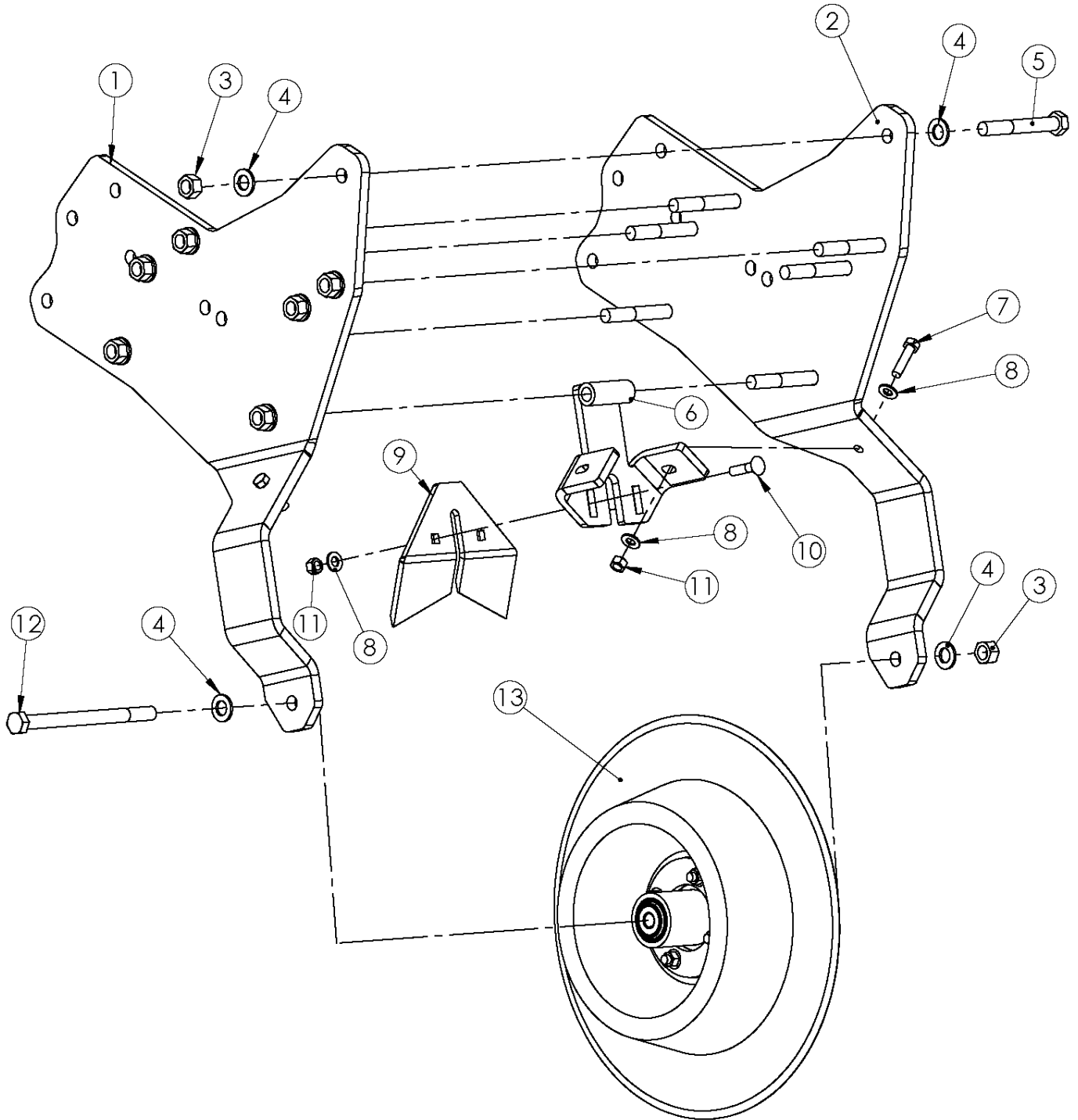


## MOUNT AND PARALLEL LINKAGES

Item #	Part #	Description	Quantity
1	415004	3/4-10 X 7W X 9H U-BOLT	2
2	413072	3/4 FLAT WASHER SAE Z/C	12
3	410012	3/4-10 NUT CENTER LOCK Z/C	8
4	333324	LH FRONT MOUNT WELD	1
5	333325	RH FRONT MOUNT WELD	1
6	411597	3/4-10 X 6 GR5 Z/C	2
7	411595	3/4-10 X 5 1/2 GR5 Z/C	2
8	305113	1/4 X 2 ROLL PIN	4
9	333021	COTTER PIN BOW TIE .120 WIRE X 2.75 OAL	1
10	333020	BENT PIN 1/2 X 3 ZN CLEAR	1
11	333310	BEARING SPACER	4
12	305017	3/4 SYMETRIC BEARING	8
13	333014	SPRING RETAINER	1
14	333150	PARALLEL LINK EXT. SPRING	4
15	333314	PARALLEL LINK TOP WITH BEARINGS	1
16	333313	PARALLEL LINK BOTTOM WITH BEARINGS	1



## ROW UNIT BODY AND SCRAPER



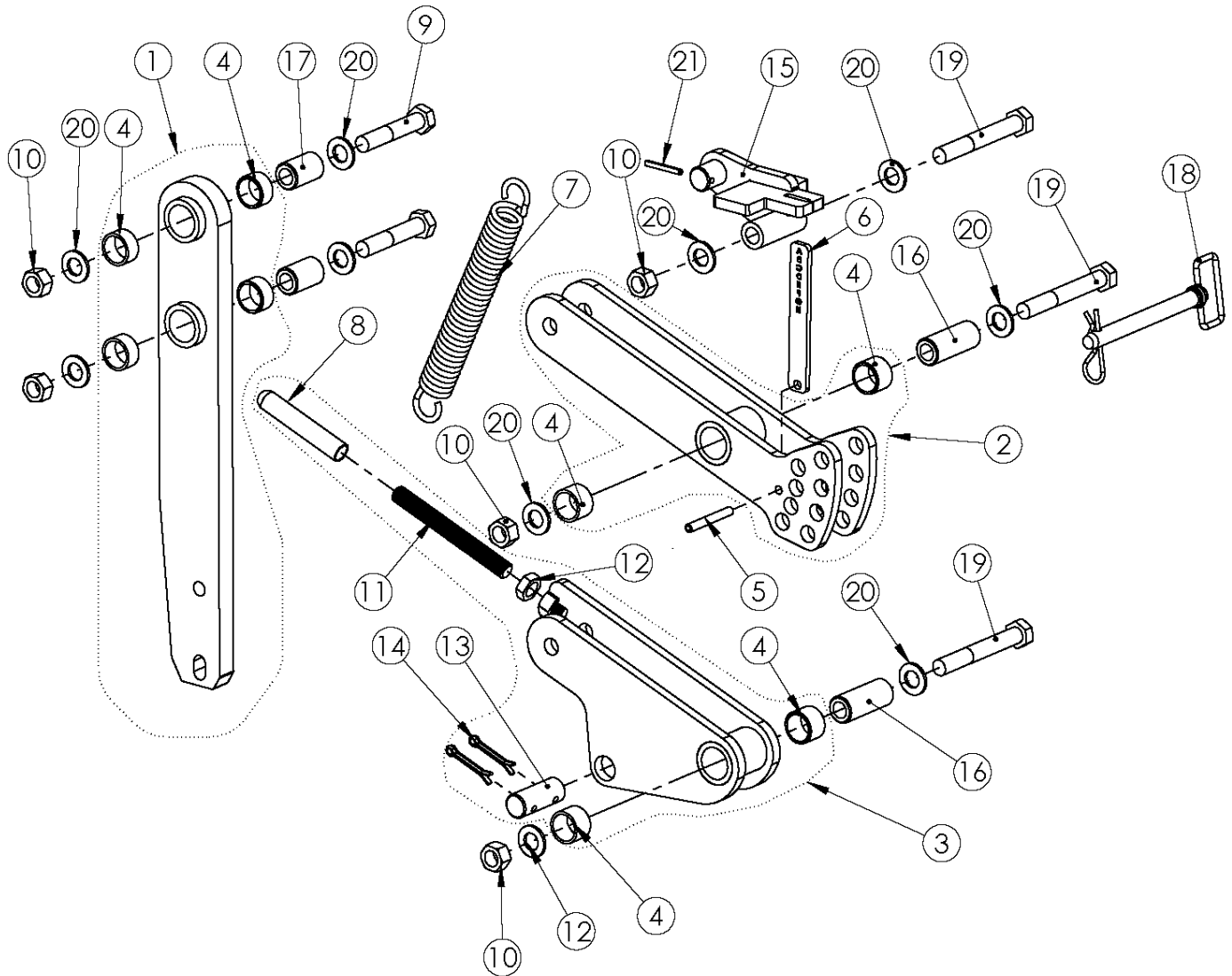


## ROW UNIT BODY AND SCRAPER

Item #	Part #	Description	Quantity
1	317003	RIGHT HAND SIDE PLATE	1
2	317002	LEFT HAND SIDE PLATE	1
3	410012	3/4-10 HEX NUT CENTER LOCK GRA Z/C	8
4	413072	3/4 FLAT WASHER SAE Z/C	16
5	411595	3/4-10 X 5 1/2 HEX BOLT GR5 Z/C	7
6	317005	SCRAPER MOUNT	1
7	411184	1/2-13 X 2 HEX BOLT GR5 Z/C	2
8	413007	1/2 FLAT WASHER SAE Z/C	10
9	317007	DEPTH BAND SCRAPER	1
10	411733	1/2-13 X 2 CARRIAGE BOLT GR5 Z/C	2
11	410008	1/2-13 HEX NUT CENTER LOCK GRA Z/C	4
12	411604	3/4-10 X 10 HEX BOLT GR5 Z/C	1
13	317100	DEPTH BAND ASSEMBLY (See pg. 57 for breakdown)	1



## DEPTH ADJUSTMENT SYSTEM





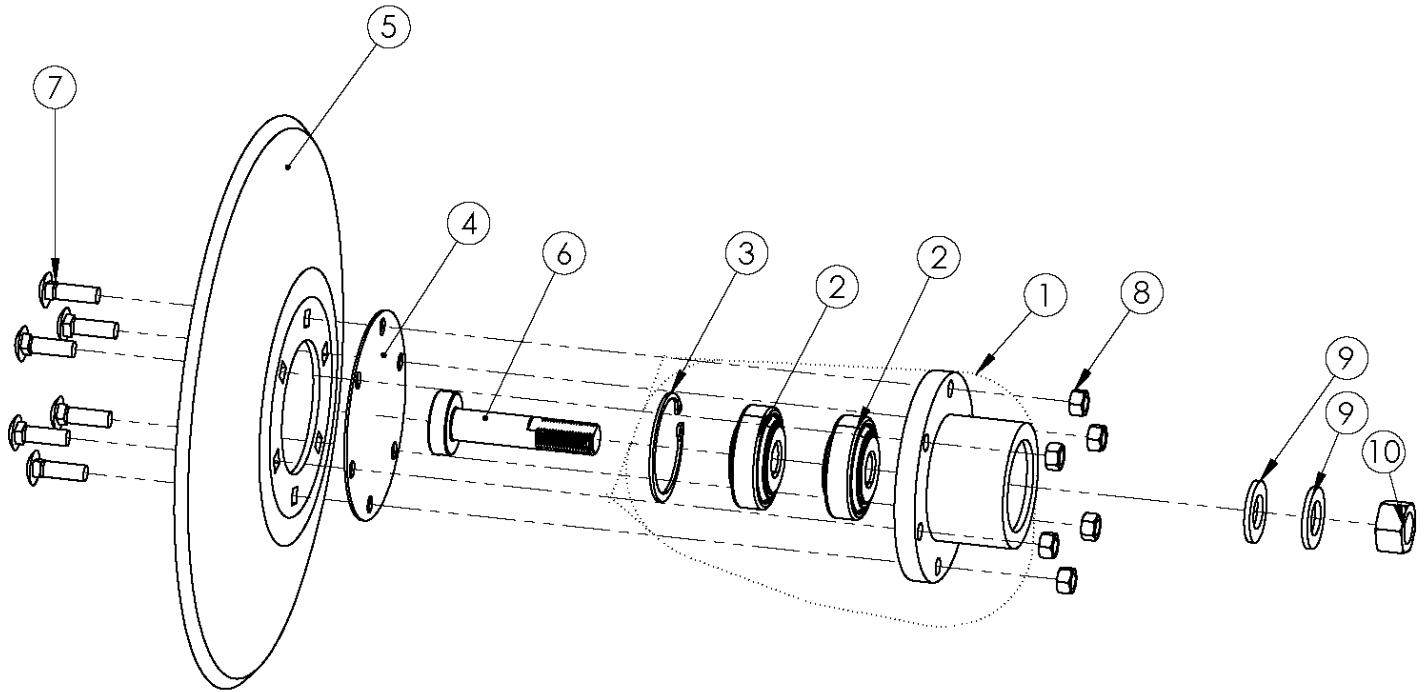
## DEPTH ADJUSTMENT SYSTEM

Item #	Part #	Description	Quantity
1	317172	DELTAMAX ADJUSTABLE SHANK ASSEMBLY	1
2	317197	DELTAMAX UPPER PARALLEL ARM ASSEMBLY	1
3	317198	DELTAMAX LOWER PARALLEL ARM ASSEMBLY	1
4	305027	"POLY BUSHING"	8
5	416124	3/8 X 3 ROLL PIN Z/C	1
6	317190	DELTAMAX DEPTH GAUGE LETTERING	1
7	333023	EXTENSION SPRING HOOK ENDS	1
8	321673	ROUND GRIP RUBBERIZED	1
9	411591	3/4-10 X 4 HEX BOLT GR5 Z/C	2
10	410012	3/4-10 HEX NUT CENTER LOCK GRA Z/C	5
11	317173	DELTAMAX 3/4-10 READY ROD HANDLE	1
12	305157	3/4-10 JAM NUT	1
13	317182	LOWER PARALLEL ARM SPRING RETAINER	1
14	10000106	1/4 X 2 COTTER PIN Z/C	2
15	317188	SPRING RETAINER	1
16	317175	CRUSH SLEEVE	2
17	317174	CRUSH SLEEVE	2
18	305158	3/4 X 6 1/2 HITCH PIN	1
19	411595	3/4-10 X 5 1/2 HEX BOLT GR5 Z/C	3
20	413072	3/4 FLAT WASHER SAE Z/C	10
21	305113	1/4 X 2 ROLL PIN	1

# PARTS GUIDE



## VERSABED DISC

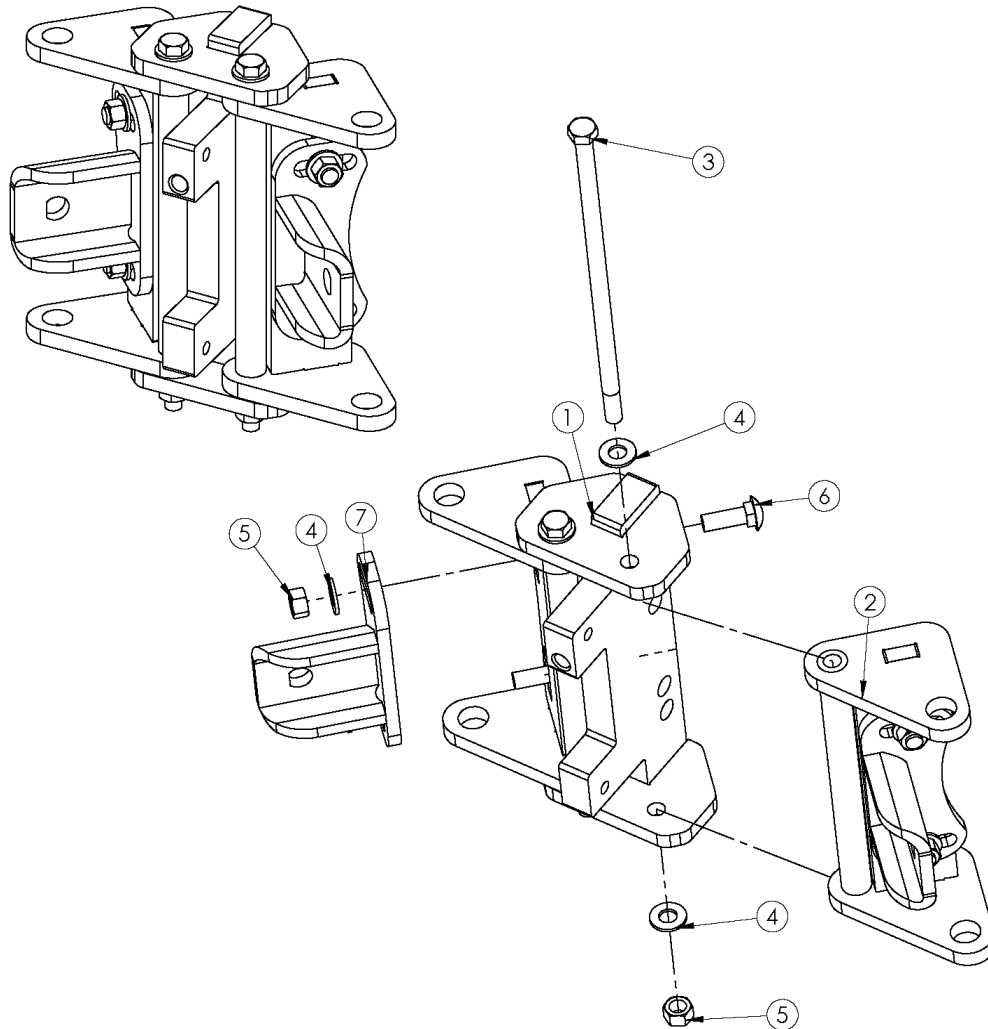


Item #	Part #	Description	Quantity
1	317020	BEARING HUB ASSEMBLY	1
2	305017	3/4 SYMETRIC BEARING	2
3	305062	RETAINING RING FOR Ø1 7/16 SHAFT	1
4	317021	BACKING PLATE	1
5	305061	DELTA MAX BLADE	1
6	305060	HUB BOLT 3/4-10 X 3 1/2 Z/C	1
7	305086	3/8-16 X 1 1/4 CARRIAGE BOLT	6
8	410006	3/8-16 NUT CENTER LOCK Z/C	6
9	413072	3/4 FLAT WASHER SAE Z/C	2
10	410012	3/4-10 NUT CENTER LOCK Z/C	1

# PARTS GUIDE



## VERSABED WINGS

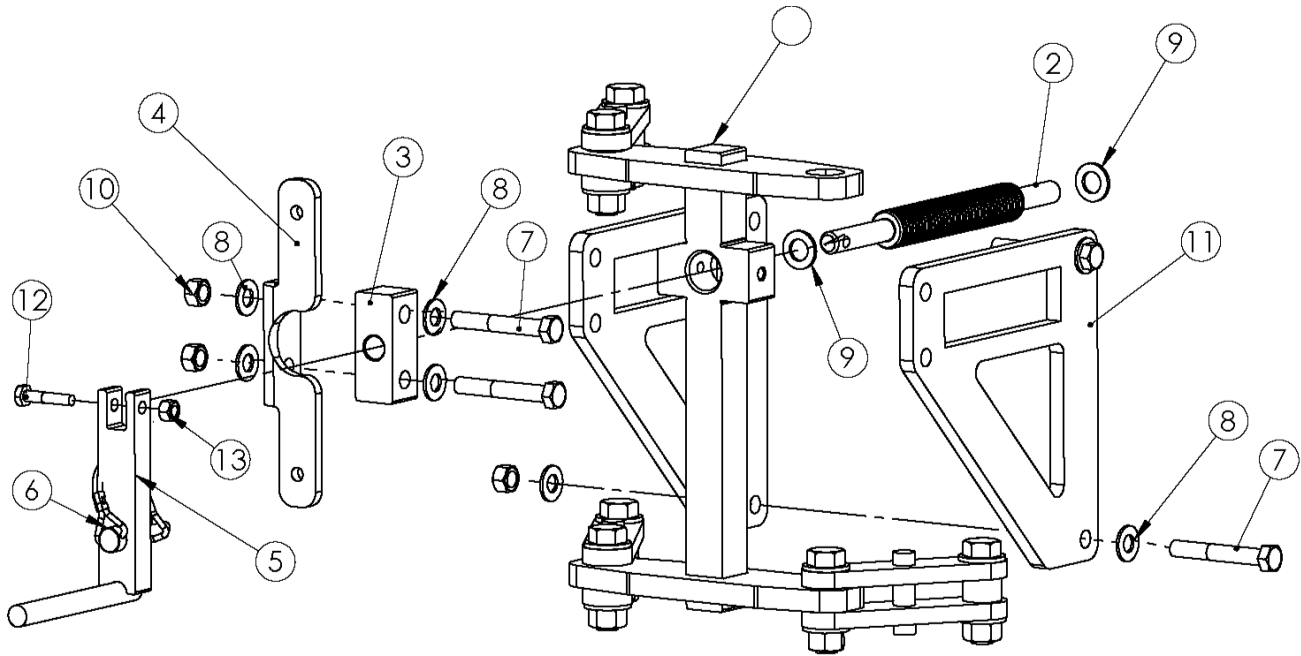


Item #	Part #	Description	Quantity
1	317071	FRONT BRACE	1
2	317052	ANGLE ADJUST WELDMENT	2
3	411210	1/2-13 X 12 HEX BOLT GR5 Z/C	2
4	413007	1/2 FLAT WASHER SAE Z/C	8
5	410008	1/2-13 NUT CENTER LOCK Z/C	6
6	411785	1/2-13 X 1 1/2 CARRIAGE BOLT	4
7	317064	TILT BRACKET	2

# PARTS GUIDE



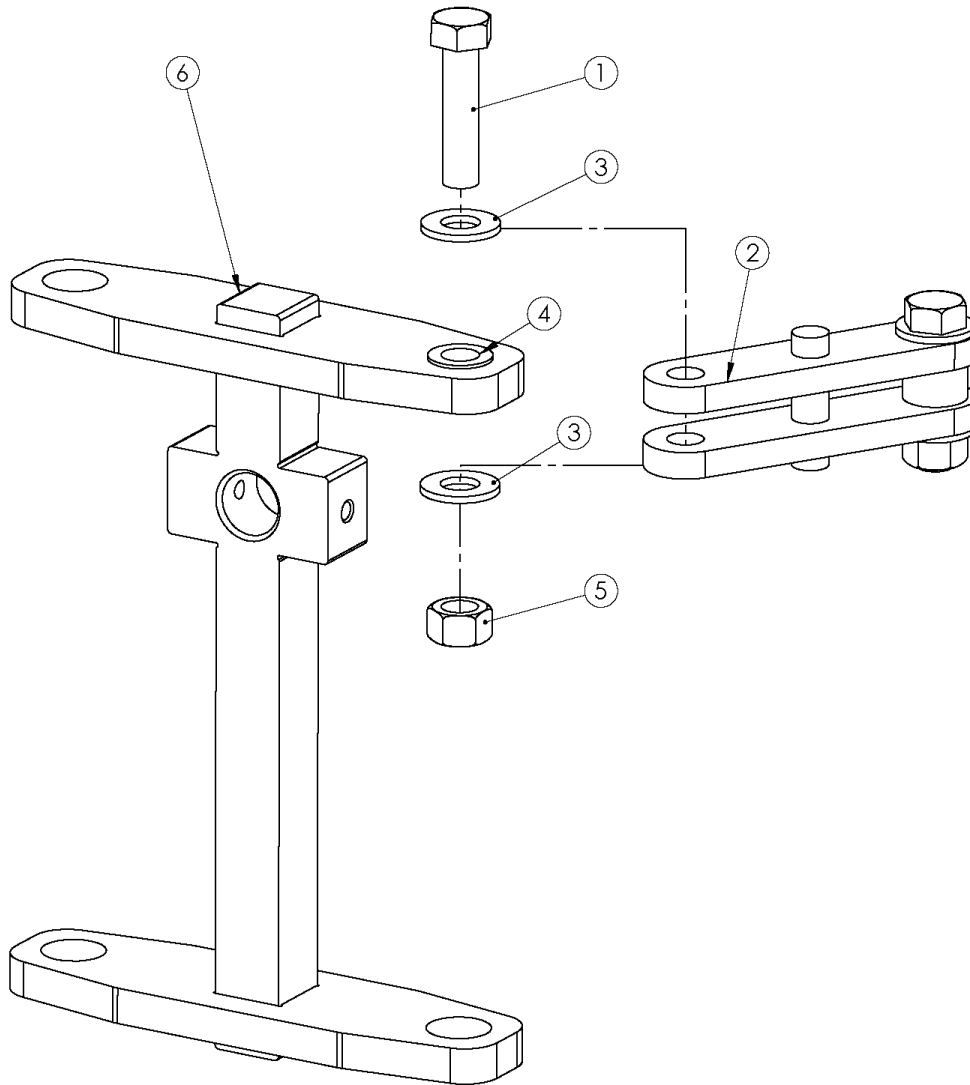
## VERSABED LINKAGES



Item #	Part #	Description	Quantity
1	NA	SEE PAGE 53 FOR MORE DETAIL	1
2	317043	TOOLING THREADED ROD	1
3	317065	TIE IN BLOCK	1
4	317075	HANDLE HOLDER BRACKET	1
5	317114	CRANK HANDLE	1
6	315162	WIRE LOCK PIN	1
7	411512	3/8-16 X 2 1/2 GR5 Z/C	4
8	413009	3/8 FLAT WASHER SAW Z/C	8
9	305153	1/2 X 7/8 MACHINE BUSHING Z/C	2
10	410006	3/8-16 NUT CENTER LOCK Z/C	4
11	317067	SIDE PLATE	2
12	411472	1/4-20 X 1 1/4 HEX BOLT GR5 Z/C	1
13	410004	1/4-20 HEX NUT CENTER LOCK	1



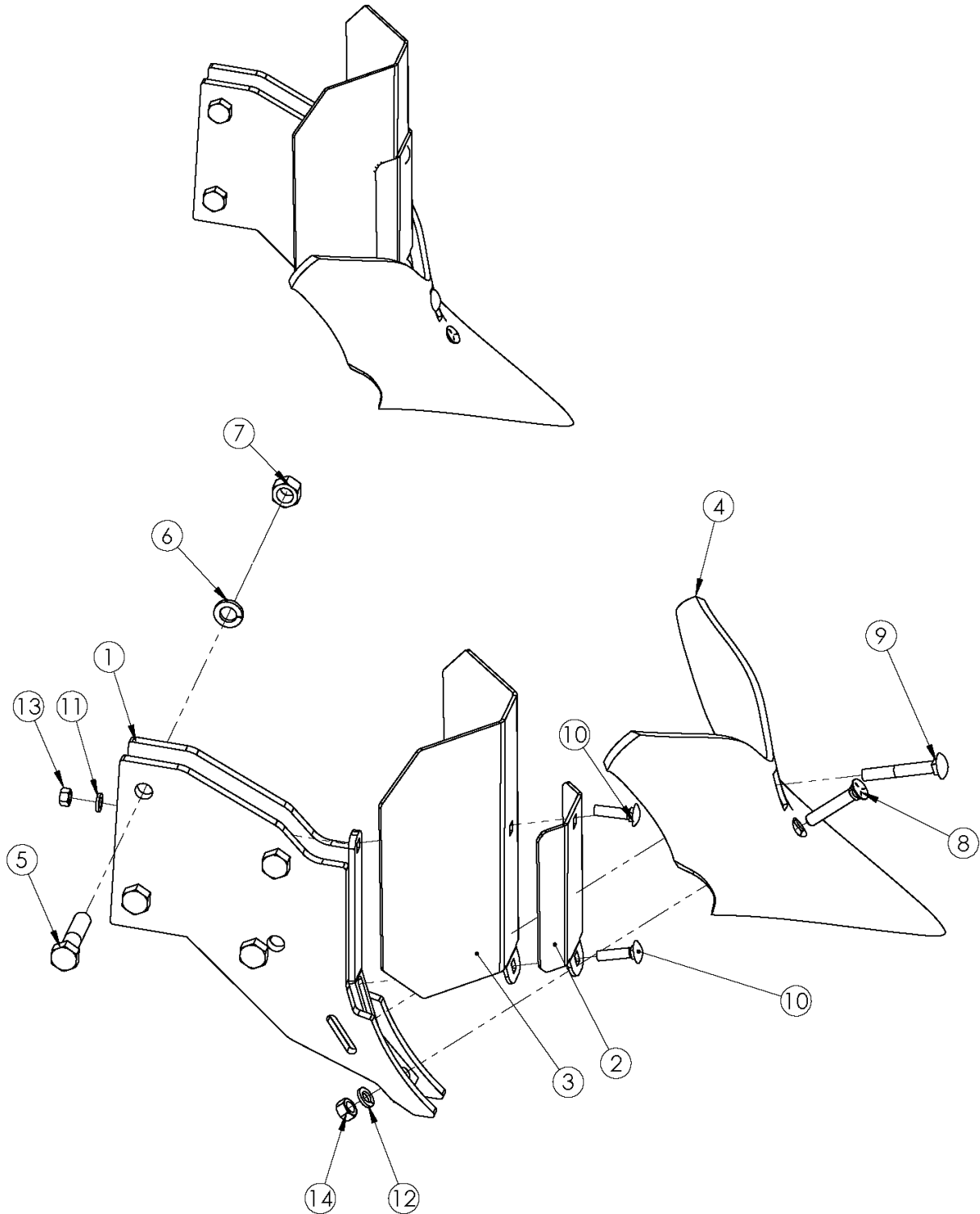
## VERSABED LINKAGES



Item #	Part #	Description	Quantity
1	411184	1/2-13 X 2 HEX BOLT GR5 Z/C	1
2	317046	TOOLING LINKAGE	1
3	413007	1/2 FLAT WASHER SAE Z/C	1
4	305154	LINKAGE BUSHING	1
5	410008	1/2-13 HEX NUT CENTER LOCK	1
6	317059	MOVEMENT PIECE WELDMENT	1



## SHOVEL & MOUNT





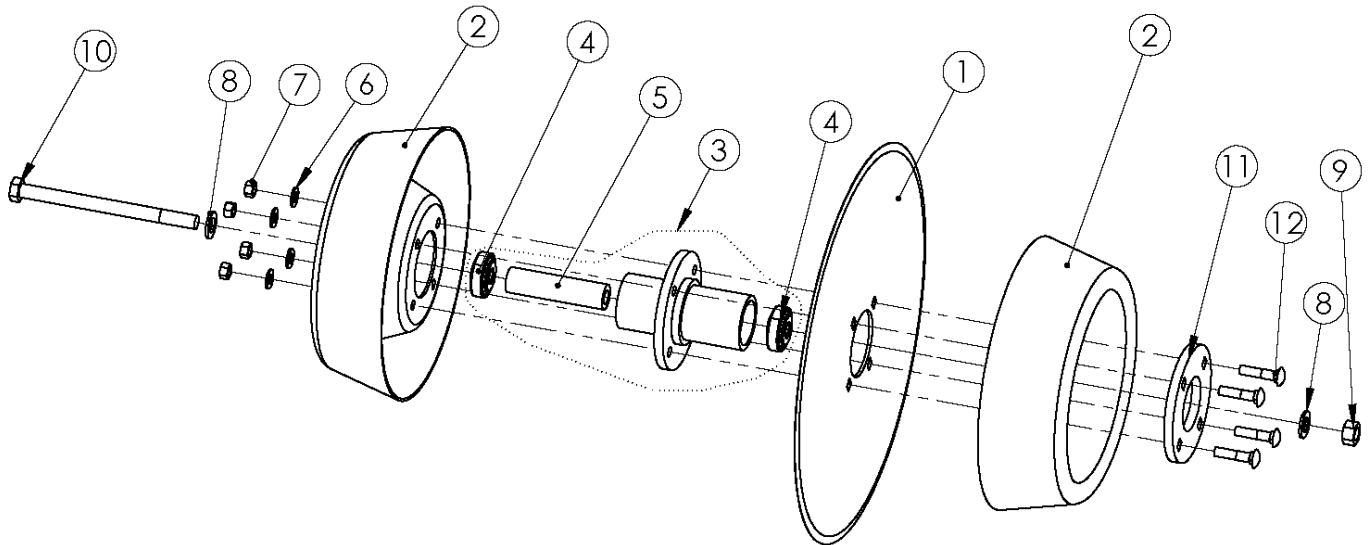
## SHOVEL & MOUNT

Item #	Part #	Description	Quantity
1	317026	SUPPORT HOUSING	1
2	317028	SMALL RESIDUE SHIELD	1
3	317027	LARGE RESIDUE SHIELD	1
4	305064	DELTAMAX SHOVEL	1
5	411562	5/8-11 X 2 1/2 HEX BOLT GR5 Z/C	4
6	413510	5/8 LOCK WASHER	4
7	410009	5/8-11 NUT CENTER LOCK GR2 Z/C	4
8	411835	7/16-14 X 2 1/2 PLOW BOLT GR5	1
9	411725	"7/16-14 X 3 CARRIAGE BOLT GR5 Z/C"	1
10	305105	3/8-16 X 1 1/2 CARRIAGE BOLT	2
11	413506	3/8 LOCK WASHER	2
12	413507	7/16 LOCK WASHER	2
13	412006	3/8-16 NUT GR2 Z/C	2
14	412007	7/16-14 NUT GR2 Z/C	2

# PARTS GUIDE



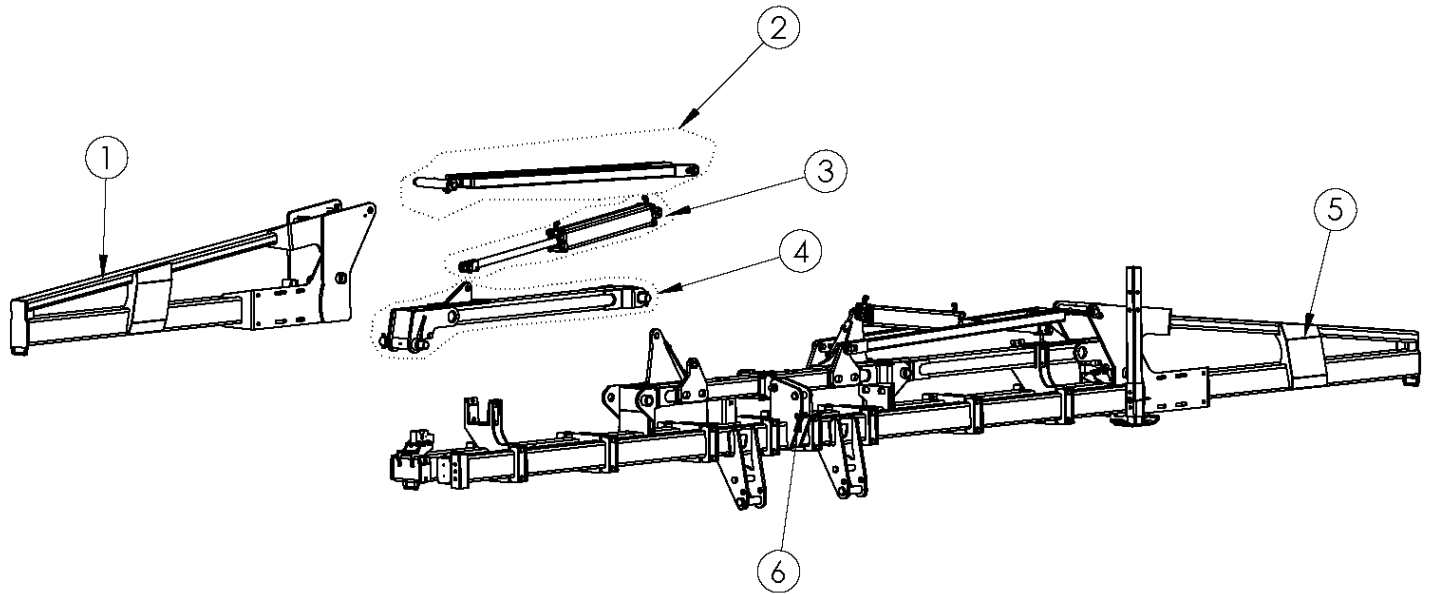
## DEPTH BAND



Item #	Part #	Description	Quantity
1	305029	22" SMOOTH COULTER	1
2	317011	METAL DEPTH BAND HUB	2
3	305014	DUAL SIDED HUB ASSY	1
4	305017	BEARING FOR 3/4 SHAFT	2
5	305016	DUAL HUB SPACER	1
6	413007	1/2 FLAT WASHER SAE Z/C	4
7	410008	1/2-13 NUT CENTER LOCK Z/C	4
8	413072	3/4 FLAT WASHER SAE Z/C	2
9	410012	3/4-10 NUT CENTER LOCK Z/C	1
10	411604	3/4-10 X 10 HEX BOLT GR5 Z/C	1
11	305054	COULTER DOUBLER PLATE	1
12	411734	"1/2-13 X 2 1/4 CARRIAGE BOLT GR5 Z/C"	4



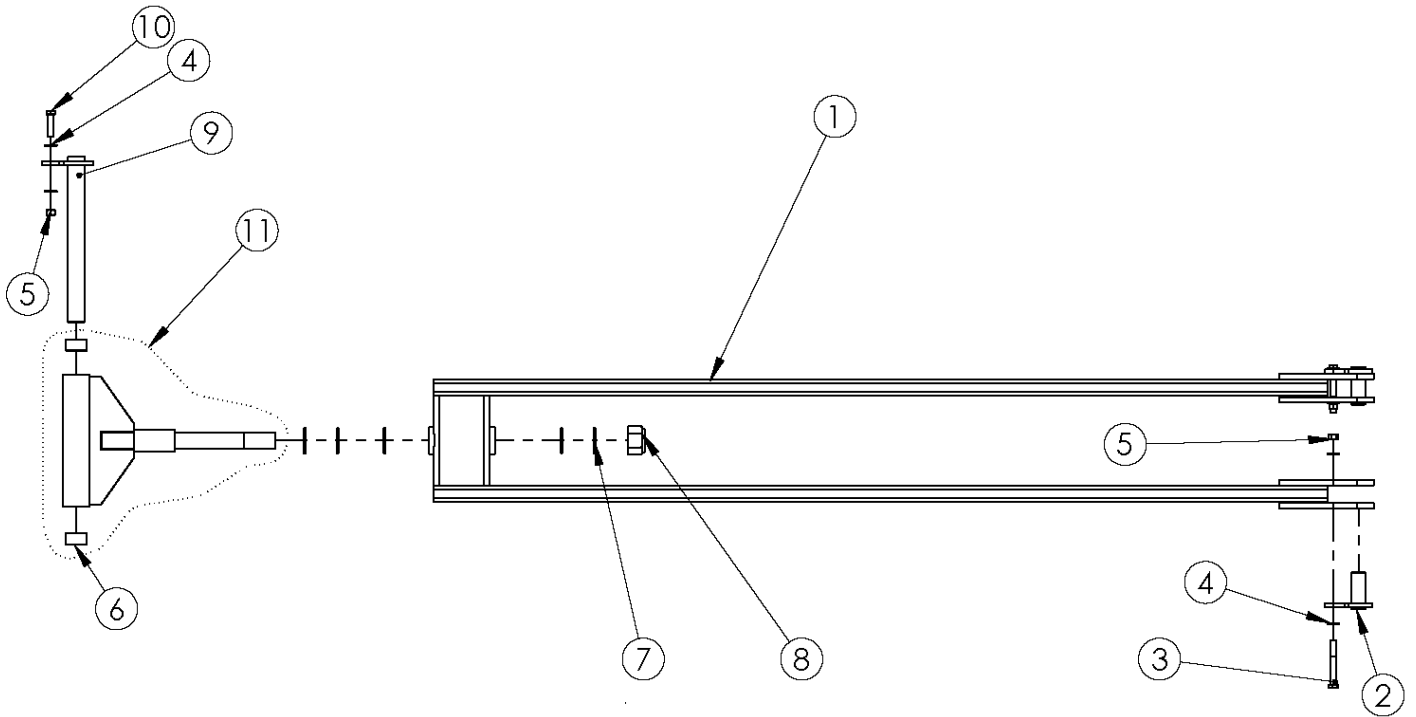
## TOOLBAR INDEX



Item #	Part #	Description	Quantity
1A	317503	RIGHT HAND WING (12R36, 12R38, 12R40, 16R30)	1
1B	315387	RIGHT HAND WING (12R30 ONLY)	1
2	See Page 58-59	LEVELING ARM BREAKDOWN	2
3	See Page 60	CYLINDER HYDRAULICS	1
4	See Page 61	POWER ARM BREAKDOWN	2
5A	317504	LEFT HAND WING (12R36, 12R38, 12R40, 16R30)	1
5B	315390	LEFT HAND WING (12R30 ONLY)	1
6	See Page 62-65	CENTER SECTIONS BREAKDOWNS	1
7	See Page 66	LIGHT KIT COMPONENTS	1



## LEVELING ARM





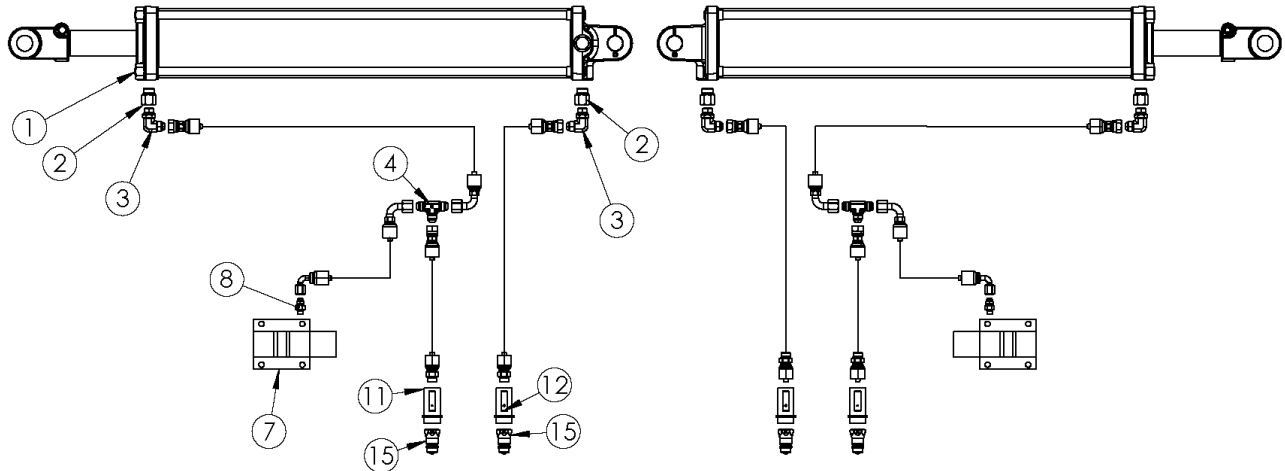
## LEVELING ARM

Item #	Part #	Description	Quantity
1A	301820	LEVELING ARM WELD	1
1B	315378	LEVELING ARM (12R30 ONLY)	1
2	315553	LEVELING ARM SHORT PIN	2
3	411193	1/2-13 X 4 GR5 Z/C	2
4	413007	1/2 FLAT WASHER SAE Z/C	6
5	410008	1/2-13 NUT CENTER LOCK Z/C	3
6	301819	LONG LEVELING ARM END WELD	1
7	413120	1 1/2 X 2 1/4 X 14GA MACHINE WASHER Z/C	5
8	410032	1 1/2-12 NYLON LOCK NUT	1
9	315546	LEVELING ARM PIN	1
10	411184	1/2-13 X 2 GR5 Z/C	1
11	301819	LEVELING ARM END	1
NOT SHOWN	450004	GREASE ZERK	1

# PARTS GUIDE



## CYLINDER HYDRAULICS

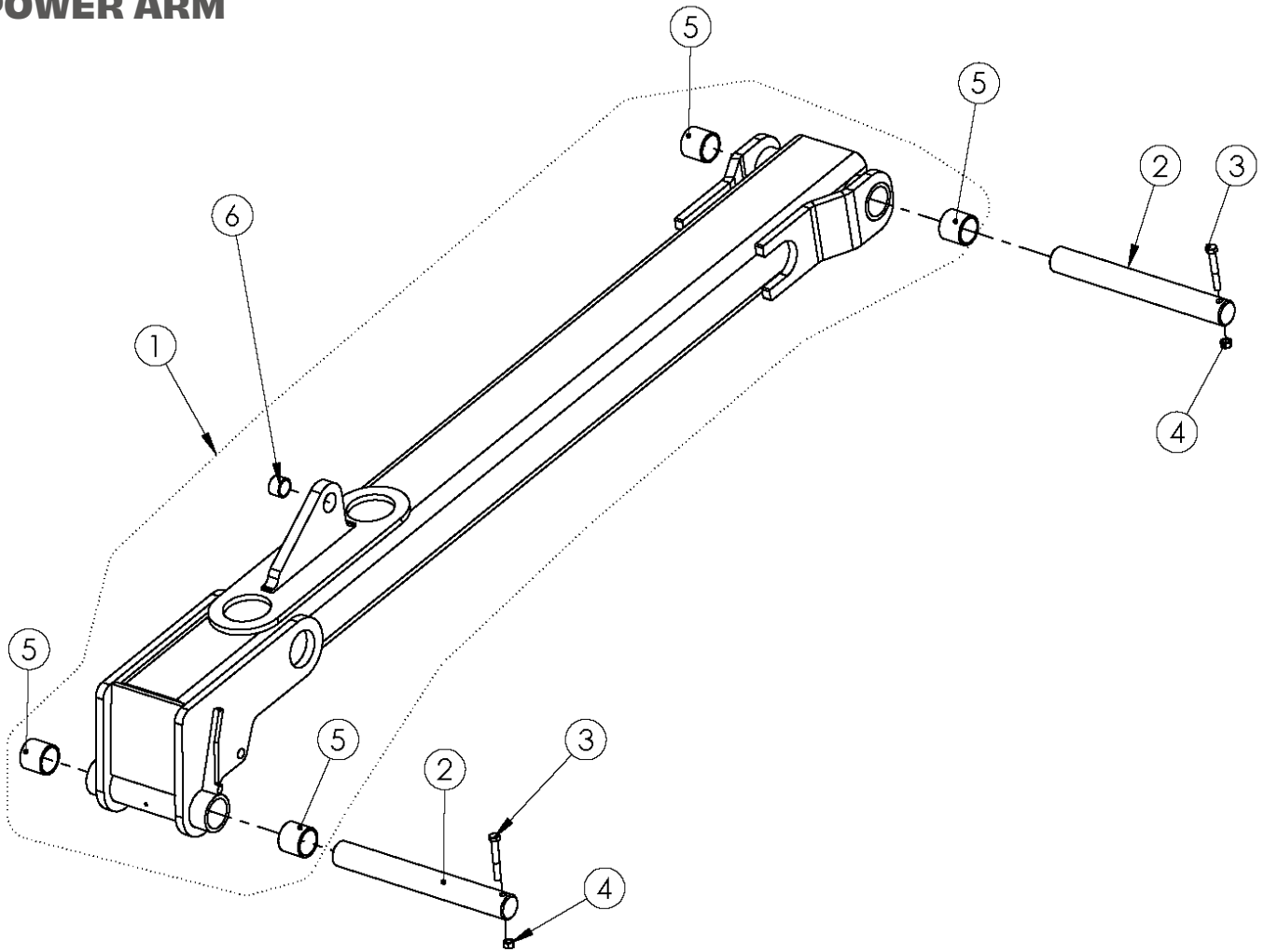


Item #	Part #	Description	Quantity
1A	315950	5 X 30 CYLINDER TIE ROD BLACK	2
1B	476524	5 X 24 CYLINDER TIE ROD BLACK (12R30 ONLY)	2
2	457274	10MORB-8FORB STRAIGHT SOLID	4
3	457245	.062 ORIFICE FITTING	4
4	476075	HYDRAULIC LATCH	2
5	8 MJIC TEE	HYDRAULIC TEE	2
6	4 MSAE TO 6 MJIC	ADAPTOR FITTING	2
7	8 JIC 6 HOSE FEMALE	HOSE FITTING	6
8	"8 JIC 6 HOSE FEMALE 90"	ELBOW FITTING	4
9	"6 JIC 6 HOSE FEMALE 90"	ELBOW FITTING	2
10	8 ORB 6 HOSE MALE	HOSE FITTING	4
11	457601	HOSE GRIPS RED MINUS	1
12	457602	HOSE GRIPS BLACK PLUS	1
13	457600	HOSE GRIPS RED PLUS	1
14	457603	HOSE GRIPS BLACK MINUS	1
15	457240	1/2 MALE BALL TIP AG 8FORB	4

# PARTS GUIDE



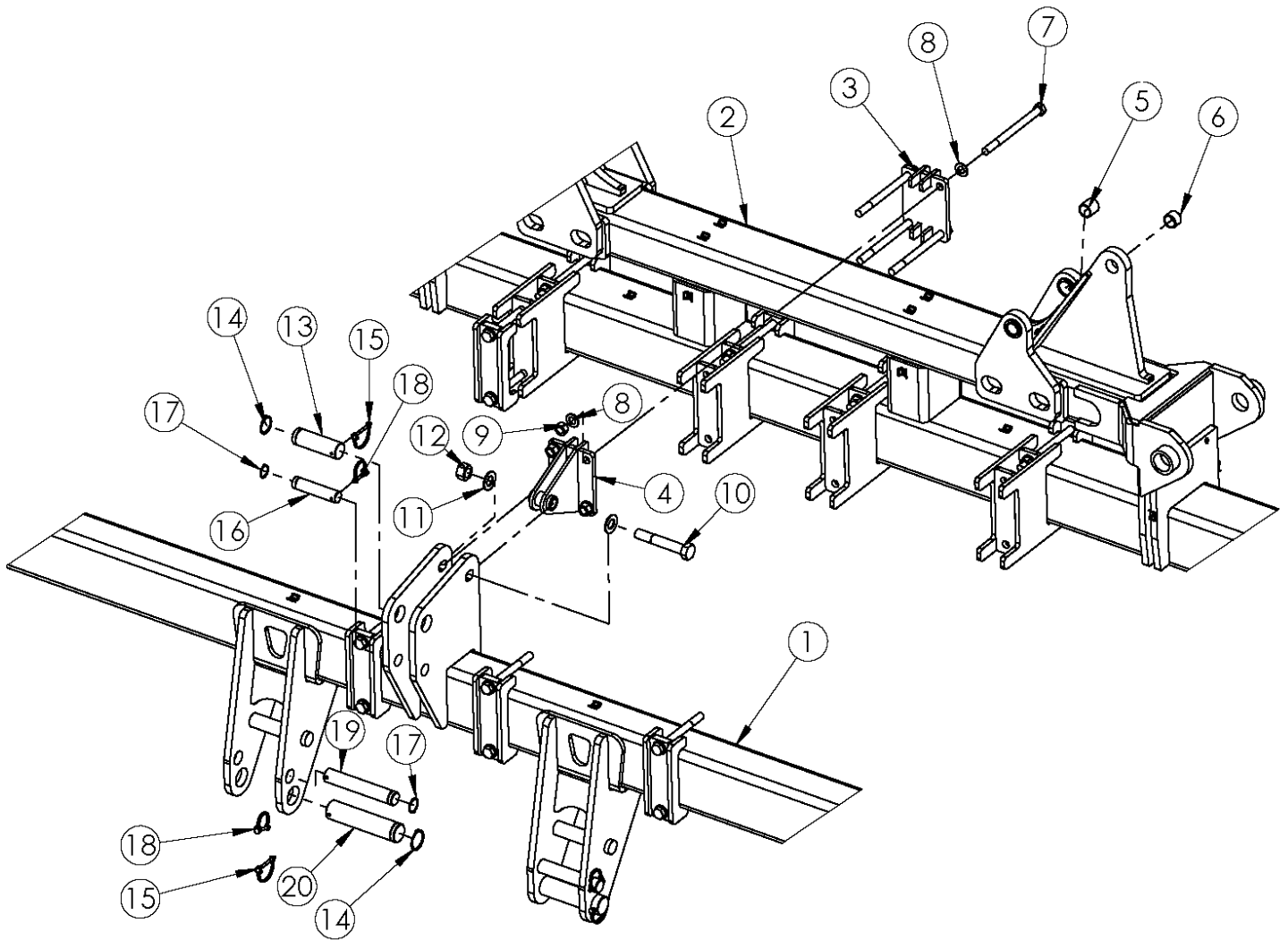
## POWER ARM



Item #	Part #	Description	Quantity
1	315447	POWER ARM ASSEMBLY (12R36, 12R38, 12R40, 16R30)	1
1B	315380	POWER ARM ASSEMBLY (12R30 ONLY)	1
2	203948	2 ROUND ASTM C1018	2
3	411552	1/2-13 X 3 1/2 GR5 Z/C	2
4	410008	1/2-13 NUT CENTER LOCK Z/C	2
5	401118	WEAR SLEEVE 2" SHAFT (12R36, 12R38, 12R40, 16R30)	4
NOT SHOWN	450004	GREASE ZERK	1



## HITCH & PINS



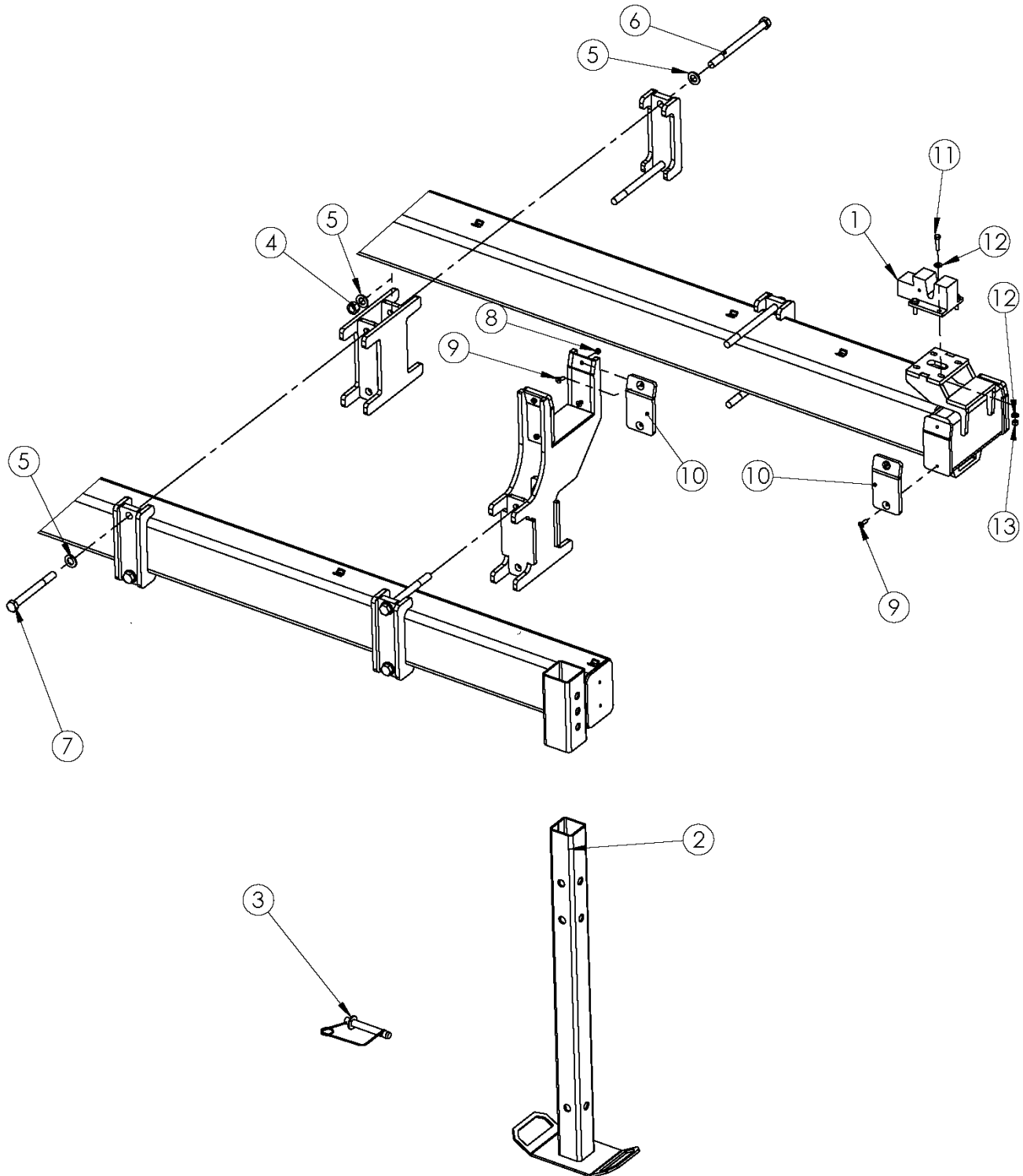


## HITCH & PINS

Item #	Part #	Description	Quantity
1A	320344	HITCH ASSEMBLY (12R36, 12R38, 12R40, 16R30)	1
1B	315069	HITCH ASSEMBLY (12R30 ONLY)	1
2A	315449	STACKING TOOLBAR CENTER WELD (12R36, 12R38, 12R40, 16R30)	1
2B	315391	STACKING TOOLBAR CENTER WELD (12R30 ONLY)	1
3	315484	STACKER BAR TIE-IN BAR CLAMP	1
4	315487	STACKER BAR TIE-IN	1
5	401084	WEAR SLEEVE 1 1/4" SHAFT	4
6	401080	WEAR SLEEVE 1 1/4" SHAFT	2
7	411603	3/4-10 X 9 1/2 HEX BOLT	4
8	413072	3/4 FLAT WASHER SAE Z/C	8
9	410012	3/4-10 HEX NUT CENTER LOCK GRA Z/C	4
10	411649	1-8 X 6 HEX BOLT GR5 Z/C	1
11	413019	1 FLAT WASHER SAE Z/C	2
12	410016	1-8 HEX NUT TOP LOCK Z/C	1
13	315151	HITCH PIN TOP PIN 4N	1
14	315155	EXTERNAL RETAINING RING	3
15	315161	WIRE LOCKING PIN 1/4 X 2 1/8	3
16	315152	HITCH PIN TOP PIN 3	1
17	315156	EXTERNAL RETAINING RING	3
18	315162	WIRE LOCKING PIN 1/4 X 1 3/8	3
19	315154	HITCH PIN LOWER PIN 3	2
20	315153	HITCH PIN LOWER PIN 4N	2



## CLAMPS





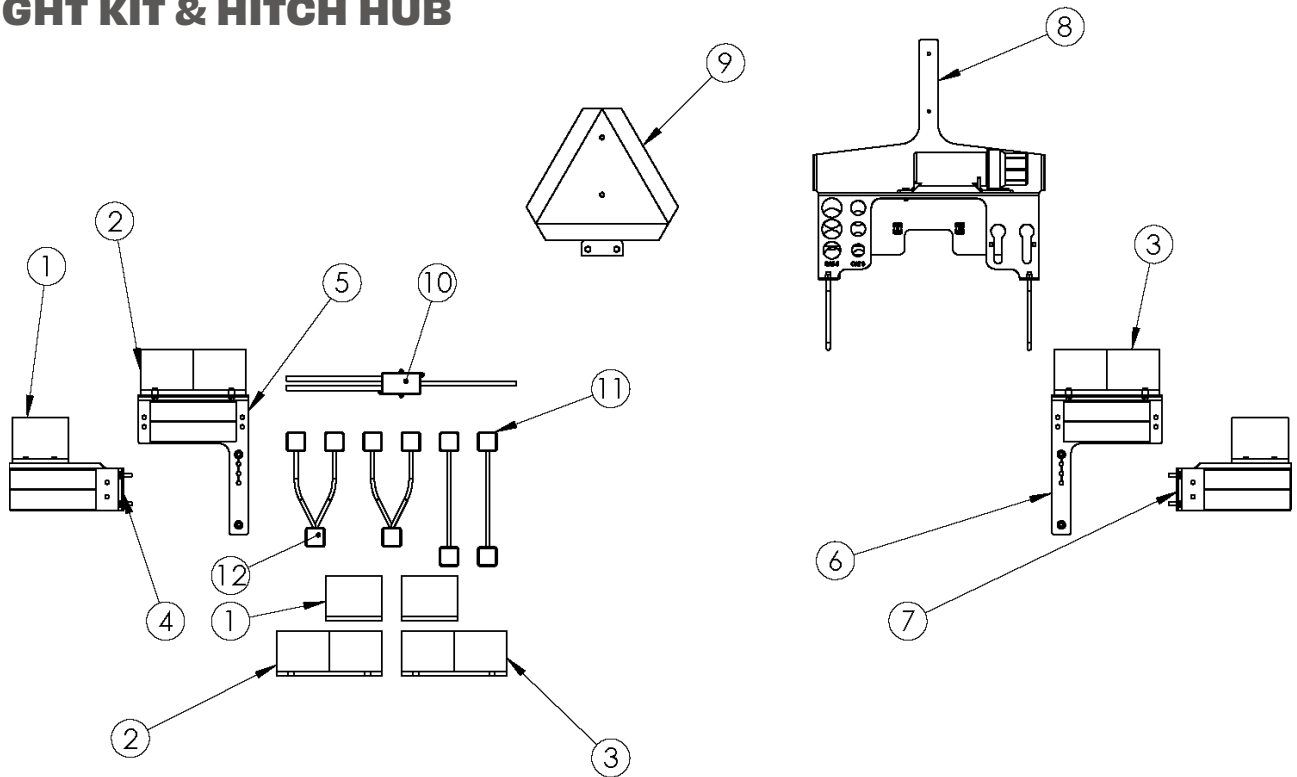
## CLAMPS

Item #	Part #	Description	Quantity
1	476075	HYDRAULIC LATCH	2
2	315203	BAR STAND LONG LEG	2
3	416230	SNAP LOCK PIN W/WASHER 3/4 X 4	2
4	410012	3/4-10 HEX NUT CENTER LOCK GRA Z/C	4
5	413072	3/4 FLAT WASHER SAE Z/C	8
6	411604	3/4-10 X 10 HEX BOLT GR5 Z/C	2
7	411600	3/4-10 X 8 HEX BOLT GR5 Z/C	2
8	410505	5/16-18 HEX NUT CENTER LOCK GRA Z/C	4
9	414505	5/16-18 X 1 FLAT SOCKET BOLT HEX DRIVE Z/C	8
10	315552	STACKING TOOLBAR FLEX WING POLY WEAR PLATE	4
11	411509	3/8-16 X 1 1/2 HEX BOLT GR5 Z/C	4
12	413009	3/8 FLAT WASHER SAE Z/C	8
13	410006	3/8-16 HEX NUT CENTER LOCK GRA Z/C	4

# PARTS GUIDE



## LIGHT KIT & HITCH HUB



Item #	Part #	Description	Quantity
1	204825	FRONT LIGHT, AMBER	4
2	204823	REAR LIGHT, LEFT SIDE, RED & AMBER	2
3	204824	REAR LIGHT, RIGHT SIDE, RED & AMBER	2
4	317513	OUTSIDE RIGHT BRACKET	1
5	317514	INSIDE LEFT BRACKET	1
6	317515	INSIDE RIGHT BRACKET	1
7	317512	OUTSIDE LEFT BRACKET	1
8	315276	DELTA PLOW HITCH HUB ASSEMBLY	1
9	204836	LIGHT KIT SMV SIGN	1
10	204826	WIRING HARNESS	1
11	204828	15' EXT CABLE	2
12	204827	Y CABLE	2





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