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# Operator Manual

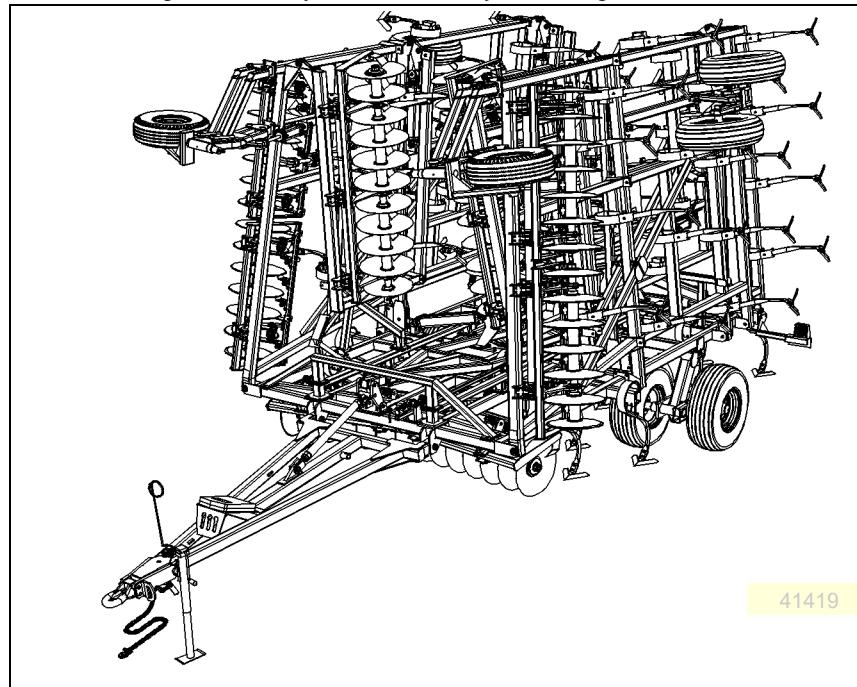
Discovator (Disc & Coulter)  
Series VIII 8321, 8324, 8326, 8328,  
8333, 8537, 8544, 8548 & 8552



[www.greatplainsmfg.com](http://www.greatplainsmfg.com)



*Read the operator's 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 optional equipment not supplied with standard unit.*

ORIGINAL INSTRUCTIONS

EN

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550-353M

## 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.

<b>Model Number</b>	
<b>Serial Number</b>	
<b>Machine Height</b>	
<b>Machine Length</b>	
<b>Machine Width</b>	
<b>Machine Weight</b>	
<b>Year of Construction</b>	
<b>Delivery Date</b>	
<b>First Operation</b>	
<b>Accessories</b>	<hr/> <hr/> <hr/>

## Dealer Contact Information

**Name:** \_\_\_\_\_

**Street:** \_\_\_\_\_

**City/State:** \_\_\_\_\_

**Telephone:** \_\_\_\_\_

**Email:** \_\_\_\_\_

**Dealer's Customer No.:** \_\_\_\_\_



**WARNING:** Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)



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## 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 5, thoroughly.
- ▲ Read all instructions noted on the decals.
- ▲ Keep decals clean. Replace damaged, faded and illegible decals.



## Wear Protective Equipment

- ▲ Wear protective clothing and equipment.
- ▲ Wear clothing and equipment appropriate for the job. Avoid loose-fitting clothing.
- ▲ Because prolonged exposure to loud noise can cause hearing impairment or hearing loss, wear suitable hearing protection such as earmuffs or earplugs.
- ▲ Because operating equipment safely requires your full attention, avoid wearing entertainment headphones while operating machinery.



## Handle Chemicals Properly

Agricultural chemicals can be dangerous. Improper use can seriously injure persons, animals, plants, soil and property.

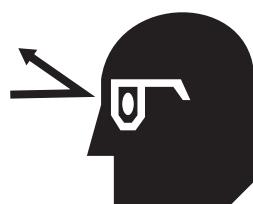
- ▲ Read and follow chemical manufacturer's instructions.
- ▲ Wear protective clothing.
- ▲ Handle all chemicals with care.
- ▲ Avoid inhaling smoke from any type of chemical fire.
- ▲ Store or dispose of unused chemicals as specified by chemical manufacturer.



## Avoid High Pressure Fluids

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

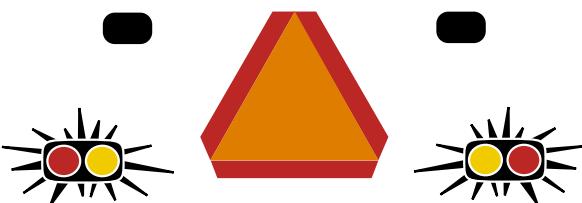
- ▲ Avoid the hazard by relieving pressure before disconnecting hydraulic lines.
- ▲ Use a piece of paper or cardboard, NOT BODY PARTS, to check for suspected leaks.
- ▲ Wear protective gloves and safety glasses or goggles when working with hydraulic systems.
- ▲ If an accident occurs, seek immediate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

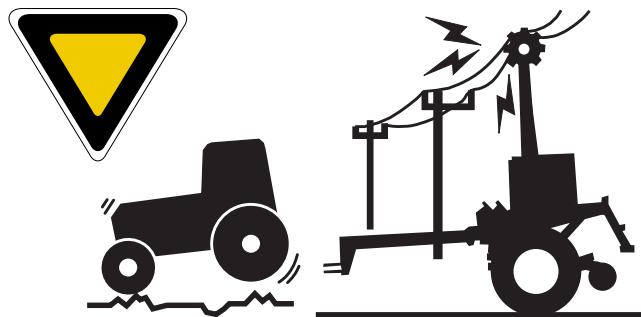
- ▲ Never allow children to operate equipment.
- ▲ Keep all bystanders away from machine during operation.



## Transport Machinery Safely

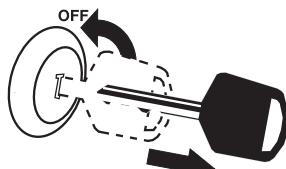
Maximum transport speed for implement is 20 mph (32 kph), 13 mph (22 kph) in turns. Some rough terrains require a slower speed. Sudden braking can cause a towed load to swerve and upset.

- ▲ Do not exceed 20 mph. 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.
- ▲ Comply with state and local laws.
- ▲ Do not tow an implement that, when fully loaded, weighs more than 1.5 times the weight of towing vehicle.
- ▲ Carry reflectors or flags to mark Discovator in case of breakdown on the road.
- ▲ Keep clear of overhead power lines and other obstructions when transporting. Refer to transport dimensions under “**DV Specifications and Capacities**” on page 26.
- ▲ Do not fold or unfold the Discovator while the tractor is moving



## Shutdown and Storage

- ▲ Lower Discovator, put tractor in park, turn off engine, and remove the key.
- ▲ Secure Discovator using blocks and supports provided.
- ▲ Detach and store machine in an area where children normally do not play.



## Tire Safety

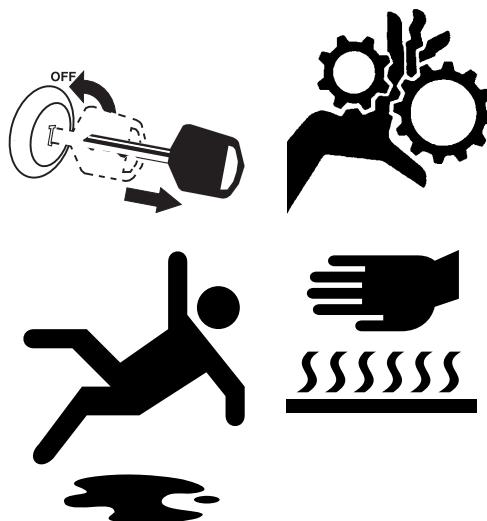
Tire changing can be dangerous and should be performed by trained personnel using correct tools and equipment.

- ▲ When inflating tires, use a clip-on chuck and extension hose long enough for you to stand to one side—not in front of or over tire assembly. Use a safety cage if available.
- ▲ When removing and installing wheels, use wheel-handling equipment adequate for weight involved.



## Practice Safe Maintenance

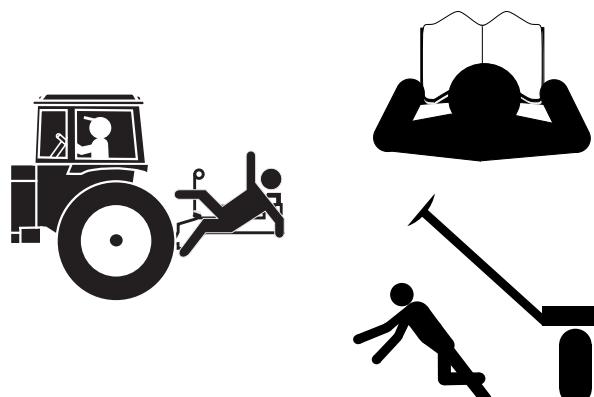
- ▲ Understand procedure before doing work. Use proper tools and equipment. Refer to this manual for additional information.
- ▲ Work in a clean, dry area.
- ▲ Lower the machine, put tractor in park, turn off engine, and remove key before performing maintenance.
- ▲ Disconnect battery ground cable (-) before servicing or adjusting electrical systems or before welding on machine.
- ▲ 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 machine 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 machine functions.
- ▲ Operate machinery from the driver's seat only.
- ▲ Do not leave Discovator unattended with tractor engine running.
- ▲ Do not stand between the tractor and machine during hitching.
- ▲ Keep hands, feet and clothing away from power-driven parts.
- ▲ Wear snug-fitting clothing to avoid entanglement with moving parts.
- ▲ Watch out for wires, trees, etc., when folding and raising machine. Make sure all persons are clear of working area.

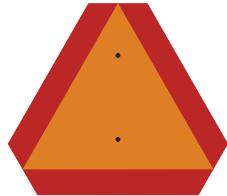


## Safety Decals

### 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.*

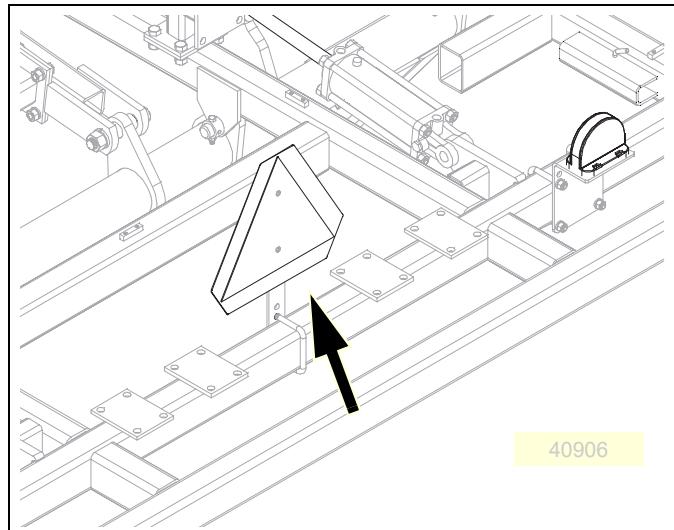


#### **818-055C Slow Moving Vehicle Reflector**

On the back of the center frame centered between plates;  
1 total

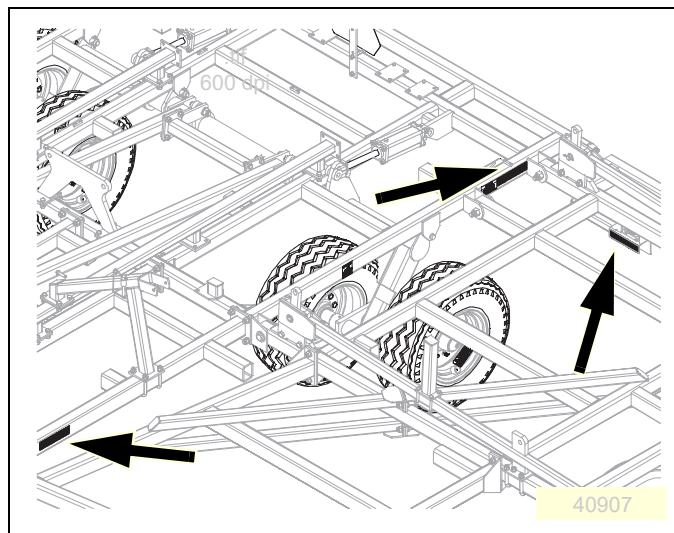
To install new decals:

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.



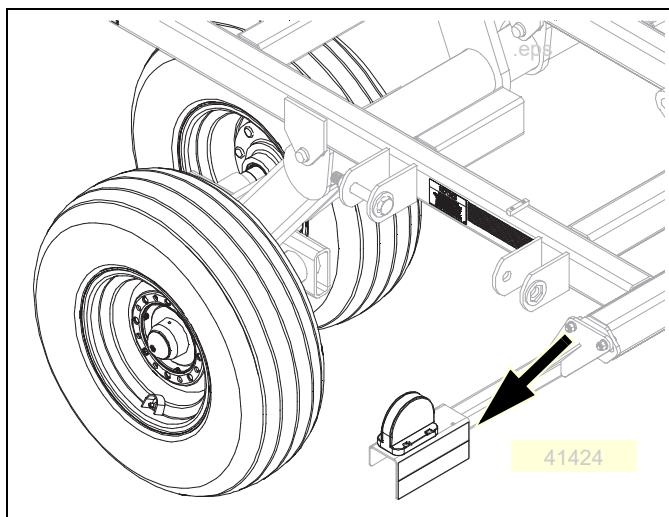
#### **838-615C Amber Reflectors**

Two on light bracket and two on center brace bar. Two on center frame. Two on rear of finishing attachment (not shown), visible from side while folded for transport;  
8 total

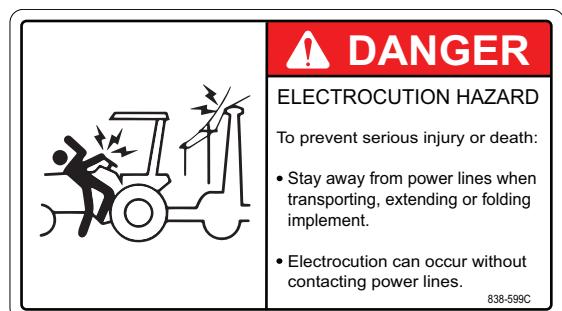
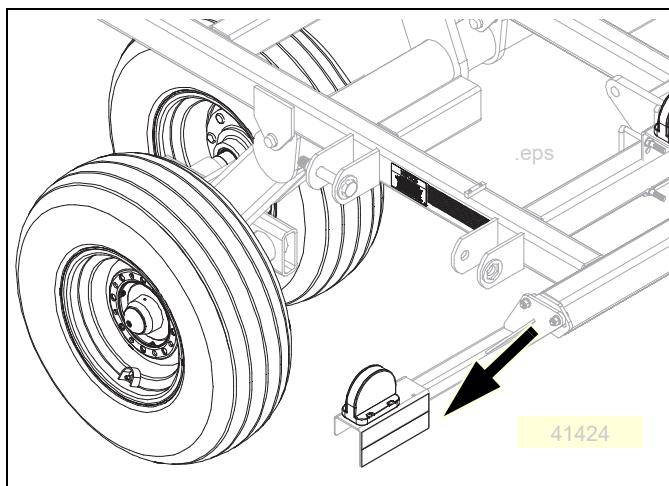


**838-614C  
Red Reflectors**

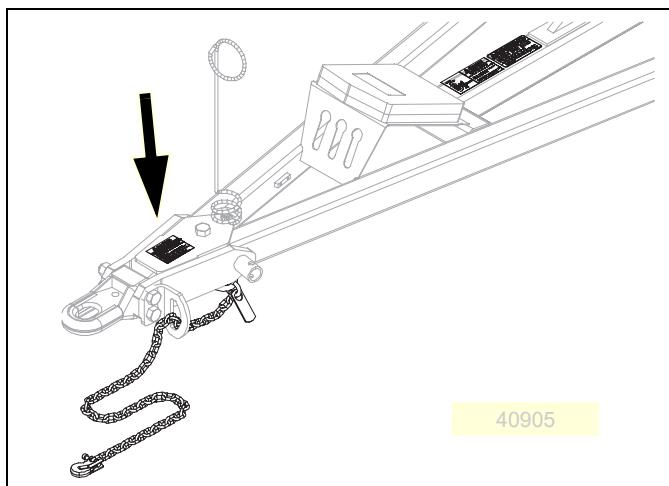
On rear of light brackets (top); On rear of reflector bracket (top).  
4 total

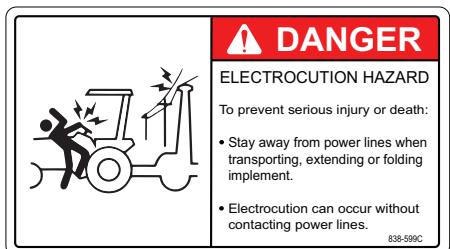
**838-603C  
Orange Reflectors**

On rear of light brackets (bottom); On rear of reflector bracket (bottom).  
4 total

**838-598C  
Caution: Read Operator's Manual**

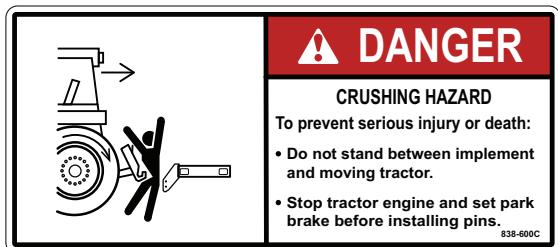
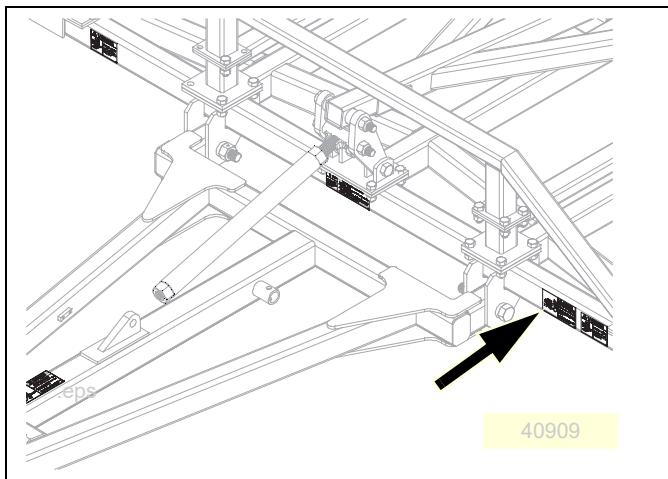
On front of hitch;  
1 total





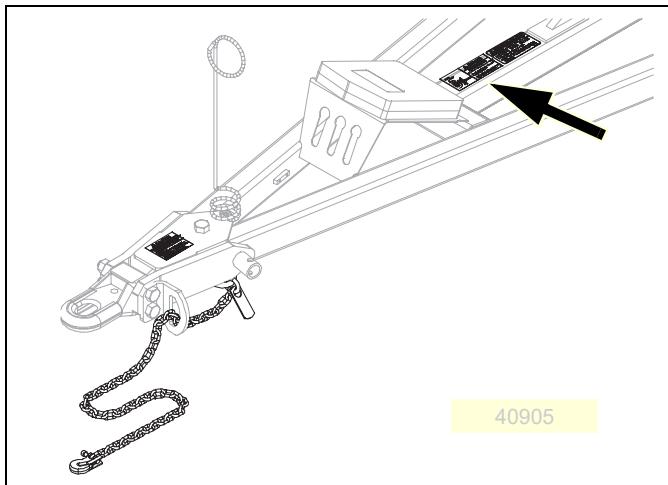
### 838-599C Danger: Electrocution Hazard

Front side of center wing brace (left, middle side);  
1 total



### 838-600C Danger: Crushing Hazard

On front (middle) of hitch;  
1 total

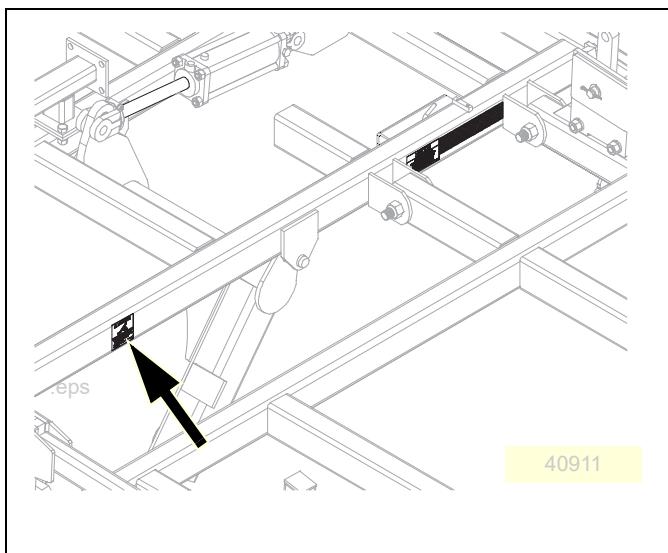


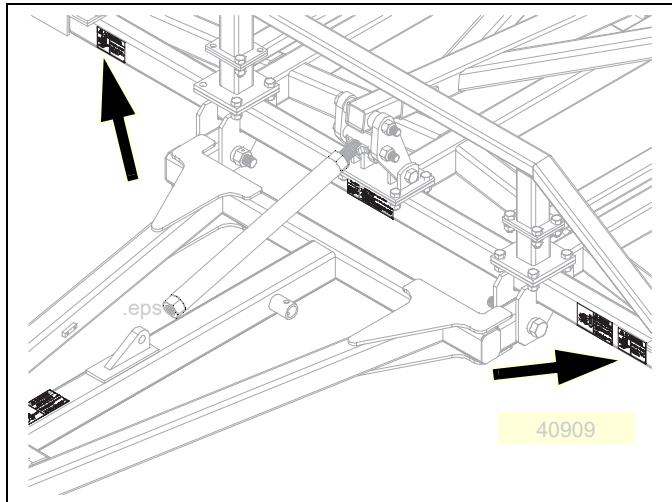
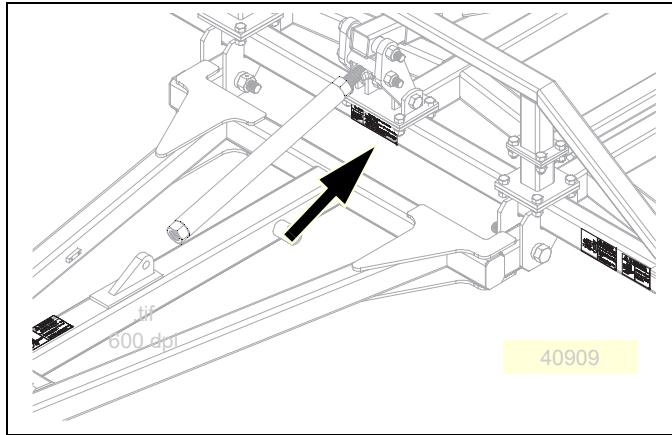
### 838-602C Warning: Overhead Wing Hazard

On outside center of center and wing frames (both sides);

4 total 8321, 8324, 8326, 8328 & 8333

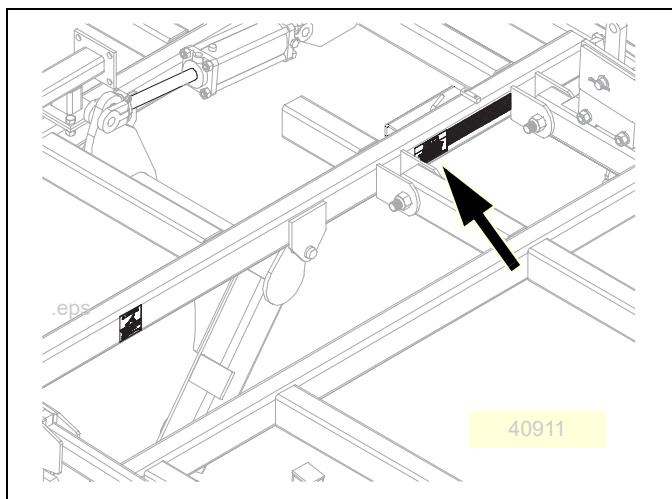
6 total 8537, 8544, 8548 & 8552





### 838-613C Notice: Transport Lock

On outside center of center frame (both sides);  
2 total



## **WARNING**

### WINGS COULD FALL SUDDENLY

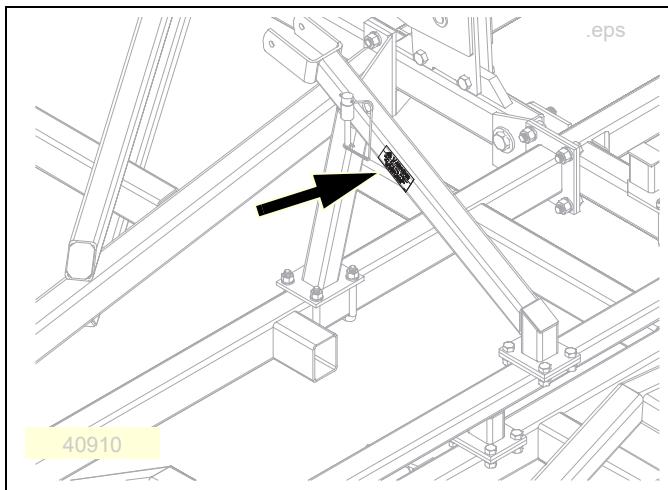
Keep Wing Safety Pins in Place  
Until Cylinder & Lines Are  
Full of Oil & Free of Air

838-612C

### 838-612C

### Warning: Wings Could Fall Suddenly

On front of wing stop (both sides);  
2 total



## **CAUTION**

### To Avoid Injury or Machine Damage From Improper Tire Inflation or Torquing of Wheel Bolts:

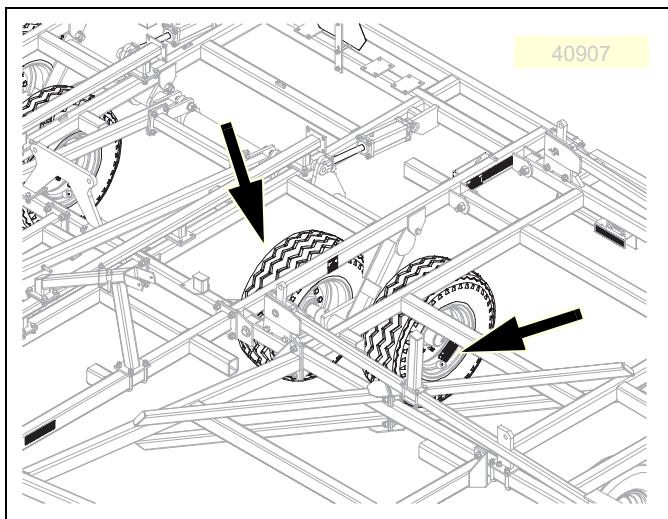
- Maintain transport tire inflation pressure between 100 psi and 105psi. Maximum inflation pressure is 105 psi.
- Torque transport wheel bolts to 170 lb-ft.

838-890C

### 838-890C

### Caution: Tire Pressure and Torque

On rim of each center transport wheel  
Models 8548 & 8552;  
4 total



## **WARNING**

### EXCESSIVE SPEED HAZARD

To Prevent Serious Injury or Death:

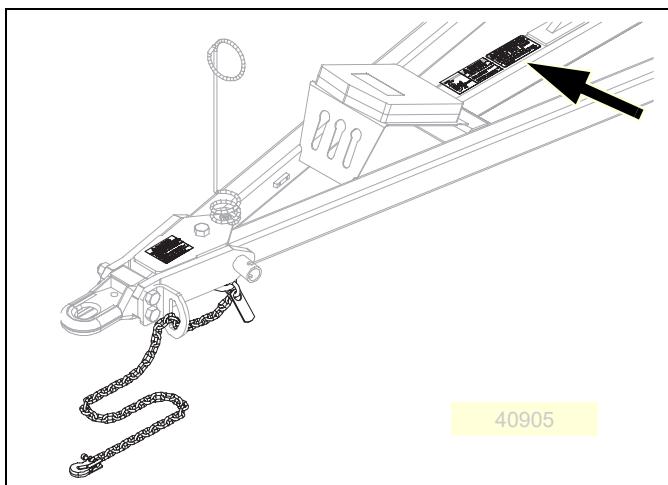
- Do Not exceed 20 mph maximum transport speed. Loss of vehicle control and/or machine can result.

818-188C Rev C

### 818-188C

### Warning: Speed

On front (middle) of hitch;  
1 total



## **CAUTION**

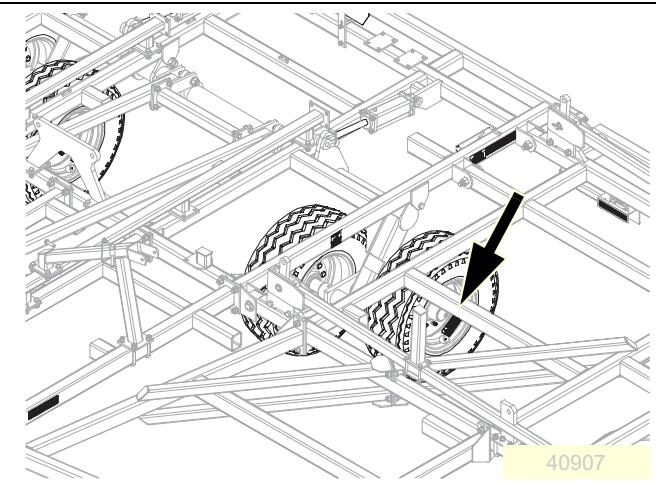
To Avoid Injury or Machine Damage From Improper Tire Inflation or Torquing of Wheel Bolts:

- Maximum inflation pressure of tires is 44 psi.
- Torque wheel bolts to 80-90lb-ft.

858-996C

### **858-996C** **Caution: Tire Pressure**

On rim of each center transport wheel  
On rim of each wing transport wheel;  
4 total



## **CAUTION**

To Avoid Injury or Machine Damage From Improper Tire Inflation or Torquing of Wheel Bolts:

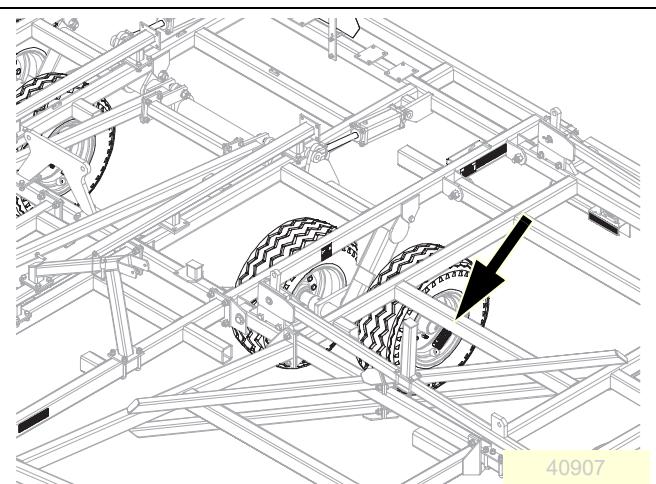
- Maximum inflation pressure of tires is 90 psi.
- Torque wheel bolts to 85 lb-ft.

858-910C

### **858-910C** **Caution: Tire Pressure**

On rim of each center transport wheel  
On rim of each wing transport wheel;  
Models 8537, 8548-8552 2 total

Model 8544 4 total



## **NOTICE**

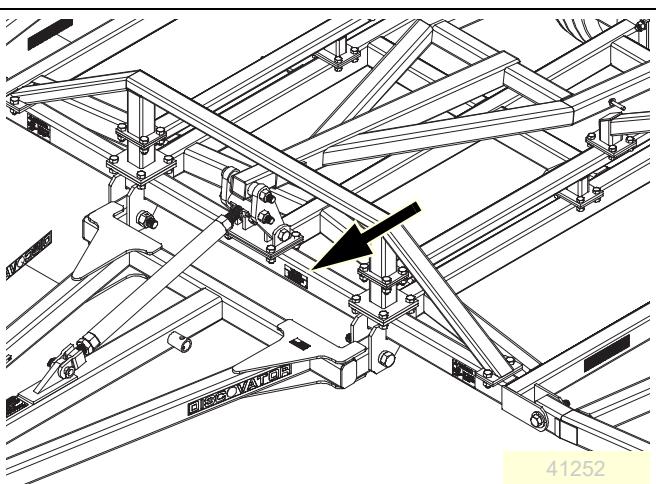
**ADJUST DISC GANGS TO RUN 1/2"  
TO 1" SHALLOWER THAN SWEEPS.  
CHECK ALL BOLTS FOR  
TIGHTNESS PERIODICALLY.**

K-12

### **858-910C** **Caution: Tire Pressure**

On rim of each center transport wheel  
On rim of each wing transport wheel;  
Models 8537, 8548-8552 2 total

Model 8544 4 total





## Introduction

Great Plains welcomes you to our growing family of new product owners. The Series VIII Discovator, DV (Disc & Coulter) 8321-8552DV have 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.

### Models Covered

8321DV	21-Foot 3-section
8324DV	24-Foot 3-section
8326DV	26-Foot 3-section
8328DV	28-Foot 3-section
8333DV	33-Foot 3-section
8537DV	37-Foot 5-section
8544DV	44-Foot 5-section
8548DV	48-Foot 5-section
8552DV	52-Foot 5-section

### Description of Unit

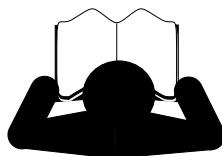
The Series VIII Discovator, DV (Disc & Coulter) 8321-8552DV is a three or five-section field finishing, one-pass tillage tool. Working width ranges from 21 to 52 feet. The implement is designed to combine discing/slicing, cultivating, harrowing and herbicide incorporation in a single pass. Various finishing attachments are available to customize your tillage and residue requirements for your operation.

### Document Family

550-353E	Assembly Manual
550-353Q	Pre-Delivery Manual
550-353M	Operator Manual (this document)
550-353P	Parts 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.

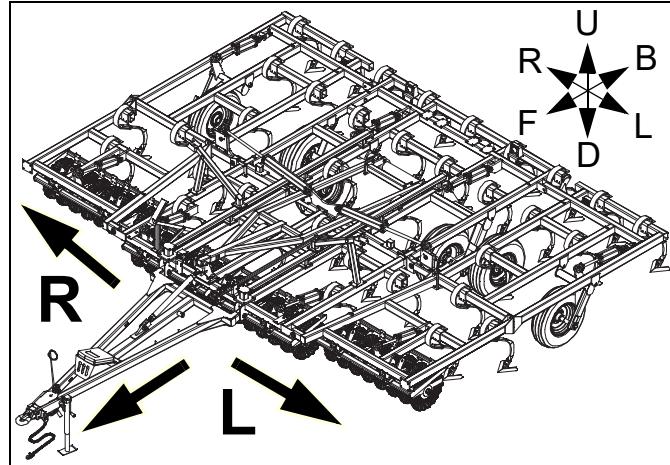


Figure 1  
8321DV Discovator

41642

### Definitions

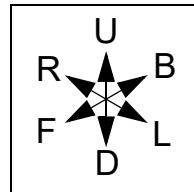
The following terms are used throughout this manual.

#### NOTICE

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

Useful information related to the preceding topic.

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.



## 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 left end of the top front tool bar.

Record your 8315/8318/8321/8324DVN Discovator model and serial number here for quick reference:

Model Number: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Your Great Plains dealer wants you to be satisfied with your new machine. If you do not understand any part of this manual or are not satisfied with the service received, please take the following actions.

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.

## Further Assistance

Great Plains Manufacturing, Inc. wants you to be satisfied with your new Discovator. If for any reason you do not understand any part of this manual or are otherwise dissatisfied with the product please contact:

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

Or go to [www.greatplainsag.com](http://www.greatplainsag.com) and follow the contact information at the bottom of your screen for our service department.

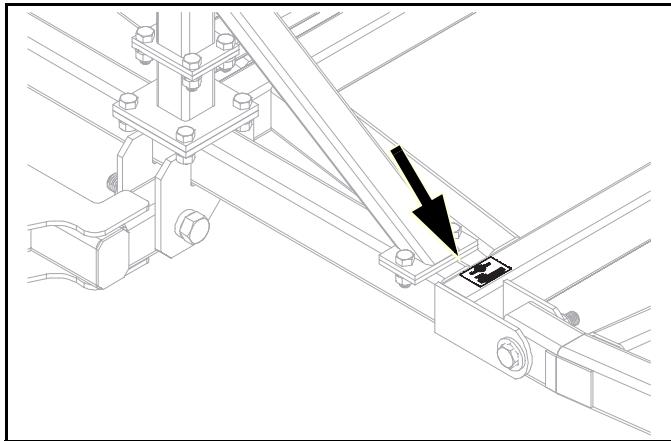


Figure 2  
Serial Number Plate

41134



## Preparation and Setup

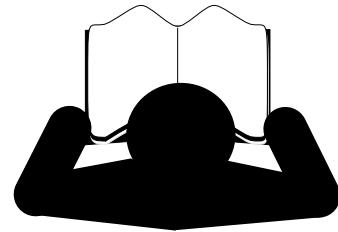
This section helps you prepare your tractor and 8321-8552DV Discovator for use, and covers tasks that need to be done seasonally, or when the tractor/Discovator configuration changes.

Before using the Discovator in the field, you must hitch it to a suitable tractor, inspect systems and level the Discovator. Before using the Discovator for the first time, and periodically thereafter, certain adjustments and calibrations are required.

### Prior to Going to the Field Checklist

Complete this checklist before routine setup:

- Read and understand “**Important Safety Information**” 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 13 and 14.
- 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 the hydraulics to pull the wings in completely before unpinning them.) Once the pins are removed, slowly untold 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.



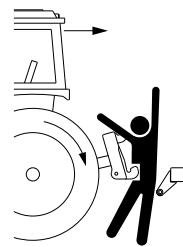
- After the machine is completely unfolded, raise and lower the Discovator several times to purge air from the hydraulic system. Again check for hydraulic leaks and tighten or replace if necessary.
- Check safety chain hookup. Make sure all warning lights are hooked up and functioning correctly.
- Check that all grease fittings are in place and lubricated. See “**Lubrication**” on page 21. The hubs will come pre-greased and will not need greased at this time.
- Check that all safety decals and reflectors are correctly located and legible. Replace if damaged. See “**Safety Decals**” on page 5.
- Inflate tires to pressure recommended and tighten wheel bolts as specified. See “**Tire Inflation and Warranty**” on page 26.
- 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. You are now ready to go to the field.

## Hitching Tractor to Discovator

### **DANGER**

#### **Crushing Hazard:**

*Do not stand or place any body part between Discovator and moving tractor. You may be severely injured or killed by being crushed between the tractor and Discovator. 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 Discovator.
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 Discovator using the block or yoke clevis determined by the tractor drawbar. Use the correct size pin for clevis or block.

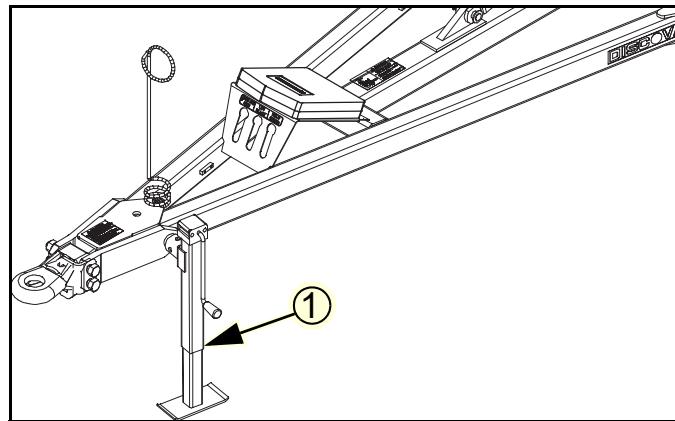


Figure 3  
Tongue on Jack

41643

#### **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" on page 18, for safe transporting*

#### **Refer to Figure 3**

4. Use jack ① to raise and lower Discovator tongue.

#### **Refer to Figure 4**

5. After hitching tractor to Discovator, store jack on storage tube ② on side of Discovator tongue.
6. Secure Discovator safety chain to an anchor on the tractor capable of pulling the unit.

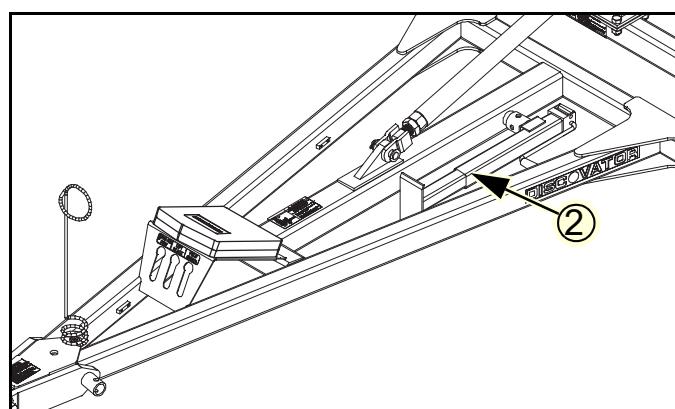


Figure 4  
Jack in Storage

41644

## Hydraulic Hose Hookup

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

Color	Hydraulic Function
Black	Lift (2 hoses)
Green	Fold (2 hoses)
Red	Gang (2 hoses)

### Refer to Figure 5

#### Hose Handles

To distinguish hoses on the same hydraulic circuit, refer to, “**Hydraulic Hose Hookup**” on page 14. The hose under an extended symbol feeds a cylinder base end. The hose under a retracted-cylinder symbol feeds a cylinder rod end.

Clean all hydraulic couplings and hook hoses to tractor.

## ⚠ WARNING

### High Pressure Fluid Hazard:

Relieve pressure before disconnecting hydraulic lines. Use 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. Only trained personnel should work on system hydraulics.

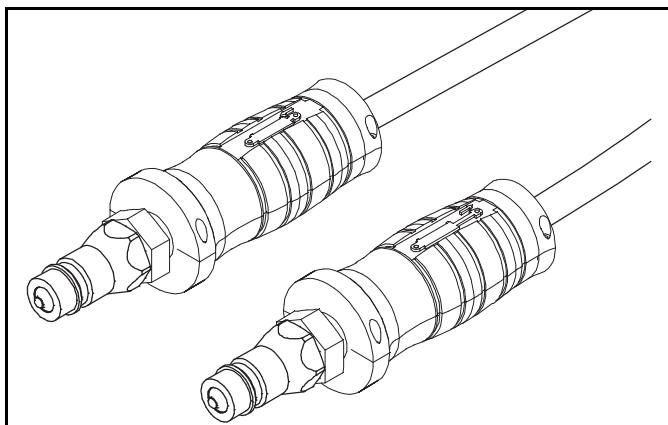


Figure 5  
Hose Handles

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## First Time Field Adjustments

### Pre-Leveling of Machine

#### Front to Rear Leveling

### Refer to Figure 6

1. Pre-leveling of machine can be done on a concrete slab or level surface. Lower machine so sweeps are 2-3" off of ground on the center frame. Adjust turnbuckle at the front of machine to level it from front to back. (Shorten to bring front down, extend to bring front up). Level machine with the front row just slightly deeper or lower than the back.

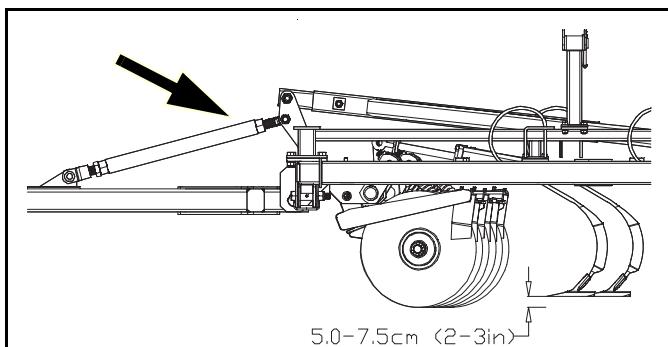


Figure 6  
Hitch Turnbuckle Adjustment

41598

## Side to Side Leveling

### Refer to Figure 7

- Set the wings to match the depth of the center. This is done by adjusting the lift cylinder eyebolt on each wing. Lengthen the bolt to run shallower, shorten the bolt to run deeper.

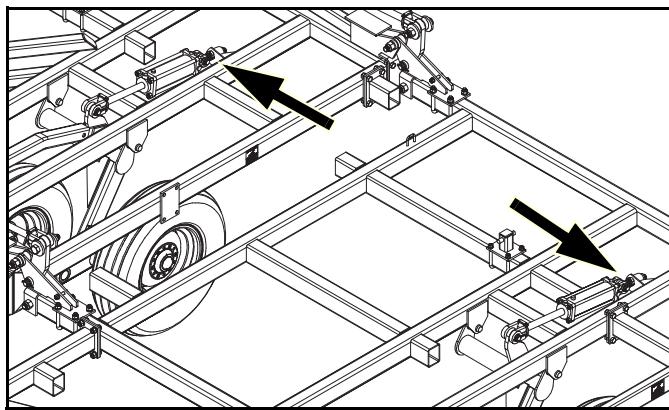


Figure 7  
Wing Depth Adjustment

40221

## Setting Gauge Wheels

### Refer to Figure 8

- Once the machine has been adjusted and set to the desired working depth, you may now adjust the gauge wheels.
- The gauge wheels (if equipped) should be set in field position to be  $1\frac{1}{2}$ " to  $1\frac{1}{2}$ " off the ground.
- To adjust the gauge wheels you will need to loosen the 2 bolts on the side of the gauge wheel bracket ①, and removed the hitch pin ② and adjust the gauge wheel arm ③ up or down till it is  $1\frac{1}{2}$ " -  $1\frac{1}{2}$ " off the ground and replace the hitch pin and cotter key. Retighten the bolts.
- With the manual gauge wheels anytime the depth of the machine is adjusted you must adjust the gauge wheels following the steps listed above.

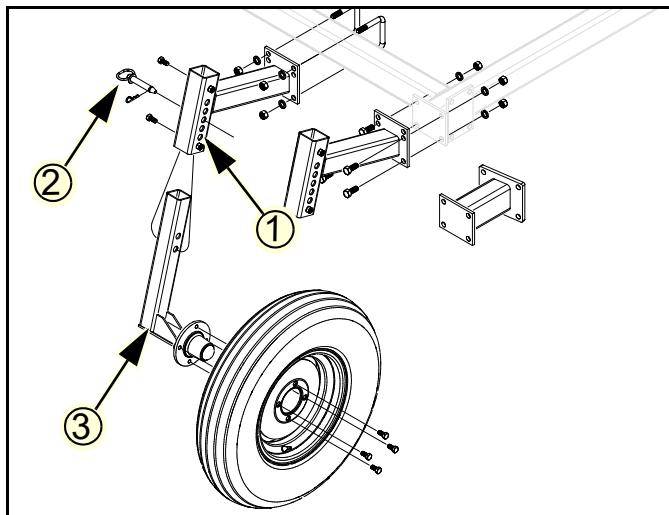


Figure 8  
Manual Gauge Wheels

41662

### Refer to Figure 9

- Once the machine has been adjusted and set to the desired working depth, you may now adjust the gauge wheels.
- The gauge wheels (if equipped) should be set in field position to be  $1\frac{1}{2}$ " to  $1\frac{1}{2}$ " off the ground.
- To adjust the hydraulic gauge wheels you will need to adjust the eyebolt ④. To bring the gauge wheels up loosen the jam nut in front ⑤ of the bracket and tighten the jam nut on the rear ⑥. To adjust the gauge wheels down loosen the rear jam nut ⑥ and tighten the front jam nut ⑤.
- With the hydraulic gauge wheel option anytime the depth of the discs are adjusted the hydraulic cylinder will adjust the gauge wheels accordingly.

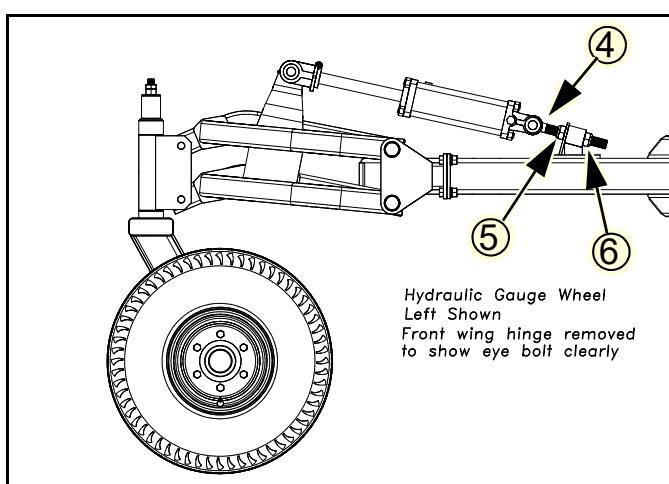


Figure 9  
Hydraulic Gauge Wheels

TP-69183

## Disc Gang Depth Calibration

### Refer to Figure 10

7. Be sure the pre-load is set at  $8\frac{3}{4}$ " on the spring assemblies. Calibrate the depth gauge pointer by extending cylinder until the under frame clearance of the 20" blades is  $4\frac{1}{2}$ ". Place the decal on the stand with the pointer at '0'.

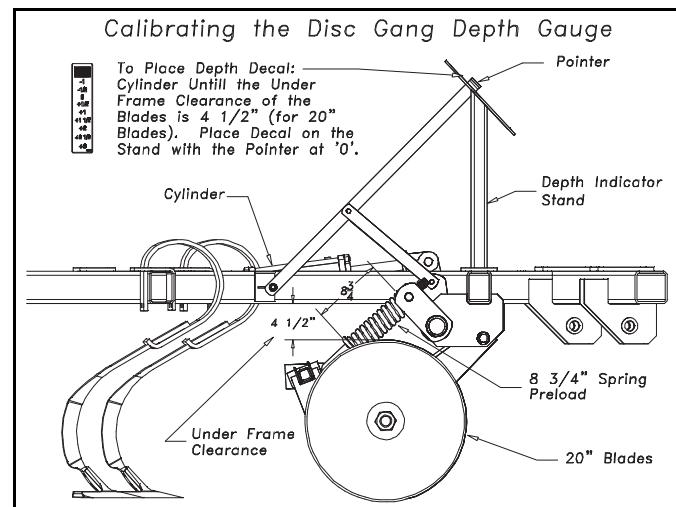


Figure 10  
Disc Gang Depth Gauge Calibration

41599

## Field Operation of Disc Gangs

### Refer to Figure 11

8. Adjust the disc or coulter gangs to run  $\frac{1}{2}$ " to 1" shallower than the cultivator sweeps by using the gang cylinders. The pointer on the gauge should read  $+1\frac{1}{2}$ " to  $+1$ ". Running the disc gangs slightly above the sweeps allows the sweeps to work in firm ground which improves trash flow and incorporation as well as leaving a smoother, more level seed bed.
9. Do not run the disc or coulter gangs in the RED ZONE. Running the disc gangs too deep will cause plugging of trash as well as excessive wear on the gangs, gang springs and Discovator frame. Running disc gangs too deep may also tend to hold the front of the entire machine out of the ground. (The disc gangs should only be run in the RED ZONE when using 18" blades that are nearing the end of their wear life).

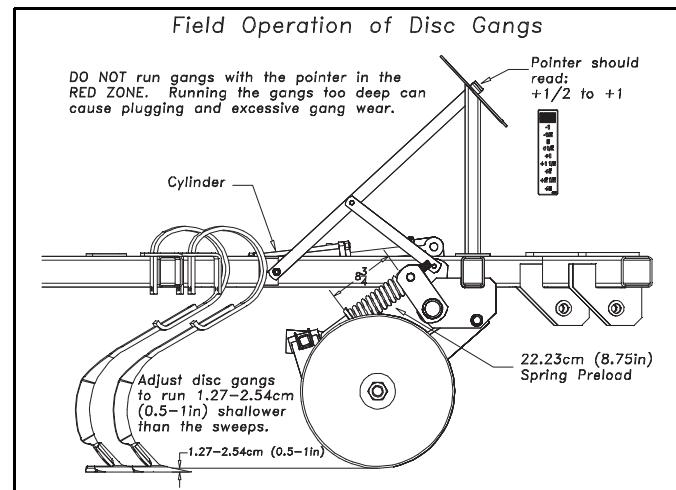


Figure 11  
Disc Gang Field Operation

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**Refer to Figure 12**

10. You are ready to operate the machine in the field at this point. You should have someone observe the machine during operation for levelness, front to rear and side to side. When you lower the machine to the desired working depth, set the depth stop ① at the front of machine to ensure the unit will operate at a consistent depth every pass. After setting the stop, if a change of depth is desired, 1 full turn of the handle ② either in or out will change the depth approximately  $\frac{1}{4}$ " up or down respectively.
11. Make any fine tuning adjustments on the leveling of the machine.



.eps  
100%

Figure 12  
Depth Stop Adjustment

42339



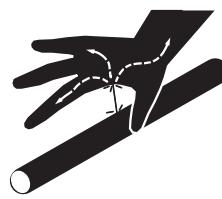
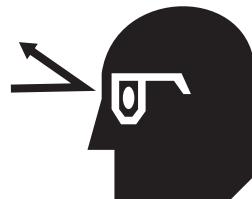
# Operating Instructions

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 Discovator to the field.

- Carefully read “**Important Safety Information**” on page 1.
- Lubricate Discovator as indicated under “**Lubrication**” on page 21.
- Check all tires for proper inflation.
- Check all bolts, pins, and fasteners. Torque as shown in “**Torque Values Chart**” on page 28.
- Check Discovator 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.



## WARNING

### **High Pressure Fluid Hazard:**

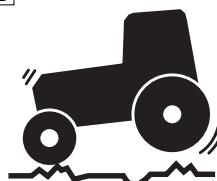
Relieve pressure and shut down tractor before connecting, disconnecting or checking hydraulic lines. Use a piece of paper or cardboard, NOT BODY PARTS, to check for leaks. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. Escaping fluid under pressure can have 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.



## WARNING

### **Loss of Control Hazard:**

Use a tractor rated for the load. Add tractor ballast as needed. Do not exceed 20 mph. Towing the Discovator with a vehicle that is not adequate, or at high speeds, could lead to loss of vehicle control. Loss of vehicle control can result in a serious road accident, severe injury or death. Check that your tractor has enough power to handle the weight of the Discovator. Refer to your tractor’s operator manual for capacities and ballast requirements.



## Transporting

See “**Hitching Tractor to Discovator**” on page 13 before transporting the Discovator.

## Check Tractor Capacity and Configuration

- Know the weight of your Discovator (see table on specification page).
- Consult your tractor manual for 3-point limitations.
- Add weights to tractor as required.
- When determining the weight of your Discovator, be sure to include the weight of any options.

## Transport Checklist

- Plan the route. Avoid steep hills. Keep Clearances in mind.
- Make all electrical and hydraulic connections. See “**Hitching Tractor to Discovator**” on page 13.
- Raise Discovator.
- Be sure all transport locks are installed.
- Always have lights on for highway operation.
- Comply with all federal, state and local safety laws when traveling on public roads.
- Travel with caution. Allow safe clearance. Remember that the Discovator is wider than the tractor.

## General Operation and In-Field Adjustments

1. 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.
2. 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 self-leveler. Never run the machine with the back lower (deeper) than the front. To adjust the machine from side to side, use the eyebolt on each wing. See "**First Time Field Adjustments**" on page 14. The gauge wheels (if equipped) should be set in field position to be  $\frac{1}{2}$ " to  $1\frac{1}{2}$ " off the ground.
3. The ideal working speed for the Discovator is  $5\frac{1}{2}$  to  $6\frac{1}{2}$  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.
4. The Discovator is designed as a secondary tillage tool and is designed to leave a finished seedbed following some form of fall or spring tillage. 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.
5. When you have the machine set to the desired working depth, set the depth stop slide on the depth control bar. This is located at the front of the machine on the brace bar. This will maintain a constant depth each time after raising and lowering the machine.
6. If after setting the depth stop, the detent on the tractor kicks out before the stop contacts the button on the depth stop, slow the hydraulic flow speed down. If the problem persists, contact the factory service representative for the possible adjustments. Do not try the rebound valve without first contacting the factory service rep.
7. Adjust the drag to leave the desired results while maintaining the trash flow through the drag.

## Scraper Settings

The scrapers are set at the factory but should be checked periodically and may need re-adjusted as follows:

- Disc scrapers will need the bolts (rigid scraper) or u-bolts (spring scraper) loosened up and slid into blade until they just touch the blade, and torqued to specs.

## Rear Attachment Settings

### Spike Drag Settings

#### *Refer to Figure 13*

8. 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, one of the links in the first row of angles is turned over. 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.

- Coulter scrapers u-bolts will need loosened and scrapers centered between coulter blades, and torqued to specs.

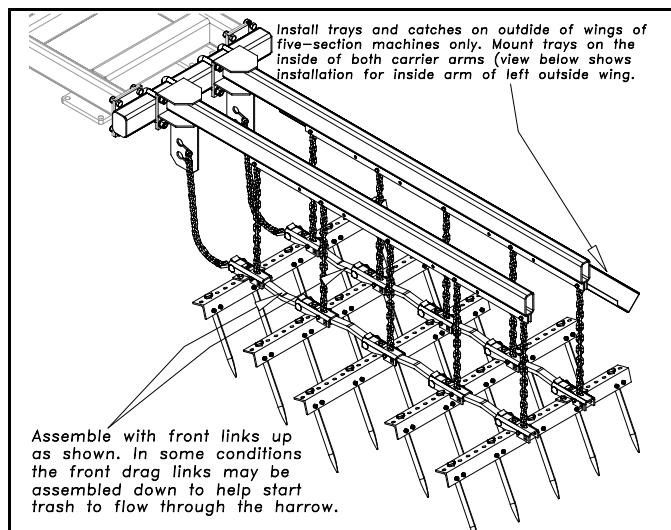


Figure 13  
Spike Drag Settings

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## HD Spike & Reel Settings

### Refer to Figure 14

9. On the hd spike drag, start with 5 links hanging from the chain ① 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. Always make sure that the drag is never pulling off of the hang chains ②. If so, shorten pull chains.
10. Adjust nut ③ to where spring ④ is just making contact with front plate ⑤.
11. Turn nut ③ another 1" further on spring rod ⑥ to set pre-load on spring ④.
12. Lengthen turnbuckle ⑦ to adjust front mini shank ⑧ to run more aggressive and shorten to run more passive.
13. Be sure the fold catch assembly ⑨ is aligned  $3\frac{7}{8}$ " from back of rear angle iron of fold catch to rear of arm as shown.

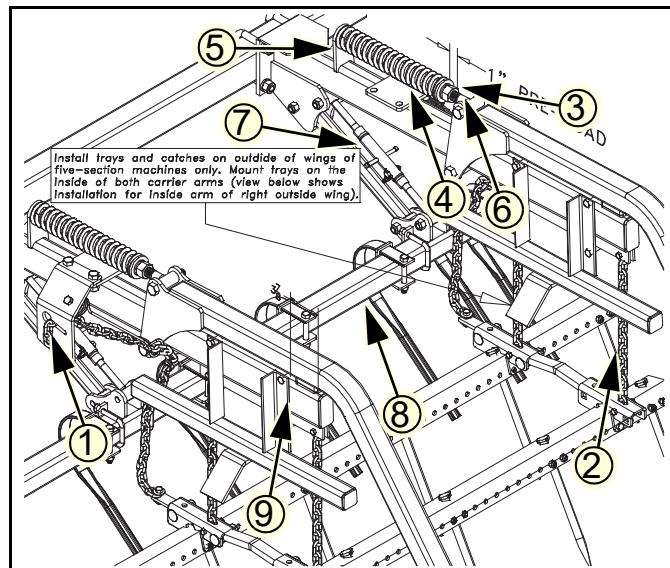


Figure 14  
HD Spike & Reel Settings

42219

## Coil Tine Settings

### Refer to Figure 15

14. On coil tine drags start with the top eyebolt ① centered. Then level drag mainframe ② by changing position of leveling bolts ③. There are two holes in the arm and four in the mainframe. One of these will get you where you need to be to be level. To lay teeth back, remove the clip pin ④ on each end and move strap adjustment by pushing the handle ⑤ forward. The strap has 5 holes that will let you lay the teeth back several degrees. If it is desired to set one row, usually the first, different than the rest as far as the angle is concerned, it can be adjusted individually by loosening the u-bolt and set-screw on each end of the drag bar. Down pressure on the drag is achieved by lengthening the eyebolt ① on the top bracket. Depending on the amount of down pressure, you may need to re-level the mainframe.

## Reel Settings

15. If a reel is added, adjust the amount of down pressure by either shortening the eyebolt for less pressure or lengthening for more pressure.

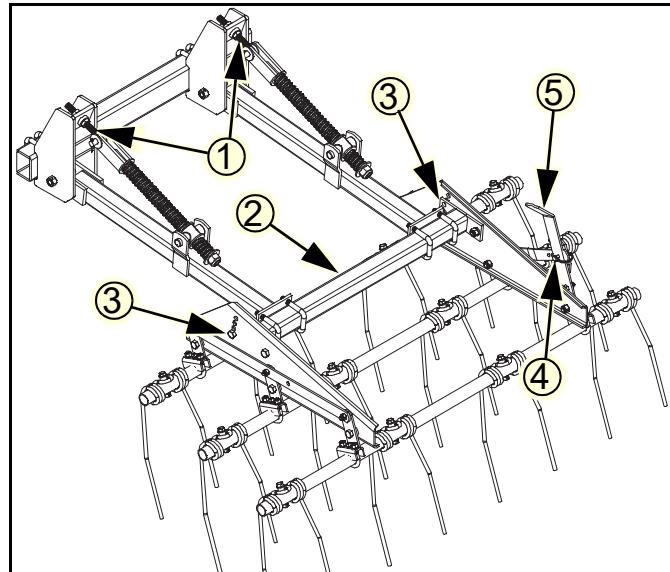


Figure 15  
Coil Tine Settings

42337

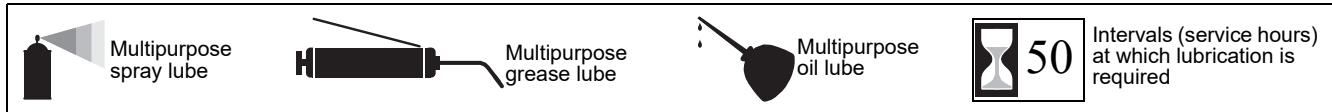


## Maintenance and Lubrication

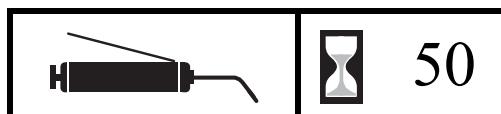
### Maintenance

1. Always use the transport lock when working on or doing maintenance to the Discovator. If folded, be sure your wing stop pins are in place. Read and understand all safety decals on your equipment.
2. During the first season of operation, and periodically after that, check your bolts for tightness. Check shank pivot bolts for tightness. Check shank pivot bolts on the spring-loaded shank, these must remain tight to prevent excessive wear on the shank assembly.
3. Replace or rotate worn parts as needed -- hinge bolts, clevis pins, bearings, sweeps, shanks, etc. Boron disc blades cannot be rolled to be sharpened, they must be ground. Cracks and breakage will occur if rolled.
4. Check and tighten or replace any hydraulic leaks. Check hoses for any leaks. It is important that there are no leaks on the equipment.
5. Grease wheel bearings and walking beams sparingly. Over greasing may cause damage to seals and reduce the life of the bearing. Grease hinge points periodically.

### Lubrication



#### Wheel Bearing Hub



1 zerk on each hub;  
4 total

Units built after 05/2017 may not have grease zerk on the hubs.

Type of Lubrication: Grease

Quantity: Sparingly, Do Not Over Grease, may cause damage seal.

Rearrange wheel bearings annually or every 2500 acres.

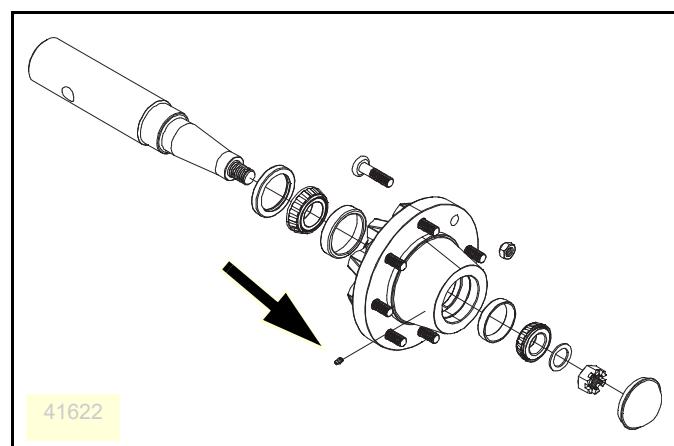
6. Check drag bolts for looseness or excessive wear. Replace broken or bent teeth. Your drag is an important part of the tillage operation.
7. If machine is stored outdoors over the winter months, it is a good idea to fold the machine then set it down on the ground so all the cylinders are retracted to protect the cylinder rods. This will extend the life of the cylinder seals and reduce internal and external leaks.

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

**For the most current manual information, visit Great Plains website listed below. For more information on operating, adjusting or maintaining your Great Plains Discovator, assistance is available. Please contact:**

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

Or go to [www.greatplainsag.com](http://www.greatplainsag.com) and follow the contact information at the bottom of your screen for our service department.



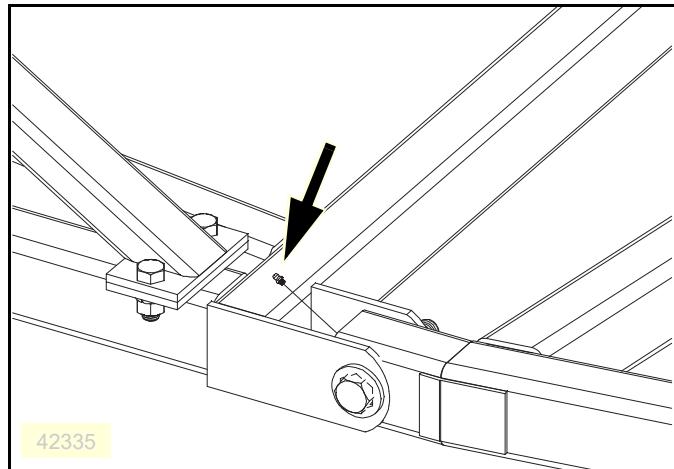
## Inside Wing Hinge Points



On all inside wing hinge points

Type of Lubrication: Grease

Quantity: Until grease emerges



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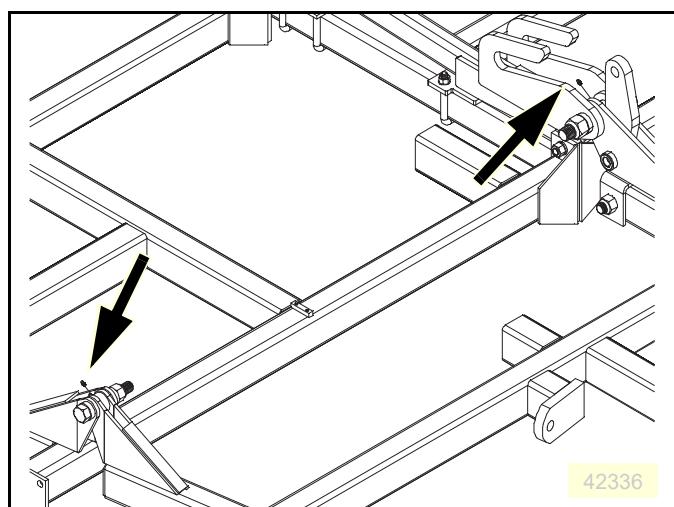
## Outside Wing Hinge Points



On all outside hinge points

Type of Lubrication: Grease

Quantity: Until grease emerges



42336

## Walking Beam Pivot Bearings

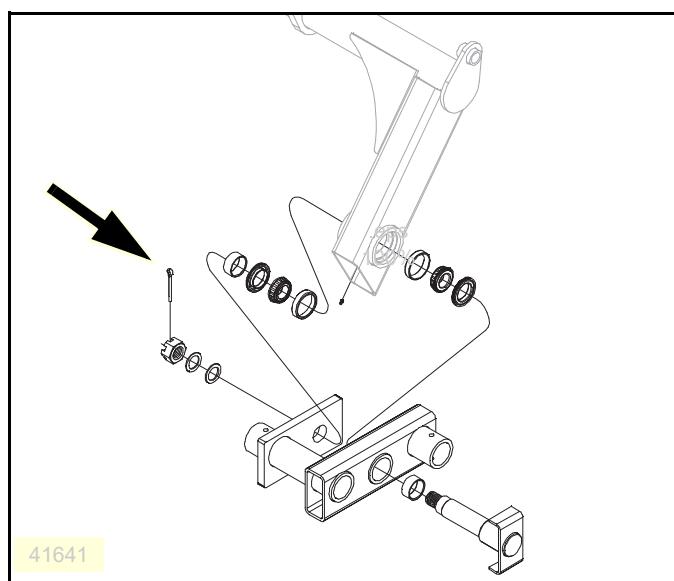


One on each walking beam

Type of Lubrication: Grease

Quantity: Sparingly and check for endplay

If there is a lot of end play take apart, check bearings and re-pack



41641



## Troubleshooting

### Discovator Trouble Shooting Charts

#### General Performance

Problem	Cause	Solution
<b>Rear Shanks Leaving Groove</b>	Rear of machine running too deep. Coulter/disc gangs too deep. Drag set incorrectly. Operating machine too fast.	Level machine from front to rear with turnbuckle, See " <b>Pre-Leveling of Machine</b> " on page 14 Raise disc gangs. Reset drag, See " <b>Rear Attachment Settings</b> " on page 19. Slow down (6-7 m/h)/(9-11 km/h).
<b>Leaving Ridges On The Outside</b>	Wings not level. Lift cylinders out of phase. Leaking wing lift cylinder. Drag set Incorrectly.  Operating machine too fast.	Adjust eyebolt at rear of wing cylinders to level wings. See " <b>Side to Side Leveling</b> " on page 15. Rephase lift cylinders. Repair or replace leaky cylinder, See pages 34-37 of "Parts Manual". Reset drag, See " <b>Rear Attachment Settings</b> " on page 19. Slow down (6-7 m/h)/(9-11 km/h)
<b>Wings Not Penetrating</b>	Wings not level. Coulter/disc gangs too deep. Wing gangs deeper than center gangs. Fold cylinder nor fully extended.	Adjust eyebolt at rear of wing cylinders to level wings. See " <b>Side to Side Leveling</b> " on page 15. Raise disc gangs. Rephase gang circuit. Fully extend cylinders.
<b>One Wing Running Deeper Than The Other</b>	Wings not level. Leaking wing lift cylinder. Wing cylinder in wrong sequence. Improper tire pressure.	Adjust eyebolt at rear of wing cylinders to level wings. See " <b>Side to Side Leveling</b> " on page 15. Repair or replace leaky cylinder, See pages 34-37 of "Parts Manual". Repair or replace leaky cylinder, See pages 26-27 of "Parts Manual". Set air pressure, See " <b>Tire Inflation and Warranty</b> " on page 26.
<b>Both Wings Running Too Deep</b>	Wings not level. Improper tire pressure.	Adjust eyebolt at rear of wing cylinders to level wings. See " <b>Side to Side Leveling</b> " on page 15. Set air pressure, See " <b>Tire Inflation and Warranty</b> " on page 26.
<b>Whole Machine Runs Deeper</b>	Leaking depth stop cartridge. Leaking master lift cylinder.	Replace cartridge. Repair or replace leaky cylinder, See pages 26-27 of "Parts Manual".
<b>Center &amp; One Wing Run Deeper</b>	Leaking master lift cylinder.	Repair or replace leaky cylinder, See pages 26-27 of "Parts Manual".
<b>Machine Plugging</b>	Coulter/disc gangs running deeper than sweeps. Machine not level front to back.  Too much residue in the rows. Disc gangs not cutting residue. Improperly spaced shanks. Running too low. Ground too wet.	Raise coulter/disc gangs.  Level machine front to rear with turnbuckle, See " <b>Front to Rear Leveling</b> " on page 14. Run at a slight angle to the rows. Check for sharpness. Check shank layout for proper shank placement. Speed up (6-7 m/h)/(9-11 km/h). Allow ground to dry some.
<b>Machine Bouncing</b>	Operating speed too fast.	Slow down (6-7 m/h)/(9-11 km/h).
<b>Uneven Working Depth</b>	Lift cylinders out of phase. Timed detent not set correctly. Timed detent not allowing depth stop to engage.	Rephase (See Operators Manual). Set flow for 0.5 after machine is raised. Adjust detent timer to allow for depth stop to engage.

## General Performance

Problem	Cause	Solution
<b>Overheating Hydraulic System</b>	Flow set to continuous.	Disengage continuous flow.

## Coulter/Disc Gang Performance

Problem	Cause	Solution
<b>Coulter/ Disc Blades Do Not Penetrate</b>	Blades too dull. Improper spring preload.	Sharpen blades (if applicable). Raise disc gangs. Reset spring preload, See “ <b>Setting Gauge Wheels</b> ” on page 15.
<b>Coulter/Disc Gangs Are Plugging</b>	Scrapers are not set properly.  Gangs are running too shallow.  Ground too wet.	Set scraper according to specs, See “ <b>Scraper Settings</b> ” on page 19.  Increase gang depth or raise completely. Fix leaking gang cylinder, See pages 30-31 of “ <b>Parts Manual</b> ”. Allow ground to dry some.
<b>Entire Coulter/Disc Gang Depth Changes</b>	Gang circuit leak in tractor	Completely extend/re phase cylinders periodically.
<b>Wing Coulter/Disc Gangs Coming Out Of Ground</b>	Leaking slave cylinder on same side as wing.	Repair or replace leaky cylinder, See pages 30-31 of “ <b>Parts Manual</b> ”.
<b>Center Gang Section &amp; One Wing Gang Section</b>	Leaking master cylinder opposite of the wing gang section.	Repair or replace leaky cylinder, See pages 26-27 of “ <b>Parts Manual</b> ”.

## Sweep/Shank Performance

Problem	Cause	Solution
<b>Uneven Sweep Depth Across Working Width</b>	Wings not level.  Leaking lift cylinder.  Improper tire pressure.	Adjust eyebolt at rear of wing cylinders to level wings. See “ <b>Side to Side Leveling</b> ” on page 15. Repair or replace leaky cylinder, See pages 26-27 of “ <b>Parts Manual</b> ”. Set air pressure, See “ <b>Tire Inflation and Warranty</b> ” on page 26
<b>Sweep's Front Wearing Faster Than Rear</b>	Machine nose down front to rear.	Level machine front to rear with turnbuckle, See “ <b>Front to Rear Leveling</b> ” on page 14.

## Sweep/Shank Performance

Problem	Cause	Solution
<b>Sweep's Rear Wearing Faster Than Front</b>	Machine nose up front to rear.	Level machine front to rear with turnbuckle, See "Front to Rear Leveling" on page 14.
<b>Magnum Shank Excessive Wear In Pivot Bolt</b>	Loose pivot bolt.	Tighten pivot bolt, See pages 40-41 of "Parts Manual".
<b>Twisted K-Flex</b>	Turning while machine in the ground.	Raise the machine out of the ground when turning.
<b>Opening K-flex Shank</b>	Turning while in the ground. Backing up while in the ground.	Raise the machine out of the ground. Raise the machine out of the ground.
<b>Bottom C-shank Bending</b>	Running too deep/fast. Improper shank.	Reduce working depth/speed. Switch to Magnum Shank

## Transport

Problem	Cause	Solution
<b>Wings Fail to Unfold</b>	Hydraulic hose disconnected. Failed hydraulic hose tip. Transport locks engaged.	Connect hydraulic hose. Replace tip. Disengage transport locks.
<b>Wings Fail To Fold</b>	Hydraulic hose disconnected. Failed hydraulic hose tip. Low hydraulic pressure.	Connect hydraulic hose. Replace tip. Increase pressure to be >1500psi ( $10.3 \times 10^6$ Pa).
<b>Folds/Unfolds Too Slow</b>	Failed hydraulic hose tip.	Replace tip.
<b>Folds/Unfolds Too Fast</b>	Cylinder orifice removed.	Replace orifice in cylinder ports.
<b>Lift Circuit immobilized</b>	Rebound valve locked.	See dealer.
<b>Lift Will Not Go Down</b>	Transport locks engaged. Depth stop engaging. Failed poppet valve in depth stop. Depth stop failing due to hose routing.	Disengage transport locks. Readjust depth stop. Replace poppet valve in depth stop. Check routing with hydraulic layout, "Pre-Delivery Manual".
<b>Machine Bouncing During Transport</b>	Excessive speed.	Slow down (18 m/h)/(30 km/h).



## Appendix

### DV Specifications and Capacities

Model No.	8321DV	8324DV	8326DV	8328DV	8333DV
Sweep Width	20' 7" (6.26 m)	24' 1" (7.35 m)	26' 4" (8.04 m)	28' 9" (8.76 m)	33' 5" (10.2 m)
Coulter/Disc Width	20' (6.09 m)	23' 9" (7.28 m)	25' 3" (7.70 m)	28' (8.53 m)	32' (9.75 m)
Number of Sweeps	35	41	45	49	57
Number of Coulter/Disc	30	36	38	42	48
Center Section	9' 9" (2.97 m)	12' (3.66)			
Wing	5' 6" (1.68 m)	7' 6" (2.29 m)	8' 6" (2.59 m)	9' 6" (2.90 m)	10' 6" (3.2 m)
Transport Width	14' (4.27 m)	14' (4.27 m)	14' (4.27 m)	14' (4.27 m)	16' 1" (4.90 m)
Transport Height	9' 3" (2.82 m)	10' 9" (3.28 m)	12' (3.66 m)	13' 3" (4.04 m)	14' 3" (4.34 m)
Weight	8925 lb (4048 kg)	10200 lb (4626 kg)	11050 lb (5012 kg)	11890 lb (5393 kg)	14025 lb (6361 kg)
Tire Size Center	9.5 LX15 8 PLY	9.5 LX15 8 PLY	11L-15SL 12 PLY	11L-15SL 12 PLY	11L-15SL 12 PLY
Tire Size Wing	9.5 LX15 8 PLY				
Horsepower	125-175	160-210	200-250	225-275	250-300
Kilowatt	93-130	119-156	149-186	167-205	186-223
Model No.	8537DV	8544DV	8548DV	8552DV	
Sweep Width	36' 11" (11.25 m)	43' 11" (13.4 m)	47' 5" (14.47 m)	52' 1" (15.86 m)	
Coulter/Disc Width	36' (10.97 m)	42' 9" (13.03 m)	46' 6" (14.17 m)	50' 9" (15.47 m)	
Number of Sweeps	63	75	81	89	
Number of Coulter/Disc	54	64	70	76	
Center Section	9' 9" (2.97 m)	9' 9" (2.97 m)	12' (3.66)	12' (3.66)	
1st Wing	8' 6" (2.59 m)	9' 6" (2.90 m)	10' 9" (3.28 m)	10' 9" (3.28 m)	
2nd Wing	5' (1.52 m)	7' 3" (2.21 m)	7' (2.13 m)	9' 3" (2.82 m)	
Transport Width	15' (4.57 m)	15' (4.57 m)	18' 3" (5.56 m)	18' 3" (5.56 m)	
Transport Height	12' 6" (3.81 m)	13' 3" (4.04 m)	14' 9" (4.50 m)	14' 9" (4.50 m)	
Weight	15392 lb (6981 kg)	18320 lb (8309 kg)	19968 lb (9057 kg)	21632 lb (9812 kg)	
Tire Size Center	11LX15 LOAD F	12.5LX15 LOAD F	12.5LX16.5/G	12.5LX16.5/G	
Tire Size Wings	9.5 LX15 8 PLY				
Horsepower	280-340	320-380	340-400	375+	
Kilowatt	208-253	238-283	340-298	279+	

Weight can vary by hundreds of pounds depending on options installed.

### Tire Inflation and Warranty

Tire Inflation Chart			Tire Warranty Information	
Wheel	Tire Size	Inflation	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. <u>ManufacturerWeb site</u>	
Gauge Wheel	6.70L-15" 4-ply	32psi (221 kPa)	Firestone <a href="http://www.firestoneag.com">www.firestoneag.com</a>	
Gauge Wheel	7.50x10" 10-ply	80 psi (552 kPa)	Gleason <a href="http://www.gleasonwheel.com">www.gleasonwheel.com</a>	
Transport/Wings	9.5L-15" 8-Ply	44psi (303 kPa)	Titan <a href="http://www.titan-intl.com">www.titan-intl.com</a>	
Transport/Center	11L x 15SL 12-Ply	52 psi (359 kPa)	Galaxy <a href="http://www.atgtire.com">www.atgtire.com</a>	
Transport/Center	11L x 15" Load F	90psi (621 kPa)	BKT <a href="http://www.bkt-tire.com">www.bkt-tire.com</a>	

Tire Inflation Chart		
Transport/ Center	12.5L x Load F	90 psi (621 kPa)
Transport/ Center	12.5L x 16.5" Load G Galaxy	105 psi (724 kPa)

Tire Warranty Information

## Hydraulic Connectors and Torque

### Refer to Figure 16 (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)

- ② Note straight threads ④ and the 37° cone ⑤ on "M" fittings (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.

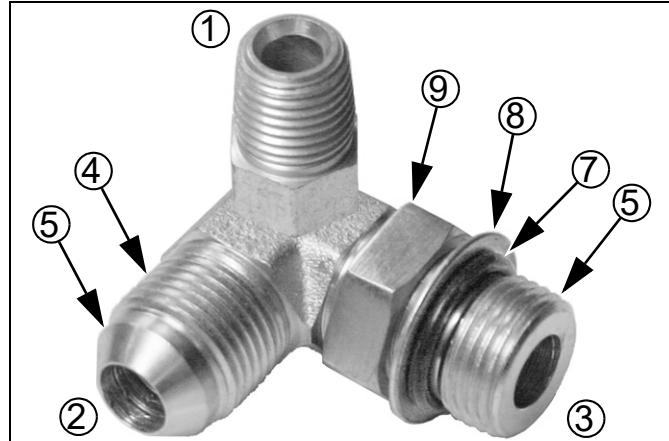


Figure 16  
Hydraulic Connector ID

31282

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	5/16-18 JIC	24-27	18-20
-6	5/16-18 ORB w/jam nut	16-22	12-16
-6	5/16-18 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			Bolt Head Identification				
in-tpi <sup>a</sup>	N·m <sup>b</sup>	ft-lb <sup>d</sup>	N·m	ft-lb	N·m	ft-lb	N·m	ft-lb
1/4-20	7.4	5.6	11	8	16	12	4	3
1/4-28	8.5	6	13	10	18	14	7	5
5/16-18	15	11	24	17	33	25	11	8
5/16-24	17	13	26	19	37	27	17	12
3/8-16	27	20	42	31	59	44	18	13
3/8-24	31	22	47	35	67	49	33	24
7/16-14	43	32	67	49	95	70	26	19
7/16-20	49	36	75	55	105	78	39	29
1/2-13	66	49	105	76	145	105	52	39
1/2-20	75	55	115	85	165	120	61	45
9/16-12	95	70	150	110	210	155	72	53
9/16-18	105	79	165	120	235	170	85	62
5/8-11	130	97	205	150	285	210	91	67
5/8-18	150	110	230	170	325	240	125	93
3/4-10	235	170	360	265	510	375	145	105
3/4-16	260	190	405	295	570	420	145	105
7/8-9	225	165	585	430	820	605	195	145
7/8-14	250	185	640	475	905	670	220	165
1-8	340	250	875	645	1230	910	280	205
1-12	370	275	955	705	1350	995	310	230
1 1/8-7	480	355	1080	795	1750	1290	310	230
1 1/8-12	540	395	1210	890	1960	1440	480	355
1 1/4-7	680	500	1520	1120	2460	1820	525	390
1 1/4-12	750	555	1680	1240	2730	2010	960	705
1 3/8-6	890	655	1990	1470	3230	2380	1060	785
1 3/8-12	1010	745	2270	1670	3680	2710	1730	1270
1 1/2-6	1180	870	2640	1950	4290	3160	1880	1380
1 1/2-12	1330	980	2970	2190	4820	3560	2960	2190

Torque tolerance + 0%, -15% of torquing values. Unless otherwise specified use torque values listed above.

25199

**Disc or Coulter Gang Bolt Torque 1 1/2"-6 650-750 Foot-pounds (175 lbs on 4' cheater).**

Torque Values Chart	
Wheel Bolt Torque Values	1 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)



## **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

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