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

Illustrations may show optional equipment not supplied with standard unit or may depict similar models where a topic is identical.
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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Dealer Contact Information

Name: __________________________________________
Street: ________________________________________
City/State: _____________________________________
Telephone: ______________________________________
Email: _________________________________________
Dealer’s Customer No.: __________________________
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Printed in the United States of America
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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.

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.

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.
Wear Protective Equipment

▲ Wear protective clothing and equipment.
▲ Wear clothing and equipment appropriate for the job.
  Avoid loose-fitting clothing.
▲ Because prolonged exposure to loud noise can cause hearing impairment or hearing loss, wear suitable hearing protection such as earmuffs or earplugs.
▲ Because operating equipment safely requires your full attention, avoid wearing entertainment headphones while operating machinery.

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

Agricultural chemicals, including treated seed, can be dangerous. Improper use can seriously injure persons, animals, plants, soil and property.
▲ Read and follow seed supplier’s instructions.
▲ Wear protective clothing.
▲ Handle all treated seed with care.
▲ Avoid inhaling smoke from any type of chemical fire.
▲ Store or dispose of unused treated seed as specified by chemical manufacturer.

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 20 mph (32 kph). Some rough terrains require a slower speed. Sudden braking can cause a towed load to swerve and upset.

▲ Do not exceed 20 mph (32 kph). Never travel at a speed which does not allow adequate control of steering and stopping. Reduce speed if towed load is not equipped with brakes.

▲ Comply with state and local laws.

▲ Do not tow an implement that, when fully loaded, weighs more than 1.5 times the weight of towing vehicle.

▲ Carry reflectors or flags to mark planter in case of breakdown on the road.

▲ Keep clear of overhead power lines and other obstructions when transporting. Refer to transport dimensions under “Specifications and Capacities” on page 74.

▲ Do not fold or unfold the planter while the tractor is moving.

Shutdown and Storage

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

▲ Secure planter using blocks and supports provided.

▲ Detach and store planter in an area where children normally do not play.

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.
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.
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
818-055C

On the back of the planter; one total

Red Reflectors
838-266C

On the back of walkboard each end, and on the backside of each light mounting bar; four total
Amber Reflectors
838-265C

On the back of the wing tool bar outboard of drive mount, outside front of the light brackets; four total

Daytime Reflectors
838-267C

On walkboard inside of red reflectors, and on light mounting bar inside of red reflectors; four total

Danger: Crushing Hazard
818-590C

On the 3-point hitch; one total
Warning: Electrocution Hazard
838-599C (Option)

On marker section each end; two total

Warning: High Pressure Fluid Hazard
818-339C

On the tongue; one total

Warning: Overhead Hazard
818-580C (Option)

On marker section each end; two total

Warning: Pinch/Shear Hazard
818-579C (Option)

On marker section each end; two total
Warning: Excessive Speed
818-188C

**WARNING**

Excessive Speed Hazard

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

On the tongue;
one total

Caution: Do Not Lock Up Row Units
838-993C

**CAUTION**

Do Not lock up row units if rear row units are locked up, they will interfere with the air seeder system when the planter is folded, resulting in damage to the seeder and/or row units.

Three on backside of each wing,
six total

Caution: Tires Not A Step
818-398C

**CAUTION**

To avoid injury from unsecured transport tires:
Never stand on or use transport tires as a step.
Tires out of contact with the ground will rotate easily.

Both sides of caster swivel weldments;
four total

Caution: Pinch/Crush Hazard
818-045C

**WARNING**

Pinch Point or Crushing Hazard

To prevent serious injury or death:
- Folding
- Unfolding

Both sides of caster swivel weldments;
four total
Caution: Tire Pressure 60 PSI
838-426C

![CAUTION]

To Avoid Injury or Machine Damage from Improper Tire Inflation or Torquing of Wheel Bolts:
- Maximum inflation pressure of tires is 60 psi.
- Torque wheel bolts to 105 ft-lb.

Inside valve stem rim of both gauge wheel tires; two total

Caution: Read Operator Manual
838-995C

![CAUTION]

Read and understand the Operator’s Manual before operating the equipment.
- Keep the machine on flat ground and a clear path.
- Keep all parts of the machine in good condition.
- Keep good visibility and control of the machine at all times.
- Keep the operator posted on the machine.
- Keep hands and feet away from moving parts.
- Never operate the machine without proper protective clothing.
- Make sure operators are aware of all hazards before operating.
- Ensure that all parts of the machine are in good condition.

On the tongue; one total

Caution: Tire Pressure and Torque
858-792C

![CAUTION]

To Avoid Injury or Machine Damage from Improper Tire Inflation or Torquing of Wheel Bolts:
- Maximum inflation pressure for tires is 45 psi (310 kPa).
- Torque wheel bolts to 295 ft-lb (427 N-m).

On the outside of both wheels; two total
Great Plains welcomes you to its growing family of new product owners. This planter has been designed with care and built by skilled workers using quality materials. Proper setup, maintenance, and safe operating practices will help you get years of satisfactory use from the machine.

**Description of Unit**

The 30-Foot 20 Series Yield-Pro® Planter is pull-type planting implement for use in conventional till, minimum-till, or light no-till conditions.

YP1220 Yield-Pro® planters are outfitted with 20 Series, side-depth-control row-units. The planter folds for transport.

**Document Family**

- 401-506M Operator Manual (this manual)
- 401-506B Seed Rate Manual
- 401-506P Parts Manual

**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.

**Covered Models**

YP1220-3510 30-foot, 35-row, 10-inch spacing

**Using This Manual**

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

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

**Definitions**

The following terms are used throughout this manual.

Right-hand and left-hand as used in this manual are determined by facing the direction the machine will travel while in use unless otherwise stated.

**NOTE**: Useful information related to the preceding topic.

---

**Figure 1**
Left/Right Convention

---

**A crucial point of information related to the preceding topic.**
Read and follow the directions provided before continuing, to ensure safety, avoidance of machine damage, and to achieve desired field results.
Owner Assistance

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

Refer to Figure 2

Your machine’s parts were specially designed and should only be replaced with Great Plains parts. Always use the serial and model number when ordering parts from your Great Plains dealer. The serial-number plate is located on the rear face or the right axle.

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

Model Number: YP1220-3510
Serial Number: __________________________

Further Assistance

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

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

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

Great Plains Service Department
1525 E. North St.
P.O. Box 5060
Salina, KS 67402-5060

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

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

Pre-Start Checklist

1. Read and understand "Important Safety Information" on page 1.
2. Check that all working parts are moving freely, bolts are tight, and cotter pins are spread.
3. Check that all grease fittings are in place and lubricated. See "Lubrication" on page 63.
4. Check that all safety decals and reflectors are correctly located and legible. Replace if damaged. See “Safety Decals” on page 6.
5. Infl ate tires to pressure recommended and tighten wheel bolts as specified. See “Tire Inflation” on page 74.
Hydraulic Hose 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.

*Refer to Figure 3*

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.

**Current Style Color Coded Hose Handles**

<table>
<thead>
<tr>
<th>Color</th>
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<tbody>
<tr>
<td>Green</td>
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<tr>
<td>Blue</td>
<td>Lift/Tongue</td>
</tr>
<tr>
<td>Black</td>
<td>Fan</td>
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To distinguish hoses on the same hydraulic circuit, refer to the symbol molded into the handle grip. Hoses with an extended-cylinder symbol feed cylinder base ends. Hoses with a retracted-cylinder symbol feed cylinder rod ends.

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

The fan motor further requires hookup of a (third) case drain line, which returns lubricating/cooling fluid.
Older Style Hoses with Color Ties

Refer to Figure 4

Great Plains hydraulic hoses are color coded. Hoses that go to the same remote valve are marked with the same color tie.

<table>
<thead>
<tr>
<th>Color</th>
<th>Hydraulic Function</th>
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</thead>
<tbody>
<tr>
<td>White</td>
<td>Fold/Marker</td>
</tr>
<tr>
<td>Blue</td>
<td>Lift/Tongue</td>
</tr>
<tr>
<td>Orange</td>
<td>Fan</td>
</tr>
</tbody>
</table>

To distinguish hoses on the same hydraulic circuit, refer to plastic hose label. Hose under extended-cylinder symbol feeds cylinder base ends. Hose under retracted-cylinder symbol feeds cylinder rod ends.

Protecting Hydraulic Motor Seals

Low Pressure (Case) Drain Connection

**NOTICE**

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

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

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

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

**NOTICE**

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

3. If the tractor has a limited number of remotes capable of continuous flow, use one for the fan. (See “Specifications and Capacities” on page 74 for tractor requirements.)
Hitching Tractor to Planter

**DANGER**

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

**WARNING**

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

**3-Point Hitch**

**Refer to Figure 5**

1. Connect your tractor 3-point to the planter 3-point hitch. If using quick hitch be sure planter locks into hitch securely.
2. Raise tractor 3-point just enough to relieve pressure off of the parking stand.

**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 Tongue Hitch**

**Refer to Figure 6**

1. Connect the hydraulic hoses for the tongue circuit. This needs to be done before hitching in order to raise and lower the tongue.
2. Set the tongue height to clear the draw bar, back the tractor into alignment and pin the draw bar.
Tongue Height

1. Set the initial tongue height, using 3 point or cylinder of hydraulic tongue. Distance ①, measured at top of tongue tube is: 46 inches above ground level.
2. Connect other hydraulic hoses to tractor remotes. See "Hydraulic Hose Hookup" on page 14
3. Plug the planter light cable to the tractor.
4. Connect monitor lead to monitor harness.
5. Plug electric clutch cable to the switch control box cable.

NOTE: Switch control boxes should be mounted in your tractor cab in a location with easy access. Route wiring harnesses with enough slack to allow for tractor movement, especially on articulating tractors.

Refer to Figure 8

6. Remove the lower pin ② holding the parking stand ③. Swing the parking stand back and up until it is above the rear hole ④. Place the holding pin in the rear hole and allow the parking stand to rest on it. This will be the transport position for the parking stand.
7. Adjust the top link of a 3-point long enough so the ball swivel does not bottom out when fully raised.
8. Secure hoses so they do not get caught in ball swivel. Failure to do so could cause hose to be crushed requiring hose replacement.
Hydraulic Charge and Bleed

Normally the hydraulic system is fully charged and bled at the factory before shipping. If repairs have been made, substantial amounts of oil drained from the system, or the following procedures do not correct a problem, see “Bleeding Hydraulics” on page 53.

Lift Hydraulics

Bleeding should not be required other than to raise fully and hold lever on for one minute or until all cylinders extend fully.

Cylinder Hydraulics

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**

*Planter Damage Risk:*

*Do not fold or unfold without first raising planter completely.*
Optional Monitor Mounting Plate

The YP1220 is supplied with an optional mounting plate that may be used to mount the Point Row Monitor, the Electro-hydraulic Control Valve, and the DICKEY-john® Seed Monitor.

Refer to Figure 9

1. Attach large suction cup included with mounting plate to the top hole on the plate using bolt and lock washer.
2. Place DICKEY-john® mounting bracket on mounting plate. Secure bracket to plate in bottom two holes directly below the suction cups. Use bolts and nuts to install.
3. Remove mounting bracket from electro-hydraulic valve control. Install mounting bracket to mounting plate.
4. Attach point row monitor to mounting plate with 10-32 × 5/8 machine screws, lock washers, and nuts. Let wires fall in the front of the plate.
5. Secure electro-hydraulic valve control to mounting bracket on plate using 10-32 × 5/8 machine screws, lock washers, and nuts. Let wires fall in the front of the plate.
6. Attach DICKEY-john® Monitor to DICKEY-john® mounting bracket on plate. Thread monitor wires through slot in plate. Trap all other wires between DICKEY-john® monitor and mounting plate.
Operating Instructions

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

Pre-Start Checklist

**WARNING**

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

1. Carefully read “Important Safety Information” on page 1.
2. Lubricate planter as indicated under “Lubrication” on page 63.
3. Check all tires for proper inflation. See “Tire Inflation” on page 74.
4. Check all bolts, pins and fasteners. Torque as shown in “Torque Values Chart” on page 75.
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.
Folding the Planter

**WARNING**

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

- 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 planter on level ground with tractor in neutral. If your planter has markers, be certain they are folded.

**CAUTION**

*Crushing Hazard:*
Center section of planter will move backward while folding. Allow at least 10 feet of clearance behind the planter when folding.

1. Switch drive line clutches off.

Refer to Figure 10

2. Set electronic valve selector switch ① in tractor to “FOLD” to activate fold cylinder hydraulics.

3. Activate lift hydraulics. Raise planter until lift hydraulics are fully raised.

**NOTICE**

*Planter Damage Risk:*
Be sure planter’s lift hydraulics are fully raised before folding or machine damage WILL occur.

Refer to Figure 11

4. Fold planter until wings clear transport hooks ② by a few feet.

**NOTICE**

*Planter Damage Risk:*
Failure to keep the 3-point lowered while folding WILL result in opener or seed delivery system damage.

5. Raise 3-point hitch to elevate wing hooks ③ located on the tongue above the wings.

6. Fold planter fully so wing locks ④ can engage the wing hooks ⑤.

Refer to Figure 12

7. Lower 3-point hitch to engage wing hooks so tongue is carried on the wing locks. Allow hitch to float with planter frame while transporting.
Refer to Figure 14 and Figure 13
8. Remove lift cylinder transport lock channels from their storage positions.

![Figure 13](image1.png)
Figure 13
Lift Cylinder Lock Storage

Refer to Figure 14 and Figure 13
9. Place transport lock channels on lift cylinders located on gauge wheels and on center frame.

![Figure 15](image2.png)
Figure 15
Lift Cylinder Lock Use

![Figure 14](image3.png)
Figure 14
Transport Cylinder Lock Storage

![Figure 16](image4.png)
Figure 16
Transport Cylinder Lock Use
Unfolding the Planter

**WARNING**

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

- 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.

Unfold planter on level ground with tractor in neutral.

1. Switch drive line clutches off.

**Refer to Figure 17**

2. Set electronic valve selector switch 1 in tractor to “FOLD” to activate fold cylinder hydraulics.
3. Activate lift hydraulics. Raise planter until lift hydraulics are fully raised.

**NOTICE**

**Planter Damage Risk:**
Be sure planter’s lift hydraulics are fully raised before unfolding or machine damage WILL occur.

**Refer to Figure 18**

4. Raise 3-point hitch to release wing hooks 3.
5. The fold system uses re-phasing cylinders. It is necessary to re-phase cylinders so wing gauge wheels to run in their fully rotated positions in front of planter. To re-phase fold cylinders:

   Move and hold lever in fold direction for 30 seconds. This causes wings to push against the tongue transport hooks 2.

**Refer to Figure 19**

6. Reverse fold lever until wings clear transport hooks 3 by a few feet.
7. Lower 3-point hitch to planting position. See pages 16 and 28 for correct hitch height and depth control settings.

**NOTICE**

**Planter Damage Risk:**
Failure to lower the 3-point before unfolding WILL result in opener or seed delivery system damage.

8. Unfold planter fully to planting position.
Refer to Figure 13 through Figure 16 on page 22.

9. Remove lift cylinder transport lock channels from gauge wheels and center frame. Return transport lock channels to storage area.

10. Activate lift hydraulics and lower planter.

11. Set electronic valve selector switch in tractor to "MARKER" to activate marker hydraulics.

12. Switch drive-line clutches on.

**Changing the Seed Box or Hopper**

1. Shut off fan before changing boxes.

2. Park the planter on level ground with enough room to maneuver a tractor with front-end loader around it.

3. Place tractor in park, shut off engine, and remove the key.

4. Close the slide gate.

Refer to Figure 20

5. Remove the walkboard lock pin ①.

6. Swing walkboard ② all the way to the right.

![Figure 20 Walkboard Lock Pin](image)

**NOTE:** If planter is lowered, walkboard ② will stay open by itself once fully opened.

Refer to Figure 21

7. Remove the pins ③ restraining the seed box or bulk hopper on the frame. (There are two lock pins one each on diagonal corners).

Refer to Figure 22

8. Align the forks with the slots in the rear of the seed box or hopper and slowly drive forward until forks are completely under the seed box or hopper.

9. Slowly lift the empty seed box or hopper from the planter.

10. Carefully install full seed box or an empty hopper on the planter. Install box restraining pins in opposite corners.

**NOTE:** Bulk hopper frame has two sets of lifting points. One set is for normal loading and is tubes. The other set is to allow picking it up from the side for placing in storage near a wall.

**NOTICE**

**Tipping and Overload Hazard:**

Never attempt to move a seed hopper while loaded. It exceeds the lifting capacity of front end loaders and most fork lifts. Always fill seed hopper with seed after it has been securely placed back on the air box.

![Figure 21 Seed Box Pins](image)

**NOTE:** It may be necessary to adjust the seal on top of air box to get full contact with the bottom of seed box or hoppers. This is a one-time adjustment.
11. Load the hopper with seed. If using a hydraulic auger with the auxiliary hydraulic kit, refer to the instructions following.

12. Open the slide gate.

13. Return the ladder and platform to the closed position.

**NOTICE**

*Flow Inconsistency and Stoppage Risk:*
Talc lubricant is mandatory for all seeds, especially treated or inoculated seed when using the precision meter. Do not use talc lubricant when using the finger pickup meters. Use graphite lubricant with finger pickup meters. Refer to “Seed Lubricants” on page 71.

**Using Auxiliary Hydraulic Circuit**

The optional auxiliary hydraulic kit includes a manual valve that diverts the marker hydraulic circuit to a pair of quick-connect ports at the back of the seed cart.

1. Extend or fold any marker that is raised. Return the cab control for that circuit to “off”.

2. Close any shut-off valve on your auger, and connect the auger to the auxiliary quick-connect ports at the back of the seed cart.

3. At the auxiliary selector valve (near marker sequence valve on left wing), move the handle from “Marker” to “Auxiliary”.

4. With no seed present, open the auger shutoff valve, and operate the cab control to determine which setting (“extend” or “retract”) turns the auger in the correct direction for seed lift.

5. Load seed. Shutoff cab circuit, then auger. Return Aux valve control handle to “Marker” position.
# Pre-Usage Checklist

Use the following checklist as a guide to ensure the planter is proper set before using. You may need to refer to the assembly instructions, operator’s manual or the Dickey-john manual to complete checklist.

<table>
<thead>
<tr>
<th>MECHANICAL</th>
<th>HYDRAULIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>q 1. Tongue height preset on 3-point.</td>
<td>q 20. Field raise and lower.</td>
</tr>
<tr>
<td>q 2. Front to rear levelness.</td>
<td>q 21. Fold/unfold and tongue lock.</td>
</tr>
<tr>
<td>q 3. End-to-end levelness at gauge wheels.</td>
<td>q 22. Markers.</td>
</tr>
<tr>
<td>q 5. Tongue hook latch operation.</td>
<td>q 24. Fan direction and speed.</td>
</tr>
<tr>
<td>q 6. Marker initial length.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AIR SYSTEM</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>q 7. Manifold to Pro-box or poly hopper seal.</td>
<td></td>
</tr>
<tr>
<td>q 8. Y-tubes turned on to correct rows.</td>
<td></td>
</tr>
<tr>
<td>q 9. Air leaks (small leaks from Pro-box are normal.</td>
<td></td>
</tr>
<tr>
<td>q 10. Hose routings, no sags and no pinched hoses. (Check both folded and field positions.)</td>
<td></td>
</tr>
<tr>
<td>q 11. Clean-out doors closed at meters.</td>
<td></td>
</tr>
<tr>
<td>q 12. Hoses fully connected to meters and locked.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ROW-UNITS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>q 13. Preset depth handles to 7 holes showing above &quot;T&quot;.</td>
<td></td>
</tr>
<tr>
<td>q 14. Preset down force springs to 1st notch (lightest) setting for most conditions, 2nd notch otherwise.</td>
<td></td>
</tr>
<tr>
<td>q 15. Check closing wheel alignment.</td>
<td></td>
</tr>
<tr>
<td>q 16. Set closing wheels to first notch (light setting).</td>
<td></td>
</tr>
<tr>
<td>q 17. Check meter drive coupler is engaged for all desired rows.</td>
<td></td>
</tr>
<tr>
<td>q 18. Lock up Y-tube rows if needed.</td>
<td></td>
</tr>
<tr>
<td>q 19. Check action and contact of side depth wheels.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DRIVE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>q 25. Check all chains are lubricated, proper tension and move freely without kinks or tight spots. (This is very important for even metering.)</td>
<td></td>
</tr>
<tr>
<td>q 26. Set range &amp; transmission sprockets for desired rate.</td>
<td></td>
</tr>
<tr>
<td>q 27. Check contact wheel pressure.</td>
<td></td>
</tr>
<tr>
<td>q 28. Check action of contact wheel when raising and lowering it makes contact at ground height.</td>
<td></td>
</tr>
<tr>
<td>q 29. Lubricate slider joints on drive shafts if not already done.</td>
<td></td>
</tr>
<tr>
<td>q 30. Check operation of electric clutches for point rows.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>METERS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>q 31. Correct meters for desired crop. (Precision Finger Pickup or Singulator Plus.)</td>
<td></td>
</tr>
<tr>
<td>q 32. Correct seed wheels for desired crop. (Wheels for planters are green in color, not black.)</td>
<td></td>
</tr>
<tr>
<td>q 33. Seed wheels need to be fully seated in meter.</td>
<td></td>
</tr>
<tr>
<td>q 34. Correct 12 finger or 6 finger units on all rows for your row spacing. (Can be checked by looking into clean-out door opening.)</td>
<td></td>
</tr>
<tr>
<td>q 35. Clean-out doors closed.</td>
<td></td>
</tr>
<tr>
<td>q 36. Meter assemblies properly secured in place.</td>
<td></td>
</tr>
<tr>
<td>q 37. Graphite for Precision Finger Pickup meters or Talc for Singulator Plus meters (per manual).</td>
<td></td>
</tr>
</tbody>
</table>
TRANSPORTING

**WARNING**

*Loss of Control Hazard:*
*Towing the planter at high speeds or with a vehicle that is not heavy enough could lead to loss of vehicle control. Loss of vehicle control could lead to serious road accidents, injury and death. To reduce the hazard, do not exceed 20 mph.*

Before transporting the planter, 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 given circumstances. This will result with the wing locks disengaging on the road.

- Empty seed box. Empty seed box before transporting if at all possible.

- The planter can be transported with a full box of grain, but the added weight will increase stopping distance and decrease maneuverability.

- Transport planter only while in folded position. Refer to “Folding the Planter” on page 21 and make sure cylinder lock channels are in place on the gauge wheels.

- Warning lights. Always use warning lights when transporting the planter.

- Road rules. Comply with all federal, state, and local safety laws when traveling on public roads.

- Clearance. Remember that the planter is 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.

**ELECTRICAL**

- 38. Power up monitor and check settings.
- 39. Power up and check hydraulic settings if not already done.
- 40. Check operation of selector valve for fold/makers.
- 41. Check operation of lighting equipment.
Field Operation

1. Hitch planter to a suitable tractor. See “Hitching Tractor to Planter” on page 16.

2. Make sure proper meter wheels are in place.

3. Make sure all seed meter clean out doors are closed. See “Cleaning Out Meters” on page 54.

4. Set planting rate. See “Planting Rate” on page 37.

5. Set tractor 3-point hitch control for depth control operation - not load control.

   NOTE: If tractor 3-point hitch control is set for load control, hitch movement may cause changes in row unit depth resulting in uneven depth control.


7. Turn on fan. Set tractor hydraulic flow control to obtain the rpm from the table below, as indicated on system monitor.
   - 3800 rpm using 82 bu. or 150 bu. hoppers
   - 3500 rpm using bulk seed boxes

   NOTE: Refer to page 32 for further information.

8. Pull forward, lower planter, and begin planting.

9. Always lift planter out of ground when turning at row ends and for other short-radius turns. Planting will stop automatically as planter is raised.

10. Use tractor hydraulics to raise/lower planter, not tractor 3-point.

Seed Hopper Sensor

Refer to Figure 23 and Figure 24

For planters equipped with optional 82 bu. or 150 bu. hoppers, an extra level sensor is included. Use Figure 23 or Figure 24, showing capacity, to place it at the level that suits your operation. Disconnect sensor in manifold and attach lead to this sensor to use it.
Monitor Operation

For monitor operation, refer to the DICKEY-john® manual supplied with this unit.

Refer to Figure 25

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

Electric Clutch Operation

Refer to Figure 26

Electric clutches allow for turning planting off while the planter is lowered. A clutch for each drive shaft allows for independent control each of side of the planter. The clutches are controlled via the in cab control console.

For regular field operation, turn electric clutch switches on control console to “ON” position. This will activate the magnet on each clutch and allow clutch shafts to rotate.

To shut off planting on one or both sides to accommodate point row while planter is lowered, turn one or both switches to “OFF” position.
Electric Clutch Lockup

Refer to Figure 27

In case of electric clutch failure, electric clutches can be locked in the engaged mode using metric bolts stored in the brace plate above each clutch.

1. Remove rubber plugs 1 from oil shield 2 to gain access to bolts 3.
3. Insert M8-1.25×14 mm long metric bolts 3.

NOTE: Use only 14 mm length bolts as provided or machine damage can occur. Longer bolts will damage the clutch. Shorter bolts may not effect a lock-up.

4. If you observe half the hole obstructed by a metal disc 5, you are not at a cutout.
5. Replace oil shield plugs.

If the entire hole is obstructed by a metal disc 5, you are not at a cutout.

When at a cutout, the bolt will screw in with minimal resistance until the bolt head reaches the clutch face.

NOTICE

Clutch Slippage Risk:
Keep oil shield and oil shield plugs in place. Do not allow lubricant to enter the clutch when lubricating the planter. If clutches slip, operate with clutch lock-up until overhaul or replacement of clutches.

Row-Unit Operation

NOTICE

Machine Damage Risk:
IMPORTANT! Do not back up with row-units in the ground, because this will cause severe damage and row-unit plugging.

For information on row-unit adjustments, see “20 Series Row-Unit Adjustments” on page 42. For more information on troubleshooting row-unit problems, see “Troubleshooting” on page 49.
Marker Operation

Before operating markers, make sure they are properly bled as described in “Bleeding Hydraulics” on page 53. Dual markers are equipped with a sequence valve to control lift sequence. Starting with both markers up, the sequence is:

1. If the planter is equipped with an auxiliary hydraulic system, set the selector valve (found near the sequence valve at the marker base on the left wing) to “Marker”.
2. Activate tractor hydraulic lever; right marker lowers while left marker stays up.
3. Reverse hydraulic lever; right marker raises while left marker stays up.
4. Activate hydraulic lever; left marker lowers while right marker stays up.
5. Reverse hydraulic lever; left marker raises while right marker stays up.
6. 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 40.

NOTE: 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.

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.

NOTE: 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 $\frac{1}{2}$in to maintain levelness.

Re-phasing Fold System

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

NOTE: Planter must be folded to re-phase fold system. Refer “Unfolding the Planter” on page 23, for instructions on re-phasing fold system.
Airbox Operation

The function of the airbox is to carry seed to the meter where seed is blown to the row spacings.

Fan Operation

The fan must hook up to the case drain line first, and it must be operated with the return oil line connected to a low back pressure sump return on the tractor. Check with tractor manufacturer for proper connection of oil sump return line. A low back pressure quick disconnect is supplied with the planter for ease of connection to the tractor sump return line.

Use tractor remote hydraulic valve flow control to set fan speed. Start with flow on low setting. 8 - 12 gpm is average flow.

⚠️ NOTE: Do not apply pressure to the return line or operate with restricted return line or motor seals will be damaged.

Recommended butterfly valve setting is 0°. Recommended fan speed depends on planter configuration:

- 3800 rpm using 82 bu. or 150 bu. hoppers
- 3500 rpm using bulk seed boxes (or legacy Great Plains hoppers without the vent line update)

Do not run the fan at speeds over 4500 rpm or speeds under 3000 rpm. Fans operating at too high a speed create too much air flow causing seed to plug up the meter box. Fans operating at too low a speed do not create enough air flow to push the seed to the meter causing the seed tube to plug. If air system does not operate suitably with fan speeds between 3000-4500 rpm, see “Troubleshooting” on page 49, and then “Fan Adjustments” on page 41.

When starting empty you must blow seed out to the meters for two to four minutes to fill meters.

⚠️ NOTE: Before corn planting for the first time at the start of each season, add $\frac{1}{3}$ cup graphite to bottom of airbox.

Watch monitor and adjust fan speed by increasing or decreasing hydraulic flow from tractor.

The monitor has a level sensor located below hopper to warn when box is empty. This gives three to four acres of run time before rows start going empty.

Y-Tubes

Refer to Figure 29

Most rows are connected via Y-tubes with gates 1. These Y-tube gates can be shut off to increase the row spacing of your planter.

Three rows are connected to fixed Y-tubes without gates 2. These rows cannot be shut off at the Y-tube.

Plan any alternate row spacings to use these always-open rows, or un-clamp and re-route seed hoses. You can also shut off the gated Y-tubes to clean out the air system and meters. See “Cleaning Out Air System” on page 57.
# Airbox Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single row doesn't fill or keep up with other rows.</td>
<td>Y tube is bent/angled off feed pipe.</td>
<td>Loosen pipe and spin so the bend is straight down and Y-tube is not pointing to front or rear of air pipe.</td>
</tr>
<tr>
<td></td>
<td>Drop tube to meter is too long, causing seed to pool and plug hose or Y-tube.</td>
<td>Shorten hose (with planter raised, but row units lowered, to ensure hose is not too short).</td>
</tr>
<tr>
<td>Both rows on one meter outlet low or not keeping up with other rows.</td>
<td>Blockage in air slot in top of airbox.</td>
<td>Clear by using a long skinny tool and taking hose off through hose outlet.</td>
</tr>
<tr>
<td></td>
<td>Bad hose routing between delivery hose and airbox on wing.</td>
<td>Correct hose routing.</td>
</tr>
<tr>
<td>Multiple rows fail for lack of seed.</td>
<td>Fan speed too high/too low.</td>
<td>Check/adjust fan speed.</td>
</tr>
<tr>
<td></td>
<td>Out of seed.</td>
<td>Add seed.</td>
</tr>
<tr>
<td>Single or multiple hoses plugging just ahead of airbox.</td>
<td>Fan speed too high/too low.</td>
<td>Check/adjust fan speed.</td>
</tr>
<tr>
<td></td>
<td>Possible air leak.</td>
<td>Check for air leak downstream between box and top of meter.</td>
</tr>
<tr>
<td>All rows fail.</td>
<td>Lack of seed.</td>
<td>Fan speed too high. Adjust fan speed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Extremely high populations may require slightly reduced field speed.</td>
</tr>
<tr>
<td>1, 2, 3, or more outlets fail.</td>
<td>Foreign matter in seed chamber in bottom of airbox.</td>
<td>Clean out seed chamber.</td>
</tr>
<tr>
<td>Outlets can be side-by-side or random. Plugging may also move from one outlet to another.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Little or no seed to a lot of rows with heavily treated seed.</td>
<td>Seed treatment sticky.</td>
<td>Add talc to seed to dry out seed treatment.</td>
</tr>
</tbody>
</table>
Parking

For information on long-term storage, see “Storage” on page 35.

1. Fold planter. see “Folding the Planter” on page 21.
   ➡️ NOTE: Be sure to install cylinder lockup channels. Failure to do so may result in injury and/or damage to the planter.
2. Park planter on a level, solid area.
3. To prevent rolling, block tires securely.

⚠️ DANGER

Roll-Away Hazard:
There is not enough weight on parking stand(s) to anchor planter. Planter wheels must be blocked when unhitching from tractor. DO NOT unhitch planter while on a steep slope.

Refer to Figure 30

3 Point Hitch

4. Remove pin holding 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.
5. Remove wire snap lock pin from innermost hole on park stand mount. Swing support stand from underneath crossbar weldment.
6. Secure 3-point prop stands by inserting previously removed wire snap lock pin in lower outermost hole on park stand mount.
7. Lower tractor 3-point until planter is resting on parking stand.
8. Shut down hydraulics. Unplug hydraulic lines from tractor. Do not allow hose ends to rest on the ground.
9. Unplug planter light cable from tractor.
10. Unplug monitor harness from console.
11. 3-point: Unhook tractor from planter hitch.
12. Pull tractor away.
Storage

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

1. Remove seed box. See “Changing the Seed Box or Hopper” on page 24.

2. Thoroughly clean seed and seed treatment residue from seed meters. See “Cleaning Out Meters” on page 54, for more information.

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

4. Lubricate and adjust all roller chains.

5. See “Lubrication” on page 63, for lubrication information.

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

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

8. Cover with a tarp if stored outside.

 NOTE: Do not store optional bulk hopper outside on the ground. Raise it on blocks, securing it in place to prevent from falling over or blowing around by wind. Store inside if possible.
To get full performance from your Yield-Pro® 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 of these items need periodic adjustment due to normal wear.

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<td>Wing Alignment</td>
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</tr>
</tbody>
</table>
Planting Rate

Adjusting the planting rate requires the following:
1. adjusting drive speed range sprockets, and adjusting transmission sprockets
2. preparing seed meters,
3. checking tire pressure,
4. checking planting rate (separate procedures for singulated and volumetric seeds are found in the Seed rate manual).

Before setting the planting rate, rotate the contact wheel. Check that seed meters, seed tubes, and drives are working properly and free from foreign material. Check that tire pressure is set according to the “Specifications and Capacities” on page 74.

NOTE: Contact wheel turns in opposite direction than main ground tire.

Drive Speed Range Sprockets

Select the correct drive speed range sprockets for your seed by referring to the “Seed Rate Charts” in the seed rate manual.

Refer to Figure 31
Loosen idler 1 and remove chain 2. Remove retaining pins 3 from shafts and install speed range sprockets as necessary.

NOTE: Make sure the correct sprockets have been installed in the DRIVING and DRIVEN locations as shown.

Reroute chain over sprockets and idlers as shown. Move idler into chain so chain has 1/4 inch slack in its longest span. Tighten idler and install lynch pins.

Transmission Sprockets

To change the planting rate, change the transmission sprocket combination. Refer to “Seed Rate Charts” in the seed rate manual.

Refer to Figure 32
Loosen idler 4 and remove drive chain 5. Remove retaining pins 6 from shafts and rearrange driving and driven sprockets as necessary.

Reroute drive chain over sprockets and idlers as shown. Move idlers into chain so chain has 1/4 inch slack in its longest span. Tighten idlers and install lynch pins.
Contact Wheel Drive

Refer to Figure 33
You can adjust the down pressure the contact wheel exerts by adjusting the pressure on the spring.

NOTE: Do not adjust spring so tight that it will bottom out when raised.

Refer to Figure 34
Before adjusting spring, raise planter and adjust wheel travel to obtain 1 1/2 inches clearance above the main tire.

Refer to Figure 35
You can adjust the amount of travel for the contact wheel by loosening the jam nuts (1) and lengthening or shortening the threaded rod (2).

NOTE: This adjustment controls the timing of the seed meter drive when raising and lowering the planter. Increasing the gap between the tires causes seed flow to start and stop with the planter at a lower height. Decreasing the gap will cause seed flow to start and stop at a higher position.

NOTE: Be sure to check for spring bottoming after making this adjustment.
Checking Singulated Rate

Although your seed monitor will report useful full pass results, cautious practice includes manually checking the seed rate early in the first pass.

The seed charts are based on cleaned and sized seed. Extreme seed variations, foreign material and tire pressure can materially affect planting rate.

Checking the rate also provides a double-check on your population calculations and drive configuration.

Checking Singulated Rate

1. Adjust the planting depth to shallow on 3 rows units. Using center and wing-end row units for measurement provides a more accurate assessment of overall planter performance. Pick center units outside wheel tracks.
2. Use bungees or wire to tie-up the press wheel assembly on the tested row units, so that the seed is not covered.
3. Operate the planter for 17 feet 5 inches, plus several feet for the press wheels to clear the end of the sample distance.
4. Count the number of seeds in the test rows.
5. Multiply the total by 1000 to obtain an acre value.
6. If the populated is substantially different than expected, check tire inflation, and on a ground-drive planter, double-check the sprocket configuration. See “Troubleshooting” on page 49.

Seed Rate Check Example

Seed: Soybeans
Seed wheel: 100 cell
Target population: 140,000 seeds/ac

Sample: 3 rows

Operate for 25 feet
Count seeds in a 17 feet 5 inches section of the test run.
A total of 141 seeds is counted in all 3 rows.
141,000 = 141 x 1000
The result is only 0.1 percent higher than the target population. This is within expected sampling error, and requires no adjustment.
Marker Adjustments

**CAUTION**

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

**Dual Marker Speed Adjustment**

Refer to Figure 36

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.

**Adjusting Marker Extension**

Refer to Figure 37

To adjust marker extension:

1. Loosen nuts ⑤ and lock washers ④ on U-bolts ③.
2. Move marker disk tube ⑥ in or out to get the proper adjustment.
3. Measure from the end of disk tube ① to the end of the second section. See "Marker Extension" on page 82.
4. To measure for marker width adjustment:
5. Lower planter in the field and drive forward a few feet.
6. Measure from the middle of the outside row to the mark in the ground made by marker disk.

Adjust as needed.
Marker Disk Adjustment

**CAUTION**

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

**Refer to Figure 38**

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

For a wider mark, increase the angle of the marker with respect to the tube. For a narrower mark, reduce the angle.

Tighten bolt.

**NOTE:** The direction of travel 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.

Fan Adjustments

Recommended fan butterfly valve setting is 0. Recommended fan speed depends on planter configuration:

- 3800 rpm using 82 bu. or 150 bu. hoppers
- 3500 rpm using bulk seed boxes or legacy Great Plains hoppers without vent line updates

Adjust the basic fan rate with the tractor hydraulic system and fan rpm display on seed monitor. Do not run the fan over 4500 rpm or under 3000 rpm.

Fans operating at too high a speed create too much air flow causing seed to plug up the meter box. Fans operating too slowly do not create enough air flow to push the seed to the meters, causing the seed tube to plug. If air system does not operate suitably with fan speeds between 3000-4500 rpm, refer to the troubleshooting chart, and then adjust the fan butterfly valve.

The butterfly valve may be helpful if your tractor can maintain a high, but irregular fan rpm. Set the rpm to above 3500 rpm with the valve completely open (0°). Adjust the valve angle in the 20-30° range until you achieve the desired seed flow consistency.
20 Series Row-Unit Adjustments

Refer to Figure 40, which depicts a 20 Series row unit fully populated with all features supported on YP1220 (excepting Seed-Lok®). From front to back, they are:

1. Dual Down-Pressure Springs & Cam (standard)
   See “Row-Unit Down Pressure” on page 43. Each row-unit is mounted on the planter with parallel arms. This parallel-action mounting allows the row-unit to move up and down while staying horizontal. A cam ① adjusts the force between 100 and 225 pounds.

2. Double Disk Openers (standard)
   A pair of canted opener disk blades ② open a furrow and keep it clear for the seed tube. These disks are adjustable for contact. See “Row-Unit Down Pressure” on page 43.

3. Seed Meter (standard - choice of wheels)
   A Singulator Plus meter ③ is standard. One or more sets of seed wheels must be selected. See “Meter Wheel Replacement” on page 45.

4. Side Depth Gauge Wheels (standard)
   These wheels ④ are the primary control of seeding depth (set by the T-handle). They also have adjustments for angle and disk contact. See “Side Gauge Wheel Adjustments” on page 44.

5. Seed Tube (standard)
   A seed tube mounted between the disks (not shown) delivers seed to the trench. It is fed by the seed meter, and has a seed flap ⑤, shown here cut back for clearance from the seed firmer. See “Seed Firmer Adjustments” on page 46.

6. T-Handle (standard)
   This handle ⑥ sets the height of the side depth gauge wheels. See “Row-Unit Planting Depth” on page 43.

7. Seed Firmer (optional)
   An optional seed firmer (Keeton® shown) minimizes seed bounce and improves soil contact. See “Seed Firmer Adjustments” on page 46.

8. Press Wheels and Handle (standard)
   The press wheels ⑦ close the furrow, gently pressing the soil over the seed to ensure good seed to soil contact for even emergence. They have adjustments for down-pressure, stagger and angles. See “Press Wheels” on page 47.

**NOTICE**

Certain Machine Damage:
Do not back up with row-units in the ground. This will cause severe damage and row-unit plugging.
Row-Unit Down Pressure

Refer to Figure 41

An adjuster cam sets row unit spring down pressure individually for each row unit. This is useful for penetrating hard soil and planting in tire tracks.

<table>
<thead>
<tr>
<th>Cam Notch</th>
<th>Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>zero (out of notch)</td>
<td>Maintenance Only</td>
</tr>
<tr>
<td>1 one</td>
<td>100</td>
</tr>
<tr>
<td>2 two</td>
<td>165</td>
</tr>
<tr>
<td>3 three</td>
<td>225</td>
</tr>
</tbody>
</table>

To adjust down pressure, use a tool to lift and rotate the adjustment cam.

1. Raise the drill. Although this adjustment can be made with the drill lowered, the springs will be in tension, and will require more effort. The extra force required may also damage tools.
2. Put tractor in Park and shut it off.
3. Position tool under upper spring link, and pull it back and up.
4. Move the adjustment cam to the new setting on the spring adjust bar ④.

\[\text{NOTE: Do not set all rows higher than notch two.}
\text{Using high settings across all rows causes uneven planting. Individual rows may be set higher if running in tire tracks.}\]

Row-Unit Planting Depth

Refer to Figure 42

Side depth wheels ① outside the row-unit disks ② control row-unit planting depth. The position of an adjustable stop, using the T-handle ③, determines planting depth.

Set planting depth by adjusting handle ③. To adjust, first raise row-units slightly, then lift and slide handle on top of row-units. Adjust all handles to the same setting.

For shallower planting, slide handle forward toward planter.

For deeper planting, slide handle back away from planter.
Side Gauge Wheel Adjustments

Refer to Figure 43

The side gauge wheels have two, interrelated adjustments:

- angle of side gauge wheel, and
- distance between side gauge wheels and disks.

Refer to Figure 44

Adjust side-gauge-wheel angle so wheels contact row-unit disks at the bottom of wheel at 2 inch planting depth and gaps open $\frac{3}{8}$ to $\frac{5}{8}$ inch at top. 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. However, wheels should be out far enough so disks and wheels turn freely.

Refer to Figure 45

To adjust side gauge wheels:

1. Raise planter slightly removing weight from side gauge wheels.
2. Loosen hex-head bolt ①. Move wheel and arm out on o-ring bushing.
3. Loosen pivot bolt ②. Turn hex adjuster ③ so indicator notch ④ is at 5 o’clock to 7 o’clock.

NOTE: Use this as the starting point for adjustment.
4. Move wheel arm in so side gauge wheel contacts row unit disk. Tighten hex-head bolt ① to clamp arm around bushing and shank.
5. Check wheel-to-disk contact at 2 inch planting depth. Lift wheel 2 inches and release. When let go, wheel should fall freely.

- If wheel does not contact disk at bottom to area where blade leaves contact with soil, move hex adjuster until wheel is angled for proper contact with disk.
- If wheel does not fall freely, loosen hex-head bolt ① and slide wheel arm out just until wheel and arm move freely. Tighten hex-head bolt ① per grade: $\frac{1}{2}$ inch Grade 5 bolt, 75 ft-lbs. $\frac{1}{2}$ inch Grade 8 bolt, 110 ft-lbs.
6. Keep turning hex adjuster ③ and moving wheel arm until the wheel is adjusted properly. When satisfied, tighten pivot bolt ② to 110 ft-lbs.

NOTE: Use “Torque Values Chart” on page 75 for reference.
Meter Wheel Replacement

Choose the correct seed meter wheel for the type of seed you will be using. Be sure to use the same wheel type on all meters.

**NOTICE**

20 Series Meter Wheels Not Interchangeable:
Seed meter wheels for the 20 Series row units are made of a black color material and are not interchangeable with the other Great Plains seed meter wheels for other machines. Use only black wheels in 20 Series row units.

1. Clean out meter. For more information, see "Cleaning Out Meters" on page 54.

Refer to Figure 46

2. Push in spring-loaded wheel retainer and make ¼ turn.

Refer to Figure 47

3. Pull off wheel retainer and spring.

Refer to Figure 48

4. Pull the seed meter wheel out about ¼ inch and spin backward to clean out seeds from top pockets.

5. Remove seed meter wheel using finger holes in wheel face.
Refer to Figure 49

NOTE: With the seed meter wheel removed, you may want to check the meter for internal damage or trash.

NOTE: Some wear on top edge of slide ① is normal. Excess wear is cause for replacement.

6. When changing crops be sure to clean out air system before installing new meters or wheels. “Cleaning Out Air System” on page 57.

NOTE: When installing a seed wheel that requires Flow Gate, also remove the meter slide. If replacing a rice wheel with another seed wheel, re-install the meter slide. See page 55.

7. Place new wheel on meter wheel shaft. Seat wheel fully on cross-pin.

8. Replace spring-loaded wheel retainer. Make 1/4 turn to seat cross-pin in shallow groove of retainer.

Seed Firmer Adjustments

20 Series row units include a seed flap, and accept one of two optional firmers.

CAUTION

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

Keeton® Seed Firmer Adjustment

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

Refer to Figure 50

The Firmer is provided with a preset tension which is recommended for using the first year. The tension screw ② 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 4 to 4 1/4 inch. 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 do not require adjusting. In some wet and sticky conditions the wheels may accumulate soil. To avoid problems associated with this, you can lock-up the firmers.

Refer to Figure 51

To lock up Seed-Lok® wheels:
1. Raise planter. Insert lift assist cylinder locks.
2. Rotate Seed-Lok® lock-up handle 90° down on top of row unit body.
3. Push up on Seed-Lok® wheel until wheel arm latches up.
4. To return to normal operation, turn release down.

Press Wheels

Attached to the rear of each row-unit is one of several press wheel options.

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

Refer to Figure 52

Press wheels are attached to each row-unit body. The press wheels close the seed trench and gently press soil over seed.

An adjustable spring in the press wheel mechanism creates the down pressure needed to close the seed trench. The amount of force needed will vary with field conditions.

To adjust, move adjustment handle.
• For less down pressure, move handle forward toward planter.
• For more down pressure, move handle back away from planter.

NOTE: Increased press wheel spring force may require increased row-unit down force to maintain depth.

NOTE: The factory setting on the press wheel is staggered to achieve optimum residue flow.
Refer to Figure 53

To adjust press wheels between staggered to even, remove \( \frac{5}{8} \) inch nut 1 and inside lock washer 2. Remove press wheel, keeping spacer 3, outside lock washer 2 and bolt 4 with wheel. Move wheel to other mounting hole and re-secure.

If one press wheel is running in the seed trench or the wheels are not centered over the seed trench, adjust the press wheels by adding or removing spacers 3.

Figure 53
Press Wheel Stagger
## Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planting too much</td>
<td>Incorrect seed rate.</td>
<td>Check seed rate information.</td>
</tr>
<tr>
<td></td>
<td>Actual field size is different.</td>
<td>Verify field size.</td>
</tr>
<tr>
<td></td>
<td>Irregular shaped field.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Incorrect tire size or air pressure.</td>
<td>Correct tire size and air pressure, page 74.</td>
</tr>
<tr>
<td></td>
<td>Improper main shaft sprocket.</td>
<td>25-tooth.</td>
</tr>
<tr>
<td></td>
<td>Improper gap on speed sensor.</td>
<td>Check speed sensor on planter for $\frac{1}{16}$ in. to $\frac{1}{8}$ in. gap from wheel. Improper gap can cause erratic speed signal causing monitor to falsely report improper planting rate. Monitor may also falsely report a low rate on soybeans by as much as 5 percent due to difficulty in counting all of the seeds.</td>
</tr>
<tr>
<td></td>
<td>Meter wheel or finger pickup has more cells than indicated on seed rate chart.</td>
<td>Charts are based on either 6 finger or 12 finger meters or various wheel counts.</td>
</tr>
<tr>
<td>Planting too little</td>
<td>Incorrect seed rate.</td>
<td>Check seed rate information.</td>
</tr>
<tr>
<td></td>
<td>Excessive field speed.</td>
<td>Reduce field speed.</td>
</tr>
<tr>
<td></td>
<td>Seed size and weight may vary.</td>
<td>Adjust seed rate handle.</td>
</tr>
<tr>
<td></td>
<td>Incorrect tire size or air pressure.</td>
<td>Correct tire size and air pressure, page 74.</td>
</tr>
<tr>
<td></td>
<td>Actual field size is different.</td>
<td>Verify field size.</td>
</tr>
<tr>
<td></td>
<td>Excessive gaps between planter passes.</td>
<td>Adjust marker, page 40.</td>
</tr>
<tr>
<td></td>
<td>Plugged row-unit seed tube.</td>
<td>Lift planter, expose bottom of seed tube and clean out.</td>
</tr>
<tr>
<td></td>
<td>Thrown or worn drive chains.</td>
<td>Check drive chains.</td>
</tr>
<tr>
<td></td>
<td>Worn sprockets and/or chain idlers.</td>
<td>Replace sprockets and/or chain idlers.</td>
</tr>
<tr>
<td></td>
<td>Improper main shaft sprocket.</td>
<td>25-tooth.</td>
</tr>
<tr>
<td></td>
<td>Improper gap on speed sensor.</td>
<td>Check speed sensor on planter for $\frac{1}{16}$ in. to $\frac{1}{8}$ in. gap from wheel. Improper gap can cause erratic speed signal causing monitor to falsely report improper planting rate. Monitor may also falsely report a low rate on soybeans by as much as 5 percent due to difficulty in counting all of the seeds.</td>
</tr>
<tr>
<td>Problem</td>
<td>Cause</td>
<td>Solution</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Uneven seed spacing          | **Hydraulic meter drive motor rpm too low** for reliable control by proportional valve. | 1. Increase field speed.  
                               | **Excessive field speed.**                                         | 2. Use a seed wheel with lower cell count.  
                               | **Unclean seed.**                                             | Switch from 12 finger meters to 6 finger meters.  
                               | **Seed-Lok plugging.**                           | 3. Install a low speed kit (page 70).  
                               | **Row-unit disks not turning.**                    | **Lift up planter, expose bottom of seed tube and clean out.**  
                               | **Plugged row-unit seed tube.**                    | **Worn/rusted sprockets and/or chain idler.**  
                               | **Partially plugged row-unit seed tube.**          | **Install a low speed kit (page 70).**  
                               | **Lack of proper seed lubrication on seed.**       | **Use clean seed.**  
                               | **Use of excessively sticky or wet seed treatment.** | **Check and replace any worn/rusted sprockets or chain idlers.**  
                               | **Inadequate contact wheel spring pressure.**      | **Reduce field speed.**  
                               | **Use clean seed.**                               | **Check for correct tire air pressure, page 74.**  
                               | **Seed-Lok plugging.**                             | **Check your treatment.**  
                               | **Row-unit disks not turning freely**              | **Review the Installation Chart**  
| Uneven seed depth            | **Excessive field speed.**                  | **Reduce field speed.**  
                               | **Planting conditions too wet.**                           | **Wait until drier weather.**  
                               | **Excessive or improper row unit down pressure spring setting.** | **See 25 series row-units, page 42.**  
                               | **Damaged seed tubes.**                             | **Check seed tubes for damage.**  
                               | **Seed-Lok building up with dirt.**                | **Lock up Seed-Lok®, page 46.**  
                               | **Row-unit not penetrating low spots.**            | **Adjust row-unit, see instructions beginning on page 42.**  
                               | **Rough planting conditions.**                     | **Rework the field.**  
                               | **Seed firmer not in place and set to correct tension.** | **See “Seed Firmer Adjustments” on page 46.**  
| Row-unit disks not turning freely | **Row-unit plugged with dirt.**             | **Clean row-unit.**  
                               | **Planting conditions too wet.**                           | **Wait until drier weather.**  
                               | **Seed-Lok is plugging row-unit.**                 | **Lock up Seed-Lok®, page 46.**  
                               | **Failed disk bearings.**                          | **Replace disk bearings.**  
                               | **Bent or twisted row-unit frame.**                | **Replace row-unit frame.**  
                               | **Partially plugged row-unit seed tube.**          | **Lift up planter, expose bottom of seed tube and clean out.**  
| Press wheels not compacting the soil as desired | **Too wet or cloddy.**                      | **Wait until drier weather or rework ground.**  
                               | **Use of incorrectly shaped tire for your conditions.** | **Wedge shaped wheels work best on narrow spacings and in wet conditions. Round edge wheels work best in wider row spacings and drier conditions.**  
                               | **Incorrect press wheel depth.**                   | **Reset press wheel depth, page 43.**  
| Excessive seed cracking      | **Excessive field speed.**                  | **Reduce field speed.**  
                               | **Unclean seed.**                                            | **Use clean seed.**  
                               | **Damaged, old or dry seed.**                       | **Use clean, new seed.**  

<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>Planter not set to run level from front to rear, carrying enough weight on gauge wheels to prevent “nosing over”, or set too low on rear caster eyebolts allowing it to run “nose high”.</td>
<td>Check Leveling Frame Side-to-Side, page 80.</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 disk bearings.</td>
<td>Replace disk bearings.</td>
</tr>
<tr>
<td></td>
<td>Disk blades worn.</td>
<td>Replace disk blades.</td>
</tr>
<tr>
<td></td>
<td>Scraper worn or damaged.</td>
<td>Replace scraper.</td>
</tr>
<tr>
<td><strong>Air lines plugging between air box and Y- tubes</strong></td>
<td>Fan too slow.</td>
<td>Speed up fan.</td>
</tr>
<tr>
<td><strong>Seed blowing out of pro-box door area</strong></td>
<td>Fan too fast.</td>
<td>Slow down fan.</td>
</tr>
<tr>
<td></td>
<td>Seal from airbox to hopper not adjusted.</td>
<td>Adjust seal.</td>
</tr>
<tr>
<td><strong>Air lines plugging between Y-tube and meter</strong></td>
<td>Improper air hose routing.</td>
<td>With machine folded the air lines should be tight. With it unfolded they should form a gentle horizontal “S” shape through the holders with no big sags.</td>
</tr>
<tr>
<td><strong>Air lines plugging above air box at fold area</strong></td>
<td>Fan too slow.</td>
<td>Speed up fan.</td>
</tr>
<tr>
<td></td>
<td>Improper air hose routing.</td>
<td>With machine folded the air lines should be tight. With it unfolded they should form a gentle horizontal “S” shape through the holders with no big sags.</td>
</tr>
<tr>
<td><strong>Hydraulic marker functioning improperly</strong></td>
<td>Air or oil leaks in hose fittings or connections.</td>
<td>Check all hose fittings and connections for air or oil leaks.</td>
</tr>
<tr>
<td></td>
<td>Low tractor hydraulic oil level.</td>
<td>Check tractor hydraulic oil level.</td>
</tr>
<tr>
<td></td>
<td>Loose or missing bolts or fasteners.</td>
<td>Check all bolts and fasteners.</td>
</tr>
<tr>
<td></td>
<td>Needle valve plugged.</td>
<td>Open needle valve, cycle markers slowly and reset needle valve, refer to page 40.</td>
</tr>
<tr>
<td></td>
<td>Needle valve(s) in sequence valve plugged.</td>
<td>Open needle valves, cycle markers slowly and reset needle valves, refer to page 40.</td>
</tr>
<tr>
<td><strong>Marker disk does not mark</strong></td>
<td>Marker folding linkage does not have enough slack to allow marker disk to drop into field depressions.</td>
<td>Maximum down float should be limited by the slot at the rod end of the marker cylinder, refer to page 40.</td>
</tr>
<tr>
<td><strong>Planter does not fold or unfold fully</strong></td>
<td>Fold cylinders out of phase.</td>
<td>Re-phase cylinders, refer to page 31</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bleed fold circuit, refer to page 18</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:**
You may be severely injured or killed by being crushed under the falling implement. Always have transport locks in place and frame sufficiently blocked up when working on implement.

**WARNING**

**High Pressure Fluid Hazard:**
Escaping fluid under pressure can have sufficient pressure to penetrate the skin. Check all hydraulic lines and fittings before applying pressure. Fluid escaping from a very small hole can be almost invisible. Use paper or cardboard, not body parts, and wear heavy gloves to check for suspected leaks. If 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 disk 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 63.
7. Replace any worn, damaged, or illegible safety labels by obtaining new labels from your Great Plains dealer.
Bleeding 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.*

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.

**WARNING**

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

Only trained personnel should work on system hydraulics!

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 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.

**CAUTION**

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

**NOTICE**

Bleed only at:
- JIC (Joint Industry Conference, 37° flare) or
- NPT (National Pipe Thread, tapered thread) fittings.
Never bleed at:
- ORB (O-Ring Boss) or
- QD (Quick Disconnect) fittings.

**NOTICE**

JIC fittings do not require high torque. JIC and O-ring fittings do not require sealant. Always use liquid pipe sealant when adding or replacing (NPT) 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.
Meter Maintenance

Cleaning Out Meters

Clean-out is indicated for:

- changing seed wheels,
- seed recovery, and;
- field meter maintenance.

On 10HDP Series Singulator Plus meters, the clean-out door enables seed to bypass the seed wheel and exit via the normal seed tube between the opener discs.

1. Place a tarp, bucket or pan under meter to catch any seed during clean-out.

Refer to Figure 54

2. Slide the retaining ring ① up and remove the seed hose ②.

Refer to Figure 55

3. Remove the clean-out door retaining pin clip ③.

Refer to Figure 56

4. Remove the retaining pin ④. The door ⑤ may swing open by itself at this point.

5. Pull the clean-out door handle back until the lower end of the door rests on the stop bolt.

NOTE: How freely seed flows out the clean-out depends on the seed size, shape and treatments. It is commonly necessary to gently tap or shake the meter to ensure complete flow.

6. When seed stops flowing, uncouple the meter drive (page 45), spin the seed wheel in reverse (counterclockwise) to free any trapped seed.

7. Remove the seed meter wheel for thorough cleaning. See "Meter Wheel Replacement" on page 45 for more information.

8. Use a brush or vacuum to remove any residual seed in the meter cavity. Shake the clean-out door to ensure it is clear of seed.

9. If changing seed wheels, install the [next] seed wheel per the instructions on page 45.

10. Close the clean-out door. Re-install the retaining pin ④ and secure with the retaining pin clip ③.
**Meter Slide Maintenance**

For proper seeding operation, seasonally or when changing crops, check meter slide for wear. If you have a noticeable increase in seeding rate you may need to replace the meter slide.

1. If seed box is not empty, shut off Y-tube. See “Y-Tubes” on page 32.
2. Clean out seed meter. See “Meter Maintenance” on page 54.
3. Remove wheel. See “Meter Wheel Replacement” on page 45.

**Refer to Figure 57**

The slide ① is located at the front of the meter.

4. Check for excess wear on meter slide ①. Slight wear at the top corner is normal.
5. If slide is not excessively worn, stop here. If it is, continue with step 6 to replace.

**Replacing Meter Slide**

**Refer to Figure 58**

6. Remove retaining clip and pin ② from meter.

   **NOTE:** Meter slide ③ is spring loaded. Two meter slide springs ④ will be released when you pull the pin, and a third ⑤ when you tilt it back. Use care not to lose pins and springs.

7. Check removed pin ② for wear and replace if worn.
8. Place springs in new meter slide. Insert in meter and pin in place.
9. Re-install meter wheel (page 45).
10. Close and pin meter clean-out (page 54).
Installing Flow Gate

Rice seed wheels require a Flow Gate instead of a meter slide. See page 72 for ordering information.

1. Remove meter wheel (see page 45).

Refer to Figure 59 (which depicts a demonstration meter with a transparent housing)

2. Remove cotter pin securing retaining pin 1 at top of meter slide.

3. Remove retaining pin and slowly remove the 817-405C meter slide, being sure to capture the three (3) springs tensioning the slide (2 at top 2, 1 at bottom 3). Save the old pins, slide and springs for future use with the removed wheels.

Refer to Figure 60 (which depicts a demonstration meter with a transparent housing)

4. Install the 817-529C Flow Gate 1 in the same position as the meter slide, but without springs.

5. Secure the Flow Gate with the retaining pin and cotter pin supplied with the Flow Gate.

6. Install the rice wheel.
Cleaning Out Air System

1. Shut off sliding door at bottom of seed box or bulk hopper.
2. Place a pan or tarp under the manifold to catch the seed.
3. Open manifold door to empty seed from the manifold.
   
   NOTE: If needed, additional access doors are provided.
4. Shut door under manifold.
5. Turn on the air fan and let it run.

Refer to Figure 61

6. Shut off the gates at all of the Y-tubes.
7. Start at one end of planter and open the meter clean out door for the end row-unit. Place a bucket under the meter to catch the seed.
8. Open the Y-tube gate feeding that meter. Let the air blow seed out of the meter. Keep the meter open for a couple of minutes after the seed stops blowing out.
9. Close the Y-tube gate feeding that meter. Close the meter clean out door.
10. Repeat procedure on the next meter in line. Continue with this procedure until you have reached the opposite end of the planter.
Air Box Residue Clean-Out

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

 Refer to Figure 62 and Figure 63 (Figure 62 depicts a partially and a completely plugged agitation port, and build-up in the RH plenum chamber)

Whenever opening the airbox clean-out door 1, inspect the agitation ports 2. If any are partially or completely blocked, follow the clean-out instructions on this page.

Seasonally, remove the inspection ports on each of the airbox, and inspect plenum chambers 1 (LH) and 16 (RH). If any build-up is observed, follow the more comprehensive inspection steps and clean-out instructions on this page.

1. Spot the planter at a suitable location for clean-out and follow the parking instructions (page 34).
2. If seed is loaded, close the slide gate for the hopper or bulk seed box (page 24).
3. Set out a tarp for recovery of any expected seed still in the airbox. Open the airbox clean-out door 1.
4. Remove the inspection port covers from each end of the airbox (not shown in figures).
5. Use an indelible marker to identify the hoses on seed hose ports 1 through 16. Disconnect the clamps and hoses.

□ NOTE: Further disassembly of the airbox is not recommended, as joints are sealed with silicone adhesive, and would need to be cleaned and resealed.
6. Inspect the agitation ports 2. Break up any build-up. Use a hooked tool or wire to pull smaller fragments down through the ports. For larger fragments, reach in through the inspection ports or vacuum them out via those ports.
7. Inspect the entire plenum area 3 for build-up. Break up any deposits. Vacuum them out through the inspection ports.
8. From the seed hose ports 4, inspect the seed air ports 5. Break up any deposits. Vacuum out from clean-out door.
9. With all ports and doors still open, operate the planter fan to blow up any remaining loose residues.
10. Reconnect the seed hoses. Reinstall the inspection port doors. Close the clean-out door.

□ NOTE: Flushing the airbox with water is not recommended. If done, operate the fan for an extended period to completely remove any moisture prior to storage or field operations.
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.

Chain Slack

Check slack within the first 8 hours of operation and tighten idlers as necessary. Refer to Figure 64, which, for clarity, greatly exaggerates slack, and omits the idlers.

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

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

3. Measure the current slack:
   - 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.

Whenever mounting a chain, make sure the clip at the removable link is oriented to minimize snags. Refer to Figure 65 (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).
Row Unit Chain Tension

The seed meter drive has a spring-loaded idler which requires no adjusting. However, chain stretch may make it necessary to shorten the chain.

*Refer to Figure 66*

For best chain tension the recommended vertical distance between chain idlers is:
- minimum: $\frac{1}{4}$ inch (6.4 mm)
- maximum: $\frac{1}{2}$ inch (12.7 mm)

This measurement should be taken with opener parallel arms horizontal. The front idler should be below the rear idler.

*Refer to Figure 67*

*NOTE:* Be sure chain is installed with the chain connector link retainer clip opening facing the opposite direction of the chain travel. Insert the link in the chain for easiest access to the clip, normally towards the centerline of the opener.

---

![Figure 66](image1.png)  
*Figure 66 FPO  
20 Series Meter Chain*

![Figure 67](image2.png)  
*Figure 67  
20 Series Meter Chain Link*
Disk Spreaders

NOTE: 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.

Refer to Figure 68

1. Remove side gauge wheels from arms to access row-unit disks.
2. With the unit raised, check blade spreader for wear. Replace spreader if it is 1/2 inch wide or narrower.
3. To replace, remove disk blade. Take note of the number of shims (spacers) on the inside and outside of each disk.
4. Drive out roll pins and install new spreader.
5. When reinstalling disk blades, put the shims back as they were, unless also adjusting disk contact on worn disks.

Row-Unit Side Wheels

Figure 69

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. The side wheels are preset at the factory. However, because of normal wear it may become necessary to make adjustments so the wheel remains close to the disk. To prevent plugging, loosen clamp bolt and slide arm inward to take up gap between side wheel and disk blade. If more adjustment is needed, go to step 3.
3. Remove bolt and wheel. Remove shims from the inside of wheel and place them on the outside of wheel. Always place removed shims from the inside to the outside. When installed, wheel should turn freely and not hit the arm at the curve. Do not add any more shims than necessary.
4. Disassemble side gauge wheel arm from unit. Remove bushing from sleeve and check for wear. If necessary, replace bushing.
5. When reinstalling side gauge wheels, align tab on hex adjustment with notch in bushing. Replace bolt and tighten.
6. Adjust side gauge wheels. See “Side Gauge Wheel Adjustments” on page 44.
Seed Flap Replacement

Refer to Figure 70

To replace a seed flap 1 use a needle nose or similar tool and squeeze the tabs 2 together. Pull plastic seed flap 1 down out of metal bracket 3.

Push new seed flap 1 up through metal bracket 3 until tabs 2 on seed flap snap in place.

Marker Maintenance

Refer to Figure 71

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

\[ \text{NOTE: Replacing shear bolt with a higher grade bolt can cause marker damage. Replacing it with a lower grade can result in nuisance shears.} \]

\[ \text{NOTE: If an identical Grade 5 bolt is not immediately available, temporarily substitute a metric M12} \times 1 \text{ 6.4 mm or longer Class 8.8 bolt and nut.} \]

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.
Lubrication

Marker Hinges

2 zerks per marker;
4 total
Type of Lubrication: Grease
Quantity: Until grease emerges

Parallel Pivot Arms

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

Tool Bar Pivot

Vertical and horizontal tool bar pivots.
Type of Lubrication: Grease
Quantity: Until grease emerges
Tool Bar Pivot

Vertical and horizontal tool bar pivots.
Type of Lubrication: Grease
Quantity: Until grease emerges

Tongue Lift Cylinder Anchor pin

At rear of tongue
Type of Lubrication: Grease
Quantity: Until grease emerges

Tongue Slide Roller

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

20 Series Side Wheel Bushing

2 zerk per row unit;
one each side of each row-unit
Type of Lubrication: Grease
Quantity: Until grease emerges
**Meter Drive Chains**

As Required

1 chain each meter  
Type of Lubrication: Chain Lube  
Quantity = Coat thoroughly

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

**Drive Chains**

As Required

Ground Drive on Seed Cart (not shown)  
Wing drive (not shown)  
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.

**Caster Wheel Pivot**

50

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
Wing Transfer Drive Shafts

4 zerk each side; 8 total
  two each outer shaft sleeve
  one each of 2 universal joints
  (newer and upgraded models)
Type of lubrication: Grease
Quantity: Until grease emerges (joints)
Quantity: 6 pumps (shafts)

Rockshaft Pivot Pins

Two zerk on top, two on bottom;
four total
Type of Lubrication: Grease
Quantity: Until grease emerges

Main Transport Wheel Bearings

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

**NOTE:** Tire Replacement:
When replacing main transport tires on a ground drive planter, Great Plains recommends orienting the direction of tire rotation contrary to the sidewall recommendation (this provide maximum drag traction to the ground drive).
Gauge Wheel Bearings

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

NOTE: Tire Replacement:
   Direction of gauge wheel rotation is not critical. Do, however, orient the tires the same on both wings to equalize rolling resistance.

Marker Disk Hubs

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

Walkboard Pivot

1 zerk
Type of lubrication: Grease
Quantity: Until grease emerges
Seed Lubricants

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

Ezee Glide Plus Lubricant
To maximize performance of Great Plains metering systems, it is imperative to use only “Ezee Glide Plus” lubricant. “Ezee Glide Plus” Talc-Graphite lubricant is mandatory for all seeds, especially treated or inoculated seed. Thorough mixing of seed and added lubricant is required.

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

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

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.

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.

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

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

Recommended usage:
For finger pickup meters, add one tablespoon (15 ml) of graphite for each unit of seed corn (80,000 kernels).

In high humidity conditions, or seeds with heavy seed treatments, increase the application to two tbsp (30 ml).

If delivery of seed from the hopper to the finger meter is an issue, add “Ezee Glide Plus” talc and graphite blend at a rate of one cup (237 ml) per 4 units of seed. Adjust until issue is resolved.

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.
Options and Accessories

Hydraulic Tongue
A 3-point hitch is standard on the YP1220, but a hydraulic tongue may be substituted.

<table>
<thead>
<tr>
<th>Option Packages</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>YP1225/1625 Hydraulic Tongue; Factory-Installed</td>
<td>401-429A</td>
</tr>
<tr>
<td>YP1225/1625 Hydraulic Tongue; Field-Installed</td>
<td>401-430A</td>
</tr>
</tbody>
</table>

Markers
Markers are a standard factory-installed feature on the YP1220, 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 YP1220 order.

For operations, see:
“Marker Operation” on page 31, and
“Marker Adjustments” on page 40.

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:
1 3/4 inch (44.5 mm) 20-spline shaft, or
1 3/8 inch (35 mm) 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>YP40 PTO KIT</td>
<td>401-946A</td>
</tr>
<tr>
<td>For model YP1220</td>
<td></td>
</tr>
<tr>
<td>1 3/4-20 PTO COUPLER</td>
<td>826-777C</td>
</tr>
<tr>
<td>1 3/8-21 PTO COUPLER</td>
<td>826-778C</td>
</tr>
</tbody>
</table>

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

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

If the remedies in the Troubleshooting chart (page 49) are not available, order a low speed kit to replace the standard motor output sprocket with one having fewer teeth that increases motor speed by 160%.

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

Auxiliary Hydraulic Kit

When the planter is not in motion, these kits enable the marker hydraulic circuit to be used to drive off-planter equipment, such as a seed auger.

<table>
<thead>
<tr>
<th>Option Packages</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>YP1225 Auxiliary Hydraulic Kit</td>
<td>401-435A</td>
</tr>
</tbody>
</table>

For operation, see “Using Auxiliary Hydraulic Circuit” on page 25.

82 bu. or 150 bu. Seed Hopper

A hopper may be purchased with the Yield-Pro® Planter or added later.

<table>
<thead>
<tr>
<th>Option Packages</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>82 bu. Bulk Hopper (shown)</td>
<td>403-143K</td>
</tr>
<tr>
<td>150 bu. Bulk Hopper</td>
<td>403-174K</td>
</tr>
</tbody>
</table>

The hoppers have no other prerequisites on the planter, but you will need a means of top-loading seed when the hopper is mounted on the seed box. Consider ordering the PTO Pump Kits to power an auger.

The 82 bu. hopper is usually, and the 150 bu. hopper is almost always, too heavy to be safely fork-lifted onto the planter if already pre-loaded with seed.

For operations, see: “Changing the Seed Box or Hopper” on page 24.
Seed Lubricants

<table>
<thead>
<tr>
<th>Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ezee Glide Plus Talc + Graphite (5 gallon container)</td>
<td>821-069C</td>
</tr>
</tbody>
</table>

18.4R42 Tires

Standard YP1220 transport tires are 8 Star 14.9R46 Radial R-1 and 10 bolt rims. When ordered with a new planter, the following option substitutes 3 Star 18.4R42 R-1 and 10-bolt rims.

<table>
<thead>
<tr>
<th>Option Packages</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIRE KIT 18.4-42 FOR YP PLTRS</td>
<td>401-261A</td>
</tr>
</tbody>
</table>
Row Options (Unit-Mount)

Seed Meters

Seed meters are standard in the base Yield-Pro® Planter configuration. They do not include a seed wheel.

<table>
<thead>
<tr>
<th>Meters</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 Series Singulator Plus, Air</td>
<td>403-255K</td>
</tr>
</tbody>
</table>

20 Series Seed Meter Wheels

Singulator Plus meters accept a variety of seed wheels, each optimized for specific seeds. Wheels are simple to change. 20 Series meters use only black seed wheels.

### Singulating Wheels

<table>
<thead>
<tr>
<th>Meter Wheels</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton (4000-4600 seeds/lb)</td>
<td>403-078D</td>
</tr>
<tr>
<td>Cotton (4600-5200 seeds/lb)</td>
<td>403-077D</td>
</tr>
<tr>
<td>Cotton (5200-6000 seeds/lb)</td>
<td>403-076D</td>
</tr>
<tr>
<td>Milo (51 cell)</td>
<td>403-092D</td>
</tr>
<tr>
<td>Milo (102 cell)</td>
<td>403-093D</td>
</tr>
<tr>
<td>Milo (135 cell) 12000-18000 seeds/lb</td>
<td>403-081D</td>
</tr>
<tr>
<td>Milo (135 cell, 10500-14000 seeds/lb)</td>
<td>403-090D</td>
</tr>
<tr>
<td>Milo (270 cell) 12000-18000 seeds/lb</td>
<td>403-082D</td>
</tr>
<tr>
<td>Milo (270 cell, 10500-14000 seeds/lb)</td>
<td>403-091D</td>
</tr>
<tr>
<td>Soybean (1700-2000 seeds/lb)</td>
<td>403-071D</td>
</tr>
<tr>
<td>Soybean (2000-2700 seeds/lb)</td>
<td>403-070D</td>
</tr>
<tr>
<td>Soybean (2700-3200 seeds/lb)</td>
<td>403-061D</td>
</tr>
<tr>
<td>Soybean (3100-3800 seeds/lb)</td>
<td>403-066D</td>
</tr>
<tr>
<td>Soybean (3600-4000 seeds/lb)</td>
<td>403-068D</td>
</tr>
</tbody>
</table>

### Volumetric Wheels

<table>
<thead>
<tr>
<th>Meter Wheels</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley, Oats, Soft Red Wheat (High-Volume)</td>
<td>403-094D</td>
</tr>
<tr>
<td>Rice (Low-rate Volumetric)</td>
<td>403-425D</td>
</tr>
<tr>
<td>Rice (High-rate Volumetric)</td>
<td>403-095D</td>
</tr>
<tr>
<td>Rice (Medium-rate Volumetric)</td>
<td>403-142D</td>
</tr>
<tr>
<td>Wheat (High-rate) Various sizes and varieties (70-190 lbs)</td>
<td>403-085D</td>
</tr>
<tr>
<td>Wheat (Volumetric) Various sizes and varieties (35-145 lbs)</td>
<td>403-085D</td>
</tr>
</tbody>
</table>
Seed-Lok® Seed Firmer

The base Yield-Pro® Planter includes a seed flap. A choice of seed firmers is an option in the product bundles, or may be field-installed as kits. Only one type of seed firmer may be installed at the same time.

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 Series Seed-Lok® kit (per opener)</td>
<td>122-268K</td>
</tr>
</tbody>
</table>

For operations, see: “Seed Firmer Adjustments” on page 46.

Keeton® Seed Firmer

The base Yield-Pro® Planter includes a seed flap. A choice of seed firmers is an option in the product bundles, or may be field-installed as kits. Only one type of seed firmer may be installed at the same time.

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keeton® seed firmer (per opener)</td>
<td>494-171S</td>
</tr>
</tbody>
</table>

For operations, see: “Seed Firmer Adjustments” on page 46.

Row Unit Press Wheels

The base Yield-Pro® Planter includes a choice of press wheels. Additional wheels are available, and all may be field-installed.

This manual does not list kit part numbers as the available wheels are often region-specific. Consult your Great Plains dealer.

For operations, see: “Press Wheels” on page 47.
## Specifications and Capacities

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<thead>
<tr>
<th>HYDRAULIC REQUIREMENTS</th>
<th>YP1220-3510</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hitch</td>
<td>3-point</td>
</tr>
<tr>
<td>Transport Width</td>
<td>13 feet 6 inches</td>
</tr>
<tr>
<td>Working Width</td>
<td>30 feet</td>
</tr>
<tr>
<td>Transport Length</td>
<td>36 feet 2 inches (12 row)</td>
</tr>
<tr>
<td>Transport Clearance</td>
<td>22 inches</td>
</tr>
<tr>
<td>Transport Height</td>
<td>12 feet 6 inches</td>
</tr>
<tr>
<td>Weight (Approx.)</td>
<td>19285 lbs (8748 kg)</td>
</tr>
<tr>
<td>Row Spacing (inches)</td>
<td>10 inches (25.4 cm)</td>
</tr>
<tr>
<td>Number of Openers</td>
<td>35</td>
</tr>
<tr>
<td>Seed Hopper Capacity</td>
<td>82 bu., 150 bu. or ProBox (box not included)</td>
</tr>
</tbody>
</table>

### Tire Sizes
Transport: 14.9R46 8-Star or 18.4x42 3 Star
Gauge Wheel: 395/55x16.5NHS
Contact Drive: 18x9.50-8 4 Ply

#### Opener Travel
10 inches

#### Opener Depth Range
0 to 4 inches

#### Opener Down Pressure
100-225 lb per row

### Tire Inflation

<table>
<thead>
<tr>
<th>Tire Size</th>
<th>Inflation</th>
</tr>
</thead>
<tbody>
<tr>
<td>395/55B 16.5 NHS Skid Steer</td>
<td>60 psi</td>
</tr>
<tr>
<td>18.4R42 3* R1 (380/90R46) Transport</td>
<td>30 psi</td>
</tr>
<tr>
<td>14.9 x 46 8 Star</td>
<td>30 psi</td>
</tr>
<tr>
<td>18.4 x 42 3 Star</td>
<td>18 psi</td>
</tr>
<tr>
<td>18 x 9.50-8 4 Ply</td>
<td>12 to 15 psi</td>
</tr>
<tr>
<td>20 x 8.00-10 Turf Tire</td>
<td>16 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.

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

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<tr>
<th>Bolt Size</th>
<th>Bolt Head Identification</th>
<th>Bolt Size</th>
<th>Bolt Head Identification</th>
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<tbody>
<tr>
<td></td>
<td>Grade 2</td>
<td>Grade 5</td>
<td>Grade 8</td>
</tr>
<tr>
<td>in-tpi²</td>
<td>N-m¹ b</td>
<td>ft-lb² d</td>
<td>N-m b</td>
</tr>
<tr>
<td>1/4-20</td>
<td>7.4 5.6</td>
<td>11 8</td>
<td>16 12</td>
</tr>
<tr>
<td>3/16-28</td>
<td>8.5 6</td>
<td>13 10</td>
<td>18 14</td>
</tr>
<tr>
<td>5/32-18</td>
<td>15 11</td>
<td>24 17</td>
<td>33 25</td>
</tr>
<tr>
<td>3/16-24</td>
<td>17 13</td>
<td>26 19</td>
<td>37 27</td>
</tr>
<tr>
<td>1/8-16</td>
<td>27 20</td>
<td>42 31</td>
<td>59 44</td>
</tr>
<tr>
<td>5/32-24</td>
<td>31 22</td>
<td>47 35</td>
<td>67 49</td>
</tr>
<tr>
<td>5/32-14</td>
<td>43 32</td>
<td>67 49</td>
<td>95 70</td>
</tr>
<tr>
<td>7/32-20</td>
<td>49 36</td>
<td>75 55</td>
<td>105 78</td>
</tr>
<tr>
<td>1/8-13</td>
<td>66 49</td>
<td>105 76</td>
<td>145 105</td>
</tr>
<tr>
<td>1/4-20</td>
<td>75 55</td>
<td>115 85</td>
<td>165 120</td>
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<tr>
<td>9/32-12</td>
<td>95 70</td>
<td>150 110</td>
<td>210 155</td>
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<tr>
<td>7/32-18</td>
<td>105 79</td>
<td>165 120</td>
<td>235 170</td>
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<tr>
<td>5/32-11</td>
<td>130 97</td>
<td>205 150</td>
<td>285 210</td>
</tr>
<tr>
<td>3/16-18</td>
<td>150 110</td>
<td>230 170</td>
<td>325 240</td>
</tr>
<tr>
<td>9/32-10</td>
<td>235 170</td>
<td>360 265</td>
<td>510 375</td>
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<tr>
<td>5/32-16</td>
<td>260 190</td>
<td>405 295</td>
<td>570 420</td>
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<tr>
<td>7/32-9</td>
<td>225 165</td>
<td>585 430</td>
<td>820 605</td>
</tr>
<tr>
<td>7/16-14</td>
<td>250 185</td>
<td>640 475</td>
<td>905 670</td>
</tr>
<tr>
<td>3/8-8</td>
<td>340 250</td>
<td>875 645</td>
<td>1230 910</td>
</tr>
<tr>
<td>1-12</td>
<td>370 275</td>
<td>955 705</td>
<td>1350 995</td>
</tr>
<tr>
<td>1 1/8</td>
<td>480 355</td>
<td>1080 795</td>
<td>1750 1290</td>
</tr>
<tr>
<td>1 1/4</td>
<td>540 395</td>
<td>1210 890</td>
<td>1960 1440</td>
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<tr>
<td>1 1/2</td>
<td>680 500</td>
<td>1520 1120</td>
<td>2460 1820</td>
</tr>
<tr>
<td>1 5/8</td>
<td>750 555</td>
<td>1680 1240</td>
<td>2730 2010</td>
</tr>
<tr>
<td>1 1/8</td>
<td>890 655</td>
<td>1990 1470</td>
<td>3230 2380</td>
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<tr>
<td>1 3/8</td>
<td>1010 745</td>
<td>2270 1670</td>
<td>3680 2710</td>
</tr>
<tr>
<td>1 1/2</td>
<td>1180 870</td>
<td>2640 1950</td>
<td>4290 3160</td>
</tr>
<tr>
<td>1 5/8</td>
<td>1330 980</td>
<td>2970 2190</td>
<td>4820 3560</td>
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</table>

<table>
<thead>
<tr>
<th>mm x pitch²</th>
<th>N-m¹ b</th>
<th>ft-lb² d</th>
<th>N-m b</th>
<th>ft-lb² d</th>
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</thead>
<tbody>
<tr>
<td>Grade 2</td>
<td>5.8</td>
<td>11.8</td>
<td>15.9</td>
<td></td>
</tr>
<tr>
<td>Grade 5</td>
<td>8.8</td>
<td>18.8</td>
<td>25.9</td>
<td></td>
</tr>
<tr>
<td>Grade 8</td>
<td>10.9</td>
<td>22.9</td>
<td>33.9</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Class 5.8</th>
<th>N-m</th>
<th>ft-lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 5 X 0.8</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>M 6 X 1</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>M 8 X 1.25</td>
<td>17</td>
<td>12</td>
</tr>
<tr>
<td>M 8 X 1.5</td>
<td>18</td>
<td>13</td>
</tr>
<tr>
<td>M 10 X 1.5</td>
<td>33</td>
<td>24</td>
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<tr>
<td>M 10 X 0.75</td>
<td>39</td>
<td>29</td>
</tr>
<tr>
<td>M 12 X 1.75</td>
<td>58</td>
<td>42</td>
</tr>
<tr>
<td>M 12 X 1.5</td>
<td>60</td>
<td>44</td>
</tr>
<tr>
<td>M 14 X 2</td>
<td>92</td>
<td>68</td>
</tr>
<tr>
<td>M 14 X 1.5</td>
<td>99</td>
<td>73</td>
</tr>
<tr>
<td>M 16 X 2</td>
<td>145</td>
<td>105</td>
</tr>
<tr>
<td>M 16 X 1.5</td>
<td>155</td>
<td>115</td>
</tr>
<tr>
<td>M 18 X 2.5</td>
<td>195</td>
<td>145</td>
</tr>
<tr>
<td>M 18 X 1.5</td>
<td>220</td>
<td>165</td>
</tr>
<tr>
<td>M 20 X 2.5</td>
<td>280</td>
<td>205</td>
</tr>
<tr>
<td>M 20 X 1.5</td>
<td>310</td>
<td>230</td>
</tr>
<tr>
<td>M 24 X 3</td>
<td>480</td>
<td>355</td>
</tr>
<tr>
<td>M 24 X 2</td>
<td>525</td>
<td>390</td>
</tr>
<tr>
<td>M 30 X 3.5</td>
<td>960</td>
<td>705</td>
</tr>
<tr>
<td>M 30 X 2</td>
<td>1060</td>
<td>830</td>
</tr>
<tr>
<td>M 36 X 3.5</td>
<td>1730</td>
<td>1270</td>
</tr>
<tr>
<td>M 36 X 2</td>
<td>1880</td>
<td>1380</td>
</tr>
</tbody>
</table>

- **in-tpi** = nominal thread diameter in inches-threads per inch
- **N·m** = newton-meters
- **mm x pitch** = nominal thread diameter in mm x thread pitch
- **ft-lb** = foot pounds

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

Chain Routing
Ground Drive
Wing Drive
20 Series Meter Drive Chain

Meter Drive (Front type)
① No idlers on mount.
② Top chain passes under single idler on shank
③ Be sure to reconnect idler spring

Meter Drive (Rear type)
① Be sure to reconnect idler spring
② Top chain passes between 2 idlers at shank
③ Top chain passes between 2 idlers at mount
④ Top chain passes between 2 idlers at shank
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 53, before proceeding.

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

Refer to Figure 72

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:
   - 46 in. (116.8 cm) above ground.
   This is the starting point for adjustments.

Refer to Figure 73

3. If planting 1 1/2 in. (3.8 cm) deep, adjust the hitch until frame measures approximately 26 in. (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.

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

4. Check parallel arms behind the pivots to ensure that parallel arms are parallel with ground or up to 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 1 inch lower in back and 3-point is set, measure distance from ground to frame at the pivots.

Refer to Figure 74

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

¶ NOTE: 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 75

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-\(1/4\) in. (0 to 6 mm) 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 \(\mathbb{1}\) in or out until dimension A is 0 to \(1/4\) in. (0 to 6 mm) greater than dimension B.

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

\(\text{NOTE: Angle of wings is exaggerated for ease of clarification.}\)
Marker Extension

Prior to first marker use during planting, unfold each marker side in field conditions, and check marker extension. The distance © from the mark to the centerline of each end row unit is:

185 inches (470 cm).

Check also that the mark left is sufficiently visible for your soil and residue conditions.

For changes, see “Marker Adjustments” on page 40.
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. 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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<th>C</th>
<th>D</th>
<th>E</th>
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</thead>
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<td>cab control console</td>
<td>Crushing Hazard</td>
<td>electric clutch</td>
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<td>adjustment screw</td>
<td>barley</td>
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<td>cam, row unit</td>
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<td>electroclution hose</td>
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<td>black</td>
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<td>fold circuit</td>
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<td>blockage</td>
<td>case drain</td>
<td>folding speed, markers</td>
<td>EZee Glide Plus</td>
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<td>amber reflector</td>
<td>blue</td>
<td>caster wheel pivot</td>
<td>folding speed</td>
<td>fan</td>
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<tr>
<td>anchor pin</td>
<td>bulk hopper pins</td>
<td>caution</td>
<td>fork lift</td>
<td>fan motor</td>
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<td>bushing, side gauge wheel</td>
<td>chain</td>
<td>frame leveling</td>
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<td>assistance</td>
<td>bushing, side wheel</td>
<td>cam</td>
<td>green</td>
<td>fan speed</td>
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<td>attachments</td>
<td>butterfly valve</td>
<td>cam, row unit</td>
<td>graphite</td>
<td>field operation</td>
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<td>auger</td>
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<td>capacities</td>
<td>graphite lubricant</td>
<td>fire</td>
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<tr>
<td>auxiliary hydraulic</td>
<td>capacity, hoppers</td>
<td>case drain</td>
<td>graphite powder</td>
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<td>auxiliary hydraulic kit</td>
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<td>axle</td>
<td>chain</td>
<td>chain maintenance</td>
<td>graphite</td>
<td>folding speed, markers</td>
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