Operator’s Manual

CTA4000
Air Drill Implement

Great Plains
Manufacturing, Inc.
www.greatplainsmfg.com

Read the operator’s 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!

Cover illustration may show optional equipment not supplied with standard unit.
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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. The signal words are:

⚠️ 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.

For Your Protection
▲ Thoroughly read and understand Safety Decals, page 4. Read all instructions noted on the labels.

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 far away from implement when raising openers, folding wings or transporting implement.

Handle Chemicals Properly
Agricultural chemicals can be dangerous. Improper use can seriously injure persons, animals, plants, soil and property.
▲ Wear protective clothing.
▲ Handle all chemicals with care.
▲ Follow instructions on container label.
▲ Avoid inhaling smoke from any type of chemical fire.
▲ Store or dispose of unused chemicals as specified by the chemical manufacturer.

Shutdown and Storage
▲ Lower machine to ground, put tractor in park, turn off engine, and remove the key.
▲ Detach and store implements in an area where children normally do not play. Secure implement by using blocks and supports.
Use Safety Lights and Devices

Slow-moving tractors, self-propelled equipment 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. Some rough terrains require a slower speed. Sudden braking can cause a towed load to swerve and upset.

▲ Before transporting, secure all hydraulic and mechanical locks provided with implement.

▲ Do not exceed 20 mph. Never travel at a speed which does not allow adequate control of steering and stopping. Reduce speed if towed load is not equipped with brakes.
▲ Do not tow an implement that, when fully loaded, weighs more than 1.5 times the weight of the towing vehicle.
▲ Comply with state and local laws.

Use A Safety Chain

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

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.
▲ Before servicing, secure all hydraulic and mechanical locks provided with implement.
▲ Lower the implement to the ground, put tractor in park, turn off engine, and remove key before performing maintenance.

▲ Allow implement to cool completely.
▲ Opener disks are sharp. Use caution when working in this area.
▲ 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 implement before operation.
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 radio headphones while operating machinery.

Avoid High Pressure Fluids Hazard
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, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result.

Safety at All Times
Thoroughly read and understand the instructions in this manual before operation. Refer to Safety Decals, page 4. Read all instructions noted on the labels.
▲ Be familiar with all functions of the unit.
▲ Operate implement from the driver's seat only.
▲ Do not leave tractor or implement unattended with 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 implement 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 implement. Before folding or raising, make sure all persons are clear of area.
▲ Do not turn tractor too tight, causing implement to ride up on wheels.
▲ Operate implement only when hitched to a Great Plains air drill cart. Do not modify implement for use with other machines.
▲ Secure additional weight to center section only. Use Great Plains weights only. Use only four weights (two pair).
▲ Do not use implement tires as a step. Tires not touching the ground will rotate easily.

Tire Safety
Tire changing can be dangerous and should be performed by trained personnel using the correct tools and equipment.
▲ When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side. Do not stand in front of or over the tire assembly. Use a safety cage if available.
▲ When removing and installing wheels, use wheel-handling equipment adequate for the weight involved.
Safety Decals
Your implement comes equipped with all safety decals in place. They were designed to help you safely operate your implement.
1. Read and follow decal directions.
2. Keep all safety decals clean and legible.
3. Replace all damaged or missing decals. Order new decals from your Great Plains dealer. Refer to this section for proper decal placement.
4. When ordering new parts or components, also request corresponding safety decals.
5. To install new decals:
   a. Clean the area on which the decal is to be placed.
   b. Peel backing from decal. Press firmly on surface, being careful not to cause air bubbles under decal.

**818-003C**
Slow Moving Vehicle Sign

**838-266C**
Red Reflector
Both castors—two decals total

**838-265C**
Amber Reflector
Both lift-assist arms—two decals
Important Safety Information

Caution Tires Not a Step
Both castors–two decals

Warning High Pressure
Both gauge wheels on center section–two decals

Danger Charge Fold Cy
Both sides of drill–two decals

Amber Reflector
Left side of center section, opener frame

To Avoid Injury from Unsecured Transport Tires:
- Never stand on or use transport tires as a step.
- Tires not in contact with the ground will rotate easily.
**818-398C**
Caution Tires Not a Step
All gauge-wheel mounts—four decals

**818-557C**
Danger Cannot Read
English; Center section

**818-624C**
Danger Crush AD/Impl
Both ends of center section—two decals total

**818-798C**
Warning Pinch Point Gen
Fold cylinder mounts, both sides of drill—two decals
Important Safety Information

**Caution Tire 36 PSI**
All wheels

**818-798C**
Warning Pinch Point Gen
Wing sections near rear fold joint–two decals

**818-818C**
Danger Electrocution
Wing sections near front fold joint–two decals total

**818-855C**
Caution Tire 36 PSI
All wheels

**838-267C**
Daytime Reflector
Wing sections near rear fold joint–two decals
Introduction

Great Plains welcomes you to its growing family of new product owners. This implement 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 CTA4000 is a pull-type seeding implement. An air-drill cart meters seed into an air stream, and implement towers distribute seed to implement openers. The openers create a furrow, place seed in the furrow and close the furrow. Implement hydraulics raise and lower the openers for seeding and fold the implement for transport. The hydraulic circuit also transfers weight from the center section to the wings and creates down pressure on the openers. Weight transfer and opener down pressure are adjustable.

Intended Usage
Use this machine only in conjunction with a Great Plains air-drill cart. Only use this machine for seeding production agriculture crops only. Use this machine in conventional- or minimum-tilled fields.

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

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

Definitions
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.

IMPORTANT: A crucial point of information related to the preceding topic. For safe and correct operation, read and follow the directions provided before continuing.

NOTE: Useful information related to the preceding topic.

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

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 of the center section near the Slow Moving Vehicle sign as shown in Figure A.

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

Model Number: _________________________________
Serial Number: _________________________________

Your Great Plains dealer wants you to be satisfied with your new machine. If you do not understand any part of this manual or are not satisfied with the service received, please take the following actions.

1. Discuss the matter with your dealership service manager. Make sure they are aware of any problems so they can assist you.
2. If you are still not satisfied, seek out the owner or general manager of the dealership.
3. For further assistance write to:

Product Support
Great Plains Mfg. Inc., Service Department
PO Box 5060
Salina, KS 67402-5060
Section 1 Preparation and Setup

This section covers implement preparation and setup. Before using the implement in the field, you must hitch the implement to your tractor, check that the hydraulics have been bled of air, and check that the implement frame is level.

Hitching Cart to Implement

**WARNING!**

You may be severely injured or killed by being crushed between the cart and implement. Always park and shut off the tractor before placing any body part between the cart and implement.

Refer to Figure 2-1.

1. Remove pivot pins (1) from lugs (2) on center section of implement frame.
2. With cart links (3) tied up, slowly back cart toward center of implement.
3. When ball swivels are aligned with implement lugs, drive pivot pins in place. Secure with roll pins.
4. Connect primary seed hoses to cart meter box. Connect hoses left to right in same order towers are installed on implement. Leave enough slack in hoses so implement can be fully raised, lowered, folded and unfolded. Secure hoses to meter-box outlets using the 2 1/2-inch band clamps provided. Be sure outer clamps do not interfere with latches on meter-box door. Refer to Figure 1-2.

5. Plug lead from implement electrical harness into receptacle on rear of cart.

---

Figure 1-1
Hitching Cart to Implement

Figure 1-2
Band Clamp Position
Hydraulic Hose Hookup

**WARNING!**
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, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene will result.

Great Plains hydraulic hoses are color coded to help you connect hoses to your tractor outlets.

<table>
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<tr>
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<th>Hydraulic Function</th>
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</tr>
<tr>
<td>Orange</td>
<td>Markers</td>
</tr>
<tr>
<td>No Tie</td>
<td>Sump</td>
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To distinguish hoses on the same hydraulic circuit, refer to plastic hose holders. See Figure 1-3. Hoses under the extended-cylinder symbol feed cylinder base ends. Hoses under retracted-cylinder symbol feed cylinder rod ends.

Connect implement hydraulic hoses to quick couplers on rear of cart. See Figure 1-4.

Working left to right, hook hoses to cart as follows.
- Hook either hose from optional markers to outlet A.
- Hook remaining hose from optional markers to outlet B.
- Hook either blue-tie hose (opener-lift and fold) to outlet C. Opener-lift and fold hoses run to front of valve block.
- Hook remaining blue-tie hose (opener-lift and fold) to outlet D.
- Skip outlet E.
- Skip outlet F.
- Connect decaled sump hose to outlet G. (Sump hose runs to rear of valve block.)

NOTE: SAE O-ring and JIC 37° flare-type hose connections do not require sealant or high torque for a good seal.

Carefully check all hoses to make sure none will be damaged by implement operation. Reroute hoses or use cable ties to keep hoses in a safe place.
Load Sensing Hydraulics
To operate the CTA4000, some tractors with load-sensing or constant-flow hydraulics need a bypass valve, Great Plains part number 810-400C. Contact your Great Plains dealer to order the valve.

IMPORTANT: Failure to install the bypass valve may cause major tractor damage. Contact your tractor dealer to verify if the bypass valve is needed.

After installing the bypass valve, set the valve as follows:
1. Close bypass valve for no oil flow by turning knob (1) on valve. See Figure 1-5.
2. On tractor, adjust flow-control valve so openers raise and lower at a reasonable speed.
   NOTE: The faster openers raise and lower, the greater potential for oil heating, premature wear or tractor damage.
3. Engage tractor hydraulics for fan and opener-lift-and-fold circuits. Lock hydraulic levers for continuous oil flow. Make sure cart fan is operating at normal speed (about 3600 rpms).
4. Adjust pressure-control valves (1) on implement so gauges (2) read 1200 psi. See Figure 1-6.
   IMPORTANT: Do not adjust weight-transfer valve (3) at this time. To avoid implement damage, never set weight-transfer valve (3) above 800 psi.
5. While watching opener gauges, slowly adjust bypass valve just until needles on gauges move down from 1200 psi. Lock bypass valve at this setting.
6. Adjust pressure-control valves to desired opener down pressure as explained under Opener Down Pressure, Adjustments, page 19.
Section 1 Preparation and Setup

Bleeding Hydraulics
To function properly, the hydraulics must be free of air. If hydraulics have not been bled, they will operate with jerky, uneven motions and could cause wings to drop rapidly during folding or unfolding. If hydraulics were not bled during initial implement setup or if you replace a hydraulic component, complete the following procedures.

⚠️ WARNING! ⚠️
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, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene will result.

Bleeding Opener Lift Hydraulics
1. Check hydraulic fluid level in tractor reservoir and fill to proper level. You will need about 2 gallons of oil to fill opener-lift cylinders.
2. With implement unfolded, disconnect rod ends of fold cylinders and support cylinders so rods will not contact anything when extended. See Figure 1-7.
3. Jack up and support implement frame high enough so opener cylinders can be fully extended.
4. Fully extend opener-lift cylinders.
5. Turn knobs on pressure-control valves completely counterclockwise, then turn them back far enough to build up at least 1000 psi pressure (about three clockwise turns).
6. Crack hose fittings at locations shown in Figure 1-8.
7. Slowly engage hydraulic lever in direction that lowers openers until oil begins to appear at loosened fittings. Continue engaging lever until all air is expelled, then tighten that fitting. Continue to supply oil until one fitting is tightened at each location.
8. Slowly engage hydraulic lever in direction that raises openers until oil begins to appear at loosened fittings. Continue engaging lever until all air is expelled, then tighten that fitting. Continue to supply oil until all fittings are tight and openers are completely raised.
9. Cycle openers up and down about 10 times. Each time you lower openers, hold tractor remote lever until opener-lift circuit builds up to pressure set.
10. Lower implement frame to ground.
11. Raise and lock up openers by turning field/transport selector valve to transport. See Figure 2-2, page 14.

Bleeding Lift Cylinders

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Figure 1-7
Support Fold Cylinders

Figure 1-8
Bleeding Lift Cylinders
Bleeding Fold Hydraulics

⚠️ DANGER!
Overhead crushing hazard. To prevent serious injury or death:

- Fold implement only if fold hydraulics are bled free of air and fully charged with hydraulic oil.
- Keep away and keep others away when folding or unfolding implement.

⚠️ WARNING!
Before folding, you must hitch the implement to the tractor and cart. Failure to do so could result in severe equipment damage and bodily injury or death.

1. Check hydraulic-fluid level in tractor reservoir and fill to proper level. You will need about 5 gallons of oil to fill the fold cylinders.
2. Turn field/folding selector valve to fold position.
3. Loosen rod-end fitting shown in Figure 1-9.
4. Slowly engage hydraulic lever as if folding implement until oil appears at loosened hose fitting. Continue engaging lever until all air has been expelled from fitting, then tighten fitting.
5. Loosen base-end fitting shown in Figure 1-9.
6. Slowly engage hydraulic lever as if unfolding implement until oil appears at loosened hose fitting. Continue engaging lever until all air has been expelled from fitting, then tighten fitting.
7. Cycle fold cylinders in and out 10 times.
8. Re-pin cylinder rods to cylinder mounts.
9. Recheck tractor hydraulic reservoir and fill to proper level.
10. Slowly fold and unfold implement. Check for hydraulic leaks. Be aware of any pinch points that might cause damage or accelerate wear on hydraulic hoses.

Eyebolt Adjustment

Before using the implement, check that the opener frames are level across the drill. When fully raised, the top of the opener mounts (1) should clear the bottom of the top frame tube (2) by at least 1/2 inch.

Adjust opener frames so all openers have the same clearance. To raise or lower an opener frame, loosen jam nut (3) on opener-lift cylinder and turn adjustment nut (4). When openers are at correct height, retighten jam nut. Repeat for each opener frame if necessary.
Section 2 Operating Instructions

This section covers general operating procedures. Experience, machine familiarity and the following information will lead to efficient operation and good working habits. Carefully read the operator’s manual for the air-drill cart you will be using with the implement. Always operate farm machinery with safety in mind.

General Description
All implement hydraulic functions are tied into the valve block that is mounted on the left wing. See Figure 2-1.

The valve block has two selector valves. The field/transport selector valve (1) allows you to hydraulically lock up the openers. The field/fold selector valve (2) allows you to switch between field operation and folding or unfolding.

The valve block also has three control valves. One control valve (3) is for adjusting opener down pressure on the wing sections. Another control valve (4) is for adjusting opener down pressure on the center section. A third control valve (5) is for adjusting weight transfer to the wings.

Prestart Checklist
2. Check all tires for proper inflation as indicated on Tire Inflation Chart, “Appendix,” page 30.
4. Check the implement for worn or damaged parts. Repair or replace them before going to the field.
5. Check all nuts, bolts and screws. Refer to Torque Values Chart, “Appendix,” page 30.

Folding and Unfolding
Fold and unfold implement on level ground. Be aware of clearance required to fold implement. Refer to “Specifications and Capacities,” page 29.

DANGER!
Overhead crushing hazard. To prevent serious injury or death:
• Always use lock pins when implement is folded.
• Fold implement only if fold hydraulics are bled free of air and fully charged with hydraulic oil. Refer to Bleeding Hydraulics, “Preparation and Setup,” page 12.
• Keep away and keep others away when folding or unfolding implement.

DANGER!
Electrocution hazard. To prevent serious injury or death from electric shock, keep clear of overhead power lines when transporting, folding, unfolding or operating all air-drill components. Machine is not grounded. Electrocution can occur without direct contact.

Folding the Implement
1. Fully raise openers.
2. Turn the field/transport selector valve (1) to transport to hydraulically lock up openers. Turn the field/folding selector valve (2) to folding.
5. Install wing lock pins to secure folded wings as shown in Figure 2-3.

Unfolding the Implement
1. Remove and store wing lock pins. See Figure 2-4 for lock-pin storage.
2. Check that field/folding selector valve is in folding position.
3. Set tractor at low idle speed.
4. Energize tractor hydraulics and slowly unfold implement.
5. Continue to unfold implement only until each wing gauge wheel rests on ground, then return hydraulic lever to neutral.
6. When sections are unfolded, turn field/fold selector valve to field position.
7. Unlock openers by turning field/transport selector valve to field position.

Opener Operation
The hydraulic system places down pressure on the openers for even soil penetration across the drill—even in uneven ground.

1. Lock hydraulic lever forward during field operation for constant hydraulic flow to openers.

John Deere tractors with Sound-Gard ® Body: Use lever lock clip, John Deere part number R52667, to lock lever forward. See your tractor dealer for clip purchase and installation.

John Deere 7000 Series tractors: Rotate valve detent selector to motor position to lock lever in forward position.

John Deere 8000 Series tractors: Set timer to continuous. Push lever forward until detent clicks.

Case-IH Magnum tractors: Lock lever forward in detent position. You may need to turn up detent pressure to its maximum setting. Do not tie hydraulic lever past detent position with a strap. See your tractor dealer for hydraulic-system details.

Other tractors: Lock lever forward in detent position. You may need to turn up detent pressure to maximum or use a mechanical detent holder to hold lever forward. See your tractor dealer for proper means of providing constant flow to openers.

2. Set opener down pressure. There is one pressure-control valve for wing sections (1) and one for center section (2). See Figure 2-5. Initially set down pressure at 800 psi, then adjust as field condition warrant. For more information on adjusting opener hydraulic down, refer to Opener Down Pressure, "Adjustments," page 19.

Figure 2-5
Pressure Control Valves

IMPORTANT: Some tractors with load-sensing or constant-flow hydraulics need a bypass valve, Great Plains part number 810-400C, to operate the CTA4000. Failure to install the valve can cause major tractor damage. Contact your Great Plains dealer to order the bypass valve. Contact your tractor dealer to verify if a bypass is needed. Before adjusting opener down pressure, set bypass valve as explained under Load Sensing Hydraulics, Preparation and Setup, page 11.
3. Set opener seeding depth by adjusting press-wheel height. To adjust, first raise openers slightly, then lift and slide T handles on top of openers as shown in Figure 2-6. Adjust all press wheels to the same height.
   • For more shallow seeding, slide T handles toward implement.
   • For deeper seeding, slide T handles away from implement.

While seeding, remember:
   • Raise openers before turning. Never back up or turn sharply with openers in the ground. Doing so will plug openers and may damage equipment.
   • Be aware of the 5- to 10-foot delay needed for seed to reach openers. If you stop in middle of field, lift drill and back up 10 feet before proceeding.
   • Check periodically for plugged openers and hoses. With fan running and drill raised, hand crank metering system. Look below each opener for seed or fertilizer.
   • You can adjust the opener height at which seed metering beings. Refer to Electric Clutch Switch Adjustment, “Adjustments,” page 21
   • For information on opener adjustments, see Opener Down Pressure and Opener Depth, “Adjustments,” starting on page 19. For more information on troubleshooting opener problems, see “Troubleshooting,” page 23.

4. Run fan for at least 15 minutes before seeding. Hydraulic fluid must be warm before fan will operate properly.

Fan Operation

**WARNING!**
Operate implement only when hitched to a Great Plains air drill cart. Modifying the implement for use with other machines could lead to field or road accidents, serious injury or death.

For normal seeding operations:
1. Check that in-cab rocker switch is on.
2. Check that both selector valves are in field position. See Figure 2-2.
3. Energize tractor hydraulics for fan. Lock hydraulic lever in place for continuous operation. See step 1, Opener Operation, page 15, for locking instructions.
4. Run fan for at least 15 minutes before seeding. Hydralic fluid must be warm before fan will operate properly.
5. Watch monitor and adjust fan speed by increasing or decreasing hydraulic flow from tractor. Use following guidelines to properly adjust fan speed.
   • Follow the fan speed chart as a guide. Actual fan speeds will vary with seeding rates, seed weights and seed size. Increase fan speed for heavier seeding rates or seed. Reduce fan speed for lighter seeding rates and seed more prone to cracking.
   • First adjust fan speed to high end of range suggested in fan speed chart. Watch for excessive seed cracking and seed bounce from furrow, then reduce fan speed if necessary.
   • Higher fan speeds improve seed distribution and help prevent seed hoses from plugging. At heavy seeding rates, you can run fan at up to 4,900 rpm.

**Fan Speed Chart**

<table>
<thead>
<tr>
<th>Seeds</th>
<th>Fan RPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunflowers</td>
<td>2,250 - 3,000</td>
</tr>
<tr>
<td>Wheat</td>
<td>3,250 - 4,500</td>
</tr>
<tr>
<td>Soybeans</td>
<td>3,200 - 4,300</td>
</tr>
<tr>
<td>Milo</td>
<td>3,250 - 4,000</td>
</tr>
</tbody>
</table>

6. Pull forward, lower openers and begin seeding. If metering system does not turn off and on as openers are raised and lowered, refer to Electric Clutch Switch Adjustment, “Adjustments,” page 21.
7. When finished seeding, turn in-cab rocker switch off.
Weight Transfer
While seeding, weight is hydraulically transferred from the center section to the wings so all frame sections run at the same depth. If not enough weight is transferred, the wings will run higher than the center section.

To adjust weight transfer, refer to Figure 2-7.

1. Check that both selector valves (1) are turned to field position.
2. Lower openers to ground.
3. Watch pressure gauge (2) while turning pressure-control valve (3). When facing the valve,
   • turn clockwise to increase weight on wing sections,
   • turn counterclockwise to decrease weight on wings sections.
   Typical pressures on gauge should be 200 to 600 psi.

4. When satisfied with gauge reading, raise openers while watching pressure gauge. Gauge reading should drop as the openers are raised.

Marker Operation
If you purchased markers, the following will help you integrate markers into the air-drill hydraulic system. Carefully read marker manufacturer's instructions for safe installation, operation and adjustment.

Marker attachments are controlled by same hydraulic circuit as cart auger. To operate markers, move hydraulic diverter valve up to marker position as shown in Figure 2-8. The diverter valve is located on the cart tongue.

Connect marker hoses to outlets A and B at rear of cart.

Transporting

**DANGER!**
Electrocution hazard. To prevent serious injury or death from electric shock, keep clear of overhead power lines when transporting, folding, unfolding or operating all air-drill components. Machine is not grounded. Electrocution can occur without direct contact.

**WARNING!**
Towing the implement at high speeds or with a vehicle that is not heavy enough can lead to loss of vehicle control. Loss of vehicle control can lead to serious road accidents, injury and death. To reduce the hazard:
• Do not exceed 20 mph.
• Do not tow a drill that, when fully loaded, weighs more than 1.5 times the weight of the towing vehicle.

**WARNING!**
The implement is designed to hitch to a Great Plains air-drill cart only. Hitching the implement to any vehicle other than a Great Plains air-drill cart will create an unstable towing load and can lead to road accidents, injury and death. To avoid the hazard, transport the implement only when hitched to a Great Plains air-drill cart.

Before transporting the implement, check and practice the following items.

**Minimum Towing Vehicle Weight**
Hitched to ADC2220: 21,400 pounds
Hitched to ADC1150: 17,840 pounds
Transport Locks. Check that wing lock pins are in place and openers are hydraulically locked up. Refer to Folding the Implement, page 14.

Rocker Switch Off. Check that in-cab rocker switch is turned off while transporting.

Stopping Distance. Keep combined weight of implement and cart in mind. Allow sufficient stopping distance at all times. Reduce speed prior to making any turns or other maneuvers.

Bystanders. Check that no one is in the way before moving. Do not allow anyone to ride on the air drill.

Clearance. Know dimensions of cart and implement in transport position and follow a route that provides adequate clearance from all obstructions. Be especially observant of low overhead power lines. Refer to “Specifications and Capacities,” page 29, for folded dimensions.

Tires. Check that all tires are properly inflated as listed on Tire Inflation Chart, “Appendix,” page 30.

Road Rules. Comply with all federal, state and local laws when transporting on public roads.

Warning Lights. To use implement warning lights, your tractor must be equipped with a seven-pin electrical connector. Always use implement warning lights when transporting the air drill.

Watch Traffic. Remember that the cart bins and folded implement wings can obstruct your view. Be prepared for sudden maneuvers from following vehicles.

Marker Attachments. If you have installed optional marker attachments, refer to the manufacturer’s instructions for information on securing marker transport locks.

Parking
Perform the following steps when parking the drill. Refer to Storage, Maintenance and Lubrication,” page 26, for information on long-term storage preparation.

1. Park implement on a firm, level area.
2. Raise openers. Hydraulically lock up openers by turning field/transport selector valve to transport. See Figure 2-2, page 14.
3. Securely block the tires to prevent rolling.
4. Unhook electrical lines.
5. Release pressure on the hydraulic system, then disconnect hydraulic lines. Check that hose ends do not rest on ground.
Section 3 Adjustments

Seeding Depth
The CTA4000 has double-disk openers with depth-controlling press wheels mounted on floating opener frames. This system provides accurate depth control and seed placement over uneven terrain. The following is an introduction to the basic seeding components and how they work.

Openers
Each opener is mounted on a floating opener frame. Opener bodies are staggered for easy soil flow. Openers pivot on a common axis to maintain consistent depth as the opener frames follow contours. A spring provides the down pressure necessary for opener double disks to open a seed furrow. The spring allows openers to float down into depressions and up over obstructions. Individual openers can be adjusted to account for tire tracks.

Press Wheels
A press wheel is attached to the rear of each opener. Press wheels provide two important functions.

First, press wheels close the furrow and gently press soil over the seed. To provide consistent seed firming, press wheels are free to move down from the normal operating position. This maintains pressing action even if opener disks encounter obstructions or hard soil.

Second, press wheels control seeding depth. To maintain a consistent depth, the relationship between the bottom of the opener disks and press wheel is upwardly fixed. The upward stop is adjustable on each opener. The position of the adjustable stop determines how deep seed will be placed.

Opener Down Pressure
Opener down pressure controls opener penetration and press-wheel soil firming. Use only enough down pressure to cut the furrow and maintain proper soil-firming over seed. Excessive opener down force will lead to premature wear on opener components.

Hydraulic Down Pressure
There is one pressure-control valve for wing sections (1) and one for center section (2). See Figure 3-1.

Gauge Setting          | Pounds Force at Opener Disks
-----------------------+----------------------------------
                      | 6-Inch Rows | 7.5-Inch Rows | 10-Inch Rows |
-----------------------+----------------------------------
200 PSI                | 87          | 92            | 99           |
300 PSI                | 96          | 103           | 113          |
400 PSI                | 105         | 113           | 128          |
500 PSI                | 113         | 124           | 142          |
600 PSI                | 122         | 135           | 157          |
700 PSI                | 131         | 146           | 171          |
800 PSI                | 140         | 157           | 186          |
900 PSI                | 148         | 168           | 200          |
1000 PSI               | 157         | 178           | 214          |
1100 PSI               | 165         | 189           | 229          |
1200 PSI               | 174         | 200           | 243          |

IMPORTANT: Some tractors with load-sensing or constant-flow hydraulics need a bypass valve, Great Plains part number 810-400C, to operate the CTA4000. Failure to install the valve can cause major tractor damage. Contact your Great Plains dealer to order the bypass valve. Contact your tractor dealer to verify if a bypass is needed. Before adjusting opener down pressure, set bypass valve as explained under Load Sensing Hydraulics, Preparation and Setup, page 11.
Section 3 Adjustments

To set down pressure:

1. Lower openers to ground. Lock hydraulic lever in place.

   IMPORTANT: You must lock hydraulic lever forward to provide constant hydraulic flow to openers. Refer to Opener Operation, Operating Instructions, page 15.

2. Turn knob on pressure-control valve. While watching pressure gauge, turn knob until gauge shows desired pressure. Turn clockwise to increase pressure. Turn counterclockwise to decrease pressure.

3. Once pressure is set, lock knob with lock disk.

   NOTE: To account for additional compaction from drill and tractor tires, you can set pressure on center section slightly higher than wings.

Weights

WARNING!

Crushing hazard. Weights that are not properly secured or positioned could fall off the implement during folding, field operation or transport and cause severe injury or death to bystanders. Adding weight to the wings could cause a wing to drop suddenly during folding and severely injure or kill bystanders. Do not add more than four weights (two pairs) to the implement. Use only Great Plains weights, part number 163-233A, as additional weight on the implement. Do not add weights to the wing sections.

In some field conditions, your drill may need additional weight for sufficient opener penetration. Additional weights are available from your Great Plains dealer. Up to four 700-pound weights can be evenly distributed over the center section of implement. Refer to the weight chart to see results of adding weights.

<table>
<thead>
<tr>
<th></th>
<th>6-Inch Rows</th>
<th>7.5-Inch Rows</th>
<th>10-Inch Rows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empty Drill</td>
<td>13,673 lbs</td>
<td>12,660 lbs</td>
<td>11,648 lbs</td>
</tr>
<tr>
<td>Per Row, No Weights</td>
<td>171 lbs</td>
<td>195 lbs</td>
<td>233 lbs</td>
</tr>
<tr>
<td>Per Row, Four Weights</td>
<td>206 lbs</td>
<td>237 lbs</td>
<td>289 lbs</td>
</tr>
</tbody>
</table>

Spring Down Pressure

For planting in tire tracks, you can increase spring pressure on individual openers. To increase spring pressure, tighten flange nut at lower end of opener spring. See Figure 3-2. Each 1/4-inch adjustment adds about 13 pounds of force at opener disk. Do not tighten nut more than one inch. After adjusting, lock flange nut in place with jam nut.

Opener Depth

Press Wheel Adjustment

Set opener seeding depth by adjusting press-wheel height. To adjust, first raise openers slightly, then lift and slide T handles on top of openers as shown in Figure 3-3. Adjust all press wheels to the same height.

- For more shallow seeding, slide T handles toward implement.
- For deeper seeding, slide T handles away from implement.

Opener Operation, Operating Instructions, page 15.
NOTE: Opener down pressure controls soil-firming pressure on press wheel. Use press-wheel adjustments to regulate seeding depth and opener down pressure adjustments to control opener penetration and soil firming.

**Individual Opener Height**
You may need to lower an opener which runs in a tire track. To lower individual openers, move opener-pivot bolt to lower hole in opener mount. See Figure 3-4.

**Opener Frame Adjustment**
You can adjust opener frames between two operating positions—one for normal opener down pressure and one for higher down pressure. The adjustment is near opener-frame pivots. See Figure 3-5. There are three holes and two bolts. The bottom bolt (1) serves as the pivot. The top bolt (2) is for adjustment.

For normal drilling conditions, keep the top bolt in second hole as shown in Figure 3-5. Use this setting when drilling with opener down pressure below 1200 psi.

When drilling with opener down pressure above 1200 psi, place top bolt in top hole on all eight pivot points across implement.

**Electric Clutch Switch Adjustment**
To adjust height at which seed metering and weight transfer are turned off, follow these steps.

1. Locate height switch. See Figure 3-6.

2. Lower openers to a height where seeding should start (usually just above ground). Securely support opener frames at this height with jack stands or blocks.

3. Turn off tractor and remove key.

4. Refer to Figure 3-7. Loosen cam clamp (1) on pivot retainer and turn until switch roller (2) is just starting to make contact with ramp surface.

**NOTE:** Be sure cam clamp is situated so worm clamp will not be caught on switch roller.
Section 3 Adjustments

5. Raise openers fully and check that switch is compressed as shown Figure 3-8.

Disk Scraper Adjustment
To keep opener disks turning freely, dirt scrapers are mounted between disks to clean as disks rotate. As field conditions vary, scrapers may need to be adjusted. In damp conditions, lower scrapers. If openers are not turning freely, raise scrapers. To adjust, loosen 3/8-inch bolt shown in Figure 3-9 and move scraper as needed.

Seed-Lok
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 lock up firming wheels, hook one end of chain in opener-body hole just above wheel arm (1). Pull firming-wheel arm (2) up as high as possible and wrap chain around arm. Hook other end of chain in a link. Leave no slack in chain; secure wheel arm in its highest position.
### Section 4 Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uneven seed spacing or uneven stand.</td>
<td>Check all hoses, towers and bin lids for air leaks.</td>
</tr>
<tr>
<td></td>
<td>Check seed distribution hoses for plugging.</td>
</tr>
<tr>
<td></td>
<td>Check for bad connection in electric-clutch circuit.</td>
</tr>
<tr>
<td></td>
<td>Reduce ground speed.</td>
</tr>
<tr>
<td></td>
<td>Check that opener disks turn freely.</td>
</tr>
<tr>
<td></td>
<td>Check for plugged seed tubes.</td>
</tr>
<tr>
<td></td>
<td>Increase opener down pressure so openers penetrate low spots. Refer to <em>Opener Down Pressure</em>, “Adjustments,” page 19.</td>
</tr>
<tr>
<td>Seeding pattern is skipping rows.</td>
<td>Check for plugged openers.</td>
</tr>
<tr>
<td></td>
<td>Check for plugging in secondary seed hoses.</td>
</tr>
<tr>
<td></td>
<td>Check for foreign objects in tower that are blocking outlet to secondary seed hose.</td>
</tr>
<tr>
<td></td>
<td>Check if a secondary hose is disconnected from tower or opener.</td>
</tr>
<tr>
<td></td>
<td>Check hoses for leaks or damage.</td>
</tr>
<tr>
<td></td>
<td>Check air pressure and properly inflate tires according to <em>Tire Inflation Chart</em>, “Appendix,” page 30.</td>
</tr>
<tr>
<td></td>
<td>Adjust down pressure on wings. Refer to <em>Weight Transfer</em>, “Operating Instructions,” page 17. Do not exceed 800 psi on the wing sections.</td>
</tr>
<tr>
<td></td>
<td>Check that opener frame is level across drill. Refer to <em>Eyebolt Adjustment</em>, “Preparation and Setup,” page 13.</td>
</tr>
<tr>
<td>Implement creeps up or down in different sections during field operation.</td>
<td>Bleed air from opener-lift cylinders. Refer to <em>Bleeding Hydraulics</em>, “Preparation and Setup,” page 12.</td>
</tr>
<tr>
<td></td>
<td>Check opener-lift cylinders for oil leaks. If a cylinder is leaking oil past the piston, refer to the parts manual for a seal kit and service information.</td>
</tr>
<tr>
<td></td>
<td>Check tractor hydraulic valve for leakage.</td>
</tr>
<tr>
<td>Metering system does not shut off when turning in the field.</td>
<td>Check if cam clamp for electric-clutch switch is loose. To adjust, see <em>Electric Clutch Switch Adjustment</em>, “Adjustments,” page 21.</td>
</tr>
<tr>
<td>Seed is scattered on the ground behind the drill.</td>
<td>Increase seeding depth. Refer to <em>Opener Depth</em>, “Adjustments,” page 20.</td>
</tr>
<tr>
<td></td>
<td>Reduce fan speed.</td>
</tr>
<tr>
<td></td>
<td>Reduce ground speed.</td>
</tr>
<tr>
<td></td>
<td>Check if openers are partially plugged with dirt.</td>
</tr>
<tr>
<td></td>
<td>Check for holes in or disconnected seed hoses.</td>
</tr>
</tbody>
</table>
### Problem | Possible Solutions
--- | ---
Secondary seed hoses are plugging. | Increase fan speed. Refer to *Field Operations*, “Operating Instructions,” page 16.
Check hoses for damage and replace if necessary.
Check for debris in seed that is too large for hose.
Take up extra slack in hoses. Leave just enough slack for wing down flex and opener-body travel.
Reroute hoses so there are no sharp bends.

Primary seed hoses are plugging. | Increase fan speed. Refer to *Field Operations*, “Operating Instructions,” page 16.
Check hoses for damage and replace if necessary.
Reroute hoses so there are no sharp bends.
Check for surging oil flow from tractor.
Check if metering system is not shutting off when fan is off, filling primary hoses with seed. If so, fan hydraulic pressure switch (part number 823-083C) may be faulty or improperly adjusted. Refer to the cart parts manual for pressure-switch location.

Increase down pressure on disk openers. Refer to *Opener Down Pressure*, “Adjustments,” page 19.

Press wheel or openers plugging. | Check soil conditions—may be too damp.
Decrease down pressure on openers. See *Opener Down Pressure*, “Adjustments,” page 19.
Do not back up with openers in ground.
Do not stop and allow drill to roll backward with openers in ground.
Check optional Seed-Lok wheels. Lock up wheels if soil conditions are too wet. Refer to *Seed-Lok*, Adjustments, page 22.

Opener disks not turning freely. | Check for trash or mud build-up on disk scraper.
Check if scraper is too tight, restricting disk movement. Refer to *Disk Scraper Adjustment*, “Adjustments,” page 22.
Check disk bearings.
Check opener frame for possible damage.
Check if opener disks turn freely by hand but not in field; if so, reduce down pressure on disk opener. Refer to *Opener Down Pressure*, “Adjustments,” page 19.
Check if press wheels are adjusted too high. Refer to *Press Wheel Adjustment*, “Adjustments,” page 20.
<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fan not operating.</td>
<td>Check that hydraulic connections are correct. Refer to <em>Hydraulic Hose Hookup</em>, “Preparation and Setup,” in your cart operator’s manual and <em>Hydraulic Hose Hookup</em>, “Preparation and Setup,” page 10. Check direction you are engaging hydraulic lever; reverse if necessary.</td>
</tr>
<tr>
<td>Excessive seed cracking</td>
<td>Reduce fan speed.</td>
</tr>
<tr>
<td>Openers drilling too deep</td>
<td>Reduce hydraulic down pressure on openers. Refer to <em>Opener Down Pressure</em>, “Adjustments,” page 19</td>
</tr>
<tr>
<td>Front of openers dropping too low in hard or minimum-till conditions</td>
<td>Set opener-frame bolt in top hole. See <em>Opener Frame Adjustments</em>, “Adjustments,” page 21.</td>
</tr>
<tr>
<td>Openers raise when tractor hydraulic lever is held forward and lower</td>
<td>Reverse the hydraulic hoses at the tractor quick couplers.</td>
</tr>
<tr>
<td>when the lever is held back</td>
<td></td>
</tr>
<tr>
<td>Opener frames do not float over uneven terrain</td>
<td>Tractor hydraulic lever not locked forward on the circuit designed for hydraulic motor control. See <em>Opener Operation</em>, “Operating Instructions,” page 15.</td>
</tr>
<tr>
<td>Pressure gauges read zero when the openers are lowered and the tractor</td>
<td>Hoses are routed incorrectly between pressure-control valve and opener-lift cylinders. See hydraulic-hose-routing diagrams in “Appendix,” page 31.</td>
</tr>
<tr>
<td>remote hydraulic lever is held forward</td>
<td></td>
</tr>
<tr>
<td>Pressure gauges show pressure when the openers are raised.</td>
<td>Hoses are routed incorrectly between pressure-control valve and opener-lift cylinders. See hydraulic-hose-routing diagrams in “Appendix,” page 31.</td>
</tr>
<tr>
<td>Reading on opener-down-pressure gauge increases slightly after returning</td>
<td>Ignore this apparent increase. Actual operating pressure is maintained at pressure you selected. You can re-activate lever to confirm this. This apparent increase is caused by back pressure on opener-lift cylinders.</td>
</tr>
<tr>
<td>the hydraulic lever to neutral.</td>
<td></td>
</tr>
<tr>
<td>Openers will raise but provide no down pressure, or openers will not</td>
<td>Check hydraulic circuit; one supply hose is switched with return line at rear of cart or tractor.</td>
</tr>
<tr>
<td>raise but provide down pressure.</td>
<td></td>
</tr>
</tbody>
</table>
Section 5 Maintenance and Lubrication

Maintenance

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

⚠️ WARNING!
You may be severely injured or killed by being crushed under falling openers or wings. Always have openers hydraulically locked up and wing lock pins in place when working on implement.

⚠️ WARNING!
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 injured, seek medical assistance from a doctor that is familiar with this type of injury. Foreign fluids in the tissue must be surgically removed within a few hours or gangrene will result.

⚠️ CAUTION!
Opener disks are sharp enough to cut flesh. Use caution when working around the opener disks.

1. After initially running implement for several hours, check all bolts to be sure they are tightened as specified on Torque Values Chart, “Appendix,” page 30. Do not over tighten bolts holding distribution towers together.
2. Lubricate implement. See Lubrication, this page.

4. Replace any worn, damaged or illegible safety labels at once. Refer to Safety Labels, “Important Safety Information,” page 1, for correct label placement. Obtain new labels from your Great Plains dealer.
5. Clean or replace any fittings that will not take grease.
6. Periodically check and secure all bolts, pins and fasteners. Tighten as specified on Torque Values Chart, “Appendix,” page 30.
7. Occasionally inspect hydraulic hoses for cuts, cracks and aging. Check fittings and cylinders for leaks.
8. Inspect cart link pins for wear or loosening.

Storage

Store implement in an area where children do not play. If possible, store implement inside for longer implement life.

1. If you store implement unfolded, unpin rod ends of the fold cylinders and retract cylinders fully to prevent rust.
2. If cart is disconnected from implement for storage, plug all 2 1/2-inch openings to prevent birds from nesting in openings.
3. Check all seed hoses for pinching or kinks. Relieve any sharp bends before storing implement.
4. Lubricate implement at all points indicated under Lubrication, this page.
5. Check all bolts, pins, fitting and hoses. Tighten, repair or replace parts as needed.
6. Check all moving and soil-contact parts for wear or damage. Make note of any parts needing repair before next drilling season.
7. To prevent rust, use Great Plains touch-up paint to cover scratches, chips and worn areas.

Lubrication

Legend

<table>
<thead>
<tr>
<th>Multipurpose spray lube</th>
<th>Multipurpose grease lube</th>
<th>Multipurpose oil lube</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>50</td>
<td>20</td>
</tr>
</tbody>
</table>

Fold Pivots

Zerk inside each frame joint; four zerks total

Type of Lubrication: Grease
Quantity = Until grease appears at both ends of pivot
Section 5 Maintenance and Lubrication

Great Plains Mfg., Inc.

Wheel Bearings
Type of Lubrication: Grease
Quantity = Pack full

Castors
Both castor wheels; two zerks total
Type of Lubrication: Grease
Quantity = Until grease appears at top and bottom of castor

Cart Links
Four zerks total
Type of Lubrication: Grease
Quantity = Until grease appears

Opener Frames
Zerks at each pivot point; eight zerks total
Type of Lubrication: Grease
Quantity = Until grease appears

Seasonally

Wheel Bearings
Type of Lubrication: Grease
Quantity = Pack full
Section 6 Attachments

Seed-Lok Firming Wheels
Optional, spring-loaded, Seed-Lok firming wheels press seed directly into the bottom of the seed bed. The Seed-Lok option provides more even seed emergence since seeds are planted and firmed at the same depth.

To order Seed-Lok firming wheels, contact your Great Plains dealer.

<table>
<thead>
<tr>
<th>Seed-Lok Bundle</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removable 5-Inch Seed-Lok, 00 and 10 Series Openers</td>
<td>122-193K</td>
</tr>
</tbody>
</table>

Weights
In some field conditions, your implement may need additional weight for sufficient opener penetration. Up to four 700-pound weights can be evenly distributed over the center section of the implement. Weights are sold as pairs.

For results of adding weights, refer to Weights, “Adjustments,” page 20.

To order weights, contact your Great Plains dealer.

<table>
<thead>
<tr>
<th>Weights</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight Tube Pair</td>
<td>160-233A</td>
</tr>
</tbody>
</table>
## Section 7 Specifications and Capacities

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Width</td>
<td>40 ft</td>
</tr>
<tr>
<td>Transport Width</td>
<td>18 ft</td>
</tr>
<tr>
<td>Transport Height</td>
<td>14 ft</td>
</tr>
<tr>
<td>Length</td>
<td>13 ft 9 in</td>
</tr>
<tr>
<td>Overall Length, Cart and Implement</td>
<td>30 ft 6 in</td>
</tr>
<tr>
<td>Wing Flexibility</td>
<td>15 degrees down, 20 degrees up</td>
</tr>
<tr>
<td>Transport Tires</td>
<td>11L - 15 8-Ply</td>
</tr>
<tr>
<td>Row Spacings</td>
<td>6 in, 7 1/2 in, 10 in</td>
</tr>
<tr>
<td>Number of Rows</td>
<td>80, 65, 50</td>
</tr>
<tr>
<td>Base Unit Weight</td>
<td>13,673 lbs, 12,660 lbs, 11,648 lbs</td>
</tr>
<tr>
<td>Weight Per Row, Base Unit</td>
<td>171 lbs, 195 lbs, 233 lbs</td>
</tr>
<tr>
<td>Maximum Additional Weight</td>
<td>2800 lbs</td>
</tr>
<tr>
<td>Tractor Power Requirements</td>
<td>180 to 240 hp (Power requirements will vary with tractor size, soil type, terrain and tillage practices.)</td>
</tr>
<tr>
<td>Tractor Hydraulic Requirements</td>
<td>Closed-center hydraulics</td>
</tr>
<tr>
<td></td>
<td>Three sets of hydraulic outlets</td>
</tr>
<tr>
<td></td>
<td>Capacity of 18 to 30 gpm at 2000 psi</td>
</tr>
<tr>
<td></td>
<td>Equipped so a return line can be plumbed directly to the tractor hydraulic reservoir</td>
</tr>
<tr>
<td></td>
<td>Tractors with load-sensing hydraulics may require a bypass valve, Great Plains part number 810-400C. Contact your tractor dealer to verify if the valve is needed.</td>
</tr>
</tbody>
</table>

NOTE: All tires are warranted by the original manufacturer of the tire. Tire warranty information can be found in the brochures included with your Operator’s and Parts Manuals or online at the manufacturer’s websites. For service assistance or information, contact your nearest Authorized Farm Tire Retailer.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titan</td>
<td><a href="http://www.titan-intl.com">www.titan-intl.com</a></td>
</tr>
<tr>
<td>Goodyear</td>
<td><a href="http://www.goodyearag.com">www.goodyearag.com</a></td>
</tr>
<tr>
<td>Firestone</td>
<td><a href="http://www.firestoneag.com">www.firestoneag.com</a></td>
</tr>
</tbody>
</table>
### Appendix

#### Tire Inflation Chart

<table>
<thead>
<tr>
<th>Tire Size</th>
<th>Inflation PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.50 x 20&quot; 4-Ply Drill Rib</td>
<td>28</td>
</tr>
<tr>
<td>9.0 x 22.5 10-Ply Highway Service 70</td>
<td>70</td>
</tr>
<tr>
<td>9.0 x 24&quot; 8-Ply Rib Implement</td>
<td>40</td>
</tr>
<tr>
<td>9.5L x 15&quot; 6-Ply Rib Implement</td>
<td>32</td>
</tr>
<tr>
<td>9.5L x 15&quot; 8-Ply Rib Implement</td>
<td>44</td>
</tr>
<tr>
<td>9.5L x 15&quot; 12-Ply Rib Implement</td>
<td>60</td>
</tr>
<tr>
<td>11L x 15&quot; 8-Ply Rib Implement</td>
<td>36</td>
</tr>
<tr>
<td>11L x 15&quot; 12-Ply Rib Implement</td>
<td>52</td>
</tr>
<tr>
<td>12.5L x 15&quot; 8-Ply Rib Implement</td>
<td>36</td>
</tr>
<tr>
<td>12.5L x 15&quot; 10-Ply Rib Implement</td>
<td>44</td>
</tr>
<tr>
<td>16.5L x 16.1&quot; 10-Ply Rib Implement</td>
<td>36</td>
</tr>
<tr>
<td>41 x 15&quot; x 18 - 22-Ply Rib Implement</td>
<td>44</td>
</tr>
</tbody>
</table>

### Torque Values Chart for Common Bolt Sizes

<table>
<thead>
<tr>
<th>Bolt Size (inches)</th>
<th>Bolt Head Identification</th>
<th>Bolt Size (Metric)</th>
<th>Bolt Head Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; - 20</td>
<td>N - m² ft-lb</td>
<td>Class 5.8</td>
<td>N - m ft-lb</td>
</tr>
<tr>
<td>1/4&quot; - 28</td>
<td>7.4 5.6 11 8 16 12</td>
<td>M 5 X 0.8</td>
<td>4 3 6 5 9 7</td>
</tr>
<tr>
<td>5/16 - 18</td>
<td>8.5 6 13 10 18 14</td>
<td>M 6 X 1</td>
<td>7 5 11 8 15 11</td>
</tr>
<tr>
<td>5/16&quot; - 24</td>
<td>15 11 24 17 33 25</td>
<td>M 8 X 1.25</td>
<td>17 12 26 19 36 27</td>
</tr>
<tr>
<td>3/8&quot; - 16</td>
<td>27 20 42 31 59 44</td>
<td>M 8 X 1</td>
<td>18 13 28 21 39 29</td>
</tr>
<tr>
<td>3/8&quot; - 24</td>
<td>31 22 47 35 67 49</td>
<td>M10 X 1.5</td>
<td>33 24 52 39 72 53</td>
</tr>
<tr>
<td>7/16&quot; - 14</td>
<td>43 32 67 49 95 70</td>
<td>M10 X 0.75</td>
<td>39 29 61 45 85 62</td>
</tr>
<tr>
<td>7/16&quot; - 20</td>
<td>49 36 75 55 105 78</td>
<td>M12 X 1.75</td>
<td>58 42 91 67 125 93</td>
</tr>
<tr>
<td>1/2&quot; - 13</td>
<td>66 49 105 76 145 105</td>
<td>M12 X 1.5</td>
<td>60 44 95 70 130 97</td>
</tr>
<tr>
<td>1/2&quot; - 20</td>
<td>75 55 115 85 165 120</td>
<td>M12 X 1</td>
<td>90 66 105 77 145 105</td>
</tr>
<tr>
<td>9/16&quot; - 12</td>
<td>95 70 150 110 210 155</td>
<td>M14 X 2</td>
<td>92 68 145 105 200 150</td>
</tr>
<tr>
<td>9/16&quot; - 18</td>
<td>105 79 165 120 235 170</td>
<td>M14 X 1.5</td>
<td>99 73 155 115 215 160</td>
</tr>
<tr>
<td>5/8&quot; - 11</td>
<td>130 97 205 150 285 210</td>
<td>M16 X 2</td>
<td>145 105 225 165 315 230</td>
</tr>
<tr>
<td>5/8&quot; - 18</td>
<td>150 110 230 170 325 240</td>
<td>M16 X 1.5</td>
<td>155 115 240 180 335 245</td>
</tr>
<tr>
<td>3/4&quot; - 10</td>
<td>235 170 360 265 510 375</td>
<td>M18 X 2.5</td>
<td>195 145 310 230 405 300</td>
</tr>
<tr>
<td>3/4&quot; - 16</td>
<td>260 190 405 295 570 420</td>
<td>M18 X 1.5</td>
<td>220 165 350 260 485 355</td>
</tr>
<tr>
<td>7/8&quot; - 9</td>
<td>225 165 585 430 820 605</td>
<td>M20 X 2.5</td>
<td>280 205 440 325 610 450</td>
</tr>
<tr>
<td>7/8&quot; - 14</td>
<td>250 185 640 475 905 670</td>
<td>M20 X 1.5</td>
<td>310 230 650 480 900 665</td>
</tr>
<tr>
<td>1&quot; - 8</td>
<td>340 250 875 645 1230 910</td>
<td>M24 X 3</td>
<td>480 355 760 560 1050 780</td>
</tr>
<tr>
<td>1&quot; - 12</td>
<td>370 275 955 705 1350 995</td>
<td>M24 X 2</td>
<td>525 390 830 610 1150 845</td>
</tr>
<tr>
<td>1-1/8&quot; - 7</td>
<td>480 355 1080 795 1750 1290</td>
<td>M30 X 3.5</td>
<td>960 705 1510 1120 2100 1550</td>
</tr>
<tr>
<td>1 1/8&quot; - 12</td>
<td>540 395 1210 890 1960 1440</td>
<td>M30 X 2</td>
<td>1060 785 1680 1240 2320 1710</td>
</tr>
<tr>
<td>1 1/4&quot; - 7</td>
<td>680 500 1520 1120 2460 1820</td>
<td>M36 X 3.5</td>
<td>1730 1270 2650 1950 3660 2700</td>
</tr>
<tr>
<td>1 1/4&quot; - 12</td>
<td>750 555 1680 1240 2730 2010</td>
<td>M36 X 2</td>
<td>1880 1380 2960 2190 4100 3220</td>
</tr>
<tr>
<td>1 3/8&quot; - 6</td>
<td>890 655 1990 1470 3230 2380</td>
<td>M36 X 2</td>
<td>1880 1380 2960 2190 4100 3220</td>
</tr>
<tr>
<td>1 3/8&quot; - 12</td>
<td>1010 745 2270 1670 3680 2710</td>
<td>M36 X 2</td>
<td>1880 1380 2960 2190 4100 3220</td>
</tr>
<tr>
<td>1 1/2&quot; - 6</td>
<td>1180 870 2640 1950 4290 3160</td>
<td>M36 X 2</td>
<td>1880 1380 2960 2190 4100 3220</td>
</tr>
<tr>
<td>1 1/2&quot; - 12</td>
<td>1330 980 2970 2190 4820 3560</td>
<td>M36 X 2</td>
<td>1880 1380 2960 2190 4100 3220</td>
</tr>
</tbody>
</table>

1 in-tpi = nominal thread diameter in inches-threads per inch

2 N· m = newton-meters

3 ft-lb = foot pounds

4 mm x pitch = nominal thread diameter in millimeters x thread pitch

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

ROD PORTS ON ALL OPENER-LIFT CYLINDERS ARE JOINED TOGETHER AND CONNECTED TO VALVE PORT SFR.
BASE PORTS ON ALL WING OPENER-LIFT CYLINDERS ARE JOINED TOGETHER AND TIED TO VALVE PORT WSFB.
BASE PORTS ON ALL CENTER OPENER-LIFT CYLINDERS ARE JOINED TOGETHER AND TIED TO VALVE PORT CSFB.
Warranty

Great Plains Manufacturing, Incorporated warrants to the original purchaser that this seeding equipment will be free from defects in material and workmanship for a period of one year from the date of original purchase when used as intended and under normal service and conditions for personal use; 90 days for commercial or rental purposes. This Warranty is limited to the replacement of any defective part by Great Plains Manufacturing, Incorporated 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.

This Warranty does not apply to any part or product which in Great Plains’ judgement shall have been misused or damaged by accident or lack of normal maintenance or care, or which has been repaired or altered in a way which adversely affects its performance or reliability, or which has been used for a purpose for which the product is not designed. This Warranty shall not apply if the product is towed at a speed in excess of 20 miles per hour.

Claims under this Warranty must be made to the dealer which originally sold the product and all warranty adjustments must by made through such dealer. Great Plains reserves the right to make changes in materials or design of the product at any time without notice.

This Warranty shall not be interpreted to render Great Plains liable for damages of any kind, direct, consequential, or contingent, to property. Furthermore, Great Plains shall not be liable for damages resulting from any cause beyond its reasonable control. This Warranty does not extend to loss of crops, losses caused by harvest delays or any expense or loss for labor, supplies, rental machinery or for any other reason.

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

This Warranty is not valid unless registered with Great Plains Manufacturing, Incorporated within 10 days from the date of original purchase.