Export Predelivery Instructions

ADC2220 & NTA 3510
Air Drill Cart & 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.

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

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

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.
Be Familiar with Safety Decals
▲ Read and understand “Safety Decals,” thoroughly.
▲ Read all instructions noted on the decals.

Keep Riders Off Machinery
Riders obstruct the operator’s view. Riders could be struck by foreign objects or thrown from the machine.
▲ Never allow children to operate equipment.
▲ Keep all bystanders away from machine during operation.

Shutdown and Storage
▲ Put tractor in park, turn off engine, and remove the key.
▲ Secure implement using blocks and supports provided.
▲ Detach and store implement in an area where children normally do not play.

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

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

▲ 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.

▲ Comply with state and local laws.

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

▲ Carry reflectors or flags to mark Front Fold Boom Sprayer in case of breakdown on the road.

▲ Keep clear of overhead power lines and other obstructions when transporting. Refer to transport dimensions under “Specifications and Capacities,” in the operator’s manual.

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

Avoid High Pressure Fluids
Escaping fluid under pressure can penetrate the skin, causing serious injury.

▲ Avoid the hazard by relieving pressure before disconnecting hydraulic lines.

▲ Use a piece of paper or cardboard, NOT BODY PARTS, to check for suspected leaks.

▲ Wear protective gloves and safety glasses or goggles when working with hydraulic systems.

▲ If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result.
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.
▲ Fold the implement, put tractor in park, turn off engine, and remove key before performing maintenance.
▲ Make sure all moving parts have stopped and all system pressure is relieved.
▲ Allow the implement to cool completely.
▲ Disconnect battery ground cable (-) before servicing or adjusting electrical systems or before welding on the 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 the 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.

Tire Safety
Tire changing can be dangerous and should be performed by trained personnel using correct tools and equipment.
▲ When inflating tires, use a clip-on chuck and extension hose long enough for you to stand to one side—not in front of or over tire assembly. Use a safety cage if available.
▲ When removing and installing wheels, use wheel-handling equipment adequate for weight involved.
Safety At All Times

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

▲ Be familiar with all implement functions.
▲ Operate machinery from the driver's seat only.
▲ Do not leave implement unattended with tractor engine running.
▲ Do not dismount a moving tractor. Dismounting a moving tractor could cause serious injury or death.
▲ Do not stand between the tractor and 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. Make sure all persons are clear of working area.
▲ Do not turn tractor too tightly, causing implement to ride up on wheels. This could cause personal injury or equipment damage.
Great Plains welcomes you to its growing family of new product owners. This Air Drill Cart and this Air Drill Implement have 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.

**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.

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

**Assembly and Setup Assistance**
To order additional copies of dealer assembly instructions or operator's and parts manuals, write to the following address. Include model numbers in all correspondence.

If you do not understand any part of this manual or have other assembly or setup questions, assistance is available. Contact

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

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**Description of Unit**
The ADC2220 is a grain drill cart that uses air to move seed or fertilizer from the cart bins to the implement. Air is supplied by a fan driven by a hydraulic motor. Pressurized meters under the bins dispense material into the air stream at a rate proportional to distance traveled. The meter rate can be adjusted.

The NTA3510 is a seeding implement, with a working width of 35 feet, designed to tow behind a Great Plains air drill cart. This implement is 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.

**Intended Usage**
Use this cart with a Great Plains air drill implement. Use the cart for seeding small grains and legumes or applying dry, granular fertilizer.

**Models Covered**
ADC2220, NTA 3510

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**Using This Manual**
This manual was written to help you assemble and prepare the new machine for the customer. The manual includes instructions for assembly and setup. Read this manual and follow the recommendations for safe, efficient and proper assembly and setup.

An operator's manual is also provided with the new machine. Read and understand "**Important Safety Information**" and "**Operating Instructions**" in the operator's manual before assembling the machine. As a reference, keep the operator's manual on hand while assembling.

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

Read and understand the owners manual for your implement. A basic understanding of how the drill works will aid in the pre-assembly, assembly, set-up and operation of your drill.

Perform these checks before setting up your implement.

1. Read and understand “Important Safety Information,” beginning on page 1.
2. Check that all working parts are moving freely, bolts are tight, and cotter pins are spread.
3. Check that all grease fittings are in place and lubricated.
4. Check that all safety decals and reflectors are correctly located and legible. Replace if damaged.
Pre-Assembly

The following headings are step-by-step instructions for assembling the cart. Begin with Tools Required and Pre-Assembly Checklist to make sure you have all necessary parts and equipment. Then proceed with Unload Center Section Rack. Follow each step to make the job as quick and safe as possible and produce a properly working machine.

It is the dealer’s responsibility to unload the new machine. Unload all equipment before beginning assembly. Do not attempt any assembly work while the cart is on the truck.

Tools Required
- Forklift or overhead hoist with 8,000-pound capacity
- Hand jack with 4-ton capacity
- General hand tools
- Jack stands, blocks and safety chain

Pre-Assembly Checklist
1. Read and understand "Important Safety Information" on page 1 before assembling.
2. Have at least two people on hand while assembling.
3. Make sure the assembly area is level and free of obstructions (preferably an open concrete area).
4. Have all major components.
5. Have all fasteners and pins shipped with cart.
6. Have a copy of the parts manual on hand. If unsure of proper placement or use of any part or fastener, refer to the parts manual.
7. Check that all working parts are moving freely, bolts are tight, and cotter pins are spread.
8. Check that all safety labels and reflectors are correctly located and legible. Replace if improperly located or damaged. Refer to Safety Labels, "Important Safety Information" in the operator’s manual.
9. Inflate tires to recommended pressure as listed on the Tire Inflation Chart on the “Appendix” on page 49. Tighten wheel bolts as specified on Torque Values Chart on the “Appendix” on page 49.

Unload Center Section Rack

DANGER!
Crushing hazard. You may be severely injured or killed by the cart if it falls. Secure cart to lifting equipment so it cannot fall. Do not walk or place any body part under the raised sections of the cart.

NOTE: The air drill cart and air drill implement are shipped on racks via containers. There are three racks total: the wing rack, the center section rack, and the bins rack.

Refer to Figure 1
1. Unload the center section rack first. Remove as many loose pieces as possible from rack. Keep pieces separate.

Refer to Figure 2
2. Unbolt walkboard rails from rack.
Refer to Figure 3
3. Unbolt and remove auger from rack.

Refer to Figure 4
4. Unbolt and remove outer support arm weldment and rear transport support from ADC2220 frame in rack.

Refer to Figure 5
5. Detach rockshaft from rack by removing u-bolts.
Refer to Figure 6
6. Using forklift or other implement, remove rockshaft from rack.
7. Unload remaining loose parts from rack. Set parts aside for use later.

Refer to Figure 7
8. Attach lift straps to air drill cart frame. Unbolt air drill cart frame from rack. Use forklift or other implement to lift drill from rack.

⚠️ CAUTION!
Obey all safety instructions from lifting equipment manufacturer. Be sure lift straps are securely attached prior to lifting. Be sure lifting equipment has enough capacity to lift cart.
Refer to Figure 8
9. Unscrew and remove all bolts securing ADC2220 frame to rack.

Refer to Figure 9
10. Using forklift or other implement, carefully raise ADC2220 frame from rack.

Refer to Figure 10
NOTE: To finish assembling ADC2220 frame, two forklifts will be needed so frame can be suspended horizontally while tires are attached.
11. While frame is attached to forklift, secure opposite side of frame to another forklift using lift straps.
12. Using forklifts, level frame horizontally so tires may be attached.
Cart Assembly

Drive Wheels

Refer to Figure 11
NOTE: The air drill cart tires come with two hub assemblies - a drive hub assembly and a standard hub assembly. The drive hub assembly attaches to the right-hand side of the spindle tube. The standard hub assembly attaches to the left-hand side of the spindle tube. Follow the instructions below to assemble hubs to spindle tube.

Refer to Figure 12
13. Unscrew and remove bolt in left-hand side of spindle tube.
Refer to Figure 13

15. Secure standard hub assembly to spindle tube with bolt removed in step 1 on previous page.

Refer to Figure 14

16. On opposite side of air drill cart frame, remove bolt in spindle tube.

Refer to Figure 15

17. Insert drive hub assembly into spindle tube aligning hole in hub assembly with hole in spindle tube.
18. Secure drive hub assembly to spindle tube with bolt removed in step 4 above.
Refer to Figure 16
19. Loosen sprocket on drive shaft located on right-hand side of frame.

Refer to Figure 17
20. Adjust drive shaft, sprocket, and hub assembly so when sprocket rotates it rotates chain as well.

NOTE: Make sure key is in sprocket on drive chain.

Refer to Figure 18
21. Remove all wheel nuts from hub assembly.
Refer to Figure 19
22. Attach tire to hub assembly.
23. Using previously removed wheel nuts, secure tire to hub assembly.
24. Tighten all wheel nuts.
25. Repeat steps 9 - 12 on opposite side of frame.
NOTE: Always check to make sure that tires are properly inflated. Refer to Tire Inflation Chart on page 49.

Jack
Refer to Figure 20
1. Attach jack to frame. Use pin to secure jack to frame.
NOTE: At this point during setup, it is okay to remove lift straps so that assembly may be completed.

Hitch Strap
Refer to Figure 21
1. Attach hitch strap to tongue. Align top hole of hitch strap with 2nd hole from top in the frame. Insert 1 1/4-7 X 11 bolt through frame and hitch. Secure with washer and hex nut.
2. Insert 1 1/4-7 X 9 1/2 bolt, washer and safety chain through 3rd hole from top in the frame and bottom hole in the hitch. Secure with washer and hex nut.
Engage/Disengage Levers

Refer to Figure 22

1. Remove flat washer and lock nut from bolt on clutch linkage rod.
2. Secure linkage rod to lever with flat washer and lock nut.

NOTE: Leave bolts secured loosely. Do NOT tighten bolts down as levers will not function properly. Refer to Figure 22.

Unload Bins Rack

Refer to Figure 23

NOTE: The air drill cart and air drill implement are shipped on racks via containers. There are three racks total: the center section rack, the wing rack, and the bins rack.

1. Unload all loose pieces from bins rack. Keep all pieces separate. NOTE: DO NOT try to unload weight brackets from rack. A forklift will be needed to unload brackets.
Refer to Figure 24
2. With use of a forklift or other implement, unload weight brackets from bins rack.

Refer to Figure 25
3. Remove all parts, hoses, and bags from inside the bins.

Refer to Figure 26
4. Attach lift straps to front bin. NOTE: This will be the bin without the slow moving vehicle decal.
Refer to Figure 27
5. Unscrew and remove all bolts securing bin to the rack.

6. Using forklift or other implement, carefully raise bin from rack.

Refer to Figure 28
7. Once bin is removed from rack, carefully lower bin on its side as shown in Figure 28. Remove lift straps from forklift.

**NOTE:** Be careful when handling bins. To prevent damage, bins should be supported at all times.

8. Gently maneuver bin to sit upright.

Refer to Figure 29
9. Reposition lift straps on bin so bin may be raised with forklift as shown in Figure 29.

10. Raise bin from ground using forklift.
Refer to Figure 30
11. Place front bin (1) on air drill cart frame. Make sure front of the bin (1) is toward front of frame (2). NOTE: The flat side of the front bin is the back.

Refer to Figure 31
12. Align holes in bottom of bin with holes in frame so bin can secure to frame with bolts.

Refer to Figure 32
13. Secure the bin to the air drill cart frame using hardware located in bags attached to the frame.
Refer to Figure 33
14. Attach lift straps to rear bin. **NOTE: This will be the bin with the slow moving vehicle decal.**
15. Unscrew and remove all bolts securing rear bin to rack.
16. Using forklift or other implement, carefully remove rear bin from rack.

Refer to Figure 34
17. Once bin is removed from rack, carefully lower bin to ground. Remove lift straps from bin.
**NOTE: Be careful when handling bins. To prevent damage, bins should be supported at all times.**
18. Reposition lift straps on bin so bin may be raised with forklift as shown in Figure 34.
19. Raise bin from ground using forklift.

Refer to Figure 35
20. Place rear bin (1) on air drill cart frame. Make sure front of the bin (1) is toward front of frame (2). **NOTE: The flat side of the rear bin is the front.**
Refer to Figure 36
21. Align holes in bottom of bin with holes in frame so bin can secure to frame with bolts.

Refer to Figure 37
22. Secure bin to air drill cart frame using hardware located in bags attached to the frame.

Meterboxes
Refer to Figure 38
1. Place a thin bead of silicon around the top edge of one meterbox (1). Attach meterbox (1) to front bin with flared outlets toward the back.
2. Use vise grips to hold meterbox (1) to bin. Secure box (1) to bin using bolts (4), washers (2), and nuts (3).
3. Repeat steps 1-2 to attach second meterbox to rear bin.

NOTE: ADC2220 frame is removed for clarity.
Fan and Fan Outlet Transition

Refer to Figure 39
1. Remove set screws from fan. Keep set screws for reuse.

Refer to Figure 40
2. Attach fan outlet transition to fan as shown in Figure 40.
3. Secure fan outlet transition to fan with set screws removed in step 1.

Refer to Figure 41
4. Remove bolt from fan.
5. Attach fan outlet transition to fan.
Refer to Figure 42
6. Secure transition to fan with previously removed bolt.

Refer to Figure 43
7. Attach hoses from fan outlet transition (5) to front meterbox (1) inlets. Secure with hose clamps (3).
8. Using hose clamps (3), attach hose (4) from front (1) meterbox outlets to rear meterbox (2) inlets.
9. Secure hose (4) on rear meterbox (2) inlets with hose clamps (3).

Auger Support Weldments
Refer to Figure 44
1. Attach auger front storage support arm (2) to mounting plate (1) located on the frame. Use bolts (3) to secure arm (2) to plate (1).
2. Attach inner support arm (6) to frame using inner support arm shaft (4). Secure inner support arm shaft with bolt (5) and lock nut.
3. Insert outer pivot shaft tube into outer support arm weldment (7). Secure outer arm to inner support arm (6) using bolt (8), lock washer, and hex nut.
4. Insert auger swivel support (11) through two flat washers (9), outer support arm weldment (7), and a flat washer (9). Secure with pin roll (10).
Auger

Refer to Figure 45

1. Attach auger (1) to auger swivel support (2).
2. Insert bolt and flat washer through holes in auger (1) and secure with flat washer, lock washer, and hex nut.

Refer to Figure 46

3. Secure auger hopper to auger using bolts, flat washer, and lock washer.

Refer to Figure 47

4. Attach auger strap handle to auger hopper.
Chains
Refer to Figure 48
1. Unwrap and route chain from front gearbox to front meterbox as shown in Figure 48.
   NOTE: Chain will wrap the same from rear gearbox to rear meterbox.

Gearbox Levers
Refer to Figure 49
1. Slide gearbox levers (3) through holes in mounting plate (2).
2. Attach levers (3) to gearboxes as shown. Secure with cotter pin (1).

Walkboard
Refer to Figure 50
1. Attach walkboard handrail to rear bin using bolts (2) and flat washers (3).
2. Secure handrail using flat washers (4) and lock nuts (5).
3. Attach other walkboard handrail to rear of front bin using steps 1 and 2 above.
Refer to Figure 51

4. Attach upper ladder mount (2) to bins using bolts (10), flat washers (4), lock washers (5), and hex nuts (6).

5. Place upper ladder weldment (3) on mount (2). Secure weldment (3) to mount (2) and handrails (1) using bolts (7), lock washers (9) and hex nuts (8).

NOTE: Front bin removed for clarity.

Refer to Figure 52

6. Attach walkboard (1) to upper ladder mount (2).

7. Secure walkboard (1) to mount (2) with bolts (4), 3-point step retainers (3), lock washers (5), and hex nuts (6).
Bins

Refer to Figures 53 and 54

1. Plastic tubes should be installed inside the bins - two per bin.
2. Install plastic tubes from rear of bin to rear of metering device in front bin.
3. Install plastic tubes from front of bin to rear of metering device in rear bin.

NOTE: It is important that the plastic tubes are installed properly to equalize air pressure. If they are not installed correctly, the implement may produce undesirable results.

Bin Lids

Refer to Figure 55

1. Place bin lid on top of bin. Bin lid hinge will bolt to bin on opposite side across from u-bolt.
2. Attach bin lid to top of bin using bolts and flat washers.
3. Secure lid with flat washers and lock nuts.
4. Repeat steps 1-3 to attach second bin lid to other bin.
Hose Guide Attachment

Refer to Figure 56

1. Secure hose guide attachment to tongue of air drill cart with bolt.
Center Section Frame

Refer to Figure 57

NOTE: The air drill implement comes shipped in racks via containers. There are two racks; the center section rack and the wings rack. The center section of the implement will need to be unloaded first.

Refer to Figure 58

2. Remove all sections of the rack obstructing center section removal from rack.

Refer to Figure 59

3. Loosen u-bolts securing center section frame to rack.

IMPORTANT: DO NOT completely remove u-bolts securing frame to rack. This will be done once the lift straps have been attached to frame.
Refer to Figure 60
NOTE: Hydraulic cylinders need to be secured to frame before removing frame from rack. Secure cylinders with bungee strap or tie-down strap.

Refer to Figure 61
4. Remove both wing pivot pin weldments from frame. Pins are located in frame at top of rack. NOTE: Keep pins and hardware for re-use.

Refer to Figure 62
5. Attach lift straps to center section frame.

CAUTION!
Obey all safety instructions from lifting equipment manufacturer. Be sure lift straps are securely attached prior to lifting. Be sure lifting equipment has enough capacity to lift implement.

6. Completely remove u-bolts securing frame to rack.
7. Using forklift or other implement, carefully lift center section frame from rack.
Refer to Figures 63 and 64
8. With help of second forklift, level center section frame. Frame should sit upright resting gently on press wheels.

Refer to Figure 65
NOTE: Be sure frame sits upright as shown in Figure 65. Do not detach lift straps from frame. Lift straps will be detached later in assembling process.
Coulter Blades

Refer to Figure 66

9. Attach coulter blade to coulter hub assembly using bolts.

NOTE: If attaching turbo coulter blades, blades must attach properly with rotation arrow pointing toward direction of travel.

10. Attach remaining blades to coulter hub assemblies.

Parallel Arm Lift Assembly

Refer to Figure 67

11. Using forklift, remove parallel arm lift assembly from rack.
Refer to Figure 68
12. Remove bolts and hardware from parallel arm lift assembly.

Refer to Figure 69
13. Loosen bolt on pivot bolt holder. NOTE: Holder should be loose enough to move freely.
**Refer to Figure 70**

14. Align parallel arm assembly with frame. Top set of parallel arms align with top hole of frame and pivot bolt holder. NOTE: Make sure to bolt parallel arm assembly to frame with eyebolt weldment on top.

**Refer to Figure 71**

15. Insert bolt removed in step 11 through pivot bolt holder, frame, and parallel arm lift assembly.
17. Repeat steps for installing parallel arm lift assembly on opposite side of the implement.

**Parallel Arm Dual Gauge Wheels**

**Refer to Figure 72**

1. Remove tape from gauge wheel.
2. Remove caster retainer cap and pivot thrust washer from gauge wheel.
Refer to Figure 73
3. Slide pivot thrust washers down shaft of gauge wheel.
4. Attach gauge wheel to parallel arm lift assembly by sliding gauge up through assembly.

Refer to Figure 74
5. Place caster retainer cap on top of gauge wheel.
6. Secure caster retainer cap to gauge wheel using bolt and lock washer.
7. Repeat steps to install gauge wheel on opposite side of implement.

Parallel Arm Gauge Wheel Hydraulics
Refer to Figure 75
1. Remove hydraulic cylinder that is secured to frame via bungee cord or tie-down strap. **NOTE: Use the cylinder closest to the gauge wheel each gauge wheel.**
2. Remove pin, washer, and cotter pin from base end of hydraulic cylinder.
3. Align base end of hydraulic cylinder with frame.
4. Insert pin through cylinder and frame.
5. Slide washer on pin and secure with cotter pin.
6. Using pin, pull rod end of cylinder until cylinder can be secured to eyebolt weldment.
7. Once hydraulic cylinder and eyebolt weldment are aligned, insert pin completely.
8. Slide washer on pin and secure with cotter pin.
9. Complete previous steps on opposite side of implement to attach hydraulic cylinder to gauge wheel.

**Dual Gauge Wheel Tires**

Refer to Figure 77

10. Reattach lift straps to implement frame and raise frame so that gauge wheel tires can be installed.
11. Remove wheel nuts from gauge wheel hub assembly.
12. Attach gauge wheel tire to gauge wheel hub.
13. Secure tire to hub with previously removed wheel nuts.
14. Repeat process on second tire on gauge wheel.
15. Complete steps 10-14 to install gauge wheels on opposite side of implement.

**Rockshaft**

Refer to Figure 78

NOTE: Rockshaft installs on opposite side of center frame from dual gauge wheels.

1. Align rockshaft with holes in center frame.
Refer to Figure 79
2. Once rockshaft is aligned with frame, insert pins through frame and rockshaft.
3. Secure pins with pin rolls.

Refer to Figure 80
4. Attach hydraulic cylinder to rockshaft.
5. Secure cylinder to rockshaft with pin. Slide washer over pin and secure with cotter pin.
6. Complete steps 4 and 5 to attach remaining hydraulic cylinders to rockshaft.

Rockshaft Gauge Wheel Tires
Refer to Figure 81
1. Remove wheel nuts from gauge wheel hub assembly.
2. Attach gauge wheel tire to gauge wheel hub.
3. Secure tire to hub with previously removed wheel nuts.
4. Repeat process on second tire on gauge wheel.
5. Complete steps 1-4 to install gauge wheels on opposite side of rockshaft.
Left Wing Frame

Refer to Figure 82

1. Attach lift straps to the left wing frame in the rack.

!!!! CAUTION! !!!!!

Obey all safety instructions from lifting equipment manufacturer. Be sure lift straps are securely attached prior to lifting. Be sure lifting equipment has enough capacity to lift implement.

2. Unscrew and remove all bolts securing left wing frame to rack.

3. Using a forklift or other implement, remove left wing frame from rack.

Refer to Figure 83

4. Carefully lower wing frame onto ground. Remove lift straps. Replace straps so frame can be lifted in position.

5. Align left wing frame and center section frame.

Refer to Figures 84 and 85

6. Secure wing frame to center section in both front (figure 84) and back (figure 85) of implement with pin.
Gauge Wheels

Refer to Figure 86
1. Attach gauge wheel arm to backside of left wing frame.
2. Secure gauge wheel arm to frame using wing pivot pin (2) and pin roll (1).

Refer to Figure 87
3. Remove tie-down strap and hydraulic cylinder from frame.
4. Attach base end of gauge wheel hydraulic cylinder to eyebolt weldment on gauge wheel.
5. Secure rod end of hydraulic cylinder to gauge wheel arm using pin and cotter pin.

Refer to Figure 88
6. Attach gauge wheel tire (1) to gauge wheel hub assembly (2). Secure tire to hub with wheel nuts.
7. Repeat step 6 to install gauge wheel tire on other side of gauge wheel arm.
Coulter Blades

Refer to Figure 89

1. Attach coulter blade to coulter hub assembly using bolts.

NOTE: If attaching turbo coulter blades, blades must attach properly with rotation arrow pointing toward direction of travel.

2. Attach remaining blades to coulter hub assemblies.

Right Wing Frame

Coulter Blade Arms

Refer to Figure 90

NOTE: On the right wing frame, for shipping purposes, the coulter blade arms were turned to the side. Coulter blade arms will need to be turned back to the correct position.

Refer to Figure 91

1. Loosen back bolt of coulter arm with a wrench.

2. Turn coulter blade arm to correct position. Arm should be positioned straight out from frame, not to the side.
Refer to Figure 92

3. Secure coulter arm in position with bolt and nut.

Frame
Refer to Figure 93

1. Attach lift straps to the right wing frame in the rack.

❗ CAUTION! ❁

Obey all safety instructions from lifting equipment manufacturer. Be sure lift straps are securely attached prior to lifting. Be sure lifting equipment has enough capacity to lift implement.

2. Unscrew and remove all bolts securing right wing frame to rack.
3. Using a forklift or other implement, remove right wing frame from rack.

Refer to Figure 94

4. Carefully lower wing frame onto blocks or stands. Remove lift straps. Replace straps so frame can be lifted in position.
5. Align right wing frame and center section frame.
Refer to Figures 95

6. Secure wing frame to center section in both front and back of implement with pin.

Gauge Wheels

Refer to Figure 96

1. Attach gauge wheel arm to backside of right wing frame.
2. Secure gauge wheel arm to frame using wing pivot pin (2) and pin roll (1).
Refer to Figure 97
3. Remove tie-down strap and hydraulic cylinder from frame.
4. Attach base end of gauge wheel hydraulic cylinder to eyebolt weldment on gauge wheel.
5. Secure rod end of hydraulic cylinder to gauge wheel arm using pin and cotter pin.

Refer to Figure 98
6. Attach gauge wheel tire (1) to gauge wheel hub assembly (2). Secure tire to hub with wheel nuts.
7. Repeat step 6 to install gauge wheel tire on other side of gauge wheel arm.

Coulter Blades
Refer to Figure 99
1. Attach coulter blade to coulter hub assembly using bolts.
   NOTE: If attaching turbo coulter blades, blades must attach properly with rotation arrow pointing toward direction of travel.
2. Attach remaining blades to coulter hub assemblies.
Lights
Refer to Figures 100 and 101
1. Insert lights in to light bracket. Red light needs placed on inside closest to center of frame. Place amber light on outside farthest away from center of frame.
2. Connect lights to light harness.

Openers and Press Wheels
Refer to Figure 102
1. Locate all openers to be attached to right-hand side wing frame.
Refer to Figure 103

2. Stagger openers on wing frame as shown.

3. Secure each opener to frame and parallel opener mount plate with a 5/8” bolt through top hole of opener and opener mount plate.

4. Secure opener to frame and parallel opener mount plate with a 5/8” u-bolt through the bottom holes of opener and opener and mount plate.

5. Secure bolt and u-bolt with 5/8” lock washer and 5/8” hex nut.

6. Repeat steps 2-5 to install openers.

Refer to Figure 104

7. Insert pin roll (2) into press wheel arm adjustment handle (1).

8. Place press wheel arm adjustment handle (1) down through opener. From underneath opener, attach opener trunion (4) to press wheel arm adjustment handle (1). Secure with spring (3) and pin clevis (5).

Figure 103
Openers on Frame

Figure 104
Press Wheel Arm Adjustment Handle
Refer to Figure 105

9. If not already attached, attach press wheel (8) to press wheel arm (5) with bolt (7) and lock washer (6).

10. Insert press wheel arm pivot tube (3) and parallel arm pivot bushings (4) into parallel arm (5).

11. Secure parallel arm (5) to opener body with bolt (1) and hex nut (2).


Air Towers

Refer to Figure 106

NOTE: On the NTA3510 frame there are several white markings. These markings indicate air tower placement.

Refer to Figure 107

1. Attach air tower to NTA3510 frame where indicated by white markings.
Refer to Figure 108
2. Secure air tower to frame using u-bolt and hardware.

Refer to Figure 109
3. Attach 1 inch seed hoses from top of air tower to openers.
4. Attach 2 1/2 seed hose to bottom of air tower. Secure with hose clamp.

Folding Hydraulic Cylinder
Refer to Figure 110
1. Attach folding hydraulic cylinder (2) to arm on wing frame.
2. Insert bushing (1) through cylinder (2) and arm.
3. Secure hydraulic cylinder (2) to arm on wing frame. Use pin clevis (5), flat washer (3), and cotter pin (4).
Cart Hook-Up

Refer to Figure 111

1. Attach one cart link weldment (5) to NTA3510 frame. Use cart link pin (1) and pin roll (2) to secure.

2. Attach the other cart link weldment (5) to NTA3510 frame. Use cart link pin (1) and pin roll (2) to secure.

To attach ADC2220 to NTA3510:

1. Attach center of cart to cart link weldment (5) using bushing spindles (3), center cart link pin (4), and pin roll (2).

2. Attach each end of cart to cart link weldment (5) using bushing spindles (3), cart link pin (1), and pin roll (2).
## Appendix

### Torque Values Chart for Common Bolt Sizes

<table>
<thead>
<tr>
<th>Bolt Size (Inches)</th>
<th>Bolt Head Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Grade 2</td>
</tr>
<tr>
<td></td>
<td>N·m²</td>
</tr>
<tr>
<td>1/4&quot; - 20</td>
<td>7.4</td>
</tr>
<tr>
<td>1/4&quot; - 28</td>
<td>8.5</td>
</tr>
<tr>
<td>5/16 - 18</td>
<td>15.11</td>
</tr>
<tr>
<td>5/16&quot; - 24</td>
<td>176</td>
</tr>
<tr>
<td>3/8&quot; - 16</td>
<td>272</td>
</tr>
<tr>
<td>3/8&quot; - 24</td>
<td>312</td>
</tr>
<tr>
<td>7/16&quot; - 14</td>
<td>432</td>
</tr>
<tr>
<td>7/16&quot; - 20</td>
<td>496</td>
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<tr>
<td>1/2&quot; - 13</td>
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</tr>
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<td>1/2&quot; - 20</td>
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<tr>
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<td>960</td>
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<tr>
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<tr>
<td>1 1/2&quot; - 6</td>
<td>1180</td>
</tr>
<tr>
<td>1 1/2&quot; - 12</td>
<td>1330</td>
</tr>
</tbody>
</table>

1. in-tpi = nominal thread dia. in inches-threads per inch
2. N·m = newton-meters
3. ft-lb = foot pounds
4. mm x pitch = nominal thread dia. in millimeters x thread pitch

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

### Tire Inflation Chart

<table>
<thead>
<tr>
<th>Tire Size</th>
<th>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>
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<tr>
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<td>28</td>
</tr>
<tr>
<td>11L x 15° 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>21.5 x 16.1&quot; SC 10-Ply Rib Implement</td>
<td>28</td>
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</table>
