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

Illustrations may show optional equipment not supplied with standard unit, earlier versions without current enhancements, or may show similar standard transport or 3-point models and their options, where details of the immediate topic are identical.
Machine Identification

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

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

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| Telephone: |  |
| Email: |  |
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⚠️WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov
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Important Safety Information

Look for Safety Symbol

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

Be Aware of Signal Words

Signal words designate a degree or level of hazard seriousness.

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

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

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

Prepare for Emergencies

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

Be Familiar with Safety Decals

▲ Read and understand “Safety Decals” on page 6, thoroughly.
▲ Read all instructions noted on the decals.
▲ Keep decals clean. Replace damaged, faded and illegible decals.
Wear Protective Equipment

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

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

Avoid High Pressure Fluids

Escaping fluid under pressure can penetrate the skin, causing serious injury. This Planter requires a Power-Beyond port, which is always under pressure when the tractor is running.

▲ Avoid the hazard by relieving pressure at other remotes, and shutting down tractor before connecting, disconnecting or inspecting 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 A Safety Chain

▲ Use a safety chain to help control drawn machinery should it separate from tractor draw-bar.
▲ Use a chain with a strength rating equal to or greater than the gross weight of towed machinery.
▲ Attach chain to tractor draw-bar support or specified anchor location. Allow only enough slack in chain for turns.
▲ Replace chain if any links or end fittings are broken, stretched or damaged.
▲ Do not use safety chain for towing.

Use Safety Lights and Devices

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

Transport Machinery Safely

• Maximum transport speed for implement is 20 mph (32 km/h).
• Maximum speed in turns is 13 mph (22 km/h).
• Some rough terrains require a slower speed. Sudden braking can cause a towed load to swerve and upset.
• Do not transport the cart in train with material in the tank.
• Do not back the planter if the PFC cart is attached.
▲ 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.
▲ Comply with state and local laws.
▲ Do not tow an implement that, when fully loaded, weighs more than 1.5 times the weight of towing vehicle.
▲ Carry reflectors or flags to mark Planter in case of breakdown on the road.
▲ Keep clear of overhead power lines and other obstructions when transporting. Refer to transport dimensions under "Specifications and Capacities" on page 129.
▲ Do not fold or unfold the Planter while the tractor is moving.
Handle Chemicals Properly
Agricultural chemicals can be dangerous. Improper use can seriously injure persons, animals, plants, soil and property.

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

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.

Shutdown and Storage
▲ Lower Planter, put tractor in park, turn off engine, and remove the key.
▲ Secure Planter using blocks and supports provided.
▲ Detach and store Planter in an area where children normally do not play.
Tire Safety
Tire changing can be dangerous. Employ trained personnel using correct tools and equipment.

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

Practice Safe Maintenance
▲ Understand procedure before doing work. Use proper tools and equipment. Refer to this manual for additional information.
▲ Work in a clean, dry area.
▲ Lower the Planter, put tractor in park, turn off engine, and remove key before performing maintenance.
▲ Make sure all moving parts have stopped and all system pressure is relieved.
▲ Allow Planter to cool completely.
▲ Disconnect battery ground cable (−) before servicing or adjusting electrical systems or before welding on Planter.
▲ Inspect all parts. Make sure parts are in good condition and installed properly.
▲ Remove buildup of grease, oil or debris.
▲ Remove all tools and unused parts from Planter before operation.

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

▲ Be familiar with all Planter functions.
▲ Operate machinery from the driver’s seat only.
▲ Do not leave Planter unattended with tractor engine running.
▲ Do not stand between the tractor and Planter during hitching.
▲ Keep hands, feet and clothing away from power-driven parts.
▲ Wear snug-fitting clothing to avoid entanglement with moving parts.
▲ Watch out for wires, trees, etc., when folding and raising Planter. Make sure all persons are clear of working area.
Safety Decals

Safety Reflectors and Decals

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

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

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

Slow Moving Vehicle Reflector
818-055C

On the right end of the opener frame, facing rear in transport; 1 total

Red Reflectors
838-266C

Below the lights on the right end of the opener frame, on the rear face of the outside seed hoppers: 4 total
Amber Reflectors
838-265C

On the rear face of each hopper above an outside tire, on the front face of the opener frame, each end, and on the left front face of the opener frame; 5 total

Danger: Possible Chemical Hazard (Option)
818-323C

On the front of each liquid fertilizer tank cradle: 2 total

Warning: Tank Hazards (Option)
61848

On front or end of each tank; 2 total

This decal is provided by the tank manufacturer and does not need to be replaced if illegible.
Warning: Speed
818-188C

**WARNING**

**EXCESSIVE SPEED HAZARD**

To prevent serious injury or death from vehicle loss of control.

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

On left face of transport lock weldment on tongue; 1 total

Warning: High Pressure Fluid Hazard
818-339C

**WARNING**

**HIGH PRESSURE FLUID HAZARD**

To prevent serious injury or death from hydraulic fluid.

On left face of transport lock weldment on tongue; 1 total

Warning: Sharp Object (Option)
818-525C

**WARNING**

**SHARP OBJECT HAZARD**

To prevent serious injury or death from sharp objects.

Front face of each row cleaner frame; 4 to 12 total

Warning: Markers (Option)
818-682C

**WARNING**

**MARKER OBJECT HAZARD**

To prevent serious injury or death from malfunctioning markers.

On the front and rear (shown) face of each inner marker arm; 4 total
Warning: Moving Parts Hazard
838-363C

On seed transmission (not shown) if no markers.
On rear face of marker mount (shown) otherwise.
Option: on left outside face of Dry Fertilizer transmission;
1 or 2 total

Caution: Read Operator’s Manual
818-587C

On left face of transport lock weldment on tongue;
1 total

Caution: Tires Not A Step
838-267C

On the rear face of each hopper above a tire:
4 total
Caution: Tire Pressure and Bolt Torque 848-048C

(Models other than 22 inch and 70 cm Single)
On valve stem side of each gauge wheel; 4 total

Caution: Tire Pressure and Bolt Torque 838-595C

(YP825AR - 2:44 and YP825AR - 2:92 only)
On valve stem side of each gauge wheel; 4 total
Great Plains welcomes you to its growing family of new product owners. The YP825AR 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 YP825AR Planter is a towed precision planting implement for use in conventional till, minimum-till, or light no-till conditions. The YP825AR pivot-folds for narrow transport. The YP825AR includes 25AP Series openers with Air-Pro® Meters supporting a wide choice of seed disks.

The YP825AR offers one of three optional DICKEY-john® Monitors, an optional liquid fertilizer system, or optional dry fertilizer system and frame- or unit-mounted coulters and/or row cleaners. YP825AR Coulters make it suitable for light to moderate no-till conditions only. Additional options include hydraulic drive, Row-Pro™ and/or Swath Command™.

**Intended Usage**

Use the YP825AR 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 YP825AR.

**Models Covered**

YP825AR-2:44  8 Single Row 22 Inch (55.9 cm) Spacing
YP825AR-2:52  8 Single Row 30 Inch (76.2 cm) Spacing
YP825AR-2:92  8 Single Row 70 cm (27.6 Inch) Spacing
YP825AR-2:97  8 Single Row 75 cm (29.5 Inch) Spacing
YP825AR-38VT52 8 Twin Row 30 Inch (76.2 cm) Spacing
YP825AR-38VT97 8 Twin Row 75 cm (29.5 Inch) Spacing

**Document Family**

- **401-923M** Owner’s Manual (this document)
- **401-923B** Seed and Fertilizer Rate Manual
- **401-923P** Parts Manual

**Options**

- **401-923M-QSG** Monitor Quick Start Guide
- **12-M-15** CDS-JohnBlue LM-1250 & LM-1255 Parts and Instruction Manual (Option)
- **11001-1372** DICKEY-john® PM300 Manual
- **11001-1662** DICKEY-john® IntelliAg® Planter/Drill Control, User Level 1
- **11001-1501A** DICKEY-john® IntelliAg® Planter/Drill Control, User Level 2&3
- **403-857M** Swath Command™ Operator Manual
- **403-860M** Row-Pro™ Operator Manual

**Using This Manual**

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

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

**Definitions**

The following terms are used throughout this manual.

**NOTICE**

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

Useful information related to the preceding topic.

Right-hand and left-hand as used in this manual are determined by facing the direction the machine will travel while in use unless otherwise stated. An orientation rose shows the directions of: Up, Back, Left, Down, Front, Right.
Owner Assistance

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

Refer to Figure 2

Your machine’s parts were specially designed and should only be replaced with Great Plains parts. Always use the serial and model number when ordering parts from your Great Plains dealer. The serial-number plate is located on the right outside end of the front tool bar.

Record your YP825AR 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 YP825AR. 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 YP825AR Planter for use, and covers tasks that need to be done seasonally, or when the tractor/Planter configuration changes.

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

Initial Setup

See "Appendix C - Initial Setup" on page 149 for first-time/infrequent setup tasks, including:

- Install seed monitor console in tractor (see 401-923M-QSG Quick Start Guide).
- Set marker extension (Option, page 150).
- Install any Options not factory- or dealer-installed.

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:

- Bleed hydraulic system (page 105).
- 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" 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 and Scheduled Maintenance" on page 108.
- Check that all safety decals and reflectors are correctly located and legible. Replace if damaged. See "Safety Decals" on page 6.
- Inflate tires to pressure recommended and tighten wheel bolts as specified. See "Tire Inflation Chart" on page 133.
Hitching Tractor to Planter

**DANGER**

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

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

**Refer to Figure 3**

1. Use the jack crank ① to raise and lower the Planter tongue. See “Leveling Planter” on page 17.

**Refer to Figure 4**

2. After hitching the tractor to the Planter, use the crank ② that secures the jack to the tongue stob. Remove the jack and re-pin counter-clockwise 90° at the left rear side of the tongue tube. Re-secure with pin.

3. Secure the Planter safety chain to an anchor point on the tractor rated for the maximum weight of the Planter.
Electrical Hookup

Refer to Figure 5

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

- ① Lighting connector (standard, appearance of European connector slightly different)
- ② Frame control (standard)
- ③ Monitor connector (depends on monitor)
- ④ Speed connector (depends on monitor and may not be required)
- ⑤ Compressor power connector (option)
- __________________________
- __________________________

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

These connections may be made in any order. The key requirement is that all connections be made prior to Planter movement.

Figure 5
Connector Identification
Hydraulic Hose Hookup

**WARNING**

*High Pressure Fluid Hazard:*
Shut down tractor before making hydraulic connections. Only trained personnel should work with system hydraulics.

Escaping fluid under pressure can have sufficient pressure to penetrate the skin causing serious injury. If an accident occurs, seek immediate medical assistance from a physician familiar with this type of injury.

Use paper or cardboard, NOT BODY PARTS, to check for leaks. Wear protective gloves and safety glasses or goggles when working with hydraulic systems.

**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</td>
</tr>
<tr>
<td>Blue</td>
<td>Lift / Lift Lock / Marker (Option)</td>
</tr>
<tr>
<td>Gray</td>
<td>Rotate / Rotate Lock / Telescope</td>
</tr>
<tr>
<td>Yellow</td>
<td>Hydraulic Drive (Option)</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 cylinder rod ends.

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

**Air Source Setup (Option)**

**Refer to Figure 7**
If the Planter has Row-Pro™ servo down-pressure and/or Swath Command™ section control, the air source filter for the air compressor inlet must be relocated to the tractor cab.
Leveling Planter

[Diagram of Leveling Planter]

**Front to Back**

Refer to Figure 8

During initial setup and periodically throughout the season, check that the Planter runs level. When planting, the top of the main frame should be parallel to the ground.

To level the Planter, the distance from bottom of the mainframe tube to the ground (1), must be:
77.2 cm (30 3/8 inches) with the Planter lowered into planting position.

With the openers in the ground, this tool bar height normally requires a hitch height (2) of:
36.8 cm (14 1/2 inches) measured from the bottom of the tongue side plates to the ground.

Refer to Figure 9 (showing one of two hitch bolts)

To obtain the correct height, remove the two hitch bolts (3), and reposition the Planter hitch (4) on the tongue.

**WARNING**

Loss of Control Hazard:
Always re-secure the safety chain (5) with one of the hitch bolts. Use the heavy-duty flat washer (6) under the head of that bolt. An unsecured or inadequately secured chain may fail when needed, resulting in an unhitched, uncontrolled Planter moving on the highway. Major equipment damage is certain. Serious injury or death could result.

**NOTICE**

Sudden Hitch Slump or Failure Risks:
Always have two bolts through two holes on both hitch and tongue. Never rely on a single bolt.

The hitch can be inverted in the tongue for extreme height changes.
Side to Side (Left to Right)

This planter is also equipped with a system to level the main frame parallel to the axle. While the planter is factory-leveled at the time of assembly, some misalignment may occur during shipping and/or transport.

- It is easier to perform this operation with the planter unfolded and in the fully-raised position.

1. Measure the distance from the main frame to the axle on both sides of the planter as far from the center as possible, but equidistant from the center. These distances must be equal in order for the planter to plant evenly, and are approximately 133.6 cm (52\(\frac{1}{8}\) inches) with the planter fully raised. If the distance is not the same from one side to the other, use the following procedure to correct this.

2. Loosen the ten, 1 inch bolts holding the pin support plates on both sides.

3. Loosen the jam nuts on each of the four, \(\frac{3}{4}\) inch set screws located at the top and bottom of each of the pin support plates.

To lower the left side of the planter, drive in the left pin support plate set screw and drive out the right support plate set screw.

To raise the left side of the planter, drive in the right pin support plate set screw and drive out the left plate set screw.

4. Check the distances from the main frame to the axle again. If they are not equal, continue adjusting.

5. Once both sides are equal, secure the jam nuts on both lower (left and right) set screws.

6. Drive in the upper (left and right) set screws and tighten the jam nuts.

7. Tighten the 1 inch bolts securing the pin support plates.
Wheel Adjustment for Beds

Refer to Figure 11

For planting on beds, tool bar and row unit height may be raised by:

1\frac{1}{2} inches (38.1 mm)

by relocating the wheels in the gauge wheel arms.

Block up the frame to remove weight from tires. Remove bolts and lock washers from the standard center holes. Move each wheel assembly to the lower holes and re-secure with removed bolts and washers.

Never use the top/upper holes. These holes are not for field or highway use.

Monitor Setup

Prior to first use, the chosen seed monitor must be set up for the Planter configuration, and the ground speed calibrated. Thereafter, the monitor materials, rates and any field prescriptions need to be set up for each planting session.

Consult the Monitor Quick Start Guide (401-923M-QSG) manual for monitor operations.

The PM300 monitor is not used with the variable rate liquid fertilizer hydraulic drive option.

Marker Setup (Option)

Prior to first use, check and adjust:

- “Marker Speed Adjustment” on page 149.

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

- “Marker Extension” on page 150.

Prior to each planting session, check and adjust:

- “Marker Disk Adjustment” on page 56.
Lock Up Fertilizer Ground Drive

![WARNING]

**Loss of Control and Crushing Hazards:**
Lift or lower wheel by using ground blocks and planter hydraulics. Use blocks that are stable front to back and side to side to avoid the possibility of the wheel turning. Keep feet out from under wheel. 90 pounds (41 kg) force is required to lift wheel. If blocks are removed before pinning, or after unpinning, the arm snaps down rapidly. The force of the wheel impact can inflict serious injury.

The liquid fertilizer option uses a piston pump driven by a ground contact wheel. When not using the fertilizer drive, preserve the pump by locking up the ground wheel.

**Refer to Figure 13**

1. Remove clevis pin from storage hole.
2. To compress spring and allow the ground drive wheel to raise up, place blocks under the ground wheel.
3. Lower the planter.
4. Align matching plate holes and insert pin. Secure with cotter pin.

AccuShot System (Option)

Some Yield-Pro Planter models have the option of having AccuShot installed for fertilizing crops. AccuShot applies a set amount of liquid fertilizer to a specific location relative to each seed in a furrow. More precise application gives seeds a better chance at germination and improved growth.

If your machine has AccuShot, refer to the AccuShot Operator / Maintenance Manual and AccuShot Quick Start Guide for more information on how to use your application system.

<table>
<thead>
<tr>
<th>Manual Name</th>
<th>Part Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>AccuShot Operator Manual</td>
<td>115700-001</td>
</tr>
<tr>
<td>AccuShot Quick Start Guide</td>
<td>115700-002</td>
</tr>
</tbody>
</table>

**NOTICE**
This kit is factory install only. Planters cannot be fitted with AccuShot through your dealer.
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 YP825AR Planter to the field.

- Carefully read “Important Safety Information” on page 1.
- Fertilizer Option: Review the application instructions and Safety Data Sheet (SDS) for the fertilizer(s).
- Install seed disks appropriate for crop. See “Air-Pro® Meter Disk Installation” on page 77.
- Lubricate Planter as indicated under “Lubrication and Scheduled Maintenance” on page 108.
- Check all tires for proper inflation. See “Tire Inflation Chart” on page 133.
- Check all bolts, pins, and fasteners. Torque as shown in “Torque Values Chart” on page 133.
- 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.

WARNING

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

⚠️ DANGER

Loss of Control Hazard:
Never tow an implement that weighs more than 150% of the tractor. Check your numbers. This Planter is quite heavy for its size. 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.

The Planter can weigh nearly 23000 pounds (10500 kg), depending on configuration and material load. The tractor MUST be rated for the load and must weigh at least 67% of the load. If the tractor is not rated for at least 23000 lbs, calculate or obtain a scale weight of the Planter. See chart below for typical configuration weights.

Do not tow if Planter exceeds the load rating of the vehicle.

⚠️ NOTICE

Braking and Loss of Control Hazard:
Do not exceed 20 mph (32 km/h) when driving straight.

Some rough terrains require a slower speed. Sudden braking can cause a towed load to swerve and upset. Do not exceed 13 mph (22 km/h) in turns.

Do not exceed 3 mph (5 km/h) when turning.

⚠️ WARNING

Tipping Hazard and Excess Wear Risk:
Do not load seed or fertilizer prior to travel. This elevates the center of gravity of the folded Planter, increasing the chance of tipping in turns. Avoid steep highway shoulders. When materials are loaded, raise only to field lift height for field turns and short moves. Do not traverse steep slopes at transport lift. Transport with material loaded also causes excess wear on the pivot bearing. Some Planter configurations, with material loaded, exceed the highway rating of the gauge wheel tires.
Typical YP825AR Planter Weights (Inch Models)

<table>
<thead>
<tr>
<th>Approximate Weights of Representative Configurations</th>
<th>YP825AR -0822</th>
<th>YP825AR -0830</th>
<th>YP825AR -16TR30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Empty (Transport)</td>
<td>9700 pounds</td>
<td>9700 pounds</td>
<td>11600 pounds</td>
</tr>
<tr>
<td></td>
<td>(4400 kg)</td>
<td>(4400 kg)</td>
<td>(5300 kg)</td>
</tr>
<tr>
<td>Maximum Empty (Transport)</td>
<td>10400 pounds</td>
<td>10400 pounds</td>
<td>13200 pounds</td>
</tr>
<tr>
<td></td>
<td>(4700 kg)</td>
<td>(4700 kg)</td>
<td>(6000 kg)</td>
</tr>
<tr>
<td>Minimum Full (Field)</td>
<td>13100 pounds</td>
<td>13100 pounds</td>
<td>16400 pounds</td>
</tr>
<tr>
<td></td>
<td>(5900 kg)</td>
<td>(5900 kg)</td>
<td>(7500 kg)</td>
</tr>
<tr>
<td>Maximum Full (Field)</td>
<td>18600 pounds</td>
<td>18600 pounds</td>
<td>22800 pounds</td>
</tr>
<tr>
<td></td>
<td>(8500 kg)</td>
<td>(8500 kg)</td>
<td>(10300 kg)</td>
</tr>
</tbody>
</table>

Note: Weight of a specific planter can vary by hundreds of pounds or kg depending on installed options and material loaded.

Typical YP825AR Planter Weights (Metric Models)

<table>
<thead>
<tr>
<th>Approximate Weights of Representative Configurations</th>
<th>YP825AR -0870</th>
<th>YP825AR -0875</th>
<th>YP825AR -16TR75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Empty (Transport)</td>
<td>4400 kg</td>
<td>4400 kg</td>
<td>5300 kg</td>
</tr>
<tr>
<td></td>
<td>(9700 pounds)</td>
<td>(9700 pounds)</td>
<td>(11600 pounds)</td>
</tr>
<tr>
<td>Maximum Empty (Transport)</td>
<td>4700 kg</td>
<td>4700 kg</td>
<td>6000 kg</td>
</tr>
<tr>
<td></td>
<td>(10400 pounds)</td>
<td>(10400 pounds)</td>
<td>(13200 pounds)</td>
</tr>
<tr>
<td>Minimum Full (Field)</td>
<td>5900 kg</td>
<td>5900 kg</td>
<td>7500 kg</td>
</tr>
<tr>
<td></td>
<td>(13100 pounds)</td>
<td>(13100 pounds)</td>
<td>(16400 pounds)</td>
</tr>
<tr>
<td>Maximum Full (Field)</td>
<td>8500 kg</td>
<td>8500 kg</td>
<td>10300 kg</td>
</tr>
<tr>
<td></td>
<td>(18600 pounds)</td>
<td>(18600 pounds)</td>
<td>(22800 pounds)</td>
</tr>
</tbody>
</table>

Note: Weight of a specific planter can vary by hundreds of pounds or kg depending on installed options and material loaded.

Transport Steps

Transport only with markers stowed (page 51).

1. Check that Planter is securely hitched to a sufficient tractor (page 14).
2. Always use a locking-style hitch pin sized to match holes in hitch and draw-bar (minimum 1 inch / 2.5 cm diameter, heat-treated pin).
3. Attach safety chain to tractor with enough slack to permit turning (page 14).
4. Verify correct operation of lights.
5. If any seed is in hoppers or delivery hoses, close seed inlet shutters at meters (page 79).
6. Check that tires are properly inflated (page 133).
7. Plan the route. Avoid steep hills.
8. Always have lights on for highway operation.
9. Do not exceed 20 mph (32 km/h). Comply with all national, regional and local laws when traveling on public roads.
10. Remember that the Planter may be wider than the tractor. Allow safe clearance.
11. Transport slowly in turns, over uneven or rough terrain.

2019-07-25
About the Frame Control Switch

Two Planter hydraulic circuits (lift/lift-lock/marker and rotate/frame-lock/telescope) have multiple cylinders sharing the circuit.

Which cylinder set has the circuit is controlled by a switch box in the tractor cab, a solenoid valve block on the Planter, and limit switches on the Planter.

Refer to Figure 15

<table>
<thead>
<tr>
<th>Color</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>POWER: ON makes +12 VDC available to the selector and limit switches.</td>
</tr>
<tr>
<td></td>
<td>LED: Illuminates when tractor +12 VDC is available to the switch box, and the POWER switch is ON.</td>
</tr>
<tr>
<td>Red</td>
<td>LIFT: Circuit: lift/lift-lock/markers</td>
</tr>
<tr>
<td></td>
<td>OFF: Lift/Marker(^a) circuit cut off from tractor.</td>
</tr>
<tr>
<td></td>
<td>HALF: Lift cylinders enabled, but travel is inhibited at and above field lift by a limit switch.</td>
</tr>
<tr>
<td></td>
<td>FULL: Lift cylinder travel is unrestricted.</td>
</tr>
<tr>
<td>Green</td>
<td>TELESCOPE:</td>
</tr>
<tr>
<td></td>
<td>Circuit: telescope/rotate/frame-lock</td>
</tr>
<tr>
<td></td>
<td>ON: Enables telescoping tongue cylinder operations</td>
</tr>
<tr>
<td></td>
<td>OFF: Disables telescoping operations</td>
</tr>
<tr>
<td>White</td>
<td>ROTATE: Circuit: telescope/rotate/frame-lock</td>
</tr>
<tr>
<td></td>
<td>ON: Enables opener frame rotate operations</td>
</tr>
<tr>
<td></td>
<td>OFF: Disables opener frame rotate operations</td>
</tr>
<tr>
<td>Blue</td>
<td>FRAME LOCK:</td>
</tr>
<tr>
<td></td>
<td>Circuit: telescope/rotate/frame-lock</td>
</tr>
<tr>
<td></td>
<td>ON: Enables cylinder for tongue/pivot lock</td>
</tr>
<tr>
<td></td>
<td>OFF: Disables cylinders for tongue/pivot lock</td>
</tr>
<tr>
<td>Yellow</td>
<td>LIFT LOCK: Circuit: lift/lift-lock/markers</td>
</tr>
<tr>
<td></td>
<td>ON: Enables cylinders for lift lock pins</td>
</tr>
<tr>
<td></td>
<td>OFF: Disables cylinders for lift lock pins</td>
</tr>
<tr>
<td>Gray</td>
<td></td>
</tr>
</tbody>
</table>

Set circuit tractor remotes to Neutral before activating switches. Do not operate solenoid valves\(^b\) under pressure.

Instruction steps have only one switch out of “OFF” position at a time.

The Planter limit switches prevent most, but not all incorrect operations. Follow instruction steps carefully. Do not rely on the protection of limit switches\(^b\) for routine operations.

The solenoid valves are spring-loaded to OFF. If power is off, or harnesses are not connected at the hitch, normal hydraulic operations are not possible.

---

\(^a\) If no markers are installed, or the marker shut-off valve (page 25) is closed, OFF locks lift cylinder motion. If markers are installed, with manual shut-off valve on, lift/marker motion is still possible with the LIFT switch (or POWER) OFF. See page 25 for details.

\(^b\) Exception: the LIFT solenoid valve is designed to cut off active flow to the lift/lift-lock/marker circuit during field (HALF) lift.
About the Marker Shut-Off Valve

Refer to Figure 16

This valve is only present on Planters equipped with optional field markers. It is located on the right side of the lift structure.

The marker hydraulic circuit is shared with the lift circuit. Unless disabled by the shut-off valve, a marker retracts during lift, and the other side extends during lower.

Refer to Figure 17

This shut-off valve, when closed, prevents marker extension or retraction. Markers must be disabled by this valve during Planter fold, and during field operations not requiring use of markers.

When the shut-off valve is open, any lift operation results in folding of any extended marker. When the shut-off valve is open, any lowering operation results in extension of a marker on the alternate side, based on the internal state of the marker sequence valve.

**WARNING**

Frame and Overhead Crushing Hazards:

- Never open the shut-off valve with the frame raised.
- Never close the valve under a raised and unlocked frame.
- Never close the valve with a marker extended.

When the shut-off valve is open, the marker circuit is plumbed in parallel with the lift circuit at all times. An equipment malfunction could result in unexpected frame and/or marker motion in some situations. You could be under the frame operating the valve in some of those situations. Serious injury, death, and/or substantial property damage can result.

Depending on the internal state of the sequence valve, if the opener frame is raised and not locked up, and the shut-off valve is opened, frame weight may force oil from lift cylinders to marker cylinders, possibly resulting in: unexpected frame lowering, and simultaneous unexpected marker extension. This could happen with hydraulics off (or disconnected) and all frame control switches off.

If the opener frame is raised and is locked up, and the valve is open, unexpected marker extension does occur during lowering from transport lift. This a potentially hazardous situation.

If the valve is closed with a marker partially or fully extended, the marker cannot fold during lift, and if the lift is prematurely stopped, the valve state is changed, and the lift reversed, there is some chance of having two markers extended. See "Dual Marker Operations" on page 35.
Unfolding/Folding the Planter

Planter unfolding and folding relies on multiple hydraulic cylinders, and two circuits (rotate and lift) that are managed by solenoid valves controlled by the Frame Control switch box in the tractor cab.

The Planter must be hitched, with at least frame control electrical connection made (page 15) and all hydraulic connections made (page 16) before unfolding.

Unfolding the Planter

These steps take the Planter from transport configuration to field lowered configuration.

1. Verify that the tractor and implement Frame Control harnesses are connected at the hitch (see page 15).

Set/Verify Marker Circuit Locked

If markers are not installed, continue at step 3.

Marker operation is integrated with lift/lower. Markers must be disabled during mainframe unfold, or a marker will deploy during lower.

Refer to Figure 17 on page 25

2. Inspect the manual shut-off valve located on the right side of the lift structure. Set or verify that the operating handle is at 90° to the valve body.

WARNING

Overhead Hazards and Machine Damage Risks:

Verify that the marker circuit is off before lowering from transport lift. If the valve is open, a marker unfolds during opener frame lowering. This unexpected movement could strike anyone or anything nearby, resulting in serious injury or death, and significant property damage.
Pivot Unlock

3. Clear all persons from the vicinity of the Planter.

**WARNING**

**Crushing, Overhead and Pinch/Shear Hazards:**
Clear all persons from the area. During unfold there are multiple locations with risk of severe or fatal crush, pinch, shear and head injuries.

4. Put tractor in Park or set parking brake.

**Refer to Figure 20**

5. Set FRAME LOCK switch ( , yellow) to ON.
   Verify the other four are OFF.
   Verify/set all frame control POWER switch (red) ON.
   Verify POWER LED illuminated.

6. Start the tractor. Hydraulic remotes must be active for unfold.

7. Move tractor remote handle for the rotate/telescope circuit to Retract to unlock the frame.
   Observe the vertical cylinder @ at the forward end of the opener frame. When the rod is fully retracted, set the tractor remote to Neutral.
   Set FRAME LOCK switch to OFF.

**Rotate to Field Alignment**

**Refer to Figure 21**

8. Set ROTATE switch ( , blue) to ON.
   Move tractor remote handle for the rotate/telescope circuit to Retract to rotate the frame from transport to field alignment.
   Set the tractor remote to Neutral.
   Set the ROTATE switch to OFF.

---

a. If the Planter has the optional telescoping axle, the Planter *must* move during tongue telescope and contraction (page 28 and page 31).
   If the Planter does not have a telescoping axle, either/both Planter or tractor may move during telescope.
Release Lift Locks

Refer to Figure 22

9. Set LIFT switch (③, green) to FULL. Move tractor remote handle for the lift/marker circuit to Extend to fully raise the opener frame, freeing the lift lock pins. Move the tractor remote handle to Neutral. Leave the LIFT switch at FULL.

10. Set LIFT LOCK switch (⑦, gray) to ON. Move tractor remote handle for the lift/marker circuit to Retract the lift locks. Move the tractor remote handle to Neutral. Set the LIFT LOCK switch to OFF. Set the LIFT switch to OFF.

NOTICE

Machine Damage Risk:
Use remote lever position Neutral and not Float. If the circuit is in Float at step 10, the opener frame will lower rapidly, with risk of machine damage.

Contract Tongue

CAUTION

Crushing Hazard:
Keep clear of hitch-to-opener frame area. The distance between the tractor and the opener frame decreases by 46 inches (1.2 m) during contraction. Planter, tractor or both will move.

Refer to Figure 23 (which depicts only the tongue telescope)

11. Set TELESCOPE switch (⑥, white) to ON. Move tractor remote handle for the rotate/telescope circuit to Retract to contract the tongue.

Normal sequence:
• tongue lock pawl closes (it is spring-loaded)
• tongue begins to contract
Wait for both actions to complete.

Move the tractor remote handle to Neutral. Set the TELESCOPE switch to OFF.
Lower Opener Frame

Refer to Figure 24 (depicting tongue extended - see Notes)

12. Set LIFT switch (®, green) to FULL.
   Move tractor remote handle for the lift/marker circuit to Retract to lower the opener frame.
   Set the tractor remote to Neutral.
   Set the LIFT switch to HALF.

⚠️ WARNING

Crushing and Unexpected Marker Movement Hazards:
Fully lower if markers are installed and are to be used.
Do not lower from FULL (transport lift) and stop at HALF (field lift). It is only safe to set the marker shut-off valve ON when the implement is fully lowered. See page 25 for more details.

Modernize: The opener frame cannot be lowered from full lift with the LIFT switch in the HALF position.

See “Field Lift/Lower” on page 34.

Figure 24
Unfold: Lower From Full Lift
Folding the Planter

These steps take the Planter from field configuration to transport configuration. For field lift, see page 34.

1. Verify that the tractor and implement Frame Control harnesses are connected at the hitch (see page 15).

2. If a marker is unfolded, verify that the marker shut-off valve (page 25) is open.

Refer to Figure 25 (depicting tongue extended - see Note)

3. Set all five frame control function switches OFF.

Verify/set frame control POWER switch ON.

Verify POWER LED illuminated.

**WARNING**

Crushing, Overhead and Pinch/Shear Hazards:
Clear all persons from the area. During unfold there are multiple locations where is risk of severe or fatal crushing, pinch, shear and head injuries.

**DANGER**

Electrocution Hazard:
If the Planter is raised with the marker shut-off valve closed, STOP.

Do not fold markers at or above field lift. Lower the Planter and open the valve. In some Planter configurations, folding a marker from or above field lift position results in a marker arm reaching above 14 feet (4.3 m) which could strike overhead electrical lines. A strike could energize the Planter and tractor, resulting in serious injury or death to anyone in contact.

Field Lift (to Fold Markers)

If markers are not installed, or are already folded and shut-off, continue at “Raise” on page 31.

Refer to Figure 26 (top)

4. Set LIFT switch (®, green) to HALF. This enables a limit switch that stops the lift at halfway, but allows oil to flow to markers for fold.

5. Move the circuit lever for the lift/marker circuit to Extend the lift cylinders, and fold any marker that was unfolded. Hold at Extend until lift movement stops, and the marker arm is folded.

6. Set the circuit lever to Neutral.

The opener frame may be raised with the LIFT switch in any position (including OFF). The opener frame can only be lowered with the switch in the HALF or FULL positions.
Raise

*Refer to Figure 26 (middle)*

7. Set LIFT switch (®, green) to FULL.

8. Move tractor remote handle for the lift/marker circuit to Extend to fully raise the opener frame. Hold the circuit at Extend until the opener frame is fully raised.

9. Set the tractor remote to Neutral.
   Set the LIFT switch to OFF.

Extend Tongue (and Contract Axle)

10. Put tractor in Park or set parking brake if tractor motion is not desired during tongue extension.

*Refer to Figure 28*

11. Set TELESCOPE switch (@, white) to ON.
    Move tractor remote handle for the rotate/telescope circuit to Extend to extend the tongue.

12. Set the tractor remote to Neutral.
    Set the TELESCOPE switch to OFF.
Lift Lock
Refer to Figure 29
13. Set LIFT LOCK switch (_odd shape, gray) to ON.
Set the LIFT switch to FULL.
Move tractor remote handle for the lift/marker circuit to Extend to engage the lift lock pins.
Visually check that the pins are over the plates.
14. Move the tractor remote handle to Neutral.
Set the LIFT LOCK switch to OFF.
Set the LIFT switch to OFF.

At this step, it is now safe to operate the marker shut-off valve. It is generally more convenient to complete the transport fold first, so marker shut-off is deferred to step 20.

It is possible to perform this step before the tongue is extended. If access to planting components is required, such as openers, engage the lift locks to ensure it is safe to work under the raised Planter.

Rotate to Transport Alignment
Refer to Figure 30
15. Set ROTATE switch (circled shape, blue) to ON.
Move tractor remote handle for the rotate/telescope circuit to Extend to rotate the frame to transport position.
16. When rotation completes:
Move the tractor remote handle to Neutral.
Set the ROTATE switch to OFF.

If the frame does not rotate, verify full lift.
A limit switch prevents rotation if the frame is not fully raised.

Also verify that the tongue is fully extended. A limit switch prevents rotation if the tongue is not fully extended.
Transport Lock

Refer to Figure 28

17. Set FRAME LOCK switch (⑥, yellow) to ON.
18. Move tractor remote handle for the rotate/telescope circuit to Extend to lock the frame to the tongue.
   Set the tractor remote to Neutral.
19. Set FRAME LOCK switch to OFF.
   Set frame control POWER switch OFF.

Markers Off

Skip this step if markers are not installed, or the marker circuit is already off.

Refer to Figure 28

20. Set the marker shutoff valve ① to OFF (handle at right angle to valve body).
Field Lift/Lower

These instructions presume that the Planter is already unfolded from transport configuration, and is in the full field lowered position. If not, see “Unfolding the Planter” on page 26.

Planter raising and lowering relies on two lift cylinders, which share the lift circuit with markers (if installed) circuit. If the marker shut-off valve is open, markers alternate operate at each field lift/lower.

Prepare Markers for Lift/Lower

If markers are not installed, continue at “Field Lift (Initial, no Marker Out)” or “Field Lower and Marker Unfold”.

Refer to Figure 34

If markers are not required for the immediate field operations, verify that the marker shut-off valve is closed (handle at right angle to valve body), and continue at “Field Lift (Initial, no Marker Out)” or “Field Lower and Marker Unfold”.

1. With the Planter fully lowered, open the marker shut-off valve.

Field Lift (Initial, no Marker Out)

Refer to Figure 35

2. At the frame control switch box, set the LIFT switch (green) to HALF. Move the circuit lever to Extend the lift cylinders.

Normal Sequence:
• Opener frame rises.
• A limit switch stops lift movement at field lift.

Set the circuit lever to Neutral.

Leave the LIFT switch in HALF position for normal planting passes.

Field Lift and Marker Fold (End of a Pass)

This sequence presumes that the Planter is lowered to field position, the LIFT switch is set to HALF, and (if installed and enabled by shut-off valve) a marker is deployed.

3. Move the circuit lever to Extend the lift cylinders.

Normal Sequence:
• Deployed marker folds.
• Opener frame rises.
• A limit switch stops frame lift movement at field lift.

Wait for both actions to complete, then set the circuit lever to Neutral.

WARNING

Crushing and Unexpected Marker Movement Hazards:
Never open the marker shut-off valve unless the Planter is fully lowered. Opening the valve with the Planter raised may result in immediate Planter lowering and marker deployment if the is equipment damage or malfunction. See page 25 for...
Field Lower and Marker Unfold
This sequence presumes that the Planter is raised to field lift position, the LIFT switch is set to HALF, and (if installed and enabled by shut-off valve) a marker is deployed.

4. Move the circuit lever to Retract the lift cylinders.

Normal Sequence:
• Opener frame lowers.
• A marker unfolds (if installed and enabled).
Wait for both actions to complete, then set the circuit lever to Neutral.

Marker Operations
It is not possible to operate the markers other than during a field lift or field lower (page 34). If the Lift/Lower steps are followed, one marker alternately folds on one side at each lift, and the other unfolds at each lower.

Dual Marker Operations
It is possible to deploy markers on both sides. This might be needed for special field passes, but can also occur inadvertently if a lift/lower is interrupted.

Two Markers Out
1. Perform a normal field lower/marker deploy (previous topic).
2. When the lowering stops, with the marker fully unfolded, briefly reverse the lever to Extend (lift), then back to Retract (lower).
3. The marker on the opposing side deploys. Hold at Retract until the marker is fully unfolded.

Folding From Two Markers Out
With two markers out, the next lift operation folds only one of them (the second one deployed). To fold the other marker, use either of two techniques:
• Perform a second lower, then a lift, or
• At full fold of the first marker, perform a brief Extend, then a Retract, to fold the other marker (and continue frame lift).

Overhead, Crushing and Sharp Object Hazards:
Do not allow anyone to stand under, near or beyond the end of opener frame during marker operations. There is risk of serious injury or death for anyone under the frame or in the path of a marker. Marker arms are heavy, are under tremendous hydraulic power, and may move suddenly if the hydraulic system is damaged or needs bleeding. Marker discs may be sharp.
Loading Seed

Machine S/N:
YP825AR with 3.0 bu Hopper (S/N C1047P+)
YP825AR with 1.6 bu Hopper (S/N C1050P+)

Refer to Figure 36

There are two different sizes of hoppers (3.0 bu and 1.6 bu) used in the serial number range listed above. The instructions for loading both hoppers are the same.

**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 37

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.

Figure 37
3.0 bu and 1.6 bu Hoppers

Figure 38
Hopper Lid Open For Loading
Refer to Figure 39

3. Install correct seed disks (page 77).
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 96.

! 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 116.

Refer to Figure 40

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:
YP825AR (S/N C1049P-)

Refer to Figure 41
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 ①: are held in place by a mounting plate ② and a draw handle ③.
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 42
1. Early production hopper lids ①: are held in place by two spring clips, one at each end ②. There is a molded handle at the rear end ③ of the hopper lid (although the lid is reversible).
2. Grasp the handle and snap lid off.

Refer to Figure 43
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 44

1. Install correct seed disks (page 77).
2. 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
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 96.

**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 116.

Refer to Figure 45

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.
Loading Liquid Fertilizer (Option)

Ground drive option - if liquid fertilizer will *not* be applied, lock-up the fertilizer ground drive (page 20), or disengage the chain on the pump drive.

System Inspection

1. Wear protective equipment suitable for the material presently in or previously dispensed from the tank(s).
2. Remove the lid on each tank and inspect for:
   - residual fertilizer incompatible with next use
   - contaminants
   - debris that might clog filters
   - trapped animals lost tools, etc.
3. If it is necessary to flush a tank, or remove debris too large to flush, see "Tank Clean-Out" on page 98.
4. Re-secure each lid.
5. At first use each season, and after extended use, check the strainer mounted under the pump. Perform any cleaning before loading fertilizer.
6. The standard screen size is 80 (Blue). Some orifice selections (step 9) require changing the strainer.

Tank Loading

Refer to Figure 46, and Figure 136 on page 134

Review the information below before commencing steps.

- Load chemicals immediately prior to use. Material loaded too early may sediment or stratify, resulting in uneven application or system plugging.
- Load on level ground. Fill is uneven across a slope on a dual-tank system. Unless valves are set to prevent it, material can flow from one tank to another.
- The tank is designed to be loaded using the 2 inch CAM quick-fill inlet ( ), located at the left front of the implement. If for any reason you cannot use that inlet, you can also load material via a ladder and tank top hatch. The lid is threaded and unscrews.
- Determine how to monitor tank fill level. If the day is bright, or loading at night with a bright light available, it is possible to see the fluid level through the semi-translucent tank walls. Otherwise, it is necessary to have an observer monitor through the tank hatch.
- Be familiar with the location of plumbing valves. Common task require setting as many as five Planter valves. See page 134.
- Consult the Seed and Fertilizer Rate manual (401-923B) for rate setting details.
- Set the Fertilizer drive sprockets and piston pump rate adjuster per the Rate charts.

![Figure 46](31996)

Quick-Fill Inlet

**Agricultural Chemical Hazard:**
Avoid contact with skin or eyes. Wear proper protective equipment as required by chemical manufacturer. Avoid prolonged breathing of chemical fumes. Wear respirator as required by chemical manufacturer. Some chemicals will cause serious burns, lung damage, and death. Seek medical assistance immediately if an accident occurs. Know what to do in case of accident.

**NOTICE**

Equipment Damage Risk:
Do not run the pump when dry. Remove the final pump drive chain if not applying fertilizer. Air rapidly corrodes the pump. When not pumping, fill the pump with clean water or RV antifreeze.

**NOTICE**

Equipment Damage and Plugging Risks:
Use only materials compatible with polyethylene and polypropylene. Use only pre-mixed liquid fertilizer. The system is not designed for dry fertilizer mixes. Granular fertilizer may damage the pump and plug orifices.

**NOTICE**

Equipment Damage Risk:
Do not leave fertilizer standing. Load late. Pump it all. Clean out the system. Fertilizer is usually extremely caustic, and can damage the piston pump if left standing. Also protect the pump from air. See “Liquid Fertilizer Clean-Out” on page 98.

Is it not possible to use the Planter pump to load material, as it only pumps when the Planter is in motion and is only plumbed to pump to the boom. If the fertilizer source has no pump, it needs to be elevated above the tank for gravity fill.
9. Install the recommended size orifice plate at each active drop line (Seed Rate manual).

**Quick-Fill Fertilizer Loading**

If loading via tank top hatch, see "Hatch Fertilizer Loading" (right column).

**Refer to Figure 136 on page 134**

1. Set the quick-fill shutoff valve to closed (1a):
   a. Handle to front: Closed: no flow at inlet
   b. Handle to Planter left: Fill: inlet open
2. Set selector valve to Quick-Fill (2a):
   a. Handle arrow to Planter left/front:
      tank-to-quick-fill path open
   b. Handle arrow to front/Planter right:
      valve closed: no flow at valve
   c. Handle arrow to Planter left/rear:
      tank-to-pump path open
3. Set each tank discharge valve to Operate (3a):
   a. Handle pointer left: Operate (tank fill or pump)
   b. Handle perpendicular to piping:
      valve closed: no flow to or from tank
   c. Handle arrow Planter right:
      clean-out: tank open to drain
4. Connect fertilizer supply to Quick-Fill inlet.
5. Open supply valve (if any) and check for leaks.
6. Alert observer to monitor tank fill level.

Although the lid is commonly removed to monitor fill level, it is not necessary to remove it for filling. The lid is vented, preventing back-pressure at normal fill and application rates.

7. Start source pump (if any).
8. Open Quick-Fill inlet valve.

   On dual-tank systems, particularly on unlevel ground, one tank may fill faster than the other. Reduce inlet rate to allow them to balance. If one reaches full before the other, set the full tank’s discharge valve to Closed to prevent overflow.

9. When tank(s) reach desired fill level, stop source pump (if any), close source valve (if any) and close inlet shut-off.
10. Disconnect supply line at Quick-Fill.
11. Close any tank lid removed.
12. If loading fertilizer prior to transport, set each tank discharge valve to closed (3b). This keeps any sedimentation out of the lines.
13. Set the selector valve to Pump (2c).

Fertilizer loading is complete.

See “Liquid Fertilizer Operation (Option)” on page 45. For pump adjustments, see the Seed and Fertilizer Rate manual (401-923B). For drop line orifice selection and installation, see Seed Rate manual.

**Hatch Fertilizer Loading**

If loading materials via Quick-Fill, see “Quick-Fill Fertilizer Loading” instructions (left column).

**Refer to Figure 136 on page 134**

1. Set the quick-fill shutoff valve to closed (1a):
   a. Handle to front: Closed: no flow at inlet
   b. Handle to Planter left: Fill: inlet open
2. Set selector valve to Quick-Fill (2a):
   a. Handle arrow to Planter left/front:
      tank-to-quick-fill path open
   b. Handle arrow to front/Planter right:
      valve closed: no flow at valve
   c. Handle arrow to Planter left/rear:
      tank-to-pump path open
3. For field loading, set each tank discharge valve to Operate (3a):
   a. Handle pointer left: Operate (tank fill or pump)
   b. Handle perpendicular to piping:
      valve closed: no flow to or from tank
   c. Handle arrow Planter right:
      clean-out: tank open to drain

   For pre-transport loading, set each tank discharge valve to closed (3b). This keeps any sedimentation out of the lines.

   On dual-tank systems, with both discharge valves open, loading one tank loads both tanks. To load tanks separately, close at least one discharge valve.

   On dual-tank systems with both discharge valves set to Operate, particularly on unlevel ground, one tank may fill faster than the other. Reduce inlet rate to allow them to balance.

4. Remove lid on tank to load.
5. Route supply line into tank.
6. Commence fertilizer flow.
7. When tank(s) reach desired fill level, stop source supply.
8. Close any tank lid removed.
9. If loading fertilizer prior to transport, set each tank discharge valve to closed (3b). This keeps any sedimentation out of the lines.
10. Set the selector valve to Pump (2c).

Fertilizer loading is complete.

See “Liquid Fertilizer Operation (Option)” on page 45. For pump adjustments, see the Seed and Fertilizer Rate manual (401-923B). For drop line orifice selection and installation, see Seed Rate manual.
Loading Dry Fertilizer (Option)

**WARNING**

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

Review and follow the general guidelines for safe handling, application, disposal and cleanup of chemicals on page 2 and page 4 of this manual.

**Refer to Figure 47**
1. Position the Planter facing into the wind, so that you are facing downwind while loading fertilizer.
2. Check that the fertilizer hopper mounts (1) are re-secured from any previous hopper clean-out. See “Dry Fertilizer Clean-Out” on page 99.
3. Check that meter clean-out doors are pinned closed. See “Dry Fertilizer Clean-Out” on page 99.
4. Release rubber latches (2) at hopper front. Swing lid back until internal bungees hold it open.
5. Inspect the hopper for leftover prior materials and debris. Clean out as necessary.

**Refer to Figure 48**
6. Make auger adjustment for High or Low rate. See “Dry Fertilizer Rate” in the Seed and Fertilizer Rate Manual (401-923B).
   For low fertilizer rates, set augers as shown at (3).
   For high fertilizer rates, set augers as shown at (4).

**NOTICE**

**Loss of Time Risk:**
Before adding fertilizer make sure that augers are rotating correctly and are positioned for your desired rate range setting.
7. Fill hoppers with fertilizer.
8. Close lids and secure both latches on each lid.
Loading Dry Fertilizer (Twin Row)

Loading liquid fertilizer is found on page 40.

If fertilizer will not be applied, uncouple the fertilizer meter shaft at the left end of the left hopper. Pin the coupler clear of the shaft joint.

Loading fertilizer prior to transport is not recommended. Although the meters are not turning during transport, it is possible for some material to spill through the meters, particularly on rough roads.

**Suitable Materials**

Use only dry granular fertilizer. Granules must flow freely, and must have a maximum diameter smaller than 7 mm (to avoid bridging clogs in the applicator tube outlets).

---

**CAUTION**

*Agricultural Chemical Hazard:*

Wear protective equipment suitable for the material to be used, and the material previously dispensed from the hoppers. Avoid contact with skin or eyes. Avoid breathing dust.

**System Inspection**

Verify that both rear cradle pins are installed on all hoppers. See Figure 121 on page 99.

*Refer to Figure 49*

Remove the lid on each hopper and inspect for:

- residual fertilizer incompatible with next use
- contaminants
- debris that might clog the meter inlets
- trapped animals lost tools, etc.

If it is necessary to clean a hopper, see "Dry Fertilizer Clean-Out" on page 99.

**Hopper Lid Operation**

*Refer to Figure 50 and Figure 52*

To unlock the hopper lid, lift the rubber latches out of the metal keepers.

The keeper hardware tends to snag under the hopper lip. Pull the lid edge forward and lift.

*Refer to Figure 51*

To open the lid, lift the front edge up and slide the lid back into a vertical position behind the hopper. The lid is held by retaining straps.

*Refer to Figure 50, 51 and 52*

When closing the lid make sure that:

- the rear catch plates are under the hopper rear lip,
- the keeper hardware is under the front lip, and
• the ball of each rubber latch is seated in the keeper.
   (If only the handle “T” is seated, the lid is not secure.)

Dry Fertilizer Operation (Option)

Great Plains recommends checking with your local agronomist prior to setting the rate, as soil conditions vary.

On ground drive Planters, the fertilizer meters are driven from the same ground drive that powers the seed metering system. On hydraulic drive Planters, the fertilizer meters are driven by a dedicated ground drive.

When the Planter is lowered and in motion, the fertilizer meters operate, and fertilizer is applied based on the rate controlled by the selection of fertilizer transmission sprockets. Sprocket selection is the same for shared or dedicated fertilizer ground drive.

See the Seed and Fertilizer Rate manual (401-923B) for rate charts and detailed information on rate setting.

The outlets of the fertilizer meters are normally connected to fertilizer drop tubes at the dry fertilizer coulters. See page 62 for adjustment of drop tube height and angle.

Refer to Figure 53

If fertilizer will not be applied, disengage the drive coupler at the left end of the left fertilizer hopper:

1. Remove the pin from the coupler.
2. Slide the coupler left, completely off the driven shaft, and clear of both the shaft gap and the pin hole in the driving shaft.
3. Re-insert the pin in the driving shaft (not through the coupler). Secure pin to shaft with wire bail.

To restore fertilizer drive operation, first rotate the driven shaft to align its pin hole with the hole in the coupler. Slide the coupler right. Re-insert pin through both coupler and driven shaft. Secure pin with wire bail.

NOTICE

Material Loss / Machine Damage Risks:
Pin coupler clear of shaft gap. It may be possible to insert the pin through both the coupler and the driving shaft. Do not do this. This may leave the coupler and driven shaft in contact. Field motion could cause the meters to operate. The coupler and driven shaft could also be damaged.
Liquid Fertilizer Operation (Option)

Ground Drive

The pump is driven by a dedicated ground wheel tire. When the ground wheel arm is unlocked, the Planter is lowered and in motion, the pump operates, and fertilizer is applied based on fertilizer transmission sprockets and pump adjuster setting.

Great Plains recommends checking with your local agronomist, as soil conditions vary. Conditions in your area may need less or more fertilizer than represented in the charts. For in-furrow applications, do not exceed 12 gallons per acre in any case.

The liquid fertilizer system is designed to operate (ideally) between 15 and 40 psi. Several system elements affect system pressure, and need initial setup, periodic maintenance, and adjustment when changing seed rates.

These steps presume that fertilizer has been loaded (and other setup items completed) per “Loading Liquid Fertilizer (Option)” on page 40 and page 41 (and per the Seed and Fertilizer Rate Manual 401-923B).

Refer to Figure 136 on page 134

1. Confirm Quick-Fill inlet valve (2) Closed: handle to Planter left.
2. Set selector valve (3) to Pump: handle to Planter rear.
3. Set tank discharge valves (4) to Operate: handles toward plumbing to selector valve.
4. If relief valve (2) has not been previously adjusted, perform initial setting per page 60.

Prime the fertilizer system before filling meter disks (to avoid wasting seed, as it usually takes more than one meter revolution to fill the boom).

5. Shut off the fan.
6. On suitable ground, lower the Planter.
7. Pull forward until the fertilizer gauge (1) registers some back-pressure from the boom.
8. Open row slide gates and meter shutters.
9. Monitor the fertilizer gauge. Make relief valve adjustments per page 60.
10. Mind the fertilizer tank levels while planting, both to:
    a. confirm expected consumption rate, and;
    b. avoid running the pump dry.
11. If residual fertilizer is not recovered at end of planting, apply it to the last field planted. Turn fan off to prevent metering seed or remove a meter drive system chain. Optionally lock up rows to reduce row unit wear (page 79).
12. Clean out fertilizer system per page 98.
Air System Operation

Figure 54
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</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>
<tr>
<td>(6) Row Pressurizing Tube</td>
</tr>
<tr>
<td>(7) Seed Inlet Shutter</td>
</tr>
<tr>
<td>(8) Seed Pool (Figure 55)</td>
</tr>
<tr>
<td>(9) Disk Seed Pocket (Cell)</td>
</tr>
</tbody>
</table>
Air and Seeding System Overview

Refer to Figure 54, on page 46, and Figure 55.

The hydraulic fan (1) supplies air exclusively for meter operation. Fan rpm is operator-adjusted (page 49), normally via the tractor circuit’s hydraulic flow control.

A manually-adjusted butterfly valve (2) is provided at the fan outlet. See page 49 for valve adjustment.

The manifold system (3) delivers fan air across the Planter. It includes passive internal design features to balance pressure across the Planter.

Separate pressurization tubes (4) route manifold air to each row unit.

Seed is delivered from the seed box (5) by gravity to the inlet of the Air-Pro® Seed Meter (6).

A manually adjusted inlet shutter (7) controls the size of the seed pool (8) 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 75 for shutter adjustments.

At the meter, pressurization air exits the meter through the seed pockets (9) of the disk, and holds seed in the pockets until released above the seed tube (10).

In the seed tube, the seed sensor (11) 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 (12) for the meter pressurization system. A line (13) from each of these rows is connected to a chamber (14) to average the pressures.

The averaged pressure is reported by a Magnehelic® Gauge (15) visible to the tractor operator. See page 57 for use of the gauge in making fan adjustments.

A sensor (11) in each seed tube reports seed passage to the seed monitor. Larger seeds are counted individually. For smaller seeds, the system acts as a blockage monitor.

Use of the special blank disk (page 79), and closing the seed inlet shutter (page 75), are particularly important when a sensor row is shut off.

On any row, running a normal disk 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 Gauge Adjustment" on page 57.

Refer to Figure 56

Operating flow

Shut-off flow (fan coasting to stop)

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 16.

1. Connect the motor return line to remote circuit return (Extend port) or to sump.

The Planter includes a pressure-relief QD coupler for the return line. This prevents motor damage in the event that the return line is not connected, or is connected incorrectly; however, an oil spill results if the return line is not correctly connected.

2. Connect the motor inlet line to a tractor remote capable of 20 liters per minute. If a priority remote is available, use it for the fan.

3. 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 ⑤. 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 butterfly valve (and not the seed monitor).

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

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.

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.
Fan General Operating Information

Adjust the fan to provide the meter pressurization recommended for the seed disk, seed, and seed density. See the tables and charts for recommended values in the Seed Rate Manual.

Normal gauge readings are in the 0.8 to 4.0 inches of water pressure range, and vary considerably with crop.

Refer to Figure 58

Use tractor remote hydraulic valve flow control to set fan speed and butterfly valve adjustment to make fine adjustments to meter pressurization. Precise technique depends on tractor capabilities:

- The objective is to obtain recommended meter pressurization, and maintain it during end-of-pass marker fold, lift and turn.
- For any setup adjustment, operate the tractor engine at typical field rpms, and not at idle.
- Preset the butterfly valve. Use any setting that you previously developed for the crop/disk/range (see Note at right), otherwise:

  If the tractor has fine control of remote flow rates, and consistent flow at varying tractor engine rpm, initially set the butterfly valve to 30° or less.

  If the tractor has only coarse control of flow, initially set the butterfly valve to 45°.

- Set the fan circuit flow to bring the gauge reading to near the recommended value.
- Fine tune the meter pressurization with the butterfly valve.
- If the tractor has marginal flow available, or the list circuit has priority, you may need to experiment with combinations of fan flow and butterfly valve settings.

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 require 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 Operation:

To adjust, loosen bolt 1 and rotate the handle 2. Re-tighten bolt.

0° is wide open - maximum air flow.

90° is closed - minimum air flow.

The valve provides the most effect at settings between 20° and 70°.

Starting at 30° reduces the fan workload.

Starting at 45° provides the most adjustment range up or down.

You may find that different crop, seed disk and rate range combinations need different valve settings. If so, make a note of the valve angle on the chart in the Seed Rate manual.

Low Population Risk at Turns:

Unless the PTO pump accessory is installed, 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 disks. 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 59

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 79).

Seed is air-delivered to the inlet above the air release screen (1). Seed customarily fills to the top of the screen, blocking further air flow from the seed delivery system, until the seed level falls below the screen.

Seed enters the meter at the seed inlet shutter (2) (if open), and forms a seed pool (3) at the base of the meter. Seed pool size is controlled by the shutter handle (4) 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 (5), and exits the meter primarily at the seed pockets in the seed disk. The pressure differential holds seed in the disk pockets (6) rising from the seed pool. Excess seed at a pocket is picked off by the tickler brushes (7).

The strip and drop brushes block meter pressurization air. Seeds passing the drop brush (8) are free to fall into the seed tube, and are detected by the seed sensor (9).

Meter Operation

1. Install disks for your crop/population range per the Seed and Fertilizer Rate Manual and the instructions beginning on page 77 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 79) and close shutter.
3. Set sprocket indexing if staggering a twin-row crop (see Seed and Fertilizer Rate Manual for details).
4. Operate fan to achieve suggested manifold pressure (Seed and Fertilizer Rate Manual, and page 57).
5. Open slide gates to fill meters.
6. 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).
7. Leave fan running (to keep seed in top pockets). Re-install rain covers. Commence planting. Meter operation is automatic from this point on.

See also:
"Seed Pool Troubleshooting" on page 85,
"Meter Clean-Out" on page 97, and
"Meter Brush Maintenance" on page 101.
Field Set-Up Checklists

Use the following tables to develop a final checklist for your tractor/Planter configuration. Additional or fewer steps may be necessary depending on tractor features, Planter options and planting accessories.

### Mechanical Checklist (Hitching) - Page 14

- Planter hitched
- Safety chain secured to tractor
- Parking jack stowed

### Electrical Checklist - Page 15

- Verify electrical hookups solid
- Check seed monitor terminal and observe any diagnostic messages
  - a. Refer to monitor manual.
- b. Option: Verify that, when Planter is lowered, optional radar speed sensor is pointed at ground, at an angle approximately 35° below horizontal.

### Air System Checklist - Page 49

- Fan butterfly valve set
- Seed loaded. Lids closed.
- Meter shutters open to chart value
- 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

### Planter Meter Drive Checklist - Page 104

- Check chain lubrication and slack
- Calibrate speed sensor pulses with Planter lowered.
- Seeding: Set/check Range and Transmission against rate chart
  - a. Refer to seed monitor manual.
  - b. Refer to Seed and Fertilizer Rate Manual.

### Hydraul System Checklist - Page 16

- Check tractor hydraulic reservoir full
- Fan return
- Fan motor pressure side (retract)
- Inspect connections for leaks
- Perform a raise and lower operation
- a. Operate fan briefly. Observe rotor blades spinning toward exit port as fan slows to a stop.

### Mechanical Checklist (post-Hitching) - Page 34

- Raise Planter.
- Disengage transport locks
- Front-to-rear level
- Marker extension set
- Marker disc angle set
- Markers folded (unless already at start of first planting row)

### Row Units Checklist - Page 72

- Preset depth handles alike.
- Preset down force springs alike, except in tracks.
- Option: Set all unit-mounted coulters to 1/4 in. shallower than opener blades.
- Check coulter alignment to row
- Check closing wheel alignment
- Set press wheels alike, except in tracks.
- Check action and contact of side depth wheels
- Check wheel scraper gaps (if installed)

### Liquid Fertilizer (Option) Checklist - Page 70

- Check for correct orifice plates
- Check relief valve setting
- Fill system with 100 gallons of water, and check for leaks
- Check all row unit lines connected, free of kinks, and discharge tube/nozzles clear
- Set valves for operation

a. Refer to Seed and Fertilizer Rate Manual.
Perform all steps in “Pre-Start Checklist” on page 21 and “Field Set-Up Checklists” on page 51.

### Field Operation

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

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<td>Install correct DRIVING and DRIVEN sprockets for desired fertilizer rate</td>
<td>a</td>
</tr>
<tr>
<td>Check and adjust applicator tubes</td>
<td>62</td>
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<td>Load fertilizer at field</td>
<td>42</td>
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<tr>
<td><strong>a.</strong> Check Seed and Fertilizer Rate Manual.</td>
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<tr>
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<td>Corn? Check timing of meters for twin-row</td>
<td>a</td>
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<tr>
<td>Check chain tension. Re-connect any loose idler tensioning springs.</td>
<td>-</td>
</tr>
<tr>
<td>Correct disks for seed</td>
<td>a</td>
</tr>
<tr>
<td>Start fan. Operate at field manifold pressure.</td>
<td>48</td>
</tr>
<tr>
<td>Rotate meter drive shafts one turn disks with seed.</td>
<td>50</td>
</tr>
<tr>
<td><strong>a.</strong> Refer to Seed and Fertilizer Rate Manual.</td>
<td></td>
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### First Pass Operation Checklist

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<thead>
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<tr>
<td>2. Meter shutters set.</td>
<td>50</td>
</tr>
<tr>
<td>3. Raise Planter and line up at start of first planting row.</td>
<td>34</td>
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<tr>
<td>4. Prime meters with seed. Leave fan running.</td>
<td>50</td>
</tr>
<tr>
<td>5. Pull forward, lower Planter, unfold marker and begin planting for a short distance.</td>
<td>34</td>
</tr>
<tr>
<td>6. 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>- fertilizer application (if in use)</td>
<td></td>
</tr>
<tr>
<td>7. Make necessary adjustments</td>
<td>54</td>
</tr>
<tr>
<td>8. Resume planting.</td>
<td>-</td>
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### Sharp Field Turnsa Checklist

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<tbody>
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<td>2. Make turn</td>
<td></td>
</tr>
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<td>3. Lower Planter, unfold marker</td>
<td>35</td>
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<td>4. Resume planting.</td>
<td></td>
</tr>
<tr>
<td><strong>a.</strong> Monitor manifold pressure during end-of-pass operations and turns. Adjust operations as needed to maintain meter pressurization.</td>
<td></td>
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### Suspending Planting Checklist

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<tr>
<td>3. Hydraulic drive circuit to Float or Neutral</td>
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<td>4. Raise Planter, fold marker</td>
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### Ending Planting Checklist

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<tr>
<td>1. Suspend operations as above, then</td>
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<td>2. Fold Planter</td>
<td>30</td>
</tr>
<tr>
<td>3. Lights ON</td>
<td>-</td>
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<tr>
<td>4. Transport</td>
<td>22</td>
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</table>

Consult seed monitor for alarms during planting. Check that reported rates are consistent with your plan.
Short-Term Parking
1. Choose a location with level firm ground. Do not unhitch on a steep slope.
2. (Option) Close discharge valves at fertilizer tank(s).
3. Fold Planter (page 30).
4. Set hydraulic circuits to neutral.
5. Disconnect hydraulic lines. Secure them so that they do not touch the ground.
6. Disconnect electrical cables, capping where provisioned.
7. Move jack from storage position to side of tongue.
8. Slightly raise tongue with jack.

Long-Term Storage
1. If a liquid fertilizer boom system is installed, see “Liquid Fertilizer Clean-Out” on page 98.
2. Complete Parking steps (page 53). Park the Planter indoors if possible. Great Plains recommends parking/storing in the raised position with transport locks in place.
3. See “Material Clean-Out” on page 96. Clear all seed from seed container, air box, seed delivery system and meters.
4. Secure hopper lids.
5. 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.

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.

6. Tie or tape a small plastic bag over ends of all seed delivery tubes to prevent insects from entering or nesting.
7. 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 97, for more information.
8. Clean Planter of mud, dirt, excess oil and grease.
9. Lubricate all points listed in Maintenance.
10. Apply grease to exposed cylinder rods to prevent rust.
11. Inspect Planter for worn or damaged parts. Make repairs and service during off season.
12. Use spray paint to cover scratches, chips, and worn areas on the Planter to protect the metal.
13. Cover Planter with a tarp if stored outside.
Adjustments

To get full performance from your planter, you need an understanding of all component operations, and many provide adjustments for optimal field results. Some of these 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.

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a. SRM: Seed and Fertilizer Rate Manual (401-923B)
b. PM: DICKEY-john® Planter Monitor Operator Manuals
Setting Material Rates

Full details (and charts) for seed and fertilizer rate setting are found in the Seed Rate Manual (401-923B). The following is an overview.

Planting Rate

Rate adjustment method depends on the meter drive type.

Rate is also dependent on the cell count of the seed disk installed. The disk must be appropriate for the crop. There may be a choice of cell counts, corresponding to a High or Low rate.

Correct and consistent seeding rate further requires:
- monitor setup,
- speed calibration,
- adjustment of meter pressurization and
- setting the seed inlet shutter at each meter.

Although the seed monitor reports a computed population based on seeds sensed, only an actual furrow check provides certainty about the actual seeding rate. See the Seed and Fertilizer Rate Manual.

Planting Rate: Ground Drive

Ground drive rate is set and adjusted by Range and Transmission sprockets. Sprocket pairings are given by tables in the Seed Rate Manual. There are no adjustments at the ground drive assembly.

The seed monitor reports the resulting field rate for most seed types. For very small seeds, the monitor acts as a blockage detector.

Planting Rate: Hydraulic Drive

Hydraulic drive rate is set and adjusted by the seed monitor, which controls a hydraulic motor on the Planter. The seed monitor also reports field rate (or blockage, in the case of very small seeds).

Dry Fertilizer Rate

The dry fertilizer system is driven by the main ground drive. Changes in seed rate do not affect fertilizer rate. If the Planter has hydraulic drive, the dry fertilizer system has a dedicated ground drive.

Dry fertilizer rate is set and adjusted by a driving/driven sprocket pair. Sprocket pairings are given by tables in the Seed Rate Manual. Sprocket pairings are the same for both the shared or dedicated ground drive.

On single-row Planters, augers in the hoppers must also be set, per the charts, to correspond to whether the general rate is Low or High.

The seed monitor does not report dry fertilizer rate or blockage.

Liquid Fertilizer Rate

Ground Drive

The liquid fertilizer system is driven by a dedicated ground drive. Application rate is set by a Range sprocket pairing, and pump adjuster scale.

Consistent application requires installation of specific size orifice plates at each row unit drop line. The Planter includes plate sets in three commonly used sizes.

The seed monitor does not report liquid fertilizer rate for ground drive.

Variable Rate Hydraulic Drive

Refer to your DICKEY-john® Manual.

---

a. The seed monitor must be CANbus-compatible, such as a DICKEY-john® IntelliAg®, to perform this function. The DICKEY-john® PM300 Monitor cannot control a hydraulic drive.
Marker Adjustments (Option)

See also:

- "Initial Marker Setup (Option)" on page 149 for marker speed and marker extension
- "Marker Operations" on page 35; and,
- "Marker Maintenance (Option)" on page 107 for marker shear bolt and marker hydraulic bleeding

Marker Disk Adjustment

⚠️ CAUTION

**Sharp Overhead Object and Pinch/Crush Hazards:**

Never allow anyone near the Planter when folding or unfolding the markers. Markers may fall quickly and unexpectedly if the hydraulics fail. Anyone beneath may be injured if hit by an unfolding marker, or caught in a folding marker.

⚠️ CAUTION

**Sharp Object Hazard:**

Use caution when making adjustments in this area. Marker disks may be sharp.

Refer to Figure 60

Markers are equipped with a marker disk adjust mount 3 which gives the marker added capability of up/down direction of movement.
Fan and Gauge 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 75).
2. With fan off, check meter pressurization reported by the Magnehelic®a gauge. If not zero, re-zero as needed.
3. Determine the recommended meter pressurization based on your own notes or the published value in the Seed Rate Manual.
5. Start the fan. Gradually increase fan speed using the tractor's hydraulic flow control for the circuit, or in the case of a PTO pump, using the PTO flow control. Using hydraulic flow and/or the butterfly valve, adjust meter pressurization to the developed or suggested value from step 3.

If the Planter has PTO hydraulic drive (presently off), check the fan rpm on the seed monitor. Increase hydraulic flow to raise fan speed by 150 rpm. The fan loses 150 rpm when hydraulic drive is engaged.

6. Rotate ground drive wheel to fill meters, or perform a FILL DISK operation with hydraulic drive. 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 openers, 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 seed monitor alarms.
9. During the first pass, take note of the average populations reported on the seed monitor. If the reported seed monitor population varies from your intentions by a significant amount, it is imperative to perform a furrow check.

For serious variances with no obvious cause, see "Population Troubleshooting Charts" on page 87.

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 14).

---
a. Magnehelic® is a registered trademark of Dwyer Instruments, Inc.
14. 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.

   Insufficient meter pressurization, or unusually rough fields, can increase the incidence of empty pockets. Be sure to rule out other causes (such as skipping chains, meter starvation, incorrect meter disks) before adjusting meter pressurization to reduce apparent skips.

15. 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.

   Excess meter pressurization can increase the incidence of doubles. Be sure to rule out other causes (such as incorrect meter disks) before adjusting meter pressurization to reduce doubles.

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.
Liquid Fertilizer Adjustments (Option)

This section is a summary. For detailed instructions, as well as fertilizer rate and orifice sizing charts, see the Seed Rate Manual (401-923B).

⚠️ DANGER

Agricultural Chemical Hazards:
Avoid contact with skin or eyes. Wear proper protective equipment as required by chemical manufacturer. Avoid prolonged breathing of chemical fumes. Wear respirator as required by chemical manufacturer. Some chemicals will cause serious burns, lung damage, and death. Seek medical assistance immediately if accident occurs. Know what to do in case of accident.

Great Plains recommends checking with your local agronomist as soil conditions vary. Soil conditions in your area may need less or more fertilizer than represented in these charts. For in-furrow application, do not exceed 12 gallons per acre in any case.

Ground Drive

Rate is positively set by the drive system and pump. Adjustments to orifice plates must also be made to provide back-pressure keeping the boom within a specific pressure range to assure consistent delivery.

Ideal manifold pressure is between 15 and 40 psi.

A check valve at each nozzle prevents flow below approximately 8 psi, preventing boom drainage during turns and non-planting moves. Operating at pressure too low may cause some nozzles to close, resulting in uneven flow row to row.

A relief valve at the boom inlet protects the system from over-pressure. Above approximately 65 psi, material is diverted to a dump line.

There are three adjustments for the liquid fertilizer system components:

1. Fertilizer Rate:

   A fertilizer transmission sprocket pairing (Figure 63) selects one of two rate Ranges.

   An adjuster at the pump (Figure 64) provides fine control of flow rate. Although the pump shares the ground drive with seed metering, fertilizer rate is unaffected by seed rate or ground speed.

   See the Seed and Fertilizer Rate Manual for charts and detailed setting instructions.
Row Orifice Setup

*Refer to Figure 65*

Orifice plate sizes are chosen to assure consistent pressure at all nozzles, with the 15-40 psi range. See the Seed and Fertilizer Rate Manual for sizing and installation.

Unused rows may be shut off by exchanging the nozzle for a cap. Plates at the active line usually need to be changed at shut-off or turn-on. See the Seed and Fertilizer Rate Manual for details.

**NOTICE**

*Material Loss or Misapplication Risks:*

Orifice size must be appropriate for rate selected. Drop line orifice plates do not affect rate. If orifice size is too small, over-pressure in system may result in material loss at relief valve. An orifice size too large may result in uneven application across all rows.

*When shutting off rows, review orifice sizing.*

---

**DANGER**

*Agricultural Chemical Hazard:*

Wear protective gloves when exchanging orifice plates.

---

Relief Valve Setting

*Refer to Figure 66*

See the Seed and Fertilizer Rate Manual for details on setting the relief valve.

Once set for a given fertilizer density, the valve only requires seasonal review.

During operations, monitor the gauge and the dump line. Watch for the following conditions:

- A reading below 15 psi usually indicates a need for a smaller orifice size.
- A reading in the ideal 15-40 psi range, but with material appearing at the dump line, indicates a need to increase the operating pressure of the valve.
- A reading at or near 65 psi, with material appearing at the dump line, usually indicates a need to increase orifice size (or plugged orifices).
- A reading above 65 psi indicates a need to reduce the operating pressure of the valve.

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*Figure 65*

Fertilizer Drop Line Nozzle

*Figure 66*

Fertilizer Relief Valve
Dry Fertilizer Adjustments (Option)

Refer to Figure 67

**NOTICE**

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

Use the following instructions to check the exact number of kilograms your fertilizer attachment delivers on a 70 cm or 75 cm row spacing.

1. Adjust for your fertilizer density (see Seed Rate Manual 401-923B).
2. Consult the Fertilizer Rate charts (see Seed Rate Manual 401-923B).
3. Install the Driving ① and Driven ② sprockets called out in the chart.
4. Remove a hose from one of the fertilizer hoppers and attach a container under the opening.
5. Engage the fertilizer attachment and drive forward: 14.29 m (49 feet) for 70 cm row spacing 13.33 m (43 feet 8 inches) for 75 cm row spacing.
6. Weigh the amount of fertilizer caught in the container and multiply that amount by 100. The result is the kilograms of fertilizer delivered per hectare.

**Single-Row Augers**

Dry fertilizer hoppers with a single outlet at each end have adjustable augers for delivering material to the outlets. Twin-row Planters do not have this feature.

Refer to Figure 68

**NOTICE**

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

For low fertilizer rates, set augers as shown at ③.
For high fertilizer rates, set augers as shown at ④.
Dry Fertilizer Applicator Adjustments (Option)

There are three inter-related adjustment for Vantage I applicators:

- release height
- release angle and setback

ℹ️ Make coulter adjustments before making applicator adjustments.

Applicator Release Height

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

NOTICE

Machine Damage Risk:
Do not position the applicator mounting bolt in either of the top two holes. This would leave the torsion spring leg unsecured. The applicator angle could vary. The applicator might strike the coulter disk.

NOTICE

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

Applicator Release Angle

Loosen the clamping bolts, and rotate the applicator arm at the coulter arm.

ℹ️ Changing applicator angle also changes applicator release height.
Row Implement Adjustments

To get full performance from your Planter, you need a good understanding of row cleaner, coulter, fertilizer, opener, meter, seed firmer, and press wheel operation.

Frame-Mounted Row Accessories

Terra-Tine™ Adjustment

Refer to Figure 70

All adjustments must be made with the unit in the fully raised position.

**NOTICE**

Excess Wear Risk:
Check that the Terra-Tine™ Row Cleaner tines DO NOT touch the coulter blade or any other attachments. At least 1/2 inch (13 mm) clearance is recommended. Tine contacts cause excess wear to all parts involved.

1. When the blade is out of the soil, adjust the lock collar height to set the height of tine fingers flush with the bottom of coulter blade.

2. Side-to-side alignment can be done by rotating the shank mount around the vertical shaft and tightening the square head set screw.

Refer to Figure 71

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

Refer to Figure 72

At the shaft ①, adjust the coulter depth for a running depth ② of 4 to 4 1/2 inch (10.2 to 11.4 cm) below ground level if off row, if on row as a no-till coulter operate at planting depth only ③. Refer to the Vantage I manual (204-376M) for further adjustments.

Do not adjust the spring ④ tension. It is factory pre-set.

Vantage I Liquid Fertilizer Applicator

Refer to Figure 73

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

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

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

**Refer to Figure 74**

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

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

The recommended gap ③ between the delivery tube exit port and the disk blade is 1.6-3.2 mm (1/16-1/8 inch).
25AP Series Row Unit Adjustments

Refer to Figure 75 (which depicts a row unit populated with most optional accessories supported for use with the 401-923B)

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** (Hole Standard)
   See “Row Unit Shut-Off” on page 79.

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 67.

3. **Meter Pressurization Air Inlet** (Standard)
   Pressure-regulated air enters the meter here and holds seed in the disk pockets. See “Fan and Gauge Adjustment” on page 57.

4. **Seed Delivery Hose Inlet** (Standard)
   When the hopper slide gate (not shown) is open, gravity carries the seed into the meter at the shutter ©. The hose is easily removed for inspection. There are no adjustments.

5. **Air-Pro® Seed Meter** (Standard, Choice of Disks)
   See “Air-Pro® Meter Disk Installation” on page 77.

6. **Seed Inlet Shutter** (Standard)
   This controls the level of bulk seed at the disk. There are four operating settings, plus fully open (clean-out) and fully closed (shut-off or storage). See “Seed Inlet Shutter Adjustment” on page 75.

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 73.

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 82.

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 79.

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 69.

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 “UMC Coulter Adjustments” on page 70.

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 72.

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 74.

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 81.

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 76

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 77

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 78

Row unit springs provide the primary down pressure necessary for row unit disks to open a seed trench. The weight of the (empty) row units themselves contributes about 130 pounds (59 kg) of the total force. Seed load adds up to 96 pounds (44 kg) more.

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 \( \circ \) 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 rows.

Use only enough down pressure to cut the seed trench and maintain proper soil-firming over seed. With a full seed load, the force on each row is up to 72 pounds (33 kg) higher at start of planting.

Excessive row unit spring force will lead to premature wear on row unit components and uneven seed depth. If all rows are set to cam 6, some Planter configurations could be lifted out of correct ground alignment.

To adjust down pressure, use a 1 1/8 inch (29 mm) open end wrench or the tool \( \circ \) stored at the left end of the Planter.

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.
3. Put tractor in Park and shut it off.
4. Position wrench on the fixed nut \( \circ \) near or slightly forward of vertical.
5. Pull upper spring link \( \circ \) back.
6. Move the adjustment cam \( \circ \) to the new setting on the spring adjust bar \( \circ \).

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.

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- \[ \text{Adjustments} \]
Unit-Mount Cleaner Adjustments

Refer to Figure 82 and Figure 83

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 on the mount adjusts the depth. In UMC-RC (coulter) mount, a sliding down-stop block 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 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 on UMC-RC. Remove bent pin on UMRC.
3. Support arm at desired height.
4. UMRC: Slide adjustment tube until cross-tube contacts arm at target height. Insert bent pin in whichever hole pair is most in alignment.
5. UMC-RC: Slide the down-stop on the arm:
   - back toward the pivot for shallower cleaning, or
   - forward toward the tines for deeper cleaning.
   Tighten the bolts. Each possible hole pairing adjusts the tine height by about \( \frac{3}{4} \) inches (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.

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

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

UMC Coulter Depth Adjustment

The ideal operating depth for coulters is \(1/4\) 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 three mounting holes arranged in a staggered pattern in the coulter bracket.

Refer to Figure 84 and Figure 85

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 \(1/4\)-inch-above depth. See the table below.
4. Remove the \(5/8\)-11 x 4 inch bolt, lock washer and nut (\(\text{\#7}\) in Figure 84).
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>1</td>
<td>(1/4) inch (6.4 mm) above opener</td>
</tr>
<tr>
<td>2</td>
<td>(1/8) inch (3 mm) below opener</td>
</tr>
<tr>
<td>3</td>
<td>(1/2) inch (13 mm) below opener</td>
</tr>
</tbody>
</table>

Figure 84
Short Unit-Mounted Coulter

Figure 85
Coulter Blade Mounting Holes
Coulter Row Alignment

Refer to Figure 86
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 ①, the gap between the opener blades ②, and the center-line between the press wheels ③. 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 82 for press wheel alignment.

Refer to Figure 87
To adjust coulter alignment, loosen the four bolts ④ 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 73)

Setting Planting Depth
Refer to Figure 88
The “T” handle 1 sets planting depth by limiting the how high the side depth gauge wheels ride relative to the opener disks. The position of the seed tube itself is fixed relative to the disks, and is not adjusted.

To adjust seed depth, pull the “T” handle 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 89 and Figure 90
Opener disc angle and stagger is not adjustable, but disc-to-disc spacing is, and may need attention as discs experience normal wear. Spacers will need to be reset when blades are replaced.

The ideal spacing causes the blades to be in contact for about one inch 4. If you insert two pieces of paper between the blades, they should slide to within zero (touching) to 1.5 inches (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
1. Raise the Planter and install lift cylinder locks.
2. Remove the side gauge wheels 5 on the row unit in need of adjustment.
3. Remove the bolt 6 retaining the opener disc 7 on one side. Carefully remove the disc. Do not lose the hub components and spacer washers 8, 9.
4. To reduce the spacing between the discs (the normal case), move one spacer washer from the inside 6 to the outside 9 of the disc.
5. Re-assemble and check disk contact.
Side Gauge Wheel Adjustment

Refer to Figure 91 and Figure 92

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.

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 94 on page 74

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 93

5. Check wheel-to-disk contact at 2 inches (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:
  1/2 inch Grade 5 bolt on 25 series,
  75 foot-pounds (102 N•m).
  1/2 inch Grade 8 bolt on 25 series,
  110 foot-pounds (149 N•m).

  Use “Torque Values Chart” on page 133 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 foot-pounds (149 N•m).

Adjusting Gauge Wheel Scrapers

Refer to Figure 95

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

To adjust scrapers:
1. Loosen nut ⑤.
2. Slide scraper ⑥ toward gauge wheel ⑦ until scraper touches tire.
3. Slide scraper ⑥ away from wheel ⑦ leaving a 1/8 inch (3 mm) gap at ⑧.
4. Rotate scraper left and right around bolt, making sure it cannot touch tire if bumped in field. If it can touch tire, back scraper away from wheel until it cannot.
5. Center scraper angle on bolt ⑤ until gap ⑧ is constant.
6. Tighten nut ⑤.
Seed Meter Setup and Adjustment
There are adjustments for seed inlet, and choice of disks. 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 disk pockets. It also keeps precipitation, sunlight and field debris out of the meters.

Refer to Figure 96
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 97 (showing the shutter at setting 3)

The seed inlet shutter regulates the volume of bulk seed presented to the seed disk. 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 disk.

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></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></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 98

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 99 and Figure 100

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-to-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 seed 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 inlet bridging is not the problem, little or no seed flows into the meter with the shutter open wider. In this case, the problem is further up in the seed flow, and may be bridging where the seed hose joins the meter inlet (also check the slide gate). Close the shutter completely for about 15 seconds. This prevents meter pressurization air from opposing seed delivery. Gently tap on the seed inlet. Re-open the shutter and see if seed now fills the meter.

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.

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 Disk Installation

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

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

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

3. Remove meter rain cover (page 75).

Refer to Figure 101 (depicting an empty meter)
4. Inspect meter (see page 101 for details).

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

Refer to Figure 102
6. With the seed pocket side facing the meter housing, place the new seed disk on the disk seat.
7. Rotate disk clamp ① clockwise 45° to clamp disk. Clamp seats into detents ③ in disk hub.

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

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

**NOTICE**
**Brush Mis-Seating Risk:**
*Rotate disks forward shortly after disk installation. If planting is not anticipated within an hour or two of disk 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. With the Planter raised, rotate the ground drive wheel, or rotate the meter drive shaft, top forward, with a 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 seed monitor console, select the new Material, seed disk Cell Count, and target population.
10. Re-install rain cover (page 75).
Removing a Seed Disk

Refer to Figure 104

1. Remove rain cover. If seed is present, close shutter ④ to prevent more seed from entering meter. Attach funnel (page 97) or place a tarp under the row to collect seed.

2. Hold seed disk in meter. Rotate disk clamp ① counterclockwise 45° to release disk.

3. Tilting top of disk toward meter, slowly remove disk, allowing seed to collect in funnel or to control flow to tarp. Open shutter to release remaining seed up to wing tube.

4. Clean seed from all brushes. Clean disk seat (② in Figure 101 page 77), so that new disks can seat fully. Inspect brushes for excess wear and damage. See "Meter Brush Maintenance" on page 101.

5. Inspect removed disks for excess wear and damage. Set aside any disks requiring replacement. Clean other removed disks and place in storage. See "Seed Disk Maintenance" on page 103.

6. Re-install the rain cover (page 75).
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 (page 79).
2. Fully close seed inlet shutter (page 79).
3. Replace seed disk with blank disk (page 79).
4. Lock up row unit to reduce wear (optional, page 80).
5. Reset marker extension (Option, page 150).
6. Reset monitor active row pattern and row spacing to avoid nuisance alarms (see Monitor manual).
7. Shut off fertilizer drop lines (Option, see Seed and Fertilizer Rate Manual 401-923B for details).

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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.

If not locking up rows, any rows may be shut off.

2. Close Seed Shutter

Refer to Figure 105 on page 79

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.

3. Install Blank Disk

Refer to Figure 106

Clean out meter. See “Meter Clean-Out” on page 97.

Remove seed disk and install blank disk. See “Air-Pro® Meter Disk Installation” on page 77.

---

**NOTICE**

**Irregular Seeding Risk:** Always use a blank disk in a shut-off row. Operating with no disk, or with a seed disk but no seed, destabilizes the regulated airflow, particularly at rows with pressure sensor lines.
Blank disks (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 seed disks and minimize wear on brushes. Blank disks are engineered to simulate a seed disk 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 107

The lock-up pins ① 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.

Lock-up pins are provided for every other row of twin-row configurations. If you lose a pin, the replacement part number is 805-033C

a. 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.

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

c. Set the down pressure spring cam to zero, per the instructions on page 68.

d. 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 ④
   b. use a jack under the shank extension ⑤

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.

Figure 107
25AP Row Unit Lock-Up Pin
(Single Spring Row Unit Shown)

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 108

e. Remove the pin from the storage hole ② and insert and secure it in the lock-up hole ③.

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

NOTICE

Certain Machine Damage:
Do not pin the row unit while it is in the lowered position. If the pin is inserted below the parallel arm, unit damage occurs as soon as planting begins.

Figure 108
25AP Row Unit Locked Up
Sprocket Indexing (Stagger)

If you are planting:
• twin-row crops,
• at seed interval spacings above 6 1/2 inches (16.5 cm),
you can synchronize each pair of adjacent meters in a
twin row so that you achieve the maximum seed-to-seed
spacing between the units of the pair.

Refer to the Seed and Fertilizer Rate Manual (401-923B)
for instructions and charts.

Seed Firmer Adjustments

25 Series 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

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 109

The Firmer is provided with a preset tension which is
recommended for using the first year. The tension
screw 1 can be tightened in subsequent years
according to your needs. Firmers should provide just
enough tension to push seeds to the bottom of the
trench.
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 110*

To lock up a Seed-Lok® wheel:
1. Raise Planter. Insert lift assist cylinder locks.
2. Push up on Seed-Lok® wheel until wheel arm latches up.

To release a Seed-Lok® wheel:
1. Lift up at Seed-Lok® wheel to reduce force required to release lever.
2. Flip lever up slightly until Seed-Lok® wheel releases.

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:

*Refer to Figure 111*
1. Down pressure (shown at maximum)
2. Wheel stagger (shown staggered)
3. Centering (see Figure 113 on page 83)

Press Wheel Down Pressure

Handle 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 back for increased down pressure.

Higher press wheel down pressures reduce the down force on the main row unit shank components, such as the openers. High press wheel settings may require an increase in overall row unit down force. See page 67.

Figure 110
Seed-Lok® Lock-Up

Figure 111
Press Wheel Adjustments
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 112

1. Raise the Planter and engage the lift locks (page 31).
2. Remove the bolt ④, nut ⑤ and lock-washer ⑥ for the left press wheel ⑧.
3. Move the spacer ⑦ and wheel ⑧ to the forward of the two mounting holes at ②.
4. Re-install the bolt, lock washer and nut. Tighten.

Press Wheel Centering

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

Refer to Figure 113

1. Determine how far, and in which direction, the press wheel assembly needs to move to center the wheels.
2. Raise the Planter and engage the lift locks (page 31).
3. Loosen the 1/2 inch hex-head bolts ② and ④.  
   Do not loosen the square-head bolts forward of the hex-head bolts.
4. Turn the hex head cam ③ under the forward hex head jam bolt ②, and move the required amount.
5. Tighten both hex head bolts ② and ④.

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 seed monitor.

Also during start up it is common to encounter alarms and readouts on the optional seed 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>
</table>
| 1. | Is the spacing on the ground correct?  
No: Check the ground drive transmission and range sprocket selections, or the population settings on a hydraulic drive unit. See also “Population Too Low” or “Population Too High” in the troubleshooting charts.  
Yes: Go to step 2. |
| 2. | Is the population reported by the optional seed monitor 1/2 the actual or is the reported population too high by a factor of 2?  
No: An incorrect row spacing value entered in the seed monitor can cause this. Example: 15 inches instead of 30 inches. Correct the row spacing error on the optional seed 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.  
Yes: Go to step 3. |
| 3. | Is the population reported by the optional seed monitor close to the target population?  
No: Check seed rate charts against transmission sprockets selected. See “Population Too Low” or “Population Too High” in the troubleshooting charts.  
Yes: If slightly under, see “Population Too Low” if slightly over, see “Population Too High”. |

**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”.

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

### Figure 114

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  
- slide gate closed  
- back-flow is also occurring, which can reduce meter pressurization at other rows |
| **Actions:**  
No action required.  
Continue Planting. | **Actions:**  
1. If shutter was at suggested opening, increase one notch.  
2. Check seed pool for foreign matter.  
3. Resume planting. | **Actions:**  
1. Close shutter.  
2. Tap on hose/tube junction.  
3. Check seed pool for foreign matter.  
4. Resume planting. | **Actions:**  
1. If row is active, add seed or check slide gate.  
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 sensor</td>
<td>Relief port plug missing/damaged</td>
<td>Replace plug</td>
</tr>
<tr>
<td></td>
<td>Breather line blocked or kinked</td>
<td>Clear breather line</td>
</tr>
<tr>
<td></td>
<td>Leak in sensing line</td>
<td>Check line to chamber</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.

Figure 115
Magnehelic® Gauge

Port ID for Troubleshooting:
① Over-pressure relief port (with plug in place)
② Low-pressure port (breather/atmospheric pressure)
③ High-pressure port (from manifold chamber)
④ Alternate high/low ports are plugged.

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

### 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 Gauge Adjustment”* on page 57. |
| | 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 seed 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 $\frac{1}{4}$ inch sample lines from the row units up to the sensor chamber for leaks (page 86).  
- Make sure all non-planting rows have blank disks and shutters are closed (page 79).  
- Re-zero the gauge with the fan off (page 86).  
- Check gauge vent line for kinks, pinches or plugging (page 86). |
| | Excess field speed | Plant within speed ranges recommended in *Seed Rate Manual*. |
| | Incorrect speed sensor constant. | Perform speed calibration per seed monitor manual. |
| | Incorrect magnetic speed sensor gap. | Check and adjust (page 103). |
| | (Option) Incorrect radar speed sensor angle. | With Planter lowered, check radar speed sensor angle per DICKEY-john® recommendations. |
| | Pass gaps too large | Check marker extension (page 150). For GPS, check Planter size programmed. |
| | Actual field size is different | Population may be correct, and calculations are not. |
| | Seed monitor reporting excess area | Readings can vary with conditions (wheel slippage, and effective rolling radius in soft soils) and planting patterns. |
## Population Too Low

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<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 76). 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 76).</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 76). 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 104) and failed meter bearing.</td>
</tr>
<tr>
<td></td>
<td>Skips due to debris in disk pockets</td>
<td>Remove rain covers. Inspect and clean out disks.</td>
</tr>
<tr>
<td></td>
<td>Row has blank disk installed</td>
<td>Replace with seeding disk.</td>
</tr>
<tr>
<td></td>
<td>Seed sensor obscured</td>
<td>Clean out seed tube (see page 97).</td>
</tr>
<tr>
<td></td>
<td>Seed tube plugged</td>
<td>Raise Planter, expose bottom of seed tube and clean out.</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 (fix air name)</td>
<td>Methodically decrease the meter pressurization. See &quot;Fan and Gauge Adjustment&quot; on page 57.</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>
<tr>
<td></td>
<td>Air pressure too high, but gauge is within range or reading low.</td>
<td>Check:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Inspect the 1/4 inch sample lines from the row units up to the sensor chamber for leaks (page 86).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Make sure all non-planting rows have blank disks (page 79). Check that rubber pressure relief plug is seated in gauge (page 86).</td>
</tr>
<tr>
<td></td>
<td>False alarms or actual seed rate errors due to monitor setup with incorrect row count, spacing or active rows.</td>
<td>When troubleshooting population issues, always first rule out seed monitor setup. Review Planter configuration and monitor setup.</td>
</tr>
<tr>
<td></td>
<td>Incorrect cell count</td>
<td>Replace seed disks with correct disks, or reset rate for current disks (if within range).</td>
</tr>
<tr>
<td></td>
<td>Incorrect speed sensor constant.</td>
<td>Perform speed calibration per seed monitor manual.</td>
</tr>
<tr>
<td></td>
<td>Incorrect magnetic speed sensor gap.</td>
<td>Check and adjust (page 103).</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>(Option) Incorrect radar speed sensor angle.</td>
<td>With Planter lowered, check radar speed sensor angle per DICKEY-john® recommendations.</td>
</tr>
<tr>
<td><strong>(cont.)</strong></td>
<td>Doubles due to incorrect disk for crop or seed size.</td>
<td>Use recommended disk 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>Check marker extension (page 150). 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>Seed 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 disk with higher cell count.</td>
<td>Install correct disk.</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 seed monitor setup. Review Planter configuration and monitor setup.</td>
</tr>
<tr>
<td></td>
<td>Incorrect cell count</td>
<td>Replace seed disks with correct disks, or reset rate for current disks (if within range).</td>
</tr>
<tr>
<td></td>
<td>Improper gap on magnetic speed sensor.</td>
<td>Check speed sensor on Planter for a gap to toothed wheel of: 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 external speed source</td>
<td>With Planter lowered, check tractor and/or radar speed sensor angle per manufacturer 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 seed 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>
</tbody>
</table>
### Population Related

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skips and Bare Spots After Turns</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>
</tbody>
</table>
|                                              | Insufficient hydraulic flow to keep fan running at speed required to maintain meter pressurization | Check tractor capability against requirements (page 129). If sufficient:  
• Fold markers before engaging lift.  
• Use a less aggressive lift rate.  
• Monitor meter pressurization during end-of-pass operations. |
| Seed too shallow or scattered on ground from a single row | Bottom of seed tube damaged. | Replace seed tube. Avoid setting Planter straight down. Use forward motion when lowering. |
|                                              | Row not penetrating in tire tracks.       | Increase down force on parallel arm springs.                             |
|                                              | Opener depth too shallow.                 | Change side depth wheel setting.                                        |
| Twin Rows were timed but became out of time.| Timing will change when a population change has been made. | Re-time meters from the population based timing chart.                  |
|                                              | Chain has jumped.                         | Check sprockets and chain for excessive wear or rusty links.            |

### General Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population Alarms</td>
<td>See “Population Troubleshooting Charts” on page 87.</td>
<td></td>
</tr>
<tr>
<td>Excess Seed Remaining</td>
<td>See “Population Troubleshooting Charts” on page 87.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Field size different.</td>
<td>After ruling out population problems, re-check geography.</td>
</tr>
<tr>
<td></td>
<td>Excessive gaps between Planter passes.</td>
<td>Adjust marker, page 150.</td>
</tr>
<tr>
<td>Seed Consumption Too High</td>
<td>See “Population Troubleshooting Charts” on page 87.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Field size different.</td>
<td>After ruling out population problems, re-check geography.</td>
</tr>
<tr>
<td></td>
<td>Excessive overlap.</td>
<td>Adjust marker, page 150.</td>
</tr>
<tr>
<td></td>
<td>Irregular shaped field.</td>
<td></td>
</tr>
<tr>
<td>Rows Not Planted</td>
<td>If not detected by optional seed monitor,</td>
<td>Lift Planter, expose bottom of seed tube and clean out.</td>
</tr>
<tr>
<td></td>
<td>check for plugged row-unit seed tube</td>
<td></td>
</tr>
<tr>
<td>Uneven seed spacing</td>
<td>See “Population Troubleshooting Charts” on page 87.</td>
<td></td>
</tr>
<tr>
<td></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 82.</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 ider 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 Lubricants” on page 116.</td>
</tr>
</tbody>
</table>
## General Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Uneven seed depth</strong></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 67.</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 82.</td>
</tr>
<tr>
<td></td>
<td>Row-unit not penetrating low spots.</td>
<td>Adjust row-unit, see instructions beginning on page 67.</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 81.</td>
</tr>
<tr>
<td><strong>Press wheel or row-units plugging</strong></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 17</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><strong>Row-unit discs not turning freely</strong></td>
<td>Row-unit plugged with dirt.</td>
<td>Clean row-unit.</td>
</tr>
<tr>
<td></td>
<td>Planting conditions too wet.</td>
<td>Wait until drier weather.</td>
</tr>
<tr>
<td></td>
<td>Incorrect side depth wheel adjustment</td>
<td>See “Side Gauge Wheel Adjustment” on page 73.</td>
</tr>
<tr>
<td></td>
<td>Seed-Lok® is plugging row-unit.</td>
<td>Lock up Seed-Lok®, page 82.</td>
</tr>
<tr>
<td></td>
<td>Failed disc bearings.</td>
<td>Replace disc bearings.</td>
</tr>
<tr>
<td></td>
<td>Bent or twisted row-unit frame.</td>
<td>Replace row-unit frame.</td>
</tr>
<tr>
<td></td>
<td>Partially plugged row-unit seed tube.</td>
<td>Lift up Planter, expose bottom of seed tube and clean out.</td>
</tr>
<tr>
<td><strong>Press wheels not compacting the soil as desired.</strong></td>
<td>Incorrect spring handle setting</td>
<td>See “Press Wheel Adjustment” on page 82.</td>
</tr>
<tr>
<td></td>
<td>Insufficient row unit down-force</td>
<td>See “Row Unit Down Pressure” on page 67.</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 82.</td>
</tr>
<tr>
<td></td>
<td>Too wet or cloddy</td>
<td>Wait until drier weather or rework ground.</td>
</tr>
</tbody>
</table>
## General Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulic marker functioning improperly, or not at all</td>
<td>Marker/Fold switch set to Fold.</td>
<td>CFM Switch must be set to “Marker”. Set tractor remote circuit to Neutral or Float before operating switch.</td>
</tr>
<tr>
<td></td>
<td>Marker/Aux valve set to Aux</td>
<td>On a Planter with optional Auxiliary Hydraulics, selector valve must be set to Marker for markers to function. Set tractor remote circuit to Neutral or Float before changing valve.</td>
</tr>
<tr>
<td></td>
<td>Air or oil leaks in hose fittings or connections.</td>
<td>Check all hose fittings and connections for air or oil leaks.</td>
</tr>
<tr>
<td></td>
<td>Low tractor hydraulic oil level.</td>
<td>Check tractor hydraulic oil level.</td>
</tr>
<tr>
<td></td>
<td>Loose or missing bolts or fasteners.</td>
<td>Check all bolts and fasteners.</td>
</tr>
<tr>
<td></td>
<td>Needle valve(s) plugged.</td>
<td>Open needle valves, cycle markers slowly and reset needle valves, refer to page 150.</td>
</tr>
<tr>
<td>Marker disk does not mark</td>
<td>Disk angle too straight for soil conditions</td>
<td>Reverse marker disk to pull or throw dirt.</td>
</tr>
<tr>
<td>Speed Reading Doesn’t Match Tractor</td>
<td>Monitor speed reading, using optional implement-mounted radar, will only match tractor with Planter lowered. (Speed reading with magnetic pickup falls 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>

## Liquid Fertilizer Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Discharge and/or main selector valve closed</td>
<td>Check that discharge valves are open to selector valve, and selector valve is open to pump. See “Liquid Fertilizer Operation (Option)” on page 45</td>
</tr>
<tr>
<td></td>
<td>Chain missing at one or more drive stages</td>
<td>Check all five chains from ground drive to pump. See “Chain Routing” on page 144.</td>
</tr>
<tr>
<td></td>
<td>Tank plugged</td>
<td>Dilute or clean out any material clogging discharge port. See “Liquid Fertilizer Clean-Out” on page 98.</td>
</tr>
<tr>
<td></td>
<td>Strainer plugged</td>
<td>Close all valves. Inspect strainer (See Seed and Fertilizer Rate Manual (401-923B)). Clean screen as needed. Switch to a larger screen size if materials clog strainer rapidly (and large size orifices are in use).</td>
</tr>
<tr>
<td></td>
<td>Pump setting at or near zero</td>
<td>Recommended pump adjuster settings are in the range 2 to 10. See Seed and Fertilizer Rate Manual (401-923B).</td>
</tr>
<tr>
<td></td>
<td>Material run-out</td>
<td>Check tank level.</td>
</tr>
<tr>
<td></td>
<td>Material merely low - loss of prime</td>
<td>Add material. When tank level is below pump inlet level, any air allowed in the line can cause the pump to lose prime.</td>
</tr>
<tr>
<td></td>
<td>Air in pump due to slope (two-tank system)</td>
<td>Add material, meter from one tank at a time, or close empty tank. When planting across a slope, material can flow from one tank to the other. If an empty tank is open to the pump, the pump will cavitate and not meter fertilizer.</td>
</tr>
<tr>
<td>Low Rate</td>
<td>Fertilizer transmission in Low Range when High Range was intended.</td>
<td>Swap sprockets at transmission. See Seed and Fertilizer Rate Manual (401-923B).</td>
</tr>
</tbody>
</table>
## Liquid Fertilizer Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Pressure, at Desired Rate</td>
<td>Orifice size too large</td>
<td>Choose alternate orifice plate size based on charts in Seed and Fertilizer Rate Manual (401-923B).</td>
</tr>
<tr>
<td></td>
<td>Orifices correct plate call size, but their holes are enlarged from extended use</td>
<td>Obtain new plates in the desired size. Discard worn plates.</td>
</tr>
<tr>
<td></td>
<td>Rate may actually be low</td>
<td>Check fertilizer transmission Driving/Driven sprockets.</td>
</tr>
<tr>
<td>Uneven Flow, at Desired Rate</td>
<td>One or more orifice plates plugged</td>
<td>Clean and re-installed orifice plates. Check that materials are not too viscous or granular for the orifice size.</td>
</tr>
<tr>
<td></td>
<td>Plate sizes vary between rows</td>
<td>Check that all nozzles have the same size plates (with the possible exception of outside rows serving zone coulters).</td>
</tr>
<tr>
<td>Pressure Unstable</td>
<td>Strainer clogged</td>
<td>Close all valves. Inspect strainer (See Seed and Fertilizer Rate Manual (401-923B)). Clean screen as needed. Switch to a larger screen size if materials clog strainer rapidly (and large size orifices are in use).</td>
</tr>
<tr>
<td>Dumping at Normal Pressure</td>
<td>Relief valve setting too low</td>
<td>Review relief valve setting per Seed and Fertilizer Rate Manual (401-923B).</td>
</tr>
<tr>
<td>High Pressure, at Desired Rate</td>
<td>Orifice size too small</td>
<td>Review orifice sizing. If at recommended size, try the next large size. Charts are based on typical density/viscosity materials.</td>
</tr>
<tr>
<td></td>
<td>Plugged nozzles</td>
<td>Inspect low-flow rows, or several nozzles. Clean plates. Consider smaller strainer screen size and/or large orifice plate size. Sedimentation, coagulation, particulates, foreign matter can also cause unusually high pressure.</td>
</tr>
<tr>
<td></td>
<td>Orifice plates inverted</td>
<td>Orient plates with legends facing outlet. Orifice port holes are not symmetrical, and at smaller sizes this can cause slightly higher back-pressure with denser materials.</td>
</tr>
<tr>
<td>Very High Flow</td>
<td>Fertilizer transmission in High Range when Low Range was intended.</td>
<td>Swap sprockets at transmission. See Seed and Fertilizer Rate Manual (401-923B).</td>
</tr>
</tbody>
</table>

## Dry Fertilizer Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Fertilizer Flow, All Rows</td>
<td>Hopper empty</td>
<td>Check / refill hopper.</td>
</tr>
<tr>
<td></td>
<td>Chain missing at one or more drive stages</td>
<td>Check all five chains from ground drive to hoppers. See page 111.</td>
</tr>
<tr>
<td>No Fertilizer Flow, Some Rows</td>
<td>Hopper plugged</td>
<td>Clean out any material clogging discharge port. See “Dry Fertilizer Clean-Out” on page 99.</td>
</tr>
<tr>
<td></td>
<td>Shaft disconnected</td>
<td>Check couplers along final drive shaft.</td>
</tr>
</tbody>
</table>
## Dry Fertilizer Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No Fertilizer Flow, One Row</strong></td>
<td>Applicator tube plugged with soil</td>
<td>Disconnect hose at top of applicator tube. Remove blockage from below. Raise release height (page 62).</td>
</tr>
<tr>
<td></td>
<td>Applicator tube plugged with fertilizer.</td>
<td>Disconnect hose at top of applicator tube. Remove blockage from below. Use finer grained fertilizer, or dry out the fertilizer if coagulation is the problem.</td>
</tr>
<tr>
<td><strong>Low Flow</strong></td>
<td>Augers set to Low Rate (single-row Planters only)</td>
<td>Set augers to High Rate (page 61).</td>
</tr>
<tr>
<td></td>
<td>Incorrect Transmission sprockets</td>
<td>Re-check Seed and Fertilizer Rate Manual (401-923B). Exchange DRIVING and DRIVEN sprockets as needed.</td>
</tr>
<tr>
<td></td>
<td>Field speed too high for Transmission sprockets selected</td>
<td>Apply at a lower speed, or use a new sprocket pair for the actual rate and speed. Metering (kg per revolution) is lower at high speeds.</td>
</tr>
<tr>
<td></td>
<td>Ground drive wheel slipping</td>
<td>Check lowered tool bar height (page 17). Operate at a lower field speed. Field conditions may be too wet for reliable meter drive.</td>
</tr>
<tr>
<td></td>
<td>Meter flutes worn</td>
<td>Inspect meter flutes (page 42). Replace as needed.</td>
</tr>
<tr>
<td><strong>High Flow</strong></td>
<td>Augers set to High Rate (single-row Planters only)</td>
<td>Set augers to Low Rate (page 61).</td>
</tr>
<tr>
<td></td>
<td>Incorrect Transmission sprockets</td>
<td>Re-check Seed and Fertilizer Rate Manual (401-923B). Exchange DRIVING and DRIVEN sprockets as needed.</td>
</tr>
<tr>
<td></td>
<td>Field speed too low for Transmission sprockets selected</td>
<td>Apply at a higher speed, or use a new sprocket pair for the actual rate and speed. Metering (kg per revolution) is higher at low speeds.</td>
</tr>
<tr>
<td><strong>Fertilizer on Surface</strong></td>
<td>Release height too high</td>
<td>Lower release height (page 62).</td>
</tr>
<tr>
<td></td>
<td>Coulter depth too shallow</td>
<td>Increase coulter depth (page 64).</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 when working on implement. You may be severely injured or killed by being crushed under a falling implement.

**WARNING**

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

1. After using your Planter for several hours, check all bolts to be sure they are tight.
2. Remove excess slack from chains. Clean and use chain lube on all roller chains as needed.
3. Maintain proper air pressure in Planter tires.
4. Keep disk scrapers properly adjusted.
5. Clean Planter on a regular basis. Regular and thorough cleaning will lengthen equipment life and reduce maintenance and repair.
7. Replace any worn, damaged, or illegible safety labels 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, and fertilizer, if the fertilizer system is present and was used. The seed clean-out topic begins on this page. Fertilizer clean-out begins on page 98.

Seed Clean-Out

There may be seed in the hoppers, hose lines, and meters.

Refer to Figure 116

The Planter includes an 817-811C container for meter clean-out, stored in a spring-loaded holder at the right rear of 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 hacksawb 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 97.

Seed Clean-Out (Funnel)

1. Close slide gate at hopper (slide gate only exists on models with serial number B1016S and earlier).
2. Attach funnel as for meter clean-out (page 97), 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 B1016S-).

Possible Dust and Chemical Residue and Fume Hazards:

Wear a respirator, and any other protective equipment specified by the seed supplier, seed treatment supplier and/or fertilizer 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 118

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. Use transport locks (page 32) if the Planter is raised.

1. Close the seed inlet shutter on the meter (page 75). This minimizes the seed volume at disk removal.
2. Remove the rain cover (page 75). 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 78).
6. Slowly open the seed shutter (page 75) 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 117

8. Clean seed from all brushes (shop vac recommended).
10. Rotate funnel clockwise, remove and empty.
11. For imminent operations:
    Install next seed wheel or blank disk (page 79) for operations. Set inlet shutter for next seed (page 75).
12. For storage:
    Close seed inlet shutter. Leave disk out. Close Y-tube (if any).
13. Re-install rain cover (page 75).

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

Seed Tube Clean-Out

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

The planter includes a seed tube brush (Great Plains part number 891-259C). If the seed meter is empty, remove the seed disc and insert the brush into the seed tube ⑤ from above. With the planter raised, you can also insert the brush from below, whether the meter is empty or not.
Liquid Fertilizer Clean-Out

With proper attention to maintenance, end of day clean-out, end of season clean-out and winterization, you can substantially increase the life and reliability of your fertilizer system. Protect the pump, clean the tanks, strainers, lines and nozzles, and you can avoid costly and time-consuming repairs at the next season.

Fertilizers are usually highly corrosive to metals other than stainless steel. Suspension fertilizers can clog system components in storage.

Flush entire system with clean water. Do this at the field last treated, or other location compliant with chemical supplier clean-up instructions.

1. Remove end caps from booms and flush booms out with water. Drain and replace end caps.
2. Remove strainer and drain it out. Drain all lines and tanks completely to prevent freezing damage.
3. Remove drop line nozzles. Clean orifice plates.
4. Cap or plug inlet line to tractor.
5. Flush pump per pump supplier manual. Fill pump with RV antifreeze and cap off.
6. Wash all spilled fertilizer off the Planter.

Tank Clean-Out

Refer to Figure 136 on page 134

1. If the pump has already been filled with RV antifreeze for storage, set the main selector valve to Off or Quick-Fill to prevent draining pump.

Refer to Figure 119

2. Move the Planter to a location suitable for draining material last applied from the tank, or where the drainage can be collected. A site with access to rinse water is ideal.
3. Open the tank lids. Observe the quantity of material present. Check for build-up, sedimentation and foreign matter, particularly any objects large enough to clog the drain.
4. On a two tank system, clean one tank at a time.
5. Slowly operate the tank discharge line valve handle to open the tank to the drain elbow ("FLOW" legend toward drain elbow).
6. Power-wash the inside of the tank from above.
7. When the tank is clean and drained, set the discharge valve to Off or Fill/Pump.
8. Close the tank lid.
Dry Fertilizer Clean-Out

**CAUTION**

**Possible Agricultural Chemical Hazard:**
Wear all protective equipment specified for use with the most recent types of dry fertilizer used in the hoppers. Clean-out operations are likely to result in airborne dust, which could be contaminated with hazardous chemicals.

For small amounts of residual fertilizer:
1. Raise the Planter.
2. If any seed remains in the seed hoppers, clean them out first, or disconnect the seed meter Range or Transmission chain.
3. Place a tarp, or multiple collection containers, under the applicator tubes.
4. Operate the ground drive wheel (top forward) until the hoppers are empty.
5. For extended storage, use a hose and clean water to wash out the hoppers, meters, hoses and applicator tubes.

For large amounts of remaining fertilizer, or any amount that is not flowing properly through the meters, use this alternate procedure:
1. Raise the planter.
2. Place a tarp, or large collection containers, under the front of the planter.

**NOTICE**

**Equipment Damage Risks:**
Fully uncouple and empty one, and only one hopper at a time. Attempting to empty multiple hoppers with shafts still coupled is likely to result in machine damage. If two or more hoppers are uncoupled at the same time, the interconnecting drive shaft is completely free and may fall.

Refer to Figure 120
3. At each end of the hopper, remove the pin ① at the shaft coupler ②. Slide coupler onto adjacent shaft.

Refer to Figure 121
4. At the rear of each hopper, remove two cotter ③ and two cradle pins ④.

Refer to Figure 122
5. Open the hopper lid (see page 42).
6. With one person at each end of the hopper, carefully tilt it forward to empty it.
7. Operate the hopper drive shaft to clear the meter.
8. Tilt the hopper upright. Secure at rear with pins.

**CAUTION**

**Heavy Material Flow Hazard:**
Use two or more people for hopper tilt clean-out. Do not stand directly in front of the hopper being unloaded. Wear protective equipment, including dust masks or other respiratory support. Full hoppers are heavy, may tip rapidly, and may be hard to control. They may empty suddenly.
Twin-Row Fertilizer Meter Clean-Out

This applies to dry fertilizer twin-row Planters only. Single-row Planters do not have this type of meter.

Refer to Figure 123

Whenever meter plugging is suspected, or when cleaning out for extended storage, inspect each dry fertilizer meter.

This inspection may be performed with or without material loaded, as the door 6 is on the drop side of the meter flutes.

Remove the pin 5. Open the door. Disengage couplers, per previous instructions, if it is necessary to turn the meter shaft to clear the chamber or flutes.
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 124

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 seed monitor or in air system operation.

- If the tufted brushes 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 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 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 (401-923P) for current replacement part numbers.

Refer to Figure 125

Tufted Brush Replacement
1. Remove and save both 10-24 hex head cap screws 11 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 126
4. Insert replacement strip brushes into grooves at holder bottom so that notched ends 18 are at the bottom.

Refer to Figure 125
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 16 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 Disk Maintenance

Refer to Figure 127

When removing seed disks, 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 disks and re-inspect.

Replace disks 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 ④ of the disk, or any cracks in support webs or to an edge.
- Warping - if any part of the disk does not press firmly on the seed drop brushes (page 77) in operation, replace the disk.
- Wear - if a wiper ridge is worn away, replace the disk. If the seed pockets are worn through, or the air ports ⑤ have enlarged, replace the disk.

Cleaning and Storing Seed Disks

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

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

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

Speed Sensor Gap

Refer to Figure 128

1. Raise Planter (page 34). 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 disks. Avoid spray. Do not wash disks where food is prepared, or where cookware or dinnerware is washed. Seed disks will have talc and graphite residue, and may have residues of hazardous seed treatments. Although the disks are dishwasher-safe, do not wash them in an appliance also used for food preparation or food serving items.
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 144.

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 129, 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 inches or 91 cm):
   \[ \frac{1}{4} \text{ inch per foot} \]
   Vertical short chains:
   \[ \frac{1}{4} \text{ inch/foot (2.1 cm/m)} \]
   Horizontal short chains:
   \[ \frac{1}{2} \text{ inch/foot (4.2 cm/m)}. \]

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 130 (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 131 (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 ⑤, measured from outside of pin to outside of pin, is not shorter than:

7.0 in (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 (see page 148).
Hydraulic Maintenance

As with any hydraulic system, contamination is the most common cause of performance problems and pre-mature wear. Make a special effort to properly clean quick couplers prior to attaching the hoses to tractor, and never let them fall to the ground.

⚠️ WARNING

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

Bleed only at JIC and NPT fittings. Never try to bleed a QD (Quick Disconnect) fitting. Avoid bleeding at ORB fittings. The O-ring is likely to be torn if any pressure remains in the circuit.

⚠️ NOTICE

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

⚠️ NOTICE

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

Bleeding Lift Hydraulics

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

Bleeding Marker Hydraulics

To fold properly, the marker hydraulics must be free of air. If the markers fold in jerky, uneven motions. As the marker cylinders are encased within the main tool bar, it is not practical to bleed them at cylinder fittings. Remove air from the system by slowly cycling fold and unfold several times.

### JIC Torque Chart

<table>
<thead>
<tr>
<th>Size</th>
<th>Foot-Pounds</th>
<th>N-m</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/16-20</td>
<td>11-12</td>
<td>15-16</td>
</tr>
<tr>
<td>1/2-20</td>
<td>15-16</td>
<td>20-22</td>
</tr>
<tr>
<td>5/16-18</td>
<td>18-20</td>
<td>24-28</td>
</tr>
<tr>
<td>3/4-16</td>
<td>38-42</td>
<td>52-58</td>
</tr>
<tr>
<td>7/8-14</td>
<td>57-62</td>
<td>77-85</td>
</tr>
<tr>
<td>11/16-12</td>
<td>79-87</td>
<td>108-119</td>
</tr>
</tbody>
</table>
Spreader and Scrapers

Applies to all row unit Series.

Refer to Figure 132

1. Remove side gauge wheels from arms to access row-unit disks and scrapers.
2. With the unit raised, check blade spreader for wear. Replace spreader if it is 1/2 inch (13 mm) wide or narrower. To replace, remove disk blades, drive out roll pins, and install new spreader.
3. When reinstalling disk blades, put two shims 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 72.
5. Check that outside disk scrapers are formed to disk blades to help remove any mud. Bend/twist scrapers to fit blades as needed. Every 200 acres (80 ha) of operation, check outside scrapers for adjustment and wear. Replace outside scrapers as necessary.

Row-Unit Side Wheels

Refer to Figure 133

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 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 and wheel. Remove shims from the inside of wheel 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 from unit. Remove bushing from sleeve and check for wear. If necessary, replace bushing.
5. When reinstalling side gauge wheels, align tab on hex adjustment with notch in bushing. Replace bolt and tighten.
6. Adjust side gauge wheels. Refer to see "Side Gauge Wheel Adjustment" on page 73.

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.

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

You may need fewer washers under worn disks.
Seed Flap Replacement
Refer to Figure 134
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.

Marker Maintenance (Option)
See also:
"Initial Marker Setup (Option)" on page 149, "Marker Operations" on page 35, and "Marker Disk Adjustment" on page 56
Marker Shear Bolt Replacement
Refer to Figure 135
If a marker gets caught or hits an obstruction, it is designed to fail a shear bolt ③ at the fold, pivot on a second bolt (not visible in Figure), and swing back. The shear bolt is a hex head cap screw, ③ 5/16-18 x 1 1/2 inch Grade 5, Great Plains part number 802-012C, plus a ④ 5/16-18 lock nut, Great Plains part number 803-011C.
If an exact replacement is not immediately available, temporarily substitute an M8 x 1.25 Class 8.8 bolt and nut.
Install a replacement shear bolt on the vertical face on the side opposite from the pivot bolt. Do not use a higher grade bolt, or marker hang-ups may result in machine damage. Do not use a lower grade bolt, or you may experience nuisance shears.
Marker Grease Seal Cap
If grease seal cap for marker-disk-hub bearings is damaged or missing, disassemble and clean hub. Repack with grease and install new seal or grease cap.
# Lubrication and Scheduled Maintenance

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

## Opener Side Wheel Bushing

<table>
<thead>
<tr>
<th>Maintenance</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>On both sides of each row-unit (2 per row)</td>
<td></td>
</tr>
<tr>
<td>Type of Lubrication: Grease</td>
<td></td>
</tr>
<tr>
<td>Quantity: Until grease emerges</td>
<td></td>
</tr>
</tbody>
</table>

## Fertilizer Pump Bearings (Option)

<table>
<thead>
<tr>
<th>Maintenance</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>two zerks per pivot; 2 total</td>
<td></td>
</tr>
<tr>
<td>Type of Lubrication: Grease</td>
<td></td>
</tr>
<tr>
<td>Quantity: Until grease emerges</td>
<td></td>
</tr>
<tr>
<td>Refer to JohnBlue manual for pump maintenance.</td>
<td></td>
</tr>
</tbody>
</table>

## Fertilizer Pump Crankshaft (Option)

<table>
<thead>
<tr>
<th>Maintenance</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 inspection/fill ports</td>
<td></td>
</tr>
<tr>
<td>Type of Lubrication: SAE 90 EP Gear Oil</td>
<td></td>
</tr>
<tr>
<td>Quantity: 8 fluid ounce capacity</td>
<td></td>
</tr>
<tr>
<td>Refer to JohnBlue manual for pump maintenance.</td>
<td></td>
</tr>
</tbody>
</table>
Markers (Option)

4 zerk per marker, two markers; 8 total
Type of Lubrication: Grease
Quantity: Until grease emerges

Vantage I Coulter Hubs (Option)

1 zerk per coulter, 4 to 16 total
Type of Lubrication: Grease
Quantity: Until grease emerges

Chains: Main Ground Drive

1 chain
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.
Chain: Range Drive

1 chain
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.

Chain: Transmission Drive

1 chain
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
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: Dry Fertilizer Transmission (Option)

with Ground Drive Planter

2 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: Dry Fertilizer Drive (Option)

with Hydraulic Drive Planter

2 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: Dry Fertilizer Transmission (Option)

with Hydraulic Drive Planter

3 chains
Type of Lubrication: Chain Lube
Quantity = Coat thoroughly

Lubricate chains any time there is a chance of moisture, and when being stored at the end of the planting season.
Chains: Liquid Fertilizer Ground Drive (Option)

2 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.

Vantage I Coulter Pivot (Option)

Grease Bank:
1 zerk per coulter,
4 to 16 total
Type of Lubrication: Grease
Quantity: Until grease emerges
**Tongue Roller Bearing**

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

---

**Ground Drive Wheel Hub**

1 zerk at each bearing casting;
4 total
Type of Lubrication: Grease
Quantity: Until grease resistance felt
Re-pack seasonally.

---

**Row Cleaner Bearings (Option)**

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.
Lift Parallel Arm Pivots

One zerk each end of all four arms; 8 total
Type of Lubrication: Grease
Quantity: Until grease emerges

Rotate Pivot Bearing

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

Lift Arm Lock Bushing

1 zerk each bushing; 2 total
Type of Lubrication: Grease
Quantity: Until grease emerges

Gauge Wheel Hubs

1 zerk each spindle; 4 total
Type of Lubrication: Grease
Quantity: Until resistance is felt
Markers: Disk Hub

| Seasonal |

4 bearings; 2 races each marker
Type of Lubrication: Grease
Quantity: Re-pack

Vantage II: Pivot and Hub

| Seasonal |

1 pivot zerk, 1 hub zerk;
2 total per coulter
Type of Lubrication: Grease
Quantity: Pump until resistance felt

**NOTICE**

**Seal Damage Risk:**
Do not apply excess pumping pressure. Do not pump until grease emerges.
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.

**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 cleanup. Prolonged inhalation may cause lung injury. Product can become slippery when wet.

**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 SDSa for further cautions.

---

a. SDS: Safety Data Sheet,
Options

Seed Monitor

One of four monitor options (one of which is no monitor) must be selected with the initial Planter purchase. This election controls the harness installed.

<table>
<thead>
<tr>
<th>Description</th>
<th>Option</th>
<th>Harness</th>
</tr>
</thead>
<tbody>
<tr>
<td>DICKEY-john® PM300</td>
<td>(61)</td>
<td>PM300</td>
</tr>
<tr>
<td>DICKEY-john® Al-100</td>
<td>(62)</td>
<td>CANbus</td>
</tr>
<tr>
<td>DICKEY-john® Al-120</td>
<td>(63)</td>
<td>CANbus</td>
</tr>
<tr>
<td>No monitor</td>
<td>(64)</td>
<td>CANbus</td>
</tr>
</tbody>
</table>

- A CANbus (ISO 11783) harness is required for hydraulic drive, Swath Command™ or Row-Pro™.
- A DICKEY-john® IntelliAg® AI-120 Monitor is also required for Row-Pro™.
- For the no-monitor option, the harness components provided (ECU, WSMB, sensors) are DICKEY-john® IntelliAg® compatible.

Seed Meter Drive

The ground drive powers seed metering, and if installed, dry fertilizer metering. Ground drive rates are controlled by selections of included Range and Transmission sprockets.

Hydraulic drive powers only seed metering. Seed rates are controlled by the seed monitor.

<table>
<thead>
<tr>
<th>Description</th>
<th>Option</th>
<th>Monitor Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground Drive</td>
<td>(55)</td>
<td>{any}</td>
</tr>
<tr>
<td>Hydraulic Drive</td>
<td>(56)</td>
<td>CANbus</td>
</tr>
</tbody>
</table>

⚠️ Hydraulic drive requires one of the CANbus monitor options (above) and a compatible console.
PTO Pump

One of four dealer- or field-installed kits enable the fan, or the fan and hydraulic meter drive, to be driven from a tractor Power Take-Off (PTO), rather than dedicated continuous flow tractor hydraulic remote(s).

Each Air-Pro® PTO Pump kit includes:

- a flow control valve assembly for setting fan rpm,
- a tethered PTO pump for a “live” or “independent” rear-facing stub. The pump includes torque arm and safety chain (no gearbox is required),
- an oil reservoir, with sight gauge, line filter and 6.5 gallon capacity (5.5 gallons/21 liters used),
- an oil cooler, mounted inside the fan, and;
- all interconnecting hoses (not shown).

There are separate kits for 540 rpm and 1000 rpm PTO, and for Planters with ground or hydraulic seed meter drive.

The 540 rpm kits couple directly to an ASABE or ASAE Type 1 6-spline 1³/₈ inch (35 mm) shaft.

The 1000 rpm kits require separate purchase of a coupler to adapt them to an ASABE or ASAE:

Type 2 20-spline 1³/₄ inch (44.5 mm) or
Type 3 21-spline 1³/₈ inch (35 mm) shaft.

One kit updates one Planter.

<table>
<thead>
<tr>
<th>PTO Kit Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>540 rpm kits</td>
<td></td>
</tr>
<tr>
<td>540 rpm, ground drive</td>
<td>411-035A</td>
</tr>
<tr>
<td>540 rpm, hydraulic drive</td>
<td>411-037A</td>
</tr>
<tr>
<td>1000 rpm kits and couplers</td>
<td></td>
</tr>
<tr>
<td>1000 rpm, ground drive</td>
<td>411-036A</td>
</tr>
<tr>
<td>1000 rpm, hydraulic drive</td>
<td>411-038A</td>
</tr>
<tr>
<td>Type 2 20-spline 1³/₄ inch (44.5 mm)</td>
<td>826-777C</td>
</tr>
<tr>
<td>Type 3 21-spline 1³/₈ inch (35 mm)</td>
<td>826-778C</td>
</tr>
</tbody>
</table>

Suitable Applications

A PTO kit may be needed where:

- the tractor has an Open Center hydraulic system;
- the tractor has no remote port for the fan; or,
- the tractor is Closed Center, but the remotes offer insufficient oil flow to reliably operate the fan.
Section Control (Swath Command™)

With Swath Command™, all row unit final drive chains are clutch-controlled. Swath Command™ can turn seed metering on and off for 4 sections of rows. Using geolocation information you provide to the system, seeding can be disabled when row units cross non-planting or previously-planted areas.

<table>
<thead>
<tr>
<th>Description</th>
<th>Option</th>
<th>Monitor Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swath Command™</td>
<td>Notea</td>
<td>CANbus with section control and mapping</td>
</tr>
</tbody>
</table>

Swath Command™ requires one of the CANbus Monitor options (page 117) and a compatible console.

The DICKEY-john® IntelliAg® AI-120 Monitor is fully compatible with Swath Command™. The AI-100 Monitor would require an additional DICKEY-john® A5 Monitor and cab harness, not included.

Swath Command™ also requires, and does not include:

- a geolocation receiver, such as a Trimble® AgGPS®262 (available from Great Plains).
- coordinate augmentation data source, such as a Trimble® AgGPS®900 RTK Rover Radio (available from Great Plains)

Down-Pressure Control (Row-Pro™)

Row-Pro™ provides an air cylinder and sensor in the down-pressure assembly of each row. Each cylinder is independently controlled by the force sensor, varying the down-pressure by ±50 pounds (±23 kg), for a total correction capability of 100 pounds (45 kg). This range can fully compensate for the row unit weight change resulting from seed consumption during planting.

<table>
<thead>
<tr>
<th>Description</th>
<th>Option</th>
<th>Monitor Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Row-Pro™</td>
<td>Notea</td>
<td>AI-100 or AI-120</td>
</tr>
</tbody>
</table>

Row-Pro™ requires one of the CANbus Monitor options (page 117) and a compatible console.

---

a. Ordering information was not final at publication of this manual edition. Contact your Great Plains dealer.
Speed Radar

The standard YP825AR Planter includes a toothed wheel and magnetic pickup for providing speed information to the seed monitor. An optional radar is available, and may be mounted on the Planter or tractor.

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
<th>Monitor Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>DICKEY-john® Radar</td>
<td>833-179C</td>
<td>(any)</td>
</tr>
</tbody>
</table>

Liquid Fertilizer System

A liquid fertilizer system includes two tanks, dedicated drive system, strainer, CDS-John Blue® Piston Pump, relief valve/pressure gauge, boom, nozzles, orifice plate sizes 28/34/48, and drop lines to rows.

The system is factory installed, but ordered as a separate line item.

<table>
<thead>
<tr>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>YP825R LIQUID FERT KIT</td>
<td>417-012A</td>
</tr>
</tbody>
</table>

See "Liquid Fertilizer Operation (Option)" on page 45.

Fertilizer Orifice Plates

The manifold systems include size 28, 34 and 48 plates. To order alternate plates, use the following part numbers. Order one per row unit.

<table>
<thead>
<tr>
<th>Orifice Size</th>
<th>Part Number</th>
<th>Port Diameter</th>
<th>Port Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>832-052C</td>
<td>0.020 in</td>
<td>0.20 mm²</td>
</tr>
<tr>
<td>28*</td>
<td>832-056C</td>
<td>0.028 in</td>
<td>0.40 mm²</td>
</tr>
<tr>
<td>34*</td>
<td>832-053C</td>
<td>0.034 in</td>
<td>0.59 mm²</td>
</tr>
<tr>
<td>48*</td>
<td>832-054C</td>
<td>0.048 in</td>
<td>1.17 mm²</td>
</tr>
<tr>
<td>59</td>
<td>832-057C</td>
<td>0.059 in</td>
<td>1.76 mm²</td>
</tr>
<tr>
<td>80</td>
<td>832-055C</td>
<td>0.080 in</td>
<td>3.24 mm²</td>
</tr>
<tr>
<td>98</td>
<td>832-059C</td>
<td>0.098 in</td>
<td>4.87 mm²</td>
</tr>
</tbody>
</table>

* Sizes standard in many fertilizer bundles. Check your accessories before ordering.
High-Rate Dribblers
Dribblers apply liquid fertilizer slightly to the side of the closed furrow behind the press wheel. Dribblers are available in left and right hand offsets, for use on twin rows. Order one dribbler per row.

<table>
<thead>
<tr>
<th>Option Packages</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertilizer Dribbler Assembly, RH</td>
<td>204-131A</td>
</tr>
<tr>
<td>Fertilizer Dribbler Assembly, LH</td>
<td>204-132A</td>
</tr>
</tbody>
</table>

Dry Fertilizer System
All dry fertilizer systems include a support frame, transmission, hoses to connect to coulters and four hoppers. For ground drive Planters, the transmission is powered by the ground drive. For hydraulic drive Planters, the fertilizer system includes a ground drive system (not shown, similar to the liquid system shown on page 120).

See page 122 for coulter options (not included with dry fertilizer system).

The system is factory installed if ordered with the Planter, but is ordered as a separate line item.

<table>
<thead>
<tr>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-Row, Ground Drive Planters excluding 75 cm and 75 cm twin-row spacings</td>
<td>417-015A</td>
</tr>
<tr>
<td>8-Row, Ground Drive YP825AR-2:97</td>
<td>417-026A</td>
</tr>
<tr>
<td>16-Row (TR), Ground Drive Planters</td>
<td>417-014A</td>
</tr>
<tr>
<td>8-Row, Hydraulic Drive Planters</td>
<td>417-018A</td>
</tr>
<tr>
<td>16-Row, Hyd. Drive YP825AR-38VT52</td>
<td>417-016A</td>
</tr>
<tr>
<td>16-Row, Hyd. Drive YP825AR-38VT97</td>
<td>417-017A</td>
</tr>
</tbody>
</table>
Dual Sequenced Markers
A marker system includes hydraulic cylinder, marker arm and mount for left and right side, plus an automatic sequence valve that controls which side activates, and at what speed. The marker system shares the lift circuit.
The system is factory installed, but ordered as a separate line item.

<table>
<thead>
<tr>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-30 PT PLTR FLAT FOLD MKR</td>
<td>Note a</td>
</tr>
</tbody>
</table>

See "Marker Operations" on page 35.

Frame-Mounted Row Accessories

Frame-Mounted Coulters
Frame-mounted coulters are independent of unit-mounted coulters. The Planter may have both, either or neither. Frame-mounted coulters may be used in-row or as “zone” coulters, offset from rows.

Vantage I Coulters
Vantage I is a disk coulter with liquid fertilizer applicator. A fertilizer system required for use of the applicator.

Vantage I for Liquid Fertilizer (17 inch Turbo blades)

<table>
<thead>
<tr>
<th>Vantage I Liquid</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-Row for Single-Row (8 coulters)</td>
<td>417-032A</td>
</tr>
<tr>
<td>8-Row for Twin-Row (16 coulters)</td>
<td>417-033A</td>
</tr>
</tbody>
</table>

Vantage I for Dry Fertilizer (18 inch Turbo blades)

<table>
<thead>
<tr>
<th>Vantage I Dry</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-Row for Single-Row (8 coulters), all row spacings except 75 cm</td>
<td>417-028A</td>
</tr>
<tr>
<td>8-Row for Single-Row (8 coulters), 75 cm row spacing</td>
<td>417-030A</td>
</tr>
<tr>
<td>8-Row for Twin-Row (16 coulters), all row spacings except 75 cm twin row</td>
<td>417-029A</td>
</tr>
<tr>
<td>8-Row for Twin-Row (16 coulters), 75 cm twin row spacing</td>
<td>417-031A</td>
</tr>
</tbody>
</table>

---

a. Ordering information was not final at publication of this manual edition. Contact your Great Plains dealer.
**Vantage I Coulter Blades**

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-inch (43 cm) Turbo</td>
<td>820-156C</td>
</tr>
<tr>
<td>18-inch (46 cm) Turbo</td>
<td>820-215C</td>
</tr>
</tbody>
</table>

**Terra-Tine™**

These row cleaners attach to frame-mounted Vantage-I coulters.

<table>
<thead>
<tr>
<th>Terra-Tine</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vantage-I Mounted (4LH+4RH)</td>
<td>407-539A</td>
</tr>
</tbody>
</table>

For operations, see “**Terra-Tine™ Adjustment**” on page 63.

**Vantage II Coulters**

Vantage II is a frame-mounted coulter with straight 18 inch blade, side-mounted depth gauge wheel and trailing applicator tube (with a liquid fertilizer insert). Mounting may be adjusted for zone or in-row application.

Fertilizer or frame attachment kit required for mounting. Fertilizer system (or customer-provisioned system) required for use of applicator.

Order one per row or zone. These coulters are suitable only for “zone” use in twin-row.

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-Row Vantage II (single row)</td>
<td>407-533A</td>
</tr>
<tr>
<td>16-Row Vantage II (twin row)</td>
<td>407-534A</td>
</tr>
</tbody>
</table>

**18in Coulter Blades**

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>SINGLE BEVEL 18 COULTER BLADE</td>
<td>820-093C</td>
</tr>
</tbody>
</table>

Use only straight (flat) coulter blades with Vantage II.
Row-Mounted Accessories

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>Coulter-Mount RC Kits</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single, 8 left, 8 right (16 row, 8 twin)</td>
<td>207-212A</td>
</tr>
<tr>
<td>Double, 8 row (single row only)</td>
<td>207-233A</td>
</tr>
</tbody>
</table>

Stand-alone (includes mount):

<table>
<thead>
<tr>
<th>Stand-Alone RC Kits</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single, for twin row</td>
<td>207-209A</td>
</tr>
<tr>
<td>Double, 8 row</td>
<td>207-234A</td>
</tr>
</tbody>
</table>

For operations, see: “Unit-Mount Cleaner Adjustments” on page 69.

Unit-Mounted Disk Coulters

Optional unit-mount disk coulters are available with 15 inch fluted or 15 in. turbo blades. For complete coulters w/unit mount and blade the selection includes:

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<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>Description</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 “UMC Coulter Adjustments” on page 70.
Seed Meter Disks

Air-Pro® Meters accept a variety of seed disks, plus a special blank disk (817-841C) for row shut-off. Choices include:

<table>
<thead>
<tr>
<th>Meter Disks</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canola, 150 Cell</td>
<td>837-148C</td>
</tr>
<tr>
<td>Canola, 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>17-857C</td>
</tr>
<tr>
<td>Cotton, Hill Drop, 12 Cell</td>
<td>837-186C</td>
</tr>
<tr>
<td>Edible Bean, 60 Cell (Medium)</td>
<td>837-065C</td>
</tr>
<tr>
<td>Edible Bean, 56 Cell (Large)</td>
<td>817-967C</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 (Large)</td>
<td>817-851C</td>
</tr>
<tr>
<td>Sunflower, 60 Cell (Medium)</td>
<td>837-235C</td>
</tr>
<tr>
<td>Sunflower, 60 Cell (Small)</td>
<td>837-234C</td>
</tr>
<tr>
<td>Volumetric No. 1, 84 Cell</td>
<td>817-867C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Meter Disk</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank, 0 Cell</td>
<td>817-841C</td>
</tr>
</tbody>
</table>

See “Seed Meter Setup and Adjustment” on page 75.

---
a. Planters manufactured prior to November 2013 require a brush and seed tube update available as kit 403-684A. Order one per row.
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.

This scraper cannot be used with Seed-Lok® Seed Firmers installed. It is compatible with seed flaps and optional Keeton® Seed Firmers.
See page 153 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).

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 74.

Seed Firmers
The base YP825AR 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

For operations, see: “Seed Firmer Adjustments” on page 81.
Keeton® Seed Firmer
The Keeton® Seed Firmer supports low-rate fertilizer delivery. For this use, an optional liquid fertilizer system (page 120) must also 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 81.

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 82.

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 HITCH 1 X 6 W/HAIRPIN</td>
<td>805-033C</td>
</tr>
</tbody>
</table>

See “Row Unit Shut-Off” on page 79.

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 116.
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 96.
See "Meter Clean-Out" on page 97.

Seed Tube Brush

One brush is provided with the Planter. Order the following part for additional or replacement brushes.

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

See "Seed Tube Clean-Out" on page 97.
## Appendix A - Reference Information

### Specifications and Capacities

#### 22 and 30 Inch Models

<table>
<thead>
<tr>
<th>Model</th>
<th>YP825AR -0822</th>
<th>YP825AR -0830</th>
<th>YP825AR -16TR30</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Row Count</strong></td>
<td>8</td>
<td>8</td>
<td>16 (8 twin)</td>
</tr>
<tr>
<td><strong>Row Spacing</strong></td>
<td>22 in. (55.9 cm)</td>
<td>30 in. (76.2 cm)</td>
<td>30 in. (76.2 cm)</td>
</tr>
<tr>
<td><strong>Field Width, no Markers</strong></td>
<td>21 feet (640 cm)</td>
<td>21 feet 6 inches (655 cm)</td>
<td></td>
</tr>
<tr>
<td><strong>Field Width, with Markers</strong></td>
<td>21 feet 6 inches (655 cm)</td>
<td>21 feet 9 inches (659 cm)</td>
<td>21 feet 9 inches (659 cm)</td>
</tr>
<tr>
<td><strong>Transport Width</strong></td>
<td>11 feet 9 inches (359 cm)</td>
<td>12 feet 10 inches (391 cm)</td>
<td></td>
</tr>
<tr>
<td><strong>Span (between end rows)</strong></td>
<td>12 feet 10 inches (391 cm)</td>
<td>14 feet 8 inches (447 cm)</td>
<td></td>
</tr>
<tr>
<td><strong>Swath (Channel Width)</strong></td>
<td>14 feet 8 inches (447 cm)</td>
<td>14 feet 8 inches (447 cm)</td>
<td></td>
</tr>
<tr>
<td><strong>Hitch</strong></td>
<td>Pull-Type, Clevis, 1.5 inch (3.8 cm) Pin</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Seed Capacity, 3.0 bu Hopper</strong></td>
<td>24 bushels (846 litres)</td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Seed Capacity, 1.6 bu Hopper</strong></td>
<td>13 bushels (450 liters)</td>
<td>26 bushels (900 liters)</td>
<td></td>
</tr>
<tr>
<td><strong>Fertilizer Capacity, Liquid</strong></td>
<td></td>
<td>400 gallons (1510 liters)</td>
<td></td>
</tr>
<tr>
<td><strong>Fertilizer Capacity, Dry</strong></td>
<td></td>
<td>36 cu.ft. (1020 liters)</td>
<td></td>
</tr>
<tr>
<td><strong>Field Length</strong></td>
<td>18 feet 4 inches (559 cm)</td>
<td>21 feet 6 inches (655 cm)</td>
<td></td>
</tr>
<tr>
<td><strong>Transport Length</strong></td>
<td>26 feet 4 inches (803 cm)</td>
<td>26 feet 4 inches (803 cm)</td>
<td></td>
</tr>
<tr>
<td><strong>Field Height</strong></td>
<td>7 feet 0 inches (213 cm)</td>
<td>7 feet 0 inches (213 cm)</td>
<td></td>
</tr>
<tr>
<td><strong>Transport Height</strong></td>
<td>10 feet 8 inches (325 cm)</td>
<td>10 feet 8 inches (325 cm)</td>
<td></td>
</tr>
<tr>
<td><strong>Transport Clearance</strong></td>
<td>13 inches (32 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tractor Power Required</strong>¹</td>
<td>125 to 182 hp (93 to 135 kW)</td>
<td>201 to 272 hp (150 to 203 kW)</td>
<td></td>
</tr>
<tr>
<td><strong>Hydraulic Circuits Required</strong></td>
<td>2, 3 or 4 Remotes, Closed-Center (Open or Closed w/PTO)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hydraulic Flow² Required</strong></td>
<td>2250 psi, 30 gal/min (155 bar, 114 liters/min)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Weight Range³</strong></td>
<td>9700 to 18600 pounds (4400 to 8500 kg)</td>
<td>11600 to 22800 pounds (5300 to 10300 kg)</td>
<td></td>
</tr>
<tr>
<td><strong>Transport Tire Size</strong></td>
<td>11Lx15</td>
<td>8R19.5 LT</td>
<td></td>
</tr>
<tr>
<td><strong>Opener Down Pressure</strong></td>
<td>255 to 375 pounds (115 to 170 kg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Opener Travel (Up - Down)</strong></td>
<td>10 inches (25 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Opener Depth Range</strong></td>
<td>0 to 3.5 inches (0 to 9 cm)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹. Power requirements vary significantly with conditions and practices.
². Flow requirement may be reduced to 5 gpm (20 l/m) using PTO pump accessory.
³. See "Transport" topic for sample configuration weights.
## 70 and 75 cm Models

<table>
<thead>
<tr>
<th>Model</th>
<th>YP825AR -0870</th>
<th>YP825AR -0875</th>
<th>YP825AR -16TR75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Row Count</td>
<td>8</td>
<td>8</td>
<td>16 (8 twin)</td>
</tr>
<tr>
<td>Row Spacing</td>
<td>70 cm (27.6 in.)</td>
<td>75 cm (29.5 in.)</td>
<td>75 cm (29.5 in.)</td>
</tr>
<tr>
<td>Field Width, no Markers</td>
<td>640 cm (21 feet)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Field Width, with Markers</td>
<td></td>
<td>655 cm (21 feet 6 inches)</td>
<td></td>
</tr>
<tr>
<td>Transport Width</td>
<td></td>
<td>300 cm (9 feet 10 inches)</td>
<td></td>
</tr>
<tr>
<td>Span (between end rows)</td>
<td>490 cm (193 in.)</td>
<td>525 cm (207 in.)</td>
<td>525 cm (207 in.)</td>
</tr>
<tr>
<td>Swath (Channel Width)</td>
<td>560 cm (220 in.)</td>
<td>600 cm (236 in.)</td>
<td>600 cm (236 in.)</td>
</tr>
<tr>
<td>Hitch</td>
<td>Pull-Type, Clevis, 3.8 cm (1.5 inch) Pin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seed Capacity, 3.0 bu Hopper</td>
<td>846 litres (24 bushels)</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Seed Capacity, 1.6 bu Hopper</td>
<td>450 liters (13 bushels)</td>
<td>900 liters (26 bu.)</td>
<td></td>
</tr>
<tr>
<td>Fertilizer Capacity, Liquid</td>
<td>1510 liters (400 gallons)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fertilizer Capacity, Dry</td>
<td>1020 liters (36 cu.ft.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Field Length</td>
<td>559 cm (18 feet 4 inches)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport Length</td>
<td>803 cm (26 feet 4 inches)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Field Height</td>
<td>213 cm (7 feet 0 inches)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport Height</td>
<td>325 cm (10 feet 8 inches)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport Clearance</td>
<td>32 cm (13 inches)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tractor Power Required¹</td>
<td>93 to 135 kW (125 to 182 hp)</td>
<td>150 to 203 kW (201 to 272 hp)</td>
<td></td>
</tr>
<tr>
<td>Hydraulic Circuits Required</td>
<td>2, 3 or 4 Remotes, Closed-Center (Open or Closed w/PTO)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydraulic Flow² Required</td>
<td>155 bar, 114 liters/min (2250 psi, 30 gal/min)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight Range³</td>
<td>4400 to 8500 kg (9700 to 18600 pounds)</td>
<td>5300 to 10300 kg (11600-22800 lb.)</td>
<td></td>
</tr>
<tr>
<td>Transport Tire Size</td>
<td>11Lx15</td>
<td>8R19.5 LT</td>
<td></td>
</tr>
<tr>
<td>Opener Down Pressure</td>
<td>115 to 170 kg (255 to 375 pounds)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opener Travel (Up - Down)</td>
<td>25 cm (10 inches)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opener Depth Range</td>
<td>0 to 9 cm (0 to 3.5 inches)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹. Power requirements vary significantly with conditions and practices.
². Flow requirement may be reduced to 20 l/m (5 gpm) using PTO pump accessory.
³. See "Transport" topic for sample configuration weights.
Dimensions
Transport Dimensions

Transport Width

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>YP825AR-2:44</td>
<td>141.3 inches (358.9 cm)</td>
</tr>
<tr>
<td>YP825AR-2:52</td>
<td>141.3 inches (358.9 cm)</td>
</tr>
<tr>
<td>YP825AR-2:92</td>
<td>318.3 cm (125.3 inches)</td>
</tr>
<tr>
<td>YP825AR-2:97</td>
<td>338.3 cm (133.2 inches)</td>
</tr>
<tr>
<td>YP825AR-38VT52</td>
<td>141.3 inches (358.9 cm)</td>
</tr>
<tr>
<td>YP825AR-38VT97</td>
<td>328.7 cm (129.4 inches)</td>
</tr>
</tbody>
</table>
Field Dimensions

w/ Markers: 258

w/o Markers: 252

220 inches

84 inches
### Torque Values Chart

<table>
<thead>
<tr>
<th>Bolt Size</th>
<th>Bolt Head Identification</th>
<th>Bolt Size</th>
<th>Bolt Head Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 2</td>
<td>Grade 5</td>
<td>Grade 8</td>
<td>Class 5.8</td>
</tr>
<tr>
<td>N·m</td>
<td>ft-lb</td>
<td>N·m</td>
<td>ft-lb</td>
</tr>
<tr>
<td>1/4-20</td>
<td>N-tips</td>
<td>5.6</td>
<td>3</td>
</tr>
<tr>
<td>1/4-28</td>
<td>7</td>
<td>3.5</td>
<td>3</td>
</tr>
<tr>
<td>5/16-18</td>
<td>15</td>
<td>5.6</td>
<td>3</td>
</tr>
<tr>
<td>5/16-24</td>
<td>17</td>
<td>7.0</td>
<td>4</td>
</tr>
<tr>
<td>3/16-16</td>
<td>27</td>
<td>10.9</td>
<td>7</td>
</tr>
<tr>
<td>3/16-24</td>
<td>31</td>
<td>13.0</td>
<td>8</td>
</tr>
<tr>
<td>7/16-14</td>
<td>43</td>
<td>16.0</td>
<td>9</td>
</tr>
<tr>
<td>11/32-20</td>
<td>49</td>
<td>19.0</td>
<td>10</td>
</tr>
<tr>
<td>1/2-13</td>
<td>66</td>
<td>22.0</td>
<td>11</td>
</tr>
<tr>
<td>3/16-20</td>
<td>75</td>
<td>25.0</td>
<td>12</td>
</tr>
<tr>
<td>9/16-12</td>
<td>95</td>
<td>28.0</td>
<td>13</td>
</tr>
<tr>
<td>9/16-18</td>
<td>105</td>
<td>31.0</td>
<td>14</td>
</tr>
<tr>
<td>5/8-11</td>
<td>130</td>
<td>34.0</td>
<td>15</td>
</tr>
<tr>
<td>5/8-18</td>
<td>150</td>
<td>37.0</td>
<td>16</td>
</tr>
<tr>
<td>3/4-10</td>
<td>235</td>
<td>40.0</td>
<td>17</td>
</tr>
<tr>
<td>3/4-16</td>
<td>260</td>
<td>43.0</td>
<td>18</td>
</tr>
<tr>
<td>7/16-9</td>
<td>225</td>
<td>46.0</td>
<td>19</td>
</tr>
<tr>
<td>7/16-14</td>
<td>250</td>
<td>49.0</td>
<td>20</td>
</tr>
<tr>
<td>1-8</td>
<td>340</td>
<td>52.0</td>
<td>21</td>
</tr>
<tr>
<td>1-12</td>
<td>370</td>
<td>55.0</td>
<td>22</td>
</tr>
<tr>
<td>11/32-7</td>
<td>480</td>
<td>58.0</td>
<td>23</td>
</tr>
<tr>
<td>11/32-12</td>
<td>540</td>
<td>61.0</td>
<td>24</td>
</tr>
<tr>
<td>11/32-17</td>
<td>680</td>
<td>64.0</td>
<td>25</td>
</tr>
<tr>
<td>11/32-22</td>
<td>750</td>
<td>67.0</td>
<td>26</td>
</tr>
<tr>
<td>11/32-27</td>
<td>890</td>
<td>70.0</td>
<td>27</td>
</tr>
<tr>
<td>11/32-32</td>
<td>1010</td>
<td>73.0</td>
<td>28</td>
</tr>
<tr>
<td>11/32-37</td>
<td>1180</td>
<td>76.0</td>
<td>29</td>
</tr>
<tr>
<td>11/32-42</td>
<td>1330</td>
<td>79.0</td>
<td>30</td>
</tr>
</tbody>
</table>

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

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

### Tire Inflation Chart

<table>
<thead>
<tr>
<th>Wheel</th>
<th>Tire Size</th>
<th>Inflation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport/Gauge</td>
<td>8R19.5 LT</td>
<td>110 psi (760 kPa)</td>
</tr>
<tr>
<td>Transport/Gauge</td>
<td>11Lx15 Fl</td>
<td>90 psi (621 kPa)</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 websites listed below. For assistance or information, contact your nearest Authorized Farm Tire Retailer.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Web site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firestone</td>
<td><a href="http://www.firestoneag.com">www.firestoneag.com</a></td>
</tr>
<tr>
<td>Gleason</td>
<td><a href="http://www.goodyearag.com">www.goodyearag.com</a></td>
</tr>
<tr>
<td>Titan</td>
<td><a href="http://www.titan-intl.com">www.titan-intl.com</a></td>
</tr>
<tr>
<td>BKT</td>
<td><a href="http://www.bkt-tires.com/en">www.bkt-tires.com/en</a></td>
</tr>
<tr>
<td>Gleason</td>
<td><a href="http://www.gleasonwheel.com">www.gleasonwheel.com</a></td>
</tr>
</tbody>
</table>

25199
Plumbing Diagrams
Liquid Fertilizer Plumbing

Figure 136
Fertilizer Plumbing - Dual Tank System
Hydraulic Diagrams
Tongue Telescope Hydraulics (Rigid Axle)
Rotate Hydraulics
Lift Hydraulics without Markers

302-589 Valve Detail
Lift Lock Hydraulics (standard)
Frame Lock Hydraulics (standard)

Fan Hydraulics (standard)
Fan Hydraulics with Hydraulic Drive
Fan Hydraulics with Ground Drive and PTO Pump

36094
Fan Hydraulics with Hydraulic Drive and PTO Pump
Marker Hydraulics (Option)
Chain Routing
See also “Chain Maintenance” on page 104.

Legend:

- **34T**  Sprocket Tooth count
- **12i**  Idler Tooth Count
- **56P**  Chain Pitch count
- Direction of chain in motion

Ground Drive Arm Chains

Seed Range Chain

Legend:

- **Range Sprockets:**
  - 15T, 18T, 19T, 20T, 30T, 36T
Seed Transmission Chain

Transmission Sprockets:
17T, 19T, 2@23T, 24T, 25T, 26T, 27T, 28T

Fertilizer Transmission Chain

(Fertilizer Transmission Sprockets:
15T, 17T, 19T, 21T, 23T, 24T, 32T, 41T, 44T)
Dry Fertilizer Ground Drive Chains (Hydraulic Drive Planter)

<table>
<thead>
<tr>
<th>Twin Row</th>
<th>Single Row</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>15T</td>
</tr>
<tr>
<td>E</td>
<td>128P</td>
</tr>
<tr>
<td>F</td>
<td>44T</td>
</tr>
<tr>
<td></td>
<td>27T</td>
</tr>
<tr>
<td></td>
<td>135P</td>
</tr>
<tr>
<td></td>
<td>33T</td>
</tr>
</tbody>
</table>

Dry Fertilizer Transmission Chain (Hydraulic Drive Planter)

Fertilizer Transmission Sprockets:
15T, 17T, 19T, 21T, 23T, 24T, 32T, 41T, 44T
Liquid Fertilizer Ground Drive Chains

Liquid Fertilizer Range Sprockets:
15T, 47T
25AP Final Meter Drive

Legend:

34T Sprocket or idler Tooth count
56P Chain Pitch count

* be sure to reconnect idler spring

direction of chain in motion

25AP: Meter Drive (Front type)
- No idlers on mount.
  - 1 top chain passes over single idler on shank
  - 2 be sure to reconnect idler spring

25AP: Meter Drive (Mid type)
- 2 be sure to reconnect idler spring
- 3 top chain passes between 2 idlers at mount
- 4 top chain passes between 2 idlers at shank

25AP: Meter Drive (Rear type)
- 2 be sure to reconnect idler spring
- 3 top chain passes between 2 idlers at mount
- 4 top chain passes between 2 idlers at shank
 Appendix C - Initial Setup

This Appendix covers setup tasks performed only once, or at infrequent intervals. Routine setup tasks are covered in “Preparation and Setup” on page 13. Perform Appendix B tasks first. Some of these items may already have been done by your Great Plains dealer:

a. Frame-mounted row options (see manual supplied with accessory)
b. Marker setup (Option, page 149)
c. High rate dribblers (Option, page 152)
d. Scrapers (Option, page 153)
e. Fertilizer drop lines (Option, page 154)

Post-Delivery Checklist

1. Read and understand “Important Safety Information” on page 1.
2. Check that all working parts are moving freely, bolts are tight, and cotter pins are spread.
3. Check that all zerks are in place and lubricated. See “Lubrication and Scheduled Maintenance” on page 108.
4. Check that all safety decals and reflectors are correctly located and legible. Replace if damaged. See “Safety Decals” on page 6.
5. Inflate tires to pressure recommended and tighten wheel bolts as specified. See “Tire Inflation Chart” on page 133.

Initial Marker Setup (Option)

Marker Speed Adjustment

CAUTION

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

Refer to Figure 137 and Figure 138

Adjust folding speed for dual markers with hex adjustment screws on the sequence valve body. The valve sequence body is rear center on the lift structure, below the fan. Loosen jam nuts before making adjustments.

There is one adjustment screw for raising speed and one for lowering speed. You can identify adjustment screws by markings stamped in valve body.

Figure 137
Marker Sequence Valve Location
Turn adjustment screws clockwise (S: slower) to decrease folding speed and counterclockwise (F: faster) to increase folding speed.

With tractor idling at a normal operating speed, adjust marker folding to a safe speed. Excessive folding speed could damage markers and void the warranty.

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

**Marker Extension**

Marker extension needs to be adjusted once for the initial YP825AR Planter setup, and later only if changing row spacing (including row shut-off for single-row operation on a twin-capable Planter).

1. Move the Planter to a location where both markers may be safely unfolded.
2. Lower the Planter. Pull forward and lower rows into ground.

Due to the relatively steep arm angles of short markers, extension measurements are likely to be incorrect if the main tool bar is not at normal operating height (26 inches).
3. Tilt up and unfold one marker. 
Find the suggested initial marker Extension on the table on this page.

When using altered twin-row spacings, marker extensions are different for left and right.

**Refer to Figure 139 and Figure 140**

4. Measure out the Extension distance from each outside end row unit (whether in use or not). Do not measure to center of row pair.

5. Mark the ground at this point.

6. To adjust marker width, loosen nuts on U-bolts. Move marker disk tube in or out to get the proper adjustment. Tighten nuts.

7. Repeat steps 3 through 6 for the other side.

8. With the Planter still lowered, drive forward a few feet for each side.

9. Check mark locations. Adjust to obtain table value.

10. If it is necessary to adjust the disk angles for a more suitable field mark, be sure to re-check the extension.

**Marker Extension Table**

<table>
<thead>
<tr>
<th>Planter Model</th>
<th>Spacing Used</th>
<th>Marker Extension Left</th>
<th>Marker Extension Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>YP825AR</td>
<td>Standard: 22 in. Single</td>
<td>99.0 in (251.5 cm)</td>
<td></td>
</tr>
<tr>
<td>YP825AR</td>
<td>Standard: 30 in. Single</td>
<td>135.0 in (342.9 cm)</td>
<td></td>
</tr>
<tr>
<td>YP825AR</td>
<td>Standard: 30 in. Twin</td>
<td>130.8 in (332.3 cm)</td>
<td></td>
</tr>
<tr>
<td>YP825AR</td>
<td>as Single: 30 in. Single</td>
<td>122.4 in (311.0 cm)</td>
<td>139.2 in (353.5 cm)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Planter Model</th>
<th>Spacing Used</th>
<th>Marker Extension Left</th>
<th>Marker Extension Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>YP825AR</td>
<td>Standard: 70 cm Single</td>
<td>315.0 cm (124.0 in.)</td>
<td></td>
</tr>
<tr>
<td>YP825AR</td>
<td>Standard: 75 cm Single</td>
<td>337.5 cm (132.9 in.)</td>
<td></td>
</tr>
<tr>
<td>YP825AR</td>
<td>Standard: 75 cm Twin</td>
<td>326.9 cm (128.7 in.)</td>
<td></td>
</tr>
<tr>
<td>YP825AR</td>
<td>as Single: 75 cm Single</td>
<td>305.6 cm (120.3 in.)</td>
<td>348.1 cm (137.1 in.)</td>
</tr>
</tbody>
</table>

as Single: Right (front) rows in use; left (rear) rows locked up. No centerline compensation.
H.R. Dribbler Installation (Option)

These tubes are intended for near-row surface application of liquid fertilizer, after the press wheels have closed the furrow.

Refer to Figure 141

Dribbler weldments are offered in left-hand $LH$ and right-hand $RH$ variants. Generally, a twin row Planter uses LH on the left row of a twin pair, and RH on the right. A single-row Planter can use all LH or all RH.

The applicator tube ($LH$ or $RH$) is designed to accept $1/4$ inch O.D. delivery tubing with no need for a coupler.

Pre-Assemble all Dribblers

1. Select one:
   - $LH$: 204-133H LH DRIBBLER TUBE
   - $RH$: 204-134H RH DRIBBLER TUBE

   and two sets:
   - 802-092C RHSNB 5/16-18X3/4 GR5
   - 804-009C WASHER LOCK SPRING 5/16 PLT
   - 803-008C NUT HEX 5/16-18 PLT

Install Dribblers

2. Insert the bolts from the bottom of the weldment. Add lock washers above the weldment. Spin on nuts just a few turns.

3. If the press wheel tension handle (not shown) is relaxed forward, pull it backward and park it in the top side slot $1$.

4. Position a dribbler assembly near the center-line of its press wheel weldment. Allow the bolt heads to drop into the large holes of the slot. Pull the assembly so that the tube is to the outside of the row.

5. Raise the dribbler, and rotate the bolts so that the square necks engage the rectangular slots. Tighten the nuts to torque spec.

6. See “Liquid Fertilizer Drop Lines (Option)” on page 154.
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 142 and Figure 143

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 72).

2. Select one each:
   ⑥ 802-024C HHCS 3/8-16X3 GR5
   ④ 129BXT824 BRACKET FOR 890-929C FIRMER
   ③ 122-177D 10HD25 INSIDE SCRAPER MNT TUBE
   Insert the bolt ⑥, from the rear, through the lowest hole of the bracket ④. Place the tube ③ over the bolt.

3. Select one scraper set:
   ⑤ 890-928C 25 SER AIR DESIGN IN SCRAPER
   Place the shoulder washer ② on bolt ⑥ with the larger diameter to the rear (toward bolt head). Place the left scraper blade ⑤ on the washer, followed by the right scraper blade ⑤.

4. Select one each:
   ⑧ 804-011C WASHER FLAT 3/8 USS PLT
   ⑨ 804-013C WASHER LOCK SPRING 3/8 PLT
   ⑦ 803-014C NUT HEX 3/8-16 PLT
   Place the flat washer ⑧ on the bolt ⑥, followed by the lock washer ⑨ and nut ⑦. Tighten bolt and nut to 3/8-16 GR5 torque spec. Make sure blades pivot freely.

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

6. Select two sets:
   ⑧ 802-172C HHCS 5/16-18X2 1/2 GR5
   ⑧ 803-043C NUT HEX WHIZ 5/16-18 PLT
   Insert the scraper assembly ⑥ between the middle four lower square holes ⑦ of the opener frame. Secure with bolts ⑧ and whiz nuts ⑧.

7. Re-mount the removed disc blade.

Callout, Part & Description cross-references are drawn from a Reference Page.
Liquid Fertilizer Drop Lines (Option)

Booms are identical for single-row and twin-row Planters. For single-row use, and if planting single-row on a twin-row Planter, half of the nozzles are shut off.

Drop lines are not factory-installed, and may not be dealer-installed, because there can be multiple possible applicator connection points, including:

- frame-mounted coulter applicator
- 25AP Series nut bar applicator
- seed firmer applicator
- press wheel dribbler

Install Caps on Taps

Refer to Figure 144

1. Determine which manifold taps are to be active, and which shut off.
2. For each active row, select one:
   
   832-051C NOZZLE CAP QUICK X 90X1/4 FNPT

   Align the nozzle with the manifold tube. Press down and rotate 90°.

   Nozzles may face forward or back, at user preference.

   Orifice plates may be installed prior to capping, if the size is known.
3. For each shut-off row, select one:
   
   832-042C NOZZLE SHUT OFF CAP W/ GASKET

   Press cap down and rotate 90°.

Install Drop Lines to Rows

Drop line tubing is supplied on one or more uncut coils:

990-109R TUBE NYLON 1/4OD X 062WL

Lengths are cut for each active nozzle.

4. Route tubing and cut. Routing goals are:

   - Allow slack at the nozzle for nozzle removal and orifice plate changes.
   - Route to avoid Planter moving parts which could cause tubing damage.
   - Route for continuous down slope - avoid low spots in tubing.
   - Allow slack along the route to anticipate coulter or row unit vertical range of motion.
   - Secure the tubing with tie-wraps only where Planter operations can’t cause tubing movement.

5. At the nozzle end, if the tubing adapters are not already installed, select one:

   800-367C AD PUSH 1/4TUBEX1/4MNPT

   Apply liquid pipe thread sealant. Thread the adapter into the nozzle.

6. Insert the drop line tube into the adapter.

7. At the application end, select one:

   830-383C CP 1/4 PUSH LOK POLY

   Confirm that the coupler is required for, and compatible with, the style of applicator. Push the coupler onto the applicator tube. Push the drop line tube into the coupler.

   When the coupler is not used, typically with 1/2 inch O.D. steel applicator tubes, push the drop line tubing entirely through the applicator tube, leaving 1/2 inch to 3/4 inch of tubing length exposed. Tie wrap the tubing near the top of the applicator tube.
Yield-Pro® Planter Warranty

Great Plains (a division of Great Plains Manufacturing, Inc.) warrants to the original purchaser that this Great Plains unit will be free from defects in material and workmanship for a period of one year from the first use date when used as intended and under normal service and conditions for personal use; ninety days for custom/commercial or rental use.

A Second year limited warranty covers units utilizing Yield-Pro (YP) planter frames with 25 series row units and singulating type meters. The second year limited warranty covers parts only (personal usage only excluding labor and wear items) on the following: hitch main frame, gauge wheels, and markers, air box/manifold, Y-splitter tubes, and fan and housing, row unit weldments, unit mounted attachments, and frame mounted attachments.

This Warranty is limited to the replacement of any defective part by Great Plains and the installation by the dealer of any such replacement part. Great Plains reserves the right to inspect any equipment or part which are claimed to have been defective in material or workmanship.

The following items and/or conditions are not covered under warranty: failures resulting from abuse or misuse of the equipment, failures occurring as a result of accidental damage or acts of God, 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), repeat repair due to improper diagnosis or repair by the dealer, temporary repairs, service calls and/or mileage to and from customer location, overtime premium, or unit hauling expenses. The warranty may be voided if the unit is towed at speeds in excess of 20 miles per hour (32 kilometers per hour), or is used in soils with rocks, stumps, or other obstructions.

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 express or implied, is made with respect to this sale; and all implied warranties of merchantability and fitness for a particular purpose which exceed the obligations set forth in this written warranty are hereby disclaimed and excluded from this sale.

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