Operator Manual

1625IRHD
11 and 12 meter 2-Section 25 Series Yield-Pro®
Row Hopper Air-Pro® Planters
with Individual Row Control

Great Plains
Manufacturing, Inc.
www.greatplainsmfg.com

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 model 1625IRHD, optional equipment not supplied with standard unit, or may depict similar Yield-Pro® 25 Series or YP1630F systems or components where a topic is identical.
**Machine Identification**

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

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

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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 fertilizers, 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 treatment dust or vapors unless label specifies another type of respirator.
- Waterproof, unlined gloves. Neoprene gloves are recommended.
- Cloth coveralls/outer clothing changed daily; waterproof items if there is a chance of becoming wet with spray
- Waterproof boots or foot coverings
- Do not wear contaminated clothing. Wash protective clothing and equipment with soap and water after each use. Personal clothing must be laundered separately from household articles.
- Clothing contaminated with certain pesticides must be destroyed according to state and local regulations. Read chemical label for specific instructions.
- Wear clothing and equipment appropriate for the job. Avoid loose-fitting clothing.
- Prolonged exposure to loud noise can cause hearing impairment or loss. Wear suitable hearing protection such as earmuffs or earplugs.
- Avoid wearing entertainment headphones while operating machinery. Operating equipment safely requires the full attention of the operator.

Avoid High Pressure Fluids

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

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

- Read and follow chemical manufacturer’s instructions.
- Wear protective clothing.
- Handle all chemicals with care.
- Agricultural chemicals can be dangerous. Improper use can seriously injure persons, animals, plants, soil and property.
- Inhaling smoke from any type of chemical fire is a serious health hazard.
- Store or dispose of unused chemicals as specified by the chemical manufacturer.
- Immediately and thoroughly flush any area of the body that is contaminated by chemicals.
- If chemical is swallowed, carefully follow the chemical manufacturer’s recommendations and consult with a doctor.
- If persons are exposed to a chemical in a way that could affect their health, consult a doctor immediately with the chemical label or container in hand. Any delay could cause serious illness or death.
- Dispose of empty chemical containers properly. By law rinsing of the used chemical container must be repeated three times. Puncture the container to prevent future use. An alternative is to jet-rinse or pressure rinse the container.
- After working with chemicals, wash hands and face before eating. Shower when application is completed for the day.
- Never wash out the tanks within 30 m (100 feet) of any freshwater source or in a car wash.
- Rinse out the tank. Apply rinse water on last field treated.

Keep Riders Off Machinery

Riders obstruct the operator’s view. Riders could be struck by foreign objects or thrown from the machine.

- Never allow children to operate equipment.
- Keep all bystanders away from machine during operation.

Use Safety Lights and Devices

Slow-moving tractors and towed implements can create a hazard when driven on public roads. They are difficult to see, especially at night.

- Use flashing warning lights and turn signals whenever driving on public roads.
- Use lights and devices provided with implement
Transport Machinery Safely

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

▲ Do not exceed 32 km/h (20 mph). Never travel speeds which do not allow adequate control of steering and stopping. Reduce speed if towed load is not equipped with brakes.
▲ Comply with state and local laws.
▲ Do not tow an implement that, when fully loaded, weighs more than 1.5 times the weight of towing vehicle.
▲ Carry reflectors or flags to mark planter in case of breakdown on the road.
▲ Keep clear of overhead power lines and other obstructions when transporting. Refer to transport dimensions under “Specifications and Capacities” on page 130.
▲ Do not fold or unfold the planter while the tractor is moving.

Shutdown and Storage

▲ Lower planter, put tractor in park, turn off engine, and remove the key.
▲ Block tires with wheel chocks provided.
▲ Secure planter using blocks and supports provided.
▲ Detach and store planter in an area where children normally do not play.

Tire Safety

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

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

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

Safety At All Times

Thoroughly read and understand the instructions in this manual before operation. Read all instructions noted on the safety decals.
▲ Be familiar with all planter functions.
▲ Operate machinery from the driver’s seat only.
▲ Do not leave planter unattended with tractor engine running.
▲ Do not dismount a moving tractor. Dismounting a moving tractor could cause serious injury or death.
▲ Do not stand between the tractor and planter during hitching.
▲ Keep hands, feet and clothing away from power-driven parts.
▲ Wear snug-fitting clothing to avoid entanglement with moving parts.
▲ Watch out for wires, trees, etc., when folding and raising planter. Make sure all persons are clear of working area.
Safety Decals

Safety Reflectors and Decals

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

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

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

Slow Moving Vehicle Reflector
818-55C

On the back of the planter, walkboard center; 1 total
See “Transporting” on page 32.

Red Reflectors
838-266C

On the back of fertilizer hopper frame each end, and on the inside rear face of each light mounting bar; 4 total
**Amber Reflectors**

838-265C

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

**Daytime Reflectors**

838-267C

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

On the rear walkboard face of the central dry fertilizer hopper (option) or liquid fertilizer tank (option); 1 total.

Danger: Crushing Hazard
818-590C

On the left side of the 3-point hitch: 1 total.

See “Hitching Tractor to Planter” on page 19.

Danger: Electrocution Hazard
838-599C

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

See “Marker Operation” on page 55.
Danger: Do Not Ride
848-583C

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

Warning: Tank Installation Hazards
10353

This decal is provided by the tank manufacturer and may be present on the liquid fertilizer tank of models 1625AHL. This decal does not need to be replaced if damaged or illegible.

0 or 1 total

Warning: Pinch-Crush
818-045C

On both sides of wing gauge wheel caster weldments; 4 total

Warning: Excessive Speed
818-188C

On left side of tongue near hitch; 1 total
See “Transporting” on page 32.
Warning: High Pressure Fluid Hazard
818-339C

On left side of tongue near hitch;
1 total
See “Hydraulic Hose Hookup” on page 20.

Warning: Pinch-Shear Hazard
818-579C

On marker section each end, two total
See “Marker Operation” on page 55.

Warning: Overhead Hazard
818-580C

On marker section each end, two total
See “Marker Operation” on page 55.
Warning: Confined Space
818-628C

To prevent serious injury or death by suffocation or being overcome by ened treadboard flames:
• Do not climb into bin.
• Lower strain basket in bin.

On the rear walkboard face of the central dry fertilizer hopper (option) or liquid fertilizer tank (option); 1 total

Warning: Fan Hazard
818-632C

To prevent serious injury or death:
• Do not operate with fan screen removed.

On center rear face of walkboard frame; 1 total
Warning: Moving Parts
818-860C

On outer face of central hopper lower support tubes, on variable rate gearbox input chain guards, on all ground drive arm guards on all removable ground drive guards; 14 total

Warning: Eye and Dust Hazards
848-392C

On the rear walkboard face of the central dry fertilizer hopper; 1 total
Warning: Falling Hazard
848-575C

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

Warning: Moving Parts
848-576C

On inlet of fertilizer meter, above final range gears; 1 total
Caution: Tires Not A Step  
818-398C

On both sides of wing gauge wheel caster weldments, and on rear outer corners of central hopper frame; 4 total

In transport configuration, wing gauge wheels are off the ground and free to spin. In field configuration, at higher row unit down-forces, wing gauge wheels may have little or no ground traction.

Caution: Tire Pressure  
838-426C

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

On right side of tongue near hitch;
1 total

Warning: Tire Pressure
858-792C

On outside rim of each main transport wheel;
2 total
Introduction

Great Plains welcomes you to its growing family of new product owners. This planter has been designed with care and built by skilled workers. Proper setup, maintenance, and safe operating practices will help you get years of satisfactory use.

Description of Unit

The 1625IRHD 11 and 12 meter 2-Section 25 Series Yield-Pro® Row Hopper Air-Pro® Planters are pull-type planting implements for use in conventional till, minimum-till, or light no-till conditions.

Yield-Pro® Planters have 25 Series, side-depth-control row-units with Air-Pro® seed meters. Optional dry fertilizer is air-delivered from a central bulk hopper. Optional liquid fertilizer is fed from a central tank by a ground-drive pump. Optional unit-mounted coulters are suitable for light to moderate no-till conditions. The planter folds for 4 m (13 foot) transport width.

Intended Usage

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

Using This Manual

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

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

Definitions

The following terms are used throughout this manual.

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

This set-off format indicates a useful point of information related to the current topic.

NOTICE

Economic and/or Liability Risks:

This alert format contains a crucial point of information related to the current topic. Read and follow the directions provided before continuing, to ensure safety, avoidance of machine damage, and to achieve desired field results.
Owner Assistance

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

Refer to Figure 2

Your planter’s parts were specially designed and should only be replaced with Great Plains parts. Always use the serial and model number when ordering parts from your Great Plains dealer. The serial-number plate is located near the right main transport tire, on the rear face of the right riser of the front frame weldment.

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

Model Number: ____________________________
Serial Number: ____________________________

Further Assistance

Great Plains Manufacturing, Inc. and your Great Plains dealer want you to be satisfied with your new 1625AHD/L. 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 planter for use. Before using the 1625IRHD in the field, you must hitch the planter to a suitable tractor and level the planter.

Initial Setup

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

"Appendix C - Initial Setup" on page 144, which includes:
"Hydraulic Charge and Bleed" page 144,
"Seed Monitor Console Installation" page 144,
"Level Planter" page 145,
"Wing Alignment" page 146,
"Speed Calibration" page 147, and
"Marker Extension" on page 147.

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

Pre-Planting Setup

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

1. Read and understand "Important Safety Information" on page 1.
2. Check that all working parts are moving freely, bolts are tight, and cotter pins are spread.
3. Check that all zerks are in place and lubricated. See "Lubrication" on page 113.
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 131.
6. If returning the planter to service from storage, remove any grease used to protect cylinder rods.
Hitching Tractor to Planter

**DANGER**

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

**Hydraulic Hookup**

**WARNING**

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

**3-Point Hitch**

Refer to Figure 3

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

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

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

10. Store 3-point stands. There are two methods:


   b. Remove both pins. Invert stand. Re-pin.

**CAUTION**

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

Refer to Figure 4

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

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

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

If the tractor has a limited number of remotes capable of continuous flow, use one for the hydraulic fan. (See “Specifications and Capacities” on page 130 for tractor requirements.)

Raising/Lowering Tongue

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

11. Set the initial tongue height. Distance \( h \), measured at top of tongue tube is:
   \[ h = 107 \text{ cm (42 inches)} \] above ground level
   Additional planter leveling information is found on page 145.

Electrical Hookup

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

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

Models with seed Monitors

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

- Lighting connector
  (1 standard)
- IntelliAg® Monitor connector
  (1 standard; see page 144 for console installation.)
- ______________________

Store Main Parking Stand

Refer to Figure 7

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

Refer to Figure 8

Model 1625IRHD planters include DICKEY-john® seed monitors:

- IntelliAg® WSMT3

Monitors the following elements of a 1625IRHD planter:

- seeds at each row unit seed tube;
- ground speed;
- dry fertilizer at row drop tubes (1625IRHDD models);
- dry fertilizer hopper level (1625IRHDD models).

Monitor Setup

See “See the DICKEY-john® IntelliAg® WSMT3 Manual (110011650) for details on console installation.” on page 144.

Refer to the DICKEY-john® IntelliAg® WSMT3 Manual (110011650) for monitor operations.

For speed setup, Great Plains recommends using the 100 m or 400-foot speed calibration described in the DICKEY-john® manual. Perform the calibration run in representative field conditions, as soil conditions, surface looseness and other tillage practices can cause variations in the effective rolling radius of the ground drive wheel.

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

Marker Setup (Option)

Prior to first use, check and adjust:

- “Dual Marker Speed Adjustment” on page 62.

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

- “Marker Extension” on page 147.

Prior to each planting session, check and adjust:

- “Marker Disk Adjustment” on page 62.
Operating Instructions

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

Pre-Start Checklist

1. Carefully read “Important Safety Information” on page 1.
2. Lubricate planter as indicated under “Lubrication” on page 113.
3. Check all tires for proper inflation. See “Tire Inflation Chart” on page 131.
4. Check all bolts, pins and fasteners. Torque as shown in “Torque Values Chart” on page 131.
5. Check planter for worn or damaged parts. Repair or replace parts before going to the field.
6. Check hydraulic hoses, fittings and cylinders for leaks. Repair or replace before going to the field.
7. Be sure hydraulic hoses are securely held out of the ball swivel area at hitch. Failure to do so could cause hoses to pinch requiring hose replacement.

Frame and Wing Lock Overview

The 1625IRHD planters include six locks for the frame and wings:

Refer to Figure 9 (which depicts a folding test on an incomplete planter)

1. Transport lock channels at wing caster cylinders: These lock channels prevent the frame from fully lowering during transport and maintenance. They are installed prior to folding, and removed after unfolding. See page 26 and 30.
2. Lift cylinder lock channels above frame pivots: These lock channels are only required during maintenance. However, if installed, they must be removed after unfolding. See page 27 and 95.

High Pressure Fluid Hazard:
Check all hydraulic lines and fittings before applying pressure. Escaping fluid under pressure can have sufficient pressure to penetrate the skin. Fluid escaping from a very small hole can be almost invisible. Use paper or cardboard, not body parts, and wear heavy gloves to check for suspected leaks. If an accident occurs, seek immediate medical attention from a physician familiar with this type of injury.
Refer to Figure 10 and Figure 9 on page 23

3. Wing locks at mid-tongue and inside wing casters:
   These prevent the planter from unfolding while in transport. The tongue (hitch) is raised to allow the hooks to clear the locks. See page 26 and 30.

4. Transport hooks behind the wing pivots:
   These prevent the planter frame from fully lowering when folded. The planter frame is raised to allow the wings to clear the hooks. The hooks are automatic, and have an indicator wire to make the status visible from the tractor cab.

5. Tongue Latch:
   This automatic feature couples the tongue to the hitch when afield, and helps prevents unintended folding during reverse moves when unfolded. Unfolding is complete when the large roller bushing on top of the tongue is engaged by the tongue safety latch.

**NOTICE**

**Planter Damage Risk:**
Do not plant if the tongue latch is not fully down over the roller. Frame and opener damage is likely if the planter is operated with the latch open.
Refer to Figure 13

6. Clutch Folding Module:

When the switch is in the MARKER position, hydraulic flow to the fold cylinders is blocked. This provides additional protection against unintended folding during reverse moves when unfolded.

Set the switch to FOLD only during fold and unfold operations. When afield and using markers, the switch is normally set to and left in the MARKER position.

Unfolding the Planter

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

**WARNING**

**Crushing, Pinch-Point and Overhead Hazards:**
To prevent serious injury or death:

▲ Unfold only on hard level ground. Allow ample room.
▲ Allow no one on or near the planter during unfolding.
▲ Stay clear of the wing sweep arcs. The sweep arcs of the wings have numerous pinch and crush points in the mechanism. Coulters and row openers are sharp.
▲ Allow no one near planter during unfold. The fertilizer cart usually moves forward during unfolding.
▲ Do not unfold with planter lowered.
▲ Unfold only with markers resting in transport cradles.
▲ Unfold only if hydraulics are bled free of air and fully charged with hydraulic oil.
Unfold: Prepare Hitched Tractor and Planter

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

Unfold: Raise Wing Frames

3. Extend the planter lift hydraulic circuit. Raise the planter until the caster and center lift cylinders are fully extended (wing frames fully raised). Set the hydraulic circuit to Neutral to hold at full lift. Shut off tractor.

   This disengages the transport hooks (see page 24) which prevent the frame from fully lowering when the planter is fully folded. To clear the hooks, the frame is fully raised.

Unfold: Remove Caster Lock Channels

Refer to Figure 14

4. Unpin the lock channel 1 at each caster. Store on tube weldment 2 at caster front face.

Unfold: Remove Center Lock Channels

Refer to Figure 14

5. Verify that these lock channels 3 are not installed on the cylinder rods. Typically, they will be in storage, as they are not used for routine operations. If they are installed, move them to the tube weldments 4 on each side of the lift assembly. See “Remove/Store Center Lift Locks” on page 27.

Unfold: Re-Phase Fold Cylinders

6. Set Hydraulic Selector Marker/Fold switch to “FOLD” to enable fold cylinder hydraulics.
7. The fold system uses re-phasing cylinders. It is necessary to re-phase cylinders so that wing gauge wheels run in their fully rotated-in positions in front of planter. To re-phase fold cylinders, move and hold lever for Marker/Fold in Fold direction (typically Extend) for 30 seconds. This causes the wings to push against the polymer buffers.

Unfold: Raise Tongue to Unlock Wings

8. Raise the 3-point hitch to raise wing lock 5 out of the wing hooks 6.

Unfold: Partially Unfold

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

9. Reverse (typically Retract) the fold circuit lever until wing hooks clear wing lock by about 1 m (3 ft.).

Unfold: Lower Tongue

10. Lower 3-point hitch or hydraulic tongue to planting position. See page 20 and page 145 for correct hitch height and depth control settings.

Unfold: Fully Unfold

11. Resume the unfold until the wings are fully unfolded, wing casters are fully rotated inward, and the tongue latch has fully captured the roller bushing.

Planter Damage Risk:
Do not plant if the tongue latch is not fully down over the roller. Frame and opener damage is likely if the planter is operated with the latch open.

12. Set the fold circuit lever to Neutral.
13. Set the Hydraulic Selector Marker/Fold switch to MARKER to lock the wings at unfolded.

The planter is still raised at this point. Do not lower the wing frames until lined up at the start of the first pass.
Remove/Store Center Lift Locks

Refer to Figure 15

14. Remove lock channels ① from vertical cylinders ② above pivots.
Raising/Lowering Planter

The planter mainframe raises and lowers independently of the tongue.

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

Refer to Figure 16

Leave or set the selector switch for hydraulic tongue to up/Lift ①.

Raising Planter

The planter may be raised at any time.

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

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

Lowering Planter

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

Install lock channels (page 23) as appropriate for next activity.

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

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

Re-phasing Lift System

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

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

To re-phase cylinders:

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

Lowering Planter Hazard:

Use transport locks. A raised planter slowly lowers when held up solely by circuit Neutral. Anyone beneath the row units could be trapped and injured. Rely on circuit neutral to hold the planter raised only for brief periods, such as field turns and during lock channel installation. Use lock channels at all other times.

Crushing Hazard:

Keep all persons away from frame sections during lift and lower. Area under row units is particularly dangerous. Sharp coulter and opener blades descend with hundreds of pounds of down-force.
Folding the Planter

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

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

**WARNING**

**Pinch Point and Crushing Hazard:**
To prevent serious injury or death:
- Fold only with planter raised and lock channels installed.
- Fold only if hydraulics are bled free of air and fully charged with hydraulic oil.
- Stay away from frame sections when they are being raised or lowered.
- Keep away and keep others away when folding or unfolding planter.
- Fold markers onto cradles before folding planter.

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

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

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

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

For servicing, or to hold at lift when unfolded, also install center section lift locks (see page 95)

Refer to Figure 17 (depicting a similar model YP1630F)

7. Remove lift cylinder transport lock channels from their storage positions.

8. Place transport lock channels on lift cylinders located on gauge wheels.

Activate Fold Solenoid Valves

Refer to Figure 18

9. Set the selector switch to “Fold” ®. This opens the solenoid valves for tongue lock, fold cylinders and caster arm cylinders.

Begin Folding

⚠️ DANGER ⚠️

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

10. Extend the fold cylinders and fold the planter until the wing hooks are about 1 m (3 ft.) from the lock assembly on the tongue.
Raise Tongue

Refer to Figure 19

11. Raise 3-point hitch until wing hooks ② clear locks ① on tongue.

Complete Fold

12. Continue or resume folding until the wing locks contact lock plate (under hooks).

Lower Tongue

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

Re-phasing Fold System

Over a period of normal use, the cylinders may get out of phase. This is evident by wing gauge wheels not running in their fully rotated-in positions in front of the planter.

Disclaimer: Planter must be folded to rephase fold system. See "Unfold: Re-Phase Fold Cylinders" on page 26.
Transporting

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

Before transporting, follow and check these items:

- Set the tractor 3-point hitch control for depth control operation. If the 3-point hitch control is set for load control, the auto load control response may automatically adjust too high in some circumstances, causing the wing locks to disengage on the road.
- Empty fertilizer hopper, row seed hoppers and treatment hoppers (option), if at all possible.
- The planter can be transported with full hoppers, but the added weight increases stopping distance and decreases maneuverability.
- Transport planter only while in folded position. Refer to "Folding the Planter" on page 29 and make sure cylinder lock channels are in place.
- Warning lights. Always use warning lights when transporting the planter.
- Road rules. Comply with all national, regional, and local safety laws when traveling on public roads.
- Clearance. Remember that the planter may be wider than the tractor. Allow safe clearance.
- Transporting with Markers. Always transport markers in the folded position. Make sure second marker section rests securely on transport carrier.

Transport Weights

<table>
<thead>
<tr>
<th></th>
<th>1625 AHD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Empty</td>
<td>9980 kg (22,000 pounds)</td>
</tr>
<tr>
<td>Typical Full</td>
<td>14240 kg (31,400 pounds)</td>
</tr>
<tr>
<td>Maximum Empty</td>
<td>11930 kg (26,300 pounds)</td>
</tr>
<tr>
<td>Maximum Full</td>
<td>17240 kg (38,000 pounds)</td>
</tr>
</tbody>
</table>

1 Markers, Frame-Mounted Coulters (FMC)
2 Markers, FMC, UM Row Cleaners

**WARNING**

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

Planter weight can vary by thousands of kilograms depending on configuration and material load. If you are not sure that your tractor weighs at least 67% of the planter, or that the planter is within the load rating of the tractor, have the planter weighed at a scale.
Loading Materials
The 1625IRHD planter has bulk containers for one of two materials:

- **A** Optional: 2800 liter (750 gallon) central liquid fertilizer tank.
- **B** Optional: 3500 liter (100 bushel) central dry fertilizer hopper.

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. See "Loading Dry Fertilizer (Option)" on page 38.

- **2** Standard: 60 liter (1.6 bushel) [105 liter (3.0 bushel) on single-row] seed hopper at each row.

See "Loading Seed" on page 34.

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

**For Loading All Materials**

1. Check tractor capability:
   If loading prior to transport, ensure that the tractor is rated for the load. Full hoppers can increase the weight of the planter by nearly 5700 kg (nearly 12600 pounds).

2. Secure planter:
   If raised and unfolded, install transport locks (page 30).
   If raised or folded, block tires or set brakes on any hitched tractor.

3. Turn off planter fan. This eliminates needless blowing dust when filling the fertilizer hopper.
Loading Seed

Machine s/n:
3.0 bu Hopper s/n D1001B+
1.6 bu Hopper s/n C1004B+

Refer to Figure 13
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 14
1. Hopper lids ① are held in place by a latch ② and a hinge ③.
2. Release the latch and allow the gas spring ④ to raise the hopper lid. Leave the lid all the way open to prepare the hopper for loading. Refer to Figure 22
Refer to Figure 23

3. Install correct seed disks (page 75).
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 120.

Refer to Figure 24

6. Pre-mix seed and lubricant.

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

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

⚠️ NOTICE

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

7. Add seed and lubricant to hoppers.
Machine s/n:
1.6 bu Hopper s/n C1003B-
*Refer to Figure 25*

The capacity of this hopper is 1.6 bu.

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

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

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

**Early Production Hopper Lids**
*Refer to Figure 26*

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

*Refer to Figure 27*
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 28

1. Install correct seed disks (page 75).
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 120.

Refer to Figure 29

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 Dry Fertilizer (Option)**

**Hopper Safety Information**

⚠ **DANGER**

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

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

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

⚠ **CAUTION**

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

⚠ **NOTICE**

**Planting Consistency Risk:**
Check lid seals for damage and permanent compression at frequent intervals. Check that latch closes lid tightly. Avoid metering problems caused by air leaks. Air leaks can cause irregular metering of materials.
Related Topics
“For Loading All Materials” on page 33
“Dry Fertilizer Unloading and Clean-Out” on page 98

Swing-Down Railing Section
Refer to Figure 30
If fertilizer will be loaded via auger, from behind the planter, the walkboard handrail height may be reduced for auger tube clearance.

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

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

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

Refer to Figure 30
1. Lift handle 2.

Refer to Figure 31 and Figure 32
2. Swing handle 2 out until hook 3 releases from U-bolt.
3. Move hook 3 clear of U-bolt and re-close handle.

Refer to Figure 32
4. Lift lid slightly at pivot end to clear strainer 4.
5. Swing lid away from walkboard. Open only enough to accomplish the present task.
6. Check that the strainer basket 5 is clean and in place.

CAUTION
Do not operate without a strainer: It is an important safety feature that prevents accidental entry into the hopper. It also prevents larger foreign matter from clogging the meter and air system.

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

**NOTICE**

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

**Refer to Figure 33**

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

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

**Load Fertilizer**
Add dry fertilizer to the hopper.
Do not fill above the 3500 L (100 BU.) mark.
Use only granular dry fertilizer.
Do not add liquid treatments.

**Lid Closing**

**Refer to Figure 34**

1. Swing lid over opening until capture hook  is centered on U-bolt.
2. Open handle  and engage hook  on U-bolt.
3. Close handle  for operations or short-term parking. For long-term storage, do not engage hook or latch handle, to avoid deforming the seal.
4. For storage, particularly unlatched, a padlock through both U-bolts deter unauthorized lid opening, preventing entry of pests, debris and precipitation.

Close walkboard rail section if opened for auger material loading.

**Monitor Operation**

For monitor operation in the field, refer to the Dickey-john Planter Drill Control (PDC) WSMT3, Level 2 & 3 manual.
Ground Drive Lock-Up

Dry Fertilizer Drive Lock Up (Option)

For transport, storage and planting without fertilizing, lock up the fertilizer ground drive.

Avoid operating the dry fertilizer meter when not applying dry fertilizer.

**CAUTION**

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

The dry fertilizer system is driven by a ground drive wheel. When the planter is raised, a hydraulic cylinder extends to raise the dry fertilizer drive wheel arm and wheel out of ground contact.

For extended periods of time, the arm needs to be locked up, or the wheel may slowly lower. A rotating lock arm is provided that automatically engages when a lowered drive arm is raised.

*Refer to Figure 35*

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

**Dry Drive Re-Engagement**

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

Secure the lock arm with the clevis pin and hairpin cotter.

![Figure 35](image-url)

Locked Up Dry Fertilizer Drive
# Field Setup Checklist

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

<table>
<thead>
<tr>
<th>ELECTRICAL</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>All connections made</td>
<td>21</td>
</tr>
<tr>
<td>Check all lights</td>
<td></td>
</tr>
<tr>
<td>Power up monitor, Watch for diagnostics.</td>
<td>Al 120</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HYDRAULIC</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tractor reservoir full</td>
<td></td>
</tr>
<tr>
<td>All hydraulic circuits connected</td>
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Air System Operation

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Figure 36
Planter Air System for Air-Pro® Seed Metering
Air and Seeding System Overview

Refer to Figure 36, on page 43, and Figure 37.

Callout numbers \(A1\) through \(A33\) are consistent throughout this manual and refer to air system and seed metering components.

The hydraulic fan \(A1\) supplies air exclusively for meter operation. Fan rpm is operator-adjusted (page 48), normally via the tractor circuit’s hydraulic flow control.

On dry fertilizer models, the fan first supplies a manifold \(A29\) that divides airflow for meter pressurization and fertilizer delivery. A sensor port \(A13\) measures raw fan pressure, reported on a third Magnehelic® gauge \(A14\) located inboard of the right wing Magnehelic® gauge \(A33\). A manually-adjusted butterfly valve \(A15\) is provided at the fan outlet. See page 47 for adjustment.

Meter pressurization air \(A16\) is divided for each wing at a splitter \(A17\), which has no adjustments.

An inlet \(A18\) routes the meter pressurization air into the wing frames. A butterfly valve \(A19\) at each inlet is normally fully open, but is available for balancing pressures (see page 49).

The wing frames act as manifolds and have exit ports \(A28\) for all possible row spacings. Unused ports are plugged. Active ports have an elbow \(A20\) which supplies air to a row unit Air-Pro® meter \(A27\).

Seed is delivered from the seed hopper \(A23\) by gravity to the inlet \(A24\) of the Air-Pro® seed meter.

A manually adjusted inlet shutter \(A25\) controls the size of the seed pool \(A26\) 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 Seed Rate Manual for initial settings. See page 73 for shutter adjustments.

At the meter, pressurization air exits the meter through the seed pockets \(A27\) of the disk, and holds seed in the pockets until released above the seed tube \(A28\).

In the seed tube, the seed sensor \(A29\) 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 \(A31\) for the meter pressurization system. A line \(A31\) from each of these rows is connected to a chamber \(A32\) to average the pressures.

The averaged pressure is reported by a Magnehelic® gauge \(A33\) visible to the tractor operator. See page 48 for use of the gauge in making fan adjustments.

A sensor \(A30\) 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 77), and closing the seed inlet shutter (page 73), 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.
Air-Pro® Meter Operation

Refer to Figure 38

The meter disk is driven, top forward, by an electric motor. At non-planting rows, use a blank disk (page 77).

Meter pressurization air enters the meter at A16, and exits the meter primarily at the seed pockets in the seed disk. The pressure differential holds seed in the disk pockets A27 rising from the seed pool. Excess seed at a pocket is picked off by the tickler brushes.

The strip and drop brushes block meter pressurization air. Seeds passing the drop brush A3 are free to fall into the seed tube, and are detected by the seed sensor A25.

Meter Operation

1. Install disks for your crop/population range per the Seed Rate Manual and the instructions beginning on page 75 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 77) and close shutter.

3. Operate fan to achieve suggested manifold pressure (Seed Rate Manual, and page 47).

4. With all rows primed, perform Fill Disk via Monitor to fill pockets to edge of drop brush.

5. 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 83, “Material Clean-Out” on page 96, and “Meter Brush Maintenance” on page 105.
Fan Operation

See also “Air Systems General Operating Information” on page 47.

Refer to Figure 39

Three hydraulic hoses serve the fan, and must be properly connected for the fan to operate in the correct direction, at recommended speeds, and without damage. See “Hydraulic Hose Hookup” on page 20.

1. Always connect the case drain line first.

   This line protects the outer shaft seal of the hydraulic motor. The case drain is a small line to the hitch, provisioned with a specialized low-seep flat-face case drain Quick Disconnect. Pressure spikes during motor operation, and pressure cycles due to temperature change are bled off by the case drain.

   Motor Seal Damage Hazard:
   Do not apply pressure to the case drain line. Do not change the special QD connector. A restricted or sealed case drain line will promptly result in motor seal damage.

2. Connect the motor return line second, to sump.

   The planter includes a 1 1/16 inch low back-pressure QD coupler set. Install the receptacle on a tractor sump port, and not at a normal remote return port. The unusual size aids in ensuring correct connection, so that the motor return line handles high volume at low back-pressure, ensuring full motor performance.

3. Connect the motor inlet line to a tractor remote capable of the flow rates shown at “Fan General Operating Information” on page 48.

4. The fan hydraulic circuit includes a check valve, which provides a relief path for oil at motor shutoff. The resulting low fan rpm provides 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).

   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 operating rpm. A reversed fan is incapable of providing sufficient air flow for planting.

   Fan speed is controlled by the tractor circuit (and not the seed monitor). Fan rpm is reported by the seed monitor. Rely on the Magnehelic® pressure gauges to optimize fan rpm.
Air Systems General Operating Information

Air system setup differs for liquid and dry fertilizer planters.

 REFER TO FIGURE 36 ON PAGE 43 AND FIGURE 42

Two Magnehelic® meter pressurization gauges (one each wing, bearing Air-Pro® decals) have scales of 0-to-6 inches of water pressure. Normal readings are in the range 0.8 to 4.0, and vary considerably with crop (see Seed Rate Manual).

 REFER TO FIGURE 36 ON PAGE 43 AND FIGURE 41

On dry fertilizer configurations (models 1625AHD), there is a third Magnehelic® gauge (right wing, inboard of the Air-Pro® gauge, and bearing a fan system decal). This gauge has a scale of 0-to-50 inches of water pressure. Typical readings are in the range 35-to-45.

• The objectives are to:
  - obtain recommended meter pressurization, maintain it during end-of-pass marker fold, lift and turn, and prevent seeding skips, and dry fertilizer blockage when planting and applying.
  - For any setup adjustment while parked, operate the tractor engine at typical field rpms, and not at idle.
  - Preset the butterfly valves. See planter-specific advice in the following pages for setting butterfly valves.
  - Seed meters must be full (to inlet shutters) for valid gauge readings. Air escaping up an empty seed tube results in low readings. With a full meter, readings may vary slightly when seed disk pockets are also full.
  - Set the fan circuit flow to bring the Air-Pro® gauge reading to near the recommended value.
  - If needed, fine tune the meter pressurization with the butterfly valves.
  - If the tractor has marginal flow available, or the lift circuit has priority, you may need to experiment with combinations of fan flow and butterfly valve settings.

⚠️ Fan speed can change as oil heats to operating temperature. Re-check pressure gauges more often during early operations.

⚠️ Fan speed can change between planting and no-seed-in-disks states. Monitor meter pressurization when planting with full seed disks.

⚠️ 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:
The fan requires up to 20 gpm. This figure does not include oil for lift 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 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.
Fan General Operating Information

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

Starting Fan

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

Monitor fan output with the Magnehelic® pressure gauge.

Gradually bring fan up to the pressure recommended for your rate. Normal readings are in the 35 inches to 45 inches of water (H₂O) range with the system operating (material flowing). Pressure needed varies with material properties and application rate.

At excessive rpm, too much air flow can cause:

- oil heating
- slow lift times
- fan motor damage, over 9000 rpm

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

If air system does not operate suitably at suggested pressures, see "Dry Fertilizer Delivery Troubleshooting" on page 89.

Stopping Fan

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

Butterfly Valve Operation (all valves):

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

0° is open - maximum air flow.

90° is closed - no air flow.

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

![Figure 42](image.png)

**Equipment Damage Risk:**

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

Do not operate fan above 9000 rpm.

- Fan pressure readings are lower when no dry fertilizer is flowing. It may not be possible to reach 40 in. H₂O without material flow.

- Fan speed is likely to require adjustment when afield. Back-pressure from the material workload:
  - increases pressure
  - reduces CFM
  - increases fan speed (due to cavitation).

- Higher material rates require higher pressure. Maximum application rates (approaching 400kg/ha) typically require 40 in. H₂O or more.
Balancing Wing Pressures

Refer to Figure 43

For any model planter, the in-frame manifold inlet A18 on each wing has a butterfly valve A19. These valves are normally set to full open (0°).

It is unlikely, but possible that a pressure imbalance could occur in the field. This might appear as skips or low rates from the rows on one side. If this happens:

1. Raise the fan rpm (any planter) or (dry fertilizer models only) open the fan butterfly valve (page 50) until the low side is seeding normally.

2. Adjust the butterfly valve on the other (higher rate) wing to match readings on both meter pressurization Magnehelic® gauges.

For a liquid fertilizer planter, continue at “Liquid Fertilizer Planter Fan Adjustment” on page 49.

For a dry fertilizer planter, continue at “Dry Fertilizer Fan Adjustment” on page 50.

Liquid Fertilizer Planter Fan Adjustment

Use the tractor remote lever to set fan speed. As necessary use butterfly valves 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 butterfly valves. Use any settings previously developed for the crop/disk/range. On a new planter, start with both wing butterfly valves fully open.

• If the tractor has fine control of remote flow rates, and consistent flow at varying tractor engine rpm, initially set the butterfly valves 0°, or in any case to 30° or less.

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

• Set the fan circuit flow to bring the gauge reading to near the recommended value.

• Fine tune the meter pressurization with the wing butterfly valves.

• If the tractor has marginal flow available, or the lift circuit has priority, you may need to experiment with combinations of fan flow and butterfly valve settings. 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.
Dry Fertilizer Fan Adjustment

Refer to Figure 44 through Figure 45

1625AHD models have a third Magnehelic® gauge (A14), with a fan system decal (right wing, inboard of Air-Pro® gauge (A33)). This gauge has a scale of 0-to-50 inches of water pressure. Typical readings are in the 35-45 range.

This gauge reads pressure inside the fan manifold (D29). The manifold supplies air to both the seed meters (meter pressurization air) and to the dry fertilizer meter. Approximately 10% of the air is tapped at the top end of the manifold for meter pressurization air. The tap fraction is controlled by a butterfly valve, which has an initial factory setting of approximately 75°.

Use the tractor remote lever to set fan speed. Use the butterfly valve adjustment to adjust air fraction for seed and fertilizer metering. The objective is to obtain sufficient pressure to avoid dry fertilizer blockage, and sufficient seed meter pressure to avoid seeding skips during end-of-pass marker fold, lift and turn.

Adjustments may be required for different field speeds, different fertilizer rates or fertilizer composition. For initial static (parked, no material flow) setup:

1. Look up the recommended meter pressurization for the intended crop (see Seed Rate manual). Make a note of the previous or factory settings of all butterfly valves. Load seed in hoppers and meters. Meters must be full to inlet shutters for valid readings.

2. Close the manifold outlet butterfly valve (A15) (set to 90°). If the wing butterfly valves have been previously adjusted for balance, leave them undisturbed, otherwise set them full open (0°).

3. For setup, operate the tractor engine at typical field rpms, and not at idle. Run the fan at maximum oil flow without over-speeding.

4. Adjust manifold outlet butterfly valve (A15) to achieve recommended pressure on the Air-Pro® gauge (A33).

5. Re-check both pressures (A14) in the field, with material flowing at desired rates. Adjust fan speed to stay within 35 to 45 inches. Adjust the manifold outlet butterfly valve (A15) to the suggested pressure for the seed.

Check all pressure early in the first pass, with fertilizer flowing and seed disk pockets full. Adjust fan speed as necessary. Stop and adjust butterfly valves as needed to keep gauges in the desired range.

When planting and applying, check the seed monitor for skip/double and fertilizer blockage alarms. Check gauge pressures with full meters and at field speed. Adjust the fan rpm to compensate for average pressure shifts. Re-adjust the manifold outlet butterfly valve (A15) for optimal meter pressurization.
Dry Fertilizer System

Figure 46
1625AHD Dry Fertilizer System
Dry Fertilizer System Elements

Refer to Figure 46 on page 52

Callout numbers [D11] through [D33] are consistent throughout this manual and refer only to dry fertilizer system components.

A11. Fan
See page 43.

A15. Fan Butterfly Valve
See page 43, and “Dry Fertilizer Fan Adjustment” on page 50.

D11. Hopper Lid
Close, seal and latch this lid except when loading material or performing hopper clean-out. See “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 Dry Fertilizer (Option)” on page 38, and “Dry Fertilizer Unloading and Clean-Out” on page 98.

D12. Hopper Strainer
Leave this basket in place at all times in normal operations. It catches large debris that would clog the meter or air system, and prevents entry by pests and unauthorized or at-risk persons.

D13. Fertilizer Hopper
The 3500 liter (100 bushel) hopper has a graduated scales molded in for gauging fill level.

The side tubes of the emergency escape ladder are open at each end to keep the top of the hopper at meter pressure.

D15. Hopper Level Sensor
This sensor is mounted at the 211 liter (6 bushel) level. The IntelliAg seed monitor can trigger an alarm when no material is present at the sensor.

D16. Fertilizer Meter
The meter delivers fertilizer to the fan air stream at an areal rate set by the Range Gears [D17] and Variable rate gearbox [D22].

D17. Range Gears
These gears provide coarse rate setting by exchanging them between 17T:54T (low) and 54T:17T (high). See Seed Rate Manual for details.

D18. Meter Flutes
The standard flutes on model 1625AHD are “4 star”, and provide the maximum rate possible with this meter.

D19. Ground Drive Wheel
The ground contact wheel powers the dry fertilizer meter [D16], and keeps the areal metering rate independent of ground speed.

D20. Drive Lift Cylinder
The drive wheel [D19] is automatically raised when the planter is raised.

D21. Drive Lock-Up
During transport, or if fertilizer is not being applied during planting, this arm locks-up the drive. See page 41.

D22. Variable Rate Gearbox
This provides fine control of material rate. See the Seed Rate Manual for setting details.

D23. Calibration Crank
The crank operates the meter when stationary, for calibrating chart rates to specific materials used. See the Seed Rate Manual for details.

D24. Calibration Bag
This bag has hooks for collecting samples beneath the meter.

D25. Calibration Scale
This scale weighs the bag when empty and with a sample for calibration.

D26. Calibration Door
This is the rear lower door on the meter. Only metered material is delivered to this door.

D27. Clean-Out Door
This is the front lower door of the meter, used only for emptying the hopper.

D28. Fan Pressure Gauge
This gauge is mounted on the right wing, inboard of the Air-Pro® gauge. It reports raw fan pressure.

D29. Fan Manifold
This splits fertilizer air flow for the four meter chambers.

D30. Distribution Tower
Each meter chamber feeds one tower. Towers increase uniformity in the material flow prior to division at the turrets.

D31. Turret Clamp
A quick-release clamp connects the turret [D32] to the tower [D30] and may be released for periodic inspection and troubleshooting.

D32. Distribution Turret
This manifold equally divides the material flow to the connected rows. 4-outlet turret shown. Outlet count depends on number of rows.

D33. Coulter Applicator
This delivery tube is adjustable for release height. See page 63.
Liquid Fertilizer Operation

The liquid fertilizer system engages automatically when the planter is lowered into the ground and in motion. Due to the ground drive, the metering system rate is independent of field speed. Correct operation, at the desired rate, requires setting or checking several items:

- Load material (page 33).
- Install appropriate orifice plates at nozzles (see the Seed Rate Manual for details).
- Set the metering system rate (see the Seed Rate Manual for details).
- Disengage the transport lock at the ground drive arm.

Dry Fertilizer Operation

The dry fertilizer system engages automatically when the planter is lowered into the ground and in motion. Due to the ground drive, the metering system rate is independent of field speed. Correct operation, at the desired rate, requires setting or checking several items:

- Load material of known density (page 38).
- Adjust the fan speed and butterfly valves (pages 47 through 49 and page 50)
- Set and calibrate the metering system rate (see the Seed Rate Manual for details).
- Adjust coulter and applicator height (page 63).
- Disengage the transport lock at the ground drive arm (page 41).
Marker Operation

**DANGER**

Electrocution Hazard:
Check for overhead lines before operating markers. If a marker contacts an electrical line, all metal parts of the planter and tractor can have lethal voltages present. There may be no indication of this condition until a person completes the circuit to ground. At higher voltages, electrocution can occur without direct contact.

Before operating markers, make sure they are properly bled as described in “Bleeding Hydraulics” on page 108.

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

Refer to Figure 47

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

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

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

Folding speed of dual markers is adjusted with adjustment screws on sequence valve body. Because excessive folding speed may damage markers, adjust markers to a safe folding speed according to “Marker Adjustments” on page 62.

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

Perform all steps in “Preparation and Setup” on page 18 and “Field Setup Checklist” on page 42.

SRM: Seed Rate Manual (SRM)

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

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<td>7. 1625AHD: With tractor at field engine rpm, engage the fan circuit. Set to maximum oil flow without fan over-speed.</td>
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<td>8. Pull forward, lower planter, and begin planting for a short distance.</td>
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<tr>
<td>9. Stop. Assess: planting depth, skips or doubles, seed spacing (to verify population), press wheel operation and fertilizer and/or treatment application (if in use)</td>
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<tr>
<td>10. Continue planting for at least 10 seconds (so that the seed monitor is reporting a stable population number). Verify that it is your desired rate.</td>
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<td>11. Make necessary adjustments</td>
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<tr>
<td>1. Stop tractor</td>
<td></td>
</tr>
<tr>
<td>17. Fan hydraulic circuit to Float or Neutral</td>
<td>48</td>
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<tr>
<td>18. Raise planter</td>
<td>28</td>
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<td>19. Fold Marker</td>
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<th>Ending Planting Checklist</th>
<th>Page</th>
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<tr>
<td>1. Suspend operations as above, then</td>
<td></td>
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<tr>
<td>20. Fold planter</td>
<td>29</td>
</tr>
<tr>
<td>21. Install transport locks</td>
<td>30</td>
</tr>
<tr>
<td>22. Lights ON</td>
<td>-</td>
</tr>
<tr>
<td>23. Transport</td>
<td>32</td>
</tr>
</tbody>
</table>
Parking

For information on long-term storage, see "Storage" on page 58.

1. Raise planter. See "Raising/Lowering Planter" on page 28.
2. If a dry fertilizer mode, lock-up the fertilizer ground drive (page 41).
3. Fold planter. See "Folding the Planter" on page 29.
   - Install cylinder lockup channels. Failure to do so may result in injury and/or damage to the planter.
4. Park planter on a level, solid area.
5. To prevent rolling, block tires securely.
6. If treatment hoppers contain materials, set meter adjustment knobs to “00”.

Refer to Figure 48

7. Remove pin  holding main parking stand  in “UP” position. Swing stand down. Pin stand in parking position. If the ground is soft, place a board or plate under the stand.
8. Remove wire snap lock pin  from innermost hole on park stand mount, or remove both pins if stand  was inverted. Swing support stand from underneath crossbar weldment, or invert to foot down.
9. Secure 3-point prop stands by using two pins on each stand.
10. Lower tractor 3-point until planter is resting on parking stand.
11. Set all implement hydraulic circuits to Float to relieve pressure in lines.
12. Shut down hydraulics. Unplug hydraulic lines from tractor. Do not allow hose ends to rest on the ground.
13. Unplug planter light cable from tractor.
14. Unplug monitor harness from console.
15. 3-point: Unhook tractor from planter hitch.

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

Figure 48
Jack and 3-Point Prop Stand

Null4:
Storage
Store the planter where children do not play. If possible, store the planter inside for longer life.

1. If the dry fertilizer hopper was used, perform a hopper and air system clean-out. See page 98.
2. Clean out the seed meters and seed hoppers. See page 96.
3. Perform the steps for Parking (page 57).
4. Remove the seed disks from the meters (this is primarily to relieve pressure on brushes). Clean disks of residue build-up (see Caution at right). Use mild soap, non-abrasive scrubbers, and hot or warm water. If using sealed storage, dry disks prior to storage.
5. Secure meters against pest entry.
6. Remove any dirt and debris that can hold moisture and cause corrosion.
7. Lubricate and adjust all roller chains.
8. Smear grease on exposed cylinder rods to prevent rust. Add a brightly-colored tag at the hitch as a reminder to degrease the rods prior to next use (to avoid any risk that congealed grease might damage seals).
9. See “Lubrication” on page 113, for lubrication information.
10. Inspect planter for worn or damaged parts. Make repairs and service during off season.
11. Use spray paint to cover scratches, chips, and worn areas on the planter to protect the metal.
12. Cover planter with a tarp if stored outside.

Possible Chemical Hazard:
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.
Adjustments

To get full performance from your Planter, you need an understanding of all component operations, and many provide adjustments for optimal field results. Some of these are covered earlier in this manual. Even if your planting conditions rarely change, some items need periodic adjustment due to normal wear.

<table>
<thead>
<tr>
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<th>Page</th>
<th>The Adjustment Affects</th>
</tr>
</thead>
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<td>Correct draft load to tractor</td>
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<td>Frame Leveling</td>
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<td>Wing Alignment</td>
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Materials Rates

<table>
<thead>
<tr>
<th>Seed</th>
<th>SRM&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Refer to Planter Seed Rate Manual</th>
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<tr>
<td>Dry Fertilizer</td>
<td>SRM&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Refer to Planter Seed Rate Manual</td>
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<tr>
<td>Treatment (Option)</td>
<td>SRM&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Refer to Planter Seed Rate Manual</td>
</tr>
</tbody>
</table>

Marker Adjustments

| Marker Extension                          | 147  | Swath alignment                                                                       |
| Disk Angle and Orientation                | 62   | Visibility of mark                                                                     |
| Marker Speed Adjustment                   | 62   | Reliable marker operation                                                              |

Frame-Mounted Row Accessories (Options)

| Coulters                                  | 63   | Row pre-furrow depth and trash cutting                                                |
| Vantage I Fertilizer Delivery             | 63   | Fertilizer placement                                                                  |

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| Row Unit Down Pressure                    | 65   | Planting depth uniformity                                                             |
| Row-Unit Opener Adjustments              | 70   | Seed depth, spacing, coverage                                                        |
| Side Depth Wheels                        | 71   | Seed depth                                                                            |
| Adjusting Gauge Wheel Scrapers           | 72   | Consistent seed furrow depth                                                         |
| Seed Meter Setup and Adjustment          |      |                                                                                       |
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| Press Wheel Adjustment                   | 80   | Effective soil coverage                                                               |
| Monitor Adjustments                       | WSMT3| Refer to Seed Monitor manual                                                          |

---

<sup>a</sup> SRM: Seed Rate Manual (411-240B)
Setting Material Rates

Refer to Figure 49, which depicts a model 1625AHD

The 1625IRHD ground drive metering systems:

A. Seed metering, powered by an electric motor on each row.

B. Fertilizer metering, powered by either a cart ground drive (dry) or a wing ground drive (liquid, not shown).

Details for rate settings, and rate charts, are found in the Seed Rate Manual (411-240B).

Planting (Seed) Rate

Seed rate is controlled the WSMT.

1. Rate: Monitor configuration:

The seed monitor must be set up with the

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

See the Seed Rate Manual (411-240B).

If you only plant with the factory configuration of the planter, you never need to update row count and spacing. If any rows are unused, adjust the monitor setup.

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

2. Rate: Disk Selection:

The Seed Rate Manual (411-240B) has a table of recommended disks. Disks are specific to crops. Some crops have multiple disks available, to cover both seed varieties, and different populations within disk rpm limits. Disks have high and low rpm limits, which also correspond to a high and low field speed limits. The charts account for these limits.

See “Air-Pro® Meter Disk Installation” on page 75.

If any rows are unused, install special blank disks. See “Row Unit Shut-Off” on page 77.

3. Rate: Seed Inlet Shutter

See Seed Rate Manual

4. Rate: Meter Pressurization

See Seed Rate Manual for initial setting, and “Fan General Operating Information” on page 48.

5. Rate: Checking

See Seed Rate Manual.
Dry Fertilizer Rate (AHD Models)
This page is an overview. For details on fertilizer rate setting, refer to the Seed Rate Manual, 411-240B.

Refer to Figure 51
Fertilizer rate from the central hopper is controlled by a variable rate gear box (D22) under the left side of the hopper, and range gears at the meter (D17, not visible). The associated ground drive (D19), under the right side, has no adjustments. Fertilizer is delivered by the air system, with blockage detection at the rows. The air system must be adjusted to optimal pressure, but does not adjust rate.

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

Liquid Fertilizer Rate
(AHL Models, not shown)
This page is an overview. For details on fertilizer rate setting, refer to the Seed Rate Manual, 411-240B.

Refer to Figure 52
Fertilizer rate from the central tank is controlled by a Range chain (L23) on the ground drive and a fine adjustment dial (L21) on the pump at that drive. Orifice plates at row nozzles must be installed to set back-pressure.

Consistent system operation also requires a correctly adjust relief valve and a well-maintained strainer ahead of the pump. See “Important Safety Information” on page 1.

Great Plains recommends checking with your local Agronomist, as soil conditions vary. Conditions in your area may need lesser or more amounts of fertilizer than represented in these charts. Do not exceed 110 liters/ha (12 gallons per acre) in any case.

Always disable the pump drive when not in use. Use ground contact wheel lock up if installed. On older models remove the chain. Do not operate planter pump when not applying material.
Marker Adjustments

See also:
"Marker Extension" on page 147 and,
"Marker Maintenance" on page 109.

**WARNING**

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

Dual Marker Speed Adjustment

*Refer to Figure 53*

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

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

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

Marker Disk Adjustment

**CAUTION**

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

*Refer to Figure 54*

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

For a wider mark (W), increase the angle of the marker with respect to the tube 4. For a narrower mark (N), reduce the angle.

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

Tighten bolts 6.

The direction of travel (T) tends to drive the disk angle to Wide. If bolts are not tight enough, or loosen over time, the disk will slip into the Wide mark configuration.
Row Implement Adjustments

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

Frame-Mounted Row Accessories

Frame-Mounted Coulters

*Refer to Figure 55 (which depicts a dry fertilizer coulter - adjustments are identical for liquid fertilizer coulters)*

At the shaft 1, adjust the coulter depth for a running depth 2 of 10.2 to 11.4 cm (4 to 4 1/2 inches) below ground level.

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

Fertilizer Applicator Adjustments

Make coulter depth adjustments before making applicator adjustments.

Applicator Release Height

The primary adjustment for release height are the four pairs of positions (via six holes 5) at the rear end of the applicator arm.

**NOTICE**

*Machine Damage Risk:*

Do not use a single mounting bolt. Use both bolts. The applicator angle would vary with a single bolt, and the applicator is likely to strike the coulter disk.
25AH Series Row Unit Adjustments

Refer to Figure 56 (which depicts a row unit populated with most optional accessories supported for use with the 1625AHD/L)

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

1. **Lock-Up Pin Storage Hole** (Hole Standard)
   See “Row Unit Shut-Off” on page 77.

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 65.

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

4. **Seed Delivery Hose Inlet** (Standard)
   Gravity carries the seed into the meter at the shutter ⬅️.

5. **Air-Pro® Seed Meter** (Standard, Choice of Disks)
   See “Air-Pro® Meter Disk Installation” on page 75.

6. **Seed Inlet Shutter** (Standard)
   This controls the level of bulk seed at the disk. There are seven operating settings, plus fully open (clean-out) and fully closed (shut-off or storage). See “Seed Inlet Shutter Adjustment” on page 73.

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 71.

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 Adjustments” on page 80.

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 77.

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 67.

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 “Unit-Mounted Coulter Adjustments” on page 68.

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 70.

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 72.

15. **Seed Firmers** (Seed Flap Standard, not shown)
    An optional seed firmer (Keeton® shown) minimizes seed bounce and improves soil contact. It may also deliver fertilizer. See “Seed Firmer Adjustments” on page 79.

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

**NOTICE**

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

Refer to Figure 57

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

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

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

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

Refer to Figure 58

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

Adjusting Down-Force

Refer to Figure 59

Row unit springs 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 104 kg (230 pounds) of the total force. Seed load adds up to 44 kg (96 pounds) more with the 56 liter (1.6 bushel) hoppers, and 82 kg (180 pounds) with the 105 liter hopper (3 bushel).

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.
Refer to Figure 61

An adjuster cam ② sets down pressure individually for each row unit. This is useful for penetrating hard soil and planting in tire tracks. For best results adjust tractor tires so they are not ahead of rows.

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

Values are down force with hoppers empty

Use only enough down pressure to cut the seed trench and maintain proper soil-firming over seed. With a full seed load, the force on each row is up to 81 kg (180 pounds) 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.

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

To adjust down pressure, use a 29 mm (1 1/8 inch) open end wrench or the tool ③ 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 ④ near or slightly forward of vertical.
5. Pull upper spring link ⑤ back.
6. Move the adjustment cam ② to the new setting on the spring adjust bar ⑥.

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

Refer to Figure 63 (depicting a left hand mount - the hole pattern is identical for the right hand mount)

Optional Martin row cleaners are unit-mounted, using a coulter mount, with or without a coulter disk present).

There are two adjustments:

1. Wheel placement (3 mounting holes ①, not visible in figure, for more or less aggressive cleaning), and
2. Wheel height, adjusted by a stop bolt ②. Cleaner arms float. The stop only sets the lowest position.

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.

To adjust coulter depth:

1. Make the adjustment with the planter raised. Install lift-assist cylinder locks. Drape a tarp over tines to reduce risk of injury.
2. Determine the present opener depth.
3. Note which stop hole the row cleaner arm is presently using.
4. Determine which new hole will position the wheel at the desired height, from the table below.
5. Remove the $\frac{1}{2}$-13 x 3 inch Grade 5 inch round head square neck bolt, spacer (not shown) washer and lock nut.
6. Move the arm to the new position. Insert the bolt and spacer. Secure with washer and lock nut.

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

<table>
<thead>
<tr>
<th>Stop Hole</th>
<th>Relative Height of Cleaner Wheel$^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td>①</td>
<td>13 mm (0.5 inches)</td>
</tr>
<tr>
<td>②</td>
<td>25 mm (1.0 inches)</td>
</tr>
<tr>
<td>③</td>
<td>38 mm (1.5 inches)</td>
</tr>
<tr>
<td>④</td>
<td>64 mm (2.5 inches)</td>
</tr>
<tr>
<td>⑤</td>
<td>83 mm (3.25 inches)</td>
</tr>
<tr>
<td>⑥</td>
<td>146 mm (5.75 inches)</td>
</tr>
</tbody>
</table>

$^a$ Using the center axle hole. Heights are lower and changes large for the forward hole. Heights are lower and changes smaller for the rear hole.
Unit-Mounted Coulter Adjustments

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

Adjusting the coulter depth is accomplished by re-mounting the coulter blade in one of the six holes \(\text{\(\circ\)}\) arranged in a staggered pattern in the coulter mount.

*Refer to Figure 65 (depicting a left hand mount - the hole pattern is identical for the right hand mount)*

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 adjustment. Be careful around the front end of row units. Row clear tines and coulter blades may be sharp.

To adjust coulter depth:

1. Drape a tarp over tines or dismount row cleaner (if present) to reduce risk of injury.
2. Determine the present opener and coulter depths.
3. Note which mount hole the coulter is presently using.
4. Determine which new hole will position the coulter closer to the 1\(\frac{1}{4}\) inch-above depth. See the table below. If none, don't move it.
5. Remove the \(\frac{5}{8}\)-11 x 4 inch bolt, lock washer and nut (\(\text{\(\circ\)}\) in Figure 65).
6. Move the blade to the new position. Insert the bolt, and tighten on the lock washer and nut.
7. Re-adjust openers, if installed.

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

<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>25 mm (1 inch) above</td>
</tr>
<tr>
<td>2</td>
<td>16 mm ((\frac{5}{8}) inch) above</td>
</tr>
<tr>
<td>3</td>
<td>6 mm (1(\frac{1}{4}) inch) above</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>9.5 mm ((\frac{7}{8}) inch) below</td>
</tr>
<tr>
<td>6</td>
<td>19 mm (2(\frac{1}{4}) inch) below</td>
</tr>
</tbody>
</table>

*Figure 65: 25AH Unit-Mounted Coulter*

*Figure 66: Coulter Blade Mounting Holes*
Coulter Row Alignment

Refer to Figure 67

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

As a check on coarse alignment, sight along the coulter blade center-line 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 Adjustments” on page 80 for press wheel alignment.

Refer to Figure 68

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 71)

Setting Planting Depth

Refer to Figure 69

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

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

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

Opener Disc Contact Region

Refer to Figure 70 and Figure 71

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 3.8 cm (1.5 inches) 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 8 to the outside 9 of the disc.
5. Re-assemble and check disk contact.
Side Gauge Wheel Adjustment

Refer to Figure 72 and Figure 73

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

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

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

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

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

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

Refer to Figure 75 on page 72

To adjust side gauge wheels:

1. Raise the planter and install lift cylinder locks.
2. Loosen hex-head bolt ①. Move wheel and arm out on O-ring bushing.
3. Loosen pivot bolt ② Turn hex adjuster ③ so indicator notch ④ is at 5 o’clock to 7 o’clock.
4. Move wheel arm in so side gauge wheel contacts row unit disk. Tighten hex-head bolt ① to clamp arm around bushing and shank.

Refer to Figure 74

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.

Figure 72
Disk/Gauge Wheel Alignment

Figure 73
Opener-Gauge Wheel Contact

Figure 74
Checking Wheel/Disc Contact
• 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:
  ½ inch Grade 5 bolt on 25 series, 102 Nm (75 foot-pounds).
  ½ inch Grade 8 bolt on 25 series, 149 Nm (110 foot-pounds).

Use “Torque Values Chart” on page 131 for reference.

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

Adjusting Gauge Wheel Scrapers

Refer to Figure 76

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

To adjust scrapers:
1. Loosen nut ⑤.
2. Slide scraper ⑥ toward gauge wheel ⑦ until scraper touches tire.
3. Slide scraper ⑥ away from wheel ⑦ leaving a ¼ inch (3 mm) gap at ⑦.
4. Rotate scraper left and right around bolt, making sure it cannot touch tire if bumped in field. If it can touch tire, back scraper away from wheel until it cannot.
5. Center scraper angle on bolt ⑤ until gap ⑦ is constant.
6. Tighten nut ⑤.
Seed Meter Setup and Adjustment

There are adjustments for seed inlet, and choice of 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 77

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

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

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

Seed Inlet Shutter Adjustment

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

The seed inlet shutter regulates the volume of bulk seed presented to the seed 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>(1)</td>
<td>Small seeds, such as Milo, with little or no treatments</td>
</tr>
<tr>
<td>(2)</td>
<td>Small treated seeds and edible beans (such as Soybeans)</td>
</tr>
<tr>
<td>(3)</td>
<td>Corn, round popcorn</td>
</tr>
<tr>
<td>(4)</td>
<td>Large corn, or heavily treated corn</td>
</tr>
<tr>
<td>Bottom (5)</td>
<td>Wide Open: Clean-Out</td>
</tr>
</tbody>
</table>
Optimal Seed Pool Slopes

The optimal seed slope is one that results in the most consistent seeding, with minimal skips and doubles. The column at right has photographs of pool slopes found to be optimal for representative seeds.

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

Refer to Figure 79

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

Refer to Figure 80 and Figure 81

For medium size and larger, or heavily treated smaller seeds that flow less easily, the slope runs from at or slightly above the 8:30 (o’clock) position on the housing wall, forward and down to 3-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. If 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 73).

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

4. Inspect meter (see page 105 for details).

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

**Refer to Figure 83**

6. With the seed pocket side facing the meter housing, place the new seed 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. Reinstall rain cover (page 73).
Removing a Seed Disk

Refer to Figure 85

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 82 page 75), so that new disks can seat fully. Inspect brushes for excess wear and damage. See “Meter Brush Maintenance” on page 105.

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 107.

6. Reinstall the rain cover (page 73).
Row Unit Shut-Off

Skip-row operations, such as planting from every other row when switching from 30 inch twin-row to 30 inch single-row, requires shutting down unused rows.

Shutting off seeding at a row involves 4 to 7 steps:
1. Identify the rows to shut off.
2. Fully close seed inlet shutter.
3. Replace seed disk with blank disk.
4. Lock up row unit to reduce wear (optional, page 78).
5. Reset marker extension (Option, page 147).
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 Rate Manual 411-240B for details).

Meter drive is not disabled on 25AH Series row units during shut-off.

1. Identify Rows to Shut Off
On twin-row planters, openers are installed with short and long opener mounts. If locking up unused rows of a twin-row planter, shut off the rear (long mount) rows.
On single-row planters with mid-length mounts, any rows may be locked up.
If not locking up rows, any rows may be shut off.

2. Close Seed Shutter
Refer to Figure 86 on page 77
Lift the handle away from the plate. Move it to the top position, and release the handle into the notch.
Closing the shutter prevents meter pressurization air from leaking into the seed hopper, resulting in lower pressures in adjacent rows, with risk of skips.

3. Install Blank Disk
Refer to Figure 87
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 75.

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 88

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 805-435C

1. Raise the planter. Although this adjustment can be made with the planter lowered, the springs will be in tension, and will require more effort. The extra force may also damage tools.

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

3. Set the down pressure spring cam to zero, per the instructions on page 66.

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

CAUTION

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

Refer to Figure 89

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

6. 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.
Seed Firmer Adjustments

30 Series row units accept one of two optional firmers.

Keeton® Seed Firmer Adjustment

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

Refer to Figure 90

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

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

Seed-Lok® Seed Firmer Lock-Up

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

Refer to Figure 91 (which depicts a similar 25AP row unit with discs, side depth wheels/arms and press wheels removed for illustrative purposes - lock/unlock requires no removal)

To lock up Seed-Lok® wheels:
1. Raise planter. Insert lift assist cylinder locks.
2. Lift Seed-Lok® lock-up handle ① until lever stop ② is free to rotate.
3. Rotate lever stop to side/idle position ③. Release lock-up handle ①.
4. Push up on Seed-Lok® wheel ④ until wheel arm latches up ⑥.

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

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

The press wheels close the furrow, gently pressing the soil over the seed to ensure good seed-to-soil contact for even emergence. The press wheels are free to move downward from their normal operating position. This system maintains pressing action even if the row unit arm is lifted when the disks encounter obstructions.

Refer to Figure 92

There are three adjustments available on the press wheel assembly:

1. Down pressure
2. Centering
3. Wheel stagger (page 81) or angle (page 81)

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 settings may require an increase in overall row unit down force. See page 65.

Press Wheel Centering

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

Refer to Figure 93

1. Determine how far, and in which direction, the press wheel assembly needs to move to center the wheels.
2. Raise planter and install gauge wheel and mainframe lift cylinder locks. See “Raising Planter” on page 28 and See “Install Lock Channels” on page 30.
3. Pick some reference points on the unit to be adjusted and an adjacent row unit. Measure the distance between them.
4. Loosen the 1/2 inch hex-head bolts .

Do not loosen any bolts forward of the aft two hex-head bolts.
5. Turn the hex head cam under the forward hex head bolt , and obtain the new distance between the reference points.
6. Tighten both hex head bolts , .

Figure 92
Dual Press Wheel Adjustments

Figure 93
Dual Press Wheel Centering
Press Wheel Stagger

Refer to Figure 94

Press wheel assemblies other than “cast, adjustable” have two threaded holes in the mount ④ for the wheel bolt ⑤.

Although staggered press wheel assemblies use the same weldment as angle-adjustable assemblies (below), the two hole staggered mount ④ is always used at adjustment bolt hole “2”. It cannot be moved to “1” or “3”.

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

1. Raise the planter and install the lift cylinder locks. See “Install Lock Channels” on page 30 and “Frame Lift Cylinder Locks” on page 95.
2. Remove the bolt ⑤, spacers ⑥, and lock-washer ⑦ for the left press wheel ⑧.
3. Move the wheel to the alternate of the two mounting holes.
4. Re-install the bolt, lock washer and spacers. Tighten.

Press Wheel Angle

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

Refer to Figure 95

1. Raise planter and install lift assist cylinder locks. See “Install Lock Channels” on page 30 and “Frame Lift Cylinder Locks” on page 95.
2. Remove the bolt ①, lock-washer ② and spacers ③ for the press wheel ⑨.
3. Remove bolt ④, flat washer ⑤ and hex nut ⑥ for casting ⑦.
4. Place a 19 mm (3/4 inch) open end wrench on tab ⑦ of casting. Rotate casting until the desired angle setting (4, 2 or 0) hole lines up with a hole on the press wheel mount weldment ⑤ (only one set of holes will line up for each setting).
5. With holes lined up replace casting bolt ④ and flat washer ⑤. Secure with hex nut ⑥.

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

## Planting Rate Problems

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

Also during start up it is common to encounter alarms and readouts on the AI 120 console that don’t seem to make sense. It is critical to troubleshoot these alarms not only to make sure the planter drive is set properly to hit the target population, but also to fix incorrect entries in the monitor to eliminate nuisance alarms.

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

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1.   | Is the spacing on the ground correct? | No: Check WSMT3 Manual: Channel Gear Ratio. See also “Population Too Low” or “Seed Population Too High” in the troubleshooting charts.  
Yes: Go to step 2. |
| 2.   | Is the reported population \( \frac{1}{2} \) the actual or is the reported population too high by a factor of 2? | No: Go to step 3.  
Yes: An incorrect row spacing value entered in the seed monitor can cause this. Example: 38 cm instead of 76 cm (15 inches instead of 30 inches). Correct the row spacing error on the console. |
| 3.   | Is the population on the screen close to the target population? | No: Check seed rate charts against transmission sprockets selected. See “Population Too Low” or “Seed Population Too High” in the troubleshooting charts.  
Yes: If slightly under, see “Population Too Low” if slightly over, see “Seed 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”.

For seed monitor issues, see also the DICKEY-john® IntelliAg® WSMT3 Manual, “TROUBLESHOOTING” section.
Seed Pool Troubleshooting

**Normal: Filled**

Inlet is filled to seed hopper. Seed move slowly down as singulated by meter.

**Actions:**
- No action required.
- Continue Planting.

**Bridging: Inlet Shutter**

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

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

**Bridging: Inlet Tube**

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

**Actions:**
1. Close shutter.
2. Tap on hopper/tube junction.
3. Check seed pool for foreign matter.
4. Resume planting.

**Empty Hopper**

No seed arriving from hopper. Cause is:
- seed run-out

If hopper is empty, air back-flow is also occurring, which can reduce meter pressurization at other rows.

**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.

![Magnehelic® Gauge](image)

**Figure 97 Magnehelic® Gauge**

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

Winter testing/maintenance advisory: Gauge readings may be inaccurate or sluggish below -7°C (+20°F)
# Seed Population Troubleshooting Chart

## Population Too Low

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
</table>
| **Overall Low Population** | Incorrect seed rate | Using *Seed Rate Manual*, check:  
• seed disk selection, |
| | Empty pockets on disk (skips) due to insufficient air pressure. | Methodically increase the meter pressurization. See "Air Systems General Operating Information" on page 47. |
| | Empty pockets on disk (skips) due to sticky seed treatments not allowing seed to rapidly fill the pockets. | Increase seed lubricant. |
| | Empty pockets on disk (skips) due to rough field conditions causing seeds to fall from the disks. | Decrease field speed or increase the air pressure in the meter. |
| | Empty pockets on disk (skips) due to seed pool too low, and seeds are not filling every pocket on the disk. | Open shutter one notch. |
| | Empty pockets on disk (skips) due to disk speed too high, and pockets are not filling. | Decrease field speed or change to a higher cell count disc. |
| | Empty pockets on disk (skips) due to singulation (4 tufted) brush too aggressive. | Check for matted, stuck together fibers. Wash, scrape clean, or replace as needed. |
| | Empty pockets on disk (skips) due to seed too big for pocket. | Select the correct disk for the seed size. |
| | Seeds are not falling from disk, and get carried past drop zone. Static electricity can cause small, lightweight seeds to cling to the pocket and not fall out. | The graphite component of Ezee Glide Plus addresses this issue. Increase the amount of Easy Glide Plus and/or more thoroughly mix the lubricant into the seed. |
| | Air pressure too low, as confirmed by gauge. | Increase fan speed or reduce butterfly valve setting. |
| | Air pressure too low, but gauge reading is within range or reading high. | • Inspect the ¼ inch sample lines from the row units up to the sensor chamber for leaks (page 84).  
• Make sure all non-planting rows have blank disks and shutters are closed (page 77).  
• Re-zero the gauge with the fan off (page 84).  
• Check gauge vent line for kinks, pinches or plugging (page 84). |
| **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 147). |
| (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 147).  
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 bridging at shutter</td>
<td>Readjust for shutter bridging (page 74). If seed is treated, increase seed lubricant.</td>
</tr>
<tr>
<td></td>
<td>Meter starvation due blockage above inlet</td>
<td>Clear blockage (page 74).</td>
</tr>
<tr>
<td></td>
<td>Meter starvation due bridging above inlet, caused by high levels of seed treatment</td>
<td>Clear bridge (page 74). 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>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 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>

### Null4.aac:

### Seed Population Too High

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall High Population</strong></td>
<td>Incorrect seed rate</td>
<td>Using <a href="#">Seed Rate Manual</a>, check:</td>
</tr>
<tr>
<td></td>
<td>Empty pockets on disk (skips) due to insufficient air pressure.</td>
<td>Methodically increase the meter pressurization. See “<a href="#">Air Systems General Operating Information</a>” on page 47.</td>
</tr>
<tr>
<td></td>
<td>Empty pockets on disk (skips) due to sticky seed treatments not allowing seed to rapidly fill the pockets.</td>
<td>Increase seed lubricant.</td>
</tr>
<tr>
<td></td>
<td>Empty pockets on disk (skips) due to rough field conditions causing seeds to fall from the disks.</td>
<td>Decrease field speed or increase the air pressure in the meter.</td>
</tr>
<tr>
<td></td>
<td>Empty pockets on disk (skips) due to seed pool too low, and seeds are not filling every pocket on the disk.</td>
<td>Open shutter one notch.</td>
</tr>
<tr>
<td></td>
<td>Empty pockets on disk (skips) due to disk speed too high, and pockets are not filling.</td>
<td>Decrease field speed or change to a higher cell count disc.</td>
</tr>
<tr>
<td></td>
<td>Empty pockets on disk (skips) due to singulation (4 tufted) brush too aggressive.</td>
<td>Check for matted, stuck together fibers. Wash, scrape clean, or replace as needed.</td>
</tr>
<tr>
<td></td>
<td>Empty pockets on disk (skips) due to seed too big for pocket.</td>
<td>Select the correct disk for the seed size.</td>
</tr>
<tr>
<td></td>
<td>Seeds are not falling from disk, and get carried past drop zone.</td>
<td>The graphite component of Ezee Glide Plus addresses this issue. Increase the amount of Easy Glide Plus and/or more thoroughly mix the lubricant into the seed.</td>
</tr>
<tr>
<td></td>
<td>Air pressure too low, as confirmed by gauge.</td>
<td>Increase fan speed or reduce butterfly valve setting.</td>
</tr>
</tbody>
</table>
# Seed Population Too High

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall High Population cont.</strong></td>
<td>Air pressure too low, but gauge reading is within range or reading high.</td>
<td>• Inspect the ( \frac{1}{4} ) inch sample lines from the row units up to the sensor chamber for leaks (page 84).&lt;br&gt;• Make sure all non-planting rows have blank disks and shutters are closed (page 77).&lt;br&gt;• Re-zero the gauge with the fan off (page 84).&lt;br&gt;• Check gauge vent line for kinks, pinches or plugging (page 84).</td>
</tr>
<tr>
<td>Excess field speed</td>
<td>Plant within speed ranges recommended in Seed Rate Manual.</td>
<td></td>
</tr>
<tr>
<td>Incorrect speed sensor constant.</td>
<td>Perform speed calibration per seed monitor manual.</td>
<td></td>
</tr>
<tr>
<td>Incorrect magnetic speed sensor gap.</td>
<td>Check and adjust (page 147).</td>
<td></td>
</tr>
<tr>
<td>(Option) Incorrect radar speed sensor angle.</td>
<td>With planter lowered, check radar speed sensor angle per DICKEY-john® recommendations.</td>
<td></td>
</tr>
<tr>
<td>Incorrect seed rate</td>
<td>Check seed rate charts</td>
<td></td>
</tr>
<tr>
<td>Two seeds per pocket on the disk (doubles), due to excess meter pressurization</td>
<td>Methodically decrease the meter pressurization. See &quot;Fan General Operating Information&quot; on page 48.</td>
<td></td>
</tr>
<tr>
<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>
<td></td>
</tr>
<tr>
<td>The meter pressurization is too high, as confirmed by the gauge.</td>
<td>Reduce fan speed or increase butterfly valve setting.</td>
<td></td>
</tr>
<tr>
<td>Air meter pressure too high due to pressure sensor not zeroed properly.</td>
<td>Re-zero the gauge with the fan off.</td>
<td></td>
</tr>
<tr>
<td>Air pressure too high, but gauge is within range or reading low.</td>
<td>Check:&lt;br&gt;• Inspect the 1/4 inch sample lines from the row units up to the sensor chamber for leaks (page 90).&lt;br&gt;• Make sure all non-planting rows have blank disks (page 77).&lt;br&gt;• Check that rubber pressure port relief plug is seated in gauge (page 84).</td>
<td></td>
</tr>
<tr>
<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>
<td></td>
</tr>
<tr>
<td>Incorrect cell count</td>
<td>Replace seed disks with correct disks, or reset rate for current disks (if within range).</td>
<td></td>
</tr>
<tr>
<td>Incorrect speed sensor constant.</td>
<td>Perform speed calibration per seed monitor manual.</td>
<td></td>
</tr>
<tr>
<td>Incorrect magnetic speed sensor gap.</td>
<td>Check and adjust (page 147).</td>
<td></td>
</tr>
<tr>
<td>(Option) Incorrect radar speed sensor angle.</td>
<td>With the planter lowered, check radar speed sensor angle per DICKEY-john® recommendations.</td>
<td></td>
</tr>
<tr>
<td>Doubles due to incorrect disk for crop or seed size</td>
<td>Use recommended disk for crop and seed size.</td>
<td></td>
</tr>
<tr>
<td>Sticky seeds: excess seed treatment</td>
<td>Increase seed lubricant.</td>
<td></td>
</tr>
</tbody>
</table>
# Troubleshooting

## Seed Population Too High

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall High Population cont.</td>
<td>Overlapping passes</td>
<td>Check marker extension (page 162). 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>High Population, Single Row</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 wobbles 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>Overall Population Alarms</td>
<td>False alarms or actual rate errors due to monitor setup with incorrect [active] row count or spacing</td>
<td>When troubleshooting population issues, always first rule out seed monitor setup. Review planter configuration and monitor setup.</td>
</tr>
<tr>
<td></td>
<td>Incorrect cell count</td>
<td>Replace seed disks with correct disks, or reset rate for current disks (if within range).</td>
</tr>
<tr>
<td></td>
<td>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>Mismatch Between Reported and Furrow Population</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>Excessive Seed Cracking</td>
<td>Incorrect seed pocket size</td>
<td>Use correct disk for seed.</td>
</tr>
<tr>
<td></td>
<td>Damaged, old or dried-out seed</td>
<td>Use new seed.</td>
</tr>
<tr>
<td></td>
<td>Unclean seed</td>
<td>Use clean seed.</td>
</tr>
<tr>
<td>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 130). 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. |
### Dry Fertilizer Delivery Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planter-Wide Blockage</td>
<td>Material pooling in hose sags or flat runs.</td>
<td>Increase manifold pressure (page 48).</td>
</tr>
<tr>
<td></td>
<td>Moisture in hopper has coagulated material</td>
<td>Clean-out hopper (page 99).</td>
</tr>
<tr>
<td></td>
<td>Out of fertilizer</td>
<td>Add fertilizer.</td>
</tr>
<tr>
<td>Single or multiple hoses</td>
<td>Fan speed too low</td>
<td>Check/adjust fan speed.</td>
</tr>
<tr>
<td>plugging just ahead of air</td>
<td>Possible air leak</td>
<td>Check for air leak downstream between box and top of meter.</td>
</tr>
<tr>
<td>box.</td>
<td>One or more applicator tines plugged</td>
<td>Clean out tines</td>
</tr>
<tr>
<td>1, 2, 3, or more outlets</td>
<td>Foreign matter in chamber in bottom of air box.</td>
<td>Clean out chamber.</td>
</tr>
<tr>
<td>fail.</td>
<td>Sag in lines</td>
<td>Shorten hoses as necessary to eliminate sags.</td>
</tr>
</tbody>
</table>

### Liquid Fertilizer Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Fertilizer Flow</td>
<td>Various possible pump issues</td>
<td>Refer to Trouble Chart in CDS-John Blue® LM-1250/LM-1255 Parts and Instruction manual, part number 12-M-43.</td>
</tr>
<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 “Dry Fertilizer System” on page 52</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 137.</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 103.</td>
</tr>
<tr>
<td></td>
<td>Strainer plugged</td>
<td>Close all valves. Inspect strainer (See Seed Rate Manual (411-240B)). 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 Rate Manual (411-240B).</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>Low Rate</td>
<td>Fertilizer transmission in Low Range when High Range was intended.</td>
<td>Swap sprockets at transmission. See Seed Rate Manual (411-240B).</td>
</tr>
<tr>
<td></td>
<td>Various possible pump issues</td>
<td>Refer to Trouble Chart in CDS-John Blue® LM-1250/LM-1255 Parts and Instruction manual, part number 12-M-43.</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 Rate Manual (411-240B).</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 Rate Manual (411-240B)). 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 Rate Manual (411-240B).</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 Rate Manual (411-240B).</td>
</tr>
<tr>
<td></td>
<td>Various possible pump issues</td>
<td>Refer to Trouble Chart in CDS-John Blue® LM-1250/LM-1255 Parts and Instruction manual, part number 12-M-43.</td>
</tr>
<tr>
<td>Pump Leaks</td>
<td>Various possible pump issues</td>
<td>Refer to Trouble Chart in CDS-John Blue® LM-1250/LM-1255 Parts and Instruction manual, part number 12-M-43.</td>
</tr>
<tr>
<td>Pump Oil Consumption</td>
<td>Pump seals or O-ring</td>
<td>Refer to Trouble Chart in CDS-John Blue® LM-1250/LM-1255 Parts and Instruction manual, part number 12-M-43.</td>
</tr>
<tr>
<td>Noisy Pump</td>
<td>Crankcases components worn</td>
<td>Refer to Trouble Chart in CDS-John Blue® LM-1250/LM-1255 Parts and Instruction manual, part number 12-M-43.</td>
</tr>
</tbody>
</table>
### General Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population Alarms</strong></td>
<td>See “Seed Population Troubleshooting Chart” on page 85.</td>
<td></td>
</tr>
<tr>
<td><strong>Excess Seed Remaining</strong></td>
<td>See “Seed Population Troubleshooting Chart” on page 85.</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 62.</td>
</tr>
<tr>
<td><strong>Seed Consumption Too High</strong></td>
<td>See “Seed Population Troubleshooting Chart” on page 85.</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>Irregular shaped field.</td>
<td></td>
</tr>
<tr>
<td><strong>Rows Not Planted</strong></td>
<td>If not detected by seed monitor, check for plugged row-unit seed tube</td>
<td>Lift planter, expose bottom of seed tube and clean out.</td>
</tr>
<tr>
<td></td>
<td>See “Seed Population Troubleshooting Chart” on page 85.</td>
<td></td>
</tr>
</tbody>
</table>
|                                | Hydrualic meter drive motor rpm too low for reliable control by proportional valve. | 1. Increase field speed.  
2. Use a seed wheel with lower cell count. |
|                                | Excessive field speed.                                                | Reduce field speed.                                                     |
|                                | Unclean seed.                                                         | Use clean seed.                                                         |
|                                | Damaged seed tube                                                     | Inspect; repair or replace.                                             |
|                                | Seed-Lok® plugging.                                                   | Lock up Seed-Lok®, page 79.                                            |
|                                | Row-unit discs not turning.                                           | See “Row-unit discs not turning freely.” in this Troubleshooting chart. |
|                                | Plugged row-unit seed tube.                                           | Lift up planter, expose bottom of seed tube and clean out.             |
|                                | Worn/rusted sprockets and/or chain idler or bearings.                 | Check and replace any worn/rusted sprockets or chain idlers.           |
|                                | Lack of proper seed lubrication on seed.                              | See “Seed Lubricants” on page 120.                                     |
| **Planter does not fold or unfold fully** | Fold cylinders out of phase | Rephase cylinders, refer to page 31                                   |
|                                | Air in lines                                                          | Bleed fold circuit, refer to page 108                                 |
| **Uneven seed depth**          | Excessive field speed.                                                | Reduce field speed.                                                     |
|                                | Planting conditions too wet.                                          | Wait until drier weather.                                              |
|                                | Incorrect coulter depth setting.                                      | See coulter manual or set unit mounted coulter.                        |
|                                | Excessive or improper row unit down pressure spring setting.          | Adjust down-pressure (page 65).                                        |
|                                | Damaged seed tubes.                                                   | Check seed tubes for damage.                                           |
|                                | Row-unit not penetrating low spots.                                   | Adjust row-unit, see instructions beginning on page 65.                |
|                                | Rough planting conditions.                                            | Rework the field.                                                      |
|                                | Seed firmer not in place and set to correct tension.                  | See “Seed Firmer Adjustments” on page 79.                               |
### General Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<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 tongue height page 20</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.</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 71.</td>
</tr>
<tr>
<td></td>
<td>Failed disc bearings.</td>
<td>Replace disc bearings.</td>
</tr>
<tr>
<td></td>
<td>Bent or twisted row-unit frame.</td>
<td>Replace row-unit frame.</td>
</tr>
<tr>
<td></td>
<td>Partially plugged row-unit seed tube.</td>
<td>Lift up planter, expose bottom of seed tube and clean out.</td>
</tr>
<tr>
<td><strong>Press wheels not compacting the soil as desired.</strong></td>
<td>Incorrect spring handle setting</td>
<td>See “Press Wheel Adjustments” on page 80.</td>
</tr>
<tr>
<td></td>
<td>Insufficient row unit down-force</td>
<td>See “Row Unit Down Pressure” on page 65.</td>
</tr>
<tr>
<td></td>
<td>Use of incorrectly shaped tire for your conditions.</td>
<td>Wedge shaped wheels work best on narrow spacings and in wet conditions. Round edge wheels work best in wider row spacings and drier conditions.</td>
</tr>
<tr>
<td></td>
<td>Not level front to rear.</td>
<td>Check tongue height.</td>
</tr>
<tr>
<td><strong>Air lines plugging between air box and rows</strong></td>
<td>Fan too slow.</td>
<td>Speed up fan.</td>
</tr>
<tr>
<td></td>
<td>Improper hose routing, sags or kinks</td>
<td>With planter unfolded, hoses should for a gentle “S” shape through the holders, with no deep sags.</td>
</tr>
<tr>
<td><strong>Planter will not lower</strong></td>
<td>Check that pressure and return hoses are fully engaged in remote outlets.</td>
<td></td>
</tr>
<tr>
<td><strong>Planter frame raises or lowers slowly</strong></td>
<td>Lower tractor hydraulic pressure. Tractor operating pressure must be a minimum of 10 340 kPa (1500 psi).</td>
<td>Operate tractor with flow control lever in the unrestricted position. Refer to your tractor operator’s manual.</td>
</tr>
<tr>
<td><strong>Erratic or uneven lift</strong></td>
<td></td>
<td>Check for air in hydraulic system. Bleed system of air if necessary.</td>
</tr>
<tr>
<td><strong>Planter will not raise</strong></td>
<td></td>
<td>Tractor hydraulic system bypassing oil. Readjust tractor’s hydraulic lever linkage. Refer to your tractor operator’s manual.</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><strong>Marker/Fold switch set to FOLD or OFF.</strong></td>
<td>Hydraulic Selector switch must be set to “Marker”. Set tractor remote circuit to Neutral or Float before operating switch.</td>
</tr>
<tr>
<td></td>
<td><strong>Air or oil leaks in hose fittings or connections.</strong></td>
<td>Check all hose fittings and connections for air or oil leaks.</td>
</tr>
<tr>
<td></td>
<td><strong>Low tractor hydraulic oil level.</strong></td>
<td>Check tractor hydraulic oil level.</td>
</tr>
<tr>
<td></td>
<td><strong>Loose or missing bolts or fasteners.</strong></td>
<td>Check all bolts and fasteners.</td>
</tr>
<tr>
<td></td>
<td><strong>Needle valve plugged.</strong></td>
<td>Open needle valve, cycle markers slowly and reset needle valve, refer to page 62.</td>
</tr>
<tr>
<td></td>
<td><strong>Needle valve(s) in sequence valve plugged.</strong></td>
<td>Open needle valves, cycle markers slowly and reset needle valves, refer to page 62.</td>
</tr>
<tr>
<td>Marker disk does not mark</td>
<td><strong>Marker folding linkage does not have enough slack to allow marker disk to drop into field depressions.</strong></td>
<td>Maximum down float should be limited by the slot at the rod end of the marker cylinder, refer to page 62.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reverse marker disk to pull or throw dirt.</td>
</tr>
</tbody>
</table>
Maintenance and Lubrication

Maintenance

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

**WARNING**

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

**WARNING**

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

1. After using your planter for several hours, check all bolts to be sure they are tight.
2. Remove excess slack from chains. Clean and use chain lube on all roller chains as needed.
3. Maintain proper air pressure in planter tires.
4. Keep disc scrapers properly adjusted.
5. Clean planter on a regular basis. Regular and thorough cleaning will lengthen equipment life and reduce maintenance and repair.
6. Lubricate areas listed under "Lubrication" on page 113.
7. Replace any worn, damaged, or illegible safety labels by obtaining new labels from your Great Plains dealer.
Frame Lift Cylinder Locks

Refer to Figure 98

Center main frame lock channels (1) are provided for use during service procedures with the planter partially or completely unfolded. They are not necessary for normal transport operation. When the planter is fully folded, the center section is supported at lift by the wing locks on the tongue.

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

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

Ground Drive Springs

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

1. 438.2 mm ±1.5mm (17 1/4 inches ±1/16 inch) between center-lines of pins
2. 338.1 mm ±1.5mm (13 5/16 inches ±1/16 inch)

Variations from factory settings are not recommended.

Height Switch Adjustment

The height switch (1) informs the seed monitor about the lowered/raised status of the planter. On all planters, the monitor only counts seed when the planter is lowered.

Refer to Figure 100
1. Loosen the bolts (2) holding the height switch bracket (3) in place.
2. Lower the planter to the height at which seed delivery should begin.
3. Adjust bracket height until whisker (4) contacts frame rib (5) and switch clicks. Tighten the bolts to secure it in place.
Material Clean-Out

When planting is completed, it is commonly the case that some seed remains, and fertilizer, if the fertilizer system was used.

The seed clean-out topic begins on this page. Dry fertilizer clean-out begins on page 103.

Seed Clean-Out

There may be seed in the hoppers, hopper seed tubes, and meters.

Refer to Figure 101

The planter includes an 817-811C\(^a\) container for meter clean-out, stored in a spring-loaded holder under the rear walkboard. The container can hold all the seed in the meter and inlet.

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

The hoppers are connected to the rows with fixed tubing, and are not intended to be routinely dismounted for clean-out.

Funnel Conversion

Materials and tools needed:

- \(\) a length of 38 mm (1\(\frac{1}{2}\) inch) I.D. hose
- \(\) a worm drive clamp with a working diameter of approximately 38 mm to 57 mm (1\(\frac{1}{2}\) to 2\(\frac{1}{4}\) inch)
- \(\) a hacksaw\(^b\) 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 (as 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 (as Funnel)

1. Close the seed inlet shutter per page 44.
2. Attach funnel as for meter clean-out (page 97), with hose routed to bucket or other larger container.
3. Use the inlet shutter to control seed flow until meter, inlet and hopper are empty.

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 may not fit some rows to the left of ground drives, or some twin-row configurations. 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 103

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 may not fit rows to the left of ground drives 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 23) if the planter is raised.

1. Close the seed inlet shutter on the meter (page 73). This minimizes the seed volume at disk removal.
2. Remove the rain cover (page 73). 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 76).
6. Slowly open the seed shutter (page 73) 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 102

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 77) for operations. Set inlet shutter for next seed (page 73).
12. For storage:
    Close seed inlet shutter. Leave disk out.
13. Reinstall rain cover (page 73).

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

Alternate Meter Clean-Out

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

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

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.
Dry Fertilizer Unloading and Clean-Out

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

Fertilizer Unloading

A normal system unload is a 2 step process.
A. Empty air box and hopper.
B. Blow residual fertilizer to rows.

**NOTICE**

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

**Refer to Figure 104**

1. Move the planter to a location suitable for recovery of fertilizer beneath rows.
2. Place tarps or buckets under applicator tubes of fertilizer coulters.
3. Open Calibration door ① first. A small amount of material may fall onto the collection area.
4. Open Clean-Out door ② second. Expect material to flow in significant volume until the hopper is empty.
5. Install calibration crank (see Seed Rate Manual). Set variable rate gear box to and scale reading above 50. Rotate the crank until no material flows from the doors.
6. Engage the hydraulic fan at normal field manifold pressure.
7. When material is no longer flowing from the calibration and clean-out doors, close the doors.
8. When material is no longer flowing at rows, shut off the fan.
9. If the planter will not be used again for an extended period, complete the steps at "Dry Fertilizer Clean-Out" on page 99.
10. Move planter from collection area and recover materials.
12. Close doors. For temporary parking or transport, fully close doors. For storage, close doors only until elastomer seals begin to touch meter housing, so that condensation can drain. Do not leave doors open wide enough for pest entry.

**WARNING**

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

**WARNING**

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

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

▲ When hazardous fumes are present, you can be quickly overcome even with the hopper lid open.

▲ Do not enter a hopper for material loading, material unloading, hopper cleaning or meter maintenance.

▲ Clean hopper by power washing from outside hopper top.

![Figure 104 Meter Doors Open](34555)
Dry Fertilizer Clean-Out

For normal unloading of residual fertilizer at completion of application, see “Fertilizer Unloading” on page 98.

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

1. Perform normal material unloading (page 98), then fold the planter in preparation for a move to a site suitable for wash-out.

2. Reposition planter to a suitable site with rinse water and hose available.

If no otherwise suitable location is available, perform a fertilizer or treated seed clean-out on an up-hill portion of the field last treated.

3. Remove strainer (page 39). Clean strainer. While strainer is removed, inspect hopper for signs of problems that may prevent normal clean-out, such as objects or congealed masses too large to exit through meter (see “Problem Clean-Out” on page 100).

4. Install the calibration crank (see Seed Rate Manual). Open both calibration and clean-out doors on the meter.

5. Power wash the interior of the hopper while a second person cranks the meter.

6. Re-install strainer. Close lid tight and secure handle.

7. After cleaning out the last hopper, close all doors. Run air system for 10 minutes to blow moisture out of meter and lines.

8. Open hopper meter doors. Run air for 5 minutes.

9. Leave meter doors open. Run air for 5 minutes.

10. Shut off air. Clean door seals and meter box faces.

11. Close meter doors. Move planter to parking or storage site.

12. Follow normal Parking instructions (page 57) or Storage instructions (page 58).

**NOTICE**

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

**CAUTION**

**Confined Space Hazard:**
Do not enter hopper. Do not remove strainer (step 3) until ready to clean strainer and wash-out hopper. Do not leave strainer out after wash-out. Return the strainer to the hopper and secure the hopper lid if the planter must be left unattended at any time prior to step 6.
Problem Clean-Out

For normal unloading of residual materials at completion of planting, see "Fertilizer Unloading" on page 98. For normal clean-out of residue, see "Dry Fertilizer Clean-Out" on page 99.

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

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

Open the clean-out door.

Remove the strainer and evaluate the problem. For example:

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

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

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

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

Removing Meter Box

Removing the meter box exposes 18x18 cm (7x7 inch) holes through which stubborn material may be extracted.

Refer to Figure 105

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

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

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

▲ A hopper that is full or merely appears full can be an entrapment hazard. You can sink entirely into the material, or into a void, and suffocate in a matter of seconds. Bridges and crusts are especially dangerous.
▲ You can be overcome by hazardous fumes very quickly even in an empty hopper with the lid open.
▲ A partially full hopper, even with no bridging present, is a suffocation risk.
▲ Oxygen levels may be insufficient and/or dust levels may be too high for breathing.
▲ Do not enter a hopper for loading material.
▲ Do not enter a hopper for unloading material.
▲ Do not enter a hopper for routine cleaning.
▲ Do not enter a hopper for any meter maintenance.
▲ Never enter a hopper without at least one trained and equipped attendant present.
▲ Never enter a hopper for any reason unless you fully comply with applicable laws, regulations, rules, agreements, and the instructions in this section. Where applicable laws, regulations, rules, agreements contradict an instruction below, do not follow that instruction.

⚠️ DANGER

Rapid Suffocation Hazard:
Encrusted material may be loose and flowing beneath the crust. Any hollow spaces are highly likely to have insufficient oxygen and/or toxic gases from microbial action and/or chemical reactions. Falling through a crust in either case can result in death in a matter of seconds. Never enter a hopper to dislodge a crust or bridge.
Depending on its use, the 1625IRHD fertilizer hopper may be or become a “permit-required confined space” under U.S. OSHA regulations (29 CFR 1910.146) and similar regulations, statutes, insurance agreements and local enterprise policy. A written policy and permitting process may be required for any hopper entry.

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

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

Should such a situation arise, observe the following precautions:

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

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

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

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

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

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

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

8. **Empty the Hopper**
   
   Follow the steps at See “Dry Fertilizer Clean-Out” on page 99. If a blockage makes this impossible, use an external pump line to remove as much material as possible without performing a hopper entry. Pump until at least some material is exiting the clean-out door. Leave the clean-out door open.

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

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

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

Referred to Figure 106

1. Close the inlet valve (L13).
2. Connect a collection tank or recovery pump to the inlet (L12).
3. Open the inlet valve (L13). Start any pump used.
4. When material flow stops, stop the pump. Close the inlet valve (L13).

Move the planter to a location suitable for draining material last applied from the tank, or where the drainage can be collected, or other location compliant with chemical supplier clean-up instructions. A site with access to rinse water is ideal.

5. Flush the entire system with clean water.
6. Remove end caps from booms and flush booms out with water. Drain and replace end caps.
7. Remove strainer (6 in Figure 32 on page 39) and drain it out. See “Liquid Fertilizer Strainer” on page 104 for further strainer maintenance.
8. Drain all lines and tanks completely to prevent freezing damage.
10. Flush pump per pump supplier manual. Fill pump with RV antifreeze and cap off.
11. Wash all spilled fertilizer off the planter.

Tank Clean-Out

12. Open the tank lid. Observe the quantity of material present. Check for build-up, sedimentation and foreign matter, particularly any objects large enough to clog the drain.
13. Remove the cap (L11) and open the inlet valve (L13).
14. Power-wash the inside of the tank from above.
15. When the tank is clean and drained, close the inlet valve (L13).
16. Close the tank lid.

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.
Liquid Fertilizer Maintenance

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.

1. Flush entire system with clean water.
2. Remove end caps from booms and flush booms out with water. Drain and replace end caps.
3. Remove strainer and drain it out. Drain all lines and tanks completely to prevent freezing damage.
5. Wash all spilled fertilizer off the planter.

Liquid Fertilizer Strainer

Refer to Figure 107

The fertilizer system uses an in-line strainer \((\text{L19})\) to keep damaging particulates out of the pump. The strainer becomes clogged over time, reducing pump rate. Plan to clean the strainer several times per season. Don’t wait for application rates to fall below target. Higher quality liquid fertilizers may require less frequent cleaning.

Disassemble and clean the strainer prior to storage to prevent caking.

In Season Filter Cleaning

1. Shut off the ball valve \((\text{L18})\) at the filter, to minimize product spill.
2. Unscrew and remove the bottom canister of the filter.
3. Wash the filter cartridge with water, or replace with new cartridge if necessary.
4. Reinstall the cartridge, canister, and turn on the ball valve.

End of Season Filter Cleaning

1. Load 10 to 15 gallons (40 to 60 liters) in the tank.
2. Pump most of it through the system. If doing this by hand-turning the ground drive wheel, first install the largest drop-line orifice size, and set the pump adjuster to maximum, to increase flow.
3. With valves open, remove the canister. Clean strainer and canister.
4. Drain tanks and lines. Remove boom end-caps to drain wings.
5. Re-install strainer and canister.

6. Add 2 pints (1 liter) of RV antifreeze to the tank. Pump until tank is just empty (which leaves some fluid in strainer).
7. Open supply line above pump inlet. Introduce RV antifreeze, and operate pump until pump is filled.

Possible Chemical Hazard:

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. Avoid contact with skin or eyes. Seek medical assistance immediately if accident occurs. Know what to do in case of an accident.

Equipment Damage Risk:

Do not leave fertilizer or fertilizer residue in pump. Do not allow air to enter pump. Even for short periods of storage, the entrance of air into the pump causes RAPID and SEVERE CORROSION. Fluid left in the system over-winter must be antifreeze protected, or ice is likely to fracture components.
Seed Meter Maintenance

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 108

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 (411-020P) for current replacement part numbers.

Refer to Figure 109

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 18 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 16 (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 110
4. Insert replacement strip brushes into grooves at holder bottom so that notched ends 18 are at the bottom.

Refer to Figure 109
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 20 and lower rear 29. The bottom end of the short brush must fit snugly in the lower front housing groove 20. If any significant force is required 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 111

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 5 cm (2 inch) 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 75) 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.

**CAUTION**

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.
Bleeding Hydraulics

**WARNING**

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

*Only trained personnel should work on system hydraulics!*

**Bleeding Lift Hydraulics**

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

**Bleeding Fold Cylinder Hydraulics**

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

**NOTICE**

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

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

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

**Refer to Figure 112**

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

**JIC Torque Chart**

<table>
<thead>
<tr>
<th>Size</th>
<th>Nm</th>
<th>Foot-Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/16-20</td>
<td>15-16</td>
<td>11-12</td>
</tr>
<tr>
<td>3/16-20</td>
<td>20-22</td>
<td>15-16</td>
</tr>
<tr>
<td>9/16-18</td>
<td>24-28</td>
<td>18-20</td>
</tr>
<tr>
<td>3/4-16</td>
<td>52-58</td>
<td>38-42</td>
</tr>
<tr>
<td>7/8-14</td>
<td>77-85</td>
<td>57-62</td>
</tr>
<tr>
<td>11/16-12</td>
<td>108-119</td>
<td>79-87</td>
</tr>
</tbody>
</table>

**NOTICE**

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

**NOTICE**

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

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

*Figure 112*

Cylinder Re-Phase Port
Bleeding Marker Hydraulics
To fold properly, the marker hydraulics must be free of air. If the markers fold in jerky, uneven motions, follow these steps.

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

Marker Maintenance
Refer to Figure 113
The marker arm is attached to the marker body with a \( \frac{1}{2} \times 2\frac{1}{2} \) inch Grade 5 shear bolt. If shear bolt breaks, replace it with a Great Plains part 802-130C or equivalent.

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

**NOTICE**

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

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

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

**Crushing and Sharp Object Hazard:**
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.
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 137.

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 114, which, for clarity, greatly exaggerates slack, and omits the idlers.

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

2. Determine the ideal slack:
   - Long chains (over 91 cm / 36 inches):
     2.1 cm per meter (1/4 inch per foot)
   - Vertical short chains:
     2.1 cm per meter (1/4 inch per foot)
   - Horizontal short chains:
     4.2 cm/m (1/2 inch per foot).

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

4. Adjust the idlers for ideal slack.

Chain Clips

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

Refer to Figure 115 (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).
Spreaders and Scrapers

Appplies to all row unit Series.

Refer to Figure 116

1. Remove side gauge wheels from arms to access row-unit disks and scrapers.
2. With the unit raised, check blade spreader 1 for wear. Replace spreader if it is 13 mm (1/2 inch) wide or narrower. To replace, remove disk blades 3, drive out roll pins 2, and install new spreader.
3. When reinstalling disk blades, put two shims 4 between bearing and shank on each blade. Tighten bolts.
4. Check amount of contact between blades, and adjust number of shims as needed. Store extra shims on outside of blade. See "Opener Disc Contact Region" on page 70.
5. Check that outside disk scrapers 5 are formed to disk blades to help remove any mud. Bend/twist scrapers to fit blades as needed. Every 200 acres (80 ha) of operation, check outside scrapers for adjustment and wear. Replace outside scrapers as necessary.

Row-Unit Side Wheels

Refer to Figure 117

1. Lift opener side wheel off the ground. Move tire in and out to check for end play. Check for roughness in bearing by rotating wheel. If bearings are rough, inspect and replace if necessary.
2. Side wheels are preset at the factory. Due to normal wear it may become necessary to make adjustments so the wheel remains close to the disk. To prevent plugging, loosen clamp bolt 1 and slide arm inward to take up gap between side wheel and disk blade. If more adjustment is needed, go to step 3.
3. Remove bolt 2 and wheel 3. Remove shims 4 from the inside of wheel 5 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 6 from unit. Remove bushing 7 from sleeve 8 and check for wear. If necessary, replace bushing.
5. When reinstalling side gauge wheels, align tab on hex adjustment 3 with notch in bushing. Replace bolt and tighten.
6. Adjust side gauge wheels. Refer to see "Side Gauge Wheel Adjustment" on page 71.

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.

You may need fewer washers under worn disks.

Sharp Object Hazard:

Be careful when working in this area. Disk edges are sharp.
Seed Flap Replacement

Refer to Figure 118

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.

Figure 118
Seed Tube Flap
Lubrication

Seed Lubricant

8 hoppers
See “Loading Seed” on page 34.

Gauge Wheel Cylinder Pivots

1 zerk each end of cylinder; 4 total
Type of Lubrication: Grease
Quantity: Until grease emerges

Opener Side Wheel Bushing

On both sides of each row-unit (2 per row)
Type of Lubrication: Grease
Quantity: Until grease emerges
Caster Arm Pivot

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

Marker Section Hinges

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

Marker Mount Hinge

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

| 8 |

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

Tool Bar Pivots

| 8 |

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

Tongue Lift Cylinder Anchor Pin

| 8 |

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

Tongue Lift Cylinder Lug Pivot

| 8 |

4 zerks
Type of Lubrication: Grease
Quantity: Until grease emerges
### Maintenance and Lubrication

#### Tongue-Mainframe Pivot Pin

<table>
<thead>
<tr>
<th>Zerk</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Until grease emerges</td>
</tr>
</tbody>
</table>

Type of Lubrication: Grease

#### Tongue Slide Roller

<table>
<thead>
<tr>
<th>Zerk</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Until grease emerges</td>
</tr>
</tbody>
</table>

Type of Lubrication: Grease

#### Fertilizer Pump Bearings (Option)

<table>
<thead>
<tr>
<th>Zerk</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Until grease emerges</td>
</tr>
</tbody>
</table>

Type of Lubrication: Grease

Refer to JohnBlue manual for pump maintenance.

#### Fertilizer Pump Crankshaft (Option)

<table>
<thead>
<tr>
<th>Zerk</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0.23 liter (8 fluid ounce)</td>
</tr>
</tbody>
</table>

Type of Lubrication: SAE 90 EP Gear Oil

Refer to JohnBlue manual for pump maintenance.
Frame-Mounted Coulter Hubs (Option)

1 zerk per coulter,
12 to 32 total
Type of Lubrication: Grease
Quantity: Until grease emerges

**NOTICE**

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

Drive Chains, Dry Fert. Ground Drive (Opt.)

2 chains total
Type of Lubrication: Chain Lube
Quantity = Coat thoroughly

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

Drive Chains, Variable Rate Gearbox (Opt.)

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.
Drive Chains, Liquid Fertilizer Pump (opt.)

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.

Frame-Mounted Coulter Pivot (Option)

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

Caster Wheel Pivot

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

Ground Drive Wheel Hub

1 zerk at each bearing casting;
6 total
Type of Lubrication: Grease
Quantity: Until grease resistance felt
Re-pack seasonally.
Main Transport Wheel Bearings

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

Gauge Wheel Bearings

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

Marker Disk Hubs

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

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

**Ezee Glide Plus Talc+Graphite Mix**

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

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 170 ml per 100 liters (one cup of Ezee Glide Plus Talc per 4 bushels or units) 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, 240 ml (1 cup) per 13.6 kg (30 pound) bag is a minimum starting value. Mix the seed lubricant early during the seed loading. Use more lubricant in extremely dry conditions.

Adjust this rate as necessary so all seeds become coated while avoiding an accumulation of lubricant in the bottom of the hopper.

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

![Image](29248)

**CAUTION**

Irritation and Chronic Exposure Hazard:

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

![Image](36369)

Bayer Seed Fluency Agent

821-074C Fluency Powder, case quantity

821-075C Fluency Powder, single 2 kg (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.

![Image](36369)

**CAUTION**

Dust and Explosion Hazard:

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

---

\(a\). SDS: Safety Data Sheet.
Options and Accessories

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>832-050C</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.

Variable Rate Nozzles

These SprayTarget VeriFlow regulators replace the standard nozzles and orifice plates. They provide consistent back-pressure over a wide range of rates. This eliminates changing orifice plates, and enables prescriptions (varying rates during application).

<table>
<thead>
<tr>
<th>Description</th>
<th>Color Code</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOZZLE HI-VERIFLOW1</td>
<td>GRN/YEL</td>
<td>829-143C</td>
</tr>
<tr>
<td>NOZZLE VERIFLOW1</td>
<td>BLU</td>
<td>829-144C</td>
</tr>
</tbody>
</table>

Order one 829-143C (GRN/YEL) per full-rate row. Half rate (829-144C, BLU) nozzles are not typically used on planters.

SprayTarget recommends a 50 mesh strainer screen, available from Great Plains as part LST-1550.

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>
PTO Pump Kits
For tractors lacking a sufficient number of remotes with adequate continuous oil flow capability, kits are available to operate the fan(s) optionally the hydraulic seed drive motor, via mechanical Power Take-Off (PTO).
A 1000 rpm PTO is required with either:
44.5 mm (1\(\frac{3}{4}\) inch) 20-spline shaft, or
35 mm (1\(\frac{3}{8}\) inch) 21-spline shaft.
Order one kit and one coupler.

<table>
<thead>
<tr>
<th>Kits and Couplers</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>YP16 PTO KIT For model 1625AHD</td>
<td>411-147A</td>
</tr>
<tr>
<td>YP16 PTO HYDRAULIC PUMP KIT For model 1625AHL</td>
<td>411-138A</td>
</tr>
<tr>
<td>1 3/4-20 PTO COUPLER</td>
<td>826-777C</td>
</tr>
<tr>
<td>1 3/8-21 PTO COUPLER</td>
<td>826-778C</td>
</tr>
</tbody>
</table>

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

Markers
Markers are a standard factory-installed feature on the Planter, but may be optionally deleted, for example, if all planting is done via GPS navigation.
Markers are not trivial to install as a field upgrade. If any possible future planting might require markers, do not delete them from the initial Planter order.
For operations, see:
"Marker Operation" on page 55, and
"Marker Adjustments" on page 62.
Frame-Mounted Row Accessories

Frame-Mounted Coulters (FMC)

Frame-mounted coulters are independent of unit-mounted coulters. The planter may have both, either or neither. Frame-mounted coulters are configured as “zone” coulters, offset from rows.

Liquid Fertilizer FMC (20 inch Turbo blades)

<table>
<thead>
<tr>
<th>Option</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 Row (or 24 Twin)</td>
<td>417-452A</td>
</tr>
<tr>
<td>16 Row (or 32 Twin)</td>
<td>417-456A</td>
</tr>
<tr>
<td>24 Row</td>
<td>417-348A</td>
</tr>
<tr>
<td>31 Row</td>
<td>417-347A</td>
</tr>
</tbody>
</table>

Dry Fertilizer FMC (20 inch Turbo blades)

<table>
<thead>
<tr>
<th>Option</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 Row (or 24 Twin)</td>
<td>417-356A</td>
</tr>
<tr>
<td>16 Row (or 32 Twin)</td>
<td>417-351A</td>
</tr>
<tr>
<td>24 Row</td>
<td>417-349A</td>
</tr>
</tbody>
</table>

Coulter Blades

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-inch (52 cm) Turbo</td>
<td>820-180C</td>
</tr>
</tbody>
</table>
Row Options (Unit-Mount)
Unit-Mounted Disc Coulters (UMC)

Unit-mount Coulters, with 38 cm (15 inch) turbo blades, are optional on all 1625IRHD models. Kits for Twin Row and row spacings of 50.8 cm (20 inches) or less, include left and right hand coulter mounts for clearance purposes.

**FMC, Turbo Blades, No Row Cleaner**

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 Row</td>
<td>207-263A</td>
</tr>
<tr>
<td>16 Row</td>
<td>207-261A</td>
</tr>
<tr>
<td>24 Row</td>
<td>207-260A</td>
</tr>
<tr>
<td>24 Twin Row</td>
<td>207-264A</td>
</tr>
<tr>
<td>31 Row</td>
<td>207-259A</td>
</tr>
<tr>
<td>32 Twin Row</td>
<td>207-262A</td>
</tr>
</tbody>
</table>

**FMC, Fluted Blades, No Row Cleaner**

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 Row</td>
<td>207-269A</td>
</tr>
<tr>
<td>16 Row</td>
<td>207-267A</td>
</tr>
<tr>
<td>24 Row</td>
<td>207-266A</td>
</tr>
<tr>
<td>24 Twin Row</td>
<td>207-262A</td>
</tr>
<tr>
<td>31 Row</td>
<td>207-265A</td>
</tr>
<tr>
<td>32 Twin Row</td>
<td>207-268A</td>
</tr>
</tbody>
</table>

The coulter mounts are configured to accept row cleaners (page 125).

**Coulter Blades**

For alternate or replacement blade, order one per row:
Replacement and alternate coulter blades include (quantity is 1 per row unit):

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

For operations, see: "Unit-Mounted Coulter Adjustments" on page 68.
Rigid Row Cleaners (UMRC)

Optional Martin Unit-Mounted Row Cleaners (UMRC) use the same mount used for Unit-Mounted Disc Coulters (UMC). Row cleaners may be configured with or without coulters.

Twin-Row planters and narrow row spacings use alternating left/right cleaner hub orientations on alternative LH and RH mounts.

Coulter-mounted (requires coulter, page 124):

<table>
<thead>
<tr>
<th>Coulter-Mount RC Kits</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 Row</td>
<td>207-275A</td>
</tr>
<tr>
<td>16 Row</td>
<td>207-273A</td>
</tr>
<tr>
<td>24 Row</td>
<td>207-272A</td>
</tr>
<tr>
<td>24 Twin Row</td>
<td>207-276A</td>
</tr>
<tr>
<td>31 Row</td>
<td>207-271A</td>
</tr>
<tr>
<td>32 Twin Row</td>
<td>207-274A</td>
</tr>
</tbody>
</table>

Stand-alone (includes mount, and no coulter):

<table>
<thead>
<tr>
<th>Stand-Alone RC Kits</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 Row</td>
<td>207-281A</td>
</tr>
<tr>
<td>16 Row</td>
<td>207-279A</td>
</tr>
<tr>
<td>24 Row</td>
<td>207-278A</td>
</tr>
<tr>
<td>24 Twin Row</td>
<td>207-282A</td>
</tr>
<tr>
<td>31 Row</td>
<td>207-277A</td>
</tr>
<tr>
<td>32 Twin Row</td>
<td>207-280A</td>
</tr>
</tbody>
</table>

For operations, see: “Unit-Mount Cleaner Adjustments” on page 67.
Seed Meter Disks

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

<table>
<thead>
<tr>
<th>Meter Disks</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank, 0 Cell</td>
<td>817-841C</td>
</tr>
<tr>
<td>Canola, 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, 040 Cell (Large, Round)</td>
<td>817-796C</td>
</tr>
<tr>
<td>Corn, 40 Cell (Medium)</td>
<td>837-127C</td>
</tr>
<tr>
<td>Corn, 40 Cell (Small, Round or Flat)</td>
<td>817-797C</td>
</tr>
<tr>
<td>Cotton, 60 Cell</td>
<td>817-857C</td>
</tr>
<tr>
<td>Cotton, Hill Drop, 12 Cell</td>
<td>837-186C</td>
</tr>
<tr>
<td>Edible Bean, 56 Cell (Large)</td>
<td>817-967C</td>
</tr>
<tr>
<td>Edible Bean, 60 Cell (Medium)</td>
<td>837-065C</td>
</tr>
<tr>
<td>Milo/Pelletized Sugar Beet, 30 Cell</td>
<td>837-057C</td>
</tr>
<tr>
<td>Milo, 65 Cell</td>
<td>817-849C</td>
</tr>
<tr>
<td>Milo, 130 Cell</td>
<td>817-800C</td>
</tr>
<tr>
<td>Soybeans, 84 Cell</td>
<td>817-798C</td>
</tr>
<tr>
<td>Soybeans, 168 Cell</td>
<td>403-551D</td>
</tr>
<tr>
<td>Sunflower, 24 Cell</td>
<td>817-851C</td>
</tr>
<tr>
<td>Sunflower, 60 Cell (Small)</td>
<td>837-234C</td>
</tr>
<tr>
<td>Sunflower, 60 Cell (Medium)</td>
<td>837-235C</td>
</tr>
<tr>
<td>Volumetric No. 1, 84 Cell</td>
<td>817-867C</td>
</tr>
</tbody>
</table>

Inside Disc Scrapers

When planting in moist or sticky soils, this scraper is useful in preventing build-up that might otherwise impair opener disc performance.

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

This scraper cannot be used with Seed-Lok® seed firmers installed. It is compatible with seed flaps and optional Keeton® seed firmers.

See page 149 for scraper installation. The spring-loaded carbide scraper requires no adjustment.
Gauge Wheel Scrapers

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

Order one part per wheel (2 per opener).

<table>
<thead>
<tr>
<th>Wheel Scrapers</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 1/2 inch Gauge wheel scraper</td>
<td>404-823A</td>
</tr>
<tr>
<td>3 inch Gauge wheel scraper</td>
<td>404-824A</td>
</tr>
<tr>
<td>4 inch Gauge wheel scraper</td>
<td>404-825A</td>
</tr>
</tbody>
</table>

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

For operations, see: “Adjusting Gauge Wheel Scrapers” on page 72.

Lock-Up Pins

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

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

See “Row Unit Shut-Off” on page 77.

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.

Seed Firmers

A choice of firmers is an option in the product bundles, and includes:

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

Seed-Lok® or Keeton® firmers may be field-installed (although not at the same time). For operations, see: “Seed Firmer Adjustments” on page 79.
Seed-Lok® Seed Firmer

Order one kit per row.

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

Keeton® Seed Firmer

Order one kit per row.

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

Row Unit Press Wheels

Press wheels are opener bundle options on the 1625IRHD. One of five types:

<table>
<thead>
<tr>
<th>Description</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cast Adjustable</td>
<td>(05), (06), (19), (20)</td>
</tr>
<tr>
<td>Cast Staggered</td>
<td>(07), (08), (21), (22)</td>
</tr>
<tr>
<td>1 1/4 x 13.5 Double Wedge</td>
<td>(03), (17), (18)</td>
</tr>
<tr>
<td>1 x 12 Double Wedge</td>
<td>(04), (15), (16), (25), (26)</td>
</tr>
<tr>
<td>Spider (includes drag chain, not shown)</td>
<td>(09), (10), (23), (24)</td>
</tr>
</tbody>
</table>

For operations, see “Press Wheel Adjustments” on page 80.

Paddle Wheel Kit

This kit provides 20 paddle shoes and roll pins, which outfits one ground drive wheel. Paddle shoes increase the surface area of the ground drive teeth, providing more consistent wheel performance in soft or sandy soils.

Order three kits to outfit both seed ground drives and the fertilizer ground drive.

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 Tooth Paddle Wheel Kit</td>
<td>417-346A</td>
</tr>
</tbody>
</table>
# Seed Lubricant

<table>
<thead>
<tr>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ezee Glide Plus Talc + Graphite Mix (19 liter/5 gallon container)</td>
<td>821-069C</td>
</tr>
<tr>
<td>Fluency Powder, case quantity</td>
<td>821-074C</td>
</tr>
<tr>
<td>Fluency Powder, single 2 kg (4.4 pound) bucket</td>
<td>821-075C</td>
</tr>
</tbody>
</table>

For use, see “Seed Lubricants” on page 120.
# Appendix A - Reference Information

## Specifications and Capacities

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dry Fertilizer Single Row Metric Model</strong></td>
<td>1625AHD-1670</td>
</tr>
<tr>
<td><strong>Row Count</strong></td>
<td>16</td>
</tr>
<tr>
<td><strong>Row Spacing</strong></td>
<td>70 cm (27.6 inches)</td>
</tr>
<tr>
<td><strong>Working Width</strong></td>
<td>12.29 m (40 feet, 4 inches)</td>
</tr>
<tr>
<td><strong>Swath (Channel Width)</strong></td>
<td>1120 cm (442 inches)</td>
</tr>
<tr>
<td><strong>Seed Capacity, 3.0 bu Hopper</strong></td>
<td>1691 liters (48 Bushels)</td>
</tr>
<tr>
<td><strong>Seed Capacity, 1.6 bu Hopper</strong></td>
<td>960 liters (26 Bushels)</td>
</tr>
<tr>
<td><strong>Fertilizer Capacity</strong></td>
<td>3500 liters (100 Bushels)</td>
</tr>
<tr>
<td><strong>Transport Width</strong></td>
<td>3.99 m (13 feet, 1 inch)</td>
</tr>
<tr>
<td><strong>Working Length</strong></td>
<td>10.34 m (33 feet, 11 inches)</td>
</tr>
<tr>
<td><strong>Transport Length</strong></td>
<td>13.94 m (45 feet, 9 inches)</td>
</tr>
<tr>
<td><strong>Working Height</strong></td>
<td>318 cm (10 feet, 5 inches)</td>
</tr>
<tr>
<td><strong>Transport Height</strong></td>
<td>318 cm (12 feet, 6 inches)</td>
</tr>
<tr>
<td><strong>Transport Clearance</strong></td>
<td>56 cm (22 inches)</td>
</tr>
<tr>
<td><strong>Minimum Tractor Requirement</strong></td>
<td>140 - 160 kW (185 - 215 hp)</td>
</tr>
<tr>
<td><strong>Hitch</strong></td>
<td>3-Point Category III or Category IV Narrow</td>
</tr>
<tr>
<td><strong>Hydraulic Circuits Required</strong></td>
<td>Closed-Center, 3 Remotes</td>
</tr>
<tr>
<td><strong>Hydraulic Power Required</strong></td>
<td>155 bar (2250 PSI) at 95 liters/minute (25 gallons/minute)</td>
</tr>
<tr>
<td><strong>Weight (Minimum Empty)</strong></td>
<td>8600 kg (19,000 pounds)</td>
</tr>
<tr>
<td><strong>Weight (Maximum Full)</strong></td>
<td>15600 kg (34,300 pounds)</td>
</tr>
<tr>
<td><strong>Transport Tire Size</strong></td>
<td>380/90R46</td>
</tr>
<tr>
<td><strong>Wing Gauge Wheel Tire Size</strong></td>
<td>15-19.5 NHS 12-Ply Skid Steer</td>
</tr>
<tr>
<td><strong>Opener Down Pressure</strong></td>
<td>140 to 245 kg (305 to 545 pounds)</td>
</tr>
<tr>
<td><strong>Opener Travel</strong></td>
<td>25 cm (10 inches)</td>
</tr>
<tr>
<td><strong>Opener Depth Range</strong></td>
<td>10.2 cm (4 inches) in 6.4 mm (1/4 inch) increments</td>
</tr>
</tbody>
</table>
**Torque Values Chart**

<table>
<thead>
<tr>
<th>Bolt Size</th>
<th>Grade 2</th>
<th>Grade 5</th>
<th>Grade 8</th>
<th>Bolt Size</th>
<th>Grade 5</th>
<th>Grade 8</th>
<th>Grade 10.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>in-tpi^a</td>
<td>N-m^b ft-lb^c</td>
<td>N-m ft-lb</td>
<td>N-m ft-lb</td>
<td>N-m ft-lb</td>
<td>N-m ft-lb</td>
<td>N-m ft-lb</td>
<td>N-m ft-lb</td>
</tr>
<tr>
<td>1/2-20</td>
<td>7.4 5.6</td>
<td>11 8</td>
<td>16 12</td>
<td>M 5 X 0.8</td>
<td>4 3</td>
<td>6 5</td>
<td>7 7</td>
</tr>
<tr>
<td>1/4-28</td>
<td>8.5 6</td>
<td>13 10</td>
<td>18 14</td>
<td>M 6 X 1</td>
<td>7 5</td>
<td>11 8</td>
<td>11 11</td>
</tr>
<tr>
<td>5/16-18</td>
<td>15 11</td>
<td>24 17</td>
<td>33 25</td>
<td>M 8 X 1.25</td>
<td>17 12</td>
<td>26 19</td>
<td>36 27</td>
</tr>
<tr>
<td>5/16-24</td>
<td>17 13</td>
<td>26 19</td>
<td>37 27</td>
<td>M 8 X 1</td>
<td>18 13</td>
<td>28 21</td>
<td>39 29</td>
</tr>
<tr>
<td>3/8-16</td>
<td>27 20</td>
<td>42 31</td>
<td>59 44</td>
<td>M 10 X 1.5</td>
<td>33 24</td>
<td>52 39</td>
<td>72 53</td>
</tr>
<tr>
<td>3/8-24</td>
<td>31 22</td>
<td>47 35</td>
<td>67 49</td>
<td>M 10 X 0.75</td>
<td>39 29</td>
<td>61 45</td>
<td>85 62</td>
</tr>
<tr>
<td>7/16-20</td>
<td>43 32</td>
<td>67 49</td>
<td>95 70</td>
<td>M 12 X 1.75</td>
<td>58 42</td>
<td>91 67</td>
<td>125 93</td>
</tr>
<tr>
<td>7/16-14</td>
<td>49 36</td>
<td>75 55</td>
<td>105 78</td>
<td>M 12 X 1.5</td>
<td>60 44</td>
<td>95 70</td>
<td>130 97</td>
</tr>
<tr>
<td>1/2-13</td>
<td>66 49</td>
<td>105 76</td>
<td>145 105</td>
<td>M 12 X 1</td>
<td>90 66</td>
<td>105 77</td>
<td>145 105</td>
</tr>
<tr>
<td>5/16-20</td>
<td>75 55</td>
<td>115 85</td>
<td>165 120</td>
<td>M 14 X 2</td>
<td>92 68</td>
<td>145 105</td>
<td>200 150</td>
</tr>
<tr>
<td>9/16-12</td>
<td>95 70</td>
<td>150 110</td>
<td>210 155</td>
<td>M 14 X 1.5</td>
<td>99 73</td>
<td>155 115</td>
<td>215 160</td>
</tr>
<tr>
<td>9/16-18</td>
<td>105 79</td>
<td>165 120</td>
<td>235 170</td>
<td>M 16 X 2</td>
<td>145 105</td>
<td>225 165</td>
<td>315 230</td>
</tr>
<tr>
<td>5/8-11</td>
<td>130 97</td>
<td>205 150</td>
<td>285 210</td>
<td>M 16 X 1.5</td>
<td>155 115</td>
<td>240 180</td>
<td>335 245</td>
</tr>
<tr>
<td>5/8-18</td>
<td>150 110</td>
<td>230 170</td>
<td>325 240</td>
<td>M 18 X 2.5</td>
<td>195 145</td>
<td>310 230</td>
<td>405 300</td>
</tr>
<tr>
<td>3/4-10</td>
<td>235 170</td>
<td>360 265</td>
<td>510 375</td>
<td>M 18 X 1.5</td>
<td>220 165</td>
<td>350 260</td>
<td>485 355</td>
</tr>
<tr>
<td>3/4-16</td>
<td>260 190</td>
<td>405 295</td>
<td>570 420</td>
<td>M 20 X 2.5</td>
<td>280 205</td>
<td>440 325</td>
<td>610 450</td>
</tr>
<tr>
<td>9/16-9</td>
<td>225 165</td>
<td>585 430</td>
<td>820 605</td>
<td>M 20 X 1.5</td>
<td>310 230</td>
<td>650 480</td>
<td>900 665</td>
</tr>
<tr>
<td>9/16-14</td>
<td>250 185</td>
<td>640 475</td>
<td>905 670</td>
<td>M 24 X 3</td>
<td>480 355</td>
<td>760 560</td>
<td>1050 780</td>
</tr>
<tr>
<td>1-8</td>
<td>340 250</td>
<td>875 645</td>
<td>1230 910</td>
<td>M 24 X 2</td>
<td>525 390</td>
<td>830 610</td>
<td>1150 845</td>
</tr>
<tr>
<td>1-12</td>
<td>370 275</td>
<td>955 705</td>
<td>1350 995</td>
<td>M 30 X 3.5</td>
<td>960 705</td>
<td>1510 1120</td>
<td>2100 1550</td>
</tr>
<tr>
<td>1-1/2-7</td>
<td>480 355</td>
<td>1080 795</td>
<td>1750 1290</td>
<td>M 30 X 2</td>
<td>1060 785</td>
<td>1680 1240</td>
<td>2320 1710</td>
</tr>
<tr>
<td>1-1/2-12</td>
<td>540 395</td>
<td>1210 890</td>
<td>1960 1440</td>
<td>M 36 X 3.5</td>
<td>1730 1270</td>
<td>2650 1950</td>
<td>3660 2700</td>
</tr>
<tr>
<td>1-1/4-7</td>
<td>680 500</td>
<td>1520 1120</td>
<td>2460 1820</td>
<td>M 36 X 2</td>
<td>1880 1380</td>
<td>2960 2190</td>
<td>4100 3220</td>
</tr>
<tr>
<td>1-1/4-12</td>
<td>750 555</td>
<td>1680 1240</td>
<td>2730 2010</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-3/8-6</td>
<td>890 655</td>
<td>1990 1470</td>
<td>3230 2380</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-3/8-12</td>
<td>1010 745</td>
<td>2270 1670</td>
<td>3680 2710</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-1/2-6</td>
<td>1180 870</td>
<td>2640 1950</td>
<td>4290 3160</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-1/2-12</td>
<td>1330 980</td>
<td>2970 2190</td>
<td>4820 3560</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

---

**Tire Inflation Chart**

<table>
<thead>
<tr>
<th>Tire Size</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.4R42 3* R1 (380/90R46) Transport</td>
<td>207 kPa (30 psi)</td>
</tr>
<tr>
<td>15-19.5 12-Ply NHS Skid Steer Gauge Wheel</td>
<td>414 kPa (60 psi)</td>
</tr>
</tbody>
</table>

---

**Tire Warranty Information**

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

- **Manufacturer**: Web site
- **Firestone**: [www.firestoneag.com](http://www.firestoneag.com)
- **Goodyear**: [www.goodyearag.com](http://www.goodyearag.com)
- **Titan**: [www.titan-intl.com](http://www.titan-intl.com)
- **BKT**: [www.bkt-tire.com](http://www.bkt-tire.com)
- **Gleason**: [www.gleasonwheel.com](http://www.gleasonwheel.com)
Hydraulic Diagrams
Fan Hydraulics
Dual Section Dry Fertilizer Fan Hydraulics
Lift Hydraulics
Fold and Marker Hydraulics
Dry Fertilizer Lift Hydraulics
Dry Fertilizer Meter Chains (Option)

Liquid Fertilizer Drive Chain (Option)
Appendix B - Pre-Delivery

Pre-Delivery Safety

Have all workers review “Important Safety Information” starting on page 1.

**CAUTION**

*Perform no assembly while the planter is on the trailer.*

Tools Required

- planter Parts manual (411-020P)
- two or more workers
- tractor or tug with a planter-compatible hitch
- an overhead lifter (forklift or crane) capable of raising a marker arm 3.8 m (12 1/2 feet). The arm may be over 3.7 m (12 feet) long and weigh up to 135 kg (300 pounds).
- pallet jack or other low-profile mobile lifting device with a capacity of at least 152 kg (335 pounds).
- small jack
- ladder
- basic hand tools

An orientation rose shows isometric Up, Wing, Back, Down, Center and Front in some illustrations.

Unload Truck

*Refer to Figure 120*

Due to the overhanging main transport wheels ①, an end dock or pit dock is recommended for unload. If a suitable dock is not available, contact the factory for hoist instructions.

1. With the trailer at the dock, remove all uncrated components shipped on the trailer deck ③.
2. Any crated components ④ may be removed at any time.
3. Hitch the planter to a tractor or tug to prevent movement after tie-down release.
4. Release all tie downs.
5. Carefully tow the planter off the deck. Move it to a flat, level location with sufficient room to allow later unfolding.

**NOTICE**

*Equipment Damage Risk:
If the trailer bed will be fully depressed into a pit dock, release tie downs, except at wing casters ②, before the transport wheels contact the dock sides. If the planter is left fully tied down, it could sustain damage, or lift the trailer from the tractor upon transport wheel contact.*
Remove Shipping Wheels

All of the remaining steps may be performed with the planter folded.

Refer to Figure 121

Do not remove the shipping wheels unless the planter is supported by its own main transport wheels.

6. Support the weight of each shipping wheel, at the axle. A tire jack suffices.

7. Remove the upper bolts of the shipping wheel arm weldments.

8. Lower support (jack), swinging the arm down until each shipping tire rests on the ground.

9. Prepare for the arms to fall away from the seed cart frame. Use extra workers or provide support lines for the arms. Remove the lower shipping bolts.

10. Return the shipping wheels and fastener sets to the truck driver, or hold for later return to Great Plains.

Before releasing truck, inspect trailer deck for all needed planter components. Parts not found on the deck may be in a crate or a hopper.

Install Dry Fertilizer Drive (1625AHD)

For model 1625AHL (Liquid Fertilizer), continue at "Marker Assembly" on page 140.

Refer to Figure 122 (cutaway view)

On dry fertilizer models 1625AHD, the shipping wheels removed earlier occupy the space used by the dry fertilizer ground drive. The drive is shipped on a temporary mount weldment, horizontally under the fertilizer cart. The mount is bolted to holes in the right side of the cart frame.

11. Support the weight of the fertilizer ground drive with a pallet jack or other low-profile lifter. The drive assembly weighs 152 kg (335 pounds).

12. Remove the upper or lower four sets of fasteners that secure the drive to the mount, or the mount to the frame. With the weight of the mount supported by, remove the remaining four fastener sets.

13. Using a hoist, move the drive forward. Remove and save any U-bolts at its own mount. Bring its mount up under the right side of the cart axle, just inboard of the right arch frame.

14. Select two new or saved:

806-052C U-BOLT 5/8-11 X 7 1/32 X 8 1/2

and four sets new or saved:

804-022C WASHER LOCK SPRING 5/8 PLT

803-021C NUT HEX 5/8-11 PLT

Secure the drive to the axle.

If the shipping wheels have not yet been returned to Great Plains, return the mount weldment with them.
Marker Assembly

Install Marker Transport Rests

Refer to Figure 123 (C: to Center; W: to Wing)

For each wing:

15. Select one:
   - $23$ 411-129H MARKER TRANSPORT REST WELDMENT
   - select two sets:
     - $30$ 802-311C HHCS 1/2-13X4 1/4 GR5
     - $40$ 804-015C WASHER LOCK SPRING 1/2 PLT
     - $34$ 803-020C NUT HEX 1/2-13 PLT

16. Locate the marker support mount tube $3$.

17. Orient the marker rest $23$ with the roller end up, and
   the gusset $2$ to planter rear. Secure to mount tube
   with bolts $30$, lock washers $40$ and nuts $34$.

The remaining steps describe marker installation with
the planter in the as-shipped configuration, which
requires some high work. It is also possible to unfold
the planter, nearly fully unfold the incomplete arms,
and install the final sections at a more convenient
height. However, this requires fully functioning
monitor (including switch box) and hydraulic
connections, which may not be practical unless the
customer’s tractor is available.

Install Second Marker Sections

Refer to Figure 124 (C: to Center; W: to Wing)

For each wing:

18. Select one of:
   - $113$-010H PLANTER MARKER 2ND SECTION LH
   - $113$-481H YP1625 36TR MARKER 2ND SEC LH
   - or (not shown):
     - $113$-013H PLANTER MARKER 2ND SECTION RH
     - $113$-480H YP1625 36TR MARKER 2ND SEC RH

Identify the whether the arm is LH or RH, depending
on the wing involved.

Install Marker Hinge Pins

19. Select one each:
   - $14$ 113-798D MARKER SHEAR PIVOT PIN
   - and two sets:
     - $42$ 804-029C WASHER FLAT 1 SAE
     - $43$ 805-058C PIN COTTER 3/16 X 2

   Drive one cotter pin $43$ through an end hole (the top
   hole) of the shear pivot pin $14$. Add a washer $42$
   under the cotter.
**WARNING**

Heavy Overhead Object Hazard:
Use adequate lifting means. Use multiple attachment points. Use extra personnel to control the load. The arm section may weight up to 135 kg (300 pounds), and does not balance at the center of its considerable length. If it falls, or you lose control of the load, workers could suffer serious or fatal injuries.

20. Orient the arm (11 or 12) with the shear pin hole to the rear (flat plate at the hinge end up, angled edge of plate forward, and the center tube below).

Hoist the arm, resting the single-tube end in the transport rest, and aligning the shear pivot tube with the shear pivot holes in the hinge 3.

Insert a shear pin 14. Secure with second washer 33 and cotter 34.

**Install Marker Shear Bolts**

Refer to Figure 125

21. Select one each:

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>802-130C HHCS 1/2-13X2 1/2 GR5</td>
</tr>
<tr>
<td>33</td>
<td>803-019C NUT LOCK 1/2-13 PLT</td>
</tr>
</tbody>
</table>

Insert the shear bolt 27 from the wing end of the hinge 4. Secure with lock nut 33.

**Install Marker Extension Tube**

Check Disk Orientation

Refer to Figure 126 (C: to Center, W: to Wing)

22. Select one of:

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>113-794D MARKER EXTENSION TUBE</td>
</tr>
<tr>
<td>13</td>
<td>421-555D MARKER EXTENSION TUBE</td>
</tr>
</tbody>
</table>

These tube assemblies 13 are identical for LH and RH use. The disk and spindle 5 are pre-assembled.

Prior to installing the marker extension tube, inspect the disk assembly. The bolts securing the spindle weldment to the tube are to be vertical after installation, and the spindle 5 is to be to the front.

This is merely the factory default orientation. The operator may change it as needed.
Insert and Secure Tube

For each wing:

Refer to Figure 127 (C: to Center; W: to Wing)

Select one:

- 806-110C U-BOLT 5/8-11 X 3 1/32 X 4 1/2
- and two sets:
  - 804-022C WASHER LOCK SPRING 5/8 PLT
  - 803-021C NUT HEX 5/8-11 PLT

Minding the spindle orientation, insert the marker extension tube into the marker arm second section to a depth of about 18 inches (45 cm). Secure the extension with the U-bolt, lock washers and nuts.

Press Wheel Installation

Refer to Figure 128

Press wheel assemblies may be removed to meet shipment clearance requirements. The removed assemblies are found either in a crate, or a seed hopper.

Refer to Figure 129

There may be two types of press wheel assemblies:

- Long mount assemblies, which are used on the front (short) row of a twin pair. These mounts have a series of notches on the side.
- Mid mount assemblies, which are used on the long (rear) row of a twin pair. These mounts have smooth sides.

Refer to Figure 128

For each row with press wheels dismounted:

23. Remove from the rear most two bolt holes of the shank and save one each:

- 405-032D 1X12 PW ADJUSTER
- 802-091C HHCS 1/2-13X1 1/2 GR5
- 802-258C HHCS 1/2-13X1 GR5
- and two:
  - 804-015C WASHER LOCK SPRING 1/2 PLT

---

a. Exact extension value depends on row spacing, row utilization and desired disk angle. Setting this requires full monitor and hydraulic connections, then unfolding the planter and markers in field conditions. See “Marker Extension” on page 147.
Do not disturb, loosen or remove the forward two bolts.

24. Align the \( \frac{1}{2} \) inch holes in the press wheel assembly with the \( \frac{1}{2} \)-13 tapped holes in the row unit.

Add a lock washer \( \text{40} \) to the \( \frac{1}{2} \)-13 x 1 inch hex head bolt \( \text{29} \). Loosely screw into the rear \( \frac{1}{2} \) inch hole.

25. Add a lock washer \( \text{40} \) and the eccentric adjuster \( \text{21} \) to the \( \frac{1}{2} \)-13 x 1\( \frac{1}{2} \) inch hex head bolt \( \text{26} \). Loosely screw into the forward \( \frac{1}{2} \) inch hole.

26. Rotate the adjuster \( \text{21} \) to visually align the press wheel assembly with the row unit, and tighten the adjuster and bolts. See “Press Wheel Centering” on page 80.

Figure 129
Long Press Wheel Mount \( \text{18} \)
Appendix C - Initial Setup

Hydraulic Charge and Bleed

Connect the planter to a suitable hydraulic source and check the condition of the hydraulic systems:
“Unfolding the Planter” on page 25,
“Raising/Lowering Planter” on page 28,
“Folding the Planter” on page 29,
“Fan General Operating Information” on page 48,
“Marker Operation” on page 55

See “Bleeding Hydraulics” on page 108 if any circuits do not operate smoothly.

Seed Monitor Console Installation

See the DICKEY-john® IntelliAg® WSMT3 Manual (110011650) for details on console installation.

The only cab connections for the harness are power and harness to hitch.

CAUTION

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

Figure 130
Console Cab Connections
Level Planter

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

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

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

Complete the steps under “Bleeding Hydraulics” on page 108, before proceeding.

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

Refer to Figure 131

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

2. When setting hitch, lower lift cylinders completely. Set the 3-point hitch or hydraulic tongue so that the top of the tongue tube ① is:
   106.7 cm (42 inches) above ground for 1625IRHD. This is the starting point for adjustments.

Refer to Figure 132

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

**NOTICE**

**Mis-adjustment Risk:**

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

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

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

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

Refer to Figure 133

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

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

To check and adjust wing alignment:

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

Refer to Figure 134

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

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

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

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

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

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

Speed Sensor Operation

Refer to Figure 135

The monitor uses radar for measuring planter ground speed.

Marker Extension

Although markers are factory- or dealer-installed, they are not precisely adjusted for your planter configuration. Prior to first use, set the following:

- marker speed (page 62), and;
- marker extension (below).

You may also want to set/check:

- marker disk angle (page 62).

Refer to Figure 136 and Figure 137

To adjust marker extension:

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

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

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

4. Pull forward again and verify new setting.

5. Repeat for other marker.

When correctly adjusted, there is a gap of one row space between passes, as measured between center-lines of outside active rows.
## Marker Extension Values

<table>
<thead>
<tr>
<th>1625AH Model</th>
<th>Extension</th>
<th>Left</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1236 Single Row</td>
<td></td>
<td>594.4 cm (234.0 inches)</td>
<td></td>
</tr>
<tr>
<td>-1630 Single Row</td>
<td></td>
<td>647.7 cm (255.0 inches)</td>
<td></td>
</tr>
<tr>
<td>-1636 Single Row</td>
<td></td>
<td>777.2 cm (306.0 inches)</td>
<td></td>
</tr>
<tr>
<td>-1670 Single Row</td>
<td></td>
<td>595.0 cm (234.6 inches)</td>
<td></td>
</tr>
<tr>
<td>-1675 Single Row</td>
<td></td>
<td>637.5 cm (250.8 inches)</td>
<td></td>
</tr>
<tr>
<td>-2420 Single Row</td>
<td></td>
<td>635.0 cm (250.0 inches)</td>
<td></td>
</tr>
<tr>
<td>-24TR36 Twin Row</td>
<td></td>
<td>583.7 cm (229.8 inches)</td>
<td></td>
</tr>
<tr>
<td>as -1236 Single Row</td>
<td>605.0 cm (238.2 inches)</td>
<td>562.5 cm (221.4 inches)</td>
<td></td>
</tr>
<tr>
<td>-3115 Single Row</td>
<td></td>
<td>609.6 cm (240.0 inches)</td>
<td></td>
</tr>
<tr>
<td>-32TR30 Twin Row</td>
<td></td>
<td>637.1 cm (250.8 inches)</td>
<td></td>
</tr>
<tr>
<td>as -1630 Single Row</td>
<td>658.3 cm (259.2 inches)</td>
<td>615.8 cm (242.4 inches)</td>
<td></td>
</tr>
<tr>
<td>-32TR36 Twin Row</td>
<td></td>
<td>766.6 cm (301.8 inches)</td>
<td></td>
</tr>
<tr>
<td>as -1636 Single Row</td>
<td>787.9 cm (310.2 inches)</td>
<td>745.3 cm (293.4 inches)</td>
<td></td>
</tr>
<tr>
<td>-32TR70 Twin Row</td>
<td></td>
<td>584.4 cm (230.4 inches)</td>
<td></td>
</tr>
<tr>
<td>as -1670 Single Row</td>
<td>605.6 cm (238.8 inches)</td>
<td>563.1 cm (222.0 inches)</td>
<td></td>
</tr>
<tr>
<td>-32TR75 Twin Row</td>
<td></td>
<td>626.9 cm (246.6 inches)</td>
<td></td>
</tr>
<tr>
<td>as -1675 Single Row</td>
<td>648.1 cm (254.9 inches)</td>
<td>605.6 cm (238.2 inches)</td>
<td></td>
</tr>
</tbody>
</table>
Appendix D - Option Installation

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 138 and Figure 139

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 111).

2. Select one each:
   - 25 802-024C HHCS 3/8-16X3 GR5
   - 16 129BXT824 BRACKET FOR 890-929C FIRMER
   - 15 122-177D 10HD25 INSIDE SCRAPER MNT TUBE
   Insert the bolt ⑤, from the rear, through the lowest hole of the bracket ⑥. Place the tube ⑭ over the bolt.

3. Select one scraper set:
   - 48 890-928C 25 SER AIR DESIGN IN SCRAPER
   Place the shoulder washer ② on bolt ⑤ with the larger diameter to the rear (toward bolt head). Place the left scraper blade ③ on the washer, followed by the right scraper blade ④.

4. Select one each:
   - 38 804-011C WASHER FLAT 3/8 USS PLT
   - 39 804-013C WASHER LOCK SPRING 3/8 PLT
   - 32 803-014C NUT HEX 3/8-16 PLT
   Place the flat washer ⑧ on the bolt ⑤, followed by the lock washer ⑨ and nut ⑩. Tighten bolt and nut to 3/8-16 GR5 torque spec. Make sure blades pivot freely.

5. Select the scraper spring ⑥. Connect the spring between the blades, using the small top holes.

6. Select two sets:
   - 28 802-172C HHCS 5/16-18X2 1/2 GR5
   - 36 803-043C 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 ⑩.

7. Re-mount the removed disc blade.

Callout, Part & Description cross-references are drawn from a Reference Page.
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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