Operator Manual
YP1630F-1630 and YP1630F-1670
12 m 2-Section Yield-Pro® Dry Fertilizer Planters

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 YP1625/A or PD8070 models where a topic is identical.
Machine Identification

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

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

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

Dealer Contact Information

Name: 
Street: 
City/State: 
Telephone: 
Email: 
Dealer’s Customer No.:

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

Important Safety Information .........................................................1
Safety Decals ..................................................................................6
Introduction .................................................................................15
Description of Unit .......................................................................15
Document Family ..........................................................................15
Covered Models ............................................................................15
Intended Usage ............................................................................15
Using This Manual .......................................................................15
Definitions .....................................................................................15
Owner Assistance ..........................................................................16
Preparation and Setup ..................................................................17
Initial Setup ...................................................................................17
Pre-Planting Setup ........................................................................17
Hitching Tractor to Planter ...............................................................18
Hydraulic Hookup .........................................................................18
3-Point Hitch ................................................................................18
Hydraulic Hose Hookup .................................................................19
Electrical Hookup .........................................................................20
Store Main Parking Stand ...............................................................20
Monitor Setup ................................................................................21
Marker Setup (Option) ...................................................................21
Operating Instructions ...................................................................22
Pre-Start Checklist .........................................................................22
Wing Lock Overview ......................................................................22
Unfolding the Planter .................................................................23
Prepare Hitched Tractor and Planter ..............................................23
Prepare Transport Hooks ...............................................................23
Release Wing Locks ......................................................................24
Re-Phase Fold Cylinders ...............................................................24
Partially Unfold ............................................................................24
Lower Tongue ...............................................................................24
Fully Unfold ................................................................................24
Remove and Store Transport Locks ..............................................25
Unfold Closeout ...........................................................................26
Raising/Lowering Planter ...............................................................27
Raising Planter ............................................................................27
Lowering Planter ..........................................................................27
Re-phasing Lift System .................................................................27
Folding the Planter ........................................................................28
Shut off Fan ..................................................................................28
Set Tractor and Tongue ...............................................................28
Raise Planter ................................................................................28
Install Lock Channels .................................................................29
Activate Fold Solenoid Valves ......................................................29
Begin Folding .............................................................................30
Raise Tongue ...............................................................................30
Adjustments ..................................................................................47
Setting Material Rates .................................................................48
Planting (Seed) Rate .................................................................48
Dry Fertilizer Rate ........................................................................48
Treatment Rate (Option) ..............................................................48
Marker Adjustments ....................................................................49
Dual Marker Speed Adjustment ................................................49
Marker Disk Adjustment ..............................................................49
Row Implement Adjustments .......................................................50
Frame-Mounted Row Accessories ..............................................50
Dry Fertilizer Applicator Adjustments ........................................50
30 Series Row-Unit Adjustments ................................................51
Row Unit Down Pressure .............................................................52
Unit-Mounted Coulter Adjustments ............................................53
Row-Unit Opener Disc Adjustments ...........................................53
Side Gauge Wheel Adjustments ..................................................54
Adjusting Gauge Wheel Scrapers ..............................................55
Seed Meter Setup and Adjustment ..............................................56
Exchanging Meters ......................................................................57
Seed Meter Adjustments .............................................................58
Seed Firmer Adjustments ............................................................61

© Copyright 2012 All rights Reserved
Great Plains Manufacturing, Inc. provides this publication “as is” without warranty of any kind, either expressed or implied. While every precaution has been taken in the preparation of this manual, Great Plains Manufacturing, Inc. assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein. Great Plains Manufacturing, Inc. reserves the right to revise and improve its products as it sees fit. This publication describes the state of this product at the time of its publication, and may not reflect the product in the future.
Trademarks of Great Plains Manufacturing, Inc. include: AccuShot, Max-Chisel, Row-Pro, Singulator Plus, Short Disk, Swath Command, Terra-Tine, Ultra-Chisel, and X-Press.
Brand and Product Names that appear and are owned by others are trademarks of their respective owners.

Great Plains | 401-832M | 2018-07-31
**Press Wheel Adjustments** ........................................62

**Troubleshooting** ..........................................................64
- Planting Rate Problems ..............................................64
- Seed Population Troubleshooting Charts ..................65

**Maintenance and Lubrication** .......................................71
- Maintenance ..................................................................71
- Frame Lift Cylinder Locks ...........................................72
- Ground Drive Springs ...................................................72
- Material Unloading and Clean-Out ..............................73
- Seed Unloading and Clean-Out ....................................73
- Fertilizer Unloading and Clean-Out .............................75
- Fertilizer Clean-Out ....................................................76
- Treatment Unloading and Clean-Out (Option) .............80

**Treatment Meter Gate Calibration (Option)** .............81

**Meter Maintenance** ...................................................82
- Finger Pickup Meter Maintenance ...............................82
- Exchanging Finger Sets .............................................85
- Meter Drive Adjustments ............................................89
- Brush Meter Maintenance ..........................................90
- Seed Plate Maintenance ...........................................91
- Air Box Residue Clean-Out .........................................91
- Bleeding Hydraulics ...................................................93
- Marker Maintenance ..................................................94
- Chain Maintenance ....................................................95
- 30 Series Opener Disks and Scrapers .......................96
- 30 Series Row-Unit Side Wheels ..............................97
- Lubrication ...............................................................98
- Seed Lubricants .........................................................104

**Options and Accessories** .............................................105

**Appendix A - Reference Information** .......................111
- Specifications and Capacities ....................................111
- YP1630F-1630 30 inch Models ................................111
- YP1630F-1670 70 cm Models ..................................112
- Tire Inflation Chart ...................................................112
- Hydraulic Diagrams ................................................113
- Chain Routing ..........................................................116
- Torque Values Chart ................................................120

**Appendix C - Initial Setup** ..........................................121
- Hydraulic Charge and Bleed .....................................121
- Seed Monitor Console Installation ............................121
- Seed Monitor Console Quick-Start ............................121
- Power-Up The Console .............................................122
- Set Metric Mode .....................................................122
- About Row Count and Spacing ...............................122
- Set Planter Row Count ............................................123
- Set Planter Row Spacing ..........................................123
- Row Setup .............................................................123
- Level Planter ..........................................................124
- Wing Alignment ......................................................125
- Speed Calibration ....................................................126
- Speed Sensor Operation ...........................................126
- Marker Extension .....................................................126

**Appendix D - Option Installation** ..............................127
- 122-278S Scraper Installation ..................................128
- Warranty ...............................................................129
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.
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.

Avoid High Pressure Fluids

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

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

▲ 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.
▲ Immediately and thoroughly flush any area of the body that is contaminated by chemicals.
▲ 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.

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.

▲ 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.
▲ After working with chemicals, wash hands and face before eating. Shower when application is completed for the day.
▲ Never wash out the tanks within 30m (100 feet) of any freshwater source or in a car wash.
▲ Rinse out the tank. Apply rinse water on last field treated.
Transport Machinery Safely

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

▲ Do not exceed 32 km/h (20 mph). Never travel speeds which do 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. Refer to transport dimensions under “Specifications and Capacities” on page 111.

▲ 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.

▲ Block tires with wheel chocks provided.

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

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

818-055C

Slow Moving Vehicle Reflector
On the back of the planter, walkboard center; 1 total
See “Transporting” on page 31.

838-266C

Red Reflectors
On the back of fertilizer hopper frame each end, and on the inside rear face of each light mounting bar; 4 total
838-265C

Amber Reflectors
One each on rear face of wing tool bar at wing lock, one each rear outside corner face of fertilizer frame; 4 total

838-267C

Daytime Reflectors
On the back of seed frame, outside red reflectors, on the rear face of the light bar; 2 total
818-323C (Option)

Danger: Chemical Hazard
On the rear walkboard face of the central dry fertilizer hopper, and on the underside of treatment hopper (option) lids; 1 or 17 total.

818-590C

Danger: Crushing Hazard
On the left side of the 3-point hitch: 1 total.
See “Hitching Tractor to Planter” on page 18.
838-599C

**Danger: Electrocution Hazard**

On front face of marker mount, near gauge wheel pivot; 2 total

See “Marker Operation” on page 42.

848-583C

**Danger: Do Not Ride**

On the left and right ends of the walkboard frame; 2 total

818-045C

**Warning: Pinch-Crush**

On both sides of wing gauge wheel caster weldments; 4 total
818-188C

**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.

**Warning: Excessive Speed**

On left side of tongue near hitch; 1 total

See “Transporting” on page 31.

818-339C

**WARNING**

**HIGH PRESSURE FLUID HAZARD**

To Prevent Serious Injury or Death:
- Never pressure or system before requiring adjusting or disassembling.
- Wear proper hand and eye protection. Wear respirator for tasks. Use wood or cardboard instead of hands.
- Keep all components in good repair.

**Warning: High Pressure Fluid Hazard**

On left side of tongue near hitch; 1 total

See “Hydraulic Hose Hookup” on page 19.

818-579C

**WARNING**

**PINCH POINT HAZARD**

To Prevent Serious Injury or Death:
- Keep the persons and objects clear while the parts of this machine, is in motion.
- Keep hands, feet, hair, and clothing away.

**Warning: Pinch-Shear Hazard**

On marker section each end, two total

See “Marker Operation” on page 42.

818-580C

**WARNING**

**OVERHEAD HAZARD**

To Prevent Serious Injury or Death:
- Step away from marker when it is in the raised position or being lowered.
- Keep others away.

**Warning: Overhead Hazard**

On marker section each end, two total

See “Marker Operation” on page 42.
818-628C

**Warning: Confined Space**
On the rear walkboard face of the central dry fertilizer hopper; 1 total

818-632C

**Warning: Fan Hazard**
On center rear face of walkboard frame; 1 total

818-860C

**Warning: Moving Parts**
On outer face of central hopper lower support tubes, on variable rate gearbox input chain guards, on all ground drive arm guards on all removable ground drive guards; 14 total
### Warning: Eye and Dust Hazards

On the rear walkboard face of the central dry fertilizer hopper; 1 total

### Warning: Falling Hazard

On the left and right ends of the walkboard frame; 2 total

### Warning: Moving Parts

On inlet of fertilizer meter, above final range gears; 1 total
818-398C

Caution: Tires Not A Step
On both sides of wing gauge wheel caster weldments, and on rear outer corners of central hopper frame; 4 total
In transport configuration, wing gauge wheels are off the ground and free to spin. In field configuration, at higher row unit down-forces, wing gauge wheels may have little or no ground traction.

818-578C

Caution: Tire Pressure
On hubcap side rim of each gauge wheel; 2 total
838-995C

Caution: General
On right side of tongue near hitch; 1 total

858-011C

Warning: Tire Pressure
On outside rim of each main transport wheel; 2 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.

Description of Unit

The YP1630F 12 m 2-Section Yield-Pro® Dry Fertilizer Planters are pull-type planting implements for use in conventional till, minimum-till, or light no-till conditions.

Yield-Pro® Planters have 30 Series, side-depth-control row-units, finger pickup or brush seed meters and row seed hoppers. Dry fertilizer is air-delivered from a central bulk hopper. Optional treatment hoppers are available for rows. Optional unit-mounted coulters are suitable for light to moderate no-till conditions only. The planter folds for 4.0 m (Narrow) or 4.2 m (Wide) transport.

Document Family

401-832M Operator Manual (this manual)
401-832B Seed Rate Manual
401-832P Parts Manual
11001-1372a DICKEY-john® PM400 Console Manual
Bulletina Dwyer Magnehelic® instructions

a. These are supplier part numbers.

Covered Models

All Models are 16 Row
YP1630F-1630ND 30 inch, Narrow, Dual row hoppers
YP1630F-1630NS 30 inch, Narrow, Single row hopper
YP1630F-1630WD 30 inch, Wide, Dual row hopper
YP1630F-1630WS 30 inch, Wide, Single row hopper
YP1630F-1670ND 70 cm, Narrow, Dual row hopper
YP1630F-1670NS 70 cm, Narrow, Single row hopper
YP1630F-1670WD 70 cm, Wide, Dual row hopper
YP1630F-1670WS 70 cm, Wide, Single row hopper

Intended Usage

Use the planter to seed production-agriculture crops only. Do not modify the planter for use with attachments other than Great Plains options and accessories specified for use with the planter.

Using This Manual

This manual familiarizes you with safety, assembly, operation, adjustments, troubleshooting and maintenance. Read it 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

Economic and/or Liability Risks:
A crucial point of information related to the preceding topic. Read and follow the directions provided before continuing, to ensure safety, avoidance of machine damage, and to achieve desired field results.

This format indicates a useful point of 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 planter’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 near the right main transport tire, on the rear face of the right riser of the front frame weldment.

Record your 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
Preparation and Setup

This section helps you prepare your tractor and planter for use. Before using the YP1630F in the field, you must hitch the planter to a suitable tractor and level the planter.

Initial Setup

If the planter has just been delivered, or broken down for re-shipment, these items need to be completed prior to first field use:

“See “Press Wheel Centering” on page 62” on page 120, which includes:
“Hydraulic Charge and Bleed” page 121,
“Seed Monitor Console Installation” page 121,
“Seed Monitor Console Quick-Start” page 121,
“Level Planter” page 124,
“Wing Alignment” page 125,
“Speed Calibration” page 126, and
“Marker Extension” on page 126.

You may also need to install features, options and accessories that were not factory- or dealer-installed.

Pre-Planting Setup

The balance of this section covers items that need to be completed or checked prior to each field use of the planter.

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” on page 98.
4. Check that all safety decals and reflectors are correctly located and legible. Replace if damaged. See “Safety Decals” on page 6.
5. Inflate tires to pressure recommended and tighten wheel bolts as specified. See “Tire Inflation Chart” on page 112.
6. If returning the planter to service from storage, remove any grease used to protect cylinder rods.
Hitching Tractor to Planter

⚠️ DANGER

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

Hydraulic Hookup

⚠️ WARNING

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

3-Point Hitch

Refer to Figure 3

7. Connect your tractor 3-point to the planter 3-point hitch. If using quick hitch be sure planter locks into hitch securely.

8. Set tractor brakes and/or put tractor in Park.

9. Raise tractor 3-point just enough to relieve pressure off of the parking stand.

10. Store 3-point stands. There are two methods:
   b. Remove both pins. Invert stand. Re-pin.

⚠️ CAUTION

Load Sway Hazard:
Adjust 3-point hitch arms and sway blocks to minimize any side-to-side sway to assure proper tracking in the field, and safe road travel.

---

Figure 3
3-Point Hitch Stands Stored
Hydraulic Hose Hookup

*Refer to Figure 4*

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.

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.

If the tractor has a limited number of remotes capable of continuous flow, use one for the hydraulic fan. (See “Specifications and Capacities” on page 111 for tractor requirements.)

Raising/Lowering Tongue

In addition to hitching, tongue raising and lowering is required during fold and unfold to engage and disengage the wing locks. The planter tongue is raised and lowered by raising and lowering the 3-point.

11. Set the initial tongue height. Distance $h$, measured at top of tongue tube is:
   - 107 cm (42 inches) above ground level
   Additional planter leveling information is found on page 124.

12. Connect other hydraulic hoses to tractor remotes. See “Hydraulic Hose Hookup” on page 19.
Electrical Hookup

Refer to Figure 6 (depicting an SAE J560b lighting connector; your connector may vary if it has been replaced due to different electrical conventions)

Your planter is equipped with systems that require separate electrical connections. For future reference, note any optional connectors on this checklist.

- Lighting connector (standard)
- Monitor connector (standard, See page 121 for console installation.)
- Speed Sensor connector (standard)
- __________________________

Make sure tractor is shut down with accessory power off before making connections.

Store Main Parking Stand

Refer to Figure 7

13. Raise the 3-point hitch slightly.
14. Remove the lower pin  holding the parking stand 7. Swing the parking stand back and up until it is above the rear hole 6. Place the holding pin in the rear hole and allow the parking stand to rest on it. This is the transport position for the parking stand.
15. Adjust the top link of a 3-point long enough so the ball swivel does not bottom out when fully raised.
16. Secure hoses using hose post loops (not shown) so that hoses have ample slack for lifts and turns, but cannot get caught in tongue lock or ball swivel. Failure to do so could cause hose to be crushed requiring hose replacement.
Monitor Setup

Refer to Figure 8

The standard DICKEY-john® PM400 system monitors the following elements of a YP1630F planter:

- seeds at each row unit seed tube;
- dry fertilizer at each tower outlet;
- ground speed; and,
- fertilizer meter shaft speed.

See “Seed Monitor Console Installation” on page 121.

Refer to the DICKEY-john® PM400 Console 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 400-foot (122 m) 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:

- “Dual Marker Speed Adjustment” on page 49.

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

- “Marker Extension” on page 126.

Prior to each planting session, check and adjust:

- “Marker Disk Adjustment” on page 49.
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
1. Carefully read “Important Safety Information” on page 1.
2. Lubricate planter as indicated under “Lubrication” on page 98.
3. Check all tires for proper inflation. See “Tire Inflation Chart” on page 112.
4. Check all bolts, pins and fasteners. Torque as shown in “Torque Values Chart” on page 120.
5. Check planter for worn or damaged parts. Repair or replace parts before going to the field.
6. Check hydraulic hoses, fittings and cylinders for leaks. Repair or replace before going to the field.
7. Be sure hydraulic hoses are securely held out of the ball swivel area at hitch. Failure to do so could cause hoses to pinch requiring hose replacement.

Wing Lock Overview
Refer to Figure 9 and Figure 10
The YP1630F planters include four sets of locks for the frame and wings:
1. Transport hooks behind the wing pivots:
   These prevent the planter frame from fully lowering when folded. The planter frame is raised to allow the wings to clear the hooks. See page 23 and 28.
2. Wing locks at mid-tongue and inside wing casters:
   These prevent the planter from unfolding while in transport. The tongue (hitch) is raised to allow the hooks to clear the locks. See page 24 and 28.
3. Transport lock channels at wing caster cylinders:
   These lock channels prevent the frame from fully lowering during transport and maintenance. They are installed prior to folding, and removed after unfolding. See page 25 and 29.
4. Lift cylinder lock channels above frame pivots:
   These lock channels are only required during maintenance. However, if installed, they must be removed after unfolding. See page 25 and 72.

High Pressure Fluid Hazard:
Check all hydraulic lines and fittings before applying pressure. Escaping fluid under pressure can have sufficient pressure to penetrate the skin. 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 an accident occurs, seek immediate medical attention from a physician familiar with this type of injury.
Unfolding the Planter

The distance between the tractor and the central cart decreases by about 3 m (10 feet) during unfolding. Planter, tractor, or both will move during this operation.

**WARNING**

Crushing, Pinch-Point and Overhead Hazards:
To prevent serious injury or death:
- Unfold only on hard level ground. Allow ample room.
- Allow no one on or near the planter during unfolding.
- Stay clear of the wing sweep arcs. The sweep arcs of the wings have numerous pinch and crush points in the mechanism. Coulters and row openers are sharp.
- Allow no one near planter during unfold. The fertilizer cart usually moves forward during unfolding.
- Do not unfold with planter lowered.
- Unfold only with markers resting in transport cradles.
- Unfold only if hydraulics are bled free of air and fully charged with hydraulic oil.

**Prepare Hitched Tractor and Planter**

1. Move planter to level ground.
2. If tractor movement is not desired, put tractor in Park and/or set parking brakes, or telescoping movement of planter may cause tractor to move backward.

**Prepare Transport Hooks**

Refer to Figure 12

The transport hooks 5, behind/above wing pivots, prevent the frame from fully lowering when the planter is fully folded. To clear the hooks, the frame is fully raised.

Refer to Figure 11

3. Set Hydraulic Selector Marker/Fold switch to “FOLD” 5 to enable fold cylinder hydraulics.
4. Activate lift hydraulics. Raise planter until lift hydraulics are fully raised. This raises the wing frames 6 above the hooks 5.

**NOTICE**

Planter Damage Risk:
Be sure planter’s lift hydraulics are fully raised before unfolding or frame and/or hook damage WILL occur.
Release Wing Locks

Refer to Figure 13

A pair of inverted hooks 7 on the tongue tube engage locks 8 on each wing when the planter is folded.

Prior to unfolding, this lock system must be released by raising the tongue. Raise the 3-point hitch to disengage the wing lock.

Re-Phase Fold Cylinders

5. The fold system uses re-phasing cylinders. It is necessary to re-phase cylinders so wing gauge wheels run in their fully rotated positions in front of planter. To re-phase fold cylinders:
   Move and hold lever for Marker/Fold in Fold direction (typically Extend) for 30 seconds. This causes wings to push against the tongue transport hooks 7.

Partially Unfold

Refer to Figure 13

6. Reverse fold circuit lever until wings clear transport hooks 7 by a few feet.

Lower Tongue

7. Lower 3-point hitch or hydraulic tongue to planting position. See page 19 and page 124 for correct hitch height and depth control settings.

Fully Unfold

Refer to Figure 14

8. Unfold the planter fully to planting position. Unfolding is complete when the large roller bushing on top of the tongue is engaged by the tongue safety latch 9.

NOTICE

Planter Damage Risk:
Do not plant if the tongue latch is not fully down over the roller. Frame and opener damage is likely if the planter is operated with the latch open.
Remove and Store Transport Locks
The planter needs to still be in full lift to remove these locks.

Remove/Store Center Lift Locks
Refer to Figure 15
9. Remove lock channels 1 from vertical cylinders above pivots.

Refer to Figure 15 and Figure 16
10. Store lock channels horizontally on tubes 2 at sides of lift cylinder weldment.
Remove/Store Caster Lift Locks
Refer to Figure 17
11. Remove transport lock channels 3 from lift cylinders located on gauge wheels.

Refer to Figure 17 and Figure 18
12. Transfer lift cylinder transport lock channels 3 to their storage positions 4.

Unfold Closeout
13. As appropriate for the next planned activity, activate lift hydraulics and lower planter.
14. To disable fold hydraulics, and lock caster arms in field position, set Hydraulic Selector Marker/Fold switch (M or 3 in Figure 19 on page 27) to center/off or Marker.

The center/off switch position disables all Fold/Marker solenoid valves.
Raising/Lowering Planter

The planter mainframe raises and lowers independently of the tongue.

- The planter may be fully raised at any time (and must be raised for folding).
- The planter may be lowered onto its transport lock channels at any time.
- The planter may be fully lowered, with lock channels removed, only when unfolded.

Refer to Figure 19

Leave or set the Hydraulic Selector Marker/Fold switch to center/OFF or “MARKER” position to prevent unintended folding.

Raising Planter

The planter may be raised at any time.

1. Move the Lift circuit lever to extend the lift cylinders.
2. Install lock channels if raising for transport, parking, storage, adjustments or maintenance.

After every few hours of operation (or earlier, if uneven lift is observed), re-phase the lift circuit. At a lift operation, hold the circuit in Extend for 30 seconds.

Lowering Planter

If lock channels are installed, the planter may be lowered at any time. If lock channels are not installed, lower only when unfolded.

Install lock channels (page 26) as appropriate for next activity.

1. Move the Lift circuit lever to retract the lift cylinders until settled on lock channels or fully lowered to ground.
2. Set the lift circuit to Neutral for field operation.

Unless lock channels are installed, lower the planter only when fully unfolded. Lowering when folded is prevented by the transport locks.

Re-phasing Lift System

Over a period of normal use the cylinders may get out of phase. This will cause some planter sections to run higher than others. If this is the case, it will be necessary to re-phase lift cylinders.

Lift cylinders can only be re-phased when planter is unfolded.

To re-phase cylinders:

1. Raise the implement completely and hold the hydraulic remote lever on for several seconds until all cylinders are fully extended. Do this every 8 to 10 times you raise planter out of ground.
2. When all cylinders are fully extended, momentarily reverse hydraulic remote lever to retract system approximately 13 mm (1/2 inch) to maintain levelness.
Folding the Planter

The planter must be raised for folding. The tongue is raised and lowered during the sequence.

The distance between the tractor and the fertilizer cart increases by about 3 m (10 feet) during folding. Planter, tractor, or both, move during this operation.

**WARNING**

**Pinch Point and Crushing Hazard:**
To prevent serious injury or death:

▲ Fold only with planter raised and lock channels installed.
▲ Fold only if hydraulics are bled free of air and fully charged with hydraulic oil.
▲ Stay away from frame sections when they are being raised or lowered.
▲ Keep away and keep others away when folding or unfolding planter.
▲ Fold markers onto cradles before folding planter.

**Shut off Fan**
1. Set circuit lever for fertilizer fan to Neutral.

**Set Tractor and Tongue**
2. Raise and move planter to a level area.
3. If tractor movement during folding is not desired, put tractor in Park and/or set parking brake.
4. Fully lower 3-point hitch.

**Raise Planter**
5. Activate circuit lever to extend lift cylinders until planter is fully raised.
6. Set circuit to Neutral to hold at lift.
7. Put tractor in Park and/or set parking brake, and shut off tractor.
Install Lock Channels

Only wing (gauge wheel) lock cylinders need to be installed for transport. The center is adequately supported by the wing hooks and locks when folded.

For servicing, or to hold at lift when unfolded, also install center section lift locks (see page 72)

Refer to Figure 20

8. Remove lift cylinder transport lock channels from their storage positions.
9. Place transport lock channels on lift cylinders located on gauge wheels.

Activate Fold Solenoid Valves

Refer to Figure 21

10. Set Hydraulic Selector Marker/Fold switch to “Fold” ⊙. This opens the solenoid valves for tongue lock, fold cylinders and caster arm cylinders.

Begin Folding

⚠️ DANGER

Crushing Hazard:
Keep all persons away from frame sections during lift and lower. Area under row units is particularly dangerous. Sharp coulter and opener blades descend with hundreds of kilograms of down-force.

11. Extend the fold cylinders and fold the planter until the wing tubes are within a meter or so (a few feet) of the tongue.
Raise Tongue
12. Raise 3-point hitch or hydraulic hitch until wing hooks on tongue clear locks on wings.

Complete Fold
13. Continue or resume folding until the wing locks contact lock plate (under hooks).
14. Set Hydraulic Selector switch ( or in Figure 19 on page 27) to center/off or “Markers”.
   In center/off, the switch disables all solenoid valves for Fold and Markers, locking both systems.

Lower Tongue
15. Lower 3-point hitch or hydraulic tongue until wing hooks rest on wing locks.

Re-phasing Fold System
Over a period of normal use, the cylinders may get out of phase. This is evident by wing gauge wheels not running in their fully rotated positions in front of the planter.
   Planter must be folded to rephase fold system. See “Re-Phase Fold Cylinders” on page 24.

Lock Up Dry Fertilizer Drive
For transport, storage and planting without fertilizing, lock up the fertilizer ground drive.
   Avoid operating the dry fertilizer meter when not applying dry fertilizer.

CAUTION
Sharp Object Hazard:
Be cautious near the ground drive wheel. Wheel tines may be sharp.

The standard dry fertilizer system is driven by a ground contact wheel. When the planter is raised, a hydraulic cylinder extends to raise the dry fertilizer drive wheel arm and wheel out of ground contact. The arm needs to be locked up, or the wheel may slowly lower. A rotating lock arm is provided that manually engages a tube projection on the raised drive arm, or automatically engages when a lowered drive arm is raised.

Refer to Figure 23
Remove the pin holding the lock arm out of engagement, allowing it to swing down. If the planter is lowered, the lock arm engages automatically at next lift.

To disengage the lock arm, it may be necessary to perform a brief lift operation to free the lock arm from the tube projection.
Transporting

The tractor must weigh at least \( \frac{2}{3} \) (67\%) of the planter plus any materials loaded. See table below for typical planter weights. Have your planter weighed if the tractor capability is not clearly above requirements.

Before transporting, follow and check these items:

- Set the tractor 3-point hitch control for depth control operation. If the 3-point hitch control is set for load control, the auto load control response may automatically adjust too high in some circumstances, causing the wing locks to disengage on the road.
- Empty fertilizer hopper, row seed hoppers and treatment hoppers (option), if at all possible.
- The planter can be transported with full hoppers, but the added weight increases stopping distance and decreases maneuverability.
- Transport planter only while in folded position. Refer to “Folding the Planter” on page 28 and make sure cylinder lock channels are in place.
- Warning lights. Always use warning lights when transporting the planter.
- Road rules. Comply with all national, regional, and local safety laws when traveling on public roads.
- Clearance. Remember that the planter may be wider than the tractor. Allow safe clearance.
- Transporting with Markers. Always transport markers in the folded position. Make sure second marker section rests securely on transport carrier.

**Transport Weights**

Planter weight can vary by thousands of kilograms (pounds) depending on configuration and material load. If you are not sure that your tractor weighs at least 150\% of the planter, or that the planter is within the load rating of the tractor, have the planter weighed at a scale.

<table>
<thead>
<tr>
<th>Weights of Planter Configurations</th>
<th>YP1630F -1630NS</th>
<th>YP1630F -1630ND</th>
<th>YP1630F -1630WS</th>
<th>YP1630F -1630WD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum¹ Configuration, Empty</td>
<td>10200 kg</td>
<td>10400 kg</td>
<td>10600 kg</td>
<td>10900 kg</td>
</tr>
<tr>
<td></td>
<td>22500 lbs</td>
<td>23000 lbs</td>
<td>22900 lbs</td>
<td>23900 lbs</td>
</tr>
<tr>
<td>Maximum² Configuration, Full</td>
<td>15900 kg</td>
<td>16800 kg</td>
<td>16400 kg</td>
<td>17200 kg</td>
</tr>
<tr>
<td></td>
<td>35100 lbs</td>
<td>37000 lbs</td>
<td>35500 lbs</td>
<td>37900 lbs</td>
</tr>
</tbody>
</table>

1. No markers.
2. Markers, PTO

---

**WARNING**

*Loss of Control Hazard:*

*Do not exceed 32 km/h (20 mph). Use a tractor rated for the load. Towing the planter at high speeds or with a vehicle that is not heavy enough could lead to loss of vehicle control, resulting in a serious road accident, injury and death.*
Loading Materials

The YP1630F planter has hoppers for two or three materials:

- 1. Standard: 3520 liter (100 bushel) central dry fertilizer hopper. See “Loading Seed” on page 33.
- 2. Standard: 70 liter (2 bushel) seed hopper at each row. See “Loading Fertilizer” on page 35.
- 3. Optional: 40 liter (1 bushel) treatment hopper at each row. See “Loading Treatments (Option)” on page 38.

Loading is more convenient with the planter unfolded and lowered, but may be performed, raised and/or folded.

For Loading All Materials

1. Check tractor capability:
   - If loading prior to transport, ensure that the tractor is rated for the load. Full hoppers can increase the weight of the planter by over 5800 kg (nearly 12,700 pounds).
2. Secure planter:
   - If raised and unfolded, install transport locks (page 29).
   - If raised or folded, block tires or set brakes on any hitched tractor.
3. Turn off planter fan. This eliminates needless blowing dust when filling the fertilizer hopper.

Figure 24
Central Fertilizer Hopper, Row Seed & Treatment Hoppers
Loading Seed

**CAUTION**

**Agricultural Chemical Hazard:**
Read and follow all supplier cautions for safe handling of treated seed.

4. Check that correct meters are installed. See “Exchanging Meters” on page 57.

5. For brush meters, install correct seed plates. See “Installing Brush Meter Plates” on page 60.

6. Use high quality clean seed. Cracked or otherwise damaged seed, and seed fragments, as well as non-seed debris, can clog brushes.

**Refer to Figure 25**

7. Check that hopper is correctly seated and secured: ④ pivot hooks engage at front (not visible in Figure), ⑤ meter clutch engages properly at side, and; ⑥ latch engaged at rear.

8. Remove lid by pulling back and up at rear 7. The lid has a hook at inside center for parking it on the front of the hopper during fill.

9. 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 Unloading and Clean-Out” on page 73.

**Add Seed Lubricant**

10. 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</td>
<td>Graphite</td>
<td>5 ml (1 tsp.)</td>
<td>Top</td>
</tr>
<tr>
<td>Pickup</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brush</td>
<td>Graphite or Talc</td>
<td>5 ml (1 tsp.)</td>
<td>118 ml (1 1/2 cup)</td>
</tr>
</tbody>
</table>

**Refer to Figure 26**

11. Add seed and lubricant:

   - 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.)
   - Fill hopper halfway.
   - Add half the talc. Mix thoroughly.
   - Fill hopper with seed.
   - Add half the talc. Mix thoroughly.

   For ordering, see “Seed Lubricants” on page 106.

**CAUTION**

**Irritation and Chronic Exposure Hazard:**
Wear gloves. DO NOT use hands or any part of your body to mix seed lubricant. Wear a respirator when transferring and mixing. Avoid breathing lubricant dust. Not an acute hazard. May cause mechanical eye or skin irritation in high concentrations. As with all mineral spills, minimize dusting during clean-up. Prolonged inhalation may cause lung injury. Product can become slippery when wet.
12. 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.

**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 29**
To disengage a meter, pull the knob 1 away (left) of the row unit. Rotate the knob until the inner cross-pin 2 is seated in the shallow detents 3 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 29**

1. Latch hopper onto hopper support cross-tube.
2. Check that the roll pin 4 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 5 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 1/16 inch nuts 6 on the flangette. Engage the meter clutch. Align the meter clutch with the meter input shaft. Tighten the nuts 1/16 inch nuts to Grade 5 torque specification.
Loading Fertilizer

Hopper Safety Information

**DANGER**

**Entrapment and Rapid Suffocation Hazard:**
Never enter a hopper for loading, unloading or routine maintenance. Leave strainer in place except when instructed to remove it. Keep lid tightly closed during operations. Keep lid locked closed or, during storage, locked slightly open. Store ladder to discourage access to lid area. Keep children away from planter.

- A hopper that is full, or merely appears full, can be an entrapment hazard. You can sink entirely into the material, or into an oxygen-deficient void, and suffocate in a matter of seconds. Bridges and crusts are especially dangerous.

- When hazardous fumes or low oxygen levels are present, you can be quickly overcome even in an empty hopper with the lid open. There may be no odors to alert you to the hazard.

**CAUTION**

**Blowing Debris and Inhalation Hazards:**
Turn off fan before opening hopper lids. Wear eye protection and dust mask or respirator. The hopper is mildly pressurized and air is circulating in the hopper when the fan is running. Opening a lid with the fan running can expose you to blowing seed, fertilizer and treatment chemicals. Even with the fan off, adding fertilizer creates a dust cloud. Risks include exposure to hazardous chemicals, lung and eye irritation.

**NOTICE**

**Planting Consistency Risk:**
Check lid seals for damage and permanent compression at frequent intervals. Check that latch closes lid tightly. Avoid metering problems caused by air leaks. Air leaks can cause irregular metering of materials.
Swing-Down Rail Section

Refer to Figure 30

If fertilizer will be loaded via auger, from behind the planter, the walkboard handrail height may be reduced for auger tube clearance.

At each side, pull cross-pins 1 out and make 1 & 4 turn. Release pin into shallow detents. Swing railing toward hopper.

Auger height required is:
2.9 m (9 feet 6 inches):

Lid Opening

Keep lid closed. Keep tightly closed for operations. Keep loosely closed for storage. Open only for material loading, hopper clean-out and exceptional maintenance.

Refer to Figure 30

1. Lift handle 2.

Refer to Figure 31 and Figure 32

2. Swing handle 2 out until hook 3 releases from U-bolt.

3. Move hook 3 clear of U-bolt and re-close handle.

Refer to Figure 32

4. Lift lid slightly at pivot end to clear strainer 5.

5. Swing lid away from walkboard. Open only enough to accomplish the present task.

6. Check that the strainer basket 5 is clean and in place.

CAUTION

Do not operate without a strainer:

It is an important safety feature that prevents accidental entry into the hopper. It also prevents larger foreign matter from clogging the meter and air system.

7. Inspect the hopper to ensure that it is empty, and free of foreign matter that could foul the meter.
Prepare Meter Doors

**NOTICE**

**Material and Time Loss Risk:**
Check the doors before loading, every time. If the Clean-Out door is open, even slightly, it will be essentially impossible to close adequately with material loaded.

**Refer to Figure 33**

8. Verify that both doors at the bottom of the central hopper meter are tightly closed. After long storage, they are commonly tied slightly closed, to allow drainage of condensation and to avoid permanently compressing the door seals. The doors must be fully closed for loading and field operations.

If the hopper is empty, Great Plains advises opening both doors, wiping down the meter lips and door seals, then fully closing both doors.

**Load Fertilizer**

Add dry fertilizer to the hopper.

Do not fill above the 3500 L (100 bu.) mark.

Use only granular dry fertilizer.

Do not add liquid treatments.

**Lid Closing**

**Refer to Figure 34**

1. Swing lid over opening until capture hook 2 is centered on U-bolt.

2. Open handle 1 and engage hook 3 on U-bolt.

3. Close handle 1 for operations or short-term parking. For long-term storage, do not engage hook or latch handle, to avoid deforming the seal.

4. For storage, particularly unlatched, a padlock through both U-bolts deters unauthorized lid opening, preventing entry of pests, debris and precipitation.

Close walkboard rail section if opened for auger material loading.
Loading Treatments (Option)

Treatment Compatibility

⚠️ DANGER ⚠️

Agricultural Chemical Hazard:
Follow all chemical supplier precautions for handling treatments. Wear protective equipment prescribed for the current material, and for all previous materials used since last thorough hopper clean-out. Read and follow material label directions. Obtain and retain SDS® information for the present and recent materials. Many treatments are extremely hazardous and can cause disabling or fatal injury.

Refer to Figure 35 (which depicts a bottom view of the meter housing and gate, with gate retainer removed for clarity)

Flow rate is controlled by a tapered opening 1 in the adjustable gate 2.

Use only granular materials that flow easily and which have a maximum particle dimension smaller than:
- 4.8 mm (0.19 inch, 3/16 inch) maximum dimension. Materials larger than this cannot pass through the slot 3 in the meter housing, at any meter setting.
- Materials with a maximum particle dimension of:
  - 1.4 mm (0.59 inch, 3/64 inch) or less can flow at meter setting 5 and above.
  - Materials from 1.4 mm to 4.8 mm (3/64 inch to 3/16 inch) diameter have some lower gate setting limit at which they flow. The material rate goes to zero before reaching meter setting 10.

Inspect Hoppers

Refer to Figure 36

Remove the hopper lid by pulling to the rear 4 and up at the rear of the hopper. Lid operation is similar to the seed hopper, described on page 33.

Inspect the treatment hoppers to ensure that they are clean and empty. If it is necessary to remove them, see “Treatment Unloading and Clean-Out (Option)” on page 80.

Set Meters to Zero

Prior to loading material set the treatment meter rate adjustment knob 5 to a reading of “00”.

Load Treatment

Load hoppers. Secure lids.

Material Loss and Environmental Risks:
Set treatment meters to 00 (closed) to avoid material loss. Material can flow through an open meter gate even when parked. Transport vibration increases the loss rate. Material distribution must conform to product label requirements.
Treatment Drive Clutch

Treatment Meter Clutch Disengagement

The treatment meter may be disengaged from the drive system, as required in several situations, for example:

- hopper removal for clean-out or maintenance
- treatment not being applied while seeding
- seed meter calibration

Refer to Figure 37

To disengage a meter, pull the knob 1 away (left) of the row unit. Rotate the knob until the inner cross-pin 2 is seated in the shallow detents 3 of the hub.

Meter Shaft Alignment

The treatment 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 38

1. Latch hopper onto hopper support cross-tube.
2. Check that the roll pin 4 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 5 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 5 * 16 inch nuts 6 on the flangette. Engage the meter clutch. Align the meter clutch with the meter input shaft. Tighten the 5 * 16 inch nuts to Grade 5 torque specification.

Disabling Unused Drives

To reduce wear on unused components, the various drive systems can be disabled at various scales. Circumstances which call for this include:

- Calibration (testing one system while avoiding material loss at others)
- Seeding without application of fertilizer and/or treatments
• Fertilizer and/or treatment application without seeding.

<table>
<thead>
<tr>
<th>Drive System to Disable</th>
<th>Entire Planter</th>
<th>Rows to Disable</th>
<th>One or More Rows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seeding (leaving Treatment enabled)</td>
<td>Disengage all seed meter clutches (page 34)</td>
<td>Disengage selected seed meter clutches</td>
<td>Disengage selected seed meter clutches</td>
</tr>
<tr>
<td>Seeding and Treatment</td>
<td>Lock up both wing ground drives (below)</td>
<td>Lock up wing ground drive (below)</td>
<td>Disengage selected seed meter and treatment clutches</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>Lock up the ground drive (page 40)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment (Option)</td>
<td>Disengage selected treatment clutches (page 39)</td>
<td>Disengage selected treatment clutches</td>
<td>Disengage selected treatment clutches</td>
</tr>
</tbody>
</table>

Wing Drive Lockup

![Wing Drive Lockup Hook](image)

**CAUTION**

**Crushing and Sharp Object Hazard:**
This is a two person operation. Wear gloves. Keep legs and feet out from under the ground drive wheel. If a grip is lost, the ground drive wheel will snap down with considerable force. Be careful around the drive wheel teeth. They may be sharp.

**Refer to Figure 39**

To prevent drive operation when the planter is lowered:
1. Move the planter to field conditions. Unfold and lower.
2. At each wing, lift the ground drive arm at the handle provided.
3. Swing down the hook and engage the wheel rim.
4. Lower the wheel into engagement with the hook.

**Fertilizer Drive Lockup**

See “Lock Up Dry Fertilizer Drive” on page 30.

---

**Field Setup Checklist**

Use the following checklist as a guide to ensure the planter is properly setup before using.

<table>
<thead>
<tr>
<th>ELECTRICAL</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ All connections made.</td>
<td>20</td>
</tr>
<tr>
<td>☐ Check all lights.</td>
<td></td>
</tr>
<tr>
<td>☐ Power up monitor. Watch for diagnostics.</td>
<td>PM400</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HYDRAULIC</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Tractor reservoir full.</td>
<td>19</td>
</tr>
<tr>
<td>☐ All hydraulic circuits connected.</td>
<td>19</td>
</tr>
<tr>
<td>☐ Fan direction and pressure.</td>
<td>42</td>
</tr>
<tr>
<td>☐ Raise tongue. Lift planter.</td>
<td>19</td>
</tr>
<tr>
<td>☐ Begin unfold.</td>
<td>23</td>
</tr>
</tbody>
</table>
Monitor Operation

For monitor operation in the field, refer to the DICKEY-john® PM400 Console Manual manual supplied with this unit, and the Seed Rate manual.
Fan General Operating Information

Dry fertilizer metering rate is set by the variable rate gear box; however, the fan must be set to provide sufficient manifold pressure to deliver the metered material from the airbox to the rows.

Starting Fan

Use tractor remote hydraulic valve flow control to set fan speed. Always start the fan with a low flow setting.

Monitor fan output with the Magnehelic® pressure gauge. Gradually bring fan up to the pressure recommended for your rate. Normal readings are in the 15 inches to 30 inches of water (H2O) range, and vary with material properties and application rate.

At excessive rpm, too much air flow can cause:

- fertilizer to plug the air box
- oil heating
- slow lift times
- fan motor damage, over 5000 rpm

If desired pressure cannot be reached, chances are the fan is running backwards. Reverse the inlet/return lines at the hitch.

If air system does not operate suitably at suggested pressures, see “Fertilizer Delivery Troubleshooting” on page 67.

Stopping Fan

Move circuit level to Neutral, or slowly reduce rate to zero.

<table>
<thead>
<tr>
<th>Manifold Pressure (Inches H2O)</th>
<th>Application Rate (kg/ha)</th>
<th>Approximate Fan Speed (rpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.0</td>
<td>170</td>
<td>3500</td>
</tr>
<tr>
<td>15.8</td>
<td>200</td>
<td>3600</td>
</tr>
<tr>
<td>17.9</td>
<td>250</td>
<td>3800</td>
</tr>
<tr>
<td>20.4</td>
<td>300</td>
<td>4000</td>
</tr>
<tr>
<td>23.4</td>
<td>350</td>
<td>4300</td>
</tr>
<tr>
<td>26.6</td>
<td>400</td>
<td>4700</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Manifold Pressure (Inches H2O)</th>
<th>Application Rate (pounds/acre)</th>
<th>Approximate Fan Speed (rpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.0</td>
<td>150</td>
<td>3500</td>
</tr>
<tr>
<td>16.7</td>
<td>200</td>
<td>3700</td>
</tr>
<tr>
<td>19.4</td>
<td>250</td>
<td>3900</td>
</tr>
<tr>
<td>22.5</td>
<td>300</td>
<td>4300</td>
</tr>
<tr>
<td>26.1</td>
<td>350</td>
<td>4600</td>
</tr>
<tr>
<td>30.0</td>
<td>400</td>
<td>5000</td>
</tr>
</tbody>
</table>

**NOTICE**

**Equipment Damage Risk:**

Make only gradual changes to fan hydraulic flow (other than shifting to Neutral). Fan impeller inertia and momentum can cause pressure spikes in the motor in response to abrupt changes. This can cause motor seal damage.

Do not operate fan above 5000 rpm (30 inches on gauge).

Marker Operation

**DANGER**

**Electrocution Hazard:**

Check for overhead lines before operating markers. If a marker contacts an electrical line, all metal parts of the planter and tractor can have lethal voltages present. There may be no indication of this condition until a person completes the circuit to ground. At higher voltages, electrocution can occur without direct contact.
Before operating markers, make sure they are properly bled as described in “Bleeding Hydraulics” on page 93.

For markers to operate, the marker hydraulic circuit must be enabled:

Refer to Figure 40

1. At the Hydraulic Selector switch, push the rocker to “MARKER” . Leave this switch in “MARKER” position for all field operations.

The markers are equipped with a sequence valve to control the lift sequence. Starting with both markers up, the sequence is:

1. Activate tractor hydraulic lever; right marker lowers while left marker stays up.
2. Reverse hydraulic lever; right marker raises while left marker stays up.
3. Activate hydraulic lever; left marker lowers while right marker stays up.
4. Reverse hydraulic lever; left marker raises while right marker stays up.
5. Pattern repeats.

Folding speed of dual markers is adjusted with adjustment screws on sequence valve body. Because excessive folding speed may damage markers, adjust markers to a safe folding speed according to “Marker Adjustments” on page 49.

To get both markers in the lowered position at the same time, activate hydraulic lever to lower one marker. After marker is lowered, move lever to opposite position then quickly reverse lever and hold until other marker is lowered.
Field Operation

Perform all steps in “Pre-Start Checklist” on page 22 and “Field Setup Checklist” on page 40.

SRM: Seed Rate Manual (SRM), or DICKEY-john® PM400 Console Manual

Use Depth Control mode. If the tractor 3-point hitch control is set for Load Control, hitch movement may cause changes in row unit depth resulting in uneven depth control.

First Pass Operation Checklist

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Set planting rate.</td>
<td>SRM</td>
</tr>
<tr>
<td>2. Unfold marker on next-row side.</td>
<td>42</td>
</tr>
<tr>
<td>3. With tractor at high idle, set fan hydraulic circuit to low flow, engage circuit. Gradually adjust fan hydraulic flow to obtain recommended pressure</td>
<td>42</td>
</tr>
<tr>
<td>4. Pull forward, lower planter, and begin planting for a short distance.</td>
<td></td>
</tr>
<tr>
<td>5. Stop. Assess: planting depth, skips or doubles, seed spacing (to verify population), press wheel operation and fertilizer and/or treatment application (if in use)</td>
<td></td>
</tr>
<tr>
<td>6. Continue planting for at least 10 seconds (so that the seed monitor is reporting a stable population number). Verify that it is your desired rate.</td>
<td>47</td>
</tr>
<tr>
<td>7. Make necessary adjustments</td>
<td>47</td>
</tr>
</tbody>
</table>

Sharp Field Turns Checklist

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fold marker</td>
<td>42</td>
</tr>
<tr>
<td>2. Raise planter</td>
<td>27</td>
</tr>
<tr>
<td>3. Make turn</td>
<td></td>
</tr>
<tr>
<td>4. Lower planter</td>
<td>27</td>
</tr>
<tr>
<td>5. Unfold marker on next-row side.</td>
<td>42</td>
</tr>
<tr>
<td>6. Resume planting.</td>
<td></td>
</tr>
</tbody>
</table>

Suspending Planting Checklist

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Stop tractor</td>
<td></td>
</tr>
<tr>
<td>2. Fan hydraulic circuit to Float or Neutral</td>
<td>42</td>
</tr>
<tr>
<td>3. Fold Marker</td>
<td>42</td>
</tr>
<tr>
<td>4. Raise planter</td>
<td>27</td>
</tr>
</tbody>
</table>

Ending Planting Checklist

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Suspend operations as above, then</td>
<td></td>
</tr>
<tr>
<td>2. Fold planter</td>
<td>28</td>
</tr>
<tr>
<td>3. Install transport locks</td>
<td>29</td>
</tr>
<tr>
<td>4. Lights ON</td>
<td>-</td>
</tr>
<tr>
<td>5. Transport</td>
<td>31</td>
</tr>
</tbody>
</table>
Parking

For information on long-term storage, see “Storage” on page 46.

1. Fold planter. See “Folding the Planter” on page 28.
   - Install cylinder lookup channels. Failure to do so may result in injury and/or damage to the planter.
2. Park planter on a level, solid area.
3. To prevent rolling, block tires securely.
4. If treatment hoppers contain materials, set meter adjustment knobs to “00”.

Roll-Away Hazard:
DO NOT unhitch planter while on a slope. Always block tires when unhitching from tractor. There is not enough weight on parking stand(s) to anchor planter on a slope.

Refer to Figure 41

5. Remove pin 1 holding main parking stand 2 in “UP” position. Swing stand down. Pin stand in parking position. If the ground is soft, place a board or plate under the stand.
6. Remove wire snap lock pin 3 from innermost hole on park stand mount, or remove both pins if stand 4 was inverted. Swing support stand from underneath crossbar weldment, or invert to foot down.
7. Secure 3-point prop stands by using two pins on each stand.
8. Lower tractor 3-point until planter is resting on parking stand.
9. Set all implement hydraulic circuits to Float to relieve pressure in lines.
10. Shut down hydraulics. Unplug hydraulic lines from tractor. Do not allow hose ends to rest on the ground.
11. Unplug planter light cable from tractor.
12. Unplug monitor harness from console.
13. 3-point: Unhook tractor from planter hitch.
Storage

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

1. If the treatment hoppers were used, clean them out first, as this may need to be done at a specific location and with special protective equipment. Follow the material supplier instructions and the instructions on page 80.

2. If the dry fertilizer hopper was used, perform a hopper and air system clean-out. See page 75.

3. Clean out the seed meters and seed hoppers. See page 73.

4. If the planter has brush meters, remove the seed plates from the meters (this is primarily to relieve pressure on brushes). Clean disks of residue build-up (see Caution at right). Use mild soap, non-abrasive scrubbers, and hot or warm water. If using sealed storage, dry disks prior to storage.

5. Secure meters against pest entry.

6. Remove any dirt and debris that can hold moisture and cause corrosion.

7. Lubricate and adjust all roller chains.

8. Smear grease on exposed cylinder rods to prevent rust. Add a brightly-colored tag at the hitch as a reminder to de-grease the rods prior to next use (to avoid any risk that congealed grease might damage seals).

9. See “Lubrication” on page 98, for lubrication information.

10. Inspect planter for worn or damaged parts. Make repairs and service during off season.

11. Use spray paint to cover scratches, chips, and worn areas on the planter to protect the metal.

12. Cover planter with a tarp if stored outside.

Possible Chemical Hazard:
Brush meter seed plates will have talc and graphite residue, and may have residues of hazardous seed treatments. Do not wash plates where food is prepared, or where cookware or dinnerware is washed. Wear gloves when washing plates. Avoid spray. Do not wash plates at a sink also used for food cookware or dinnerware.
Adjustments

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

Even if your planting conditions rarely change, some 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>Tongue Height</td>
<td>19</td>
<td>Correct draft load to tractor</td>
</tr>
<tr>
<td>Frame Leveling</td>
<td>124</td>
<td>Planting consistency</td>
</tr>
<tr>
<td>Wing Alignment</td>
<td>125</td>
<td>Correct and consistent row tracking</td>
</tr>
<tr>
<td>Fan Speed</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>Materials Rates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seed</td>
<td>SRMa</td>
<td>Refer to Planter Seed Rate Manual</td>
</tr>
<tr>
<td>Dry Fertilizer</td>
<td>SRMa</td>
<td>Refer to Planter Seed Rate Manual</td>
</tr>
<tr>
<td>Treatment (Option)</td>
<td>SRMa</td>
<td>Refer to Planter Seed Rate Manual</td>
</tr>
<tr>
<td>Marker Adjustments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marker Extension</td>
<td>126</td>
<td>Swath alignment</td>
</tr>
<tr>
<td>Disk Angle and Orientation</td>
<td>49</td>
<td>Visibility of mark</td>
</tr>
<tr>
<td>Marker Speed Adjustment</td>
<td>49</td>
<td>Reliable marker operation</td>
</tr>
<tr>
<td>Frame-Mounted Row Accessories (Options)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coulters</td>
<td>50</td>
<td>Row pre-furrow depth and trash cutting</td>
</tr>
<tr>
<td>Vantage I Fertilizer Delivery</td>
<td>50</td>
<td>Fertilizer placement</td>
</tr>
<tr>
<td>30 Series Row Unit Adjustments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Row Unit Down Pressure</td>
<td>52</td>
<td>Planting depth uniformity</td>
</tr>
<tr>
<td>Row-Unit Opener Adjustments</td>
<td>53</td>
<td>Seed depth, spacing, coverage</td>
</tr>
<tr>
<td>Side Depth Wheels</td>
<td>54</td>
<td>Seed depth</td>
</tr>
<tr>
<td>Adjusting Gauge Wheel Scrapers</td>
<td>55</td>
<td>Consistent seed furrow depth</td>
</tr>
<tr>
<td>Seed Meter Setup and Adjustment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exchanging Meters</td>
<td>57</td>
<td>Switching between Com/Sunflower &amp; other seeds</td>
</tr>
<tr>
<td>Finger Pick-Up Meter Adjustment</td>
<td>58</td>
<td>Consistent seed population</td>
</tr>
<tr>
<td>Exchanging Finger Sets</td>
<td>85</td>
<td>Switching between corn and sunflower</td>
</tr>
<tr>
<td>Brush Meter Adjustment</td>
<td>60</td>
<td>Consistent seed population</td>
</tr>
<tr>
<td>Seed Firmer Adjustments (Option)</td>
<td>61</td>
<td>Seed-soil contact</td>
</tr>
<tr>
<td>Press Wheel Adjustment</td>
<td>62</td>
<td>Effective soil coverage</td>
</tr>
<tr>
<td>Monitor Adjustments</td>
<td>PM400</td>
<td>Refer to Seed Monitor manual</td>
</tr>
</tbody>
</table>

a. SRM: Seed Rate Manual (401-832B)
Setting Material Rates

*Refer to Figure 42*

The YP1630F has three ground drive systems (1, 2, 3) and three metering systems. Two of the metering systems share a drive system. Details for rate settings, and rate charts, are found in the Seed Rate Manual (401-832B). This page provides an overview of the systems.

**Planting (Seed) Rate**

Seed rate is controlled by Range and Transmission sprocket pairings (4, 5) on each of two separate wing ground drive systems (1, 2) and seed meter setup at each row (6, hidden by hopper). The seed monitor console reports field rates for most seed types.

**Dry Fertilizer Rate**

Fertilizer rate from the central hopper is controlled by a variable rate gear box 7 under the left side of the hopper. The associated ground drive 3, under the right side, has no adjustments. Fertilizer is delivered by the air system, with blockage detection at the rows. The air system must be adjusted to optimal pressure, but does not adjust rate.

**Treatment Rate (Option)**

Planters with the optional second row hopper can deliver a variety of granular materials with this system. Rate is controlled by a knob and dial 8 at each row. The treatment meters have an agitator roller which shares the seed drive system, but changes in seed rate sprockets have only a minor effect on treatment rate.
Marker Adjustments

See also:
"Marker Extension" on page 126 and,
"Marker Maintenance" on page 94.

⚠️ WARNING

Pinch, Crush and Sharp Object Hazards:
Never allow anyone near the planter when folding or unfolding the markers. You may be injured if caught or struck by a folding or unfolding marker. Markers may fall quickly and unexpectedly if the hydraulics fail.

Dual Marker Speed Adjustment

Refer to Figure 43

Adjust folding speed for dual markers with hex adjustment screws on sequence valve body. There is an adjustment screw for raising speed ① and one for lowering speed ②. You can identify adjustment screws by markings stamped in the valve body.

Turn adjustment screws clockwise to decrease folding speed and counterclockwise to increase folding speed. With tractor idling at normal operating speed, adjust marker folding to a safe speed. Excessive folding speed could damage markers and void the warranty.

After adjusting folding speed, tighten jam nuts on hex adjustment screws to hold settings.

Marker Disk Adjustment

⚠️ CAUTION

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

Refer to Figure 44

To change angle of cut, and the width of the mark, loosen ① 2-inch bolts ⑥ holding disk assembly.

For a wider mark (W), increase the angle of the marker with respect to the tube ③. For a narrower mark (N), reduce the angle.

You can also invert the disk blade on the hub to change the direction of throw.

Tighten bolts ⑥.

The direction of travel (T) tends to drive the disk angle to Wide. If bolts are not tight enough, or loosen over time, the disk will slip into the Wide mark configuration.
Row Implement Adjustments
To get full performance from your planter, you need a good understanding of row cleaner, coulter, fertilizer, opener, meter, seed firmer, and press wheel operation.

Frame-Mounted Row Accessories
Frame-Mounted Coulters
Refer to Figure 45
At the shaft ①, adjust the coulter depth for a running depth ② of 10.2 to 11.4 cm (4 to 4 1/2 inches) below ground level. Refer to the Vantage I manual (204-376M) for further adjustments.
Do not adjust the spring ④ tension. It is factory pre-set.

Dry Fertilizer Applicator Adjustments
There are two inter-related adjustment for applicators:
1. Release height
2. Release angle
Make coulter adjustments before making applicator adjustments.

Applicator Release Height
The primary adjustment for release height is the lower four (of six) holes ⑤ at the rear end of the applicator arm. Re-position the applicator mounting bolt to any of the lower four hole. Before tightening the nut, make sure the torsion spring leg ⑥ is also in an arm hole.

NOTICE
Machine Damage Risk:
Do not position the applicator mounting bolt in either of the top two holes. This would leave the torsion spring leg unsecured. The applicator angle could vary. The applicator might strike the coulter disk.
A secondary adjustment for release height is to loosen the clamping bolts ⑦, and slide the applicator arm up or down the coulter arm.

NOTICE
Machine Damage Risk:
Be sure to leave at least 13 mm (1/2 inch) clearance between the applicator torsion spring and the coulter disk. If the clearance is too small, the spring could strike the coulter disk when it snaps forward after striking field obstructions.
30 Series Row-Unit Adjustments

Refer to Figure 47, which depicts a 30 Series dual row unit populated with most options supported on the YP1630F (excepting scrapers and seed firmer, not visible)

1. **Down-Pressure Spring** (Standard)
   Row units are mounted on parallel arms. This parallel-action mounting allows the row-unit to move up and down while staying horizontal. Standard or optional heavy duty springs add an adjustable force to the row weight, set by the T-handle. See “Row Unit Down Pressure” on page 52.

2. **Opener Discs** (Standard)
   Row-unit double disc openers create the seedbed furrow. They have adjustments for angle and spacing. See “Row-Unit Opener Disc Adjustments” on page 53.

3. **Unit-Mount Coulter** (Option)
   Coulters, with a choice of blades, cut trash and begin opening the seed furrow. Working depth is set by row depth and a mounting hole selection. See “Unit-Mounted Coulter Adjustments” on page 53.

4. **Seed Meter** (Standard, Multiple Choices)
   Pickup meters (6- or 12-finger) and brush meters (multiple seed plates) are available, and mount to the bottom of the forward (seed) hopper. See “Seed Meter Adjustments” on page 58.

5. **Seed Meter Coupler** (Standard)
   This knob disconnects the seed meter from the drive system, for clean-out, calibration and treatment setup. See “Meter Drive Adjustments” on page 89.

6. **Side Gauge Wheel Depth** (Standard)
   The T-handle sets planting depth by controlling the height of the side gauge wheels relative to the opener discs. See “Side Gauge Wheel Adjustments” on page 54.

7. **Seed Firmers** (Seed Flap Standard, not shown)
   An optional seed firmer (Keeton® shown) minimizes seed bounce and improves soil contact. It may also deliver fertilizer. See “Seed Firmer Adjustments” on page 61.

8. **Scrapers** (Optional, not shown)
   Inside scrapers require no adjustment. For gauge wheel scrapers, see “Adjusting Gauge Wheel Scrapers” on page 55.

9. **Press Wheel Force, Angle, Stagger** (Standard)
   The press wheels close the furrow, gently pressing the soil over the seed to ensure good seed to soil contact for even emergence. See “Press Wheel Adjustments” on page 62.

10. **Press Wheel Type** (Choice)
    A variety of single and dual press wheel assemblies are available, some region-specific. Consult your Great Plains dealer.

11. **Treatment Meter** (Option)
    This meter, under the optional rear hopper, controls application insecticide, pesticide and similar granular materials. See Seed Rate Manual.

12. **Treatment Drive Coupler** (Standard w/Treatment)
    This coupler disconnects the treatment meter from the row drive system, for clean-out, calibration, and when not applying treatments. Adjustment is same as seed driver coupler (page 89).
Row Unit Down Pressure

Row unit springs provide the primary control of 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 optional unit-mount coulters, and provide the primary down force for press wheels. Heavy-duty springs (page 106) are optional.

The total down pressure also includes the weight of the empty row unit, and the weight of materials loaded. Use half full hoppers when optimizing your settings.

Refer to Figure 48

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.

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.

The ideal amount of down-force causes the side gauge wheels to compress any loose surface soil, but not press a trench into subsoil.

To assess down-force, operate the planter for a short distance on typical ground (with or without seeding), and stop. Leave the planter lowered (row units in ground).

At several row units, inspect the furrow created by the opener discs, but prior to furrow closing by the press wheels.

Refer to Figure 49

1. If the side gauge wheels are leaving no tracks, or light tracks, increase down-force.
2. If the wheels are compressing trash and loose soil, and leaving clear tracks right at the top of the subsoil, down-force is probably correct and needs no adjustment.
3. If the wheels are creating a trench into the subsoil, down-force is too high and needs to be reduced.

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.

The ideal amount of down-force causes the side gauge wheels to compress any loose surface soil, but not press a trench into subsoil.

To assess down-force, operate the planter for a short distance on typical ground (with or without seeding), and stop. Leave the planter lowered (row units in ground).

At several row units, inspect the furrow created by the opener discs, but prior to furrow closing by the press wheels.

Refer to Figure 49

1. If the side gauge wheels are leaving no tracks, or light tracks, increase down-force.
2. If the wheels are compressing trash and loose soil, and leaving clear tracks right at the top of the subsoil, down-force is probably correct and needs no adjustment.
3. If the wheels are creating a trench into the subsoil, down-force is too high and needs to be reduced.

Light or no side gauge wheel tracks  Insufficient down-force
Gauge wheels compress loose soil only  Ideal
Side gauge wheels making deep tracks  Down-force too high

Do not set all rows higher than hole set four. Using high settings across all rows causes uneven planting. Individual rows may be set higher if running in tire tracks.

Inspect rows both in and out of tire tracks.
Unit-Mounted Coulter Adjustments

Optional conservation coulters allow the row unit to penetrate tough ground conditions. Adjust coulters to run at the same depth as, or slightly deeper than the opener discs. Coulter (and opener) blades wear with time, and may need adjusting.

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 adjustment. Be careful around the front end of row units. Coulter blades may be sharp.

Refer to Figure 50

To adjust coulter depth, loosen the three 3/4 inch jam nuts (7) and three 3/4 x 3 inch hex bolt (8).

By turning cam stud (9), rotate cam casting to the desired height. Each scale notch represents about 6 mm (1/4 inch) of depth.

Tighten bolt and jam nut to values recommended on “Torque Values Chart” on page 120.

Refer to Figure 51

The coulter disc (4) must be aligned with the opener disc (5). If it is not, loosen the mounting bolts (6) to adjust.

Row-Unit Opener Disc Adjustments

30 Series openers have three adjustments:

1. planting/seed depth
2. opener disc to disc clearance (page 54)
3. gauge wheel/opener disc clearance (page 54)

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 discs. The position of the seed tube itself is fixed relative to the discs, 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.
Opener Disc Contact Region

*Refer to Figure 52*

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

The ideal spacing causes the blades to be in contact for about one inch $\widehat{1}$. If you insert two pieces of paper between the blades, they should slide to within zero (touching) to 3.8 cm (1.5 inches) of each other. If touching, the gap between the blades should not be significantly greater than the thickness of two sheets of paper.

If the contact region is significantly larger or there is a large gap, it needs to be adjusted by moving one or more spacer washers.

**Adjusting Disc Contact**

*Refer to Figure 52 and Figure 53*

1. Raise the planter and install lift cylinder locks.
2. Remove the side gauge wheels $\widehat{2}$ on the row unit in need of adjustment.
3. Remove the bolt $\widehat{3}$ retaining the opener disc $\widehat{4}$ on one side. Carefully remove the disc. Do not lose the hub components and spacer washers $\widehat{5}$, $\widehat{6}$.
4. To reduce the spacing between the discs (the normal case), move one spacer washer from the inside $\widehat{5}$ to the outside $\widehat{6}$ of the disc.
5. Re-assemble and check disc contact.

**Side Gauge Wheel Adjustments**

*Refer to Figure 54*

The side gauge wheels have two, interrelated adjustments:
- angle of side gauge wheel, and
- distance between side gauge wheels and discs.

*Refer to Figure 55*

Adjust side-gauge-wheel angle so wheels contact row-unit discs at the bottom of wheel at 2 in planting depth and gaps open 9.5 to 16 mm ($\frac{3}{8}$ to $\frac{5}{8}$ inches) at top. Check with row-units in soil so wheels are held up.

At the same time, keep side gauge wheels close to opener discs so openers do not plug with soil or trash. However, wheels should be out far enough so discs and wheels turn freely.
Refer to Figure 56
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 5 o’clock to 7 o’clock.
   - Use this as the starting point for adjustment.
4. Move wheel arm in so side gauge wheel contacts row unit disc. Tighten hex-head bolt ① to clamp arm around bushing and shank.
5. Check wheel-to-disc contact at 5 cm (2 inches) planting depth. Lift wheel 5 cm (2 inches) and release. When let go, wheel should fall freely.
   - If wheel does not contact disc at bottom to area where blade leaves contact with soil, move hex adjuster until wheel is angared for proper contact with disc.
   - 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 per grade:
     1. 2 inch Grade 5 bolt, 105 N-m (76 foot-pounds).
     2. 2 inch Grade 8 bolt, 150 N-m (110 foot-pounds).
6. Keep turning hex adjuster and moving wheel arm until the wheel is adjusted properly. When satisfied, tighten pivot bolt ② to 150 N-m (110 foot-pounds).
   - Use “Torque Values Chart” on page 120 for reference.

Adjusting Gauge Wheel Scrapers
Refer to Figure 57
Scrapers are optional, and may be useful in moist or sticky soils that tend to accumulate on gauge wheels and reduce intended planting depth.
To adjust scrapers:

1. Loosen nut ⑤.
2. Slide scraper ⑥ toward gauge wheel ⑦ until scraper touches tire.
3. Slide scraper ⑥ away from wheel ⑦ leaving a ⑥ 8 inch (3 mm) gap at ⑧.
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 ⑤ until gap ⑧ is constant.
6. Tighten nut ⑤.
Seed Meter Setup and Adjustment

Your YP1630F was originally supplied with a choice of 6-finger pickup meter, 12-finger pickup meter or brush meter.

To change meters, see “Exchanging Meters” on page 57.

- The finger pick up meter has an adjustable brush, and alternate inserts are available for the backing plate.
- The brush meter accepts a selection of seed plates.

Regardless of meter, optimum planting speed is 7.2 to 8 km/h (4.1 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.

Refer to Figure 58 and Figure 59

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.

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

1. Disengage meter clutch (see page 34).
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.
Exchanging Meters

These steps are only for changing between types of meters. Changing brush meter seed plates (page 60) 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 60**

1. Remove and empty the seed hopper (page 73). Put the lid back on to capture any bolts that fall away.
2. Remove two nuts washers and the meter.
3. Install new meter. Tighten 5 16-18 nuts to Grade 2 torque specification. Do not over-tighten, or you may damage the hopper. Reinstall the hopper (page 34).
4. Clean and dry removed meters. See "Finger Pickup Meter Maintenance" on page 82.
5. Store removed meters in pest-proof containers, such as plastic bags.

![Figure 60 Removing Meter](image)
Seed Meter Adjustments

Finger Meter Adjustments

Brush meter adjustments begins on page 60.

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.

Refer to Figure 61

The adjustable brush provides additional flexibility to accommodate a wide range of seed sizes. Use lever \( \L \) 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 62

The backing plate is equipped with an “A” insert for Corn, and a “C” insert for Sunflower. In tests, these inserts provide the best performance in most seed sizes. However, there are alternate 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 85 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.

<table>
<thead>
<tr>
<th>Finger Pickup Configurations for Sunflower</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Meter Component</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Finger Set</strong></td>
</tr>
<tr>
<td><strong>Backing Plate</strong></td>
</tr>
<tr>
<td><strong>Brush Block</strong></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.
Brush Meter Adjustments
Finger meter adjustments begins on page 58.

Installing Brush Meter Plates
A selection of seed plates are available for the brush meter (see “Seed Plates” on page 108). 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 16 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 108.

2. If seed is already loaded, see “Seed Unloading and Clean-Out” on page 73.

3. If changing from finger pickup to brush meter, see “Exchanging Meters” on page 57.

Refer to Figure 63

4. Uncouple the meter drive (page 34), release the hopper latch (page 73), 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 64

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 65

7. With the seed plate removed, clean any debris from inside the meter, and inspect the condition of the brushes ③ and wear strip ④. See page 90.

8. Select a new plate ⑤. Inspect the cells for any damage, and make sure the inside surface is clean, so that it will seat full on the disc hub ⑥.

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.
Seed Firmer Adjustments

30 Series row units accept one of two optional firmers.

Keeton® Seed Firmer Adjustment

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

Refer to Figure 66

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

Measure the distance from the ground to the head of the tension screw. This distance should be 10.2 to 11.4cm (4 to 4 1/2 inches). If not, loosen the bolts in the mounting bracket and select different holes until the proper measurement is attained.

Seed-Lok® Seed Firmer Lock-Up

Optional Seed-Lok® firming wheels provide additional seed-to-soil contact. The wheels are spring loaded and require no adjustment. In some wet and sticky conditions the wheels may accumulate soil. To avoid problems associated with this, you can lock-up the firmers.

Refer to Figure 67 (which depicts a similar 25AP row unit with discs, side depth wheels/arms and press wheels removed for illustrative purposes - lock/unlock requires no removal)

To lock up Seed-Lok® wheels:
1. Raise planter. Insert lift assist cylinder locks.
2. Lift Seed-Lok® lock-up handle ① until lever stop ② is free to rotate.
3. Rotate lever stop to side/idle position ③. Release lock-up handle ①.
4. Push up on Seed-Lok® wheel ④ until wheel arm latches up ⑤.

To release a locked-up Seed-Lok®:
1. Insert a 1 1/4 in tool drive tip in the tool hole ⑥ of the handle ①. Alternatively, lift up on the wheel ④.
2. Rotate the handle clockwise (handle arm up) until the Seed-Lok® wheel releases at the latch point ⑤ and falls free.
3. While holding the handle up, rotate the raised portion of the lever stop ② under both sides ② of the handle at the arm end. Remove the tool.

Sharp Objects Hazard:
Row unit disc blades may be sharp. Use caution when making adjustments. To adjust the Keeton® Firmer, lower the planter until the discs of the row units are resting on the ground.

Engage the lever stop under the handle ② when Seed-Lok® is in use. If left disengaged ③, a furrow obstruction could cause unintended lock-up.
Press Wheel Adjustments

The press wheels close the furrow, gently pressing the soil over the seed to ensure good seed-to-soil contact for even emergence. 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 68

There are three adjustments available on the press wheel assembly:

1. Down pressure (below)
2. Centering (page 62)
3. Wheel stagger (page 63)
   or angle (page 63)

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.

 Higher press wheel down pressures reduce the down force on the main row unit shank components, such as the openers. High settings may require an increase in overall row unit down force. See page 52.

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 69

1. Determine how far, and in which direction, the press wheel assembly needs to move to center the wheels.
2. Raise planter and install gauge wheel and mainframe lift cylinder locks. See “Raising Planter” on page 27 and See “Install Lock Channels” on page 29.
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.
   Do not loosen any bolts forward of the aft two 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.
Press Wheel Stagger

Refer to Figure 70

Press wheel assemblies other than “cast, adjustable” have two threaded holes in the mount 4 for the wheel bolt 6.

Although staggered press wheel assemblies use the same weldment as angle-adjustable assemblies (below), the two hole staggered mount 4 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 “Install Lock Channels” on page 29 and “Frame Lift Cylinder Locks” on page 72.
2. Remove the bolt 5, spacers 6, and lock-washer 7 for the left press wheel 8.
3. Move the wheel to the alternate of the two mounting holes.
4. Re-install the bolt, lock washer and spacers. Tighten.

Press Wheel Angle

Tight soil may require the need to drag/plow the trench closed. The factory setting on press wheel assemblies with cast wheels is 4. (maximum plow). If the conditions in your region appear to require less plow, there are two additional settings: 2. (less plow) and 0. (no plow). To change the plow setting:

Refer to Figure 71

1. Raise planter and install lift assist cylinder locks. See “Install Lock Channels” on page 29 and “Frame Lift Cylinder Locks” on page 72.
2. Remove the bolt 1, lock-washer 2 and spacers 3 for the press wheel 9.
3. Remove bolt 4, flat washer 5 and hex nut 6 for casting 7.
4. Place a 19 mm (3/4 inch) open end wrench on tab 7 of casting. Rotate casting until the desired angle setting (4, 2, or 0) hole lines up with a hole on the press wheel mount weldment 8 (only one set of holes will line up for each setting).
5. With holes lined up replace casting bolt 4 and flat washer 5. Secure with hex nut 6.

If press wheel adjustments do not provide satisfactory furrow closing, your conditions may require alternate press wheels. A variety of wheel assemblies are available. Consult your Great Plains dealer.
**Planting Rate Problems**

When starting up with a new planter, a new crop or a new population it is important to physically double check what the monitor is reporting in the cab by digging seeds. This is to verify that you are set up correctly to plant the desired population. Do not rely solely on the population reported by the monitor.

Also during start up it is common to encounter alarms and readouts on the PM400 console that don’t seem to make sense. It is critical to troubleshoot these alarms not only to make sure the planter drive is set properly to hit the target population, but also to fix incorrect entries in the PM400 monitor to eliminate nuisance alarms.

Before entering the troubleshooting charts to remedy a monitor or population problem, it is helpful to use the following flowchart to get a handle on what may be wrong. The basis for finding what is wrong comes from knowing exactly what the planter is actually doing in the soil. Always dig or observe seed on the ground when checking populations.

1. **Is the spacing on the ground correct?**
   - **No:** Check the ground drive transmission and range sprocket selections. See also “Seed Population Too Low” or “Seed Population Too High” in the troubleshooting charts.
   - **Yes:** Go to step 2.

2. **Is the reported population the actual or is the reported population too high by a factor of 2?**
   - **No:** Go to step 3.
   - **Yes:** An incorrect row spacing value entered in the seed monitor can cause this. Example: 15 inches instead of 30 inches. Correct the row spacing error on the PM400 console.
     - The system can also be off by a large factor if incorrect range sprockets are installed. Check seed rate charts against range and transmission sprockets on the planter.

3. **Is the population on the screen close to the target population?**
   - **No:** Check seed rate charts against transmission sprockets selected. See “Seed Population Too Low” or “Seed Population Too High” in the troubleshooting charts.
   - **Yes:** If slightly under, see “Seed Population Too Low” if slightly over, see “Seed Population Too High”.

For seed monitor issues, see also the DICKEY-john® PM400 Console Manual, “TROUBLESHOOTING” section.

**Suggested Furrow Check:**

Plant a short distance and dig seeds, or run with the closing wheels wired up to leave an open seed trench.

Based on seeds found, determine an average distance between seeds. Compare the distance between seeds to the seed spacing listed in the charts for your population. This is listed as “inches per seed”.

**Suggested Furrow Check:**
## Seed Population Troubleshooting Charts

### Seed Population Too Low

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall Low Population</strong></td>
<td>Incorrect seed rate</td>
<td>Check seed rate charts</td>
</tr>
<tr>
<td></td>
<td>Incorrect Transmission sprockets or shafts used</td>
<td>Check Transmission sprocket tooth counts and Driver/Driven locations.</td>
</tr>
<tr>
<td></td>
<td>Incorrect Range sprockets used</td>
<td>Check Range sprocket tooth counts and Driver/Driven locations.</td>
</tr>
<tr>
<td></td>
<td>Seed size: rate is correct, but under-counted. Very small seeds (e.g. Milo) may not be sensed accurately.</td>
<td>Rely on furrow check for verifying population.</td>
</tr>
<tr>
<td></td>
<td>Finger Meter: all brushes mis-adjusted or worn.</td>
<td>Adjust brushes (page 58). Check for wear if adjustment does not correct rate.</td>
</tr>
<tr>
<td></td>
<td>Finger Meter: incorrect insert for crop</td>
<td>Consult dealer about alternate inserts.</td>
</tr>
<tr>
<td></td>
<td>Finger Meter: field speed too high for 6-finger meter</td>
<td>Switch to 12-finger meters.</td>
</tr>
<tr>
<td></td>
<td>Brush Meter: Empty pockets on plates (skips) due to sticky seed treatments not allowing seed to rapidly fill the pockets.</td>
<td>Increase seed lubricant.</td>
</tr>
<tr>
<td></td>
<td>Brush Meter: Empty pockets on plates (skips) due to rough field conditions causing seeds to fall from the plates.</td>
<td>Decrease field speed.</td>
</tr>
<tr>
<td></td>
<td>Brush Meter: Empty pockets on plates (skips) due to platter speed too high, and pockets are not filling.</td>
<td>Decrease field speed or change to a higher cell count plate.</td>
</tr>
<tr>
<td></td>
<td>Brush Meter: Empty pockets on plates (skips) due to seed too big for pocket.</td>
<td>Select the correct plate for the seed size.</td>
</tr>
<tr>
<td></td>
<td>Brush Meter: Seeds are not falling from plates, and get carried past drop zone. Static electricity can cause small, lightweight seeds to cling to the pocket and not fall out.</td>
<td>The graphite component of Ezee Glide Plus addresses this issue. Increase the amount of Easy Glide Plus and/or more thoroughly mix the lubricant into the seed.</td>
</tr>
<tr>
<td></td>
<td>Inadequate ground drive wheel spring pressure</td>
<td>Check for correct spring setting, page 72.</td>
</tr>
<tr>
<td></td>
<td>Improper gap on speed sensor.</td>
<td>Check speed sensor on planter for 1.6 to 3.2 mm (1/16 inch to 1/8 inch) gap from wheel. Improper gap can cause erratic speed signal causing monitor to falsely report improper planting rate.</td>
</tr>
<tr>
<td></td>
<td>Incorrect speed sensor constant</td>
<td>Perform speed calibration per PM400 monitor manual.</td>
</tr>
<tr>
<td><strong>Low or Zero Population, One Wing</strong></td>
<td>Ground Drive only: LH and RH Range setup not matched.</td>
<td>Make sure LH and RH Range settings are identical, and that sprockets are on proper DRIVING/DRIVEN shafts.</td>
</tr>
<tr>
<td></td>
<td>Ground Drive only: LH and RH Transmission setup not matched.</td>
<td>Make sure LH and RH Transmission settings are identical, and that sprockets are on proper DRIVING/DRIVEN shafts.</td>
</tr>
<tr>
<td></td>
<td>Skipping chain from drive to wing</td>
<td>Check chain slack. Replace worn chain.</td>
</tr>
<tr>
<td></td>
<td>Ground drive locked up</td>
<td>Release wing drive (page 40).</td>
</tr>
<tr>
<td></td>
<td>Broken chain or sheared pin in ground drive</td>
<td>Inspect and repair drive system.</td>
</tr>
</tbody>
</table>
## Troubleshooting

### Seed Population Too Low

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low or Zero Population, Single Row</strong></td>
<td>Seed meter not engaged.</td>
<td>Check clutch alignment and engagement (page 34).</td>
</tr>
<tr>
<td></td>
<td>Skips or zero rate due to skipping or broken chain.</td>
<td>Check for worn chain, worn idlers, low chain slack and general chain condition (page 95).</td>
</tr>
<tr>
<td></td>
<td>Seed sensor obscured. Seed rate is actually correct, but under-counted.</td>
<td>Clean out seed tube (page 74).</td>
</tr>
<tr>
<td></td>
<td>Finger Meter: broken finger</td>
<td>Repair meter.</td>
</tr>
<tr>
<td></td>
<td>Finger Meter: castle nut mis-adjusted</td>
<td>Check that adjustment nut in meter is adjusted between 2.5 and 2.8 N-m (22 and 25 inch-pounds). (page 58).</td>
</tr>
<tr>
<td></td>
<td>Brush meter: Incorrect seed plate installed</td>
<td>Check rows for identical plates.</td>
</tr>
<tr>
<td></td>
<td>Brush meter: Skips due to debris in plate pocket</td>
<td>Inspect and clean out plate.</td>
</tr>
<tr>
<td></td>
<td>Foreign matter in hopper.</td>
<td>Clean-out hopper (page 73).</td>
</tr>
<tr>
<td></td>
<td>Seed run-out.</td>
<td>Refill row hopper(s).</td>
</tr>
<tr>
<td></td>
<td>Seed tube plugged.</td>
<td>Clean out seed tube. Avoid reverse motion with rows in ground. Avoid tight turns with rows in ground.</td>
</tr>
</tbody>
</table>

### Seed Population Too High

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall High Population</strong></td>
<td>Incorrect seed rate</td>
<td>Check seed rate charts</td>
</tr>
<tr>
<td></td>
<td>Ground Drive only: Incorrect Transmission sprockets or shafts used</td>
<td>Check Transmission sprocket tooth counts and Driver/Driven locations.</td>
</tr>
<tr>
<td></td>
<td>Ground Drive only: Incorrect Range sprockets or shafts used</td>
<td>Check Range sprocket tooth counts and Driver/Driven locations.</td>
</tr>
<tr>
<td></td>
<td>Finger Meter: Two seeds per finger (doubles) due to seed too small.</td>
<td>Consult with dealer regarding alternate inserts. Consider also switching to brush meters.</td>
</tr>
<tr>
<td></td>
<td>Finger Meter: Check carrier plate for wear.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Finger Meter: Check for weak finger springs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brush Meter: Empty pockets on plates due to matted brush.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brush Meter: Two seeds per pocket on the plates (doubles), due to pockets too large for the seed</td>
<td>Select plates with smaller pockets.</td>
</tr>
<tr>
<td></td>
<td>False alarms or actual seed rate errors due to monitor setup with incorrect row count, spacing or active rows</td>
<td>When troubleshooting population issues, always first rule out seed monitor setup. Review planter configuration and monitor setup.</td>
</tr>
<tr>
<td></td>
<td>Incorrect cell count</td>
<td>Replace seed disks with correct disks, or reset rate for current disks (if within range).</td>
</tr>
<tr>
<td></td>
<td>Improper gap on speed sensor.</td>
<td>Check speed sensor on planter for 1.6 to 3.2 mm (1(\frac{1}{16}) inch to 1(\frac{3}{16}) inch) gap from wheel. Improper gap can cause erratic speed signal causing monitor to falsely report improper planting rate.</td>
</tr>
<tr>
<td></td>
<td>Incorrect speed sensor constant</td>
<td>Perform speed calibration per DICKEY-john® monitor manual.</td>
</tr>
<tr>
<td></td>
<td>Brush meter: Doubles due to incorrect plates for crop or seed size</td>
<td>Use recommended plates for crop and seed size.</td>
</tr>
<tr>
<td></td>
<td>Sticky seeds: excess seed treatment</td>
<td>Increase seed lubricant.</td>
</tr>
</tbody>
</table>
### Seed Population Too High

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Population, One Wing</td>
<td>Ground Drive only: LH and RH Range setup not matched.</td>
<td>Make sure LH and RH Range settings are identical, and that sprockets are on proper DRIVING/DRIVEN shafts.</td>
</tr>
<tr>
<td></td>
<td>Ground Drive only: LH and RH Transmission setup not matched.</td>
<td>Make sure LH and RH Transmission settings are identical, and that sprockets are on proper DRIVING/DRIVEN shafts.</td>
</tr>
<tr>
<td>High Population, Single Row</td>
<td>Incorrect seed plate with higher cell count.</td>
<td>Install correct plate.</td>
</tr>
<tr>
<td></td>
<td>Brush Meter: Worn brushes allowing excess seed to pass</td>
<td>Replace worn brushes.</td>
</tr>
</tbody>
</table>

### Seed Population Related

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Population Alarms</td>
<td>False alarms or actual rate errors due to monitor setup with incorrect [active] row count or spacing</td>
<td>When troubleshooting population issues, always first rule out seed monitor setup. Review planter configuration and monitor setup.</td>
</tr>
<tr>
<td></td>
<td>Incorrect cell count</td>
<td>Replace seed disks with correct disks, or reset rate for current disks (if within range).</td>
</tr>
<tr>
<td></td>
<td>Improper gap on speed sensor.</td>
<td>Check speed sensor on planter for 1.6 to 3.2 mm (1(\frac{1}{16}) to 1(\frac{1}{8}) inch) gap from wheel. Improper gap can cause erratic speed signal causing monitor to falsely report improper planting rate.</td>
</tr>
<tr>
<td></td>
<td>Incorrect speed sensor constant</td>
<td>Perform speed calibration per PM400 monitor manual.</td>
</tr>
<tr>
<td>Seed too shallow or scattered on ground from a single row</td>
<td>Bottom of seed tube damaged.</td>
<td>Replace seed tube. Avoid setting planter straight down. Use forward motion when lowering.</td>
</tr>
<tr>
<td></td>
<td>Row not penetrating in tire tracks.</td>
<td>Increase down force on parallel arm springs.</td>
</tr>
<tr>
<td></td>
<td>Opener depth too shallow.</td>
<td>Change side depth wheel setting.</td>
</tr>
</tbody>
</table>

### Fertilizer Delivery Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planter-Wide Blockage</td>
<td>Material pooling in hose sags or flat runs.</td>
<td>Increase manifold pressure (page 42).</td>
</tr>
<tr>
<td></td>
<td>Moisture in hopper has coagulated material above meter.</td>
<td>Clean-out hopper (page 73).</td>
</tr>
<tr>
<td></td>
<td>Out of fertilizer.</td>
<td>Add fertilizer.</td>
</tr>
<tr>
<td>Single or multiple hoses plugging just ahead of airbox.</td>
<td>Fan speed too high/too low.</td>
<td>Check/adjust fan speed.</td>
</tr>
<tr>
<td></td>
<td>Possible air leak.</td>
<td>Check for air leak downstream between box and top of meter.</td>
</tr>
</tbody>
</table>
### Fertilizer Delivery Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2, 3, or more outlets fail.</td>
<td>Foreign matter in chamber in bottom of airbox.</td>
<td>Clean out chamber.</td>
</tr>
<tr>
<td>Outlets can be side-by-side or random. Plugging may also move from one outlet to another.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Treatment Delivery Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incorrect Rate, All Rows</td>
<td>Speed is different from chart or calibrated rate.</td>
<td>Use determined speed, or determine new meter setting.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Treatment meter rate depends almost entirely on gate setting (via knob and dial), which is selected for a specific field speed. If the actual speed is higher, the application rate will be lower, and vice versa.</td>
</tr>
<tr>
<td>Rate Incorrect, One Row</td>
<td>Meter setting doesn't match other rows.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Meter gate needs calibration,</td>
<td></td>
</tr>
<tr>
<td>Rate Low, One Row</td>
<td>Clutch or chain skipping</td>
<td>Check clutch alignment and engagement. Check chain slack.</td>
</tr>
<tr>
<td>Rate Zero, One Row</td>
<td>Meter clutch not engaged.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chain break to seed meter shaft.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Meter gate clogged.</td>
<td></td>
</tr>
</tbody>
</table>

### General Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excess Seed Remaining</td>
<td>See “Seed Population Troubleshooting Charts” on page 65.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Field size different.</td>
<td>After ruling out population problems, re-check geography.</td>
</tr>
<tr>
<td></td>
<td>Excessive gaps between planter passes.</td>
<td>Adjust marker, page 49.</td>
</tr>
<tr>
<td>Seed Consumption Too High</td>
<td>See “Seed Population Troubleshooting Charts” on page 65.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Field size different.</td>
<td>After ruling out population problems, re-check geography.</td>
</tr>
<tr>
<td></td>
<td>Excessive overlap.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Irregular shaped field.</td>
<td></td>
</tr>
<tr>
<td>Rows Not Planted</td>
<td>If not detected by seed monitor, check for plugged row-unit seed tube</td>
<td>Lift planter, expose bottom of seed tube and clean out.</td>
</tr>
</tbody>
</table>


## General Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
</table>
| Uneven seed spacing                    | See “Seed Population Troubleshooting Charts” on page 65. | 1. Increase field speed.  
2. Use a seed wheel with lower cell count.  
Switch from 12 finger meters to 6 finger meters.  
3. Install a low speed kit (page 105). |
|                                        | Hydraulic meter drive motor rpm too low for reliable control by proportional valve. | Excessive field speed.  
Unclean seed.  
Unclean seed.  
Damaged seed tube.  
Seed-Lok® plugging.  
Row-unit discs not turning.  
Plugged row-unit seed tube.  
Worn/rusted sprockets and/or chain idler or bearings.  
Lack of proper seed lubrication on seed. | Reduce field speed.  
Use clean seed.  
Inspect; repair or replace.  
Lock up Seed-Lok®, page 61.  
See “Row-unit discs not turning freely.” in this Troubleshooting chart.  
Lift up planter, expose bottom of seed tube and clean out.  
Check and replace any worn/rusted sprockets or chain idlers.  
See “Seed Lubricants” on page 104. |
| Planter does not fold or unfold fully   | Fold cylinders out of phase                    | Rephase cylinders, refer to page 30                                      |
|                                        | Air in lines                                   | Bleed fold circuit, refer to page 93                                     |
| Uneven seed depth                      | Excessive field speed.                         | Reduce field speed.                                                      |
|                                        | Planting conditions too wet.                   | Wait until drier weather.                                                |
|                                        | Incorrect coulter depth setting.               | See coulter manual or set unit mounted coulter.                          |
|                                        | Excessive or improper row unit down pressure spring setting. | Adjust down-pressure (page 51).                                         |
|                                        | Damaged seed tubes.                            | Check seed tubes for damage.                                             |
|                                        | Row-unit not penetrating low spots.            | Adjust row-unit, see instructions beginning on page 51.                 |
|                                        | Rough planting conditions.                    | Rework the field.                                                       |
|                                        | Seed firmer not in place and set to correct tension. | See “Seed Firmer Adjustments” on page 61.                                |
| Press wheel or row-units plugging      | Planting conditions too wet.                   | Wait until drier weather.                                                |
|                                        | Too much pressure on row-units.               | Reduce down pressure on row-units.                                      |
|                                        | Coulters set too deep, bring up excess dirt and moisture. | Check coulter adjustment.                                               |
|                                        | Planter not set to run level from front to rear. | Check tongue height page 19                                              |
|                                        | Backed up with planter in the ground.         | Clean out and check for damage.                                         |
|                                        | Failed disc bearings.                         | Replace disc bearings.                                                  |
|                                        | Disc blades worn.                             | Replace disc blades.                                                    |
|                                        | Scraper worn or damaged. Side depth wheels not set correctly. | Adjust side depth wheels page.                                          |
### General Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Row-unit discs not turning freely.</strong></td>
<td>Row-unit plugged with dirt.</td>
<td>Clean row-unit.</td>
</tr>
<tr>
<td></td>
<td>Planting conditions too wet.</td>
<td>Wait until drier weather.</td>
</tr>
<tr>
<td></td>
<td>Incorrect side depth wheel adjustment</td>
<td>See “Side Gauge Wheel Adjustments” on page 54.</td>
</tr>
<tr>
<td></td>
<td>Failed disc bearings.</td>
<td>Replace disc bearings.</td>
</tr>
<tr>
<td></td>
<td>Bent or twisted row-unit frame.</td>
<td>Replace row-unit frame.</td>
</tr>
<tr>
<td></td>
<td>Partially plugged row-unit seed tube.</td>
<td>Lift up planter, expose bottom of seed tube and clean out.</td>
</tr>
<tr>
<td><strong>Press wheels not compacting the soil as desired.</strong></td>
<td>Incorrect spring handle setting</td>
<td>See “Press Wheel Adjustments” on page 62.</td>
</tr>
<tr>
<td></td>
<td>Insufficient row unit down-force</td>
<td>See “Row Unit Down Pressure” on page 52.</td>
</tr>
<tr>
<td></td>
<td>Use of incorrectly shaped tire for your conditions.</td>
<td>Wedge shaped wheels work best on narrow spacings and in wet conditions. Round edge wheels work best in wider row spacings and drier conditions.</td>
</tr>
<tr>
<td></td>
<td>Not level front to rear.</td>
<td>Check tongue height.</td>
</tr>
<tr>
<td><strong>Air lines plugging between air box and rows</strong></td>
<td>Fan too slow.</td>
<td>Speed up fan.</td>
</tr>
<tr>
<td></td>
<td>Improper hose routing, sags or kinks</td>
<td>With planter unfolded, hoses should for a gentle “S” shape through the holders, with no deep sags.</td>
</tr>
<tr>
<td><strong>Planter will not lower</strong></td>
<td>Check that pressure and return hoses are fully engaged in remote outlets.</td>
<td></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>
<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>
<td></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>
<td></td>
</tr>
<tr>
<td><strong>Hydraulic marker functioning improperly, or not at all</strong></td>
<td>Marker/Fold switch set to FOLD or OFF.</td>
<td>Hydraulic Selector switch must be set to “Marker”. Set tractor remote circuit to Neutral or Float before operating switch.</td>
</tr>
<tr>
<td></td>
<td>Air or oil leaks in hose fittings or connections.</td>
<td>Check all hose fittings and connections for air or oil leaks.</td>
</tr>
<tr>
<td></td>
<td>Low tractor hydraulic oil level.</td>
<td>Check tractor hydraulic oil level.</td>
</tr>
<tr>
<td></td>
<td>Loose or missing bolts or fasteners.</td>
<td>Check all bolts and fasteners.</td>
</tr>
<tr>
<td></td>
<td>Needle valve plugged.</td>
<td>Open needle valve, cycle markers slowly and reset needle valve, refer to page 49.</td>
</tr>
<tr>
<td></td>
<td>Needle valve(s) in sequence valve plugged.</td>
<td>Open needle valves, cycle markers slowly and reset needle valves, refer to page 49.</td>
</tr>
<tr>
<td><strong>Marker disk does not mark</strong></td>
<td>Marker folding linkage does not have enough slack to allow marker disk to drop into field depressions.</td>
<td>Maximum down float should be limited by the slot at the rod end of the marker cylinder, refer to page 49.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reverse marker disk to pull or throw dirt.</td>
</tr>
</tbody>
</table>
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**

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

**WARNING**

*High Pressure Fluid Hazard:*
Check all hydraulic lines and fittings before applying pressure. Escaping fluid under pressure can have sufficient pressure to penetrate the skin. 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 an accident occurs, seek immediate medical attention from a physician familiar with this type of injury.

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 disc scrapers properly adjusted.
5. Clean planter on a regular basis. Regular and thorough cleaning will lengthen equipment life and reduce maintenance and repair.
6. Lubricate areas listed under “Lubrication” on page 98.
7. Replace any worn, damaged, or illegible safety labels by obtaining new labels from your Great Plains dealer.
Frame Lift Cylinder Locks

*Refer to Figure 72*

Center main frame lock channels ① are provided for use during service procedures with the planter partially or completely unfolded.

They are not necessary for normal transport operation. When the planter is fully folded, the center section is supported at lift by the wing locks on the tongue.

**Install Center Lift Locks**
1. Remove lock channels ① from storage locations.
2. Raise the unfolded planter.
3. Install lock channels on exposed cylinder rods ②.

**Remove Center Lift Locks**
1. Raise the unfolded planter, to allow removal of the lock channels.
2. Move the lock channels to their storage locations.

Ground Drive Springs

If a seed drive or fertilizer ground drive wheel is not remaining in ground contact, check the spring settings. The factory dimensions are:

① 438.2 mm ±1.5mm (17\(\frac{1}{4}\) inches ±\(\frac{1}{16}\) inch) between center-lines of pins

② 338.1 mm ±1.5mm (13\(\frac{1}{4}\) inches ±\(\frac{1}{16}\) inch) from base-end pin center-line to interface of spring stop and adjustment nut

Variations from factory settings are not recommended.
Material Unloading and Clean-Out

Procedures are slightly different for:

- Seed Unloading and Clean-Out (page 73)
- Fertilizer Unloading and Clean-Out (page 75)
- Treatment Unloading and Clean-Out (Option) (page 80)

**CAUTION**

*Agricultural Chemical Hazards:*

Wear protective equipment specified for the materials being cleaned out. Dust exposure is often higher during clean-out than during material loading. Even the dust of untreated seed can cause severe irritation or breathing difficulties.

Seed Unloading and 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 74

2. Disengage meter clutch ① (see page 34). If the clutch doesn’t completely free, park the cross pin on the shaft face, rather than in the shallow detents.
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 75.
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 33 for lid operation.
7. Clean-out meter (next two topics).
Finger Meter Clean-Out
8. Clean-out hopper (see “Seed Hopper Clean-Out” on page 73).
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 82 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 73).
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 60). 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.
The planter includes a seed tube brush (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 Unloading and Clean-Out

When application is completed, it is commonly the case that some fertilizer remains. There may be fertilizer in the hopper, fertilizer in the airbox, a small amount of fertilizer in the hose lines.

Fertilizer Unloading

A normal system unload is a 2 step process.

A. Empty airbox and hopper.
B. Blow residual fertilizer to rows.

⚠️ WARNING ⚠️

Dust and Chemical Fume Hazard:
Wear a respirator, and any other protective equipment specified by the seed and/or seed treatment supplier. Expect dust and fumes during hopper clean-out.

⚠️ WARNING ⚠️

Entrapment and Rapid Suffocation Hazard:
Never routinely enter a hopper.
Keep strainer in place at all times.

- A hopper that is full or merely appears full can be an entrapment hazard. You can sink entirely into the material, or into an oxygen-deficient void, and suffocate in a matter of seconds. Bridges and crusts are especially dangerous.
- When hazardous fumes are present, you can be quickly overcome even with the hopper lid open.
- Do not enter a hopper for material loading, material unloading, hopper cleaning or meter maintenance.
- Clean hopper by power washing from outside hopper top.

NOTICE

Environmental Risk:
Agricultural chemicals can be dangerous, including treatments on seeds and components of fertilizers. Improper use can seriously injure persons, animals, plants, soil and property. Comply with supplier, local, regional and national requirements for recovery and handling of fertilizer.

Refer to Figure 78

1. Move the planter to a location suitable for recovery of fertilizer beneath rows.
2. Place tarps or buckets under applicator tubes of fertilizer coulters.
3. Open Calibration door ① first. A small amount of material may fall onto the collection area.
4. Open Clean-Out door ② second. Expect material to flow in significant volume until the hopper is empty.
5. Install calibration crank (see Seed Rate Manual). Set variable rate gear box to and scale reading above 50. Rotate the crank until no material flows from the doors.
6. Engage the hydraulic fan at normal field manifold pressure.
7. When material is no longer flowing from the calibration and clean-out doors, close the doors.
8. When material is no longer flowing at rows, shut off the fan.
9. If the planter will not be used again for an extended period, complete the steps at “Fertilizer Clean-Out” on page 76.
10. Move planter from collection area and recover materials.
12. Close doors. For temporary parking or transport, fully close doors. For storage, close doors only until elastomer seals begin to touch meter housing, so that condensation can drain. Do not leave doors open wide enough for pest entry.
Fertilizer Clean-Out

For normal unloading of residual fertilizer at completion of application, see “Fertilizer Unloading” on page 75.

The present section covers completely cleaning out hopper and air system, when residues need to be minimized.

1. Perform normal material unloading (page 75), then fold the planter in preparation for a move to a site suitable for wash-out.
2. Reposition planter to a suitable site with rinse water and hose available. This may be two different sites if each hopper contained a different material.

If no otherwise suitable location is available, perform a fertilizer or treated seed clean-out on an up-hill portion of the field last treated.
3. Remove strainer (page 36). Clean strainer. While strainer is removed, inspect hopper for signs of problems that may prevent normal clean-out, such as objects or congealed masses too large to exit through meter (see “Problem Clean-Out” on page 77).
4. Install the calibration crank (see Seed Rate Manual). Open both calibration and clean-out doors on the meter.
5. Power wash the interior of the hopper while a second person cranks the meter.
6. Re-install strainer. Close lid tight and secure handle.
7. After cleaning out the last hopper, close all doors. Run air system for 10 minutes to blow moisture out of meter and lines.
8. Open hopper meter doors. Run air for 5 minutes.
9. Leave meter doors open. Run air for 5 minutes.
10. Shut off air. Clean door seals and meter box faces.
11. Close meter doors. Move planter to parking or storage site.
12. Follow normal Parking instructions (page 45) or Storage instructions (page 46).

Review Regulations and Policies:
The steps at left apply when there are no specific clean-up requirements provided by national, regional or local regulation, nor by the seed and/or fertilizer supplier. Review any legal requirements, instructions on the material containers, and any Material Safety Data Sheets. Give priority to regulations and supplier instructions. Modify the instructions here as needed to comply.

Confined Space Hazard:
Do not enter hopper. Do not remove strainer (step 3) until ready to clean strainer and wash-out hopper. Do not leave strainer out after wash-out. Return the strainer to the hopper and secure the hopper lid if the planter must be left unattended at any time prior to step 6.
Problem Clean-Out
For normal unloading of residual materials at completion of planting, see “Fertilizer Unloading” on page 75. For normal clean-out of residue, see “Fertilizer Clean-Out” on page 76.

If, however, parking and storage recommendations have not been followed, it is possible to have hard-to-remove material present.

If the material fails to pass through the clean-out door, take the following steps to remove it. Do not consider entering the hopper until first completing these tasks.

Open the clean-out door.

Remove the strainer and evaluate the problem.

For example:

- If the problem is a single moveable large object, such as a dead animal, fishing out from above may be the solution.
- If the problem is congealed materials, scoop out a sample from above and see if the mass dissolves in water. If so, and there is a small amount of the material involved, rinsing, or rinsing and pumping the hopper from above may be the solution.

For small amounts of residual materials, poking with a long pole may suffice to push it through the clean-out.

If poking doesn’t produce satisfactory results, and you intend to try wash-out, at least poke one hole down to the meter clean-out, so that water can flow out.

If wash-out is contemplated, start by introducing a small amount of water, and make sure that it appears at the clean-out within 15 minutes. If not, you will just be adding water to the problem. Add no more water, remove meter box instead, and clean out from below.

Removing Meter Box
Removing the meter box exposes 18×18 cm (7×7 inch) holes through which stubborn material may be extracted.

Refer to Figure 79

1. Not shown: Loosen the gearbox-to-meter chain idler and remove the chain. Disconnect inlet and outlet hoses. Disconnect or remove the seed rate sensor.
2. Loosen all the nuts ① securing the meter box ② to the adaptor ③. Unscrew the nuts to the bolt ends, but do not completely remove the nuts.
3. The meter box has a bead of silicone sealant between it and the adaptor. Use a pry tool to free the meter box from the bottom plate.
4. Once hanging entirely on the loose bolts, remove the nuts and lower the meter box from the hopper.

When re-mounting the meter box, scrape off the old silicone sealant and replace it with fresh sealant.

DANGER
Rapid Suffocation Hazard:
Do not consider entering the hopper until first completing the tasks on this page. See “Hopper Entry” on page 78 for a complete list of hazards.

NOTICE
Machine Damage Risk:
Do not fill the hopper with water. The hopper is not designed to hold water at full capacity.

Figure 79
Remove Meter for Cleaning
Hopper Entry

Normal use of the hopper and routine maintenance do not require entry. The hopper vent tube structure includes features to aid emergency egress. It is not intended for routine entry. However, do not remove the vent tube structure, as it is required for pressure-balancing the space above the material.

▲ A hopper that is full or merely appears full can be an entrapment hazard. You can sink entirely into the grain, or into a void, and suffocate in a matter of seconds. Bridges and crusts are especially dangerous.

▲ You can be overcome by hazardous fumes very quickly even in an empty hopper with the lid open.

▲ A partially full hopper, even with no bridging present, is a suffocation risk. Oxygen levels may be insufficient and/or dust levels may be too high for breathing.

▲ Do not enter a hopper for loading material.

▲ Do not enter a hopper for unloading material.

▲ Do not enter a hopper for routine cleaning.

▲ Do not enter a hopper for any meter maintenance.

▲ Never enter a hopper without at least one trained and equipped attendant present.

▲ Never enter a hopper for any reason unless you fully comply with applicable laws, regulations, rules, agreements, and the instructions in this section. Where applicable laws, regulations, rules, agreements contradict an instruction below, do not follow that instruction.

⚠️ DANGER

Rapid Suffocation Hazard:
Encrusted material may be loose and flowing beneath the crust. Any hollow spaces are highly likely to have insufficient oxygen and/or toxic gases from microbial action and/or chemical reactions. Falling through a crust in either case can result in death in a matter of seconds. Never enter a hopper to dislodge a crust or bridge.
Depending on its use, the YP1630F fertilizer hopper may be or become a “permit-required confined space” under U.S. OSHA regulations (29 CFR 1910.146) and similar regulations, statutes, insurance agreements and local enterprise policy. A written policy and permitting process may be required for any hopper entry.

Hopper entry may be necessary in some unusual circumstances, such as:

- Hopper level or pressure sensor replacement; or,
- removal of obstructions too difficult to pull out with the meter box removed and not susceptible to fishing or pumping out from the open lid.

Should such a situation arise, observe the following precautions:

1. **Evaluate the hazards**
   Review the safety data sheets (SDS) for any treatments and/or fertilizers used in the hopper since it was last thoroughly cleaned, and the most recent materials even if the hopper was subsequently cleaned. Retain the SDS information for any medical treatment that might be required.

2. **Designate or engage a team**
   Hopper entry is never a single-person activity. At least one attendant/observer is necessary. Give priority to individuals already trained in confined space operations. Designate a leader (not the entrant) who has authority to terminate the activity.

3. **Protect the team**
   Obtain the necessary safety equipment specified for confined space exposure to those materials, paying particular attention to harness/line, respiratory support and lung protection. This may include contaminant detection equipment and positive ventilation to refresh air in the hopper.

4. **Equip the team**
   At least one attendant must be equipped with communications capability, to summon outside aid in the event that the entrant is overcome. Equip the entrant with a safety harness and safety line.

5. **Train the team**
   Review the hazards. Review the procedures. Understand the use of the protective equipment. Know the steps to take in emergencies. Practice them. Train the observer to summon aid, and not attempt hopper entry if the entrant is overcome.

6. **Secure the planter**
   Block the planter wheels to prevent movement.

7. **Disrupt crusting or bridging**
   From outside the hopper, break up any hard surfacing on top of the material, or forming layers within the material. Such layers are extremely dangerous to stand on.

8. **Empty the Hopper**
   Follow the steps at See “Material Unloading and Clean-Out” on page 73. If a blockage makes this impossible, use an external pump line to remove as much material as possible without performing a hopper entry. Pump until at least some material is exiting the clean-out door. Leave the clean-out door open.

9. **Clean the Hopper**
   From the outside at the walkboard, power-wash the inside of the hopper. Use a mild detergent spray. Rinse thoroughly.

10. **Air the Hopper**
    Leave the hopper lid and clean-out door open, and do not commence work until the rinse water has completely evaporated.

11. **Plan the work. Work the plan.**
    Postpone the work if any team members, equipment or other resources are missing, or weather/lighting conditions are not favorable. Terminate and evacuate if any unexpected situations arise.
Treatment Unloading and Clean-Out (Option)

**WARNING**

*Chemical, Dust and Fume Hazard:*
Wear a respirator, chemical gloves, and any other protective equipment specified by the treatment supplier. Without gloves, skin contact is likely. Skin contact is harmful or fatal with some pesticides and herbicides. Expect dust and fumes during hopper clean-out.

If meters are not at “00”, beware of flowing material below treatment delivery tubes. Material can flow when parked.

**NOTICE**

*Environmental Risk:*
Agricultural chemicals can be dangerous, including pesticide, herbicide and similar treatments. Improper disposal can seriously injure persons, animals, plants, soil and property. Comply with supplier, local, regional, and national requirements for recovery and handling of fertilizer. Wash out hoppers and meters only at approved locations.

**Refer to Figure 80**
1. Check or set all treatment meter dials to “00”. This closes the meter gates. If a meter gate is open, material can and does flow, even when the planter is stationary.

**Refer to Figure 81**
2. Uncouple each treatment meter drive (page 39)
3. Release the latch.
4. Verify that the lid is secure.
5. Pivot the hopper to the rear, and lift it off the rear cross-tube.
6. Transport the hopper to the recovery container. Remove the hopper lid. Pour out the residual treatment material.
7. Invert the hopper to dislodge material build-up at feed roller. Rotate the drive shaft to assist.
8. If it is necessary to wash out the hopper and meter, allow it to dry thoroughly before adding new material.
Treatment Meter Gate Calibration (Option)

Perform treatment meter gate calibration seasonally, or whenever one or more rows appears to be metering at a rate inconsistent with the dial setting.

Refer to Figure 82

This calibration requires the 403-043V tool, one or more of which was supplied with a planter originally ordered with the treatment hopper option. If you do not have this tool, you may be able to substitute a hardened steel rod or length of straight music wire 1.3 mm (0.051 inches) in diameter, held vertically.

1. Clean out the treatment hopper, per page 80. Secure the lid on the hopper, and while the hopper is still dismounted, invert it on a stable flat surface.

2. Turn the meter knob until the dial reads “10”.

3. Loosen the two hex head screws that secure the meter gate (not visible in figure, shown in gray). The gate is a polymer plate with a -shaped opening under the slotted gate retainer.

4. Insert the small rod end of the tool into the meter gate opening.

5. Re-adjust the dial to “04”.

6. Slide the gate into firm contact with the tool rod.

7. Secure the hex head screws.

8. Remove the tool. Set the dial to “00”. Re-install the hopper on the row.

Material Application Risk:

Chemical, Dust and Fume Hazard:
Wear a respirator, chemical gloves, and any other protective equipment specified by the treatment supplier. Without gloves, skin contact is likely. Skin contact is harmful or fatal with some pesticides and herbicides. Expect dust and fumes during hopper removal and inversion.

If meters are not at “00”, beware of flowing material below treatment delivery tubes. Material can flow when parked.

Material Application Risk:

Meter gate calibration is not the same as treatment rate calibration. See the Seed Rate Manual for details of rate calibration.
**Meter Maintenance**

**Finger Pickup 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® representative. If you choose to service them yourself, follow these procedures when installing the finger sets.

See page 57 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 83

1. Be sure the belt ① is oriented as shown in Figure 83.

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 the holder 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 $1 \times 4$ to $1 \times 2$ flat $1/24$ to $1/12$ of a turn (a flat is one of the six sides of the nut) after contact is made. See page 87 for details. 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 holder 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™ insert 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 84

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.

Figure 84
Population Max™ Insert

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

Refer to Figure 85

1. Remove back metal cover (5) by removing five bolts. Four bolts attach cover to metal housing (1) and one bolt (2) holds idler wheel (4) and bushing (3).
2. Align new Skip Stop™ metal cover (6) over housing (1). Skip Stop™ metal cover has a hole cut out for Skip Stop™ Cushion (7). Make sure idler wheel (4) and bushing (3) remain properly aligned and insert 1 ¼ x 2 inch bolt (2). Secure bolt loosely.
3. Insert remaining three 1¼ x 2 inch bolts to fasten metal cover to housing. Tighten all bolts securely.
4. Tighten bolt (2) 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 (7) over the opening. Insert two 1¼ x 3 inch bolts to secure Skip Stop™ Cushion (7) to housing.

---

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

**Notice**

Meter Performance Risk:

Make sure Skip Stop™ Cushion (7) is secured tightly to back metal cover and cannot turn or rotate. Make sure Skip Stop™ Cushion (7) does not interfere with belt (5) rotation in any manner. A loose Skip Stop™ Cushion (7) may result in seed leakage, poor meter performance, and planting errors.
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 86

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

a. 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 56), and remove the finger pickup meters from the hoppers (page 57).

Refer to Figure 87

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

Remove Adjustment Lever

Refer to Figure 88

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

4. Withdraw the adjustment lever ⑦. Store the removed e-clip on it.

b. 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 ⑧ that secure the brush block ⑨, then remove the brush block.

a. Larger sunflower sizes plant with the standard Corn configuration. See “Sunflower Meter Configurations” on page 59.
Remove Corn Finger Set

Refer to Figure 89

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.

Remove Insert “A”

Refer to Figure 90

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 ⑥.

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.

Do not re-install the adjustment lever. It is not used with sunflower meters.
Install Sunflower Finger Set

Refer to Figure 92

14. Select the finger set  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  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.

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

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 93

16. 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 \(1 \text{ to } 2\) of a nut “flat” (this 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 92

17. Place the nut cover  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 , 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. Reinstall the meter cover (page 85). Reinstall the meter (page 57).

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 56), and remove the finger pickup meters from the hoppers (page 57).

Refer to Figure 87 on page 85
2. Remove three sets of bolts and nuts securing the cover to the meter.

**Remove Brushless Block**
Refer to Figure 91 on page 86
3. Remove the screw that secures the brush block, then remove the brush block.

**Remove Sunflower Finger Set**
Refer to Figure 92 on page 87
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 90 on page 86
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”**
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 88 on page 85
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 88 on page 85
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 92 on page 87
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.

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 93 on page 87
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 to of a nut “flat” (this is the nut position shown as a solid hexagon).

Refer to Figure 92
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. Reinstall the meter cover (page 85). Reinstall the meter (page 57).
**Meter Drive Adjustments**

The meter clutch and meter input shaft must be aligned. Misalignment will cause meter malfunction and excessive meter-housing wear. Periodically check vertical and horizontal alignment of meter clutch and meter input shaft.

*Refer to Figure 94*

1. Latch hopper onto hopper support.
2. Check that roll pin \( \textcircled{1} \) in end of meter input shaft is centered. When centered, equal amounts of roll pin will protrude from both sides of shaft.
3. Rotate meter input shaft so that roll pin is vertical.
4. Rotate drive coupler \( \textcircled{2} \) on meter clutch so that slots are vertical.
5. Release meter clutch \( \textcircled{3} \) to engage meter input shaft.
6. If shafts are aligned vertically, drive coupler will engage with meter input shaft freely and roll pin will extend equally on each side of the drive coupler. Disengage clutch and repeat steps checking for horizontal alignment.
7. If drive coupler does not freely engage meter input shaft vertically or horizontally, loosen the \( \frac{5}{16} \) inch nuts. Engage meter clutch. Align meter clutch with meter input shaft.
8. Tighten \( \frac{5}{16} \) inch nuts to torque values listed “Torque Values Chart” on page 120.
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 95 and Figure 96

1. During planting days, remove, clean and inspect seed plates daily. See “Installing Brush Meter Plates” on page 60, and “Seed Plate Maintenance” on page 91.
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: a b c

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 60 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 97
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.

Air Box Residue Clean-Out
Planting in extremely dusty conditions, particularly dusty and humid conditions, or otherwise sticky soils, can lead to air residue build-up inside the airbox. This residue can cause seed delivery blockages.

Refer to Figure 98 and Figure 99 (Figure 98 depicts a partially and a completely plugged agitation port, and build-up in the RH plenum chamber)
Whenever opening the airbox clean-out door 1, inspect the agitation ports 2. If any are partially or completely blocked, follow the clean-out instructions on this page.
Seasonally, remove the inspection ports on each of the airbox, and inspect plenum chambers 1 (LH) and 16 (RH). If any build-up is observed, follow the more comprehensive inspection steps and clean-out instructions on this page.
1. Spot the planter at a suitable location for clean-out and follow the parking instructions (page 45).
2. If seed is loaded, close the slide gate for the hopper or bulk seed box.
3. 

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.

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.
4. Set out a tarp for recovery of any expected seed still in the airbox. Open the airbox clean-out door ①.
5. Remove the inspection port covers from each end of the airbox (not shown in figures).
6. Use an indelible marker to identify the hoses on seed hose ports ② 1 through 16. Disconnect the clamps and hoses.

Further disassembly of the airbox is not recommended, as joints are sealed with silicone adhesive, and would need to be cleaned and resealed.
7. Inspect the agitation ports ③. Break up any build-up. Use a hooked tool or wire to pull smaller fragments down through the ports. For larger fragments, reach in through the inspection ports or vacuum them out via those ports.
8. Inspect the entire plenum area ④ for build-up. Break up any deposits. Vacuum them out through the inspection ports.
9. From the seed hose ports ⑤, inspect the seed air ports ⑥. Break up any deposits. Vacuum out from clean-out door.
10. With all ports and doors still open, operate the planter fan to blow up any remaining loose residues.
11. Reconnect the seed hoses. Reinstall the inspection port doors. Close the clean-out door.

Flush the airbox with water is not recommended. If done, operate the fan for an extended period to completely remove any moisture prior to storage or field operations.
Bleeding Hydraulics

**WARNING**

**High Pressure Fluid Hazard:**
Relieve pressure before disconnecting hydraulic lines. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. Escaping fluid under pressure can have sufficient pressure to penetrate the skin causing serious injury. Use a piece of paper or cardboard, NOT BODY PARTS, to check for leaks. 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!

**Bleeding 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.

**Bleeding Fold Cylinder Hydraulics**

Normally the fold hydraulics are bled at the factory before shipping and bleeding should not be required other than to fold fully and hold lever on for one minute or until all cylinders reach the end of their stroke.

**NOTICE**

**Machine Damage Risk:**
Do not fold or unfold without first raising planter completely.

If the fold and hold procedure does not clear the problem, perform the following steps:

1. Raise and unfold the planter.
2. Un-pin all fold cylinders (two at center, one each gauge wheel).

Refer to Figure 100

3. Locate the re-phase port on each cylinder. This is a raised blind weldment on one end of the cylinder tube. This is the rod end on gauge wheel fold cylinders, and the base end on center fold cylinders.
4. Support the cylinder with the re-phase port facing up, and that end of the cylinder elevated.
5. Fully extend all cylinders at low flow. Hold circuit for one minute.
6. Fully retract all cylinders at low flow. Hold circuit for one minute.
7. Set circuit to neutral and re-pin all cylinders.

**JIC Torque Chart**

<table>
<thead>
<tr>
<th>Size</th>
<th>N-m</th>
<th>Foot-Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 16-20</td>
<td>15-16</td>
<td>11-12</td>
</tr>
<tr>
<td>1 2-20</td>
<td>20-22</td>
<td>15-16</td>
</tr>
<tr>
<td>9 16-18</td>
<td>24-28</td>
<td>18-20</td>
</tr>
<tr>
<td>3 4-16</td>
<td>52-58</td>
<td>38-42</td>
</tr>
<tr>
<td>7 8-14</td>
<td>77-85</td>
<td>57-62</td>
</tr>
<tr>
<td>11 16-12</td>
<td>108-119</td>
<td>79-87</td>
</tr>
</tbody>
</table>

**NOTICE**

**Over-Torque Leak Risk:**
JIC (Joint Industry Conference 37-Flare) fittings do not require high torque. Excess torque causes leaks. JIC and ORB (O-Ring Boss) fittings do not require sealant.

**NOTICE**

**System Contamination Risk:**
Always use liquid pipe sealant when adding or replacing NPT (National Pipe Thread, tapered thread) pipe-thread fittings. To avoid cracking hydraulic fittings from over tightening, and to keep tape fragments from clogging filters, do not use plastic sealant tape.

_bleed only at JIC and NPT fittings. Never attempt to bleed a QD (Quick Disconnect) fitting. Avoid bleeding at ORB fittings.

Figure 100
Cylinder Re-Phase Port
Bleeding Marker Hydraulics

To fold properly, the marker hydraulics must be free of air. If the markers fold in jerky, uneven motions, follow these steps.

Check that tractor hydraulic reservoir is full.

1. Set the solenoid to marker operation.
2. With both markers lowered into field position, loosen hydraulic-hose JIC fittings at rod and base ends of marker cylinders. If applicable, loosen fittings on back side of sequence valve.
3. With tractor idling, activate tractor hydraulic valve until oil seeps out around a loosened fitting. Tighten that fitting.
4. Reactivate tractor hydraulic valve until oil seeps out around another loosened fitting. Tighten that fitting. Repeat process until all loosened fittings have been bled and tightened.

Marker Maintenance

Refer to Figure 101

The marker arm is attached to the marker body with a 1 2\times 13-2\times 2 inch Grade 5 shear bolt. If shear bolt breaks, replace it with a Great Plains part 802-130C or equivalent.

Replacing shear bolt with a lower grade can result in nuisance shears.

NOTICE

Equipment Damage Risk:
Replacing shear bolt with a higher grade bolt can result in marker damage. Replacing the shear bolt with a lower grade can result in nuisance shears.

If an identical Grade 5 bolt is not immediately available, temporarily substitute a a metric M12\times 1.5 6.4 mm length Class 8.8 bolt and nut.

If grease seal cap for marker-disk-hub bearings is damaged or missing, disassemble and clean hub. Repack with grease and install new seal or grease cap.
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.

See also “Chain Routing” on page 116.

Chain Slack

Check slack at fixed idlers within the first 8 hours of operation and tighten idlers as necessary. Check slack at spring-operated idlers seasonally.

Refer to Figure 102, 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).

2. Determine the ideal slack:
   - Long chains (over 91 cm / 36 inches):
     - 2.1 cm per meter (0.4 inch per foot)
   - Vertical short chains:
     - 2.1 cm per meter (0.4 inch per foot)
   - Horizontal short chains:
     - 4.2 cm/m (0.2 inch per foot).

3. Measure the current slack ②:
   Acting at a right angle to the chain span at the center of the span, deflect the chain in both directions. The slack is the distance of the movement.

4. Adjust the idlers for ideal slack.

Chain Clips

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

Refer to Figure 103 (arrow shows chain direction)

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

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

Your 30 Series row unit may also have optional gauge wheel scrapers (not shown). Adjustments to these are described on page 55.

**Refer to Figure 104**

3. With the unit raised, check blade spreader ① for wear. Replace spreader if it is 13 mm (1 \( \frac{1}{2} \) 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 \( \frac{1}{2} \) 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.

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 44.5 mm (1 \( \frac{1}{4} \) inch and 1 \( \frac{3}{4} \) inch). Add or remove shims as needed to get the correct contact point.
30 Series Row-Unit Side Wheels

Check that outside disk scrapers 5 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 105

7. Check number of shims between side gauge wheel 1 and wheel arm 2. 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 3 from sleeve 4 and check bushing for wear. Replace bushing if necessary.

9. When reinstalling side gauge wheels, align tab on hex adjustment 5 with notch in bushing. Replace bolt and tighten.

10. Adjust side gauge wheels. See “Side Gauge Wheel Adjustments” on page 54.

Seed Flap Replacement

Refer to Figure 106

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

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

Seed Lubricant

8 hoppers
See “Add Seed Lubricant” on page 33.

Depth Gauge Wheel Arms

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

Caster Arm Pivot

1 zerks each wing end;
2 total
Type of Lubrication: Grease
Quantity: Until grease emerges
Marker Section Hinges

1 zerk per marker;
2 total
Type of Lubrication: Grease
Quantity: Until grease emerges

Marker Mount Hinge

1 zerk per mount;
2 total
Type of Lubrication: Grease
Quantity: Until grease emerges

Parallel Pivot Arms

4 zerk each arm set;
8 total
Type of Lubrication: Grease
Quantity: Until grease emerges

Great Plains | 401-832M | 2018-07-31
**Tool Bar Pivots**

Vertical and horizontal tool bar pivots. 2 zerks per wing; 4 total
Type of Lubrication: Grease
Quantity: Until grease emerges

**Tongue Lift Cylinder Anchor Pin**

At rear underside of tongue; 1 total
Type of Lubrication: Grease
Quantity: Until grease emerges

**Tongue-Mainframe Pivot Pin**

1 zerk
Type of Lubrication: Grease
Quantity: Until grease emerges

**Tongue Slide Roller**

1 zerk
Type of Lubrication: Grease
Quantity: Until grease emerges
Drive Chains, Wing Ground Drives

| ![As Required] | ![Drive Chains, Wing Ground Drives] |

5 chains at each ground drive; 10 total
Type of Lubrication: Chain Lube
Quantity = Coat thoroughly
Lubricate chains any time there is a chance of moisture, and when being stored at the end of the planting season.

Drive Chains, Fertilizer Ground Drive

| ![As Required] | ![Drive Chains, Fertilizer Ground Drive] |

2 chains total
Type of Lubrication: Chain Lube
Quantity = Coat thoroughly
Lubricate chains any time there is a chance of moisture, and when being stored at the end of the planting season.

Drive Chains, Variable Rate Gearbox

| ![As Required] | ![Drive Chains, Variable Rate Gearbox] |

3 chains
Type of Lubrication: Chain Lube
Quantity = Coat thoroughly
Lubricate chains any time there is a chance of moisture, and when being stored at the end of the planting season.
Frame-Mounted Coulter Pivot

1 zerk each swivel mount casting
Type of Lubrication: Grease
Quantity: Until grease emerges

Caster Wheel Pivot

1 zerk each wheel;
2 total
One at pivot on wing and one in end of wing tube
Type of Lubrication: Grease
Quantity: Until grease emerges

Main Transport Wheel Bearings

2 bearings each side;
4 total
Type of Lubrication: Grease
Quantity: Re-pack
### Gauge Wheel Bearings

2 bearings each side; 4 total
Type of Lubrication: Grease
Quantity: Re-pack

### Frame-Mounted Coulter Hub

1 bearing each coulter; 16 total
Type of lubrication: Grease
Quantity = Until resistance is felt

**NOTICE**

*Equipment Damage Risk:*

*To avoid seal damage, do not inject grease at high pressure.*

### Unit-Mounted Coulter Hubs (Option)

1 bearing each coulter; 16 total
Type of lubrication: Grease
Quantity = Until resistance is felt

**NOTICE**

*Equipment Damage Risk:*

*To avoid seal damage, do not inject grease at high pressure.*

### Marker Disk Hubs

4 bearings; 2 each marker
Type of lubrication: Grease
Quantity = Repack
Seed Lubricants

**Finger Pickup Meters**

EZ-Slide Graphite Powder
- 821-042C bottle, 450 grams (1 pound)
- 821-060C jug, 2.3 kg (5 pound)

**For Finger Pick Up Meters Only**

Use only approved Graphite Powder available from Great Plains Mfg. Inc. or Precision Planting to ensure proper lubrication of finger pickup corn seed meters.

**Recommended usage:**

For finger pickup meters, add 5 ml (one teaspoon) of graphite to the top of each seed hopper.

In high humidity conditions, or seeds with heavy seed treatments, increase the application to 10 ml (2 tsp.).

**CAUTION**

*Irritation and Chronic Exposure Hazard:*

Wear gloves. DO NOT use hands or any part of your body to mix seed lubricant. Wear a respirator when transferring and mixing. Avoid breathing lubricant dust. Not an acute hazard. May cause mechanical eye or skin irritation in high concentrations. As with all mineral spills, minimize dusting during clean-up. Prolonged inhalation may cause lung injury.

**Brush Meters (all seeds)**

Ezee Glide Plus Talc-Graphite Mix
- 821-069C bucket, 19 liter (5 gallon)

**Recommended usage:**

Mix 5 ml (one teaspoon) of Ezee Glide Plus in each seed hopper.

Milo and cotton may require double this amount.

Mix so that all seeds become coated while avoiding an accumulation of lubricant in the bottom of the hopper.

For seed with excessive treatment, or for humid planting environments, increase the rate as needed for smooth meter operation.

**CAUTION**

*Irritation and Chronic Exposure Hazard:*

Wear gloves. DO NOT use hands or any part of your body to mix seed lubricant. Wear a respirator when transferring and mixing. Avoid breathing lubricant dust. Not an acute hazard. May cause mechanical eye or skin irritation in high concentrations. As with all mineral spills, minimize dusting during clean-up. Prolonged inhalation may cause lung injury. Product can become slippery when wet.
Options and Accessories

PTO Pump Kits

For tractors lacking a sufficient number of remotes with adequate continuous oil flow capability, kits are available to operate the fan(s) optionally the hydraulic seed drive motor, via mechanical Power Take-Off (PTO).

A 1000 rpm PTO is required with either:
- 44.5 mm (1 3/4 inch) 20-spline shaft, or
- 35 mm (1 1/8 inch) 21-spline shaft.

Order one kit and one coupler.

<table>
<thead>
<tr>
<th>Kits and Couplers</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>YP16F PTO KIT</td>
<td>401-938A</td>
</tr>
<tr>
<td>For model YP1630F</td>
<td></td>
</tr>
<tr>
<td>1 3/4-20 PTO COUPLER</td>
<td>826-777C</td>
</tr>
<tr>
<td>1 3/8-21 PTO COUPLER</td>
<td>826-778C</td>
</tr>
</tbody>
</table>

Operation and installation of the PTO kits is described in manual 411-015M, included with each kit.

Low Speed Kit

Combinations of narrow row spacings, high cell count or fingers per revolution, low populations and/or low field speed can result in the hydraulic seed meter motor operating at an rpm too low for consistent control by the proportional valve.

If the remedies in the Troubleshooting chart (page 69) are not available, order a low speed kit to replace the standard motor output sprocket with one having fewer teeth that increases motor speed by 160%.

<table>
<thead>
<tr>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>YP30,40,44,24 LOW SPEED DRIVE</td>
<td>402-520A</td>
</tr>
</tbody>
</table>

See “402-520A Low Speed Kit Installation” on page 127.

Markers

Markers are a standard factory-installed feature on the Planter, but may be optionally deleted, for example, if all planting is done via GPS navigation.

Markers are not trivial to install as a field upgrade. If any possible future planting might require markers, do not delete them from the initial Planter order.

For operations, see:
“Marker Operation” on page 42, and
“Marker Adjustments” on page 49.
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 32.

Row Options (Unit-Mount)
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 52.

Order one spring package per row.
Unit-Mounted Disc Coulters

Unit-mount Conservation Coulters, with 15 inch (38 cm) turbo blades, are standard on "Wide" YP1630F models.

For alternate or replacement blade, order one per row:

Coulter Blades

Replacement and alternate coulter blades include (quantity is 1 per row unit):

<table>
<thead>
<tr>
<th>15in Turbo Packages</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbo, 15 inch (20 flute convolutions)</td>
<td>820-327C</td>
</tr>
<tr>
<td>Fluted, 15 inch (50 convolutions)</td>
<td>820-331C</td>
</tr>
</tbody>
</table>

For operations, see: “Unit-Mounted Couler Adjustments” on page 53.

Seed Meters

Seed meters are required on the YP1630F. Available options include 12-finger pickup meter or brush meter (page 108, with selection of seed plates). Meters are factory-installed if ordered as an Option.

Finger Pickup Meters

If ordering finger meters as Parts, order one per row.

<table>
<thead>
<tr>
<th>Description</th>
<th>Option</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-Finger Pick-Up (corn) meter</td>
<td>(31)</td>
<td>404-018K</td>
</tr>
<tr>
<td>Corn and Brush(^a) meters</td>
<td>(33)</td>
<td></td>
</tr>
<tr>
<td>12-Finger (sunflower) meter</td>
<td>(34)</td>
<td>404-333A</td>
</tr>
<tr>
<td>Sunflower conversion kit(^b)</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>

\(^a\) Does not include seed plates (see page 108).

\(^b\) 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 56.
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. Plates for brush meters are not factory-installed. Meters do not include plates.

<table>
<thead>
<tr>
<th>Description</th>
<th>Option</th>
<th>Part Numbera</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brush meter</td>
<td>(32)</td>
<td>403-048K</td>
</tr>
<tr>
<td>Brush and Corn meters</td>
<td>(33)</td>
<td>403-048A</td>
</tr>
</tbody>
</table>

a. Part number is for one row.

Seed Plates

Order quantity 16 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>817-288C</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>9259 to 11464 seeds/kg</td>
<td>30</td>
<td></td>
<td></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>817-289C</td>
<td>Tan</td>
<td></td>
</tr>
<tr>
<td>8378 to 9700 seeds/kg</td>
<td>36</td>
<td></td>
<td></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>817-290C</td>
<td>Light Green</td>
<td></td>
</tr>
<tr>
<td>9259 to 11464 seeds/kg</td>
<td>48</td>
<td></td>
<td></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>817-284C</td>
<td>Red</td>
<td></td>
</tr>
<tr>
<td>31967 to 44092 seeds/kg</td>
<td>30</td>
<td></td>
<td></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>817-285C</td>
<td>Light Blue</td>
<td></td>
</tr>
<tr>
<td>22046 to 35274 seeds/kg</td>
<td>30</td>
<td></td>
<td></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>817-286C</td>
<td>Red</td>
<td></td>
</tr>
<tr>
<td>12,000 to 18,000 seeds/pound</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26455 to 39683 seeds/kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milo (High Rate, Large):</td>
<td></td>
<td>817-287C</td>
<td>Yellow</td>
<td></td>
</tr>
<tr>
<td>22046 to 30865 seeds/kg</td>
<td>60</td>
<td></td>
<td></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>817-282C</td>
<td>Dark Blue</td>
<td></td>
</tr>
<tr>
<td>3086 to 4850 seeds/kg</td>
<td>48</td>
<td></td>
<td></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>817-283C</td>
<td>Black</td>
<td></td>
</tr>
<tr>
<td>4850 to 8818 seeds/kg</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2200 to 4000 seeds per pound</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Inside Disc Scrapers
When planting in moist or sticky soils, this scraper is useful in preventing build-up that might otherwise impair opener disc performance.

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 Series Inside Scraper</td>
<td>122-278S</td>
</tr>
</tbody>
</table>

This scraper cannot be used with Seed-Lok® seed firmers installed. It is compatible with seed flaps and optional Keeton® seed firmers. See page 127 for scraper installation. The spring-loaded carbide scraper requires no adjustment.

Gauge Wheel Scrapers
When planting in moist or sticky soils, these scrapers are useful in preventing build-up that might otherwise result in shallow planting.

Order one part per wheel (2 per opener).

<table>
<thead>
<tr>
<th>Wheel Scrapers</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 inch Gauge wheel scraper</td>
<td>404-823A</td>
</tr>
<tr>
<td>3 inch Gauge wheel scraper</td>
<td>404-824A</td>
</tr>
<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 55.

Seed Tube Brush
One brush is provided with the planter. 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 74.
Seed Firmers
A choice of firmers is an option in the product bundles, and includes:

- Seed flap (always present)
- Seed-Lok®
- Keeton®

Seed-Lok® or Keeton® firmers may be field-installed (although not at the same time). For operations, see: “Seed Firmer Adjustments” on page 61.

Seed-Lok® Seed Firmer
Order one kit per row.

<table>
<thead>
<tr>
<th>Meters</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 Series Seed-Lok® kit</td>
<td>404-093K</td>
</tr>
</tbody>
</table>

Keeton® Seed Firmer
Order one kit per row.

<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>

Row Unit Press Wheels
Press wheels are opener bundle options on the YP1630F. One of five types:

<table>
<thead>
<tr>
<th>Description</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x12 Double Wedge</td>
<td>(15),(23),(24)</td>
</tr>
<tr>
<td>11 1x13 Double Wedge</td>
<td>(03),(04),(16)</td>
</tr>
<tr>
<td>Cast Staggered</td>
<td>(08),(09),(10)</td>
</tr>
<tr>
<td>Cast Adjustable</td>
<td>(05),(06),(07)</td>
</tr>
<tr>
<td>Spider (with Chains, not shown)</td>
<td>(28),(29),(30)</td>
</tr>
</tbody>
</table>

For operations, see “Press Wheel Adjustments” on page 62.
## Specifications and Capacities

### YP1630F-1630 30 inch Models

<table>
<thead>
<tr>
<th>Specification</th>
<th>YP1630F-1630NS</th>
<th>YP1630F-1630ND</th>
<th>YP1630F-1630WS</th>
<th>YP1630F-1630WD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Row Count</strong></td>
<td></td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Row Spacing</strong></td>
<td></td>
<td>30.0 inches (76.2 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Working Width</strong></td>
<td></td>
<td>40 feet (12.2 m)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Span (width between end rows)</strong></td>
<td></td>
<td>450.0 inches (1143.0 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Swath (Channel Width)</strong></td>
<td></td>
<td>480.0 inches (1219.2 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Seed Capacity</strong></td>
<td></td>
<td>32 bushels (1,120 liters)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fertilizer Capacity</strong></td>
<td></td>
<td>100 bushels (3,520 liters)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Treatment Capacity</strong></td>
<td>16 bushels</td>
<td></td>
<td>16 bushels</td>
<td></td>
</tr>
<tr>
<td><strong>Transport Width</strong></td>
<td>13 feet 1 inch (4.0 m)</td>
<td></td>
<td>13 feet 5 inch (4.1 m)</td>
<td></td>
</tr>
<tr>
<td><strong>Working Length</strong></td>
<td></td>
<td>33 feet 11 inches (10.3 m)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Transport Length</strong></td>
<td></td>
<td>43 feet 8 inches (13.3 m)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Working Height</strong></td>
<td></td>
<td>11 feet 3 inches (342.9 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Transport Height</strong></td>
<td></td>
<td>12 feet 2 inches (370.8 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Transport Clearance</strong></td>
<td></td>
<td>22 inches (55.9 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Minimum Tractor Requirement</strong></td>
<td></td>
<td>185 to 215 hp (140 to 160 kW)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hitch</strong></td>
<td></td>
<td>3-Point</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hydraulic Circuits Required</strong></td>
<td>Closed-Center, 3 Remotes (2 remotes with PTO accessory)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hydraulic Power Required</strong></td>
<td>2250 psi, 25 gal/min (20 gal/min w/PTO)</td>
<td></td>
<td>155 bar, 95 litres/min (75 litres/min w/PTO)</td>
<td></td>
</tr>
<tr>
<td><strong>Weight (empty, base configuration)</strong></td>
<td>22500 lbs</td>
<td>23000 lbs</td>
<td>22900 lbs</td>
<td>23900 lbs</td>
</tr>
<tr>
<td></td>
<td>10200 kg</td>
<td>10400 kg</td>
<td>10600 kg</td>
<td>10900 kg</td>
</tr>
<tr>
<td><strong>Weight (full, max. configuration)</strong></td>
<td>35100 lbs</td>
<td>37000 lbs</td>
<td>35500 lbs</td>
<td>37900 lbs</td>
</tr>
<tr>
<td></td>
<td>15900 kg</td>
<td>16800 kg</td>
<td>16400 kg</td>
<td>17200 kg</td>
</tr>
<tr>
<td><strong>Transport Tire Size</strong></td>
<td></td>
<td></td>
<td></td>
<td>380/90R46</td>
</tr>
<tr>
<td><strong>Wing Gauge Wheel Tire Size</strong></td>
<td></td>
<td></td>
<td></td>
<td>33x15.5x16.5 12 Ply Skid Steer NHS</td>
</tr>
<tr>
<td><strong>Opener Down Pressure</strong></td>
<td></td>
<td></td>
<td></td>
<td>Standard: 85 to 155 lbs, Option: 155 to 245 lbs</td>
</tr>
<tr>
<td><strong>Opener Travel (Up - Down)</strong></td>
<td></td>
<td></td>
<td></td>
<td>10 inches</td>
</tr>
<tr>
<td><strong>Opener Depth Range</strong></td>
<td></td>
<td></td>
<td></td>
<td>4 inches in 1/4 inch increments</td>
</tr>
</tbody>
</table>
### YP1630F-1670 70 cm Models

<table>
<thead>
<tr>
<th></th>
<th>YP1630F-1670NS</th>
<th>YP1630F-1670ND</th>
<th>YP1630F-1670WS</th>
<th>YP1630F-1670WD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Row Count</td>
<td></td>
<td></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>Row Spacing</td>
<td></td>
<td></td>
<td></td>
<td>70.0 cm</td>
</tr>
<tr>
<td>Working Width</td>
<td></td>
<td></td>
<td></td>
<td>12.2 m</td>
</tr>
<tr>
<td>Span (width between end rows)</td>
<td></td>
<td></td>
<td></td>
<td>1050.0 cm</td>
</tr>
<tr>
<td>Swath (Channel Width)</td>
<td></td>
<td></td>
<td></td>
<td>1120.0 cm</td>
</tr>
<tr>
<td>Seed Capacity</td>
<td></td>
<td></td>
<td></td>
<td>1120 litres</td>
</tr>
<tr>
<td>Fertilizer Capacity</td>
<td></td>
<td></td>
<td></td>
<td>3520 litres</td>
</tr>
<tr>
<td>Treatment Capacity</td>
<td>640 litres</td>
<td>640 litres</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport Width</td>
<td>4.0 m</td>
<td>4.1 m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working Length</td>
<td></td>
<td></td>
<td></td>
<td>10.3 m</td>
</tr>
<tr>
<td>Transport Length</td>
<td></td>
<td></td>
<td></td>
<td>13.3 m</td>
</tr>
<tr>
<td>Working Height</td>
<td></td>
<td></td>
<td></td>
<td>343 cm</td>
</tr>
<tr>
<td>Transport Height</td>
<td></td>
<td></td>
<td></td>
<td>371 cm</td>
</tr>
<tr>
<td>Transport Clearance</td>
<td></td>
<td></td>
<td></td>
<td>56 cm</td>
</tr>
<tr>
<td>Minimum Tractor Requirement</td>
<td>140 to 160 kW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hitch</td>
<td></td>
<td></td>
<td>3-Point</td>
<td></td>
</tr>
<tr>
<td>Hydraulic Circuits Required</td>
<td>Closed-Center, 3 Remotes (2 remotes with PTO accessory)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydraulic Power Required</td>
<td>155 bar, 95 litres/min (75 litres/min w/PTO)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight (empty, base configuration)</td>
<td>10200 kg</td>
<td>10400 kg</td>
<td>10600 kg</td>
<td>10900 kg</td>
</tr>
<tr>
<td>Weight (full, max. configuration)</td>
<td>15900 kg</td>
<td>16800 kg</td>
<td>16400 kg</td>
<td>17200 kg</td>
</tr>
<tr>
<td>Transport Tire Size</td>
<td>380/90R46</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wing Gauge Wheel Tire Size</td>
<td>395/55B16.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opener Down Pressure</td>
<td>Standard: 39 to 70 kg, Option: 70 to 111 kg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opener Travel (Up - Down)</td>
<td>25 cm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opener Depth Range</td>
<td>10.2 cm in 6.4 cm increments</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Tire Inflation Chart

<table>
<thead>
<tr>
<th>Tire Size</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>380/90R46 Transport</td>
<td>340 kPa (49 psi)</td>
</tr>
<tr>
<td>33x15.5x16.5 12 Ply Skid Steer NHS (395/55B16.5)</td>
<td>450 kPa (65 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><a href="http://www.goodyear.com">www.goodyear.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
Tongue Lock, Fold and Marker Hydraulics

![Hydraulic Diagram](image-url)

Figure 115
Tongue Lock, Fold and Marker Hydraulics
Lift Hydraulics

Figure 116
Tongue Lock, Fold and Marker Hydraulics
Fan Hydraulics

Figure 117
Fan Hydraulics
Chain Routing
Wing Ground Drive Chains

![Wing Ground Drive Chain Routing Diagram]

**Figure 118**
Wing Ground Drive Chain Routing

<table>
<thead>
<tr>
<th>Range Sprockets:</th>
<th>20T, 30T, 30T</th>
</tr>
</thead>
</table>

Range Sprockets: 20T, 30T, 30T
Dry Fertilizer Ground Drive Chains

Figure 119
Dry Fertilizer Ground Drive Chain Routing
Dry Fertilizer Drive Chains

Figure 120
Fertilizer Meter Drive Chain Routing
Row Unit Drive Chains

<table>
<thead>
<tr>
<th>19T</th>
<th>Seed drive input</th>
</tr>
</thead>
<tbody>
<tr>
<td>13T</td>
<td>Output to treatment drive (Option)</td>
</tr>
</tbody>
</table>

![Figure 121](image)

Dry Fertilizer Ground Drive Chain Routing

Figure 121
## Torque Values Chart

### Bolt Size

<table>
<thead>
<tr>
<th>Bolt Size</th>
<th>Grade 2</th>
<th>Grade 5</th>
<th>Grade 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>in-tpi</td>
<td>N-m</td>
<td>ft-lb</td>
<td>N-m</td>
</tr>
<tr>
<td>1/4-20</td>
<td>7.4</td>
<td>5.6</td>
<td>11</td>
</tr>
<tr>
<td>1/4-28</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>43</td>
<td>32</td>
<td>67</td>
</tr>
<tr>
<td>7/16-20</td>
<td>49</td>
<td>36</td>
<td>75</td>
</tr>
<tr>
<td>1/2-13</td>
<td>66</td>
<td>49</td>
<td>105</td>
</tr>
<tr>
<td>9/16-12</td>
<td>75</td>
<td>55</td>
<td>115</td>
</tr>
<tr>
<td>9/16-18</td>
<td>95</td>
<td>70</td>
<td>150</td>
</tr>
<tr>
<td>3/4-11</td>
<td>105</td>
<td>79</td>
<td>165</td>
</tr>
<tr>
<td>3/4-18</td>
<td>120</td>
<td>97</td>
<td>205</td>
</tr>
<tr>
<td>5/8-11</td>
<td>150</td>
<td>110</td>
<td>230</td>
</tr>
<tr>
<td>5/8-18</td>
<td>235</td>
<td>170</td>
<td>360</td>
</tr>
<tr>
<td>3/4-10</td>
<td>260</td>
<td>190</td>
<td>405</td>
</tr>
<tr>
<td>3/4-16</td>
<td>225</td>
<td>165</td>
<td>585</td>
</tr>
<tr>
<td>7/8-9</td>
<td>250</td>
<td>185</td>
<td>640</td>
</tr>
<tr>
<td>7/8-14</td>
<td>340</td>
<td>250</td>
<td>875</td>
</tr>
<tr>
<td>1-8</td>
<td>370</td>
<td>275</td>
<td>955</td>
</tr>
<tr>
<td>1-12</td>
<td>480</td>
<td>355</td>
<td>1080</td>
</tr>
<tr>
<td>1 1/8-7</td>
<td>540</td>
<td>395</td>
<td>1210</td>
</tr>
<tr>
<td>1 1/8-12</td>
<td>680</td>
<td>500</td>
<td>1520</td>
</tr>
<tr>
<td>1 1/4-12</td>
<td>750</td>
<td>555</td>
<td>1680</td>
</tr>
<tr>
<td>1 1/8-6</td>
<td>890</td>
<td>655</td>
<td>1990</td>
</tr>
<tr>
<td>1 1/4-12</td>
<td>1010</td>
<td>745</td>
<td>2270</td>
</tr>
<tr>
<td>1 1/2-6</td>
<td>1180</td>
<td>870</td>
<td>2640</td>
</tr>
<tr>
<td>1 1/2-12</td>
<td>1330</td>
<td>980</td>
<td>2970</td>
</tr>
</tbody>
</table>

### Bolt Size

<table>
<thead>
<tr>
<th>mm x pitch</th>
<th>Class 5.8</th>
<th>Class 8.8</th>
<th>Class 10.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>in-tpi</td>
<td>N-m</td>
<td>ft-lb</td>
<td>N-m</td>
</tr>
<tr>
<td>M 5 X 0.8</td>
<td>4</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>M 6 X 1</td>
<td>7</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>M 8 X 1.25</td>
<td>17</td>
<td>12</td>
<td>26</td>
</tr>
<tr>
<td>M 8 X 1</td>
<td>18</td>
<td>13</td>
<td>28</td>
</tr>
<tr>
<td>M10 X 1.5</td>
<td>33</td>
<td>24</td>
<td>52</td>
</tr>
<tr>
<td>M10 X 0.75</td>
<td>39</td>
<td>29</td>
<td>61</td>
</tr>
<tr>
<td>M12 X 1.75</td>
<td>58</td>
<td>42</td>
<td>91</td>
</tr>
<tr>
<td>M12 X 1.5</td>
<td>60</td>
<td>44</td>
<td>95</td>
</tr>
<tr>
<td>M12 X 1</td>
<td>90</td>
<td>66</td>
<td>105</td>
</tr>
<tr>
<td>M14 X 2</td>
<td>92</td>
<td>68</td>
<td>145</td>
</tr>
<tr>
<td>M14 X 1.5</td>
<td>99</td>
<td>73</td>
<td>155</td>
</tr>
<tr>
<td>M16 X 2</td>
<td>145</td>
<td>105</td>
<td>225</td>
</tr>
<tr>
<td>M16 X 1.5</td>
<td>155</td>
<td>115</td>
<td>240</td>
</tr>
<tr>
<td>M18 X 2.5</td>
<td>195</td>
<td>145</td>
<td>310</td>
</tr>
<tr>
<td>M18 X 1.5</td>
<td>220</td>
<td>165</td>
<td>350</td>
</tr>
<tr>
<td>M20 X 2.5</td>
<td>280</td>
<td>205</td>
<td>440</td>
</tr>
<tr>
<td>M20 X 1.5</td>
<td>310</td>
<td>230</td>
<td>650</td>
</tr>
<tr>
<td>M24 X 3</td>
<td>480</td>
<td>355</td>
<td>760</td>
</tr>
<tr>
<td>M24 X 2</td>
<td>525</td>
<td>390</td>
<td>830</td>
</tr>
<tr>
<td>M30 X 3.5</td>
<td>960</td>
<td>705</td>
<td>1510</td>
</tr>
<tr>
<td>M30 X 2</td>
<td>1060</td>
<td>785</td>
<td>1680</td>
</tr>
<tr>
<td>M36 X 3.5</td>
<td>1730</td>
<td>1270</td>
<td>2650</td>
</tr>
<tr>
<td>M36 X 2</td>
<td>1880</td>
<td>1380</td>
<td>2960</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.

25199
Appendix C - Initial Setup

Hydraulic Charge and Bleed

Connect the planter to a suitable hydraulic source and check the condition of the hydraulic systems:
“Unfolding the Planter” on page 23, 
“Raising/Lowering Planter” on page 27, 
“Folding the Planter” on page 28, 
“Fan General Operating Information” on page 42, 
“Marker Operation” on page 42

See “Bleeding Hydraulics” on page 93 if any circuits do not operate smoothly.

Seed Monitor Console Installation

Refer to Figure 122

The planter’s standard PM400 seed monitor system includes a console that 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 harnesses. 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 requires customer-supplied fasteners.

Seed Monitor Console Quick-Start

The PM400 factory defaults need to be changed to metric mode, the row configuration of a YP1630F-1670 planter, and the speed sensing used on all models. The pages 121 through 123 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 122 on page 121

1. Connect the monitor power leads ② to a +12Vdc source. Optionally connect the monitor sensor harness ④ 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 123

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

Refer to Figure 124

3. If an error screen appears, with an alert tone, press either the Alarm Cancel ④ or the ESCAPE ④ keys to silence the alert and display the Operate screen.

Set Metric Mode

4. Press the DISPLAY & SERVICE ③ key.
5. If the icon pair at the lower left is ℃ ℃, metric mode is already set. Skip to step 10.

Refer to Figure 125

6. Press the Down Arrow key twice to highlight the Units ℃ ℃ icon.
7. Press the ENTER key to modify the Units.
8. Press either the Up or Down Arrow (↑ or ↓) to change the large “E” to an “M” ℃ ℃ as shown in Figure 125.
9. Press the ENTER key to save this change.

About Row Count and Spacing

The YP1630F has a 32-row sensor harness.

Sensors for odd numbered rows (1…31) are connected at each of the 16 dry fertilizer row hoses, and are for blockage detection only.

Sensors for even numbered rows (2…32) are connected at each of the 16 seed tubes, and are typically configured for population (counting seeds), but may alternatively be configured for blockage.

Row count is 32, and spacing is 35 cm or 15 inches. With the odd row positions set to blockage, the monitor correctly reports population only for the sensors monitoring seed.
Set Planter Row Count

The PM400 supports three row configurations pre-defined by you. You may need only one.

Refer to Figure 126

At first power-up, the PM400 usually has an incorrect row count for your planter.

10. Press the PLANTER SETUP \( \text{key} \).
   Note that the Planter Configuration Indicator \( \text{a} \) is under the “1” in the Configuration block \( \text{b} \).
   This change is for Configuration 1.

11. Press the Right Arrow \( \text{c} \) key to highlight the Number of Rows \( \text{d} \) field.
12. Press the ENTER \( \text{e} \) key to modify the # of Rows.

Refer to Figure 127

13. Use the Left and Right Arrow keys \( \text{f} \) or \( \text{g} \) to select the digits to modify. Use the Up or Down Arrow keys \( \text{h} \) or \( \text{i} \) to increment or decrement. Change the row count to the table value for your planter model and operating configuration.

14. Press the ENTER \( \text{j} \) key to save the correct row count.

Set Planter Row Spacing

15. Press the Down Arrow key \( \text{k} \) to select the Row Spacing field \( \text{l} \).

16. Use the Left and Right Arrow keys \( \text{m} \) or \( \text{n} \) to select the digits to modify. Use the Up or Down Arrow keys \( \text{o} \) or \( \text{p} \) to increment or decrement. Change the row spacing to the value for your planter model (35 cm or 15 inches).

17. Press the ENTER \( \text{q} \) key to save the corrected row spacing.

Row Setup

18. Use Right Arrow key \( \text{r} \) to navigate to the “I/O” field \( \text{s} \).
19. Use the Left and Right Arrow keys \( \text{t} \) or \( \text{u} \) to select a seeding icon \( \text{v} \) for an odd numbered row.
20. Use the Up or Down Arrow keys \( \text{w} \) or \( \text{x} \) to change it to a blockage icon \( \text{y} \).
21. Repeat step 19 and step 20 for 15 more odd numbered rows.
22. Press the ENTER \( \text{z} \) key to save the revised row configuration.
Level Planter

All frame sections must be level to maintain even planting depth. Before using the planter in the field, make sure the planter is level side-to-side.

Periodic frame-leveling adjustments should not be necessary, but if there are problems with uneven depth, check planter levelness and follow these procedures.

Before making any adjustments be sure the lift cylinders are re-phased and operating properly.

Complete the steps under “Bleeding Hydraulics” on page 93, before proceeding.

Level frame in planting conditions or the planter may not produce desired results.

Refer to Figure 128

1. Unfold the planter fully and set down. Put in field position by lowering and pulling forward.

2. When setting hitch, lower lift cylinders completely. Set the 3-point hitch or hydraulic tongue so that the top of the tongue tube 1 is:
   106.7 cm (42 inches) above ground for YP1630F. This is the starting point for adjustments.

Refer to Figure 129

3. If planting 3.8 cm (1 1/2 inches) deep, adjust the hitch until frame measures approximately 66 cm (26 inches) from ground to frame at the pivots. When planting at other depths, frame height will vary.

NOTICE

Mis-adjustment Risk:
Planter must be fully lowered to field position and hitch height set before making side-to-side adjustments.

Parallel arms should be parallel with ground, or up to 2.5 cm (1 inch) lower in back. Adjusting a 3-point hitch to level parallel arms may cause frame to sit higher or lower than 26 inches.

4. Check parallel arms behind the pivots to ensure that parallel arms are parallel with ground or up to 2.5 cm (1 inch) lower in back. If needed, raise or lower the 3-point to adjust parallel arms.

5. Once parallel arms are parallel with ground or up to 2.5 cm (1 inch) lower in back and 3-point is set, measure distance from ground to frame at the pivots.

Refer to Figure 130

6. Measure wings at gauge wheel. If not level with center of frame, adjust eye bolt accordingly.

Eye-bolt adjustments are easier if the planter is first lowered to the ground to remove some of the force on the cylinder.
Wing Alignment

To check and adjust wing alignment:

1. Unfold planter, see “Important Safety Information” on page 1, and place a block ahead of each wing gauge wheel. Pull planter forward against blocks to rock frames back.

Refer to Figure 131

2. Check for proper alignment by running a string line across back of planter toward outer ends of wings. For proper alignment, outside ends of wings (dimension A) should be 0 to 6 mm (0-to-\(\frac{1}{4}\) inch) ahead of inside ends (dimension B).

3. To adjust wing alignment, shorten or lengthen eye bolts to change the length of the wing pull bar. Adjust eye bolts 1 in or out until dimension A is 0 to 6 mm (0 to \(\frac{1}{4}\) inch) greater than dimension B.

4. Be sure both wings are adjusted equally or the planter will tend to pull sideways behind the tractor.

Angle of wings is exaggerated for ease of clarification.
Speed Calibration

At the first opportunity to operate the planter in the field (with or without planting), the speed sensor component of the seed monitor needs to be calibrated. The seed monitor manual describes the procedure.

Cross-check the monitor speed reading with the tractor speedometer. Investigate if they do not match.

Speed Sensor Operation

Refer to Figure 132

The monitor uses a pickup wheel for measuring planter ground speed. The sensor should be set at a distance of 1.6 to 3.2 mm (\( \frac{1}{16} \) to \( \frac{1}{8} \) inch) from the pickup wheel.

Marker Extension

Although markers are factory- or dealer-installed, they are not precisely adjusted for your planter configuration.

Prior to first use, set the following:

- marker speed (page 49), and;
- marker extension (below).

You may also want to set/check:

- marker disk angle (page 49).

Refer to Figure 133 and Figure 134

To adjust marker extension:

1. Move planter to field conditions. Lower. Unfold marker on one side. Drive forward a few meters or several feet.

2. Measure the distance ① between the centerline of the outside row unit and the field mark. Compare to the value recommended in this table:

<table>
<thead>
<tr>
<th>Marker Extension</th>
<th>YP1630F-1630</th>
<th>YP1630F-1670</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>255.0 inches</td>
<td>641.5 cm</td>
</tr>
<tr>
<td></td>
<td>(647.7 cm)</td>
<td></td>
</tr>
</tbody>
</table>

3. To adjust, loosen nuts ⑤ on U-bolts ②. Move marker disc tube ④ in or out to get the proper adjustment.

4. Pull forward again and verify new setting.

5. Repeat for other marker.

When correctly adjusted, there is a gap of one row space between passes, as measured between center-lines of outside active rows.
Appendix D - Option Installation

402-520A Low Speed Kit Installation

See “Low Speed Kit” on page 105 for the purpose of this kit.

1. Shut off any hydraulic source that powers the hydraulic seed meter drives (dedicated remotes or PTO).

Refer to Figure 135

2. At the hydraulic drive motor, loosen the idler nut ①. Slide the idler out of engagement with the existing chain ①. Remove and save the existing chain:

   ① 136-247D CHAIN RL #60 41 PITCHES

3. Loosen the set screws securing the existing 16T sprocket ②. Remove and save the sprocket:

   ② 808-388C SPKT 60B16 X 1 BORE W/KWAY, SS

   Leave the woodruff key ① in place.

4. Select one new 10T sprocket:

   ⑤ 808-479C SPKT 60B10 X 1 BORE W/KWAY 2SS

   Install it on the motor shaft. Secure it with the woodruff key and two set screws provided.

5. Select one new:

   ④ 136-285D CHAIN RL #60 38 PITCHES

   Consult page 95 and the directional arrows shown on the page for proper chain clip orientation.

   Install the new chain on the new sprocket and existing driven sprocket.

   Engage the idler for 14 inch (2.1 cm/m) slack.

   Secure the idler nut ①.

   Field Results Risk:

   Do not change the sprocket ratios in the DICKEY-john® IntelliAg® hydraulic drive setup.
122-278S Scraper Installation

Optional carbide disc scrapers are not factory installed. Start with row 1 (left-most row unit).

If a Keeton® seed firmer is also installed, see the Parts Manual for assembly details.

This scraper is not compatible with Seed-Lok®.

Refer to Figure 136 and Figure 137

1. Remove one or both opener disc blades to gain safe access to the mount ①. Note the position of bushings and spacers for correct re-assembly (page 54).

2. Select one each:
   - ② 802-024C HHCS 3/8-16X3 GR5
   - ① 129BXT824 BRACKET FOR 890-929C FIRMER
   - ⑥ 122-177D 10HD25 INSIDE SCRAPER MNT TUBE
   Insert the bolt ②, from the rear, through the lowest hole of the bracket ①. Place the tube ⑥ over the bolt.

3. Select one scraper set:
   - ⑧ 890-928C 25 SER AIR DESIGN IN SCRAPER
   Place the shoulder washer ③ on bolt ② with the larger diameter to the rear (toward bolt head). Place the left scraper blade ③ on the washer, followed by the right scraper blade ④.

4. Select one each:
   - ⑥ 804-011C WASHER FLAT 3/8 USS PLT
   - ⑦ 804-013C WASHER LOCK SPRING 3/8 PLT
   - ④ 803-014C NUT HEX 3/8-16 PLT
   Place the flat washer ⑥ on the bolt ②, followed by the lock washer ⑦ and nut ④. Tighten bolt and nut to 3/8-16 GR5 torque spec. Make sure blades pivot freely.

5. Select the scraper spring ⑤. Connect the spring between the blades, using the small top holes.

6. Select two sets:
   - ③ 802-172C HHCS 5/16-18X2 1/2 GR5
   - ⑤ 803-043C NUT HEX WHIZ 5/16-18 PLT
   Insert the scraper assembly ⑤ between the middle four lower square holes ⑦ of the opener frame. Secure with bolts ③ and whiz nuts ⑤.

7. Re-mount the removed disc blade.

Callout, Part & Description cross-references are drawn from a Reference Page.
2-Year Limited Warranty (Yield-Pro Planters)

Great Plains Mfg., Inc. 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 original purchase date when used as intended under normal service conditions for personal use. This Warranty is limited to the replacement of any defective part by Great Plains Manufacturing and the installation by the dealer of any such replacement part during the first year of operation. Second year warranty covers parts only, excluding general ground engaging parts and labor. Items covered under the second year warranty are as follows (parts only): hitch and main frame, gauge wheels, markers, air box/ manifold, Y- splitter tubes, fan and housing, row unit weldments, unit mounted attachments and frame mounted attachments. Great Plains Mfg., Inc. 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 the judgment of Great Plains Mfg., Inc., 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 affect 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. Soils containing rocks, stumps or other obstructions may void the warranty in its entirety.

Claims under this Warranty must be made to the dealer which originally sold the unit and all warranty adjustments must be made through such dealer. Great Plains Mfg., Inc. 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 Mfg., Inc. liable for damages of any kind, direct, consequential, or contingent to property. Furthermore, Great Plains Mfg., Inc. shall not be liable for damages resulting from any cause beyond its control. This Warranty does not extend to loss of crop, losses caused by harvest delays or any expense or loss of 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 Mfg., Inc. within 10 days from the date of original date of purchase.

This Warranty does not cover damage caused by acts of God or accidents.

This Warranty does not cover units with excess use or units used in custom farming.

NOTE: Effective August 17, 2007; The Extended 2 Yr. Warranty covers only units utilizing these configurations: 1) Yield-Pro (YP) Frames, 2) 25 Series Row Units, and 3) Singulating Meters. All three criteria must be met to qualify for 2-Year Limited Warranty.
<table>
<thead>
<tr>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
</tr>
<tr>
<td>accessories .................................................. 105</td>
</tr>
<tr>
<td>address, Great Plains ........................................ 16</td>
</tr>
<tr>
<td>adjustment screw ................................................................ 49</td>
</tr>
<tr>
<td>adjustments</td>
</tr>
<tr>
<td>clutch .................................................... 89</td>
</tr>
<tr>
<td>finger meter ................................................................ 58</td>
</tr>
<tr>
<td>seed meter .................................................................. 56</td>
</tr>
<tr>
<td>Air Design .................................................................. 128</td>
</tr>
<tr>
<td>air leak ..................................................................... 67</td>
</tr>
<tr>
<td>Alarm Cancel ................................................................ 122</td>
</tr>
<tr>
<td>alignment .................................................................. 125</td>
</tr>
<tr>
<td>alignment, treatment clutch ......................................... 39</td>
</tr>
<tr>
<td>amber reflector ................................................................ 7</td>
</tr>
<tr>
<td>anchor pin ................................................................... 100</td>
</tr>
<tr>
<td>angle, press wheel .................................................. 63</td>
</tr>
<tr>
<td>angle, side gauge wheel ............................................ 54</td>
</tr>
<tr>
<td>apron ......................................................................... 2</td>
</tr>
<tr>
<td>assistance ................................................................... 16</td>
</tr>
<tr>
<td>attachments .................................................................. 15</td>
</tr>
<tr>
<td>auger ......................................................................... 36</td>
</tr>
<tr>
<td>auger height ................................................................. 36</td>
</tr>
<tr>
<td>A-27, manual .................................................................. 15</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>backing plate .................................................................. 59, 83</td>
</tr>
<tr>
<td>black ......................................................................... 19, 121</td>
</tr>
<tr>
<td>blade spreader ............................................................. 96</td>
</tr>
<tr>
<td>blades, coulter .......................................................... 53</td>
</tr>
<tr>
<td>bleeding hydraulics ........................................................ 93</td>
</tr>
<tr>
<td>blockage ...................................................................... 122</td>
</tr>
<tr>
<td>blockage icon .................................................................. 123</td>
</tr>
<tr>
<td>block, brushless ............................................................ 86</td>
</tr>
<tr>
<td>blue ............................................................................ 19</td>
</tr>
<tr>
<td>boots ............................................................................ 2</td>
</tr>
<tr>
<td>bracket ........................................................................ 121</td>
</tr>
<tr>
<td>bridge ......................................................................... 78, 79</td>
</tr>
<tr>
<td>bridges ....................................................................... 35, 75, 78</td>
</tr>
<tr>
<td>brush meter .................................................................. 90, 107, 108</td>
</tr>
<tr>
<td>brush meter clean-out .................................................. 74</td>
</tr>
<tr>
<td>brush meter plates ....................................................... 60</td>
</tr>
<tr>
<td>brush meter, maintenance ............................................... 90</td>
</tr>
<tr>
<td>brushless block .............................................................. 86</td>
</tr>
<tr>
<td>brush, seed tube ............................................................ 74, 109</td>
</tr>
<tr>
<td>bushing, side gauge wheel ............................................. 55</td>
</tr>
<tr>
<td>C</td>
</tr>
<tr>
<td>calibration crank ..................................................... 75</td>
</tr>
<tr>
<td>calibration, gate ........................................................... 81</td>
</tr>
<tr>
<td>calibration, speed .......................................................... 21</td>
</tr>
<tr>
<td>capacities ................................................................... 111</td>
</tr>
<tr>
<td>Captan ........................................................................ 59</td>
</tr>
<tr>
<td>carbide scraper ............................................................... 128</td>
</tr>
<tr>
<td>CAUTION, defined .............................................................. 1</td>
</tr>
<tr>
<td>chain clip .................................................................... 95</td>
</tr>
<tr>
<td>chain maintenance ............................................................ 95</td>
</tr>
<tr>
<td>chain routing .................................................................. 116</td>
</tr>
<tr>
<td>changing meters .............................................................. 57</td>
</tr>
<tr>
<td>check for leaks ............................................................... 18</td>
</tr>
<tr>
<td>checklists</td>
</tr>
<tr>
<td>electrical ...................................................................... 20</td>
</tr>
<tr>
<td>ending planting ............................................................. 44</td>
</tr>
<tr>
<td>field turns ..................................................................... 44</td>
</tr>
<tr>
<td>first pass ...................................................................... 44</td>
</tr>
<tr>
<td>pre-operations ................................................................ 22</td>
</tr>
<tr>
<td>pre-planting ................................................................... 17</td>
</tr>
<tr>
<td>pre-use ......................................................................... 40</td>
</tr>
<tr>
<td>air system ...................................................................... 41</td>
</tr>
<tr>
<td>electrical ....................................................................... 40</td>
</tr>
<tr>
<td>fertilizer ....................................................................... 41</td>
</tr>
<tr>
<td>hydraulic ....................................................................... 40</td>
</tr>
<tr>
<td>mechanical ..................................................................... 41</td>
</tr>
<tr>
<td>meter drive ..................................................................... 41</td>
</tr>
<tr>
<td>row units ....................................................................... 41</td>
</tr>
<tr>
<td>suspending planting ....................................................... 44</td>
</tr>
<tr>
<td>chemical ....................................................................... 38, 57, 82, 90, 91</td>
</tr>
<tr>
<td>chemical containers ........................................................ 3</td>
</tr>
<tr>
<td>chemical hazard ............................................................ 8</td>
</tr>
<tr>
<td>chemicals ..................................................................... 3, 59, 75, 80, 83</td>
</tr>
<tr>
<td>clean-out ....................................................................... 36, 73, 75, 76</td>
</tr>
<tr>
<td>brush meter .................................................................... 74</td>
</tr>
<tr>
<td>finger meter .................................................................... 74</td>
</tr>
<tr>
<td>seed hopper ..................................................................... 73</td>
</tr>
<tr>
<td>clean-out door .................................................................. 37</td>
</tr>
<tr>
<td>clean-out, problem ........................................................ 77</td>
</tr>
<tr>
<td>clean-out, treatment ........................................................ 80</td>
</tr>
<tr>
<td>clip, chain ..................................................................... 95</td>
</tr>
<tr>
<td>clutch ............................................................................ 39</td>
</tr>
<tr>
<td>clutch, meter ................................................................... 34, 89</td>
</tr>
<tr>
<td>clutch, treatment drive .................................................. 39</td>
</tr>
<tr>
<td>color code, hose ............................................................. 19</td>
</tr>
<tr>
<td>color code, power ........................................................... 121</td>
</tr>
<tr>
<td>color code, seed plate .................................................... 108</td>
</tr>
<tr>
<td>confined space ................................................................ 75, 76</td>
</tr>
<tr>
<td>confined space hazard ..................................................... 11</td>
</tr>
<tr>
<td>congealed materials ........................................................ 77</td>
</tr>
<tr>
<td>connectors</td>
</tr>
<tr>
<td>electrical ...................................................................... 20</td>
</tr>
<tr>
<td>console ......................................................................... 121</td>
</tr>
<tr>
<td>seed monitor .................................................................... 121</td>
</tr>
<tr>
<td>contact ......................................................................... 16</td>
</tr>
<tr>
<td>contact, disk blades ....................................................... 96</td>
</tr>
<tr>
<td>contact, opener disk ........................................................ 54</td>
</tr>
<tr>
<td>containers, chemical ........................................................ 3</td>
</tr>
<tr>
<td>contamination .................................................................. 3</td>
</tr>
<tr>
<td>continuous flow ............................................................... 19</td>
</tr>
<tr>
<td>corn ............................................................................. 107</td>
</tr>
<tr>
<td>corn meter ..................................................................... 85</td>
</tr>
<tr>
<td>cotton .......................................................................... 108</td>
</tr>
<tr>
<td>coulter blades ............................................................... 107</td>
</tr>
<tr>
<td>coulters ........................................................................ 15</td>
</tr>
<tr>
<td>coulter, frame-mounted .................................................... 50</td>
</tr>
<tr>
<td>coulter, unit mounted ....................................................... 53</td>
</tr>
<tr>
<td>coulter, unit-mounted ...................................................... 51</td>
</tr>
<tr>
<td>coupler .......................................................................... 39</td>
</tr>
<tr>
<td>coupler, meter .................................................................. 34</td>
</tr>
<tr>
<td>coupler, treatment drive .................................................... 39</td>
</tr>
<tr>
<td>crushing hazard .............................................................. 8</td>
</tr>
<tr>
<td>crusts ............................................................................. 35, 75, 78, 79</td>
</tr>
<tr>
<td>cushion, Skip Stop ........................................................... 84</td>
</tr>
<tr>
<td>cylinder rods .................................................................... 17</td>
</tr>
<tr>
<td>cylinder rods, greasing .................................................... 46</td>
</tr>
<tr>
<td>cylinder symbols ............................................................. 19</td>
</tr>
<tr>
<td>D</td>
</tr>
<tr>
<td>DANGER, defined ............................................................... 1</td>
</tr>
<tr>
<td>daytime reflector ................................................................ 7</td>
</tr>
<tr>
<td>decal installation ............................................................ 6</td>
</tr>
<tr>
<td>decals ............................................................................ 1, 6</td>
</tr>
<tr>
<td>caution ............................................................................ 14</td>
</tr>
<tr>
<td>general ......................................................................... 14</td>
</tr>
<tr>
<td>no step ......................................................................... 13</td>
</tr>
<tr>
<td>tire pressure .................................................................... 13, 14</td>
</tr>
<tr>
<td>danger .............................................................................. 8</td>
</tr>
<tr>
<td>chemical ........................................................................ 8</td>
</tr>
<tr>
<td>crushing ........................................................................ 8</td>
</tr>
<tr>
<td>electrocution .................................................................... 9</td>
</tr>
<tr>
<td>riders .............................................................................. 9</td>
</tr>
<tr>
<td>warning .......................................................................... 11</td>
</tr>
<tr>
<td>confined space .................................................................. 11</td>
</tr>
<tr>
<td>eye and dust .................................................................... 12</td>
</tr>
<tr>
<td>falling ........................................................................... 12</td>
</tr>
<tr>
<td>fan ............................................................................... 11</td>
</tr>
<tr>
<td>HPF .............................................................................. 10</td>
</tr>
<tr>
<td>moving parts .................................................................... 11, 12</td>
</tr>
<tr>
<td>overhead hazard .............................................................. 10</td>
</tr>
<tr>
<td>pinch-crush ..................................................................... 9</td>
</tr>
<tr>
<td>pinch-shear ....................................................................... 9</td>
</tr>
<tr>
<td>speed ............................................................................. 10</td>
</tr>
<tr>
<td>definitions ...................................................................... 15</td>
</tr>
<tr>
<td>degrease rods ................................................................. 17</td>
</tr>
<tr>
<td>depth control .................................................................... 31, 44</td>
</tr>
<tr>
<td>description of unit ........................................................ 15</td>
</tr>
<tr>
<td>DICKEY-john® .................................................................. 21, 121</td>
</tr>
<tr>
<td>dimension, particle .......................................................... 38</td>
</tr>
<tr>
<td>directions ....................................................................... 15</td>
</tr>
<tr>
<td>disable drive ................................................................. 39</td>
</tr>
<tr>
<td>disconnecting hydraulic lines ............................................ 18</td>
</tr>
<tr>
<td>disk angle, marker ........................................................... 49</td>
</tr>
<tr>
<td>disk blades ...................................................................... 96</td>
</tr>
<tr>
<td>disk coulters, unit-mount .................................................. 107</td>
</tr>
<tr>
<td>DISPLAY &amp; SERVICE ......................................................... 122</td>
</tr>
<tr>
<td>disposal .......................................................................... 3</td>
</tr>
<tr>
<td>doors, meter .................................................................... 37</td>
</tr>
<tr>
<td>double disk opener ............................................................ 51</td>
</tr>
<tr>
<td>doubles .......................................................................... 58</td>
</tr>
<tr>
<td>down pressure ................................................................. 52</td>
</tr>
</tbody>
</table>

Great Plains | 401-832M | 2018-07-31
down pressure, press wheel .................................................62
drive systems .........................................................48
drive, disable ..........................................................39
dry fertilizer ..........................................................37
dry fertilizer rate .........................................................48
dust ............................................................................78
dust hazards ...............................................................12
Dwyer ......................................................................15
E
electrocution ..............................................................42
electrocution hazard ......................................................9
emergency ...................................................................1
ENTER .........................................................................122, 123
entrapment .....................................................................35, 75, 78
entry, hopper ...............................................................78
ESCAPE ........................................................................122
extension, marker ..........................................................126
eye hazards ....................................................................12
eye-bolt .........................................................................124
F
face shield .................................................................2
falling hazard ....................................................................2
fan ..................................................................................19
fan hazard .......................................................................11
fan speed ..........................................................................42
fertilizer drive lock up ...................................................30
fertilizer hopper .............................................................35
fertilizer rate .................................................................48
field operation ...............................................................44
finger meter .................................................................85
finger meter clean-out ...................................................74
finger meters ....................................................................107
finger set ..........................................................................85
finger sets .........................................................................82
fire ....................................................................................1, 3
Firestone .........................................................................112
first field use .....................................................................17
fluted ..............................................................................107
fold .....................................................................................29
fold circuit .........................................................................19
fold hydraulics, bleeding ...............................................93
folding .............................................................................28
folding speed, markers ..................................................49
frame leveling ..................................................................124
frame lift lock .................................................................25
frame lock .........................................................................25
frame-mounted coulter ......................................................50
fumes ............................................................................35, 75, 78
furrow, 25P ....................................................................52
G
gate calibration ...............................................................81
gate, treatment meter ......................................................38
gauge wheel .................................................................124
gauge wheel scraper ......................................................55, 109
gauge wheels ..................................................................26, 29
gauge wheel, row unit .....................................................97
gauge, pressure ...............................................................42
goggles .............................................................................2
Goodyear ..........................................................................112
granular treatment ..........................................................38
graphite ..........................................................................33, 59, 83, 106
graphite powder .............................................................104
gray .....................................................................................19
 grease cylinder rods ......................................................46
ground drive spring .........................................................72
H
handrail, swing down ....................................................36
harness .............................................................................121
hat .....................................................................................1
hazard .............................................................................1
headphones ......................................................................2
heavy-duty springs ........................................................52, 106
height, auger .................................................................36
height, tongue .................................................................19
hex adjuster .................................................................55, 97
high pressure fluid ..........................................................2, 10
hitching .............................................................................18
hitch, 3-point .....................................................................18
holding pin .........................................................................20
hook cups ..........................................................................73
hooks, transport ............................................................23, 24
hook, tongue .....................................................................24
hook, transport ..................................................................22
hopper .............................................................................32, 35
hopper clean-out, seed ..................................................73
hopper entry ......................................................................79
hopper installation ..........................................................33
hopper level sensor ........................................................79
hopper lid ..........................................................................33
hopper removal, seed ......................................................73
hopper, fertilizer .............................................................35
hopper, seed .......................................................................33
hopper, treatment ..........................................................38
HPF (High Pressure Fluid) .............................................10
humidity ...........................................................................104
hydraulic diagrams ........................................................113
hydraulic flow ....................................................................42
hydraulic leaks ...............................................................2
hydraulic selector switch 23, 27, 29, 43
hydraulic system diagrams ............................................113
I
inflating tires .................................................................4
injury ....................................................................................2
insert, finger meter .........................................................59, 83
insert, meter ........................................................................83, 86
inside disk scraper ........................................................109
installation .......................................................................109
monitor console .............................................................121
installation, scraper .........................................................128
intended usage ..............................................................15
I/O .....................................................................................123
K
Keeton ...............................................................................128
Keeton seed firmer ..........................................................61
knob, treatment rate ........................................................38
latch, seed hopper ...........................................................73
latch, tongue .................................................................24
leak checks .........................................................................18
leaks .................................................................................2, 35, 93
leak, air .............................................................................67
left-hand, defined .........................................................15
length, change at unfolding ...........................................23
level .................................................................................124
level sensor, hopper .......................................................79
levelling frame ...............................................................124
lid, hopper .........................................................................34, 36
lid, seed hopper ...............................................................33
lid, treatment .................................................................38
lift circuit .............................................................................19
lift cylinder lock ............................................................25, 72
lift hydraulics, bleeding ...............................................93
lift lock .............................................................................72
lighting .............................................................................20
lights ...............................................................................3, 31
liquid treatment ...........................................................37
load control ........................................................................44
location .............................................................................16
model number ...............................................................16
serial number .....................................................................16
lock .....................................................................................1
fertilizer drive lock-up ....................................................30
lift cylinder .................................................................25, 72
transport cylinder ...........................................................26, 29
lock channel .....................................................................72
lock channels ....................................................................26, 29, 31
Lock Storage .................................................................26
lock up, fertilizer ............................................................30
locks, transport .............................................................26, 27
lockup channels ..................................................................45
lockup, fertilizer drive ....................................................40
lock-up, Seed-Lok® ..........................................................61
lockup, wing drive ..........................................................40
lock, frame lift .................................................................25
lock, wing ..........................................................................22, 24
low speed kit .....................................................................105
lowering .............................................................................27
lubricants, seed .............................................................106
lubricant, seed ...............................................................33, 104
lubrication ..........................................................................98
caster pivot arms ...........................................................98
caster wheel pivot ..........................................................102
chains ..............................................................................101
contact drive .................................................................101
fertilizer .................................................................101
seed meter .................................................................101
FM coulter hub ..............................................................103
FM coulter pivot ............................................................102
gauge wheel .................................................................103
marker hinges ..............................................................99
marker hub .................................................................103
parallel pivot arms .........................................................99
tongue roller ...............................................................100
wheel bearings ........................................... 102
M
Magnehelic® ........................................ 15, 42
maintenance ........................................... 5, 71
maintenance lock ........................................ 72
manifold pressure ....................................... 42
manual, about ........................................... 15
mark width ............................................. 49
marker .................................................. 10, 94, 99, 103
marker adjustments ..................................... 49
marker circuit ........................................... 19
marker extension ....................................... 126
marker hydraulics, bleeding ......................... 94
marker operation ....................................... 42
marker sequence ....................................... 43
marker speed ............................................ 49
marker width ........................................... 126
markers .................................................. 31, 105
Marker/Fold switch ................................... 27
mark/fold switch ....................................... 23
material rates .......................................... 48
material safety data sheets .......................... 79
Maxi ....................................................... 59
medical assistance ...................................... 2
meter box, removing ................................... 77
meter clean-out, brush .................................. 74
meter clean-out, finger .................................. 74
meter clutch ............................................. 89
meter doors ............................................. 37
meter exchange ......................................... 57
Meyer Max ................................................ 82
meter removal .......................................... 57
meters, brush .......................................... 108
meter, finger ............................................ 107
metric mode ............................................. 122
milo ...................................................... 108
model number (yours) ................................... 16
modifications ........................................... 15
monitor ................................................... 20
monitor operation ....................................... 41
monitor power .......................................... 122
monitor setup .......................................... 21
moving parts hazard .................................... 12
moving parts hazards ................................... 11
mph ...................................................... 56
MSDS ..................................................... 38, 79
N
narrow transport ....................................... 15
Note, defined ............................................ 15
Notice, defined ......................................... 15
O
obstructions ............................................. 79
opener disk ............................................. 51, 53
opener disks ............................................ 96
opener scrapers ......................................... 96
operating .................................................. 22
options ................................................... 15, 105
orientation rose ......................................... 15
OSHA .................................................... 79
overhead hazard ....................................... 10
overhead line .......................................... 42
overhead power lines ................................... 4
oxygen ................................................... 78
P
paint ..................................................... 46
parallel arms ............................................ 51
parking ................................................... 45
parking stand .......................................... 20, 45
particle dimension ...................................... 38
Parts Manual .......................................... 15
permit-required confined space ....................... 79
pests ..................................................... 37, 57, 59
pickup sensor .......................................... 126
pickup wheel ............................................ 126
pinch-shear hazard ..................................... 10
PLANTER SETUP ....................................... 123
planting depth .......................................... 53
planting speed .......................................... 56
planting, ending ......................................... 44
planting, suspending ................................... 44
plastic sealant tape ..................................... 93
plates, seed ............................................ 60, 91
plate, seed ............................................. 108
PM400 .................................................. 15, 21, 121
Population Max .......................................... 83
power ..................................................... 121
Precision™ ............................................. 59
pre-delivery ............................................. 121
preparation .............................................. 17
press wheels ........................................... 51, 62, 110
pressure gauge .......................................... 42
pressure, manifold ..................................... 42
prop stands ............................................. 45
protective equipment .................................. 2
public roads ............................................. 31
R
radar calibration ......................................... 126
raising ................................................... 27
raising/lowering tongue ................................ 19
rates, material .......................................... 48
red ....................................................... 121
red reflector ............................................ 6
reflector ................................................... 6
amber ..................................................... 7
daylight .................................................. 7
red ....................................................... 6
SMV ..................................................... 6
reflector ................................................... 6
reflectors .................................................. 4, 6
remove meter .......................................... 57
remove meter box ...................................... 77
removing seed hopper ................................... 73
repair ...................................................... 16
re-phase ................................................ 27, 124
rephase cylinders ..................................... 27
rephasing ................................................ 24
rephasing fold system .................................. 30
rephasing lift system .................................... 27
re-shipment ............................................. 17
respirator ............................................... 2
riders .................................................... 3, 9
right-hand, defined .................................... 15
roads ..................................................... 3
rods, greasing .......................................... 46
rose, orientation ........................................ 15
rough terrain .......................................... 4
row configuration ....................................... 121
Row Spacing .......................................... 123
row unit .................................................. 51
row-unit adjustments ................................... 15
rpm, fan ................................................ 42
S
safety decals ............................................ 6
safety information ...................................... 1
hopper entry ......................................... 78
safety symbol .......................................... 1
scraper ................................................. 128
scraper installation ................................... 128
scraper, disk, outside .................................. 109
scraper, gauge wheel ................................. 55, 109
seed firmer ............................................. 51
seed firmers ............................................ 61
seed flap ................................................ 97
seed hopper ............................................ 33
seed hopper clean-out .................................. 73
seed hopper removal ................................... 73
seed lubricant .......................................... 33, 104
seed lubricants .......................................... 106
seed meters ............................................. 107
seed monitor console .................................. 121
seed plates .............................................. 60, 91, 108
seed rate ................................................ 48
Seed Rate Manual ...................................... 15
seed treatment .......................................... 57, 82, 83, 90, 91
seed tube clean-out .................................... 74
seeding icon ........................................... 123
Seed-Lok® ............................................. 61, 109, 110, 128
sensor harness ......................................... 121
sensor, hopper level .................................... 79
sensor, pickup .......................................... 126
sequence valve ......................................... 43, 49
sequence, markers ..................................... 43
serial number (yours) ................................. 16
setup ..................................................... 17
setup, initial .......................................... 17
shank, side gauge wheel ................................ 55
shutdown ................................................ 4
side gauge wheel ....................................... 97
side gauge wheels ...................................... 54
side gauge wheel, 25P ................................. 52
signal words ........................................... 1
silicone sealant ......................................... 77
Skip Stop ............................................... 84
skips .................................................... 58
slack, chain ............................................. 95
slide roller ............................................ 100
Slow Moving Vehicle ............................ 6
SMV (Slow Moving Vehicle) .................... 6
soybean ............................................. 108
spacer washers ..................................... 54
specifications ..................................... 111
speed calibration .................................. 21
speed limit ......................................... 4
speed sensor ....................................... 20, 121
speed, fan .......................................... 42
speed, planting ..................................... 56
springs, heavy-duty .............................. 106
springs, row unit ................................... 52
spring, frame coulter ............................. 50
spring, ground drive .............................. 72
SRM ................................................... 40, 44
stagger, press wheel ............................. 63
stands, 3-point ..................................... 18
sticky soils ......................................... 55, 109
storage ............................................. 4, 17, 37, 46
strainer ............................................. 36, 77
stubby material .................................... 77
suffocation ......................................... 35, 75, 78
sunflower ........................................... 107
sunflower meter .................................... 107
sway blocks ........................................ 18
switches ............................................ 53
  Lift/Hitch ....................................... 27
  Marker/Fold .................................... 23, 26, 27
Symbol, Safety .................................... 1
T .......................................................... 53
table  .................................................. 47
capacities .......................................... 111
covered models .................................... 15
documents ......................................... 15
hose color code .................................... 19
marker extension ................................. 126
models covered .................................... 15
specifications .................................... 111
torque values ..................................... 120
troubleshooting .................................... 68
  general .......................................... 65, 66, 67, 68
  population ..................................... 65, 66, 67, 68
  seed delivery ................................... 67
  weights, planter ............................... 31
YP1630F 70cm specifications .................. 111, 112
talc .................................................. 33, 106
talc-graphite lubricant .......................... 104
tape, pipe ......................................... 93
T-handle ............................................ 52
tire pressure ....................................... 13, 14
tires .................................................. 4
Titan .................................................. 112
tongue ............................................... 30
tongue height ...................................... 19
tongue hook ....................................... 24
tongue latch ....................................... 24
tongue safety latch .............................. 24
tongue, raising/lowering ....................... 19
top link ............................................. 20
torque values ...................................... 120
torque, finger set ................................ 87
torque, finger meter ............................. 82
toxic gases ........................................ 78
tractor movement, at unfolding ............. 23
transport ............................................ 4
transport hook .................................... 22, 23
transport hooks ................................... 23, 24
transport lock ..................................... 26, 29
transport locks ................................... 26, 27
transport weight ................................... 31
transporting ........................................ 31
treated seed ....................................... 57, 60, 82, 90, 91
treatment clean-out ......................... 80, 81
treatment hopper ................................ 38
  treatment meter gate ......................... 81
  treatment rate .................................. 48
turbo ............................................... 107
U ....................................................... 53, 107
  UMC (unit-mount coulter) ................. 53, 107
  unfolding ....................................... 23
  unit-mount coulter ............................ 53
  unit-mount coulters .......................... 107
Units ............................................... 122
unloading .......................................... 73
URLs, tires ........................................ 112
V ....................................................... 50
  Vantage I ....................................... 35, 75, 78
  void ............................................. 50
W ....................................................... 49, 129
  wash-out ....................................... 77
  weight ........................................... 31
  towing vehicle ................................. 4
  weight, planter ................................. 31
  welding ........................................... 5
  wide transport .................................. 15
  wing alignment ................................ 125
  wing drive lockup ............................. 40
  wing lock ....................................... 22, 24
  wing locks ..................................... 31
  wings ........................................... 24, 124
Y ........................................................ 15
  YP1630F .......................................... 15
  YP1630F-1630ND ............................. 15
  YP1630F-1630NS ............................ 15
  YP1630F-1630WD ............................ 15
  YP1630F-1630WS ............................ 15
  YP1630F-1670ND ............................ 15
  YP1630F-1670NS ............................ 15
  YP1630F-1670WD ............................ 15
  YP1630F-1670WS ............................ 15
Symbols ............................................. 110
(03), option ....................................... 110
(04), option ....................................... 110
(05), option ....................................... 110
(06), option ....................................... 110
(07), option ....................................... 110
(08), option ....................................... 110
(09), option ....................................... 110
(10), option ....................................... 110
(15), option ....................................... 110
(16), option ....................................... 110
(23), option ....................................... 110
(24), option ....................................... 110
(28), option ....................................... 110
(29), option ....................................... 110
(30), option ....................................... 110
(31), option ....................................... 110
(32), option ....................................... 107
(33), option ....................................... 107
(34), option ....................................... 107
Numerics ............................................. 110
11001-1372, manual .......................... 15, 21, 121
122-177D, tube ................................. 128
122-278S, scraper ................................ 109
129BXT824, bracket ............................ 128
20 mph ........................................... 4, 10
204-376M, manual ................................ 124
26in .................................................. 124
29 CFR 1910.146 ................................. 79
3-point ............................................. 18
3-Point hitch ..................................... 18
3-point stands ................................. 45
30 Series ........................................... 51
32 kph ............................................ 4
32-row ............................................ 122
33x15.5x16.5 ................................... 112
380/90R46 ......................................... 112
395/55B16.5 ...................................... 112
401-832B, manual ............................. 15, 47, 48
401-832M, manual ............................. 15
401-832P, manual .............................. 15
402-520A, kit .................................... 105
404-034V, tool .................................... 81
404-048A, meters ................................ 108
404-048K, brush meter ......................... 108
404-659A, finger kit .......................... 107
404-018K, FP meter ............................ 107
404-093K, Seed-Lok® ......................... 110
404-333A, FP meter ............................ 107
404-823A, scraper .............................. 109
404-824A, scraper .............................. 109
404-825A, scraper .............................. 109
406-006S, springs .............................. 106
42in ................................................. 19, 124
802-024C, bolt .................................. 128
802-130C, shear bolt .......................... 94
802-172C, bolt ................................... 128
803-014C, nut .................................... 128
<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>803-043C</td>
<td>nut</td>
<td>128</td>
</tr>
<tr>
<td>804-011C</td>
<td>washer</td>
<td>128</td>
</tr>
<tr>
<td>804-013C</td>
<td>washer</td>
<td>128</td>
</tr>
<tr>
<td>817-282C</td>
<td>seed plate</td>
<td>108</td>
</tr>
<tr>
<td>817-283C</td>
<td>seed plate</td>
<td>108</td>
</tr>
<tr>
<td>817-284C</td>
<td>seed plate</td>
<td>108</td>
</tr>
<tr>
<td>817-285C</td>
<td>seed plate</td>
<td>108</td>
</tr>
<tr>
<td>817-286C</td>
<td>seed plate</td>
<td>108</td>
</tr>
<tr>
<td>817-287C</td>
<td>seed plate</td>
<td>108</td>
</tr>
<tr>
<td>817-288C</td>
<td>seed plate</td>
<td>108</td>
</tr>
<tr>
<td>817-289C</td>
<td>seed plate</td>
<td>108</td>
</tr>
<tr>
<td>817-290C</td>
<td>seed plate</td>
<td>108</td>
</tr>
<tr>
<td>818-045C</td>
<td>decal</td>
<td>9</td>
</tr>
<tr>
<td>818-055C</td>
<td>reflector, SMV</td>
<td>6</td>
</tr>
<tr>
<td>818-188C</td>
<td>decal</td>
<td>10</td>
</tr>
<tr>
<td>818-323C</td>
<td>decal</td>
<td>8</td>
</tr>
<tr>
<td>818-339C</td>
<td>decal</td>
<td>10</td>
</tr>
<tr>
<td>818-398C</td>
<td>decal</td>
<td>13</td>
</tr>
<tr>
<td>818-578C</td>
<td>decal</td>
<td>13</td>
</tr>
<tr>
<td>818-579C</td>
<td>decal</td>
<td>10</td>
</tr>
<tr>
<td>818-580C</td>
<td>decal</td>
<td>10</td>
</tr>
<tr>
<td>818-590C</td>
<td>decal</td>
<td>8</td>
</tr>
<tr>
<td>818-860C</td>
<td>decal</td>
<td>11</td>
</tr>
<tr>
<td>820-331C</td>
<td>blade</td>
<td>107</td>
</tr>
<tr>
<td>821-042C</td>
<td>graphite</td>
<td>104</td>
</tr>
<tr>
<td>821-060C</td>
<td>graphite</td>
<td>104</td>
</tr>
<tr>
<td>821-069C</td>
<td>Ezee Glide Plus Talc</td>
<td>106</td>
</tr>
<tr>
<td>821-069C</td>
<td>graphite+talc</td>
<td>104</td>
</tr>
<tr>
<td>838-265C</td>
<td>reflector, amber</td>
<td>7</td>
</tr>
<tr>
<td>838-266C</td>
<td>reflector, red</td>
<td>6</td>
</tr>
<tr>
<td>838-267C</td>
<td>reflector, daytime</td>
<td>7</td>
</tr>
<tr>
<td>838-599C</td>
<td>decal</td>
<td>9</td>
</tr>
<tr>
<td>838-995C</td>
<td>decal</td>
<td>14</td>
</tr>
<tr>
<td>848-392C</td>
<td>decal</td>
<td>12</td>
</tr>
<tr>
<td>848-575C</td>
<td>decal</td>
<td>12</td>
</tr>
<tr>
<td>848-576C</td>
<td>decal</td>
<td>12</td>
</tr>
<tr>
<td>848-583C</td>
<td>decal</td>
<td>9, 11</td>
</tr>
<tr>
<td>858-011C</td>
<td>decal</td>
<td>14</td>
</tr>
<tr>
<td>890-840C</td>
<td>seed firmer</td>
<td>110</td>
</tr>
<tr>
<td>890-928C</td>
<td>scraper</td>
<td>128</td>
</tr>
<tr>
<td>891-259C</td>
<td>brush</td>
<td>74, 109</td>
</tr>
</tbody>
</table>