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!

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www.greatplainsmfg.com
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Important Safety Information

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 Labels, page 4. Read all instructions noted on them.

Keep Riders Off Machinery
⚠️ Riders obstruct the operator’s view. They could be struck by foreign objects or thrown from the machine.
⚠️ Never allow children to operate equipment.

Handle Chemicals Properly
⚠️ Wear protective clothing.
⚠️ Handle all chemicals with care.
⚠️ Follow instructions on container label.
⚠️ Use agricultural chemicals properly. Improper use can seriously injure persons, animals, plants, soil and property.
⚠️ Do not inhale smoke from any type of chemical fire. This is a serious health hazard.
⚠️ Store or dispose of unused chemicals as specified by the chemical manufacturer.

Shutdown and Storage
⚠️ Store implement in a area where children do not play.
⚠️ Park implement on firm, level ground. Lower machine to ground, put tractor in park, turn off engine, and remove the key.
⚠️ Block implement tires before unhooking to prevent rolling.
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.
▲ Flashing warning lights and turn signals are recommended whenever driving on public roads. Use lights and devices provided with implement.

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 total 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.
▲ Do not use safety chain for towing.

Transport Machinery Safely

▲ Comply with state and local laws.
▲ Maximum transport speed for implement is 20 mph. DO NOT EXCEED. Never travel at a speed which does not allow adequate control of steering and stopping. Some rough terrains require a slower speed.
▲ Transport implement only when hitched to a Great Plains air drill cart.
▲ Keep clear of overhead power lines when folding, unfolding or transporting.
▲ Transport with transport locks in place.
▲ Sudden braking can cause a towed load to swerve and upset. Reduce speed if towed load is not equipped with breaks.
▲ Do not tow a load that weighs more than 1.5 times the weight of the towing vehicle.

Practice Safe Maintenance

▲ Understand procedure before doing work. Use proper tools and equipment. Refer to “Maintenance and Lubrication,” page 28, for additional information.
▲ Work in a clean, dry area.
▲ Lower the implement to the ground, put tractor in park, turn off engine, and remove key before preforming maintenance.
▲ Install all transport locks as explained under Lifting the Implement, “Operating Instructions,” page 14, before working underneath the raised drill.
▲ Do not grease or oil implement while it is in operation.
▲ Disk edges are sharp. Be careful when working in this area.
▲ Disconnect battery ground cable (-) before servicing or adjusting electrical systems or before welding on implement.
▲ 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.
Important Safety Information

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.
▲ Wear suitable hearing protection such as earmuffs or earplugs. Prolonged exposure to loud noise can cause hearing impairment or loss.
▲ Avoid wearing radio headphones while operating machinery. Operating equipment safely requires full attention.

Avoid High Pressure Fluids Hazard

▲ Relieve hydraulic pressure before disconnecting lines. Escaping fluid under pressure can penetrate the skin, causing serious injury.
▲ 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 given in this manual before operation. Refer to the Safety Labels, page 4. Read all instructions noted on them.
▲ Operator should be familiar with all implement functions.
▲ Operate implement from the driver's seat only.
▲ Operate implement only when hitched to a Great Plains air drill cart. Do not modify implement for use with other machines.
▲ 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 air drill cart and implement while hitching.
▲ Keep hands, feet and clothing away from power-driven parts.
▲ Wear snug-fitting clothing to avoid entanglement with moving parts.
▲ Watch out for overhead power lines, trees, etc., when raising, folding, unfolding and transporting the implement.
▲ Make sure all persons are clear of working area. Stay clear of moving parts, and keep others away.
▲ Do not turn tractor too tight, causing implement to ride up on wheels. This could result in injury or equipment damage.
▲ Keep away and keep others away when folding or unfolding implement.
▲ Avoid using implement tires as a step. Tires not in contact with the ground rotate easily.
▲ Use additional weight only on implement center section. Only use Great Plains weights.

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—NOT 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 Labels
Your implement comes equipped with all safety labels in place. They were designed to help you safely operate your implement.

1. Read and follow label directions.
2. Keep all safety labels clean and legible.
3. Replace all damaged or missing labels. Order new labels from your Great Plains dealer. Refer to this section for proper label placement.
4. When ordering new parts or components, request corresponding safety labels as well.
5. To install new labels:
   a. Clean the area the label is to be placed.
   b. Peel backing from label. Press firmly on surface being careful not to cause air bubbles under label.

818-003C
Slow Moving Vehicle Label

838-265C
Amber Reflectors (Both Rear Wheels)

838-265C
Amber Reflectors (Both Ends, Center Section)
**Important Safety Information**

**838-266C**
Red Reflectors
(Both Rear Wheel Arms)

**838-266C**
Red Reflectors
(Both Ends, Center Section)

**818-398C**
Caution Tires Not a Step
(Both Wing Gauge Wheel Arms)

**818-398C**
Caution Tires Not a Step
(Both Rockshaft Gauge Wheels)
Important Safety Information

NTA3010 and NTA3510 Air Drill Implement SN Z1370-160-219M

818-557C
Danger Cannot Read Eng

818-624C
Danger Crush AD/Implem (Both Ends of Rockshaft)

818-627C
Danger Electrocutation Aug (Both Ends, Center Section)

818-339C
Warning High Pressure SML
Important Safety Information

**Danger Charge Fold Cyl**
(Both Ends, Center Section)

- **818-046C**

**Warning Pinch Point Gen**
(Both Ends of Rockshaft)

- **818-798C**

**Danger Charge Fold Cyl**
(Both Ends, Center Section)

- **818-046C**

**Warning Pinch Point Gen**
(Both Wing Gauge Wheel Arms)

- **818-798C**
Important Safety Information

**CAUTION**

To avoid injury or machine damage from improper tire inflation or tampering of wheel bolts:

- Maximum inflation pressure of tires is 52 psi.
- Torque wheel bolts to 90 lbf-ft.

818-752C
Caution Tire 52 PSI
(All Wheels)
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 assembly, maintenance and safe operation will help you get years of satisfactory machine use from your machine.

Description of Unit
The NTA3010 and NTA3510, serial numbers Z1370 and lower (“Z1370—”) are seeding implements designed to tow behind a Great Plains ADC1150 or ADC2220 Air Drill Cart. For drills serial numbered Z1371+, see Operator Manual 160-219M-A.

Working width is 30 or 35 feet. The implements are designed for no-till field conditions. Coulters open a narrow seedbed. Disk-type, parallel-linkage openers follow each coulter, widening the seedbed and delivering seed to the trench.

The cart uses air to move seed through primary seed hoses to distribution towers on the implement. From the towers, seed is blown through secondary seed hoses to each opener. The openers are equipped with press wheels, which then firm the seedbed.

The implement is equipped with two hydraulic circuits. The lift hydraulics raise the implement for field turns and folding. The fold hydraulics raise the wing sections for transport. The fold hydraulics also power the cart fan and transfer weight from the implement center section to the wings during seeding.

Intended Usage
Use this machine for seeding small grains and legumes in no-till or minimum-till applications.

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

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

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

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

Your machine’s parts 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 on the center section of the implement on a rear frame tube as shown in Figure A.

Record your implement model and serial numbers 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 dealer 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 dealership owner or general manager.
3. For further assistance, write to:

Product Support
Great Plains Mfg. Inc.
Service Department
PO Box 5060
Salina, KS 67402-5060

NOTE: Useful information related to the preceding topic.
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 1-1.

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

NOTE: On 3010 implements, do not connect a seed hose to the center outlet.

5. Connect lead from implement electrical harness to outlet on rear of cart.

---

**Figure 1-1**
Cart Link Up

**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>
<thead>
<tr>
<th>Color Tie</th>
<th>Hydraulic Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue</td>
<td>Lift Cylinders</td>
</tr>
<tr>
<td>Yellow</td>
<td>Air Drill Fan and Fold Cylinders</td>
</tr>
</tbody>
</table>

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.

Serial Numbers Z1100 and Earlier
Working left to right, hook hoses to cart as follows.
- a. markers
- b. markers
- c. rod-end lift (1/2-inch hose)
- d. base-end lift (1/2-inch hose)
- e. rod-end fold (3/8 inch hose)
- f. base-end fold (3/8-inch hose)

Serial Numbers Z1101 and Later
Working left to right, hook hoses to cart as follows.
- a. Hook either marker hose to outlet A.
- b. Hook remaining marker hose to outlet B.
- c. Hook retracted blue (rod-end lift) to outlet C.
- d. Hook extended blue (base-end lift) to outlet D.
- e. Hook retracted yellow (rod-end fold) to outlet E.
- f. Hook extended yellow (base-end fold) to outlet F.
(See Figure 1-5.)
- g. Hook decaled sump hose to outlet G. (See Figure 1-5.)

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.

**Bleed the Hydraulics**
To function properly, the hydraulics must be free of air. If the hydraulics have not been bled, the implement will fold in jerky, uneven motions or some frame sections will run higher than others. If the hydraulics were not bled during initial implement setup or if you replace a part in the hydraulic system during the life of the drill, 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 Lift Hydraulics
The lift system is equipped with rephasing hydraulic cylinders that require a special procedure for bleeding air from the system. Read and follow the procedure carefully.

WARNING!
You may be severely injured or killed by being crushed from a falling implement. Always have transport locks in place and frame sufficiently blocked up when working on implement.

1. Check hydraulic fluid level in tractor reservoir and fill to proper level. Add fluid to system as needed while cycling new cylinders. You will need about 8 3/4 gallons of oil to fill new cylinders.
2. Support implement frame sections with jack stands or blocks.
3. With frame blocked and supported, unpin rod ends of wheel cylinders. Pivot cylinders up and wire or otherwise safely support rod ends higher than base ends as shown in Figure 1-6. You may need to remove the gauge-wheel cylinders from the rockshaft so you can orient them with rod ends higher than base ends.
4. With the tractor engine at idle speed, energize the lift hydraulics. When the gauge-wheel cylinders on wings have extended completely, hold the remote lever on for one minute. Check all hydraulic hoses, cylinders and fittings for leaks.
5. Retract the cylinder rods. Extend the rods again and hold the remote lever on for one more minute. Repeat this step two more times.
6. Again, check all hydraulic hoses, cylinders and fittings for leaks. Recheck the tractor hydraulic reservoir. Fill to the proper level.
7. Repin all cylinders.

Bleeding Fold Hydraulics

WARNING!
Before attempting to hydraulically lift the implement, the cart must be attached to the implement and a tractor of sufficient size. Failure to do so could result in severe equipment damage and bodily injury or death.

1. Check the hydraulic fluid level in the tractor reservoir and fill to the proper level. You will need about 6 gallons of oil to fill new cylinders.
2. Be sure implement is hitched to cart and tractor. See Hitching Cart to Implement, page 10.
4. Unpin rod end of fold cylinders. Block, wire or otherwise safely support the rod ends as shown in Figure 1-7 so they will not contact anything when extended.
5. Turn the hydraulic selector valve to the Fold/Unfold position. Refer to Folding the Implement, “Operating Instructions,” page 15.
6. Cycle the cylinders completely in and out three times to remove all air from the fold system. Inspect all hoses, cylinders and fittings for oil leaks.
7. Extend cylinders and repin to lugs.
8. Recheck the tractor hydraulic reservoir and fill to the proper level.
9. 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.

IMPORTANT: Failure to block cylinders before extending will cause machine damage.
Section 1 Preparation and Setup

Level Frame Side to Side
All frame sections must be level to maintain even seeding depth. Before using the implement in the field, follow these steps to make sure the implement is level side-to-side.

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

1. Check that the lift hydraulics are free of air and full of oil. See Bleeding the Lift Hydraulics, page 12.
2. Unfold and lower the implement. Make sure the lift cylinders are fully retracted, then block up or otherwise support the frame.
3. Take a reference measurement by laying a straight edge across the top of the two coulter mount tubes on the center section. Measure from the bottom of the straight edge to the center of one rockshaft-wheel axle as shown in Figure 1-8. Because rockshaft gauge wheels are not adjustable, all adjustments will be made relative to this measurement.
4. Move the straight edge to one of the wings. Measure the distance from the bottom of the straight edge to the center of wing-gauge-wheel axle as shown in Figure 1-9.
5. If the wing measurement differs from the reference measurement, remove the pin from the rod end of the wing-gauge-wheel cylinder. Block or support the wing gauge wheels so the distance from the bottom of the straight edge to the center of the wing-gauge-wheel axle is the same as the reference measurement taken in step 3.
6. Loosen the nuts (1) on the cylinder eye bolt as shown in Figure 1-10. Move the eye bolt in or out until the rod end of the cylinder can be pinned to its lug. Secure the eye bolt by tightening the nuts.
7. Repeat steps 4, 5 and 6 for other wing section.

Level Frame Front to Rear
The front-to-rear levelness of your drill will also affect seeding depth. If the lift-assist wheels raise the rear of the implement higher relative to the front, the openers may operate at the wrong angle. The opener bodies should run parallel to the ground. If they do not, level the angle which the implement runs by following these instructions.

1. Check that the lift hydraulics are bled of air and full of oil. See Bleeding the Lift Hydraulics, page 12.
2. Turn the nuts (1) on the eye bolt on the lift-assist cylinder shown in Figure 1-11.
   - To raise rear of implement, move eye bolt in toward drill.
   - To lower rear of implement, move eye bolt out.
3. Repeat for other lift-assist wheel.
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
The implement has two hydraulic circuits. One circuit lifts the implement. A second powers the cart fan, implement folding and weight transfer.

An electric circuit powers a clutch on the cart metering system and a solenoid valve on the implement weight-transfer system. The circuit has a master switch in the tractor cab that powers the entire circuit. An automatic switch on the implement rockshaft engages and disengages the clutch as the implement is lowered and raised. The in-cab switch must be on during field use and off during folding, unfolding and transport.

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.

Pre-start Checklist
1. Lubricate the implement as indicated under Lubrication, “Maintenance and Lubrication,” page 28.
2. Check all tires for proper inflation as indicated on Tire Inflation Chart, “Appendix,” page 33.
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 33.

Lifting Implement
Your air drill implement is equipped with rephasing hydraulic cylinders in a master-slave configuration. For proper operation the system must be free of air. Refer to Bleed Hydraulics, “Preparation and Setup,” page 11.

Rephasing Lift System
Over a period of normal use the cylinders may get out of phase. This will cause some implement sections to run higher than others. To rephase the 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 time you raise the implement out of the ground.
2. When all cylinders are fully extended, momentarily reverse the hydraulic remote lever to retract the system 1/2 inch to maintain levelness.

Lift System Transport Locks
The lift system has transport locks for the rockshaft and lift-assist cylinders. Use these locks every time you raise the drill for maintenance, lubrication, folding or transport.

To install the rockshaft locks, remove the locks from storage on the implement frame. Pin the locks in place on the raised implement as shown in Figure 2-1.

Figure 2-1
Rockshaft Transport Lock in Place
To install the lift-assist locks, remove the locks from storage. Figure 2-2 shows the left lock in storage.

Figure 2-2
Lift-Assist Transport Lock, Storage
Place the locks over the extended cylinder rods as shown in Figure 2-3 and pin in place.

2. Turn hydraulic selector valve to fold/unfold position as shown in Figure 2-4.

Folding Implement

The air drill uses one hydraulic circuit to power the cart fan and implement folding. A hydraulic selector valve and an electric rocker switch control these operations. To fold the implement, the in-cab rocker switch must be off and the selector valve must be turned to fold/unfold position.

![Figure 2-3](image)

**Figure 2-3**

**Lift-Assist Transport Locks in Place**

Folding Implement

3. Turn in-cab rocker switch off.

NOTE: The in-cab rocker switch is mounted on the system monitor. If the switch and monitor have not been installed, refer to the air drill cart operator's manual for instructions.

4. Raise implement until all lift cylinders are completely extended.

5. Install transport locks as described under Lifting Implement, page 14.

6. Check that wing fold pins are removed (1) and marker stop pins are installed (2) in the wing braces as shown in Figure 2-5.

![Figure 2-5](image)

**Figure 2-5**

**Wing Fold Pin Removed**

7. Set tractor at slow idle speed.

8. Energize tractor hydraulics for fold system. Slowly fold implement.

**DANGER!**

Overhead crushing hazard. To prevent serious injury or death:

- Always use transport locks when implement is folded.
- Fold implement only if fold hydraulics are bled free of air and fully charged with hydraulic oil.
- Stay away from frame sections when they are being raised or lowered or are in the raised position.
- 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.

1. Fold implement on level ground. Be aware of clearance required to fold implement. Refer to “Specifications and Capacities,” page 32.

**IMPORTANT:** Never fold implement without first completely raising implement and installing transport locks or serious equipment damage may occur.
9. Insert wing fold pins to secure folded wings as shown in Figure 2-6.

10. Do not remove transport locks from folded implement.

**IMPORTANT:** Marker attachments will increase the folded height of the implement. Be aware of the additional clearance needed for folding and transporting. Refer to “Specifications and Capacities,” page 32.

**Folding Without Markers**

If your implement is not outfitted with marker attachments, you can reduce the height of the folded implement to ease transport.

1. Remove marker-stop bolt and spacer from the wing braces. Figure 2-7 shows the wing braces without the marker stop.

2. Remove the stop collars shown in Figure 2-8 from the hydraulic fold cylinders.

3. Follow steps under "Folding the Implement," page 15. When first folding after removing marker stops, carefully watch towers and hoses to be certain they are not damaged by folding wings.

**Figure 2-6**
Folded Wings Secured

**Figure 2-7**
Folded Wings Without Marker Stop

**Figure 2-8**
Stop Collar on Fold Cylinders
Unfolding Implement

⚠ DANGER! ⚠
Overhead crushing hazard. To prevent serious injury or death, always use transport locks when folding or unfolding implement.
- Always use transport locks when implement is folded.
- Fold implement only if fold hydraulics are bled free of air and fully charged with hydraulic oil.
- Stay away from frame sections when they are being raised or lowered or are in the raised position.
- Keep away and keep others away when folding or unfolding implement.

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

1. Park implement on level ground. Be aware of clearance required to unfold implement.
2. Remove wing fold pins.
3. Check that hydraulic selector valve is in fold/unfold position.
4. Check that in-cab rocker switch is off.
5. Set tractor at low idle speed.
6. Energize tractor hydraulics for fold system and slowly unfold implement.
7. Continue to unfold implement only until each wing gauge wheel rests on ground.
8. When sections are unfolded, immediately turn selector valve to field position as shown in Figure 2-9.

Field Operations

To operate the seed-metering and weight-transfer systems, the in-cab rocker switch must be on. A height switch on the implement rockshaft will automatically turn seed metering and weight transfer off and on as you raise and lower the drill for field turns.

⚠ 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 the in-cab rocker switch is on.
2. Turn the hydraulic selector valve to the Field position as shown in Figure 2-9.
3. Energize tractor hydraulics for fan. Lock hydraulic lever in place for continuous operation.
4. Run fan for at least 15 minutes before seeding. Hydraulic fluid must be warm before fan and wing down pressure will operate properly.
5. Watch the monitor and adjust fan speed by increasing or decreasing hydraulic flow from the tractor. Use the following guidelines and the fan speed chart to properly adjust fan speed.
   - Higher fan speeds improve seed distribution, but high fan speeds also increase the chance of seed damage and bounce.
   - At first, adjust fan speed to the high end of the range suggested in the fan speed chart. Watch for excessive seed cracking and seed bounce from the furrow, then reduce fan speed if necessary.
   - Follow the chart below 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.

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 - 4,000</td>
</tr>
<tr>
<td>Soybeans</td>
<td>2,750 - 3,500</td>
</tr>
<tr>
<td>Milo</td>
<td>3,250 - 4,000</td>
</tr>
</tbody>
</table>

6. Pull forward, lower drill and begin seeding. If the metering system does not turn off and on as the implement is raised and lowered, refer to Electric Clutch Switch Adjustment, “Adjustments,” page 23.

When the implement is lowered, weight will be transferred from the center to wing sections. Wing down pressure can be adjusted. Refer to Wing Down-Pressure Adjustment, “Adjustments,” page 22.
Section 2 Operating Instructions

7. When finished seeding, turn the in-cab switch off and the selector valve to Fold/Unfold before transporting.

Opener Operation
• Raise implement 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 a 5- to 10-foot delay needed for the seed to reach the openers. If you stop in the middle of the field, lift the drill and back up 10 feet before proceeding.

![WARNING!]
Crushing hazard. You could be seriously injured or killed if the raised implement falls. Do not crawl among the openers unless transport locks are installed, the implement is securely blocked, and the tractor key is turned off and removed.

• Check periodically for plugged openers and hoses. With the fan running and the drill raised, hand crank the metering system. Look below each opener for seed or fertilizer.
• For information on opener adjustments, see Opener Adjustment, “Adjustments,” page 22, and Level Frame Front to Rear, “Preparation and Setup,” page 13. For more information on troubleshooting opener problems, see “Troubleshooting,” page 25.

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

Marker attachments are controlled by the same hydraulic circuit as the cart auger. To operate the markers, move the hydraulic diverter valve on the cart tongue up to the marker position as shown in Figure 2-10.

![Figure 2-10](image)

IMPORTANT: Marker attachments will increase the height of the folded implement. To avoid equipment damage and injury during implement folding or transporting, consider the extra clearance needed. Refer to “Specifications and Capacities,” page 32, for folded dimensions.

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 drill 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 the 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 an Great Plains air drill cart.

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

Minimum Towing Vehicle Weight
Hitched to ADC2220: 25,550 pounds
Hitched to ADC1150: 21,675 pounds

Transport Locks. Check that all transport locks and wing lock pins are in place. Refer to Lifting the Implement, page 14, and Folding the Implement, page 15.

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

Stopping Distance. Keep the combined weight of the 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 the dimensions of the 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 32, for folded dimensions.

Tires. Check that all tires are properly inflated as listed on Tire Inflation Chart, “Appendix,” page 33.

Road Rules. Comply with all federal, state and local laws when transporting on public roads.
Warning Lights. To use the 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 closing the marker hydraulic valves for safe transport.

NOTE: Failure to close marker hydraulic valves during transportation could result in equipment or property damage.

Parking
Perform the following steps when parking the drill. Refer to Storage, “Maintenance and Lubrication,” page 28, for information on long-term storage preparation.

1. Raise the implement and install transport locks as explained under Lifting the Implement, page 14.
2. Park implement on a firm, level area.
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 the ground.
Section 3 Adjustments

Seeding Depth
To correctly adjust seeding depth, you need a good understanding of how the coulters, openers and press wheels work. The following is an introduction to how the no-till coulters and double-disk openers are designed to control planting depth.

Coulters
A no-till coulter is mounted independent and directly ahead of each opener. Each coulter cuts through heavy trash to make a groove in the soil for the openers. The coulters are mounted on the frame, so coulter cutting depth changes as the drill is raised and lowered. Coulter down force can be changed by adjusting coulter spring length, adding weights, moving the hydraulic depth stop, or changing the height of individual coulter mounts. Refer to Coulter Adjustments, this page, for information on how to make these adjustments.

Openers
The openers are mounted on the implement frame with parallel links. This allows the opener arms to move up and down while keeping the openers in-line with the coulters. This parallel-action mounting also maintains the contact point throughout the opener’s depth range. Opener double disks widen the coulter groove to make a seed bed. A seed tube mounted between the disks delivers seed to the trench. The down force needed by each opener to cut and widen the coulter groove is supplied by two springs nested in the parallel linkage. Adjusting these springs changes opener down-force. Refer to Opener Adjustment, page 22, for information on how to make this adjustment. When making seeding depth adjustments, keep in mind that openers will not run any deeper than coulters till the soil.

Press Wheels
Attached to the rear of each opener is one of several optional press wheels. The press wheel provides two important functions.

First, the press wheels close the furrow, gently pressing the soil over the seed. To provide consistent seed firming, the press wheels are free to move downward from the normal operating position. This system maintains pressing action even if the opener arm is lifted when the disks encounter obstructions.

Second, the press wheels provide opener depth control. The higher the press wheels run relative to the double disks, the deeper seed will be placed. To maintain a consistent depth, upward press wheel movement is restricted by an independently adjustable stop on each opener. Refer to Press Wheel Adjustment, page 21, for information on how to make this adjustment.

Coulter Adjustments
The air drill is factory assembled so that when the coulters are set to run 2 inches deep, the seeding depth is approximately 1 inch. This is a good baseline setting for most seeding conditions. You have the option of changing settings on the entire implement or individual coulters as field conditions warrant.

WARNING!
Crushing hazard. You may be severely injured or killed if the implement falls on or runs over you during maintenance. Always turn off tractor and remove the key before making any adjustments or performing maintenance. Securely block and install transport locks on raised implement before working under or around it.

Hydraulic Depth Control
The lift cylinders on the implement control coulter depth. A valve in the hydraulic line on the left-wing, gauge-wheel cylinder regulates depth. Figure 3-1 shows the valve and knob used to adjust coulter depth.

Wing Gauge-Wheel Cylinder Depth Control Stop

Turn the knob clockwise to lower the coulters. Each clockwise rotation will lower the coulters about 3/16 inch. Make depth adjustments with the implement slightly raised. After adjusting the valve, raise and lower the implement several times and recheck coulter depth.
Coulter Springs
Coulter springs are preset at 10 inches, giving the coulters an initial operating force of 400 pounds. This setting is adequate for many difficult no-till conditions. For lighter no-till conditions where rocks or other obstructions are a problem, you can lengthen the springs to protect the coulters from impact. Refer to the chart below for spring length and corresponding coulter down force.

<table>
<thead>
<tr>
<th>Spring Length</th>
<th>Coulter Down Force</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 1/4 in</td>
<td>300 lb</td>
</tr>
<tr>
<td>10 in</td>
<td>400 lb</td>
</tr>
<tr>
<td>9 3/4 in</td>
<td>525 lb</td>
</tr>
</tbody>
</table>

NOTE: Any attempt to reset the coulter spring length shorter than 9 3/4 inches may contribute to premature failure of parts and warranty shall be voided. If additional force is needed, add weights to the implement.

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 eight weights (four 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.

Many no-till conditions will require additional weight for sufficient coulter depth. Additional weights are available from your Great Plains dealer. Up to eight 700-pound weights can be evenly distributed over the center section of the implement. Refer to the weight chart below to see the results of adding weights.

<table>
<thead>
<tr>
<th></th>
<th>NTA3510</th>
<th>NTA3010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7 1/2-Inch Rows</td>
<td>10-Inch Rows</td>
</tr>
<tr>
<td>Empty Drill</td>
<td>18,800 lb</td>
<td>16,500 lb</td>
</tr>
<tr>
<td>Per Coulter, No Weights</td>
<td>342 lb</td>
<td>413 lb</td>
</tr>
<tr>
<td>Per Coulter, Eight Weights</td>
<td>451 lb</td>
<td>563 lb</td>
</tr>
</tbody>
</table>

Individual Coulters
Individual coulters that run in tire tracks can be lowered if desired. To raise or lower individual coulters:
1. Loosen the mounting clamps and adjust the coulter to the desired height.
2. To retighten clamps, refer to Figure 3-2. Snug the hex-head clamp bolts (1) just until the u-bolts are tight on each side of the spring bar.
3. Tighten nuts (2) on u-bolts.
4. Finish tightening hex-head clamp bolts.

Press Wheel Adjustment
To change the height of the press wheel, lift and slide the “T” handle on top of the opener arm as shown in the Figure 3-3.
- To lower the press wheel for a more shallow seeding, slide the handle toward the implement.
- To raise the press wheel for deeper seeding, slide the handle away from the implement.
Wing Down Pressure Adjustment
The implement is equipped with weight-transfer hydraulics to evenly distribute weight between the frame sections. While seeding, hydraulic down pressure is placed on the wings, so all frame sections run at the same depth. If there is not enough weight on the wings, they will run higher than the center section.

To adjust wing down pressure,
1. Check that in-cab rocker switch is on and selector valve is turned to field position. Refer to Figure 2-9, page 17.
2. Lower implement so openers are on ground.
3. Engage fan hydraulics.
4. Turn pressure-control valve shown in Figure 3-4. When facing valve,
   - increase weight on wing sections by turning clockwise.
   - decrease weight on wings by turning counterclockwise.

Typical pressures on gauge shown in Figure 3-4 should be 200 to 600 psi.

**IMPORTANT:** Do not exceed 800 psi. Exceeding 800 psi could cause equipment damage.

Opener Adjustment
Seed cannot be placed any deeper than coulter cutting depth. Before adjusting openers, check that coulters are running deep enough and that the frame is level from front to rear. Refer to Coulter Adjustments, page 20, and Level Frame Front to Rear, “Preparation and Setup,” page 13.

Adjust the parallel-linkage openers with the tool stored on the rear tube of the center frame section.

To increase or decrease opener down-force, position the tool in the holes on the left and right mounting plates shown in Figure 3-5 and pull down on the adjuster. This will reposition the springs and change opener down force.

**Figure 3-5**
Parallel-Linkage Opener Springs

Minimum and maximum down-force settings are indicated by the position of spring adjuster as shown in Figure 3-6.
Electric Clutch Switch Adjustment
To adjust the height at which seed metering and weight transfer are turned off, follow these steps.

1. Locate the height switch on the left side of rockshaft. See Figure 3-7.

2. Lower the implement until it is at a height where seeding should start (usually just above ground). Securely support frame at this height with jack stands or blocks.

3. Turn off the tractor and remove the key.

4. Refer to Figure 3-8. Loosen the cam clamp (1) on the rockshaft and turn until the switch roller (2) is just starting to make contact with the ramp surface.

5. Raise the implement fully and check that the switch is compressed as shown Figure 3-9.

Disk Scraper Adjustment
To keep the opener disks turning freely, dirt scrapers are mounted between the disks to clean as the disks rotate. As field conditions vary, the scrapers may need to be adjusted. In damp conditions, the scrapers may need to be lowered. If openers are not turning freely, the scrapers may need to be raised. To adjust the scrapers, loosen the 3/8-inch bolt as shown in Figure 3-10 and move scraper as needed.
Harrow Adjustment

Figure 3-11 shows a successful harrow position for no-till conditions. Because of different soil moisture, trash levels and trash types, you may need to reposition the tube frame or tines. Initially position the frame and tines as shown in Figure 3-11, then re-adjust as necessary.

![Figure 3-11 Tine Angle For No-Till Drilling](image)

To adjust the frame, refer to Figure 3-12. Loosen the four hex nuts (1) on the u-bolts and rotate the frame tube (2) as necessary.

To adjust the tines, refer to Figure 3-12. Loosen the four 1/2-inch hex nuts (3) on the 1/2-inch u-bolts (4) on the support bar (5). Rotate tine tubes (6) so the tines (7) are against the stop bushings (8) and are angled back as necessary. Retighten hex nuts on u-bolts.

![Figure 3-12 Harrow Adjustment](image)

Seed-Lok

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

![Figure 3-13 Seed-Lok Lock Up](image)

Coulter Tines

Optional coulter tines are available. In high-residue fields, the tines will help guide residue under the coulters and openers to prevent plugging. Under normal conditions these tines should not be needed. Remove or install the tines as field condition warrant.

![Figure](image)
<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erratic seeding or emergence pattern.</td>
<td>Check all hoses and towers 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 coulters and openers are aligned.</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 spring pressure so openers penetrate low spots. Refer to <em>Opener Adjustment</em>, “Adjustments,” page 22.</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>Bleed air from lift cylinders. See <em>Bleed the Hydraulics</em>, “Preparation and Setup,” page 12.</td>
</tr>
<tr>
<td></td>
<td>Check air pressure and properly inflate tires according to <em>Tire Inflation Chart</em>, “Appendix,” page 33.</td>
</tr>
<tr>
<td></td>
<td>Check that all wheel cylinders are the correct size. The part number is stamped in the rod-end castings of the cylinders and should match the schematic in the parts manual.</td>
</tr>
<tr>
<td></td>
<td>Check that in-cab rocker switch is on during normal seeding operations.</td>
</tr>
<tr>
<td></td>
<td>Check solenoid valve in hydraulic fold circuit. With fan running, in-cab rocker switch on and hydraulic selector valve turned to Field position, pressure on cart gauge should drop as implement is raised and solenoid is activated.</td>
</tr>
<tr>
<td></td>
<td>Adjust down pressure on wings. Refer to <em>Wing Down-Pressure Adjustment</em>, “Adjustments,” page 22. Do not exceed 800 psi on the wing sections.</td>
</tr>
<tr>
<td></td>
<td>Check that drill frame sections are level. Refer to <em>Level Frame Side to Side</em>, “Preparation and Setup,” page 11.</td>
</tr>
</tbody>
</table>
## Section 4 Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implement creeps up or down in different sections during field operation.</td>
<td>Bleed air from lift cylinders. Refer to <em>Bleed the Hydraulics, “Preparation and Setup,”</em> page 12. Check wheel 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. Check tractor hydraulic valve for leakage.</td>
</tr>
<tr>
<td>Wing gauge wheels make deep divots in field.</td>
<td>Check that in-cab rocker switch is on while seeding. Check solenoid valve in hydraulic fold circuit. With fan running, in-cab rocker switch on and hydraulic selector valve turned to Field position, pressure on cart gauge should drop as implement is raised and solenoid is activated. Check electric clutch height switch and cam clamp on rockshaft. Refer to <em>Electric Clutch Switch Adjustment, “Adjustments,”</em> page 23.</td>
</tr>
<tr>
<td>Metering system does not shut off when turning in the field.</td>
<td>Check if cam clamp for rockshaft electric clutch height switch is loose. To adjust, see <em>Electric Clutch Switch Adjustment, “Adjustments,”</em> page 23.</td>
</tr>
<tr>
<td>Seed is scattered on the ground behind the drill.</td>
<td>Increase seeding depth. Refer to <em>Seeding Depth, “Adjustments,”</em> page 20. Reduce fan speed. Reduce ground speed. Check if openers are partially plugged with dirt. Check for holes in or disconnected seed hoses.</td>
</tr>
<tr>
<td>Secondary, 1-inch seed hoses are plugging.</td>
<td>Increase fan speed. Refer to <em>Field Operations, “Operating Instructions,”</em> page 17. 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.</td>
</tr>
<tr>
<td>Primary, 2 1/2-inch seed hoses are plugging.</td>
<td>Increase fan speed. Refer to <em>Field Operations, “Operating Instructions,”</em> page 17. Check hoses for damage and replace if necessary. Reroute hoses so there are no sharp bends. 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.</td>
</tr>
<tr>
<td>Problem</td>
<td>Possible Solutions</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>

Adjust hydraulic depth stop to lower implement and coulters. Refer to *Coulter Adjustments*, “Adjustments,” page 20.  

Check that drill frame is level front-to-rear. Refer to *Level Frame Front to Rear*, “Preparation and Setup,” page 13. |


Check that drill frame is level front to rear. Refer to *Level Frame Front to Rear*, “Preparation and Setup,” page 13. |
| Openers or coulters plugging in heavy trash conditions. | Drill at a slight angle to the rows.  

| Press wheel or openers plugging.             | Check soil conditions—may be too damp.  

Decrease down pressure on openers. See *Opener Adjustments*, “Adjustments,” page 22.  

Do not back up with openers in the ground.  

Do not stop and allow drill to roll backward with openers in ground.  

Check optional Seed-Lok wheels. Remove if soil conditions are too wet.  

| 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 24.  

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 Adjustments*, “Adjustments,” page 22.  

Check if press wheels are adjusted too high. Refer to *Press Wheel Adjustment*, “Adjustments,” page 21. |
| Fan or weight transfer not operating.        | Check that hydraulic connections are correct. Refer to *Hitching Cart to Tractor*, “Preparation and Setup,” in your cart operator’s manual and *Hitching Cart to Implement*, “Preparation and Setup,” page 10.  

Check direction you are engaging hydraulic lever; reverse if necessary.  

Check that selector valve is in the Field position. Refer to Figure 2-9, page 17. |
Section 5 Maintenance and Lubrication

General 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 the tractor key before making any adjustments or performing maintenance.

**WARNING!**
You may be severely injured or killed by being crushed from a falling implement. Always have transport locks in place and frame sufficiently blocked up 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!**
Disk edges and harrow tine teeth are very sharp. You may injure yourself. Use caution when working in this area.

1. After initially running the implement for several hours, check all bolts to be sure they are tightened as specified on the Torque Values Chart, “Appendix,” page 33. Do not over tighten the bolts holding the distribution tower assembly together.
2. Lubricate the implement as noted under Lubrication, this page.

Lubrication

<table>
<thead>
<tr>
<th>Lubrication Legend</th>
<th>16161</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multipurpose spray lube</td>
<td></td>
</tr>
<tr>
<td>Multipurpose grease lube</td>
<td>10</td>
</tr>
<tr>
<td>Multipurpose oil lube</td>
<td></td>
</tr>
<tr>
<td>Intervals at which lubrication is required</td>
<td>50</td>
</tr>
</tbody>
</table>

**Cart Link Pivots**
Two pivots on each link–four pivots total.

Type of Lubrication: Grease
Quantity = Until grease is visible at ends of pivot

**Lubrication**

4. Replace any worn, damaged or illegible safety labels at once. Refer to Safety Labels, “Important Safely Information,” page 4, 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 the Torque Values Chart, “Appendix,” page 33.
8. Inspect cart link pins often for wear or loosening.

Storage
Store the drill in an area where children do not play. Store the implement inside if possible for longer implement life.

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

**Rockshaft Pivots**
Pivots on each end and center of rockshaft

*Type of Lubrication: Grease*  
*Quantity = Until grease is visible at ends of pivot.*

**Fold Pivots**
Front and back hinges on both wings

*Type of Lubrication: Grease*  
*Quantity = Until grease is visible at ends of pivot.*

**Coulter Pivots**
Zerks are on four central grease banks–two banks on the center frame section and one bank on each wing.

*Type of Lubrication: Grease*  
*Quantity = About five pumps per zerk.*

**Coulter Hub Bearings**

*Type of Lubrication: Grease*  
*Quantity = Until resistance is felt.*

Seasonally
Rear Castor Parallel Arm Pivots
Zerks are on both ends of the upper and lower arms—four zerks total on each rear wheel arm.
Type of Lubrication: Grease
Quantity = Until grease is visible at ends of pivots.

Vertical Spindles
Type of Lubrication: Grease
Quantity = Until resistance is felt.

Wheel or Axle Bearings
Type of Lubrication: Grease
Quantity = Pack full

Wing Gauge-Wheel Pivots
Type of Lubrication: Grease
Quantity = Until grease is visible at ends of pivot.
Great Plains Mfg., Inc.

Section 6 Attachments

Section 6 Attachments

Seed-Lok Firming Wheels
The optional, spring-loaded Seed-Lok firming wheels press the 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 Open-</td>
<td>122-193K</td>
</tr>
</tbody>
</table>

Weights
Many no-till conditions require additional weight for sufficient coulter depth. Up to eight 700-pound weights can be evenly distributed over the center section of the implement. Weights are sold as pairs.


To order weights, contact your Great Plains dealer.

<table>
<thead>
<tr>
<th>Weights</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTA Weight Tube Pair</td>
<td>160-233A</td>
</tr>
</tbody>
</table>

Coulter Tines
The coulters on your implement can be equipped with optional trash tines. The tines help guide the residue under the coulters and openers to prevent plugging.

To order coulter tines, contact your Great Plains dealer.

<table>
<thead>
<tr>
<th>Coulter Tine Bundle</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.5-Inch Rows, Coulter Tine Update Kit</td>
<td>149-925A</td>
</tr>
<tr>
<td>10-Inch Rows, Coulter Tine Update Kit</td>
<td>149-926A</td>
</tr>
</tbody>
</table>

Harrow
The coil-tine harrow finishes no-till surfaces by leveling and distributing residue for enhanced seed emergence.

To adjust the harrow for your soil conditions, refer to Harrow Adjustment, “Adjustments,” page 24.

To order the harrow, contact your Great Plains dealer.

<table>
<thead>
<tr>
<th>Harrow Bundle</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTA3510 Harrow</td>
<td>116-171A</td>
</tr>
<tr>
<td>NTA3010 Harrow</td>
<td>116-172A</td>
</tr>
</tbody>
</table>
## Section 7 Specifications and Capacities

<table>
<thead>
<tr>
<th>Feature</th>
<th>NTA3510</th>
<th>NTA3010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Width</td>
<td>35 ft</td>
<td>30 ft</td>
</tr>
<tr>
<td>Row Spacings</td>
<td>7 1/2 in or 10 in</td>
<td>7 1/2 in or 10 in</td>
</tr>
<tr>
<td>Number of Rows</td>
<td>55 or 40</td>
<td>48 or 36</td>
</tr>
<tr>
<td>Transport Width</td>
<td>16 ft 10 in (5.13 m)</td>
<td>16 ft 10 in (5.13 m)</td>
</tr>
<tr>
<td>Transport Height without markers</td>
<td>13 ft 10 in (4.22 m)</td>
<td>12 ft 6 in (3.8 m)</td>
</tr>
<tr>
<td>Transport Height with markers</td>
<td>14 ft 4 in (4.37 m)</td>
<td>12 ft 6 in (3.8 m)</td>
</tr>
<tr>
<td>Length</td>
<td>16 ft (4.88m)</td>
<td>16 ft (4.88m)</td>
</tr>
<tr>
<td>Overall Length (Cart and Implement)</td>
<td>32 ft (9.75 m)</td>
<td>32 ft (9.75 m)</td>
</tr>
<tr>
<td>Wing Flexibility</td>
<td>15 degrees down, 20 degrees up</td>
<td>15 degrees down, 20 degrees up</td>
</tr>
<tr>
<td>Transport Tires</td>
<td>11L - 15SL 12-Ply</td>
<td>11L - 15SL 12-Ply</td>
</tr>
<tr>
<td>Base Unit Weight 7 1/2 in spacing</td>
<td>18,800 lb (8527.54 kg)</td>
<td>16,500 lb (7484.27 kg)</td>
</tr>
<tr>
<td>Base Unit Weight 10 in spacing</td>
<td>16,500 lb (7484.27 kg)</td>
<td>17,650 lb (8,006 kg)</td>
</tr>
<tr>
<td>Base Unit Weight 10 in spacing</td>
<td>17,650 lb (8,006 kg)</td>
<td>15,700 lb (7,121 kg)</td>
</tr>
<tr>
<td>Maximum Additional Weight</td>
<td>6000 lb (2721.55 kg)</td>
<td>6000 lb (2721.55 kg)</td>
</tr>
<tr>
<td>Weight Per Row base unit</td>
<td>342 lb (155kg)</td>
<td>413 lb (187 kg)</td>
</tr>
<tr>
<td>Weight Per Row with 6,000 lb added</td>
<td>451 lb (204 kg)</td>
<td>563 lb (255 kg)</td>
</tr>
<tr>
<td>Tractor Power Requirements</td>
<td>275 hp (Power requirements will vary with tractor size, soil type, terrain and tillage practices.)</td>
<td>275 hp (Power requirements will vary with tractor size, soil type, terrain and tillage practices.)</td>
</tr>
<tr>
<td>Tractor Hydraulic Requirements</td>
<td>Load-sensitive or closed-center hydraulics</td>
<td>Three sets of hydraulic outlets</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Capacity of 15 to 30 gpm at 2000 psi</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Equipped so a return line can be plumbed directly to the tractor hydraulic reservoir</td>
</tr>
</tbody>
</table>
Appendix

Tire Inflation Chart

<table>
<thead>
<tr>
<th>Tire Size</th>
<th>Inflation PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.5L - 16.1SL 10-Ply</td>
<td>28</td>
</tr>
<tr>
<td>11L - 15SL 12-Ply</td>
<td>52</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.

Manufacturer
Titan
Goodyear
Firestone

Website
www.titan-intl.com
www.goodyearag.com
www.firestoneag.com
Hydraulic Schematics

Lift Hydraulics

Fold Hydraulics, Serial Number Z1100 and Earlier
Fold Hydraulics, Serial Number Z1101 and Later
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 be 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.