Operator Manual

2007+ PD8070
PD8070 8-Row 70cm Pull-Type Planter

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 or may depict similar models where a topic is identical.
# Table of Contents

**Important Safety Information** .............................................. 1  
Safety Decals ........................................................................ 6  
**Introduction** ..................................................................... 10  
Document Family ................................................................. 10  
Models Covered ..................................................................... 10  
Intended Usage ...................................................................... 10  
Description of Unit ............................................................... 10  
Using This Manual ............................................................... 10  
Definitions ........................................................................... 10  
Owner Assistance .................................................................. 11  
Product Support .................................................................... 11  
**Preparation and Setup** ....................................................... 12  
Pre-Start Checklist ............................................................... 12  
Hitching Planter to Tractor .................................................. 13  
Hydraulic Hose Hookup ....................................................... 14  
Protecting Hydraulic Motor Seals ....................................... 14  
Electrical Hookup .................................................................. 16  
Seed Monitor Console ........................................................... 16  
Lighting Harness ................................................................. 16  
Mate Connectors at Hitch .................................................... 16  
Leveling Planter .................................................................... 17  
Planter Frame Height ............................................................ 17  
Exchanging Meters .............................................................. 18  
Installing Brush Meter Plates ............................................. 19  
Mud Scrapers (Optional) ....................................................... 20  
Ridge Planting ....................................................................... 20  
Re-Phasing Lift System ......................................................... 20  
Monitor Setup ........................................................................ 21  
Marker Setup (Option) .......................................................... 21  
Bleeding Hydraulics ............................................................. 21  
Lift Hydraulics ....................................................................... 21  
Marker Hydraulics .................................................................. 21  
**Operating Instructions** ...................................................... 22  
Pre-Start Checklist ............................................................... 22  
Transporting the PD8070 Planter ......................................... 23  
Loading Materials ............................................................... 24  
Loading Seed ........................................................................ 24  
Loading Fertilizer ................................................................. 25  
Seed Drive Clutch .................................................................. 26  
Meter Clutch Disengagement .............................................. 26  
Meter Shaft Alignment ......................................................... 26  
Field Operation ...................................................................... 27  
Raising/Lowering Planter ..................................................... 27  
Marker Operation ............................................................... 28  
Row Marker Operation ......................................................... 28  
Row Unit Operation ............................................................. 28  
Parking .................................................................................. 29  
Storage .................................................................................. 29  
**Adjustments** .................................................................... 30  
Setting Material Rates .......................................................... 30  
Seed Rate .............................................................................. 31  
Transmission Adjustment .................................................... 31  
Checking Planting Population ............................................. 32  
Brush Meter Rates ............................................................... 33  
Reading the Brush Meter Chart .......................................... 33  
Brush Meter Rate Chart ...................................................... 34  
Finger Meter Rates .............................................................. 35  
Reading the Finger Meter Chart .......................................... 35  
Finger Meter Rate Chart ...................................................... 36  
Dry Fertilizer Rate .................................................................. 37  
Fertilizer Density Adjustment ............................................. 38  
Fertilizer Rate Charts ......................................................... 38  
Dry Fertilizer Low Rate Setting ........................................... 38  
Dry Fertilizer High Rate Setting ......................................... 38  
Contact Drive Tension .......................................................... 39  
Marker Adjustments ............................................................. 40  
Marker Extension ................................................................. 40  
Marker Disk Adjustments .................................................... 41  
Marker Disk Angle ............................................................... 41  
Marker Disk Angle Axis ....................................................... 41  
Marker Folding Speed .......................................................... 41  
Row Implement Adjustments ................................................ 42  
Frame-Mounted Row Accessories ....................................... 42  
Terra-Tine™ Row Cleaners .................................................. 42  
Zone Coulters ....................................................................... 43  
In-Row .................................................................................. 43  
Between Row (or Off-Row at least 2in) .............................. 43  
Vantage I Frame-Mounted Coulters .................................... 43  
Vantage II Fertilizer Coulters .............................................. 44  
30 Series Row Units ............................................................. 45  
Row Unit Down Pressure ..................................................... 46  
Row Cleaner Adjustments .................................................... 47  
Coulter Adjustments ............................................................. 48  
Row-Unit Opener Adjustments .............................................. 49  
Setting Planting Depth .......................................................... 49  
Disk Angle and Side Gauge Wheels .................................... 49  
Adjusting Disk Angle & Side Gauge Wheels ....................... 50  
Adjusting Gauge Wheel Scrapers ........................................ 51  
Seed Meter Setup and Adjustment ....................................... 52  
Finger Meter Scraper Adjustment ...................................... 53


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# Table of Contents

- Finger Meter Inserts ............................................. 54
- Sunflower Meter Configurations........................... 54
- Seed Firmer Adjustments ........................................ 55
- Keeton® Seed Firmer Adjustment........................ 55
- Press Wheel Adjustments........................................ 55
- Double-V Press Wheels ....................................... 55
- Press Wheel Down Pressure ............................... 56
- Press Wheel Stagger ........................................... 56
- Cast Press Wheel Stagger................................... 56
- Press Wheel Centering ........................................ 57
- Single Press Wheel.............................................. 57

## Troubleshooting.......................... 58

## Maintenance and Lubrication .................. 61

### Maintenance ........................................ 61
- General Maintenance........................................ 61
- Lift Cylinder Lock-Up........................................ 62

### Material Clean-Out ........................................ 63
- Seed Hopper Clean-Out ........................................ 63
- Finger Meter Clean-Out ........................................ 64
- Brush Meter Clean-Out ........................................ 64
- Seed Tube Clean-Out ........................................ 64
- Fertilizer Hopper Clean-Out ................................ 64

### Bleeding Hydraulics ............................... 65
- Bleeding Lift Hydraulics ........................................ 65
- Replacing Shear Pins and Bolts ............................ 66
- Drive-Line Shear Pins ........................................ 66
- Marker Shear Bolt ............................................. 66
- Shaft Alignment.................................................. 67
- Ratchet Drives................................................... 68
- Chain Maintenance ........................................... 68
- Chain Tension .................................................. 69
- 30 Series Opener Disks and Scrapers ..................... 70
- 30 Series Row-Unit Side Wheels ............................ 71
- Exchanging Finger Sets.......................................... 72

- Install Corn Finger Set ...................................... 75
- Meter Maintenance............................................. 76
- Finger Meter Maintenance .................................... 76
- Finger Set Inspection .......................................... 76
- Finger Meter Re-Assembly Steps ......................... 76
- Precautions....................................................... 76
- Population Max™ Annual Maintenance ................ 77
- Population Max™ Installation ............................. 77
- Skip Stop™ Annual Maintenance ........................ 78
- Skip Stop™ Installation ....................................... 78
- Brush Meter Maintenance .................................... 79
- Seed Plate Maintenance ....................................... 80
- Cleaning and Storing Seed Disks ........................... 80
- Lubrication and Scheduled Maintenance .............. 81

### Options ............................................. 87

### Appendix A - Reference Information .......... 97

- Specifications and Capacities ............................. 97
- Tire Inflation Chart .......................................... 97
- Hydraulic Diagrams .......................................... 98
- Lift Hydraulics ................................................ 98
- Marker Hydraulics .......................................... 99

### Appendix B - Initial Setup .......................... 101

- Hydraulic Charge and Bleed ............................. 101
- Seed Monitor Console Installation .................... 101
- Seed Monitor Console Quick-Start ..................... 101
- Power-Up The Console ..................................... 102
- Set Metric Mode ............................................. 102
- Set Planter Row Count ..................................... 102
- Set Planter Row Spacing .................................. 103
- Row Setup .................................................... 103

### Warranty .......................................... 104

### Index ............................................. 105
Important Safety Information

Look for Safety Symbol

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

Be Aware of Signal Words

Signal words designate a degree or level of hazard seriousness.

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

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

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

Prepare for Emergencies

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

Be Familiar with Safety Decals

▲ Read and understand “Safety Decals” on page 6, thoroughly.
▲ Read all instructions noted on the decals.
▲ Keep decals clean. Replace damaged, faded and illegible decals.
Avoid High Pressure Fluids
Escaping fluid under pressure can penetrate the skin, causing serious injury.

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

Wear Protective Equipment
Great Plains advises all users of chemical pesticides or herbicides to use the following personal safety equipment.

▲ Waterproof, wide-brimmed hat
▲ Waterproof apron.
▲ Face shield, goggles or full face respirator.
▲ Goggles with side shields or a full face respirator is required if handling or applying dusts, wettable powders, or granules or if being exposed to spray mist.
▲ Cartridge-type respirator approved for pesticide vapors unless label specifies another type of respirator.
▲ Waterproof, unlined gloves. Neoprene gloves are recommended.
▲ Cloth coveralls/outer clothing changed daily; waterproof items if there is a chance of becoming wet with spray
▲ Waterproof boots or foot coverings
▲ Do not wear contaminated clothing. Wash protective clothing and equipment with soap and water after each use. Personal clothing must be laundered separately from household articles.
▲ Clothing contaminated with certain pesticides must be destroyed according to state and local regulations. Read chemical label for specific instructions.
▲ Wear clothing and equipment appropriate for the job. Avoid loose-fitting clothing.
▲ Prolonged exposure to loud noise can cause hearing impairment or loss. Wear suitable hearing protection such as earmuffs or earplugs.
▲ Avoid wearing entertainment headphones while operating machinery. Operating equipment safely requires the full attention of the operator.
Handle Chemicals Properly

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

▲ Read and follow chemical manufacturer’s instructions.
▲ Wear protective clothing.
▲ Handle all chemicals with care.
▲ Agricultural chemicals can be dangerous. Improper use can seriously injure persons, animals, plants, soil and property.
▲ Inhaling smoke from any type of chemical fire is a serious health hazard.
▲ Store or dispose of unused chemicals as specified by the chemical manufacturer.
▲ If chemical is swallowed, carefully follow the chemical manufacturer’s recommendations and consult with a doctor.
▲ If persons are exposed to a chemical in a way that could affect their health, consult a doctor immediately with the chemical label or container in hand. Any delay could cause serious illness or death.
▲ Dispose of empty chemical containers properly. By law rinsing of the used chemical container must be repeated three times. Puncture the container to prevent future use. An alternative is to jet-rinse or pressure rinse the container.
▲ 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. Wind speed must be below 5 mph (8 km/h). Make sure wind drift of chemicals will not affect any surrounding land, people or animals.
▲ Never wash out a hopper within 100 feet (30 m) of any freshwater source or in a car wash.

Use A Safety Chain

▲ Use a safety chain to help control drawn machinery should it separate from tractor draw bar.
▲ Use a chain with a strength rating equal to or greater than the gross weight of towed machinery.
▲ Attach chain to tractor draw bar support or other specified anchor location. Allow only enough slack in chain to permit turning.
▲ Replace chain if any links or end fittings are broken, stretched or damaged.
▲ Do not use safety chain for towing.
Keep Riders Off Machinery
Riders obstruct the operator's view. Riders could be struck by foreign objects or thrown from the machine.
▲ Never allow children to operate equipment.
▲ Keep all bystanders away from machine during operation.

Use Safety Lights and Devices
Slow-moving tractors and towed implements can create a hazard when driven on public roads. They are difficult to see, especially at night.
▲ Use flashing warning lights and turn signals whenever driving on public roads.
▲ Use lights and devices provided with implement

Transport Machinery Safely
Maximum transport speed for implement is 32 km/h (20 mph). Rough terrains require a slower speed. Sudden braking can cause a towed load to swerve and upset.
▲ Do not exceed 32 km/h. Never travel at a speed which does not allow adequate control of steering and stopping. Reduce speed if towed load is not equipped with brakes.
▲ Comply with state and local laws.
▲ Do not tow an implement that, when fully loaded, weighs more than 1.5 times the weight of towing vehicle.
▲ Carry reflectors or flags to mark planter in case of breakdown on the road.
▲ Keep clear of overhead power lines and other obstructions when transporting. See “Specifications and Capacities” on page 97 for transport dimensions.
▲ Do not fold or unfold the planter while the tractor is moving.

Shutdown and Storage
▲ Lower planter, put tractor in park, turn off engine, and remove the key.
▲ Secure planter using blocks and supports provided.
▲ Detach and store planter in an area where children normally do not play.
Tire Safety

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

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

▲ When removing and installing wheels, use wheel-handling equipment adequate for weight involved.

Practice Safe Maintenance

▲ Understand procedure before doing work. Use proper tools and equipment. Refer to this manual for additional information.

▲ Work in a clean, dry area.

▲ Lower the planter, put tractor in park, turn off engine, and remove key before performing maintenance.

▲ Make sure all moving parts have stopped and all system pressure is relieved.

▲ Allow planter to cool completely.

▲ Disconnect battery ground cable (-) before servicing or adjusting electrical systems or before welding on planter.

▲ Inspect all parts. Make sure parts are in good condition and installed properly.

▲ Remove buildup of grease, oil or debris.

▲ Remove all tools and unused parts from planter before operation.

Safety At All Times

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

▲ Be familiar with all planter functions.

▲ Operate machinery from the driver’s seat only.

▲ Do not leave planter unattended with tractor engine running.

▲ Do not dismount a moving tractor. Dismounting a moving tractor could cause serious injury or death.

▲ Do not stand between the tractor and planter during hitching.

▲ Keep hands, feet and clothing away from power-driven parts.

▲ Wear snug-fitting clothing to avoid entanglement with moving parts.

▲ Watch out for wires, trees, etc., when folding and raising planter. Make sure all persons are clear of working area.
Safety Decals

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

▲ Read and follow decal directions.
▲ Keep all safety decals clean and legible.
▲ Replace all damaged or missing decals.
▲ When ordering new parts or components, also request corresponding safety decals.

Order new decals from your Great Plains dealer. Refer to this section for proper decal placement.

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.

Slow Moving Vehicle Reflector

818-055C
Above main tool bar at center;
1 total

Red Reflectors

838-266C
On the backside of each light mounting bar, and on the main tool bar outboard of the inner two row units;
4 total

Amber Reflectors

838-265C
On the outside of the two outboard row units and on the front and side at the front corners of the main frame;
6 total
Daytime Reflectors

838-267C
On the backside of each light mounting bar, and on the main tool bar outboard of the inner two row units; 4 total

Warning: Transport Speed

! WARNING

EXCESSIVE SPEED HAZARD
To Prevent Serious Injury or Death:
- Do Not exceed 20 mph maximum transport speed. Loss of vehicle control and/or machine can result.

818-188C
Right side of tongue; 1 total

Warning: High Pressure Fluid Hazard

! WARNING

HIGH PRESSURE FLUID HAZARD
Wear Proper Safety Equipment. Detect and probe pressure on system before removing, adding, or disassembling. High pressure fluid and/or fluid residue may cause severe injury to eyes, feet, and/or hands.

818-339C
On the tongue; 1 total

Warning: Sharp Object (Option)

! WARNING

SHARP OBJECT HAZARD
To Prevent Serious Injury or Death from Sharp Objects:
- Keep hands, feet, hair, & clothing away from sharp objects.
- Do NOT stand or climb on machine when operating.
- Keep others away.

818-525C
On each row cleaner; 8 total
Warning: Moving Chain

838-363C
Transmission Drive (1)
Reverser Drives (2),
Contact Drives; 2 total
Dry Fertilizer Drive (1);
6 total
Warning: Markers Overhead

838-367C
Front and back of marker inner arms;
4 total

Caution: Transport Locks

818-351C
At transport locks;
2 total

Caution: Read Operators Manual

818-587C
Right side of tongue;
1 total
Introduction

Great Plains welcomes you to its growing family of new product owners. This planter 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.

Document Family

401-479M  Operator/Seed Rate Manual (this manual)
401-479P  Parts Manual
11001-1372 DICKEY-john® PM300 Manual

Models Covered

This manual applies to model year 2007 and later planters. It does not apply to earlier models.

PD8070  8 ROW 70 CM PD PLANTER - 2007+

Intended Usage

Use this implement for planting row crops in large fields. The unit is designed for conventionally tilled fields but can be used in no-till or minimum-till conditions if outfitted with optional tillage attachments.

Description of Unit

The 8-row, 70 cm planter is a towed precision planting implement. The frame consists of 18×18 cm (7×7 inch) tubing. Planting rates are adjustable by changing sprockets on the planter transmission or contact drive. 30 Series row units are mounted on the frame with seed hoppers standard on the row units. Springs on each row unit provide down pressure needed for the double-disk openers to make a seed trench.

Finger-pickup or brush meters singulate and dispense seed from the hopper and deliver it to the trench. A dry fertilizer hopper is standard.

Using This Manual

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

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

Definitions

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

NOTICE

A crucial point of information related to the preceding topic. For safe and correct operation, read and follow the directions provided before continuing.

Note: Useful information related to the preceding topic.
Owner Assistance

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

Refer to Figure 2
Your machine’s parts were specially designed and should only be replaced with Great Plains parts. Always use the serial and model number when ordering parts from your Great Plains dealer. The serial-number plate is located on the left end of the seed cart tool bar, as shown.

Record your PD8070 Planter model and serial number here for quick reference:

Model Number: ____________________________
Serial Number: ____________________________

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

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

For further assistance write to:

Product Support
Great Plains Mfg. Inc., Service Department
PO Box 5060
Salina, KS 67402-5060

gp_web_cs@greatplainsmfg.com
785-823-3276
Preparation and Setup

This section helps you prepare your tractor and planter for use. Before using the planter in the field, you must hitch the planter to a suitable tractor and level the planter.

Pre-Start Checklist

1. Read and understand “Important Safety Information” on page 1.
2. Check that all working parts are moving freely, bolts are tight, and cotter pins are spread.
3. Check that all grease fittings are in place and lubricated. See “Lubrication and Scheduled Maintenance” on page 81.
4. Check that all safety decals and reflectors are correctly located and legible. Replace if damaged. See “Safety Decals” on page 6.

Inflate tires (Refer to Figure 3) as recommended in the table. below.

<table>
<thead>
<tr>
<th>Tire</th>
<th>Size</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground 1</td>
<td>7.00-15 LT</td>
<td>414 kPa (60 psi)</td>
</tr>
<tr>
<td>Contact 2</td>
<td>13-5.0 × 6</td>
<td>276 kPa (40 psi)</td>
</tr>
</tbody>
</table>

Figure 3
Ground & Contact Tires
Hitching Planter to Tractor

⚠️ DANGER

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

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

Refer to Figure 4
2. Use jack 3 to raise and lower planter tongue.

Refer to Figure 5
3. After hitching tractor to planter, store jack on storage tube 4 on top of planter tongue.
4. Secure planter safety chain to an anchor on the tractor capable of pulling the unit.
Hydraulic Hose Hookup

**WARNING**

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

*Only trained personnel should work on system hydraulics!*

**Protecting Hydraulic Motor Seals**

**Low Pressure (Case) Drain Connection**

**NOTICE**

**Motor Seal Damage Risk:**
Case Drain Hose must be attached prior to inlet and return hoses being connected. Also, it must be unhooked last to prevent damage to the fan motor.

1. Attach case drain hose to low pressure drain connection.

*Note:* Case drain hose must be hooked up first. Also, it must be unhooked last to prevent damage to hydraulic motor seals.

2. Connect low pressure return hose to low pressure return connector.

**NOTICE**

**Hydraulic Motor Performance Risk:**
DO NOT hook case drain line to a “power-beyond port”.

3. If the tractor has a limited number of remotes capable of continuous flow, use one for the fan. (See “Specifications and Capacities” on page 97 for tractor requirements.)
Current Style Color Coded Hose Handles
Great Plains hydraulic hoses have color coded handle grips to help you hookup hoses to your tractor outlets. Hoses that go to the same remote valve are marked with the same color.

<table>
<thead>
<tr>
<th>Color</th>
<th>Hydraulic Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue</td>
<td>Lift Cylinders</td>
</tr>
<tr>
<td>Green</td>
<td>Marker Cylinders</td>
</tr>
</tbody>
</table>

Refer to Figure 6
To distinguish hoses on the same hydraulic circuit, refer to the symbol molded into the handle grip. Hoses with an extended-cylinder symbol feed cylinder base ends. Hoses with a retracted-cylinder symbol feed cylinder rod ends.

For hydraulic fan and drive motors, connect the hose under the retracted cylinder symbol to the pressure side of the motor. Connect the hose under the extended cylinder symbol to the return side of the motor.

The fan motor further requires hookup of a (third) case drain line, which returns lubricating/cooling fluid.

Older Style Hoses with Color Ties

Refer to Figure 7
Each hose set has a label for flow conventions. The label uses cylinder Base/Extend and Rod/Retract icons.

Be sure to connect these to the matching tractor remotes, so that remote levers are activated as described in this manual.

Hoses that go to the same remote valve are marked with the same color tie.

<table>
<thead>
<tr>
<th>Color</th>
<th>Hydraulic Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue</td>
<td>Lift Cylinders</td>
</tr>
<tr>
<td>Orange</td>
<td>Marker Cylinders</td>
</tr>
</tbody>
</table>
Electrical Hookup

Seed Monitor Console

Refer to Figure 8
If the planter is equipped with one of the two optional seed monitors, the PM300 console needs to be mounted in the cab of the tractor to be used with the planter.

The monitor includes cables for power, speed sensor and sensor harness. Installation instructions are found in the included DICKEY-john® manual.

Power color code is:
+ positive: red
- negative: black

The included bracket requires customer-supplied fasteners.

Lighting Harness

Refer to Figure 9
The standard PD8070 Planter lighting harness is terminated with an ASAE J560b receptacle. If your tractor has a European style 7-pin connector, your dealer can assist with replacing the planter connector.

Mate Connectors at Hitch
After installing any console or connector required, plug and secure the connectors at the hitch.

- 1 Lights
- 2 DICKEY-john® Planter Control

Make sure tractor is shut down with accessory power off before making connections. Make all connections prior to planter movement.
Leveling Planter

Refer to Figure 10
During initial setup and periodically throughout the season, check that the planter runs level. When planting, the top of the hopper support panel should be parallel to the ground as shown.

To level the planter, the distance \( \text{\textcircled{5}} \) from bottom of the mainframe tube to the ground, must be:
- between 51 and 56 cm (20 and 22 inches)
- with the planter lowered into planting position.

Refer to Figure 11
To obtain the correct height, remove the two hitch bolts \( \text{\textcircled{6}} \), and reposition the planter hitch \( \text{\textcircled{7}} \) on the tongue.

The hitch can be turned over for extreme height changes.

Planter Frame Height

Refer to Figure 12
It may be necessary to adjust planter frame height when leveling the planter.

Lower planter to planting position.

For proper planter frame height, distance \( \text{\textcircled{5}} \) from bottom of frame tube to ground should measure:
- 51 and 56 cm (20 and 22 inches)
- from ground.

Equipment Damage Risk:
Always have two bolts through both hitch and tongue.
Do not rely on a single bolt.
If necessary adjust planter frame height to achieve 51 and 56 cm (20 and 22 inches) from ground. Remove bolts ⑧, located in lower holes, securing transport ground tire assembly to unit. Move tire assembly and secure assembly to upper hole ⑨ using previously removed bolt.

**Exchanging Meters**

These steps are only for changing between finger pickup and brush meters, or vice versa. Changing seed plates (page 19) does not require meter removal.

**CAUTION**

*Agricultural Chemical Hazard:*

Follow material supplier recommendations carefully. Handle the meter as if it were treated seed. Use supplier-recommended cleaning agents. Any seed treatment build-up inside a meter is likely to be at a higher concentration than on the actual seed.

*Refer to Figure 14*

1. Remove and empty the seed hopper (page 63). Put the lid back on to capture any bolts ① that fall away.
2. Remove two nuts ② and washers ③. Remove the meter ④.
3. Install new meter. Tighten 5/16-18 nuts ② to Grade 2 torque specification. Do not over-tighten, or you may damage the hopper. Re-install the hopper (page 24).
5. Store removed meters in pest-proof containers, such as plastic bags.

See also “Exchanging Finger Sets” on page 75.
Installing Brush Meter Plates

A selection of seed plates are available for the brush meter (see “Seed Plates” on page 94). Use a seed plate specific to the crop, seed variety, and seed rate range.

If the seed plates (or meters) need to be changed, perform this operation before loading seed.

1. Select 8 of the next seed plates to install. Check that they are all for the correct seed, seed variety and cell count. To aid in identification, there is a table of plate characteristics on page 94.

2. If seed is already loaded, see “Material Clean-Out” on page 63.

3. If changing from finger pickup to brush meter, see “Meter Maintenance” on page 72.

Refer to Figure 15

4. Uncouple the meter drive (page 26), release the hopper latch (page 63), and remove each hopper from its row unit.

5. Remove the two wing nuts ① that secure the seed plate to the meter shaft.

CAUTION

Treated Seed Hazard:
Follow material supplier recommendations carefully. Handle the meter and plate as if they were treated seed. Use supplier-recommended cleaning agents. Any seed treatment build-up inside a meter is likely to be at a higher concentration than on the actual seed.

Refer to Figure 16

6. Pull the plate off the threaded studs, and angle one side of the center hole over one end of the roll pin ② in the drive shaft.

Refer to Figure 17

7. With the seed plate removed, clean any debris from inside the meter, and inspect the condition of the brushes ③. See page 79.

8. Select a new plate ③. Inspect the cells for any damage, and make sure the inside surface is clean, so that it will seat full on the disc hub ④.

9. Orient the plate with the cell side (not the spoke side) toward the meter shaft. Reversing the removal process above, angle the hole over end of the drive shaft roll pin, then the other end, and seat the plate on the threaded studs. Secure with wing nuts.

10. Spin the plate by hand, counter-clockwise, to verify that it sits flush and does not wobble.

11. Re-mount the hopper on the row unit and secure with latch.
Mud Scrapers (Optional)

Refer to Figure 18
The mud scraper ① removes build-up that might interfere with contact drive wheel rotation and planting depth.

1. Loosen bolts ② and ③.
2. Pivot the scraper around bolt ② until the clearance ④ between the scraper and tire is 3 to 6 mm (⅛ to ¼ inch).
3. Tighten bolts.

Ridge Planting
To prepare the planter for ridge planting, you must lower the gauge wheels by inverting the cylinder mounting blocks ①.

Refer to Figure 19
Standard planting is shown at ②. Ridge planting is shown at ③.

1. Block up the frame to remove weight from tires.
2. At each of the four lift cylinders, remove the four 5/8 inch cap screws attaching the mounting blocks to the frame.
3. Invert mounting blocks and reinstall cap screws. Torque to specification as listed on the "Torque Values Chart" on page 100.

Re-Phasing Lift System
In typical use during a single planting operation, it is normal for the lift cylinders to get out of phase, resulting in uneven raising and lowering of the PD8070 Planter. Every 8- to 10 passes, re-phase the cylinders with this procedure:

1. Raise the planter completely, and hold the hydraulic lever or switch in Retract for several seconds after the planter reaches full elevation, or until all cylinders are fully retracted.
2. When all cylinders are fully retracted, momentarily reverse (Extend) the control to lower the planter 12 mm (½ inch).
Monitor Setup

**Refer to Figure 20**
The standard DICKEY-john® PM300 system monitors the following elements of a PD8070 planter:

- seeds at each row unit seed tube;
- ground speed.

See “Seed Monitor Console Installation” on page 101.

Refer to the DICKEY-john® PM300 Manual (11001-1372) for monitor operations.

After installation, and prior to first field use, the monitor must be setup with the row spacing and speed sensor constant, as well as your preferences for information display. Row count is auto-assigned, but any other DICKEY-john® defaults are not likely to be correct for your planter.

Row spacing data may be found in the Appendix.

For speed setup, Great Plains recommends using the 122 m (400-foot) speed calibration described in the DICKEY-john® manual. Perform the calibration run in representative field conditions, as soil conditions, surface looseness and other tillage practices can cause variations in the effective rolling radius of the ground drive wheel.

Prior to each planting session, set any desired limits for speed and population for the current crop.

Marker Setup (Option)

Prior to first use, check and adjust:

- “Marker Folding Speed” on page 41.

Prior to first use, and whenever changing row spacings, set or reset:

- “Marker Extension” on page 40.

Prior to each planting session, check and adjust:

- “Marker Disk Adjustments” on page 41.

Bleeding Hydraulics

Lift Hydraulics
Normally the lift hydraulics are bled at the factory before shipping, and bleeding should not be required other than to raise fully and hold lever on for one minute or until all cylinders extend fully.

If it is necessary to further bleed lift system, see “Bleeding Lift Hydraulics” on page 65.

Marker Hydraulics
To fold properly, the marker hydraulics must be free of air. If the markers fold in jerky, uneven motions.

As the marker cylinders are encased within the main tool bar, it is not practical to bleed them at cylinder fittings. Remove air from the system by slowly cycling fold and unfold several times.
Operating Instructions

This section covers general operating procedures. Experience, machine familiarity and the following information will lead to efficient operation and good working habits. Always operate farm machinery with safety in mind.

Pre-Start Checklist

**WARNING**

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

1. Carefully read “Important Safety Information” on page 1.
2. Lubricate planter as indicated under “Lubrication and Scheduled Maintenance” on page 81.
3. Check all tires for proper inflation. See “Tire Inflation Chart” on page 97.
4. Check all bolts, pins and fasteners. Torque as shown in “Torque Values Chart” on page 100.
5. Check planter for worn or damaged parts. Repair or replace parts before going to the field.
6. Check that hoppers are free of dirt and debris. Turn meter-drive shaft by hand to be sure drive shaft and seed meter turn freely.
Transporting the PD8070 Planter

WARNING

Loss of Control Hazard:
Do not exceed 32 km/h (20 mph). Towing the planter at high speeds can lead to loss of vehicle control. Loss of vehicle control can lead to serious road accidents, injury, and death.

Before transporting the planter, check and practice the following items.

1. Check that planter is securely hitched to a sufficient tractor. Refer to Tractor Requirements, at "Specifications and Capacities" on page 97.

2. Always use a locking-style hitch pin sized to match holes in hitch and draw bar (minimum 1-inch-diameter, heat-treated pin).

3. Attach safety chain to tractor with enough slack to permit turning. See "Hitching Planter to Tractor" on page 13.

4. Verify correct operation of lights.

5. Fold markers.


7. Unload hoppers before transporting if at all possible. The planter can be transported with full hoppers, but the added weight will increase stopping distance and decrease maneuverability.

8. Check that tires are properly inflated. See "Tire Inflation Chart" on page 97.

9. Do not exceed 32 km/h (20 mph). Comply with all national, regional and local laws when traveling on public roads.

10. Remember that the planter is wider than the tractor. Allow safe clearance.

11. Transport slowly over uneven or rough terrain.
Loading Materials

Loading Seed

1. Check that correct meters are installed. See “Meter Maintenance” on page 72.

2. For brush meters, install correct seed plates. See “Installing Brush Meter Plates” on page 19.

Refer to Figure 22

3. Check that hopper is correctly seated and secured: ① pivot hooks engage at front, ② meter clutch engages properly at side, and; ③ latch engaged at rear.

4. Remove lid by pulling back and up at rear ④. The lid has a hook at inside center for parking it on the front of the hopper during fill.

5. Inspect the hopper for leftover seed and debris. Clean out anything other than the seed to be planted. In particular, incompatible seed can clog meters. See “Material Clean-Out” on page 63.

6. Have seed lubricant at hand:

<table>
<thead>
<tr>
<th>Meter</th>
<th>Lubricant</th>
<th>Qty per Hopper</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finger Pickup</td>
<td>Graphite</td>
<td>5 ml (1 tsp)</td>
<td>Top</td>
</tr>
<tr>
<td>Brush</td>
<td>Graphite or Talc</td>
<td>5 ml (1 tsp)</td>
<td>Top</td>
</tr>
<tr>
<td></td>
<td></td>
<td>118 ml (1/2 cup)</td>
<td>Mix</td>
</tr>
</tbody>
</table>

Refer to Figure 23

7. Add seed and lubricant:

Graphite: Fill hopper with seed. Sprinkle graphite on top. (If you find that the graphite is being depleted before the hopper empties, add it around the top edge of the seed, rather than at center.)


For ordering, see “Seed Lubricants” on page 87.

Refer to Figure 24

8. With lid tilted forward at a slight angle, hook the two front hinge lugs under the hopper lip. Swing down, keeping fingers clear of lug, and latch the single rear lid lug on rear hopper lip. Check that all 3 lid lugs are completely under the hopper lip, or the lid may come off in transport.
Loading Fertilizer

**WARNING**

**Agricultural Chemical Hazard:**

Read and follow all supplier instructions regarding safe handling and approved application of chemicals. Agricultural chemicals can be extremely hazardous.

Review and follow the general guidelines for safe handling, application, disposal and cleanup of chemicals on page 2 and page 3 of this manual.

*Refer to Figure 25*

1. Position the planter facing into the wind, so that you are facing downwind while loading fertilizer.
2. Check that the fertilizer hopper mounts ① are re-secured from any previous hopper clean-out. See "Fertilizer Hopper Clean-Out" on page 64.
3. Release rubber latches ② at hopper front. Swing lid back until internal bungees hold it open.
4. Inspect the hopper for leftover prior materials and debris. Clean out as necessary.

*Refer to Figure 26*

5. Make auger adjustment for High or Low rate. See “Dry Fertilizer Rate” on page 37.
   - For low fertilizer rates, set augers as shown at ③.
   - For high fertilizer rates, set augers as shown at ④.

**NOTICE**

**Loss of Time Risk:**

Before adding fertilizer make sure that augers are rotating correctly and are positioned for your desired rate range setting.

6. Fill hoppers with fertilizer.
7. Close lids and secure both latches on each lid.
Seed Drive Clutch

Meter Clutch Disengagement
The seed meter may be disengaged from the drive system, as required in several situations, for example:

- hopper removal for clean-out, meter exchange or maintenance
- treatment meter calibration
- application without seeding

Refer to Figure 28
To disengage a meter, pull the knob away (left) of the row unit. Rotate the knob until the inner cross-pin is seated in the shallow detents of the hub.

Meter Shaft Alignment
The meter clutch and meter-input shaft must be aligned. Misalignment causes meter malfunction and excessive meter-housing and clutch wear. Periodically check vertical and horizontal alignment of meter clutch and meter-input shafts.

Refer to Figure 28
1. Latch hopper onto hopper support cross-tube.
2. Check that the roll pin in the end of the meter input shaft is centered. When centered, equal amounts of the roll pin protrude from both sides of the shaft.
3. Rotate the meter input shaft so that the roll pin is vertical.
4. Rotate the drive coupler on meter clutch so that the slots are vertical.
5. Release the meter clutch to engage the meter input shaft.
6. If shafts are aligned vertically, the drive coupler engages with the meter input shaft freely and the roll pin extends equally on each side of the drive coupler. Disengage the clutch and repeat steps, checking for horizontal alignment.
7. If the drive coupler does not freely engage the meter input shaft vertically and horizontally, loosen the \( \frac{5}{16} \) inch nuts on the flangette. Engage the meter clutch. Align the meter clutch with the meter input shaft. Tighten the nuts to Grade 5 torque specification.

Note: On a dual-meter planter, the seed meter drive clutch is the forward clutch.
Field Operation

1. Perform all checks listed on Pre-Start Checklist on page 22.


3. Set and calibrate planting rate per Planting Rate. See “Seed Rate” on page 31.

4. Load seed hoppers with clean seed. Add 1 teaspoon of graphite to each seed hopper. Replace hopper lids.

5. Adjust down pressure on row units to match field conditions. Set row units to desired planting depth. See “Row Implement Adjustments” on page 42.

6. Ensure planter is level. See “Leveling Planter” on page 17.

7. Lower planter, pull forward and begin planting.

8. Always raise planter for field turns. Meters will stop automatically as you raise your planter.

Raising/Lowering Planter

Refer to Figure 29
Planter raising and lowering relies on four lift cylinders ①. To raise or lower the planter, move the lever for the Lift circuit.

**CAUTION**

**Crushing Hazard:**
Use transport/lift locks when working around a raised planter. Do not rely on hydraulic pressure alone to keep the planter raised. The bypass orifices in the re-phasing system will cause it to slowly lower unless locks are used.

**NOTICE**

Disengage transport locks before lowering.

**NOTICE**

Always raise the planter for any reverse/backing.

**NOTICE**

Always fold markers before raising or lowering.
Marker Operation

**WARNING**

*Overhead Crushing Sharp Object Hazard:*
*Do not allow anyone to stand near or beyond the end of the wings during marker operations. Marker arms are heavy and marker discs may be sharp. A moving marker can cause serious injury or death.*

Dual markers are equipped with an automatic sequence valve that controls which side activates, as well as marker deployment.

Folding speed of dual markers is adjusted via set screws on the sequence valve body. Excessive folding speed may damage markers. See “Marker Folding Speed” on page 41.

**Row Marker Operation**

To alternate which side is marked:

1. Move the tractor’s circuit control to Retract. Hold until marker is folded.
2. Move the tractor’s circuit control to Extend. Hold until the new side’s marker is fully unfolded.
3. Return tractor control to neutral/off.

Markers can be raised simultaneously but must be lowered one at a time. If both markers are required down at the same time, run one marker down, momentarily start to raise it, reverse the hydraulic lever and lower the opposite marker.

**Note:** Holding the lever down will force both markers down.

On a tractor where the oil flow cannot be controlled, the rate of flow of oil from the tractor may be greater than the rate at which the marker cylinder can accept it. Hold the tractor hydraulic control lever until the cylinder reaches the end of its stroke. This occurs most often on tractors with an open-center hydraulic system.

On tractors with a closed-center hydraulic system, the tractor's hydraulic flow control can be set so the tractor's detent will function properly.

**Row Unit Operation**

Never back up with row units in ground. If you do, check all openers to be sure none are clogged. Always lift planter out of ground when turning at row ends and for other short-radius turns.

For information on planting-depth and down-pressure, see “Row Implement Adjustments” on page 42.
Parking

1. Park planter on a level, solid area.
2. Place jack on stob on the side of the planter tongue. Lower jack until weight of planter is off of tractor draw bar. Remove hitch pin and safety chain.
3. Disconnect any hydraulic hoses from tractor. Do not let hose ends rest on the ground.

Storage

Store planter in a clean, dry place with all tires out of the sun. Store planter where children do not play. If possible, store planter inside for longer life.

1. Thoroughly clean planter, hoppers, and meters. Remove any dirt and debris that can hold moisture and cause corrosion. See “Material Clean-Out” on page 63.
2. Remove meters from hoppers. Disassemble meters and inspect for wear. See “Seed Meter Setup and Adjustment” on page 52. Make any repairs required at this time. Blow excessive debris from meter. Wash meters with mild soap and water. Dry meters and spray a light coat of rust inhibitor on meters. Reassemble and store meters in a dry place.
3. Thoroughly flush any treatment system with clean water. Disconnect from tractor and completely drain all lines and components to prevent damage from freezing.
4. Inspect planter for worn or damaged parts. Make repairs and service during the off season.
5. Use paint to cover scratches, chips, and worn areas on the planter to protect the metal.
6. Adjust all drive chains for proper tension.
7. Lubricate planter at points listed under “Lubrication and Scheduled Maintenance” on page 81. Be sure to lubricate chains to prevent rusting.
8. Grease exposed portions of cylinder rods to prevent rust. Be sure to remove grease prior to next operation to prevent seal damage.
9. Place closing wheel handle in the middle slot to relieve tension on closing wheels. Move T-handle for opener springs to the lightest setting.
10. Cover planter with a tarp if stored outside.
To get full performance from your PD8070 Planter, you need an understanding of all component operations. Many provide adjustments for optimal field results. Even if your planting conditions rarely change, some of these items need periodic adjustment due to normal wear.

<table>
<thead>
<tr>
<th>Adjustment</th>
<th>Page</th>
<th>The Adjustment Affects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frame height</td>
<td>17</td>
<td>Planting depth</td>
</tr>
<tr>
<td>Frame level</td>
<td>17</td>
<td>Planting consistency</td>
</tr>
<tr>
<td>Contact Drive Tension</td>
<td>39</td>
<td>Planting consistency</td>
</tr>
<tr>
<td>Transmission Sprocket Selection</td>
<td>31</td>
<td>Population rate</td>
</tr>
<tr>
<td>Marker Width</td>
<td>40</td>
<td>Intended row spacing</td>
</tr>
<tr>
<td>Dual Marker Speed Adjustment</td>
<td>41</td>
<td>Reliable marker operation</td>
</tr>
<tr>
<td>Fertilizer Setup</td>
<td>37</td>
<td>Seed germination and growth</td>
</tr>
<tr>
<td>30 Series Row Units</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Row Unit Down Pressure</td>
<td>46</td>
<td>Planting depth</td>
</tr>
<tr>
<td>Row Cleaner Adjustments</td>
<td>47</td>
<td>Consistency of planting depth</td>
</tr>
<tr>
<td>Coulter Adjustments (Option)</td>
<td>48</td>
<td>Row pre-groove depth</td>
</tr>
<tr>
<td>Row-Unit Opener Adjustments</td>
<td>49</td>
<td>Seed groove depth and width</td>
</tr>
<tr>
<td>Adjusting Gauge Wheel Scrapers</td>
<td>51</td>
<td>Consistent seed groove depth</td>
</tr>
<tr>
<td>Seed Meter Setup and Adjustment</td>
<td>52</td>
<td>Consistent seed population</td>
</tr>
<tr>
<td>Seed Firmer Adjustment (Option)</td>
<td>55</td>
<td>Seed-soil contact</td>
</tr>
<tr>
<td>Press Wheel Adjustment</td>
<td>55</td>
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<td>Monitor Adjustments</td>
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<td>Refer to Seed Monitor manual</td>
</tr>
<tr>
<td>Gauge Wheel Mud Scrapers</td>
<td>20</td>
<td>Consistent drive rate; consistent planting depth</td>
</tr>
</tbody>
</table>

**Setting Material Rates**

Rates are set separately for seed and fertilizer.

Seed rate is determined by:

1. consulting the seed rate charts,
2. installing the correct meter (and in the case of the brush meter, the appropriate seed plate),
3. setting the transmission driver-driven sprocket combinations, and
4. checking the rate.

See “**Seed Rate**” on page 31.

Fertilizer rate is set by:

1. adjusting for the density of your material,
2. consulting the rate chart for the adjusted density,
3. setting the rate range at the augers in each hopper,
4. setting the transmission driver-driven sprocket combinations, and
5. checking the rate.

See “**Dry Fertilizer Rate**” on page 37.
Seed Rate
There are separate charts for brush and finger pickup meters. If you are unfamiliar with the charts, see “Reading the Brush Meter Chart” on page 33 or “Reading the Finger Meter Chart” on page 35.
To change meters, see “Meter Maintenance” on page 72.
For brush meters, the chart has separate columns based on the cell count of the seed plate installed. For plate selection see “Seed Plates” on page 94. To change plates, see “Installing Brush Meter Plates” on page 19.
With the meters set up, the rate is adjusted by sprocket pairing at the planter transmission.

Transmission Adjustment
To change planting population, change sprocket combination on transmission.

1. See “Brush Meter Rate Chart” on page 34 or “Finger Meter Rate Chart” on page 36 for proper sprocket combination for desired population.

Refer to Figure 31

2. Loosen carriage bolt ① and flange nut on idler plate. Rotate idler plate and move idlers out of chain. Remove chain.
3. Select new sprockets from storage ②.
4. Place correct sprockets for desired planting rate on Driving ③ and Driven ④ shafts.
5. Store all unused sprockets on storage bracket ②.
6. Reroute chain over idlers and sprockets.
7. Turn idler plate counterclockwise to engage chain. Leave 6 mm (1⁄4 inch) slack in longest chain span ⑤. Retighten carriage bolt and flange nut on idler plate.

Contact Wheel 2-to-1 Drive Reduction
The charts “Brush Meter Rate Chart” on page 34 and “Finger Meter Rate Chart” on page 36 are based on a 15-tooth, driven sprocket in the contact-wheel drive. To reduce planting rates by one-half, switch to 28-tooth sprocket.
Checking Planting Population
After setting transmission, always field check planting population.

1. Select one row unit for testing. Release spring pressure on closing wheels or disks.
2. Tie up closing disks or wheels to hopper support using a chain or heavy wire.
3. Disengage clutches on remaining row units.
4. Adjust planting depth to a shallow setting.
5. Plant at a normal speed for a short distance. For the standard 70 cm row spacing, measure 14.29 m (one thousandth of a hectare).
6. Count the number of seeds in one row over the measured distance. Multiply the number of seeds counted by 1000. This is the total population.

\[
\text{Population} = \text{SeedCount} \times 1000
\]

Example:
Plant for 14.29 m
Seed count is: 24
Population is: 24,000 = 24 \times 1000

If planting population is significantly different than desired, make the following checks:

- Double check sprocket combination in transmission. See “Finger Meter Rate Chart” on page 36.
- Check air pressure in gauge wheel tires. See “Tire Inflation Chart” on page 97.
- Check for meter malfunction or excessive contact-drive-wheel slippage. See “Troubleshooting” on page 58.
## Brush Meter Rates

### Reading the Brush Meter Chart

*Note: Actual chart is on page 34. Images at right are excerpts.*

#### Seed Rate: Cell Count

1. Use the chart columns for your seed plate, based on the cell count.

#### Seed Rate: Population

2. Find the desired seed population or seed spacing.

#### Seed Rate: Sprocket Combinations

3. Configure the sprockets.

   The numbers in the Driver/Driven columns are the number of teeth (T) stamped on the sprockets required.

#### Seed Rate: Planting Ground Speed

4. Observe the range of recommended planting speeds.

### Table: Brush Meter Rates

<table>
<thead>
<tr>
<th>Speed Range (kph)</th>
<th>Seed Population (seeds/ha)</th>
<th>Seed Spacing (cm)</th>
<th>Seed Population (seeds/ha)</th>
<th>Seed Spacing (cm)</th>
<th>Seed Population (seeds/ha)</th>
<th>Seed Spacing (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 to 13</td>
<td>217 608</td>
<td>6.6</td>
<td>147 087</td>
<td>8.2</td>
<td>130 565</td>
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<td>3 to 13</td>
<td>225 668</td>
<td>6.3</td>
<td>180 534</td>
<td>7.9</td>
<td>135 401</td>
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<td>3 to 13</td>
<td>234 347</td>
<td>6.1</td>
<td>187 478</td>
<td>7.6</td>
<td>140 608</td>
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<td>3 to 13</td>
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<td>3 to 13</td>
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<td>201 774</td>
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### Table: Transmission Speed Seed Combinations

<table>
<thead>
<tr>
<th>Transmission Combinations</th>
<th>Driver</th>
<th>Driven</th>
<th>Speed Range (kph)</th>
<th>Seed Population (seeds/ha)</th>
<th>Seed Spacing (cm)</th>
<th>Seed Population (seeds/ha)</th>
<th>Seed Spacing (cm)</th>
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### Soybean or High Rate Milo/Grain Sorghum

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### Specialty Soybean or High Rate Acid-delinted Cotton

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### Milo/Grain Sorghum or Acid-delinted Cotton

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Finger Meter Rates

Reading the Finger Meter Chart
Note: Actual chart is on page 36.
Images at right are excerpts.

Seed Rate: Population
1. Find the desired seed population or seed spacing.

Seed Rate: Meter rpms
2. Note the range of meter rpms suitable for that population.

NOTICE

Inconsistent Population Risk:
The shaded rpms are the recommended rpms for most consistent results. Use the recommended driving speed if possible.

The unshaded rpms are acceptable.

Blank cells are outside the range of reliable meter operation.

Seed Rate: Sprocket Combinations
3. Configure the sprockets.

The numbers in the Driver/Driven columns are the number of teeth (T) stamped on the sprockets required.

Seed Rate: Planting Ground Speed
4. Observe the recommended planting speed.
**ATTENTION ! ! !**
(For all seed corn types)
Great Plains always recommends test stand calibration of the finger meter to the population and ground speed desired.

For Round Corn optimum meter speed is 45 to 75 RPM
(Shaded & Non-shaded areas)

For Flat Corn optimum meter speed is 60 to 75 RPM
(Shaded area)

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### Table: Seed Population and Spacing

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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>17</td>
<td>113851</td>
<td>12.5</td>
<td>71</td>
<td>62</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>18</td>
<td>118067</td>
<td>12.1</td>
<td>74</td>
<td>65</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Dry Fertilizer Rate

Refer to Figure 33

**NOTICE**

Application Rate Risk:
Make field checks to assure you are applying fertilizer at the desired rate. Fertilizer application rates can vary from the weights in the charts.

Use the following instructions to check the exact number of kilograms your fertilizer attachment delivers on a 70cm row spacing.

1. Adjust for your fertilizer density (page 38).
2. Consult the Fertilizer Rate charts (page 38).
3. Install the Driving ① and Driven ② sprockets called out in the chart.
4. Remove a hose from one of the fertilizer hoppers and attach a container under the opening.
5. Engage the fertilizer attachment and drive forward for 142.9 m (469 feet).
6. Weigh the amount of fertilizer caught in the container and multiply that amount by 100. The result will be the kilograms of fertilizer delivered per hectare when planting in 70 cm rows.

To assure proper application check the gauge tires and contact drive tire for proper inflation, see "Tire Inflation Chart" on page 97.

Refer to Figure 34

**NOTICE**

Material and Time Loss Risk:
Before applying fertilizer make sure that augers are rotating correctly and are positioned for your desired rate setting.

For low fertilizer rates, set augers as shown at ③.
For high fertilizer rates, set augers as shown at ④.
Fertilizer Density Adjustment

The fertilizer meter rate charts are based on fertilizer with a density of 65 pounds per cubic foot (1.04 kilograms per liter).

If you are applying fertilizer of a different density, use the following table to convert application rate.

Multiply the desired application rate by the conversion factor.

\[ \text{Chart Rate} = \text{Field Rate} \times \text{Correction Factor} \]

Use the “Chart Rate” to determine the initial sprocket settings.

If the rate measured in calibration varies from the desired field rate by more than a few percent, apply the error percentage to the Chart Rate, and pick a new sprocket pairing based on that.

Fertilizer Rate Charts

Dry Fertilizer Low Rate Setting
Approximate rate in kilograms per hectare

<table>
<thead>
<tr>
<th>Density kg/l (lb/ft³)</th>
<th>0.72 (45.0)</th>
<th>0.80 (50.0)</th>
<th>0.88 (55.0)</th>
<th>0.96 (60.0)</th>
<th>1.04 (65.0)</th>
<th>1.12 (70.0)</th>
<th>0.87 (75.0)</th>
<th>0.81 (80.0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conversion Factor</td>
<td>1.45</td>
<td>1.30</td>
<td>1.20</td>
<td>1.10</td>
<td>1.00</td>
<td>0.93</td>
<td>0.87</td>
<td>0.81</td>
</tr>
</tbody>
</table>

You want to apply at: 100 kg/ha. The fertilizer density is: 0.96 kg/liter
This is a correction factor of: 1.10
100 × 0.96 = 96
Adjust planter to the setting closest to 96 kilograms per hectare.

Note: The application charts on this page were calculated with a bulk density of 1.04 kilograms per liter.
Contact Drive Tension

Refer to Figure 35 and Figure 36

Occasionally, due to planting height or planting conditions, it may be necessary to adjust the spring tension to keep the contact drive tire from slipping. For example, if you experience low seeding rates in wet conditions, it may be possible to compensate for this by increasing contact drive tension, by tightening 4 bolts (2 on each contact drive).

This is only effective if the ground drive wheels are not themselves slipping excessively. The correct solution may be to wait for drier planting conditions.

1. Raise planter to ease adjustment.

2. Check existing cast nut position on all 4 bolts. The factory setting, measured from the bottom circumference of the cross bar to the top of the cast hex nut (not to the top of the jam nut) is:
   
   25 mm and 32 mm (1 inch to 1\(\frac{1}{4}\) inch)

   If the casting position is greater than this, return it to factory setting and recheck field operation before making further adjustments.

3. Loosen jam nuts.

4. Turn bolts clockwise to increase contact drive tension. The change in contact tension, per revolution of the pair of bolt heads, is approximately:
   
   3.3 kg/turn (7.3 pounds/turn)

5. Recheck population (page 32) after adjusting.

   Note: Do not use increased tension with under-inflated or worn tires. The effective rolling radius of such tires is reduced (increasing planting rate), and additional contact drive tension cannot compensate for it.

Adjust tension until contact drive tire has enough tension to stay in contact with gauge wheel.

Note: DO NOT increase tension so much that contact drive tire resists turning.
Marker Adjustments

There are four adjustments for markers:

- **Marker Width**
  Once set for a specific row spacing, this only needs periodic checking to ensure the clamp is secure.

- **Disk Angle**
  Even if your row spacing rarely changes, you may need to adjust disk angle for soil conditions and planting speed.

- **Marker Fold/Unfold Speed**
  Once initially set by your dealer, this rarely needs modification.

- **Shear Bolt Replacement**
  If a marker hangs up on an obstruction, a bolt at the fold is designed to fail. See “Marker Shear Bolt” on page 66.

---

**CAUTION**

*Overhead Crushing and Sharp Object Hazard:*
You may be injured if hit by a folding or unfolding marker. Markers may fall quickly and unexpectedly if the hydraulics fail. Never allow anyone near the planter when folding or unfolding the markers.

**Marker Extension**

*Refer to Figure 37*

To adjust marker width, loosen (but do not remove) the nuts ① on the marker tube u-bolt ②.

Slide marker tube in or out to dimension ③. After adjusting, retighten u-bolt.

Marker Extension ③ is measured from the center line of the planter to the marker disk. The dimensions provided are approximate. After adjusting, field check the actual dimension.

Marker Extension ③ = 6.096 m (18 feet 7 inches)
Marker Disk Adjustments

**CAUTION**

**Sharp Object Hazard:**
Use caution when making adjustments in this area. Marker disks may be sharp.

The mark left by the marker disk may be changed by several methods.

Refer to Figure 38

**Marker Disk Angle**
1. To change the angle of cut, loosen bolts ④ and ⑤, rotate disk assembly around bolt ⑤ and retighten bolts.

**Marker Disk Angle Axis**
2. The disk may be mounted to throw dirt in or out. To reverse throw, remove bolts ① and ②, remove spindle ⑦ from tube ⑧ and remount it with the spindle axis behind the tube.

3. If vertical angle adjustment is needed, loosen the U-bolt ⑥, remove the tube ⑧, rotate it 90 degrees, and re-secure it.

**Marker Folding Speed**
The marker hydraulic system is equipped with needle valves to control how fast each marker operates. The needle valves are built into the sequence valve body, which is located directly below the slow-moving-vehicle placard. There are two hex adjustment heads, one for controlling:

① marker speed up (folding) and
② marker speed down (unfolding).

Excessive folding speeds can cause marker damage. With the tractor engine at an operating rpm, loosen jam nut ③ and adjust the needle valve ① or ② to limit the marker to a safe operating speed.

Make sure all adjustments are made with warm oil. Fold the marker up and down a few times and recheck for pinching and kinking of hoses.
Row Implement Adjustments

Frame-Mounted Row Accessories

Terra-Tine™ Row Cleaners

Refer to Figure 40

These row cleaners are available for:

• direct shank mounting ① on the front tool bar,
• sharing a Vantage I coulter shank, or;
• unit-mount ② on the 30 Series row unit.

See page 89 for ordering information.

Terra-Tine™s have three adjustments:

1. Height: Shank-mounted Terra-Tine™s adjust at the tube clamps ③. Unit-mounted Terra-Tine™s adjust at the bracket ④ mounting holes.

When the blade is out of the soil, adjust the Terra-Tine™ to set the height of tine fingers flush with the bottom of coulter blade or opener disk.

Refer to Figure 40

2. Terra-Tine™s are adjustable for leading (⑥, ⑦), trailing (⑧, ⑨), and left (⑦, ⑧) or right offset (⑥, ⑨).

Fore-to-aft adjustment is accomplished by adding or removing an extension arm to place the Terra-Tine™ to either side of the coulter hub depending on the desired position or clearance between other attachments. Testing has shown better performance behind the hub, but available space may dictate the mounting position.

Refer to Figure 42

3. Tension: If tines are found to be rolling over, rather than moving trash, spring tension can be increased. Adjust spring tension by removing a bolt ⑤ and pivoting the adjuster relative to the pivot mount. There are five possible orientations:

<table>
<thead>
<tr>
<th>Orientation</th>
<th>Down Force at Disk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5.4 kg (12 pounds)</td>
</tr>
<tr>
<td>2</td>
<td>7.7 kg (17 pounds)</td>
</tr>
<tr>
<td>3</td>
<td>10.0 kg (22 pounds)</td>
</tr>
<tr>
<td>4</td>
<td>12.3 kg (27 pounds)</td>
</tr>
<tr>
<td>5</td>
<td>14.1 kg (31 pounds)</td>
</tr>
</tbody>
</table>

NOTICE

Equipment Damage Risk:

Be sure to check that the Terra-Tine™ Row Cleaner tines DO NOT touch the coulter blade or other attachments. Contacts cause excess wear to all parts involved. At least 13 mm (1/2 inch) clearance is recommended.
Zone Coulters

Refer to Figure 43
Frame-mounted coulters may be run in-row or between rows (“zone”). They are available with Turbo or conventional fluted blades. See page 89 for ordering information.

In-Row
If run in-row, or within 5.1 cm (2 inches) of the furrow, adjust the shank 1 to set the coulter depth 2 to be the planting depth or 6 mm (1/4 inch) shallower.

Between Row (or Off-Row at least 2in)
At the shaft 1, adjust the coulter depth for a running depth 2 of 10.1 to 11.4 cm (4 to 4 1/2 inches) below ground level 3. Refer to the Vantage I manual (204-376M) for further adjustments.
Do not adjust the spring 4 tension. It is factory pre-set.

Vantage I Frame-Mounted Coulters

Refer to Figure 45
At the back plate 5, adjust the tine height for a running depth 6 of 2.5 cm (1 inch) below ground level 3.
Refer to the Vantage I manual (204-376M) for further adjustments.
**Vantage II Fertilizer Coulters**

These coulters are available for application of dry fertilizer (with a large delivery tube), or liquid fertilizer (with a small tube). The position on the tool bar may be adjusted for in-row or zone application.

The dry coulter is compatible with the standard fertilizer hopper system. The liquid system requires a customer-provisioned tank, pump and manifold system.

*Refer to Figure 45*

At the shank ①, adjust the coulter depth for the desired fertilizer depth.

Do not adjust the spring ② tensions. They are factory pre-set.

The recommended gap ③ between the delivery tube exit port and the disk blade is 1.6 to 3.2 mm (\( \frac{1}{16} \) to \( \frac{1}{8} \) inches).
30 Series Row Units

Refer to Figure 46

From front to back, a Great Plains 30 Series row unit can include the following capabilities (some optional):

0. Seed Hopper: standard
   (not shown - sits above meter)

1. Parallel arms: standard
   Each row unit is mounted on the planter with spring-loaded parallel arms which allow each row unit to independently move up and down while staying horizontal. An adjustment is provided for the springs. See “Row Unit Down Pressure” on page 46.

2. Row Cleaner: optional, single-arm
   Row cleaners clear trash from rows, and have an adjustment for clearing depth. See “Row Cleaner Adjustments” on page 47.

3. Coulter: optional, choice of disk blades
   Coulters cut trash, and create a pre-groove for light no-till planting. There is a selection of three blade types. The depth relative to the opener is set by a choice of hub mounting holes. See “Coulter Adjustments” on page 48.

4. Openers: standard, 2 per row unit
   Opener double disk blades widen the coulter groove, creating the seed bed. Setup controls depth, width and sidewall angle. See “Row-Unit Opener Adjustments” on page 49.

5. The depth gauge wheels: standard
   Wheels control planting depth, and have adjustments for depth and angle. They also accept an optional scraper. See “Disk Angle and Side Gauge Wheels” on page 49 and “Adjusting Gauge Wheel Scrapers” on page 51.

6. Seed meter: choice of finger pickup (shown) or brush meter. Meters deliver seed to the seed tube. See “Seed Meter Setup and Adjustment” on page 52.

   Seed delivery tube: standard (shown in inset)
   No adjustments are necessary.

7. Seed firmer (optional):
   Keeton® seed firmer (shown in inset)
   Improves seed-soil contact. See “Seed Firmer Adjustments” on page 55.

8. Press wheels: standard (choice of wheel designs)
   These close the seed trench. See “Press Wheel Adjustments” on page 55.

NOTICE

Equipment Damage Risk:
Do not back up with row units in the ground. To do so will cause severe damage and row unit plugging.
Row Unit Down Pressure

Row unit springs provide the primary down pressure necessary for row unit disks to open a seed trench. The springs allow the row units to float down into depressions and up over obstructions. Springs also provide down force on coulters when using optional row mounted coulters, and provide the primary down force on seed firmers (optional) and press wheels.

A T-handle sets down pressure individually for each row unit. This is useful for penetrating hard soil and planting in tire tracks. For best results adjust tractor tires so they are not ahead of rows.

Refer to Figure 47

<table>
<thead>
<tr>
<th>Standard Springs</th>
<th>Down Force</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Holes (Closest to Tractor)</td>
<td>38 kg (85 pounds)</td>
</tr>
<tr>
<td>Second Holes</td>
<td>45 kg (100 pounds)</td>
</tr>
<tr>
<td>Third Holes</td>
<td>52 kg (115 pounds)</td>
</tr>
<tr>
<td>Fourth Holes</td>
<td>61 kg (135 pounds)</td>
</tr>
<tr>
<td>Fifth Holes (Closest to Hopper)</td>
<td>70 kg (155 pounds)</td>
</tr>
</tbody>
</table>

Heavy-duty springs are optional. See page 91 for ordering information.

<table>
<thead>
<tr>
<th>Heavy-Duty Spring Package</th>
<th>Down Force</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Holes (Closest to Tractor)</td>
<td>70 kg (155 pounds)</td>
</tr>
<tr>
<td>Second Holes</td>
<td>79 kg (175 pounds)</td>
</tr>
<tr>
<td>Third Holes</td>
<td>93 kg (205 pounds)</td>
</tr>
<tr>
<td>Fourth Holes</td>
<td>102 kg (225 pounds)</td>
</tr>
<tr>
<td>Fifth Holes (Closest to Hopper)</td>
<td>111 kg (245 pounds)</td>
</tr>
</tbody>
</table>

Use only enough down pressure to cut the seed trench and maintain proper soil-firming over seed. Excessive row unit down force will lead to premature wear on row unit components, uneven seed depth and gauge wheel slippage.

Note: Do not set all rows higher than notch four. Using high settings across all rows causes uneven planting. Individual rows may be set higher if running in tire tracks.
Row Cleaner Adjustments

Refer to Figure 48
Optional rigid tine cleaners are unit-mounted, using UMC-RC: Unit-Mount Coulter RC (on coulter bracket, with or without a coulter disk present).

⚠️ CAUTION

Sharp Object Hazard:
Row cleaner tines, casting edges and coulter blades are sharp. Wear hand protection when working in this area.

There are two adjustments:

1. Wheel placement (forward or aft mounting hole, for more or less aggressive cleaning), and

2. Wheel height, adjusted by a stop. Cleaner arms float. The stop only sets the lowest position. The sliding down-stop block ③ adjusts how close to the ground the row cleaners operate.

The row cleaner needs to be adjusted for your conditions, crop changes, and as coulters and openers wear. Ideally, cleaners contact only the trash, and do not disturb the soil. If allowed to “dig”, row cleaners can reduce seed coverage.

Suggested initial depth is tine tips at ground level.
Make the adjustment with the planter raised. Install lift-assist cylinder locks. Also check bolt ② tightness prior to each planting session, to avoid down-stop slippage.

To adjust the row cleaner:

1. Determine the height adjustment required. Measure from the lowest tine to the ground. Determine the desired new measurement.

2. Support most or all of the weight of the arm to prevent injury and ease the adjustment. Loosen bolts ②.

3. Support arm at desired height.

4. Slide the down-stop ③ on the arm ①:
   - back toward the pivot for shallower cleaning, or
   - forward toward the tines for deeper cleaning.
   Tighten the bolts ②.

5. Check the new height measurement.

Refer to Row Cleaner manual 204-085M-A for further information on use, adjustment and maintenance of row cleaners.
Coulter Adjustments

The ideal operating depth for coulters is 6.4 mm (1/4 inches) above opener depth. Although they may have originally been set to this depth, coulter (and opener) blades wear with time, and may need adjusting.

Adjusting the coulter depth is accomplished by re-mounting the coulter blade in one of the six mounting holes arranged in a staggered pattern in the coulter bracket.

Refer to Figure 49 and Figure 50

Raise planter and install cylinder locks before working on coulters. Do not attempt to move blade when the current or new position causes it to contact the ground during the adjustment. Be careful around the front end of row units. Row cleaner tines and coulter blades may be sharp.

To adjust coulter depth:
1. Determine the present opener and coulter depths.
2. Note which bracket hole the coulter is presently using.
3. Determine which new hole will position the coulter closer to the 6.4 mm (1/4 inch) above depth. See the table below. If none is closer, don’t move it.
4. Remove the 5/8-11 × 4 inch bolt, lock washer and nut (① in Figure 49).
5. Move the blade to the new position. Insert the bolt, and tighten on the lock washer and nut.
6. Re-adjust openers, if installed.

If a worn coulter cannot be adjusted to satisfactory operating depth, replace coulter blade.

<table>
<thead>
<tr>
<th>Hole No.</th>
<th>Depth of (new) coulter blade relative to (new) opener blades</th>
</tr>
</thead>
<tbody>
<tr>
<td>②</td>
<td>25.4 mm (1 inch) above</td>
</tr>
<tr>
<td>③</td>
<td>15.9 mm 5/6 inch above</td>
</tr>
<tr>
<td>⑤</td>
<td>6.4 mm 1/4 inch above</td>
</tr>
<tr>
<td>①</td>
<td>0</td>
</tr>
<tr>
<td>④</td>
<td>9.5 mm 3/8 inch below</td>
</tr>
<tr>
<td>⑥</td>
<td>19 mm 3/4 inch below</td>
</tr>
</tbody>
</table>

Figure 49
30 Series Unit-Mounted Coulter

Figure 50
Coulter Blade Mounting Holes
Row-Unit Opener Adjustments

30 Series openers have three adjustments:

1. planting/seed depth
2. gauge wheel/opener disk clearance
3. opener disk angle

Setting Planting Depth

Refer to Figure 51

The “T” handle ① sets planting depth by limiting the how high the side depth gauge wheels ride relative to the opener disks. The position of the seed tube itself is fixed relative to the disks, and is not adjusted.

To adjust seed depth, pull the “T” handle ① up and back, move it forward or aft, and set it back in a different pair of holes in the scale.

• For shallower planting, move the “T” handle ① forward.
• For deeper planting, move the “T” handle ① back.

Changing planting depth may also require changing disk angle.

Disk Angle and Side Gauge Wheels

Refer to Figure 52

Disk angle affects seed groove angle/width, and may need to be narrowed to achieve the desired seed depth in some conditions.

Disk-to-wheel angle and clearance ideally has the wheel just touching the disk when the wheel is raised to planting depth (is up against the stop set by the “T” handle). The goal is to have both disks and wheels turn freely, but keep soil and trash from getting between them.

These two adjustments interact with each other. Changing one requires at least checking the other.

In addition to changing the disk angle due to changing depth or new field conditions, these two settings may need attention over time as the disk and wheels wear from normal use. This adjustment will also need to be made if any opener components are replaced.
Adjusting Disk Angle & Side Gauge Wheels

Refer to Figure 53
For 51 mm (2 inch) planting depth, adjust side gauge wheel angle so wheels contact row unit disks at the bottom of wheel - in clock hand notation, between 4:00 and 8:00 o’clock. Check with row units in soil so wheels are held up.

At the same time, keep side gauge wheels close to opener disks so openers do not plug with soil or trash.

Note: Wheels should be out far enough so disks and wheels turn freely.

Refer to Figure 54
To adjust side gauge wheels:

1. Raise planter slightly removing weight from side gauge wheels.
2. Loosen hex-head bolt ①. Move wheel and arm out on o-ring bushing.
3. Loosen pivot bolt ②. Turn hex adjuster ③ so indicator notch ④ is at 1 o’clock.

Note: Use this as the starting point for adjustment.

4. Move wheel arm in so side gauge wheel contacts row unit disk. Tighten hex-head bolt ① to clamp arm around bushing and shank.
5. Check wheel-to-disk contact at 51 mm (2 inch) planting depth. Lift wheel 51 mm (2 inch) and release. When let go, wheel should fall freely.

• If wheel does not contact disk at bottom to area where blade leaves contact with soil, move hex adjuster until wheel is angled for proper contact with disk.

• If wheel does not fall freely, loosen hex-head bolt ① and slide wheel arm out just until wheel and arm move freely. Retighten hex-head bolt ① according to grade: 1/2 inch Grade 5 bolt, 102 N-m (75 foot-pounds).
1/2 inch Grade 8 bolt, 149 N-m (110 foot-pounds).

Note: Use “Torque Values Chart” on page 100 for reference.

6. Keep turning hex adjuster and moving wheel arm until the wheel is adjusted properly. When satisfied, tighten pivot bolt ② to 149 N-m (110 foot-pounds).
Adjusting Gauge Wheel Scrapers

Refer to Figure 55

Scrapers are optional, and may be useful in moist or sticky soils that tend to accumulate on gauge wheels and reduce intended planting depth. For ordering, see page 95.

To adjust scrapers:
1. Loosen nut ①.
2. Slide scraper ② toward gauge wheel ③ until scraper touches tire.
3. Slide scraper ② away from wheel ③ leaving a 3 mm (1/8 inch) gap at ④.
4. Rotate scraper left and right around bolt, making sure it cannot touch tire if bumped in field. If it can touch tire, back scraper away from wheel until it cannot.
5. Center scraper angle on bolt ① until gap ④ is constant.
6. Tighten nut ①.

Figure 55
Gauge Wheel Scraper
Seed Meter Setup and Adjustment

Your PD8070 Planter was originally supplied with a choice of brush meter, or 12-finger pickup meter.

- The brush meter accepts a selection of seed plates. Seed plate exchange is described on page 19.
- The finger pick up meter has an adjustable brush, and alternate inserts are available for the backing plate.

To change meters, see “Meter Maintenance” on page 72.

Regardless of meter, optimum planting speed is 7.2 to 8 km/h (4 1/2 to 5 mph). Excess speed results in poor spacing performance due to seed tube bounce. Excess speed may also result in improper depth control due to row unit bounce.

Always pay attention to your planter monitor. Compare actual seed usage to your estimates.

Note: The seed hopper needs to be empty for any meter exchange or adjustments. Any seed present obstructs access to meter attach bolts, may make the hopper too heavy to move, and seed is apt to be spilled.

Refer to Figure 56 and Figure 57

30 Series meters are attached to each row unit hopper. To access a meter for adjustments:

1. Disengage meter clutch (see page 26).
2. Release the latch on the rear of the hopper.
3. Tilt up the back, or move the hopper back about 5 cm (~2 inches) to disengage it from the hook cups.
4. Lift the hopper off the row unit.
**Finger Meter Brush Adjustment**

The brush reduces or eliminates “doubles” (delivering two seeds per finger), but if set too aggressively can cause “skips” (delivering no seed on some fingers). As needed, adjust for minimal doubles and skips.

**Note:** These instructions describe the current finger pickup meter shipped with new Great Plains planters, which has an integrated adjustment lever for the brush. If you have added pre-existing finger meters after purchase, there is some chance that you may have the previous model meter, adjusted by screwdriver rather than lever. If so, rely on counting detents to determine the setting. Not all have 9 detents.

**Refer to Figure 58**

The adjustable brush provides additional flexibility to accommodate a wide range of seed sizes. Use lever 🅱️ to gently rotate the brush into position.

The settings range from 1 to 5 with detents at each half step, for a total of 9 detents. Although the numbers are molded into the meter housing, only “1” and “5” may be visible. To ensure consistency, rotate the lever fully counter-clockwise “1”, and count detents as you advance it to the desired setting.

Use the general guidelines in the table below to adjust the brush position to your seed size and shape. The numbers listed correspond to the numbers printed on the outer housing of your meter.

If there is a decal on your meter, its units are in pounds per 80,000 seed bag. The table below includes seeds per pound and seeds per kilogram.

<table>
<thead>
<tr>
<th>Seed Shape</th>
<th>Bag Weight (80,000 seeds)</th>
<th>Seeds Per kg</th>
<th>Seeds Per Pound</th>
<th>Brush Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>flats</td>
<td>15.9 kg (35 pounds)</td>
<td>5066 or less</td>
<td>2300 or less</td>
<td>2</td>
</tr>
<tr>
<td>flats</td>
<td>15.9 kg (35 pounds)</td>
<td>5066 or more</td>
<td>2300 or more</td>
<td>3</td>
</tr>
<tr>
<td>flats</td>
<td>20.4 kg (45 pounds)</td>
<td>3920 or less</td>
<td>1780 or less</td>
<td>1</td>
</tr>
<tr>
<td>flats</td>
<td>20.4 kg (45 pounds)</td>
<td>3920 or more</td>
<td>1780 or less</td>
<td>2</td>
</tr>
<tr>
<td>rounds</td>
<td>15.9 kg (35 pounds)</td>
<td>5066 or less</td>
<td>2300 or less</td>
<td>4</td>
</tr>
<tr>
<td>rounds</td>
<td>15.9 kg (35 pounds)</td>
<td>5066 or more</td>
<td>2300 or more</td>
<td>5</td>
</tr>
<tr>
<td>rounds</td>
<td>20.4 kg (45 pounds)</td>
<td>3920 or less</td>
<td>1780 or less</td>
<td>3</td>
</tr>
<tr>
<td>rounds</td>
<td>20.4 kg (45 pounds)</td>
<td>3920 or more</td>
<td>1780 or more</td>
<td>4</td>
</tr>
<tr>
<td>rounds</td>
<td>25.0 kg (55 pounds)</td>
<td>3194 or less</td>
<td>1450 or less</td>
<td>2</td>
</tr>
<tr>
<td>rounds</td>
<td>25.0 kg (55 pounds)</td>
<td>3194 or more</td>
<td>1450 or more</td>
<td>3</td>
</tr>
<tr>
<td>rounds</td>
<td>29.5 kg (65 pounds)</td>
<td>2709 or less</td>
<td>1230 or less</td>
<td>1</td>
</tr>
<tr>
<td>rounds</td>
<td>29.5 kg (65 pounds)</td>
<td>2709 or more</td>
<td>1230 or more</td>
<td>2</td>
</tr>
</tbody>
</table>
Finger Meter Inserts

*Refer to Figure 59*

The backing plate is equipped with an "A" insert ①. In tests, this insert provides the best performance in most seed sizes. However, there are two alternative inserts that can be used. Before changing to a different insert, please consult with a Great Plains service representative for a recommendation.

The insert type is molded into the back. Changing inserts requires meter disassembly.

**NOTICE**

*Meter Reliability Risk:*

*Be cautious in using seed treatments, additives, and other chemicals when possible. They can cause meter performance problems and premature wear to meter parts. If graphite is used, use Precision Planting® planting graphite or Great Plains graphite, which is less abrasive. Generally, seeds treated with Maxi, Captan, and similar coatings benefit from graphite. Always store meters in a dry, secure place. Moisture, temperature, nest-building insects and rodents can create problems. Always pay attention to your seed monitor and operating manual. Monitor the amount of seed you are planting compared to your expectations. Always investigate abnormalities!*

**Sunflower Meter Configurations**

Review the finger pickup meter configuration, based on the seed size. See chart below. See “Exchanging Finger Sets” on page 75 for component removal and installation instructions.

The standard Sunflower configuration is suitable for #4 and #3 seed sizes. Larger seeds may require the Corn meter configuration. Using a finger pickup meter for Confection seeds is not recommended.

**Finger Pickup Configurations for Sunflower**

<table>
<thead>
<tr>
<th>Meter Component</th>
<th>Oil Seed Size</th>
<th>Confection Seed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#4</td>
<td>#3</td>
</tr>
<tr>
<td></td>
<td>~16500 seeds/kg (~7500 seeds/pound)</td>
<td>~14300 seeds/kg (~6500 seeds/pound)</td>
</tr>
<tr>
<td>① Finger Set</td>
<td>343067°</td>
<td>343067°</td>
</tr>
<tr>
<td></td>
<td>(12-finger sunflower)</td>
<td>(12-finger sunflower)</td>
</tr>
<tr>
<td>② Backing Plate</td>
<td>342108°</td>
<td>342108°</td>
</tr>
<tr>
<td></td>
<td>(Insert C)</td>
<td>(Insert C)</td>
</tr>
<tr>
<td>③ Brush Block</td>
<td>343091°</td>
<td>343091°</td>
</tr>
<tr>
<td></td>
<td>(brushless block)</td>
<td>(brushless block)</td>
</tr>
</tbody>
</table>

c. These components are included in the standard 890-856C Corn meter.
s. These components are included in the standard 890-912C Sunflower meter, and the 403-659A Conversion Kit.
Seed Firmer Adjustments

**CAUTION**

*Sharp Object Hazard:*
Row unit disk blades may be sharp. Use caution when making adjustments in this area. To adjust the Keeton® Seed Firmer, lower the planter until the disks of the row units are resting on the ground.

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

*Refer to Figure 60*
The firmer is provided with a preset tension which is recommended for using the first year. The tension screw 3 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.

Measure the distance from the ground to the head of the tension screw. This distance should be 10.1 to 11.4 cm (4 to 4 1\(\frac{1}{2}\) in). If not, loosen the bolts in the mounting bracket and select different holes until the proper measurement is attained.

**Press Wheel Adjustments**

**Double-V Press Wheels**
The dual (“double V”) 1×12 press wheel assembly is one of three available press wheels for the PD8070. See page 96 for ordering information.

The press wheels close the furrow which gently presses the soil over the seed to ensure good seed-to-soil contact for even emergence.

To provide consistent seed firming, the press wheels are free to move downward from their normal operating position. This system maintains pressing action even if the row unit arm is lifted when the disks encounter obstructions.

*Refer to Figure 61, 62 and 64*
There are three adjustments available on the press wheel assembly:

1. Down pressure (shown at minimum)
2. Wheel stagger (shown staggered)
3. Centering (see Figure 64 on page 57)
Press Wheel Down Pressure
Handle ① sets down pressure, which may need adjustment for different soil types and field conditions.

- Relax the handle forward (in the direction of travel) for decreased down pressure.
- Pull the handle ① back for increased down pressure.

Note: Higher press wheel down pressures reduce the down force on the main row unit shank components, such as the openers. High press wheel settings may require an increase in overall row unit down force. See page 46.

Press Wheel Stagger
The factory stagger setting has been found optimal for residue flow. If your conditions appear to require even press wheels, you might try one row before reconfiguring the entire planter. To change the stagger:

1. Raise the planter and install the lift cylinder locks. See “Lift Cylinder Lock-Up” on page 62.
2. Remove the bolt ①, spacer ②, nut (not shown) and lock-washer (not shown) for the left press wheel ③.
3. Move the spacer ② and wheel ③ to the forward of the two mounting holes at ④.
4. Re-install the bolt, lock washer and nut. Tighten.

Cast Press Wheel Stagger
Refer to Figure 63
Press wheel assemblies other than “cast, adjustable” have two threaded holes in the mount ⑤ for the wheel bolt ⑩.

Note: Although staggered press wheel assemblies use the same weldment as angle-adjustable assemblies (below), the two hole staggered mount ⑤ is always used at adjustment bolt hole “2”. It cannot be moved to “1” or “3”.

The factory stagger setting has been found optimal for residue flow. If your conditions appear to require even press wheels, you might try one row before reconfiguring the entire planter. To change the stagger:

1. Raise the planter and install the lift cylinder locks. See “Lift Cylinder Lock-Up” on page 62.
2. Remove the bolt ⑥, spacers ⑦, and lock-washer ⑧ for the left press wheel ⑨.
3. Move the wheel to the alternate of the two mounting holes.
4. Re-install the bolt, lock washer and spacers. Tighten.
Press Wheel Centering

If one press wheel is running in the seed trench, or the wheels are not centered over the trench, the angle 1 of the press wheel assembly can be adjusted as follows:

Refer to Figure 64
1. Determine how far, and in which direction, the press wheel assembly needs to move to center the wheels.
3. Pick some reference points on the unit to be adjusted and an adjacent row unit. Measure the distance between them.
4. Loosen the 1/2 inch hex-head bolts 2, 3.
   Note: Do not loosen any square-head bolts forward of the hex-head bolts.
5. Turn the hex head cam 4 under the forward hex head bolt 3, and obtain the new distance between the reference points.
6. Tighten both hex head bolts 2, 3.

Single Press Wheel

The single 61/2×12 press wheel with dual closing disks is one of two available press wheels for the PD8070. See page 96 for ordering information.

For proper seed-to-soil contact, the closing disks must have enough down pressure to close the seed furrow without unnecessary soil compaction.

Refer to Figure 65
To adjust down pressure on closing disks 1, ratchet spring cam to next cam height by turning head of support bolt 2 clockwise.
## Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause and Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>One row not planting seed</td>
<td>Seed meter not engaged. See “Seed Drive Clutch” on page 26. Check for foreign material in hopper. Clean hopper and finger pickup mechanism. See “Seed Meter Setup and Adjustment” on page 52. Check that seed hopper is full of seed. Check if drive chain for row unit is off of sprocket or broken. Replace chains as necessary.</td>
</tr>
<tr>
<td>Meter not engaging properly</td>
<td>Check that meter input shaft is aligned with meter clutch shaft. See “Seed Drive Clutch” on page 26.</td>
</tr>
<tr>
<td>Row unit is skipping</td>
<td>Check that adjustment nut in meter is adjusted between 2.5 and 2.8 N-m (22 and 25 inch-pounds). Tighten if necessary. See “Seed Meter Setup and Adjustment” on page 52. Check tension on finger pickup. Tighten if necessary. Check for broken meter fingers. See “Seed Meter Setup and Adjustment” on page 52. Consider your planting speed. Increase planting speed to within recommended range. For correct speed, See “Seed Rate: Planting Ground Speed” on page 35.</td>
</tr>
<tr>
<td>Planting too many doubles</td>
<td>Consider your planting speed. Decrease planting speed to within recommended range. See “Seed Rate: Planting Ground Speed” on page 35.</td>
</tr>
<tr>
<td></td>
<td>Check that adjustment nut in meter is adjusted between 2.5 and 2.8 N-m (22 and 25 inch-pounds). Tighten if necessary. See “Seed Meter Setup and Adjustment” on page 52.</td>
</tr>
<tr>
<td></td>
<td>Check brush in seed meter for wear. Inspect and replace if necessary. See “Seed Meter Setup and Adjustment” on page 52.</td>
</tr>
<tr>
<td></td>
<td>Check carrier plate in seed meter for wear. Inspect and replace if necessary. See “Seed Meter Setup and Adjustment” on page 52.</td>
</tr>
<tr>
<td></td>
<td>Check if belt in seed meter is installed backward. Remove and install correctly. See “Seed Meter Setup and Adjustment” on page 52.</td>
</tr>
<tr>
<td></td>
<td>Check for weak springs in finger pickup meter. Replace as necessary. See “Seed Meter Setup and Adjustment” on page 52.</td>
</tr>
<tr>
<td></td>
<td>Spring not properly installed. Remove finger from seed meter and correct. See “Seed Meter Setup and Adjustment” on page 52.</td>
</tr>
<tr>
<td></td>
<td>Seed belt catching or dragging. Replace belt. See “Seed Meter Setup and Adjustment” on page 52.</td>
</tr>
<tr>
<td></td>
<td>Brush dislodging seed. Replace brush. See “Seed Meter Setup and Adjustment” on page 52.</td>
</tr>
<tr>
<td>Irregular or incorrect seed spacing</td>
<td>Consider your planting speed. Slow down if necessary. See “Seed Rate: Planting Ground Speed” on page 35.</td>
</tr>
<tr>
<td></td>
<td>Check tire pressure. See “Tire Inflation Chart” on page 97.</td>
</tr>
<tr>
<td></td>
<td>Drive wheels slipping. Reduce down pressure on row unit. See “Row Unit Down Pressure” on page 46.</td>
</tr>
<tr>
<td></td>
<td>Check that correct sprockets are installed on transmission shafts. See “Seed Rate: Sprocket Combinations” on page 35.</td>
</tr>
<tr>
<td>Problem</td>
<td>Possible Cause and Solution</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Seed spacing not as indicated in charts</td>
<td>Check that tires are inflated to proper pressure. See “Tire Inflation Chart” on page 97.</td>
</tr>
<tr>
<td></td>
<td>Examine seed for inconsistent size. Do field check and adjust sprockets accordingly.</td>
</tr>
<tr>
<td></td>
<td>Check that correct sprockets are installed on the transmission shafts. See “Seed Rate: Sprocket Combinations” on page 35.</td>
</tr>
<tr>
<td></td>
<td>Excessive speed may be causing row unit bounce. Reduce ground speed when planting.</td>
</tr>
<tr>
<td></td>
<td>Charts are approximate. Slight variations due to wear may produce seed spacing variations.</td>
</tr>
<tr>
<td>Scattering of seeds</td>
<td>Reduce planting speed.</td>
</tr>
<tr>
<td></td>
<td>Check seed tube for proper installation.</td>
</tr>
<tr>
<td></td>
<td>Examine seed tube for wear or damage. Replace seed tube if necessary.</td>
</tr>
<tr>
<td>Seed tubes and/or openers plugging</td>
<td>Do not allow planter to roll backward when lowering. Lower planter only when tractor is moving forward.</td>
</tr>
<tr>
<td></td>
<td>On four-wheel-drive tractors, avoid turning tractor when planter is down and stationary.</td>
</tr>
<tr>
<td>Inconsistent seed depth</td>
<td>Increase down pressure on row unit. See “Row Unit Down Pressure” on page 46.</td>
</tr>
<tr>
<td></td>
<td>Inspect seed tube for plugging or improper installation. Check that seed tubes are hooked properly in shank of row unit.</td>
</tr>
<tr>
<td>None of the row units are planting</td>
<td>Pin between counter-shaft and seed transmission sheared. Repair cause of pin shearing and replace pin.</td>
</tr>
<tr>
<td>Opener disks and side gauge wheels plugging</td>
<td>Adjust gap between opener disks and side gauge wheels. See “Row-Unit Opener Adjustments” on page 49.</td>
</tr>
<tr>
<td>Fertilizer hopper not metering</td>
<td>Pin between counter-shaft and fertilizer transmission sheared. Repair cause of pin shearing and replace pin.</td>
</tr>
<tr>
<td>Closing wheels leave severe imprint in soil</td>
<td>Reduce down pressure on closing wheels. See “Row Unit Down Pressure” on page 46.</td>
</tr>
<tr>
<td>Closing wheels not firming soil around seed</td>
<td>Increase down pressure on closing wheels. See “Row Unit Down Pressure” on page 46.</td>
</tr>
<tr>
<td>Closing wheel running on top of seed furrow</td>
<td>Realign closing wheels. See “Press Wheel Adjustments” on page 55.</td>
</tr>
<tr>
<td>Repeated shearing of shaft cotter pin</td>
<td>Drive shaft not aligned properly. See “Shaft Alignment” on page 67.</td>
</tr>
<tr>
<td>Drive wheel chain consistently falls off</td>
<td>Chain may be too long. Remove offset link.</td>
</tr>
<tr>
<td></td>
<td>If chain links are stiff, oil or replace chain.</td>
</tr>
<tr>
<td></td>
<td>Check if trash is dislodging chain; if so, install trash guards.</td>
</tr>
<tr>
<td>No seed being planted</td>
<td>Check that seed hopper is full of seed.</td>
</tr>
<tr>
<td>Problem</td>
<td>Possible Cause and Solution</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Opener disks and side gauge wheels plugging</strong></td>
<td>Adjust gap between opener disks and side gauge wheels. See “Row-Unit Opener Adjustments” on page 49.</td>
</tr>
<tr>
<td><strong>Planter will not lower</strong></td>
<td>Check that pressure and return hoses are fully engaged in SCV outlets.</td>
</tr>
<tr>
<td><strong>Planter frame raises or lowers slowly</strong></td>
<td>Lower tractor hydraulic pressure. Tractor operating pressure must be a minimum of 10 340 kPa (1500 psi).</td>
</tr>
<tr>
<td></td>
<td>Operate tractor with flow control lever in the unrestricted position. Refer to your tractor operator’s manual.</td>
</tr>
<tr>
<td><strong>Erratic or uneven lift</strong></td>
<td>Check for air in hydraulic system. Bleed system of air if necessary.</td>
</tr>
<tr>
<td><strong>Planter will not raise</strong></td>
<td>Tractor hydraulic system bypassing oil. Readjust tractor’s hydraulic lever linkage. Refer to your tractor operator’s manual.</td>
</tr>
<tr>
<td><strong>Markers not alternating</strong></td>
<td>Marker hoses not connected to marker valve correctly.</td>
</tr>
<tr>
<td></td>
<td>Check for air in marker valve. Bleed marker hydraulic system.</td>
</tr>
<tr>
<td></td>
<td>Marker valve defective. Replace valve. See your Great Plains dealer.</td>
</tr>
<tr>
<td><strong>Marker floats off ground</strong></td>
<td>Air in hydraulic system. Bleed marker lift cylinder.</td>
</tr>
<tr>
<td></td>
<td>Alternator valve defective. Replace valve. See your Great Plains dealer.</td>
</tr>
<tr>
<td></td>
<td>Check for leaks in tractor hydraulic remote.</td>
</tr>
<tr>
<td></td>
<td>Marker cylinder not dropping down into J-slot. (Hose loop too short.) Lengthen marker hydraulic hose loops.</td>
</tr>
<tr>
<td><strong>Hydraulic marker functioning improperly</strong></td>
<td>Check all hose fittings and connections for air and oil leaks.</td>
</tr>
<tr>
<td></td>
<td>Check tractor hydraulic oil level.</td>
</tr>
<tr>
<td></td>
<td>Check all bolts and fasteners.</td>
</tr>
<tr>
<td></td>
<td>If markers do not alternate: check tractor flow controls and set to maximum oil flow. If problem still exists, disassemble valve and check for contamination or spool damage.</td>
</tr>
<tr>
<td><strong>Blade does not mark</strong></td>
<td>The maximum marker down float is limited by the slot in the pivot link. If the blade does not drop down to follow depressions in the field, make sure the marker cylinder is fully extended.</td>
</tr>
<tr>
<td></td>
<td>The blade may be reversed to pull dirt in or throw dirt out depending on soil conditions.</td>
</tr>
</tbody>
</table>


Great Plains Manufacturing, Inc.

Maintenance and Lubrication

Maintenance

Proper servicing and maintenance is the key to long implement life. With careful and systematic inspection, you can avoid costly maintenance, downtime and repair. Always turn off and remove the tractor key before making any adjustments or performing any maintenance.

**WARNING**

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

**General Maintenance**

1. After using your planter for several hours, check all bolts to be sure they are tight.
2. Remove excess slack from chains. Clean and use chain lube on all roller chains as needed.
3. Maintain proper air pressure in planter tires.
4. Keep disk scrapers properly adjusted.
5. Clean planter on a regular basis. Regular and thorough cleaning will lengthen equipment life and reduce maintenance and repair.
7. Replace any worn, damaged or illegible safety labels using new decals from your Great Plains dealer.
Lift Cylinder Lock-Up

WARNING
Crushing Hazard:
Always install cylinder stops before working on planter. You may be severely injured or killed by being crushed under the falling implement.

Use transport locks to hold the planter at raised for transport, adjustments, maintenance and storage.

Refer to Figure 66
Transport locks are present on all wheel modules.
To install cylinder stops:
1. Raise planter to transport position.
2. Pivot cylinder stops (1) into engagement with lift cylinder rods. The stop channels snap into position.
3. Lower planter onto stops.
Raise planter, and hold at raised, before releasing transport locks.

Figure 66
Lift Cylinder Lock
Material Clean-Out

Seed Hopper Clean-Out
1. If hopper is more than $\frac{1}{3}$ full, remove lid and scoop out seed until it is less than $\frac{1}{3}$ full. For small quantities, the seed can be collected in the hopper lid.

Refer to Figure 67
2. Disengage meter clutch ① (see page 26).
4. Tip hopper forward and lift off hook cups ②.
5. For large quantities of residual seed, empty the hopper into a large container. For small quantities, invert it on its lid, as shown in Figure 68.
6. Shake the hopper/meter gently to free seed from the meter inlet area. If collecting residual seed in the hopper lid, release the lid at its rear latch. See page 25 for lid operation.
7. Clean-out meter (next two topics).

Figure 67 Empty Seed Hopper

Figure 68 Empty Hopper & Meter
Finger Meter Clean-Out
8. Clean-out hopper (see “Seed Hopper Clean-Out” on page 63).
9. Turn hopper/meter upright.
10. Turn meter drive shaft through one or more complete revolutions of the belt, to remove seed from the belt chamber. It is generally not necessary to dismount and disassemble the finger meter for routine clean-out. See page 72 for additional finger meter maintenance.
11. Re-install hopper on row.

Brush Meter Clean-Out
12. Clean-out hopper (see “Seed Hopper Clean-Out” on page 63).
13. Turn hopper/meter upright.
14. Turn meter drive shaft counter-clockwise through one or more complete revolutions of the plate, until seed no longer exits the meter.
15. Remove the seed plate (see page 19). Collect any remaining seed from chamber.
16. Re-install the plate (or the next plate to be used).
17. Re-install hopper on row.

Seed Tube Clean-Out
The seed sensor in the seed tube can be obscured by build-up of dust, dirt and seed treatments. This can cause false low population alarms.

A seed tube brush is standard for model year 2013 and later planters (Great Plains part number 891-259C).

If a brush meter is empty, remove the seed plate and insert the brush into the seed tube from above. With the planter raised, you can also insert the brush from below, with any meter, and whether the meter is empty or not.

Fertilizer Hopper Clean-Out
Refer to Figure 71
1. Disconnect fertilizer hoses.
2. On backside of fertilizer hopper ①, remove both bolts securing hopper saddle ② to hopper mount ③.
3. Pivot hopper forward to empty.
Bleeding Hydraulics

**WARNING**

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

Bleed at a fitting of type:
- JIC (Joint Industry Conference, 37 degree flare) or
- NPT (National Pipe Thread) fitting.
Avoid bleeding at fittings of type:
- ORB (O-Ring Boss) or
- Never bleed at a fitting of type:
  - QD (Quick Disconnect) fitting.

**NOTICE**

JIC fittings do not require high torque. JIC and ORB fittings do not require sealant.

Bleeding Lift Hydraulics

*Refer to Figure 72*

Normally the lift hydraulics are bled at the factory before shipping, and bleeding should not be required other than to raise fully and hold lever on for one minute or until all cylinders extend fully.

If it is necessary to further bleed lift system, follow these steps.

1. Consult lift circuit hydraulic diagram on page 98 (repeated at right in smaller scale)
2. Check that tractor hydraulic reservoir is full. Set hydraulics for low flow rate.
3. Lower planter.
4. Loosen the JIC fittings ① at the rod ends (bottom) of the three left lift cylinders. Leave the right undisturbed.
5. Extend the lift circuit until fluid appears at each loosened fittings. As fluid appears, set control lever to neutral and secure each fitting.
6. Retract the circuit. Set control lever to neutral.
7. Extend the lift circuit until both cylinders are fully extended.
8. Loosen the JIC fitting ② at the base (top) ends of the three right lift cylinders. Leave the left undisturbed.
9. Retract the circuit until fluid appears at each loosened fitting. As it appears, set control lever to neutral and secure each fitting.
10. Set circuit control to neutral and secure fitting.
11. Unless it is suspected that a large amount of air is in the line between the cylinders, rely on the normal re-phasing operation to purge it. Otherwise...
12. Loosen the JIC fitting at the base (top) end of the left cylinder ③.
13. Retract lift circuit until fluid appears.
14. Set circuit to neutral and secure fitting.
15. Extend and retract circuit several times.
Replacing Shear Pins and Bolts

Drive-Line Shear Pins

Refer to Figure 73

The cotter pins ① that connect shafts ② to transmission ③ will shear when an excessive load is put on the shafts.

Infrequent or improper lubrication causes binding of moving parts within the planter. This binding will cause cotter pins to shear, thus preventing breakage of planter parts.

Check for binding by turning drive shaft with all seed hoppers installed and seed meters engaged. If drive shaft is hard to turn, disengage one seed-meter clutch at a time to find the problem clutch.

Improper shaft alignment can also cause pins to shear. See “Shaft Alignment” on page 67.

When shaft can be turned freely by hand, replace the cotter pin ①.

Machine Damage Risk:

Replace cotter pins with cotter pins of the same size. Do not replace with other type pins. Refer to current Parts Manual for replacement part number.

Marker Shear Bolt

Refer to Figure 74

If a marker gets caught or hits an obstruction, it is designed to fail a shear bolt ① at the fold, pivot on a second bolt (not visible in Figure), and swing back.

The shear bolt is a hex head cap screw, $5^\frac{1}{16}$-18 x $1\frac{1}{2}$ inch Grade 5, Great Plains part number 802-012C, plus a $5^\frac{1}{16}$-18 lock nut, Great Plains part number 803-011C.

Note: If an exact replacement is not immediately available, temporarily substitute an M8 x 1.25 Class 8.8 bolt and nut.

Install a replacement shear bolt on the vertical face on the side opposite from the pivot bolt. Do not use a higher grade bolt, or marker hang-ups may result in machine damage. Do not use a lower grade bolt, or you may experience nuisance shears.
Shaft Alignment

Refer to Figure 75 and Figure 76

Improper shaft alignment can cause pins to shear. To function properly, transmission shafts must be aligned and level. If the planter is consistently shearing pins, follow these steps to check and adjust the shafts.

Check that transmission input shaft 1 and transmission shaft 2 are aligned:

1. Remove cotter pin from coupler sleeve 3.
2. Pull coupler sleeve back and observe the shafts.
3. Loosen mounting bolts 4 on both sides of tower.
4. Adjust tower position until shafts are aligned.
5. Retighten tower mounting bolts.
6. Slide coupler sleeve over transmission input shaft and reinsert cotter pin.
Ratchet Drives

Refer to Figure 77

Two ratchet assemblies, one on the left side of each ground drive tower, couple the drive shaft to each ground drive in forward motion, and de-couple it when the other ground drive is operating faster (as in tight turns).

Each ratchet must operate freely in forward motion, and de-couple in reverse. To test it, raise the planter and turn each ground wheel in reverse.

See “Shaft Alignment” on page 67 if binding is observed.

Chain Maintenance

Inspect and lubricate chains regularly. The slack of new chains tends to increase during the first few hours of operation due to seating. Check slack within the first 8 hours of operation and tighten idlers as necessary.

Refer to Figure 78, which, for clarity, greatly exaggerates slack, and omits the idlers.

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). The ideal slack is between 2% and 4% of the span.
   For example:
   A slack of 1cm is appropriate for a 30cm span.

2. 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 with a force of about 4 kg (9 pounds). The slack is the distance of the movement.

3. Adjust the idlers for ideal slack.

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

Refer to Figure 79

Install clip with open end facing away from direction of chain travel (shown by gray or striped arrows in chain routing diagrams).
Chain Tension
As the chains wear and stretch, you may need to adjust idlers and/or remove links for proper chain length and tension.

Check and replace bushings on idlers. For the correct operation of the planter check all chain routings. Refer to the illustrations on this page for proper chain routings.
30 Series Opener Disks and Scrapers

1. Lift side gauge wheel off ground. Move tire in and out to check for end play. Check for roughness in bearing by rotating wheel. If the bearings are rough, inspect and replace if necessary.

2. Remove side gauge wheels from arms to access opener disks and scrapers.

![CAUTION]

**Sharp Object Hazard:**
Be careful when working in this area. Disk edges are sharp.

Note: Your 30 Series row unit may also have optional gauge wheel scrapers (not shown). Adjustments to these are described on page 51.

Refer to Figure 80

3. With the unit raised, check blade spreader ① for wear. Replace spreader if it is 13 mm (1/2 inch) wide or narrower. To replace, remove disk blade. Drive out roll pins ② and install a new spreader.

4. Check disk blades ③ for wear. Replace 38 cm (15 inch) blades if worn to a diameter of 36.8 cm (14 1/2 inches) or less.

5. When reinstalling disk blades, put two shims ④ between bearing and shank on one blade. Tighten bolt. On opposite side, reinstall blade with two ④ shims between bearing and shank. Tighten bolt.

Note: You may need fewer washers on worn disks.

6. Check contact point between disk blades. Place a piece of paper in top gap between disks blades. Bring paper down until it stops. In lower gap, place another piece of paper. Bring paper up until it stops. Measure the distance between two pieces of paper. The distance must be between 12.5 and 44.5mm (1/2 and 1 3/4 inch). Add or remove shims as needed to get the correct contact point.
30 Series Row-Unit Side Wheels

Check that outside disk scrapers are formed to disk blades to help remove any mud. Bend and twist scrapers to fit blades as necessary. After every 80 hectares (200 acres) of planter operation, check outside scrapers for proper adjustment and wear. Replace scrapers as necessary.

**CAUTION**

*Sharp Object Hazard:*
Be careful when working in this area. Disk edges are sharp.

*Refer to Figure 81*

7. Check number of shims between side gauge wheel and wheel arm. At least one shim must be between wheel bearing and arm. When installed, wheel should turn freely and not hit arm at curve. Do not add more shims than necessary.

8. Disassemble side gauge wheel arm from row unit. Remove bushing from sleeve and check bushing for wear. Replace bushing if necessary.

9. When reinstalling side gauge wheels, align tab on hex adjustment with notch in bushing. Replace bolt and tighten.

10. Adjust side gauge wheels. See “Disk Angle and Side Gauge Wheels” on page 49.
Meter Maintenance

Finger Meter Maintenance

Finger Set Inspection
Finger sets should be inspected on an annual basis. After cleaning, carefully inspect the fingers and springs for wear or other abnormalities that may develop. Excessive wear may disrupt singulation performance.

Great Plains recommends having the meter service performed by a recognized professional repair facility, such as a certified MeterMax®a representative. If you choose to service them yourself, follow these procedures when installing the finger sets.

See page 18 for meter removal.

Agricultural Chemical Hazard:
Follow material supplier recommendations carefully. Handle the meter as if it were treated seed. Use supplier-recommended cleaning agents. Any seed treatment build-up inside a meter is likely to be at a higher concentration than on the actual seed.

Finger Meter Re-Assembly Steps
Refer to Figure 82

1. Be sure the belt ① is oriented as shown in Figure 82.
2. Slide the finger set ② over the shaft ③ and rotate clockwise until it sits against the backing plate ④.
3. One click will sound when ashtray engages the roll pin and a second click will sound when the cam engages the bearing housing.
4. Firmly press the finger set ② against the backing plate ④ while tightening the nut ⑤.
5. Tighten the nut ⑤ until contact is made between the nut and the finger set ②. Turn ¼ to ½ flat (⅛ to ⅛ of a turn) (a flat is one of the six sides of the nut) after contact is made. This equals about 0.45 N-m (4 inch-pounds) of torque on the nut.
6. Place the slotted nut cover ⑥ on and carefully align the slotted nut cover with the shaft hole. Insert the cotter pin ⑦.
7. Rotate the finger set clockwise and make sure the fingers open and close properly. Rotate the meter and make sure the meter turns freely and that there is no air gap between the outer rim of the ashtray and the backing plate. Fingers should be closed at the 8:00 to 2:00 position (exit hole) and open at the 2:00 to 8:00 position.

Precautions
Visually check that there is no visible air gap between the ashtray and backing plate.

Make sure the finger set is properly torqued against the backing plate. Improperly torqued finger sets may disrupt seed singulation.

---

a. MeterMax® is a registered trademark of Precision Planting, Inc.
Population Max™ Annual Maintenance.
Population Max™ should be inspected annually. Inspect plate for wear or other abnormalities that may develop. The action site area might also eventually show some wear. When signs of wear appear, simply replace insert.

Make sure transition between the Population Max™ backing plate and the insert is smooth. A slight incline from backing plate to insert (clockwise motion) may cause seeds to catch. Readjust insert if necessary.

Be cautious in using seed treatments, additives, and other chemicals. They can cause meter performance problems, premature wear to meter parts, and may cause undesired chemical reaction or deterioration to the Population Max™ material. When using seed treatments always use graphite.

If Population Max™ plates are not installed in meter, store in a vertical position on a cylindrical rod or face to face.

Population Max™ Installation
Refer to Figure 83
1. Remove brush screws and brush. Gently pull insert out.
2. Select appropriate insert and carefully slide into the window. Insert may catch on a finger or two. It may be necessary to lift the fingers up with a small screwdriver or rotate the fingers backward while sliding insert in. Insert will slide in without any unnecessary force.
3. Make sure insert slides in all the way and firmly locks in place.
4. Secure insert to backing plate by fastening the two screws through the insert.
5. Reinstall brush and screws. Be careful! Do not tighten brush too tightly or plastic lip may crack.

---
a. Population Max™ is a trademark of Precision Planting, Inc.
Skip Stop™ Annual Maintenance

Skip Stop™ should be inspected on an annual basis. Inspect cushion for wear, pockets, or other abnormalities that may develop. Excessive wear or pocket formation may cause seeds to become trapped and disrupt singulation performance. As a general rule, if there is a pocket that is large enough to hold one or more seeds after the belt has passed by, Skip Stop™ Cushion should be replaced.

Skip Stop™ Installation

1. Remove back metal cover by removing five bolts. Four bolts attach cover to metal housing and one bolt holds idler wheel and bushing.
2. Align new Skip Stop™ metal cover over housing.
   Note: Skip Stop™ metal cover has a hole cut out for Skip Stop™ Cushion. Make sure idler wheel and bushing remain properly aligned and insert \( \frac{1}{4} \times 2 \) inch bolt. Secure bolt loosely.
3. Insert remaining three \( \frac{1}{4} \times \frac{3}{4} \) inch bolts to fasten metal cover to housing. Tighten all bolts securely.
4. Tighten bolt that secures idler wheel and turn belt via the bearing shaft by hand to verify that belt is centered between housing. If necessary, loosen bolt and slide cover to adjust and re-center belt.
5. Place Skip Stop™ Cushion over the opening. Insert two \( \frac{1}{4} \times \frac{3}{4} \) inch bolts to secure Skip Stop™ Cushion to housing.

**NOTICE**

**Meter Performance Risk:**

Make sure Skip Stop™ Cushion is secured tightly to back metal cover and cannot turn or rotate. Make sure Skip Stop™ Cushion does not interfere with belt rotation in any manner. A loose Skip Stop™ Cushion may result in seed leakage, poor meter performance, and planting errors.

---

a. Skip Stop™ is a trademark of Precision Planting, Inc.
Exchanging Finger Sets

Although time-consuming, corn meters may be, with care, converted to sunflower meters, and vice-versa. Starting with factory-supplied corn meters, order quantity 16 of:

403-659A SUNFLOWER 12 FINGER CONV KIT

Refer to Figure 85

This kit contains a sunflower finger set ①, Insert C ② and brushless block ③.

Note: Meter conversion is available only for finger pickup meters that were originally corn meters. Factory-supplied sunflower meters cannot be converted to corn meters, as they lack a brush adjustment decal, which requires a factory alignment fixture.

Remove Meter Cover

1. Remove the hoppers from the rows (page 52), and remove the finger pickup meters from the hoppers (page 18).

Refer to Figure 86

2. Remove three sets of bolts and nuts ④ securing the cover ⑤ to the meter.

Remove Adjustment Lever

Refer to Figure 87

3. Remove the E-clip ⑥ closer to the brush block ⑦.

4. Withdraw the adjustment lever ⑧. Store the removed e-clip on it.

Note: Sunflower meters use a brushless block (installed at step 13). The brushless block cannot be installed with the adjustment lever present.

Remove Brush Block

5. Remove the two screws ⑨ that secure the brush block ⑩, then remove the brush block.

a. Larger sunflower sizes plant with the standard Corn configuration. See “Sunflower Meter Configurations” on page 54.
Remove Corn Finger Set

*Refer to Figure 88*
6. Straighten and remove the cotter pin ①.
7. Remove the nut cover ②.
8. Remove the nut ③.
9. Remove the corn finger set ④.

![Figure 88](34528)

Remove Insert “A”

*Refer to Figure 89*
10. Remove the two screws ⑤ that secure the Insert ⑥ to the backing plate.
11. Lift the insert out of the backing plate.

Install Insert “C”

12. Select a meter insert from the conversion kit. Inspect the back for a legend identifying it as “C”. Install it in the backing plate. Secure with screws ⑤.

![Figure 89](34529)

Install Brushless Block

13. Select a brushless block ⑦ from the conversion kit. This block, in addition to having no brushes, also has a single mounting screw hole (the removed brush block has two holes).

Install the block as shown, using one screw through the center outer hole ⑧ in the backing plate.

Note: Do not re-install the adjustment lever. It is not used with sunflower meters.

![Figure 90](34531)
Install Sunflower Finger Set

Refer to Figure 91

14. Select the finger set ① from the conversion kit. Sunflower fingers have short square “flags” at the ends of the fingers, compared to corn finger sets, which have longer rounded flags.

Place the finger set on the meter shaft. Rotating the finger set and shaft as needed, seat the finger set fully against the back plate. There should be no air gap between the hub rim and the backing plate.

The shaft cross-pin ② seats in deep detents ③ in the finger set hub. The bearing housing has a rectangular notch ④ that engages a rectangular tab projection ⑤ in the finger set.

Note: If the finger set does not seat fully, this is usually because the notch and projection are not mated. Rotate the finger set clockwise until you feel two clicks. The fingers should dip into the seed drop exit port, then lift, without catching on the backing plate.

15. Select the nut from step 8. Spin it onto the shaft. Do not tighten at this step.

Set Finger Set Torque

Refer to Figure 92

16. Loosen the nut ⑥.

Press the finger set hub firmly against the back plate, checking that it is fully seated and has no wobble.

Turn the nut until it contacts the finger set hub (this is the nut position shown as a dashed hexagon in the upper right illustration).

Tighten the nut by 1/2 to 3/4 of a nut “flat” (this is the nut position shown as a solid hexagon). This equals about 0.45 N-m (4 inch-pounds) of torque on the nut.

Refer to Figure 91

17. Place the nut cover ⑦ on the shaft, making sure to align it so that the shaft pin hole is not obscured by a castellation.

18. Insert the cotter pin ⑧, but do not secure it.

19. Verify that the finger set turns with a slight amount of resistance, and that the fingers operate correctly. Every finger flag must be closed between 8:00 and 2:00 o’clock, and open between 2:00 and 8:00.

20. Secure the cotter pin.

21. Re-install the meter cover (page 75). Re-install the meter (page 18).

Field Results and Equipment Damage Risks:
Set the nut torque only as specified. If the nut is too loose, doubles result during seeding. If the nut is too tight, it creates excess drag on the drive system, and the finger set hub wears out prematurely.
Re-Install Corn Finger Set

These instructions presume that the sunflower meter was originally a corn meter.

Dismount Meter
1. Remove the hoppers from the rows (page 52), and remove the finger pickup meters from the hoppers (page 18).

Refer to Figure 86 on page 75
2. Remove three sets of bolts and nuts securing the cover to the meter.

Remove Brushless Block

Refer to Figure 90 on page 76
3. Remove the screw that secures the brush block, then remove the brush block.

Remove Sunflower Finger Set

Refer to Figure 91 on page 77
4. Straighten and remove the cotter pin.
5. Remove the nut cover.
6. Remove the nut.
7. Remove the corn finger set.

Remove Insert “C”

Refer to Figure 89 on page 76
8. Remove the two screws that secure the Insert to the backing plate.
9. Lift the insert out of the backing plate.

Install Insert “A”

Refer to Figure 87 on page 75
10. Select a saved meter insert “A”. Inspect the back for a legend identifying it as “A”. Install it in the backing plate. Secure with screws.

Install Brush Block

Refer to Figure 87 on page 75
11. Select a saved brush block and second mounting screw. This block, in addition to having brushes, also has a two mounting screw holes (the removed brushless block has one hole).

Install the block as shown, using two screws through the inner holes in the backing plate.

Install Adjustment Lever

Refer to Figure 87 on page 75
12. Select a saved adjustment lever with two E-clips. Remove the clip nearest the tip. Insert the lever through the rim of the belt housing and fully seat it the tip in the brush block. Secure with E-clip.

Install Corn Finger Set

Refer to Figure 91 on page 77
13. Select a saved corn finger set. Corn fingers have longer rounded flags.

Place the finger set on the meter shaft. Rotating the finger set and shaft as needed, seat the finger set fully against the back plate. There should be no air gap between the hub rim and the backing plate.

The shaft cross-pin seats in deep detents in the finger set hub. The bearing housing has a rectangular notch that engages a rectangular tab projection in the finger set.

Note: If the finger set does not seat fully, this is usually because the notch and projection are not mated. Rotate the finger set clockwise until you feel two clicks. The fingers should dip into the seed drop exit port, then lift, without catching on the backing plate.

14. Spin the nut onto the shaft. Do not tighten.

Set Finger Set Torque

Refer to Figure 92 on page 77
15. Loosen the nut.

Press the finger set hub firmly against the back plate, checking that it is fully seated and has no wobble.

Turn the nut until it contacts the finger set hub (this is the nut position shown as a dashed hexagon in the upper right illustration).

Tighten the nut by 1⁄2 to 3⁄4 of a nut “flat” (this is the nut position shown as a solid hexagon).

Refer to Figure 91
16. Place the nut cover on the shaft, making sure to align it so that the shaft pin hole is not obscured by a castellation.

17. Insert the cotter pin, but do not secure it.

18. Verify that the finger set turns with a slight amount of resistance, and that the fingers operate correctly. Every finger flag must be closed between 8:00 and 2:00 o’clock, and open between 2:00 and 8:00.

19. Secure the cotter pin.

20. Re-install the meter cover (page 75). Re-install the meter (page 18).
## Brush Meter Maintenance

### CAUTION

**Agricultural Chemical Hazard:**
Follow material supplier recommendations carefully. Handle the meter as if it were treated seed. Use supplier-recommended cleaning agents. Any seed treatment build-up inside a meter is likely to be at a higher concentration than on the actual seed.

**Refer to Figure 93 and Figure 94**

1. During planting days, remove, clean and inspect seed plates daily. See "Installing Brush Meter Plates" on page 19, and "Seed Plate Maintenance" on page 80.

2. Inspect wear strip. Replace if worn through, or worn to less than 0.25 mm (0.010 inch) thick, at any spot.

### NOTICE

**Equipment Damage Risk:**
Operate only with an intact wear strip. If the strip is missing, or worn at any spots, the meter housing will be damaged by continued operation.

3. Inspect for worn, deformed, clogged, matted or missing brushes. Inspect brush retainers for cracks.

If you are experiencing irregular seeding rates (doubles in particular), removing and cleaning the brushes may restore correct operation.

Over time, brushes wear down, and deform in the direction of plate rotation. Brushes generally need to be replaced annually.

4. If treatment build-up is a problem, use talc, or more talc, in the next planting.

When replacing the upper brush, make sure the brush base is flush with the meter housing. Re-tighten the three screws in this order: ① ② ③

**Meter Storage**

Remove seed plates for meter storage.

If meters are stored installed in the planter, plug seed tubes to prevent pest entry. If meters are removed for storage, secure them in a pest-proof location.
Seed Plate Maintenance
Inspect seed plates for wear and damage. See "Installing Brush Meter Plates" on page 19 for plate removal.

Place a straightedge across the planting face of the plate. If the gap between the top outer edge of the plate and the straightedge is greater than 1.9 mm (0.075 inches, 5/64 inches), replace the plate.

Refer to Figure 95
Inspect plates for damage. The plate depicted has chipped ridges (probably from being dropped on a hard surface). Wear less severe than this can cause doubles.

Inspect plates for wear. Sharp edges of pockets and grooves tend to wear first.

If there is any seed dust or treatment build-up in the cell pockets ②, or in the seed guide grooves ③, clean the disks and re-inspect.

Cleaning and Storing Seed Disks
Use warm or hot water, mild soap, and a sponge or soft brush to remove build-up.

If plates are washed, allow them to dry completely prior to storage.

Retain original shipping cartons for plate storage. Otherwise, store them on edge (and not leaning), or stacked horizontally on a spindle, to eliminate any risk of warps. Any seed residue on plates may attract pests. Fully enclose dry plates to prevent rodent damage.

Agricultural Chemical Hazard:
Follow material supplier recommendations carefully. Handle the meter as if it were treated seed. Use supplier-recommended cleaning agents. Any seed treatment build-up inside a meter is likely to be at a higher concentration than on the actual seed.

Possible Chemical Hazard:
Wear gloves when washing plates. Avoid spray. Do not wash plates where food is prepared, or where cookware or dinnerware is washed. Seed plates will have talc and graphite residue, and may have residues of hazardous seed treatments.
Lubrication and Scheduled Maintenance

Seed Lubricant

<table>
<thead>
<tr>
<th>Multi-purpose spray lubricant</th>
<th>Multi-purpose grease lubricant</th>
<th>Multi-purpose oil lubricant</th>
<th>Inspection</th>
<th>Intervals (operating hours) at which service is required</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 hoppers</td>
<td></td>
<td></td>
<td></td>
<td>50</td>
</tr>
</tbody>
</table>


Depth Gauge Wheel Arms

<table>
<thead>
<tr>
<th>Depth Gauge Wheel Module</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
</tr>
</tbody>
</table>

Two arms per row, eight rows per planter; 16 zerks total
Type of Lubricant: grease
Quantity: until grease emerges

Depth Gauge Wheel Module

<table>
<thead>
<tr>
<th>Depth Gauge Wheel Module</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
</tr>
</tbody>
</table>

One zerk per spring base; 4 zerks total
Type of Lubricant: grease
Quantity: until grease emerges
Markers

four zerks per inner arm, two arms per planter; 8 zerks total
Type of Lubricant: grease
Quantity: until grease emerges

Dry Fertilizer Outlet (Option)

Two zerks per hopper, four hoppers per planter; 8 zerks total
Type of Lubricant: grease
Quantity: until grease emerges

Frame-Mounted Coulter Hub

One zerk per coulter hub; 8 zerks total
Type of Lubricant: grease
Quantity: until grease emerges
Frame-Mounted Coulter Pivot

One zerk per coulter pivot; 
8 zerks total 
Type of Lubricant: grease 
Quantity: until grease emerges

Transport Wheel Bearings

One zerk per hub; 
4 total 
Type of lubrication: Grease 
Quantity: until back-pressure detected

**NOTICE**

*Equipment Damage Risk:*
*To avoid seal damage, do not inject grease at high pressure.*

Rigid Row Cleaner Bearing (Option)

One zerk per hub; 
8 total 
Type of lubrication: Grease 
Quantity: until back-pressure detected

**NOTICE**

*Equipment Damage Risk:*
*To avoid seal damage, do not inject grease at high pressure.*
Contact Drive Chains

2 chains total
Type of Lubrication: Chain Lube
Quantity: coat thoroughly

Reverser Chains

2 chains total
Type of Lubrication: Chain Lube
Quantity: coat thoroughly

Transmission Chains

1 chain total
Type of Lubrication: Chain Lube
Quantity: coat thoroughly
**Meter Drive Chains**

8 chains total
Type of Lubrication: Chain Lube
Quantity: coat thoroughly

![Figure 108 Meter Drive Chain](25476)

**Dry Fertilizer Jackshaft Drive Chain**

1 chain total
Type of Lubrication: Chain Lube
Quantity: coat thoroughly

![Figure 109 Fertilizer Jackshaft Chain](25472)

**Dry Fertilizer Drive Chain**

1 chain total
Type of Lubrication: Chain Lube
Quantity: coat thoroughly

![Figure 110 Fertilizer Drive Chain](25469)
Frame-Mounted Vantage II Coulters (Option)

Two zerk per coulter (pivot and hub),
eight coulters per planter;
16 zerk total

Type of Lubricant: grease
Quantity: until back-pressure detected

NOTICE

Equipment Damage Risk:
To avoid seal damage, do not inject grease at high pressure.

Marker Disk Hubs (Option)

Two races per marker,
4 total

Type of lubrication: Grease
Quantity: repack
Planter Options

Seed Monitor
Seed sensors on each row, and the harness to the hitch, are standard on the PD8070 planter. The seed monitor, and speed sensor are optional.

The DICKEY-john® PM300 provides real-time row-by-row and seed-by-seed monitoring of your planting, with high and low population alerts. The system includes the in-cab display (shown at right) and tractor harness. Order the PM300 either as an Option with the planter, or as a part for installation later.

<table>
<thead>
<tr>
<th>Description</th>
<th>Option</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>DICKEY-john® Monitor, 8 Row</td>
<td>(42)</td>
<td>403-204A</td>
</tr>
<tr>
<td>DICKEY-john® Monitor with Radar, 8-Row</td>
<td>(43)</td>
<td>403-205A</td>
</tr>
</tbody>
</table>

For installation of the console, see page 16. For operation of the PM300, consult the DICKEY-john® manual.

Seed Lubricants
Graphite is required for finger pickup meters. Graphite or talc is strongly recommended for brush meters.

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphite, 0.45 kg (1 pound) bottle</td>
<td>821-042C</td>
</tr>
<tr>
<td>Graphite, 2.3 kg (5 pound) jug</td>
<td>821-060C</td>
</tr>
<tr>
<td>Ezee Glide Plus Talc-Graphite Mix (19 liter / 5 gallon)</td>
<td>821-069C</td>
</tr>
</tbody>
</table>

For use, see “Loading Materials” on page 24.
**Gauge Wheel Mud Scrapers**

The mud scraper removes build-up that might interfere with contact drive wheel rotation. The scraper can also be used on the wheels without contact drives, to prevent build-up from interfering with planting depth.

The kit can be mounted with the wheel axle in either hole of the wheel arm. The mud scraper is not recommended when a rock guard is also installed on the same wheel.

Each kit includes one scraper and converts one wheel assembly. Order two kits per planter, or four kits if protecting all wheels.

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>PD8070 Mud Scraper Assembly</td>
<td>402-233A</td>
</tr>
</tbody>
</table>

For setup of the scrapers, see “**Mud Scrapers (Optional)**” on page 20.

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**Rock Guard**

The rock guard reduces the risk that rocky field conditions will result in wheel damage or interference with wheel rotation. The kit can be mounted with the wheel axle in either hole of the wheel arm. The rock guard is not recommended when a mud scraper is also installed on the same wheel.

Each kit includes two guards and converts one wheel assembly. Order four kits per planter, or two kits if protecting only the contact drive wheels.

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gauge Wheel Rock Guard</td>
<td>402-235A</td>
</tr>
</tbody>
</table>
Frame-Mounted Row Options

Frame-Mounted Row Cleaners
Terra-Tine™ row cleaners are available in two frame-mounted versions, and also as unit-mount (page 91). They may be ordered with the planter, or installed later. For operation, see “Terra-Tine™ Row Cleaners” on page 42.

Stand-Alone Terra-Tine™s
This kit includes the frame clamps and shanks. Each part number includes a left and a right assembly. If ordering the part number, order 4 per planter.

<table>
<thead>
<tr>
<th>Description</th>
<th>Option</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terra-Tine™ 5x7 Mount</td>
<td>(91)</td>
<td>407-051A</td>
</tr>
</tbody>
</table>

Vantage I Terra-Tine™s
This kit relies on the shank components of the Zone Coulter or Vantage I. Each part number includes a left and a right assembly. If ordering the part number, order 4 per planter.

<table>
<thead>
<tr>
<th>Description</th>
<th>Option</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terra-Tine™ Vantage I</td>
<td>(92)</td>
<td>407-052A</td>
</tr>
</tbody>
</table>

Zone Coulters
This is a 43 cm (17 inch) disk coulter. Mounting may be adjusted for zone or in-row tillage. If liquid fertilizer application is also required, see “Vantage I Fertilizer Coulter” on page 90.

Zone coulters may be ordered as Options with the planter, or installed later. For operation, see “Zone Coulters” on page 43. This kit includes one blade set, the frame clamps and shanks. Each part number includes a left and a right coulter assembly. If ordering the part number, order 4 per planter. For replacement blades, order 1 per row.

<table>
<thead>
<tr>
<th>Description</th>
<th>Option</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone Coulter Wavy Blade</td>
<td>(81)</td>
<td>407-040A</td>
</tr>
<tr>
<td>Zone Coulter Turbo Blade</td>
<td>(82)</td>
<td>407-041A</td>
</tr>
<tr>
<td>Wavy Blade, 17 inch</td>
<td>n/a</td>
<td>820-082C</td>
</tr>
<tr>
<td>Turbo Blade, 17 inch</td>
<td>n/a</td>
<td>820-156C</td>
</tr>
</tbody>
</table>
Vantage I Fertilizer Coulter

Vantage I is a 43 cm (17 inch) disk coulter with applicator for customer-supplied liquid fertilizer. Mounting may be adjusted for zone or in-row application. If fertilizer application is not required, see “Zone Coulters” on page 89.

Vantage I may be ordered as Options with the planter, or installed later. For operation, see “Vantage I Frame-Mounted Coulters” on page 43. This kit includes one blade set, the frame clamps and shanks. Each part number includes a left and a right coulter assembly. If ordering the part number, order 4 per planter. For replacement blades, order 1 per row.

<table>
<thead>
<tr>
<th>Description</th>
<th>Option</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vantage I Wavy Blade</td>
<td>(71)</td>
<td>407-043A</td>
</tr>
<tr>
<td>Vantage I Turbo Blade</td>
<td>(72)</td>
<td>407-044A</td>
</tr>
<tr>
<td>Wavy Blade, 17 inch</td>
<td>n/a</td>
<td>820-082C</td>
</tr>
<tr>
<td>Turbo Blade, 17 inch</td>
<td>n/a</td>
<td>820-156C</td>
</tr>
</tbody>
</table>

Vantage II Fertilizer Coulter

Each assembly includes a 46 cm (18 inch) flat coulter blade, 5×33 cm (2×13 inch) depth wheel, and a fertilizer delivery tube (wide for “dry”; narrow for “liquid”). The dry system is intended to be used with the standard fertilizer hopper system.

Coulters may be ordered as Options with the planter, or as parts for later installation. Each part number includes a left and a right coulter assembly. As parts, order four sets per planter.

<table>
<thead>
<tr>
<th>Description</th>
<th>Option</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vantage II Liquid</td>
<td>(73)</td>
<td>407-046A</td>
</tr>
<tr>
<td>Vantage II Dry</td>
<td>(74)</td>
<td>407-045A</td>
</tr>
</tbody>
</table>

For operation, see “Vantage II Fertilizer Coulters” on page 44.
Unit-Mounted Row Options

Heavy Duty Spring Package
Heavy-duty springs are available to provide more down pressure on the row unit. Heavy-duty springs provide between 70 and 110 kg (155 and 245 pounds) of down pressure.

To adjust spring down pressure, see “Row Unit Down Pressure” on page 46.

To order heavy-duty springs for your row units, contact your Great Plains dealer:

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy-Duty Spring Package</td>
<td>406-006S</td>
</tr>
</tbody>
</table>

UM Row Cleaners

UM Terra-Tine™s
Terra-Tine™ row cleaners are available in two frame-mounted versions (page 89), and also as unit-mount. They may be ordered with the planter, or installed later. For operation, see “Terra-Tine™ Row Cleaners” on page 42.

Each part number includes a left and a right assembly. If ordering the part number, order 4 per planter.

<table>
<thead>
<tr>
<th>Description</th>
<th>Option</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terra-Tine™ Unit Mount</td>
<td>(93)</td>
<td>407-051A</td>
</tr>
</tbody>
</table>

Unit-mount Terra-Tine™s cannot be mounted at the same time as unit-mount coulters or rigid tine unit-mount row cleaners.
UMC Rigid Tine Row Cleaners
Optional single-arm unit-mount rigid tine row cleaners are available as an Option with the planter, or as parts for later installation. One kit includes all 8 row cleaners (4 left, 4 right).

This kit requires that unit-mount disk coulters (below) also be installed, as the arms of the cleaners attach to the coulter. If ordering as a Part, also order or download the manual.

<table>
<thead>
<tr>
<th>Description</th>
<th>Option</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>UMC Rigid Row Cleaners</td>
<td>(90)</td>
<td>207-205A</td>
</tr>
<tr>
<td>Manual: Install/Operate/Parts</td>
<td>n/a</td>
<td>204-085M-A</td>
</tr>
</tbody>
</table>

For operation, see “Row Cleaner Adjustments” on page 47.

UM Disk Coulters
Optional unit-mount disk coulters are available with 38 cm (15 inch) fluted or turbo blades are available as an Option with the planter, or for later installation as a Part. If ordered as Parts, order 1 per row (8 total):

<table>
<thead>
<tr>
<th>Description</th>
<th>Option</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>UMC, 15 inch Fluted Blade</td>
<td>(86)</td>
<td>204-661A</td>
</tr>
<tr>
<td>UMC, 15 inch Turbo Blade</td>
<td>(87)</td>
<td>204-662A</td>
</tr>
</tbody>
</table>

For operation, see “Coulter Adjustments” on page 48.

Coulter Blades
Replacement and alternate UM coulter blades include (order one per coulter):

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbo, 38 cm (15 inch) (20 flutes)</td>
<td>820-327C</td>
</tr>
<tr>
<td>Fluted, 38 cm (15 inch) (50 flutes)</td>
<td>820-331C</td>
</tr>
</tbody>
</table>
Seed Tube Brush
A seed tube brush is standard on model year 2013 and later planters, and available for older planters. Order the following part for additional or replacement brushes.

<table>
<thead>
<tr>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEED TUBE CLEANER BRUSH</td>
<td>891-259C</td>
</tr>
</tbody>
</table>

See “Seed Tube Clean-Out” on page 64.

Seed Meters
Seed meters are required on the PD8070 Planter. Available options include 12-finger pickup meter or brush meter (page 94, with selection of seed plates). Meters are factory-installed if ordered as an Option. Plates for brush meters are not factory-installed.

There is also an Option for both meters (bundled finger meter is for corn), in which case the finger meters are factory-installed.

**Finger Pickup Meters**
If ordering finger meters as Parts, order one per row (8 total).

<table>
<thead>
<tr>
<th>Description</th>
<th>Option</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-Finger Pick-Up (corn)</td>
<td>(21)</td>
<td>404-018K</td>
</tr>
<tr>
<td>12-Finger Pick-Up (sunflower)</td>
<td>(22)</td>
<td>404-333A</td>
</tr>
<tr>
<td>12 Finger corn + Brush meters</td>
<td>(23)</td>
<td>403-048A</td>
</tr>
<tr>
<td>Sunflower conversion kit&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td>403-659A</td>
</tr>
<tr>
<td>Insert A (std. on corn meters)</td>
<td></td>
<td>342110</td>
</tr>
<tr>
<td>Insert B (other seed sizes)</td>
<td></td>
<td>342107</td>
</tr>
<tr>
<td>Insert C (std. on sunflower mtrs)</td>
<td></td>
<td>342108</td>
</tr>
</tbody>
</table>

<sup>a</sup> Converts one corn meter to sunflower. Includes sunflower finger set, Insert C and brushless blank.

For operations, see “Seed Meter Setup and Adjustment” on page 52.
Brush Meter
This singulating meter accepts a variety of interchangeable seed plates. Brush meters may be ordered as an Option with the original planter, or individually for later installation. The base meter does not include plates.

<table>
<thead>
<tr>
<th>Description</th>
<th>Option</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRUSH METER ASSY</td>
<td>(22)</td>
<td>404-048K</td>
</tr>
<tr>
<td>12 Finger corn + Brush meters</td>
<td>(23)</td>
<td>403-048A</td>
</tr>
</tbody>
</table>

Seed Plates
Order quantity 8 of each plate desired. Plates are identified by seed name molded into the spoke side, color code, and cell count.

<table>
<thead>
<tr>
<th>Seed</th>
<th>Cells</th>
<th>Part Number</th>
<th>Color</th>
<th>Cell Appearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton, Acid-Delinted:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9259 to 11 464 seeds/kg</td>
<td>30</td>
<td>817-288C</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>4200 to 5200 seeds/pound</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton, Acid-Delinted:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8378 to 9700 seeds/kg</td>
<td>36</td>
<td>817-289C</td>
<td>Tan</td>
<td></td>
</tr>
<tr>
<td>3800 to 4400 seeds/pound</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton, Acid-Delinted, High Rate:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9259 to 11 464 seeds/kg</td>
<td>48</td>
<td>817-290C</td>
<td>Light Green</td>
<td></td>
</tr>
<tr>
<td>4200 to 5200 seeds/pound</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milo (Small):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31 967 to 44 092 seeds/kg</td>
<td>30</td>
<td>817-284C</td>
<td>Red</td>
<td></td>
</tr>
<tr>
<td>14,500 to 20,000 seeds/pound</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milo (Large):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22 046 to 35 274 seeds/kg</td>
<td>30</td>
<td>817-285C</td>
<td>Light Blue</td>
<td></td>
</tr>
<tr>
<td>10,000 to 16,000 seeds/pound</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milo (High Rate, Small):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26 455 to 39 683 seeds/kg</td>
<td>60</td>
<td>817-286C</td>
<td>Red</td>
<td></td>
</tr>
<tr>
<td>12,000 to 18,000 seeds/pound</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milo (High Rate, Large):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22 046 to 30 865 seeds/kg</td>
<td>60</td>
<td>817-287C</td>
<td>Yellow</td>
<td></td>
</tr>
<tr>
<td>10,000 to 14,000 seeds/pound</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soybean:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3086 to 4850 seeds/kg</td>
<td>48</td>
<td>817-282C</td>
<td>Dark Blue</td>
<td></td>
</tr>
<tr>
<td>1400 to 2200 seeds/pound</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soybean:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4850 to 8818 seeds/kg</td>
<td>60</td>
<td>817-283C</td>
<td>Black</td>
<td></td>
</tr>
<tr>
<td>2200 to 4000 seeds per pound</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Side Depth Gauge Wheel Scrapers
Row unit side depth gauge wheel scrapers are optional on the PD8070 Planter. When planting in moist or sticky soils, these scrapers are useful in preventing build-up that might otherwise result in shallow planting.
Order 8 (one per opener). The standard side gauge wheel on the PD8070 Planter is 4 inch.

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 inch Gauge wheel scraper</td>
<td>404-825A</td>
</tr>
</tbody>
</table>

The scrapers mount on the bottom rear of the depth wheel arm, using the existing bolt and lock washer. The slot in the scraper is long enough to clear the lower grease zerk, and allow adjustment as wheel and scraper wear.

For operations, see “Adjusting Gauge Wheel Scrapers” on page 51.

Keeton® Seed Firmer
Seed firmers are optional on the PD8070 Planter. Firmers may be field-installed as kits. Order eight (one per row unit).

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keeton® seed firmer</td>
<td>890-840C</td>
</tr>
</tbody>
</table>

For operations, see “Keeton® Seed Firmer Adjustment” on page 55.
Row Unit Press Wheels

Press wheels are optional on the PD8070 Planter. One of three types:

- double-V 1 inch thick \( \times \) 12 inch diameter,
- single \( 6\frac{1}{2} \) inch wide \( \times \) 12 inch diameter with closing disks, or;
- double-V cast staggered,

may be ordered as an Option with the planter, or later as Parts. If ordering as parts, order one per row (8 total).

<table>
<thead>
<tr>
<th>Description</th>
<th>Option</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 X 12 DBL V PW</td>
<td>(01)</td>
<td>405-016A</td>
</tr>
<tr>
<td>6 1/2 X 12 W/ CLOSING DISKS</td>
<td>(02)</td>
<td>405-019A</td>
</tr>
<tr>
<td>DBL V CAST STAGGERED PW</td>
<td>(10)</td>
<td>405-035A</td>
</tr>
</tbody>
</table>

For operations, see “Press Wheel Adjustments” on page 55.
# Appendix A - Reference Information

## Specifications and Capacities

<table>
<thead>
<tr>
<th>Specification</th>
<th>PD8070 Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HP Requirements</strong></td>
<td>75-104 kW (100-140 hp) estimated minimum</td>
</tr>
<tr>
<td><strong>Hydraulic Circuits</strong></td>
<td>2 (closed/open center), 15 Pa, 40 liters/min (2250 psi, 10.63 gallons/min.)</td>
</tr>
<tr>
<td><strong>Hitch</strong></td>
<td>Pull-type</td>
</tr>
<tr>
<td><strong>Transport Width</strong></td>
<td>6.4 m (21 feet)</td>
</tr>
<tr>
<td><strong>Working Width</strong></td>
<td>4.9 m (16 feet)</td>
</tr>
<tr>
<td><strong>Transport Length</strong></td>
<td>4.6 m (15 feet)</td>
</tr>
<tr>
<td><strong>Transport Clearance</strong></td>
<td>38 cm (15 inches)</td>
</tr>
<tr>
<td><strong>Transport Height</strong></td>
<td>1.95 m (6 feet 5 inches)</td>
</tr>
<tr>
<td><strong>Weight (Approx.)</strong></td>
<td>3114 kg (6875 pounds)</td>
</tr>
<tr>
<td><strong>Frame Construction</strong></td>
<td>17.8×17.8 cm, 7.9 mm wall (7x7 inch, 5(\frac{1}{16}) inch wall) main tool bar</td>
</tr>
<tr>
<td><strong>Meter Drive</strong></td>
<td>Ground Drive (2-wheel w/ratchet differentials)</td>
</tr>
<tr>
<td><strong>Transmission</strong></td>
<td>End Mounted</td>
</tr>
<tr>
<td><strong>Row Spacing (inches)</strong></td>
<td>70 cm (27.6 inches)</td>
</tr>
<tr>
<td><strong>Seed Hopper Capacity</strong></td>
<td>564 liters (70.5×8) (16 bushels (2 bushels per hopper×8))</td>
</tr>
<tr>
<td><strong>Fertilizer Hopper Capacity</strong></td>
<td>250 kg (550 pounds) per hopper</td>
</tr>
<tr>
<td><strong>Tire Sizes</strong></td>
<td>Transport: four 7.00-15LT</td>
</tr>
<tr>
<td></td>
<td>Contact Drive: two 13-6.50×6</td>
</tr>
<tr>
<td><strong>Number of Openers</strong></td>
<td>8</td>
</tr>
<tr>
<td><strong>Opener Down Force</strong></td>
<td>38.5-70.2 kg std., 70-111 kg optional (85-155 pounds std., 155-245 pounds optional)</td>
</tr>
<tr>
<td><strong>Opener Travel</strong></td>
<td>12.7 cm up, 12.7 cm down (5 inches up/down, 10 inches total)</td>
</tr>
<tr>
<td><strong>Opener Depth Range</strong></td>
<td>0 to 10.2 cm, 6.5 mm increments (0 to 4 inches, (\frac{1}{4}) inch increments)</td>
</tr>
</tbody>
</table>

### Tire Inflation Chart

<table>
<thead>
<tr>
<th>Tire Size</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport 7.00-15LT</td>
<td>414kPa (60 psi)</td>
</tr>
<tr>
<td>Contact 13-6.50×6</td>
<td>276 kPa (40 psi)</td>
</tr>
</tbody>
</table>

### Tire Warranty Information

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

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Web Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titan</td>
<td><a href="http://www.titan-intl.com">www.titan-intl.com</a></td>
</tr>
<tr>
<td>Goodyear</td>
<td>Now: <a href="http://www.titan-intl.com">www.titan-intl.com</a></td>
</tr>
<tr>
<td>Firestone</td>
<td><a href="http://www.firestoneag.com">www.firestoneag.com</a></td>
</tr>
</tbody>
</table>
Hydraulic Diagrams

Lift Hydraulics
Marker Hydraulics
## Torque Values Chart

<table>
<thead>
<tr>
<th>Bolt Size</th>
<th>Bolt Head Identification</th>
<th>Bolt Size</th>
<th>Bolt Head Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Grade 2</td>
<td>Grade 5</td>
<td>Grade 8</td>
</tr>
<tr>
<td></td>
<td>N·m</td>
<td>in·ppi</td>
<td>mm x pitch</td>
</tr>
<tr>
<td>ft-lb</td>
<td>ft-lb</td>
<td>ft-lb</td>
<td>ft-lb</td>
</tr>
<tr>
<td>1/8-20</td>
<td>7.4</td>
<td>5.6</td>
<td>11</td>
</tr>
<tr>
<td>5/32-28</td>
<td>8.5</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>5/16-18</td>
<td>15</td>
<td>11</td>
<td>24</td>
</tr>
<tr>
<td>5/16-24</td>
<td>17</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td>3/8-16</td>
<td>27</td>
<td>20</td>
<td>42</td>
</tr>
<tr>
<td>3/8-24</td>
<td>31</td>
<td>22</td>
<td>47</td>
</tr>
<tr>
<td>7/16-14</td>
<td>49</td>
<td>36</td>
<td>75</td>
</tr>
<tr>
<td>7/16-20</td>
<td>66</td>
<td>49</td>
<td>105</td>
</tr>
<tr>
<td>7/32-13</td>
<td>75</td>
<td>55</td>
<td>115</td>
</tr>
<tr>
<td>9/16-12</td>
<td>95</td>
<td>70</td>
<td>150</td>
</tr>
<tr>
<td>9/16-18</td>
<td>105</td>
<td>79</td>
<td>165</td>
</tr>
<tr>
<td>5/8-11</td>
<td>130</td>
<td>97</td>
<td>205</td>
</tr>
<tr>
<td>5/8-18</td>
<td>150</td>
<td>110</td>
<td>230</td>
</tr>
<tr>
<td>3/4-10</td>
<td>235</td>
<td>170</td>
<td>360</td>
</tr>
<tr>
<td>3/4-16</td>
<td>260</td>
<td>190</td>
<td>405</td>
</tr>
<tr>
<td>7/8-9</td>
<td>225</td>
<td>165</td>
<td>585</td>
</tr>
<tr>
<td>7/8-14</td>
<td>250</td>
<td>185</td>
<td>640</td>
</tr>
<tr>
<td>1-8</td>
<td>340</td>
<td>250</td>
<td>875</td>
</tr>
<tr>
<td>1-12</td>
<td>370</td>
<td>275</td>
<td>955</td>
</tr>
<tr>
<td>1-16</td>
<td>480</td>
<td>355</td>
<td>1080</td>
</tr>
<tr>
<td>1-20</td>
<td>540</td>
<td>395</td>
<td>1210</td>
</tr>
<tr>
<td>1-24</td>
<td>680</td>
<td>500</td>
<td>1520</td>
</tr>
<tr>
<td>1-32</td>
<td>750</td>
<td>555</td>
<td>1680</td>
</tr>
<tr>
<td>1-40</td>
<td>890</td>
<td>655</td>
<td>1990</td>
</tr>
<tr>
<td>1-64</td>
<td>1010</td>
<td>745</td>
<td>2270</td>
</tr>
<tr>
<td>1-72</td>
<td>1180</td>
<td>870</td>
<td>2640</td>
</tr>
<tr>
<td>1-96</td>
<td>1330</td>
<td>980</td>
<td>2970</td>
</tr>
</tbody>
</table>

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.
Appendix B - Initial Setup

Hydraulic Charge and Bleed

Connect the planter to a suitable hydraulic source and check the condition of the hydraulic systems:
“Raising/Lowering Planter” on page 27, “Marker Operation” on page 28

See “Bleeding Hydraulics” on page 65 if any circuits do not operate smoothly.

Seed Monitor Console Installation

Refer to Figure 131

The planter’s standard PM300 seed monitor system includes a console ① that needs to be mounted in the cab of the tractor to be used with the planter.

The monitor includes cables for power ②, speed sensor ③ and sensor harnesses ④. Installation instructions are found in the included DICKEY-john® manual.

Power required is 12Vdc. Power color code is:
+ positive: red
- negative: black

The included bracket ⑤ requires customer-supplied fasteners.

Seed Monitor Console Quick-Start

The PM300 factory defaults may need to be changed to metric mode, the row configuration of a PD8070 planter, and the speed sensing used. Pages 101 through 102 describe setting:
• metric data mode,
• planter row count,
• planter (swath-averaged) row spacing, and;
• initial speed calibration.

The monitor must be connected to +12Vdc power to enter these settings (the monitor does not need to be connected to the implement harness).

See the DICKEY-john® 11001-1372 manual for setting limits and alarms.
Power-Up The Console

Refer to Figure 131 on page 101
1. Connect the monitor power leads ① to a +12Vdc source. Optionally connect the monitor sensor harness ② to the planter harness, and the monitor speed sensor lead ③ to the planter speed sensor lead. If the harnesses are not connected, expect an error screen at step 2.

Refer to Figure 132
2. Press the power On/Off key ④. Wait for the power-up screen to complete. If the next screen displayed is the Operate screen, continue at step 4.

Refer to Figure 133
3. If an error screen appears, with an alert tone, press either the Alarm Cancel ⑤ or the ESCAPE ⑥ keys to silence the alert and display the Operate screen.

Set Metric Mode
4. Press the DISPLAY & SERVICE ⑦ key.
5. If the icon pair at the lower left is ⑧, metric mode is already set. Skip to step 10.

Refer to Figure 134
6. Press the Down Arrow ⑨ key twice to highlight the Units ⑩ icon.
7. Press the ENTER ⑪ key to modify the Units.
8. Press either the Up or Down Arrow (⑫ or ⑬) to change the large “E” to an “M” ⑭ as shown in Figure 134.
9. Press the ENTER ⑪ key to save this change.

Set Planter Row Count
The PM300 supports three row configurations pre-defined by you. You may need only one.

Refer to Figure 135
At first power-up, the PM300 may have an incorrect row count for your planter.

10. Press the PLANTER SETUP ⑩ key.
   Note that the Planter Configuration Indicator ⑯ is under the “1” in the Configuration block ⑰. This change is for Configuration 1.
11. Press the Right Arrow ⑱ key to highlight the Number of Rows field ⑲ (“16” in the figure).
12. Press the ENTER ⑪ key to modify the # of Rows.
Refer to Figure 136

13. Use the Left and Right Arrow keys ( or ) to select the digits to modify. Use the Up or Down Arrow keys ( or ) to increment or decrement. Change the row count to the table value for your planter model and operating configuration.

14. Press the ENTER key to save the correct row count.

Set Planter Row Spacing

15. Press the Down Arrow key to select the Row Spacing field.

16. Use the Left and Right Arrow keys ( or ) to select the digits to modify. Use the Up or Down Arrow keys ( or ) to increment or decrement. Change the row spacing to the value for your planter model (70 cm). Planter swath (“5.60”) is automatically calculated.

17. Press the ENTER key to save the corrected row spacing.

Row Setup

The planter row setup defaults to the number of rows detected (8), and population mode on every row. Consult the monitor manual for alternative configurations.
Warranty

Great Plains Manufacturing, Incorporated warrants to the original purchaser that this seeding equipment will be free from defects in material and workmanship for a period of one year from the date of original purchase when used as intended and under normal service and conditions for personal use; 90 days for commercial or rental purposes. This Warranty is limited to the replacement of any defective part by Great Plains Manufacturing, Incorporated 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.

This Warranty does not apply to any part or product which in Great Plains’ judgement shall have been misused or damaged by accident or lack of normal maintenance or care, or which has been repaired or altered in a way which adversely affects its performance or reliability, or which has been used for a purpose for which the product is not designed. This Warranty shall not apply if the product is towed at a speed in excess of 20 miles per hour.

Claims under this Warranty must be made to the dealer which originally sold the product and all warranty adjustments must be made through such dealer. Great Plains reserves the right to make changes in materials or design of the product at any time without notice.

This Warranty shall not be interpreted to render Great Plains liable for damages of any kind, direct, consequential, or contingent, to property. Furthermore, Great Plains shall not be liable for damages resulting from any cause beyond its reasonable control. This Warranty does not extend to loss of crops, losses caused by harvest delays or any expense or loss for labor, supplies, rental machinery or for any other reason.

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

This Warranty is not valid unless registered with Great Plains Manufacturing, Incorporated within 10 days from the date of original purchase.
H
Harness ........................................... 16, 101
Harness, lighting ................................ 16
Headphones ...................................... 2
Heating protection ............................... 2
Heavy-duty springs ............................. 46, 91
Height, frame ..................................... 17
Height, hitch ....................................... 17
Herbicide ......................................... 2
Hex adjuster ....................................... 50, 71
High pressure fluid ............................. 7, 14
High pressure fluids ............................. 2
Hitch height ....................................... 17
Hitch pin ........................................... 23
Hitching ............................................ 13
Hook cups ......................................... 63
Hopper clean-out, fertilizer .................... 64
Hopper clean-out, seed ........................ 63
Hopper installation ................................ 24
Hopper lid ......................................... 24
Hopper removal, seed .......................... 63
Hopper, fertilizer ................................ 25
Hose label .......................................... 15
Hoses, hydraulic ................................. 15
Hydraulic bleeding ................................ 65
Hydraulic diagrams ............................. 98
Hydraulic hoses .................................. 15
Hydraulic motor seals ........................... 14
Hydraulics
Marker ............................................... 21
Safety ............................................... 2
I
Insert, finger meter ............................ 54, 77
Insert, meter ....................................... 73
Installation
Monitor console ................................... 101
Intended use ....................................... 10
J
Jack, parking ....................................... 13, 29
JIC ..................................................... 65
Joint Industry Conference ...................... 65
J560b ............................................... 16
K
Keeton ............................................... 55
Kph .................................................... 4, 23
L
Label, hose ........................................ 15
Latch, seed hopper .............................. 63
Leaks ............................................... 2
Left-hand, defined ............................... 10
Leveling planter .................................. 17
Lid, seed hopper .................................. 24
Lift bleed .......................................... 21
Lift cylinders ..................................... 15, 27
Lift hydraulics .................................. 98
Lift hydraulics, bleeding ....................... 65
Lighting harness .................................. 16
Lights
Safety ............................................... 4
Lights ............................................... 4
Lines, overhead ................................... 4
Liquid fertilizer .................................. 44, 89, 90
Location, serial number ....................... 11
Locks ............................................... 27
Lock-up, cylinder ............................... 62
Lock, transport .................................. 62
Low pressure return ............................ 14
Lowering .......................................... 27
Lubricants, seed .................................. 87
Lubricant, seed ................................... 24
M
Maintenance
Safety ............................................... 5
Manual, row cleaner ........................... 47
Marker ............................................... 28
Marker adjustments ............................ 40
Marker bleed ..................................... 21
Marker cylinders ................................ 15
Marker disk ....................................... 41
Marker extension ............................... 40
Marker hydraulics .............................. 99
Marker shear bolt ............................... 66
Martin ............................................... 47, 92
Material rate summary ........................ 30
Maxi ............................................... 54
Medical assistance ............................ 61
Meter clean-out, brush ......................... 64
Meter clean-out, finger ......................... 64
Meter exchange .................................. 18
Meter Max ......................................... 76
Meter removal .................................... 18
Meters, brush ..................................... 94
Meter, finger ..................................... 93
Metric mode ....................................... 102
Milo ............................................... 34, 94
Mist, spray ......................................... 2
Monitor power ..................................... 102
Monitor setup ..................................... 21
Motor seals ........................................ 14
Mounting blocks, cylinder ..................... 20
Mph ................................................... 4, 23, 52
Mud scraper ...................................... 20, 88
MBx1.25 Class 8.8 ................................ 66
N
National Pipe Thread ............................ 65
Needle valves ..................................... 41
Note, defined ....................................... 10
NOTICE, defined ................................. 10
NPT ................................................... 65
Nuisance shears .................................. 66
O
Openers disks ..................................... 70
Openers scrapers ................................. 70
Orange ............................................. 15
ORB ................................................... 65
Orientation rose .................................. 10
O-Ring Boss ....................................... 65
Overhead power lines ........................... 4
P
Parking jack ....................................... 13, 29
PD8070 ............................................. 10
Personal safety equipment ..................... 2
Pesticide .......................................... 2
Pests ............................................... 18, 54
Phone number .................................... 11
Pins, shear ........................................ 66
PLANTER SETUP ................................ 102
Planting ........................................... 27
Planting speed .................................... 52
Plates, seed ....................................... 19, 80
Plate, seed ......................................... 94
PM300 ............................................. 10, 16, 87
PM400 .............................................. 21, 101
Population Max ................................... 77
Powders, wettable .............................. 2
Power ............................................... 16, 101
Power lines ........................................ 4
Power-beyond port .............................. 14
Precision™ ........................................ 54
Press wheels ....................................... 55, 96
Press wheel, dual ............................... 55
Press wheel, single ................................ 57
Q
QD ..................................................... 65
Quick Disconnect ................................ 65
R
Raising ............................................... 27
Ratchet drives ..................................... 68
RC (Row Cleaner) ................................ 47
Reading brush chart ............................ 33
Reading finger chart ............................ 35
Red ................................................... 16, 101
Red reflectors ..................................... 6
Reflectors .......................................... 6, 7
Remote valve ...................................... 15
Remove meter ..................................... 18
Removing seed hopper ......................... 63
Repair parts ....................................... 11
Re-phase cylinders ............................. 20
Respirator .......................................... 2
Riders .............................................. 4
Ridge planting .................................... 20
Right-hand, defined ............................. 10
Rigid tine row cleaners ......................... 47, 92
Rock guard ........................................ 88
Rose, orientation ................................ 10
Routing, chains ................................... 69
Row cleaner ........................................ 42
Row Cleaner manual ............................ 47
Row cleaners ..................................... 42, 47, 89, 91
Row configuration ............................... 101
Row spacing ...................................... 103
S
Safety chain ....................................... 3, 13
Safety equipment ............................... 2
Safety information ............................. 1
Safety lights
See Lights, safety symbol, defined .......... 1
Scrapers, gauge wheel ......................... 51, 95
Scraper, mud ...................................... 20, 88
Sealant .............................................. 65
Seed firmer ........................................ 55, 95
Seed hopper clean-out ......................... 63
Seed hopper removal ......................... 63
Seed lubricant .................................... 24
Index

Transport safety .................................... 4
transport lock ..................................... 62
transmission ................................ 31
tractor wheels ..................................... 13
transporting........................................ 23
treated seed .. 18, 19, 76, 79, 80
troubleshooting .................................. 58
Turbo ................................................. 90, 92

U
UMC - Unit-Mount Coulter ..................... 92
UMC-RC (UMC Row Cleaner) ............. 47
unit-mounted coulter .............................. 92
unit-mounted row cleaners .................... 47
Units ................................................. 102
URL, tires ........................................... 97

V
valves, needle .................................. 41
Vantage I ............................................ 42
Vantage II ........................................... 44
Vantage III ......................................... 44

W
WARNING, defined ............................ 1
weight, tractor .................................. 4
welding ............................................. 5
wettable powders .............................. 2
wheel scraper ............................... 20, 88
wind ............................................... 3

Z
zone coulter .................................... 43, 89
Symbols
(01), option ....................................... 96
(02), option ....................................... 96
(21), option ....................................... 93
(22), option ....................................... 93
(23), option ....................................... 93
(42), option ....................................... 87
(41), option ....................................... 87
(71), option ....................................... 90
(71), option ....................................... 90
(72), option ....................................... 90
(73), option ....................................... 90
(74), option ....................................... 90
(21), option ....................................... 89
(82), option ....................................... 89
(86), option ....................................... 92
(87), option ....................................... 92
(89), option ....................................... 92
(91), option ....................................... 89
(92), option ....................................... 89
(93), option ....................................... 91

Numerics
11001-1333-200512, manual .................. 10
11001-1372, manual .......................... 21, 101
turbine .............................................. 47
Tires ................................................. 5, 12
Titan .................................................. 97
torque, finger set ................................ 74
tractor wheels ................................... 13
transmission ...................................... 31, 66
transmission, fertilizer ...................... 37
transport lock .................................. 62
transport locks .................................. 27, 62
transport safety .................................. 4

Talc .................................................. 24
Tables
hose color code ................................... 15
talc .................................................. 24, 87
telephone .......................................... 11
Terra-Tine™ ...................................... 42, 91
table ............................................... 46, 49
tires ................................................. 47
tires ................................................. 5, 12
Titan .................................................. 97
torque, finger set ................................ 74
tractor wheels ................................... 13
transmission ...................................... 31, 66
transmission, fertilizer ...................... 37
transport lock .................................. 62
transport locks .................................. 27, 62
transport safety .................................. 4
transporting........................................ 23
treated seed ...................................... 18, 19, 76, 79, 80
troubleshooting .................................. 58
Turbo ................................................. 90, 92

U
UMC - Unit-Mount Coulter ..................... 92
UMC-RC (UMC Row Cleaner) ............. 47
unit-mounted coulter .............................. 92
unit-mounted row cleaners .................... 47
Units ................................................. 102
URL, tires ........................................... 97

V
valves, needle .................................. 41
Vantage I ............................................ 42
Vantage II ........................................... 44
Vantage III ......................................... 44

W
WARNING, defined ............................ 1
weight, tractor .................................. 4
welding ............................................. 5
wettable powders .............................. 2
wheel scraper ............................... 20, 88
wind ............................................... 3

Z
zone coulter .................................... 43, 89
Symbols
(01), option ....................................... 96
(02), option ....................................... 96
(21), option ....................................... 93
(22), option ....................................... 93
(23), option ....................................... 93
(42), option ....................................... 87
(43), option ....................................... 87
(71), option ....................................... 90
(72), option ....................................... 90
(73), option ....................................... 90
(74), option ....................................... 90
(81), option ....................................... 89
(82), option ....................................... 89
(86), option ....................................... 92
(87), option ....................................... 92
(89), option ....................................... 92
(91), option ....................................... 89
(92), option ....................................... 89
(93), option ....................................... 91

Numerics
11001-1333-200512, manual .................. 10
11001-1372, manual .......................... 21, 101
turbine .............................................. 47
Tires ................................................. 5, 12
Titan .................................................. 97
torque, finger set ................................ 74
tractor wheels ................................... 13
transmission ...................................... 31, 66
transmission, fertilizer ...................... 37
transport lock .................................. 62
transport locks .................................. 27, 62
transport safety .................................. 4
transporting........................................ 23
treated seed ...................................... 18, 19, 76, 79, 80
troubleshooting .................................. 58
Turbo ................................................. 90, 92

U
UMC - Unit-Mount Coulter ..................... 92
UMC-RC (UMC Row Cleaner) ............. 47
unit-mounted coulter .............................. 92
unit-mounted row cleaners .................... 47
Units ................................................. 102
URL, tires ........................................... 97

V
valves, needle .................................. 41
Vantage I ............................................ 42
Vantage II ........................................... 44
Vantage III ......................................... 44

W
WARNING, defined ............................ 1
weight, tractor .................................. 4
welding ............................................. 5
wettable powders .............................. 2
wheel scraper ............................... 20, 88
wind ............................................... 3

Z
zone coulter .................................... 43, 89
Symbols
(01), option ....................................... 96
(02), option ....................................... 96
(21), option ....................................... 93
(22), option ....................................... 93
(23), option ....................................... 93
(42), option ....................................... 87
(43), option ....................................... 87
(71), option ....................................... 90
(72), option ....................................... 90
(73), option ....................................... 90
(74), option ....................................... 90
(81), option ....................................... 89
(82), option ....................................... 89
(86), option ....................................... 92
(87), option ....................................... 92
(89), option ....................................... 92
(91), option ....................................... 89
(92), option ....................................... 89
(93), option ....................................... 91

Numerics
11001-1333-200512, manual .................. 10
11001-1372, manual .......................... 21, 101
turbine .............................................. 47
Tires ................................................. 5, 12
Titan .................................................. 97
torque, finger set ................................ 74
tractor wheels ................................... 13
transmission ...................................... 31, 66
transmission, fertilizer ...................... 37
transport lock .................................. 62
transport locks .................................. 27, 62
transport safety .................................. 4
transporting........................................ 23
treated seed ...................................... 18, 19, 76, 79, 80
troubleshooting .................................. 58
Turbo ................................................. 90, 92
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