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

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

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Serial Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Machine Height</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Machine Length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Machine Width</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Machine Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year of Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Delivery Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>First Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>


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 ....................................................................5
Introduction .................................................................................14
   Description of Unit .................................................14
   Intended Usage ................................................................14
   Models Covered ....................................................15
   Document Family ..................................................15
   Using This Manual .................................................15
   Definitions .....................................................................15
   Owner Assistance ..................................................16
   Further Assistance ..................................................16
Preparation and Setup .................................................................17
   Post-Delivery/Seasonal Setup ................................17
   Pre-Planting Setup ................................................17
   Hitching to Tractor ................................................18
   Top Link Adjustments ...........................................18
   Lower Link Adjustments .......................................18
   Hydraulic Hose Hookup ......................................19
   Protecting Fan Hydraulic Motor Seals ................19
   Electrical Hookup ...............................................20
   Raise Parking Stands ...........................................21
   Leveling the Planter ...............................................22
   Center Frame L/R Leveling ................................22
   Wing Leveling ...................................................22
   Front-to-Back Leveling .....................................23
Operating Instructions .................................................................24
   Pre-Start Checklist .............................................24
   Implement Locks ................................................25
   Wing Lock and Flex Lock Pin Use .......................25
   Lift-Assist Locks (Option) ................................26
   Raising/Lowering Planter ................................26
   Raise/Lower 3-Point ...........................................26
   Raise/Lower 2-Point with Lift Assist ................26
   Folding .............................................................27
   Unfolding ..........................................................29
   Transporting the Planter ................................29
   Transport Checklist .............................................30
   Loading Seed ......................................................31
   Machine s/n: ......................................................31
   Machine S/N: ..................................................33
   Planter Monitor Operation ................................35
   Machines with Hydraulic Drive Row Units ..........35
   Ground Drive Operation ................................36
   Hydraulic Drive Operation ................................36
   Air System Operation .........................................37
   Air and Seeding System Overview ................38
   Air-Pro® Meter Operation ................................40
   Meter Operation ...............................................40
   Field Set-Up Checklists ......................................41
   Field Operation ................................................42
   Short-Term Parking ...........................................43
   Long-Term Storage ...........................................44
Adjustments ................................................................................45
   Setting Seed Rate .............................................45
   Planting Rate Details, PM400 Monitor ...............46
   Planting Rate Details, AI-120 Monitor ...............47
   Fan and Adjustment .............................................48
   Fine-Tuning Meter Pressurization .................49
   Frame Offset .....................................................50
   Resume Twin-Row .............................................50
   Gauge Wheel Functions ...................................51
   Setting Ground Drive ....................................51
   Gauge Wheel Adjustments ................................52
   (S/N C1104S-) ......................................................52
   Ground Drive Adjustments ................................52
   Gauge Wheel Adjustments ................................52
   (S/N C1105S+) ......................................................52
   Ground Drive Adjustments ................................53
   Planting on Beds (All Models) .........................53
   Front Seeding Switch Adjustment .................54
   Rear Seeding Switch Adjustment ....................55
   Hydraulic Down Pressure (Option) .................56
   Lift-Assist Needle Valve Adjustment (Option) ....57
   Initial Down-Pressure Setup .........................58
   Down-Pressure Adjustment .........................59
   Hydraulic Down-Float Adjustments (Option) ....60
   25AP Series Row Unit Adjustments ................61
   Row Unit Down Pressure ................................62
   Unit-Mount Cleaner Adjustments .................64
   Coulter Adjustments ......................................65
   Row-Unit Opener Disk Adjustments ................67
   Side Gauge Wheel Adjustment .....................68
   Seed Meter Setup and Adjustment ................70
   Air-Pro Meter Disc Installation ....................72
   Row Unit Shut-Off .........................................73
   Seed Firmer Adjustments ................................75
   Press Wheel Adjustment ................................77
Troubleshooting ............................................................................79
   Planting Rate Problems ................................79
   Seed Pool Troubleshooting ................................80
   Magnehelic Gauge Troubleshooting ..............81

© Copyright 2014-2020. 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.
Registered Trademarks of Great Plains Manufacturing, Inc. include: Air-Pro, Clear-Shot, Discovator, Great Plains, Land Pride, MeterCone,
Brand and Product Names that appear and are owned by others are trademarks of their respective owners.

Great Plains | 411-099M | 2020-08-06
Seed Population Troubleshooting Chart..........................82
Maintenance and Lubrication ..............................................88
  Maintenance ..................................................................88
  Material Clean-Out ......................................................89
  Meter Clean-Out ..........................................................90
  Meter Brush Maintenance .............................................91
    Meter Brush Replacement .........................................92
  Seed Disc Maintenance ................................................93
  Speed Sensor Gap, Ground Drive ..................................93
  Speed Sensor Gap, Hydraulic Drive ...............................94
  Chain Maintenance .....................................................94
    Meter Drive Chain ...................................................95
  Spreader and Scrapers ..................................................95
  Row-Unit Side Wheels ................................................96
  Seed Flap Replacement ................................................96
  Lubrication ................................................................97
  Seed Lubricants ..........................................................102
Options .............................................................................103
Appendix A - Reference Information ................................110
  Specifications and Capacities .......................................110
  Torque Values Chart ..................................................112
  Dimensions (Field) .....................................................113
  Dimensions (Transport) ..............................................114
  Hydraulic Diagrams ...................................................115
  Hitch Configurations ...................................................122
    Category III Wide and IV Narrow (411-070A) .................122
    Category III Narrow (411-136A) ..................................122
    Category IV Wide (411-071A) ......................................122
  Chain Routing ............................................................123
  Chain Routing for Hydraulic Drive .................................126
  Final Meter Drive ........................................................127
Appendix C - Setup .............................................................128
  Planter Monitor Console Installation, PM400 ..................128
  Planter Monitor Console Quick-Start ...............................128
    Power-Up The Console ..............................................129
    Metric Mode ............................................................129
    Set Planter Row Count ..............................................129
    Set Planter Row Spacing ............................................130
    Row Setup ..............................................................130
    Setting up the PM400 Planter Monitor according to Planter Configuration ..................................................131
    122-278S Scraper Installation .....................................133
Warranty .............................................................................134
Important Safety Information

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

Be Aware of Signal Words
Signal words designate a degree or level of hazard seriousness.

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

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

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

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

Be Familiar with Safety Decals
▲ Read and understand “Safety Decals” on page 5, thoroughly.
▲ Read all instructions noted on the decals.
▲ Keep decals clean. Replace damaged, faded, and illegible decals.
Wear Protective Equipment

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

Avoid High Pressure Fluids

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

Use Safety Lights and Devices

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

Use lights and devices provided with implement.

Keep Riders Off Machinery

Riders obstruct the operator’s view. Riders could be struck by foreign objects or thrown from the machine.
▲ Never allow children to operate equipment.
▲ Keep all bystanders away from machine during operation.
Transport Machinery Safely

- Maximum transport speed for planter is 20 mph (32 km/h).
- Maximum when turning is 13 mph (21 km/h).
- Some rough terrains require a slower speed. Sudden braking can cause a towed load to swerve and upset.
  ▲ Do not exceed 20 mph (32 km/h). Never travel at a speed which does not allow adequate control of steering and stopping. Reduce speed if towed load is not equipped with brakes.
  ▲ Do not exceed 13 mph (21 km/h) in turns. The weight of the planter can cause under-steer, and the height of the planter is a tipping hazard.
  ▲ Comply with state and local laws.
  ▲ Do not tow an planter unless the towing vehicle is rated for, and ballasted for, the weight of the planter.
  ▲ Carry reflectors or flags to mark planter in case of breakdown on the road.
  ▲ Do not fold or unfold the planter while the tractor is moving.

Check for Overhead Lines

The planter requires at least 15 feet (4.5 m) vertical clearance in transport. Contacting overhead electrical lines can introduce lethal voltage levels on planter and tractor frames. A person touching almost any metal part can complete the circuit to ground, resulting in serious injury or death. At higher voltages, electrocution can occur without direct line or body contact.

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

Shutdown and Storage

▲ Lower planter, put tractor in park, turn off engine, and remove the key.
▲ Secure planter using blocks and supports provided.
▲ Detach and store planter in an area where children normally do not play.
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 system pressure is relieved.
▲ 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 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.

Slow Moving Vehicle Reflector

818-055

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

Red Reflectors

838-266C

Placements vary by machine configuration. Red reflectors are above daytime reflectors.

- On the rear face of outboard center section hoppers.
- On the rear outboard face of wing tool bars, where not obscured by row hoppers. On the rear face of outboard row hoppers, where those hoppers obscure the wing tool bars.
- On the rear face of the lift-assist caster weldments, if lift-assist present.

4 or 6 total
Placements vary by machine configuration. Red reflectors are above daytime reflectors.

- On the rear face of outboard center section hoppers.
- On the rear outboard face of wing tool bars, where not obscured by row hoppers. On the rear face of outboard row hoppers, where those hoppers obscure the wing tool bars.
- On the rear face of the lift-assist caster weldments, if lift-assist present.

4 or 6 total

Placements vary by machine configuration. Red reflectors are below daytime reflectors.

- On the rear face of outboard center section hoppers.
- On the rear outboard face of wing tool bars, where not obscured by row hoppers. On the rear face of outboard row hoppers, where those hoppers obscure the wing tool bars.
- On the rear face of the lift-assist caster weldments, if lift-assist present.

4 or 6 total

**Daytime Reflectors**

838-267C

Placements vary by machine configuration. Daytime reflectors are below red reflectors.

- On the rear face of outboard center section hoppers.
- On the rear outboard face of wing tool bars, where not obscured by row hoppers. On the rear face of outboard row hoppers, where those hoppers obscure the wing tool bars.
- On the rear face of the lift-assist caster weldments, if lift-assist present.

6 or 8 total
Placements vary by machine configuration. Daytime reflectors are below red reflectors.

- On the rear outboard face of wing tool bars, where not obscured by row hoppers. On the rear face of outboard row hoppers, where those hoppers obscure the wing tool bars.
- On the rear face of the lift-assist caster weldments, if lift-assist present.
4 or 6 total

Placements vary by machine configuration. Daytime reflectors are above red reflectors.

- On the rear outboard face of wing tool bars, where not obscured by row hoppers. On the rear face of outboard row hoppers, where those hoppers obscure the wing tool bars.
- On the rear face of the lift-assist caster weldments, if lift-assist present.
4 or 6 total

Amber Reflectors
838-265C

Placements vary by machine configuration.

- On the front face of wing tool bars, outside ends.
- On the outside faces of the outer hoppers.
- On the outside faces of the lift-assist caster weldments, if lift-assist present.
4 or 6 total
Amber Reflectors
838-265C

Placements vary by machine configuration.
- On the front face of wing tool bars, outer ends.
- On the front face of decal plate mounted on center section.
- On the outside faces of the outer hoppers.
- On the outside faces of the lift-assist caster weldments, if lift-assist present.

10 total

Danger: Read Manual
848-512C

On tongue at hitch;
1 total

Danger: Hitch Crush
818-590C

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

Danger: Electrocution
838-599C

On front face of center frame tie tube, left of center;
1 total
Danger: Tip Over / Crushing Hazard
858-097C

On front face of center frame tie tube, left and right of center; 2 total
See page 27 for more detail on this hazard.

Warning: Pinching or Crushing
818-045C

On front face of center frame outer pivot plates; 2 total

Warning: Speed
818-188C

On front face of wing flex base tube; 1 total
Warning: High Pressure Fluid Hazard
818-339C

On front face of tool bar, at center; 1 total

Warning: High Pressure Fluid Hazard (Option)
818-437C

On left face of forward parallel arm mount weldments; 2 total

Warning: Sharp Object (Option)
818-525C

Front face of each row cleaner frame; 12 to 32 total
Warning: Pinching or Crushing
818-579C

On front face of outer wing pivot plates; 2 total

Warning: Fan Hazard
818-632C

On front face of fan post; 1 total

Warning: Moving Chain
818-860C

On front face of tool bar near ground drives; 2 total
Caution: Tires Not a Step
818-398C

On front face of tool bar, near ground drives, on rear face of lift-assist casters (option); 2 or 4 total

Caution: General Instructions
818-587C

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

Caution: Transport Locks (Option)
838-380C

On right face of lift-assist caster weldment; 0 or 2 total
Caution: Tire Pressure and Torque (Option)  
858-773C

![CAUTION]

To Avoid Injury or Machine Damage from Improper Tire Inflation or Torquing of Wheel Bolts:
- Maximum inflation pressure of tires is 73 psi.
- Torque wheel bolts to 170 lb-ft.

On rim of each lift-assist wheel, valve stem side; 0 or 2 total

Caution: Tire Pressure and Torque (Option)  
858-781C

![CAUTION]

To Avoid Injury or Machine Damage from Improper Tire Inflation or Torquing of Wheel Bolts:
- Maximum inflation pressure of tires is 40 psi.
- Torque wheel bolts to 120 ft-lbs.

On rim of each gauge wheel, valve stem side; 2 total

Caution: Top Link (Option)  
858-241C

![CAUTION]

THIS TOP LINK ASSEMBLY IS INSTALLED FOR UNLOADING AND DELIVERY PURPOSES ON MACHINES WITH REAR LIFT ASSIST WHEELS.
ON MACHINES WITH REAR LIFT ASSIST WHEELS THIS TOP LINK ASSEMBLY MUST BE REMOVED DURING FIELD OPERATION OR MACHINE DAMAGE WILL OCCUR.

On top 3-pt link; 1 total
Introduction

Great Plains welcomes you to its growing family of new product owners. The 3-Point 40 Foot Stack-Fold Row-Hopper Yield-Pro® Planter with Air-Pro® Seed Meters (3P4025AH) has been designed with care and built by skilled workers using quality materials. Proper setup, maintenance, and safe operating practices will help you get years of satisfactory use from the machine.

Description of Unit

The 3P4025AH Planter is a 3-point mounted seeding implement for use in conventional and minimum tillage conditions. The three section stack-folding tool bar has a working width of 40 feet (12.2 m).

The planter will have either all ground drive row units or all hydraulic drive row units. If the planter has ground drive row units, a DICKEY-john® PM400 planter monitor is used. If the planter has hydraulic drive row units, a DICKEY-john® AI-120 planter monitor is used.

Row units are equipped with 25 Series double-disc openers, side depth wheels, Air-Pro® seed meters, with seed gravity fed by 1.6 bushel (56 liter) hoppers. Frame options include lift assist, flex lock, wing lock and hydraulic down-pressure. Row options available include row cleaners, coulters, seed firmers, scrapers, press wheels and drags.

Intended Usage

Use the 3P4025AH 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 Yield-Pro Planter.
Models Covered

40-foot single-row models
3P4025AH-1236 12-row, 36 inch spacing
3P4025AH-1238 12-row, 38 inch spacing
3P4025AH-1240 12-row, 40 inch spacing
3P4025AH-1630 16-row, 30 inch spacing

40-foot twin row models
3P4025AH-24TR36 24 twin (12 pr.), 36 in. pair spacing
3P4025AH-24TR38 24 twin (12 pr.), 38 in. pair spacing
3P4025AH-24TR40 24 twin (12 pr.), 40 in. pair spacing
3P4025AH-32TR30 32 twin (16 pr.), 30 in. pair spacing

Document Family
411-099B Seed Rate Manual
411-099M Operator Manual (this document)
411-099P Parts Manual
11001-1372 DICKEY-john® PM400 Operator Manual
401-909M DICKEY-john® Quick AI-120 Reference Guide
110011606 DICKEY-john® AI-120 VT Manual
11001-1662 DICKEY-john® AI-120 WSMT2 User Level 1
11001-1501A DICKEY-john® AI-120 WSMT2 User Level 2/3

Using This Manual
This manual will familiarize you with safety, assembly, operation, adjustments, troubleshooting, and maintenance. Read this manual and follow the recommendations to help ensure safe and efficient operation.
The information in this manual is current at printing. Some parts may change to assure top performance.

Definitions
The following terms are used throughout this manual.

⚠️ Useful information related to the preceding topic.

Outcome to Avoid:
A crucial point of information related to the current topic.
Read and follow the directions to remain safe, avoid serious damage to equipment and ensure desired field results.
Right-hand and left-hand as used in this manual are determined by facing the direction the machine will travel while in use unless otherwise stated. An orientation rose in some line art illustrations shows the directions of: Up, Back, Left, Down, Front, Right.

**Owner Assistance**

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

**Refer to Figure 2**

Your machine’s parts were specially designed and should only be replaced with Great Plains parts. Always use the serial and model number when ordering parts from your Great Plains dealer. The serial-number plate is located in front, above the right end of the 3-point hitch.

Record your 3P4025AH Planter model and serial number here for quick reference:

Model Number: __________________________
Serial Number: __________________________

**Further Assistance**

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

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

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

**Great Plains Service Department**

1525 E. North St.
P.O. Box 5060
Salina, KS 67402-5060

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

This section helps you prepare your tractor and 3P4025AH Planter for use. You must level the planter, hook up the planter hydraulics to the tractor, and check that the hydraulics have been bled.

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

- Install planter monitor console in tractor.
- Install any Options not factory- or dealer-installed.
- Bleed hydraulic fold system (page 96).
- Wing leveling and alignment (page 22).
- De-grease exposed cylinder rods if so protected at last storage.

Pre-Planting Setup
Complete this checklist before routine setup:

- Read and understand “Important Safety Information” starting on page 1.
- Check that all working parts are moving freely, bolts are tight, and cotter pins are spread.
- Check that all zerks are in place and lubricated. See “Lubrication” on page 97.
- Check that all safety decals and reflectors are correctly located and legible. Replace if damaged. See “Safety Decals” on page 5.
Hitching to Tractor

Refer to Figure 3

This planter can come installed with either a universal category III and IV hitch or unchangeable category IV wide hitch. Both require a tractor with a quick attach hitch.

You can off-center the planter’s hitch alignment by adding or removing hardware. See “Lower Link Adjustments”.

**DANGER**

**Crushing Hazard:**

Do not stand or place any part of your body between the planter and moving tractor. You may be severely injured or killed by being crushed between the tractor and planter. Stop tractor engine and set parking brake before making hitch adjustments and connections.

If changing the category of a universal hitch, a top and lower link adjustment are required.

**Top Link Adjustments**

Make a top link (1) adjustment only if changing the category of hitch or after adding lift assist to machine. Planters without lift assist must use a category IV hitch.

**Lift Assist**

For planters without lift assist, place pin in specified hole (A). Planters with lift assist do not place a pin in hole (A).

**Gauge Wheel Settings**

For planters using a category III hitch with rear mounted gauge wheels, install stop plate (2) with pin through hole (D).

For planters using a category IV hitch with rear mounted gauge wheels, install stop plate (2) with pin through hole (E).

⚠️ **NOTE:** The stop plate (2) is not used on planters with front mounted gauge wheels.

**Lower Link Adjustments**

Make a lower link (3) adjustment only if changing the category of hitch or offsetting hitch tractor alignment.

**Altering Hitch Category**

Changing the hitch category requires reconfiguring shims and other hardware used. Refer to “Hitch Configurations” on page 122 for layouts of different hitch categories.

**Offsetting Hitch Alignment**

For planting on beds, you may desire a slight off-centering of the machine. To do so, unhitch tractor hooks from couplings, and then separate the round shim (5) from the spacer (6) by moving it to the opposite side of the pin (7) as shown in Figure 5.

If more than 1/2” of off-centering is desired, move additional available slide-out shims (4) from mounting plate (A) and reinstall them against opposite inside-facing surface of mounting plate (B) as shown. Move no more than 1” of shims from the default category hitch configurations shown on page 122.
Hydraulic Hose Hookup

**WARNING**

*High Pressure Fluid Hazard:*
Only trained personnel should work on system hydraulics! Check all hydraulic lines and fittings before applying pressure. Relieve pressure before disconnecting hydraulic lines. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. Fluid escaping from a very small hole can be almost invisible. Use paper or cardboard, NOT BODY PARTS, to check for leaks. Escaping fluid under pressure can have sufficient pressure to penetrate the skin causing serious injury. If hydraulic fluid is injected into the skin or eyes, seek immediate medical assistance from a physician familiar with this type of injury. Within a few hours gangrene can start to develop. DO NOT DELAY.

*Refer to Figure 6*
Great Plains hydraulic hoses have color coded handle grips to help you hookup hoses to your tractor outlets. Hoses that go to the same remote valve are marked with the same color.

**Color Coded Hose Handles**

<table>
<thead>
<tr>
<th>Color</th>
<th>Hydraulic Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>Fan pressure and return (Case drain has no handle.)</td>
</tr>
<tr>
<td>Blue</td>
<td>Wing down float or down pressure</td>
</tr>
<tr>
<td></td>
<td>Lift-assist (Option)</td>
</tr>
<tr>
<td>Gray</td>
<td>Fold Cylinders</td>
</tr>
<tr>
<td>Yellow</td>
<td>Optional Hydraulic Drive</td>
</tr>
</tbody>
</table>

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 rod ends.

Connect fold hoses to suitable tractor remote valves. With optional down-pressure and/or hydraulically driven row units, the circuit(s) must be capable of continuous flow.

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

The fan motor further requires hookup of three lines, one of which returns hydraulic fluid from the fan motor case.

**Protecting Fan Hydraulic Motor Seals**

**Low Pressure (Case) Drain Connection**
1. Attach case drain hose to low pressure drain connection. Case drain hose has the smaller 1/4 inch I.D. hose and small, flat-face, connector.
2. Connect low pressure motor return hose to low pressure return connector. It is distinguished by a large (1.06 inch/2.7 cm diameter) quick coupler.
3. Connect pressure hose to tractor remote.

**NOTICE**

*Motor Seal Damage Risk:*
Case Drain Hose must be attached first, prior to inlet and return hoses being connected.

Case Drain Hose must be detached last, to prevent damage to the fan motor.

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

Plug planter electrical lead into tractor seven-pin connector. If your tractor is not equipped with an ASAE J560b seven-pin connector, contact your dealer for installation.

Plug in any optional connectors or aftermarket connectors, such as a planter-mounted GPS receiver. For future reference, list any optional connectors on this checklist.

- ① Lighting connector (standard)
- ② Monitor harness connectors (standard)
  - Note: lower row counts may have only one connector on the implement.
- ③ Speed connector (standard)
- ____________________________

![Electrical Connections](image-url)
Raise Parking Stands

Refer to Figure 8

1. If not already at minimum length, remove lower pin ① of parking stand, fully retract the inner leg ②, and re-insert pin.
2. Remove upper (holding) pin ③ of parking stand (at bottom of hinge bracket)

Refer to Figure 9

CAUTION

Crushing or Impact Injury Hazard:
Do not stand directly in front of the stand while raising it. You need to have one hand free to insert the pin, and if you lose your grip on the stand, it can swing down and inflict injury.

3. Swing the parking stand forward and up until it is above the rear hole. Place the holding pin ① in the rear-most (or top-most) top hole ③ of the hinge plate. This is the parking stand position for transport and field operation.
4. If the planter is equipped with row cleaners, the stand may not be able to get fully vertical. It may be necessary to use front top hole ⑤.

---

a. Depending on the row spacing, if row cleaners and/or unit-mounted coulters are installed, there may be interference between row components and a fully vertical parking stand. If so, use the forward (top-most) top hole, and secure the stand angled slightly forward.
Leveling the Planter
Check and adjust level in field conditions on level ground.

**Center Frame L/R Leveling**
1. Hitch the planter to a tractor (page 18).
2. Raise the planter. Unfold it (page 29).
   
   **Refer to Figure 10**
3. Adjust the tractor 2-point lift arms so that the center section tool bar is level.

**Wing Leveling**

**Refer to Figure 11**
4. Check wing for level at the top of the tool bar.
   
   **Refer to Figure 12**
5. Loosen the jam nut ① at the upper link arm adjuster.
6. Remove bolt ② and rotate lock plate ③ clear of adjust nut ④.
7. Rotate the adjust nut until the wing is level.
8. Secure the jam nut.
9. Re-install lock plate.

If a wing is adjusted, it may be necessary to adjust the gauge wheel. See “Gauge Wheel Functions” on page 51.
Front-to-Back Leveling

For the rows to run level at the design down-force, the tool bar must be level with the ground at the desired tool height. Perform this adjustment on level ground in field conditions.

Refer to Figure 13

1. Adjust the row unit components (summary on page 61) for desired running depth and down-force.
2. Adjust the tractor three-point hitch height so that the row unit parallel arms are parallel to the ground.
3. For a full 3-point planter, adjust the tractor upper link until the top of the tool bar is level.

For a 2-point planter, adjust the lift-assist spacers until the top of the tool bar is level.
4. Re-check all settings and adjustments. Set a lower stop for the 3-point hitch.

Figure 13
Front-to-Back 3-Point Leveling
Operating Instructions

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

Pre-Start Checklist
Perform the following steps before transporting the 3P4025AH Planter to the field.

- Carefully read “Important Safety Information” on page 1.
- Lubricate planter as indicated under “Lubrication” on page 97.
- Check all tires for proper inflation. See “Specifications and Capacities” on page 110.
- Check all bolts, pins, and fasteners. Torque as shown in “Torque Values Chart” on page 112.
- Check planter for worn or damaged parts. Repair or replace parts before going to the field.
- Check hydraulic hoses, fittings, and cylinders for leaks. Repair or replace before going to the field.
- Perform all beginning-of-season and daily service items under “Maintenance and Lubrication” on page 88.

WARNING

High Pressure Fluid Hazard:
Only trained personnel should work on system hydraulics! Check all hydraulic lines and fittings before applying pressure. Relieve pressure before disconnecting hydraulic lines. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. Fluid escaping from a very small hole can be almost invisible. Use paper or cardboard, NOT BODY PARTS, to check for leaks. Escaping fluid under pressure can have sufficient pressure to penetrate the skin causing serious injury. If hydraulic fluid is injected into the skin or eyes, seek immediate medical assistance from a physician familiar with this type of injury. Within a few hours gangrene can start to develop. DO NOT DELAY.
Implement Locks

Depending on configuration, there are 2 to 4 sets of locks requiring attention at various phases of operations:

Refer to Figure 14

1. Wing Flex Lock Pin (see page 25)
   Required to stabilize pivot during folding and unfolding. Used during planting to prevent wing flex.

2. Wing Lock Pin (see page 25)
   Used to keep the wing tool bar at the same height as the mainframe tool bar. When this pin is installed at the coupling, the outer wing is either rigid, or can flex (depending on the planter “flex” configuration).

3. Lift-Assist Lock Channels (Option, page 26)
   These channels, stored on the lift-assist weldments, are installed on the lift cylinder rods to hold the rear of the planter at raised.

4. Row Lock-Up Pins (Option, page 75)
   For converting twin-row to single-row.

Wing pins store in the parking stands © when not in use.

Wing Lock and Flex Lock Pin Use

The following table summarizes wing pin use.

**NOTICE**

**Machine Damage Risk:**

The INNER pins © must be IN and the OUTER pins © must be OUT during folding and unfolding, or machine damage will result.

<table>
<thead>
<tr>
<th>Pin</th>
<th>Location</th>
<th>During</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wing Lock ©</td>
<td>Stowed</td>
<td>• Planter Folded</td>
<td>Must be removed from coupling during folding and unfolding or machine damage will result.</td>
</tr>
<tr>
<td>Wing Lock ©</td>
<td>Tool Bar Coupling</td>
<td>• Planting</td>
<td>Must be removed from coupling during folding and unfolding or machine damage will result.</td>
</tr>
<tr>
<td>Flex Lock ①</td>
<td>Stowed</td>
<td>• Planting</td>
<td>Must be present in pivot during folding and unfolding or machine damage will result.</td>
</tr>
<tr>
<td>Flex Lock ①</td>
<td>Wing Arm Pivot</td>
<td>• Folding/Unfolding</td>
<td>Must be present in pivot during folding and unfolding or machine damage will result.</td>
</tr>
</tbody>
</table>

Figure 14
Lock Locations

Figure 15
Wing Lock © & Pin Storage ©
Lift-Assist Locks (Option)

Refer to Figure 16

These lock channels must be used during transport and raised servicing/adjustments. They are also required for raised storage. To install:

1. Raise the hitched planter (see page 26). Leave the tractor hitch and implement lift circuits in Neutral.
2. Remove any snap spacers on the cylinder rods. Store them on the wire loops.
3. Release the lock channels from the tube weldments.
4. Pin the channels to the cylinder rods.
5. Lower the lift circuit. Set the circuit to Float.

Raising/Lowering Planter

The planter may be raised or lowered while folded or unfolded.

**NOTICE**

*Machine Damage Risk:*
Do not raise or lower while any planter folding operations are underway or partially complete.

**NOTICE**

*Machine Damage Risk:*
Always raise planter for reverse/backing operations.

Raise/Lower 3-Point

With a full 3-point planter (no lift assist), raising and lowering is accomplished entirely with the tractor hitch.

Raise/Lower 2-Point with Lift Assist

Planter raising relies on the lower 2-point arms of the tractor 3-point hitch in front, and the Lift Assist cylinders in back. To raise or lower the planter, move the levers for both the Lift circuit and the 3-point hitch.

Great Plains recommends this sequence (to prevent lateral dragging of wing components):

- in Raising, operate the planter Lift circuit first, and
- in Lowering, operate the hitch circuit first.

The lift assist circuit may also include the optional down pressure system. This system engages and disengages automatically.
Folding
Fold the planter for movements on public roads and between fields with narrow clearances. Do not use the folded configuration for parking or storage.

**DANGER**

**Tip Over / Crushing Hazard and Equipment Damage Risk:**
Never unhitch a folded 3-point planter. A folded 3-point planter could topple backward or forward, causing serious injury or death, and certain severe equipment damage. When unhitched, a 3-point planter is supported at the rear only by row unit tools and spring tension. Slopes, soft soils, and soils later softened by rain are particularly dangerous.

**DANGER**

**Electrocution Hazard:**
Avoid overhead lines when folding and transporting. When folded and lifted, the planter requires clearance of at least 15 feet (4.5 m), which is high enough to contact low-hanging lines. Touching the planter or tractor completes a circuit to ground, and can result in serious injury or death. At higher voltages, shock can occur without direct contact.

**WARNING**

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

**NOTICE**

**Machine Damage Risk:**
Machine damage will occur if wing flex and lock pins are not properly configured for folding. Follow the instructions on the following pages carefully.

▲ Do not allow anyone to be on or near the planter, or beyond the ends of the planter during unfolding. Numerous pinch and crush points exist in the mechanism. The wings are massive. Coulters and row openers are sharp.

▲ Fold only with markers resting in transport cradles.

▲ 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.

▲ Keep away and keep others away when folding planter.

Figure 17
Normal Fold/Unfold Sequence
Refer to Figure 18

1. Hitch tractor (page 18).
2. Move to level ground. Be aware of vertical clearance needed to fold planter.
3. Put tractor in Park with parking brake engaged.
4. Install the flex lock pin ① (installed in inner wing pivot assembly).
5. Remove the wing lock pin ② (if installed).

**NOTICE**

**Machine Damage Risk:**

*Wing pins must be inner-in and outer-out during wing folding and unfolding, or machine damage will occur.*

6. Clear all persons from on or near the planter.

Refer to Figure 17

7. Use the tractor 3-point hitch to raise the planter until all row units clear the ground.
8. Extend the lift-assist circuit (if present) to raise the rear of the planter.
9. Slowly move fold circuit lever to Retract. Observe the fold operation.
10. Wait for both wings to reach the fully folded position. Set tractor remote to Neutral to hold at folded.
Unfolding

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

1. Unless the planter was folded, with the currently hitched tractor, only a short time ago, check for evidence of oil leaks. Check the ground at hitch connections, hose fittings and under cylinders.

**WARNING**

**Crushing Hazard:**
Bystanders could be crushed under the wings or caught in the wing fold mechanisms. To avoid serious injury or death, keep all persons well away during planter unfold.

2. Be aware of vertical and horizontal clearances needed to unfold the planter.
3. Put tractor in Park with parking brake engaged.
4. Verify that the wing lock pins are not installed in the lower lock holes (page 25).
5. Clear all persons from on or near the planter.
6. Use the tractor 3-point hitch to raise the planter so that the rear of the center row units are off the ground.

Refer to Figure 19

7. Slowly move fold circuit lever to Extend. Observe the unfold operation.
8. Wait for both wings to reach the fully unfolded position. Set tractor remote to Neutral to lock at unfolded.

Figure 19
Normal Unfold Sequence
Transporting the Planter

⚠️ DANGER ⚠️

Loss of Control Hazard:
Ensure that the towing vehicle is adequate for the task. Using an inadequate tow vehicle is extremely unsafe, and can result in loss of control, serious injury and death. To reduce the hazard, use only a 3-point towing vehicle that is both rated for the planter load, and properly ballasted for the load. Avoid transporting with seed loaded. Seed load can increase total planter weight by thousands of pounds, and shifts the center of gravity further aft. A tractor that is stable with an empty planter could become unstable with a loaded planter.

Refer to the table at right for typical weights of 3P4025AH configurations. On models without lift-assist, the center of gravity is approximately 27 inches (69 cm) behind the center-line of the lower 3-point hitch pins.

If your towing vehicle is marginal for the upper end of the weight range, have your planter weighed at a scale.

⚠️ DANGER ⚠️

Electrocution Hazard:
Avoid overhead lines transporting. When folded and lifted, the planter requires clearance of at least 15 feet (4.5 m), which is high enough to contact low-hanging lines. Touching the planter or tractor completes a circuit to ground, and can result in serious injury or death. At higher voltages, shock can occur without direct contact.

⚠️ CAUTION ⚠️

Braking and Loss of Control Hazard:
Do not exceed 20 mph (32 km/h) when driving straight. Do not exceed 13 mph (21 km/h) in turns. The weight of the planter can cause under-steer, and the height of the planter is a tipping hazard.

Transport Checklist

Before transporting the planter check the following items.

- Transport only with a tractor of proper size and adequate ballast. See “Specifications and Capacities” on page 110.
- Hitch planter securely to tractor. See “Hitching to Tractor” on page 18.
- Plug planter safety lights into tractor seven-pin connector.
- Make sure planter is folded properly. See “Folding” on page 27. Raise the planter for adequate ground clearance.
- Comply with all national, regional and local safety laws when traveling on public roads.
- Travel with caution.

<table>
<thead>
<tr>
<th>3P4025AH Model</th>
<th>Typical Weight Empty</th>
<th>Typical Weight Full</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1236</td>
<td>12,500 pounds (5670 kg)</td>
<td>13,700 pounds (6230 kg)</td>
</tr>
<tr>
<td>-1238</td>
<td>12,500 pounds (5670 kg)</td>
<td>13,700 pounds (6230 kg)</td>
</tr>
<tr>
<td>-1240</td>
<td>12,500 pounds (5670 kg)</td>
<td>13,700 pounds (6230 kg)</td>
</tr>
<tr>
<td>-1630</td>
<td>13,700 pounds (6210 kg)</td>
<td>15,300 pounds (6960 kg)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3P4025AH Model</th>
<th>Typical Weight Empty</th>
<th>Typical Weight Full</th>
</tr>
</thead>
<tbody>
<tr>
<td>-24TR36</td>
<td>16,100 pounds (7300 kg)</td>
<td>18,600 pounds (8420 kg)</td>
</tr>
<tr>
<td>-24TR38</td>
<td>16,100 pounds (7300 kg)</td>
<td>18,600 pounds (8420 kg)</td>
</tr>
<tr>
<td>-24TR40</td>
<td>16,100 pounds (7300 kg)</td>
<td>18,600 pounds (8420 kg)</td>
</tr>
<tr>
<td>-32TR30</td>
<td>18,400 pounds (8350 kg)</td>
<td>21,700 pounds (9830 kg)</td>
</tr>
</tbody>
</table>
Loading Seed

Machine s/n:
3.0 bu Hopper S/N C1090S+
1.6 bu Hopper S/N C1100S+

Refer to Figure 13
There are two different sizes of hoppers (3.0 bu ① and 1.6 bu ②) used in the serial number range listed above. The instructions for loading both hoppers are the same. Only the capacities are different.

NOTICE
The 3.0 bu hopper cannot be used for twin row applications or for 15 in (8.1 cm) single row spacing applications.

The 1.6 bu hopper can be used for all applications covered in this manual.

Refer to Figure 14
1. Hopper lids ①: are held in place by a latch ② and a hinge ③.
2. Release the latch and allow the gas spring ④ to raise the hopper lid. Leave the lid all the way open to prepare the hopper for loading. Refer to Figure 21
Refer to Figure 22

3. Install correct seed disks (page 70).

4. Check that each hopper is correctly seated and secured:
   ① front and rear mounting bolts secured
   ② hopper discharge opening aligned with
   ③ seed tube

5. Inspect the hopper for leftover seed and debris. Clean out anything other than the seed to be planted. See “Material Clean-Out” on page 89.

**CAUTION**

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

**CAUTION**

Irritant and Chronic Exposure Hazards:
Do not mix lubricants into seed with hands or any part of body. Wear protective equipment. Use tools. See page 102.

Refer to Figure 23

6. Pre-mix seed and lubricant.

   For clean seeds other than milo, cotton, and sunflowers sprinkle 1/4 cup of Ezee Glide Plus per bushel or unit (60 ml per 35 liters) of seed.

   For milo, cotton, and sunflowers double the application to 1/2 cup (or more) per bu.or unit (120 ml per 35 liters) of seed.

**NOTICE**

Population Risk: The seed must be properly lubricated, starting with the first seed through the meter. If unable to pre-mix prior to loading, pre-mix at least one gallon (4 liters) per hopper, and load this seed first. Fill the hoppers to half full with fresh seed. Add half the lubricant and stir with a tool. Complete filling the hoppers and sprinkle the remaining lubricant on top.

7. Add seed and lubricant to hoppers.

Machine S/N:
1.6 bu Hopper S/N C1099S-

Refer to Figure 24

The capacity of this hopper is 1.6 bu.

Within the serial number range listed above, there are two different designs of hopper lids. Make sure you follow the correct instructions for the hopper lids used on your machine.

Late Production Hopper Lids
1. Late production hopper lids are held in place by a mounting plate and a draw handle.
2. Unlatch the draw handle and lift lid off.
3. Prepare the hopper for loading by setting the lid aside.

The seed hoppers themselves are designed to be removed, but are not removed for routine operations.

Early Production Hopper Lids

Refer to Figure 25

1. Early production hopper lids are held in place by two spring clips, one at each end. There is a molded handle at the rear end of the hopper lid (although the lid is reversible).
2. Grasp the handle and snap lid off.

Refer to Figure 26

3. Prepare the hopper for loading by storing the lid lengthwise on the side lip of the hopper, using the hooked ends of each spring clip inside the lid.

The seed hoppers themselves are designed to be removed, but are not removed for routine operations.
Hopper

Refer to Figure 27

1. Install correct seed disks (page 70).
2. Check that each hopper is correctly seated and secured:
   ① front and rear mounting bolts secured
   ② hopper discharge opening aligned with seed tube.
3. Inspect the hopper for leftover seed and debris. Clean out anything other than the seed to be planted. See “Material Clean-Out” on page 89.

**CAUTION**

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

**CAUTION**

Irritant and Chronic Exposure Hazards:
Do not mix lubricants into seed with hands or any part of body. Wear protective equipment. Use tools. See page 102.

Refer to Figure 28

4. Pre-mix seed and lubricant.

   For clean seeds other than milo, cotton, and sunflowers sprinkle 1/4 cup of Ezee Glide Plus per bushel or unit (60 ml per 35 liters) of seed.

   For milo, cotton, and sunflowers double the application to 1/2 cup (or more) per bu.or unit (120 ml per 35 liters) of seed.

**NOTICE**

Population Risk:
The seed must be properly lubricated, starting with the first seed through the meter. If unable to pre-mix prior to loading, pre-mix at least one gallon (4 liters) per hopper; and load this seed first. Fill the hoppers to half full with fresh seed. Add half the lubricant and stir with a tool. Complete filling the hoppers and sprinkle the remaining lubricant on top.

5. Add seed and lubricant to hoppers.


   If the lid has a draw handle, position front end of lid over front end lip of hopper. Snap lid firmly in place. Latch the draw handle.

   If the lid does not have a draw handle, center the lid on the opening and push down. Make sure spring clips are all engaged.
Planter Monitor Operation

Machines with Ground Drive Row Units

Refer to Figure 29

The DICKEY-john® PM400 system monitors the following elements of a 3P4025AH planter:

- Seeds at each row unit seed tube:
  
  Medium and larger seeds are individually counted with high accuracy. Small seed sensing may be limited to seed stoppage (“blockage”) detection.

- Ground speed:
  
  The standard magnetic pickup at the ground drive allows the monitor to calculate and report population.

Once setup for the planter and your display preferences, and configured for the current crop rates/limits, the monitor is typically used in the “OPERATE” mode. Refer to the DICKEY-john® PM400 Operator’s Manual for monitor operation details.

Both the DICKEY-john® manual and this manual contain trouble-shooting information for apparent monitor problems. Check both manuals, as the focus and content is not identical.

Machines with Hydraulic Drive Row Units

Refer to Figure 30

The operation of the DICKEY-john AI-120 planter monitor is described in two separate manuals supplied with your 3P4025AH Planter. The manuals are the AI-120 VT Manual and the AI-120 Quick Reference Manual.

Operations covered in that manual (and therefore not in this manual) include:

- Individual Row seed control
- Seed rate calibration
- Planting rate
- Fertilizer rate
- Setting rate limits and detecting out-of-limits
- GPS integration
- Fan rpm

---

a. An optional radar speed sensor is available, as are Y-cables to accept input from an existing radar on the tractor. The magnetic pickup may be preferred, as both speed and seed flow fall to zero at lift. With radar, the monitor cannot tell that seeding should have stopped. You may experience more nuisance alarms with radar.
Ground Drive Operation

The planter can be configured with either two ground drives (located one at each wing) or four ground drive wheels, two located on the center section and one on each wing.

On units with four ground drives, each section is driven by an independent drive wheel assembly that allows for more seeding flexibility and a variety of field conditions. Either wing section can be completely folded while leaving the remaining wing and center sections to continue planting seed, this allows for maneuvering around obstructions such as poles and also allows for other planting situations where it may be useful to employ two sections instead of all three sections of the planter.

Refer to chain routings beginning on page 123.

The ground drives use a standard rubber tire see “Tire and Wheel Information Chart” on page 112.

Hydraulic Drive Operation

Refer to Figure 32

The planter has three hydraulic motors ①, one on the center section and one on each wing. The hydraulic motors are connected by chain drives ② to the drive shafts ③ for the row units. The three hydraulic motors are controlled independently.

A gauge wheel ④ is mounted on each end of the center section and one on both the wing sections.

One of the gauge wheels is also used to determine the speed of the planter. The gauge wheel is mounted on the center section and has a shield ⑤ and a sensor ⑥. A sensor sprocket is mounted on the axle shaft ⑦ of the gauge wheel. The sensor reads the speed of the sensor sprocket (gauge wheel speed).

The planter monitor uses the speed of the gauge wheel to determine the correct drive speed for the row unit input shafts. The planter monitor regulates the speed of the row unit input shafts by increasing or decreasing the flow to the hydraulic motors.

The guide wheels use a standard rubber tire. See “Tire and Wheel Information Chart” on page 112.
Air System Operation

Figure 33
Planter Air System for Air-Pro® Seed Metering

<table>
<thead>
<tr>
<th>Meter Pressurization System Elements (  ——  shows air direction)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Hydraulic Fan</td>
</tr>
<tr>
<td>2 Butterfly Valve (factory set)</td>
</tr>
<tr>
<td>3 Meter Pressurization Air</td>
</tr>
<tr>
<td>4 Row Pressurizing Tube</td>
</tr>
<tr>
<td>5 Seed Hopper</td>
</tr>
</tbody>
</table>
Air and Seeding System Overview

Refer to Figure 33, on page 37, and Figure 34.

The hydraulic fan (1) supplies air exclusively for meter operation. Fan rpm is operator-adjusted via the tractor circuit’s hydraulic flow control.

The manifold system (2) delivers fan air across the planter. It includes passive internal design features to balance pressure across the planter.

Separate pressurization tubes (3) route manifold air to each row unit.

Seed is delivered from the seed box (4) by gravity through the seed tubes (5), to the inlet of the Air-Pro® Seed Meter.

A manually adjusted inlet shutter (6) controls the size of the seed pool (7) at the base of the meter. The shutter also minimizes air loss back up the seed inlet tube, and is also used during row shut off. See page 70 for shutter adjustments.

At the meter, pressurization air exits the meter through the seed pockets (8) of the disk, and holds seed in the pockets until released above the seed tube (9).

In the seed tube, the seed sensor (10) detects passage of seeds. Medium size and large seeds are counted individually. With smaller seeds, most are detected, allowing the monitor to detect stoppages.

Several rows have a pressure sensor port (11) for the meter pressurization system. A line (12) from each of these rows is connected to a chamber (13) to average the pressures.

The averaged pressure is reported by a Magnehelic gauge (14) visible to the tractor operator. See page 48 for use of the gauge in making fan adjustments.

A sensor (15) in each seed tube reports seed passage to the planter monitor. Larger seeds are counted individually. For smaller seeds, the system acts as a blockage monitor.

Use of the special blank disc (page 74), and closing the seed inlet shutter (page 70), are particularly important when a sensor row is shut off.

On any row, running a normal disc with no seed, or with an open empty inlet, unbalances the air system. Doing either at a sensor row causes the gauge to mis-report as well.

Do not operate in the ground with the fan shut off, or with insufficient manifold pressure. The meters will completely fill with seed. Meter clean-out may be required to resume normal operation.
Fan Circuit Operation

See also “Fan and Adjustment” on page 48.

Refer to Figure 35

- - - - Operating flow

- - - - Case Drain and Shut-off flow

Two hydraulic hoses serve the fan, and must be properly connected for the fan to operate in the correct direction, and at recommended speeds. See “Hydraulic Hose Hookup” on page 19.

1. Connect the case drain line to tractor sump.
2. Connect the motor return line to remote circuit return (Extend port) or to sump.
3. Connect the motor inlet (supply, pressure) line to a tractor remote capable of 20 liters per minute. If a priority remote is available, use it for the fan.
4. The fan hydraulic circuit includes a check valve, which provides a relief path for oil at motor shutoff. If the fan is connected in reverse, flow through this valve results in low fan rpm, providing strong indication reversed connection.

Correct fan direction is shown at 1. If reversed fan is suspected, observe it during shutoff, as the direction of motion is easier to see at lower rpms as it slows to a stop (initial startup is virtually instantaneous, making observation at start difficult).

Fan speed is controlled by the tractor circuit (and not the planter monitor - the planter monitor does report fan rpm). You may stop the fan by setting the circuit to Neutral or Float. The check valve slows the blades to a stop by locally recirculating the oil.

Always start the fan with a low flow setting. Gradually bring fan up to the recommended initial meter pressurization.

At excessive rpm, too much air flow can cause:

- oil heating
- slow lift times

If desired pressure cannot be reached, or requires unusually high oil flow at low butterfly valve settings, chances are the fan is running backwards. Reverse the inlet/return lines at the hitch.

Butterfly Valve

Refer to Figure 35

This valve is used to balance air-flow between planter sections. It is set and pinned at the factory and requires no adjustment.

Notice

Fan speed can change as oil heats to operating temperature. Re-check meter pressurization more often during early operations.

If the fan is connected in reverse, it may not run at all (due to no oil source at the return connection). If oil is present, oil bypass at the check valve prevents the fan from reaching high rpm. A reversed fan may send some air to the meters, but is incapable of providing reliable air flow for planting.

Low Population Risk at Turns:

The fan requires up to 4.5 gpm. This figure does not include oil for lift/lower or oil for marker operation. Aggressive lift/lower operations, and simultaneous lift/marker operations, can reduce fan rpm below that needed to pressurize meter discs. If seed falls out of pockets, low population bands will occur shortly after turns.

Unless the tractor has generous oil flow capacity, raise/fold markers before lift, and lift slowly. Watch meter pressurization and tune operations to keep it at planting levels in turns.
Air-Pro® Meter Operation

Refer to Figure 36

The meter disk is driven, top forward, by a chain drive (not shown) always connected to the section drive shaft. At non-planting rows, use a blank disk (page 74).

Seed is gravity-delivered to the inlet from the hopper. Seed enters the meter at the seed inlet shutter (if open), and forms a seed pool at the base of the meter. Seed pool size is controlled by the shutter handle setting (which is the only user adjustment at the meter). Initial shutter settings are given in the seed rate charts.

Meter pressurization air enters the meter at , and exits the meter primarily at the seed pockets in the seed disk. The pressure differential holds seed in the disk pockets rising from the seed pool. Excess seed at a pocket is picked off by the tickler brushes .

The strip and drop brushes block meter pressurization air. Seeds passing the drop brush are free to fall into the seed tube, and are detected by the seed sensor .

Meter Operation

1. Install disks for your crop/population range per the Seed Rate Manual and the instructions beginning on page 72 of this manual.
2. Open the shutter at planting rows to the recommended initial setting (from the Seed Rate charts). At unused rows, install a blank disk (page 74) and close shutter.
3. Set sprocket indexing if staggering a twin-row crop (see Seed Rate Manual for details).
4. Operate fan to achieve suggested manifold pressure (Seed Rate Manual, and page 48).
5. With all rows primed, rotate meters one turn to fill pockets to edge of drop brush. Rotate the drive shaft (top forward) with a 7/8 inch (23 mm) wrench, or raise and rotate ground drive wheel (top forward).

See also:
“Seed Pool Troubleshooting” on page 80, “Meter Clean-Out” on page 90, and “Meter Brush Maintenance” on page 91.
Field Set-Up Checklists

Use the following tables to develop a final checklist for your tractor/planter configuration.

### Mechanical Checklist (Hitching)  Page
- [ ] Planter hitched  18
- [ ] Parking stands raised  21

### Electrical Checklist  Page
- [ ] Verify electrical hookups solid  20
- [ ] Check planter monitor terminal and observe any diagnostic messages  a
  - Option: Verify that, when planter is lowered, optional radar speed sensor is pointed at ground, at an angle approximately 35° below horizontal.  b
  - a. Refer to monitor manual.
  - b. Refer to sensor documentation.

### Hydraulic System Checklist  Page
- [ ] Check tractor hydraulic reservoir full  -
- [ ] Fan return  Fan motor pressure side (retract)  39
- [ ] Inspect connections for leaks  -
- [ ] Check fan speed and airflow direction  a
  - a. Operate fan briefly. Observe rotor blades spinning toward exit port as fan slows to a stop.

### Mechanical Checklist (post-Hitching)  Page
- [ ] Planter unfolded  29
- [ ] Planter leveled  22
- [ ] Flex lock pins as desired  25
- [ ] Wing lock pins as desired  25

### Planter Meter Drive Checklist  Page
- [ ] Check chain lubrication and slack  94
- [ ] Calibrate speed sensor pulses with planter lowered.  a
- [ ] Set/check Range and Transmission against rate chart  b
  - a. Refer to planter monitor manual.
  - b. Refer to Seed Rate Manual.

### Air System Checklist  Page
- [ ] Seed loaded. Lids closed.  32
- [ ] Meter shutters open to chart value  70
- [ ] No air leaks (except from seed hoppers)
- [ ] Hoses and tubing - no sags, no pinches
- [ ] Check both manifold and sensor lines
- [ ] Hoses fully connected to meters

### Row Units Checklist  Page
- [ ] Preset depth handles alike.  67
- [ ] Preset down force springs alike, except in tracks.  62
- [ ] Option: Set all unit-mounted coulters to 1/4 inch shallower than opener blades.  65
- [ ] Check coulter alignment to row  66
- [ ] Check closing wheel alignment  77
- [ ] Set press wheels alike, except in tracks.  77
- [ ] Check action and contact of side depth wheels  68
- [ ] Check wheel scraper gaps (if installed)  69

### Meters Checklist  Page
- [ ] Corn? Check timing of meters for twin-row  a
- [ ] Check chain tension. Re-connect any loose idler tensioning springs.  -
- [ ] Correct disks for seed  a
- [ ] Start fan. Operate at field manifold pressure.  37
- [ ] Rotate meter drive shafts one turn.  40
  - a. Refer to Seed Rate Manual.
Field Operation
Perform all steps in "Pre-Start Checklist" on page 24 and "Field Set-Up Checklists" on page 41.

<table>
<thead>
<tr>
<th>First Pass Operation Checklist</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Shuters set.</td>
<td>40</td>
</tr>
<tr>
<td>2. Raise planter and line up at start of first planting row.</td>
<td>26</td>
</tr>
<tr>
<td>3. Prime meters with seed. Leave fan running.</td>
<td>40</td>
</tr>
<tr>
<td>4. Pull forward, lower planter, and begin planting for a short distance.</td>
<td>26</td>
</tr>
<tr>
<td>5. Stop. Assess:</td>
<td></td>
</tr>
<tr>
<td>• planting depth</td>
<td></td>
</tr>
<tr>
<td>• seed spacing</td>
<td>-</td>
</tr>
<tr>
<td>• press wheel operation</td>
<td></td>
</tr>
<tr>
<td>6. Make necessary adjustments</td>
<td>45</td>
</tr>
<tr>
<td>7. Resume planting.</td>
<td>-</td>
</tr>
</tbody>
</table>

Consult planter monitor for alarms during planting. Check that reported rates are consistent with your plan.

When reloading seed, check consumption against anticipated use to that point.

<table>
<thead>
<tr>
<th>Suspending Planting Checklist</th>
<th>Page</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>37</td>
</tr>
<tr>
<td>3. Raise planter</td>
<td>26</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ending Planting Checklist</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Suspend operations as above, then</td>
<td></td>
</tr>
<tr>
<td>2. Lights ON</td>
<td>-</td>
</tr>
<tr>
<td>3. Transport</td>
<td>30</td>
</tr>
</tbody>
</table>
Short-Term Parking

For long-term parking, see “Long-Term Storage” on page 44. Great Plains recommends parking in the unfolded, lowered configuration.

1. Choose a parking location that has room for unfolding, is level, has firm soil and is unlikely to develop soft soil in rain. With the planter still hitched, maneuver it to the parking location.

   If the planter must be parked folded, leave it hitched to the tractor. Skip steps 2, 7 and 6.

2. Unfold the planter (page 29). Set the fold circuit to Neutral to prevent wing droop.

3. Lower the implement to just above ground level at the rear of the row units. Set the tractor hitch remote to Neutral to hold at slight lift. Shut off the tractor and remove the key.

Refer to Figure 37

4. Remove the hairpin cotter at a stand pin ①. Support a stand at its grip handle ②. Remove the pin. Lower the stand until the rear pin tube is aligned with the lower holes of the stand weldment. Re-insert the main pin and secure with cotter. Repeat for the other wing.

5. Start the tractor. Lower the 3-point hitch until the planter is supported by stands and row units. Set fold circuit to Float to relieve pressure.

6. Disconnect the hitch arms and link.

7. Unplug planter hydraulic hoses and electrical lines from tractor, capping where provisioned.

To park a 2-point model in the raised configuration:

- Use wing lock pins ③ to prevent wing droop.
- Install lock channels at the lift-assist cylinders (page 26).
- Hold the grip handle ②. Remove the foot extension pin ④. Lower and re-pin the stand foot ⑤.

Tip Over Crushing Hazard and Equipment Damage Risk:
Never unhitch, park or store a folded 3-point planter. A folded 3-point planter could topple backward or forward immediately or at some later time, causing serious injury or death, and certain severe equipment damage. When unhitched, a full 3-point planter may be supported in front only by the parking stands, and at the rear only by press wheels and spring tension. Slopes, soft soils, and soils later softened by rain are particularly dangerous.
Long-Term Storage

1. Complete Parking steps (page 43). Park the planter indoors if possible.
2. See “Material Clean-Out” on page 89. Clear all seed from hoppers and meters.
3. Latch hopper lids.
4. Remove seed disks from 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. Tie or tape a small plastic bag over ends of all seed delivery tubes to prevent insects from entering or nesting.
6. Close seed inlet shutters at meters (to prevent pest entry to seed hoses). Thoroughly clean seed and seed treatment residue from seed meters. See “Meter Clean-Out” on page 90, for more information.
7. Clean planter of mud, dirt, excess oil and grease.
8. Lubricate all points listed in Maintenance.
9. Apply grease to exposed cylinder rods to prevent rust.
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:
Seed disks will have talc and graphite residue, and may have residues of hazardous seed treatments. Do not wash disks where food is prepared, or where cookware or dinnerware is washed. Wear gloves when washing disks. Avoid spray. Although the disks are dishwasher-safe, do not wash them in an appliance also used for food cookware or dinnerware.
To get full performance from your 3P4025AH planter, you need an understanding of all component operations, and many provide adjustments for optimal field results. Some of these have been covered earlier in this manual. Even if your planting conditions rarely change, some of these items need periodic adjustment due to normal wear.

<table>
<thead>
<tr>
<th>Adjustment</th>
<th>Page</th>
<th>The Adjustment Affects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frame height</td>
<td>23</td>
<td>Planting depth consistency</td>
</tr>
<tr>
<td>Frame level</td>
<td>22</td>
<td>Planting consistency</td>
</tr>
<tr>
<td>Frame Offset</td>
<td>50</td>
<td>Shifting twin rows for single row planting on beds</td>
</tr>
<tr>
<td>Setting Seed Rate</td>
<td>45</td>
<td>Summary: Refer to Seed Rate Manual(^a) for details.</td>
</tr>
<tr>
<td>Air System</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Fan Speed</td>
<td>39</td>
<td>Optimal seed distribution</td>
</tr>
<tr>
<td>Meter Pressurization (values from SRM(^b))</td>
<td>48</td>
<td>Consistent seed flow and disk singulation</td>
</tr>
</tbody>
</table>

25AP Row Unit Adjustments

<table>
<thead>
<tr>
<th>Adjustment</th>
<th>Page</th>
<th>The Adjustment Affects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opener Depth</td>
<td>67</td>
<td>Planting depth</td>
</tr>
<tr>
<td>Row Unit Down Pressure</td>
<td>62</td>
<td>Planting depth uniformity</td>
</tr>
<tr>
<td>Row Unit Look-Up</td>
<td>75</td>
<td>Single/twin-row operation</td>
</tr>
<tr>
<td>Row Cleaner Adjustments (Option)</td>
<td>64</td>
<td>Row preparation</td>
</tr>
<tr>
<td>Coulter Adjustments (Option)</td>
<td>65</td>
<td>Seed depth uniformity</td>
</tr>
<tr>
<td>Opener Disk Adjustments</td>
<td>67</td>
<td>Seed depth, seed-to-soil contact</td>
</tr>
<tr>
<td>Side Depth Wheels</td>
<td>67</td>
<td>Seed depth, prevents plugging</td>
</tr>
<tr>
<td>Adjusting Gauge Wheel Scrapers</td>
<td>69</td>
<td>Consistent seed furrow depth</td>
</tr>
<tr>
<td>Seed Meter Setup and Adjustment</td>
<td>70</td>
<td>Consistent seed population</td>
</tr>
<tr>
<td>Seed Firmer Adjustments (Option)</td>
<td>75</td>
<td>Seed-soil contact</td>
</tr>
<tr>
<td>Press Wheel Adjustment</td>
<td>77</td>
<td>Effective soil coverage</td>
</tr>
<tr>
<td>Monitor Adjustments</td>
<td>PM400(^b)</td>
<td>Refer to planter monitor manual</td>
</tr>
</tbody>
</table>

Setting Seed Rate

Full details on rate setting sprocket selection and installation are found in the Seed Rate Manual (pub. number 411-099B). This is a summary. Setting the seeding rate requires the following steps:

1. monitor setup
2. seed disk selection,
3. drive speed Range sprockets,
4. Transmission sprockets,
5. inlet shutters
6. meter pressurization,
7. checking seeding rate.

All rate adjustments are performed at the ground drive wheels.

\(^a\) SRM: Seed Rate Manual (411-099B)
\(^b\) PM400: DICKEY-john\(^\circ\) Planter Monitor operator manuals
Planting Rate Details, PM400 Monitor

All rate adjustments are performed at the ground drive wheels.

1. Rate: Monitor configuration:
The planter monitor must be set up with the

- correct row count,
- correct row spacing,
- speed calibration and;
- expected population limits, in order to have accurately rate reports and useful alarms.

Refer to the Seed Rate Manual. Refer to the DICKEY-john® Planter Monitor operator manual for your planter. See “Document Family” on page 15 for part numbers of the manuals.

PM400 - If you only plant with the factory configuration of the planter, you never need to update row count and spacing. If any rows are unused, adjust the planter monitor setup. If you change the configuration, see “Setting up the PM400 Planter Monitor According to Planter Configuration” on page 131.

Speed calibration must be done prior to first use, and re-calibration is recommended periodically, particularly if soil conditions change.

2. Rate: Disk Selection:
Refer to the Seed Rate Manual, see “Document Family” on page 15 for the part number of the Seed Rate Manual. The Seed Rate Manual (411-099B) has a table of recommended disks. Disks are specific to crops. Some crops have multiple disks available, to cover both seed varieties, and different populations within disk rpm limits. Disks have high and low rpm limits, which also correspond to a high and low field speed limits. The charts account for these limits.

See “Air-Pro Meter Disc Installation” on page 72.
If any rows are unused, install special blank disks. See “Row Unit Shut-Off” on page 73.

3. Rate: Range Sprockets
See Seed Rate Manual

4. Rate: Transmission Sprockets
See Seed Rate Manual

5. Rate: Seed Inlet Shutter
See Seed Rate Manual

6. Rate: Meter Pressurization
See Seed Rate Manual for initial setting, and “Fan and Adjustment” on page 48 of this manual.

7. Rate: Checking
See Seed Rate Manual
Planting Rate Details, AI-120 Monitor
Refer to the Seed Rate Manual. Refer to the DICKEY-john® Planter Monitor operator manual for the AI-120 monitor. See “Document Family” on page 15 for part numbers of the manuals.
Fan and Adjustment

1. These steps presume that correct seed disks are installed (per Seed Rate Manual), and the seed inlet shutters are set for the seed (page 70).

2. With fan off, check meter pressurization reported by the Magnehelic® gauge. Re-zero as needed.

3. Determine the recommended meter pressurization based on your own notes or the published value in the Seed Rate Manual.

4. Put tractor in Park and set brakes. Set tractor engine speed to typical field rpm. Lift planter.

5. Start the fan. Gradually increase fan speed using the tractor’s hydraulic flow control for the circuit. Using hydraulic flow, adjust meter pressurization to the developed or suggested value from step 3.

6. Rotate ground drive wheel to fill meters. Meters are filled when seed begins emerging below two or more openers. With fan running, put the tractor in Park and set the brakes. Walk behind the wings, remove several rain covers, and check for seed in meters by looking through the clear disks.

7. Re-check meter pressurization. With meters and disks filled, air loss through empty disk pockets is reduced, and meter pressurization can change.

8. Begin planting. Troubleshoot any obvious problems or optional planter monitor alarms.

9. During the first pass, take note of the average populations reported on the optional planter monitor.

   If the reported planter monitor population varies from your intentions by a significant amount, it is imperative to perform a furrow check.

   For serious rate variances, for which the source of the problem and the solution are not quickly determined, see “Seed Population Troubleshooting Chart” on page 82.

   If the population is only slightly low, the problem can be skips (periodic empty disk pockets). If slightly high, the problem can be doubles (period pockets with double seed). An adjustment to the meter pressurization may correct either condition (see step 12).

10. Resume planting.

   A small varying population deviation between rows is normal. If a row is consistently running lower or higher than the other rows, it could indicate a meter or seed sensor problem that needs attention. “Seed Population Troubleshooting Chart” on page 82.

---
a. Magnehelic is a registered trademark of Dwyer Instruments, Inc.
11. Continue to monitor meter pressurization. When oil reaches operating temperature, fan speed can change. Expect to make periodic adjustments to fan circuit to maintain ideal meter pressurization.

12. Skips:
If all else is correct, and the overall average population is running low (or there are gaps upon furrow check), the cause may be seeds falling out of disk pockets before delivery to the seed tube. Increase meter pressurization to correct this.

13. Doubles:
If all else is correct, and the overall average population is running high (or there are double seeds upon furrow check), the cause may be two seeds in some disk pockets at delivery to the seed tube. Decrease meter pressurization to correct this.

**Fine-Tuning Meter Pressurization**
After several passes, and you are comfortable with the planter’s operation, you can optimize meter pressurization. Use this method during longer passes, so there are fewer distractions (and see sidebar regarding Milo).

1. Observe the current overall average population reported by the monitor.
2. Adjust the fan speed down, in small steps, waiting 5-10 seconds between adjustments, until skips occur (actual population begins falling below target). Note the pressure at which skips begin.
3. Restore pressure to the initial value at step 1.
4. Adjust the fan speed up, by periodic small increments, until doubles occur (actual population begins rising above target). Note the pressure at which doubles begin.
5. Adjust meter pressurization to a value halfway between the limits established at step 2 and step 4. This is the ideal value for your crop, disk and population, providing equal margin against skips and doubles. Record this value for future use.

**Alternate Skip/Double Check**
Small seeds, particularly Milo, are less reliably sensed as skips or doubles by the seed tube sensors, and watching monitor population is unlikely to locate the pressure limits. This test can also be quicker for all seeds.

A. After planting a few passes with initial settings, remove the rain covers from several rows (use rows with a variety of seed hose lengths and routes).
B. Make a meter pressurization adjustment. Resume planting for a pass or less.
C. Stop planter motion but leave engine at field rpm and fan running.
D. Inspect the seed disks closely. Look for empty seed cells (skips) and cells with multiple seeds (doubles).
E. Repeat step B-to-step D until limits are established. Record limits. Re-install rain covers. Plant with median settings.
Frame Offset

Refer to Figure 41 and Figure 42

If planting on beds, and switching from twin row planting to single row planting, the active (front) row units may be shifted to maintain center-of-bed alignment.

1. Shift hitch 4 inches left by moving spacers to right end of lower left pin. See page 18.
2. Hitch planter. Retract lift-assist cylinders to raise lift-assist wheels off ground. Set circuit to Neutral to hold at lift. Shut off tractor.

Start with left caster assembly.

3. Remove and save nine horizontal bolts ①.
4. Loosen vertical bolts ② at right end of upper slots.

**WARNING**

 Crushing Hazard:
Do not remove all four sets of vertical bolts, or the caster assemblies will fall free of the extension arms. This could result in serious injury or death.

5. Remove vertical bolts ③, ⑤ at left end of slots.
6. Shove caster weldment ⑤ 4 inches right.
7. Insert and secure all 9 horizontal bolts ①.
8. Secure RH slot bolts ④.
9. Re-insert and secure second bolt in RH slot ③.
10. Store remaining vertical bolt in left hole ⑤ of arm weldment.
11. Repeat step 1 through step 10 for the right caster.

Resume Twin-Row

To restore twin row operation:

a. Hitch planter. Retract lift-assist cylinders to raise lift-assist wheels off ground. Set circuit to Neutral to hold at lift. Shut off tractor.

b. Reverse step 10 through step 3.

- Vertical bolts ③, ⑤ have flat washers and lock washers at the lower (nut) end.
- Place horizontal bolts ① at the six outside holes. Place the remaining three horizontal bolts in any of the six available mid holes.

Gauge Wheel Functions

Refer to Figure 43

The gauge wheels serve three functions:

1. Regardless of meter drive type, the gauge wheels each establish the heights of their respective sections. A spring-loaded yoke assembly ① provides some flexibility over rocks and uneven ground. See “Ground Drive Adjustments” on page 52.

2. On ground drive models, each gauge wheel contributes drive power for its respective row unit mechanisms (on 3-drive models these systems are fully independent).
   
   On hydraulic drive models, power for the row unit mechanisms is supplied by hydraulic motors. One of the gauge wheels is equipped with a sensor that relays the speed of the planter to the planter monitor.

3. On ground drive models, the gauge wheels control the planting rate at the meter.
   
   On hydraulic drive models, one of the gauge wheels relays planter speed information to the planter monitor. The planter monitor controls the planting rate at the meters.

Setting Ground Drive

For information on setting the ground drive see the Seed Rate Manual (411-099B).
Gauge Wheel Adjustments (S/N C1104S-)

The gauge wheels serve three functions:

Refer to Figure 44

1. Regardless of meter drive type, the gauge wheels each establish the heights of their respective sections, (or wings on 2-drive models). A spring-loaded yoke assembly ④ provides some flexibility over rocks and uneven ground. See “Gauge Wheel Tension”.

2. Each gauge wheel contributes drive power for its respective row unit mechanisms (on 3-drive models these systems are fully independent).

3. The gauge wheels control the planting rate at the meters, via three sprocket setup positions. See “Setting Seed Rate” on page 45.

Gauge wheel adjustment can most easily be accomplished with the planter in the raised position.

Gauge Wheel Tension

Refer to Figure 44

The gauge wheel yoke assembly is a spring-loaded link with no adjustment. Spring tension is fixed. The yoke assembly allows approximately 5/8 inch of spring travel.

Ground Drive Adjustments

Refer to Figure 44

1. Loosen the top nut ① above the yoke block ②.

2. Turn the adjustment nut weldment ③ clockwise (CW) to lower the gauge wheel, or counter-clockwise (CCW) to raise the gauge wheel. Raise or lower the planter so that the bottom of the frame is 26 inches (66 cm) from the ground or bed level.

3. Tighten the top nut ①.

Gauge Wheel Adjustments (S/N C1105S+)

The gauge wheels serve three functions:

Refer to Figure 45 and Figure 46

1. Regardless of meter drive type, the gauge wheels each establish the heights of their respective sections, (or wings on 2-drive models). A spring-loaded yoke assembly ④ provides some flexibility over rocks and uneven ground. See “Gauge Wheel Tension” on page 52.

2. Each gauge wheel contributes drive power for its respective row unit mechanisms (on 3-drive models these systems are fully independent).

3. The gauge wheels control the planting rate at the meters, via three sprocket setup positions. See “Setting Seed Rate” on page 45.
Gauge wheel adjustment can most easily be accomplished with the planter in the raised position.

The 1-5/8 inch deep wall socket is mounted to the left side of the frame near the left-hand center drive wheel. It is used to loosen the lock nut and turn the adjustment nut weldment for gauge wheel adjustments.

The gauge wheel yoke assembly is a spring-loaded link with no adjustment. Spring tension is fixed. The yoke assembly allows approximately 5/8 inch of spring travel.

Lower the planter to confirm a 26-inch frame height with the gauge wheel spring compressed.

**Ground Drive Adjustments**

*Refer to Figure 45*

1. Use the provided 1-5/8 inch deep wall socket to loosen the lock nut above the yoke block, no more than 1/2 turn and align the flats with the adjustment nut weldment directly below it.

2. Slide the 1-5/8 inch deep wall socket over the lock nut and the adjustment nut weldment, and screw the center adjustment spool counter-clockwise (CCW) to lower the gauge wheel, or clockwise (CW) to raise the gauge wheel.

3. Lower the planter so that the bottom of the frame is 26 inches (66 cm) from the ground or bed level.

4. Tighten the top nut to secure this gauge setting.

**Planting on Beds (All Models)**

*Refer to Figure 47*

The yoke block has two anchor hole positions:

The lower anchor hole is typically used for planting on bedded ground.

The upper hole is typically used for non-bedded (flat ground) planting.
Front Seeding Switch Adjustment

This procedure is for planters with hydraulic drive row units and without lift assist.

Refer to Figure 48

The seeding switch 1 signals the planter monitor when the planter is lowered for planting. If the planter has hydraulic drive for the row units, the seeding switch also activates the hydraulic drive.

Great Plains recommends adjusting the seeding switch for your exact field conditions and planting depth. Check the seeding switch seasonally thereafter, or when planting conditions change. Also perform this adjustment if the seeding switch is replaced or dislodged.

The switch bracket 2 uses a magnet 3 for mounting. The seeding switch must be mounted where the toggle arm 4 is actuated by the lift arms on the tractor.

When installing, adjusting, or replacing the seeding switch, make sure the cable exit 5 is at the bottom. If the cable exit is at the top, moisture will accumulate in the seeding switch, causing failure.

1. Put the planter in the field position.
2. Lower the planter to the height at which seed delivery is to begin.
3. Apply the tractor parking brake, stop the engine, and take the key with you.
4. Find a location where the switch bracket can be mounted with the magnet. The toggle arm must be actuated by the lift arms on the tractor while planting, the toggle switch must be free of the lift arms when the planter is raised by the 3-point arms.
5. Slide the switch bracket to move the seeding switch up or down. Adjust switch bracket so toggle arm just makes contact with tractor 3-point lift arms.
6. Move the switch bracket down 1/4 inch (6.4 mm).
Rear Seeding Switch Adjustment

This procedure is for planters with hydraulic drive row units and lift assist.

Refer to Figure 49

The seeding switch ① signals the planter monitor (and activates the hydraulic drive), when the planter is lowered for planting.

Although factory-preset for typical planting conditions, Great Plains recommends adjusting the seeding switch for your exact field conditions and planting depth. Check the seeding switch seasonally thereafter, or when planting conditions change. Also perform this adjustment if the seeding switch is replaced or dislodged.

The seeding switch is mounted to a mounting bracket ② using a magnet ③. One of the lift assist arms actuates the toggle arm ④ in the seeding switch.

When adjusting or replacing the seeding switch, make sure the cable exit ⑤ is at the bottom. If the cable is at the top, moisture will accumulate in the seeding switch, causing failure.

Refer to Figure 50

1. Lower the planter to the height at which seed delivery is to begin.
2. Apply the tractor parking brake, stop the engine, and take the key with you.
3. Slide the switch bracket ① to move the seeding switch ② up or down. Adjust switch bracket so switch toggle arm ③ just makes contact with top of upper parallel arm ④.
4. Move the switch bracket down 1/4 inch (6.4 mm).
Hydraulic Down Pressure (Option)

For hydraulic down-float, see “Hydraulic Down-Float Adjustments (Option)” on page 60. The wing flex-lock option has no adjustments.

If the desired opener depth cannot be consistently achieved using spring adjustment (page 62), or the gauge wheel is slipping at the force required, the optional hydraulic down pressure may remedy the problem. It uses two cylinders to transfer more weight to the wings.

The system has four valves:

Refer to Figure 51

1. Lift-Assist Needle Valve\(^a\) (page 57)
   This valve assures that the down-pressure system brings the wings to level before the optional Lift-Assist raises. It requires an initial setup and seasonal check.

2. Bypass Valve (page 58)
   This valve protects the system from over-pressure on LS and PFC Closed systems. It requires a one-time setup on PC Closed systems, and a seasonal setup on LS and PFC Closed systems.

3. Pressure Reducing Valve (page 59)
   This valve is used for routine field adjustment of down-pressure.

4. Pilot-Operated Check Valve\(^a\)
   This valve assures that wings lower after the optional Lift-Assist lowers. It has no adjustments.

NOTICE

Equipment Damage Risks:
The current hydraulic down pressure option is compatible only with “closed center” tractor hydraulics.

Before using the system for the first time, particularly if the down-pressure feature was installed after delivery, verify that the cylinder clevises are connected to the wing pins using the short clevis slots.

The hydraulic down pressure kit is integrated with the optional lift assist system. When the down pressure system cycles, the planter raises and lowers as the wings partially fold and unfold.

The down-pressure system requires a remote circuit capable of continuous flow. Some tractors require specific actions or lever accessories to accomplish this. See side bar at right for details on selected models.

---

\(^a\) The PO Check valve, Needle valve, and associated mainframe hoses are present, with lines plugs, on planters without Lift-Assist. They require no attention if Lift-Assist is not present. They are provided to support later installation of Lift-Assist.
Lift-Assist Needle Valve Adjustment (Option)

If the planter does not have lift-assist\(^a\), continue with down-pressure setup on the next page.

*Refer to Figure 52*

The lift-assist needle valve \(\circ\) assures that the down-pressure system levels the wings before the Lift-Assist raises. This prevents lateral dragging of openers in field lift. Sequencing during lower is controlled by the PO check valve \(\odot\) and has no adjustment.

The needle valve requires an initial setup, some re-adjustment after setting field down-pressure, re-adjustment for different field conditions, and a seasonal check.

Setup/adjustment requires moving the planter to field conditions, hitched to a tractor. Empty seed hoppers are preferred for this adjustment, but not essential.

**Initial Needle Valve Setup**

Perform step 1-3 and 5 only on first use of the planter, or if the needle valve itself required maintenance.

You will need a hex key/wrench for the set screw. Hex key size may vary with valve brand. If the valve has two set screws, loosen the one closer to the valve body.

1. At the Bypass Valve \(\circ\), release the locking disc \(\odot\) by turning it counter-clockwise.
2. Close the valve by turning knob \(\Theta\) fully clockwise.
3. Tighten locking disc \(\odot\). When using a tractor with PC Closed hydraulics, always operate the planter with the bypass valve closed.
4. At the needle valve \(\circ\), loosen the set screw \(\Theta\).
5. Turn the valve knob fully clockwise, then counter-clockwise one turn.
6. Unfold the planter. Install the Wing Lock pins (page 25). With the 2-point hitch raised, retract the down-pressure/lift-assist circuit to lower.
7. Carefully extend the circuit for lift-assist, observing whether wings level occurs prior to lift, and lift occurs at a reasonable rate.

   If lift occurs before wings level, turn the needle valve knob \(\frac{1}{4}\) turn clockwise to reduce lift flow to the lift-assist cylinders.

   If lift is too slow, turn the needle valve knob \(\frac{1}{4}\) turn counter-clockwise to increase lift flow to the lift-assist cylinders. Do not add so much flow that lift occurs before wings level.

8. When satisfied with lift sequence and rate, secure the needle valve set screw.

**Further Needle Valve Adjustment**

9. Verify field lift sequence and rate again after adjusting down-pressure.

10. Verify field lift sequence and rate with full hoppers when afiel d. Conversely, if the adjustment was initially made with full hoppers, verify sequence and rate as they empty.

\(^a\) A planter with the hydraulic down-pressure has this valve installed even if lift-assist is not present.

If lift-assist is not present, the line is plugged at the valve and no adjustment is necessary.
Initial Down-Pressure Setup

Initial Down-Pressure Setup, PC Closed

These instructions are for Pressure Compensating Closed Center systems. For a Load Sensing or Pressure Flow Compensating system, continue lower on this page at “Initial/Seasonal Setup, LS and PFC Closed”.

PC Closed systems provide over-pressure protection, and do not require the use of the bypass valve.

If not already done, perform step 1 through step 3 on page 57.

Continue at “Down-Pressure Adjustment” on page 59.

Initial/Seasonal Setup, LS and PFC Closed

For a Pressure Compensating Closed Center system, “Initial Down-Pressure Setup, PC Closed” above.

Complete “Initial Needle Valve Setup” on page 57.

This setup requires moving the planter to field conditions, hitched to the tractor to be used.

Refer to Figure 53

1. If not already done, perform step 1 through step 3 on page 57.
2. With tractor at half throttle, adjust the flow-control valve on the tractor so that partial fold/unfold (and lift-assist raise/lower) occur at a reasonable speed. Keep tractor at one-half throttle for remaining steps.

   Faster cylinder movement increases potential for oil over-heating, wear and tractor damage.

3. Engage tractor hydraulics and lower openers. Lock hydraulic lever for the down-pressure remote for continuous operation.


5. While watching the gauge, slowly turn the Bypass Valve Knob counterclockwise. Adjust bypass valve just until the gauge needle begins to move down from 600 psi. Use locking disc  to secure the bypass valve at this setting. (See also advisories at right.)

Continue at “Down-Pressure Adjustment” on page 59.

NOTICE

Machine Damage Risks:
Failure to use the bypass valve on load-sensing tractors may cause major tractor damage.

The higher the bypass pressure, the greater the potential for oil over-heating and tractor damage. However, for proper opener operation the bypass valve must be set at least 200 psi above the opener down-pressure setting when the tractor is at one-half throttle. Therefore, you should set the bypass valve as low as possible while staying at least 200 psi above the opener down pressure setting.

While 600 psi is a good starting point for setting the bypass valve, if you consistently operate the planter with lower opener down pressure you can set the bypass valve below 600 psi. If you consistently operate the planter with very high opener down pressure, you may need a bypass-valve setting above 600 psi.
Down-Pressure Adjustment

Refer to Figure 54

Before optimizing the down-pressure reducing) valve setting 3, make sure the lift-assist needle valve 1 (if lift-assist is installed) and the bypass valve 2 have been set up. See previous pages.

To adjust hydraulic down pressure:

1. If not already done, unfold and lower the planter in field conditions. Install the Wing Lock pins (page 25).
2. Set the row unit mechanical (spring) down pressures per conditions (see page 62). This may be easier with the planter raised.

For the next step, the remote lever must be LOCKED OPEN in this position to provide constant pressure/flow to the down pressure system.

3. With the tractor hydraulic lever locked forward, release the lock disk 7, turn the knob 8 counter-clockwise on the pressure reducing valve 3.
4. Watch the pressure gauge. Set the desired pressure. Clockwise increases the pressure and counterclockwise decreases pressure.
5. Once the pressure is set, lock the knob with the lock disk 7.

The suggested initial pressure range for planting is between 200 psi and 400 psi.

The opener pressure setting controls the soil firming pressure on the press wheel as well as the disk penetrating force. DO NOT use more opener down pressure than necessary to obtain the desired opener penetration and to maintain the proper firming action over the seed. Excessive opener force will lead to excessive wear and damage of the opener components.
Hydraulic Down-Float Adjustments

(Option)

For the hydraulic down-pressure option, see “Hydraulic Down Pressure (Option)” on page 56. The wing flex-lock option has no adjustments.

This option allows the wings to float up and down by 7.5 inches in gently rolling fields. The cylinders hold the wings at or slightly above level during field lift.

Refer to Figure 55

Before using the system for the first time, particularly if the down-pressure feature was installed after delivery, verify that the cylinder clevises are connected to the wing pins using the long clevis slots.

If the planter does not have lift-assist, there are no adjustments for this system.

Down-Float Lift-Assist Sequencing

The lift-assist needle valve assures that the down-float system raises before the Lift-Assist raises. This prevents lateral dragging of openers in field lift. Sequencing during lower is controlled by the PO check valve and has no adjustment.

The needle valve requires an initial setup, possible re-adjustment for different field conditions, and a seasonal check.

Setup/adjustment requires moving the planter to field conditions, hitched to a tractor. Empty seed hoppers are preferred for this adjustment, but not essential.

Initial Needle Valve Setup

Perform step 2 only on first use of the planter, or if the needle valve itself required maintenance.

You will need a hex key/wrench for the set screw. Hex key size may vary with valve brand. If the valve has two set screws, loosen the one closer to the valve body.

1. At the needle valve, loosen the set screw.
2. Turn the valve knob fully clockwise, then counter-clockwise one turn.
3. Unfold the planter. Install the Wing Lock pins. With the 2-point hitch raised, retract the down-pressure/lift-assist circuit to lower.

4. Carefully extend the circuit for lift-assist, observing whether wing lift to level occurs prior to lift, and that lift occurs at a reasonable rate.

   If lift occurs before wings-level, turn the needle valve knob 1/4 turn clockwise to reduce lift flow to the lift-assist cylinders.

   If lift is too slow, turn the needle valve knob 1/4 turn counter-clockwise to increase lift flow to the lift-assist cylinders. Do not add so much flow that lift occurs before wings-level.

5. When satisfied with lift sequence and rate, secure the needle valve set screw.

Further Needle Valve Adjustment

6. Verify field lift sequence and rate with full hoppers when afield. Conversely, if the adjustment was initially made with full hoppers, verify sequence and rate as they empty.

---

a. A planter with the hydraulic down-pressure has this valve installed even if lift-assist is not present. If lift-assist is not present, the line is plugged at the valve and no adjustment is necessary.
25AP Series Row Unit Adjustments

Refer to Figure 56 (which depicts a row unit populated with most optional accessories supported for use with the Yield-Pro Planter)

From front to back, a Great Plains 25 Series Air-Pro® row unit can include the following capabilities (some optional):

1. **Lock-Up Pin Storage Hole** (Standard)
   See “Row Unit Shut-Off” on page 73.

2. **Down-Pressure Cam** (Standard)
   Row units are mounted on parallel arms. This parallel-action mounting allows the row-unit to move up and down while staying horizontal. Springs add an adjustable force, set by the cam, to the row weight. See “Row Unit Down Pressure” on page 62.

3. **Meter Pressurization Air Inlet** (Standard)
   Pressure-regulated air enters the meter here and holds seed in the disk pockets. See “Fan and Adjustment” on page 48.

4. **Seed Delivery Inlet** (Standard)
   Gravity carries the seed from the hopper into the meter at the shutter 6. There are no adjustments.

5. **Air-Pro® Seed Meter** (Standard, Choice of Discs)
   See “Air-Pro Meter Disc Installation” on page 72.

6. **Seed Inlet Shutter** (Standard)
   This controls the level of bulk seed at the disk. There are multiple operating settings, plus fully open (clean-out) and fully closed (shut-off or storage). See “Seed Inlet Shutter Adjustment” on page 70.

7. **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 Adjustment” on page 68.

8. **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 Adjustment” on page 77.

9. **Row Unit Lock-Up Hole** (Hole Standard)
   Pins are standard on some models. With the row unit raised above level, the lock-up pin is inserted here. See “Row Unit Shut-Off” on page 73.

10. **Row Cleaner** (Option)
    Row cleaners clear trash from the row, to a depth set by an adjustment on the arms. See “Unit-Mount Cleaner Adjustments” on page 64.

11. **Unit-Mount Coulter** (Option)
    Coulters cut remaining trash and begin opening the seed furrow. Working depth is set by row depth and a mounting hole selection. See “Coulter Adjustments” on page 65.

12. **Opener Discs** (Standard)
    Row-unit double disc openers create the seedbed furrow. They have adjustments for angle and spacing. See “Row-Unit Opener Disk Adjustments” on page 67.

13. **Seed Tube with Sensor** (Standard)
    Requires no adjustment.

14. **Scrapers** (Optional, not shown)
    Inside scrapers require no adjustment. For gauge wheel scrapers, see “Adjusting Gauge Wheel Scrapers” on page 69.

15. **Seed Firmer** (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 75.

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

**NOTICE**

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

Refer to Figure 57

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.

Be sure to inspect rows both in and out of tire tracks.

Refer to Figure 58

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.

Adjusting Down-Force

Refer to Figure 59

Row unit springs ① provide the primary down pressure necessary for row unit disks to open a seed trench. The empty weight of the row units themselves contributes about 130 pounds (59 kg) of the total force. When full of seed, another 100 pounds (45 kg) is added.

The springs allow the row units to float down into depressions and up over obstructions. Springs also provide down force on coulters when using optional row mounted coulters, and provide the primary down force on row cleaners (optional), seed firmers (optional) and press wheels.
An adjuster cam \( \textcircled{2} \) sets down pressure individually for each row unit. This is useful for penetrating hard soil and planting in tire tracks. For best results always adjust tractor tires so they are not ahead of 30 inch or 70 cm rows.

Refer to Figure 61

<table>
<thead>
<tr>
<th>Cam Notch</th>
<th>Pounds</th>
<th>Kilograms</th>
</tr>
</thead>
<tbody>
<tr>
<td>zero (out of notch)</td>
<td>Lock-Up &amp; Maintenance</td>
<td></td>
</tr>
<tr>
<td>one</td>
<td>255</td>
<td>115</td>
</tr>
<tr>
<td>two</td>
<td>265</td>
<td>120</td>
</tr>
<tr>
<td>three</td>
<td>285</td>
<td>130</td>
</tr>
<tr>
<td>four</td>
<td>315</td>
<td>145</td>
</tr>
<tr>
<td>five</td>
<td>345</td>
<td>155</td>
</tr>
<tr>
<td>six</td>
<td>375</td>
<td>170</td>
</tr>
<tr>
<td>tip</td>
<td>Do Not Use</td>
<td></td>
</tr>
</tbody>
</table>

Values are down force with hoppers empty

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.

Refer to Figure 60 (shown at cam setting 2), Figure 61 and Figure 62

To adjust down pressure, use a \( 1 \frac{1}{8} \) inch (29 mm) open end wrench or the tool 3 stored in a bracket at the left side or the \#1 row mount.

1. Raise the planter. Although this adjustment can be made with the planter lowered, the springs will be in tension, and will require more effort. The extra force required may also damage tools.
2. Install lift cylinder locks on a 2-point lift-assist model.
4. Position wrench on the fixed nut 4 near or slightly forward of vertical.
5. Pull upper spring link 5 back.
6. Move the adjustment cam \( \textcircled{2} \) to the new setting on the spring adjust bar 6.

Do not set all rows higher than notch four. Using high settings across all rows causes uneven planting. Individual rows may be set higher if running in tire tracks. On twin-row configurations, setting all rows to notch 4 or higher results in a net up force that can exceed the weight of the planter when the hoppers are nearing empty.
Unit-Mount Cleaner Adjustments

Refer to Figure 63 and Figure 64

Optional Martin row cleaners are unit-mounted, using:
UMRC: Unit-Mount Row Cleaner (stand-alone), or
UMC-RC: Unit-Mount Coulter RC (on coulter bracket, with or without a coulter disk present).

There are two adjustments:
1. Wheel placement (forward or aft mounting hole, for more or less aggressive cleaning), and
2. Wheel height, adjusted by a stop. Cleaner arms float. The stop only sets the lowest position.

In UMRC mount, a pinned cross-tube (3) on the mount adjusts the depth. In UMC-RC (coulter) mount, a sliding down-stop block (5) adjusts how close to the ground the row cleaners operate.

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

Suggested initial depth is tine tips at ground level.

Make the adjustment with the planter raised. Install lift-assist cylinder locks. Also check bolt (6) tightness prior to each planting session, to avoid down-stop slippage.

To adjust the row cleaner:
1. Determine the height adjustment required. Measure from the lowest tine to the ground. Determine the desired new measurement.
2. Support most or all of the weight of the arm to prevent injury and ease the adjustment. Loosen bolts (5) on UMC-RC. Remove bent pin (2) on UMRC.
3. Support arm at desired height.
4. UMRC: Slide adjustment tube (1) until cross-tube (3) contacts arm at target height. Insert bent pin (2) in whichever hole pair is most in alignment.
5. UMC-RC: Slide the down-stop (6) on the arm (4): - back toward the pivot for shallower cleaning, or - forward toward the tines for deeper cleaning. Tighten the bolts (5). Each possible hole pairing adjusts the tine height by about $\frac{3}{4}$ inch (19 mm).
6. Check the new height measurement.

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

CAUTION

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

Coulters are not factory-installed. Check alignment and depth prior to first use.

Coulter Depth Adjustment

The ideal operating depth for coulters is \( \frac{1}{4} \) inch (6 mm) above opener depth. Although they may have originally been set to this depth, coulter (and opener) blades wear with time, and may need adjusting.

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

Refer to Figure 65 and Figure 66

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

To adjust coulter depth:

1. Determine the present opener and coulter depths.
2. Note which bracket hole the coulter is presently using.
3. Determine which new hole will position the coulter closer to the \( \frac{1}{4} \) inch-above depth. See the table below.
4. Remove the \( \frac{5}{8} \)-11 x 4 inch bolt, lock washer and nut (\( \text{\#7} \) in Figure 65).
5. Move the blade to the new position. Insert the bolt, and tighten on the lock washer and nut.
6. Re-adjust row cleaners, if installed.

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

<table>
<thead>
<tr>
<th>Hole Number</th>
<th>Depth of (new) coulter blade relative to (new) opener blades</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1 inch (25 mm) above</td>
</tr>
<tr>
<td>3</td>
<td>( \frac{5}{8} ) inch (16 mm) above</td>
</tr>
<tr>
<td>5</td>
<td>( \frac{1}{4} ) inch (6 mm) above</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>( \frac{3}{8} ) inch (9.5 mm) below</td>
</tr>
<tr>
<td>6</td>
<td>( \frac{3}{4} ) inch (19 mm) below</td>
</tr>
</tbody>
</table>
Coulter Row Alignment

Refer to Figure 67

For unit-mounted coulters, the ideal alignment is for the blade to open a furrow directly ahead of the opener discs.

As a check on coarse alignment, sight along the coulter blade center-line ➊, the gap between the opener blades ➋, and the centerline between the press wheels ➌. If they are clearly out of alignment, either the coulter or the press wheels (or both) may be in need of adjustment.

The exacting test of correct alignment is field results. Operate the planter on some test ground (no seed required), and verify that the opener blades are in the groove opened by the coulter, and that the press wheels are centered over the furrow. See “Press Wheel Adjustment” on page 77 for press wheel alignment.

Refer to Figure 68

To adjust coulter alignment, loosen the four bolts ➍ that attach its bracket to the row unit. The holes on the row unit are slotted, side-to-side, and allow the coulter bracket sideways and rotational adjustment.

Keep the coulter blade vertical while adjusting.

If the blade cannot be brought into alignment, check that the blade spindle itself is using the same hole location on each side of the bracket.
Row-Unit Opener Disk Adjustments

25 Series openers have three adjustments:
1. planting/seed depth
2. opener disc to disc clearance
3. gauge wheel/opener disk clearance (page 68)

Setting Planting Depth

Refer to Figure 69

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

To adjust seed depth, pull the “T” handle 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 forward.
- For deeper planting, move the “T” handle back.

Opener Disc Contact Region

Refer to Figure 70

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 approximately one inch. If you insert two pieces of paper between the blades, they should slide to within zero (touching) to 1.5 inch (3.8 cm) of each other. If zero, 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 71

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

Refer to Figure 72 and Figure 73

Disc-to-wheel angle and clearance ideally has the wheel just touching the disk when the wheel is raised to planting depth (is up against the stop set by the “T” handle. The goal is to have both disks and wheels turn freely, but keep soil and trash from getting between them. These two adjustments interact with each other. Changing one requires at least checking the other.

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

Refer to Figure 73
For 2 inch (5.1 cm) planting depth, adjust side gauge wheel angle so wheels contact row unit disks at the bottom of wheel. Check with row units in soil so wheels are held up.

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

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

Refer to Figure 75 on page 69
To adjust side gauge wheels:

1. Raise the planter and install lift cylinder locks.
2. Loosen hex-head bolt . Move wheel and arm out on O-ring bushing.
3. Loosen pivot bolt Turn hex adjuster so indicator notch 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 disk. Tighten hex-head bolt to clamp arm around bushing and shank.

Refer to Figure 74
5. Check wheel-to-disk contact at 2 inch (5.2 cm) planting depth. Lift wheel 2 inches, check contact and release. When let go, wheel should fall freely.

- If wheel does not contact disk at bottom to area where blade leaves contact with soil, move hex adjuster until wheel is angled for proper contact with disk.
• *If wheel does not fall freely*, loosen hex-head bolt ① and slide wheel arm out just until wheel and arm move freely. Tighten hex-head bolt ① according to grade:
  
  \[
  \begin{align*}
  &\frac{1}{2} \text{ inch Grade 5 bolt on 25 series:} \\
  &\quad 75 \text{ ft lb (102 N\text{m})}. \\
  &\frac{1}{2} \text{ inch Grade 8 bolt on 25 series:} \\
  &\quad 110 \text{ ft lb (149 N\text{m})}.
  \end{align*}
  \]

Use “Torque Values Chart” on page 112 for reference.

6. Keep turning hex adjuster and moving wheel arm until the wheel is adjusted properly. When satisfied, tighten pivot bolt ② to 110 ft lb (149 N\text{m}).

---

**Adjusting Gauge Wheel Scrapers**

*Refer to Figure 76*

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

There are adjustments for seed inlet, and choice of discs. There are no other adjustments, in particular no brush adjustments, at the meter.

Meter Rain Cover

The rain cover keeps side winds from unseating seed in disc pockets. It also keeps precipitation, sunlight and field debris out of the meters.

Refer to Figure 77

To remove the rain cover, peel the flexible snap latches, at top ① and rear ②, away from the meter housing. Pivot the cover forward and down at tab ③ in slot.

When removing a cover, inspect it for damage and missing parts. If a cover does not have both latches, and an intact edge seal under the latches, the cover is apt to be lost during transport or field operations.

To replace a latch, temporarily remove the seal near the latch. Slide the replacement latch onto the cover lugs from the meter side, then snap the other end down over the lugs. Re-install the seal.

Seed Inlet Shutter Adjustment

Refer to Figure 78 (showing the shutter at setting 3)

The seed inlet shutter regulates the volume of bulk seed presented to the seed disc. The operating settings vary with crop, seed size and treatments. The shutter also has settings for row shut-off (completely closed), and clean-out (wide open).

The Seed Rate Charts include suggested initial shutter settings. Refine these settings based on experience, and on inspection of the slope of the seed pool at the bottom of the seed disc.

The shutter is operated by a handle. Lift the handle away from the meter plate. Move the handle to half a setting higher than the new setting, then back to the new setting, and lower the pawl into that slot.

The table at right is a general summary of shutter settings.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Setting Typically Used For</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top (0)</td>
<td>Closed: Row Shut-Off, Meter Re-Fill</td>
</tr>
<tr>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td></td>
<td>(2)</td>
</tr>
<tr>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>(4)</td>
</tr>
<tr>
<td>Bottom (5)</td>
<td>Wide Open: Clean-Out</td>
</tr>
</tbody>
</table>
Optimal Seed Pool Slopes
The optimal seed slope is one that results in the most consistent seeding, with minimal skips and doubles. The column at right has photographs of pool slopes found to be optimal for representative seeds.

If the suggested initial shutter settings do not seem to be working for your seed, adjust the shutter to achieve specific reserve slope targets.

Refer to Figure 79
For medium size and smaller seeds that flow easily, the slope runs from just above the 8:00 (o’clock) position on the housing wall, forward and down to one or two seeds deep at the base of the rear strip brush ①.

Refer to Figure 80 and Figure 81
For medium size and larger, or heavily treated smaller seeds that flow less easily, the slope runs from at or slightly above the 8:30 (o’clock) position on the housing wall, forward and down to 3-6 seeds deep at the base of the rear strip brush ①.

In general, the seeds at the base of the strip brush need to be deep enough that no air escapes there, and so that just enough seeds are present to begin populating cells.

Keep the top left/rear end of the pool below the 9:00 o’clock position (meter horizontal center-line).

Meter Re-Fill
Once planting is underway with the seed pools set, it is infrequently possible for bridging at or above the inlet to starve the meter of seed.

An empty meter causes planter monitor “Row Failure” alarm, with a report of the row number. Row numbers are counted from the left wing (outside row is row 1).

Stop, and put the tractor in Park. Leave the fan running. Locate the failed row, remove the rain cover, and verify that the meter is empty. Note the shutter setting. Temporarily open the shutter one of two notches wider. If the problem was inlet bridging, seed should flow into the meter immediately.

If no obvious foreign object was the cause of the bridging, the shutter setting may have been too small for the seed. Verify that this and other operating rows were at the correct initial shutter setting. If so, re-set the shutters to the next higher opening.

NOTICE
Foreign Object Risk:
After clearing a bridge, or a delivery blockage upstream, check the seed pool at the meter for any debris that might have been the original cause. Remove such debris from the meter before planting. Don’t run the risk of an object lodging in a seed pocket and causing on-going skips.
Air-Pro Meter Disc Installation

1. Cross-check Seed Rate Chart data against part number/description molded into discs to be used.

**NOTICE**

*Population Risk:*
*Use the same disc in all active rows.*

2. Inspect discs to be installed. Do not install damaged or excessively worn discs. Either can cause irregular seeding. Chips and cracks accelerate brush wear.

3. Remove meter rain cover (page 70).

**Refer to Figure 82 (depicting an empty meter)**

4. Inspect meter (see page 91 for details).

5. Make sure clamp 1 is aligned with seat 2.

**Refer to Figure 83**

6. With the seed pocket side facing the meter housing, place the new seed disc on the disc seat.

7. Rotate disc clamp 1 clockwise 45deg to clamp disc. Clamp seats into detents 3 in disc hub.

- On a new meter, or with new brushes installed, force the disc into the brushes to allow the disc clamp to rotate. This condition eases as the brush fibers are trained during initial rotations.

- With slightly used brushes, when a disc is first clamped, it is normal for the disc hub to be flat with the face of the disc seat only on the inlet (rear) side. The disc fully seats as it first turns. This condition eases as the brush fibers receive further use.

**NOTICE**

*Brush Mis-Seating Risk:*
*Rotate discs forward shortly after disc installation. If planting is not anticipated within an hour or two of disc installation, rotate the drive system a few turns to ensure that meter brushes lean in the correct direction. Correct lean improves meter performance and reduces air consumption. This step is particularly important for new brushes.*

Brush seating may be accomplished with or without seed present, and may be combined with “FILL DISC”. An alternate method, which avoids running the tractor, monitor and fan, is to rotate the section’s meter drive shaft, top forward, with a \(\frac{7}{8}\) inch open-end wrench.

8. Reset seed inlet shutter 4 to setting recommended by Seed Rate Chart, or to your own developed value.

9. On the planter monitor console, select the new Material, seed disc Cell Count, and target population.

10. Re-install rain cover (page 70).
Removing a Seed Disc

Refer to Figure 85

1. Remove rain cover. If seed is present, close shutter 3 to prevent more seed from entering meter. Attach funnel (page 90).
2. Hold seed disc in meter. Rotate disc clamp 1 counterclockwise 45° to release disc.
3. Tilting top of disc toward meter, slowly remove disc, allowing seed to collect in funnel. Open shutter to release remaining seed up to wing tube.
4. Clean seed from all brushes. Clean disc seat (2 in Figure 82 page 72), so that new discs can seat fully. Inspect brushes for excess wear and damage. See “Meter Brush Maintenance” on page 91.
5. Inspect removed discs for excess wear and damage. Set aside any discs requiring replacement. Clean other removed discs and place in storage. See “Seed Disc Maintenance” on page 93.
6. Re-install the rain cover (page 70).

Row Unit Shut-Off

Skip-row operations, such as planting from every other row when switching from 30 inch twin-row to 30 inch single-row, requires shutting down unused rows. Shutting off seeding at a row involves 4 to 7 steps:
1. Identify the rows to shut off.
2. Fully close seed inlet shutter (always done).
3. Replace seed disc with blank disc (always done).
4. Close seed flow to row at Y-tube (if present).
5. Lock up row unit to reduce wear (optional).
6. Reset monitor active row pattern and row spacing to avoid nuisance alarms (always done).
7. Shut off fertilizer drop lines (Option, see Seed and Fertilizer Rate manual 411-099B for details).

\[\text{Meter drive is not disabled on 25AP row units during shut-off.}\]
1. Identify Rows to Shut Off

On twin-row planters, openers are installed with short and long opener mounts. If locking up unused rows of a twin-row planter, shut off the rear (long mount) rows.

On single-row planters with mid-length mounts, any rows may be locked up.

2. Close Seed Shutter

Refer to Figure 86 on page 73

Lift the handle ② away from the plate. Move it to the top position, and release the handle into the notch.

Closing the shutter ① prevents meter pressurization air from leaking into the bulk seed air system, resulting in lower pressures in adjacent rows, with risk of skips.

The shutter also stops seed flow from a row as soon as the meter is empty. Bulk seed flow to the row falls to nil as soon as the seed backs up to the air release vent at the top of the meter. If the row is served by a Y-tube, the Y-tube also needs to be shut off for the row (step 4).

3. Install Blank Disc

Refer to Figure 87

Clean out meter. See “Meter Clean-Out” on page 90. Remove seed disc and install blank disc. See “Air-Pro Meter Disc Installation” on page 72.

Blank discs (part number 817-841C) are essential in row shut-off, both to maintain consistent meter back-pressure to meter pressurization and to prevent wear on a seed disc.

Blank discs are engineered to simulate a seed disc with seed in all pockets. Blanks are particularly important on the rows with sensor lines to the pressure chamber.

4. Lock-Up Row

Alternate twin-row units (the rear units) can be pinned in the up position to accommodate single-row spacing.

Refer to Figure 88

The lock-up pins ① for each front row unit are located in a storage hole ② in the row unit mount. To lock up a unit, the unit must be raised, and the pin moved to the lock-up hole ③ in the row unit shank.

WARNING

Crushing and Sharp Object Hazards:
Do not attempt to lift a row unit by hand. The weight of the unit, plus the force of the springs (even at minimum) is too great (plus, a free hand is needed for pin insertion). Even with multiple people lifting, hand-lifting is unsafe - there are numerous sharp edges, and the row unit snaps down violently if a grip is lost.

If you lose a pin, the replacement part number is 805-435C

Irregular Seeding Risk:
Always use a blank disc in a shut-off row. Operating with no disc, or with a seed disc but no seed, destabilizes the regulated airflow, particularly at rows with pressure sensor lines.
1. Raise the planter. Although this adjustment can be made with the planter lowered, the springs will be in tension, and will require more effort. The extra force may also damage tools.

2. Install lift assist cylinder locks. Lower parking stands.

3. Set the down pressure spring cam to zero, per the instructions on page 63.

4. Raise the row unit high enough that the hole for the pin is above the lower parallel arm. This can be done in several ways, including:
   a. use a hoist at the rear of the shank 📈
   b. use a jack under the shank extension 📈

**CAUTION**

Crushing Hazard:
Use a jack or hoist. Raising a row unit on a block by lowering the planter is risky. The potential for hydraulic failure creates a safety hazard. Full lowering can damage components.

Refer to Figure 89

5. Remove the pin from the storage hole 📙 and insert and secure it in the lock-up hole 📚.

6. Lower row unit until lock-up pin rests on lower parallel arm.

Seed Firmer Adjustments

Series 25 row units include a standard seed flap, and accept one of two optional seed firmers (which may be included in your selected opener bundle).

**CAUTION**

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

Keeton Seed Firmer Adjustment

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

Refer to Figure 90

The Firmer is provided with a preset tension which is recommended for using the first year. The tension screw 🌟 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.
Seed-Lok® Seed Firmer Lock-Up

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

Refer to Figure 91 (which depicts a row unit with discs, side depth wheels/arms and press wheels removed for illustrative purposes - removal is not necessary for lock/unlock)

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.
4. Push up on Seed-Lok® wheel 4 until wheel arm latches up 5.

To release a locked-up Seed-Lok®:
1. Insert a 1/4 in. tool drive tip in the tool hole 5 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.

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 Adjustment

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

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

There are three adjustments available on the press wheel assembly and a fourth option on press wheel assemblies with cast wheels:

Refer to Figure 92
1. Down pressure (shown at maximum)
2. Wheel stagger (shown staggered)
3. Centering (see Figure 94 on page 78)
4. Cast Wheel Plow Angle (see Figure 95 on page 78)

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.

Press Wheel Stagger

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

Refer to Figure 93
1. Raise the planter and install the lift assist cylinder locks. See “Lift-Assist Locks (Option)” on page 26.
2. Remove the bolt ⑤, nut ⑥ and lock-washer ⑦ for the left press wheel ⑧.
3. Move the spacer ② and wheel ③ to the forward of the two mounting holes at ④.
4. Re-install the bolt, lock washer and nut. Tighten.

Higher press wheel down pressures reduce the down force on the main row unit shank components, such as the openers. High press wheel settings may require an increase in overall row unit down force. See page 62.
Press Wheel Centering

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

Refer to Figure 94

1. Determine how far, and in which direction, the press wheel assembly needs to move to center the wheels.
3. Loosen the \( \frac{1}{2} \) inch hex-head bolts 2 and 3.
   \[ \text{Do not loosen the square-head bolts forward of the hex-head bolts.} \]
4. Turn the hex head cam 4 under the forward hex head jam bolt 3, and move the required amount.
5. Tighten both hex head bolts 2 and 3.

Press Wheel Assembly with Cast Wheels

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 95

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 \( \frac{3}{4} \) inch (19 mm) 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.
## Troubleshooting

### 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 optional planter monitor.

Also during start up it is common to encounter alarms and readouts on the optional planter monitor 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 monitor setup 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.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Is the spacing on the ground correct?</td>
</tr>
<tr>
<td>No:</td>
<td>Check the ground drive transmission and range sprocket selections, or the population settings on a unit. Refer to “Population Too Low” or “Population Too High” in “Seed Population Troubleshooting Chart” on page 82.</td>
</tr>
<tr>
<td>Yes:</td>
<td>Go to step 2.</td>
</tr>
<tr>
<td>2.</td>
<td>Is the population reported by the optional planter monitor 1/2 the actual or is the reported population too high by a factor of 2?</td>
</tr>
<tr>
<td>No:</td>
<td>Go to step 3.</td>
</tr>
<tr>
<td>Yes:</td>
<td>An incorrect row spacing value entered in the planter monitor can cause this. Example: 15 inches instead of 30 inches. Correct the row spacing error on the optional planter monitor 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.</td>
</tr>
<tr>
<td>3.</td>
<td>Is the population reported by the optional planter monitor close to the target population?</td>
</tr>
<tr>
<td>No:</td>
<td>Check seed rate charts against transmission sprockets selected. See “Population Too Low” or “Population Too High”.</td>
</tr>
<tr>
<td>Yes:</td>
<td>If slightly under, see “Population Too Low” if slightly over, see “Population Too High”.</td>
</tr>
</tbody>
</table>

### 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.”
## Seed Pool Troubleshooting

**Figure 96**
Rear Cross-Section of Air-Pro® Meter in Normal and Row-Failed Conditions

<table>
<thead>
<tr>
<th>Normal: Filled</th>
<th>Bridging: Inlet Shutter</th>
<th>Bridging: Seed Hose</th>
<th>Empty Hopper</th>
</tr>
</thead>
</table>
| Inlet is filled to seed box. Seed move slowly down as singulated by meter. | A bridge at the shutter is blocking flow. Causes may include:  
- oversize seed  
- shutter setting too low  
- oversize matter in seed  
- excessive or sticky seed treatment | Oversize matter in seed has caused a bridge at the top of the inlet. Causes may include:  
- oversize seed  
- oversize matter in seed  
- excessive or sticky seed treatment | No seed arriving from box. Causes may include:  
- seed run-out  
- hopper obstruction  
If hopper is empty, air back-flow (1) is also occurring, which can reduce meter pressurization at other rows |

**Actions:**

- No action required. Continue Planting.

- 1. If shutter was at suggested opening, increase one notch.
- 2. Check seed pool for foreign matter.
- 3. Resume planting.

- 1. Close shutter.
- 2. Tap on hose/tube junction.
- 3. Check seed pool for foreign matter.
- 4. Resume planting.

- 1. If row is active, add seed or check hopper outlet.
- 2. If row is inactive, close shutter.
- 3. Resume planting.
Magnehelic Gauge Troubleshooting

If the Magnehelic gauge does not read zero with the fan off, inspect the gauge, and re-zero as needed.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-zero with fan off</td>
<td>Zero drift</td>
<td>Re-zero per instructions below</td>
</tr>
<tr>
<td>Gauge reading lower than</td>
<td>Relief port plug</td>
<td>Replace plug</td>
</tr>
<tr>
<td>sensor</td>
<td>missing/damaged</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Breather line</td>
<td>Clear breather line</td>
</tr>
<tr>
<td></td>
<td>blocked or kinked</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leak in sensing</td>
<td>Check line to chamber</td>
</tr>
<tr>
<td></td>
<td>line</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gauge damaged</td>
<td>Check for loose cover, damaged O-ring</td>
</tr>
</tbody>
</table>

Check for chamber and breather line problems before re-zero. Re-zero cannot accurately compensate for leaks and blockages.

Re-zero the Magnehelic gauge on level ground with the fan off, and if possible, under no-wind conditions. Turn the set screw 1 on the meter face until it reads zero from the tractor driver’s viewing position.

Port ID for Troubleshooting:
② Over-pressure relief port (with plug in place)
③ Low-pressure port (breather/atmospheric pressure)
④ High-pressure port (from manifold chamber)
Alternate high/low ports are plugged.

Winter testing/maintenance advisory:
Gauge readings may be inaccurate or sluggish below 20°F
## Seed Population Troubleshooting Chart
### Population Too Low

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
</table>
| **Overall Low Population** | Incorrect seed rate | Using *Seed Rate Manual*, check:  
- seed disk selection,  
- Range/Transmission sprocket setup, and  
- tire size and inflation. |
| Empty pockets on disk (skips) due to insufficient air pressure. | Methodically increase the meter pressurization. See “Fan and Adjustment” on page 48. |
| Empty pockets on disk (skips) due to sticky seed treatments not allowing seed to rapidly fill the pockets. | Increase seed lubricant. |
| Empty pockets on disk (skips) due to rough field conditions causing seeds to fall from the disks. | Decrease field speed or increase the air pressure in the meter. |
| Empty pockets on disk (skips) due to seed pool too low, and seeds are not filling every pocket on the disk. | Open shutter one notch. |
| Empty pockets on disk (skips) due to disk speed too high, and pockets are not filling. | Decrease field speed or change to a higher cell count disc. |
| Empty pockets on disk (skips) due to singulation (4 tufted) brush too aggressive. | Check for matted, stuck together fibers. Wash, scrape clean, or replace as needed. |
| Empty pockets on disk (skips) due to seed too big for pocket. | Select the correct disk for the seed size. |
| Seeds are not falling from disk, and get carried past drop zone. Static electricity can cause small, lightweight seeds to cling to the pocket and not fall out. | 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. |
| Air pressure too low, as confirmed by gauge. | Increase fan speed or reduce butterfly valve setting. |
| **Air pressure too low, but gauge reading is within range or reading high.** |  
- Inspect the 1/4 inch sample lines from the row units up to the sensor chamber for leaks (page 81).  
- Make sure all non-planting rows have blank disks and shutters are closed (page 74).  
- Re-zero the gauge with the fan off (page 81).  
- Check gauge vent line for kinks, pinches or plugging (page 81). |
| **Excess field speed** | Plant within speed ranges recommended in *Seed Rate Manual*. |
| Incorrect seed rate | Using *Seed Rate Manual*, check:  
- seed disk selection,  
- Range/Transmission sprocket setup, and  
- tire size and inflation. |
| Incorrect speed sensor constant. | Perform speed calibration per planter monitor manual. |
| Incorrect magnetic speed sensor gap. | Check and adjust (page 93). |
| (Option) Incorrect radar speed sensor angle. | With planter lowered, check radar speed sensor angle per DICKEY-john® recommendations. |
## Population Too Low

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall Low Population (cont’d)</strong></td>
<td>Pass gaps too large</td>
<td>For GPS, check planter size programmed.</td>
</tr>
<tr>
<td></td>
<td>Actual field size is different</td>
<td>Population may be correct, and calculations are not.</td>
</tr>
<tr>
<td></td>
<td>Planter monitor reporting excess area</td>
<td>Readings can vary with conditions (wheel slippage, and effective rolling radius in soft soils) and planting patterns.</td>
</tr>
<tr>
<td><strong>Low Population, Single Row</strong></td>
<td>Shutter opening too narrow - starving meter of seed (low seed pool)</td>
<td>Adjust shutter to higher setting.</td>
</tr>
<tr>
<td></td>
<td>Meter starvation due to bridging at shutter</td>
<td>Re-adjust for shutter bridging (page 71). If seed is treated, increase seed lubricant.</td>
</tr>
<tr>
<td></td>
<td>Meter starvation due to blockage above inlet</td>
<td>Clear blockage (page 71).</td>
</tr>
<tr>
<td></td>
<td>Meter starvation due to bridging above inlet, caused by high levels of seed treatment</td>
<td>Clear bridge (page 71). Increase seed lubricant.</td>
</tr>
<tr>
<td></td>
<td>Incorrect seed disk on one row</td>
<td>Install correct seed disk.</td>
</tr>
<tr>
<td></td>
<td>Chain skipping at row unit.</td>
<td>Check chain, idler and sprocket condition.</td>
</tr>
<tr>
<td></td>
<td>Skips due to low meter pressurization at one or several rows</td>
<td>Check shutter setting. Check for excess wear on seed drop brush. Check for loose or leaking pressure hose.</td>
</tr>
<tr>
<td></td>
<td>Skips due to skipping chain</td>
<td>Check for worn chain, worn idlers, low chain slack (page 94) and failed meter bearing.</td>
</tr>
<tr>
<td></td>
<td>Skips due to debris in disc pockets</td>
<td>Remove rain covers. Inspect and clean out discs.</td>
</tr>
<tr>
<td></td>
<td>Row has blank disc installed</td>
<td>Replace with seeding disc.</td>
</tr>
<tr>
<td></td>
<td>Seed tube plugged</td>
<td>Raise planter, expose bottom of seed tube and clean out.</td>
</tr>
<tr>
<td><strong>Low or Erratic Seed Flow</strong></td>
<td>Seed meter plugged, due to operation with fan shut off, or manifold pressure too low.</td>
<td>Close shutters. Clean-out meters. Set fan for correct manifold pressure. Resume planting.</td>
</tr>
</tbody>
</table>

## 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>Two seeds per pocket on the disk (doubles), due to excess meter pressurization</td>
<td>Methodically decrease the meter pressurization. See “Fan and Adjustment” on page 48.</td>
</tr>
<tr>
<td></td>
<td>Two seeds per pocket on the disk (doubles), due to pockets too large for the seed</td>
<td>Select a disk with smaller pockets.</td>
</tr>
<tr>
<td></td>
<td>The meter pressurization is too high, as confirmed by gauge</td>
<td>Reduce fan speed or increase butterfly valve setting.</td>
</tr>
<tr>
<td></td>
<td>Air meter pressure too high due to pressure sensor not zeroed properly.</td>
<td>Re-zero the gauge with the fan off.</td>
</tr>
</tbody>
</table>
| | Air pressure too high, but gauge is within range or reading low. | Check:  
• Inspect the 1/4 inch sample lines from the row units up to the sensor chamber for leaks (page 81).  
• Make sure all non-planting rows have blank disks (page 74).  
• Check that rubber pressure relief plug is seated in gauge (page 81). |
## Population Too High

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall High Population (cont'd)</strong></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 planter monitor setup. Review planter configuration and monitor setup.</td>
</tr>
<tr>
<td></td>
<td>Incorrect cell count</td>
<td>Replace seed discs with correct discs, or reset rate for current discs (if within range).</td>
</tr>
<tr>
<td></td>
<td>Incorrect speed sensor constant.</td>
<td>Perform speed calibration per planter monitor manual.</td>
</tr>
<tr>
<td></td>
<td>Incorrect magnetic speed sensor gap.</td>
<td>Check and adjust (page 93).</td>
</tr>
<tr>
<td></td>
<td>(Option) Incorrect radar speed sensor angle.</td>
<td>With planter lowered, check radar speed sensor angle per DICKEY-john® recommendations.</td>
</tr>
<tr>
<td></td>
<td>Doubles due to incorrect disc for crop or seed size</td>
<td>Use recommended disc for crop and seed size.</td>
</tr>
<tr>
<td></td>
<td>Sticky seeds: excess seed treatment</td>
<td>Increase seed lubricant.</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>Overlapping passes</td>
<td>For GPS, check planter size programmed.</td>
</tr>
<tr>
<td></td>
<td>Actual field size is different</td>
<td>Population may be correct, and calculations are not.</td>
</tr>
<tr>
<td></td>
<td>planter monitor under-reporting area</td>
<td>Readings can vary with conditions (wheel slippage, and effective rolling radius in soft soils) and planting patterns.</td>
</tr>
<tr>
<td><strong>High Population, Single Row</strong></td>
<td>Excess meter pressurization causing doubles</td>
<td>Check shutter.</td>
</tr>
<tr>
<td></td>
<td>Worn seed-drop brush and/or strip brushes allowing excess seed to pass</td>
<td>Replace worn brushes.</td>
</tr>
<tr>
<td></td>
<td>Worn meter bearing causing seed disk wobble and doubles</td>
<td>Replace meter bearing.</td>
</tr>
<tr>
<td></td>
<td>Incorrect seed disc with higher cell count.</td>
<td>Install correct disc.</td>
</tr>
</tbody>
</table>
### Population Related

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall Population Alarms</strong></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 planter monitor setup. Review planter configuration and monitor setup.</td>
</tr>
<tr>
<td></td>
<td>Incorrect cell count</td>
<td>Replace seed discs with correct discs, or reset rate for current discs (if within range).</td>
</tr>
<tr>
<td></td>
<td>Improper gap on magnetic speed sensor</td>
<td>Check speed sensor on planter for a gap to toothed wheel of: $\frac{1}{32}$ inch (0.020-0.040 inch, 0.5-1.0 mm). 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 monitor manual.</td>
</tr>
<tr>
<td></td>
<td>(Option) Incorrect radar speed sensor angle</td>
<td>With planter lowered, check radar speed sensor angle per DICKEY-john® recommendations.</td>
</tr>
<tr>
<td></td>
<td>Seed run-out. Due to unequal outlets per box division, and if planting across slopes, some rows will run out before others.</td>
<td>Re-distribute seed to favor rows that have run out, and plan to re-fill shortly.</td>
</tr>
<tr>
<td><strong>Mismatch Between Reported and Furrow Population</strong></td>
<td>Small seeds (example milo) are not reliably sensed in the seed tube</td>
<td>Run with rain covers in place to minimize ambient light intrusion. Use the population scaling factor in the planter monitor system to compensate for missed seeds. Remember to set this back to 100% for large seeds.</td>
</tr>
<tr>
<td></td>
<td>Seed tube sensor is not counting all seeds</td>
<td>Clean the seed tube of graphite and dust buildup with long narrow seed tube brush. Replace sensors that malfunction.</td>
</tr>
<tr>
<td><strong>Excessive Seed Cracking</strong></td>
<td>Incorrect seed pocket size</td>
<td>Use correct disk for seed.</td>
</tr>
<tr>
<td></td>
<td>Damaged, old or dried-out seed</td>
<td>Use new seed.</td>
</tr>
<tr>
<td></td>
<td>Unclean seed</td>
<td>Use clean seed.</td>
</tr>
<tr>
<td><strong>Skips and Bare Spots After Turns</strong></td>
<td>Fan was turned off at turns</td>
<td>Leave fan running; meter pressurization must be maintained during turns, or seed will fall out of disk pockets.</td>
</tr>
<tr>
<td></td>
<td>Insufficient hydraulic flow to keep fan running at speed required to maintain meter pressurization</td>
<td>Check tractor capability against requirements (page 110). If sufficient: • Fold markers before engaging lift. • Use a less aggressive lift rate. • Monitor meter pressurization during end-of-pass operations.</td>
</tr>
<tr>
<td><strong>Seed too shallow or scattered on ground from a single row</strong></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>
<tr>
<td><strong>Twin Rows were timed but became out of time</strong></td>
<td>Timing will change when a population change has been made.</td>
<td>Re-time meters from the population based timing chart.</td>
</tr>
<tr>
<td></td>
<td>Chain has jumped.</td>
<td>Check sprockets and chain for excessive wear or rusty stuck links.</td>
</tr>
</tbody>
</table>
## General Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population Alarms</td>
<td></td>
<td>See “Seed Population Troubleshooting Chart” on page 82.</td>
</tr>
<tr>
<td>Excess Seed Remaining</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>Re-check pass geometry reference (e.g. GPS).</td>
</tr>
<tr>
<td>Seed Consumption Too High</td>
<td>Field size different.</td>
<td>After ruling out population problems, re-check geography.</td>
</tr>
<tr>
<td></td>
<td>Excessive overlap. Irregular shaped field.</td>
<td>Re-check pass geometry reference (e.g. GPS).</td>
</tr>
<tr>
<td>Rows Not Planted</td>
<td>If not detected by planter monitor, check for plugged row-unit seed tube</td>
<td>Lift planter, expose bottom of seed tube and clean out.</td>
</tr>
<tr>
<td>Uneven seed spacing</td>
<td>Excessive field speed.</td>
<td>Reduce field speed.</td>
</tr>
<tr>
<td></td>
<td>Unclean seed.</td>
<td>Use clean seed.</td>
</tr>
<tr>
<td></td>
<td>Damaged seed tube.</td>
<td>Inspect; repair or replace.</td>
</tr>
<tr>
<td></td>
<td>Seed-Lok® plugging.</td>
<td>Lock up Seed-Lok®, page 76.</td>
</tr>
<tr>
<td></td>
<td>Row-unit discs not turning.</td>
<td>See “Row-unit discs not turning freely” in this Troubleshooting chart.</td>
</tr>
<tr>
<td></td>
<td>Worn/rusted sprockets and/or chain idler or bearings.</td>
<td>Check and replace any worn/rusted sprockets or chain idlers.</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></td>
<td>Lack of proper seed lubrication on seed.</td>
<td>See “Seed Lubricant” on page 105.</td>
</tr>
<tr>
<td>Uneven seed depth</td>
<td>Excessive field speed.</td>
<td>Reduce field speed.</td>
</tr>
<tr>
<td></td>
<td>Planting conditions too wet.</td>
<td>Wait until drier weather.</td>
</tr>
<tr>
<td></td>
<td>Incorrect coulter depth setting.</td>
<td>See coulter manual or set unit mounted coulter.</td>
</tr>
<tr>
<td></td>
<td>Excessive or improper row unit down pressure spring setting.</td>
<td>See “Row Unit Down Pressure” on page 62.</td>
</tr>
<tr>
<td></td>
<td>Damaged seed tubes.</td>
<td>Check seed tubes for damage.</td>
</tr>
<tr>
<td></td>
<td>Seed-Lok® building up with dirt.</td>
<td>Lock up Seed-Lok®, page 76.</td>
</tr>
<tr>
<td></td>
<td>Row-unit not penetrating low spots.</td>
<td>Adjust row-unit, see instructions beginning on page 62.</td>
</tr>
<tr>
<td></td>
<td>Rough planting conditions.</td>
<td>Rework the field.</td>
</tr>
<tr>
<td></td>
<td>Seed firmer not in place and set to correct tension.</td>
<td>See “Seed Firmer Adjustments” on page 75.</td>
</tr>
</tbody>
</table>
## General Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press wheel or row-units plugging</td>
<td>Planting conditions too wet.</td>
<td>Wait until drier weather.</td>
</tr>
<tr>
<td></td>
<td>Too much pressure on row-units.</td>
<td>Reduce down pressure on row-units.</td>
</tr>
<tr>
<td></td>
<td>Coulters set too deep, bring up excess dirt and moisture.</td>
<td>Check coulter adjustment.</td>
</tr>
<tr>
<td></td>
<td>Planter not set to run level from front to rear.</td>
<td>Check tool bar height page 23</td>
</tr>
<tr>
<td></td>
<td>Backed up with planter in the ground.</td>
<td>Clean out and check for damage.</td>
</tr>
<tr>
<td></td>
<td>Failed disc bearings.</td>
<td>Replace disc bearings.</td>
</tr>
<tr>
<td></td>
<td>Disc blades worn.</td>
<td>Replace disc blades.</td>
</tr>
<tr>
<td></td>
<td>Scraper worn or damaged. Side depth wheels not set correctly.</td>
<td>Adjust side depth wheels page.</td>
</tr>
<tr>
<td>Row-unit discs not turning freely</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 Adjustment” on page 68.</td>
</tr>
<tr>
<td></td>
<td>Seed-Lok® is plugging row-unit.</td>
<td>Lock up Seed-Lok®, page 76.</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>Press wheels not compacting the soil as desired</td>
<td>Incorrect spring handle setting</td>
<td>See “Press Wheel Adjustment” on page 77.</td>
</tr>
<tr>
<td></td>
<td>Insufficient row unit down-force</td>
<td>See “Row Unit Down Pressure” on page 62.</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 and top link adjustment.</td>
</tr>
<tr>
<td></td>
<td>Wheel stagger needs adjustment for conditions.</td>
<td>See “Press Wheel Adjustment” on page 77.</td>
</tr>
<tr>
<td></td>
<td>Too wet or cloddy</td>
<td>Wait until drier weather or rework ground.</td>
</tr>
<tr>
<td>Speed Reading Doesn’t Match Tractor</td>
<td>Monitor speed reading, using optional radar, will only match tractor with planter lowered. (Speed reading with magnetic pickup fails to zero when lifted.)</td>
<td>If speeds don’t agree during planting (with planter lowered), re-calibrate radar speed sensor with planter lowered.</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:
Only trained personnel should work on system hydraulics!
Check all hydraulic lines and fittings before applying pressure. Relieve pressure before disconnecting hydraulic lines. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. Fluid escaping from a very small hole can be almost invisible. Use paper or cardboard, NOT BODY PARTS, to check for leaks. Escaping fluid under pressure can have sufficient pressure to penetrate the skin causing serious injury. If hydraulic fluid is injected into the skin or eyes, seek immediate medical assistance from a physician familiar with this type of injury. Within a few hours gangrene can start to develop. DO NOT DELAY.

1. After using your planter for several hours, check all bolts to be sure they are tight.
2. Keep disk scrapers properly adjusted.
3. Maintain proper air pressure in planter tires.
4. Remove excess slack from chains. Clean and use chain lube on all roller chains as needed.
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 97.
7. Replace any worn, damaged, or illegible safety labels by obtaining new labels from your Great Plains dealer.
Material Clean-Out

When planting is completed, it is commonly the case that some seed remains. There may be seed in the hoppers, hose lines, and meters.

Refer to Figure 98

The planter includes an 817-811C container for meter clean-out, stored in a spring-loaded holder at the left end of the planter, under the air manifold. The container can hold all the seed in the meter and inlet (up to a closed slide gate).

The container can be converted into a true funnel for complete system clean-out.

The hoppers are connected to the rows with clamped hose, and are not intended to be routinely unlatched and tipped for clean-out.

Funnel Conversion

Materials and tools needed:
- a length of 1 3/8 inch I.D. hose
- a worm drive clamp with a working diameter of approximately 1 3/8 to 2 1/4 inch
- a hacksaw with fine-toothed blade

Trim the sump from the funnel. Slide the hose fully onto the funnel tip. Secure with clamp (do not over-tighten clamp, the funnel wall be crushed).

The choice of complete system clean-out process depends on whether you are using the 817-811C as a container or funnel.

Seed Clean-Out (Container)
1. Scoop or vacuum as much seed as possible from the top of the hoppers.
2. Perform a meter clean-out per page 90.

Seed Clean-Out (Funnel)
1. Close slide gate at hopper (slide gate only exists on models with serial number B1013R and earlier).
2. Attach funnel as for meter clean-out (page 90), with hose routed to bucket or other larger container.
3. Use slide gate to control seed flow until meter, inlet and hopper are empty (slide gate only on models B1013R-).

Possible Dust and Chemical Residue and Fume Hazards:

Wear a respirator, and any other protective equipment specified by the seed supplier and/or seed treatment supplier. Expect chemical residue, dust and fumes during clean-out.

---

a. The funnel does not fit rows that are to the left of gauge wheels on twin-row planters. Use vacuum or tarp on those rows.
b. The funnel wall is thin ABS. Scissor-type pipe-cutting tools may fracture it. Rotary-type pipe cutting tools may slip off.
Meter Clean-Out

Refer to Figure 100

The 817-811C seed collection accessory (funnel 1) may be attached to the housing of the seed meter, freeing your hands for other tasks during clean-out.

The funnel does not fit rows to the left of gauge wheels on twin-row planters. Use vacuum or tarp collection on those rows.

It may be necessary to raise a twin-row planter to obtain clearance for the funnel. Secure with blocks or jack stands if the planter is raised.

1. Close the seed inlet shutter on the meter (page 70). This minimizes the seed volume at disc removal.
2. Remove the rain cover (page 70). The funnel cannot be snapped in place with the cover installed.
3. Align the left (rear) end of the funnel lip 3 with the top of the lower (rear) cover latch ear. Place the right (front) end of the funnel lip 4 between the meter housing and the seed tube.
4. Rotate the funnel forward until the slot at lip center engages a tab on the bottom center of the meter housing.
5. Remove the seed (page 73).
6. Slowly open the seed shutter (page 70) to empty the seed up to the slide gate.
7. If seed remains in the hopper, use the slide gate to control the volume of flow.

Refer to Figure 99

8. Clean seed from all brushes (shop vac recommended).
9. Inspect brushes (page 91).
10. Rotate funnel clockwise, remove and empty.
11. For imminent operations:
    Install next seed wheel or blank disc (page 74) for operations. Set inlet shutter for next seed (page 70).
12. For storage:
    Close seed inlet shutter. Leave disc out.
    Close Y-tube (if any).
13. Re-install rain cover (page 70).

At end-of-season clean-out, inspect a few seed meter air release screens. If they require cleaning, consider cleaning all rows.

Alternate Meter Clean-Out

To use a shop vacuum cleaner, with narrow hose nozzle, to clean out a meter:

- Close the seed shutter.
- Release the meter clamp, hold the disc against the meter.
- Tip the top of the disc away from the meter.
- Insert hose nozzle and remove seed.
- Open shutter to allow seeds in inlet and drop hose to flow to vac nozzle.
Meter Brush Maintenance

**CAUTION**

Possible Chemical Hazard:
Wear a respirator for brush cleaning. Brushes will have talc and graphite residue, and may have residues of hazardous seed treatments.

Refer to Figure 101

A HEPA vacuum cleaner is recommended for brush cleaning. Washing brushes is not recommended and may cause matting. Do not scrape them with sharp instruments.

The first indications of excess brush or damage wear are normally observed on the planter monitor or in air system operation.

- If the tufted brushes ⑤ are worn/damaged, the seed “double” rate rises, increasing population.

  Finding an occasional cracked seed “hung up” on a tuft fiber is not uncommon, and is not an indicator that brush maintenance is required. Merely remove the seed.

- If the strip brushes ⑥ are worn/damaged, air pressure regulation may become unstable, or require increasing fan speed over time.

  If you find you need to exceed recommended fan rpm ranges, the regulated air system may be taking too much air due to meter leakage.

  In severe cases, seed may leak past the strip brushes, causing spikes in population. If you frequently observe seed in between the strip brushes, one or both may need replacement.

- If the seed drop brush ⑦ is worn/damaged, its anti-static effect may fade, which can result in “skips” due to smaller seeds failing to release, and lower populations.

  If an obvious groove is worn in the drop brush, replace it.
Meter Brush Replacement
Consult the Parts manual (411-099P) for current replacement part numbers.

Refer to Figure 102
Tufted Brush Replacement
1. Remove and save both 10-24 hex head cap screws (13) and Nylock nuts (not shown).
2. Remove the tufted brush assembly (12), and replace with new assembly.
3. Re-insert the 10-24 screws, and re-start the Nylock nuts. Carefully tighten each nut just until plate has no play under the screw heads.
4. Add a half turn to the nuts. Do not tighten fasteners to normal 10-24 torque, or the plate may fracture.

Strip Brush Replacement
Do not loosen or remove any of the three 5/16-18 cap screws (15) retaining the brush holder.
1. Insert the flat blade of a large screwdriver into the slots of the brush holder snaps (13). Turn each snap clockwise to release brush holder (14).
2. Prepare to catch drop brush (18) (which will fall lose). Slide brush holder left and up to free front edge from under washer (17). Remove brush holder.
3. Remove used strip brushes from the holder by sliding them downward out of the grooves.

Refer to Figure 103
4. Insert replacement strip brushes into grooves at holder bottom so that notched ends (18) are at the bottom.

Refer to Figure 102
5. Check strip brush positioning with a trial re-insertion of the brush holder. The ends of the long brush must fit snugly into meter housing grooves at top (19) and lower rear (20). The bottom end of the short brush must fit snugly in the lower front housing groove (20). If any significant force is require to re-seat the brush holder, a strip brush is likely too high or too low.
6. Relax the position of the brush holder, re-position the drop brush (see below), and re-seat the brush holder.
7. Starting with the bottom snap, swing snaps (13) back into engagement.
Seed Disc Maintenance

Refer to Figure 104

When removing seed discs, inspect them for wear and damage. If there is any seed dust or treatment build-up in the cell pockets (1), or along the raised wiper ridges (2), clean the discs and re-inspect.

Replace discs for conditions including:

- Chips at circumference (3). These will leak air.
- Chips at edges or in sculpted surfaces of cell pockets (1). These can leak air and/or adversely affect singulation.
- Cracks over 2 inch (5 cm) long in the working face (3) of the disc, or any cracks in support webs or to an edge.
- Warping - if any part of the disc does not press firmly on the seed drop brushes (page 72) in operation, replace the disc.
- Wear - if a wiper ridge is worn away, replace the disc. If the seed pockets are worn through, or the air ports (5) have enlarged, replace the disc.

Cleaning and Storing Seed Discs

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

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

Retain original shipping cartons for disc 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 discs may attract pests. Fully enclose dry discs to prevent rodent damage.

Speed Sensor Gap, Ground Drive

Refer to Figure 105

1. Raise planter (page 26). Rotate ground drive wheel until a disk tooth is directly at sensor center-line.
2. Check that wheel teeth are on sensor center-line side-to-side. As needed, loosen collars on either side of disk and adjust.
3. Check that center-line of sensor is pointed at center-line of transfer shaft. As needed, loosen mounting bolts (6) and adjust.
4. Check gap (7) between top of sensor and toothed wheel for a dimension of: 1/16 inch (1.6 mm).

To adjust, loosen jam nut (8). Adjust base nut (9) to set gap. Re-tighten jam nut.

Possible Chemical Hazard:

Wear gloves when washing discs. Avoid spray. Do not wash discs where food is prepared, or where cookware or dinnerware is washed. Seed discs will have talc and graphite residue, and may have residues of hazardous seed treatments. Although the discs are dishwasher-safe, do not wash them in an appliance also used for food preparation or food serving items.
Speed Sensor Gap, Hydraulic Drive

Refer to Figure 105

1. Make sure a tooth on the sensor sprocket 1 is aligned with the sensor 2.

2. Check that wheel teeth are on sensor wheel side-to-side. If adjustment is needed, loosen the top jam nut 3 on sensor. Adjust the position of the sensor and tighten the top jam nut.

3. Check gap 4 between end of sensor and tooth on the sensor sprocket. The gap must be $\frac{1}{16}$ inch (1.6 mm).

   To adjust, loosen both jam nuts. Adjust the jam nuts to set gap. Tighten jam nuts without changing the gap.

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 123.

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 107, 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 36 inch/91 cm): $\frac{1}{4}$ inch per foot.
   - Vertical short chains: $\frac{1}{4}$ inch per foot (2.1 cm/m).
   - Horizontal short chains: $\frac{1}{2}$ inch per foot (4.2 cm/m).

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

4. Adjust the idlers for ideal slack.

Chain Clips

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

Refer to Figure 108 (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).
Meter Drive Chain

Refer to Figure 109 (which depicts planter raised)

When performing periodic lubrication, check chain condition. Replace chain if any frozen kinks are not corrected by lubrication.

When performing seasonal checks, lower planter to put chain at minimum idler spring tension.

Check that idler spring length ③, measured from outside of pin to outside of pin, is not shorter than:
7.0 inch (17.8 cm).

Lift spring off idler assembly ③. Check that idler assembly pivots freely. Re-attach spring.

Check chain clip orientation. Check chain routing at shank idler(s) ⑤.

Spreaders and Scrapers

Fig. Applies to all row unit Series.

Refer to Figure 110

1. Remove side gauge wheels from arms to access row-unit disks and scrapers.

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

3. When reinstalling disk blades, put two shims ④ between bearing and shank on each blade. Tighten bolts.

4. Check amount of contact between blades, and adjust number of shims as needed. Store extra shims on outside of blade. See “Opener Disc Contact Region” on page 67.

5. Check that outside disk scrapers ⑤ are formed to disk blades to help remove any mud. Bend/twist scrapers to fit blades as needed. Every 200 acres of operation, check outside scrapers for adjustment and wear. Replace outside scrapers as necessary.

Fig. You may need fewer washers under worn disks.

It is normal for the blade spreader to have some looseness in the holder and between the blades. Some looseness is required for proper operation.
Row-Unit Side Wheels

Refer to Figure 111

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

2. Side wheels are preset at the factory. Due to normal wear it may become necessary to make adjustments so the wheel remains close to the disk. To prevent plugging, loosen clamp bolt ① and slide arm inward to take up gap between side wheel and disk blade. If more adjustment is needed, go to step 3.

3. Remove bolt ② and wheel ③. Remove shims ④ from the inside of wheel ③ and place them on the outside of wheel. Always place removed shims from the inside to the outside. When installed, wheel should turn freely and not hit the arm at the curve. Do not add any more shims than necessary.

4. Disassemble side gauge wheel arm ⑤ from unit. Remove bushing ⑥ from sleeve ⑦ and check for wear. If necessary, replace bushing.

5. When reinstalling side gauge wheels, align tab on hex adjustment ⑧ with notch in bushing. Replace bolt and tighten.

6. Adjust side gauge wheels. Refer to see “Side Gauge Wheel Adjustment” on page 68.

Seed Flap Replacement

Refer to Figure 112

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.

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

Opener Side Wheel Bushing

Zerk on both sides of each row-unit (2 per row)
Type of Lubrication: Grease
Quantity: Until grease emerges

Chains: Ground Drives

1 chain tire-to-pivot, each drive;
1 Transmission chain, each drive;
1 Range chain, each drive;
1 jackshaft chain, each drive;
1 drive shaft-to-meter-shaft chain, each section;
11 total 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.
Chains: Meter Drive

1 chain each meter; 16 to 32 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.

Lift-Assist Parallel Arms

One zerks each hinge tube; four tubes per caster; 8 total
Type of Lubrication: Grease
Quantity: Until grease emerges

Wing Transfer Drive Shafts

8 zerks, 4 each side: 2 two each outer shaft sleeve 2 on each of 2 universal joints
Type of lubrication: Grease
Quantity = Until grease emerges (joints) Quantity = 6 pumps (shafts)

Wing Fold Cylinder Base Pins

One each wing; 2 total
Type of Lubrication: Grease
Quantity: Until Grease emerges
Wing Flex Link Bottom Pivots

One right-angle zerk each wing; 2 total
Type of Lubrication: Grease
Quantity: Until Grease emerges

Wing Lower Link Arm Inner Pivots

One each wing; 2 total
Type of Lubrication: Grease
Quantity: Until Grease emerges

Wing Lower Link Arm Outer Pivots

One each wing; 2 total
Type of Lubrication: Grease
Quantity: Until Grease emerges
### Wing Upper Link Arm Inner Pivots

<table>
<thead>
<tr>
<th><img src="36160" alt="Image" /></th>
<th>50</th>
</tr>
</thead>
</table>

One each wing; 2 total  
Type of Lubrication: Grease  
Quantity: Until Grease emerges

### Wing Upper Link Arm Outer Pivots

<table>
<thead>
<tr>
<th><img src="27342" alt="Image" /></th>
<th>50</th>
</tr>
</thead>
</table>

One each wing; 2 total  
Type of Lubrication: Grease  
Quantity: Until Grease emerges

### Row Cleaner Bearings (Option)

<table>
<thead>
<tr>
<th><img src="27342" alt="Image" /></th>
<th>50</th>
</tr>
</thead>
</table>

1 zerk each wheel, 1 or 2 wheels per row  
Type of lubrication: Grease  
Quantity = Until resistance is felt  
To avoid damaging the seal, do not add grease at high pressure.
Caster Pivots

1 zerks each spindle;
2 total
Type of Lubrication: Grease
Quantity: Until grease emerges

Gauge Wheel Bearings (Ground Drive)

2 races each spindle;
4 total
Type of Lubrication: Grease
Quantity: Repack

Lift Assist Wheel Hubs

2 races each spindle;
4 total
Type of Lubrication: Grease
Quantity: Repack
Seed Lubricants

To maximize performance of Great Plains metering systems, it is imperative to use “Ezee Glide Plus” or Bayer Seed Fluency Agent.

**Ezee Glide Plus Talc+Graphite Mix**

821-069C  bucket, 5 gallon (19 liter)

Ezee Glide Plus Lubricant

“Ezee Glide Plus” is suitable for all seeds, especially treated or inoculated seed, except where talc and graphite mixes are prohibited. **Thorough mixing of seed and added lubricant is required.**

**Recommended usage:**

For clean seeds other than milo, cotton, and sunflowers sprinkle one cup of Ezee Glide Plus Talc per 4 bushels or units (170 ml per 100 liters) of seed.

For milo, cotton, and sunflowers double the application to one cup (or more) per 2 bushels or units (335 ml per 100 liters) of seed.

For canola or mustard, 1 cup (240 ml) per 30 pound (13.6 kg) bag is a minimum starting value. Mix the seed lubricant early during the seed loading. Use more lubricant in extremely dry conditions.

Adjust this rate as necessary so 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.

![Image of Ezee Glide Plus Talc+Graphite Mix](image)

**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.**

![Image of Bayer Seed Fluency Agent](image)

**Bayer Seed Fluency Agent**

821-074C  Fluency Powder, case quantity
821-075C  Fluency Powder, single 4.4 pound bucket

This agent is required by regulation for certain crops in certain regions (such as corn and soybean in Canada). It is an alternative to Ezee Glide Plus in other locales, for large seeds. It is not recommended for smaller seeds such as canola and milo.

Refer to the booklet affixed to the bucket for recommended usage. Do not exceed those recommendations, as excess amounts adversely affect accurate metering.

**CAUTION**

**Dust and Explosion Hazard:**

Avoid exposure to dust when mixing this powder into seed. Avoid creating dust in any confined space with ignition sources present, as specific concentrations can be explosive. Consult the instruction booklet and SDS for further cautions.

---

a. SDS: Safety Data Sheet.
Options

Hitches

<table>
<thead>
<tr>
<th>Description</th>
<th>Initial Order Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 3 Wide (III-W, IV N) Hitch</td>
<td>(90)</td>
</tr>
<tr>
<td>Category 4 Wide (IV-W), shown</td>
<td>(91)</td>
</tr>
<tr>
<td>Category 3 Narrow (III-N) Hitch</td>
<td>(92)</td>
</tr>
<tr>
<td>Category 4 Narrow Hitch</td>
<td>(93)</td>
</tr>
<tr>
<td>Category 4 Wide Hitch</td>
<td>(94)</td>
</tr>
</tbody>
</table>

Lift-Assist

<table>
<thead>
<tr>
<th>Description</th>
<th>Initial Order Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lift-Assist</td>
<td>(96)</td>
</tr>
</tbody>
</table>

If you select Option 96 Lift Assist, then you must select Option 90, 91, or 92.
If you do not select Option 96 Lift Assist (fully 3pt mounted), then select Hitch Option 93 or 94.
Wing Coupling Options

At time of initial planter ordering, one of the following three options must be specified for wing to center section coupling:

- **Wing Lock (80)**

  Wings are rigidly coupled to center via tie bars when afield. This configuration is only suitable for planting strictly on flat ground.

- **Wing Flex (81)**

  Hydraulic cylinders at the coupling allow the wings to flex during planting, but keep them level during folding. This configuration is suitable for most planting situations.

- **Hydraulic Down Pressure (80)**

  Wing coupling cylinders are actively controlled, and used to transfer weight to the wings as needed in challenging light no-till conditions on uneven ground.

  For operation, see “Hydraulic Down Pressure (Option)” on page 56 and see “Hydraulic Down-Float Adjustments (Option)” on page 60.

  For any of the coupling options, see pinning requirements at “Wing Lock and Flex Lock Pin Use” on page 25.

<table>
<thead>
<tr>
<th>Description</th>
<th>Initial Order Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wing Lock Option</td>
<td>(80)</td>
</tr>
<tr>
<td>Wing Flex Option</td>
<td>(81)</td>
</tr>
<tr>
<td>Hydraulic Down Pressure</td>
<td>(82)</td>
</tr>
</tbody>
</table>
Seed Lubricant

<table>
<thead>
<tr>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ezee Glide Plus Talc + Graphite Mix (5 gallon / 18.9 liter container)</td>
<td>821-069C</td>
</tr>
<tr>
<td>Fluency Powder, case quantity</td>
<td>821-074C</td>
</tr>
<tr>
<td>Fluency Powder, single 4.4 pound bucket</td>
<td>821-075C</td>
</tr>
</tbody>
</table>

For use, see “Seed Lubricants” on page 102.

Clean-Out Container

One container is provided with the planter. Order the following part for additional or replacement containers.

<table>
<thead>
<tr>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR METER CLEAN OUT FUNNEL</td>
<td>817-811C</td>
</tr>
</tbody>
</table>

See “Funnel Conversion” on page 89.
See “Meter Clean-Out” on page 90.

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 “Material Clean-Out” on page 89.

Row-Mounted Accessories

Lock-Up Pins

If rows are shut off, you can reduce unnecessary wear on the unused row units by locking them up. Twin-row planters include, as standard, one lock-pin per rear row. For replacement pins, or for other planter models, order one per row unit locked-up.

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIN HTCH .63X5.75 USBL W/PIN</td>
<td>805-435C</td>
</tr>
</tbody>
</table>

See “Row Unit Shut-Off” on page 73.
Rigid Row Cleaners

Optional Martin row cleaners are unit-mounted, either:

- “stand-alone,” using a unit-mount assembly (①), or;
- added to a UMC coulter disk mounting bracket (②, with or without a disk).

Twin-Row planters and narrow row spacings support only single-wheel unit-mounted row cleaners, in alternating left/right cleaner hub orientations.

Coulter-mounted (requires coulter):

<table>
<thead>
<tr>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-wheel, 16 pair of left/right</td>
<td>207-107A</td>
</tr>
<tr>
<td>Single-wheel, 12 pair of left/right</td>
<td>207-108A</td>
</tr>
<tr>
<td>Double-wheel, 16 rows</td>
<td>207-113A</td>
</tr>
<tr>
<td>Double-wheel, 12 rows</td>
<td>207-126A</td>
</tr>
<tr>
<td>Single-wheel, 12 pair of left/right, 36TR only</td>
<td>207-301A</td>
</tr>
</tbody>
</table>

Stand-alone (includes mount):

<table>
<thead>
<tr>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-wheel, 16 pair of left/right</td>
<td>207-111A</td>
</tr>
<tr>
<td>Single-wheel, 12 pair of left/right</td>
<td>207-112A</td>
</tr>
<tr>
<td>Double-wheel, 16 rows</td>
<td>207-117A</td>
</tr>
<tr>
<td>Double-wheel, 12 rows</td>
<td>207-130A</td>
</tr>
<tr>
<td>Single-wheel, 12 pair of left/right, 36TR only</td>
<td>207-302A</td>
</tr>
</tbody>
</table>

For operations, see: “Unit-Mount Cleaner Adjustments” on page 64.

207-21xK and 207-09xS kits do not include a manual.

<table>
<thead>
<tr>
<th>Individual Row Cleaners</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>UMRC Dual Wheel</td>
<td>207-213K</td>
</tr>
<tr>
<td>UMRC LH Single Wheel</td>
<td>207-215K</td>
</tr>
<tr>
<td>UMRC RH Single Wheel</td>
<td>207-216K</td>
</tr>
<tr>
<td>UMC-RC Dual Wheel</td>
<td>207-098S</td>
</tr>
<tr>
<td>UMC-RC LH Single Wheel</td>
<td>207-092S</td>
</tr>
<tr>
<td>UMC-RC RH Single Wheel</td>
<td>207-093S</td>
</tr>
<tr>
<td>RC Install/Use/Parts Manual</td>
<td>204-085M-A</td>
</tr>
</tbody>
</table>
Unit-Mounted Disk Coulters
Optional unit-mount disk coulters are available with 15 inch fluted or 15 inch turbo blades. For complete coulters, with unit mount and blade the selection includes:

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 mounts, 15 inch fluted (4 row)</td>
<td>204-171A</td>
</tr>
<tr>
<td>4 mounts, 15 inch turbo (4 row)</td>
<td>204-173A</td>
</tr>
<tr>
<td>6 mounts, 15 inch fluted (6 row)</td>
<td>204-175A</td>
</tr>
<tr>
<td>6 mounts, 15 inch turbo (6 row)</td>
<td>204-176A</td>
</tr>
<tr>
<td>8 mounts, 15 inch fluted (8 row, 4 twin)</td>
<td>204-172A</td>
</tr>
<tr>
<td>8 mounts, 15 inch turbo (8 row, 4 twin)</td>
<td>204-174A</td>
</tr>
<tr>
<td>12 mounts, 15 inch fluted (6 twin)</td>
<td>204-552A</td>
</tr>
<tr>
<td>12 mounts, 15 inch turbo (8 twin)</td>
<td>204-553A</td>
</tr>
<tr>
<td>16 mounts, 15 inch fluted (8 twin)</td>
<td>204-551A</td>
</tr>
<tr>
<td>16 mounts, 15 inch turbo (8 twin)</td>
<td>204-554A</td>
</tr>
</tbody>
</table>

Coulter Blades
Replacement/alternate blades include (one per row):

<table>
<thead>
<tr>
<th>15 inch Turbo Packages</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluted, 15 inch (50 flutes)</td>
<td>820-331C</td>
</tr>
<tr>
<td>Turbo, 15 inch (20 flutes)</td>
<td>820-327C</td>
</tr>
<tr>
<td>Straight, 14 inch</td>
<td>820-259C</td>
</tr>
</tbody>
</table>

See “Coulter Adjustments” on page 65.
Seed Meter Disks

Air-Pro® Meters accept a variety of seed disks, plus a special blank disk for row shut-off. Choices include:

<table>
<thead>
<tr>
<th>Meter Disks</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank, 0 Cell</td>
<td>817-841C</td>
</tr>
<tr>
<td>Canola and Mustard, 150 Cell</td>
<td>837-148C</td>
</tr>
<tr>
<td>Canola and Mustard, 250 Cell</td>
<td>817-991C</td>
</tr>
<tr>
<td>Corn, 24 Cell (Large, Flat)</td>
<td>817-836C</td>
</tr>
<tr>
<td>Corn, 24 Cell (Large, Round)</td>
<td>817-794C</td>
</tr>
<tr>
<td>Corn, 24 Cell (Medium)</td>
<td>837-126C</td>
</tr>
<tr>
<td>Corn, 24 Cell (Small; Round or Flat)</td>
<td>817-795C</td>
</tr>
<tr>
<td>Corn, 40 Cell (Large, Flat)</td>
<td>817-838C</td>
</tr>
<tr>
<td>Corn, 40 Cell (Large, Round)</td>
<td>817-796C</td>
</tr>
<tr>
<td>Corn, 40 Cell (Medium)</td>
<td>837-127C</td>
</tr>
<tr>
<td>Corn, 40 Cell (Small; Round or Flat)</td>
<td>817-797C</td>
</tr>
<tr>
<td>Cotton, 60 Cell</td>
<td>817-857C</td>
</tr>
<tr>
<td>Cotton, Hill Drop, 12 Cell</td>
<td>837-186C</td>
</tr>
<tr>
<td>Edible Bean, Large 56 Cell</td>
<td>817-967C</td>
</tr>
<tr>
<td>Edible Bean, Medium 60 Cell</td>
<td>837-065C</td>
</tr>
<tr>
<td>Industrial Hemp, 5 Cell</td>
<td>837-364C</td>
</tr>
<tr>
<td>Industrial Hemp, 30 Cell</td>
<td>837-386C</td>
</tr>
<tr>
<td>Milo, Pelletized Sugar Beet, 30 Cell</td>
<td>837-057C</td>
</tr>
<tr>
<td>Milo, 65 Cell</td>
<td>817-849C</td>
</tr>
<tr>
<td>Milo, 130 Cell</td>
<td>817-800C</td>
</tr>
<tr>
<td>Soybeans, 84 Cell</td>
<td>817-798C</td>
</tr>
<tr>
<td>Soybeans, 168 Cell</td>
<td>403-551D</td>
</tr>
<tr>
<td>Sunflower, 24 Cell</td>
<td>817-851C</td>
</tr>
<tr>
<td>Sunflower, 60 Cell</td>
<td>837-234C</td>
</tr>
<tr>
<td>Sunflower, 60 Cell</td>
<td>837-235C</td>
</tr>
<tr>
<td>Volumetric No. 1, 84 Cell</td>
<td>817-867C</td>
</tr>
</tbody>
</table>

See “Seed Meter Setup and Adjustment” on page 70.

Inside Disk Scrapers

When planting in moist or sticky soils, these scrapers are 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>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 133 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 1/2 inch (6.4 cm) scraper</td>
<td>404-194D</td>
</tr>
<tr>
<td>3 inch (7.6 cm) scraper</td>
<td>404-195D</td>
</tr>
<tr>
<td>4 inch (10.2 cm) scraper</td>
<td>404-196D</td>
</tr>
</tbody>
</table>

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

For operations, see: “Adjusting Gauge Wheel Scrapers” on page 69.

Seed Firmers
The base 3P4025AH planter requires a choice of row unit bundles which include one of three firmers: seed flap, Keeton®, or Seed-Lok®. Only one type of seed firmer may be installed at the same time. Order one per row.

Seed-Lok® Seed Firmer

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 Series Seed-Lok® kit (per opener)</td>
<td>404-093K</td>
</tr>
</tbody>
</table>

For operations, see: “Seed Firmer Adjustments” on page 75.

Keeton® Seed Firmer
The Keeton® seed firmer supports low-rate fertilizer delivery. For this use, a user-provisioned liquid fertilizer system must be installed.

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keeton seed firmer (per opener)</td>
<td>890-840C</td>
</tr>
</tbody>
</table>

For operations, see: “Seed Firmer Adjustments” on page 75.

Row Unit Press Wheels
The base Yield Pro planter includes a choice of press wheels. Additional wheels are available, and all may be field-installed.
This manual does not list kit part numbers as the available wheels are often region-specific. Consult your Great Plains dealer.
For operations, see: “Press Wheel Adjustment” on page 77.
## Appendix A - Reference Information

### Specifications and Capacities

#### Single-Row Models Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>3P4025AH -1236</th>
<th>3P4025AH -1238</th>
<th>3P4025AH -1240</th>
<th>3P4025AH -1630</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Row Count</strong></td>
<td>12 Rows</td>
<td>16 Rows</td>
<td>16 Rows</td>
<td>16 Rows</td>
</tr>
<tr>
<td><strong>Row Spacing</strong></td>
<td>36 inches (91.4 cm)</td>
<td>38 inches (96.5 cm)</td>
<td>40 inches (101.6 cm)</td>
<td>30 inches (76.2 cm)</td>
</tr>
<tr>
<td><strong>Frame Width</strong></td>
<td>38 ft. 9 in. (1181.1 cm)</td>
<td>38 ft. 10 in. (1183.6 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Swath</strong></td>
<td>432 inches (1097.3 cm)</td>
<td>456 inches (1158.2 cm)</td>
<td>480 inches (1219.2 cm)</td>
<td>480 inches (1219.2 cm)</td>
</tr>
<tr>
<td><strong>Seed capacity, 3.0 bu Hopper</strong></td>
<td>36 bu (1269 litres)</td>
<td>48 bu (1691 litres)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Seed Capacity, 1.6 bu Hopper</strong></td>
<td>19.2 bu (677 litres)</td>
<td>25.6 bu (902 litres)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Transport Width</strong></td>
<td>24 ft. 3 in. (739.1 cm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Working Length (Max.)</strong></td>
<td>155.0 inches (393.7 cm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Working Height</strong></td>
<td>7 feet 1 inches (215.9 cm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Transport Height</strong></td>
<td>12 feet 8 inches (3.86 m) with 8 in. (20 cm) coulter clearance in transport</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Minimum Tractor Req.</strong></td>
<td>220 - 250 hp (165 - 185 kW)</td>
<td>230 - 260 hp (170 - 195 kW)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hitch</strong></td>
<td>3-Point Category III Wide or IV Wide, Category III Narrow</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tool Bar</strong></td>
<td>7 × 7 × 3/8 inch (18 × 18 × 1 cm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hydraulic Circuits</strong></td>
<td>Closed-Center or Open-Center², 2, 3 or 4 Remotes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hydraulic Power Required</strong></td>
<td>2250 psi, 15 gal/min (155 bar, 57 litres/min)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Typical Weight, Empty</strong></td>
<td>12,500 pounds (5670 kg)</td>
<td>13,700 pounds (6210 kg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Wing Flex</strong></td>
<td>7.5° Up and Down</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Row Down Pressure</strong></td>
<td>350 to 540 pounds (159 to 245 kg)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Row Travel (Up - Down)</strong></td>
<td>5 inches up and down (+13 cm; -13 cm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Opener Depth</strong></td>
<td>4.0±½ inch (10.2±13 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gauge wheel Tires</strong></td>
<td>7.60-15 6-Ply Lug</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lift-Assist Tires (Option)</strong></td>
<td>380/55R-16.5 Load Rating F</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. 2-Point with Lift-Assist
2. Hydraulic down-pressure option requires closed-center or pressure compensated flow open-center tractor system.
3. Minimum. With hydraulic down pressure, requirements increase to 2250 psi, 20 gal/min (155 bar, 76 litres/min)

* Applicable to Hydraulic Down-Pressure and Hydraulic Down-Float options only.
### Twin-Row Model Specifications

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Row Count</strong></td>
<td>24 Rows, 12 Pairs</td>
<td>32 Rows, 16 Pairs</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Row Spacing</strong></td>
<td>36 inches (91.4 cm)</td>
<td>38 inches (96.5 cm)</td>
<td>40 inches (101.6 cm)</td>
<td>30 inches (76.2 cm)</td>
</tr>
<tr>
<td><strong>Frame Width</strong></td>
<td>38 ft. 9 in. (1181.1 cm)</td>
<td></td>
<td></td>
<td>38 ft. 7 in. (1176.0 cm)</td>
</tr>
<tr>
<td><strong>Swath</strong></td>
<td>432 inches (1097.3 cm)</td>
<td>456 inches (1158.2 cm)</td>
<td>960 inches (2438.4 cm)</td>
<td>480 inches (1219.2 cm)</td>
</tr>
<tr>
<td><strong>Seed capacity, 3.0 bu Hopper</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Seed Capacity, 1.6 bu Hopper</strong></td>
<td>38.4 bu (1353 litres)</td>
<td></td>
<td>51.8 bu (1825 litres)</td>
<td></td>
</tr>
<tr>
<td><strong>Transport Width</strong></td>
<td>24 ft. 3 in. (739.1 cm)</td>
<td></td>
<td></td>
<td>25 ft. 1 in. (764.5 cm)</td>
</tr>
<tr>
<td><strong>Working Length (Max.)</strong></td>
<td>155.0 inches (393.7 cm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Working Height</strong></td>
<td>7 feet 1 inches (215.9 cm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Transport Height</strong></td>
<td>12 feet 8 inches (3.86 m) with 8 in. (20 cm) coulter clearance in transport</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Minimum Tractor Req.</strong></td>
<td>260 - 300 hp (195 - 225 kW)</td>
<td>290 - 330 hp (215 - 245 kW)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hitch</strong></td>
<td>3-Point Category III Wide or IV Wide, Category III Narrow</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tool Bar</strong></td>
<td>7 × 7 × 3/8 inch (18 × 18 × 1 cm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hydraulic Circuits</strong></td>
<td>Closed-Center or Open-Center*, 2, 3 or 4 Remotes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hydraulic Power Required³</strong></td>
<td>2250 psi, 15 gal/min (155 bar, 57 litres/min)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Typical Weight, Empty</strong></td>
<td>16,100 pounds (7300 kg)</td>
<td>18,400 pounds (8350 kg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Wing Flex</strong>*</td>
<td>7.5° Up and Down</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Row Down Pressure</strong></td>
<td>350 to 540 pounds (159 to 245 kg)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Row Travel (Up - Down)</strong></td>
<td>5 inches up and down (+13 cm; -13 cm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Opener Depth</strong></td>
<td>4.0±½ inch (10.2±13 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gauge wheel Tires</strong></td>
<td>7.60-15 6-Ply Lug</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lift-Assist Tires (Option)</strong></td>
<td>380/55R-16.5 Load Rating F</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Hydraulic down-pressure option requires closed-center or pressure compensated flow open-center tractor system.
3. Minimum. With hydraulic down pressure, requirements increase to 2250 psi, 20 gal/min (155 bar, 76 litres/min)

* Applicable to Hydraulic Down-Pressure and Hydraulic Down-Float options only.
## Torque Values Chart

<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-tpia</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>6.3</td>
<td>13</td>
</tr>
<tr>
<td>5/8-18</td>
<td>15</td>
<td>11</td>
<td>24</td>
</tr>
<tr>
<td>3/8-24</td>
<td>17</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td>3/8-14</td>
<td>27</td>
<td>20</td>
<td>42</td>
</tr>
<tr>
<td>5/8-14</td>
<td>31</td>
<td>22</td>
<td>47</td>
</tr>
<tr>
<td>3/8-20</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>1/2-20</td>
<td>75</td>
<td>55</td>
<td>115</td>
</tr>
<tr>
<td>5/8-12</td>
<td>95</td>
<td>70</td>
<td>150</td>
</tr>
<tr>
<td>3/4-18</td>
<td>105</td>
<td>79</td>
<td>165</td>
</tr>
<tr>
<td>9/16-11</td>
<td>120</td>
<td>97</td>
<td>185</td>
</tr>
<tr>
<td>5/32-18</td>
<td>150</td>
<td>110</td>
<td>230</td>
</tr>
<tr>
<td>3/4-10</td>
<td>235</td>
<td>170</td>
<td>260</td>
</tr>
<tr>
<td>7/32-16</td>
<td>260</td>
<td>190</td>
<td>405</td>
</tr>
<tr>
<td>7/32-9</td>
<td>225</td>
<td>165</td>
<td>225</td>
</tr>
<tr>
<td>7/32-14</td>
<td>250</td>
<td>185</td>
<td>250</td>
</tr>
<tr>
<td>1/8-12</td>
<td>340</td>
<td>250</td>
<td>450</td>
</tr>
<tr>
<td>1/8-14</td>
<td>370</td>
<td>275</td>
<td>475</td>
</tr>
<tr>
<td>1/16-7</td>
<td>480</td>
<td>355</td>
<td>595</td>
</tr>
<tr>
<td>1/16-12</td>
<td>540</td>
<td>395</td>
<td>1210</td>
</tr>
<tr>
<td>1/8-7</td>
<td>680</td>
<td>500</td>
<td>1520</td>
</tr>
<tr>
<td>1/8-12</td>
<td>750</td>
<td>555</td>
<td>1680</td>
</tr>
<tr>
<td>1/4-6</td>
<td>890</td>
<td>655</td>
<td>1990</td>
</tr>
<tr>
<td>1/4-12</td>
<td>1010</td>
<td>745</td>
<td>2270</td>
</tr>
<tr>
<td>3/8-6</td>
<td>1180</td>
<td>870</td>
<td>2640</td>
</tr>
<tr>
<td>3/8-12</td>
<td>1330</td>
<td>980</td>
<td>2970</td>
</tr>
</tbody>
</table>

### Notes
- 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.

---

## Tire Information

### Tire and Wheel Information Chart

<table>
<thead>
<tr>
<th>Wheel</th>
<th>Tire Size</th>
<th>Inflation</th>
<th>Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gauge Wheel</td>
<td>7.60-15 6-Ply Lug</td>
<td>40 psi (276 kPa)</td>
<td>120 ft-lb (163 N·m)</td>
</tr>
<tr>
<td>Lift-Assist (Option)</td>
<td>380/55R-16.5 Load Rating F</td>
<td>80 psi (550 kPa)</td>
<td>300 ft-lb (407 N·m)</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.

Manufacturer | Web Site
---|---
Firestone | [www.firestoneag.com](http://www.firestoneag.com)
Goodyear | [www.goodyearag.com](http://www.goodyearag.com)
Titan | [www.titan-intl.com](http://www.titan-intl.com)
Gleason | [www.gleasonwheel.com](http://www.gleasonwheel.com)
Dimensions (Field)

Field Length
1. 155 in. (394 cm) w/lift-assist
2. 82 in. (208 cm) w/o lift-assist

Overall Length
3. 186 in. (472 cm) w/lift-assist
4. 113 in. (287 cm) w/o

Field Frame Width
5. 3P4025AH-1630: 38 ft. 10 in. (1184 cm)
6. 3P4025AH-32TR30: 39 ft. 7 in. (1176 cm)
7. all others: 38 ft. 9 in. (1181 cm)

Field Heights:
6. lowered: 85 in. (216 cm)
7. raised: 110 in. (279 cm)
Dimensions (Transport)

Transport Width
- 3P4025AH-32TR30: 25 ft. 1 in. (765 cm)
- all others: 24 ft. 3 in. (739 cm)

Transport Length (with lift-assist option)
- 150 in. (381 cm)

Transport Height
- 12 feet 8 inches (4.47 m)
Hydraulic Diagrams

Lift Hydraulics (Option, with Wing Lock configuration) (S/N C1281S-)

![Hydraulic Diagram](image-url)
Lift Hydraulics (Option, with Wing Lock configuration) (S/N C1282S+)}
Wing Down Flex Hydraulics (Option)
Wing Down Pressure Hydraulics (Option)
Fan Hydraulics
Dual Wing Fold Hydraulics

Single Wing Fold Hydraulics
Row Unit Hydraulics for Hydraulic Drive
Hitch Configurations
Category III Wide and IV Narrow (411-070A)

Category IV Narrow Configuration
- Two 1/4" Shims
- One Bushing
- One Spacer
- One 1/2" Round Shim
- Two 1/2" Shims

Category III Wide Configuration
- One 1/4" Shims
- One Bushing
- One Spacer
- One 1/2" Round Shim
- Two 1/2" Shims
- Two 1/2" Washers
- One 1/2" Round Shim
- Two 1/2" Shims

Category III Narrow (411-136A)
Non-Adjustable - Use only with Lift Assist

Category III Narrow Configuration
- Five 1/2" Shims
- One 1/4" Shim
- One 1/2" Round Shim
- One Spacer
- One 1/2" Round Shim

Category IV Wide (411-071A)

Category IV Wide Hitch
- Two 1/4" Shims
- One Spacer
- One 1/2" Round Shim
- Four 1/2" Shims
**Chain Routing**

See also "Chain Maintenance" on page 94.

**Gauge Wheel (Wing Ground Drive) Chains**

Legend:

- **34T**: Sprocket or idler Tooth count
- **56P**: Chain Pitch count
- Direction of chain in motion

<table>
<thead>
<tr>
<th>A</th>
<th>Range Sprockets: 15T, 18T, 19T, 20T, 30T, 38T</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Transmission Sprockets: 17T, 19T, 2@23T, 24T, 25T, 26T, 27T, 28T</td>
</tr>
<tr>
<td>C</td>
<td>Upper Drive Sprockets: 18T or 36T, captive</td>
</tr>
</tbody>
</table>

---

**Diagram:**

- **Gauge Wheel**
  - **34T**
  - **38T**
- **Transmission**
  - **82P**
  - **22T**
- **Upper Drive** (Inside View)
  - **70P**
- **Final Drive** (Center Final Drive is the same)
  - **105P**
  - **25T**
  - **30T**

---

36168
Gauge Wheel (Center Ground Drive) Chains (S/N C1104S-)

- **Range Sprockets:** 15T, 18T, 19T, 20T, 30T, 38T
- **Transmission Sprockets:** 17T, 19T, 2@23T, 24T, 25T, 26T, 27T, 28T
- **Upper Drive Sprockets:** 18T or 36T, captive
Gauge Wheel (Center Ground Drive) Chains (S/N C1105S+)

<table>
<thead>
<tr>
<th></th>
<th>Range Sprockets: 18T, 19T, 20T, 30T, 38T</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Upper Drive Sprockets: 18T, 22T, 36T</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Transmission Sprockets: 17T, 19T, 2@23T captive, 24T, 25T, 26T, 27T, 28T</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Final Drive Sprockets: 25T, 30T</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Transfer Drive Sprockets: 2@25T</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td></td>
</tr>
</tbody>
</table>

Range Sprockets: 18T, 19T, 20T, 30T, 38T
Upper Drive Sprockets: 18T, 22T, 36T
Transmission Sprockets: 17T, 19T, 2@23T captive, 24T, 25T, 26T, 27T, 28T
Final Drive Sprockets: 25T, 30T
Transfer Drive Sprockets: 2@25T
Chain Routing for Hydraulic Drive

The drive chain ① is driven by a hydraulic motor ②. The drive chain drives the row unit drive shaft ③. Chain tension is controlled through the tensioner sprocket ④.
Final Meter Drive

Legend:

- Sprocket or idler Tooth count
- Chain Pitch count
- Direction of chain in motion

25AP: Meter Drive (Front type)

1. No idlers on mount.
2. Top chain passes over single idler on shank
3. Be sure to reconnect idler spring

25AP: Meter Drive (Rear type)

4. Top chain passes between 2 idlers at mount
5. Top chain passes between 2 idlers at shank
Appendix C - Setup

Planter Monitor Console Installation, PM400

Refer to Figure 113

The planter’s standard PM400 planter 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.

CAUTION

Transport and Field Safety Risk:
Mount the module so it is easy to monitor during planting, but does not interfere with safe operation of the tractor in the field or on public roads.

Planter Monitor Console Quick-Start

The PM400 factory defaults need to be changed to the row configuration of a 3P4025AH planter, the speed sensing used on all models, and may need to be changed to metric mode. Pages 129 through 132 describe setting:

- metric data mode,
- planter row count,
- planter (swath-averaged) row spacing, and;
- initial speed calibration.

The monitor must be connected to +12 VDC 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 113 on page 128*

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 114*

2. Press the power On/Off key ①. Wait for the power-up screen to complete. If the next screen displayed is the Operate screen, continue at step 1.

*Refer to Figure 115*

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

**Metric Mode**

The factory default is U.S. customary units "E". If metric units are preferred:

1. Press the DISPLAY & SERVICE ⑦ key.
2. If the icon pair at the lower left is "M", metric mode is already set. Skip to step 7.

*Refer to Figure 116*

3. Press the Down Arrow ⑧ key twice to highlight the Units "E" icon.
4. Press the ENTER ⑨ key to modify the Units.
5. Press either the Up or Down Arrow ⑩ or ⑪ to change the large “E” to an “M” "M" as shown in Figure 116.
6. Press the ENTER ⑫ key to save this change.

**Set Planter Row Count**

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

*Refer to Figure 117 (depicting typical factory defaults and U.S. customary units)*

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

7. Press the PLANTER SETUP ⑬ key. Note that the Planter Configuration Indicator ⑭ is under the “1” in the Configuration block ⑮. This change is for Configuration 1.
8. Press the Right Arrow ⑯ key to highlight the Number of Rows field ⑰ ("16" in the figure).
9. Press the ENTER ⑱ key to modify the # of Rows.
Refer to Figure 118

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

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

Set Planter Row Spacing

12. Press the Down Arrow key (↓) to select the Row Spacing field (a).

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

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

Row Setup

The planter row setup defaults to the number of rows detected (8), and defaults to population mode (>) on every row. For canola, mustard and volumetric seeds, configure the rows for blockage (\).

This completes initial setup of the PM400 console. Press the On/Off button (c) to power-down.

For twin-row configurations, enter the row spacing as one half the nominal twin spacing. For a 30 inch twin row, enter 15 inches. For a 70 cm twin row, enter 35 cm.
Setting up the PM400 Planter Monitor According to Planter Configuration

The PM400 planter monitor has been configured for the planter at the factory.

If the configuration information in the planter monitor is lost, the information specific to the planter must be entered again. The following instructions are divided according to planter configuration.

Setting Up 3P4025AH-1236, -1238, and 12TR40

Power up the planter monitor.

Cancel any alarms.

Press the planter setup button.

Change the number of rows to 12 and press enter. See “Set Planter Row Count” on page 129.

Change the row spacing to match the planter (36, 38, or 40 inch) and press enter. See “Set Planter Row Spacing” on page 130.

Arrow down to the row (plant) icons and press enter.

Arrow to the right and populate the row icons from 13 through 21.

Note: Rows 22, 23, and 24 will drop off.

From right to left (highest row number to lowest row number) blank rows 18, 17, 16, 15, 14, 13, 6, 5, and 4, then press enter.

Blanking a row means the icon is a blank box and the row number goes away. Row numbers to the right will change as rows are blanked. This is normal. Be sure to press enter to save row configuration for this mode.

Press the operate button to save the setup.

Power down the planter monitor.

There should be no alarms.

There should only be 12 rows shown on the operating screen.

If this is the only planter this planter monitor is used on, set up mode 2 and mode 3 in the same way.
Setting Up S3P4025AH-1630 or -16TR30

Power up the planter monitor.
Cancel any alarms.
Press the planter setup button.
Change the number of rows to 16 and press enter. See “Set Planter Row Count” on page 129.
Change the row spacing to 30 inches and press enter. See “Set Planter Row Spacing” on page 130.
Arrow down to the row (plant) icons and press enter.
Arrow to the right and populate the row icons from 17 through 22.
Note: Rows 23 and 24 will drop off.
From right to left (highest row number to lowest row number) blank rows 19, 17, 16, 15, 6, and 5, then press enter.
Blanking a row means the icon is a blank box and the row number goes away. Row numbers to the right will change as rows are blanked. This is normal. Be sure to press enter to save row configuration for this mode.
Press the operate button to save the setup.
Power down the planter monitor.
Power up the planter monitor.
There should be no alarms.
There should only be 16 rows shown on the operating screen.
If this is the only planter this planter monitor is used on, set up mode 2 and mode 3 in the same way.
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 119 and Figure 120**

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 67).

2. Select one each:
   - 802-024C HHCS 3/8-16X3 GR5
   - 129BXT824 BRACKET FOR 890-929C FIRMER
   - 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:
   - 25 SER AIR DESIGN IN SCRAPER
   Place the shoulder washer (2) 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:
   - 804-011C WASHER FLAT 3/8 USS PLT
   - 804-013C WASHER LOCK SPRING 3/8 PLT
   - 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 3/8-16GR5 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:
   - 802-172C HHCS 5/16-18X2 1/2 GR5
   - 803-043C NUT HEX WHIZ 5/16-18 PLT
   Insert the scraper assembly (6) between the middle four lower square holes (2) 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.
Great Plains (a division of Great Plains Manufacturing, Inc.) warrants to the original purchaser that this Great Plains machine will be free from defects in material and workmanship for a period of one year (Parts & Labor) from the first use date when used as intended for personal use; ninety days for custom/commercial or rental use.

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

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

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

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

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

Effective July 15, 2020
Index

A
ABS .............................................. 89
adjustments .................................. 45
Air Design .................................... 133
air system .................................... 37
Air-Pro® ......................................... 40
Air-Pro® meter ................................. 37
AirPro® system ............................... 37
Alarm Cancel .................................. 129
amber reflectors ............................. 7, 8
anchor hole .................................... 53

B
beans .............................................. 70
bedded planting ............................. 53
black ............................................. 128
black, hose handle ......................... 19
blade spreader ............................... 95
blade, coulter ................................. 65, 66
blank disk ...................................... 38
blockage ........................................ 38
blue, hose handle ........................... 19
bracket .......................................... 128
breather ........................................ 48, 81
bridging ........................................ 80
brush drop ..................................... 40, 91
strip ............................................. 40, 91, 92
tuft ............................................... 91
brush maintenance ........................ 91
brush replacement .......................... 92
brush, seed tube ............................. 105
butterfly valve ............................... 37, 39
bypass valve .................................. 56, 58

C
calibration, speed ......................... 46
cam, row unit .................................. 63
Canola .......................................... 108
capacities ...................................... 110
carbide scrapers ............................ 133
case drain ...................................... 19
Case IH Magnum ............................ 56
caster shift .................................... 50
CAUTION, defined .......................... 1
cell ............................................... 40
center drive ................................... 123
center of gravity ............................. 30
centering, press wheel .................... 77
chain meter drive ............................ 95
chain clip ....................................... 94
chain maintenance ........................ 94
chain routing .................................. 123
chain routing for hydraulic drive ...... 126
chains .............................................
gauge wheel ................................. 123, 124, 125
meter drive .................................. 127
chamber ........................................ 37
check valve, fan ............................ 39
checklists .....................................
air system .................................... 41
electrical ...................................... 20, 41
ending planting ............................. 42
field ............................................. 41
first pass ...................................... 42
suspending planting ....................... 42
transport ....................................... 30
children ........................................ 2
chips ............................................. 93
clean-out ....................................... 89
meter .......................................... 70, 90
clip, chain ..................................... 94
closed center ................................. 56, 58
color code, hose handle .................. 19
color code, power .......................... 128
connectors electrical ......................... 20
console ......................................... 128
seed monitor .................................. 128
contact, gauge wheel/opener ............ 68
contact, opener disk ....................... 67
cotter, open-trip ................................ 67
container, clean-out ....................... 89, 105
corn ............................................. 70, 108
cotton .......................................... 32, 34, 108
Cotton, Hill Drop ......................... 108
coulter .......................................... 64
coulter blade ................................ 107
coulter row alignment ..................... 66
coulter, UMC ................................. 107
coulter, unit-mount ......................... 61, 65
covered models ............................. 15
cracks ........................................... 93
customer service ........................... 16
cylinder symbols .......................... 19
D
DANGER, defined ............................ 1
daylight reflectors .......................... 6
deal replacement ........................... 5
decals caution ................................
general instructions ..................... 12
tire pressure ................................. 13
tires not a step .............................. 12
transport locks .............................. 12
danger .........................................
electrocution ................................. 8
hitch crush .................................. 8
tip over / crushing ....................... 9
warning .........................................
fan hazard .................................. 11
high pressure fluid hazard .......... 10
moving chain ............................ 11
pinching crushing ......................... 11
sharp object ............................... 10
speed .......................................... 9
decal, safety .................................. 5
definitions ...................................... 15
depth, coulter .............................. 65
Dickey-john® ................................. 35, 46, 47, 128
directions ...................................... 16
disc-to-disc spacing ...................... 67
dishwasher .................................... 44, 93
disk scraper .................................. 95
disk scraper, inside ....................... 108
DISPLAY & SERVICE ..................... 129
double ......................................... 49
double disk opener ....................... 61
doubles ........................................ 48, 99
down flex ..................................... 117
down float .................................... 60
down pressure .............................. 59, 62, 118
press wheel ................................. 77
row unit ...................................... 62
down pressure springs .................. 75
down pressure, hydraulic .............. 56, 58
down-stop block ........................... 64
drop brush .................................. 40, 91
E
Edible bean ................................. 108
electrocution ............................... 3, 8, 27
empty pockets ............................. 49
ENTER ......................................... 129, 130
ESCAPE ........................................ 129
excessive rpm ................................ 39
Ezee Glide Plus ............................ 102, 105
F
fan ............................................. 19, 37, 38, 48
fan hoses ...................................... 39
fan motor ...................................... 19
fan operation ............................... 39
fan speed ...................................... 39
fertilizer rate ............................... 35
field operation ............................. 42
FILL DISK ..................................... 72
final drive ................................. 123, 124
fire ............................................ 1
flat ground ................................... 53
flex lock ...................................... 25, 28
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>reflectors, safety</td>
<td>5</td>
</tr>
<tr>
<td>rear seeding switch adjustment, hydraulics</td>
<td>55</td>
</tr>
<tr>
<td>red</td>
<td>128</td>
</tr>
<tr>
<td>red reflectors</td>
<td>5</td>
</tr>
<tr>
<td>reflectors</td>
<td>7, 8</td>
</tr>
<tr>
<td>daytime</td>
<td>6</td>
</tr>
<tr>
<td>red</td>
<td>5</td>
</tr>
<tr>
<td>SMV</td>
<td>5</td>
</tr>
<tr>
<td>reflectors, safety</td>
<td>5</td>
</tr>
<tr>
<td>relief port</td>
<td>48, 81</td>
</tr>
<tr>
<td>repair parts</td>
<td>16</td>
</tr>
<tr>
<td>replacement, brush</td>
<td>92</td>
</tr>
<tr>
<td>return line, fan</td>
<td>39</td>
</tr>
<tr>
<td>reverse fan</td>
<td>39</td>
</tr>
<tr>
<td>reversed fan</td>
<td>39</td>
</tr>
<tr>
<td>re-zero</td>
<td>81</td>
</tr>
<tr>
<td>re-zero, sensor</td>
<td>48</td>
</tr>
<tr>
<td>riders</td>
<td>2</td>
</tr>
<tr>
<td>ridge, wiper</td>
<td>93</td>
</tr>
<tr>
<td>right-hand, defined</td>
<td>16</td>
</tr>
<tr>
<td>rose, orientation</td>
<td>16</td>
</tr>
<tr>
<td>row cleaner</td>
<td>21, 61, 64</td>
</tr>
<tr>
<td>row cleaner manual</td>
<td>64</td>
</tr>
<tr>
<td>row configuration</td>
<td>128</td>
</tr>
<tr>
<td>Row Failure</td>
<td>71</td>
</tr>
<tr>
<td>row shut-off,</td>
<td>70, 73</td>
</tr>
<tr>
<td>Row Spacing</td>
<td>130</td>
</tr>
<tr>
<td>row unit down pressure</td>
<td>62</td>
</tr>
<tr>
<td>row unit shank</td>
<td>74</td>
</tr>
<tr>
<td>rpm, excessive</td>
<td>39</td>
</tr>
<tr>
<td>S</td>
<td>112</td>
</tr>
<tr>
<td>safety decal</td>
<td>5</td>
</tr>
<tr>
<td>safety information</td>
<td>1</td>
</tr>
<tr>
<td>safety symbol</td>
<td>1</td>
</tr>
<tr>
<td>scraper</td>
<td>129</td>
</tr>
<tr>
<td>gauge wheel</td>
<td>109</td>
</tr>
<tr>
<td>inside</td>
<td>95, 108</td>
</tr>
<tr>
<td>outside</td>
<td>95</td>
</tr>
<tr>
<td>scraper installation</td>
<td>133</td>
</tr>
<tr>
<td>scrapers</td>
<td>133</td>
</tr>
<tr>
<td>inside</td>
<td>133</td>
</tr>
<tr>
<td>scraper, gauge wheel</td>
<td>69</td>
</tr>
<tr>
<td>seed</td>
<td>32, 34</td>
</tr>
<tr>
<td>seed disk</td>
<td>40, 44, 93</td>
</tr>
<tr>
<td>seed discs</td>
<td>108</td>
</tr>
<tr>
<td>seed firmer</td>
<td>61, 75</td>
</tr>
<tr>
<td>seed flap</td>
<td>96</td>
</tr>
<tr>
<td>seed inlet shutter</td>
<td>37, 38, 40, 70, 80</td>
</tr>
<tr>
<td>seed lubricant</td>
<td>102, 105</td>
</tr>
<tr>
<td>seed meter operation</td>
<td>40</td>
</tr>
<tr>
<td>seed meter setup</td>
<td>70</td>
</tr>
<tr>
<td>seed monitor</td>
<td>46</td>
</tr>
<tr>
<td>seed pocket</td>
<td>37, 40</td>
</tr>
<tr>
<td>seed pockets</td>
<td>38</td>
</tr>
<tr>
<td>seed pool</td>
<td>37, 38, 71, 80</td>
</tr>
<tr>
<td>seed treatment</td>
<td>44, 93</td>
</tr>
<tr>
<td>seed tube sensor</td>
<td>37</td>
</tr>
<tr>
<td>Seed-Lok®</td>
<td>76, 109, 133</td>
</tr>
<tr>
<td>sensor harness</td>
<td>128</td>
</tr>
<tr>
<td>sensor line</td>
<td>37</td>
</tr>
<tr>
<td>sensor port</td>
<td>37, 38</td>
</tr>
<tr>
<td>sensor row</td>
<td>38</td>
</tr>
<tr>
<td>sensor, seed tube</td>
<td>37</td>
</tr>
<tr>
<td>serial number</td>
<td>16</td>
</tr>
<tr>
<td>setup</td>
<td>17</td>
</tr>
<tr>
<td>shank, row unit</td>
<td>74</td>
</tr>
<tr>
<td>shim</td>
<td>95, 96</td>
</tr>
<tr>
<td>shutdown</td>
<td>3</td>
</tr>
<tr>
<td>shut-off, row</td>
<td>70</td>
</tr>
<tr>
<td>shutter</td>
<td>40, 44</td>
</tr>
<tr>
<td>shutter, seed inlet</td>
<td>37, 38, 70, 80</td>
</tr>
<tr>
<td>side gauge wheel</td>
<td>62, 68</td>
</tr>
<tr>
<td>side wheel</td>
<td>96</td>
</tr>
<tr>
<td>single-row</td>
<td>74</td>
</tr>
<tr>
<td>skip</td>
<td>49</td>
</tr>
<tr>
<td>skips</td>
<td>48, 49</td>
</tr>
<tr>
<td>slack, chain</td>
<td>94</td>
</tr>
<tr>
<td>slide-out shims</td>
<td>18</td>
</tr>
<tr>
<td>slope, seed pool</td>
<td>71</td>
</tr>
<tr>
<td>slow lift times</td>
<td>39</td>
</tr>
<tr>
<td>SMV (Slow Moving Vehicle)</td>
<td>5</td>
</tr>
<tr>
<td>soybeans</td>
<td>70, 108</td>
</tr>
<tr>
<td>spacer washers</td>
<td>67</td>
</tr>
<tr>
<td>spacers</td>
<td>26</td>
</tr>
<tr>
<td>specifications</td>
<td>110</td>
</tr>
<tr>
<td>speed</td>
<td>20</td>
</tr>
<tr>
<td>speed calibration</td>
<td>46</td>
</tr>
<tr>
<td>speed limits, transport</td>
<td>30</td>
</tr>
<tr>
<td>speed sensor</td>
<td>128</td>
</tr>
<tr>
<td>speed sensor gap, ground drive</td>
<td>93</td>
</tr>
<tr>
<td>speed sensor gap, hydraulic drive</td>
<td>94</td>
</tr>
<tr>
<td>spreader</td>
<td>95</td>
</tr>
<tr>
<td>springs, row unit</td>
<td>62</td>
</tr>
<tr>
<td>stagger</td>
<td>1</td>
</tr>
<tr>
<td>press wheel</td>
<td>77</td>
</tr>
<tr>
<td>stand, parking</td>
<td>21</td>
</tr>
<tr>
<td>storage</td>
<td>3, 44</td>
</tr>
<tr>
<td>storage, lock-up pin</td>
<td>75</td>
</tr>
<tr>
<td>straight blades</td>
<td>107</td>
</tr>
<tr>
<td>strip brush</td>
<td>40, 91, 92</td>
</tr>
<tr>
<td>sunflower</td>
<td>32, 34, 108</td>
</tr>
<tr>
<td>symbol, safety</td>
<td>1</td>
</tr>
<tr>
<td>T</td>
<td>67</td>
</tr>
<tr>
<td>T handle</td>
<td>67</td>
</tr>
<tr>
<td>adjustments</td>
<td>45</td>
</tr>
<tr>
<td>air system elements</td>
<td>37</td>
</tr>
<tr>
<td>coulter blade mount</td>
<td>65</td>
</tr>
<tr>
<td>covered models</td>
<td>15</td>
</tr>
<tr>
<td>hose color code</td>
<td>19</td>
</tr>
<tr>
<td>lock pins</td>
<td>25</td>
</tr>
<tr>
<td>torque values</td>
<td>112</td>
</tr>
<tr>
<td>tables</td>
<td>44, 93</td>
</tr>
<tr>
<td>talc-graphite lubricant</td>
<td>102</td>
</tr>
<tr>
<td>talc+graphite</td>
<td>105</td>
</tr>
<tr>
<td>tension, gauge wheel</td>
<td>52</td>
</tr>
<tr>
<td>tension, Keeton</td>
<td>75</td>
</tr>
<tr>
<td>line</td>
<td>64</td>
</tr>
<tr>
<td>tip over hazard</td>
<td>9, 27, 43</td>
</tr>
<tr>
<td>tire inflation</td>
<td>112</td>
</tr>
<tr>
<td>tire information</td>
<td>112</td>
</tr>
<tr>
<td>tool, walkboard</td>
<td>63</td>
</tr>
<tr>
<td>top link adjustments</td>
<td>18</td>
</tr>
<tr>
<td>torque</td>
<td>30</td>
</tr>
<tr>
<td>fastener</td>
<td>30</td>
</tr>
<tr>
<td>towing vehicle capability</td>
<td>30</td>
</tr>
<tr>
<td>trailer operations</td>
<td>37</td>
</tr>
<tr>
<td>transmission</td>
<td>123, 124</td>
</tr>
<tr>
<td>transmisison sprockets</td>
<td>45, 123, 124, 125</td>
</tr>
<tr>
<td>transport</td>
<td>30</td>
</tr>
<tr>
<td>transport speed</td>
<td>3</td>
</tr>
<tr>
<td>transporting</td>
<td>30</td>
</tr>
<tr>
<td>troubleshooting</td>
<td>79</td>
</tr>
<tr>
<td>tuft brush</td>
<td>91</td>
</tr>
<tr>
<td>turbo</td>
<td>107</td>
</tr>
<tr>
<td>twin-row</td>
<td>74</td>
</tr>
<tr>
<td>U</td>
<td>112</td>
</tr>
<tr>
<td>UMC (Unit-Mount Coulter)</td>
<td>65, 106, 107</td>
</tr>
<tr>
<td>UMC-RC (UMC Row Cleaner)</td>
<td>64, 106</td>
</tr>
<tr>
<td>UMRC (Unit-Mount Row Cleaner)</td>
<td>64</td>
</tr>
<tr>
<td>unfolding</td>
<td>29</td>
</tr>
<tr>
<td>unit-mount</td>
<td>107</td>
</tr>
<tr>
<td>coulter</td>
<td>64</td>
</tr>
<tr>
<td>row cleaner</td>
<td>64</td>
</tr>
<tr>
<td>Units</td>
<td>129</td>
</tr>
<tr>
<td>upper drive</td>
<td>123, 124</td>
</tr>
<tr>
<td>upper drive sprockets</td>
<td>123, 124, 125</td>
</tr>
<tr>
<td>URLs, tires</td>
<td>112</td>
</tr>
<tr>
<td>V</td>
<td>108</td>
</tr>
<tr>
<td>vacuum cleaner</td>
<td>91</td>
</tr>
<tr>
<td>valves</td>
<td>56, 58</td>
</tr>
<tr>
<td>bypass</td>
<td>56, 57, 60</td>
</tr>
<tr>
<td>lift-assist</td>
<td>56, 57, 60</td>
</tr>
<tr>
<td>PO check</td>
<td>56, 57, 60</td>
</tr>
<tr>
<td>pressure reducing</td>
<td>56, 58, 59</td>
</tr>
<tr>
<td>valve, butterfly</td>
<td>37, 39</td>
</tr>
<tr>
<td>vertical clearance</td>
<td>3, 27, 30</td>
</tr>
<tr>
<td>volumetric</td>
<td>108</td>
</tr>
<tr>
<td>W</td>
<td>93</td>
</tr>
<tr>
<td>WARNING, defined</td>
<td>1</td>
</tr>
<tr>
<td>warp</td>
<td>93</td>
</tr>
<tr>
<td>warranty</td>
<td>112</td>
</tr>
<tr>
<td>weight</td>
<td>30</td>
</tr>
<tr>
<td>welding</td>
<td>4</td>
</tr>
<tr>
<td>wing coupling options</td>
<td>104</td>
</tr>
<tr>
<td>wing flex lock pin</td>
<td>25</td>
</tr>
<tr>
<td>wing lock</td>
<td>25, 28</td>
</tr>
<tr>
<td>wing lock pin</td>
<td>25, 29</td>
</tr>
<tr>
<td>wiper ridge</td>
<td>93</td>
</tr>
</tbody>
</table>
Y
Y-cable ...............................................35
Yield-Pro® Planter .....................................14
yoke, gauge wheel .................................51, 52
Numerics
11001-1372, manual ..............................15, 128
118-999B, manual ...................................45
13 mph ...............................................3, 30
200 psi ...............................................58, 59
204-085M-A, manual ..............................64, 106
25 Series row unit ....................................61
3P4025AH ..............................................14
3P4025AH-1236 ....................................15, 30
3P4025AH-1238 ....................................15, 30
3P4025AH-1240 ....................................15, 30
3P4025AH-1630 ....................................15, 30, 113
3P4025AH-24TR36 ..............................15, 30, 111
3P4025AH-24TR38 ..............................15, 30, 111
3P4025AH-24TR40 ..............................15, 30, 111
3P4025AH-32TR30 ..............................15, 30, 111, 113, 114
32 km/h ...............................................3, 30
4.5 gpm ..............................................39
400 psi ...............................................59
401-651P, manual ..................................92
411-099B, manual ..................................45
600 psi ...............................................58
7.60-15 ..............................................112
Great Plains, Mfg.
1525 E. North St.
P.O. Box 5060
Salina, KS 67402

“Harvest Starts Here.”

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