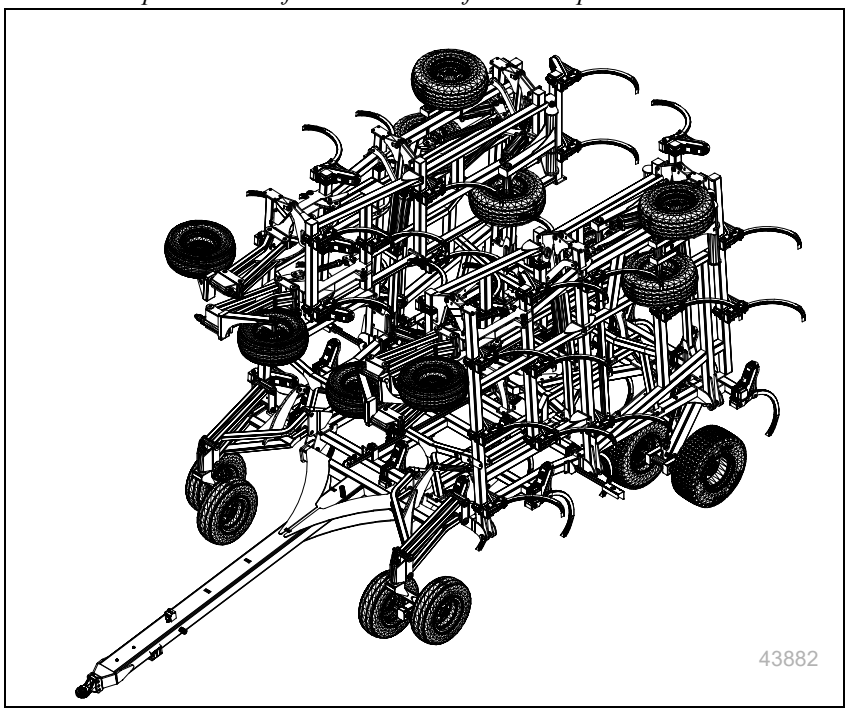
# Operator Manual

6539UC, 6541UC, 6543UC, 6545UC
6000 Series Ultra Chisel 5-Section

Great Plains
Manufacturing, Inc.
www.greatplainsmfg.com

*Read the operator manual entirely. When you see this symbol, the subsequent instructions and warnings are serious - follow without exception. Your life and the lives of others depend on it!*




*Illustrations may show alternate spacings and/or optional equipment not supplied with standard unit.*

ORIGINAL INSTRUCTIONS

EN

 Printed 2020-10-01 562-339M

## Machine Identification

Record your machine details in the log below. If you replace this manual, be sure to transfer this information to the new manual.

If you or the dealer have added options not originally ordered with the machine, or removed options that were originally ordered, the weights and measurements are no longer accurate for your machine. Update the record by adding the machine weight and measurements with the option(s) weight and measurements.

| | |
|---|---|
| **Model Number** | |
| **Serial Number** | |
| **Machine Height** | |
| **Machine Length** | |
| **Machine Width** | |
| **Machine Weight** | |
| **Year of Construction** | |
| **Delivery Date** | |
| **First Operation** | |
| **Accessories** | |

### Dealer Contact Information

**Name:** _____

**Street:** _____

**City/State:** _____

**Telephone:** _____

**Email:** _____

**Dealer's Customer No.:** _____

⚠WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov

# Table Of Contents

**Important Safety Information....1**
Safety Decals....4
**Introduction....9**
Description of Unit....9
Intended Usage....9
Models Covered....9
Document Family....9
Using This Manual....9
Definitions....9
Owner Assistance....10
Further Assistance....10
**Preparation and Setup....11**
Post-Delivery/Seasonal Setup....11
Prior to Going to the Field Checklist....11
Clevis Hitch....12
Category III Hitch....12
Category IV Hitch....13
Category V Hitch....13
Hitching Tractor to Implement....14
Electrical Hookup....15
Hydraulic Hose Hookup....15
First Time Field Adjustments....17
Center and Wing Leveling....17
Center and Wing Gauge Wheel Adjustments....17
Wing Leveling (Inside or Outside Wings)....17
**Operating Instructions....18**
Pre-Start Checklist....18
Raising / Lowering....19
Unfolding....20
Folding....20
Transporting the Ultra Chisel....21
Check Tractor Capacity and Configuration....21
Transport Checklist....21
Lift Cylinder (Transport) Locks....22
General Operation and In-Field Adjustments....23
Field Operations....24
Field Checklists....25
Rear Attachment Settings....26
Spike Drag Settings....26
Heavy Coil Tine Settings....26
Reel Settings....27
Parking....28
End of Season Storage....28
Beginning of Season....28
**Maintenance and Lubrication....29**
Maintenance....29
Lubrication....30
**Troubleshooting....31**
Ultra Chisel Trouble Shooting....31
**Appendix A - Reference Information....32**
Specifications and Capacities....32
Tire Inflation Chart....33
Hydraulic Connectors and Torque....33
Torque Values Chart....34

# Important Safety Information

## Look for Safety Symbol

The SAFETY ALERT SYMBOL indicates there is a potential hazard to personal safety involved and extra safety precaution must be taken. When you see this symbol, be alert and carefully read the message that follows it. In addition to design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.

## Be Aware of Signal Words

Signal words designate a degree or level of hazard seriousness.

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


WARNING indicates a potentially hazardous situation which, 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.

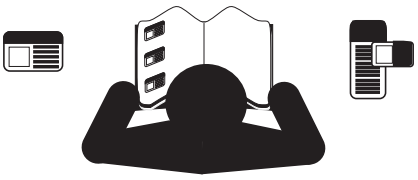

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.


## Prepare for Emergencies

- *Be prepared if a fire starts.*
- *Keep a first aid kit and fire extinguisher handy.*
- *Keep emergency numbers for doctor, ambulance, hospital and fire department near phone.*


## Be Familiar with Safety Decals

- *Read and understand "**Safety Decals**" on page 4, thoroughly.*
- *Read all instructions noted on the decals.*
- *Keep decals clean. Replace damaged, faded and illegible decals.*



## Wear Protective Equipment

- *Wear clothing and equipment appropriate for the job.*
- *Prolonged exposure to loud noise can cause hearing impairment or loss. Wear suitable hearing protection such as earmuffs or earplugs.*
- *Avoid wearing entertainment headphones while operating machinery. Operating equipment safely requires the full attention of the operator.*

## Avoid High Pressure Fluids

Escaping fluid under pressure can penetrate the skin, causing serious injury.

- ▲ *Avoid the hazard by relieving pressure before disconnecting hydraulic lines.*
- ▲ *Use a piece of paper or cardboard, NOT BODY PARTS, to check for suspected leaks.*
- ▲ *Wear protective gloves and safety glasses or goggles when working with hydraulic systems.*
- ▲ *If an accident occurs, seek immediate medical assistance from a physician familiar with this type of injury.*

## Use Safety Lights and Devices

Slow-moving tractors and towed implements can create a hazard when driven on public roads. They are difficult to see, especially at night.

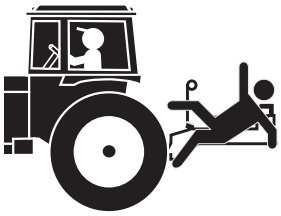
- ▲ *Use flashing warning lights and turn signals whenever driving on public roads.*

Use lights and devices provided with implement.

## Keep Riders Off Machinery

Riders obstruct the operator's view. Riders could be struck by foreign objects or thrown from the machine.

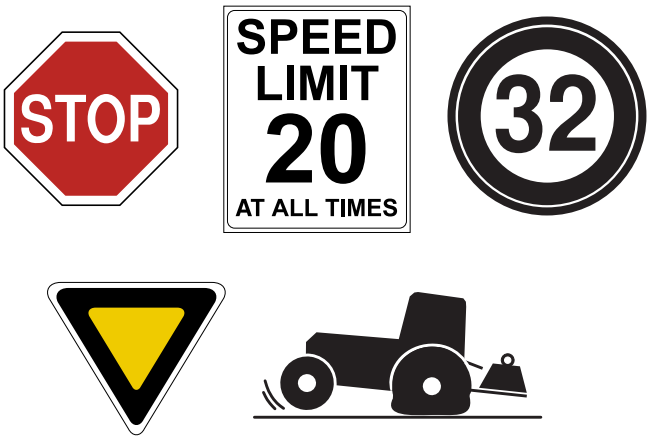
- ▲ *Never allow children to operate equipment.*
- ▲ *Keep all bystanders away from machine during operation.*



## Transport Machinery Safely

Maximum transport speed for implement is 20 mph (32 km/h). Some rough terrains require a slower speed. Sudden braking can cause a towed load to swerve and upset.

- ▲ *Do not exceed 20 mph (32 km/h). Never travel at a speed which does not allow adequate control of steering and stopping. Reduce speed if towed load is not equipped with brakes.*
- ▲ *Turn flashing warning lights on whenever traveling on a public roadway,, except where such use in prohibited by law.*
- ▲ *Comply with state and local laws.*
- ▲ *Do not tow an implement unless the towing vehicle is rated for, and ballasted for, the weight of the implement.*
- ▲ *Carry reflectors or flags to mark implement in case of breakdown on the road.*
- ▲ *Do not fold or unfold the implement while the tractor is moving.*

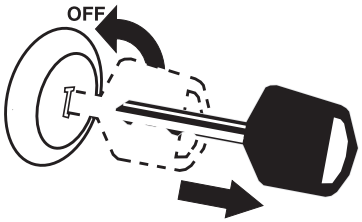


## Check for Overhead Lines

The implement requires at least 15 feet (4.6 m) vertical clearance in transport. Contacting overhead electrical lines can introduce lethal voltage levels on implement and tractor frames. A person touching almost any metal part can complete the circuit to ground, resulting in serious injury or death. At higher voltages, electrocution can occur without direct line or body contact.

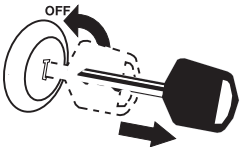
- ▲ *Avoid overhead lines during folding, unfolding, transport and parking.*

## Shutdown and Storage




- ▲ *Lower implement, put tractor in park, turn off engine, and remove the key.*
- ▲ *Secure implement using blocks and supports provided.*
- ▲ *Use supporting devices with all equipment which has an upward hitch load or are not stable when unhitched to make stable.*
- ▲ *Detach and store implement in an area where children normally do not play.*

## Practice Safe Maintenance

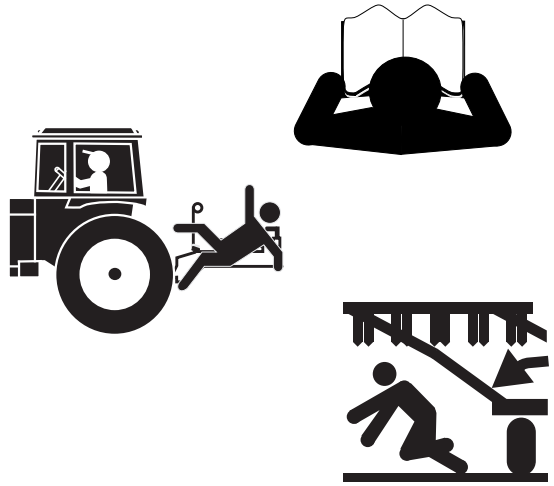



- ▲ *Understand procedure before doing work. Use proper tools and equipment. Refer to this manual for additional information.*
- ▲ *Work in a clean, dry area.*
- ▲ *Lower the implement, put tractor in park, turn off engine, and remove key before performing maintenance.*
- ▲ *Make sure all system pressure is relieved.*
- ▲ *Disconnect battery ground cable (-) before servicing or adjusting electrical systems or before welding on implement.*
- ▲ *Inspect all parts. Make sure parts are in good condition and installed properly.*
- ▲ *Remove buildup of grease, oil or debris.*
- ▲ *Remove all tools and unused parts from implement before operation.*

## Safety At All Times

Thoroughly read and understand the instructions in this manual before operation. Read all instructions noted on the safety decals.

- ▲ *Be familiar with all implement functions.*
- ▲ *Operate machinery from the driver's seat only.*
- ▲ *Do not leave implement unattended with tractor engine running.*
- ▲ *Do not dismount a moving tractor. Dismounting a moving tractor could cause serious injury or death.*
- ▲ *Do not stand between the tractor and implement during hitching.*
- ▲ *Keep hands, feet and clothing away from moving parts.*
- ▲ *Watch out for wires, trees, etc., when folding and raising implement. Make sure all persons are clear of working area.*



## Safety Decals

### Safety Reflectors and Decals

Your implement comes equipped with all lights, safety reflectors and decals in place. They were designed to help you safely operate your implement.

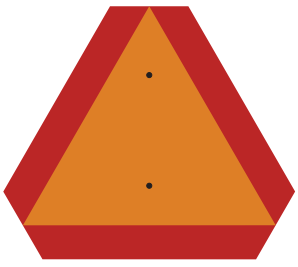
- ▲ *Read and follow decal directions.*
- ▲ *Keep lights in operating condition.*
- ▲ *Keep all safety decals clean and legible.*
- ▲ *Replace all damaged or missing decals. Order new decals from your Great Plains dealer. Refer to this section for proper decal placement.*
- ▲ *When ordering new parts or components, also request corresponding safety decals.*

To install new decals:

1. Clean the area on which the decal is to be placed.
2. Peel backing from decal. Press firmly on surface, being careful not to cause air bubbles under decal.

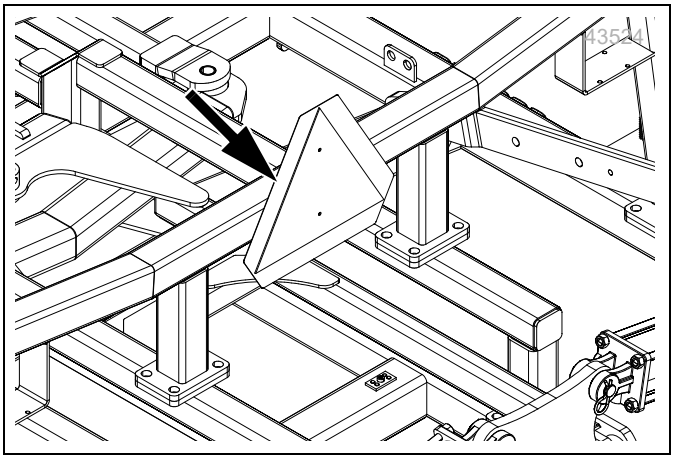
### Transport Decals

#### 818-055C



### Slow Moving Vehicle Reflector

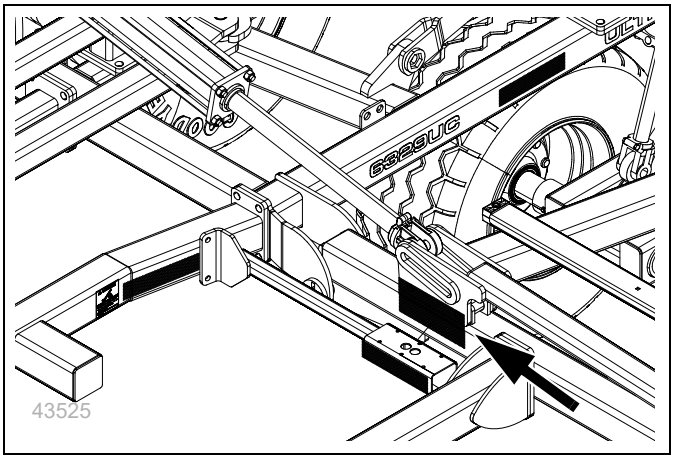
On center rear face of center frame tie tube;
1 total



### 838-614C

## Red Reflectors

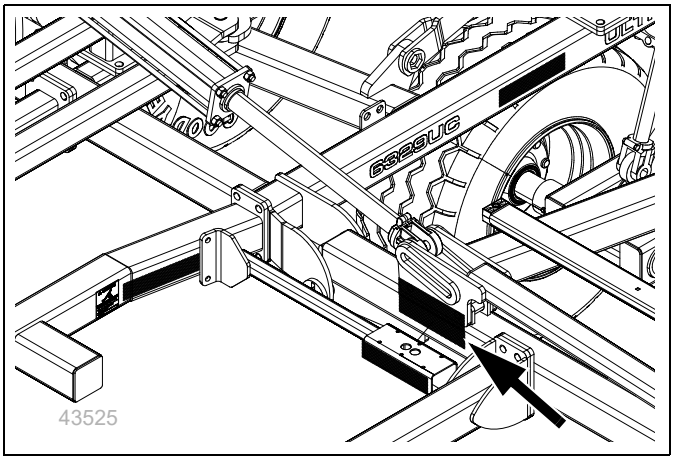
On rear face of light bracket mount tube;
2 total




### 838-603C

## Daytime Reflectors

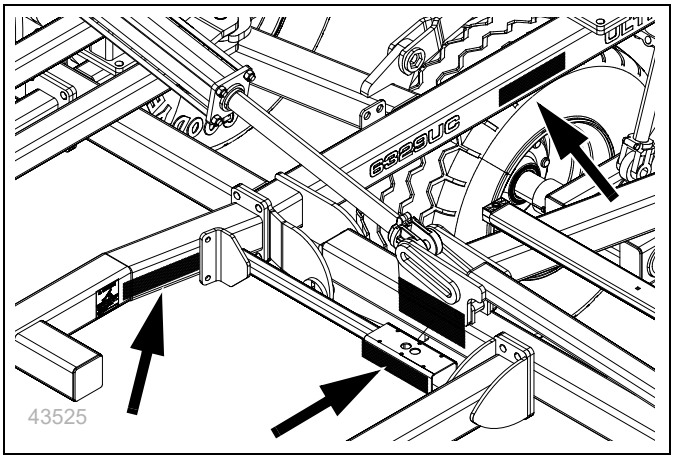
On rear face of light bracket mount tube, inboard of red reflectors;
2 total




### 838-615C

## Amber Reflectors

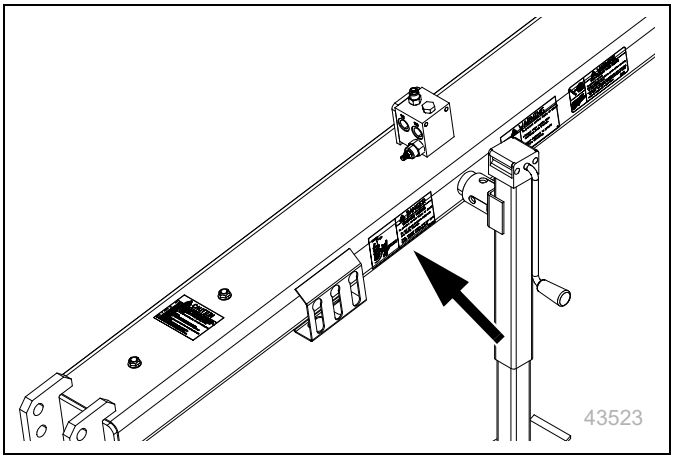
On outboard sides of vertical sections of light bracket mount tubes, on front face of wing tool bars at outboard ends;
6 total



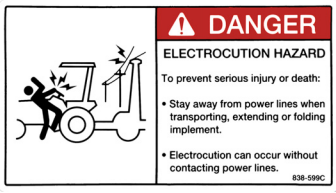
### 838-600C


## Danger: Hitch Crush

On front face of hitch tube, each end;
1 total

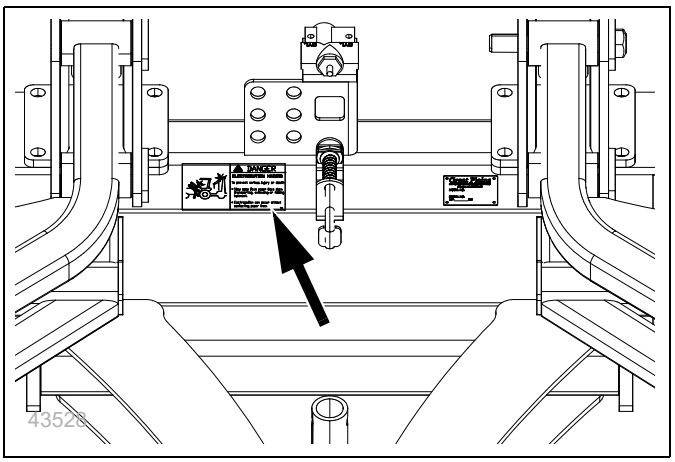



### 838-599C



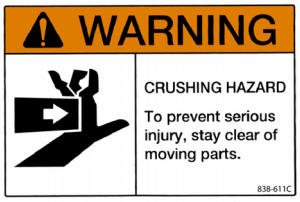

## Danger: Electrocution

On front face of center frame tie tube, left of center;
1 total



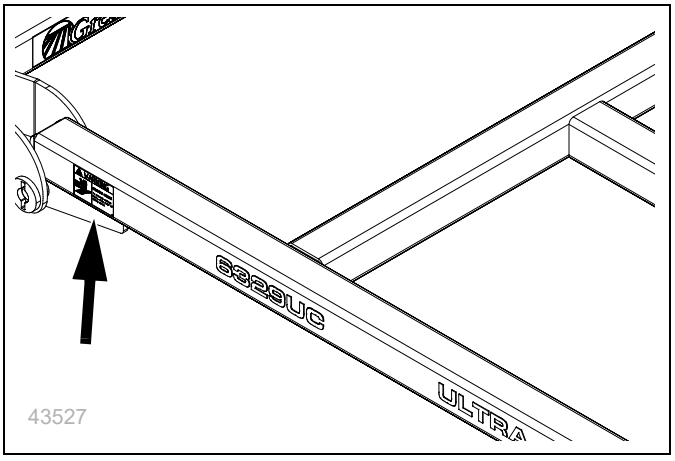

## Warning Decals

### 838-611C




## Warning: Hand Crushing

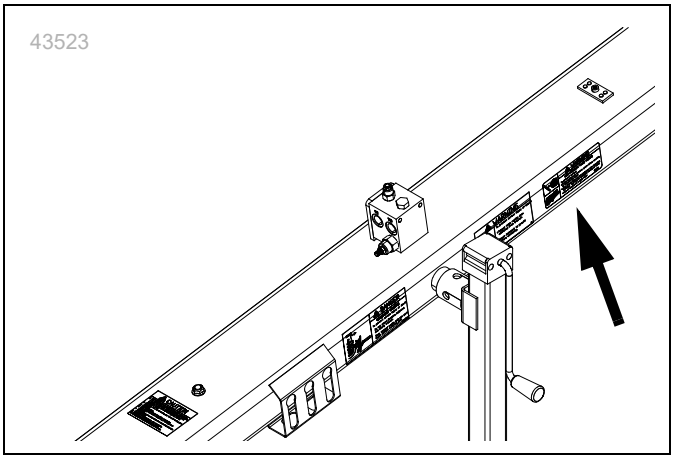
On front and rear of wing frames outer pivot points;
4 total



## 838-094C


### Warning: High Pressure Fluid Hazard

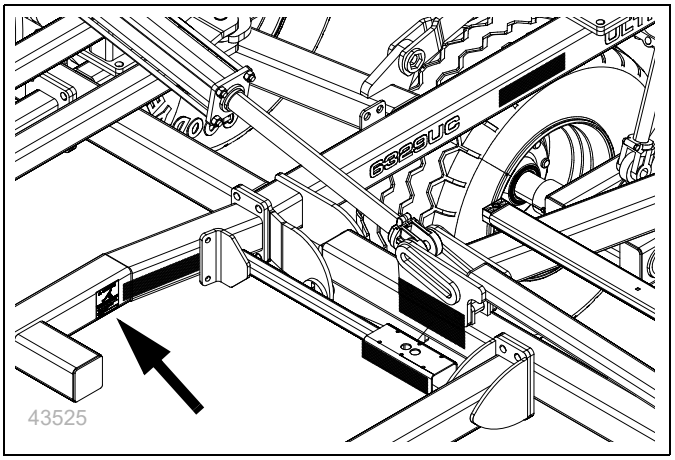
On front face of hitch tube, just right of center;
1 total



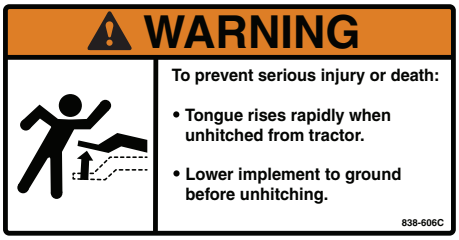

## 838-602C


### Warning: Pinching or Crushing

On front face of outer wing pivot plates;
2 total

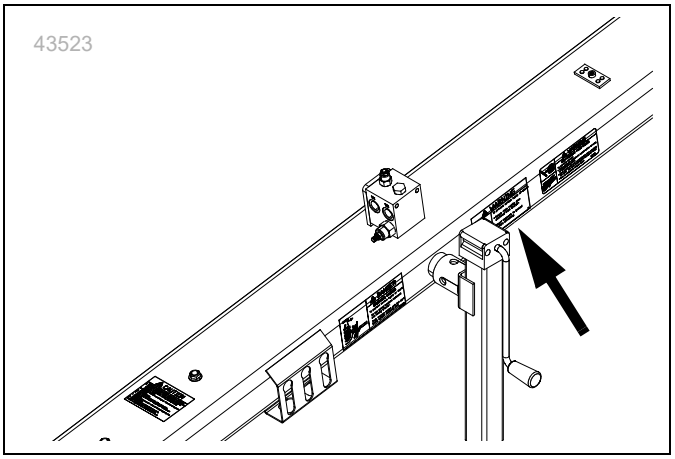



## 838-606C




### Warning: Pinching or Crushing

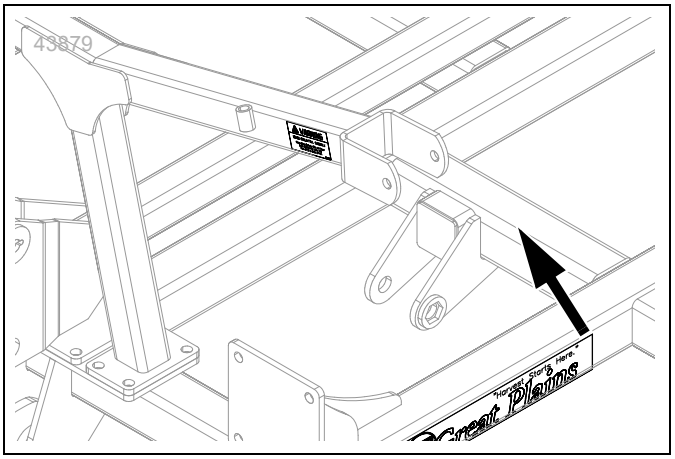
On front face of outer wing pivot plates;
2 total



### 838-612C


## Warning: Wings Could Fall

On front face of font wing stop;
2 total

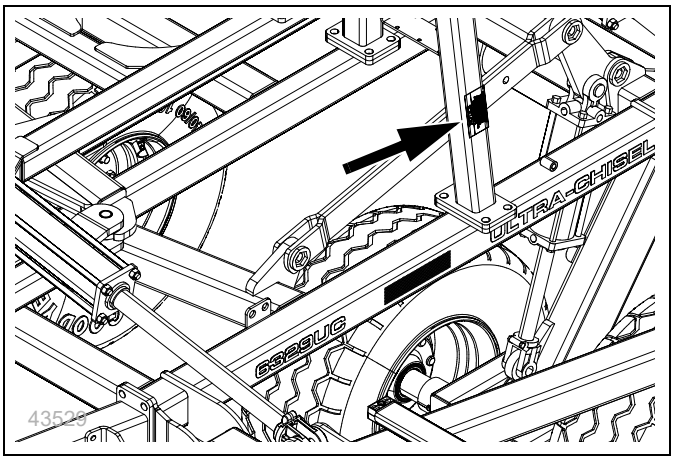



## Notice Decals

### 838-613C

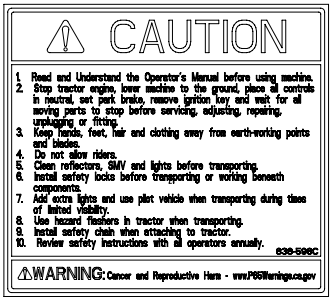

## Notice: Transport Locks

On outside face of rear wing rest;
2 total



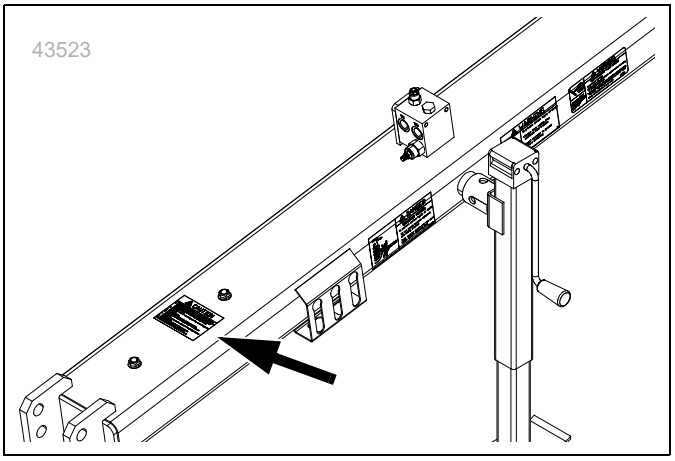

## Caution Decals

### 838-598C




## Caution: General Instructions

On front face of hitch tube;
1 total



# Introduction

Great Plains welcomes you to its growing family of new product owners. The 6000 Series Ultra Chisel has been designed with care and built by skilled workers using quality materials. Proper setup, maintenance, and safe operating practices will help you get years of satisfactory use from the machine.

## Description of Unit

The Ultra Chisel is a five section primary soil preparation implement and can be use in the most adverse conditions. Various attachments can be added for further redistribution of residue, firm soil and break clods.

### Intended Usage

Use the 5-Section Ultra Chisel Ultra Chisel to fracture soil above 8” to remove density layers while leaving the residue mixed at the surface to reduce wind erosion and assist with water filtration.

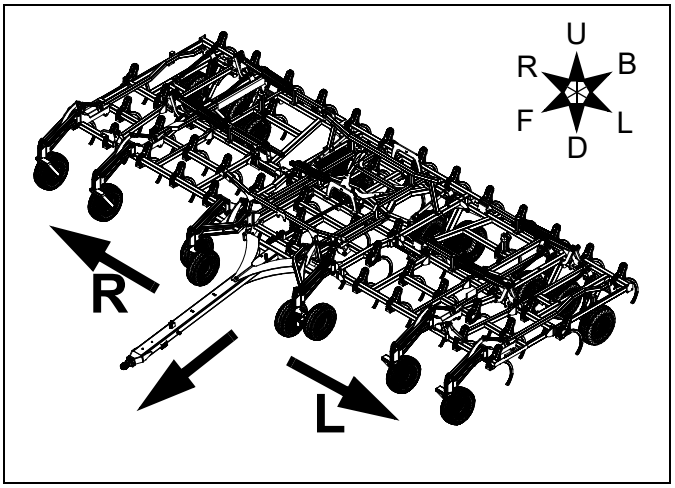



Figure 1
Ultra Chisel

43881

## Models Covered

| | | |
|---|---|---|
| 6539UC | 39-Foot | 5-section |
| 6541UC | 41-Foot | 5-section |
| 6543UC | 43-Foot | 5-section |
| 6545UC | 45-Foot | 5-section |

## Document Family

| | |
|---|---|
| 562-339M | Owner’s Manual (this document) |
| 562-339P | Parts Manual |
| 562-339Q | Pre-Delivery Manual |

## Using This Manual

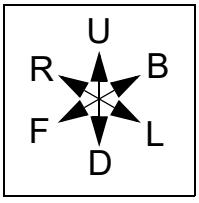
This manual will familiarize you with safety, assembly, operation, adjustments, troubleshooting, and maintenance. Read this manual and follow the recommendations to help ensure safe and efficient operation.

📖 The information in this manual is current at printing. Some parts may change to assure top performance.

### Definitions

The following terms are used throughout this manual.

Right-hand and left-hand as used in this manual are determined by facing the direction the machine will travel while in use unless otherwise stated. An orientation rose in some line art illustrations shows the directions of: Up, Back, Left, Down, Front, Right.




**NOTICE**

*A crucial point of information related to the current topic. Read and follow the directions to remain safe, avoid serious damage to equipment and ensure desired field results.*

## Owner Assistance

If you need customer service or repair parts, contact a Great Plains dealer. They have trained personnel, repair parts and equipment specially designed for Great Plains products.

***Refer to Figure 2***

Your machine's parts were specially designed and should only be replaced with Great Plains parts. Always use the serial and model number when ordering parts from your Great Plains dealer. The serial-number plate is located on the front face of the center frame bar truss.

Record your 5-Section Ultra Chisel model and serial number here for quick reference:

Model Number:_____

Serial Number: _____

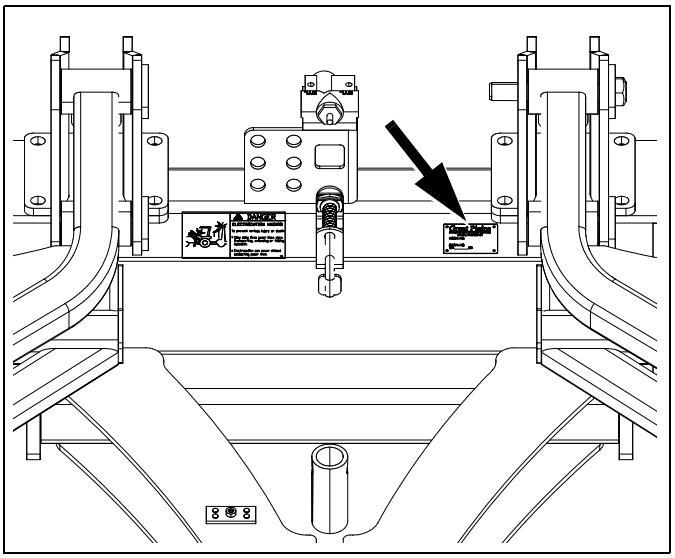


Figure 2 43528
Serial Number Plate

## Further Assistance

Great Plains Manufacturing, Inc. and your Great Plains dealer want you to be satisfied with your new implement. If for any reason you do not understand any part of this manual or are otherwise dissatisfied, please take the following actions first:

1. Discuss the matter with your dealership service manager. Make sure they are aware of any problems so they can assist you.
2. If you are still unsatisfied, seek out the owner or general manager of the dealership.

If your dealer is unable to resolve the problem or the issue is parts related, please contact:

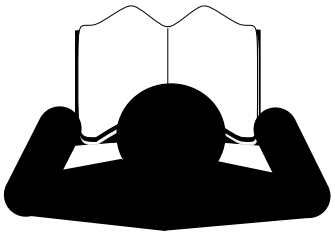
**Great Plains Service Department**
**1525 E. North St.**
**P.O. Box 5060**
**Salina, KS 67402-5060**

Or go to www.greatplainsag.com and follow the contact information at the bottom of your screen for our service department.

# Preparation and Setup

This section helps you prepare your tractor and 5-Section Ultra Chisel for use and covers tasks that need to be done seasonally, or when the tractor/Ultra Chisel configuration change.

Before using the Ultra Chisel you must level the implement, hook up the implement hydraulics to the tractor, and check that the hydraulics have been bled. Certain adjustments and calibrations must be checked periodically thereafter to insure maximum usage.



## Post-Delivery/Seasonal Setup

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

- Bleed hydraulic fold system.
- Wing leveling and alignment (page 17).
- De-grease exposed cylinder rods if so protected at last storage.

## Prior to Going to the Field Checklist

Complete this checklist before routine setup:

- ❑ Read and understand "**Important Safety Information**" starting on page 1.
- ❑ Check that all working parts are moving freely, bolts are tight, and cotter pins are spread.
- ❑ Make sure your tractor horsepower matches the implement you are pulling. This is important so the implement can do the best possible job.
- ❑ Clean all hydraulic couplings and connect to tractor as shown on page 14 "**Hitching Tractor to Implement**"
- ❑ If machine is folded, remove the transport pins from wing stops. (DO NOT remove pins if the wing is leaning against the pins or putting pressure on the pins. Use hydraulics to pull the wings in completely before unpinning them.) Once the pins are removed, slowly unfold the unit. Make sure no one is under the wings during the unfolding process.
- ❑ Check again for hydraulic leaks and watch that hoses do not get pinched in hinges, wing stops, etc.
- ❑ After the machine is completely unfolded, raise and lower the Ultra Chisel several times to purge air from the hydraulic system. Again check for hydraulic leaks and tighten or replace if necessary.
- ❑ Check safety chain hookup. Make sure all warning lights are hooked up and functioning correctly.
- ❑ Check that all safety decals and reflectors are correctly located and legible. Replace if damaged. See "**Safety Decals**" on page 4.
- ❑ Inflate tires to pressure recommended and tighten wheel bolts as specified. See "**Tire Inflation Chart**" on page 33.
- ❑ Put transport locks in place and refold the machine slowly. Put wing stop pins in place. Always use the transport pins when moving from field to field.

**NOTICE**

*Tractor must have a powered center pin in the electrical hook up or the outside wing retract system will not function, damage to equipment will result.*

## Clevis Hitch

***Refer to Figure 3***

The base hitch must be upright (with the recessed notch on the bottom) for this configuration. this places the tongue weight on the base hitch, and not the clevis. (13).

3. Select one each:
   (13) 890-798C HITCH CLEVIS
   (11) 802-487C HHCS 3/4-10X6 GR8
   (12) 803-367C NUT HEX TOP LOCK 3/4-10PLT
4. With the square-shouldered end of the clevis (13) up, fully seat the clevis in the upright base hitch (18). Insert the Grade 8 bolt (11) from below. Secure with lock nut (12).

**⚠ CAUTION**

***Hitch Failure Hazard:***
*Install the hitch base and assemble the clevis parts as shown. Incorrect installation or assembly may result in failure of the clevis bolt, leading to hitch failure. This could result in a serious highway accident or severe machine damage.*

## Category III Hitch

The base hitch (18) must be inverted (with the recessed notch on the top) for this configuration. Set the V-block (14) to allow some vertical articulation of the draw bar pin. Always use at least one cushion (15).

5. Select one of each
   (16) PPI-302V TOP PLATE - CAT 3
   (14) PPI-203VR V-BLOCK
   (10) 802-383C HHCS 3/4-10X3 GR5
   and two:
   (15) PPI-205H CUSHION
6. Set the cushions inside the hitch recess, just forward of the vertical bolt hole. Position the V-block (14) forward of the cushions and check the size of the resulting pinning hole. Remove a cushion (15) if needed.
7. Add the top plate (16). Secure from below with Grade 5 bolt (10).

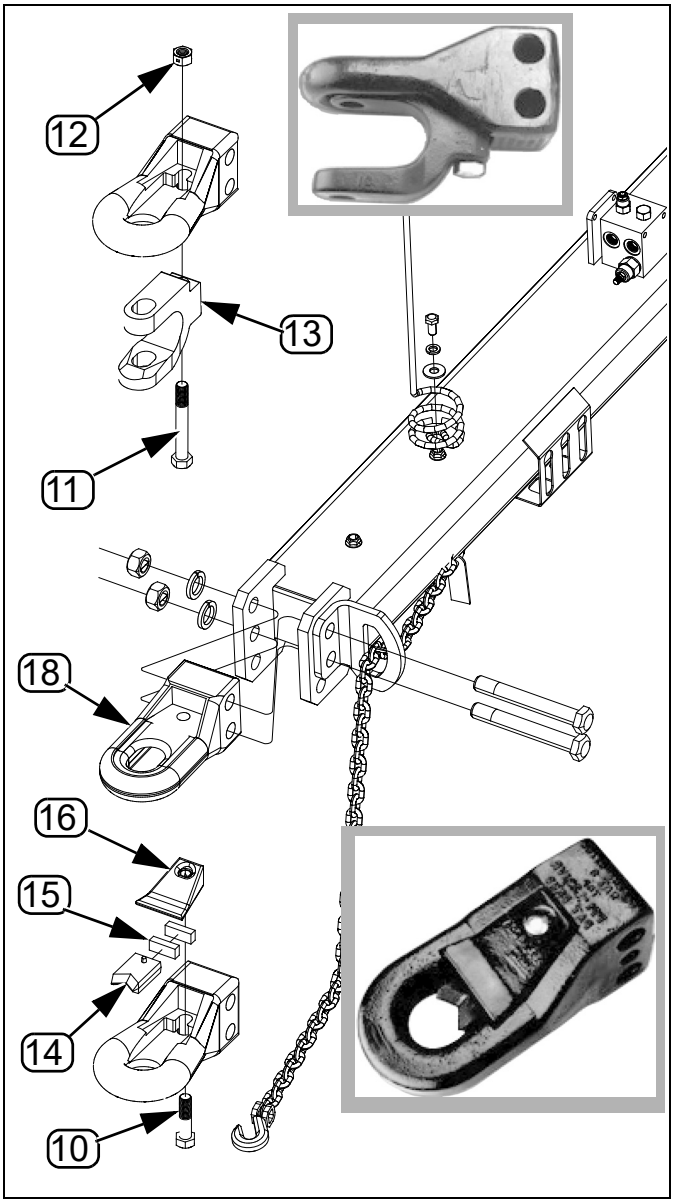
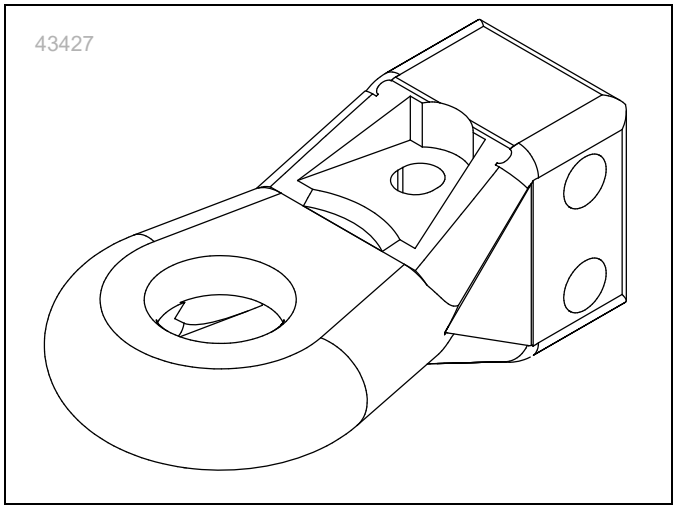


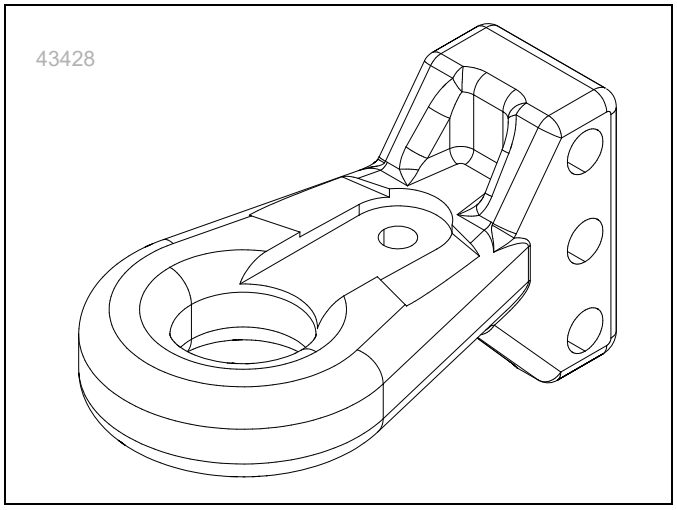

Figure 3
Configure Hitch

31740
43659
31741

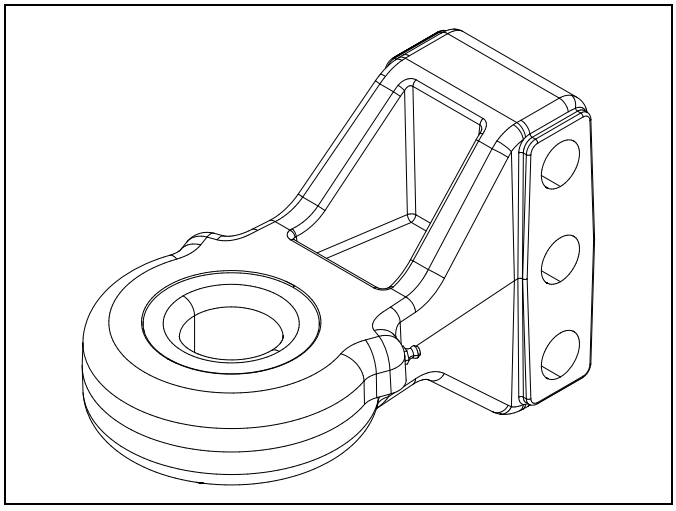
## Category IV Hitch



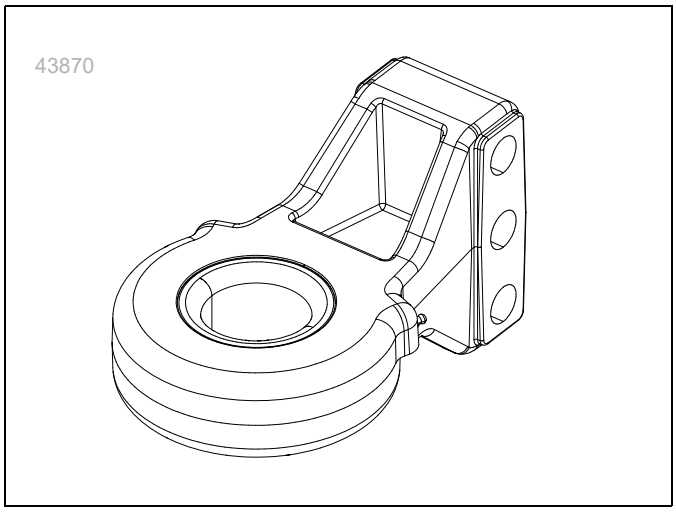

## Category V Hitch




## Category IV Artic Ball Hitch



## Category V Artic Ball Hitch




## Hitching Tractor to Implement

**DANGER**

*Crushing Hazard:*
*Do not stand or place any body part between Ultra Chisel and moving tractor. You may be severely injured or killed by being crushed between the tractor and the Ultra Chisel. Stop tractor engine and set parking brake before attaching cables and hoses.*

To prevent soil compaction on rows, set tractor wheels between rows. For hillsides and steep slopes, set tractor wheels as wide as possible for maximum stability.

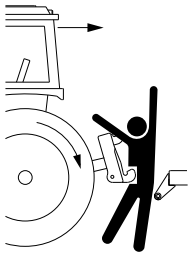
1. Raise tractor three-point arms (if equipped) clear up to clear Ultra Chisel.
2. For TWO-WHEEL DRIVE and MFWD tractors, pin drawbar in fixed center position for field and transport. For FOUR-WHEEL DRIVE and TRAC-DRIVE tractors, leave one hole clearance on each side of drawbar for field position, hitch damage may occur if pinned solid. Pin in center position for transport to maintain maximum steering control.
3. Hitch the tractor to the Ultra Chisel using the block or yoke clevis determined by the tractor drawbar. Use the correct size pin for clevis or block.

***Load Sway Hazard:***

*Lock drawbar swing to center position to minimize any side-to-side sway to assure proper tracking in the field, and safe road travel. See* "**Transporting the Ultra Chisel**" *on page 21*, for safe transporting.

***Refer to Figure 4***

4. Use jack (1) to raise and lower Ultra Chisel tongue.



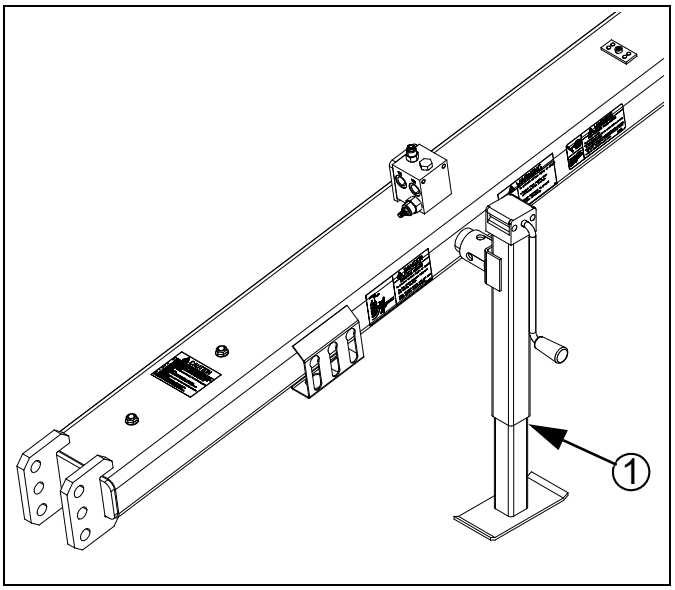



Figure 4
Jack on Tongue

***Refer to Figure 5***

5. After hitching tractor to Ultra Chisel, store jack on storage tube (2) on top rear of Ultra Chisel tongue.
6. Secure Ultra Chisel safety chain to an anchor on the tractor capable of pulling the unit.

**NOTICE**

*Tractor must have a powered center pin in the electrical hook up or the outside wing retract system will not function, damage to equipment will result.*

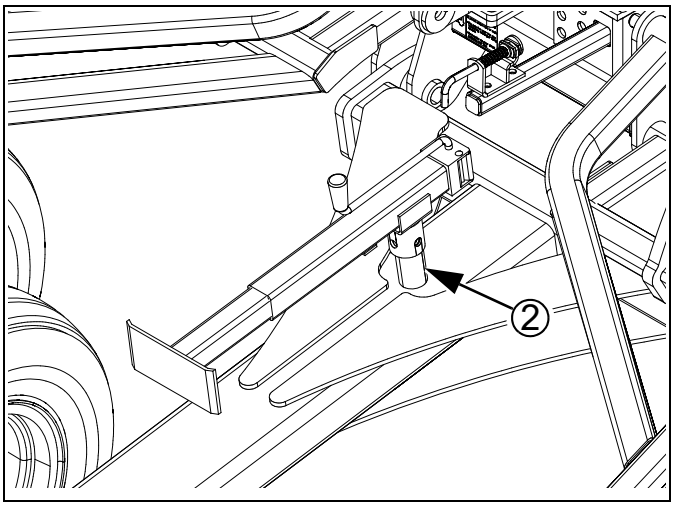



Figure 5 43539
Jack in Storage

## Electrical Hookup

Plug implement electrical lead in tractor seven-pin connector. If your tractor is not equipped with a seven-pin connector, contact your dealer for installation.

Plug in any optional connectors or after market connectors, such as an implement-mounted GPS receiver. For future reference, note any optional connectors on this checklist.

- ❑ (1) Lighting connector (standard)
- ❑ _____
- ❑ _____

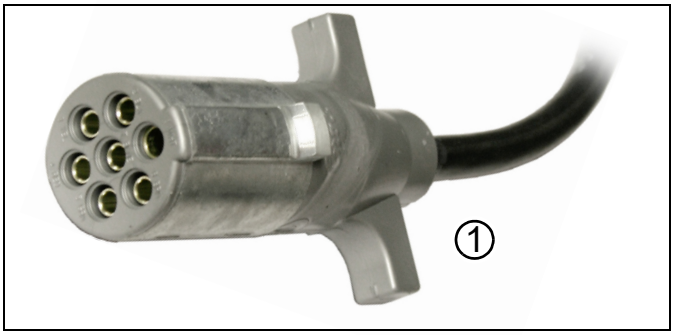



Figure 6 36051
Lighting Connector

## Hydraulic Hose Hookup

**WARNING**

***High Pressure Fluid Hazard:***
*Relieve pressure before disconnecting hydraulic lines. Escaping fluid under pressure may have sufficient pressure to penetrate the skin causing serious injury. Use a piece of paper or cardboard, NOT BODY PARTS, to check for leaks. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. If an accident occurs, seek immediate medical attention from a physician familiar with this type of injury.*

***Refer to Figure 7***

Great Plains hydraulic hoses have color coded handle grips to help you hookup hoses to your tractor outlets. Hoses that go to the same remote valve are marked with the same color.

### Color Coded Hose Handles

| Color | Hydraulic Function |
|---|---|
| Black | Lift (2 hoses) |
| Green | Fold (2 hoses) |
| Yellow | Auxiliary (Optional) |

To distinguish between the color coded hoses on the same hydraulic circuit, refer to the symbol molded into the handle grip.

- Hoses with an extended-cylinder symbol feed cylinder base ends.
- Hoses with a retracted-cylinder symbol feed cylinder rod ends.

Secure hoses and cables so that they have sufficient slack for hitch movements, but cannot get caught between moving parts of tractor, implement or hitch. Failure to safely route and secure hoses and cables could result in damage requiring component repair/replacement, and lost field time.

Clean all hydraulic couplings and hook to tractor. Connect all hoses to suitable tractor remote valves.

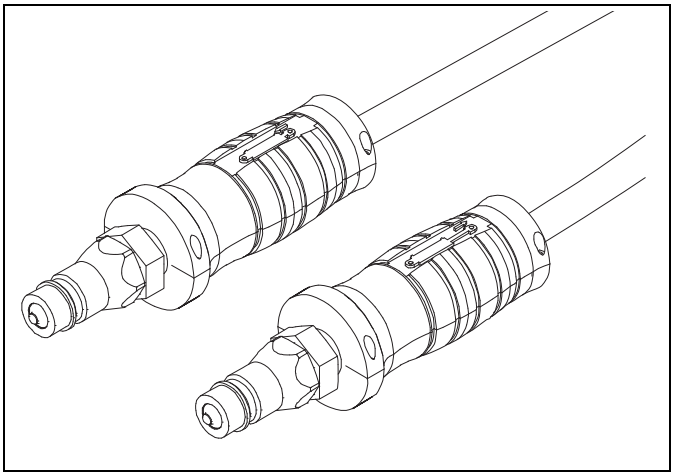


Figure 7 31733
Color Coded Hose Handles

# First Time Field Adjustments

## Center and Wing Leveling

7. Pre-leveling of machine can be done on a concrete slab or level surface. Lower machine so sweeps on the center frame are 1 - 2” off the ground.

📖 Level the center frame first and then the wings. Adjust the rear wing turnbuckles before adjusting the gauge wheel turnbuckles on the wings. If this is not done you will have to readjust the gauge wheels again after adjusting the rear wing turnbuckles.

## Center and Wing Gauge Wheel Adjustments

***Refer to Figure 8***

8. Keep Center front gauge wheel turnbuckles at equal length for proper center leveling. Adjust so that the front of the machine is slightly lower ($1/2$ - 1”) than the rear of the machine.

📖 Equalizer should be straight when leveled correctly.

9. Loosen the jam nut (1) and adjust turnbuckle on the gauge wheels to level it from front to back. (Shorten to bring front down, extend to bring front up). Level machine with the front row shanks just slightly deeper or lower than the back.

10. Re-tighten the jam nut (1).

Repeat same procedure for the other side of the center frame.

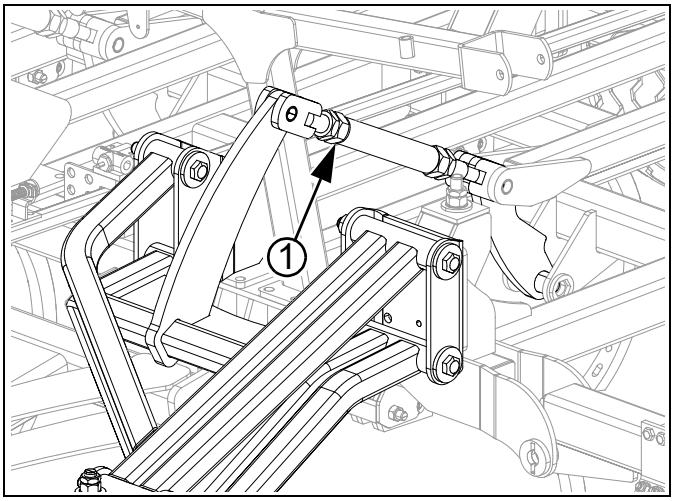



Figure 8 43541
Center Gauge Wheel Level

## Wing Leveling (Inside or Outside Wings)

***Refer to Figure 9***

11. Set the 3-section and the 5-section inner and outer wings to match the depth of the center. This is done by first adjusting the rear wing turnbuckle (2) on each wing. Start by loosening the jam nut (3), then adjust the turnbuckle (2). Lengthen the turnbuckle to run deeper and shorten the turnbuckle to run shallower.

12. Tighten the jam nut (3), back against the turnbuckle tube to hold the adjustments in place.

13. Adjust the Wing Gauge Wheels, loosen the jam nut (3) and adjust turnbuckle on the gauge wheels to level it from front to back. (Shorten to bring front down, extend to bring front up). Level machine with the front row shanks just slightly deeper or lower than the back.

📖 In some conditions the wings will need to be set slightly lower than the center, as the center may tend to run deeper behind the tractor tires.

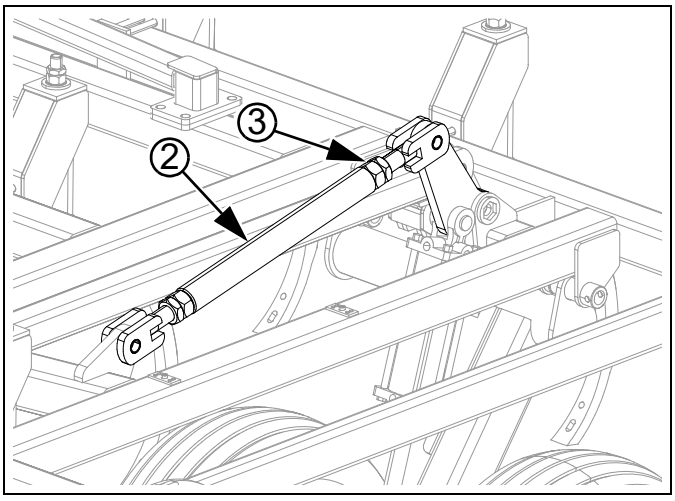



Figure 9 43871
Wing Level

# Operating Instructions

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

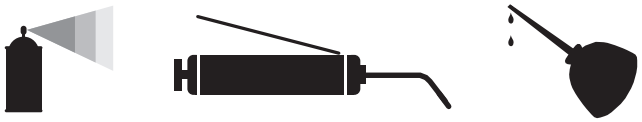
Perform the following steps before transporting the 5-Section Ultra Chisel Ultra Chisel to the field.

- ❑ Carefully read “**Important Safety Information**” on page 1.
- ❑ Lubricate implement as indicated under “**Lubrication**” on page 30.
- ❑ Check all tires for proper inflation. See “**Specifications and Capacities**” on page 32.
- ❑ Check all bolts, pins, and fasteners. Torque as shown in “**Hydraulic Connectors and Torque**” on page 33.
- ❑ Check Ultra Chisel 5-Section 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 items under “**Maintenance**” on page 29.

**WARNING**

***High Pressure Fluid Hazard:***

*Relieve pressure before disconnecting hydraulic lines. Use a piece of paper or cardboard, NOT BODY PARTS, to check for leaks. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. Escaping fluid under pressure can have sufficient pressure to penetrate the skin causing serious injury. If an accident occurs, seek immediate medical assistance from a physician familiar with this type of injury.*



# Raising / Lowering

## Raising When Unfolded

No particular steps are required for raising while unfolded.

When raising in the field, hold at full lift for 2-to-3 seconds to re-phase the lift circuit.

At first field lift of the day, raise and lower several times to purge any air from the system.

## Raising When Folded

If folded, the implement may be raised at any time. Extend the lift circuit until the implement is fully raised. Hold the lever at Extend for an extra 2-to-3 seconds to re-phase the lift cylinders.

Set the lift circuit to Neutral to hold at lift, such as for removal of lock channels.

## Lowering When Unfolded

No particular steps are required for lowering while unfolded.

Retract the lift circuit until the depth control system arrests vertical motion. Set the circuit to Neutral.

## Lowering When Folded (with Locks)

Great Plains recommends lowering the implement onto the lock channels for transport and storage, rather than having it held above the locks by hydraulics.

These steps presume the lock channels are already in place (page 22).

1. Slowly Float the lift circuit to lower the implement onto the locks.
2. Set the circuit to Neutral.

## Fully Lowering When Folded

Great Plains does not recommend resting the folded implement on the center section chisel points. Fully lowering a folded implement onto supports or stands might be necessary for maintenance.

For lowering, the transport lock channels need to be removed if in place.

1. If an optional hydraulic finishing attachment is installed, Retract that circuit to fully raise it. Set the circuit to Neutral to hold at raised.
2. If transport locks are installed, Extend the lift cylinder circuit to fully raise the implement. Set the circuit to Neutral to hold at lift. Turn off the tractor. Remove the key. Remove and store the transport lock channels (page 22).
3. Start the tractor. Slowly Retract the lift circuit until the frames rest on the support stands. Set the lift circuit to Float. Any optional hydraulic finishing attachment needs to be lowered on to support stands and that circuit placed in Float.

## Unfolding

Unfold the implement for adjustments, field operations, maintenance, parking and storage.

1. Unless the implement was folded, with the currently hitched tractor, only a short time ago, check for evidence of oil leaks. Check the ground at hitch connections, hose fittings and under cylinders.
2. Hitch tractor (page 14). Put tractor in Park with parking brake engaged.
3. Clear all persons from on or near the Ultra Chisel 5-Section.
4. Be aware of vertical and horizontal clearances needed to unfold the implement.
5. If the implement was lowered, or was raised with transport lock channels installed, Extend the lift circuit to fully raise the implement. Set the circuit to Neutral to hold at lift.
6. Shut down the tractor and remove the key.
7. Remove Wing Pins & store on front Wing Stop.
8. Put tractor in Park with parking brake engaged.
9. Slowly Extend the fold circuit to unfold the wings. When wing wheel are in ground contact, set the fold circuit to active down pressure or Float.
10. Wait for both wings to reach the fully unfolded position. Set tractor remote to Neutral to lock at unfolded.

## Folding

Fold the implement for movements on public roads and between fields with narrow clearances.

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. Be aware of vertical clearance required for folding.
5. Clear all persons from or near the implement.
6. Verify that the wing lock pins are out or in the storage holes.
7. Slowly move fold circuit lever to Retract. Observe the fold operation.
8. Wait for both wings to reach the fully folded position. Set tractor remote to Neutral to hold at folded.
9. Set the fold circuit to Neutral to hold at fold.
10. Shut down the tractor.
11. Install Wing Pins.
12. Start the tractor. Slowly Retract the lift circuit to settle the machine on the locks, then move circuit to Float to relieve any pressure, then Neutral.

**⚠ WARNING**

***Overhead Sharp Object and Crushing Hazards:***
*Clear all persons from around the implement during unfold. A lowering wing could cause severe lacerations at chisel points, as well as crushing resulting in serious injury or death.*

**⚠ WARNING**

***Crushing Hazard:***
*Bystanders could be crushed between the folding implement wings and the implement center frame, or caught in the folding mechanism. To avoid serious injury or death, keep all bystanders well away during implement operation.*

**⚠ DANGER**

***Electrocution Hazard:***
*Avoid overhead lines when folding and transporting. When folded and lifted, the Ultra Chisel requires clearance of at least 13 feet 3 inches (4.1m) for 6539UC and up to13 feet 10 inches (4.2m) for 6545UC, which is high enough to contact low hanging lines. Touching the Ultra Chisel or tractor completes a circuit to ground, and can result in serious injury or death. At higher voltages, shock can occur without direct contact.*

**⚠ WARNING**

***Crushing Hazard:***
*Bystanders could be crushed between the folding Ultra Chisel wings and the Ultra Chisel center frame, or caught in the folding mechanism. To avoid serious injury or death, keep all bystanders well away during Ultra Chisel operations.*

**NOTICE**

***Equipment Damage Risk:***
*Do not fold on hillsides. Fold only on level ground. On a hillside, step 9 could allow the downhill wing to unfold,*

# Transporting the Ultra Chisel

See “**Hitching Tractor to Implement**” on page 14 before transporting the Ultra Chisel.

## Check Tractor Capacity and Configuration

- Consult your tractor manual for limitations.
- Add weights to tractor as required.

When determining the weight of your Ultra Chisel, be sure to include the weight of any options. Please contact your Great Plains dealership.

## Transport Checklist

Before transporting the implement check the following items.

- ❑ Plan the route. Avoid steep hills. Keep Clearances in mind.
- ❑ Transport only with a tractor of proper size and adequate ballast. See “**Specifications and Capacities**” on page 32.
- ❑ Hitch implement securely to tractor. Make all electrical and hydraulic connections. See “**Hitching Tractor to Implement**” on page 14.
- ❑ Always use a locking-style hitch pin sized to match holes in hitch and draw-bar, and rated for the load.
- ❑ Attach safety chain to tractor with enough slack to permit turning (page 14).
- ❑ Verify correct operation of lights.
- ❑ Fold Implement and install wing pins.
- ❑ Check that tires are properly inflated (page 33).
- ❑ Raise Ultra Chisel.
- ❑ Be sure all transport locks are installed.
- ❑ Always have lights on for highway operation.
- ❑ Comply with all national, regional and local safety laws when traveling on public roads.
- ❑ Travel with caution. Allow safe clearance. Remember that the Ultra Chisel is wider than the tractor.

**DANGER**

***Loss of Control Hazard:***

*Do not tow the Ultra Chisel behind another implement on public roads. Tow the Ultra Chisel to the field with a separate vehicle. The leading implement may not provide sufficient lateral control of a trailing implement at transport speeds. The total weight of the train can also exceed the steering and/or braking capability of the tractor. The resulting accident could cause serious injury or death.*

**DANGER**

***Loss of Control Hazard:***

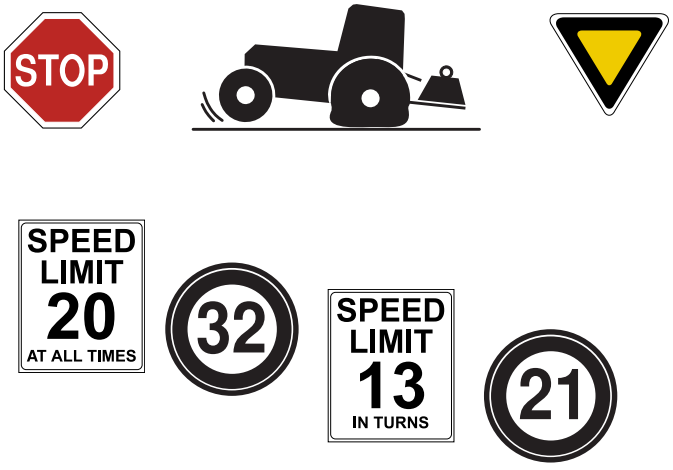
*Use an adequate towing vehicle. Never tow an implement that weighs more than 150% of the towing vehicle (transport vehicle must weigh at least 67% of implement). Ensure that the towing vehicle is adequate for the task. Using an inadequate tow vehicle is extremely unsafe, and can result in loss of control, serious injury and death.*

**CAUTION**

***Braking and Loss of Control Hazard:***

*Do not exceed 20 mph (32 km/h) when driving straight. Slow down on rough roads.*

*Do not exceed 13 mph (21 km/h) in turns. The weight of the Ultra Chisel can cause under-steer, and the height of the Ultra Chisel is a tipping hazard.*



## Lift Cylinder (Transport) Locks

***Refer to Figure 10 and Figure 11***

Two lock channels ① can hold the implement at raised for transport, storage and maintenance.

🕮 The lift cylinders are inconvenient to access when the Ultra Chisel is unfolded. Great Plains recommends performing lift cylinder lock steps with the implement folded and with wings locked.

**To Install Lift Lock Channels**

1. Raise the Ultra Chisel and fold the wings (page 20). Leave the lift circuit at Neutral to hold at lift.
2. Secure the wings with lock pins.
3. Remove the lock channels (1) from their storage location.
4. With the pin (2) free, place each lock channel over a lift cylinder rod. Secure with pin.
5. Slowly move the remote lever to Float to settle the implement onto the channel.
6. Set the lift circuit to Neutral after settling on lock channels.

**To Remove Lift Lock Channels**

A tractor or suitable hydraulic power source must be connected for these steps.

1. If the implement is unfolded and/or lowered, raise and fold it (page 19).
2. Secure the wings with lock pins.
3. Extend the lift circuit to raise the implement completely. Set the circuit to Neutral to hold at full lift.
4. Remove the pin (2) from each lock channel (1). Remove the channel.
5. Transfer to the storage tube weldment that is located on the top of the center frame. Secure with pin.

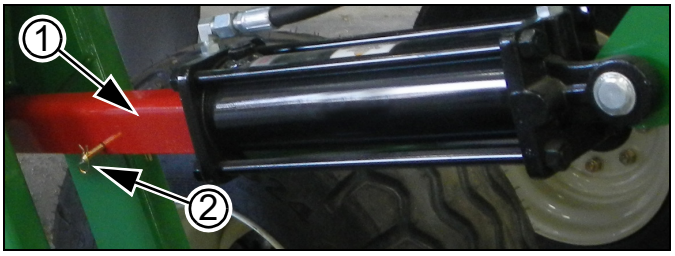



Figure 10 36513
Lift Lock Channel Installed


Figure 11 43880
Transport Lock Storage

## General Operation and In-Field Adjustments

6. Remove the transport pins and unfold machine. Make sure the fold cylinders are fully extended to allow the wings to fully flex in the field.
7. If possible have someone observe the machine during first time operation for levelness, front to rear and wings to center frame. Adjust each as needed. For front to rear, either extend or shorten the length of the turnbuckle on the gauge wheels. Never run the machine with the back lower (deeper) than the front. To adjust the machine from side to side, use the turnbuckle on each wing, See "**First Time Field Adjustments**" on page 17.
8. The ideal working speed for the Ultra Chisel is 5 to 7 mph. Working too slow may cause plugging, poor incorporation or mixing of crop residue and reduced weed kill. Running too fast may cause streaks in chemical incorporation and ridging.
9. The Ultra Chisel is designed as a primary tillage tool. For best results, if at all possible, run the machine at a slight angle of the rows. This will improve trash flow and help spread the residue more evenly throughout the field.
10. When you have the machine set to the desired working depth, set the depth stop assembly on the depth control bar. This is located at the front of the machine on the brace bar.
11. Screw the depth stop in to run shallower. Screw the depth stop out to run deeper. 1 turn = $\frac{1}{4}$" working depth. This will maintain a constant depth each time after raising and lowering the machine.
12. If after setting the depth stop, on a tractor that has a mechanical detent, the detent on the tractor kicks out before the stop contacts the button on the depth stop, slow the hydraulic flow speed down. If your tractor is equipped with a timing detent, set the timer to $\frac{1}{2}$ - 1 second longer than it takes to fully raise the machine from the working depth. If the problem persists, contact the factory service representative for the possible adjustments. Do not adjust the rebound valve without first contacting the factory service rep.
13. If your implement is fitted with a drag attachment then adjust the drag to leave the desired results while maintaining the trash flow through the drag. See "**Rear Attachment Settings**" on page 26.

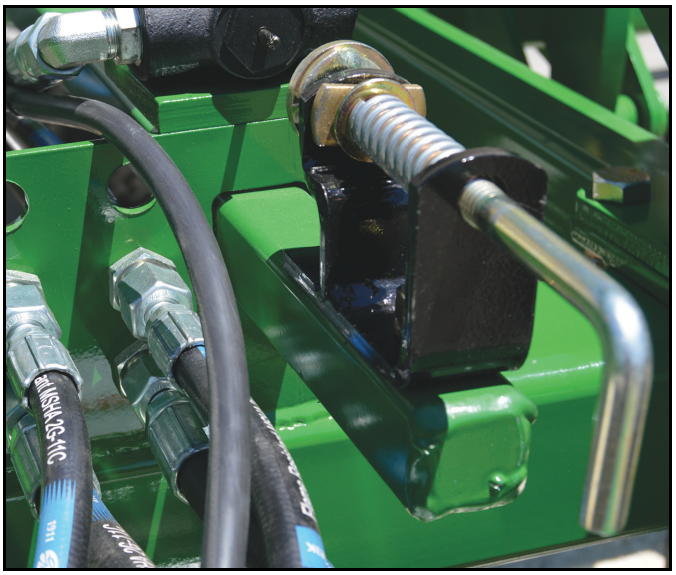


Figure 12 43544
Depth Stop

## Field Operations

These steps presume that the Ultra Chisel is:

- adjusted for desired operating depth (page 23),
- wing depth is adjusted (page 17), and
- attachments are adjusted.

1. Line up the tractor and implement for the first pass.
2. Raise the Ultra Chisel completely (page 19). Set all remotes to Neutral. Shut off the tractor. Remove the key.
3. Remove and store the transport locks (page 22).
4. Restart the tractor. Unfold the wings to level with the mainframe.
5. Retract the lift circuit to lower the implement until the depth stop system engages to lock the lift system. Set the circuit to Neutral.
6. Pull forward at intended field speed for a short distance. Assess machine level, operating depth and field results

   Certain field conditions can cause the Ultra Chisel to vary from center to wings and front to rear when being pulled through the ground. A final adjustment may need to be made to the Ultra Chisel.

   If the center is running deeper because of it following the tractor in soft soil, the wings may need to be set in slightly deeper (with the wing down pressure) and then the entire machine set slightly shallower (with the depth stop).

This implement is designed to be pulled in the lowered field position (including wide turns). Lifting for short distances to clear residue clogs is acceptable. Lifting for tight turns or reverse moves is required.

**NOTICE**

***Equipment Damage Risk:***
*The wing fold circuit must be operated in active down-pressure*
*or Float. Operating in Neutral will result in damage to the hydraulic system.*

**NOTICE**

***Equipment Damage Risk:***
*Lift for tight turns and reverse moves. Tight turns can result in a section moving backward. Never back up with chisels in the ground. If the inside tire stops or rolls backward, the turn is tight and requires lift.*

# Field Checklists

Use the following tables to develop a final checklist for your tractor/Ultra Chisel configuration. Additional or fewer steps may be necessary depending on tractor features, options and accessories.

| Mechanical Checklist | Page |
|---|---|
| Ultra Chisel hitched with correct category hitch | 12 |
| Hitch pin locked | - |
| Safety chains secured to tractor or leading implement | 15 |
| Parking jack stowed | 15 |
| Check all tire pressures | 33 |
| Transport locks (fold and lift) remove and stowed. | 20 |

| Electrical Checklist | Page |
|---|---|
| Verify electrical hookup solid. | 15 |

| Hydraulic System Checklist | Page |
|---|---|
| Check tractor hydraulic reservoir within operating limits | - |
| Make hydraulic connections | 15 |
| Inspect connections for leaks | - |
| Unfold Implement | 20 |
| Raise the Ultra Chisel completely to re-phase the hydraulic circuit before starting field work | |

| First Pass Operation Checklist | Page |
|---|---|
| Implement unfolded and aligned for first pass. | 20 |
| Pull forward, lower Ultra Chisel. | 24 |
| Begin chiseling for a short distance. | - |
| Stop. Assess:<br>• working depth<br>• finishing attachment operation | - |
| Make necessary adjustments | 23 |

| | Sharp Field Turns Checklist | Page |
|---|---|---|
| 1. | Raise Ultra Chisel | - |
| 2. | Make turn | - |
| 3. | Lower Ultra Chisel | - |
| 4. | Resume tilling. | - |

**NOTICE**

***Equipment Damage Risk:***
*Do not make short radius turns with the implement in the ground.*

🕮 If you stop in the middle of a pass, raise the implement and back up 10 feet (3 meters) before resumption of working.

| | Ending Tilling Checklist | Page |
|---|---|---|
| 1. | Suspend operations as above | - |
| 2. | Lift implement | - |
| 3. | Set tractor for fold | 20 |
| 4. | Fold wings | 20 |
| 5. | Place transport locks in transport position | 22 |
| 6. | Lower implement on to transport locks | - |
| 7. | Lights ON for transport | - |
| 8. | Travel with caution | - |

# Rear Attachment Settings

## Spike Drag Settings

***Refer to Figure 13***

1. On the spike drag, start with 5 links hanging from the chain in drag arm bottom slot. (This is the starting point for worst conditions). The cleaner the ground, the shorter the pull chain may be pulled up. On the spike drag, the links in the first row of angles are turned over (1). This allows the trash to start flowing through the drag easier by changing the angle of the first row of teeth. Always make sure that the drag is never pulling off of the hang chains. If so, shorten pull chains.

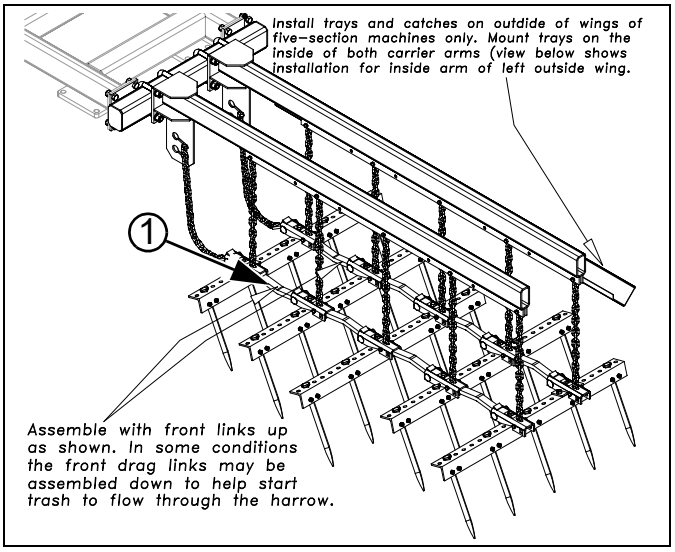



Figure 13 41235
Spike Drag Settings

## Heavy Coil Tine Settings

***Refer to Figure 14***

2. To adjust down pressure loosen the jam nut (2), and screw the spring bolt (3), in to put more down pressure on the drag, or adjust the bolt out to have less down pressure. Re-tighten the jam nut (2), to secure your adjustments. The spring will be pre-set to 3 - 3 1/2" of bolt left to adjust.
3. To change angle of coil tine, rotate the locking pin (4) and move the adjustment lever (5) forward or backwards. Moving the lever forwards towards the front of the machine will allow residue to flow through the drag easier. Moving the lever backwards away from machine makes the drag more aggressive.The adjustment lever has 4 positions and will change the coil tines several degrees.
4. Rotate the locking pin (3), back to its engaged position when the desired angle is set.

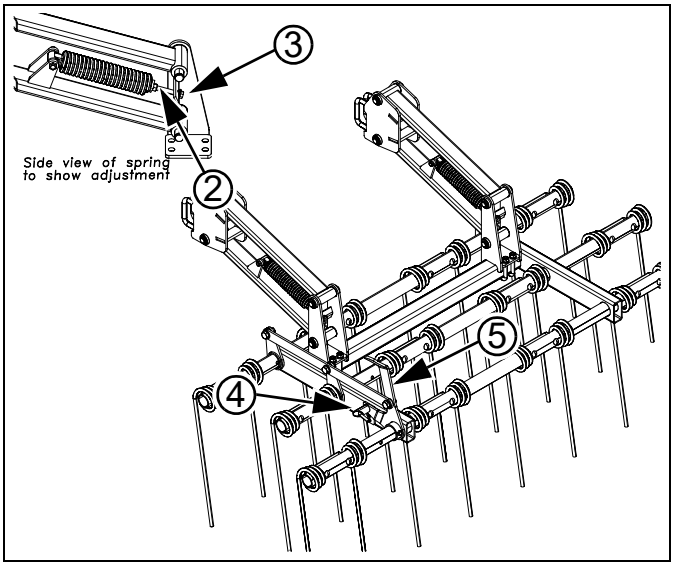



Figure 14 43422
Heavy Coil Tine Adjustment Lever

## Reel Settings

***Refer to Figure 15***

5. If a reel is added, adjust the amount of down pressure by either shortening the spring for less pressure or lengthening for more pressure.
6. Adjust nut (1) to where spring (2) is just making contact with front plate (3).
7. Turn nut (1) another 1” further on spring rod (4) to set pre-load on spring (2).

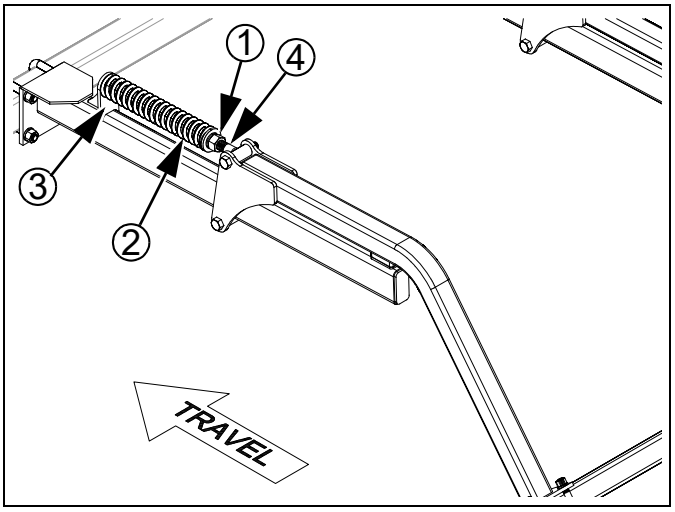



Figure 15 43542
Reel Arm Adjustments

***Refer to Figure 16***

8. The bars on the reels are angled forward ⑤ and should be installed as such on the machine. In some conditions in which a firming of the soil is more desirable than breaking up clods then these reels can be mounted in reverse (6). This does however increase the chance of causing damage to the bars in rocky soil.

**⚠ WARNING**

*Be sure reels are installed with twisted bars oriented forward* (5) *as shown. Mounting in reverse* (6) *can damage reel in rocky soil.*

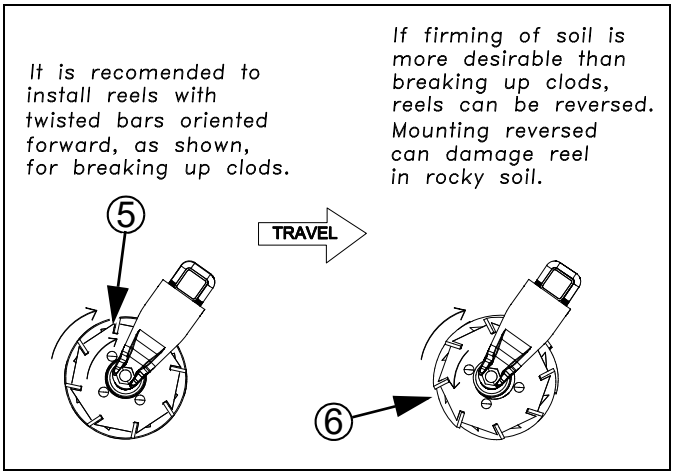



Figure 16 42284
Reel Direction

## Parking

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

9. For long-term parking, see also "**End of Season Storage**" below.
10. Choose a parking location that 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.
11. Lower the implement to just above ground. Shut off the tractor and remove the key.
12. Unplug implement hydraulic hoses and electrical lines from tractor.
13. Unhook the safety chain.
14. Remove the hitch pin.

## End of Season Storage

15. Park the implement at the storage location as per "**Parking**" above. Secure tires with blocks.
16. Clean machine as much as possible. Remove all dirt from rust prone parts like hinge points, turnbuckles and bolt threads.
17. Check all bolts for tightness. Tighten as needed.
18. Check over the machine for damaged or worn parts. Replace or rotate worn parts as needed--hinge bolts, clevis pins, bearings, etc. Make repairs and service during the off season.
19. Check and tighten or replace any hydraulic leaks. Check hoses for any leaks.
20. The wheel bearings should be cleaned and repacked annually or every 2500 acres.
21. Use spray paint to cover scratches, chips and worn areas on the implement to protect the metal.
22. Lubricate areas noted under "**Lubrication**" beginning on page 30. If stored outside, place a protective coating of grease or "plow paint" on all earth working parts and cylinder rods to prevent rusting.
23. If you are storing the Ultra Chisel unfolded, remove fold cylinder clevis bolts, block up cylinder and fully retract cylinder rods. This will extend the life of the cylinder seals and reduce internal leaks.
24. Cover with a tarp if stored outside.

## Beginning of Season

25. Hitch the tractor to the Ultra Chisel and connect the hydraulic hoses.
26. Check fold and lift cylinders for leaks that could have caused air to enter cylinders. If leaks are noticed repair cylinders and fully purge air from cylinders by unpinning cylinder, block up and fully cycle cylinders back and forth several times.

**DANGER**

*Unfolding machine with air in cylinders may cause death or major machine damage. Pin cylinders to wings and slowly unfold machine.*

27. If Cylinders were stored with rods retracted, extend cylinders and reinstall clevis bolts.
28. Slowly raise the machine a couple of times to its full height and hold lever for 10 to 15 seconds to purge air from lift cylinders.
29. If machine was not serviced and greased at end of last season, perform steps 16 - 22 from "**End of Season Storage**" section.
30. Make sure all moving parts move freely and do not bind.
31. Take the time to read the operators manual and refresh yourself with the safety information and operating instructions.
32. It is the owner's responsibility to see that all operators of the Ultra Chisel know the safety and operating information found in this manual.

# Maintenance and Lubrication

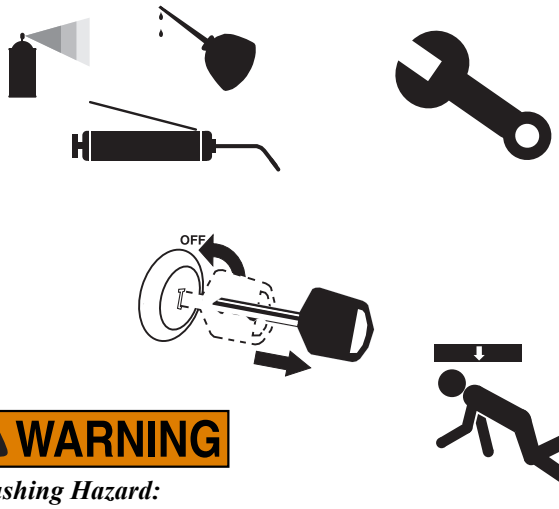
## Maintenance

Proper servicing and maintenance is the key to long implement life. With careful and systematic inspection, you can avoid costly maintenance, downtime, and repair.

Always turn off and remove the tractor key before making any adjustments or performing any maintenance.

1. After using your Ultra Chisel for several hours, check all bolts to be sure they are tight.
2. Clean Ultra Chisel on a regular basis. Regular and thorough cleaning will lengthen equipment life and reduce maintenance and repair.
3. Lubricate areas listed under "**Lubrication**" on page 30.
4. Replace any worn, damaged, or illegible safety labels by obtaining new labels from your Great Plains dealer.
5. Always use the manual U-channel transport locks when working on or doing maintenance to the Ultra Chisel. Read and understand all safety decals on your equipment.
6. During the first season of operation, and periodically after that, check your bolts for tightness. Check chisel uprights for wear to bolts. Tighten or replace as needed.
7. Replace or rotate worn parts as needed -- hinge bolts, clevis pins, bearings, blades, etc.
8. Check and tighten any hydraulic leaks. Check hoses for any leaks replace any leaking hoses. It is important that there are no leaks on the equipment.
9. Check attachment bolts for looseness or excessive wear. Your attachment is an important part of the tillage operation.

By following and maintaining a routine service and lubrication program, your tillage equipment will give you many years of service.




**WARNING**

***Crushing Hazard:***

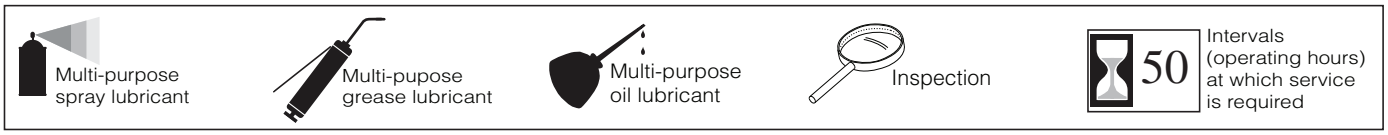
*Always have transport locks in place and frame sufficiently blocked up when working on implement. You may be severely injured or killed by being crushed under the falling implement.*

**WARNING**

*High Pressure Fluid Hazard:*

*Check all hydraulic lines and fittings before applying pressure. Fluid escaping from a very small hole can be almost invisible. Use paper or cardboard, not body parts, and wear heavy gloves to check for suspected leaks. Escaping fluid under pressure can have sufficient pressure to penetrate the skin. If an accident occurs, seek immediate medical assistance from a physician familiar with this type of injury.*

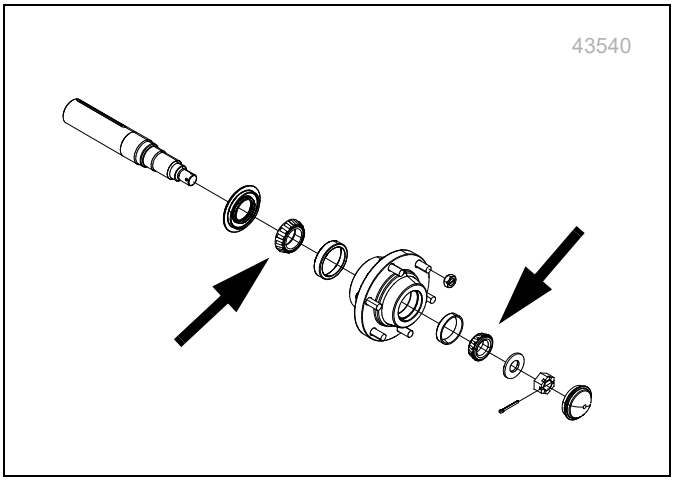
# Lubrication




### Wheel Bearing Hubs


Inspect bearings for end play Annually. If excessive endplay exists it tis recommended to disassemble, clean and repack the wheel bearings.

For machines stored outdoors or operating in extreme conditions bearings should be checked more often.




### All Turnbuckles andThreaded Adjustments


Overall Machine Maintenance;

Type of Lubrication: Multipurpose Lubricant
Quantity: Coat thoroughly.

# Troubleshooting

## Ultra Chisel Trouble Shooting

### General Performance

| Problem | Solution |
|---|---|
| **Wing Wheels not Retracting or Extending** | Check that the retract wiring harness is plugged into keyed power. |
| | Check that the 15amp in wheel Retract Relay fuse is not blown. |
| | Check that the hydraulic lines are connected and routed properly. |
| | Check that the valves and proximity sensor is plugged into appropriate electrical connections. |
| | Check that the sensor is in the correct location and has the proper clearance. See Layout section of Pre-Delivery Manual. |
| | Check that sensors red light indicators is lit when engaged. |
| **Wings not folding properly** | Check that electrical wiring harness is plugged into keyed power. |
| | Check that the 15amp in Wheel Retract Relay fuse is not blown. |
| | Check that the hydraulic lines are connected and routed properly. |
| **Only Power light is lit in Wheel Retract Relay, Wheels will not retract** | Check that the 15amp in Wheel Retract Relay fuse is not blown. |
| | Check for Red indicator light on sensor when engaged, if no light, check if power to Wheel Retract Relay green power light will not be on for center and wing. |
| **Solenoid is not powered** | Coil can be checked with a metal object for magnetism, if all the above items have been checked and no power at the coil, coil is bad and needs replaced. |

# Appendix A - Reference Information

## Specifications and Capacities

| Model No. | 6539UC | 6541UC |
|---|---|---|
| Tillage Width (9" Spacing) | 38' 3" (11.66m) | 39' 9" (12.12m) |
| Tillage Width (12" Spacing) | 39' 0" (11.89m) | 41' (12.5m) |
| Number of Shanks 9" Spacing | 51 | 53 |
| Number of Shanks 12" Spacing | 39 | 41 |
| Under Frame Clearance | 30" | 30" |
| Maximun Working Depth | 8" | 8" |
| Transport Width | 16'1" | 16'1" |
| Transport Height (9" Spacing) | 13'3" | 13'3" |
| Transport Height (12" Spacing) | 13'5" | 13'5" |
| Tire - Transport | 380/55R16.5 | 380/55R16.5 |
| Tire - Wing | 12.5L x 15 | 12.5L x 15 |
| Tire - Gauge Wheel | 11L x 15 | 11L x 15 |
| Horsepower (PTO Req/Min) | 330 - 430 | 330 - 450 |
| Kilowatt | 245-320 | 245 - 335 |

| Model No. | 6543UC | 6545UC |
|---|---|---|
| Tillage Width (9" Spacing) | 42' 9" (13m) | 45' 9" (13.9m) |
| Tillage Width (12" Spacing) | 43' (13.1m) | 45' (13.7m) |
| Number of Shanks 9" Spacing | 57 | 61 |
| Number of Blades 12" Spacing | 43 | 45 |
| Under Frame Clearance | 30" | 30" |
| Maximum Working Depth | 8" | 8" |
| Transport Width | 16' 1" | 16' 1" |
| Transport Height (9" Spacing) | 13' 8" | 13' 8" |
| Transport Height (12" Spacing) | 13' 10" | 13' 10" |
| Tire - Transport | 380/55R16.5 | 380/55R16.5 |
| Tire - Wing | 12.5L x 15 | 12.5L x 15 |
| Tire - Gauge Wheel | 11L x 15 | 11L x 15 |
| Horsepower (PTO Req/Min) | 345 - 480 | 360 - 515 |
| Kilowatt | 260 - 360 | 270 - 385 |

## Tire Inflation Chart

| Tire Inflation Chart | | |
|---|---|---|
| Wheel | Tire Size | Inflation |
| Center Transport | 380/55 r 16.5 | 73 psi (503 kPa) |
| Wing | 12.5L x 15 12-Ply RI | 52 psi (358 kPa) |
| Gauge Wheel | 11L x 15 12-Ply RI | 52 psi (358 kPa) |

**Tire Warranty Information**

All tires are warranted by the original manufacturer of the tire. Tire warranty information is found in the brochures included with your Operator's and Parts Manuals or online at the manufacturer's web sites listed below. For assistance or information, contact your nearest Authorized Farm Tire Retailer.

| Manufacturer | Web site |
|---|---|
| Firestone | www.firestoneag.com |
| Gleason | www.gleasonwheel.com |
| Titan | www.titan-intl.com |
| Galaxy | www.atgtire.com |
| BKT | www.bkt-tire.com |

## Hydraulic Connectors and Torque

***Refer to Figure 17 (a hypothetical fitting)***

Leave any protective caps in place until immediately prior to making a connection.

**NPT** - National Pipe Thread
Note tapered threads, no cone/flare, and no O-ring.

1 Apply liquid pipe sealant for hydraulic applications. Do not use tape sealant, which can clog a filter and/or plug an orifice.

**JIC** - Joint Industry Conference (SAE J514)
Note straight threads (4) and the 37· cone (5) on "M" fittings

2 (or 37· flare on "F" fittings).

Use no sealants (tape or liquid) on JIC fittings.

**ORB** - O-Ring Boss (SAE J514)
Note straight threads (5) and elastomer O-Ring (7).

Prior to installation, to prevent abrasion during tightening, lubricate O-Ring with clean hydraulic fluid.

3 Use no sealants (tape or liquid) on ORB fittings.

ORB fittings that need orientation, such as the ell depicted, also have a washer (8) and jam nut (9) ("adjustable thread port stud"). Back jam nut away from washer. Thread fitting into receptacle until O-Ring contacts seat. Unscrew fitting to desired orientation. Tighten jam nut to torque specification.

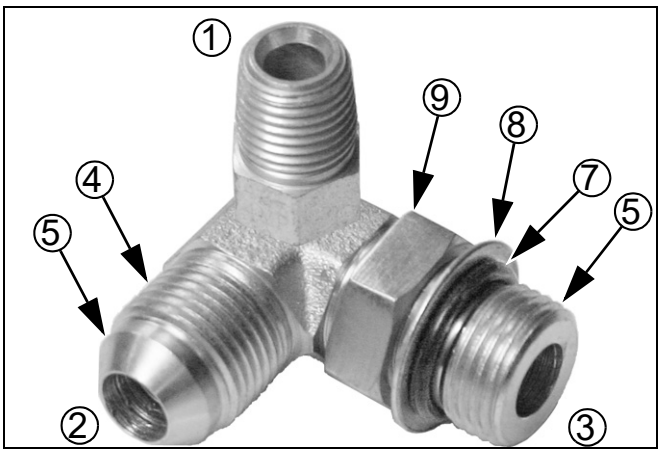



Figure 17 31282
Hydraulic Connector ID

| Fittings Torque Values | | | |
|---|---|---|---|
| Dash Size | Fitting | N-m | Ft-Lbs |
| -4 | 1/4-18 NPT | 1.5-3.0 turns past finger tight | |
| -5 | 1/2-20 JIC | 19-20 | 14-15 |
| -5 | 1/2-20 ORB w/jam nut | 12-16 | 9-12 |
| -5 | 1/2 -20 ORB straight | 19-26 | 14-19 |
| -6 | 9/16-18 JIC | 24-27 | 18-20 |
| -6 | 9/16-18 ORB w/jam nut | 16-22 | 12-16 |
| -6 | 9/16-18 ORB straight | 24-33 | 18-24 |
| -8 | 3/4 -16 JIC | 37-53 | 27-39 |
| -8 | 3/4 -16 ORB w/jam nut | 27-41 | 20-30 |
| -8 | 3/4-16 ORB straight | 37-58 | 27-43 |

# Torque Values Chart

| Bolt Size | Bolt Head Identification | | | | | |
|---|---|---|---|---|---|---|
| |  Grade 2 | |  Grade 5 | |  Grade 8 | |
| in-tpi[a] | N-m[b] | ft-lb[d] | N-m | ft-lb | N-m | ft-lb |
| 1/4-20 | 7.4 | 5.6 | 11 | 8 | 16 | 12 |
| 1/4-28 | 8.5 | 6 | 13 | 10 | 18 | 14 |
| 5/16-18 | 15 | 11 | 24 | 17 | 33 | 25 |
| 5/16-24 | 17 | 13 | 26 | 19 | 37 | 27 |
| 3/8-16 | 27 | 20 | 42 | 31 | 59 | 44 |
| 3/8-24 | 31 | 22 | 47 | 35 | 67 | 49 |
| 7/16-14 | 43 | 32 | 67 | 49 | 95 | 70 |
| 7/16-20 | 49 | 36 | 75 | 55 | 105 | 78 |
| 1/2-13 | 66 | 49 | 105 | 76 | 145 | 105 |
| 1/2-20 | 75 | 55 | 115 | 85 | 165 | 120 |
| 9/16-12 | 95 | 70 | 150 | 110 | 210 | 155 |
| 9/16-18 | 105 | 79 | 165 | 120 | 235 | 170 |
| 5/8-11 | 130 | 97 | 205 | 150 | 285 | 210 |
| 5/8-18 | 150 | 110 | 230 | 170 | 325 | 240 |
| 3/4-10 | 235 | 170 | 360 | 265 | 510 | 375 |
| 3/4-16 | 260 | 190 | 405 | 295 | 570 | 420 |
| 7/8-9 | 225 | 165 | 585 | 430 | 820 | 605 |
| 7/8-14 | 250 | 185 | 640 | 475 | 905 | 670 |
| 1-8 | 340 | 250 | 875 | 645 | 1230 | 910 |
| 1-12 | 370 | 275 | 955 | 705 | 1350 | 995 |
| 1 1/8-7 | 480 | 355 | 1080 | 795 | 1750 | 1290 |
| 1 1/8-12 | 540 | 395 | 1210 | 890 | 1960 | 1440 |
| 1 1/4-7 | 680 | 500 | 1520 | 1120 | 2460 | 1820 |
| 1 1/4-12 | 750 | 555 | 1680 | 1240 | 2730 | 2010 |
| 1 3/8-6 | 890 | 655 | 1990 | 1470 | 3230 | 2380 |
| 1 3/8-12 | 1010 | 745 | 2270 | 1670 | 3680 | 2710 |
| 1 1/2-6 | 1180 | 870 | 2640 | 1950 | 4290 | 3160 |
| 1 1/2-12 | 1330 | 980 | 2970 | 2190 | 4820 | 3560 |

| Bolt Size | Bolt Head Identification | | | | | |
|---|---|---|---|---|---|---|
| |  Class 5.8 | |  Class 8.8 | |  Class 10.9 | |
| mm x pitch[c] | N-m | ft-lb | N-m | ft-lb | N-m | ft-lb |
| M 5 X 0.8 | 4 | 3 | 6 | 5 | 9 | 7 |
| M 6 X 1 | 7 | 5 | 11 | 8 | 15 | 11 |
| M 8 X 1.25 | 17 | 12 | 26 | 19 | 36 | 27 |
| M 8 X 1 | 18 | 13 | 28 | 21 | 39 | 29 |
| M10 X 1.5 | 33 | 24 | 52 | 39 | 72 | 53 |
| M10 X 0.75 | 39 | 29 | 61 | 45 | 85 | 62 |
| M12 X 1.75 | 58 | 42 | 91 | 67 | 125 | 93 |
| M12 X 1.5 | 60 | 44 | 95 | 70 | 130 | 97 |
| M12 X 1 | 90 | 66 | 105 | 77 | 145 | 105 |
| M14 X 2 | 92 | 68 | 145 | 105 | 200 | 150 |
| M14 X 1.5 | 99 | 73 | 155 | 115 | 215 | 160 |
| M16 X 2 | 145 | 105 | 225 | 165 | 315 | 230 |
| M16 X 1.5 | 155 | 115 | 240 | 180 | 335 | 245 |
| M18 X 2.5 | 195 | 145 | 310 | 230 | 405 | 300 |
| M18 X 1.5 | 220 | 165 | 350 | 260 | 485 | 355 |
| M20 X 2.5 | 280 | 205 | 440 | 325 | 610 | 450 |
| M20 X 1.5 | 310 | 230 | 650 | 480 | 900 | 665 |
| M24 X 3 | 480 | 355 | 760 | 560 | 1050 | 780 |
| M24 X 2 | 525 | 390 | 830 | 610 | 1150 | 845 |
| M30 X 3.5 | 960 | 705 | 1510 | 1120 | 2100 | 1550 |
| M30 X 2 | 1060 | 785 | 1680 | 1240 | 2320 | 1710 |
| M36 X 3.5 | 1730 | 1270 | 2650 | 1950 | 3660 | 2700 |
| M36 X 2 | 1880 | 1380 | 2960 | 2190 | 4100 | 3220 |

a. in-tpi = nominal thread diameter in inches-threads per inch
b. N· m = newton-meters
c. mm x pitch = nominal thread diameter in mm x thread pitch
d. ft-lb = foot pounds

Torque tolerance + 0%, -15% of torquingvalues. Unless otherwise specified use torquevalues listed above. 25199

| Torque Values Chart | |
|---|---|
| Wheel Bolt Torque Values | 1/2”-20 (75-85ft-lbs) |
| Wheel Bolt Torque Values | 9/16”-18 (80-90ft-lbs) |
| Wheel Bolt Torque Values | 5/8”-18 (85-100ft-lbs) |

"Harvest Starts Here."

# WARRANTY

Great Plains (a division of Great Plains Manufacturing, Inc.) warrants to the original purchaser that this Great Plains machine will be free from defects in material and workmanship for a period of one year (Parts & Labor) from the first use date when used as intended for personal use; ninety days for custom/commercial or rental use.

Second year limited warranty covers Parts ONLY (personal usage only, excluding labor and wear items). This warranty is limited to the replacement of any defective part by Great Plains. Great Plains reserves the right to inspect any equipment or part which are claimed to have been defective in material or workmanship.

The following items and/or conditions are **NOT COVERED UNDER WARRANTY:** Failures resulting from the abuse or misuse of the equipment, failures occurring as a result of accidental damage or Force Majeure, failures resulting from alterations or modifications, failures caused by lack of normal maintenance as outlined in the operator's manual, repairs made by non-authorized personnel, items replaced or repaired due to normal wear (such as wear items and ground-engaging components including, but not limited to, disc blades, chisel points, tires, bushings, and scrapers), repeat repair due to improper diagnosis or improper repair by the dealer, temporary repairs, service calls and/or mileage to and from customer location, overtime premium, or unit hauling expenses. The warranty may be voided if the unit is towed at speeds in excess of 20 miles per hour (32 kilometers per hour), or failures occurring from soils with rocks, stumps, or other obstructions.

Great Plains reserves the right to make changes in materials or design of the product at any time without notice. The warranty shall not be interpreted to render Great Plains liable for damages of any kind, direct or consequential or contingent to property. Furthermore, Great Plains shall not be liable for damages resulting from any cause beyond its control. This warranty does not extend to crop loss, losses caused by planting or harvest delays or any expense or loss of labor, supplies, rental machinery, or for any other reason.

**No other warranty of any kind whatsoever expressed or implied, is made with respect to this sale; and all implied warranties of merchantability and fitness for a particular purpose which exceed the obligations set forth in this written warranty are hereby disclaimed and excluded from this sale.**

This warranty is not valid unless registered by a certified Great Plains dealer.

Effective July 15, 2020

# Index


A
amber reflectors ..... 5
attachment bolts ..... 29
B
bolts ..... 29
C
capacities ..... 32
CAUTION, defined ..... 1
chain ..... 15
chain routing ..... 33
channel, lock ..... 22
check for leaks ..... 15
checklists
  electrical ..... 15, 25
  ending tilling ..... 25
  field ..... 25
  field turns ..... 25
  first pass ..... 25
  hydraulic system ..... 25
  mechanical ..... 25
  pre-setup ..... 11
  pre-start ..... 18
  transport ..... 21
children ..... 2
clearance, vertical ..... 20
color code, hose handle ..... 15
connectors
  electrical ..... 15
covered models ..... 9
customer service ..... 10
cylinder symbols ..... 16
D
DANGER, defined ..... 1
daytime reflectors ..... 5
decal replacement ..... 4
decals
  caution
    general instructions ..... 8
  danger
    electrocution ..... 6
    hitch crush ..... 6
  warning
    high pressure fluid hazard ..... 7
    pinching crushing ..... 7, 8
    pinch/crush ..... 6
decal, safety ..... 4
definitions ..... 9
directions ..... 9
disconnecting hydraulic lines ..... 15
E
electrocution ..... 3, 6, 20
F
fire ..... 1
first pass ..... 24
folding ..... 20
G
gray, hose handle ..... 16
green, hose handle ..... 16
H
headphones ..... 1
high pressure fluid ..... 7
high pressure fluids ..... 2
hills ..... 14
hitch pin ..... 21
hitching ..... 14
hose color code ..... 15
hoses, hydraulic ..... 15
hydraulic connectors ..... 33
hydraulic hookup ..... 15
hydraulic safety ..... 2
I
implement ..... 9
inflation ..... 33
intended usage ..... 9
J
JIC ..... 33
J514 ..... 33
L
LC40 ..... 9
leak checks ..... 15
leaks ..... 2, 29
left-hand, defined ..... 9
leveling ..... 12, 17
level, center frame ..... 12
level, wings ..... 17
lift ..... 19
lift cylinder lock ..... 22
lighting ..... 15
lights ..... 2
lock
  lift cylinder ..... 22
lower ..... 19
lubrication ..... 30
M
maintenance ..... 29
maintenance safety ..... 3
medical assistance ..... 2, 18, 29
model number ..... 10
models covered ..... 9
N
National Pipe Thread ..... 33
Notice Decals ..... 8
NOTICE, defined ..... 9
NPT ..... 33
O
ORB ..... 33
orientation rose ..... 9
O-Ring Boss ..... 33
overhead lines ..... 3
owner assistance ..... 10
P
parts ..... 29
pin, hitch ..... 21
PPI-203VR, block ..... 12
PPI-205H, cushion ..... 12
PPI-302V, plate ..... 12
protective equipment ..... 1
R
raise ..... 19
red reflectors ..... 5
reel ..... 27
reflectors
  amber ..... 5
  daytime ..... 5
  red ..... 5
  SMV ..... 4
reflectors, safety ..... 4
repair parts ..... 10
reverse ..... 24
riders ..... 2
right-hand, defined ..... 9
rose, orientation ..... 9
S
SAE J514 ..... 33
safety chain ..... 15
safety decal ..... 4
safety information ..... 1
safety symbol ..... 1
serial number ..... 10
setup ..... 11
shutdown ..... 3
slopes ..... 14
SMV (Slow Moving Vehicle) ..... 4
specifications ..... 32
speed limits, transport ..... 21
spike drag ..... 26
stops ..... 25
storage ..... 3
symbol, safety ..... 1
T
tables
  covered models ..... 9
  fittings torque ..... 33
  hose color code ..... 16
  tire inflation ..... 33

tires ..... 33
tight turn ..... 24
tilling, ending ..... 25
tire inflation ..... 33
torque ..... 34
torque values chart (wheel bolts) ..... 34
transport ..... 21
transport lock ..... 29
transport lock, storage ..... 22
transport speed ..... 2
transporting ..... 21
troubleshooting
general ..... 31
turns ..... 24

## U

unfolding ..... 20
URLs, tires ..... 33

## V

vertical clearance ..... 3, 20

## W

WARNING, defined ..... 1
warranty, tire ..... 33
welding ..... 3
www ..... 33

## Numerics

12.5Lx15 SL ..... 33
20 mph ..... 2
2013- ..... 16
2014+ ..... 16
30x8.8x15 ..... 33
32 km/h ..... 2
560-484Q, manual ..... 9
591-049M, manual ..... 9
591-049P, manual ..... 9
802-383C, bolt ..... 12
802-487C, bolt ..... 12
803-367C, nut ..... 12
818-055C, reflector ..... 4
818-094C, decal ..... 7
838-598C, decal ..... 8
838-599C, decal ..... 6
838-600C, decal ..... 6
838-602C, decal ..... 7
838-603C, reflector ..... 5
838-606C, decal ..... 7
838-611C, decal ..... 6
838-612C, decal ..... 8
838-613C, decal ..... 8
838-614C, reflector ..... 5
838-615C, reflector ..... 5
890-798C, clevis ..... 12


**Great Plains, Mfg.**
1525 E. North St.
P.O. Box 5060
Salina, KS 67402