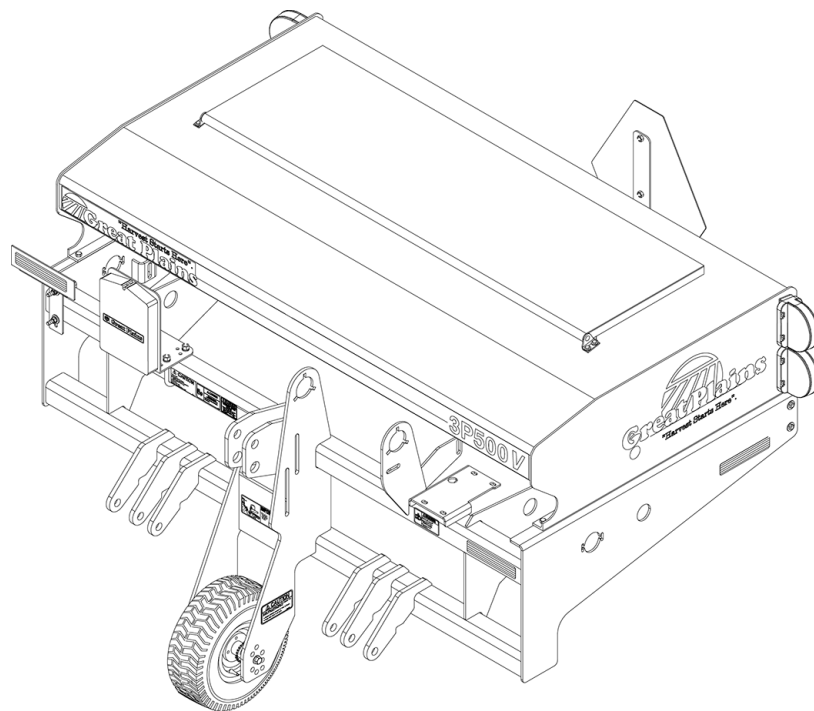


Great Plains

# 3-Point 5-Foot and 6-Foot Drills

# OPERATOR MANUAL

MODELS 3P500, 3P500V and 3P600



## Original Instructions 118-794M



*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 optional equipment not supplied with standard unit.*

## 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)

To our customer:

Congratulations on the purchase of your Great Plains product. Great Plains welcomes you to its growing family of new product owners. Your product has been designed and built by skilled workers using quality materials.

Your dealer has performed the necessary pre-delivery service to your machine, and will advise you of the proper maintenance and operating practices that will give you long, satisfactory use of your machine. Do not hesitate to contact your dealer when you have a question related to your machine.

Your machine has been designed to run efficiently in most operating conditions, and will perform relative to the service it receives. If you need customer service or repair parts, contact your dealer who has trained personnel, repair parts, and equipment specially designed for Great Plains products.

Read this manual carefully before using the machine. It will familiarize you with safety, operation, adjustments, and maintenance of your new equipment. This manual must always be kept with your machine.

Great Plains wants you to be satisfied with your product. 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 he is aware of any problems so he can assist you.
2. If you are still dissatisfied, 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, USA 67402-5060

*Printed 03/28/2024 | English*

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P.O. Box 5060  
Salina, KS 67402

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# Introduction

welcomes you to its growing family of new product owners. Your product 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 3P500, 3P500V and 3P600 are 3-point seeding implements. The implement name has straight arm, double disc 00 Series openers. The opener discs make a seed bed, and seed tubes mounted between the discs place seed in the furrow. Press wheels following the opener discs close the furrow and gauge opener seeding depth. A T-handle on the opener body makes seeding depth adjustments.

The metering system is driven from the gauge wheel. Seeding rates are set by rate adjustment handles and a Drive Type gearbox for the main seed box.

## Intended Usage

Use this implement to seed production-agriculture crops in conventional or minimum tillage applications.

## Models Covered

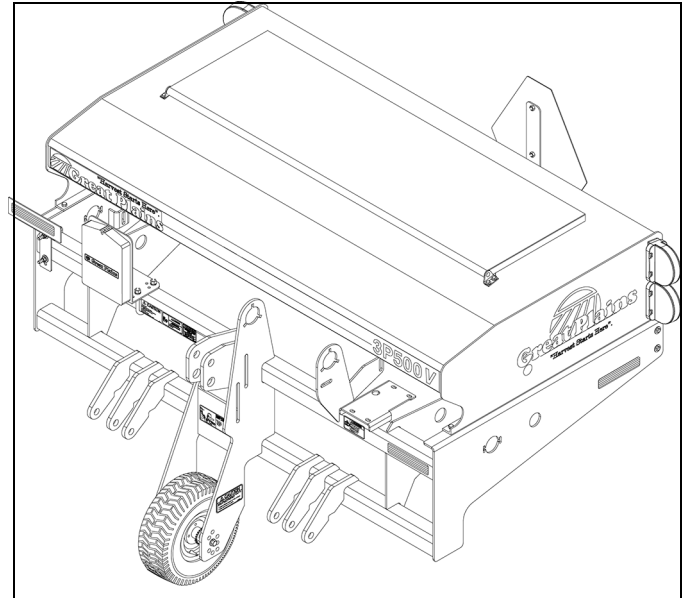
This manual applies to implement name models:

Standard implement names have a Main Seed box. Small Seeds capability may be added to Models 3P500 or 3P600.

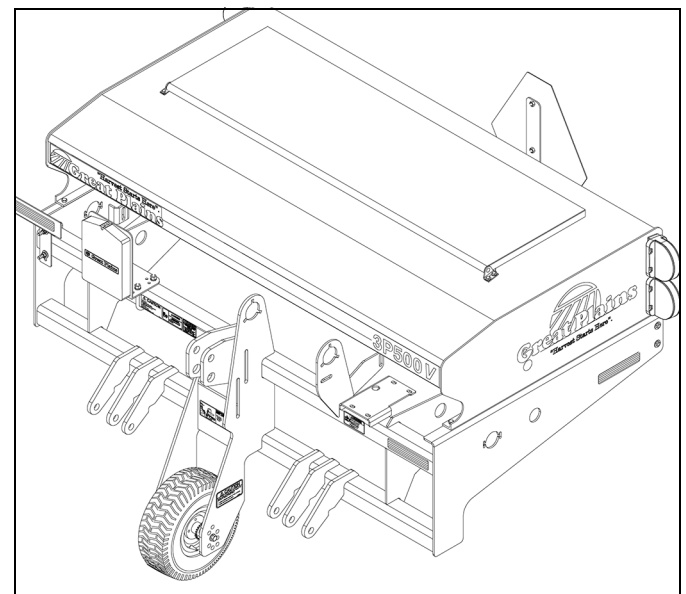
The Model 3P500V (Vineyard) is a low-profile version of the 3P500.

## Document Family

	Operator Manual (this document)
	Parts Manual
	Seed Rate Manual
152-355M	Electronic Acremeter Manual



3P500 Compact Drill



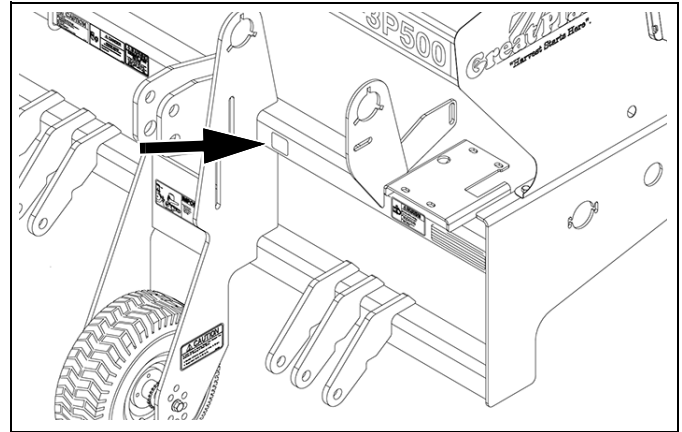
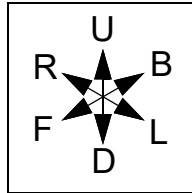
3P500V Compact Drill

68359E

## ■ Using This Manual

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

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.



Serial Number Location

68361E



**Identifies an Economic (not a Safety) Risk:**

*NOTICE provides a crucial point of information related to the current topic. Read and follow the instructions to avoid damage to equipment and ensure desired field results.*

**NOTE:** This form sets off useful information related to the current topic, or forestalls possible misunderstanding.

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

## ■ Owner Assistance

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

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

Record your implement name model and serial number here for quick reference:

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

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

## ■ Further Assistance

and your dealer want you to be satisfied with your new product. 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:

**P.O. 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.



**Parts Manual QRC**

The QR Code to the left will take you to this machine's parts manual. Use your smart phone or tablet to scan and start viewing.



**Product Manuals QRC**

The QR Code to the left will take you to Great Plains' catalog of product manuals. Use your smart phone or tablet to scan and start viewing.



# Safety Information

## ■ Safety Symbols and Signal Words

### Observe Safety and Informational Symbols

Throughout this manual you will see the following safety and informational symbols. They indicate safety hazards, machine hazards, or information to improve operation. Read the instructions carefully whenever you see any of these symbols:



The safety symbol indicates a potential safety hazard to persons operating or near the machine and advises on how to avoid it.



The notice symbol indicates a potential for machine or property damage from operator error and advises on how to avoid misuse.



The information symbol indicates useful - but not crucial - information for machine operation, assembly, or adjustment.

### Be Aware of Signal Words

Some decals are accompanied by a signal word. Signal words indicate the seriousness of a potential hazard. These signal words are:

#### **DANGER**

DANGER indicates an imminent hazard which, if not avoided, will result in death or serious injury. This signal word is limited to the most serious situations, typically for unguarded machine components.

#### **WARNING**

WARNING indicates a potential hazard which, if not avoided, could result in death or serious injury including hazards that are exposed when guards are removed. It also alerts against unsafe practices.

#### **CAUTION**

CAUTION indicates a potential hazard, which if not avoided, may result in minor or moderate injury. It also alerts against unsafe practices.

## ■ Before Getting Started



### Read Machine Information

- Read this manual in its entirety before attempting to start and operate the machine. Do not let anyone operate machine without proper instruction.
- Non-Great Plains components on this machine may contain additional safety information not found in this manual. Consult the manufacturer's safety information and product decals to safely use products from third-parties.

### Wear Appropriate Clothing and Equipment

- Never wear loose clothing around machine. Always wear appropriate clothing and equipment such as hard hats, gloves, face masks, eye protection, and work or steel-toed boots as needed.
- Prolonged exposure to machine noise during operation can cause hearing impairment or loss. Use proper hearing protection like earmuffs or earplugs while working.

### Inspect Machine Before Use

- Inspect brakes, link pins, and other mechanical parts for wear and dirt buildup, and check that all guards and shields are undamaged, installed, and secure before operating machine.
- Check that hydraulic fittings are tight and all hydraulic hoses and lines are in good working condition before applying pressure to the system.
- Do not modify the machine. Unauthorized modification can result in unsafe conditions that lead to machine damage or personal injury.

## ■ Machine Use



### Operate Responsibly

- Maintain attention on operation at all times to avoid injury to yourself or others.
- Do not operate machine while distracted by a smart phone, tablet, or similar electronic device, or while impaired by alcohol, medication, any controlled substance, or while fatigued.
- Do not ever allow passengers to ride on any part of the machine at any time, for any reason.

### Handle Hydraulics with Care

- Keep clear of machine while hydraulics are in use. Any failure in the hydraulic system can cause machine parts to move or fall rapidly with a great deal of force. Anyone struck, caught between, or crushed beneath these parts can suffer serious injury or even death.
- A raised planter without cylinder locks installed or without active hydraulic pressure will slowly lower over time. Use tractor hydraulics to raise planter only for brief periods, such as field turns and cylinder lock installation.
- Relieve hydraulic pressure and wait for all parts to come to a complete stop before disconnecting any hydraulic lines or performing any work on the hydraulic system.
- Do not have skin exposed when searching for leaks in hydraulic lines. Use a piece of cardboard or wood to locate leaks. If injured by escaping hydraulic fluid, seek immediate medical attention.
- Wear protective gloves and eye protection when working on the machine's hydraulic system.

### Avoid Potential Collision Damage

- Watch your surroundings at all times. Do not operate with nearby bystanders or while anyone makes adjustments or fills the machine.
- Avoid contacting overhead obstructions such as low bridges, overpasses, and power lines.
- Do not operate near ditches, holes, steep slopes, embankments, or other surfaces which may collapse under the machine's weight or tip the machine over.

## ■ Chemicals and Waste



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

- Read chemical manufacturer's instructions carefully, and then take appropriate precautions before use. In the absence of manufacturer instructions, chemical labels will inform you of any potential hazards and their severity.
- Wear protective clothing and as well as any other personal protective equipment.
- Wash hands and face before eating after working with chemicals. Shower as soon as application is completed for the day.
- Apply only with acceptable wind conditions. Make sure wind drift of chemicals will not affect any surrounding land, people or animals.
- Dispose of unused chemicals and chemical waste as specified by the manufacturer. Observe all the local ordinances and regulations in your area.

### Dispose of Waste Properly

- Dispose of waste properly to avoid threatening the environment and ecology. Potential harmful waste includes oil, fuel, filters, and batteries.
- Use a leak-proof container for draining fluids. Do not use a food or beverage container that may be mistaken for a consumable product.
- Do not drain or pour waste onto the ground, down a drain, or into any water source.
- Contact your local environmental or recycling center for the proper way to recycle or dispose of waste.

## ■ Machine Maintenance



### Follow Tire Recommendations

- Consult the tire manufacturer's recommendations for maintenance and replacement of your machine's tires. Only use prescribed tire sizes with correct ratings and tire pressure.
- Replacing tires is potentially hazardous. Have a trained professional change the machine's tires with the proper tools and equipment.
- Avoid over inflation of tires and over torquing wheel bolts. Review the machine specifications and tire information in this manual first before doing any work on the tires of your machine.

### Prepare for Performing Maintenance

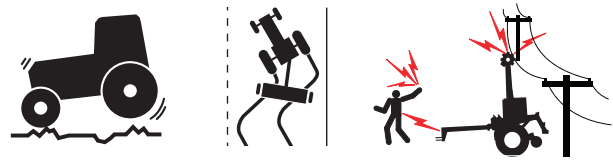
- Understand procedure before performing any work. Always use proper tools and equipment.
- Only work on or around the machine if frame is lowered, or raised with the cylinder locks in place.
- Lower the implement. Put tractor in Park, turn off engine. To prevent unauthorized starting, remove key before performing maintenance or service work.
- If work must be performed with wings raised, set the wing tilt locks to the road position.
- Disconnect electronic monitor and lighting harness from the tractor before servicing or adjusting electrical systems.
- Check and replace worn brake lines as needed.
- Remove all tools and unused parts from implement before operation.

## PTO



- Wait until all moving components have completely stopped before adjusting, cleaning, or servicing any PTO driven equipment.
- When operating stationary PTO driven equipment, always apply the parking brake and place chocks behind wheels.
- Stay clear of and never step over any rotating parts.

## ■ Machine Transport



- This machine does not meet all local, regional, or national regulations for transport on a public road. Know and comply with your local laws and regulations before transporting your machine.
- Transport only at recommended transport speed. Further reduce speed when turning.
- Before towing implement on roads, empty out all material from hoppers or boxes. Implement should never weigh more than 1.5 times the weight of towing vehicle.
- Know transport height and width of implement to avoid collision.
- Do not engage any hydraulic functions while machine is in transport.

## ■ Use Safety Lights and Devices



- Inspect safety chain and chain load rating before use with machine. Never use the safety chain for towing. Replace chain if any links or end fittings are broken, stretched, or otherwise damaged.
- Always use safety lights and devices when transporting and operating the machine. If equipped, use flashing warning lights and turn signals whenever driving on public roads.
- Regularly inspect safety lights, signs, and devices to ensure that they are clean and visible from either end of the machine.

## ■ Shutdown and Storage

- Park the tractor and implement on a solid, level surface devoid of bystanders.
- Fold and tilt wings up.
- Put tractor in park or set the parking brake. Turn off engine and remove key from ignition.
- Turn lockout valve and wing lock levers to locked position to prevent the wings from lowering.
- Detach the tractor. Secure the implement using blocks.

# Safety Decals

## Safety Reflectors and Decals

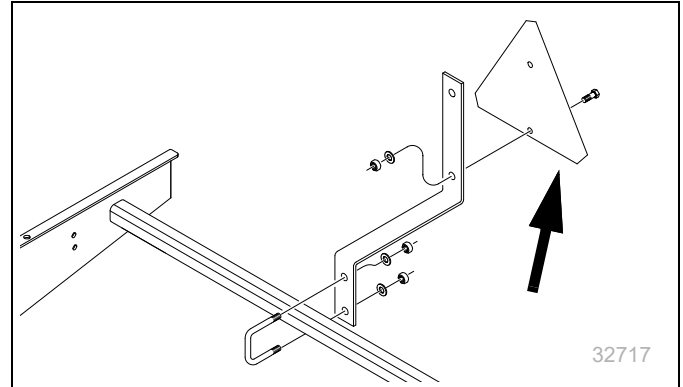
Your implement comes equipped with all lights, safety reflectors and decals in place. They were designed to help you safely operate your implement.

- 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 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.

### Reflector: Slow Moving Vehicle (SMV)



818-055C

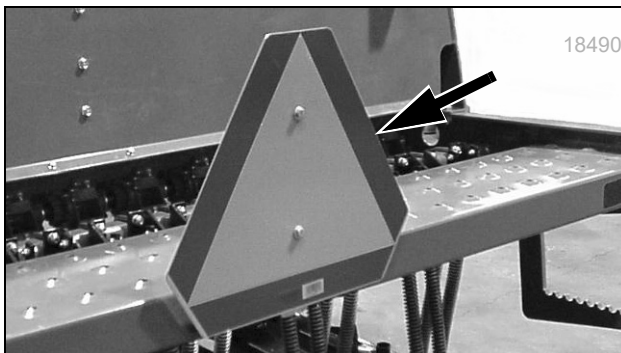


Model 3P500V

At center of walkboard; 1 total

See transport topic on page 12.

### Reflector: Slow Moving Vehicle (SMV)



818-055C

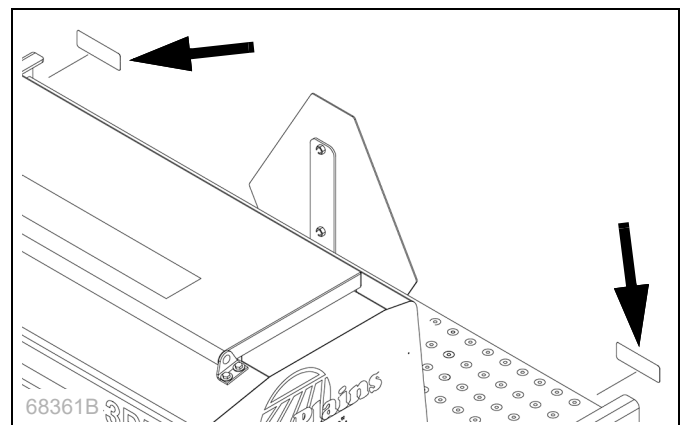


Models 3P500 and 3P600

At center of walkboard; 1 total

See transport topic on page 12.

### Reflectors: Red



838-266C

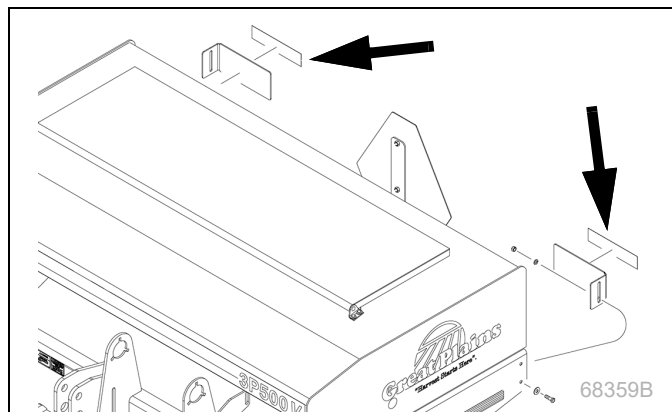


Models 3P500 and 3P600 (standard)  
Model 3P500V (Option)

On rear face of walkboard, left and right ends;  
2 total

See transport topic on page 12.

**Reflectors: Red**



**838-266C**

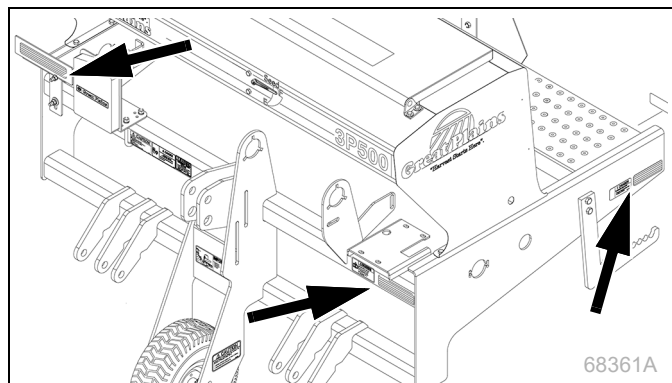


**Model 3P500V (Standard)**

On bracket at rear of seed box, left and right ends; 2 total

See transport topic on page 12.

**Reflectors: Amber**



**838-265C**

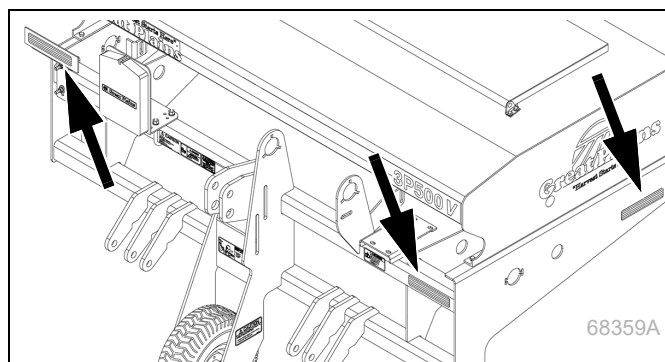


**Models 3P500 and 3P600**

On outside face of side frames, at rear; on front face of upper front tool bar, left end; and on bracket on upper front tool bar, right end; 4 total

See transport topic on page 12.

**Reflectors: Amber**



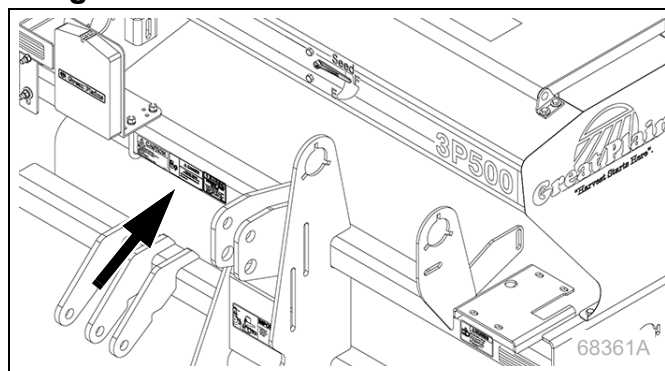
**838-265C Model 3P500V**



On outside face of side frames, at rear; on front face of upper front tool bar, left end; and on bracket on upper front tool bar, right end; 4 total

See transport topic on page 12.

**Danger: Hitch Crush**



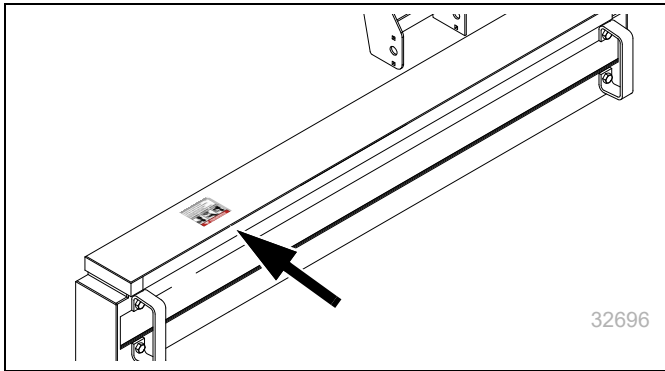
**818-590C**



**All Models**

Front face, top front tool bar, right of center; 2 total

**Danger: Possible Chemical Hazard (Option)**

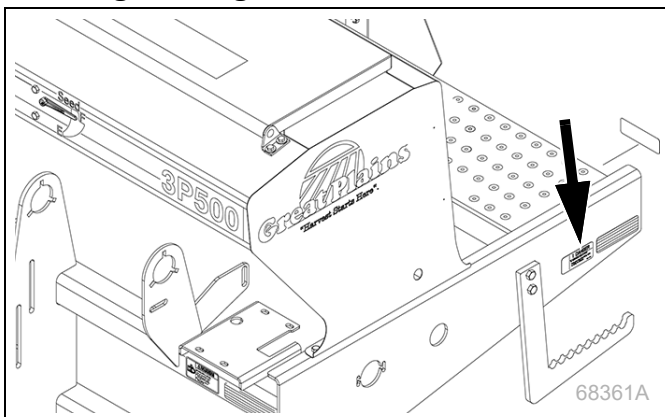


838-467C



(with Small Seeds Option only) Under lid;  
1 total

**Warning: Falling Hazard**



838-102C

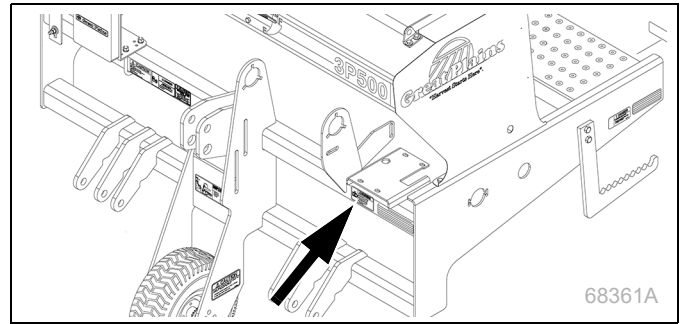


**Models 3P500 and 3P600 (standard)  
Model 3P500V (Option)**

On side frames at walkboard ends;  
2 total

See "Falling Hazard:" on page 17.

**Warning: Moving Parts (standard)**



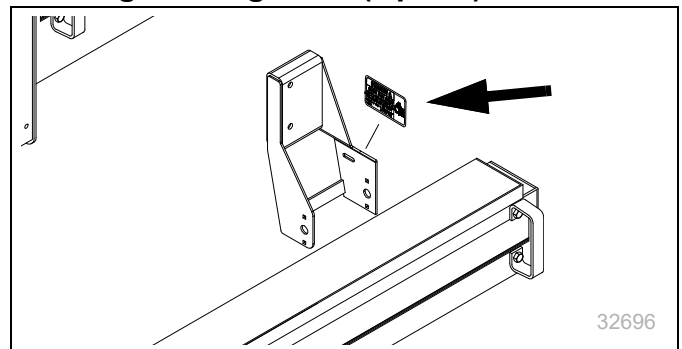
818-860C



**All Models**

On front face, upper front frame tube, below  
gearbox;  
1 total

**Warning: Moving Parts (Option)**



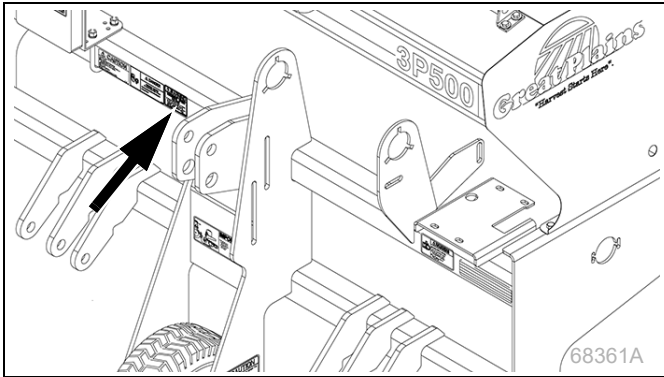
818-860C



(with Small Seeds Option only)

On front face, upper front frame tube, below  
gearbox;  
1 total

**Warning: Speed**



818-337C

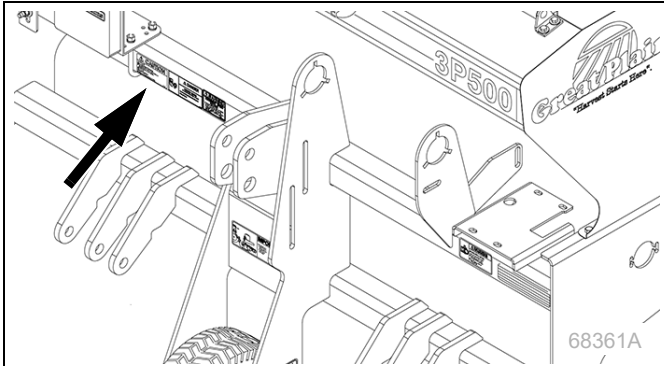


**All Models**

On front face, upper front frame tube, right of center;  
1 total

See transport topic on page 12.

**Caution: General**



818-719C

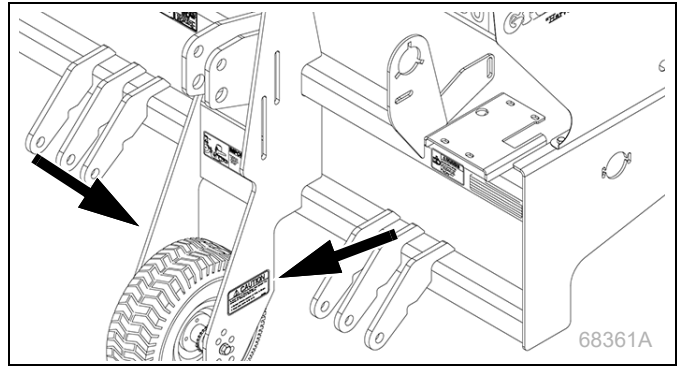


**All Models**

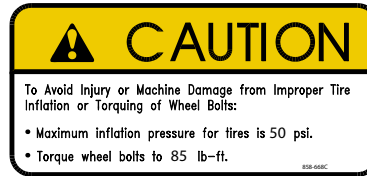
On front face, upper front frame tube, right of center;  
1 total

See "Safety Information" on page 3.

**Caution: Tire Pressure**



858-668C



**All Models**

On each side of wheel; 2 total

See "Safety Information" on page 3.

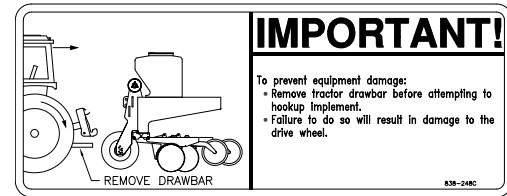
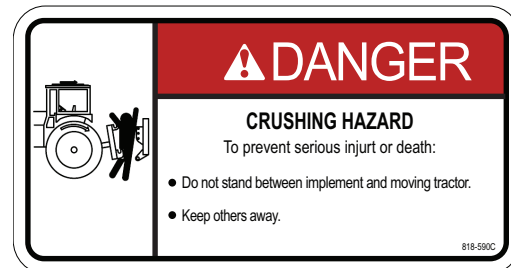
# Preparation and Setup

This section helps you prepare your tractor and implement name for use. Before using the implement name in the field, you must hitch the implement name to a suitable tractor and also setup the implement name.

## ■ Pre-Setup Checklist

1. Verify that dealer pre-delivery is complete (page 41) and optional accessories are installed (page 45).
2. Read and understand “**Safety Information**” on page 3.
3. Check that all working parts are moving freely, bolts are tight, and cotter pins are spread.
4. Check that all grease fittings are in place and lubricated. See “**Lubrication and Scheduled Maintenance**” on page 30.
5. Check that all safety decals and reflectors are correctly located and legible. Replace if damaged. See “**Safety Decals**” on page 6.
6. Inflate tires and tighten wheel bolts as at “**Tire Pressures**” on page 37.

## ■ Hitching Tractor to Drill



### *Equipment Damage Risk:*

Due to interference with the gauge wheel assembly, product models 3P500, 3P500V and 3P600 are not compatible with Great Plains accessory hitches CPH, PFH and SSH, nor with the hitch set-back kit.



### **Crushing Hazard:**

You may be severely injured or killed by being crushed between the tractor and product. Do not stand or place any part of your body between product and moving tractor. Stop tractor engine and set park brake before installing the hitch pin.



### **Certain Machine Damage:**

Remove tractor draw bar before hitching. The product drive wheel will be damaged if drawbar is not removed.

1. Raise or lower tractor 3-point arms as needed and pin lower arms to product.
2. Pin upper arm to product.
3. Slowly raise product. Watch for cab interference.
4. Adjust top 3-point link so the top edge of product box is parallel with the ground when drilling.

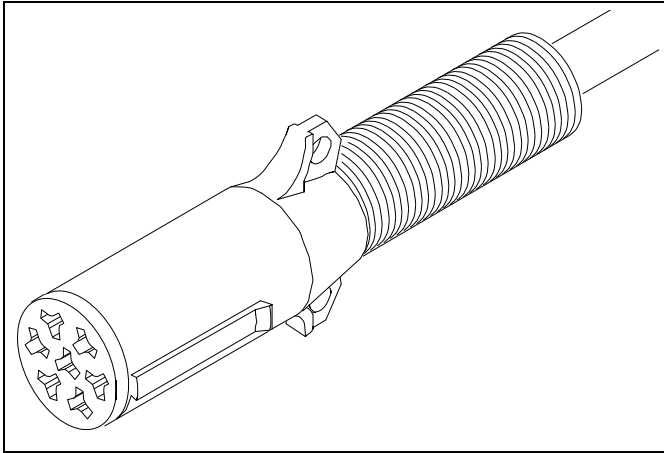
### **NOTE:**

Do not use link to adjust opener depth. For opener adjustments, refer to “**Opener Depth (Press Wheel Height)**” on page 26. Set your tractor 3-point draft control to Float position for planting.



## ■ Electrical Connection (Option)

5. Plug implement name electrical lead into tractor seven-pin connector. If your tractor is not equipped with an SAE-J560B seven-pin connector, contact your dealer for installation.



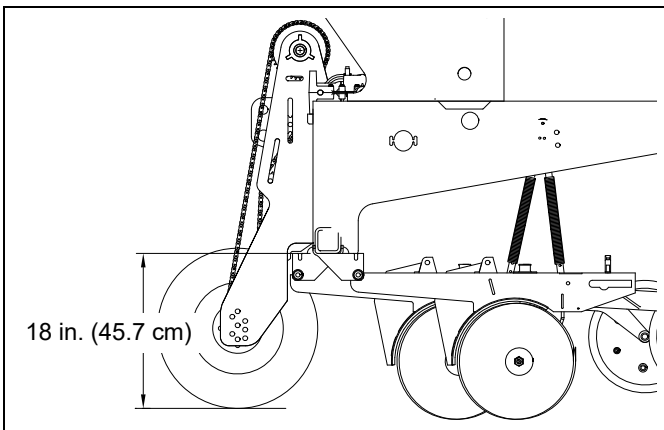
Lighting Connector

26467

## ■ Height and Leveling the Drill

Refer to “Adjusting 3-Point Height” on page 20

1. Initially adjust product so opener tool bar runs 18 in. (45.7 cm) above ground when product is lowered in the field.



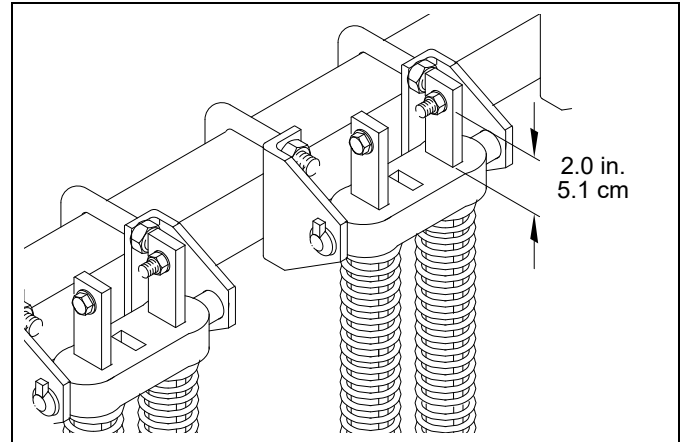
Initial Field Height

18545

2. The drive wheel should be in the fourth mounting hole from the top (factory setting).

Note: The drive may need to be adjusted due to ground conditions.

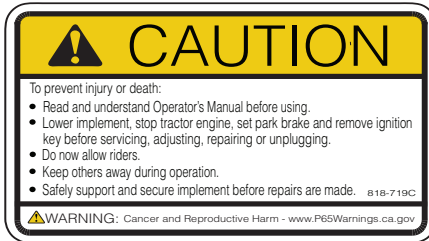
3. Level the product frame with the top 3-point link.
4. When drill is level, the gap between the spring-rod casting and the cross bolt will be about 2 inches. This is a general dimension that will vary with the amount of down pressure required for your planting conditions.



Initial Spring Rod Reveal

10548

# Operation



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

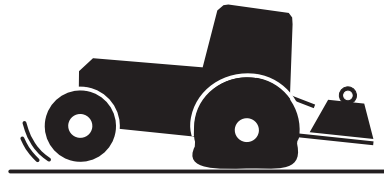
1. Carefully read “**Safety Symbols and Signal Words**” on page 3.
2. Lubricate product per “**Lubrication and Scheduled Maintenance**” on page 30.
3. Check all tires for proper inflation. See “**Tire Pressures**” on page 37.
4. Check all bolts, pins and fasteners. See “” on page 38.
5. Check product for worn or damaged parts. Repair or replace faulty parts before going to the field.
6. Rotate both drive wheel to verify that the drive and meters are working properly and free from foreign material.



### **Falling Hazard:**

Watch your step when walking on product steps and walkboard. Falling from product could cause severe injury or death.

## ■ Transporting



### **Use an Adequate Tractor (3-Point)**



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

*Insufficient weight on tractor steering tires can dangerously reduce steering authority, particularly during acceleration and ascending hills. You can lose directional control entirely, which could result in a major accident, serious injury, or death. Adding too much ballast could lead to brake or other mechanical failures, tire failures and loss of control.*

- Ensure that the tractor is rated for, and correctly ballasted for the implement name's 3-point loading. Check that implement name plus ballast does not exceed the tractor's capability.
  - Avoid transport with material loaded in boxes.
- The total product weight and center of gravity vary with product configuration and material load. See tables below.

**3P500 Example Weights**

	3P500 Configuration	
	7-Row 7.5 inch (19.1 cm)	9-Row 6 inch (15.2 cm)
<b>Standard Drill (Main Seed Only), Empty</b>	1100 lbs. (500 kg)	1300 lbs. (590 kg)
<b>Standard Drill with Main Seed Loaded</b>	1700 lbs. (770 kg)	1900 lbs. (860 kg)
<b>Drill with Small Seeds option, Empty</b>	1170 lbs. (530 kg)	1370 lbs. (620 kg)
<b>Drill with Main and Small Seeds Loaded</b>	1840 lbs. (840 kg)	2040 lbs. (930 kg)

32807D

**3P600 Example Weights**

	3P600 Configuration	
	9-Row 7.5 inch (19.1 cm)	11-Row 6 inch (15.2 cm)
<b>Standard Drill (Main Seed Only), Empty</b>	1380 lbs. (630 kg)	1500 lbs. (680 kg)
<b>Standard Drill with Main Seed Loaded</b>	2100 lbs. (950 kg)	2220 lbs. (1010 kg)
<b>Drill with Small Seeds option, Empty</b>	1470 lbs. (670 kg)	1590 lbs. (720 kg)
<b>Drill with Main and Small Seeds Loaded</b>	2270 lbs. (1030 kg)	2390 lbs. (1090 kg)

32807G

## ■ Acremeter Operation

A battery-operated electronic acremeter is supplied with the product. The display module for the system is normally on the front face of the main toolbar near the left gauge wheel.



Acremeter Console

80377

## Operating Instructions

The electronic acremeter operates in two modes: sleep and entry. In sleep mode, the display is blank, and the counter is accumulating acres. Sleep mode will be entered if a button is not pressed for 20 seconds. In entry mode, the display is on, and the operator can enter values.

To access entry mode, press and hold the SELECT button, the acre counter will cycle through the functions that it can perform. The available screens, in order, are:

- Field Acre Count
- Total Acre Count
- Battery Life
- Password
- Pulses per 400ft
- Swath Width
- Calibration
- Units of Measurement
- Sensor Count
- Change Password

The acremeter calculates and displays the field acres and total acres accumulated.

The meter counts rotations of the main ground drive shaft before the clutch. The meter tallies all movements with the drill unfolded, whether planting or not.

There are three buttons on the face of the acremeter:



**Select** - Navigates to the next screen. If the current screen has any settings, pressing the Select button will also save the current screen's settings.

Pressing Select while the screen is inactive will activate display mode starting on screen A1.



**Up Arrow** - Increments current value. If the current screen only displays a reading, then arrow buttons can be used to reset current reading or for navigation.



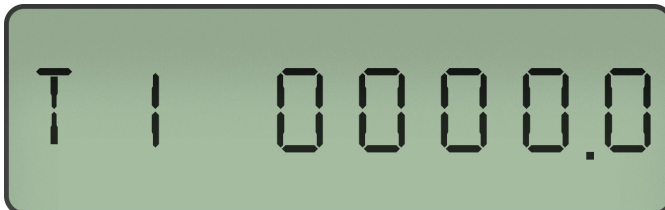
**Down Arrow** - Decrements current value. If the current screen only displays a reading, then arrow buttons can be used to reset current reading or for navigation.

**Acrometer Screens****Field Acre Count**

Displays the number of acres covered since the field acre counter was last reset. If there is an additional acre counting sensor on the machine, an A2 screen will immediately follow the A1 and T1 screens.

Pressing Select navigates to screen T1 or T2.

Press and hold both arrow buttons to reset the current field acre counter.

**Total Acre Count**

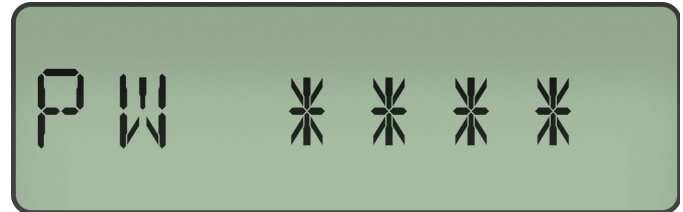
Displays the total number of acres covered since the total acre counter was last reset. If there is an additional acre counting sensor on the machine, a T2 screen will immediately follow the T1 and A2 screens.

Pressing Select navigates to screen BAT or A2.

**Battery Life**

Displays the percentage of remaining battery life.

Pressing Select navigates to screen PW.

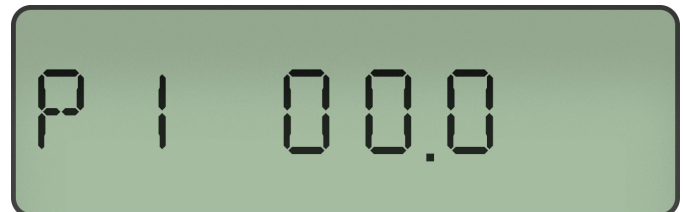
**Password**

Displays the password screen. Entering your system password enables access to configuration parameters.

Use the arrow buttons to enter your 4 digit password.

Pressing Select while password is salted - \*\*\*\* - will navigate to the A1 screen.

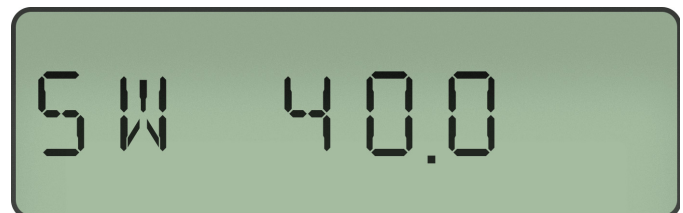
Pressing Select while the correct password value is entered will navigate to the P1 screen. If the password is incorrect, the PW screen is reset.

**Pulses Per Distance**

Displays the pulse scaling factor. This value affects the number of pulses emitted per 400ft traveled.

Use the arrow buttons to increase or decrease the scaling factor.

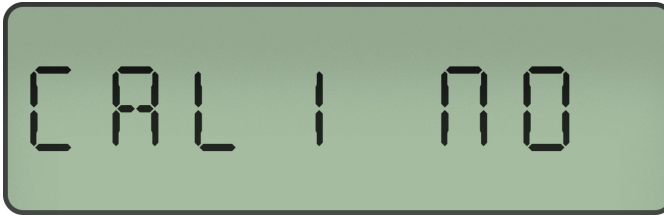
Pressing Select will save the configuration and navigate to the P2 or SW screen.

**Swath Width**

Displays the machine's swath width. To correctly calculate the number of acres planted, the acre meter needs the swath width of the product.

Use the arrow buttons to increase or decrease the swath width.

Pressing Select will save the configuration and navigate to the CAL1 screen.

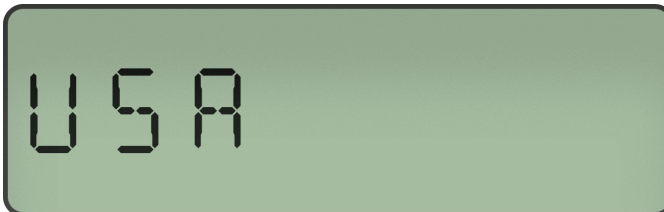
**Calibration**

Displays either the calibration request status or the current calibration value.

If displaying the request status - YES or NO - and status is YES, pressing Select begins sensor calibration.

If displaying the request status and status is NO, pressing Select does not begin sensor calibration and instead navigates to the UNITS or CAL2 screen.

When calibrating and calibration value is greater than the acremeter's minimum required value, pressing Select saves the calibration value and navigates to the UNITS or CAL2 screen.

**Units of Measurement**

Displays the units of measurement used by the acre meter.

Use the arrow buttons to change the units of measurement to either USA - Imperial - or METRIC.

Pressing Select saves the unit selection, converts the swath width value, and navigates to the SENSOR screen.

**Sensor Count**

Displays the number of active sensors in the system.

Use the arrow buttons to change the entry value.

Pressing Select saves the sensor count configuration and navigates to the CHPW screen.

**Change Password**

Displays either the password change status or the new password value.

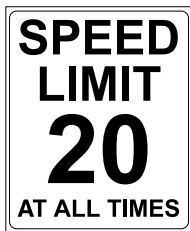
If displaying the change status - YES or NO -, use the arrow buttons to switch the change status.

If displaying a new password value, use the arrow buttons to increase or decrease the new password value. Holding the arrow buttons will automatically increase or decrease the password value.

If displaying the change status - YES or NO - and the status is YES, pressing Select allows for a new password to be entered.

If displaying the status and status is NO, pressing Select navigates to the A1 screen.

## Transport Cautiously



### Keep Clearance in Mind

Remember that the product may be wider than the tractor. Allow safe clearance.

### Observe Road Rules

Comply with all national, regional and local safety laws when traveling on public roads.

Reduce speed on rough roads.



#### Loss of Control Hazard:

*Towing at high speeds or with a vehicle that is not heavy enough could lead to loss of vehicle control. Loss of vehicle control could lead to a serious road accident, injury and death. To reduce the hazard, do not exceed 20 mph (30 kph).*



#### Falling Hazard:

*Watch your step on the walkboard and walkboard steps. A fall could result in serious injury or death. Load seed only with the drill hitched and lowered.*



#### Possible Chemical or Dust Hazards:

*Take all prescribed material safety precautions.*

## Loading Seed

*Fully loaded with dense seed, the product weight can be nearly double the empty weight. Include seed weight when checking tractor capability.*

The product must be hitched for seed loading.

Load slightly more seed than needed, because consumption rates can vary between compartments even though the furrow rates are identical.

## Main Seed Box Loading

1. Check that all meter doors are positioned for the seed size, and not set for clean-out. See “Position Seed Cup Doors” in seed Rate Manual. If loading prior to transport, set them to position 1 (smallest seed).
2. Install or remove optional seed plugs as desired for the row spacing planned. Refer to Seed Rate Manual.

If loading prior to transport, and calibration has not yet been done, set Seed Rate Handle to 0. At 0, and with the doors at 1, no seed can leak during transport.

3. The main seed box lid handle is also a latch. It needs to pivot up to release the lid.
4. Load seed evenly into compartments. To reduce wear, remove final drive chain if an unused Small Seeds box is installed.

## Loading Small Seeds Box

1. If loading prior to transport, and calibration has not yet been done, set Seed Rate Handle to 0. At 0, no seed can leak during transport.
2. Take all necessary materials safety precautions if the seed is treated.
3. The Small Seeds lid is held closed by two external rubber latches. Pull them up and to the rear to release the lid.
4. Load seed evenly into compartments.
5. To reduce wear, remove main shaft drive chain for main seed box, if unused.

## Field Operation



#### Machine Damage Risk:

*Never back up with openers in the ground. Seed tube and firmer damage is likely. Seed tube plugging is almost certain. Always raise the product when stopped and prior to reversing.*

1. Hitch product to a suitable tractor (page 10).
2. Set seed population per rate chart and calibration, from Seed Rate manual.
3. Load box with clean seed.
4. Raise product. Using calibration crank or 3-point gauge wheel, operate the meter drive system. Check that feed cups, seed tubes and drives are working properly and free from foreign material by looking for seed flow under each opener.

5. Lower product. Set hitch to Float.
6. Pull forward. Stop. Check tool bar height and opener depth.
7. Begin seeding.
8. Always lift product out of the ground when turning at row ends and for other short-radius turns. Seeding stops automatically as product is raised.

## ■ Parking

Perform the following steps when parking the product for 36 hours or less. See “**Storage**” on page 18, to prepare for long-term storage.

9. Park product on a level, solid area.
10. Lower 3-point hitch until product is on the ground.
11. Unplug wiring harness from tractor. Do not allow harness end to rest on the ground.
12. Extend or retract the top link of the tractor until top 3- point pin is free. Remove pin.
13. Remove pins from lower links.

## ■ Storage

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

1. Unload seed boxes. Thoroughly clean seed-treatment residue from boxes and feed cups. See “**Seed Clean-Out**” on page 27.
2. Remove any dirt and debris that can hold moisture and cause corrosion.
3. Lubricate and adjust all roller chains.
4. Take special care to oil feed cup drive sprocket in its square bore.
5. Perform “**Lubrication and Scheduled Maintenance**” on page 30.
6. Inspect product for worn or damaged parts. Make repairs and service during the off season.
7. Use spray paint to cover scratches, chips and worn areas on the product to protect the metal.
8. Disconnect seed hoses from openers. Permanent elongation and premature cracking of hoses may occur if stored connected. Plug hose ends to prevent pest entry into seed boxes.
9. Cover with a tarp if stored outside.



# Adjustments

To get full performance from your product, you need an understanding of all component operations, and many provide adjustments for optimal field results. Some of these have been covered earlier in this manual.

Even if your planting conditions rarely change, some items need periodic adjustment due to normal wear.

## Planting Depth

Setting nominal planting depth, and achieving it consistently, is affected by multiple adjustable product functions. From greatest to least effect they are:

- Opener depth (press wheel height)
- Opener down-pressure (spring)
- Row unit down-pressure spring
- Opener (tool bar) height
- Disc blade adjustments (as discs wear)

## Seed Rates

Seeds are applied by fluted feed meters driven by the gauge wheel. Independent mechanisms control the rate for each box. Changing one box rate does not affect the other.

Details of rate setting are in the Seed Rate Manual

**Main Box** seed rate is controlled by adjustments for:

- Drive Type gearbox lever
- Rate handle at seed box (product front)
- Feed Cup Door handle (one each seed tube)

**Small Seeds** (Option) rate is controlled by a Rate Handle (product rear).

Adjustment	Page	The Adjustment Affects
Main Seed Box Rate		
Drive Type	SRM <sup>a</sup>	Coarse seed rate
Rate Adjustment Handle	SRM <sup>a</sup>	Fine seed rate
Seed Cup Doors	SRM <sup>a</sup>	Consistent seed metering
Small Seeds Rate	SRM <sup>a</sup>	Fine seed rate
3-Point Height	20	Compensate for unusual opener depths
Frame Level	11	Consistent seed depth
00 Series Row Unit Adjustments		
Opener Springs	22	Consistent seed depths in challenging conditions
Disc Blade Adjustments	23	Compensate for disc wear
Disc Scraper Adjustment	24	Consistent seeding depth
Opener Depth (Press Wheel Height)	26	Primary control of seed depth
Press Wheel Selection	33	Furrow coverage behind seeding

a. SRM: Seed Rate Manual: This adjustment is described in manual .

■ **Adjusting 3-Point Height**

1. Determine new opener depth desired. With new discs, the axle holes provide these depths:

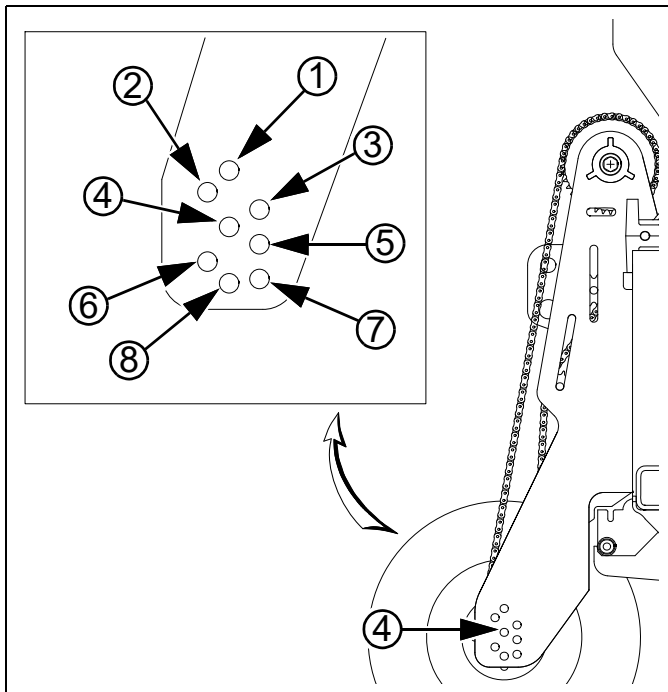
Hole No. (from top)	Opener Depth (n)	
	Inches	mm
1	3 1/4 in.	83 mm
2	2 5/8 in.	67 mm
3	2 1/8 in.	54 mm
4 (f)	1 5/8 in.	41 mm
5	1 1/8 in.	29 mm
6	5/8 in.	16 mm
7	1/8 in.	3 mm
8	0 in.	

f. Factory setting.

32807H

n. Depth is with new opener disc blades.

2. Raise product, unless wheel is already off ground sufficiently to allow wheel spindle relocation.
3. Relax chain idlers.
4. Remove wheel bolts. Move spindle to new hole pair. Re-install wheel bolts.
5. Re-engage chain idlers.



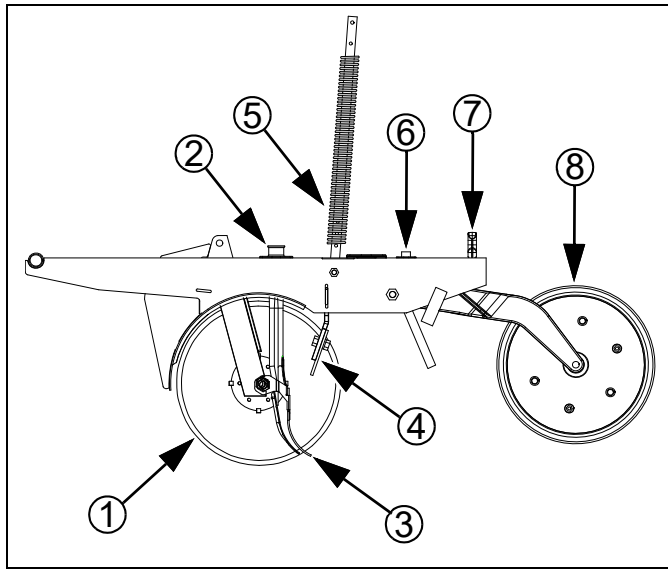
Height Adjustment

32806

Raising the gauge wheel spindle allows deeper opener disc depth (as set by T-handle) while keeping the opener frame level. Lowering the wheel provides shallower depth.

NOTE: Do not lower implement name to aid in penetrating hard soil. Instead, increase opener down-force (page 22).

## ■ 00 Series Row Unit Adjustments



00 Series Row Unit 32809



### **Equipment Damage Risk:**

*Do not back up with row units in the ground. To do so will cause severe damage and row unit plugging.*

(00 Series Row Unit above depicts a row unit fully populated with all optional accessories [except carbide scraper and optional seed firmer] supported for use with the 00 Series compact implement names)

From front to back, a 00 Series row unit can include the following capabilities (some optional):

1. Disc Blades: standard, 2 per row unit  
Double disc blades open a furrow, creating the seed bed. Spacers adjust the blades for a clean furrow. See “**Disc Blade Adjustments**” on page 23.
2. Seed delivery tube: standard  
No adjustments are necessary.
3. Seed firming: seed flap (shown) standard:  
Seed-Lok<sup>®</sup> firming wheel (not shown)  
Improves seed-soil contact. See “**Seed-Lok<sup>®</sup> Lock-Up (Option)**” on page 24.  
Keeton<sup>®</sup> seed firmer (not shown)  
Improves seed-soil contact, and provides a stable arm for a low-rate liquid fertilizer delivery tube. See “**Keeton<sup>®</sup> Seed Firmer Adjustment (Option)**” on page 25.

4. Disc Scraper: standard  
In sticky soils, a scraper helps keep the opener discs operating freely. A slotted scraper is standard. A spring-loaded carbide scraper is optional. See “**Disc Scraper Adjustment**” on page 24.
5. Dual Down Pressure Springs: standard  
Each row unit is mounted on the implement name as a pivoting arm which allows the row unit to independently move up and down. The adjustable springs provide the force to get the row unit and attachments into the soil. See “**Opener Springs**” on page 22.
6. Small Seeds delivery tube: Option  
The tube may be angled forward or back as needed for optimal placement. See “**Small Seeds Tube Adjustment (Option)**” on page 25.
7. T-Handle: standard  
This is the primary control seed depth. See “**Opener Depth (Press Wheel Height)**” on page 26
8. Press wheels: standard (choice of types)  
These close the seed trench. The wheels also support the free end of the row unit, and provide the primary control over seeding depth. The only adjustment is the T-handle.

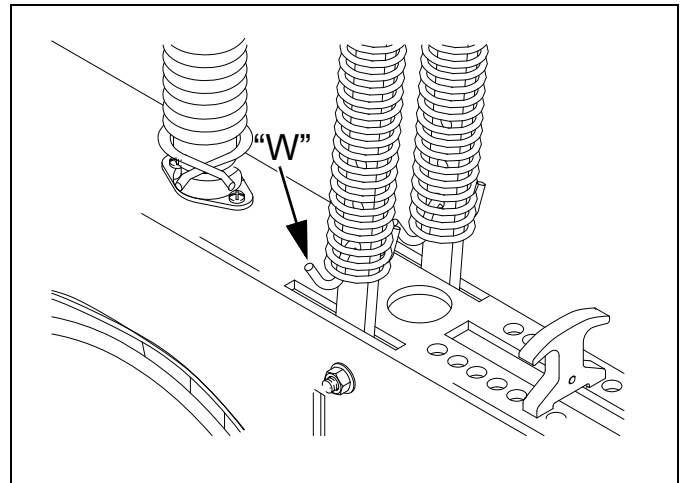
## Opener Springs

Opener springs provide the down pressure necessary for opener discs to open a seed trench. The springs allow the openers to float down into depressions and up over obstructions.

Each opener spring can be adjusted for down pressure. This is useful when planting in tractor tire tracks.

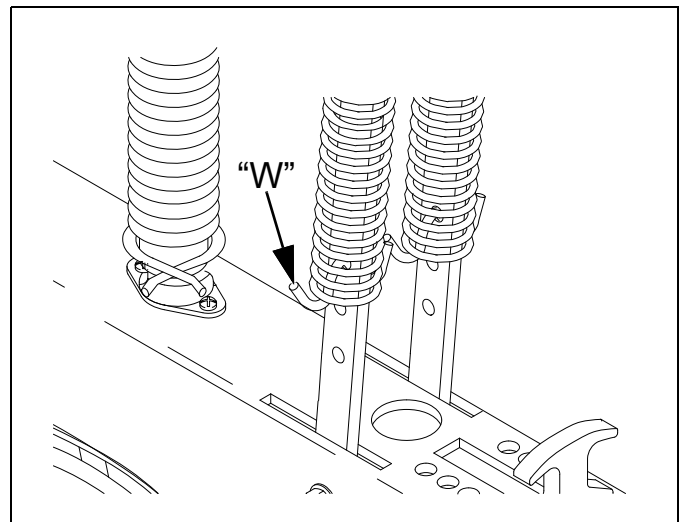
If coulter depth is altered for a row, the spring pre-compression needs to be changed to compensate for the change in row unit operating height.

To adjust the pressure, remove “W” clip at bottom of spring. Place “W” clip in a higher hole in spring rod for more pressure or in a lower hole for less pressure



Minimum Force

12102



Maximum Force

12103

Do not set row force higher on all rows. Use this adjustment only for a few rows, typically in tire tracks. Re-check product level (page 11) after adjusting row force.

## Disc Blade Adjustments

Raise product and block it up or lock it up.

### Opener Disc Spacing

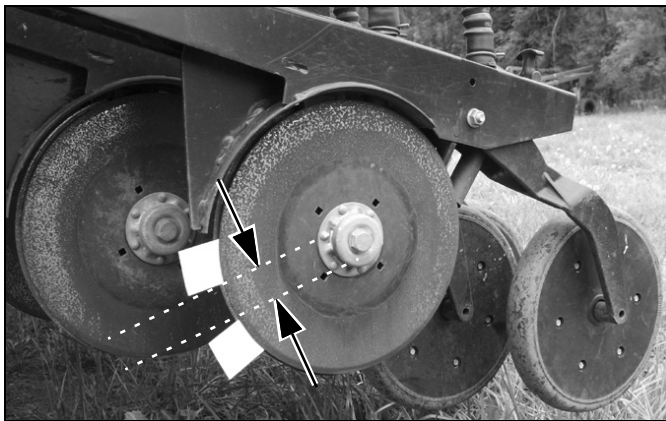


#### **Sharp Object Hazard:**

*Be careful working around and handling disc blades. Wear gloves. Edges of both new and well-worn blades can be sharp.*

Opener disc angle and stagger is not adjustable, but disc-to-disc spacing is, and may need attention as discs experience normal wear. Spacers must be reset when blades are replaced.

The ideal spacing causes the blades to be in contact for about one inch. If you insert two pieces of paper between the blades, the gap between them should be 0 to 1.75 in. (0 to 4.4 cm).



Checking Disc Contact

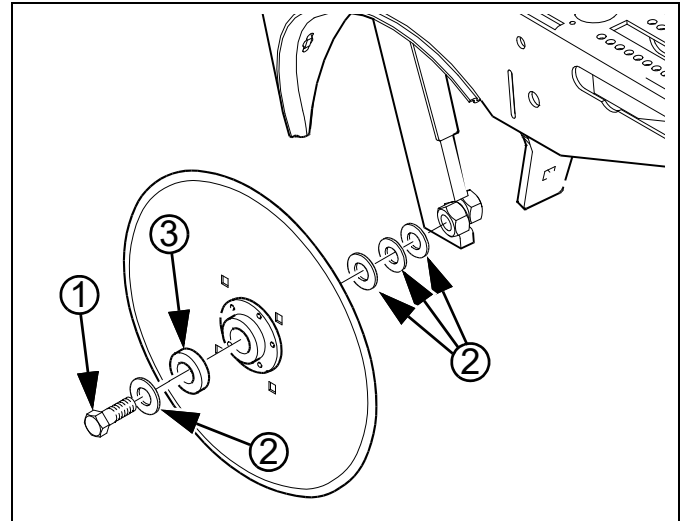
26451

If the blades do not touch, they should at least be close enough so that a business card encounters some friction when passing between them.

If the contact region is significantly larger or the gap too wide, it needs to be adjusted by moving one or more spacer washers. If the contact region varies with blade rotation, one or both blades is likely bent and in need of replacement. If removing all spacers cannot bring the blades into contact, they are worn out and need replacing.

## Adjusting Disc Contact

1. Remove the bolt ① retaining the opener disc on one side. Carefully remove the disc, noting how many spacers ② are outside the disc and inside the disc. Do not lose the hub components and dust cap ③.



Adjusting Disc Spacers

26385

### NOTE:

It is not necessary to remove the hub flange or bearing for this adjustment.

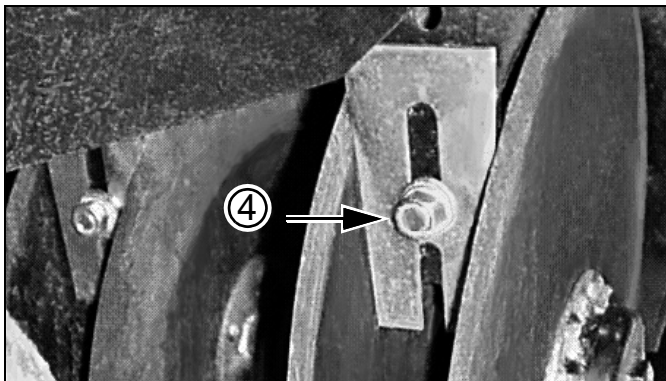
2. To reduce the spacing between the discs (the normal case), move one spacer washer ① from the inside to the outside of the disc. It may be necessary to loosen the scraper (page 24) to reduce disc-to-disc spacing.
3. Re-assemble and check disc contact.
4. Re-adjust scraper.

## Disc Scraper Adjustment

To keep opener discs turning freely, dirt scrapers are mounted between discs to clean as the discs rotate. As field conditions vary, scrapers may need to be adjusted. In damp conditions, scrapers may need to be lowered. If openers are not turning freely, scrapers may need to be raised.

Re-adjust scrapers when replacing discs or adjusting disc spacing.

To adjust scrapers, loosen  $\frac{3}{8}$  inch bolt ④ shown in and move scraper as needed.



Disc Scraper Adjustment

18647

## Seed Firmer Adjustments

Standard 05/06 Series row units include a seed flap. An optional Seed-Lok<sup>®</sup> or Keeton<sup>®</sup> seed firmer may be ordered separately.

The seed flap requires no adjustment, but may need to be replaced if worn, and may need to be shortened if an optional seed firmer is added after initial delivery. See also “**Seed Flap Replacement**” on page 28.



### Sharp Object Hazard:

*Use caution when making adjustments in this area. Row unit disc blades may be sharp. To adjust the Keeton<sup>®</sup> Seed Firmer, lower the implement name until the discs of the row units are resting on the ground.*

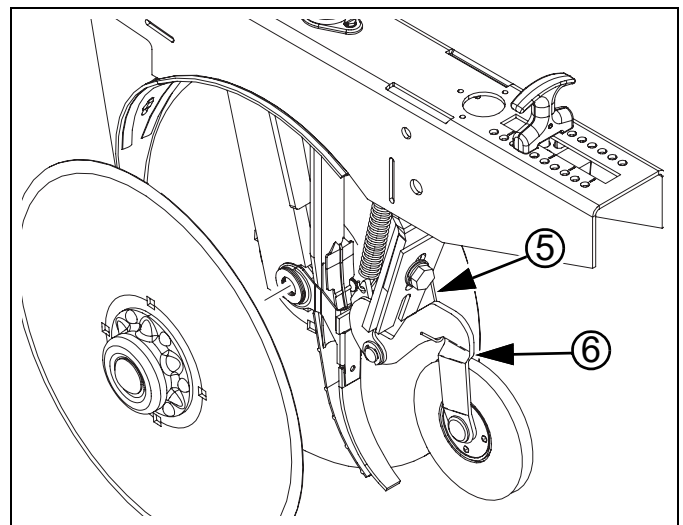
## Seed-Lok<sup>®</sup> Lock-Up (Option)

Optional Seed-Lok<sup>®</sup> firming wheels provide additional seed-to-soil contact. The wheels are spring loaded and do not require adjusting. In some wet and sticky conditions the wheels may accumulate soil. To avoid problems associated with this, you can lock-up the firmers.

(Seed-Lok<sup>®</sup> Lock-Up shown below has an opener disc removed for clarity - this task can be performed with discs mounted)

To lock up Seed-Lok<sup>®</sup> wheels:

1. Pull catch wire ⑤ aside.



Seed-Lok<sup>®</sup> Lock-Up

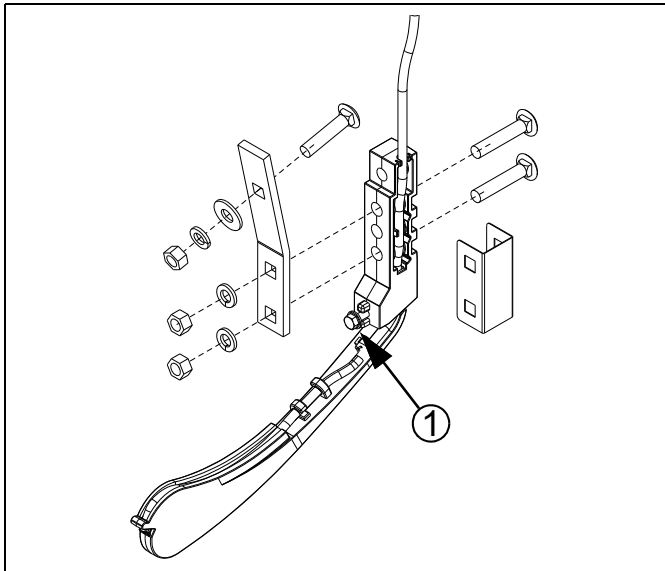
27122

2. Pull firming-wheel arm ⑥ up and release wire to catch arm.

**Keeton® Seed Firmer Adjustment (Option)**

The optional Keeton® Seed Firmer is an engineered polymer shape that slides down the seed trench. It traps seeds as they exit the seed tube and firms them into the bottom of the furrow “V”.

The Firmer is provided with a preset tension which is recommended for using the first year. The tension screw ① can be tightened in subsequent years according to your needs. Firmers should provide just enough tension to push seeds to the bottom of the trench.

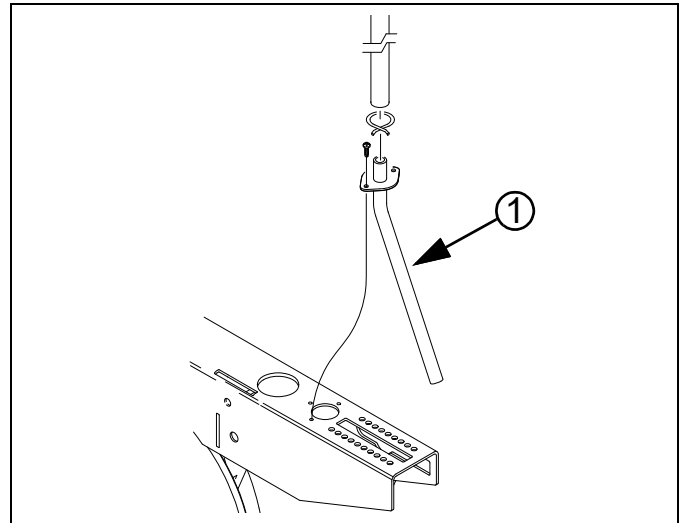


Keeton® Seed Firmer

26390

**Small Seeds Tube Adjustment (Option)**

On a product with the Small Seeds option, deeper seed placement may be achieved by rotating the seed tube ① to face forward.



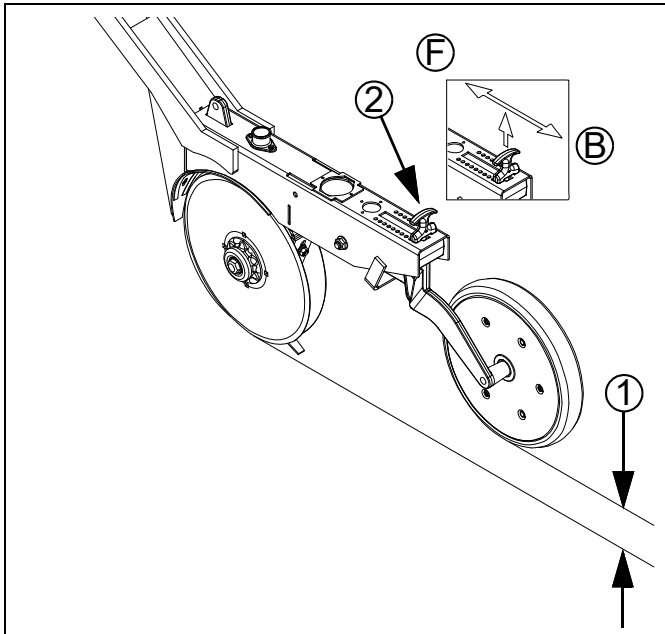
Small Seeds Tube

32810

This orientation is suggested only if the seed firmer is a seed flap. If a Keeton® or Seed-Lok® is present, seed falls on the firmer and may be scattered rather than placed deeper.

### Opener Depth (Press Wheel Height)

A press wheel attached to each opener body controls seeding depth ①. To maintain consistent depth, the relationship between the bottom of the opener discs and press wheel is fixed upwardly by an adjustable stop on each opener.



Adjusting Opener Depth

26441

The press wheels also close the seed trench and gently press soil over seed. To provide consistent soil firming, press wheels are free to move down from normal operating position. This maintains pressing action even if opener discs encounter obstructions or hard soil.

To adjust, first raise openers slightly, then lift and slide T handles ② on top of openers. Adjust all press wheels to the same height.

- Each increment of the handle adjusts the seeding depth by approximately  $\frac{1}{8}$  in. (6.3 mm). The range is approximately 0 to  $3\frac{1}{2}$  in. (0-89 mm) seeding depth.
- For more shallow seeding, slide T handles forward ③ toward implement.
- For deeper seeding, slide T handles backward ④ away from implement.

If moving the T handle backward doesn't cause the opener to achieve desired depth, adjust the opener frame down-force (page 22).



# 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.



### Crushing Hazard:

Always have frame sufficiently blocked up when working on, and particularly under implement. You may be severely injured or killed by being crushed under a falling implement.

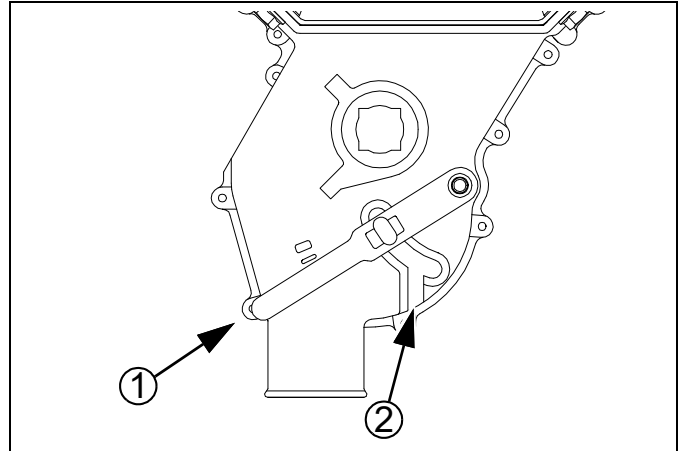
After using implement name for several hours, check all bolts to be sure they are tight.

1. Securely block implement name before working on it.
2. Adjust idlers to remove excess slack (page 29).
3. Lubricate areas listed under “**Lubrication and Scheduled Maintenance**” on page 30.
4. Clean any fittings that do not take grease.
5. Inflate tires as specified on “**Tire Pressures**” on page 37.
6. Replace any worn, damaged or illegible safety decals. Order new decals from your dealer. See “**Safety Decals**” on page 6.

## Seed Clean-Out

### Main Box Clean-Out

1. Set the Seed Rate Handle to zero (0). This moves the seed cup sprockets out of the seed path.



Seed Cup Clean-Out

26211

2. Position a tarp or bucket under each row or set of rows to be cleaned out.
3. At the seed cup for that row, pull the door handle ① out of the operating detent range, and swing it down to position ②.
4. Open the main seed box and use a small brush to sweep seed toward seed cups set to clean-out. If seed does not flow freely, inspect seed cup, hose and seed tubes for obstructions.
5. If a vacuum cleaner is available, use it to remove residual matter.

It is not necessary to operate the seed meter drive shaft for clean-out. With the Seed Rate set to zero, nothing moves inside the seed cups; however, an inspection of the flutes for excess wear and damage does require shaft rotation.

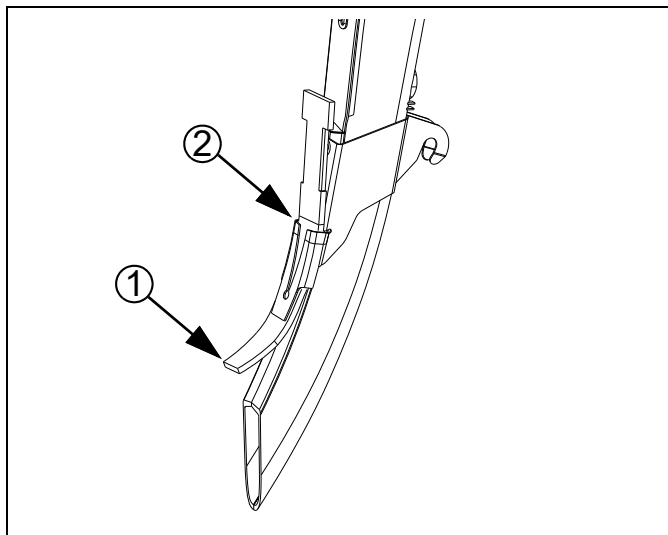
Set the Seed Rate Handle to 100. Raise and lock-up the product. Turn the seed meter jackshaft with the calibration crank, while another person inspects the flutes from the open seed boxes.

### Small Seeds Box Clean-Out

1. Open lid of each box and scoop out as much seed as possible.
2. To recover remaining seed, place a collection tarp under the small seeds tubes at the openers.
3. Raise product.
4. Set seed rate handle to 100.
5. Rotate calibration crank or ground drive wheel until no seed flows.
6. If a vacuum cleaner is available, remove any residual seed from top of meters.

### Seed Flap Replacement

To replace a seed flap ①, use needle nose pliers or similar tool to grasp “T” top of flap. Pull upward to remove flap from metal bracket ②.



Seed Tube Flap

31047

Push new seed flap ① down through metal bracket ② until flap snaps into place with “T” top resting on top of bracket.

If a Seed-Lok<sup>®</sup> or Keeton<sup>®</sup> seed firmer is also installed, it may be necessary to shorten the flap.

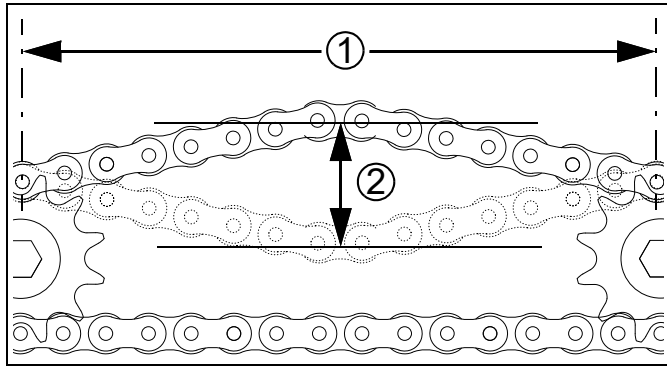
## Chain Maintenance

Initially check the drive chains after the first 10 hours of product use. The slack of new chains tends to increase during the first few hours of operation due to seating. Thereafter, check the chains every 100 hours.

Lubricate chains any time there is a chance of moisture, and when being stored at the end of the planting season.

### Chain Slack

1. Measure the span ① for allowable slack: Locate the longest span of each chain (usually the span which does not run through the idlers).



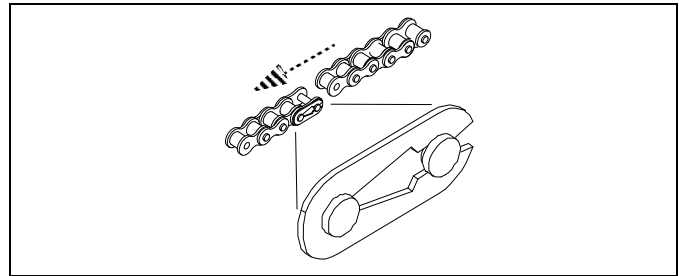
Measuring Chain Slack  
(Slack exaggerated, idlers omitted)

27264

2. Determine the ideal slack: Long chains (over 36 inches / 91 cm):  $\frac{1}{4}$  in. per ft (21 mm/m)  
Vertical short chains:  $\frac{1}{4}$  in. per ft (21 mm/m)  
Horizontal short chains:  $\frac{1}{2}$  in. per foot (42 mm/m).
3. Measure the current slack ②: Acting at a right angle to the chain span at the center of the span, deflect the chain in both directions. The slack is the distance of the movement.
4. Adjust the idlers for ideal slack.

Whenever mounting a chain, make sure the clip at the removable link is oriented to minimize snags.

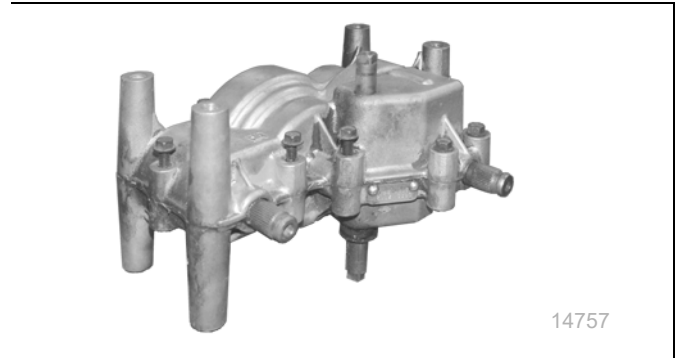
Install clip with open end facing away from direction of chain travel (shown by gray or striped arrows in chain routing diagrams).



Chain Clip Orientation

26482

## Gearbox Maintenance



14757



### Machine Damage Risk:

*Use sealant sparingly. Excess sealant may squeeze off the intended surface and lock bearings or gears.*

The gearbox is lubricated and sealed at the factory. Under normal conditions, it does not require maintenance or lubrication.

If the gearbox has been opened for repair, repack all gears and around shaft bearings using at least 7 oz. (200 mL) of gear lube, Great Plains Part No. 788067.

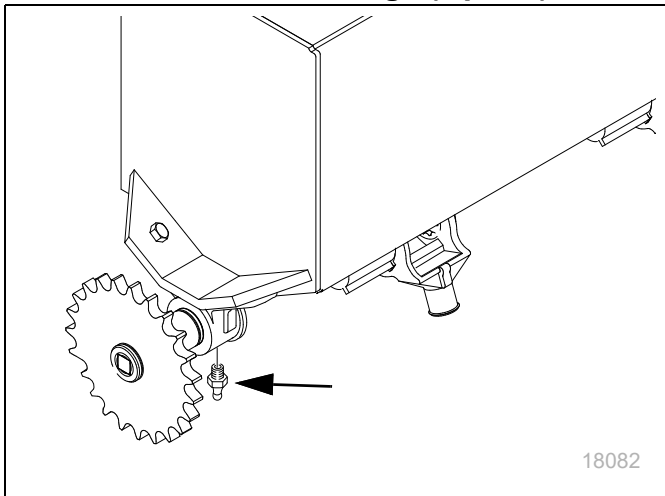
Keep moisture and dirt out of gearbox. Inspect (replace if needed) the rubber seals on gearbox drive and shifter shafts.

Spread a small skim coat of anaerobic sealant (Loctite<sup>®1</sup> 525 or equivalent) to gear case mating surfaces before bolting them back together.

1. Loctite<sup>®</sup> is a registered trademark of Henkel Corporation.

## ■ Lubrication and Scheduled Maintenance

### Small Seeds Shaft Bearings (Option)

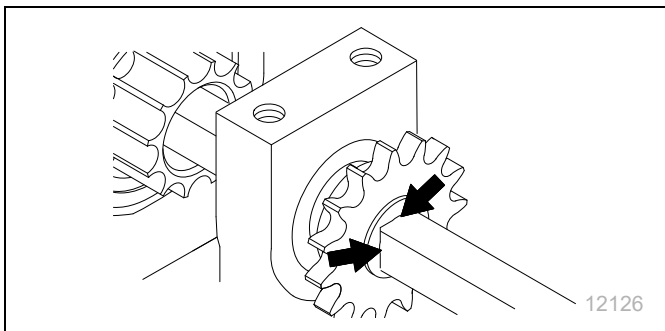


1 zerk total

Type of Lubrication: Grease

Quantity: Until grease emerges

### Seed Cup Drive Shaft Sprocket



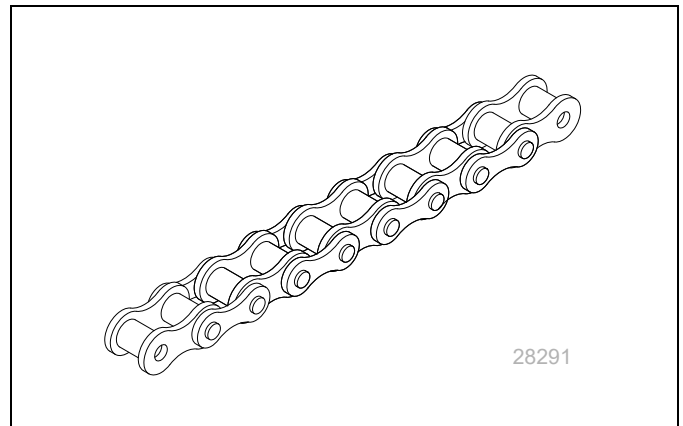
1 sliding sprocket

Type of Lubrication: Oil

Quantity: Coat thoroughly

Move the Seed Rate adjustment handle back and forth to get oil into the square bore. Perform this with seed box empty, or handle may be difficult to set to 100.

## Drive Chains (Model: 3P500 or 3P600)



2 to 7 Chains Present:

Type of Lubrication: Chain Lube

Quantity: Coat thoroughly

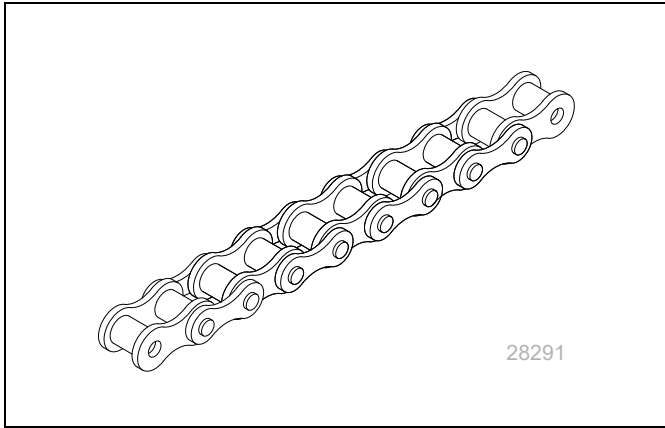
### Standard Chains

- drive wheel to jackshaft
- jackshaft to gearbox input
- gearbox output (right) to main seed cup shaft

### Option Chains:

- gearbox output (left) to accessory jackshaft
- accessory jackshaft to main box agitator
- accessory jackshaft to Small Seeds jackshaft
- Small Seeds jackshaft to meter shaft drive

**Drive Chains (Model: 3P500V)**



	<b>As Required</b>
--	--------------------

5 Chains Present:

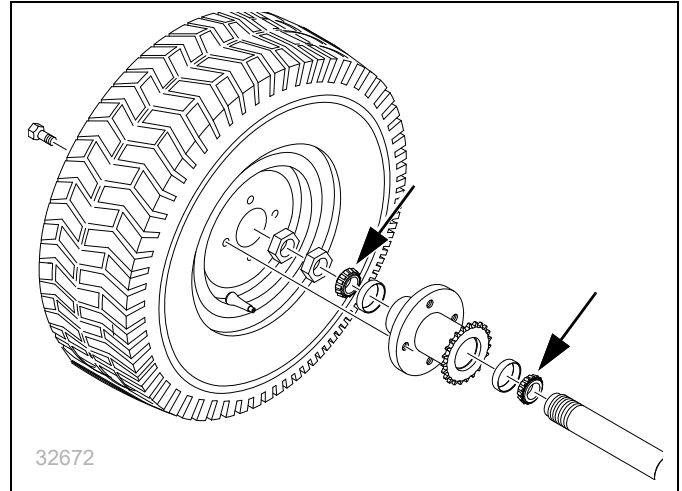
Type of Lubrication: Chain Lube

Quantity: Coat thoroughly

**Standard Chains**

- drive wheel to jackshaft
- jackshaft to gearbox input
- gearbox output (right) to main seed cup shaft
- gearbox output (left) to accessory jackshaft
- accessory jackshaft to main box agitator

**Wheel Bearings 2 races total**



	<b>Seasonal</b>
--	-----------------

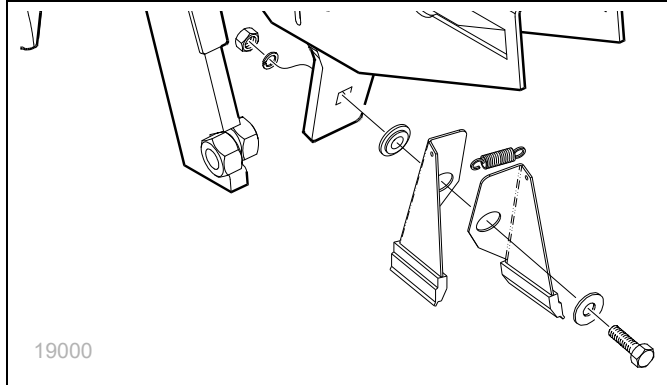
Type of Lubrication: Bearing grease

Quantity: Re-pack

# Options

Accessories are listed in alphabetical order. To order an accessory, contact your dealer.

## ■ Carbide Disc Scraper



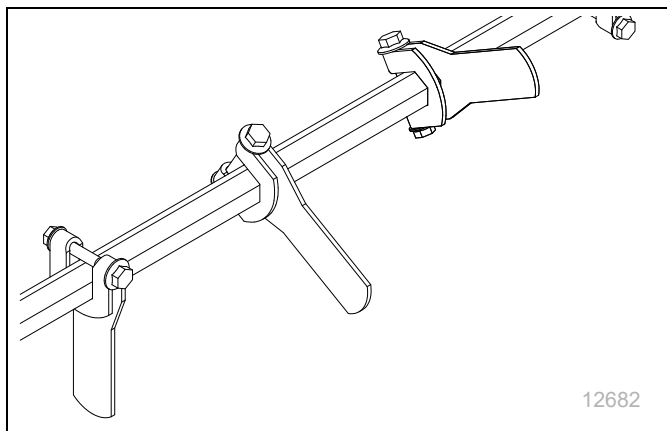
Slotted scrapers are standard.

Optional carbide disc scrapers are spring-loaded and require no periodic adjustment. Scrapers are compatible with the standard seed flap and Seed-Lok®, but not Keeton®.

Description	Part Number
SPRING SCRAPER ASSEMBLY	121-781A

See “**Carbide Disc Scraper Installation**” on page 45.

## ■ Main Seed Box Accessories



### Agitator (Main Seed)

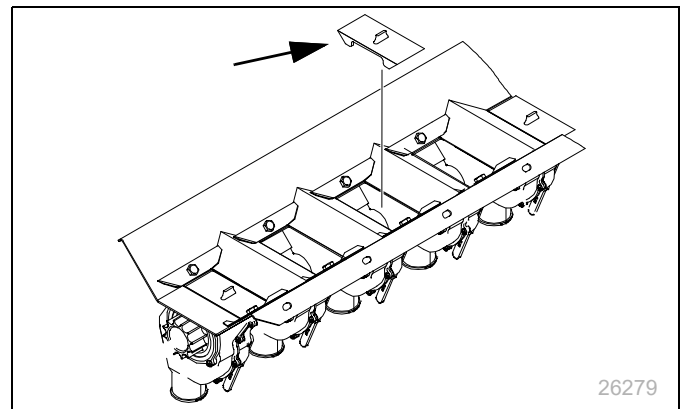
An optional agitator can be added to the main seed box on Models 3P500 and 3P600. It is standard on Model 3P500V.

It stirs the seed directly above the metering cups, helping prevent bridging of light, fluffy seeds and separating soybeans that are sticky with inoculant.

The “**w/Drive**” kit includes an accessory jackshaft drive subsystem. If your product is also equipped with a Small Seeds attachment, order the “**w/o Drive**” kit.

Drill Model	Row Spacing	Part Number	
		w/Drive	w/o Drive
3P500	6 inch	118-790A	118-791A
3P500	7 <sup>1</sup> / <sub>2</sub> inch	118-792A	118-793A
3P500V	any	Standard	Standard
3P600	6 inch	118-788A	118-789A
3P600	7 <sup>1</sup> / <sub>2</sub> inch	118-748A	118-749A

## Seed Tube Plug (Main Seeds)

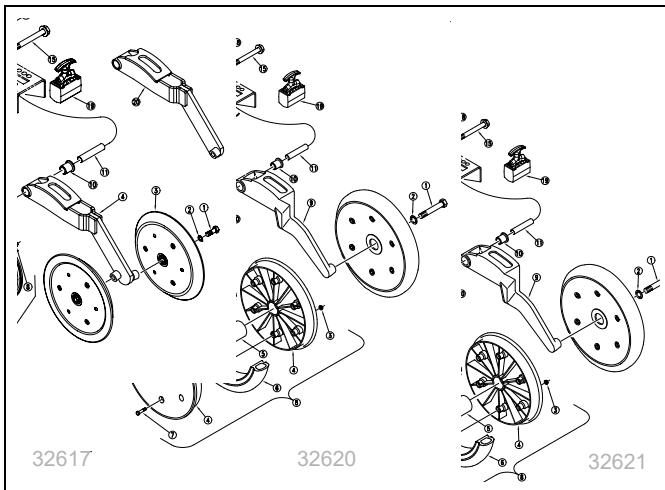


This plug stops seed flow from the main seed box above the meter. Order one per row to be set inactive.

Description	Part Number
Fluted Feed Meter Plug	817-087C

See “**Main Seed Row Shutoff**” in Seed Rate Manual.

■ **Press Wheel Selection**



The base product includes a choice of press wheels. Additional wheels are available, and all may be field-installed.

This manual does not list kit part numbers as the available wheels are often region-specific. Consult your dealer.

■ **Small Seeds Attachment**



The Small Seeds (SGS) attachment is designed to meter various small seeds in-row. The standard attachment includes an independent drive system, 1.2 or 1.44 bushel box, meters and seed tubes.

The Small Seeds attachment may be ordered as an Option with a new product, or as a field installed kit.

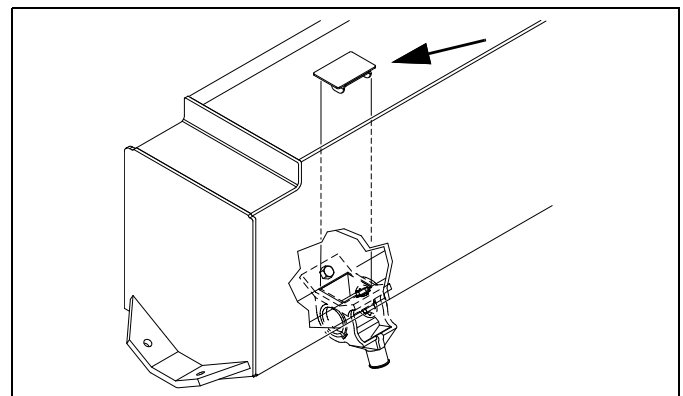
Drill Model	Row Spacing	Option	Field Kit
3P500	6 inch	(91)	133-150A
3P500	7 <sup>1</sup> / <sub>2</sub> inch	(91)	133-151A
3P500V	any	n/a <sup>a</sup>	n/a
3P600	6 inch	(91)	133-122A
3P600	7 <sup>1</sup> / <sub>2</sub> inch	(91)	133-123A

a. Small Seeds is not available for Model 3P500V.

For operation, see:

“Loading Small Seeds Box” on page 17 and “Small Seeds Rate” in Seed Rate Manual.

**Small Seeds Tube Plug**

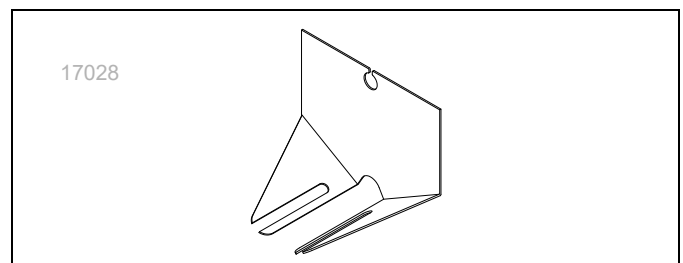


This plug stops seed flow from the small seeds box above the meter. Order one per row to set inactive.

Description	Part Number
SML SDS CUP PLUG	133-315H

See Seed Rate Manual for use.

**Small Seeds Partition**

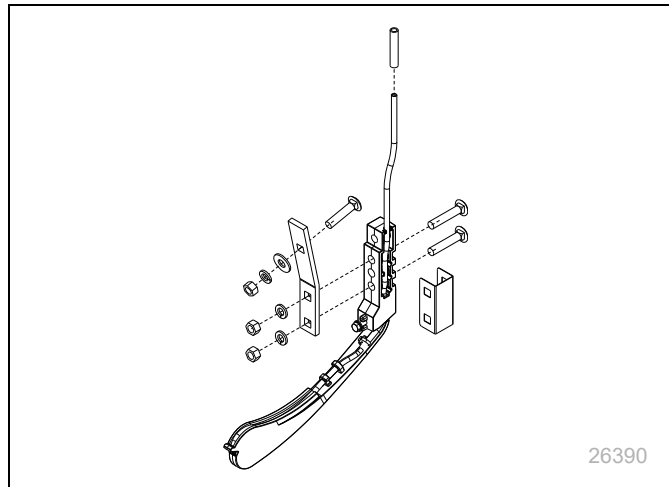


This partition reduces side-to-side seed flow in the small seeds box. This can prevent seed pile-up when drilling across slopes and in other situations where

the seed is particularly fluid. Partitions are sold individually. Order quantity desired.

Description	Part Number
RMVBL SMALL SEED BOX PARTITION	123-409D

■ **Seed Firmers**



The standard product includes seed flaps. A choice of firmers is an option in the product bundles, or may be field-installed as kits. Only one type of optional seed firmer may be installed at the same time. Order one firmer kit per opener.

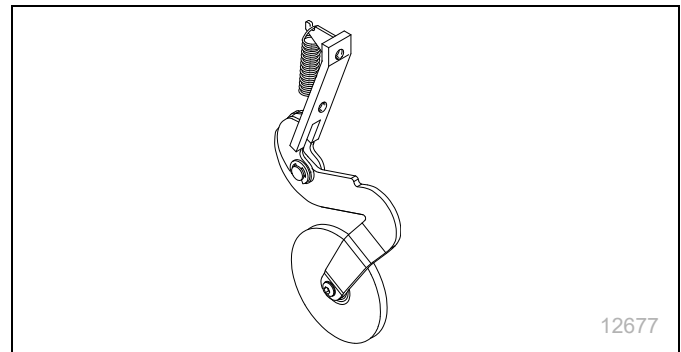
**Keeton® Seed Firmer**

The optional Keeton® seed firmer is an engineered polymer shape that slides down the seed trench. It traps seeds as they exit the seed tube and firms them into the bottom of the furrow. Order one per row.

Description	Part Number
Keeton® Seed Firmer	890-810C

The Keeton® seed firmer supports low-rate fertilizer delivery. For this use, a liquid fertilizer system must also be installed on the tractor<sup>1</sup>.

**Seed-Lok® Seed Firmer**



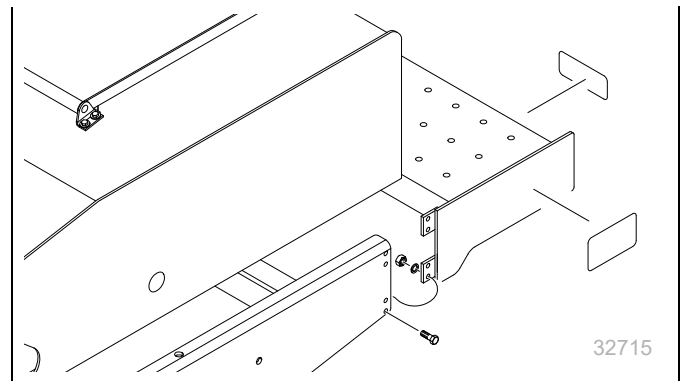
The spring-loaded Seed-Lok® firming wheel presses seed directly into the bottom of the seed bed. The Seed-Lok® option provides more even emergence since seeds are planted and firmed at the same depth.

Description	Part Number
Seed-Lok® kit	122-193K

Seed-Lok® can be used on all configurations except Native Grass, unless the Native Grass seed tube is removed during Seed-Lok® use.

For operations, see “Seed Firmer Adjustments” on page 24.

■ **3P500V Walkboard**



The standard Model 3P500V does not include a walkboard. One may be ordered as an Option with a new product, or as a field installed kit. It includes the walkboard, safety decals and mounting hardware.

Drill Model	Row Spacing	Option	Field Kit
3P500V	6 inch	(40)	119-301A

See page 46 for installation. A walkboard is standard on Models 3P500 and 3P600.

1. The Great Plains PFH accessory hitch is incompatible with 3P500, 3P500V and 3P600 products due to interference with the ground drive.



# Troubleshooting

Problem	Cause	Solution
<b>Uneven seed spacing or uneven stand</b>	Excessive field speed	Reduce field speed.
	Feed cups plugging	Clean out feed cups.
	Seed tubes plugging	Clean out seed tubes.
	Opener discs not turning freely	See “Opener discs not turning freely” in this Troubleshooting section.
	Opener not penetrating low spots	Adjust opener spring (page 22).
	Ground drive wheel slippage	Check frame height. Solution may require drier conditions.
	Seed cups too wide	Use faster Drive Type speed and close feed cup flutes to a more narrow position.
	Chain skipping	Check chain slack and wear.
	Mud build-up on Seed-Lok <sup>®</sup> wheel	Lock-up Seed-Lok <sup>®</sup> (page 24) or wait for drier conditions.
<b>Uneven seed depth</b>	Excessive field speed	Reduce field speed.
	Planting conditions too wet	Wait until drier weather.
	Drill not level	Readjust level (page 11).
<b>Opener discs not turning freely</b>	Trash or mud build up on disc scraper	Adjust scraper (page 24)
	Scraper adjusted too tight, restricting movement	Adjust scraper (page 24).
	Failed disc bearings	Replace disc bearings.
	Bent or twisted opener frame	Replace opener frame.
	Planting conditions too wet	Wait until drier weather.
	Too much opener down pressure	If opener discs turn freely by hand but not in field, reduce down pressure (page 22).
	Incorrect press wheel adjustment	Readjust press wheel (page 26).
<b>Actual seed rate different than desired</b>	Incorrect tire pressure	Check tire pressure (page 37).
	Incorrect frame height	Check frame height (page 11).
	Build up of seed treatment in feed cup	Clean out seed treatment from feed cups.
	Incorrect rate adjustment	Check gearbox, sprocket, seed-rate handle and seed door settings. Perform calibration if not already done. See Seed Rate Manual.
<b>Excessive seed cracking</b>	Excessive field speed	Reduce field speed.
	Feed cup flutes not open enough	Open feed cups to a wider position and use a lower Drive Type. See Seed Rate Manual.
	Feed cup door handle not open enough	Open feed cup door handle to a lower position. See Seed Rate Manual.
<b>Press wheels not compacting soil as desired</b>	Too wet or cloddy	Wait until drier weather or rework ground.
	Not enough down pressure on disc openers	Increase down pressure on openers (page 22).

Problem	Cause	Solution
<b>Boxes not emptying evenly</b>	Some boxes do not have same number of feed cups between each divider of bulkhead.	Load more material than required. Re-distribute when re-loading.
	Main box seed cup door setting	Set all doors the same, per seed size.
	Seed plug(s) installed	Remove seed plug(s).
	Meter or tube blocked	Clear blockage.
<b>Press wheel or openers plugging</b>	Planting conditions too wet	Wait until drier weather.
	Too much down pressure on openers	Reduce down pressure on openers (page 22).
	Backed up with product in the ground	Clean out and check for damage.
	Failed disc bearings	Replace disc bearings.
	Scraper worn or damaged	Replace scraper.
<b>Feed cup sprockets locked up or twisted feed cup drive shaft</b>	Foreign matter lodged in one or more feed cup sprockets	Clean out feed cup sprockets. Use clean seed.
	Dried liquid insecticide inside feed cups	Remove build up by disassembling each feed cup and scraping foreign substance from turn surfaces.
<b>Small seeds box not emptying evenly</b>	Adjustable divider (Option) not set evenly	Move adjustable divider to create more volume in areas that run out first.
<b>Chain fouling</b>	Debris in retainer clip	Be sure retainer clip is facing opposite way of chain travel (page 29).
<b>Acremeter inaccurate</b>	Excess wheel slippage	Check frame height. If correct, solution may be to wait for drier conditions.
	Passes misaligned	Check that planting passes are not leaving gaps (under-reporting area) or causing overlap (over-reporting area).
	Wheel slippage is varying from nominal	If variance is consistent, develop a correction factor for your conditions.
	Check that acremeter is for your product.	Activate display. Lower left corner must be: 3P500: 928 revs/ac or 2293.1 revs/ha 3P500V: 928 revs/ac or 2293.1 revs/ha 3P600: 786 revs/ac or 1942.2 revs/ha Contact dealer if otherwise.
	Acremeter battery failing	Replace acremeter (page 14). Unit is sealed and battery is not replaceable.




# Appendix A - Reference Information

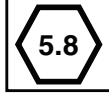
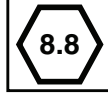

## ■ Tire Pressures

Tire Size	Inflation
5.70L-8 Lug Type, 715 lb (324 kg) load rating	50 psi 345 kPa

Tire Warranty Information	
All tires are warranted by the original manufacturer of the tire. Tire warranty information is found online at the manufacturer's websites listed below. For assistance or information, contact your nearest Authorized Farm Tire Retailer.	
Manufacturer	Website
Firestone	<a href="http://www.firestoneag.com">www.firestoneag.com</a>
Gleason	<a href="http://www.gleasonwheel.com">www.gleasonwheel.com</a>
Titan	<a href="http://www.titan-intl.com">www.titan-intl.com</a>

■ Torque Values Chart

Bolt Size in-tpi <sup>a</sup>	Bolt Head Identification					
	 Grade 2		 Grade 5		 Grade 8	
	N-m <sup>b</sup>	ft-lb <sup>d</sup>	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 mm x pitch <sup>c</sup>	Bolt Head Identification					
	 Class 5.8		 Class 8.8		 Class 10.9	
	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

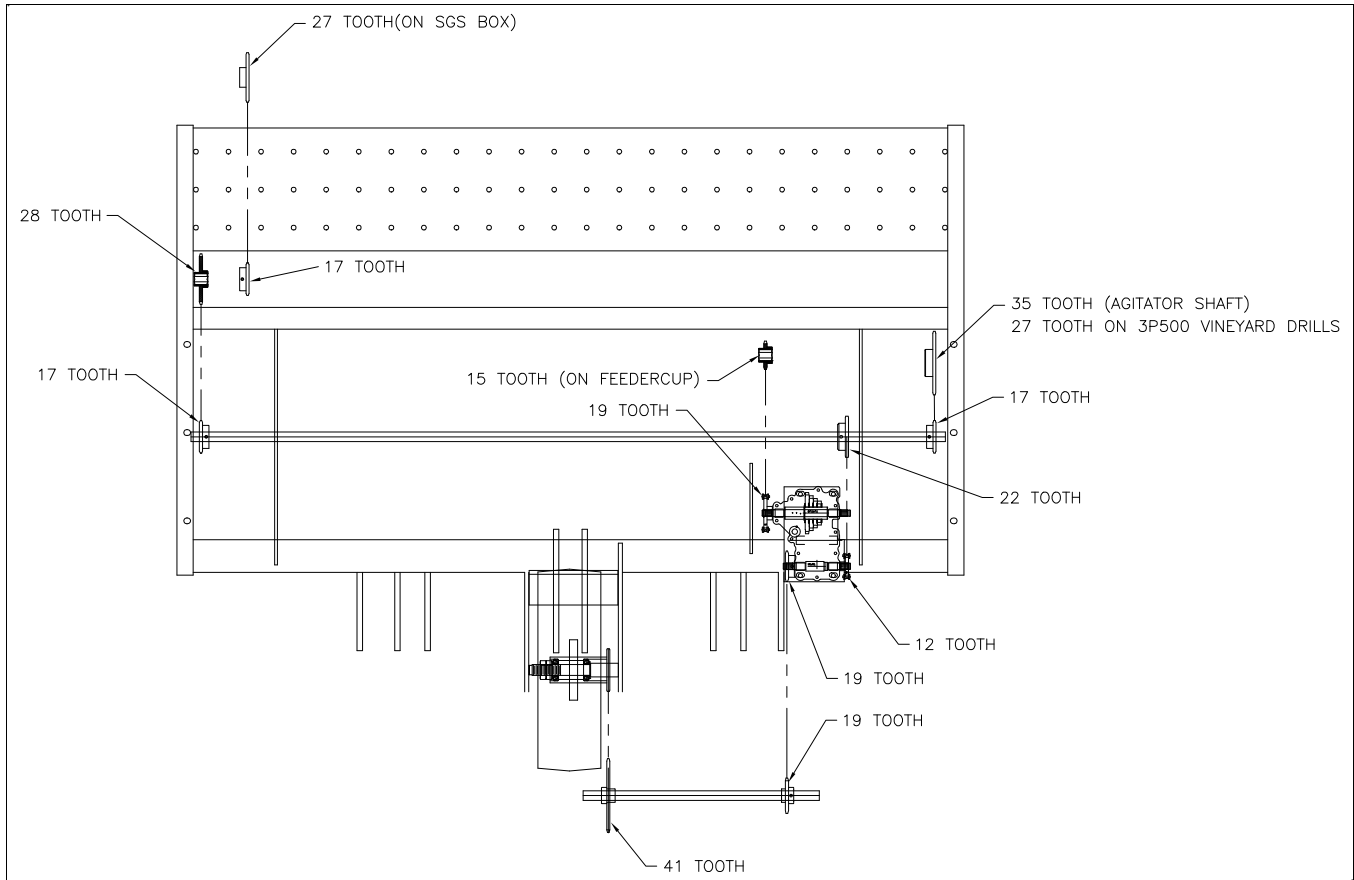
- a. in-tpi = nominal thread diameter in inches-threads per inch
- b. N·m = newton-meters
- c. mm x pitch = nominal thread diameter in mm x thread pitch
- d. ft-lb = foot pounds

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

25196

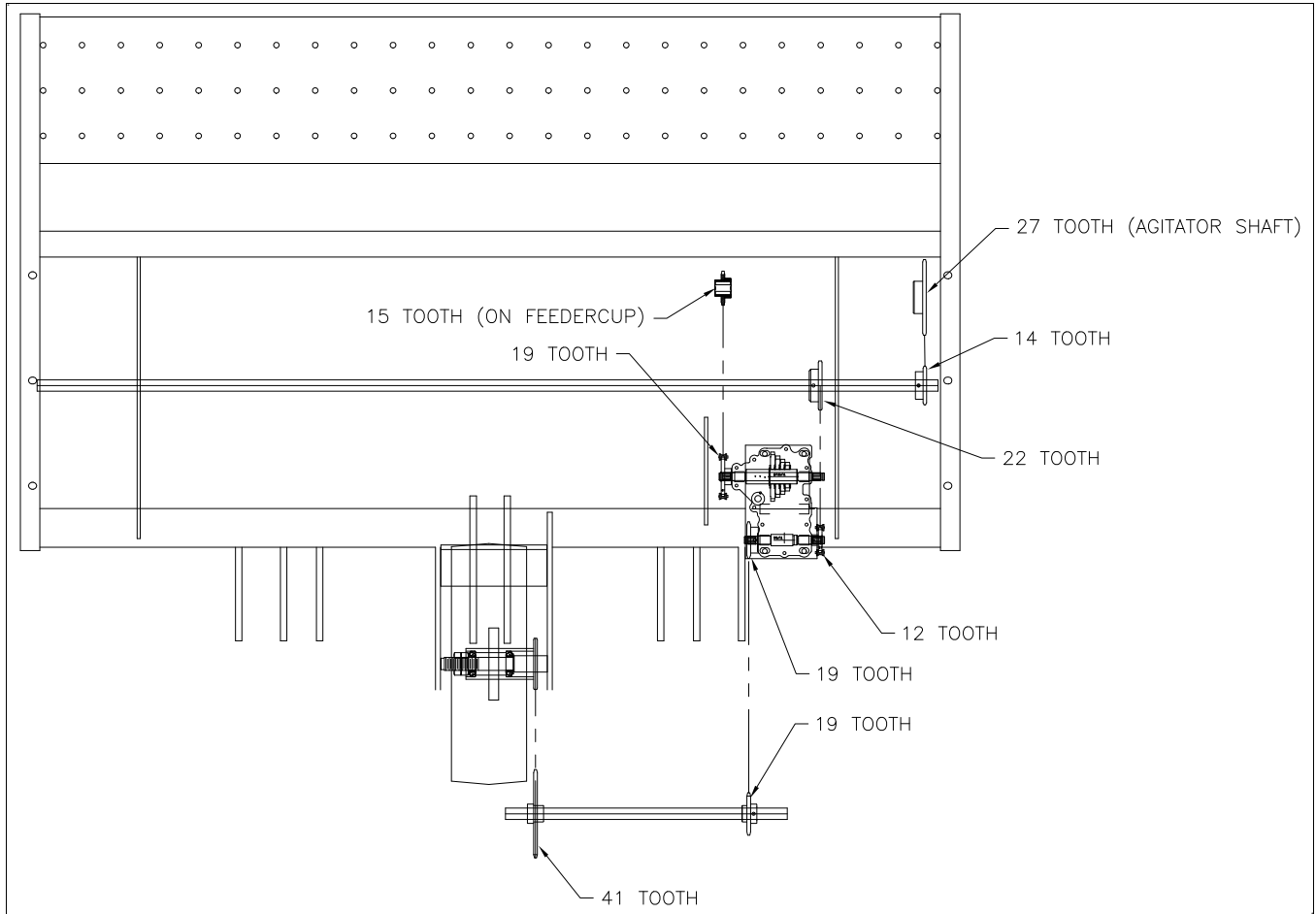
### ■ Drive System Diagrams

#### 3P500 and 3P600



3P500 and 3P600 Sprocket Configuration

23211



3P500V Sprocket Configuration

23219

## Appendix B - Pre-Delivery

This section covers dealer requirements for assembly. As the dealer, it is your responsibility to unload, assemble and prepare the drill for use.

The drill is shipped via flat bed truck. Unload all equipment before beginning assembly. Do not attempt any assembly work while the drill is on the truck.

The following sections are step-by-step instructions for assembling the drill. Begin with *Tools Required* and *Pre-Assembly Checklist* to ensure you have all necessary parts and equipment at hand. Then proceed with *Install Gauge Wheels*. Follow each step to make the job as quick and safe as possible and produce a properly working machine.

### ■ Tools Required

- Properly rated forklift with 3-pt adapter to lift the drill, or two forklifts with the properly rated combined capacity for the drill, or overhead hoist, or loader with 6,500-pound capacity
- Hand jack
- General hand tools
- Jack stands, blocks and safety chain

### ■ Pre-Assembly Checklist

1. Read and understand “**Safety Information**” on page 3 before assembling.
2. Have at least two people on hand while assembling.
3. Make sure the assembly area is level and free of obstructions (preferably an open concrete area).
4. Have all major components.
5. Have all fasteners and pins shipped with the drill.

Note: If a pre-assembled part or fastener is temporarily removed, remember where it goes. Keep the parts separated.

6. Have a copy of the parts manual on hand. If unsure of proper placement or use of any part or fastener, refer to the parts manual.
7. Check that all working parts are moving freely, bolts are tight, and cotter pins are spread.
8. Check for proper tension and alignment on all drive chains.
9. Check that all safety labels and reflectors are correctly located and legible. Replace if improperly located or damaged. Refer to *Safety*

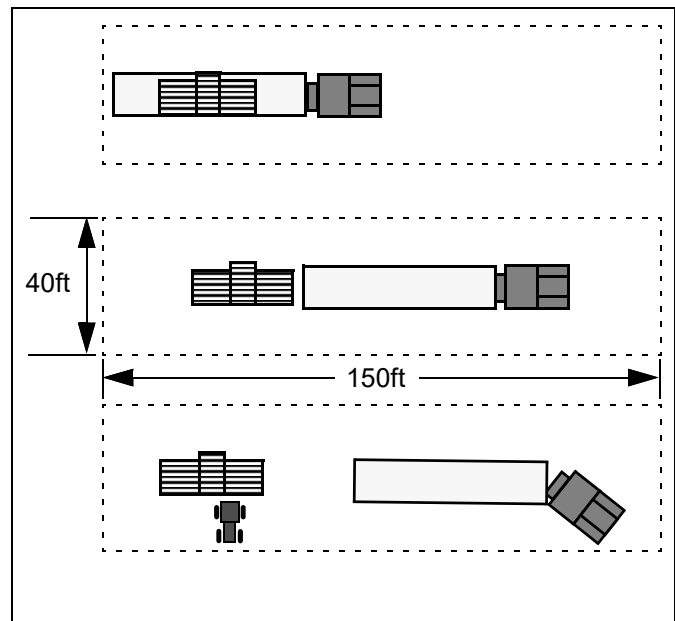
*Labels*, “**Safety Information**” in the operator’s manual.

10. Inflate tires to recommended pressure as listed on the *Tire Inflation Chart* on “**Appendix A**” on page 37. Tighten wheel bolts as specified on *Torque Values Chart* on “**Appendix A**” on page 38.

### Unloading Location Requirements

Until unloaded, the drill cannot be moved using a tractor. The drill needs to be unloaded directly above the spot where final assembly takes place:

- On a flat, level, and dry surface,
- With adequate space to pull the trailer out from under the lifted drill without turns,
- With adequate space at the front and rear of the drill to easily maneuver forklifts
- With at least 10 ft. (3 m) clearance behind the press wheels,
- With tractor access in front.



Suggested Unload Clearances

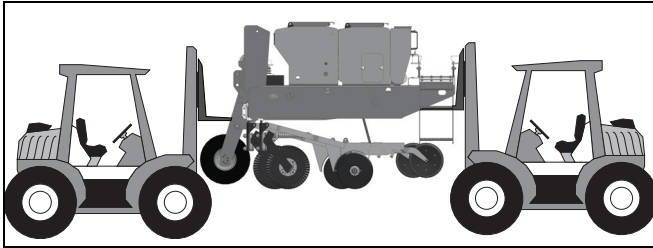
## ■ Unloading



### Crushing Hazard:

Keep all bystanders away from unloading area. Use properly rated forklifts for unloading drill from trailer.

1. Unload all miscellaneous crates first. Place them well out of the area needed for unloading the drill.
2. If using two forklifts, position one forklift at the front and one at the rear of the drill.



- On the front forklift, position the forks between two openers, under the front frame tube.
- On the rear forklift, position the forks under the rear frame tube.



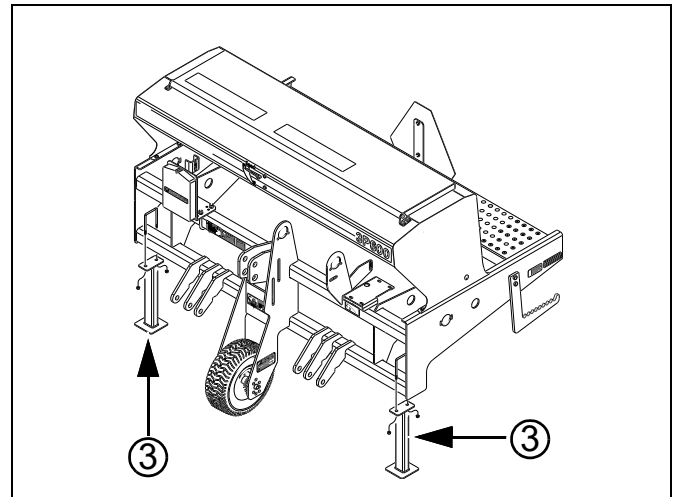
### Machine Damage Risk:

Do not use straps to unload the drill. Lift the drill by the frame tubes only. Do not lift the drill by the seed cups or seed cup channels.

Make sure the forklift forks are located between openers on the front frame tube.

3. Slowly lift the drill off the trailer bed.
4. Stop lifting about 12 inches off the trailer bed.
5. Slowly pull the trailer straight out from under the drill.
6. Making sure to keep the drill level front-to-back and side-to-side, slowly lower the drill to the ground 12 inches off the ground.

7. Remove nuts and u-bolts from the two shipping stands (3).



Shipping Stands

80760

8. Remove shipping stands and rubber pads from the drill.
9. Slowly lower the drill to the ground.
10. Lower the forks and withdraw forklifts.



## ■ Attach Meter Hoses at Rows

### NOTE:

These items are normally completed by the dealer prior to delivery.

All meter hoses are shipped disconnected at the row units. Clamps are shipped inside a seed box. The opener frame has openings for up to three material hoses:

- The forward hole (f) is always used for the seed delivery tube for the main seed box.
- The rear hole (r) is used for optional Small Seeds.

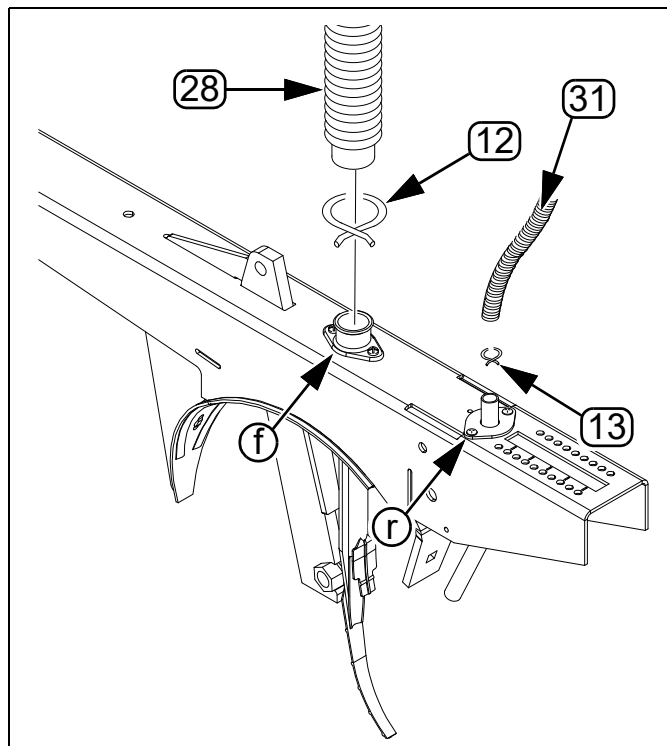
Start with the left row unit (row 1). For each row:

### Attach a Main Seed Hose

Select one:

(12) 800-268C SINGLE WIRE HOSE CLAMP #23

Open the clamp (12). Place it onto the outlet end of the hose (28), up against the ribs. Slide the outlet end of the hose fully onto the seed tube inlet at the forward row unit opening (f). Move the clamp to just below the raised lip of the seed tube inlet.



Seed and Fertilizer Hoses

32812

### Attach a Small Seeds Hose

Select one:

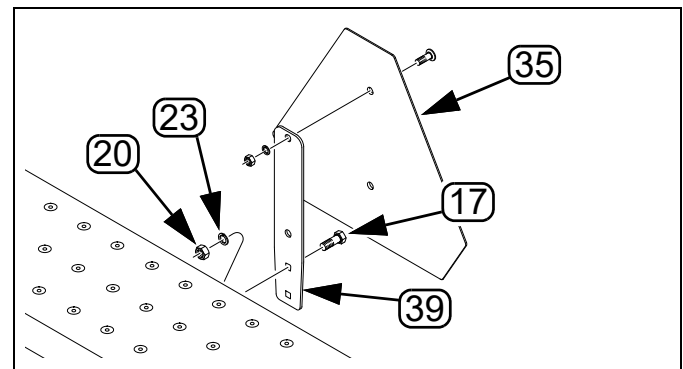
(13) 800-321C HOSE CLAMP NO.12 3/4 ID

Open the clamp (13). Place it onto the outlet end of the hose (31), up against the ribs. Slide the outlet end of the hose fully onto the small seeds tube inlet at the rear row unit opening (r). Move the clamp to halfway onto the hose neck.

## ■ Install SMV Reflector

### Model 3P500, 3P600 (and 3P500V with Walkboard Option)

The SMV reflector (35) is shipped pre-assembled to the mount (39), but mounted inverted on the walkboard. The SMV must be repositioned to upright to prevent contact with row units during operation.



Walkboard SMV Reflector

32648

Remove and save two sets:

(17) 802-007C HHCS 5/16-18X3/4 GR5

(23) 804-009C WASHER LOCK SPRING 5/16 PLT

(20) 803-008C NUT HEX 5/16-18 PLT

Orient the reflector assembly (39) upright, and red/orange reflective side to rear. Secure mount (39) to walkboard with bolts (17), lock washers (23) and nuts (20).

**Standard Model 3P500V**

If also installing a walkboard (page 46), install the SMV first.

1. Select one each:

⑦ 123-524D SMV MOUNT BRACKET, EXTENDED

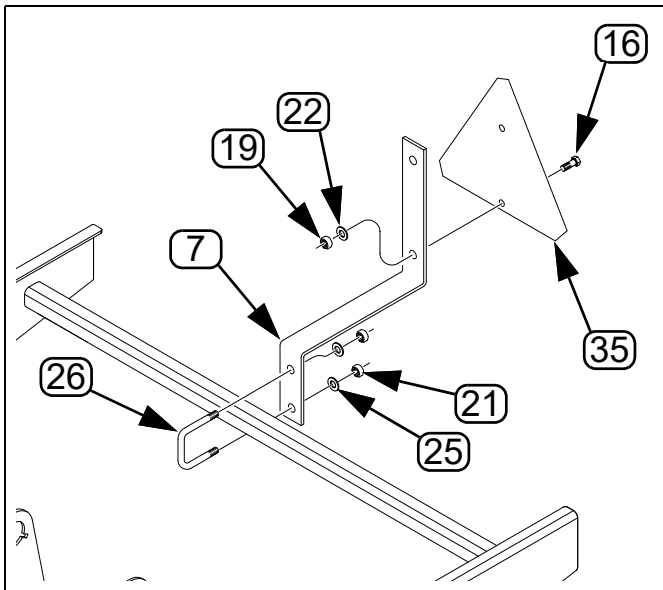
②⑥ 806-004C U-BOLT 3/8-16 X 2 X 2 3/4

and two sets:

②⑤ 804-013C WASHER LOCK SPRING 3/8 PLT

②① 803-014C NUT HEX 3/8-16 PLT

Mount the bracket ⑦ at the center of the rear face of the rear cross tube under the seed box. The short break is down and forward. Secure with U-bolt ②⑥, lock washers ②⑤ and nuts ②①.



3P500V SMV Reflector

32717

2. Select one:

③⑤ 818-055C DECAL SLOW MOVING-GALV. BACKED

and two sets:

①⑥ 802-004C HHCS 1/4-20X3/4 GR5

②② 804-006C WASHER LOCK SPRING 1/4 PLT

①⑨ 803-006C NUT HEX 1/4-20 PLT

Orient the reflector ③⑤ upright, and red/orange reflective side to rear. Secure reflector to mount ⑦ to walkboard with bolts ①⑥, lock washers ②② and nuts ①⑨

## Appendix C - Accessory Installation

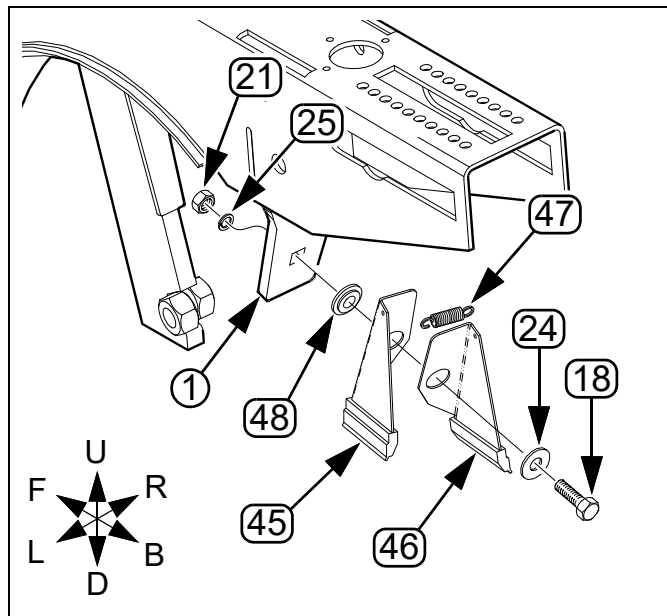
### ■ Carbide Disc Scraper Installation

These instructions apply to an installation of scraper kit part number 121-781A.

Optional carbide disc scrapers are not factory installed.

Start with row 1 (left-most row unit):

1. Remove one or both disc blades to gain safe access to the mount ①. Note the position of bushings and spacers for correct re-assembly (page 23).



Carbide Disc Scraper Installation 19000

2. Remove the existing slotted scraper.
3. Select **one:**  
①⑧ 802-079C HHCS 3/8-16X1 1/4 GR5

If Seed-Lok<sup>®</sup> is present, or also being mounted, also select **one:**  
②⑤ 804-013C WASHER LOCK SPRING 3/8 PLT  
Place the lock washer ②⑤ on the bolt ①⑧ (because the nut is not used).

4. Select **one:**  
②④ 804-012C WASHER FLAT 3/8 SAE PLT  
Place this flat washer on the bolt.

5. Select **one:**  
890-357C SCRAPER-SPRING LOAD-AIR DESIGN  
If the blades were not completely pre-assembled, select **one** each:

④⑤	K7090	AIR DESIGN SCRAPER LH SIDE
④⑥	K7091	AIR DESIGN SCRAPER RH SIDE
④⑧	K7096	SPACER AND WASHER ASSEMBLY
④⑦	K7093	AIR DESIGN SCRAPER 15LB SPRING

Nest one side (④⑤, ④⑥) behind the other. Connect the spring ④⑦ between the sides, using the small top holes. Insert the spacer ④⑧ from the front, with the narrow raised center to the rear (in the large blade holes).

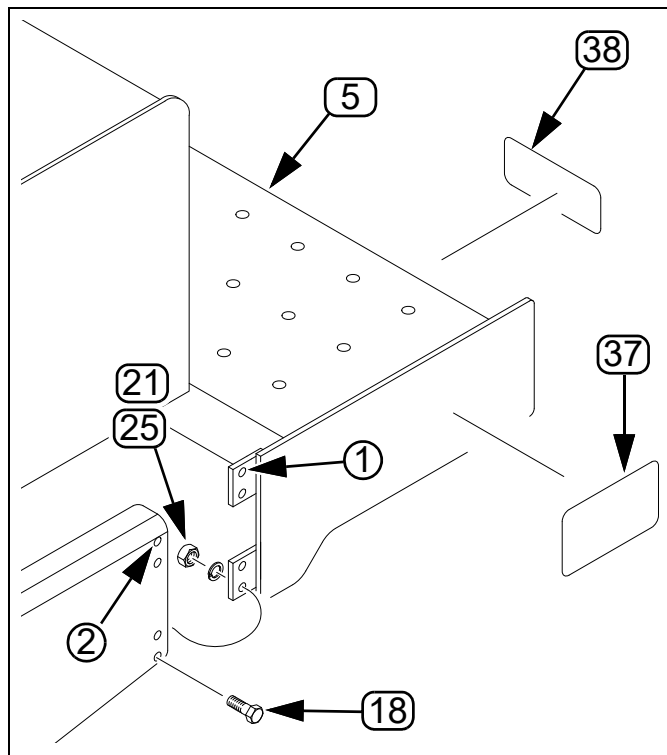
6. Insert the bolt through the scraper blades (④⑤, ④⑥) and spacer ④⑧.
7. If no Seed-Lok<sup>®</sup> is present, select one each:  
②⑤ 804-013C WASHER LOCK SPRING 3/8 PLT  
②① 803-014C NUT HEX 3/8-16 PLT  
Secure the scraper assembly to the scraper mount ① using the lock washer ②⑤ and nut ②①. If a Seed-Lok<sup>®</sup> is present (not shown), secure the scraper assembly to the Seed-Lok<sup>®</sup>, using a threaded hole present in the Seed-Lok<sup>®</sup>. The hex nut is ②① unused.
8. Re-mount the removed disc blade.

## ■ Walkboard Installation (3P500V)

These instructions apply to an installation of walkboard kit part number 119-301A.

Installation of the 119-301A kit usually requires two workers. If also installing the SMV (page 43), install the SMV first.

1. Select one:
- |   |          |    |          |           |
|---|----------|----|----------|-----------|
| ⑤ | 119-300H | 5' | VINEYARD | WALKBOARD |
|---|----------|----|----------|-----------|
- and two sets:
- |   |          |                        |     |
|---|----------|------------------------|-----|
| ⑱ | 802-079C | HHCS 3/8-16X1 1/4      | GR5 |
| ⑳ | 804-013C | WASHER LOCK SPRING 3/8 | PLT |
| ㉑ | 803-014C | NUT HEX 3/8-16         | PLT |



3P500V Walkboard

32715

2. Align the top holes ① of the top tabs on the walkboard with the top rear holes ② in the product side frames. Insert bolts ⑱ from the outside. Loosely secure with lock washers ⑳ and nuts ㉑.
3. Select six sets:
- |   |          |                        |     |
|---|----------|------------------------|-----|
| ⑱ | 802-079C | HHCS 3/8-16X1 1/4      | GR5 |
| ⑳ | 804-013C | WASHER LOCK SPRING 3/8 | PLT |
| ㉑ | 803-014C | NUT HEX 3/8-16         | PLT |
- Insert bolts ⑱ at remaining tab and frame holes. Add lock washers ⑳ and nuts ㉑. Tighten all to Grade 5 torque.
4. Clean and dry the outside end faces of the walkboard, and the rear face near the outside ends.
5. Select two:
- |   |          |                              |
|---|----------|------------------------------|
| ㉒ | 838-102C | DECAL WARNING FALLING HAZARD |
|---|----------|------------------------------|
- Remove the release paper backing on a decal. Carefully align it on an end plate. Apply it to the end plate and smooth out any air bubbles. Repeat for other end of walkboard.
6. Select two:
- |   |          |                             |
|---|----------|-----------------------------|
| ㉓ | 838-266C | DECAL REFLECTOR RED 1 1/2X9 |
|---|----------|-----------------------------|
- Remove the release paper backing on the decal. Carefully align it on outside end of the rear face of the walkboard. Apply it to the face and smooth out any air bubbles. Repeat for other end of walkboard.

---

## Warranty

# LIMITED WARRANTY

### TERMS AND CONDITIONS (U.S. ONLY)

1. Great Plains (a division of the Kubota Corporation) warrants to the original purchaser that this Great Plains unit will be free from defects in material and workmanship for a period of one year from the first use date.
2. These terms apply when machine is used as intended and under normal service and conditions for personal use; ninety days for custom/commercial or rental use.
3. This warranty is limited to the replacement of any defective part by Great Plains and the installation by the dealer of any such replacement part. Great Plains reserves the right to inspect any equipment or part which are claimed to have been defective in material or workmanship.
4. 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.
5. 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.
6. This warranty may be voided if the unit is towed at speeds in excess of 20 miles per hour (32 kilometers per hour), or is used in soils with rocks, stumps, or other obstructions.
7. This warranty shall not be interpreted to render Great Plains liable for damages of any kind, direct or consequential or contingent to property.
8. Great Plains does not cover the following items and/or conditions:
  - a. failures resulting from abuse or misuse of the equipment,
  - b. failures occurring as a result of accidental damage or acts of God,
  - c. failures resulting from alterations or modifications, failures caused by lack of normal maintenance as outlined in the operator's manual or repairs made by non-authorized personnel,
  - d. items replaced or repaired due to normal wear (such as wear items and ground engaging components),
  - e. repeat repair due to improper diagnosis or repair by the dealer, temporary repairs, service calls and/or mileage to and from customer location, overtime premium, or unit hauling expenses, or
  - f. damages resulting from any cause beyond Great Plains control.
  - g. Great Plains reserves the right to make changes in materials or design of the product at any time without notice.

This warranty is not valid unless the unit is registered with Great Plains within 10 days from the date of the original purchase.



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